Ministry for Primary Industries
Manatū Ahu Matua

Annual Review Report for Deepwater Fisheries for 2015/16

MPI Technical Paper No: 2017/29

Prepared by the Ministry for Primary Industries

ISBN No: 978-1-77665-543-4 (online)
ISSN No: 2253-3923 (online)

March 2017

New Zealand Government

Growing and Protecting New Zealand

Disclaimer

While every effort has been made to ensure the information in this publication is accurate, the Ministry for Primary Industries does not accept any responsibility or liability for error of fact, omission, interpretation or opinion that may be present, nor for the consequences of any decisions based on this information. Any view or opinion expressed does not necessarily represent the view of the Ministry for Primary Industries.

Requests for further copies should be directed to:

Publications Logistics Officer
Ministry for Primary Industries
PO Box 2526
WELLINGTON 6140

Email: brand@mpi.govt.nz

Telephone: 0800 00 83 33

Facsimile: 04-894 0300

This publication is also available on the Ministry for Primary Industries website at http://www.mpi.govt.nz/news-and-resources/publications/

Table of Contents

Introduction

Overview of New Zealand's deepwater fisheries

New Zealand's Deepwater and Middle-depth fisheries (deepwater fisheries) are the fisheries that predominantly occur in offshore waters beyond the 12 nautical mile (nm) limit of the territorial sea. Deepwater fishing activity occurs out to the 200nm limit of New Zealand's exclusive economic zone (EEZ). Total export revenues in 2015 from deepwater fisheries (including pelagic species) was about $681M. In 2015, five of the ten largest export-earning fisheries are deepwater species. These five species (hoki, jack mackerel, orange roughy, ling, and squid) alone accounted for about $427M in export earnings.

Within the deepwater fisheries portfolio, fishstocks have been ranked into three tiers, primarily according to their commercial importance (see Table 1). Tier 1 fisheries are high volume and/or high value fisheries and traditionally are targeted. These are important export revenue earners, which is reflected in the high quota value associated with these species. Tier 2 fisheries are typically less sizable or valuable bycatch species, or are only target fisheries at certain times of the year or in limited volumes. Tier 3 species are those caught as incidental bycatch that are not managed through the quota management system (QMS).

Table 1: Categorisation of deepwater species by Tier

	Stocks with completed fishery-specifc chapters in the National Deepwater Plan[1] (Tier 1 plan associated with species)	**Stocks not currently included in the National Deepwater Plan (date of expected inclusion or Tier 1 plan associated with species)**
Tier 1 Species	Hoki : all Orange roughy: all Southern blue whiting: all Ling: LIN3 - LIN7 Hake: all Jack mackerel: JMA3 and JMA7 only Oreo: all	Scampi: all (2017) Squid: all (2018)
Tier 2 Species	Silver warehou: all (HOK) Spiny dogfish: SPD4, SPD5 (HOK) Frostfish: FRO3-FRO9 (HOK) White warehou: all (HOK) Lookdown dory: all (HOK) Black cardinalfish: all (ORH) Ribaldo: RIB3-RIB8 (LIN) Patagonian toothfish: all (LIN) Redbait: all (JMA) Blue (English) mackerel: EMA3, EMA7(JMA) Rubyfish: all (OEO) Alfonsino: all (OEO)	Barracouta: BAR4, BAR5, BAR7 (SQU) Prawn killer: all (SCI) Sea perch: SPE3-SPE7 (SCI) Pale ghost shark: all (tbc) Dark ghost shark: GSH4-GSH6 (tbc) Deepwater crabs (KIC/GSC/CHC): all (tbc) Gemfish: SKI3, SKI7 (tbc)
Tier 3 Species		Non-QMS species

[1] For some species (e.g. ling), management of some stocks falls under the National Deepwater Plan while the remainder are managed under the National Inshore Finfish Plan.

Overview of the National Deepwater Plan

From 1 July 2011 the management of New Zealand's deepwater fisheries has been implemented through the National Fisheries Plan for Deepwater and Middle-depth Fisheries (National Deepwater Plan), which collectively consists of three parts (Figure 1).

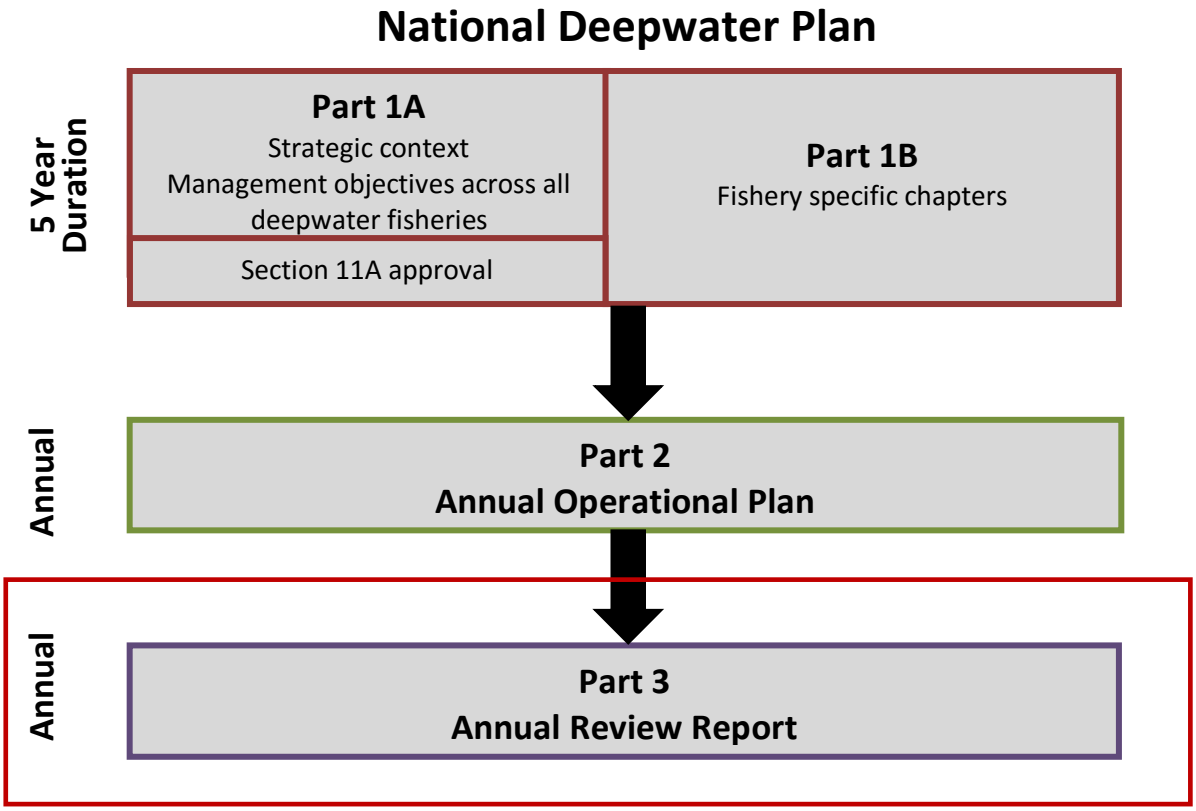


Figure 1: The three components of the National Deepwater Plan.

Part 1 of the National Deepwater Plan established a five year enabling framework for the management of New Zealand's deepwater fisheries. It is further divided into two parts – Part 1A and Part 1B.

Part 1A details the overall strategic direction for New Zealand's deepwater fisheries. Specifically it describes:

1. The wider strategic context that fisheries plans are part of, including legislative obligations under the Fisheries Act 1996 (the Fisheries Act) and the strategic directions of MPI's *Our Strategy 2030*, and *Fisheries 2030*
2. The description and status of the management objectives that will apply across all deepwater fisheries
3. How the updated National Deepwater Plan will be implemented and how stakeholders will be engaged during the implementation phase.

Part 1A of the National Deepwater Plan was approved by the Minister of Fisheries under Section 11A of the Fisheries Act. Consequently, it must be considered each time the Minister makes decisions or recommendations concerning regulation or control of fishing or any sustainability measures relating to deepwater fisheries. Part 1A of the National Deepwater Plan is being reviewed and updated and will be released to external stakeholders for consultation in 2017. It is intended that the updated National Deepwater Plan once finalised, will inform the strategic direction for New Zealand's deepwater fisheries from 2017.

Part 1B comprises the fishery-specific chapters of the National Deepwater Plan which provide greater detail on how deepwater fisheries will be managed at the fishery level, in line with the management

objectives specified in the National Deepwater Plan. To date, fishery-specific chapters have been completed for the hoki, orange roughy, southern blue whiting, ling, hake, jack mackerel, and oreo fisheries. A chapter for the scampi fishery is currently being developed and a draft will be finalised in 2017. A timeframe for the squid chapter has yet to be determined.

The fishery-specific chapters describe the operational objectives for each target fishery and their key associated bycatch species, as well as how performance against both the management and operational objectives will be assessed at the fishery level, however they do not have a statutory basis. These chapters also describe any agreed harvest strategy in place for the relevant species.

Parts 2 and 3 of the National Deepwater Plan are delivered annually and form the Annual Fisheries Planning Process. This annual cycle incorporates planning and reporting by both financial year (1 July – 30 June) and fishing year (1 October – 30 September).[2]

Like the fishery specific chapters, Annual Operational Plans (AOPs) and Annual Review Reports (ARRs) are not approved under section 11A of the Fisheries Act. Statutory interventions required to regulate deepwater fisheries will be identified in the AOP.

Part 2 of the National Deepwater Plan consists of the AOPs. Each AOP details the Management Actions and Services scheduled for delivery over the next financial year. All Management Actions and Services aim to contribute to meeting the Management Objectives and Operational Objectives specified in Part 1 of the National Deepwater Plan. Up-to-date management overviews are also provided for all the deepwater fisheries within completed chapters in Part 1B.

Part 3 of the National Deepwater Plan consists of the ARRs. Each ARR assesses progress during the previous financial year towards meeting the year's management priorities, by reviewing delivery of the relevant AOP. Each ARR also reports on the annual performance of deepwater fisheries in relation to environmental interactions and impacts and against the management actions specified in the AOP.

[2] Some deepwater species, for example southern blue whiting, work to a different fishing year (1 April – 31 March), though a change to the timing to better align with the fishing season is under consideration.

The 2015/16 Deepwater Annual Review Report

This Annual Review Report is split into three parts:

Part 3A describes the progress that has been made during the 2015/16 financial year towards delivering the Management Actions set out in the 2015/16 Annual Operational Plan.

Achievement of these annual priorities contributes to meeting the five year high level Management Objectives and Operational Objectives set out in Part 1 of the National Deepwater Plan.

Part 3B provides detail on delivery of Fisheries Services relevant to deepwater fisheries management that are planned by financial year (1 July – 30 June). These processes include the planning and contracting of fisheries and conservation research projects, planning observer coverage on the deepwater fleet and the cost recovery regime.

Part 3C provides a summary report of the combined environmental impacts of deepwater fishing activity, and on the deepwater fleet's adherence to the suite of non-regulatory management measures in place during the 2015/16 fishing year (1 October 2015 – 30 September 2016).

The periods encompassed by the 2015/16 financial and fishing years are shown in Figure 2 below.

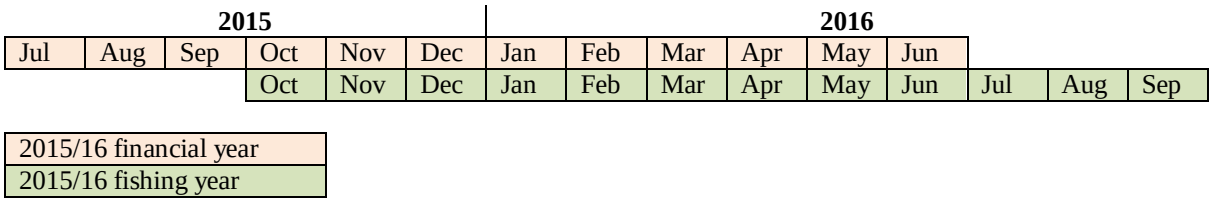


Figure 2. Diagram indicating the periods encompassed by the 2015/16 financial year and the 2015/16 fishing year

This Annual Review Report also contains several appendices:

- Appendix I summarises catch of deepwater stocks during the 2015/16 fishing year. Also included, where available, is observer coverage, the amount of deemed values invoiced, and export earnings during the 2015 calendar year
- Appendix II summarises the results of the October 2015 and April 2016 sustainability rounds
- Appendix III summarises landings of all Tier 3 (non-QMS) species by the core deepwater fleet between the six years between 2010/11 and 2015/16
- Appendix IV summarises cost recovery levies for deepwater stocks for 2015/16
- Appendix V comprises the Interim Trip Report template

Part 3A: Progress on Management Actions

The 2015/16 AOP included 16 Management Actions that aimed to progress delivery of the Management Objectives and Operational Objectives specified in Part 1 of the National Deepwater Plan. Table 2 summarises progress relating to each of these Management Actions.

For reference, the 2015/16 Management Actions are listed in the grey boxes in Table 2, taken verbatim from the 2015/16 AOP, reflecting the situation in July 2015.

The report on progress made between 1 July 2015 and 30 September 2016 is provided in the white boxes in Table 2.

Table 2: Management Actions to be delivered by Deepwater Fisheries Management during the 2015/16 financial year

<table>
<tr><td>1</td><td>Fisheries Sustainability Controls: Review catch limits and management settings as required</td></tr>
<tr><td></td><td>Deepwater sustainability decisions consist primarily of reviews to catch limits (TAC & TACC) and deemed value settings across the fish stocks managed within the National Deepwater Fisheries Plan. These are completed in two rounds, one for stocks managed with a 1 October fishing year and another for stocks with a 1 April fishing year.
Additionally, conversion factors are subject to ongoing monitoring by comparing observer data to the gazetted conversion factors. If a conversion factor for a certain species and product state is reviewed the process does not have to run to the same timeframes as the sustainability rounds.</td></tr>
<tr><td></td><td>• October 2015: OEO4 (smooth oreo), HOK1. Conversion factor for dressed kingfish - ACHIEVED
• April 2016: No stocks reviewed
• Advanced engagement for October 2016: JMA3 - ACHIEVED</td></tr>
<tr><td></td><td>Action relates to Management Objectives 1.1, 1.3, 2.1, 2.2, 2.4, 2.5, and 2.6</td></tr>
<tr><td></td><td>For the 1 October 2015 sustainability round, catch limits were reviewed and changed for two deepwater stocks:
• Oreo (OEO 4)
• Hoki (HOK 1).

Deemed value rates were reviewed for the following deepwater stocks during the 2015 October sustainability round: Frostfish (FRO 8, FRO 9), Kingfish (KIN 7, KIN 8), Redbait (RBT 3), Rubyfish (RBY 7), and Ribaldo (RIB 4, RIB 8).

No catch limits or deemed value rates were reviewed for deepwater stocks for the 1 April sustainability round.</td></tr>
<tr><td>2</td><td>Fisheries Planning: Review National Deepwater Plan and continue its implementation</td></tr>
<tr><td></td><td>The National Deepwater Plan had a five year horizon and will be reviewed from 2015/16. Work will progress during 2015/16 to identify strategic priorities across the Fisheries Management Directorate and will then inform setting of updated management objectives for deepwater fisheries.
Implementation of the National Deepwater Plan for the 2016/17 financial year will include the core activities listed below.</td></tr>
<tr><td></td><td>Core:
• Review and implement National Deepwater Plan (Part 1A)
• Annual Operational Plan for 2016/17
• Annual Review Report for 2015/16

Key Actions 15/16:
• Review management objectives within the National Deepwater Plan in context of strategic priorities</td></tr>
<tr><td></td><td>Action relates to all Management Objectives</td></tr>
<tr><td></td><td>The review of Part 1A of the National Deepwater Plan is ongoing through to 2016/17. Public consultation is expected to be completed in 2017, and a final, revised plan to be in place prior to end of 2017.</td></tr>
</table>

	The Annual Review Report for 2014/15 and Annual Operational Plan for 2016/17 were completed and made available online. Actions to implement National Plans of Action have been incorporated into the AOP for 2016/17. The scampi and squid fishery-specific chapters remain in development. All National Deepwater Plan documents can be found online here[3].
3	**Ministerial Services:** Ensure timely completion of all Ministerial correspondence and communication requests assigned to the Deepwater FM team
	This management action is a core Government function and will be given priority attention throughout the year to ensure that all response timeframes are met.
	This Management Action refers to MPI's responsibility to: • Provide quality advice and information to the Minister for Primary Industries • Maintain an open relationship with stakeholders and the public and respond to all OIA requests and Government correspondence regarding deepwater fisheries issues
	Action relates to all Management Objectives
	During the 2015/16 financial year, the deepwater fisheries management team completed four Official Information Act requests, one aide memoire, four briefing papers, one submission to Cabinet, nine Ministerials and one written parliamentary question. In November 2014, the Official Information Act team was established and has taken over responsibility for drafting responses to OIA requests, the deepwater team contributes to the completion of OIA requests as subject matter experts, providing appropriate review of information. The Deepwater Fisheries Management team was involved in two special permits issued during the 2015/16 financial year.
4	**Protected Species Frameworks** – Work collaboratively with the Department of Conservation on the Threat Management Plan (TMP) process for the New Zealand Sea Lion
	The New Zealand sea lion is classified as Nationally Critical due to an ongoing population decline at key breeding sites on the Auckland Islands. A range of threats are thought to be preventing recovery of the population and the development of a TMP aims to assess all threats and prioritise management actions that will aim to halt the population decline.[4]
	Key Actions for 15/16: • Work with DOC and stakeholders to agree management objectives for the NZSL Population, Research and Monitoring, and Engagement goals within the TMP • Hold, in collaboration with the Department of Conservation the second risk assessment Expert Panel Workshop • Develop management options for the NZSL TMP using the outcomes of the risk assessment, and conduct formal consultation before providing advice to Ministers
	Action relates to Management Objectives 1.6, 2.5, and 2.6
	A draft Threat Management Plan was developed jointly with DOC (details of which can be accessed here) and released for public consultation June and closed in August 2016. Following the consultation, a final Threat Management Plan will be drafted and released in 2017. In support of the TMP development and public consultation, a number of documents were completed and published during the 2015/16 financial year, the following documents were completed:

[3] http://www.fish.govt.nz/en-nz/Deepwater/Key+Documents.htm
[4] Information on the sea lion TMP is available at http://www.doc.govt.nz/nature/native-animals/marine-mammals/seals/new-zealand-sea-lion/docs-work/new-zealand-sea-lion-threat-management-plan/

	• A Review of Threats to the Recovery of New Zealand Sea Lions Including a Literature Review of Similar Species Overseas • A Quantitative Risk Assessment of Threats to New Zealand Sea lions • A Summary of the Risk Assessment of Threats to New Zealand Sea lions • The Aquatic Environment and Biodiversity Annual Review 2015 - sea lion chapter • The New Zealand sea lion /rāpoka Threat Management Plan (TMP) Background Document – further reading In addition: • Field data was collected from the Auckland Islands sites during summer 2016. The pup count was 1,727 which was 10% higher than the 2015 estimate of 1,576. • Sea lion pup counts on the Dunedin coast, the Catlins coast and Stewart Island/Rakiura were all higher at these breeding sites in 2016
5	**National Plan Frameworks – NPOA Sharks: Implement components of the National Plan of Action for Sharks (NPOA Sharks) relevant to deepwater fisheries**
	The NPOA Sharks sets out six goals and accompanying five year objectives to support the management of sharks. A qualitative risk assessment of all shark species was completed in December 2014, which will inform prioritisation of management actions and research until the completion of a quantitative risk assessment (which has yet to be conducted in this period). This Management Action is focused on achieving objectives of the NPOA-Sharks, and addressing at-risk species identified in the risk assessment.[5]
	Key Actions for 15/16: • Monitor implementation of regulatory framework to eliminate shark finning in New Zealand • Support and contribute to review of management categories for shark species and implement any recommendations for QMS introduction or protection as required • Implement NPOA-Sharks Implementation Plan across the fisheries management directorate and in conjunction with DOC, and the Ministry of Foreign Affairs and Trade (MFAT) • Support progression and delivery of the quantitative risk assessment and subsequent prioritisation • Continue to work with stakeholders to avoid captures of protected shark species in deepwater fisheries and maximise survival of captured protected shark species • Engage as required on the CMS MOU-Sharks (Memorandum of Understanding on the Conservation of Migratory Sharks)[6]
	Action relates to Management Objectives 1.6, 2.4, 2.5, and 2.6
	During the 2015/16 financial year, the following actions relating to the NPOA-Sharks were completed: • An NPOA-Sharks Advisory Group meeting was held in November 2015, topics covered included: o Review of the first year of implementation of regulations banning shark finning o Outcomes of a review of management categories for shark species o Discussion and feedback on the NPOA-Sharks Implementation Plan • The quantitative risk assessment of shark species is ongoing and is expected to be completed in 2017/18. • New Zealand attended the Meeting of Signatories to the CMS MOU-Sharks in February 2016 and supported the addition of 22 new shark species to the MOU.
6	**Protected Species Frameworks – NPOA-Seabirds: Work to achieve the five year practical, biological, research and development, and international objectives within deepwater fisheries**
	The NPOA-Seabirds was approved in 2013 and sets out the long term and five year objectives relating to managing fisheries interactions with seabirds.

[5] The NPOA Sharks is available at http://fs.fish.govt.nz/Page.aspx?pk=165&tk=554
[6] The CMS Sharks website is available at http://www.cms.int/sharks/en

	The NPOA is underpinned by a Level 2 Risk Assessment which has identified the seabird species considered to be most at risk of being adversely affected by commercial fishing in New Zealand. The risk assessment also identifies which fisheries pose the most risk to seabird species.[7] This Management Action outlines the priority NPOA seabird work areas for deepwater fisheries in 2015/16 guided by the Level 2 Risk Assessment outputs. Further detail on the objectives of the NPOA and how the work of deepwater fisheries management will support the achievement of those objectives may be found in Part 2B. Further management actions related to monitoring adherence to non-regulatory management measures (principally Vessel Management Plans) that aim to reduce the risk of seabird interactions with the deepwater fleet are addressed through Management Action 11.
	Key Actions for 15/16: • Work across the Fisheries Management Directorate, and with key stakeholders, to develop appropriate seabird performance measures • Report annual performance in relation to the agreed measures, to inform ongoing progress towards meeting the objectives in the NPOA-Seabirds • Continue to implement and refine best practice mitigation across the deepwater fleet, (with a focus on ling bottom longline) to minimise interactions with seabirds and support achievement of the practical objectives from the NPOA-Seabirds • Assist with the development and implementation of species- and fisheries-specific action plans for seabird species considered to be at 'very high' or 'high' risk from fishing to support achievement of the biological risk objective from the NPOA-Seabirds • Continue to work with DWG to develop information and additional mitigation specific to 'very high' and 'high' risk seabird species to support achievement of the biological risk and research and development objectives from the NPOA-Seabirds • More information on the services associated with delivery of this management action are provided in Part 3C of this ARR
	Action linked to Management Objective 2.5
	During the 2015/16 financial year, the following actions relating to the NPOA-seabirds were completed: • Capture rate reduction targets were developed and agreed for selected deepwater fisheries and included in the 2016/17 Annual Operational Plan • An action plan was drafted for Salvin's, Northern and Southern Buller's, and White-capped albatrosses • An improved bird baffler design was developed and tested for large trawl vessels. Recommendations include design aspects that can be applied to the wider trawl fleet • A research project was initiated to examine the factors that contribute to net captures on trawl vessels with findings expected late 2016 The DWG Environmental Liaison Officer visited 72% of LIN BLL vessels (representing 90% of overall effort) to provide training to crew and distribute an interim Code of Practice. Further information was gathered to inform the development of the fleet-wide BLL Operational Procedure
7	**Deepwater Research Planning:** Finalise and agree research commitments for the 2016/17 fishing year and beyond
	Contracts under the initial five year phase of the 10 Year Research Programme concluded at the end of the 2014/15 financial year. Research needs to support deepwater fisheries management for the next five years were reviewed during 2014/15 and general agreement was reached regarding priorities within the programme for the five year period to 2019/20.[8]

[7] The NPOA Seabirds, together with the Level 2 Risk Assessment can be accessed at http://fs.fish.govt.nz/Page.aspx?pk=108
[8] The 2016/17 Research Programme can be accessed in the AOP http://fs.fish.govt.nz/Page.aspx?pk=79&tk=498

	Until MPI has further clarity regarding progress and outcomes of the overarching fisheries management strategy review Fisheries 2030 - the Future of our Fisheries), and the First Principles Review of the cost recovery process, the deepwater research programme will be contracted on an annual basis, based generally on the five year plan that was agreed in 2014/15.
	Key Actions for 15/16: • Finalise and agree the deepwater fisheries research programme, including any proposals for industry-led research, for delivery during the 2016/17 financial year before 31 December 2015. • More information on the services associated with delivery of this action are provided on section B2.
	Action linked to Management Objectives 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 2.2, 2.4, 2.5, 2.6, and 2.7
	During the 2015/16 financial year, the following actions relating to research planning were completed: • The 5-year research plan was updated to reflect the outputs of management strategy evaluations and to enable long term planning of deepwater research • Deepwater research for 20161/7 was planned and approved • Work was initiated to progress towards longer term contracting of deepwater research, however no decisions have been made
8	**Engagement:** Ensure sufficient and appropriate engagement with tangata whenua and stakeholders
	Stakeholder engagement will continue to form an integrated part of progressing all specific fisheries management projects and will form part of each project's work programme. These projects may utilise the existing engagement forums that MPI convenes throughout the year to inform on the fisheries planning process and business as usual management developments. Engagement with all stakeholders will continue, aiming to ensure deepwater fisheries management information is available and accessible for all stakeholders and that sufficient opportunities are provided to allow for input and participation in the Deepwater Fisheries Planning process and the ongoing management of New Zealand's deepwater fisheries.
	Core: • Ensure sufficient and appropriate engagement with tangata whenua; address issues as necessary through further integration of Iwi Fisheries Plans (IFPs) and Forum Fisheries Plans (FFPs) into the Deepwater Fisheries Planning process • Engage on environmental issues relating to management of deepwater fisheries through the Fisheries Plan Group. This incorporates both planning and review. • Maintain an open and transparent management environment by ensuring that all management information is available and easily accessible on the MPI website for stakeholders and tangata whenua consideration.
	Action linked to Management Objectives 1.6 and 1.7
	No new Iwi Fisheries Plans or Forum Fisheries Plans were finalised in the 2015/16 year. Directed efforts were made to engage with tangata whenua for all deepwater fisheries consultations throughout the year including the distribution of all sustainability round advice papers to iwi and iwi forums. In addition, relevant specific objectives from IFPs and FFPs were incorporated into sustainability round advice to the Minister.
9	**Deepwater Monitoring:** Plan and monitor Deepwater Observer Coverage / sampling requirements for 2016/17 and 2015/16 financial years respectively
	Observer coverage of deepwater fisheries is planned by financial year for each fishery. The biological sampling requirements for 2015/16 to support implementation of deepwater stock assessments have been defined, and observer coverage for the 2015/16 financial year has been planned based on those requirements. In addition, the newly reinstated process of requesting quarterly fishing plans from companies will be continued to enable more efficient and effective observer deployments in key fisheries.
	Core: / Key Actions for 15/16:

	• Develop observer coverage plan for 2016/17 financial year
	• Monitor biological sampling throughout 2015/16 to ensure sampling targets will be met
	• Ensure the cost recovery process is consistent with the relevant coverage plan
		• Ensure all observer briefing documents for all Tier 1 species are up to date and that appropriate sampling is undertaken in accordance with biological targets through the year
		  • Work to identify what and how samples for Tier 2 species should be taken by observers
		  • Develop coverage and sampling targets for each of the next five years to align with projects scheduled in the deepwater fisheries research programme in 2015/16 and 2016/17

	Action linked to Management Objectives 1.1, 1.3, 1.4, 1.5, and 2.5	
	The 2016/17 observer coverage plan, as well as biological sampling requirements for deepwater fisheries were both completed and are available in the Deepwater Fisheries Management team's AOP, which is available here[9]. A workshop was planned for August 2016 to inform revision of sampling protocols for Tier 2 species. A longer term observer coverage plan is in development. Details of delivery against the 2015/16 observer coverage plan may be found in section 3B.	
10	**Registry Services:** Continue implementation of the FCV Amendment Act, the FCV registration process and risk-based observer coverage for foreign charter vessels (FCVs)	
	The Deepwater FM team provides input to all advice papers relating to MPI's consent to the registration of FCVs (foreign-owned vessels (FOVs) operating in deepwater fisheries under section 103 of the Fisheries Act 1996. The Fisheries (Foreign Charter Vessels and Other Matters) Amendment Act 2014,[10] amended the registration process for FOVs as well as expanding the range of observer functions. MPI coordinates the cross agency work programme for the implementation of requirements of the FCV Amendment Act and will continue to assist the Registry Analyst and the Observer Programme with any changes to their respective processes and functions.	
	Core: • Input to the FOV registration and risk profiling process in conjunction with MPI Compliance< Legal, Food Safety, and Fisheries Management	Key Actions for 15/16: • Work with the Ministry of Business, Innovation and Employment and Maritime NZ to implement operational changes to observer functions and coordinate information input to risk profiling and registration process • Assist MPI observer programme to implement the required operational changes to the observers' training and information collection process in relation to the expanded range of functions
	Action linked to Management Objective 1.6	
	The Deepwater FM team coordinated the work programme of the Inter-agency Fisheries Group, which includes MFAT, MBIE, MNZ and members from a cross-section of key MPI directorates. The purpose of the group is to improve cross-agency information sharing relating to higher risk fishing vessels. This included establishing the types of information each agency requires and to provide draft templates to collect the information on; and also upskilling of observers to collect data on behalf of these other agencies.	

