Fisheries New Zealand
Tini a Tangaroa

Annual Operational Plan for Deepwater Fisheries 2018/19

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Contents

Page

1 Overview

New Zealand's Deepwater and middle-depth fisheries (deepwater fisheries) predominantly occur in offshore waters beyond the 12 nautical mile (nm) limit of the territorial sea. Deepwater fishing activity occurs out to and beyond the 200nm limit of New Zealand's exclusive economic zone (EEZ). Deepwater fisheries provided approximately $NZ668 million in FOB[1] export earnings during the 2017 calendar year.[2] In 2017, six deepwater fish species (hoki, squid, ling, jack mackerel, orange roughy and barracouta) were amongst the ten largest export-earning seafood species (including those produced via aquaculture). Together, these six species represent 46% of seafood export volume and account for approximately NZ$532 million in FOB export earnings.

The management of New Zealand's deepwater fisheries is a collaborative arrangement between Fisheries New Zealand (representing the Crown and its statutory obligations to the public) and the commercial fishing industry, represented by the Deepwater Group Ltd (DWG). This arrangement allows for Management Objectives to be achieved by drawing on the combined knowledge, experience, capabilities, and perspectives of both organisations.

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

Table 1: Categorisation of deepwater fish stocks

Deepwater Stocks [3]		
Tier 1	Hake: all Hoki : all Jack mackerel: JMA 3, JMA 7 Ling: LIN 3 – LIN 7 Orange roughy: all	Oreos: all Scampi: all Southern blue whiting: all Squid: all
Tier 2	Alfonsino: all Barracouta: BAR 4, BAR 5, BAR 7 Black cardinalfish: all Deepwater crabs (CHC/GSC/KIC); all English mackerel: EMA 3, EMA 7 Frostfish: FRO 3 - FRO 9 Gemfish: SKI 3, SKI 7 Ghost shark, dark: GSH 4 – GSH 6 Ghost shark, pale: all Lookdown dory: all	Patagonian toothfish: all Prawn killer: all Redbait: all Ribaldo: RIB 3-RIB 8 Rubyfish: all Sea perch: SPE 3 – SPE 7 Silver warehou: all Spiny dogfish: SPD 4, SPD 5 White warehou: all
Tier 3	Non-QMS species	

[1] FOB - Free on board. The value of export goods, including raw material, processing, packaging, storage and transportation up to the point where the goods are about to leave the country as exports. FOB does not include storage, export transport or insurance cost to get the goods to the export market

[2] Export value based on export statistics available on the Seafood New Zealand website. For some species (e.g. jack mackerel and barracouta), the value includes all stocks, including those managed in an Inshore Fisheries Plan. Export value is not available for some deepwater species as species-specific information is not supplied by Statistics New Zealand to Seafood New Zealand.

[3] For some species, management of some stocks falls under the National Deepwater Plan and the remainder are managed under the National Inshore Finfish Plan.

2 National Deepwater Plan Wider Context and Structure

The Annual Operational Plan is driven by the National Fisheries Plan for Deepwater and Middle-depth Fisheries (National Deepwater Plan)[4]. At a conceptual level, the Deepwater Plan sits within a hierarchy of fundamental legislation including the Fisheries Act 1996 (the Act) and Treaty of Waitangi obligations to Māori, which provide strategic direction for a range of policy instruments and standards (Figure1). These legislative requirements and policies help to inform the Deepwater Plan, which in turn sets the direction, objectives and tactics for the Annual Operational Plan (AOP).

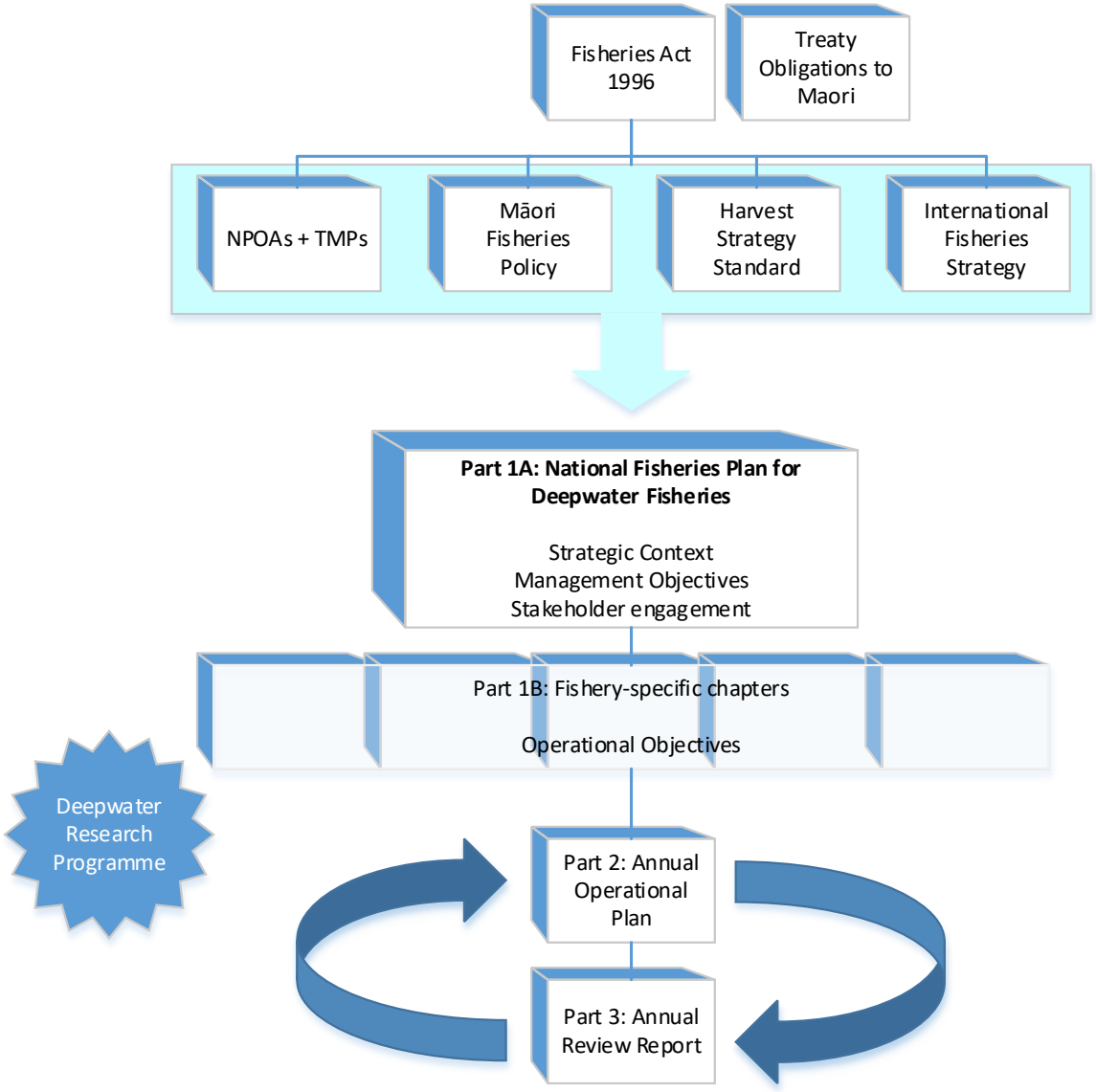

Figure 1. The National Deepwater Plan Wider Context and Structure

[4] At the time of publication, The National Fisheries Plan for Deepwater and Middle-depth Fisheries 2018 has yet to be made available. The National Deepwater Plan is expected to be made available in mid-2018 however an iteration was released for consultation in 2017.

3 Outcomes

The AOP establishes the high level, tactical outcomes that are shown in Figure 2. The major part of this document describes these outcomes in more detail and the management measures required to meet these outcomes, as well as describing how the management measures will meet the higher-level legislative and policy objectives.

Use Outcome:
Fisheries resources are used in a manner that provides greatest overall economic, social and cultural benefit.

Environment Outcome:
The capacity and integrity of the aquatic environment, habitats and species are sustained at levels that provide for current and future use.

Governance Outcome:
Sound governance arrangements that are well specified, transparent, and which support cost-effective and accountable decision-making

Management Objectives (Part 1 A)

Use Outcome	**1**	Ensure the deepwater and middle-depth fisheries resources are managed so as to provide for the needs of future generations
	2	Ensure excellence in the management of New Zealand's deepwater and middle-depth fisheries so they are consistent with, or exceed, international best practice
	3	Ensure effective management of the deepwater and middle-depth fisheries is achieved through the availability of appropriate, accurate and robust information
	4	Ensure deepwater and middle-depth fish stocks and key bycatch fish stocks are managed to an agreed harvest strategy or reference points
Environment Outcome	**5**	Ensure that maintenance of biological diversity of the aquatic environment and protection of habitats of particular significance for fisheries management are explicitly considered in management
	6	Manage deepwater and middle-depth fisheries to avoid, remedy or mitigate adverse effects on associated or dependent or incidentally caught fish species
	7	Manage deepwater and middle-depth fisheries to avoid, remedy or mitigate the adverse effects of these fisheries on benthic habitats
	8	Manage deepwater and middle-depth fisheries to avoid, remedy or mitigate the adverse effects of these fisheries on the long-term viability of 'Endangered, Threatened and Protected species' (ETP).

Figure 2. Outcomes and Objectives of the Annual Operational Plan for Deepwater Fisheries 2018/19

Governance	**9**	Ensure there is consistency and certainty of management measures and processes in the deepwater and middle depths fisheries
	10	Ensure New Zealand's deepwater and middle-depth fisheries are transparently managed
	11	Ensure the management of New Zealand's deepwater and middle-depth fisheries meets the Crown's obligations to Māori

Figure 2 (Continued). Outcomes and Objectives of the Annual Operational Plan for Deepwater Fisheries 2018/19

From 1 July 2010, 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 the three parts shown in Figure 3. The National Deepwater Plan was updated in 2018.

Part 1 of the National Deepwater Plan establishes the 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;

2. The description and status of the management objectives that will apply across all deepwater fisheries; and

3. How the National Deepwater Plan will be implemented and how stakeholders will be engaged during the implementation phase.

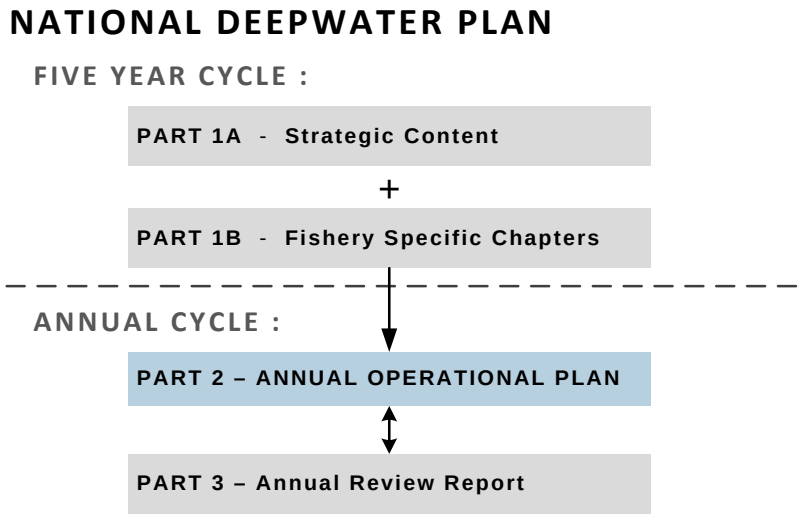

Figure 3: The National Deepwater Plan structure highlighting the five year cycle of PART 1A and 1B, and the annual cycle of the operational plan and review report. This document relates to Part 2 highlighted in blue.

Part 1A of the National Deepwater Plan was approved by the Minister of Fisheries under Section 11A of the Fisheries Act 1996. This means that it must be considered each time the Minister makes decisions or recommendations concerning regulation or control of fishing or any sustainability measures relating to the stocks managed through this Plan.

In line with the five-year term of the National Deepwater Plan published in 2011, Part 1A was updated in 2016 to reflect changes and developments since it was first published by the Ministry of Fisheries. The updated National Deepwater Plan (2018) is being published alongside this Annual Operational Plan (AOP). The high level structure of the National Deepwater Plan, including the fisheries specific chapters, annual planning, and review process as described in this section, remains the same. The Management objectives, structure, and content of Part 1A have been revised, and the content of this AOP reflects these changes.

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. To date, fishery-specific chapters have been completed for the hoki, orange roughy, oreo, hake, ling, jack mackerel, and southern blue whiting fisheries[5].

The fishery-specific chapters describe Operational Objectives for each of the Tier 1 target fisheries and the key Tier 2 bycatch species. These chapters also describe any harvest strategies that have been agreed for the relevant species at the time the chapters were written.

[5] All documents referred to on this page and the following page are available here http://www.mpi.govt.nz/growing-and-harvesting/fisheries/fisheries-management/deepwater-fisheries

Part 2 of the National Deepwater Plan consists of an AOP which provides the Management Actions scheduled for delivery during the financial year, and the Management Services needed for delivery of those Management Actions.

The AOP is primarily an internal planning and prioritisation document so will not be approved by the Minister of Fisheries under section 11A. However, advice will be provided to the Minister regarding any statutory interventions required to regulate deepwater fisheries. The contents and structure of this AOP are described in the following section.

Part 3 of the National Deepwater Plan is the Annual Review Report (ARR), which assesses the progress towards meeting the Operational Objectives, Management Objectives and priorities described in Part 1 through reviewing delivery of the AOP. The ARR also reports on annual performance of deepwater fisheries against the management approach specified in the AOP.

4 The 2018/19 Deepwater Annual Operational Plan (AOP)

This AOP details the Deepwater Fisheries Management Actions and Services that will be implemented during the 2018/19 financial year. Completion of these Management Actions will contribute to meeting the Management Objectives, outcomes and goals described in Part 1 of the National Deepwater Plan.

4.1 AOP STRUCTURE

The 2018/19 AOP includes the following sections, described in more detail below:

- Part 2A: Management Actions for 2018/19; and
- Part 2B: Management Services required for 2018/19.

4.1.1 Part 2A: Management Actions for 2018/19

Part 2A details the Management Actions that have been scheduled for completion during the 2018/19 financial year. Completion of all these Actions will contribute to delivery of the Deepwater Management Objectives specified in Part 1A and the fishery-specific Operational Objectives specified in Part 1B of the National Deepwater Plan.

The Management Actions in Part 2A are provided in order of priority, indicated by the number on the left hand side of Table 2.

Table 3 outlines projects and work areas that the Deepwater Fisheries Management Team will contribute towards but not lead. These projects are led by other teams, either within Fisheries New Zealand, or by teams in other MPI Branches. Table 4 outlines the Management Actions delivered by the Deepwater Team that are initiated by the fishing industry.

4.1.2 Part 2B: Management Services Required During the 2018/19 Financial Year

Part 2B details the Fisheries Management Services that will be required to deliver on Management Actions described in Part 2A of this AOP.

This section also outlines projects and work areas for which the Fisheries Management Deepwater team will work with and engage with other teams, both within the Fisheries Management Directorate and across Fisheries New Zealand.

New Zealand's deepwater fisheries will be managed in collaboration with tangata whenua and stakeholders. Some services are proposed for delivery in collaboration with industry, or Fisheries New Zealand will provide support to enable industry to deliver some services. Detail of the Fisheries Services and service support in Part 2B is split according to the key parts of Fisheries New Zealand or the wider MPI, or the relevant external organisations that the Deepwater Fisheries Management team will work with to deliver the specified services.

Delivery of the 2018/19 AOP will be assessed through the Annual Review Report that will be completed in 2019 after the end of the 2018/19 fishing year (30 September).