[9] The Deepwater team's AOP is available at http://fs.fish.govt.nz/Page.aspx?pk=79&tk=498
[10] This Amendment Act can be accessed at http://www.legislation.co.nz/act/public/2014/0060/latest/DLM4794406.html

	The Inter-agency Fisheries Group will continue to meet every two months to discuss and refine inter-agency data sharing to input into the risk profiling of fishing vessels, including both foreign and domestic-owned vessels to inform risk assessment of vessels and operators. Feedback was provided on all applications for FOV registration.
11	**Deepwater Monitoring** – Monitor adherence of the deepwater fleet to the range of measures in place to monitor and manage the effects of fishing activity on protected species and sharks
	A range of management measures, including some non-regulatory initiatives by DWG, are employed to monitor environmental interactions in deepwater fisheries and to reduce the risk of ongoing adverse effects on protected species populations. Measures are described in the following Operational Procedures or Plans:[11] i. Marine Mammal Operational Procedure (DWG initiative) ii. Vessel Management Plans – Seabirds (DWG initiative) iii. Shark Operational Procedure (DWG initiative) iv. Operational Plan to manage the fisheries related mortality of New Zealand sea lions in the southern squid fishery at the Auckland Islands (SQU6T – MPI and DWG initiative) v. Operational Plan to manage fisheries related mortality of New Zealand Sea Lions in the southern blue whiting fishery at Campbell Island (SBW6I – MPI and DWG initiative)
	Core: • Monitor the deepwater fleet through representative coverage by MPI Observers in key deepwater fisheries • Monitor protected species interactions across all trips via observer debriefs and in-trip trigger point reporting • Vessel adherence with management measures is audited by on board observers • Report levels of adherence to these OPs to stakeholders through the ARR. • Continue to support the education and awareness programme run by the DWG Environmental Liaison Officer (ELO) • Continue to minimise the use of generic shark reporting codes through observer training and circulation of the updated shark ID guide Key Actions for 15/16: • Work with DWG to update materials and methods used to educate crew on the operational procedures and plans • Work with DWG to improve and update the audit sheet MPI uses to audit vessel performance against their Vessel Management Plan • Support the expansion of the education and awareness programme run by the DWG ELO to include the deepwater bottom long-line fleet. • Develop resources for the new observer training programme
	Action relates to Management Objectives 2.4, 2.5 and 1.6
	Monitoring adherence of the deepwater fleet to non-regulatory measures relating to environmental interactions or protected species is undertaken by MPI observers. Details regarding adherence to the various measures are provided in Part 3C of this Report. Observers from BLL vessels are debriefed by Deepwater FM staff. Deepwater FM staff attended three observer trainings during 2015/16 No work has been done to update materials or methods used to educate crew on the operational procedures and plans, no further resources have been developed for observer training programmes.

[11] DWG operational documents for can be accessed at http://deepwatergroup.org/deepwater-group-operational-procedures-2016-17/

	The process of updating and improving the audit sheets for MPI auditing against Vessel Management Plans has begun with production a draft audit sheet for the deepwater bottom long-line fleet underway.
12	**Deepwater Monitoring** – Monitor adherence to all non-regulatory measures in place to manage Tier 1 deepwater fishstocks at a sub-QMA scale.
	In conjunction with industry, MPI has implemented a series of non-regulatory sub-area catch limits in the hoki, orange roughy, and oreo fisheries. In addition, hoki management areas (HMAs) have been created to reduce fishing mortality on juvenile hoki in important nursery areas.
	Core: • Continue auditing fleet adherence to sub-QMA catch limits and HMA requirements • Report level of adherence to these measures to stakeholders through the ARR • Where advice is provided on any TAC amendment for stocks which are managed via sub-QMA catch limits, the Minister will request that industry adhere to the updated catch limits
	Action linked to Management Objectives 1.1, 1.3 and 2.1
	DWG has developed processes for fishers to report catch in relation to sub-area catch limits. MPI monitors adherence to these limits using information provided by DWG together with statutory catch and effort reporting information. Internal quarterly monitoring reports have been produced detailing performance against the relevant non-regulatory management measures for the 2015/16 fishing year. These are summarised in Part 3C of this Report and in the species management summaries in Appendix I.
13	**Deepwater Monitoring** – benthic invertebrates: Monitor and measure the nature and extent of benthic interactions from deepwater fishing activity
	The approach to mitigating the effects of fishing on deepwater benthic communities through closure of large areas of the EEZ to bottom trawling. The level of interactions between deepwater vessels and benthic invertebrates in open areas is monitored via observer coverage. The trawl footprint is also monitored each year and the most recent information available is reported in the ARR. [12]
	Core: • Monitor the trawl footprint of Tier 1 species • Report the benthic footprint of deepwater fishing and volume of benthic species captured in the ARR and consider management action if required
	Action linked to Management Objective 2.7
	MPI contracts a research provider to map the annual trawl footprint for all Tier 1 species, and for deepwater fisheries overall. Delivery on this project is currently running behind the reporting schedule. The latest finalised trawl footprint that has been published is up to the end of the 2010-11 fishing year. An updated report to the end of the 2013/14 fishing year is expected to be published in early 2017. Data on catches of benthic species are reported in Part 3.6 of this Report.
14	**Fisheries Management Controls** – Regulatory amendments
	Progressing regulatory amendments consists of drafting the documents required for the different components of the regulatory process. These include the PIRA (preliminary impact and risk assessment), consultation document, RIS (regulatory impact statement) and decision document.

[12] The most recent trawl footprint report is available at http://fs.fish.govt.nz/Page.aspx?pk=113&dk=23483

	The Deepwater FM team will progress two regulatory amendments during 2015/16. One involves the removal of the current charge for observer authorised discards from vessels (set out in the Fisheries (Commercial Fishing) Regulations 2001). The other relates to amending the Fisheries (Cost Recovery) Rules 2001 to implement the provisions of the Fisheries (Foreign Charter Vessels and Other Matters) Amendment Act 2014. This will enable costs to be recovered for the expanded range of observer purposes.
	Key Actions 15/16: • Progress regulatory amendments to the Fisheries (Cost Recovery) Rules 2001 and Fisheries (Commercial Fishing) Regulations 2001
	Action linked to Management Objectives 1.1 and 1.2
	Regulatory amendments to the Fisheries (Cost Recovery) Rules 2001 and Fisheries (Commercial Fishing) Regulations 2001 were progressed and achieved as part of the Cost Recovery Review work programme. Consultation was also undertaken on the proposed regulatory change removing the fee for observer authorised discards during April/May 2015. The regulatory change came into effect on 20 December 2015 (Schedule 2 Part 4 clause 15 of the Commercial Regulations (see above).
15	**Fisheries Management/Sustainability Controls:** Support existing approaches to in market initiatives for New Zealand's deepwater seafood
	The primary component of this management action comprises working with DWG to service the requirements of the Marine Stewardship Council assessment and certification process. MPI supports industry to achieve and maintain certification of key deepwater fisheries, and progress performance of all deepwater fisheries towards meeting the MSC Standard.[13]
	Core: • Provide information and support to assist with audits of certified fisheries (LIN, HOK, SBW, HAK) • Provide information necessary to assist with the assessments of fisheries within the certification process (ORH, OEO, SQU) Key Actions for 15/16: • Provide input as required on consultations relevant to the MSC certification standards or process • Provide input and support to DWG as required to address the conditions of certification, including increasing observer coverage, developing mitigation procedures and completing additional analyses in relation to seabird interactions in the ling longline fisheries • Support DWG in development of FIPs (Fisheries Improvement Plans) for JMA7 and scampi stocks
	Action linked to Management Objectives 1.1 and 1.5
	MPI provided data and support for the annual surveillance audits of certified fisheries, and worked with DWG to address the Conditions in place on the MSC certification of ling fisheries and recommendations in place for other certified fisheries. MPI provided support for the MSC assessment of three ORH stocks, including providing documents for the site visit, and answering a number of follow-up queries. Fisheries Improvement Plans (FIPs) were completed, with MPI input, for three oreo stocks, two squid stocks, and draft FIPs initiated for jack mackerel and scampi fisheries.
16	**Fisheries Sustainability Controls:** Develop and implement specific harvest strategies for Tier 1 species and management approaches for low information stocks, which enable economically viable deepwater and middle-depth fisheries over the long-term

[13] Information on the status of New Zealand's deepwater fisheries in the MSC programme can be found on DWG's website at http://deepwatergroup.org/certification/

	A harvest strategy defines a management target, soft and hard limits, a rebuild strategy, and a harvest control rule for a stock. Often in developing a harvest strategy, a management strategy evaluation will be undertaken which assesses a range of different management strategies, including those which incorporate economic aspects of the fishery. Management of Tier 2 species is often limited by the information available to inform decision making. The appropriate management approach for each stock will be informed from the recent series of fisheries characterisations and could include developing CPUE trends or an agreed index of abundance from a trawl survey.
	Actions for 15/16: • Continue to assess the relevance of the default Harvest Strategy for deepwater species[14] • Where necessary, develop and implement alternative harvest strategies and management approaches for deepwater species – focussing on developing an appropriate management approach for the squid fishery • Management strategy evaluation for hoki is scheduled to be contracted in 2015/16. • Identify most appropriate management approaches, including data collection and ongoing monitoring tools based on recently completed characterisations for Tier 2 Species. • Work with science team to update working group reports and stock status information • Work with DWG to minimise unwanted bycatch (for example kingfish in the jack mackerel fishery and giant spider crab in the squid fishery)
	Action linked to Management Objective 1.1, 1.2, 2.1
	A management strategy evaluation was completed for southern blue whiting, which is subject to interim harvest controls. The harvest strategy has been endorsed by the working group and is yet to be discussed with quota owners. The development of an in-season stock assessment for squid was investigated but was not successful. Research has been contracted to investigate the effects of less frequent data inputs to stock assessments for some Tier 1 species. A workshop was held in August 2016 to determine the state of knowledge and future feasible monitoring and data needs for Tier 2 fishstocks. A draft report has been produced from this work which may be published in 2017, the work in the report will be used to further inform ongoing research.

Management Actions that the Deepwater Team contributed towards delivery of but that were led by other teams within the FM Directorate and other Directorates within MPI are summarised in Table 3 below.

Table 3: Management Actions that the Deepwater Fisheries Management Team contributed to during the 2015/16 financial year

A	Research Monitoring and Evaluation Ensure that all information used in management decisions meets the requirements of the Research and Science Information Standard for New Zealand Fisheries (the Research Standard) LEAD: Fisheries Management SCIENCE (Stock Assessment and Aquatic Environment)
	The Deepwater team intends to continue being closely involved in the monitoring and evaluation of all research projects that relate to deepwater fisheries.
	Business as Usual: • Assist Fisheries Science as necessary to implement the 15/16 research projects as listed in the 2015/16 AOP

[14] The Harvest Strategy is available at http://www.fish.govt.nz/NR/rdonlyres/6EC9A6A7-6FC4-4273-86B7-57A51CB55348/0/harveststrategyfinalpdf.pdf

	• Assist Fisheries Science as necessary to ensure that all science research used to support management of deepwater fisheries is assessed against the Research Standard[15]
	Action linked to Management Objectives 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 2.2, 2.4, 2.5, 2.6, and 2.7
	All science information used to support management was reviewed by Fisheries Assessment Working Groups and determined to have met the Research Standard. Information on all deepwater research contracted during the 2015/16 financial year (including additional projects), and all Final Research Reports relevant to deepwater fisheries published in the 2015/16 year are listed in Part 3 of this Report.
B	**Observer Coverage Delivery** The MPI Observer Programme is responsible for delivering on the observer coverage targets set out in the final 2015/16 coverage plan and ensure that the required biological sampling targets are met. LEAD: Fisheries Management OBSERVER PROGRAMME
	Observer coverage plans for all fisheries are prepared annually as are biological sampling targets and other observer tasking. The Deepwater FM team will work closely with the Observer Programme to ensure the necessary targets are achieved.
	Key tasks: • Assist the Observer Programme to deliver the 2015/16 coverage plan by continuing to engage with the fishing industry to regularly provide 3-monthly fishing plans to the Observer Programme, to facilitate placement of observers and delivery of the required levels of coverage • Ensure the Observer Programme is aware of, and that observers are adequately briefed on, the biological sampling targets for 2015/16 and any new requirements for the Programme • Provide training to new recruits as part of the intake process • Request frequent reporting and updates of coverage levels against targets through the 2015/16 year
	Action linked to Management Objectives: various
	Deepwater FM attended three intakes of new Observer trainees at NMIT and gave presentations covering a range of topics including the QMS, over view of non-regulatory measures used in fisheries management, and mitigation devices used to reduce seabird and marine mammal interactions. Deepwater FM and Observer Services meet fortnightly to plan observer coverage in advance to meet requirements. Deepwater FM and Observer Services have been working with MBIE and Maritime NZ to upskill observers in monitoring employment, workplace health and safety and maritime safety functions, which includes the risk profiling of fishing vessels.
C	**Cost Recovery Process** Assist the Business and Financial Advice team with the cost recovery processes for 2015/16 and 2016/17 LEAD: Corporate Services BUSINESS AND FINANCIAL ADVICE
	MPI undertakes an annual cost recovery process to recover costs associated with fisheries compliance, registry, research and observer coverage. There are two stages to the process: the first involves undertaking a port price survey while the second consists of calculating the levies for each stock.
	Key tasks: • Ensure the Deepwater FM team has input into the port price survey process administered by the Finance team • Ensure the cost recovery levy process recovers costs consistent with Deepwater observer and research plans
	Action linked to Management Objective 1.5
	Deepwater FM contributed to the port price survey process, and provided information as required to enable accurate recovery of costs associated with observer and research planning. Detailed information on the 2015/16 cost recovery levies may be found in Part B.4 of this report.

[15] The Research Standard can be accessed at http://www.fish.govt.nz/en-nz/Deepwater/Key+Documents.htm

D	**Compliance risk profiling and monitoring work** **LEAD: Compliance directorate (Operations branch)**	
	Risk profiling by the Ministry's Compliance Directorate for 2015/16 will focus on the ORH fisheries. Profiling has previously been undertaken for HOK and SBW and some follow-up work will be undertaken on these fisheries during 2015/16. Compliance has developed a suite of performance indicators and performance targets for the deepwater sector. When performance targets for the deepwater fishing sector are not met, or when a risk profile identifies areas of compliance concern, appropriate management action will be taken.	
	Actions for 15/16: • Engage throughout the ORH profiling • Develop more informative benchmarks and indicators for deepwater fisheries • Work with wider Ministry and industry to implement any recommendations from previous risk profiling projects • Continue to monitor measures implemented as a result of previous risk profiling • Ensure the Deepwater Compliance Group meets at least twice per year • Develop a pilot programme to collect information on adherence to processed state definitions for three species/states (dressed orange roughy, headed, gutted and tailed hoki, and dressed jack mackerel)	Business as Usual: • Ensure transparent and appropriate action is taken when compliance levels drop below agreed benchmarks or where compliance risks are identified • Continue to communicate results through Deepwater Compliance Group and to stakeholders through the ARR
	Action linked to Management Objective 2.3	
	The 2015 monitoring showed that compliance had continued to improve in both the HOK and SBW fisheries. Scoping for the ORH risk assessment took place in the 2015/16 period. There has been engagement between Fisheries Management and the Observer Programme to get support to place observers on ORH vessels. The assessment is still in the information gathering phase. Feedback on all three assessments was provided to the Deepwater Group in February 2016 by Compliance. Compliance did not attend the follow-up DW Group meeting in June 2016, however an update on the three profiles was provided to the group by Fisheries Management staff on behalf of Compliance. A pilot programme has been developed by Compliance and Fisheries Management for HGT HOK and DRE ORH and JMA. Adherence to state definition for HGT HOK was included in the 2015 risk assessment report, which was finalised in May 2016. The DRE ORH information will be included in an assessment report to follow in 2017/18. The JMA samples gathered as part of the pilot programme have yet to be examined but are held in cold storage.	
E	**Input to work within wider MPI branches as required** Assist relevant branches within the Ministry with review of policy developments and any necessary fisheries management information Lead: project dependent (see below)	
	Actions for 15/16: The Ministry's Policy and Trade branch as well as other directorates within Regulation and Assurance, may from time to time need information, feedback, and review of working documents that relate to New Zealand fisheries. Contributions based on Directorate priorities may include: • Fisheries 2030 review (Lead: Fisheries & Aquaculture Policy) • MPA policy development (Lead: Fisheries & Aquaculture Policy) • EEZ Act – requirement to respond to statutory timeframes to inform marine consent decisions for EPA (Lead: Fisheries & Aquaculture Policy)	

	• Implementing Draft Risk Management Standard (Lead: Biosecurity and Environment) • New Assurances work (Lead: International Policy) • SmartMark project (Lead: Strategy, Systems & Science) • In market initiatives for New Zealand seafood (Lead: Policy and Trade)
	Action linked to Management Objectives: various
	Actions completed during the 2015/16 financial year relating to the projects listed above are listed below: • The review of Fisheries 2030 was superseded by the announcement of the Fisheries Management System Review. • No requests for involvement of the Deepwater FM team were received in relation to MPA policy development • MPI will also respond to requests for advice from the Environmental Protection Authority (EPA) in relation to marine consent applications in the EEZ as required. • The Deepwater FM team was part of the Internal Advisory Group that contributed to inter-branch information sharing on the roll-out of the Craft Risk Management Standard (which becomes mandatory in 2018). • The Deepwater FM team also attended monthly meetings of the inter-agency Health and Safety, and Employment (HSE) group until this group wound up in December 2015. • No requests for involvement of the Deepwater FM team were received in relation to the SmartMark project.

Management Actions that the Deepwater Team contributed towards delivery of but that were initiated by industry are summarised in Table 4 below.

Table 4: Summary of progress on industry-initiated Management Actions during the 2014/15 financial year

	When required, work with industry to :
	Possible Actions for 15/16: • Respond to any industry requests for changes to stock boundaries • Respond to applications for vessel specific conversion factors • Development of new fisheries
	No stock boundary changes were requested by industry in 2015/16. All requests for observers on vessel specific conversion factor trips were met (one trip was undertaken during 2015/16). The new purpose special permit for deepwater crab fishing around the North Island, issued in August 2013, continued during 2015/16. It includes a research programme and will result in increased information on king crabs and the potential to support a commercial fishery. There was no catch landed in excess of ACE during the 2015/16 financial year and there has been no fishing since November 2015.

Summary of progress against Management Actions in 2015/16

All 'business as usual' Management Actions (1-3, 7-14, and 16-17) were progressed appropriately throughout the 2015/16 year. All of these Actions remain open as they represent ongoing requirements of deepwater fisheries management that are delivered each year.

The remaining Management Actions (4-6, 15) relate to broader work programmes that will be delivered over several years, namely:

- New Zealand sea lion Threat Management Plan,
- Implementation of the NPOA Sharks,
- Implementation of the NPOA Seabirds,
- In market initiatives for New Zealand's deepwater fisheries.

The specific management actions listed have, for the most part, been achieved during 2015/16. New actions that relate to each of these projects will be included in subsequent AOPs.

The Management Action relating to the definition of habitat of particular significance for deepwater fisheries management will be taken out of future Annual Operational Plans as it does not need to be retained as a separate management action.

Part 3B: Deepwater Fisheries Research, Compliance, Observer Coverage and Cost Recovery Levies

This section of the Annual Review Report provides detail on MPI fisheries and conservation services that are relevant to deepwater fisheries management and are planned by financial year (1 July – 30 June).

These processes include the planning and contracting of fisheries and conservation research projects, planning observer coverage on the deepwater fleet and the cost recovery regime.

B.1 Observer Coverage

Biological sampling and environmental monitoring is informed by the requirements of the National Deepwater Plan and carried out by the Ministry's Observer Programme. Data collected by the Observer Programme is used by MPI:

- As an input to monitor key fisheries against harvest strategies.
- As an input to monitor biomass trends for bycatch species.
- To assess fishery performance with regards to environmental interactions.
- To enable real-time responses to sustainability and environmental impact issues.

Observer coverage is planned by both the Ministry and the Department of Conservation (DOC), based on management objectives of both agencies. DOC requires observer coverage to collect information regarding fisheries interactions with protected species.

2015/16 Coverage Performance

In 2015/16, coverage for each fishery was planned based on a combination of biological sampling targets, desired coverage percentages, and expected deployment requirements to comply with the Cabinet directive which requires all foreign owned vessels (FOVs) to have at least one observer on every trip. Planning required assumptions to be made regarding the number of vessels (particularly FOVs) that would operate in each fishery, and the number of samples an observer takes per 'observer day' in each fishery. Details on the planning process and calculations can be found in the 2015/16 Annual Operational Plan.

In 2015/16, delivery on the observer coverage plan was affected by a number of factors including:

- Implementation of a number of Ministerial directives requiring high levels of observer coverage in a number of inshore fisheries. These competing priorities have resulted in ongoing reprioritisation of observer deployments which has led to challenges in achieving coverage targets in some deepwater fisheries dominated by domestic vessel effort.
- Fewer FOVs operating in some fisheries which resulted in under-delivery on planned coverage while still meeting sampling and coverage targets. This is evident in the apparent significant under-delivery of FOV days in the plan (4,072 delivered of 5,700 planned).
- In some fisheries, most notably the west coast deepwater fishery, days in the fishery were achieved through required coverage on vessels planning to fish outside of New Zealand's EEZ. These days are not included in the deepwater planned (and cost recovered) coverage or delivery, but are included in the fishery specific numbers reported in Appendix II.
- Some operational challenges remain with predicting fishing activities and vessel movements. Improvements have been made, with deepwater fishing companies providing quarterly fishing plans, however fishing plans can be difficult to predict.

The observer days delivered in relation to the days planned for each fishery area is shown in Table 5.

Tables 6 and 7 provide information on the numbers of length frequency and otolith samples collected for deepwater species in 2014/15 and 2015/16 fishing years including a comparison with 2015/16 sampling compared to targets as defined in the 2015/16 Annual Operational Plan. 2015/16 is the first year where sampling targets for deepwater fisheries were published in the Annual Operational Plan. This report provides the first opportunity for review of performance against those targets. There are a number of fishstocks where sampling does not appear to have met the targets, however sufficient

samples were collected to support stock assessment. Going forward, these targets will be revised for the 2017/18 Annual Operational Plan to better reflect actual requirements for sampling.

Table 5: Comparison of planned and achieved observer coverage for 2015/16 financial year

Fishery complex	Target stocks covered	Expected FCV days (non-discretionary)	FCV days delivered	Domestic days (discretionary)	Domestic days delivered	Total days planned	Total days delivered	% delivery
North Island Deepwater	ORH 1, ORH2A, ORH 2B, ORH 3A BYX2 CDL2	0	0	100	76	100	76	76%
Chatham Rise Deepwater	ORH3B OEO3A, OEO4 BYX3	0	0	270	230	270	230	85%
Sub-Antarctic Deepwater	ORH3B OEO1, OEO6	0	0	60	45	60	45	75%
West Coast Deepwater	ORH7A	0	0	55	9	55	9	16%
Hoki and Middle Depth trawl fisheries:								
West Coast North Island	JMA7 EMA7 BAR7	1,290	682	0	0	1,290	682	53%
West Coast SI (FMA7)	HOK1 HAK7 LIN7 SWA1	1,290	999	150	174	1,440	1,173	81%
WCSI HOK (Inside the line)	HOK1	0	0	50	43	50	43	86%
Cook Strait	HOK1	0	0	50	44	50	44	88%
Chatham Rise Middle depths (FMA3/FMA4)	HOK1 HAK1, HAK4 LIN3, LIN4 SWA3, SWA4 JMA3 BAR1, BAR4	630	460	340	394	970	854	88%
Sub-Antarctic Middle depths (excl. SQU/SBW) (FMA5/FMA6)	HOK1 SWA4 WWA5B BAR5 JMA3	680	645	250	137	930	782	84%

Fishery complex	Target stocks covered	Expected FCV days (non-discretionary)	FCV days delivered	Domestic days (discretionary)	Domestic days delivered	Total days planned	Total days delivered	% delivery
Southern blue whiting	SBW All	320	342	40	126	360	468	130%
Squid	SQU1T SQU6T	1,360	848	0	355	1,360	1,203	88%
Squid jig:								
Squid jig	SQU1J	130	96	0	0	130	96	74%
Deepwater bottom longline fisheries:								
Bottom longline	LIN3, LIN4, LIN5, LIN6	0	0	175	164	175	164	94%
Shellfish:								
Scampi	SCI (all)	0	0	155	135	155	135	87%
Total		5,700	4,072	1,695	1,932	7,395	6,004	

Table 6: Numbers of length frequency samples and otoliths collected by observers during the 2014/15 and 2015/16[16] fishing years for Tier 1 deepwater species by area

Species	Area	No. of length frequency samples[17]			No. of fish measured		Pairs of otoliths collected		
		2014/15	2015/16		2014/15	2015/16	2014/15	2015/16	
Hoki	Sub-Antarctic	372	226	×	21,403	14,009	2,805	1,896	×
	Chatham Rise	370	344	×	31,790	33,331	3,294	3,195	✓
	WCSI	1,005	650	✓	95,861	63,401	9,365	6,028	✓
	Cook Strait	118	40	×	9,936	3,180	953	292	×
	East coast NI	18	11		464	329	20	18	
Orange roughy	ORH 1	A= 8 B= 43 C= 2 D= 3 Total = 56	A= 51 B= 29 C= 1 D= 1 Total = 82	✓ × × ×	A= 321 B= 2,531 C= 120 D= 146 Total = 3018	A= 2163 B= 2,584 C= 25 D= 5 Total = 4,777	A= 122 B= 595 C= 40 D= 50 Total = 807	A= 523 B= - C= - D= - Total = 523	✓ × × ×
	ORH 7A + WB	17	31	×	1,236	1,954	264	514	✓
	ORH 3B - NW Chatham Rise	12	20	×	636	1,301	140	293	×
	ORH3B – E&S Chatham Rise	51	61	×	3,725	4,751	840	1,193	✓
	ORH – MEC	12	18	×	875	1,203	160	214	×
	ORH2A north	11	806	✓	4	283	170	80	×
	ORH3B – Sub-Antarctic	1	1	×	100	80	10	20	
Southern blue whiting	SBW 6I	176	484	✓	29,685	76,853	4,955	2,937	✓
	SBW 6B	22	31	×	3,892	6,523	404	663	×
	SBW6R	6	-	×	300	-	36	-	×
	SBW6A	5	2	×	217	231	35	27	×
Hake	HAK 1	98	75	×	4,080	3,103	465	437	×
	HAK 4	54	32	×	999	599	257	149	×
	HAK 7	505	234	✓	22,563	8,560	2,739	1,154	✓

[16] It is possible that at the time the data for this table was extracted (late 2016) not all information for the 2015/16 fishing year was available.
[17] This refers to the number of fishing events (stations) where fish were measured. Measurements were taken as part of either a length frequency sample (typically consisting of 100-150 fish) or a middle depth biological data (MDBD) sample (20 fish or less).

Species		Area		No. of length frequency samples[17]			No. of fish measured		Pairs of otoliths collected		
				2014/15	2015/16		2014/15	2015/16	2014/15	2015/16	
Ling		LIN 3&4	Line	129	152	✓	1,293	1,846	389	405	×
			Trawl	122	75	×	2,562	1,268	683	411	×
		LIN 5&6	Line	-	16	×	-	153	-	40	×
			Trawl	274	202	✓	8,555	8,632	1,848	1,208	✓
		LIN 7		479	293	✓	8,073	4,338	2,731	1,334	✓
		LIN Cook Strait		32	11	×	354	122	112	55	×
Oreos	black	BOE 3A		27	2	×	1,449	40	173	14	×
		BOE 4		16	15	×	609	1,039	63	109	-
		BOE 1		6	7	-	521	272	33	177	-
		BOE 6		1	18	-	20	1,666	-	165	-
	smooth	SSO 3A		26	5	×	2,129	365	215	33	×
		SSO 4		51	34	×	4,269	2,139	456	299	-
		SSO 6		-	19	×	-	1,939	-	190	-
		SSO1		34	18	-	2,940	1,570	18	228	-
	spiky	SOR 1		2	10	-	40	127	10	38	-
		SOR3A		-	-	-	-	-	-	-	-
		SOR 4		3	1	-	66	20	16	-	-
Jack mackerel	*declivis*	JMD 3		46	38	×	1,516	851	254	226	×
		JMD 7		610	430	✓	44,517	31,354	2,923	2,199	✓
	murphyi	JMM 3		88	57	×	4,355	2,223	429	318	×
		JMM 7		341	249	✓	3,051	1,954	1,111	835	✓
	novaezelandiae	JMN 3		1	2	×	43	28	5	9	-
		JMN 7		455	315	×	36,774	24,044	1,737	1,125	✓
Squid (all species combined)		SQU 1T		647	590	✓	61,092	58,130	n/a	n/a	-
		SQU 6T		287	699	✓	27,242	73,623			
Scampi		SCI 1		72	-	×	6,774	-	n/a	n/a	-
		SCI 2		-	-	×	-	-			-
		SCI 3		149	7	×	11,515	305			-
		SCI 4A		34	-	×	5,114	-			-
		SCI 7		-	-	-	-	-			-

Table 7: Numbers of length frequency samples and otoliths collected by observers during the 2014/15 and 2015/16[18] fishing years for Tier 2 deepwater species and selected inshore species[19] by area

Species		Area	No. of length frequency samples[20]		No. of fish measured		Pairs of otoliths collected	
			2014/15	2015/16	2014/15	2015/16	2014/15	2015/16
Barracouta		BAR1	133	82	7,985	5,305	804	496
		BAR4	104	32	8,453	2,925	568	220
		BAR5	276	419	10,817	18,682	1,239	2,161
		BAR7	438	190	18,478	5,437	2,082	867
Alfonsino	*decadactylus*	BYD1	2	-	45	-	13	8
		BYD3	2	-	3	-	-	-
		BYD7	-	-	-	-	-	-
	splendens	BYS1	14	-	680	-	74	-
		BYS2	18	1	833	20	11	-
		BYS3	17	23	963	1,577	210	96
		BYS7	24	3	409	42	105	10
	unspecified	BYX7	1	3	15	31	5	10
Cardinalfish		CDL1	1	-	20	-	5	-
		CDL2	5	2	360	40	35	11
		CDL3	2	-	45	-	10	-
		CDL4	1	1	10	20	5	5
		CDL9	4	-	42	-	13	-
Blue mackerel		EMA3	23	7	535	116	109	33
		EMA7	245	172	6,788	3,777	1,301	831
Frostfish		FRO3-4	13	6	366	119	56	29
		FRO5	2	-	40	-	9	-
		FRO7-9	283	167	8,420	3,203	1,378	696
Ghost shark, dark		GSH4	44	50	866	799	n/a	
		GSH5	3	44	75	943		n/a
		GSH6	8	55	86	835		
Ghost shark, pale		GSP1	-	-	-	-	n/a	n/a
		GSP5	2	17	32	323		

[18] As per previous page
[19] This refers to species managed under an inshore fisheries plan that are primarily taken by the deepwater fleet
[20] As per previous page

Species		Area	No. of length frequency samples[20]		No. of fish measured		Pairs of otoliths collected	
			2014/15	2015/16	2014/15	2015/16	2014/15	2015/16
		GSP7	8	12	156	179		
Giant spider crab		GSC3	11	3	401	29	n/a	n/a
		GSC5	100	41	4,364	1,054		
		GSC6A	95	200	3,401	5,305		
		GSC6B	1	2	50	42		
Jack mackerel	Unspecified	JMA3/JMA7	19	6	2,073	87	31	7
Kingfish		KIN7/8	214	154	1,599	2,047	407	595
Lookdown dory		LDO1	5	2	100	35	25	6
		LDO3	14	12	225	200	10	8
Redbait		RBT3	43	11	778	326	206	52
		RBT7	52	26	1,607	918	231	118
Rubyfish		All areas	9	4	238	174	23	-
Ribaldo		RIB3/4	23	32	441	507	112	71
		RIB5/6	1	-	20	-	5	-
		RIB7	55	18	1060	332	295	70
Gemfish		SKI3	3	-	60	-	15	-
		SKI7	18	14	278	97	78	31
Sea perch		SPE3	12	5	207	95	55	10
		SPE4	20	8	390	167	100	25
		SPE5	1	6	20	73	5	5
		SPE7	20	4	379	57	94	15
Silver warehou		SWA1	95	88	1,709	1,488	417	399
		SWA3	171	121	6,842	5,095	859	652
		SWA4	269	273	10,715	9,148	1,339	1,486
Spiny dogfish		SPD4	2	5	40	84	n/a	n/a
		SPD5	25	17	729	388		
Common warehou		WAR3	109	98	5,998	4,762	563	475
		WAR7	7	7	202	125	42	18
White warehou		WWA3/4	3	20	60	598	9	96
		WWA5B	32	53	697	2,725	89	218
		WWA7	4	-	76	-	20	-

B.2 Deepwater Fisheries Research

Research needs for deepwater fisheries are driven from the Objectives within the National Deepwater Plan and delivered primarily through the research programme for deepwater fisheries. This research programme focuses on obtaining comprehensive, consistent and robust information in a cost-effective manner. To accomplish this, the research programme specifies the routine research and data collection necessary to meet Management Objectives.