National Deepwater Plan Part 1A	**Fishery-specific chapters Part 1B**	**Annual Operational Plan**	
		Part 2A	**Part 2B**

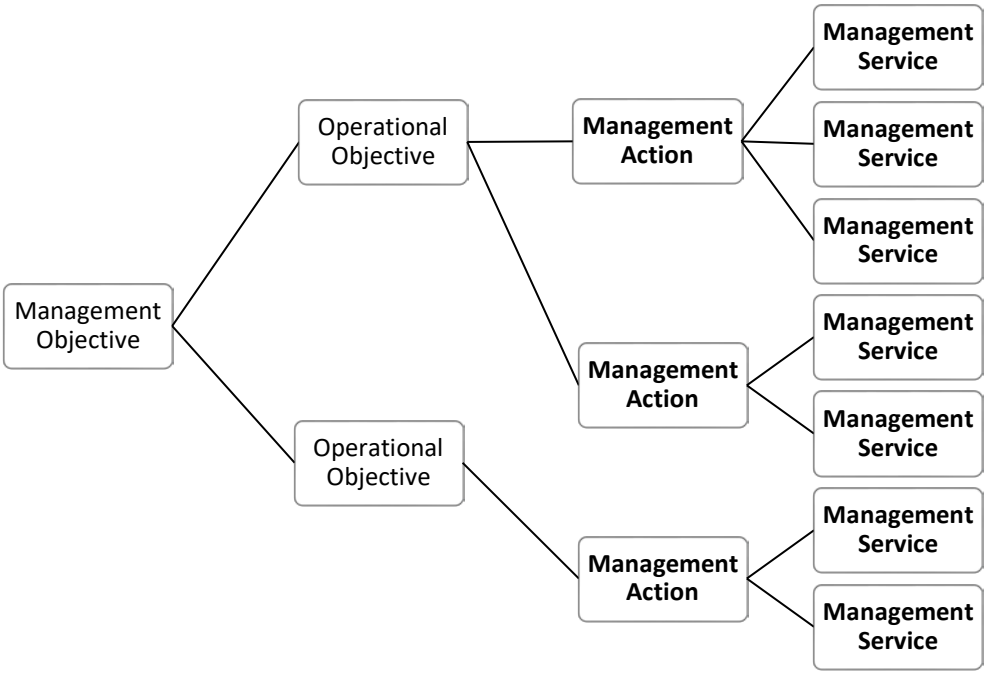

Figure 4: Flowchart of progression from Management Objective to Management Services specified in this Annual Operational Plan

5 Part 2A: Deepwater Fisheries Management Actions for delivery during the 2018/19 financial year

Table 2 – Management actions scheduled for completion during the 2018/19 financial year.

1	**Fisheries Sustainability Controls:** Review catch limits and management settings as required
	Deepwater sustainability decisions consist primarily of reviews to catch limits (TACs and TACCs) 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 fishing year beginning on 1 October and another for stocks with a fishing year beginning on 1 April. 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 proposal will be consulted on. Changes to conversion factors are Fisheries New Zealand decisions and the process does not have to run to the same timeframes as the sustainability rounds.
	Key Actions: Stocks undergoing assessment to be considered for review: • October 2018: HOK 1, HAK 1, LIN 5, LIN 6, ORH 3B, OEO 4, SCI 3; and • April 2019: SBW 6B.
	Action relates to Management Objectives 1, 2, 3, 4, 9 and 10

2	**Fisheries Planning:** Implement Updated National Deepwater Plan
	The National Deepwater Plan (2010) was reviewed in 2016/17, culminating in a revised National Deepwater Plan being published. Implementation of the updated National Deepwater Plan for the 2018/19 financial year will include the core activities listed below.
	Core Actions: • Annual Review Report for 2017/18; • Annual Operational Plan for 2019/20; and • Develop and review species-specific chapters for Deepwater Fisheries Plan (hoki, hake & ling; scampi).
	Action relates to all management objectives

3	**Ministerial Services:** Ensure timely completion of all Ministerial correspondence and communication requests assigned to the Deepwater Fisheries Management team
	The timely completion of all Ministerial correspondence and communication requests is a core government function and will be given priority throughout the year to ensure that all response timeframes are met.
	Core Actions: • Provide quality advice and information to the Minister of Fisheries; and

	• Maintain an open relationship with stakeholders and the public and respond to all OIA requests and government correspondence regarding deepwater fisheries issues in a timely manner.
	Action linked to all management objectives

4	**Engagement:** Ensure sufficient and appropriate engagement with tangata whenua and stakeholders
	Sufficient and appropriate engagement with tangata whenua and stakeholders is an integral part of fisheries management. Engagement aims to ensure deepwater fisheries management information is available and accessible for all stakeholders and to provide opportunity for input and participation in the Deepwater Fisheries Planning process and the ongoing management of deepwater fisheries for tangata whenua.
	Key Actions for 2018/19: • Develop iwi engagement plan **Core Actions:** • Ensure input and participation of tangata whenua and address issues as necessary; • Maintain an open and transparent management environment by ensuring that all management information is available and accessible on Fisheries New Zealand's website for stakeholders and tangata whenua consideration; • Engage with stakeholders on environmental issues relating to management of deepwater fisheries through the biannual Fisheries Plan Advisory Group; and • Advise Fisheries New Zealand representatives attending Iwi Fisheries Forums of upcoming consultations.
	Action linked to all management objectives

5	**Protected Species Frameworks –** NPOA-Seabirds: Work collaboratively with the Department of Conservation to achieve the five year practical, biological, research and development, and international objectives within deepwater fisheries
	The National Plan of Action – 2013 to reduce the incidental catch of seabirds in New Zealand Fisheries (NPOA-Seabirds) sets out the long term and five year objectives relating to managing fisheries interactions with seabirds. The NPOA-Seabirds (2013) is underpinned by the Seabird Risk Assessment which identifies 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.[6] The NPOA-Seabirds (2013) is currently being revised in line with its five year term. This Management Action outlines the priority seabird work areas for deepwater fisheries in 2018/19 to give effect to the NPOA, as well as work required to support revision of the NPOA. Further detail on the objectives of the NPOA-Seabirds (2013) and how the Deepwater Fisheries Team will support the achievement of those objectives can be found in Section 8.
	Key Actions for 2018/19: • Contribute to the revision of the NPOA-Seabirds (2013); and

[6] The NPOA-Seabirds can be accessed here (www.mpi.govt.nz/document-vault/3962) while the most recent update to the Risk Assessment can be accessed here (http://www.mpi.govt.nz/dmsdocument/27531/loggedIn)

	• Investigate and implement any additional practicable and effective measures to minimise the risk of net captures based on the outcomes of the contracted project characterising trawl net captures and potential contributing factors **Core Actions:** • Refer to Table 6 in section 8: Implementation of the NPOA-Seabirds (2013)
	Action linked to all management objectives

6	**Protected Species Frameworks –** Work collaboratively with the Department of Conservation on implementation of the New Zealand sea lion/rāpoka Threat Management Plan 2017-2022
	The New Zealand sea lion/rāpoka Threat Management Plan prioritises management actions to enable the recovery of the sea lion population.[7]
	Key Actions for 2018/19: • Develop fishery-specific approaches to understanding and managing commercial fisheries where the information regarding sea lion interactions and mitigation is less detailed i.e. scampi fisheries around the Auckland Islands (SCI 6A) and fisheries around the South Island and Stewart Island. **Core Actions:** • Work with DOC to implement the actions in the Threat Management Plan; • Engage with key stakeholders at meetings of the New Zealand sea lion/rāpoka Forum/ Advisory Group and Squid 6T Operational Plan Technical Advisory Group; • Review sea lion research (disease, fisheries interactions, SLED efficacy and adult female sea lion diet) at the Aquatic Environment and Conservation Services Programme working groups; and • Update the SBW 6I Operational Plan for 2018.
	Action relates to Management Objectives 6 and 8

7	**National Plan Frameworks –** Work collaboratively with the Department of Conservation **and Ministry of Foreign Affairs & Trade (MFAT) to i**mplement components of the National Plan of Action for the Conservation and Management of Sharks 2013 (NPOA-Sharks) relevant to deepwater fisheries
	The NPOA-Sharks (2013) 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 and repeated in November 2017. The risk assessment informs ongoing prioritisation of shark management actions and research. This Management Action is focused on achieving objectives of the NPOA-Sharks, and addressing concerns for at-risk species identified in the risk assessments.[8] The NPOA-Sharks will be reviewed by the Deepwater Fisheries Team in 2018/19.
	Key Actions for 2018/19:

[7] Information on the sea lion TMP is available at https://www.doc.govt.nz/Documents/conservation/native-animals/marine-mammals/nz-sea-lion-tmp/nz-sea-lion-threat-management-plan.pdf

[8] The NPOA-Sharks is available at http://fs.fish.govt.nz/Page.aspx?pk=165&tk=554 and the the latest risk assessment is available at https://fs.fish.govt.nz/Page.aspx?pk=113&dk=24619