Research projects contracted for the 2015/16 financial year, which are detailed in Table 8, included stock assessments, and trawl and acoustic surveys. All research projects are reviewed by the Ministry's Science Working Groups and assessed against the Ministry's Research and Science Information Standard for New Zealand Fisheries. This review process aims to ensure the quality of the research is sufficient to underpin deepwater fisheries management. Delivery of quality research is driven through Management Objective 1.4 within the Deepwater Plan which aims to ensure the availability of appropriate, accurate and robust information to underpin the management of New Zealand's deepwater fisheries.

Table 8: Deepwater Research planned for the 2015/16 financial year[21] and current status

Project code	Title	Status
Trawl surveys		
HOK2010-05	Chatham Rise hoki and middle depths abundance	Complete
Acoustic surveys		
DEE2015-06	Cook Strait spawning hoki survey	Complete
DEE2015-07	Estimation of SBW target strength	Cancelled – work deferred to 2016/17
Acoustic survey design		
ORH2015-01	MEC acoustic survey design	In progress
DEE2015-02	BOE AND SSO3A acoustic survey design	Contracted – on hold
Shore-based factory sampling		
DEE2015-01	Cook Strait and West Coast South Island catch at age sampling	Complete
Ageing projects		
MID2010-01	Routine age determination of hoki and middle depth species from commercial fisheries and trawl surveys	Complete
Stock Assessment		
DEE2010-02	• HOK1 • SBW6I • SCI1, SCI2 • JMA7 [22]	HOK1 – Complete SBW 6I – Complete SCI1 & 2 – Complete JMA 7 –Deferred to 2017/18
DEE2014-03	Stock assessment of squid	Cancelled
DEE2015-05	Stock assessment of BOE3A	Contracted – on hold

[21] Progress reports are not available for all projects, reports are made publically available at the conclusion of each project. Projects listed as complete may not have published reports available yet.

[22] A JMA7 stock assessment was scheduled for 2013/14 but the project never commenced. The statement of work for this project will be amended and a CPUE analysis is likely to be undertaken during 2015/16. Depending on the outcome of this, a separate stock assessment project may be tendered.

Project code	Title	Status
BAR2015-01	Update of CPUE and characterisation for BAR5	Complete
Management strategy evaluations		
DEE2015-02	Management strategy evaluation - survey and age sampling frequency (hoki, hake and ling)	In progress
DEE2015-04	ORH1 low information stock study (feature-based assessment)	In progress
Scampi surveys		
SCI2010-02	Estimating the abundance of scampi in SCI6A using photographic/trawl surveys	Complete
Aquatic environment		
DAE2010-01	Taxonomic identification of benthic samples	Complete
DAE2010-02	Bycatch monitoring and quantification of deepwater stocks (ORH and OEO)	In progress
DAE2015-01	Risk assessment response – seabirds (assessment of factors contributing to net captures)	In progress
DAE2015-02	Monitoring the trawl footprint for deepwater fisheries	Deferred to 2016/17
DAE2015-03	Risk assessment response – sea lion TMP (assessment of impact of diet change on survival of pups)	Cancelled

Research reports

Final research reports from previously contracted work that were published in the 2015/16 year that relate to deepwater fisheries are shown in Table 10 below. Links to these documents are provided where possible, but all published reports can be found on the MPI website (www.mpi.govt.nz/news-and-resources/publications/)

Table 10: Final research reports published during the 2015/16 financial year of relevance to deepwater fisheries

Doc #	Title
Annual Documents	
2016 May Plenary	Ministry for Primary Industries (2016). Fisheries Assessment Plenary, May 2016: stock assessments and stock status. Volume 1 covers Alfonsino to Hoki. Compiled by the Fisheries Science Group, Ministry for Primary Industries, Wellington, New Zealand. 1556 p. https://www.mpi.govt.nz/document-vault/12663
2016 May Plenary	Ministry for Primary Industries (2016). Fisheries Assessment Plenary, May 2016: stock assessments and stock status. Volume 2 covers the Horse Mussel to Red Crab. Compiled by the Fisheries Science Group, Ministry for Primary Industries, Wellington, New Zealand. 1556 p. https://www.mpi.govt.nz/document-vault/12666
2016 May Plenary	Ministry for Primary Industries (2016). Fisheries Assessment Plenary, May 2016: stock assessments and stock status. Volume 3 covers the Red Gurnard to Yellow-eyed Mullet. Compiled by the Fisheries Science Group, Ministry for Primary Industries, Wellington, New Zealand. 1556 p. https://www.mpi.govt.nz/document-vault/12672
2016 AEBAR	Ministry for Primary Industries (2016). Aquatic Environment and Biodiversity Annual Review 2015. Compiled by the Fisheries Management Science Team, Ministry for Primary Industries, Wellington, New Zealand. 682 p. https://www.mpi.govt.nz/document-vault/11521
Aquatic Environment and Biodiversity Reports (AEBRs)	
165	Fu, D.; Sagar, P. (2016). The 2014 demographic assessment of the Snares Islands population of Southern Buller's albatross (*Diomedea bulleri bulleri*). *New Zealand Aquatic Environment and Biodiversity Report* No. 165. 48 p. http://mpi.govt.nz/document-vault/11662
166	Roberts, J.; Doonan, I. (2016). Quantitative Risk Assessment of Threats to New Zealand Sea Lions. New Zealand Aquatic Environment and Biodiversity Report No. 166. 40 p. http://mpi.govt.nz/document-vault/11665

167	Thompson, F.N.; Abraham, E.R.; Berkenbusch, K. (2016). Incidental capture of marine mammals in New Zealand trawl fisheries, 1995–96 to 2011–12. New Zealand Aquatic Environment and Biodiversity Report No. 167. 78 p. http://mpi.govt.nz/document-vault/11947
168	Clement, D.M.; MacKenzie, D.I.. (2016). Abundance and distribution of WCSI Hector's dolphin. New Zealand Aquatic Environment and Biodiverstiy Report No. 168. 112 p. Report: https://www.mpi.govt.nz/document-vault/12129 Supplement: https://www.mpi.govt.nz/document-vault/12132
169	Abraham, E.R.; Richard, Y.; Berkenbusch, K.; Thompson, F. (2016). Summary of the capture of seabirds, marine mammals, and turtles in New Zealand commercial fisheries, 2002–03 to 2012–13. New Zealand Aquatic Environment and Biodiversity Report No. 169. 205 p. https://www.mpi.govt.nz/document-vault/12180
170	MacDiarmid, A.B.; Abraham, E.; Baker, C.S.; Carroll, E.; Chagué-Goff, C.; Cleaver, P.; Francis, M.P.; Goff, J.; Horn, P.; Jackson, J.A.; Lalas, C.; Lorrey, A.; Marriot, P.; Maxwell, K.; McFadgen, B.; McKenzie, A.; Neil, H.; Parsons, D.; Patenaude, N.; Paton, D.; Paul, L.J.; Pitcher, T.; Pinkerton, M.H.; Smith, I.; Smith, T.D.; Stirling B. (2016). Taking Stock – the changes to New Zealand marine ecosystems since first human settlement: synthesis of major findings, and policy and management implications. New Zealand Aquatic Environment and Biodiversity Report No. 170. 48 p. http://mpi.govt.nz/document-vault/12702
Fisheries Assessment Reports (FARs)	
2016/01	McKenzie, A. (2016). Assessment of hoki (*Macruronus novaezelandiae*) in 2015. *New Zealand Fisheries Assessment Report* 2016/01. 88 p. http://mpi.govt.nz/document-vault/11623
2016/03	Horn, P.L.; Tracey, D.M.; Doonan, I.J.; Krusic-Golub, K. (2016). Age determination protocol for orange roughy (*Hoplostethus atlanticus*). *New Zealand Fisheries Assessment Report* 2016/03. 30 p. http://mpi.govt.nz/document-vault/11106
2016/04	Ballara, S. (2016). Characterisation analyses for blue mackerel (*Scomber australasicus*) in EMA 1, 2, 3, and 7, 1989–90 to 2013–14. *New Zealand Fisheries Assessment Report 2016/04.* 108 p. http://mpi.govt.nz/document-vault/11626
2016/05	Roberts, J. (2016). Stock assessment of ling (Genypterus blacodes) in the Sub-Antarctic (LIN 5&6) for the 2014–15 fishing year. New Zealand Fisheries Assessment Report 2016/05. 35 p. http://mpi.govt.nz/document-vault/11629
2016/07	McGregor, V. (2016). Fishery characterisation and standardised CPUE analyses for silver warehou (Seriolella punctata) in SWA 1, 3 and 4, 1997–98 to 2010–11. New Zealand Fisheries Assessment Report 2016/07. 220 p. http://mpi.govt.nz/document-vault/11635
2016/08	Dunn, A.; Hanchet, S.M. (2016). Review and summary of the time series of input data available for the assessment of southern blue whiting (Micromesistius australis) stocks up to and including the 2014 season. New Zealand Fisheries Assessment Report 2016/08. 45 p. http://mpi.govt.nz/document-vault/11638
2016/09	MacGibbon, D.J. (2016). Fishery characterisation and standardised CPUE analyses for dark ghost shark, Hydrolagus novaezealandiae (Fowler, 1911) (Chimaeridae), 1989–90 to 2010–11. New Zealand Fisheries Assessment Report 2016/09. 162 p. http://mpi.govt.nz/document-vault/11641
2016/10	Walsh, C.; Bian, R.; McKenzie, J.; Spong, K., Armiger, H. (2016). Species composition and seasonal variability in commercial purse-seine catches of jack mackerel (*Trachurus declivis, T. murphyi, and T. novaezelandiae*) in JMA 1 between January 2011 and September 2013. *New Zealand Fisheries Assessment Report* 2016/10. 44 p. http://mpi.govt.nz/document-vault/11644
2016/11	Langley, A.D.; Middleton, D.A.J.; Wilson, O.L. (2016). Species composition of the jack mackerel (genus Trachurus) catch from the JMA 1 purse seine fishery, 2005/06 to 2013/14. *New Zealand Fisheries Assessment Report* 2016/11. 33 p. http://mpi.govt.nz/document-vault/11647
2016/17	Tuck, I.D.; Parkinson, D.; Armiger, H.; Smith, M.; Miller, A.; Rush, N.; Spong, K. (2016). Estimating the abundance of scampi in SCI 1 (Bay of Plenty) and SCI 2 (Wairarapa / Hawke Bay) in 2015. *New Zealand Fisheries Assessment Report* 2016/17. 48 p. https://www.mpi.govt.nz/document-vault/11920
2016/18	Doonan, I.J.; McMillan, P.J.; Hart, A.C.; Dunford, A. (2016). Black oreo abundance estimates from the October 2014 acoustic survey of the south Chatham Rise (OEO 3A). *New Zealand Fisheries Assessment Report* 2016/18. 25 p. https://www.mpi.govt.nz/document-vault/11923

2016/19	Clark, M.R.; McMillan, P.J.; Anderson, O.F.; Roux, M-J. (2016). Stock management areas for orange roughy (*Hoplostethus atlanticus*) in the Tasman Sea and western South Pacific Ocean. New Zealand Fisheries and Assessment Report 2016/19. 27 p. http://mpi.govt.nz/document-vault/12088
2016/20	Doonan, I.J.; McMillan, P.J.; Hart, A.H. (2016). Comparison of the fraction of mature black oreo between Area 1 and Area 2&3 (OEO 3A). *New Zealand Fisheries Assessment Report* 2016/20. 24 p. http://mpi.govt.nz/document-vault/12091
2016/22	Francis, M.P. (2016). Size, maturity and age composition of mako sharks observed in New Zealand tuna longline fisheries. *New Zealand Fisheries Assessment Report* 2016/22. 34 p. http://mpi.govt.nz/document-vault/12111
2016/25	McGregor, V.; Tingley, G.A. A preliminary evaluation of depletion modelling to assess New Zealand squid stocks. *New Zealand Fisheries Assessment Report* 2016/25. 28 p. https://www.mpi.govt.nz/document-vault/12174
2016/28	McGregor, V.; Large, K. (2016). Stock Assessment of arrow squid (SQU 1T and 6T). *New Zealand Fisheries Assessment Report* 2016/28. 102 p. http://mpi.govt.nz/document-vault/12822
2016/31	Doonan, I.J.; Hart A.C.; Wood, B.; Dunford, A. (2016). Orange roughy abundance estimates of the north Chatham Rise Spawning Plumes (ORH3B), *San Waitaki* acoustic survey, June-July 2014. *New Zealand Fisheries Assessment Report* 2016/31. 35 p. http://mpi.govt.nz/document-vault/12546
2016/37	Baird, S.J. (2016). Characterisation and CPUE analyses for barracouta (*Thyrsites atun*) in BAR 1, 1989–90 to 2013–14. *New Zealand Fisheries Assessment Report* 2016/37. 183 p. https://www.mpi.govt.nz/document-vault/13053
2016/40	Ballara, S.L.; O'Driscoll, R.L. (2016). Catches, size, and age structure of the 2014–15 hoki fishery, and a summary of input data used for the 2016 stock assessment. *New Zealand Fisheries Assessment Report* 2016/40. 122 p. https://www.mpi.govt.nz/document-vault/13062
2016/43	Dunn, A.; Hanchet, S.M. (2016). Review and summary of the time series of input data available for the assessment of southern blue whiting (*Micromesistius australis*) stocks up to and including the 2015 season. *New Zealand Fisheries Assessment Report* 2016/43. 44 p. https://www.mpi.govt.nz/document-vault/13308
Fisheries Science Review	
2016/02	Ford, R. B., W. N. S. Arlidge, D. A. Bowden, M. R. Clark, M. Cryer, A. Dunn, J. E. Hewitt, J. R. Leathwick, M. E. Livingston, C. R. Pitcher, A. A. Rowden, S. F. Thrush, G. A. Tingley and I. D. Tuck (2016). Assessing the effects of mobile bottom fishing methods on benthic fauna and habitats. New Zealand Fisheries Science Review 2016/2. https://fs.fish.govt.nz/Page.aspx?pk=113&dk=24044: 47 p.
Department of Conservation Reports: Conservation Services Research Summary 2015/16	
INT2015-04	Gaskin, C.P., Ross, J.R., Robinson, R. & Friesen, M.R. 2016. Diving & foraging behaviour of petrels & shearwaters - initial trials. Report prepared by Northern New Zealand Seabird Trust for the New Zealand Department of Conservation, Wellington. 25p. http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/reports/INT2015-04-petrel-and-shearwater-diving-initial-trials-report.pdf
POP2015-01	Bell, E.A.; Mischler, C.P.; MacArthur, N.; Sim, J.L.; Scofield, R.P. 2016. Population parameters of black petrels (Procellaria parkinsoni) on Great Barrier Island/Aotea, 2015/16. Report to the Conservation Services Programme, Department of Conservation. Wellington, New Zealand. http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/reports/pop2015-01-black-petrel-gbi-final.pdf 2) Bell, E.A.; Mischler, C.P.; MacArthur, N.; Sim, J.L. 2016. Black petrel (Black petrel (Procellaria parkinsoni) population study on Hauturu-o-Toi/Little Barrier Island, 2015/16. Report to the Conservation Services Programme, Department of Conservation. Wellington, New Zealand. http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/reports/pop2015-01-black-petrel-lbi-final.pdf Bell, E.A.; Stewart, P. 2016. Black petrels (Procellaria parkinsoni) population study on Moehau Range, Coromandel, 2015/16. Report to the Conservation Services Programme, Department of Conservation. Wellington, New Zealand. http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/reports/pop2015-01-black-petrel-moehau-final.pdf

POP2015-02	Mischler, C.P. 2016. Conservation Services Programme, Flesh-footed Shearwater Project 4653, Demographic Component, April-May 2016 Report. Unpublished technical report to the Department of Conservation. Report prepared by Wildlife Management International Ltd for the New Zealand Department of Conservation, Wellington. 11p. http://www.doc.govt.nz/pagefiles/163325/wmil-ffs-demographic-april2016-final-report.pdf
POP2015-03	Elliott, G., Walker, K., Parker, G., Rexer-Huber, K. 2016. Gibson's wandering albatross census and population study 2015/16. Report prepared for the New Zealand Department of Conservation, Wellington. 19p. http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/reports/pop2015-03gibsons-albatross-final.pdf Rexer-Huber, K. Parker, G. & Thompson D. 2016. New Zealand White-chinned Petrel population research update. Third meeting of the Population and Conservation Status Working Group, La Serena, Chile. 8p http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/reports/pop2015-01-black-petrel-lbi-final.pdf Bell, E.A.; Stewart, P. 2016. Black petrels (Procellaria parkinsoni) population study on Moehau Range, Coromandel, 2015/16. Report to the Conservation Services Programme, Department of Conservation. Wellington, New Zealand. http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/reports/pop2015-01-black-petrel-moehau-final.pdf
POP2015-05	Childerhouse S, Miller C, Burns T, French R, Kay E (2016) Final Report for CSP Project New Zealand sea lion ground component 2015/16. Report prepared by Blue Planet Marine for the New Zealand Department of Conservation, Wellington. 52p. http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/reports/final-report-csp-nz-sea-lion-groun-component-2015-16.pdf
POP2015-07	Francis M. & Ritchie, P. 2016. Genetic studies of New Zealand's protected fish species 2015/16. Report prepared by NIWA and Victoria University of Wellington for the New Zealand Department of Conservation, Wellington. 33p. http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/reports/pop2015-07-final-protected-fish-species.pdf
MIT2014-01	Pierre, P. 2016. Protected species bycatch newsletter: Final Report. Report prepared by Johanna Pierre Environmental Consulting Ltd. for the New Zealand Department of Conservation, Wellington. 7p. http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/reports/2016-mit2014-01newsletter-final.pdf Pierre, J.P. 2016. Conservation Services Programme Project MIT2015-01: Seabird bycatch reduction (small vessel longline fisheries): Liaison Coordinator Final Report. Report prepared by JPEC Ltd. for the New Zealand Department of Conservation, Wellington. 56p. http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/reports/mit2015-01-seabird-liaison-finalreport.pdf

B.3 Compliance

Successfully delivering on Management Objectives for deepwater fisheries is dependent upon high levels of compliance with the various sustainability and environmental regulations defined in legislation. The Ministry's Compliance Directorate is responsible for providing the intervention services to achieve cost-effective compliance with all regulations.[23]

Adherence to all non-regulatory measures is reported in the relevant section of the next part of this report.

In mid-2015 the systems used by the Compliance Directorate to record and report details of vessel inspections changed. The new system currently has limited ability to extract relevant information regarding details of inspections or breaches. This means it is not possible to replicate the summaries presented in earlier Annual Review Reports.

[23] Function is now under the Compliance Directorate in the Operations Branch of MPI.

Towards the end of the 2013 calendar year, MPI introduced 'interim observer trip reports'. These reports are sent to vessel operators within a few days of the completion of an observed trip. Fifteen questions are answered by the observer to provide more immediate feedback to vessel operators on a variety of factors. Questions are answered with a rating of A, B, C or N/A. It is considered that ratings of A and B are acceptable performance. The interim trip report template is shown in Appendix V. Overall, 160 interim trip reports relating to observed trips on deepwater vessels were completed in the 2015/16 year. The majority of factors were rated A (81%) or B (7%), however over the year, five C ratings were given by observers (less than 1%).

Table 11: Summary of 2015/16 interim trip reports where a 'C' rating was given

Factor	Number of 'C' ratings
Accurate identification of QMS species	1
Offal management was inadequate	1
Process for discarding QMS species	1
No valid system to quantify fish to meal	2

B.4 Cost Recovery Levies

Research, compliance activities, observers, and registry services are funded, at least partially, by levies recovered from the fishing industry.

The cost recovery regime, which is legislated under Part 14 of the Fisheries Act 1996, enables the Crown to recover its costs in respect of the provision of fisheries and conservation services, as far as practicable, from those people who have requested services, who benefit from the provision of those services or cause the adverse effects that the services are designed to avoid, remedy or mitigate.

MPI uses the Fisheries (Cost Recovery) Rules 2001 to calculate the levies to be applied to each fish stock, based on the total amount to be cost recovered from the commercial fishing industry and the under or over-recovery of levies in the previous year.

The proposed levies are consulted on with industry as per statutory requirements.

Table 12 shows the total levied for the 2015/16 financial year from stocks managed under the National Deepwater Plan as well as the total levied across all New Zealand fisheries.

Table 12: Cost recovery levies for deepwater stocks and all New Zealand fisheries for the 2015/16 financial year

		Total levied ($) for stocks managed in National Deepwater Plan	Total levied ($) for all New Zealand fisheries
Compliance		4,883,485	10,400,000
Registry		1,795,620	3,824,000
Observers	MPI	2,839,920	4,143,185
	DOC	567,317	1,177,914
Research	MPI	6,094,392	10,96,252
	DOC	421,985	1,022,089
Unders & Overs	MPI	862,907	-396,586
	DOC	-15,200	-333,102
Total		17,450,426	30,833,751

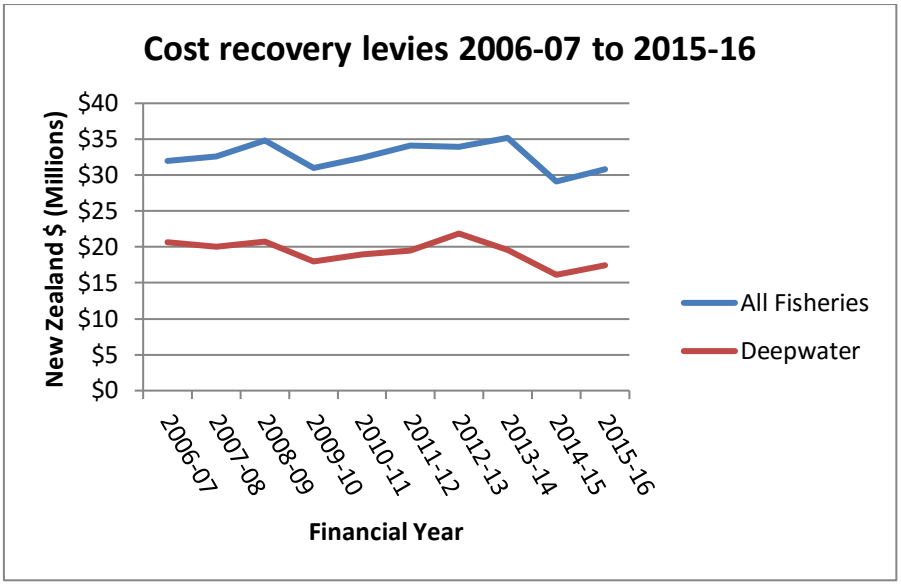


Figure 3: Total amount recovered by cost recovery levies between 2006/07 and 2015/16. Separate totals are shown for deepwater species and all species combined.

Part 3C: General environmental reporting and adherence to non-regulatory management measures

This part of the ARR summarises the overall impacts of deepwater fishing on the marine environment, and reports adherence to non-regulatory environmental mitigation measures for the 2014/15 fishing year. Species-specific environmental interactions are reported in Appendix I.

C.1 Environmental reporting

New Zealand's deepwater fisheries are known to interact with the marine environment including protected species, the benthic habitat, and other bycatch species. In order to achieve Management Objective 2.5, DWG and the Ministry work together to monitor adherence to non-regulatory management measures and environmental interactions.

Non-regulatory measures include vessel-specific management plans for mitigating incidental seabird captures (VMPs), Marine Mammal Operational Procedures (MMOP), and notification requirements for certain numbers of seabird or mammal captures (trigger points).

Vessel operators are required to report all captures of protected species to the Ministry on Non-fish/Protected Species Catch Returns. For reasons of increased reliability however, analyses of protected species interactions and adherence to non-regulatory measures is based on information collected on Ministry observed fishing trips.

Observers from each observed fishing trip are debriefed by MPI to determine the vessel's adherence to all non-regulatory measures. Feedback on performance for every trip is provided to DWG. In any instance where issues were reported by observers, further follow up action is taken by DWG (discussed below). Regardless of whether follow up action is required or not, DWG provides feedback to operators after every observed trip.

The table below summarises the number of observed trips on trawl vessels >28m (and scampi trawlers <28m) completed during the 2012/13 to 2015/16 fishing years and the results of the audit of vessel adherence.

Table 13: Summary of MPI Observer audits of adherence to non-regulatory measures

Fishing year	Observed trawl trips	Reviews sent to and reviewed by DWG	Trips with no issues raised	Trips requiring follow up
2012/13	191	152	120	32
2013/14	183	162	128	34
2014/15	162	160	132	28
2015/16	162	160	115	20

C.2 Seabirds

Total seabird captures in deepwater fisheries are estimated using statistical models that are informed by data on observed captures, fishing effort location data and seabird species distribution data. Estimated captures provide an estimate of the total number of captures that would be observed if all effort was observed. They do not take into account any seabird mortalities that may take place due to interactions with fishing gear but are not observed (cryptic mortalities). Cryptic mortalities are considered in the level 2 seabird risk assessment which informs the management of seabird risk in New Zealand.

Information regarding observed captures of seabirds is available throughout each fishing year, whereas modelled total capture estimates take some time to process. Information presented here represents the best available information at time of publication.

Table 14 reports all observed seabird captures by species from tows targeting Tier 1 deepwater species for the 2014/15 and 2015/16 fishing years.[24]

Table 14: Observed seabird captures for the 2014/15 and 2015/16 fishing years from the core deepwater fleet and any vessels targeting Tier 1 species ('Other' includes decomposed or unknown life status)

	2014/15				2015/16			
Seabird species	Alive	Dead	Other	Total	Alive	Dead	Other	Total
Albatrosses (Unidentified)	6	1	1	8	6	1	3	10
Black (Parkinson's) petrel	1	2	0	3	0	3	0	3
Black-bellied storm petrel	0	0	0	0	0	0	0	0
Black-browed albatross (Unidentified)	1	0	0	1	0	2	0	2
Buller's albatross	5	19	0	24	10	38	0	48
Buller's and Pacific albatross	3	0	0	3	0	9	1	10
Cape petrels	3	1	0	4	2	2	0	4
Chatham Island albatross	0	1	0	1	0	1	0	1
Common diving petrel	9	1	0	10	3	2	0	5
Fairy prion	4	0	0	4	0	0	0	0
Flesh-footed shearwater	1	0	0	1	5	1	0	6
Giant petrels (Unidentified)	6	0	0	6	0	1	0	1
Great albatrosses	0	1	0	1	4	0	0	4
Grey petrel	12	7	0	19	2	2	0	4
Grey-headed albatrosses	0	0	0	0	0	0	0	0
Light-mantled sooty albatross	2	1	0	3	0	0	0	0
Mid-sized Petrels & Shearwaters	6	0	0	6	2	0	0	2
Northern giant petrel	0	0	0	0	0	0	0	0
Petrel (Unidentified)	45	6	0	51	3	4	0	7
Petrels, Prions and Shearwaters	1	0	0	1	2	1	1	4
Prions (Unidentified)	5	0	0	5	2	0	0	2
Procellaria petrels	7	6	0	13	9	4	0	13
Pterodroma petrels	0	0	0	0	0	0	0	0
Royal albatrosses	0	1	0	1	1	1	0	2
Salvin's albatross	24	23	0	47	9	37	1	47
Shearwaters	4	2	0	6	1	17	0	18
Short-tailed shearwater	0	1	0	1	0	0	0	0
Shy albatross	1	1	0	2	0	0	0	0
Smaller albatrosses	3	3	1	7	4	0	0	4
Sooty shearwater	52	60	0	112	7	31	0	38
Southern royal albatross	0	0	0	0	0	0	0	0
Storm petrels	6	2	0	8	0	0	0	0
Wandering albatross (Unidentified)	1	0	0	1	1	0	0	1
Westland petrel	1	4	0	5	0	0	0	0
White-capped albatross	39	31	2	72	35	55	1	91
White-chinned petrel	110	136	0	246	38	187	1	226
White-faced storm petrel	1	0	0	1	1	0	0	1
White-headed petrel	0	0	0	0	0	0	0	0
Total	359	310	4	673	147	399	8	554

Table 15 summarises the proportion of dead/alive observed seabird captures on the deepwater trawl fleet for the 2008/09 to 2015/16 fishing years.

[24] This table uses raw data from MPI Observers; species identifications have not yet been verified and are subject to change after specimens are necropsied or observer photos are formally identified.

Table 15. Proportion of observed seabird captures released alive on the deepwater trawl fleet between the 2008/09 and 2015/16 fishing years.

Fishing year	Percentage released alive
2008/09	33%
2009/10	46%
2010/11	40%
2011/12	32%
2012/13	43%
2013/14	45%
2014/15	55%
2015/16	31%

Table 16 shows industry reported seabird captures between the 2011/12 and 2015/16 fishing years. Tables 17 and 18 show the observed and model estimated total captures from all trawl fisheries, and by deepwater vessels targeting species in the National Deepwater Plan for the 2014/15 fishing year (includes some effort from vessels <28m).[25]

Table 19 shows the observed captures and capture rate for ling longline fisheries for the 2008/09 to 2014/15 fishing years. This is the only Tier 1 deepwater species fished using bottom longline.

Seabird interactions by fishery are reported in Appendix I.

Table 16: In-zone industry-reported seabird interactions between the 2010/11 and 2014/15 fishing years from the core deepwater fleet and any vessels targeting Tier 1 deepwater species (includes bottom longlining)[26]

Fishing year	Large seabirds			Small seabirds			Total
	Alive	Dead	Total	Alive	Dead	Total	
2010/11	87	160	247	114	443	557	804
2011/12	62	175	237	58	241	299	536
2012/13	84	252	336	223	352	575	911
2013/14	78	246	324	196	288	484	808
2014/15	115	230	345	321	399	720	1,065
2015/16	94	291	385	93	372	485	870

[25] All data in this ARR has been compiled with the knowledge of a discrepancy in data for protected species in the Centralised Observer Database (COD). As part of MPI's ongoing review and testing of data accuracy, MPI has identified that about 2% of observed protected species captures between 2002 and 2015 were not recorded in COD. Steps are being taken to rectify this but it will take some time to update the database and any dependent estimates of protected species captures and risk. Accordingly, please interpret all estimates of protected species captures or risk in this document as likely to have a (probably small) negative bias. Updated estimates will be developed and reported as soon as possible.

[26] From Non-fish and Protected Species Bycatch forms.

Table 17: Observed seabird captures and modelled estimates of total captures* in all New Zealand trawl fisheries by vessels >28m[27] from 2008/09 to 2015/16

		Observed				Estimated		
	Tows	Tows observed	% of tows observed	Observed captures	Capture rate	Estimated total captures	95% confidence interval	Estimated capture rate
2009/10	29,506	7,677	26.0	235	3.06	890	787 – 1,001	3.02
2010/11	27,393	6,213	22.7	326	5.25	1,220	1,088 – 1,360	4.45
2011/12	25,593	8,265	32.3	228	2.76	708	631 – 793	2.77
2012/13	23,972	11,817	49.3	705	5.97	1,084	1,024 – 1,149	4.52
2013/14	25,660	11,220	43.7	461	4.11	808	753 - 867	3.15
2014/15	25,621	11,293	44.1	597	5.29	1,033	936 – 1,154	3.88
2015/16	24,989	10,790	43.2	458	4.24			

* Does not include estimates of cryptic mortality

Table 18: 2014/15 Observed seabird captures and modelled estimates of total captures for New Zealand deepwater and middle-depth fisheries (includes effort by vessels <28m)

		Observed			Estimated	
	Tows	Tows observed	% of tows observed	Observed captures	Estimated total captures	95% confidence interval
Hoki	13,590	3,612	26.6	82	416	335-518
Hake	972	745	76.6	3	5	3 - 10
Ling (trawl)	1,126	182	16.2	2	44	22-74
Squid (trawl)	1,950	1,694	86.9	384	428	396 - 489
Southern blue whiting	675	670	99.3	7	7	7 - 10
Jack mackerel	1,753	1,514	86.4	11	14	12 - 21
Scampi	4,423	342	7.7	7	151	102 - 220
Deepwater (ORH/OEO/CDL)	3,782	978	25.9	0	13	5 - 24
Tier 2 mid-depth*	6,434	1,771	27.5	109	361	256 - 538
Total	34,705	11,508	33.2	605	1,439	

* Includes all target fishing for Tier 2 species

Table 19: Observed and estimated seabird captures from ling bottom longline fisheries (includes all ling stocks and vessels <28m)

		Observed				Estimated	
	Hooks	Hooks observed	% of hooks observed	Observed captures	Capture rate	Estimated total Captures	95% confidence interval
2008/09	17,587,714	3,706,550	21.1	9	0.002	497	324 – 807
2009/10	18,395,093	1,717,425	9.3	10	0.006	541	363 – 849
2010/11	18,303,212	1,453,540	7.9	27	0.019	696	463 – 1,146
2011/12	17,015,393	1,701,100	10.0	8	0.005	472	322 – 696
2012/13	12,973,070	226,550	1.7	0	0.000	490	333 - 729
2013/14	21,655,008	1,979,516	9.1	36	0.018	798	539 - 1,233
2014/15	19,367,334	570,600	2.9	16	0.028	690	399 – 1,268
2015/16	23,489,521	2,104,225	8.9	258	0.12		

[27] From https://data.dragonfly.co.nz

More detailed information for captures and estimated captures of individual bird species may be found on the protected species website https://data.dragonfly.co.nz.

Vessel Management Plans (VMPs)

The following section summarises information provided through observer audits of vessel performance in relation to measures within VMPs. Measures within VMPs that vessels are audited against include the use of bird mitigation devices, the removal of fish 'stickers' from the net before shooting, avoiding shooting gear near congregations of marine mammals, and employing offal management techniques. Offal management is intended to reduce the amount of 'food' in the water for seabirds and marine mammals while fishing gear may pose a risk to those animals.

VMP-related issues that required follow-up by DWG were identified on 17 trips and were classed as being in one of four general categories (Table 20). Offal management issues were followed up 11 times.

I. **Administrative** – Relating to misunderstandings about requirements i.e. the need for observers to be shown live seabirds prior to release
II. **Seabird trigger reporting** – relating to the reporting of trigger points
III. **Seabird scaring devices** – relating to the need to employ an additional seabird mitigation device when experiencing seabird captures, or when mitigation devices need to be replaced or repaired.
IV. Offal management issues – see below

Table 20: Breakdown of reviews with VMP-related issues during 2013/14 to 2015/16 fishing years

Type of issue	2013/14	2014/15	2015/16
Administrative	2	2	0
Seabird trigger not reported	2	2	1
Seabird scaring devices	6	8	5
Offal management issues	21	13	12
Total	31	25	17

Offal management issues

The management of offal is a contributing factor to both seabird and marine mammal captures and therefore issues with offal management on board vessels could be considered to be relevant to both VMPs and the MMOP. During the 2015/16 fishing year there were 12 trips that required follow up in relation to offal management related issues (Table 21). Issues are divided into four broad categories: general offal management, net cleaning or leaving the net in the water longer that desirable, floor wash, and breakdown procedures.

Table 21: Breakdown of offal management-related reviews for VMP/MMOP issues during 2013/14 to 2015/16 fishing years

Type of issue	2013/14	2014/15	2015/16
General offal management	14	7	9
Net cleaning / time in water	1	3	0
Floor wash	3	2	1
Breakdown procedures	3	1	2

Seabird bycatch trigger point notifications

All trawl vessels over 28 metres are required to notify DWG any time they capture more than a given number of seabirds within a defined time period. These are known as trigger point notifications. There

were 11 trigger point activations for seabird captures in the 2015/16 fishing year. Trigger point specifics and activations are summarised in Table 22 below. Most seabird trigger point activations are as a result of net captures.

Table 22: Number of trigger point activations for seabirds in 2012/13 to 2015/16 fishing years from trawl vessels >28 m (overall length) or targeting Ling by Bottom Long Line

Species	Trigger points		2012/13	2013/14	2014/15	2015/16
	Captures in any 24 hr period	Captures in any 7 day period				
Seabirds - large	3 or more	10 or more of any species	7	3	0	8
Seabirds - small	5 or more		18	5	11	3

C.3 Marine Mammals

Total marine mammal interactions and captures in deepwater fisheries are estimated using statistical models that are informed by data on observed interactions, fishing effort location data from each deepwater fishery and marine mammal distribution data. The estimates of total captures do not include any estimates of cryptic mortality, although this will be included in the risk assessment modelling.

Information regarding observed captures of marine mammals is available shortly after the completion of each fishing year, whereas modelled total capture estimates take some time to process. Table 23 reports all observed and industry-reported marine mammal captures in deepwater fisheries for the 2014/15 and 2015/16 fishing years.

Table 24 shows the model estimated total captures from trawl fisheries for the 2009/10 to 2014/15 fishing years and Table 25 shows fur seal capture estimates from fishing activity targeting species in the National Deepwater Plan. Marine mammal interactions by fishery are reported in Appendix I.

Table 23: Observed and industry reported captures of marine mammals by the core deepwater fleet or vessels targeting Tier 1 deepwater fisheries in the 2015/16 fishing year.[28] Records involving decomposing carcasses have not been included.

Species	Observed captures				Industry reported captures			
	Alive		Dead		Alive		Dead	
	2014/15	2015/16	2014/15	2015/16	2014/15	2015/16	2014/15	2015/16
Common dolphin	0	0	20	4	0	0	24	3
Dusky dolphin	0	0	2	0	0	0	2	0
NZ fur seal	13	8	111	99	30	27	237	165
NZ sea lion	0	0	8	4	0	0	7	4
Seals and sea lions[29]	0	0	0	0	0	3	3	1
Dolphins and toothed whales[30]	0	0	0	0	0	0	0	1

Table 24: Model estimated total captures of marine mammals for the five most recent fishing years for which data is available from trawl vessels >28m

[28] These are not cumulative, an observed capture will also have been reported by the vessel (i.e. the NZ sea lion observed captures are the same events as the industry reported NZ sea lion capture).
[29] This is a generic description; captures reported under this code are not reported at the species level.
[30] As per 29 above

	Fishing effort			Observed captures		Estimated captures		
	All tows	Observed tows	% tows observed	Number	Rate	Mean captures	95% c.i.	% tows included
New Zealand Fur Seal								
2010/11	27,393	6,213	23	57	0.92	236	134-454	100
2011/12	25,593	8,265	32	67	0.81	267	143-551	100
2012/13	23,972	11,817	49	89	0.75	241	134-509	100
2013/14	25,660	11,220	44	153	1.36	248	187-368	100
2014/15	25.621	11,293	44	120	1.06	319	185-658	100
Common dolphin								
2010/11	27,393	6,213	23	8	0.13	68	30-126	100
2011/12	25,593	8,265	32	5	0.06	11	6-19	100
2012/13	23,972	11,817	49	16	0.14	21	17-28	100
2013/14	25,660	11,220	44	29	0.26	36	30-43	100
2014/15	25,621	11,293	44	20	0.18	26	21-34	100
New Zealand Sea Lion								
2010/11	27,393	6,213	23	6	0.10	22	13-35	33.9
2011/12	25,593	8,265	32	1	0.01	7	3-14	32.0
2012/13	23,972	11,817	49	25	0.21	27	25-30	28.8
2013/14	25,660	11,220	44	4	0.04	6	4-9	25.7
2014/15	25,621	11,293	44	8	0.07	9	7-12	23.6

Table 25: 2014/15 Observed NZ fur seal captures and modelled estimates of total captures for New Zealand deepwater and middle-depth fisheries (this represents the most up to date information available)

		Observed			Estimated	
	Tows	Tows observed	% of tows observed	Observed captures	Estimated total captures	95% c.i.
Hoki	13,590	3,612	26.6%	40	295	139-649
Hake	976	745	76.3%	8	13	8-32
Ling (trawl)	1,127	182	16.1%	1	13	2-42
Squid (trawl)	1,950	1,694	87%	13	22	19-32
Southern blue whiting	672	670	100%	41	41	41-42
Jack mackerel	1,748	1,511	86.4%	5	6	5-11
Scampi	4,423	342	8%	1	6	1-22
Deepwater (ORH/OEO/CDL)	3,787	978	25.8%	1	1	1-3
Tier 2 mid-depth*	6,440	1,770	27.5%	7	68	28-145
Total	34,713	11,504	33%	117	465	

***** Includes all effort targeting Tier 2 middle depths species.

Marine Mammal Operational Procedures

The Marine Mammal Operational Procedure (MMOP) aims to reduce the risk of incidental captures of marine mammals during deepwater fishing activity. Measures included in the MMOP include removing stickers from the net before shooting it, moving away from large congregations of marine mammals before shooting if possible, and always be on the lookout for marine mammals around fishing gear. Specific measures are included to minimise the risk of dolphin captures including information on the time of day and areas where the risk of dolphin captures is highest. It also includes trigger points which should be reported to DWG within 24 hours.

Marine mammal trigger point notifications

All trawl vessels over 28 metres are required to notify DWG any time they capture more than a given number of marine mammals within a defined time period. There were 11 trigger point activations for marine mammal captures in the 2015/16 fishing year. These are summarised in Table 26 below.

Table 26: Marine mammal trigger point activations for the 2012/13 to 2015/16 fishing years

Species	Trigger Points		Trigger activations 2013/14	Trigger activations 2014/15	Trigger activations 2015/16
	Captures in any 24 hr period	Captures in any 7 day period			
Fur seals	2	5	9	8	6
Dolphins	1	0	7	14	2
Sea lions	1	0	5	8	3

All fur seal triggers in 2015/16 relate to the capture of two or more fur seals in a 24 hour period. One vessel experienced several additional triggers after the initial one, however the additional triggers are not included in the total. One trigger reported for sea lions relate to the capture of two or more sea lions in a 24 hour period.

C.4 Elasmobranchs

Management Objectives 2.4 and 2.5 in the National Deepwater Plan address the need to manage and monitor shark interactions with deepwater fishing activity. The management of sharks in New Zealand is guided by the National Plan of Action for the Conservation and Management of Sharks (NPOA-Sharks), which was revised in 2013. The new NPOA-Sharks sets out goals and five-year objectives to guide the conservation and management of sharks for the next five years in New Zealand. The NPOA Sharks objectives that are most immediately relevant to deepwater fisheries are the objective to eliminate shark finning in New Zealand and to reduce the use of generic reporting codes.

On 1 October 2014 it became illegal for commercial fishers to remove the fins from any shark and discard the body of that shark. Fishers are still able to land shark fins, however conditions apply depending on the species concerned (summarised in the Table below). It also became possible for fishers to return dead mako, porbeagle and blue sharks to the sea and report catch against ACE (fishers were already able to return these species, as well as rig and school shark, to the sea if they were alive and likely to survive).

Table 27: Summary of conditions that apply if fishers wish to land shark fins

Approach	Description	Applicable species
Ratio	Fins must be stored and landed separately by species. The weight of fins landed must not exceed a specified percentage of the greenweight of the shark. Weight of fins must be reported on landing returns. The ratio applies to landings on a trip-by-trip basis.	Elephant fish
		Dark ghost shark
		Mako shark
		Pale ghost shark
		Porbeagle shark
		Rig
		School shark
Fins artificially attached	After being processed to the dressed state, fins must be re-attached to the shark by some artificial means. Landings to be reported with landed state of SFA (shark fins attached).	Blue shark
Fins naturally attached	After being processed to the headed and gutted state, the fins must remained attached to the body by some portion of uncut skin. Landings to be reported with landed state of SFA (shark fins attached).	Spiny dogfish
		All non-QMS species

In 2013, a trigger point was added to the Deepwater Fisheries Operational Procedures that requires vessels to report any basking shark captures to Deepwater Group Ltd within 24 hours. Three triggers were reported for basking shark captures during the 2015/16 fishing year[31].

Elasmobranchs are classified as: rays and skates, sharks and dogfish, and chimaeras. Within these three classifications, some species are protected, some are included in the QMS, and some are reported using generic codes which does not allow for species determination.

Reporting for sharks in connection with deepwater fisheries includes information on the total interactions with shark species during deepwater fishing activity, interactions with protected shark species, the level of the use of generic reporting codes, and information about the utilisation and processing of sharks in deepwater fisheries. All information regarding 'landings' is based on a 'core deepwater fleet' which includes most trawl vessels over 28 metres, scampi fishing vessels, and bottom longline vessels over 28 metres. Information is also obtained from observer records, from fishing effort targeting Tier 1 species.

Table 28: Observed and industry reported captures (by number) of protected shark species from the core deepwater fishing fleet in the 2015/16 fishing year [32]

	Observed Captures	Industry-reported
Basking shark	4	5
Spine-tailed devil ray	0	0
Smalltooth sandtiger shark	0	0
Manta ray	0	0
White pointer shark	1	1
Whale shark	0	0

[31] It is possible that a single trigger point relates to a multiple capture event.
[32] These are not cumulative, an observed capture will also have been reported by the vessel (i.e. the basking shark observed captures are the same events as the industry reported basking shark captures).

Table 29: Reported landings (tonnes, in-zone) of the three categories of elasmobranchs from the core deepwater fishing fleet in 2015/16

	Chimaeras	Rays & Skates	Sharks & Dogfish	Total
Generic reporting code	3	8	363	374
QMS species	1,321	476	2,788	4,584
Other	143	14	1,130	1,287
Total	1,467	498	4,281	6,246

Generic reporting codes make it impossible to accurately quantify the captures of specific shark species. The NPOA-Sharks identified the use of generic reporting codes for shark catches as an area in need of attention from the Ministry in future. Table 30 reports the percentages of shark landings and observed catches reported using generic species codes.

Table 30: Use of generic reporting codes from both observer data and reported landings 2004/05 to 2015/16 as a percent of total reported elasmobranch landings/catches in the core deepwater fleet.

	% industry-reported shark landings with generic codes (DW fleet only)	% of observed shark catches with generic codes (from trips on DW vessels only)
2004/05	8.4	7
2005/06	10.0	6
2006/07	10.3	5
2007/08	9.7	6
2008/09	10.7	8
2009/10	11.0	8
2010/11	9.6	4
2011/12	11.8	3.5
2012/13	9.3	3.0
2013/14	4.1	1.4
2014/15	3.6	0.9
2015/16	6.0	3.0

Details of elasmobranch landings by the core deepwater fleet during 2015/16 are summarised in Table 31.

Table 31: Primary processed state for elasmobranchs managed under the QMS landed in 2015/16 fishing year by the core deepwater fleet

Species	Total landings by DW fleet (tonnes greenweight)	% of total landings of that species	Amount processed (t)	Amount mealed (t)	Amount discarded under observer approval (t)	Amount discarded dead (Schedule 6)	Amount returned alive (Schedule 6)
Blue shark	6	0.8%	0	<1	n/a	3	1
Elephantfish	12	0.8%	10	1	<1	n/a	n/a
Dark ghost shark	592	43.0%	456	41	95	n/a	n/a
Mako shark	21	14.2%	<1	4	n/a	14	4
Pale ghost shark	691	97.1%	510	165	16	n/a	n/a
Porbeagle shark	38	40.2%	<1	<1	<1	28	9
Rig	8	0.5%	4	<1	3	n/a	0
Rough skate	154	9.4%	115	15	9	n/a	14
School shark	149	5.0%	116	11	20	n/a	2
Smooth skate	311	42.0%	229	52	12	n/a	17
Spiny dogfish	2,501	55.8%	135	1,034	0	1,333 (destination code M)	
Total	4,483	28.1%	1,576	1,324	158	45	46

No vessels from the core deepwater fleet reported landing fins from a shark species subject to the finweight/greenweight ratio or any sharks under the processed state code SFA (shark fins attached).

C.5 Tier 3 species

Tier 3 species are non-QMS species that are caught during fishing activity for QMS species. The top 40 Tier 3 species landed are reported in Table 32, full details of all Tier 3 species caught in deepwater fisheries can be found in Appendix III.

Table 32: Landings (tonnes) of top 40 Tier 3 species from core deepwater fleet in 2015/16 and five years of catch history

Code	Common Name	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
JAV	Javelinfish	4,000	3,298	4,071	3,926	4,234	4,150
RAT	Rattails	3,193	3,243	4,047	3,381	3,682	3,620
STU	Slender tuna	108	74	262	582	235	1,772
ETB	Baxter's lantern dogfish	47	30	41	300	290	2,585
SND	Shovelnose dogfish	127	97	135	283	251	4,332
OSD	Sharks & Dogfish not otherwise specified	580	656	546	226	189	2,922
SDO	Silver dory	194	189	127	225	231	2,290
NCB	Smooth red swimming crab	586	203	717	169	186	1,419
BSH	Seal shark	143	145	198	128	87	90
LCH	Long-nosed chimaera	95	99	113	123	111	128
SSI	Silverside	144	164	105	98	123	131
CSQ	Leafscale gulper shark	13	9	32	96	123	177
WSQ	Warty squid	79	81	96	93	89	83
CON	Conger eel	63	37	66	91	107	354
FHD	Deepsea flathead	92	84	102	78	105	93
SLK	Slickhead	39	58	44	65	107	114
CDO	Capro dory	54	46	35	61	58	52
DWD	Deepwater dogfish (Unspecified)	98	78	35	59	68	70
RUD	Rudderfish	36	32	53	55	57	56
SUN	Sunfish	15	15	13	51	20	12
BEN	Scabbardfish	23	14	18	49	44	50
SRH	Silver roughy	32	24	127	48	63	47
BEL	Bellowsfish	162	81	51	45	53	55
HCO	Hairy conger	71	14	48	45	63	89
SFI	Starfish	60	73	47	44	48	65
RHY	Common roughy	92	153	119	41	116	56
CAR	Carpet shark	68	43	32	40	60	23
HAG	Hagfish	14	2	5	40	7	52
CBE	Crested bellowsfish	3	11	21	39	36	32
CYP	Longnose velvet dogfish	1	0	9	38	10	20
MOD	Morids	19	27	28	37	62	63
CRB	Crab (Unspecified)	81	103	72	35	37	66
ALB	Albacore tuna	2	2	11	35	22	3
POP	Porcupine fish	26	40	33	32	31	25
THR	Thresher shark	15	14	17	25	31	23
NSD	Northern spiny dogfish	22	10	20	25	50	20
TOA	Toadfish	30	23	28	24	28	15
ETL	Lucifer dogfish	17	25	32	21	32	23
JFI	Jellyfish (Unspecified)	30	16	25	19	4	26
UNI	Unidentified fish	3	2	7	19	2	4

C.6 Benthic Interactions

Benthic bycatch

Targeting many deepwater fisheries utilises methods which mean fishing gear regularly makes contact with the seabed. This can lead to catches of benthic organisms including species of corals, sponges, and sea anemones as a bycatch in these fisheries. In New Zealand all black corals, gorgonian corals, stony corals, and hydrocorals are protected under the Wildlife Act 1953. Benthic bycatch organisms and quantities reported by Ministry observers are shown in Table 33.

Table 33: Observed and industry reported catch of benthic species from the core deepwater fleet and all vessels targeting Tier 1 species in the 2015/16 fishing year

Phyla	Common name	Total amount observed(kg wet weight)	Industry-reported(kg wet weight)
Cnidaria	Corals (protected species)	12,221	12,943
	Corals (generic codes)	1,551	1,077
	Soft corals	3	0
	Anemones	6,902	0
	Sea pens	121	0
	Hydroids	77	0
Porifera	Sponges	18,998	71,428

Trawl footprint

Each year, the total trawl footprint is calculated since 1989 for eleven main deepwater species, as well as the cumulative footprint for all deepwater fisheries[33]. The reporting is based on TCEPR reporting forms, and is reviewed each year through the Aquatic Environment Working Group. TCEPR forms capture the majority of the catch, for the 11 key target species between 2005/06 and 2010/11 the lowest proportions captured are for ling (61%), jack mackerel (78%) and barracouta (84%). Trawled area is reported against the 'fishable area', which is defined as the area shallower than 1600m and not closed to bottom trawling (by BPAs, seamount closures or marine reserves). Changes in the annual trawl footprint are shown below (Figure 4) as is the cumulative swept area from 1989/90 – 2010/11 relative to BOMEC classes and closed areas (Figure 5).

Swept area for each individual Tier 1 species is reported in Appendix I.

[33] Black, J. and R. Tilney (2017). Monitoring New Zealand's trawl footprint for deepwater fisheries: 1989-1990 to 2011-2012 and 2012-13. New Zealand Aquatic Environment and Biodiversity Report No. 176. Effort appearing in closed areas is from the years prior to the closures. E.g. the Auckland Islands Marine Reserve was created in 2003, fishing effort from 1989/90 until then is shown in the figure.

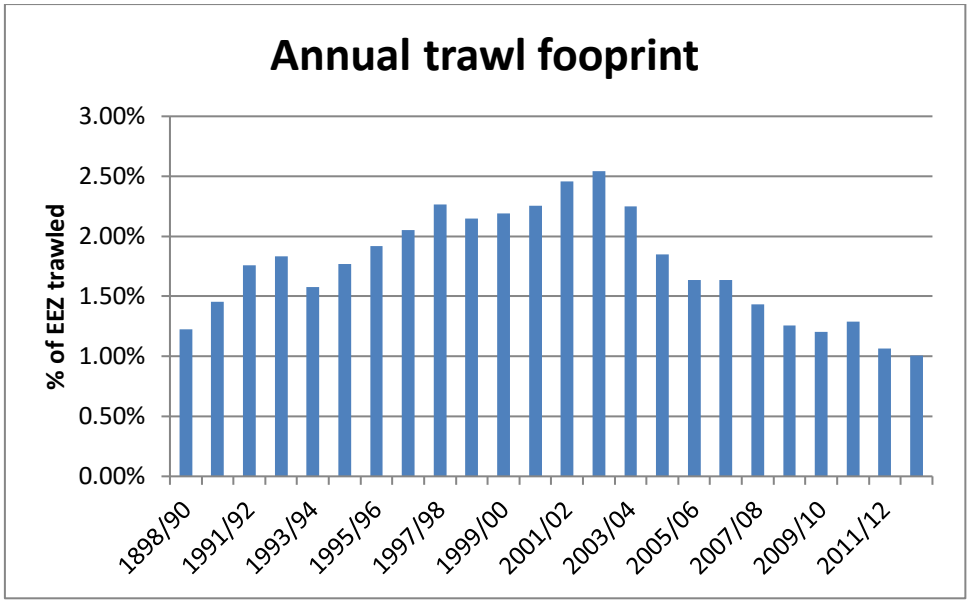


Figure 4: Estimated annual percentage of the EEZ seafloor contacted by trawling each year for 1989/90 to 2012/13.

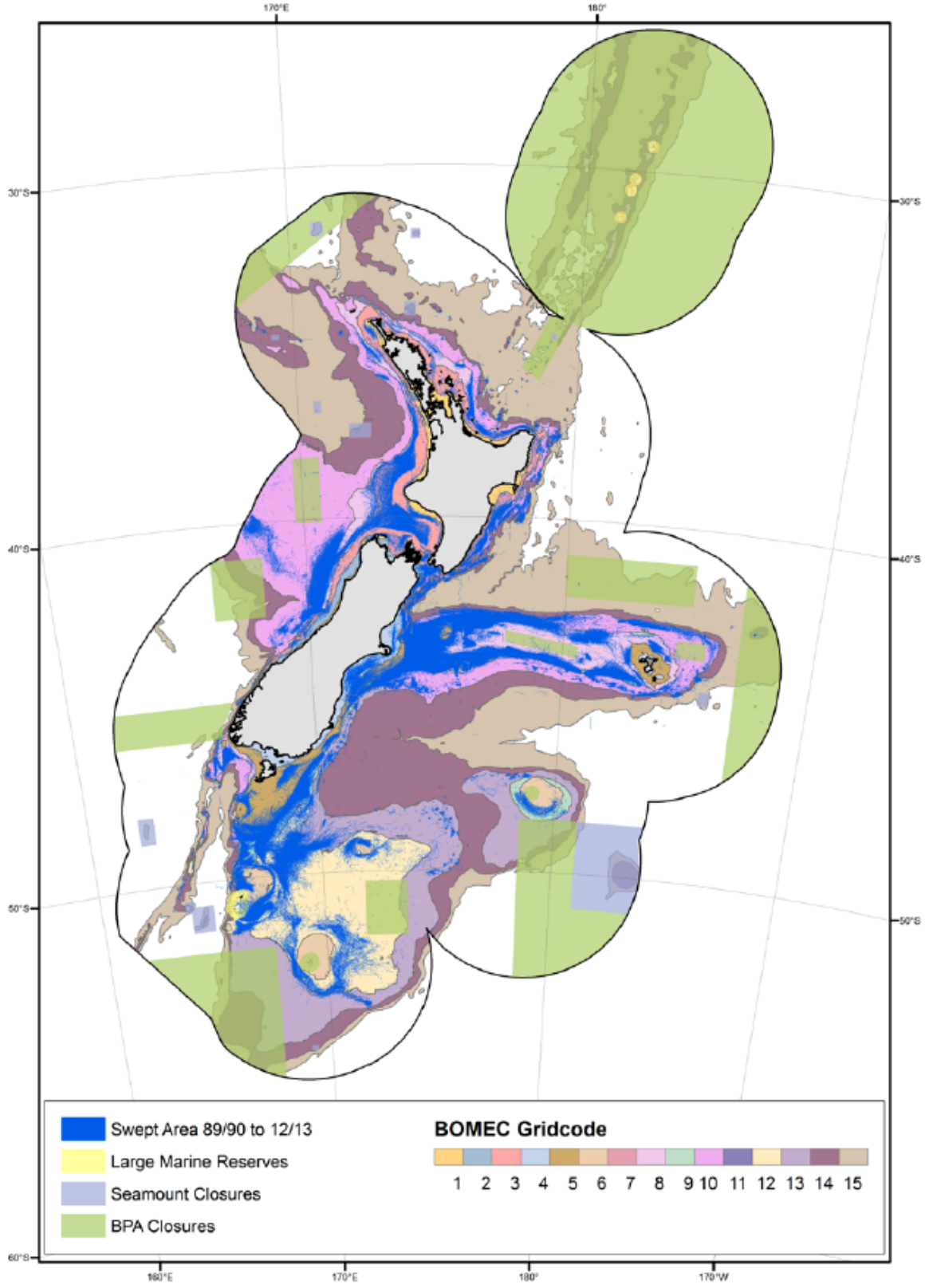


Figure 5: Estimated swept area (blue) for trawls targeting Tier 1 and Tier 2 species from 1989/90 to 2012/13 including BOMEC classification and areas closed to trawl fishing (BPA closures (green), Seamount closures (mauve), and large marine reserves (yellow)).