	• Support the review and revision of the NPOA-Sharks (2013), in consultation with stakeholders • Participate in the third Meeting of the Signatories to the CMS Sharks MOU in December 2018 • Complete a review of the ban on shark finning, and implement any recommended changes **Core Actions:** • Engage with key stakeholders at meetings of the New Zealand Sharks Advisory Group • Update and support delivery on the NPOA-Sharks Implementation Plan across the fisheries management directorate in conjunction with DOC and MFAT • 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 Sharks MOU (Memorandum of Understanding on the Conservation of Migratory Sharks)[9]; • Continue to work with stakeholders to avoid captures of protected shark species in deepwater fisheries and maximise survival of captured protected shark species; and • Engage as required on the CMS Sharks MOU (Memorandum of Understanding on the Conservation of Migratory Sharks)[10] and ensure that New Zealand's shark management is consistent with the Sharks MOU and its conservation plan.
	Action relates to Management Objectives 6 and 8

8	**Benthic Framework –** Benthic Invertebrates: Work collaboratively with the Department of Conservation to monitor and measure the nature and extent of benthic interactions with deepwater fishing activity
	The current approach to managing the effects of fishing on deepwater benthic communities is through closure of large areas of the EEZ to bottom trawling. The level of interactions between deepwater vessels and benthic invertebrates is monitored by Fisheries New Zealand observers. The trawl footprint is also monitored each year and the most recent information available is reported in the ARR.[11]
	Key Actions for 2018/19: • Support the development of objectives to guide the management of benthic impacts. **Core Actions:** • Monitor the trawl footprint of selected deepwater fisheries and report on any new areas trawled in the ARR and consider management action if required; and • Report in the ARR, the volume and species (where possible) of selected benthic species captured and consider management action if required.[12]
	Action linked to Management Objectives 5, 6 and 7

[9] The CMS Sharks website is available here (www.cms.int/sharks/en)

[10] The CMS Sharks website is available here (www.cms.int/sharks/en)

[11] The most recent trawl footprint report is available here (http://www.mpi.govt.nz/dmsdocument/27546-aebr-193-extent-of-bottom-contact-by-nz-commercial-trawl-fishing-for-deepwater-tier-1-and-tier-2-target-fishstocks-1989-90-to-2015-16)

[12] The species whose quantities are reported in the ARR are primarily those that fishers are required to report on non-fish or protected fish species catch reports under the Fisheries (Reporting) Regulations 2017 i.e. corals, sponges and bryozoans

9	**Deepwater Research Planning:** Finalise and agree research commitments for the 2018/19 year and determine future approach to research planning and procurement
	Contracts under the initial five year phase of the 10 Year Research Programme concluded at the end of the 2014/15 financial year. The research required to manage deepwater fisheries is currently being contracted on an annual basis based on the long-term planning done as part of the 10 Year Research Plan.
	Key Actions for 2018/19: • Support Fisheries New Zealand to implement the new approach to research planning and procurement, including a return to longer term contracting for routine trawl surveys. **Core Actions:** • Finalise and agree the Deepwater Fisheries Research Programme, including any proposals for industry-led research, for delivery during the 2019/20 financial year before December 2018; and • Update Medium-term Research Plan.
	Action linked to all Management Objectives

10	**Deepwater Monitoring:** Deepwater Observer Coverage/sampling requirements
	Observer coverage of deepwater fisheries is planned by financial year. Planning is based on biological sampling requirements, international requirements and percentage-level coverage targets. Coverage is monitored throughout the year to ensure information is available to support stock assessments and to understand interactions with protected species. Additional information on observer coverage planning is available in section 9.
	Key Actions for 2018/19: • Place observers on Deepwater vessels that are using the Modular Harvesting System (MHS) for the first time; and • Contribute towards the redesign of the Observer Non-fish Bycatch Form (and any other forms deemed necessary). **Core Actions:** • Liaise with industry to request quarterly fishing plans to support observer coverage planning; • Ensure observer briefing documents are up to date and that appropriate sampling is undertaken in accordance with biological targets; • Monitor biological sampling to ensure sampling targets are met; and • Develop the observer coverage plan for the 2019/20 financial year including updating of sampling targets**.**
	Action linked to all Management Objectives

11	**Deepwater Monitoring:** Digital Monitoring (DM)
	From 1 October 2017, most of the deepwater trawl fleet (vessels >28 m) have been required to use two of the three components of digital monitoring (position reporting and electronic catch reporting). All remaining fishers and vessels will likely be required to start using position reporting and electronic catch reporting during the 2018/19 year.

Key Actions for 2018/19:

- Identify opportunities to use position reporting and electronic catch reporting data to enhance BAU actions undertaken by the DW team;
- Support industry initiatives to deploy cameras on deepwater vessels on a trial basis; and
- Engage with industry to support compliance with the digital monitoring catch reporting and positional reporting requirements.

Core Actions:

- Work with Business Technology & Information Services team and the Digital Monitoring team to develop and implement data quality standards and specifications;
- Review the information required to be reported by fishers under electronic catch reporting and consider amendments if required; and
- Work with vessel operators to ensure all position reporting and electronic catch reporting requirements are well understood and implemented consistently.

Action linked to all Management Objectives

12	**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. Measures are described in the following Operational Procedures or Plans (OPs):[13]

- Marine Mammal Operational Procedure (DWG initiative);
- Vessel Management Plans (trawl) – Seabirds (DWG initiative);
- Ling Operational Procedures (bottom longline) – Seabirds (DWG initiative);
- Shark Operational Procedure (DWG initiative); and
- SQU 6T/SBW 6I Operational Plans.

Core Actions:

- Monitor adherence of the deepwater fleet to management measures through Fisheries New Zealand observer coverage;
- Work with DWG to update materials and methods used to educate crew on Operational Procedures and Plans;
- Monitor protected species interactions across all trips via Fisheries New Zealand Observer debriefs and reporting of trigger points;
- Report levels of adherence to Operational Plans and procedures to stakeholders through the ARR;
- Continue to support the training and outreach and awareness programme run by the DWG Environmental Liaison Officer (ELO); and
- Update the SBW 6I Operational Plan.

Action relates to Management Objectives 5, 6, 7, 8 and 11

[13] DWG operational documents can be accessed here (http://deepwatergroup.org/newsresources/op-manual/)

13	**Deepwater Monitoring –** Monitor adherence to non-regulatory measures in place to manage Tier 1 deepwater fishstocks at a sub-QMA scale.
	In conjunction with industry, Fisheries New Zealand have 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 by industry to reduce fishing mortality of juvenile hoki in important nursery areas. Measures are described in the following Operational Procedures: • Orange Roughy & Oreo Operational Procedures; and • Hoki Operational Procedures.
	Key Actions for 2018/19: • Refining and automating tools to enable more efficient monitoring **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; and • Respond as required where sub-QMA catch limits are exceeded.
	Action linked to Management Objectives 2, 3 and 4

14	**Registry Services:** Implement the Foreign Owned Vessels [14] (FOV) registration process, High Seas Permit Applications and risk based observer coverage
	The Deepwater Fisheries Management team and the Fisheries Compliance team provide input to all advice papers relating to Fisheries New Zealand's consent to the registration of foreign-owned vessels operating in deepwater fisheries under section 103 of the Fisheries Act 1996. Fisheries New Zealand also coordinates the cross agency work programme for the implementation of requirements of the Fisheries (Foreign Charter Vessels and Other Matters) Amendment Act 2014 and will continue to assist the Fisheries New Zealand Registry Analyst and the Fisheries New Zealand Observer Programme with any changes to their respective processes and functions.
	Core: • Provide analysis for each foreign-owned vessel registration application; • Provide input into high seas permit applications; • Current role of secretariat for the Inter-Agency Fisheries Group and Governance Group: chair meetings, set the agenda and report back on bi-monthly meetings. As part of the secretariat role, circulate papers in advance of meetings, record the discussions and action points in the minutes, allocate responsibilities to follow up decisions made and update the FOV Risk Register; and • Provide policy advice on FOV issues.
	Action linked to all Management Objectives

[14] The term FCV has been used historically, however, these vessels are more correctly identified as 'foreign-owned' and this acronym FOV will be used from now on.