Trawl footprint vs. Benthic Optimised Marine Environmental Classification (BOMEC)[34]

The trawl footprint of deepwater fisheries is also assessed against the 15 BOMEC classes which are proxies for various benthic habitats in the New Zealand EEZ. This analysis allows for the monitoring of interactions with particular BOMEC classes. Data for 2013/14 is still in preparation.

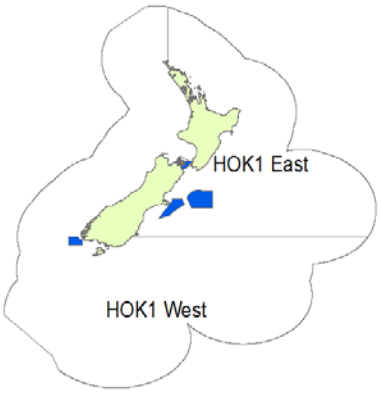
Table 34: The BOMEC classification and swept area for trawls targeting all Tier 1 and Tier 2 species 1989/90 to 2012/13.

BOMEC code	Area (km^2)	Swept Area (km^2)	Swept Area (%)
1	27,557	2,165	8%
2	12,420	1,507	12%
3	89,710	37,744	42%
4	27,268	8,001	29%
5	60,990	24,429	40%
6	38,609	6,889	18%
7	6,342	2,783	44%
8	138,551	64,385	46%
9	52,224	38,448	74%
10	311,361	71,890	23%
11	1,289	6	0%
12	198,577	55,958	28%
13	233,825	18,767	8%
14	493,034	11,437	2%
15	935,315	2,400	0%
TOTAL	2,627,073	346,811	13%

[34] Details regarding the definition of BOMEC classes can be found in 'Leathwick, J.R.; Rowden, A.; Nodder, S.; Gorman, R.; Bardsley, S.; Pinkerton, M.; Baird, S.J.; Hadfield, M.; Currie, K.; Goh, A. (2012). A Benthic-optimised Marine Environment Classification (BOMEC) for New Zealand waters. New Zealand Aquatic Environment and Biodiversity Report No. 88. 54p.' (accessible here)

Appendix I: Summaries of NZ Deepwater Fisheries 2015/16

HOK: Hoki (Tier 1)



2015/16 Landings, Catch limits and Allowances (tonnes)						
Stock	2015/16 Landings	TAC	TACC	Recreational	Customary	Other fishing related mortality
HOK1	136,718	151,540	150,000	20	20	1,500

Reference points and current status			
Metric			Status
Target range		35-50% B_0	
B_{MSY}	*Eastern stock*	24% B_0	B_{2015}: 59 % B_0
	Western stock	25% B_0	B_{2015}: 51 %B_0
Soft limit		20%B_0	Both stocks 'Exceptionally Unlikely' to be below limit
Hard limit		10%B_0	Both stocks 'Exceptionally Unlikely' to be below limit
Exploitation rate (F)		10-25% of target biomass	

Deemed value rates and charges				
Stock	Interim	Annual	Differential	2015/16 Actual
HOK1	$0.45 per kg	$0.90 per kg	$1.30 @ >102%	$15361

Environmental indicators and observer coverage*			
Observer coverage		2014/15: 26.6% of tows observed	2015/16: 27.5% of tows observed
Seabirds		2014/15: 82 observed captures; 416 estimated[35]	2015/16: 56 observed captures
Marine mammals	NZ fur seal	2014/15: 42 observed captures; 295 estimated	2015/16: 40 observed captures
	NZ sea lion	2014/15: 0 observed captures; 1 estimated	2015/16:0 observed captures
Benthic interactions (fishable area trawled)		2012/13: 23,870 km^2 (1.70%)*	1989/90 to 2012/13: 169,926 km^2 (12.07%)*

Economic indicators (calendar year)	
Quota value 2009	$815m
Export earnings 2015	$213.6m

Eastern and Western catch limit reporting

The hoki fishery is considered to consist of two biological stocks; an eastern stock and western stock. Agreements between the Minister and the fishing industry have seen catch limits apply to each stock since 2001/02. For the 2015/16 fishing year, owners of at least 84% of the hoki quota had formally entered into the catch limit agreement requested by the Minister. The east/west catch limit regime is administered by FishServe and monitored by DWG.

[35] The number of observed captures refers includes both dead seabirds and those released alive.

Table 35 below provides details on the catch limits and catch amounts for the 2015/16 fishing year.

Table 35: Catch limits and actual catch estimates for 2015/16 fishing year (tonnes).

Catch limits	2014/15 Planned	Catch within agreement (from FishServe)	Catch estimates for all fishers	Estimated catch scaled up to total landings
Eastern stock	60,000	59,875	62,558	64,682
Western stock	100,000	78,963	93,666	96,846

Hoki Operational Procedure (HOP)

The purpose of the Hoki Operational Procedure (HOP) is to monitor and manage fishing effort within the agreed hoki management areas (HMAs). HMAs are areas where there is information to demonstrate the presence of high abundance of juvenile hoki (for these purposes hoki <55cm in total length) and no target fishing for hoki is allowed.

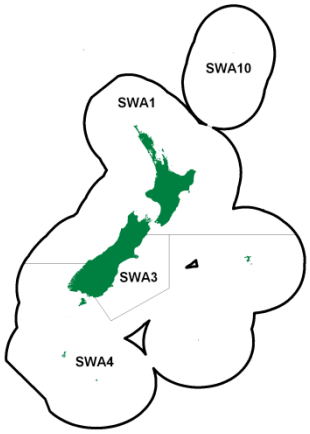
Table 36: Summary of HMA fishing activity by trawl vessels >28m for the 2011/12 – 2015/16 fishing years

HMA	# of vessels that fished in HMA	# of HOK target tows undertaken[36]	# of non-HOK target tows	Fisher estimated catch of HOK (t)	Estimated catch of all species (t)
Canterbury Banks					
2011/12	24	16	454	494	7,301
2012/13	20	17	471	772	7,849
2013/14	19	41	584	692	8,402
2014/15	21	18	336	576	4,014
2015/16	21	35	322	1,904	4,937
Mernoo Bank					
2011/12	17	14	68	456	1,310
2012/13	14	8	178	322	3,092
2013/14	16	9	231	346	4,102
2014/15	20	12	193	290	3,231
2015/16	19	7	210	1,098	3,267
Puysegur					
2011/12	14	2	98	197	1,167
2012/13	12	2	82	80	781
2013/14	11	0	118	294	1,432
2014/15	10	0	96	454	1,392
2015/16	13	1	177	212	1,551
Cook Strait					
2011/12	-	-	-	-	-
2012/13	1	3*	-	1	1
2013/14	-	-	-	-	-
2014/15	2	2*	-	<1	32
2015/16	2	2	-	14	14

* These tows in the Cook Strait HMA were undertaken as part of a research project to estimate hoki spawning abundance.

[36] Almost all tows that reported targeting hoki in an HMA were undertaken very close to HMA boundaries. It is likely the lack of precision in reporting start and end positions resulted in tows being classed as being in an HMA when in fact they were outside.

SWA: Silver warehou (Tier 2)



2015/16 Landings, Catch limits and Allowances (tonnes)						
Stock	2015/16 Landings	TAC	TACC	Recreational	Customary	Other fishing related mortality
SWA 1	1,225	3,003	3,000	2	1	0
SWA 3	2,734	N/A	3,280	N/A	N/A	N/A
SWA 4	3,555	N/A	4,090	N/A	N/A	N/A

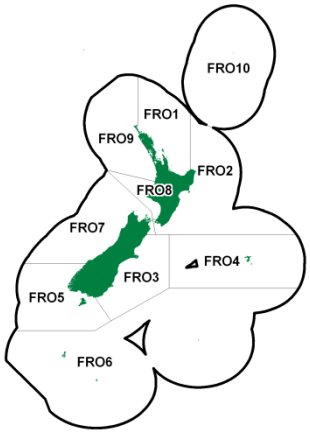
Reference points and current status (as per Harvest Strategy Standard defaults)		
Target	40% B_0	Unknown
Soft Limit	20% B_0	Unknown
Hard Limit	10% B_0	Unknown

Deemed value rates and charges				
Stock	Interim	Annual	Differential	2015/16 Actual
SWA 1 SWA 3 SWA 4	$0.50 per kg	$1.22 per kg	$1.74 @ 110-130% $3.00 @ >130%	$92 $779,000 $21,000

Environmental indicators and observer coverage		
Observer coverage	2014/15: 65% tows observed	2015/16: 37.9% of tows observed
Seabirds	2014/15: 76 observed	2015/16: 9 observed captures
NZ fur seal	2014/15: 1 observed	2015/16: 0 observed capture
Benthic interactions (fishable area trawled)	2012/13: 1,582 km^2 (0.11%)	1989/90 to 2012/13: 22,206 km^2 (1.58%)

Economic indicators (calendar year)	
Quota value 2009	$83m
Export earnings 2015	$18.3m

FRO: Frostfish (Tier 2)



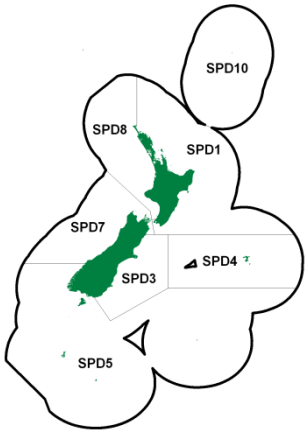
2015/16 Landings, Catch limits and Allowances (tonnes)						
Stock	2015/16 Landings	TAC	TACC	Recreational	Customary	Other fishing related mortality
FRO 3	10	176	176	0	0	N/A
FRO 4	12	28	28	0	0	N/A
FRO 5	7	135	135	0	0	N/A
FRO 6	<1	11	11	0	0	N/A
FRO 7	1,063	2,625	2,623	1	1	N/A
FRO 8	69	649	649	0	0	N/A
FRO 9	310	140	138	1	1	N/A

Reference points and current status (as per Harvest Strategy Standard defaults)		
Target	40% B_0	Unknown
Soft Limit	20% B_0	Unknown
Hard Limit	10% B_0	Unknown

Deemed value rates and charges			
Stock	Interim	Annual	2015/16 Actual
FRO 3	$0.17 per kg	$0.34 per kg	0
FRO 4	$0.12 per kg	$0.24 per kg	$9,400
FRO 5 FRO 6 FRO 7	$0.08 per kg	$0.15 per kg	0 0 0
FRO 8 FRO 9	$0.135 per kg	$0.15 per kg	

Economic indicators (calendar year)	
Quota value 2009	$2.8m
Export earnings 2015	No export information specific to frostfish is currently available

SPD: Spiny dogfish (Tier 2)



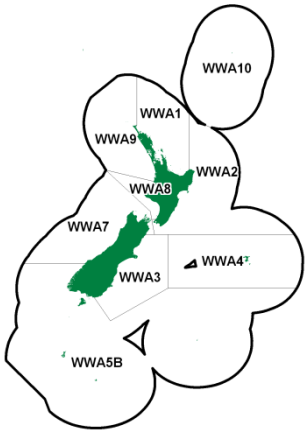
2015/16 Landings, Catch limits and Allowances (tonnes)						
Stock	2015/16 Landings	TAC	TACC	Recreational	Customary	Other fishing related mortality
SPD 4	966	1,662	1,626	10	10	20
SPD 5	1,090	3,753	3,700	8	8	37

Reference points and current status (as per Harvest Strategy Standard defaults)		
Target	40% B_0	Unknown
Soft Limit	20% B_0	Unknown
Hard Limit	10% B_0	Unknown

Deemed value rates and charges				
Stock	Interim	Annual	Differential	2015/16 Actual
SPD 4 SPD 5	$0.05 per kg	$0.10 per kg	N/a	$43 $0

Economic indicators (calendar year)	
Quota value 2009	$6.1m
Export earnings 2015	$0.9m (includes all SPD stocks)

WWA: White warehou (Tier 2)



2015/16 Landings, Catch limits and Allowances (tonnes)						
Stock	2015/16 Landings	TAC	TACC	Recreational	Customary	Other fishing related mortality
WWA3	269	585	583	1	1	0
WWA4	51	332	330	1	1	0
WWA5B	699	2,621	2,617	2	2	0
WWA7	44	129	127	1	1	0
WWA8	0	1	1	0	0	0
WWA9	<1	0	0	0	0	0

Reference points and current status (as per Harvest Strategy Standard defaults)		
Target	40% B_0	Unknown
Soft Limit	20% B_0	Unknown
Hard Limit	10% B_0	Unknown

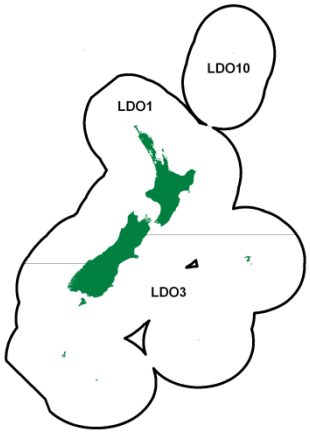
Deemed value rates and charges				
Stock	Interim	Annual	Differential	2015/16 Actual
WWA3 WWA4 WWA5B WWA7	$0.52 per kg	$1.03 per kg	$2.00 @ >110%	$1,300 0 0 0
WWA8 WWA9	$0.27 per kg	$0.54 per kg	na	0 0

Environmental indicators and observer coverage		
Observer coverage	2014/15: 70% tows observed	2015/16: 76.9% of tows observed
Seabirds	2014/15: 0 observed captures	2015/16: 2 observed captures
NZ fur seal	2014/15: 0 observed captures	2015/16: 0 observed captures

Economic indicators (calendar year)	
Quota value 2009	$16.8m
Export earnings 2015	$3.9m [37]

[37] Information in export statistics for "Warehou, Other" is assumed to be white warehou as there are separate entries for silver and blue warehou.

LDO: Lookdown dory (Tier 2)



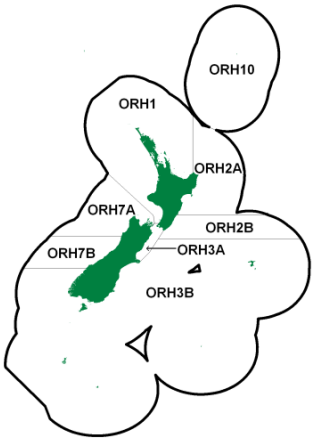
2015/16 Landings, Catch limits and Allowances (tonnes)						
Stock	2015/16 Landings	TAC	TACC	Recreational	Customary	Other fishing related mortality
LDO1	166	168	168	0	0	0
LDO3	341	614	614	0	0	0

Reference points and current status (as per Harvest Strategy Standard defaults)		
Target	40% B_0	Unknown
Soft Limit	20% B_0	Unknown
Hard Limit	10% B_0	LDO1: Unlikely to be below the hard limit (<40%)
		LDO3: Unlikely to be below the hard limit (<40%)

Deemed value rates and charges			
Stock	Interim	Annual	2015/16 Actual
LDO1	$0.378 per kg	$0.42 per kg	$15,900
LDO3	$0.21 per kg	$0.42 per kg	0

Economic indicators (calendar year)	
Quota value 2009	$0.9m
Export earnings 2015	This species is not listed individually in export statistics

ORH: Orange roughy (Tier 1)



2015/16 Landings, Catch limits, and Allowances (tonnes)						
Stock	2015/16 Catch	TAC	TACC	Recreational	Customary	Other fishing related mortality
ORH 1	1,004	1,470	1,400	0	0	70
ORH 2A	474	512	488	0	0	24
ORH 2B	59	63	60	0	0	3
ORH 3A	178	186	177	0	0	9
ORH 3B	4,528	5,250	5,000	0	0	250
ORH 7A	1,568	1,680	1,600	0	0	80
ORH 7B[38]	<1	1	1	0	0	0

Reference points and current status			
Target	30-50%B_0	ORH 3B NW Chatham Rise	B_{2014}: 37% B_0
		ORH 3B E & S Chatham Rise	B_{2014}: 30%B_0
		ORH 7A	B_{2014}: 42%B_0
	30-40%B_0	ORH 1	
		ORH 2A North	B_{2003}: 24% B_0
		ORH 2A South, 2B, 3A (MEC)	B_{2014}: 14% B_0
		ORH 3B Puysegur	
		ORH 3B Sub-Antarctic	
		ORH7B	B_{2004}: 17% B_0
Deterministic B_{MSY}		22-25% B_0	
Soft limit	20%B_0	ORH 1	
		ORH 2A North	Unlikely (<40%) below
		ORH 2A, 2B, 3A (MEC)	Likely (>60%) below
		ORH 3B NW Chatham Rise	Very Unlikely (<10%) below
		ORH 3B E & S Chatham Rise	Unlikely (<40%) below
		ORH 3B Puysegur	
		ORH 3B Sub-Antarctic	
		ORH7A	Very Unlikely (<10%) below
		ORH7B	Likely (>60%) below
Hard limit	10%B_0	ORH 1	
		ORH 2A North	Very Unlikely (<10%) below
		ORH 2A, 2B, 3A (MEC)	Unlikely (<40%) below
		ORH 3B NW Chatham Rise	Exceptionally Unlikely (<1%) below
		ORH 3B E & S Chatham Rise	Very Unlikely (<10%) below
		ORH 3B Puysegur	

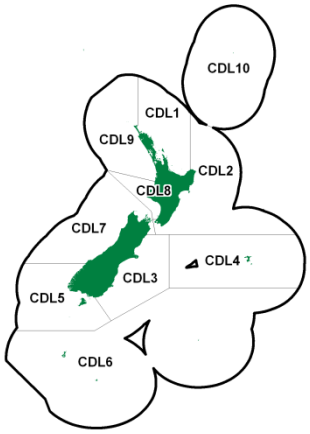
		ORH 3B Sub-Antarctic	
		ORH7A	Exceptionally Unlikely (<1%) below
		ORH7B	Unlikely (<40%) below
Harvest strategy			
Harvest Control Rule for: ORH 3B – NW Chatham Rise ORH 3B – E&S Chatham Rise ORH 7A		Based on an F_{mid} of 4.5%. This is increased slightly above the midpoint of the target range and decreased slightly below the midpoint. If a stock is below the target range, F is decreased more substantially and the subsequent F is also rescaled to ensure that biomass returns to the target range.	
Exploitation rate (F): All other stocks		4.5% of current biomass if in target range. F is reduced if biomass is below the target range	
Deemed value rates and charges			
Stock	Interim	Annual	Differential	2015/16 Actual
ORH 1	$1.70 per kg	$3.40 per kg	$5.00 @ > 110%	0
ORH 2A ORH 2B ORH 3A	$2.50 per kg	$5.00 per kg	$6.00 @ 120-140% $7.00 @ 140-160% $8.00 @ 160-180% $9.00 @ 180-200% $10.00 @ > 200%	0 0 0
ORH 3B ORH7A	$2.50 per kg	$5.00 per kg	$6.25 @ > 110%	0
ORH 7B	$1.60 per kg	$3.20 per kg	$5.00 @ > 110%	$3,000
Environmental indicators and observer coverage				
Observer coverage*		2014/15: 31.5% tows observed	2015/16: 66.8% tows observed	
Seabirds		2014/15: 0 observed captures	2015/16: 4 observed captures	
Marine mammals	NZ fur seal	2014/15: 1 observed captures, 1 estimated	2015/16: 0 observed captures	
	NZ sea lion	2014/15: 0 observed captures, 0 estimated	2015/16: 0 observed captures	
Benthic impacts (fishable area trawled)		2012/13: 854 km^2 (0.06%)*	1989/90 – 2012/13: 37,325 km^2 (2.65%)*	
Economic indicators (calendar year)				
Quota value 2009		$282m		
Export earnings 2015		$53.7m (includes catch from outside the EEZ)		

Table 37: Sub-area catch limits and actual 2015/16 catch for orange roughy stocks.

Sub-area catch limits (in tonnes)			
Stock	Sub-area	Agreed catch limit	2015/16 Catch [39]
ORH 1[40]	Area A	530 tonnes	375
	Area B	530 tonnes	483
	Area C	470 tonnes	2
	Area D	470 (incl. 30 tonnes bycatch limit in the MC Box)	93 (24 in MC Box)
ORH 2A	ORH 2A North	200	186
ORH 2A South, 2B and 3A	MEC	525	499
ORH 3B	NW Chatham Rise	1,250[41]	619
	E & S Chatham Rise	3,100	3,138
	Puysegur	150	0
	Sub-Antarctic	500	383

[39] From industry-reported catch records, monitored by MPI.
[40] The sum of the catch limits applying to each sub-area is greater than the overall TACC of 1,400 tonnes. This means the catch limit cannot be reached in all sub-areas in a given year.
[41] Quota owners continued to agree to shelve 207 tonnes of NW Chatham Rise ACE during 2015/16 leaving 1,043 tonnes available to be caught

CDL: Black cardinalfish (Tier 2)



2015/16 Landings, Catch limits, and Allowances (in tonnes)						
Stock	2015/16 Catch	TAC	TACC	Recreational	Customary	Other fishing related mortality
CDL 1	35	1,320	1,200	0	0	120
CDL 2	299	460	440	0	0	20
CDL 3	136	196	196	0	0	N/A
CDL 4	30	66	66	0	0	N/A
CDL 5	15	22	22	0	0	N/A
CDL 6	1	1	1	0	0	N/A
CDL 7	3	39	39	0	0	N/A
CDL 8	0	0	0	0	0	N/A
CDL 9	2	4	4	0	0	N/A

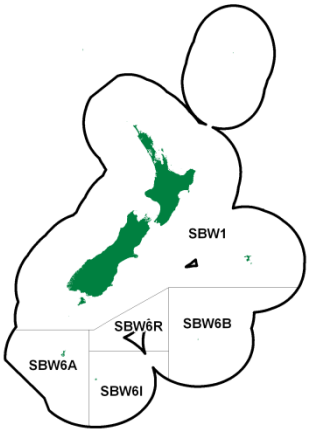
Reference points and Current status (as per Harvest Strategy Standard defaults)			
Target	40% B_0	CDL 2, 3 & 4	2009: Very Unlikely to be at or above target (<10%)
Soft Limit	20% B_0	CDL 2, 3 & 4	2009: Likely to be below the soft limit (>60%)
Hard Limit	10% B_0	CDL 2, 3 & 4	2009: About as Likely as Not to be below the hard limit (40-60%)

Deemed value rates and charges				
Stock	Interim	Annual	Differential	2015/16 Actual
CDL 1 CDL 6 CDL 7 CDL 8 CDL 9	$0.15 per kg	$0.30 per kg	na	0 $37 0 0 0
CDL 2	$0.30 per kg	$0.60 per kg	$0.69 @> 120%	0
CDL 5	$0.26 per kg	$0.52 per kg	na	0
CDL 3 CDL 4	$0.26 per kg	$0.52 per kg	$0.60 @ > 120%	0 0

Environmental indicators and observer coverage		
Observer coverage	2014/15: 10.3% tows observed	2015/16: 6.8% tows observed
Seabirds	2014/15: 0 observed	2015/16: 2 observed captures
NZ fur seal	2014/15 0 observed, 0 estimated	2015/16: 0 observed captures

Economic indicators (calendar year)	
Quota value 2009	$4.2m
Export earnings 2015	$0.7m

SBW: Southern blue whiting (Tier 1)



Landings, Catch limits and Allowances as of 1 April 2016 (tonnes)							
Stock	2015/16 Landings[42]	2016/17 Landings[43]	TAC	TACC	Recreational	Customary	Other fishing related mortality
SBW 1	36	*?18*	8	8	0	0	N/A
SBW 6A	181	*?90*	1,640	1,640	N/A	N/A	N/A
SBW 6B	2,405	*?2,405*	3,000	6,860	0	0	140
SBW 6I	22,100	*?22,100*	40,000	39,200	0	0	800
SBW 6R	34	*?11*	5,500	5,500	N/A	N/A	N/A

Reference points and Current status (as per Harvest Strategy Standard defaults)			
Target	40% B_0	SBW 1	Unknown
		SBW 6A	Unknown
		SBW 6B	B_{2013}: 40-50% B_0
		SBW 6I	B_{2014}: at or above 50% B_0
		SBW 6R	Unknown
Soft limit	20%B_0	SBW 1	Unknown
		SBW 6A	Unknown
		SBW 6B	Very Unlikely to be below (<10%)
		SBW 6I	Exceptionally Unlikely to be below (<1%)
		SBW 6R	Unknown
Hard limit	10%B_0	SBW 1	Unknown
		SBW 6A	Unknown
		SBW 6B	Exceptionally Unlikely to be below (<1%)
		SBW 6I	Exceptionally Unlikely to be below (<1%)
		SBW 6R	Unknown

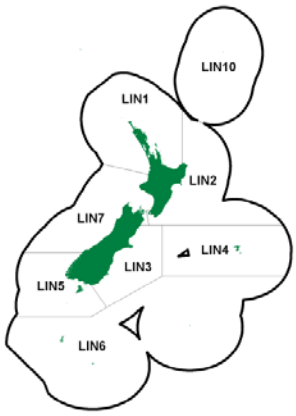
Deemed value rates and charges				
Stock	Interim	Annual	Differential	2015/16 Actual
SBW1	$0.41 per kg	$0.465 per kg	$0.552 @ 120-140% $0.644 @ 140-160% $0.736 @ 160-180% $0.828 @ 180-200% $0.92 @ > 200%	$18,000
SBW 6A SBW 6B SBW 6I SBW 6R	$0.41 per kg	$0.46 per kg	$0.60 @ 102-150% $0.92 @ >150%	$6 0 0 0

[42] Totals are for the 2014/15 April fishing year (1 April 2014 – 31 March 2015).
[43] 2015/16 landings are based on preliminary landings information from the 1 April 2015 – 30 March 2016 fishing year.

Environmental indicators and observer coverage[44]			
Observer coverage		2014/15: 99.3% tows observed	2015/16: 99.9% tows observed
Seabirds		2014/15: 7 observed captures, 7 estimated	2015/16: 8 observed captures
Marine mammals	NZ fur seals	2014/15: 41 observed captures; 41 estimated	2015/16: 51 observed captures
	NZ sea lion	2014/15: 6 observed captures	2015/16: 3 observed captures
Benthic interactions (fishable area trawled)		2012/13: 840 km^2 (0.06%)	1989/90 – 2012/13: 20,291 km^2 (1.44%)
Economic indicators (calendar year)			
Quota value 2009		$74.3m	
Export earnings 2015		$19m	

[44] Information on environmental actions is provided by October fishing year e.g. 2015-16 covers 1 October 2015 – 30 September 2016. This effectively includes all captures in the 2015-16 April fishing year.

LIN: Ling (Tier 1)



2015/16 Landings, Catch limits and Allowances (tonnes)						
Stock	2015/16 Landings	TAC	TACC	Recreational	Customary	Other fishing related mortality
LIN 2	702	N/A	982	N/A	N/A	N/A
LIN 3	1,440	2,060	2,060	0	0	0
LIN 4	2,658	4,200	4,200	0	0	0
LIN 5	3,867	4,036	3,955	1	1	36
LIN 6	2,222	8,590	8,505	0	0	85
LIN 7	3,340	3,144	3,080	1	1	25

Reference points and Current status				
Target	40% B_0	LIN 2	Unknown	
		LIN 3&4	B_{2014}: 57% B_0	Very Likely (>90%) to be at or above
		LIN 5&6	B_{2014}: 70-101% B_0	Virtually Certain (>99%) to be at or above
		LIN 6B	B_{2006}: 61% B_0	Very Likely (>90%) to be at or above
		LIN7WC	B_{2012}: 71% B_0	Very Likely (>90%) to be at or above
		LIN CS	B_{2010}: 54% B_0	Likely (>60%) to be at or above
Soft limit	20%B_0	LIN 2	Unlikely (<40%) to be below	
		LIN 3&4	Exceptionally Unlikely (<1%) to be below	
		LIN 5&6	Exceptionally Unlikely (<1%) to be below	
		LIN 6B	Very Unlikely (<10%) to be below	
		LIN7WC	Exceptionally Unlikely (<1%) to be below	
		LIN CS	Exceptionally Unlikely (<1%) to be below	
Hard limit	10%B_0	LIN 2	Very Unlikely (<10%) to be below	
		LIN 3&4	Exceptionally Unlikely (<1%) to be below	
		LIN 5&6	Exceptionally Unlikely (<1%) to be below	
		LIN 6B	Exceptionally Unlikely (<1%) to be below	
		LIN7WC	Exceptionally Unlikely (<1%) to be below	
		LIN CS	Exceptionally Unlikely (<1%) to be below	

Deemed value rates and charges (per kg)					
Stock	Interim	100-102%	102-120%	Annual 120%+	2015/16 Actual
LIN 2	$1.20	$2.38	$3.40	$6.00	0
LIN 3					$80
LIN 4					0
LIN 5					$500
LIN 6					0
LIN 7					$836,000

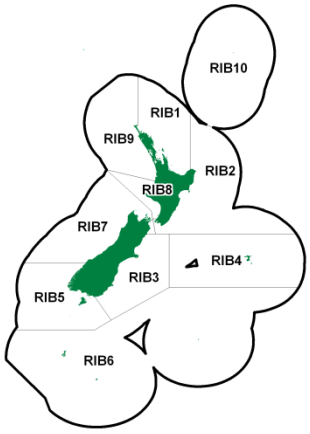
Environmental indicators and observer coverage			
Observer coverage		Trawl – 2014/15: 16.1 % tows observed	Trawl – 2015/16: 15.2% tows observed
		Longline – 2014/15: 2.9 % hooks observed	Longline – 2015/16: 8.9% hooks observed
Seabirds	Trawl	2014/15: 2 observed captures, 44 estimated	2015/16: 9 observed captures
	Longline	2014/15: 16 observed captures, 690 estimated	2015/16: 92 observed captures
Marine mammals (trawl)	NZ fur seal	2014/15: 1 observed captures	2015/16: 1 observed capture
	NZ sea lion	2014/15: 0 observed captures	2015/16: 0 observed capture
Benthic interactions (fishable area trawled)		2012/13: 410 km^2 (0.03%)	1989/90 – 2012/13: 14,264 km^2 (1.01%)
Economic indicators (calendar year)			
Quota value 2009		$246.2m	
Export earnings 2015		$48.3m	

PTO: Patagonian toothfish (Tier 2)

2015/16 Landings, Catch limits and Allowances (tonnes)						
Stock	2015/16 Landings	TAC	TACC	Recreational	Customary	Other fishing related mortality
PTO 1	6	50	49.5	0	0	0.5
Reference points and Current status (as per Harvest Strategy Standard defaults)						
Target	40% B_0	Unknown				
Soft Limit	20% B_0	Unknown				
Hard Limit	10% B_0	Unknown				
Deemed value rates and charges						
Stock	Interim	Annual 100-110%	Annual 110% +	2015/16 Actual		
PTO 1	$13.50 per kg	$15.00 per kg	$25.00 per kg	0		
Economic indicators (calendar year)						
Quota value 2009	$N/A					
Export earnings 2015	$14.1m[45]					

[45] All revenue generated by Patagonian toothfish was likely taken in other jurisdictions but landed in New Zealand.

RIB: Ribaldo (Tier 2)



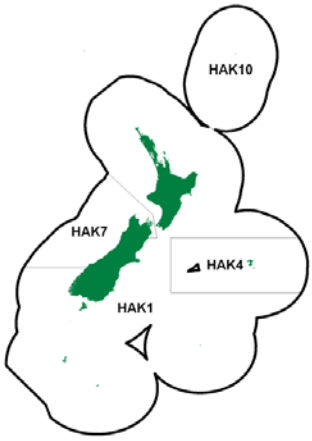
2015/16 Landings, Catch limits and Allowances (tonnes)						
Stock	2015/16 Landings	TAC	TACC	Recreational	Customary	Other fishing related mortality
RIB 3	163	394	394	0	0	0
RIB 4	330	357	357	0	0	0
RIB 5	43	52	52	0	0	0
RIB 6	67	231	231	0	0	0
RIB 7	322	330	330	0	0	0
RIB 8	<1	1	1	0	0	0

Reference points and Current status (as per Harvest Strategy Standard defaults)			
Target	40% B_0	RIB 7 & 8	Unknown
		RIB 3 & 4	Unknown
		RIB 5 & 6	Unknown
Soft Limit	20% B_0	RIB1, 2, 7, 8, 9	Unknown
		RIB 3 & 4	Unlikely to be below soft limit (<40%)
		RIB 5 & 6	Unlikely to be below soft limit (<40%)
Hard Limit	10% B_0	RIB1, 2, 7, 8, 9	Unknown
		RIB 3 & 4	Unlikely to be below hard limit (<40%)
		RIB 5 & 6	Unlikely to be below hard limit (<40%)

Deemed value rates and charges									
Stock	Interim	100-120%		120-140%	140-160%	160-180%	180-200%	200%+	2015/16 Actual
RIB 3 RIB 5	$0.15	$0.30		$0.36	$0.42	$0.48	$0.54	$0.60	$8 0
RIB 4 RIB 8	$0.27	$0.30		$0.36	$0.42	$0.48	$0.54	$0.60	
RIB 6	$0.40	$0.80		$0.96	$1.12	$1.28	$1.44	$1.60	0
RIB 7	$0.40	100-110% $0.80	110-120% $1.20	120%+ $2.50					$131,000

Economic indicators (calendar year)	
Quota value 2009	$2.7m
Export earnings 2015	No export information specific to ribaldo is currently available

Hake (Tier 1)



2015/16 Landings, Catch limits and Allowances (tonnes)						
Stock	2015/16 Landings	TAC	TACC	Recreational	Customary	Other fishing related mortality
HAK 1	1,584	N/A	3,701	N/A	N/A	N/A
HAK 4	274	1,818	1,800	0	0	18
HAK 7	2,864	7,777	7,700	0	0	77

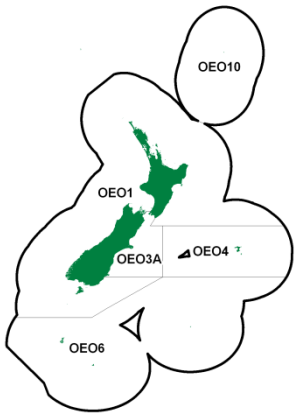
Reference points and Current status (as per Harvest Strategy Standard defaults)				
Target	40% B_0	HAK Sub-Ant	B_{2014}: 60%B_0	Very Likely (>90%) to be at or above
		HAK CR	B_{2012}: 47%B_0	Likely (>60%) to be at or above
		HAK 7	B_{2012}: 58% B_0	Very Likely (>90%) to be at or above
Soft limit	20% B_0	HAK Sub-Antarctic		Exceptionally Unlikely (<1%) to be below
		HAK Chatham Rise		Exceptionally Unlikely (<1%) to be below
		HAK 7		Very Unlikely (<10%) to be below
Hard limit	10% B_0	HAK 1		Exceptionally Unlikely (<1%) to be below
		HAK 4		Exceptionally Unlikely (<1%) to be below
		HAK 7		Exceptionally Unlikely (<1%) to be below

Deemed value rates and charges								
Stock	Interim	100-120%	120-140%	140-160%	160-180%	180-200%	200%+	2015/16 Actual
HAK 1 HAK 4 HAK 7	$0.80	$1.60	$1.92	$2.24	2.56	2.88	3.20	0 $300 $

Environmental indicators and observer coverage			
Observer coverage		2014/15: 76.6% tows observed	2015/16: 75.5% tows observed
Seabirds		2014/15: 3 observed captures; 5 estimated	2015/16: 11 observed captures
Marine mammals	NZ fur seal	2014/15: 8 observed captures; 13 estimated	2015/16: 1 observed captures
	NZ sea lion	2014/15: 0 observed captures; 0 estimated	2015/16: 0 observed captures
Benthic interactions (fishable area trawled)		2010/11: 1,223 km^2 (0.09%)	1989/90 – 2010/11: 17,976 km^2 (1.27%)

Economic indicators (calendar year)	
Quota value 2009	$135.5m
Export earnings 2015	$30.4m

Oreos (Tier 1)



2015/16 Landings, Catch limits and Allowances (tonnes)						
Stock	2015/16 Landings	TAC	TACC	Recreational	Customary	Other fishing related mortality
OEO 1	523	2,500	2,500	0	0	0
OEO 3A	3,334	3,518	3,350	0	0	168
OEO 4	2,890	7,000	7,000	0	0	0
OEO 6	1,356	N/A	6,000	N/A	N/A	N/A

Reference points and Current status (as per Harvest Strategy Standard defaults)				
Target	40% B_0	OEO 1	B_{2007}: 27% B_0	Smooth oreo – Southland. Unlikely (<40%) to be above
		OEO 3A		Black oreo: Unknown
			B_{2009}: 36% B_0	Smooth oreo: About As Likely As Not (40-60%)to be at or above
		OEO 4		Black oreo: Unknown
			B_{2013}: 27% B_0	Smooth oreo: Very Unlikely (<10%) to be above
		OEO 6		Smooth oreo – Pukaki Rise. Unknown
			B_{2008}: 33% B_0	Smooth oreo – Bounty Plateau. Unlikely (<40%) to be at or above
				Black oreo – Pukaki Rise. Unknown
Soft Limit	20% B_0	OEO 1	Smooth oreo – Southland. Unlikely (<40%) to be below	
		OEO 3A	Black oreo: Unknown	
			Smooth oreo: Unlikely (<40%) to be below	
		OEO 4	Black oreo: Unknown	
			Smooth oreo: Unlikely (<40%) to be below	
		OEO 6	Smooth oreo – Pukaki Rise. Unknown	
			Smooth oreo – Bounty Plateau. Unlikely (<40%) to be below	
			Black oreo – Pukaki Rise. Unknown	
Hard Limit	10% B_0	OEO 1	Smooth oreo – Southland. Very Unlikely (<10%) to be below	
		OEO 3A	Black oreo: Unknown	
			Smooth oreo: Very Unlikely (<10%) to be below	
		OEO 4	Black oreo: Unknown	
			Smooth oreo: Very Unlikely (<10%) to be below	
		OEO 6	Smooth oreo – Pukaki Rise. Unknown	
			Smooth oreo – Bounty Plateau. Very Unlikely (<10%) to be below	
			Black oreo – Pukaki Rise. Unknown	

Deemed value rates and charges								
Stock	Interim	100-120%	120-140%	140-160%	160-180%	180-200%	200%+	2015/16 Actual
OEO 1 OEO 4 OEO 6	$0.39	$0.78	$0.936	$1.092	$1.248	$1.404	$1.56	0 $61,000 0
OEO 3A	$0.38	$0.76	$0.912	$1.064	$1.216	$1.368	$1.52	0

Environmental indicators and observer coverage			
Observer coverage		2014/15: 17.8% tows observed	2015/16: 29.2% tows observed
Seabirds		2014/15: 0 observed captures	2015/16: 1 observed captures
Marine mammals	NZ fur seal	2014/15: 0 observed captures	2015/16: 0 observed captures
	NZ sea lion	2014/15: 0 observed captures	2015/16: 0 observed captures
Benthic interactions (fishable area trawled)		2012/13: 537 km^2 (0.04%)	1989/90 – 2012/13: 16,276 km^2 (1.16%)
Economic indicators (calendar year)			
Quota value 2009		$74.4m	
Export earnings 2015		Black oreo - $3.3m Smooth oreo - $2.7m Oreo, other - $7.5m (this category clearly includes black and/or smooth oreo that has not been reported by individual species)	

Catch split

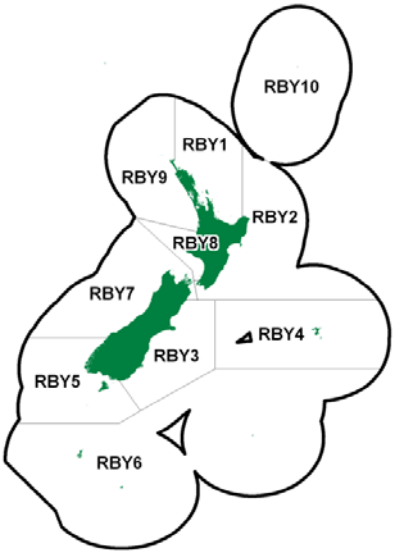
OEO 1

Area	Catch limit for 2015/16 (t)	Sum of catch reported to DWG (t)	Sum of catch reported on TCEPRs/MHRs
Southland (*smooth oreo only*)	400	51	43
Southland (*black oreo only*)	N/A	116	129
OEO1 excluding Southland (*all species*)	N/A	N/a	94
OEO1 (*all species*)	2,500	277 (MHR)	

OEO3A

Species	Catch limit (t)	Sum of catch reported on CLRs (t)
Black oreo	1,700	1,803
Smooth oreo	1,650	1,537
Totals	*3,350*	*3,340 (3,352 tonnes including spiky oreo)*

RBY: Rubyfish (Tier 2)



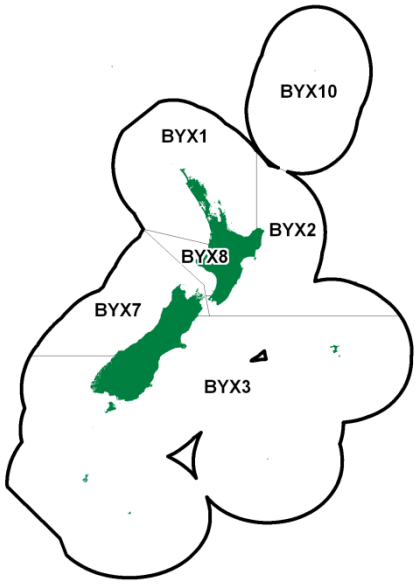
2015/16 Landings, Catch limits and Allowances (tonnes)						
Stock	2015/16 Landings	TAC	TACC	Recreational	Customary	Other fishing related mortality
RBY 1	145	318	300	1	2	15
RBY 2	285	435	433	1	1	0
RBY 3	30	3	3	0	0	0
RBY 4	19	19	18	0	0	1
RBY 5	<1	0	0	0	0	0
RBY 6	<1	0	0	0	0	-
RBY 7	3	33	33	0	0	-
RBY 8	<1	6	6	0	0	0
RBY 9	1	19	19	0	0	-

Reference points and Current status (as per Harvest Strategy Standard defaults)		
Target	40% B_0	Unknown
Soft Limit	20% B_0	Unknown
Hard Limit	10% B_0	Unknown

Deemed value rates and charges (per kg)								
Stock	Interim	100-120%	120-140%	140-160%	160-180%	180-200%	200%+	2015/16 Actual
RBY 1	$0.14	$0.28	$0.336	$0.392	$0.448	$0.504	$0.56	$30
RBY 4	$0.21	$0.42	$0.504	$0.588	$0.672	$0.756	$0.84	$1,700
RBY 2 RBY 5 RBY 6 RBY 9	$0.11	>100% $0.21						0 $1 $1 0
RBY 3	$0.10	>100% $0.19						$2,100
RBY 7	$0.378	>100% $0.42						
RBY 8	$0.21	>100% $0.42						0

Economic indicators (calendar year)	
Quota value 2009	$N/A
Export earnings 2015	Rubyfish is not listed as an individual species in export statistics

BYX: Alfonsino (Tier 2)



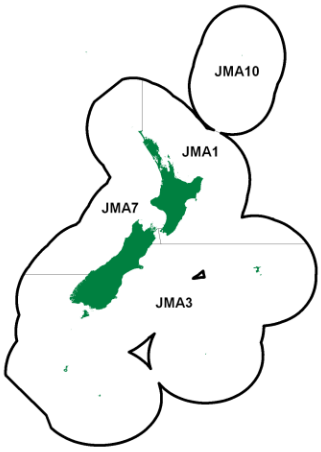
2015/16 Landings, Catch limits and Allowances (tonnes)						
Stock	2015/16 Landings	TAC	TACC	Recreational	Customary	Other fishing related mortality
BYX 1	24	304	300	2	2	31.3
BYX 2	1,573	-	1,575	-	-	-
BYX 3	1,104	-	1,010	-	-	-
BYX 7	27	-	81	-	-	-
BYX 8	<1	-	20	-	-	-

Reference points and Current status (as per Harvest Strategy Standard defaults)			
Target	B_{MSY} (30-50% B_0)	BYX1 B_{2010}	Likely (>60%) to be at or above B_{MSY}
	40% B_0	All other stocks	Unknown
Soft Limit	20% B_0	BYX1	Very Unlikely (<10%) to be below
		All other stocks	Unknown
Hard Limit	10% B_0	BYX1	Very Unlikely (<10%) to be below
		All other stocks	Unknown

Deemed value rates and charges (per kg)								
Stock	Interim	100-120%	120-140%	140-160%	160-180%	180-200%	200%+	2015/16 Actual
BYX 1	$1.98	$2.20	$2.64	$3.08	$3.52	$3.96	$4.40	$86
BYX 3								$3,600
BYX 7								0
BYX 8								0
Stock		100-110%	110-130%	130-150%	150-170%	170-190%	190%+	2015/16 Actual
BYX 2		$2.20	$2.64	$3.08	$3.52	$3.96	$4.40	$1,476

Economic indicators (calendar year)	
Quota value 2009	$N/A
Export earnings 2015	$11.8m (includes catch taken outside the EEZ)

Jack Mackerel (Tier 1)



2015/16 Landings, Catch limits and Allowances (tonnes)					
Stock	2015/16 Landings	TAC	TACC	Recreational	Customary
JMA 3	2,756	NA	18,000	NA	NA
JMA 7	30,875	NA	32,537	NA	NA

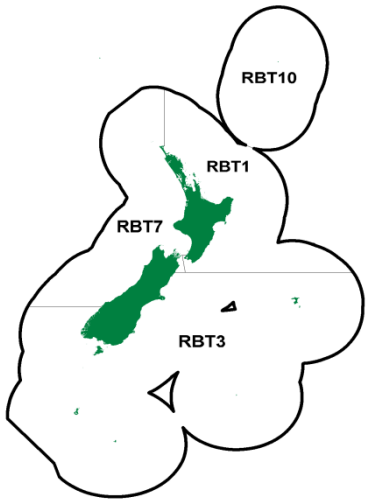
Reference points and Current status (as per Harvest Strategy Standard defaults)			
Target	40% B_0	JMA 3	Unknown
		JMA 7	Unknown
Soft Limit	20% B_0	JMA 3	Unknown
		JMA 7	Unknown
Hard Limit	10% B_0	JMA 3	Unknown
		JMA 7	Unknown

Deemed value rates and charges								
Stock	Interim	100-120%	120-140%	140-160%	160-180%	180-200%	200%+	2015/16 Actual
JMA 3	$0.08	$0.09	$0.108	$0.126	$0.144	$0.162	$0.18	0
JMA 7	$0.08	$0.15	$0.18	$0.21	$0.24	$0.27	$0.30	$110,000

Environmental indicators and observer coverage			
Observer coverage		2014/15: 86.4% tows observed	2015/16: 79.3% tows observed
Seabirds		2014/15: 11 observed captures; 14 estimated	2015/16: 7 observed captures
Marine mammals	NZ fur seal	2014/15: 5 observed captures; 6 estimated	2015/16: 2 observed captures
	Common dolphin	2014/15: 19 observed captures; 23 estimated	2015/16: 2 observed captures
Benthic interactions (fishable area trawled)		2012/13: 4,025 km^2 (0.29%)	1989/90 – 2012/13: 43,208 km^2 (3.07%)

Economic indicators (calendar year)	
Quota value 2009	$53.6m (for all stocks)
Export earnings 2015	$70.5m (for all stocks)

RBT: Redbait (Tier 2)



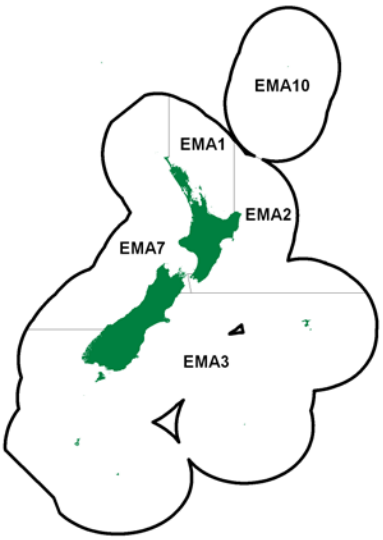
2015/16 Landings, Catch limits and Allowances (tonnes)						
Stock	2014/15 Landings	TAC	TACC	Recreational	Customary	Other fishing related mortality
RBT 1	5	20	19	0	0	1
RBT 3	1,068	2,305	2,190	0	0	115
RBT 7	383	2,991	2,841	0	0	150

Reference points and Current status (as per Harvest Strategy Standard defaults)		
Target	40% B_0	Unknown
Soft Limit	20% B_0	Unknown
Hard Limit	10% B_0	Unknown

Deemed value rates and charges (per kg)								
Stock	Interim	100-120%	120-140%	140-160%	160-180%	180-200%	200%+	2015/16 Actual
RBT 1 RBT 7	$0.25	$0.50	$0.60	$0.70	$0.80	$0.90	$1.00	$1 0 0
RBT 3	$0.45	$0.50	$0.60	$0.70	$0.80	$0.90	$1.00	

Economic indicators (calendar year)	
Quota value 2009	$N/A
Export earnings 2015	Redbait does not feature as an individual species in export statistics

EMA: English mackerel (Tier 2)



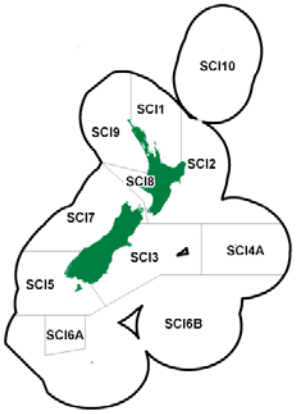
2015/16 Landings, Catch limits and Allowances (tonnes)						
Stock	2014/15 Landings	TAC	TACC	Recreational	Customary	Other fishing related mortality
EMA 3	27	392	390	1	1	0
EMA 7	761	3,352	3,350	1	1	0

Reference points and Current status (as per Harvest Strategy Standard defaults)		
Target	40% B_0	Unknown
Soft Limit	20% B_0	Unknown
Hard Limit	10% B_0	Unknown

Deemed value rates and charges (per kg)								
Stock	Interim	100-120%	120-140%	140-160%	160-180%	180-200%	200%+	2015/16 Actual
EMA 3 EMA 7	$0.13	$0.26	$0.312	$0.364	$0.416	$0.468	$0.52	0 0

Economic indicators (calendar year)	
Quota value 2009	$N/A
Export earnings 2015	$10.5m (includes all stocks)

SCI: Scampi (Tier 1)



2015/16 Landings, Catch limits and Allowances (tonnes)						
Stock	2015/16 Landings	TAC	TACC	Recreational	Customary	Other Mortality
SCI 1	118	126	120	0	0	6
SCI 2	134	140	133	0	0	7
SCI 3	336	357	340	0	0	17
SCI 4A	114	126	120	0	0	6
SCI 5	<1	42	40	0	0	2
SCI 6A	263	321	306	0	0	15
SCI 6B	<1	53	50	0	0	3
SCI 7	9	79	75	0	0	4
SCI 8	0	5	5	0	0	0
SCI 9	<1	37	35	0	0	2

Reference Points and Current status (as per Harvest Strategy Standard defaults)			
Metric			Status
Target	40% B_0	SCI 1	B_{2011}: Likely (> 60%) to be at or above
		SCI 2	B_{2012}: Very likely (> 90%) to be at or above
		SCI 3	B_{2014}: 54% or 60% B_0. Very Likely (>90%) to be at or above
		SCI 6A[46]	Unknown
Soft Limit	20% B_0	SCI 1	Very Unlikely (<10%) to be below
		SCI 2	
		SCI 3	
		SCI 6A	Unknown
Hard Limit	10% B_0	SCI 1	Very Unlikely (< 10%) to be below
		SCI 2	Exceptionally Unlikely (<1%) to be below
		SCI 3	Very Unlikely (< 10%) to be below
		SCI 6A	Unknown

Deemed value rates and charges								
Stock	Interim	100-120%	120-140%	140-160%	160-180%	180-200%	200%+	2015/16 Actual
SCI 1	$25.65	$51.30	$61.56	$71.82	$82.08	$92.34	$102.60	0
SCI 2								0
SCI 3								0
SCI 4A								0
SCI 5								0
SCI 6A								0

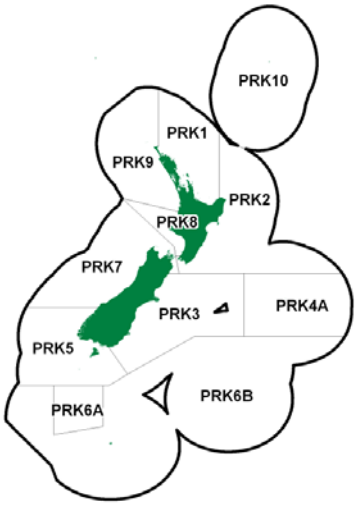
[46] The other major scampi stock (SCI 4A) has never been assessed

SCI 6B SCI 7 SCI 8 SCI9								0 0 0 0

Environmental indicators and observer coverage			
Observer coverage		2014/15: 7.7% tows observed	2015/16: 2.8% tows observed
Seabirds		2014/15: 7 observed captures; 151 estimated	2015/16: 7 observed captures
Marine mammals	NZ fur seal	2014/15: 1 observed capture; 6 estimated	2015/16: 0 observed captures
	NZ sea lion	2014/15: 0 observed captures; 3 estimated	2015/16: 0 observed captures
Benthic interactions (fishable area trawled)		2012/13: 4,594 km^2 (0.33%)	1989/90 – 2012/13: 19,482 km^2 (1.38%)

Economic Indicators (calendar year)	
Quota value 2009	$132.3m
Export earnings 2015	$20.5m (based on the "shrimps and prawns cold-water" category)

PRK: Prawn killer (Tier 2)



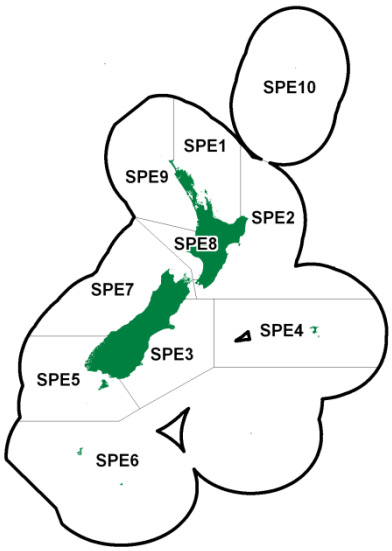
2015/16 Landings, Catch limits and Allowances (tonnes)						
Stock	2015/16 Landings	TAC	TACC	Recreational	Customary	Other fishing related mortality
PRK 1	<1	25.7	24.5	0	0	1.2
PRK 2	<1	3.7	3.5	0	0	0.2
PRK 3	2	1	1	0	0	0
PRK 4A	0	1	1	0	0	0
PRK 5	0	1	1	0	0	0
PRK 6A	0	1	1	0	0	0
PRK 6B	0	1	1	0	0	0
PRK 7	1	1	1	0	0	0
PRK 8	<1	1	1	0	0	0
PRK 9	0	1	1	0	0	0

Reference points and Current status (as per Harvest Strategy Standard defaults)		
Target	40% B_0	Unknown
Soft Limit	20% B_0	Unknown
Hard Limit	10% B_0	Unknown

Deemed value rates and charges (per kg)			
Stock	Interim	100%+	2015/16 Actual
PRK 1	$0.10	$0.20	0
PRK 2			0
PRK 3			0
PRK 4A			0
PRK 5			0
PRK 6A			0
PRK 6B			0
PRK 7			$11
PRK 8			0
PRK 9			0

Economic indicators (calendar year)	
Quota value 2009	$N/A
Export earnings 2015	Prawn killer does not feature as an individual species in export statistics

SPE: Sea perch (Tier 2)



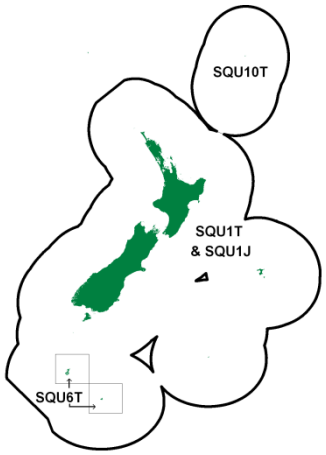
2015/16 Landings, Catch limits and Allowances (tonnes)						
Stock	2015/16 Landings	TAC	TACC	Recreational	Customary	Other fishing related mortality
SPE 3	774	1,022	1,000	11	11	-
SPE 4	436	956	910	0	0	46
SPE 5	34	38	36	1	1	-
SPE 6	3	9	9	0	0	-
SPE 7	89	98	82	8	8	-

Reference points and Current status (as per Harvest Strategy Standard defaults)		
Target	40% B_0	Unknown
Soft Limit	20% B_0	Unknown
Hard Limit	10% B_0	Unknown

Deemed value rates and charges (per kg)								
Stock	Interim	100-120%	120-140%	140-160%	160-180%	180-200%	200%+	2015/16 Actual
SPE 3 SPE 7	$0.50	$0.55	$0.66	$0.77	$0.88	$0.99	$1.10	$30 $30,000
SPE 4 SPE 5 SPE 6	$0.36	$0.40	$0.48	$0.56	$0.64	$0.72	$0.80	0 0 0

Economic indicators (calendar year)	
Quota value 2009	$N/A
Export earnings 2015	$2.0m (includes all stocks)

Squid (Tier 1)



2015/16 Landings, Catch limits and Allowances (tonnes)						
Stock	201516 Landings	TAC	TACC	Recreational	Customary	Other fishing related mortality
SQU 1J	937	N/A	50,212	N/A	N/A	N/A
SQU 1T	17,018	44,741	44,741	0	0	0
SQU 6T	25,171	N/A	32,369	N/A	N/A	N/A

Reference points and Current status
Arrow squid live for one year, spawn once then die. To date, there has been no method to estimate biomass of arrow squid. Evaluation of depletion modelling was undertaken during 2015 but will not be trialled during 2016.