15	**Fisheries Management Controls –** Regulatory amendments
	Progressing secondary amendments to secondary legislation such as regulations requires: analysis of options, drafting the documents required for the different components of the regulatory process such as the PIRA (preliminary impact and risk assessment), consultation documents, RIS (regulatory impact statement), providing advice and decision documents. The process for creating or amending tertiary legislation such as circulars, is more straightforward and does not require a PIRA, a RIS or Cabinet/Ministerial approval.
	Core: • Progress secondary or tertiary legislative amendments as required.
	Action linked to Management Objectives 1, 2, 9, 10 and 11

16	**Fisheries Management/Sustainability Controls:** Support existing approaches to market initiatives for New Zealand's deepwater seafood
	The primary component of this management action is working with DWG to support the requirements of the Marine Stewardship Council (MSC) assessment and certification process. Fisheries New Zealand supports industry to achieve and maintain certification of key deepwater fisheries, and progress performance of all Tier 1 deepwater fisheries towards meeting the MSC Standard.[15]
	Core: • Provide information to support the development and implementation of Fisheries Improvement Plans for fisheries not yet assessed; and • Provide information for annual surveillance audits of SBW, LIN bottom long line, the HOK, HAK and LIN bottom trawl complex, and ORH fisheries in 2018.
	Action linked to Management Objectives 1,2, 9 and 10

17	**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
	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.
	Key Actions: • Support delivery of management strategy evaluation for scampi • Contribute to Fisheries New Zealand's Low Information Stock Project
	Action linked to Management Objective 1,2,3 and 4

[15] Information on the status of New Zealand's deepwater fisheries in the MSC programme can be found on DWG's website here (www.deepwatergroup.org/certification)

6 Management Actions delivered in conjunction with other directorates within Fisheries New Zealand and MPI

Table 3: Management Actions that are led by other teams within Fisheries New Zealand and within MPI

A	**Input to wider strategic MPI projects** Assist relevant branches within MPI with review of policy developments and any necessary fisheries management information **LEAD: project dependent (see below)**
	MPI's Policy and Trade branch is leading the Fisheries Change Programme, which is expected to make significant improvements to how our fisheries are managed.[16] These projects require information, feedback, and review of working documents. The programme is split into three sections: short-term work looking at policy settings needed to support implementation of digital monitoring and innovative trawl technology projects; and medium and long-term sections that includes topics such as ecosystem-based fisheries management.
	Core • Contribute to policy development as required.
	Action linked to Management Objectives: various

B	**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 Science (Stock Assessment and Aquatic Environment)**
	The Deepwater team will continue to be closely involved in the monitoring and evaluation of all research projects that relate to deepwater fisheries.
	Core: • Assist Fisheries Science to deliver outputs of all 2018/19 research projects as listed in Tables 8-10; and • Assist Fisheries Science to ensure that all science research used to support management of deepwater fisheries is assessed against the Research Standard.[17]
	Action linked to all Management Objectives

[16] Information on the Fisheries Change Program (formerly known as the Future of our Fisheries Programme) is available here (http://www.mpi.govt.nz/protection-and-response/sustainable-fisheries/strengthening-fisheries-management/future-of-our-fisheries/)

[17] The Research Standard can be accessed here (http://www.mpi.govt.nz/dmsdocument/3692-research-and-science-information-standard-for-new-zealand-fisheries)

C	**Observer Coverage Delivery** The Fisheries New Zealand Observer Programme is responsible for delivering on the observer coverage targets set out in the final 2018/19 coverage plan and ensuring that the required biological sampling targets are met. **LEAD: Fisheries Monitoring (Observer Programme)**
	Observer coverage plans for all fisheries are prepared annually as are biological sampling targets and other observer tasks. The Deepwater Fisheries Management team will continue to work closely with the Observer Programme to ensure the necessary targets are achieved.
	Core tasks: • Assist the Observer Programme to deliver the 2018/19 observer coverage plan by continuing to engage with industry to regularly provide quarterly fishing plans to the Observer Programme to facilitate placement of observers and delivery of the required representative levels of coverage; • Ensure the Observer Programme is aware of, and that observers are adequately briefed on, the biological sampling targets for 2018/19 and any new requirements for the Observer Programme; • Provide training to new recruits as part of the intake process to ensure that observers collect data and sample correctly; • Request frequent reporting and updates of coverage levels against targets throughout the 2018/19 year; and • Engage with, and provide feedback to, observers through the observer newsletter and observer catch up sessions.
	Action linked to all Management Objectives

D	**Cost Recovery Process** Assist the Business and Financial Advice team with the cost recovery processes for 2018/19 and 2019/20 **LEAD**: **Corporate Services (Cost Recovery)**
	Fisheries New Zealand 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.
	Core tasks: • Ensure the Deepwater Fisheries Management team has input into the port price survey process administered by the Finance team; and • Ensure the cost recovery levy process recovers costs consistent with deepwater observer coverage and research plans, including providing information to support the unders/overs process.
	Action linked to Management Objectives: various

E	**Compliance risk profiling and monitoring work** **LEAD: Compliance Directorate (Operations Branch)**
	MPI's Compliance Directorate will continue to focus on monitoring deep-water fishing activity and catch reporting in 2018/19 to ensure the fleet demonstrates behaviours and practices consistent with legislative and regulatory requirements. The emphasis for MPI's Compliance Directorate for 2018/19 is to: • Monitor tier one fisheries with a focus on compliance with the Conversion Factor regime (i.e., processed state); • Provide advice to industry to reduce potential non-compliance; and • Targeted inspections and audit of risk activities
	Key Actions for 2018/19: • Engage with industry to support compliance with the digital monitoring catch reporting and positional reporting requirements; • Monitor compliance issues identified in risk profiles; • Provide compliance and enforcement information to support the reassessment processes for MSC certified fisheries; and • Engage with industry to verify fish to meal sources and meal quantification processes identified in factory plans for vessels. **Core**: • Assess compliance risk for deep-water fisheries; • Investigate issues where offending is suspected; • Carry out at sea inspections; and • Audit catch returns
	Action linked to Management Objectives: various

7 Management Actions Initiated by Industry

Table 4: Management actions delivered by the Deepwater Fisheries Management Team that are initiated by the fishing industry.

	Possible Actions for 2018/19:
	• Respond to any industry requests for changes to QMA boundaries or definitions; • Respond to applications for vessel specific conversion factors; • Support development of new fisheries within sustainable limits; • Respond to any requests for special permits for deepwater species; and • Respond to any requests to use Innovative trawl gear.

8 National Plans of Action

8.1 NATIONAL PLAN OF ACTION - SEABIRDS

8.1.1 Implementation of the National Plan of Action - Seabirds

The NPOA-Seabirds[18] sets out objectives for five years to guide management of incidental seabird catch in New Zealand fisheries. The objectives are achieved through integration into Fisheries New Zealand's annual and five year plans for fisheries, and this AOP sets the prioritised actions and services needed to meet these objectives for deepwater fisheries. Revision of the NPOA will be undertaken during the 2018/19 financial year.

The NPOA-Seabirds objectives address four key areas:

i) a **practical objective** focused on continuous improvement to reduce, and where practicable, eliminate the incidental mortality of seabirds;
ii) a **biological risk objective** focused on ensuring seabird populations remain at or attain a favourable conservation status;
iii) a **research and development objective** focused on researching mitigation and observation methods, and seabird biology, demography and ecology; and
iv) an **international objective** focused on the implementation of best practice mitigation in other fishing fleets that overlap with New Zealand breeding seabirds.

The NPOA-Seabirds employs a quantitative risk assessment framework[19] that is used to generate quantitative risk scores for seabird species. It identifies the seabird species most at most risk from commercial fishing, as well as the fisheries that contribute the greatest risk to these seabirds. These are then prioritised for management action to reduce the overall risk that commercial fishing poses to seabirds over time.

The risk assessment calculates a risk score, which is defined as the ratio of annual potential fatalities (APFs; an estimate of the number of birds killed in fisheries each year) to the Population Sustainability Threshold (PST; which is an index of seabird population productivity[20]).

A seabird species is considered to be at 'very high risk' from fishing, if the ratio of the estimated mean APF to the mean PST is higher than 1. A species is considered to be at 'high risk' from fishing if the ratio of APFs to the PST is above 0.3. The most recently published assessment based on seabird bycatch and fisheries data to the end of the 2014–15 fishing year, identified one seabird species as being at a 'very high' risk from fishing

[18] The National Plan of Action – 2013, to reduce the incidental catch of seabirds in New Zealand Fisheries. https://www.mpi.govt.nz/dmsdocument/3962/loggedIn

[19] Richard *et al.* (2015) is the fourth implementation of this framework.

[20] Richard, Y; & Abraham, E. (2017). Assessment of the risk of commercial fisheries to New Zealand seabirds, 2006–07 to 2014–15. New Zealand Aquatic Environment and Biodiversity Report 191.

and seven seabird species that were at a 'high' risk from fishing (Richard & Abraham 2017). The risk assessment is an ongoing process of iterative improvement, and is updated as the methodology improves and when new data become available, meaning risk scores can change over time.

Deepwater fisheries that contribute more than 10% of the risk to 'very high' and 'high risk' seabird species according to the most recent iteration of the seabird risk assessment are listed below. Of these species, fully quantitative level 3 population modelling has been completed for Southern Buller's[21] and white-capped albatross[22]. The outcomes of these assessments or species-specific population modelling (completed since the level 2 risk assessment was published) will be reviewed and considered as part of any management updates as appropriate.

8.1.2 High Risk Birds

Salvin's albatross

Deepwater fisheries contribute a total of 55% of the risk score for Salvin's albatross with most of the contribution from middle depth fisheries, hoki, and scampi trawl, and small vessel ling bottom longline fisheries. Deepwater fisheries account for 1,532 of the total 2,780 APFs with the PST for Salvin's albatross estimated to be 3,600. The main uncertainty in the modelled risk is the number of captures in inshore trawl fisheries, the cryptic mortality multiplier, and the estimate of adult survival.

Southern Buller's albatross

Deepwater fisheries contribute a total of 72% of the risk score for southern Buller's albatross with most of the contribution from hoki and squid trawl fisheries. Deepwater fisheries account for 379 of the total 528 APFs with the PST for southern Buller's albatross estimated to be 1,370.

New Zealand white-capped albatross

Deepwater fisheries contribute a total of 31% of the risk score for white-capped albatross with most of the deepwater contribution from middle depth and squid trawl fisheries. Deepwater fisheries account for 1,359 of the total 3,830 APFs with the PST of white-capped albatross estimated to be 10,900.

Chatham Island albatross

Deepwater fisheries contribute a total of 88% of the risk score for Chatham Island albatross with most of the deepwater contribution from the small vessel (<28 m) ling bottom longline fishery. Deepwater fisheries account for 136 of the total 155 APFs with the PST of Chatham Island albatross estimated to be 425.

Westland petrel

Deepwater fisheries contribute a total of 31% of the risk score for Westland petrel with most of the deepwater contribution from the hoki trawl fishery. Deepwater fisheries account for 56 of the total 180 APFs with the PST of Westland petrel estimated to be 350.

8.1.3 Capture rate reduction targets

Capture rate reduction targets provide a gauge against which the Practical Objectives of the NPOA-Seabirds can be measured. A working group of the Seabird Advisory Group (SAG), was tasked with developing a set of

[21] https://www.mpi.govt.nz/dmsdocument/11662-aebr-165-2014-demographic-assessment-of-the-snares-islands-population-of-southern-bullers-albatross-diomedea-bulleri-bulleri

[22] https://www.mpi.govt.nz/dmsdocument/4233-aebr-104-fisheries-risks-to-the-population-viability-of-white-capped-albatross-thalassarche-steadi

principles that could be used when determining capture rate reduction targets in 2015. The group recommended that fisheries be defined using the same groupings as that of the risk assessment model, and that targets should be quantitative wherever possible (Table 5). These targets would then be compared to a baseline capture rate, which has been defined as the average estimated capture rate, for each fisheries grouping, across the three year block leading up to the implementation of the NPOA-Seabirds, with at least 10% observer coverage and a CV[23] of less than 0.30. It was also agreed that these targets should be meaningful, and a test was devised based on the level of actual observed captures, the estimated captures, and the corresponding capture rate.

The calculation steps to determine the baseline capture rate, the capture rate reduction targets, and proxy targets for deepwater fisheries are outlined in Table 5. The cells shaded red indicate the step at which the above criteria have not been met and fisheries highlighted in yellow indicate that quantitative capture rate reductions were able to be calculated. The service provider responsible for the enumeration of seabird captures calculated what a 'statistically significant' decrease in capture rate would look like compared to the baseline capture rate. The targets were set for the end of the five year period of the NPOA-Seabirds and are measured based on a three year rolling average. For fisheries where the above criteria are not met, proxy targets have been developed.

8.1.4 Deepwater Management Approach - Seabirds

In Deepwater fisheries, seabird interactions are avoided or mitigated by:

- mandatory use of seabird scaring devices and implementation of seabird mitigation measures;[24]
- implementation of best practice seabird mitigation measures through vessel-specific Vessel Management Plans (VMPs);[25]
- an annual crew training and vessel outreach programme;
- ongoing exploration of new or improved mitigation methods; and
- Fisheries New Zealand observers monitoring vessel adherence to VMPs.

VMPs outline a set of operational procedures that are specific to each vessel. These include controlling the discharge of offal during shooting and hauling, the correct deployment of bird scaring devices, and the removal of 'stickers' between each tow. Contingency plans and reporting requirements for capture events and equipment failures (that may increase bird capture risk), are also included.

Throughout 2018-19, actions in deepwater fisheries to support the NPOA-Seabirds, will be focused on continuing to improve and manage the VMP process, including the expansion of operating procedures regarding best practice, including regulations, and seabird training sessions for crew on bottom longline vessels. Table 6 sets out the objectives and specific services planned for deepwater fisheries management. Many of the services will contribute to the achievement of more than one objective. These measures will contribute to a reduction over time in the capture rate of seabirds from fishing activity, and contribute to achieving the practical and biological objectives of the NPOA-Seabirds.

[23] Coefficient of variation (CV) is a metric of the variation of the data around the mean. It allows for comparison of the variation within and across data sets.

[24] Regulations require trawlers over 28 m in overall length to deploy a seabird scaring device and bottom longliners (above 7 m in length) to deploy streamer (tori) lines, restrict offal and fish discharge and either set at night or use an approved line weighting regime See here for links to these regulations.

[25] Information on VMPs is available on the DWG website here

Table 5: Deepwater Capture Rate Reduction Targets

Baseline capture rate								
Fishery	**Baseline observer coverage**	**Annual CV of captures**	**Observed captures**	**Estimated captures**	**Capture rate per 100 tows/1000 hooks**	**Meaningful target?**	**'Target' rate/100 tows (reduction)**	**Suggested target/proxy**
SBW trawl	>10%	0.0004-0.27	4-20	6-20	1.1	No		Continue to monitor and report, target is no significant increase (based on three-year rolling averages)
SQU trawl	>10%	0.039-0.134	>100	>300	14.0	Yes	12.0 (14%)	Statistically significant decrease in rate (based on 3-yr rolling average)
JMA trawl	>10%	0.037-0.421	7-33	10-34	1.0	No		Continue to monitor and report, target is no significant increase (based on three-year rolling averages)
SCI trawl	<10%					No		A calculation of the overall observer coverage indicates that 8.4% of tows were observed between 2008/09 and 2012/13. This is not considered sufficient to provide a robust baseline. Proxy target is to have VMPs in place on all vessels, ELO to visit all scampi vessels, and a target of 15% observer coverage be set.
Deepwater trawl[26]	>10%	0.392-0.407	2	16-24	0.6	No		Continue to monitor and report, target is no significant increase (based on 3-yr rolling averages)
Middle depths trawl (>28 m)[27]	>10%	0.065-0.187	>100	>200	2.7	Yes	2.3 (15%)	Statistically significant decrease in rate (based on 3-yr rolling averages)
Large vessel BLL	>10% 09/10-11/12	0.32-0.451	4-27	>100	0.01[28]	No		Continue to monitor and report, target is no significant increase (based on three-year rolling averages)
Small vessel LIN BLL	<10%					No		Work with industry to implement vessel-specific seabird management plans including the use of best practice mitigation across this fleet. Liaison officers will also provide seabird training sessions to crew. A target of 15% of effort observed will be set.