Deemed value rates (per kg) and charges								
Stock	Interim	100-120%	120-140%	140-160%	160-180%	180-200%	200%+	2015/16 Actual
SQU 1J SQU 1T SQU 6T	$0.44	$0.88	$1.056	$1.232	$1.408	$1.584	$1.76	0 $10 $54

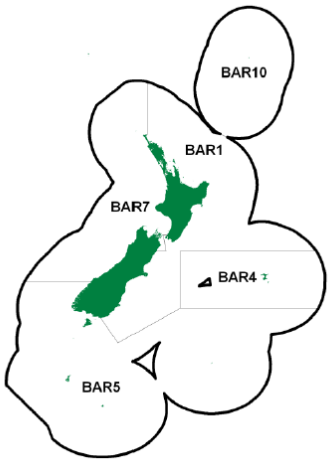
Environmental indicators and observer coverage			
Observer coverage		2014/15: 86.9% tows observed	2015/16: 78.9% tows observed
Seabirds	2014/15: 384 observed captures (trawl); 428 estimated 2014/15: 30 observed captures (jig)	2015/16: 307 observed captures (trawl) 2015/16: 3 observed captures (jig)	
Marine mammals	NZ fur seals	2014/15: 19 observed captures; 22 estimated	2015/16: 10 observed captures
	NZ sea lion	2014/15: 2 observed captures; 1 estimated	2015/16: 0 observed captures
Benthic interactions (fishable area trawled)		2012/13: 3,307 km^2 (0.23%)	1989/90 – 2012/13: 37,574 km^2 (2.67%)

Economic indicators (calendar years)	
Quota value 2009	$116.5m
Export earnings 2015	$40.5m

Southern squid trawl fishery (SQU6T) Operational Plan 2015/16

FRML	Completed tows from weekly reports*	% of tows observed	Observed sea lion captures	Estimated captures	% of FRML reached
68	1,364	92%	0	14	21%

Barracouta (Tier 2)



2015/16 Landings, Catch limits and Allowances (tonnes)						
Stock	2015/16 Landings	TAC	TACC	Recreational	Customary	Other fishing related mortality
BAR 4	2,893	N/A	3,019	N/A	N/A	N/A
BAR 5	7,557	7,475	7,470	3	2	0
BAR 7	5,493	N/A	11,173	N/A	N/A	N/A

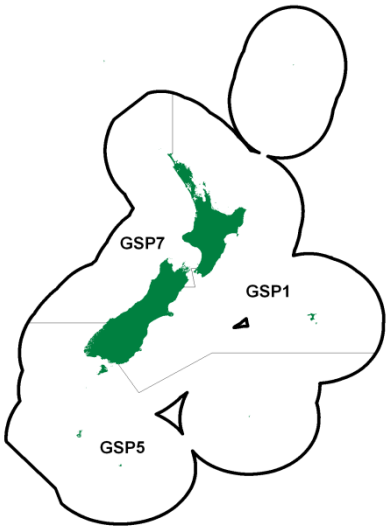
Reference points and Current status (as per Harvest Strategy Standard defaults)			
Target	40% B_0	BAR 4	Unknown
		BAR 5	Unknown
		BAR 7	Unknown
Soft Limit	20% B_0	BAR 4	Unknown
		BAR 5	Unknown
		BAR 7	Unknown
Hard Limit	10% B_0	BAR 4	Unknown
		BAR 5	Unknown
		BAR 7	Unknown

Deemed value rates (per kg) and charges								
Stock	Interim	100-120%	120-140%	140-160%	160-180%	180-200%	200%+	2015/16 Actual
BAR 7	$0.12	$0.24	$0.288	$0.336	$0.384	$0.432	$0.48	$1
Stock	Interim	100-110%		110-120%		120%+		2015/16 Actual
BAR 4 BAR 5	$0.12	$0.25		$0.50		$1.00		$113,000 0

Environmental indicators and observer coverage		
Observer coverage	2014/15: 36.7% tows observed	2015/16: 30% tows observed
Seabirds	2014/15: 25 observed captures	2015/16: 39 observed captures
Fur seals	2014/15: 5 observed captures; 33 estimated	2015/16: 3 observed captures
Benthic impacts (fishable area trawled)	2012/13: 1,721 km^2 (0.12%)	1989/90 – 2012/13: 48,099 km^2 (3.42%)

Economic indicators (calendar years)	
Quota value 2009	$116.5m
Export earnings 2015	$27.6m

GSP: Pale ghost shark (Tier 2)



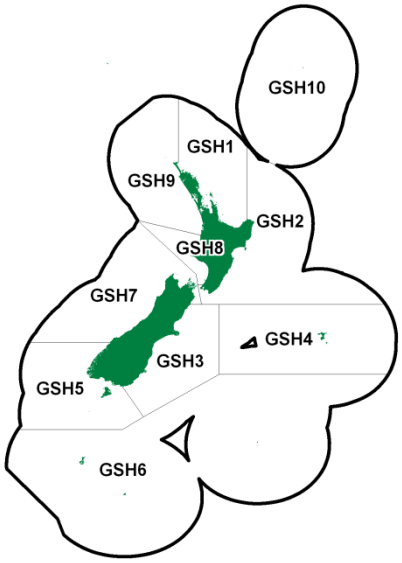
2015/16 Landings, Catch limits and Allowances (tonnes)						
Stock	2015/16 Landings	TAC	TACC	Recreational	Customary	Other fishing related mortality
GSP 1	493	1,208	1,150	0	0	58
GSP 5	171	477	454	0	0	23
GSP 7	26	176	176	0	0	-

Reference points and Current status (as per Harvest Strategy Standard defaults)			
Target	40% B_0	Unknown	
Soft Limit	20% B_0	GSP1, GSP5	Unlikely (<40%) to be below
		GSP7	Unknown
Hard Limit	10% B_0	GSP1, GSP5	Very Unlikely (<10%) to be below
		GSP7	Unknown

Deemed value rates and charges (per kg)			
Stock	Interim	100%+	2015/16 Actual
GSP 1 GSP 5	$0.08	$0.15	0 0
GSP 7	$0.17	$0.34	0

Economic indicators (calendar year)	
Quota value 2009	$N/A
Export earnings 2015	$0.8m (includes both pale and dark ghost shark, Export statistics are not provided for individual ghost shark species)

GSH: Dark ghost shark (Tier 2)



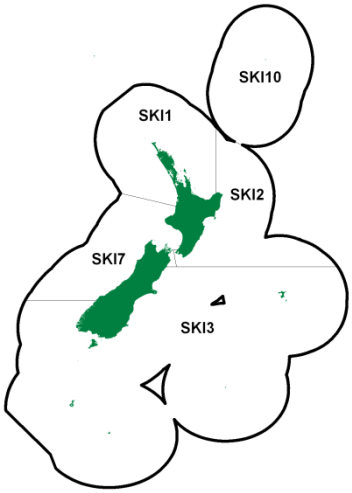
2015/16 Landings, Catch limits and Allowances (tonnes)						
Stock	2015/16 Landings	TAC	TACC	Recreational	Customary	Other fishing related mortality
GSH 4	217	370	370	0	0	-
GSH 5	56	109	109	0	0	-
GSH 6	64	95	95	0	0	-

Reference points and Current status (as per Harvest Strategy Standard defaults)		
Target	40% B_0	Unknown
Soft Limit	20% B_0	Unknown
Hard Limit	10% B_0	Unknown

Deemed value rates and charges (per kg)								
Stock	Interim	100-120%	120-140%	140-160%	160-180%	180-200%	200%+	2015/16 Actual
GSH 4 GSH 5 GSH 6	$0.36	$0.40	$0.48	$0.56	$0.64	$0.72	$0.80	$140 0 0

Economic indicators (calendar year)	
Quota value 2009	$N/A
Export earnings 2015	$0.8m (includes both pale and dark ghost shark, Export statistics are not provided for individual ghost shark species)

SKI: Gemfish (Tier 2)



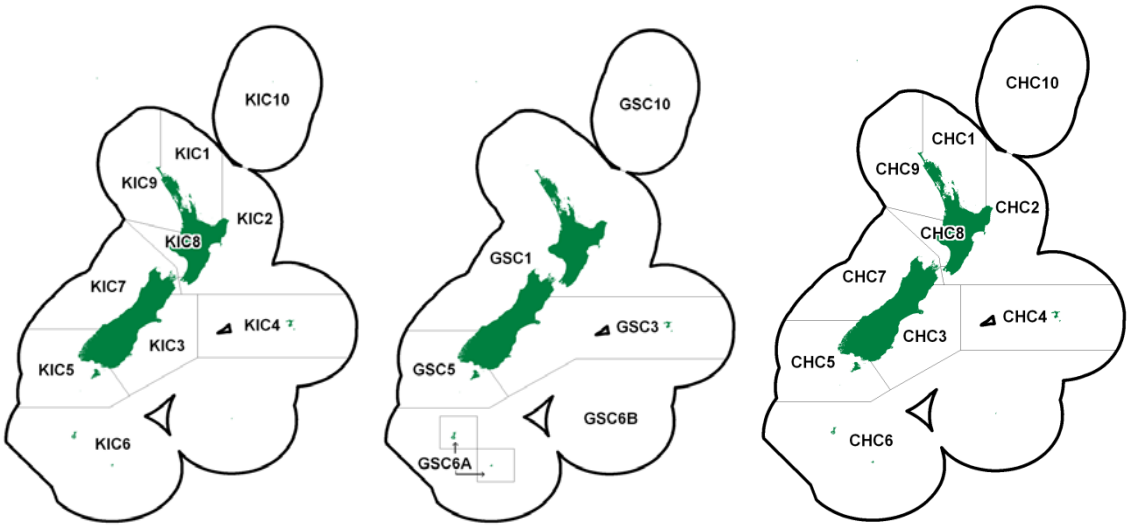
2015/16 Landings, Catch limits and Allowances (tonnes)						
Stock	2015/16 Landings	TAC	TACC	Recreational	Customary	Other fishing related mortality
SKI 3	80	300	300.4	-	-	-
SKI 7	186	300	300	-	-	-

Reference points and Current status (as per Harvest Strategy Standard defaults)		
Target	40% B_0	Unknown
Soft Limit	20% B_0	Unknown
Hard Limit	10% B_0	Unknown

Deemed value rates and charges (per kg)								
Stock	Interim	100-120%	120-140%	140-160%	160-180%	180-200%	200%+	2015/16 Actual
SKI 3 SKI 7	$0.65	$1.29	$1.548	$1.806	$2.064	$2.322	$2.58	0 $520

Economic indicators (calendar year)	
Quota value 2009	$N/A
Export earnings 2015	$1.0m (includes all stocks)

KIC/GSC/CHC: Deepwater crab species (Tier 2)



2015/16 Landings, Catch limits and Allowances [47] (tonnes) (only shown for stocks where catches > 0.1 t were taken)						
Stock	2014/15 Landings	TAC	TACC	Recreational	Customary	Other fishing related mortality
KIC 2 (incl. 2E)[48]	2	10	10	0	0	0
KIC 3	<0.1	10	10	0	0	0
KIC 6	0.3	10	10	0	0	0
GSC 3	2	15	14	0	0	1
GSC 5	39	20	19	0	0	1
GSC 6A	37	165	148	0	0	17
GSC 6B	1.6	250	237	0	0	13
CHC 2	<0.1	10	10	0	0	0

Reference points and Current status (as per Harvest Strategy Standard defaults)		
Target	40% B_0	Unknown
Soft Limit	20% B_0	Unknown
Hard Limit	10% B_0	Unknown

Deemed value rates and charges (per kg) (only shown where deemed values were accrued)								
Stock	Interim	100-120%	120-140%	140-160%	160-180%	180-200%	200%+	2015/16 Actual
GSC 5 GSC 6A GSC 6B	$1.62	$1.80	$2.16	$2.52	$2.88	$3.24	$3.60	$203,000 $1,000 $140

Economic indicators (calendar year)	
Quota value 2009	$N/A
Export earnings 2015	$0.3m (reported as 'crabs')

[47] All catch information is based on the April fishing year (1 April 2015 – 31 March 2016)
[48] A special permit relating to research on this stock provides for some catch to be taken above the TACC

Appendix II: Results of 2015/16 Sustainability rounds

TAC reviews

Species	Stock	Pre-1 Oct 2015 TAC	Pre-1 Oct 2015 TACC	1 Oct 2015 TAC	1 Oct 2015 TACC
Hoki	HOK 1	161,540	160,000	151,540	150,000
Oreo	ORH 4	7,000	6,850	3,150	3,000
		Pre-1 April 2015 TAC	Pre-1 April 2015 TACC	1 April 2015 TAC	1 April 2015 TACC
No catch limits were reviewed					

Deemed value rate changes

		Pre-1 October 2015			From 1 October 2015		
Species	Stock	Interim ($/kg)	Annual ($/kg)	Differential ($/kg, >200% of ACE holding)[49]	Interim ($/kg)	Annual ($/kg)	Differential ($/kg, >110% of ACE holding)
Frostfish	FRO8	0.08	0.15	0.15	0.135	0.15	0.15
	FRO9	0.08	0.15	0.15	0.135	0.15	0.15
Kingfish	KIN7	8.00	8.90	17.80	No change	No change	No change
	KIN8	4.45	8.90	17.80			
Redbait	RBT3	0.25	0.50	1.00	0.45	0.50	1.00
Ruby fish	RBY7	0.21	0.42	0.42	0.378	0.42	0.42
Ribaldo	RIB4	0.15	0.30	0.60	0.27	0.30	0.60
	RIB8	0.15	0.30	0.30	0.27	0.30	0.60

		Pre-1 April 2016			From 1 April 2016		
Species	Stock	Interim ($/kg)	Annual ($/kg)	Differential ($/kg, >200% of ACE holding)	Interim ($/kg)	Annual ($/kg)	Differential ($/kg, >200% of ACE holding)
No deemed values were reviewed							

[49] The standard schedule of differential deemed value rates applied to this stock prior to 1 October 2015.

Appendix III: Landings of Tier 3 species from core deepwater fleet 2010/11 to 2015/16 (in kg)

Species code	Common name	Scientific name	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
JAV	Javelinfish	*Lepidorhynchus denticulatus*	3999681	3297768	4070825	3922453	4233558	4343984
RAT	Rattails	*Macrouridae* spp.	3192849	3243432	4046886	3378020	3681747	4227574
STU	Slender tuna	*Allothunnus fallai*	108476	74076	262048	582089	234630	244275
ETB	Baxter's lantern dogfish	*Etmopterus baxteri*	47157	30218	40531	299975	289706	259341
SND	Shovelnose dogfish	*Deania calcea*	126803	97137	134641	283168	250659	548148
OSD	Other sharks and dogfish	Order Selachii	580440	656006	545641	225817	189100	38379
SDO	Silver dory	*Cyttus novaezealandiae*	194102	189183	127275	224542	230741	238715
NCB	Smooth red swimming crab	*Nectocarcinus bennetti*	586358	203438	717355	168810	185908	141902
BSH	Seal shark	*Dalatias licha*	142558	145298	197890	128003	86591	261625
LCH	Long-nosed chimaera	*Harriotta raleighana*	95437	99080	113008	123384	110550	137425
SSI	Silverside	*Argentina elongate*	144449	164095	104586	97536	123038	133511
CSQ	Leafscale gulper shark	*Centrophorus squamosus*	13756	8968	29928	95793	122870	177809
WSQ	Warty squid	*Onykia* spp.	78926	81447	95682	93082	88731	84246
CON	Conger eel	Family Congridae	62687	37301	66009	91297	106921	196658
FHD	Deepsea flathead	*Hoplichthys haswelli*	92243	84391	101772	77543	105271	103344
SLK	Slickhead	*Alepocephalidae* spp.	39159	57635	43717	65231	106980	142641
CDO	Capro dory	*Capromimus abbreviatus*	53762	45930	35445	60965	58345	112435
DWD	Deepwater dogfish	N/A	97601	78218	34666	59177	68246	70968
RUD	Rudderfish	*Centrolophus niger*	35536	32094	53448	54624	56702	59044
SUN	Sunfish	*Mola mola*	15147	15431	12913	51112	19599	57502
BEN	Scabbardfish	*Benthodesmus* spp.	23328	13773	18,316	49013	44419	50394
SRH	Silver roughy	*Hoplostethus mediterraneus*	31531	23734	22203	48077	62776	47397
BEL	Bellowsfish	*Centriscops* spp.	161999	80812	51324	45255	53040	58861
HCO	Hairy conger	*Bassanago hirsutus*	70532	13815	47739	44559	62825	98615
SFI	Starfish	N/A	60344	72810	46988	44432	47871	80773
RHY	Common roughy	*Paratrachichthys trailli*	91762	153240	118775	41449	115953	135285
CAR	Carpet shark	*Cephaloscyllium isabellum*	68184	42999	31879	40396	59859	388870
HAG	Hagfish	*Eptatretus cirrhatus*	13513	2469	5154	39932	6709	239587
CBE	Crested bellowsfish	*Notopogon lilliei*	2865	11290	16424	39301	36060	32717
CYP	Longnose velvet dogfish	*Centroscymnus crepidater*	531	210	8198	37728	10282	20733
MOD	Morids	*Moridae* spp.	19442	27109	27868	37066	62179	63417

Species code	Common name	Scientific name	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
CRB	Crab (unspecified)	N/A	81479	103281	72392	35050	36770	77449
ALB	Albacore tuna	*Thunnus alalunga*	2238	2451	10922	34611	22283	2324623
POP	Porcupine fish	*Tragulichthys jaculiferus*	26232	40368	33259	32241	30885	232090
THR	Thresher shark	*Alopias vulpinus*	15166	13593	16937	25080	30725	57491
NSD	Northern spiny dogfish	*Squalus griffin*	21962	9755	19759	24561	49714	134802
TOA	Toadfish	*Neophrynichthys* spp.	29866	23000	27894	24045	28421	15573
ETL	Lucifer dogfish	*Etmopterus lucifer*	17393	24735	32202	20535	31899	23591
JFI	Jellyfish (unspecified)	N/A	29594	16390	25113	19373	4084	5935
UNI	Unidentified fish	N/A	2590	1669	6841	18982	2048	5266
OPE	Orange perch	*Lepidoperca aurantia*	39133	66665	39072	18273	10489	26689
BBE	Banded bellowsfish	*Centriscops humerosus*	63224	19663	31890	17157	38848	63445
BCD	Black cod	*Paranotothenia magellanica*	22795	10858	1781	16966	9782	37059
HJO	Johnson's cod	*Halargyreus johnsonii*	14825	9168	21014	16637	20140	57161
PAH	Opah	*Lampris immaculatus*	3390	6878	19262	16509	9986	2126
SCO	Swollenhead conger	*Bassanago bulbiceps*	1	178	15607	16043	8761	62121
WIT	Witch	*Arnoglossus scapha*	26942	16394	16,618	14962	15353	48640
DWE	Deepwater eel (unspecified)	N/A	11281	14119	9926	14778	16496	21988
BEE	Basketwork eel	*Diastobranchus capensis*	18231	11808	13939	14341	12531	23735
SAL	Salps	N/A	12	314	16337	12820	13553	22776
OCT	Octopus	*Pinnoctopus cordiformis*	12480	14726	7747	12272	8796	135125
ERA	Electric ray	*Torpedo fairchildi*	12225	12360	13935	11988	14589	41887
GON	Sandfish	*Gonorynchus* spp.	17213	13739	17,853	9945	13406	4387
SBK	Spineback	*Notacanthus sexpinis*	7592	3679	6491	8176	19313	8668
SSH	Slender smooth-hound	*Gollum attenuates*	8792	6992	27499	8036	20194	28794
SCG	Scaly gurnard	*Lepidotrigla brachyoptera*	13297	19752	14060	7805	13797	11791
PIG	Pigfish	*Congiopodus leucopaecilus*	46389	13269	23132	7453	7443	18907
PLS	Plunket's shark	*Centroscymnus plunketi*	5071	169	3199	7075	8746	9964
MDO	Mirror dory	*Zenopsis nebulosa*	9090	20207	47178	6799	8947	157941
OSK	Skate, other	Family Rajidae	929	605	10337	6497	13195	7635
YBO	Yellow boarfish	*Pentaceros decacanthus*	3077	1570	3631	6307	8133	8172
ANT	Anemones	N/A	11669	10590	11300	5268	7499	7381
OPI	Umbrella octopus	*Opisthoteuthis* spp.	2579	3176	4370	5030	8199	7273
EPL	Cardinal fish, bigeye	*Epigonus lenimen*	4413	2114	6795	4784	5143	3964
WHX	Unicorn rattail	*Trachyrincus* sp.	2754	3395	3905	4356	25646	8801

Species code	Common name	Scientific name	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
DWO	Deepwater octopus	*Graneledone* spp.	13513	6200	5271	4283	5473	868
URO	Sea urchin other (except SUR-Kina)	N/A	5568	4784	3570	4104	1802	401
VSQ	Violet squid	*Histioteuthis* spp.	3351	1531	2403	3943	3993	4896
PDG	Prickly dogfish	*Oxynotus bruniensis*	7249	4030	4196	3725	5456	2103
CHG	Purple chimaera	*Chimaera lignaria*	6356	688	13289	3246	1847	5287
BSL	Black slickhead	*Xenodermichthys* spp.	2	376	649	3201	2575	1920
SQX	Squid (unspecified)	N/A	2156	2054	4132	3137	1111	1666
DEA	Dealfish	*Trachipterus trachypterus*	2473	5110	5163	2997	3285	2677
HEX	Sixgill shark	*Hexanchus griseus*	2158	1916	4043	2525	4595	8977
SBO	Southern boarfish	*Pseudopentaceros richardsoni*	21643	109319	897	2300	11035	26098
LAN	Lanternfish	*Myctophidae* spp.	8491	2730	1322	2239	3359	6750
MAN	Finless flounder	*Neoachiropsetta milfordi*	484	454	2515	2184	1134	575
SEV	Broadnose sevengill shark	*Notorynchus cepedianus*	487	656	1749	2044	2225	21581
YCO	Yellow cod	*Parapercis gilliesi*	3070	2588	2541	2032	1001	551
JGU	Japanese gurnard	*Pterygotrigla picta*	5226	3901	4130	2022	4220	160634
TAM	Tam O'Shanter urchins	N/A	369	971	2174	1985	1479	1249
EEL	Eels, Marine (unspecified)	N/A	803	615	574	1922	247	1160
TSQ	Todarodes filippovae	*Todarodes filippovae*	2390	1978	1329	1866	5645	6802
CHI	Chimaera spp.	*Chimaeras pp.*	10616	599	2171	1856	1255	8044
TOP	Pale toadfish	*Neophrynichthys angustus*		2	400	1825	4053	4548
SKJ	Skipjack tuna	*Katsuwonus pelamis*	8	3	165	1798	1933	7052235
SBR	Southern bastard cod	*Pseudophycis barbata*	896	642	1042	1657	2577	1789
GSQ	Giant squid	*Architeuthis* sp.	2233	3184	1566	1652	1479	1532
SNI	Snipefish	*Macroramphosus scolopax*	266	431	151	1558	89	389
HSI	Jack-knife prawn	*Haliporoides sibogae*	12761	8888	1968	1540	376	255
WRA	Whiptail ray	*Dasyatis thetidis*	455	1114	1423	1274	1025	21544
EGR	Eagle ray	*Myliobatis tenuicaudatus*	967	1629	1080	1087	625	132171
OPA	Opalfish	*Hemerocoetes* spp.	5494	3638	4819	1084	11736	7603
SCD	Smallscaled cod	*Paranotothenia microlepidota*	139	789	1756	1021	141	327
CYO	Smooth skin dogfish	*Centroscymnus owstoni*	1415	654	1475	1016	3373	7773
CYL	Portuguese dogfish	*Centroscymnus coelolepis*	555		59	1010	3959	293
RDO	Rosy dory	*Cyttopsis rosea*	2267	1033	4526	964	64	94

Species code	Common name	Scientific name	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
BSP	Big-scale pomfret	*Taractichthys longipinnis*	258	555	1551	960	1528	1500
DSK	Deepwater spiny skate	*Amblyraja hyperborean*	12685	7637	8047	933	1793	658
BER	Electric ray	*Typhlonarke* spp.	2757	1776	13935	906	14589	1500
PSK	Longnosed deepsea skate	*Bathyraja shuntovi*	360	575	762	768	495	801
OFH	Oilfish	*Ruvettus pretiosus*	442	534	907	699	554	7980
LSK	Long-tailed skate	*Arhynchobatis asperrimus*	973	588	654	650	196	657
BRZ	Brown stargazer	*Xenocephalus armatus*	1003	1797	1464	634	159	23262
CUC	Cucumber fish	*Chlorophthalmus nigripinnis*	20	218	65	561	2194	2555
HEP	Sharpnose sevengill shark	*Heptranchias perlo*	476	1762	966	501	902	341
RSQ	Ommastrephes bartrami	*Ommastrephes bartrami*	4317	755	120	500	80	39
VCO	Violet cod	*Antimora rostrata*	3268	13475	4240	497	40	2389
BCA	Barracudina	*Magnisudis prionosa*	11	17	55	458	150	159
LEG	Giant lepidion	*Lepidion schmidti, L. inosimae*	46	1184	20	455	222	572
RAY	Rays	N/A	725	3302	12095	410	441	520
PHO	Lighthouse fish	*Photichthys argenteus*	621	979	926	408	318	1102
SMC	Small-headed cod	*Lepidion microcephalus*	472	405	376	367	1488	567
UNX	All and any unidentified species	N/A	2295	1766	1524	362	1020	389
EUC	Eucla cod	*Euclicthys polynemus*	157	400	639	344	546	3602
GRC	Grenadier cod	*Tripterophycis gilchristi*	3	87	31	339	136	2542
FMA	Fusitriton magellanicus	*Fusitriton magellanicus*	270	70	247	308	618	503
HTH	Sea cucumber (other than Stichopus mollis)	Holothuroidea (Class)	285	532	117	273	336	747
APR	Cat shark	*Apristurus* spp.	241	570	1165	257	2461	67
EPR	Cardinal fish, robust	*Epigonus robustus*	5253	2356	1356	255	438	4
WHR	White rattail	*Trachyrincus longirostris*	80		16	250	621	10
WHE	Whelks	N/A	388	259	302	247	480	7137
SSM	Smallscaled brown slickhead	*Alepocephalus antipodianus*		63	252	240	241	206
PRA	Prawn (unspecified)	N/A	3412	1885	132	203	1822	410
CHP	Chimaera, purple	*Chimaera* sp.	374	95	627	175	325	713
DCS	Dawson's cat shark	*Halaelurus dawsoni*			161	168	211	165
BRA	Short-tailed black ray	*Dasyatis brevicaudata*			201	168	308	50709
COD	Cod (unspecified)	N/A	1481	207	55	167	199	611

Species code	Common name	Scientific name	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
BWH	Bronze whaler shark	*Carcharhinus brachyurus*	660	425	76	142	200	17843
SYN	Cutthroat eels (except Basketwork eels)	N/A				142	108	2
SPZ	Spotted stargazer	*Genyagnus monopterygius*	1612	1512	20	137	189	16367
SPI	Spider crabs (unspecified)	N/A	1034	416	58	133	101	72
BPE	Butterfly perch	*Caesioperca Lepidoptera*	183	150	35	131	57	1051
CHA	Viper fish	*Chauliodus sloani*				129	70	1
OAR	Oarfish	*Regalecus glesne*	118	67	46	126	68	20
CUB	Cubeheads	*Cubiceps* spp.		146	97	124	38	526
GPF	Girdled wrasse	*Notolabrus cinctus*	224		153	124	84	80
LFB	Long-finned boarfish	*Zanclistius elevatus*	3	3	5	118	10	3669
BOT	Lefteye flounders	*Bothidae* spp.	407	200	16	116		
SPF	Scarlet wrasse	*Pseudolabrus miles*	40	2	31	116	55	326
RCH	Widenosed chimaera	*Rhinochimaera pacifica*	17		17	107	135	1002
AGR	Ribbonfish	*Agrostichthys parkeri*	131	112	242	101	332	390
CSH	Cat shark	Other than *Apristurus* spp.	449	174	290	99	2461	33
RAG	Ragfish	*Icichthys australis*	11	12	16	97	147	28
VOL	Volute	Family Volutidae	587	1830	635	81	175	1127
API	Alert pigfish	*Alertichthys blacki*	155	108	185	67	162	129
SDF	Spotted flounder	*Azygopus pinnifasciatus*	270	212	192	65	126	5
STR	Stingray (unspecified)	N/A	1010	778	227	65	156	5958
NTU	Northern bluefin tuna	*Thunnus thynnus*			150	49		699
PLZ	Scaly stargazer	*Pleuroscopus pseudodorsalis*	540	560	28	46	717	627
CHX	Pink frogmouth	*Chaunax pictus*	15	36	62	34	243	18
PAG	Pagurid	N/A	153	6	45	34	1	10
PMA	Pink maomao	*Caprodon longimanus*		12		27		12875
BSQ	Broad squid	*Sepioteuthis australis*	71	16	1	26	2	2852
BOA	Sowfish	*Paristiopterus labiosus*	7597	68	41	23	12	8885
DSP	Deepsea pigfish	*Congiopodus coriaceus*	42	2	55	18	79	30
TOD	Dark toadfish	*Neophrynichthys latus*		50	5	15	82	325
GVO	Golden volute	*Provocator mirabilis*	2		2	14	12	
BCR	Blue cusk eel	*Brotulotaenia crassa*				13	3	1
DIS	Discfish	*Diretmus argenteus*	10	11	4	10	8	37
PSP	Scissortail	*Psenes pellucidus*		113	148	10	3	7
SFN	Spinyfin	*Diretmichthys parini*		14	4	8	9	59
SPT	Purple-heart urchin	*Spatangus multispinus*		17		8	1	
WLP	Wavy line perch	*Lepidoperca tasmanica*		150	150	8	1	33

Species code	Common name	Scientific name	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
MIQ	Warty squid	*Onykia ingens*	4694	2810	95682	7	363	32
TRS	Cape scorpionfish	*Trachyscorpia capensis*	97	93	45	6	303	444
RRC	Red scorpion fish	*Scorpaena cardinalis, S. papillosus*		3		6		20416
HYD	Hydrolagus spp.	*Hydrolagus* spp.		11		5		3275
SDE	Seadevil	*Cryptopsaras couesi*			2	4	5	3
SPP	Splendid perch	*Callanthias allporti*		103		4		240
LHO	Omega prawn	*Lipkius holthuisi*	42	10	127	2	4	
PAL	Barracudinas	N/A	32	3	19	2	9	34
WSE	Wrasses	N/A	78	64	47	2	1	25806
MOB	Blunthead lightfish	*Margrethia obtusirostra*	60	546	645	2		4890
AER	Aeneator recens	*Aeneator recens*		5		1		2
NCA	Hairy red swimming crab	*Netocarcinus antarcticus*	163	11	1	1		2
NOT	Antarctic rock cods	*Paranotothenia* spp.		186	6	1		658
SLL	Slipper lobsters	*Scyllaridae* spp.	99	112	59	1	5	1
ABR	Shortsnouted lancetfish	*Alepisaurus brevirostris*		1			7	
AME	Sculpin	*Antipodocottus megalops*		17				
ART	Brine shrimp	*Artemia salina*	6					
ASR	Sea stars	N/A						
BAC	Codheaded rattail	*Bathygadus cottoides*	319	207				6
BAF	Black anglerfish	N/A		1				
BAN	Borostomias antarcticus	*Borostomias antarcticus*		17				
BAT	Slickheads	*Rouleina* spp.	3560	21				940
BBR	Bronze bream	*Xenobrama microlepis*		110				
BEA	Eaton's skate	*Bathyraja eatoni*		129				
BPF	Banded wrasse	*Notolabrus fucicola*	124	14				1064
BRC	Northern bastard cod	*Pseudophycis breviuscula*		118			5	11627
BRE	Codlet	*Bregmaceros macclellandi*		4				7
CAM	Sabre prawn	*Campylonotus rathbunae*					4	
CFA	Banded rattail	*Coelorinchus rasciatus*		44	8			
COL	Olivers rattail	*Coelorinchus oliverianus*	20					8
CTU	Cook's turban shell	*Cookia sulcata*		27				728
DHO	Deepsea urchin	*Dermechinus horridus*	12					
EBI	Pygmy shark	*Euprotomicrus bispinatus*		161				
ECO	Prickly shark	*Echinorhinus cookie*	17					

Species code	Common name	Scientific name	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
EPD	Cardinal fish, white	*Epigonus denticulatus*			6		6	1
EPT	Deepsea cardinalfish	*Epigonus telescopes*		12				
ETM	Etmopterus spp.	*Etmopterus* spp.	15					
FLO	Flounder (unspecified)	N/A	37					7007
FRS	Frill shark	*Chlamydoselachus anguineus*		2			16	
FTU	Frigate tuna	*Auxis thazard*	49	161	2			1445
GAS	Gastropods	N/A		22				236
GPA	Parasol urchin	*Goniocidaris parasol*						
GRV	Macrourus spp.	*Macrourus* spp.		6516				
GSA	Giant sawbelly	*Hoplostethus gigas*	4	20				19
GSE	Snake mackerel	*Gempylus serpens*			138		700	
GUL	Gulper eel	*Eurypharynx pelecanoides*	365	62	16			2
HAT	Hatchetfish	*Sternoptychidae* sp.		524				
HYP	Pointynose blue ghost shark	*Hydrolagus trolli*	231	6351	74		151	75
ICX	Icefishes	Family Channichthyidae		3636				4302
INV	Invertebrate (unknown)	N/A		15				2
KAN	Krefftichthys anderssoni	*Krefftichthys anderssoni*		45				
LEP	Escolar	*Lepidocybium flavobrunneum*		12	5			4832
MCA	Ridge scaled rattail	*Macrourus carinatus*	26273				2,328	1769
MNI	Krill, squat lobsters	*Munida* spp.	265		17			3
MOR	Moray eel	*Muraenidae* spp.	382	63	18		11	336
MRL	Moray cods	*Muraenolepididae* sp.		512				741
MST	Scaleless black dragonfishes	N/A					2	
MUR	Moray cod	*Muraenolepis marmoratus*					6	51
NOC	Notocanthus chemnitzi	*Notocanthus chemnitzi*						
PGR	Plunderfish	*Pogonophryne permitini*		23				30
RMU	Red mullet	*Upeneichthys lineatus*	212	52				65
ROC	Rock cod	*Lotella rhacina*		485			3200	338
RPE	Red perch	Unspecified		3	62			5552
SAM	Quinnat salmon	*Omcorhynchus tshawytscha*			4		4	578
SCM	Roughskin dogfish	*Scymnodon macracanthus*	1635	146	31			
SEE	Silver conger	*Gnathophis habenatus*	97	72	5			9
SHR	Sea hare	N/A	6					

Species code	Common name	Scientific name	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
SNE	Snubnosed eel	*Simenchelys parasitica*	20		2		1	
SOL	Sole (unspecified)	N/A		6				686
SOP	Pacific sleeper shark	*Somniosus pacificus*					1	
SPK	Spikefish	*Macrorhamphosodes uradoi*	88					
SRR	Amblyraja Georgiana	*Amblyraja georgiana*		57				
SSC	Giant masking crab	*Leptomithrax australis*	245				10	
STG	Stargazer (unspecified)	N/A		1	27			190
TAS	Rough pomfret	*Taractes asper*	10	5				18
TIN	Tinselfish	*Xenolepidichthys dalgleishi*	45	6			41	9
TRA	Roughies	Family Trachichthyidae	1697		18			22
WGR	Macrourus whitsoni	*Macrourus whitsoni*		4121				

Appendix IV: Cost recovery levy analysis

Table 38: Cost recovery levies ($) for deepwater stocks 2015/16

	Compliance	Registry	Observers		Research		Under/Over Recovery		2015/16
Fishstock	MPI	MPI	MPI	DOC	MPI	DOC	MPI	DOC	Total
BAR10	42	15					1		59
BAR4	9,680	3559	2557	489	625	39	389	90	17428
BAR5	24018	8831	7212	1381	58541	554	1272	224	102033
BAR7	38456	14140	235		2482	1357	55313	-1357	0
BYX1	6683	2457	41		431		215		9827
BYX10	208	77	1	-	1	-	7	-	294
BYX2	35,950	13,219	12,928	1,566	2,589	-	- 43,012	- 1,566	21,673
BYX3	21,964	8,076	16,307	1,989	1,418	-	- 47,765	- 1,989	- 0
BYX7	1,639	603	10	-	106	-	53	-	2,411
BYX8	428	157	3	-	28	-	15	-	630
CDL1	12,826	4,716	78	-	2,066	-	441	-	20,128
CDL10	-	-	-	-	-	-	-	-	-
CDL2	4,332	1,593	1,556	189	730	-	- 8,211	- 189	0
CDL3	2,011	739	12	-	324	-	75	-	3,161
CDL4	705	259	4	-	114	-	25	-	1,108
CDL5	235	86	1	-	37	-	8	-	368
CDL6	10	4	0	-	2	-	0	-	16
CDL7	417	153	3	-	67	-	15	-	655
CDL8	-	-	-	-	-	-	-	-	-
CDL9	43	16	0	-	7	-	1	-	67

	Compliance	Registry	Observers		Research		Under/Over Recovery		2015/16
Fishstock	MPI	MPI	MPI	DOC	MPI	DOC	MPI	DOC	Total
CHC1	21	8	0	-	-	-	14	-	43
CHC10	-	-	-	-	-	-	-	-	-
CHC2	21	8	0	-	-	-	14	-	43
CHC3	9	3	0	-	-	-	5	-	17
CHC4	9	3	0	-	-	-	5	-	17
CHC5	9	3	0	-	-	-	5	-	17
CHC6	9	3	0	-	-	-	5	-	17
CHC7	9	3	0	-	-	-	5	-	17
CHC8	9	3	0	-	-	-	5	-	17
CHC9	9	3	0	-	-	-	5	-	17
EMA3	1,751	644	11	-	89	41	60	- 7	2,588
EMA7	8,358	3,073	52,661	10,286	426	194	- 22,222	- 100	52,676
FRO10	-	-	-	-	-	-	-	-	-
FRO3	3,085	1,134	19	-	186	-	69	-	4,493
FRO4	90	33	1	-	5	-	4	-	134
FRO5	1,905	700	12	-	115	-	66	-	2,798
FRO6	58	21	0	-	3	-	2	-	85
FRO7	25,233	9,278	154	-	1,524	-	874	-	37,063
FRO8	1,147	422	7	-	69	-	253	-	1,898
FRO9	303	111	2	-	18	-	54	-	488
GSC1	2	1	0	-	-	-	1	-	4
GSC10	-	-	-	-	-	-	-	-	-
GSC3	30	11	0	-	-	-	19	-	60
GSC5	41	15	0	-	0	-	26	-	82
GSC6A	316	116	2	-	1	-	203	-	639
GSC6B	507	186	3	-	2	-	324	-	1,022
GSH4	1,151	423	7	-	74	27	33	- 4	1,711

	Compliance	Registry	Observers		Research		Under/Over Recovery		2015/16
Fishstock	MPI	MPI	MPI	DOC	MPI	DOC	MPI	DOC	Total
GSH5	462	170	3	-	30	4	18	- 0	687
GSH6	280	103	2	-	18	-	16	-	418
GSP1	4,658	1,713	28	-	301	108	205	- 23	6,990
GSP5	2,281	839	14	-	147	-	81	-	3,361
GSP7	752	277	5	-	49	17	27	- 3	1,124
HAK1	49,055	18,037	12,958	2,473	33,939	1,321	19,490	- 357	136,917
HAK10	126	46	1	-	8	-	1	-	183
HAK4	26,110	9,600	159	-	97,504	605	62	- 191	133,850
HAK7	88,478	32,533	39,137	7,548	38,676	2,383	735	- 526	208,965
HOK1	1,065,768	391,875	1,098,260	213,462	2,441,080	67,301	330,449	2,750	5,610,945
HOK10	86	31	1	-	6	-	1	-	124
JMA10	47	17	0	-	3	-	1	-	68
JMA3	43,677	16,060	24,387	4,717	5,212	1,176	1,109	316	96,653
JMA7	70,031	25,750	441,243	86,189	8,085	1,886	56,839	74	690,098
KIC1	21	8	0	-	-	-	14	-	43
KIC10	-	-	-	-	-	-	-	-	-
KIC2	21	8	0	-	-	-	14	-	43
KIC3	21	8	0	-	-	-	14	-	43
KIC4	21	8	0	-	-	-	14	-	43
KIC5	21	8	0	-	-	-	14	-	43
KIC6	21	8	0	-	-	-	14	-	43
KIC7	21	8	0	-	-	-	14	-	43
KIC8	21	8	0	-	-	-	14	-	43
KIC9	21	8	0	-	-	-	14	-	43
LDO1	3,626	1,333	22	-	219	-	- 5,200	-	0
LDO10	16	6	0	-	0	-	1	-	23
LDO3	9,471	3,482	58	-	572	-	- 13,583	-	- 0

	Compliance	Registry	Observers		Research		Under/Over Recovery		2015/16
Fishstock	MPI	MPI	MPI	DOC	MPI	DOC	MPI	DOC	Total
LIN10	271	100	2	-	1	-	4	-	378
LIN3	58,521	21,518	22,192	4,270	126,291	2,064	677	434	235,966
LIN4	113,493	41,731	43,038	8,282	219,663	2,630	1,282	862	430,980
LIN5	106,144	39,028	12,857	2,389	31,473	4,174	19,923	- 1,234	214,753
LIN6	220,158	80,950	26,666	4,946	48,461	5,929	19,734	- 3,078	403,767
LIN7	83,666	30,763	46,627	9,016	43,597	3,290	- 2,565	- 5,776	208,619
OEO1	23,147	8,511	3,102	369	5,669	907	- 40,430	- 1,276	0
OEO10	93	34	1	-	1	-	2	-	130
OEO3A	31,017	11,405	14,144	1,720	231,736	1,215	68,450	- 763	358,925
OEO4	64,813	23,831	29,556	3,590	188,410	2,540	- 11,196	- 1,598	299,945
OEO6	55,554	20,427	7,445	873	13,605	2,177	926	- 969	100,037
ORH1	41,361	15,208	14,873	1,800	53,509	1,621	- 9,999	- 1,071	117,302
ORH10	265	97	2	-	23	-	22	-	409
ORH2A	20,100	7,391	7,228	873	24,774	788	16,650	- 860	76,942
ORH2B	3,292	1,210	1,186	145	4,058	129	8,253	- 33	18,239
ORH3A	9,539	3,508	3,429	414	11,757	374	16,917	- 35	45,903
ORH3B	111,279	40,916	64,975	7,912	200,274	4,360	214,309	- 2,399	641,627
ORH7A	12,452	4,579	22,351	2,742	3,050	-	11,228	- 297	56,104
ORH7B	27	10	0	-	6	-	- 43	-	-
PRK1	896	329	5	-	54	-	32	-	1,316
PRK10	-	-	-	-	-	-	-	-	-
PRK2	128	47	1	-	8	-	5	-	188
PRK3	37	13	0	-	2	-	1	-	54
PRK4A	37	13	0	-	2	-	1	-	54
PRK5	37	13	0	-	2	-	1	-	54
PRK6A	37	13	0	-	2	-	1	-	54
PRK6B	37	13	0	-	2	-	1	-	54

	Compliance	Registry	Observers		Research		Under/Over Recovery		2015/16
Fishstock	MPI	MPI	MPI	DOC	MPI	DOC	MPI	DOC	Total
PRK7	37	13	0	-	2	-	1	-	54
PRK8	37	13	0	-	2	-	3	-	55
PRK9	37	13	0	-	2	-	1	-	54
PTO1	5,291	1,945	32	-	-	-	188	-	7,457
RBT1	79	29	0	-	5	-	3	-	116
RBT10	-	-	-	-	-	-	-	-	-
RBT3	2,296	844	14	-	148	-	313	-	3,615
RBT7	11,843	4,355	72	-	503	-	406	-	17,178
RBY1	7,345	2,701	45	-	443	-	223	-	10,757
RBY10	-	-	-	-	-	-	-	-	-
RBY2	1,249	459	8	-	75	-	- 1,791	-	- 0
RBY3	8	3	0	-	0	-	- 11	-	0
RBY4	48	18	0	-	3	-	- 69	-	-
RBY5	-	-	-	-	-	-	-	-	-
RBY6	-	-	-	-	-	-	-	-	-
RBY7	259	95	2	-	16	-	- 372	-	0
RBY8	73	27	0	-	4	-	- 24	-	81
RBY9	149	55	1	-	9	-	- 137	-	77
RIB10	-	-	-	-	-	-	-	-	-
RIB3	4,127	1,518	25	-	249	-	- 5,919	-	- 0
RIB4	2,404	884	15	-	145	-	- 3,448	-	-
RIB5	350	129	2	-	21	-	- 502	-	0
RIB6	1,111	409	7	-	67	-	- 1,594	-	-
RIB7	3,633	1,336	22	-	219	-	- 5,211	-	-
RIB8	8	3	0	-	0	-	- 3	-	8
SBW1	48	18	18	-	3	-	0	-	87
SBW6A	7,362	2,707	3,010	823	517	316	- 29	18	14,724

	Compliance	Registry	Observers		Research		Under/Over Recovery		2015/16
Fishstock	MPI	MPI	MPI	DOC	MPI	DOC	MPI	DOC	Total
SBW6B	17,598	6,471	7,191	1,964	27,657	690	- 748	103	60,925
SBW6I	263,968	97,059	107,889	29,441	161,946	11,335	348,190	494	1,020,322
SBW6R	32,921	12,105	13,454	3,670	2,017	1,414	195	82	65,858
SCI1	18,923	6,958	5,916	1,605	183,402	684	- 29,635	565	188,419
SCI10	-	-	-	-	-	-	-	-	-
SCI2	19,231	7,071	6,012	1,630	184,765	696	- 470	404	219,340
SCI3	54,822	20,157	17,138	4,652	13,352	934	118	1,602	112,774
SCI4A	17,739	6,522	5,544	1,506	1,424	411	42	507	33,696
SCI5	5,913	2,174	1,850	504	475	-	47	189	11,150
SCI6A	41,022	15,083	12,824	3,485	1,241,626	25,418	106	1,527	1,341,091
SCI6B	7,391	2,718	2,309	628	593	171	58	180	14,049
SCI7	11,087	4,077	3,465	942	890	-	88	358	20,907
SCI8	739	272	230	65	59	-	6	19	1,389
SCI9	5,174	1,902	1,616	439	415	-	41	170	9,756
SKI10	173	64	1	-	1	-	6	-	245
SKI3	6,061	2,228	37	-	391	140	146	- 17	8,987
SKI7	5,033	1,851	31	-	325	117	- 2,549	- 21	4,786
SPD10	-	-	-	-	-	-	-	-	-
SPD4	4,519	1,662	28	-	273	105	150	- 38	6,697
SPD5	6,723	2,472	13,677	14,099	406	156	213	- 90	37,657
SPE10	-	-	-	-	-	-	-	-	-
SPE3	7,048	2,592	43	-	49,440	163	- 229	- 58	58,999
SPE4	4,997	1,837	31	-	323	116	199	- 47	7,454
SPE5	165	61	1	-	11	-	5	-	243
SPE6	63	23	0	-	4	-	2	-	92
SPE7	469	172	3	-	30	11	23	- 6	703
SQU10T	122	45	1	-	0	-	2	-	170

	Compliance	Registry	Observers		Research		Under/Over Recovery		2015/16
Fishstock	MPI	MPI	MPI	DOC	MPI	DOC	MPI	DOC	Total
SQU1J	611,840	224,969	62,236	-	-	-	9,589	-	908,635
SQU1T	626,471	230,348	304,271	83,218	166,016	33,775	11,439	- 4,814	1,450,724
SQU6T	394,425	145,027	191,568	52,396	142,483	247,070	6,398	1,376	1,180,743
SWA1	24,803	9,120	10,970	2,114	1,601	668	970	- 10	50,235
SWA10	89	33	1	-	0	-	3	-	125
SWA3	26,652	9,800	7,043	1,346	1,720	718	758	52	48,090
SWA4	33,466	12,305	18,686	3,615	2,290	1,269	1,085	- 223	72,492
WWA1	60	22	0	-	3	-	2	-	87
WWA10	-	-	-	-	-	-	-	-	-
WWA2	1,178	433	7	-	71	23	40	- 1	1,751
WWA3	8,853	3,255	54	-	535	172	313	- 14	13,167
WWA4	6,041	2,221	37	-	365	117	192	- 9	8,965
WWA5B	42,238	15,531	12,683	2,428	2,550	1,148	1,423	- 280	77,721
WWA7	2,417	889	15	-	137	47	54	- 3	3,555
WWA8	16	6	0	-	1	-	1	-	24
WWA9	-	-	-	-	-	-	-	-	-
Grand Total	4,883,485	1,795,620	2,839,920	590,198	6,094,392	437,094	862,907	- 18,936	17,484,681

Table 39: Levies by stock as a percent of landed value

	Total levies 2015/16 ($)	2015/16 Landings (tonnes)	2015/16 Port price ($/kg)	2015/16 Landed value ($)	Levies as % landed value (15/16)
BAR10	59	0	0.39	-	-
BAR4	17,428	2,893	0.3	867,928	2.0
BAR5	102,033	7,420	0.3	2,225,983	4.6
BAR7	- 0	5,513	0.32	1,764,164	0.0
BYX1	9,827	24	2.08	50,322	19.5
BYX10	294	0	1.95	-	-
BYX2	21,673	1,606	2.14	3,436,917	0.6
BYX3	- 0	1,041	2.03	2,112,486	0.0
BYX7	2,411	28	1.91	52,767	4.6
BYX8	630	<1	2	52	1215.4
CDL1	20,128	35	1	35,334	57.0
CDL10	-	0	1	-	-
CDL2	0	271	0.92	249,558	0.0
CDL3	3,161	109	0.96	105,119	3.0
CDL4	1,108	25	1	24,652	4.5
CDL5	368	15	1	14,932	2.5
CDL6	16	1	0.96	1,399	1.1
CDL7	655	3	1	3,331	19.6
CDL8	-	0	0	-	-
CDL9	67	2	1	1,970	3.4
CHC1	43	0	0.2	-	-
CHC10	-	0	0.2	-	-
CHC2	43	<1	0.2	1	4784.9
CHC3	17	0	0.2	-	-
CHC4	17	0	0.2	-	-
CHC5	17	0	0.2	-	-
CHC6	17	0	0.2	-	-
CHC7	17	0	0.2	-	-
CHC8	17	0	0.2	-	-
CHC9	17	0	0.2	-	-
EMA3	2,588	27	0.42	11,470	22.6
EMA7	52,676	761	0.23	175,061	30.1
FRO10	-	0	1.05	-	-
FRO3	4,493	12	1.64	19,275	23.3
FRO4	134	13	0.3	3,768	3.5
FRO5	2,798	8	1.32	10,385	26.9
FRO6	85	<1	0.49	6	1438.5
FRO7	37,063	1,064	0.9	957,754	3.9
FRO8	1,898	692	0.17	117,665	1.6
FRO9	488	310	0.21	65,126	0.7
GSC1	4	<1	0.2	0	1076.6
GSC10	-	0	0.2	-	-
GSC3	60	<1	0.2	11	528.9
GSC5	82	19	0.2	3,812	2.2
GSC6A	639	21	0.2	4,213	15.2
GSC6B	1,022	<1	0.2	30	3362.9
GSH4	1,711	224	0.29	64,904	2.6
GSH5	687	54	0.4	21,630	3.2
GSH6	418	64	0.28	17,967	2.3
GSP1	6,990	490	0.38	186,218	3.8
GSP5	3,361	196	0.47	91,983	3.7
GSP7	1,124	26	0.4	10,277	10.9
HAK1	136,917	1,630	1.24	2,020,970	6.8
HAK10	183	0	1.18	-	-
HAK4	133,850	292	1.36	397,606	33.7

	Total levies 2015/16 ($)	2015/16 Landings (tonnes)	2015/16 Port price ($/kg)	2015/16 Landed value ($)	Levies as % landed value (15/16)
HAK7	208,965	2,875	1.08	3,105,490	6.7
HOK1	5,610,945	126,464	0.66	83,466,024	6.7
HOK10	124	0	0.8	-	-
JMA10	68	0	0.44	-	-
JMA3	96,653	2,751	0.23	632,675	15.3
JMA7	690,098	30,876	0.2	6,175,293	11.2
KIC1	43	<1	0.2	3	1478.8
KIC10	-	0	0.2	-	-
KIC2	43	<1	0.2	44	98.1
KIC3	43	<1	0.2	11	386.6
KIC4	43	<1	0.2	8	547.9
KIC5	43	<1	0.2	7	605.5
KIC6	43	<1	0.2	26	167.1
KIC7	43	<1	0.2	0	10765.9
KIC8	43	0	0.2	-	-
KIC9	43	<1	0.2	1	4961.3
LDO1	0	169	2.02	341,820	0.0
LDO10	23	0	1.5	-	-
LDO3	- 0	344	1.44	495,443	0.0
LIN10	378	0	2.54	-	-
LIN3	235,966	1,475	2.66	3,923,570	6.0
LIN4	430,980	2,292	2.53	5,799,377	7.4
LIN5	214,753	3,768	2.51	9,458,111	2.3
LIN6	403,767	2,562	2.42	6,200,570	6.5
LIN7	208,619	3,341	2.54	8,487,087	2.5
OEO1	0	0	0.87	0	-
OEO10	130	0	0.87	-	-
OEO3A	358,925	0	0.87	0	-
OEO4	299,945	0	0.87	0	-
OEO6	100,037	0	0.87	0	-
ORH1	117,302	1,003	2.76	2,768,603	4.2
ORH10	409	0	2.48	-	-
ORH2A	76,942	474	2.15	1,018,508	7.6
ORH2B	18,239	59	2.2	130,071	14.0
ORH3A	45,903	156	2.15	336,045	13.7
ORH3B	641,627	4,025	2.31	9,297,846	6.9
ORH7A	56,104	1,448	2.33	3,373,948	1.7
ORH7B	-	0	2.48	695	0.0
PRK1	1,316	2	3.42	7,023	18.7
PRK10	-	0	0	-	-
PRK2	188	1	3.42	2,698	7.0
PRK3	54	0	3.42	-	-
PRK4A	54	<1	3.42	3	1570.8
PRK5	54	0	3.42	-	-
PRK6A	54	0	3.42	-	-
PRK6B	54	0	3.42	-	-
PRK7	54	2	3.42	7,367	0.7
PRK8	55	<1	3.42	48	114.8
PRK9	54	<1	3.42	80	67.2
PTO1	7,457	6	10	63,820	11.7
RBT1	116	5	0.39	1,768	6.6
RBT10	-	0	0.39	-	-
RBT3	3,615	1,070	0.1	107,028	3.4
RBT7	17,178	383	0.39	149,285	11.5
RBY1	10,757	145	2.29	332,804	3.2
RBY10	-	0	1.14	-	-

	Total levies 2015/16 ($)	2015/16 Landings (tonnes)	2015/16 Port price ($/kg)	2015/16 Landed value ($)	Levies as % landed value (15/16)
RBY2	- 0	281	0.27	75,831	0.0
RBY3	0	29	0.26	7,597	0.0
RBY4	-	19	0.25	4,826	0.0
RBY5	-	0	0	0	-
RBY6	-	0	0	-	-
RBY7	0	3	0.73	1,858	0.0
RBY8	81	<1	1.14	10	786.6
RBY9	77	1	0.73	421	18.3
RIB10	-	0	0.77	-	-
RIB3	- 0	161	0.98	158,215	0.0
RIB4	-	336	0.63	211,680	0.0
RIB5	0	43	0.63	27,193	0.0
RIB6	-	70	0.45	31,510	0.0
RIB7	-	322	1.03	332,084	0.0
RIB8	8	1	0.76	800	1.0
SBW1	87	18	0.56	9,831	0.9
SBW6A	14,724	110	0.42	46,101	31.9
SBW6B	60,925	<1	0.56	105	57770.9
SBW6I	1,020,322	7,500	0.63	4,724,961	21.6
SBW6R	65,858	9	0.56	5,166	1274.9
SCI1	188,419	113	14.75	1,669,967	11.3
SCI10	-	0	13.83	-	-
SCI2	219,340	141	13.53	1,910,908	11.5
SCI3	112,774	324	15.09	4,892,712	2.3
SCI4A	33,696	112	13.83	1,542,800	2.2
SCI5	11,150	<1	13.83	1,044	1067.9
SCI6A	1,341,091	242	12.54	3,040,873	44.1
SCI6B	14,049	<1	13.83	14	101582.9
SCI7	20,907	15	13.83	200,642	10.4
SCI8	1,389	0	13.83	-	-
SCI9	9,756	0	13.83	55	17636.1
SKI10	245	0	1.62	-	-
SKI3	8,987	80	1.89	150,260	6.0
SKI7	4,786	189	1.57	296,854	1.6
SPD10	-	0	0.32	-	-
SPD4	6,697	888	0.26	230,918	2.9
SPD5	37,657	1,078	0.17	183,237	20.6
SPE10	-	0	0.65	-	-
SPE3	58,999	703	0.66	463,862	12.7
SPE4	7,454	432	0.51	220,127	3.4
SPE5	243	33	0.43	14,221	1.7
SPE6	92	3	0.65	1,777	5.2
SPE7	703	89	0.53	47,147	1.5
SQU10T	170	0	1.14	0	-
SQU1J	908,635	3	1.14	3,469	26194.6
SQU1T	1,450,724	16,863	1.31	22,090,537	6.6
SQU6T	1,180,743	24,986	1.14	28,484,588	4.1
SWA1	50,235	1,178	0.77	906,817	5.5
SWA10	125	0	0.83	-	-
SWA3	48,090	2,350	0.76	1,785,839	2.7
SWA4	72,492	3,561	0.77	2,741,638	2.6
WWA1	87	<1	1.41	54	163.0
WWA10	-	0	1.51	-	-
WWA2	1,751	5	1.51	7,034	24.9
WWA3	13,167	251	1.42	356,233	3.7
WWA4	8,965	54	1.71	92,432	9.7

	Total levies 2015/16 ($)	2015/16 Landings (tonnes)	2015/16 Port price ($/kg)	2015/16 Landed value ($)	Levies as % landed value (15/16)
WWA5B	77,721	704	1.51	1,063,498	7.3
WWA7	3,555	44	1.78	77,894	4.6
WWA8	24	0	1.51	-	-
WWA9	-	0	0	0	-

Appendix V: Interim Observer Trip Report template

Ministry for Primary Industries
Manatū Ahu Matua

Interim Observer Trip Report

Trip Number:	**Vessel Name:**
Call Sign:	**Observer:**
Trip Start Date:	**Trip End Date:**

Q	Criteria	Rating
1	QMS species are discarded only after correct estimation and authorisation	
2	QMS species identified accurately	
3	Vessel has a valid system for determining, recording and retaining block weight test information	
4	Vessel has a valid system in place to quantify all sources of whole and processed fish to meal; including applying conversion factor to processed fish	
5	Fish is cut in accordance with the Conversion Factors Notice	
6	Non-fish by-catch recorded and reported accurately	
7	Offal management was adequate (if VMP onboard, meets specifications)	
8	Appropriate bird mitigation devices were deployed and in working condition for duration of trip	
9	The factory was clean and hygienic	
10	Observer Standard met (e.g. living conditions, water etc, were adequate)	
11	Vessel was using/applying glaze during trip	Y / N
12	If conversion factor (CF) tested insert species, state, and average CF over page	
13	If any maritime or safety issues were identified insert comment over page	
14	If any labour or employment issues were brought to your attention by any crew insert comment over page	
15	Comment on any issues raised with Captain or Factory Manager during trip and the outcome (include names of people spoken too)	

Criteria Rating:	**A** Clearly acceptable.	**B** Generally acceptable but minor departures from best practice identified.	**C** Not Deemed Acceptable: this criterion is not met and requires addressing	**N/A** Not applicable

Should you not receive a copy of the full observer report, or have any questions, please contact the Observer Programme via the following email address: observer@mpi.govt.nz

Signed: **Date:**

Manager Observer Services

Question Number	Comment

12	Conversion Factors		
SPECIES	STATE	# of TESTS	AVERAGE CF
SPECIES	STATE	# of TESTS	AVERAGE CF
SPECIES	STATE	# of TESTS	AVERAGE CF