[26] Deepwater trawl includes orange roughy, alfonsino and oreo species.

[27] Middle depth trawl includes trawl effort for all species other than those with specific categories. This includes hoki, hake and ling and a number of tier 2 species.

[28] Updated from the table set out in 2017/18 AOP which reported baseline capture rates in longline fisheries in terms of 'sets' rather than per 1000 hooks.

Table 6: NPOA-Seabirds services planned for Deepwater Fisheries Management during 2018/19

Five- Year Objectives	Planned Deepwater Services for 2018/19
Practical objectives a) All New Zealand commercial fishing vessels are shown to be implementing current best practice mitigation measures relevant to their area and fishery; b) Recreational and customary non-commercial fishers understand the risks their fishing activities pose to seabirds, relevant organisations support and promote the use of best practice mitigation measures and it is the cultural norm in New Zealand to use such measures; and c) Capture rates are reducing in all New Zealand fisheries in accordance with reduction targets in the relevant planning documents for those fisheries (3 year rolling average).	• Work with the Deepwater Environmental Liaison Officer to continually improve the Vessel Management Plan (VMP) process and apply it across the wider deepwater fleet, and improve awareness amongst operators of times and areas where the risk of seabird interactions is increased; • Continue to monitor adherence to VMPs, as well as review VMPs and education programmes to ensure all measures are as effective as possible. The goal is: a) 100% of observed deepwater trips have audited VMP b) 95% of observers debriefed by Fisheries New Zealand Deepwater team c) Follow up all non-adherence • Work across the FM Directorate and with key stakeholders to monitor the targets already developed and report on appropriate seabird performance measures including capture rate reduction targets; • Increase observer coverage to further monitor seabird interactions in the ling bottom longline and scampi trawl fishery to reduce uncertainty in the risk assessment; and • Implement actions from the Black petrel and Flesh-footed shearwater Action Plan in the scampi fishery including: a) Ongoing auditing and monitoring of adherence to VMPs b) Monitoring of effectiveness of current mitigation measures detailed in VMPs.
Biological risk objective a) The level of mortality of seabirds in New Zealand commercial fisheries is reduced so that species currently categorised as 'very high' or 'high risk' from fishing, move to a lower risk category	
Research and development objectives	
a) Where existing mitigation measures are impractical or of limited effectiveness in reducing the mortality of seabirds, new or improved mitigation measures have been sought and where identified are under development for all priority fisheries or fishing methods; b) New observation and monitoring methods, especially in relation to poorly observed fisheries, are researched, developed and implemented; and c) Programmes of research to improve understanding of, and ability to mitigate, seabird incidental mortality for at risk species are underway and key projects for very high risk species have been completed.	• Investigate and implement any additional practicable and effective measures to minimise the risk of net captures based on outcomes of contracted project characterising net captures and potential contributing factors; • Continue to engage in DOC and Fisheries New Zealand research planning and review processes; and • Continue to engage in the Seabird Advisory Group.

8.2 THE IMPLEMENTATION OF THE NATIONAL PLAN OF ACTION FOR THE CONSERVATION AND MANAGEMENT OF SHARKS (NPOA-SHARKS) 2013

The NPOA-Sharks sets out six goals and accompanying five year objectives to support the management of sharks and rays. A qualitative risk assessment of all shark and ray species informs prioritisation of management actions and research.

Ongoing actions both within MPI and across other agencies (DOC and MFAT) are focused on:

- reviewing appropriate management categories and protection status;
- based on the outcomes of the risk assessment, contracting research to continue filling information gaps about higher risk species;
- continued monitoring of shark fin requirements; and
- working with fishers to ensure best practice handling and mitigation measures are employed where appropriate.

The NPOA-Sharks will be reviewed during 2018/19. A key component of this is a review of settings of the ban on shark finning, including any recommendations for amendments to relevant regulations or adjustments to shark fin landing ratios.

9 Part 2B: Service Requirements to Support Deepwater Fisheries Management during the 2018/19 financial year

The Deepwater Fisheries Management team will work and engage effectively with other teams across the Fisheries Management Directorate, across Fisheries New Zealand, MPI, and with Māori and key external organisations.

9.1 FISHERIES NEW ZEALAND DIRECTORATES

Table 7: Fisheries New Zealand teams, and teams within MPI through which fisheries management services will be delivered

Branch	Directorate	Team
Fisheries New Zealand	Fisheries Management	Offshore Fisheries – Deepwater Fisheries and Highly Migratory Fisheries
		Inshore Fisheries – Inshore Fisheries and Recreational Fisheries
		Customary Fisheries and Spatial Allocations
	Fisheries Science & Information	Fisheries Science - Stock Assessment and Aquatic Environment
		Fisheries Monitoring - Data Management and Observer Services
	Digital Monitoring	Programme Management & Change
		Stakeholder Engagement & Implementation
		Digital Monitoring Transformation
	Aquaculture & Branch Support	Aquaculture
		Planning & Process Improvement

The Deepwater Fisheries Management Team works closely with the Inshore Fisheries Team who are responsible for managing inshore fishstocks, including shellfish, inshore finfish, freshwater and marine plant resources, and the effects of inshore fisheries on the aquatic environment. As detailed above, the Deepwater team will lead on all identified Management Actions listed in Table 2 and contribute to delivery of all actions specified in Table 3. The key cross directorate projects during 2018/19 are listed, followed by further detail on specific fisheries services that relate to key projects or processes:

a) Annual reviews of sustainability controls and management settings (April and October);

b) Review/implementation of the NPOA-Seabirds;

c) Review/implementation of the NPOA-Sharks;

d) Coordination of regulatory amendments; and

e) Engagement with tangata whenua.

9.2 FISHERIES MANAGEMENT

Fisheries New Zealand's Fisheries Management Directorate is responsible for the operational management of New Zealand's fisheries under the Fisheries Act 1996. Fisheries are managed within legislative requirements to provide for utilisation while ensuring sustainability. All Fisheries business groups work together on strategic matters and key projects that cross over the different portfolios in 2018/19. The Offshore team is part of Fisheries New Zealand (Table 7) and consists of two teams; the Deepwater Fisheries Management Team and the Highly Migratory Species Team. The Highly Migratory Species Team is responsible for the management of all highly migratory stocks and the management of the environmental effects of fishing for these species. They liaise with MPI's International Fisheries Policy Team and the Ministry of Foreign Affairs and Trade (MFAT) to represent New Zealand interests at international meetings and help develop fisheries management capacity in Pacific Island countries.

9.2.1 Fisheries New Zealand Customary Fisheries, Spatial Planning & Allocations, and Aquaculture & Fisheries Permitting Teams

The Customary Fisheries Team provides advice and support for the Deepwater Fisheries Team to fulfil section 12 obligations, particularly during the development and implementation of Iwi Fisheries Plans and Forum Fisheries Plans, to ensure that Māori interests in fisheries management are provided for. The Deepwater Team will consult with tangata whenua that have an interest in the stock or the effects of fishing on the aquatic environment, and provide for the input and participation of tangata whenua having a non-commercial interest in the stock concerned; or having a particular regard to kaitiakitanga. Key services include:

- input and participation into the development of proposals for change;
- review of consultation and decision documents produced by the Deepwater Fisheries Management team as part of each sustainability round; and
- ensuring sufficient and appropriate engagement with tangata whenua by providing the opportunity for Iwi and Forum Fisheries to discuss Deepwater consultations.

The Spatial Planning & Allocations Team:

- provides analysis and advice for regulatory decisions on area-based management tools that allow tangata whenua to exercise kaitiakitanga over areas that are of importance for non-commercial customary fishing (including: mātaitai reserves, taiāpure-local fisheries, temporary closures)
- Provides analysis and advice for the establishment of marine protected areas (MPAs), and related allocations of marine space. This includes cross-agency work to plan new MPAs, and supporting marine spatial planning initiatives with analysis and advice

The Aquaculture & Fisheries Permitting Team:

- is responsible for analysis and advice on applications made for a range of regulatory tools in the marine and freshwater space. This includes special permits, enabling innovative trawl technologies, land-based and marine farms, aquatic life transfers, high seas fishing permits, and registering foreign-owned vessels.
- is also Fisheries New Zealand's main point of contact with FishServe to ensure the effective delivery of fisheries registry services

9.3 FISHERIES NEW ZEALAND SCIENCE AND INFORMATION DIRECTORATE

The Science teams provide expert advice and are responsible for evaluating and delivering science research that meets the Science and Research Information Standard for Fisheries (Research Standard). For more information on the Research Standard's ranking system, visit Fisheries New Zealand's website.

The key actions and core services that the Deepwater team will work on with the Science teams during 2018/19 will be:

a) delivery of deepwater research services and incorporation where necessary into management actions and services – research projects scheduled for delivery during the 2018/19 financial year are provided in Tables 8 – 12 below;

b) maintenance and updating of the longer term deepwater research plan;

c) development and implementation of new research planning and procurement processes including a return to longer term contracting;

d) planning and prioritisation of the 2019/20 deepwater fisheries research programme including industry-led surveys, to be agreed before 31 December 2018;

e) implementation of protected species frameworks, including the NPOA-Seabirds, NPOA-Sharks and the New Zealand sea lion/rāpoka Threat Management Plan;

f) research evaluation via the Science Working Group processes;

g) provision of science advice and review to ensure all science information used in management advice meets or exceeds the requirements of the Science Research and Information Standard;

h) outlining what observer sampling is required; and

i) outlining the management approaches required for Tier 2 deepwater species.

The Deepwater Fisheries Management Team work closely with the two Fisheries Monitoring Teams, which comprise:

1. Fisheries Data Management; and
2. Observer Services.

Interactions include requests for data, observer coverage, biological sampling requests and monitoring of the environmental effects of fishing. Fisheries New Zealand Observers are deployed on commercial fishing vessels to carry out biological sampling, monitor environmental interactions, and observe and record compliance with a range of regulatory and non-regulatory management measures.

The key projects and core services that the Deepwater Fisheries Management Team will work on with Observer Services during 2018/19 will be:

- Participating in the training of new observers;
- Briefing (where required) and debriefing observers placed on board deepwater vessels;
- Planning the 2019/20 annual observer coverage requirements for deepwater fisheries – the 2018/19 deepwater observer coverage plan is set out below;
- Contributing towards the redesign of the Observer Non-fish Bycatch Form (and any other forms deemed necessary);
- Updating biological sampling targets and observer tasking (the biological sampling requirements for deepwater fisheries are set out in Table 14);
- Monitoring progress towards sampling targets throughout the year; and
- Engaging with, and providing feedback to, observers through the observer newsletter and observer catch up sessions.

9.3.1 Research services scheduled for 2018/19 financial year

The following proposed research plan (Tables 8 and 9) is compiled from year three of the second five-year block of the 10-Year Programme previously consulted on, and incorporates some changes resulting from discussions.

Tables 10, 11 and 12 outline the Aquatic Environment and Biodiversity research programmes that are managed by the Aquatic Environment Science Team. Research on the aquatic environment is both crown funded and cost recovered from the fishing industry through levies. Biodiversity research is solely crown funded and addresses more strategic, national-level marine environmental issues. The Aquatic Environment and Biodiversity research was proposed and consulted on within those forums.

Table 8: Deepwater Fisheries Research Plan for 2018/19

Project code	Title
DAE2018-01	Bycatch monitoring and quantification in deepwater fisheries
DAE2018-04	Taxonomic identification of benthic samples
HAK2018-01	Stock assessment of hake in HAK 7
HOK2018-01	Hoki population modelling and stock assessment
HOK2018-02	Land based catch sampling of hoki
LIN2018-01	Stock assessment of ling in LIN 3/4
MID2018-01	Estimation of hoki and middle depth fish abundance using trawl surveys
MID2018-02	Estimation of hoki and middle depth species fish abundance on the WCSI using trawl surveys
MID2018-03	Routine age determination of middle depth and deepwater species from commercial fisheries and resource surveys
OEO2018-02	Development of monitoring approach for smooth and black oreos in OEO 3A
ORH2018-02	Stock assessment of orange roughy in ORH 7A
SBW2018-01	Estimation of southern blue whiting biomass using acoustic methods (Bounties Platform)
SBW2018-02	Stock assessment of southern blue whiting in SBW 6B
SCI2018-01	Stock assessment of scampi in SCI 1 and SCI 2
SCI2018-03	Estimating the abundance of scampi in SCI 6A using photographic surveys

Table 9: Deepwater Fisheries Research Projects – Projects from 2017/18 to be initiated in 2018/19

Project code	Title
SQU2017-01	Stock assessment development for squid (SQU 1T, SQU 6T)
DEE2017-01	Stock assessment of blue mackerel (EMA 7)
BAR2017-02	Update of abundance indices for BAR 4 and BAR 7
SCI2017-03	Management Strategy Evaluation for scampi

Table 10: Aquatic Environment Research relevant to deepwater fisheries for 2018/19

Project code	Title
BEN2018-01	Monitoring of trawl footprint (including coastal)
BEN2018-03	Automated image analysis for habitat classification and species distribution investigation
ENV2018-06	Improved distribution information for higher risk non-QMS shark species
PMM2018-08	Update SEFRA risk assessment tool – build observer coverage/digital monitoring optimisation function

Project code	Title
PMM2018-11	Update Auckland Islands NZ sea lion population model
PMM2018-04A	Estimate spatial distributions for at-risk marine mammals to assess fisheries overlap and risk: fur seals
PMM2018-04B	Estimate spatial distributions for at-risk marine mammals to assess potential fisheries overlap and risk: South Island NZ sea lions
PMM2018-09	Desktop estimation of pinniped cryptic mortality in trawls using SLEDs
PRO2018-01	Protected species population dynamics model and simulations to estimate PST
PSB2018-10	Deepwater net capture analysis
ZBD2018-03	Climate change and population parameters
ZBD2018-05	Ecosystem function and regime shifts in the sub-Antarctic
ZBD2018-01	5 year continuous plankton survey
ZBD2018-02	Climate change, fish distribution meta-analysis
PMM2018-07	Updated spatially explicit fisheries risk assessment for New Zealand marine mammal populations
PMM2018-08	Update SEFRA risk assessment tool - build observer coverage/digital monitoring optimisation function
PMM2018-09	Desktop estimation of pinniped cryptic mortality in trawls using SLED
PMM2018-11	Update Auckland Islands NZ sea lion population model
PSB2018-01A	Research into the demographic parameters for Antipodean albatross

Table 11: Ongoing Aquatic Environment research projects that are relevant to deepwater fisheries.

Project code	Title
PRO2017-01A	Research into the demographic parameters for at-risk seabirds as identified by the RA (black petrels)
PRO2017-01B	Research into the demographic parameters for at-risk seabirds as identified by the RA (Southern Buller's/Snares) (In draft)
PRO2017-04	Risk Assessments to support the development of revised NPOA-Seabirds (In draft)
PRO2017-05	Population specific modelling of adult survival of at risk seabird species
PRO2017-06	Development and mitigation of set net mitigation tools
PRO2017-07	Development and testing of trawl mitigation tools
PRO2017-08A	Research into the demographic parameters for at-risk marine mammals as identified by the marine mammal risk assessment (common dolphins)
PRO2017-08B	Research into the demographic parameters for at-risk marine mammals as identified by the RA (sea lions)
PRO2017-08C	Research into the demographic parameters for at-risk marine mammals as identified by the marine mammal risk assessment (sea lions)
PRO2017-10	Cryptic mortality method-specific estimates for marine mammals: spatial strike rates and capture rates for sea lions
PRO2017-15	Use of innovative tag technology to examine foraging patterns of seabirds and association with fishing vessels
PRO2017-16	Analysis of the white-capped albatross aerial survey data collected 2016/17 and 2015/16
BEN2017-01	Monitoring of deepwater trawl footprint
PRO2016-03	Estimation of captures of protected species in New Zealand fisheries
PRO2016-06	Spatially explicit risk assessment query and simulation tool
PRO2013-01	Estimation of Seabird and Marine Mammal Captures
SEA2014-23	An assessment of thermal aerial survey techniques on fur seals

Project code	Title
PRO2014-01	Improving information on the distribution of key protected species
PRO2012-02	Assessment of the risk to marine mammal populations from NZ Fisheries
SEA2014-12	NZSL Stable Isotope Analysis (an analysis of stable isotopes found in sea lion teeth)
PRO2015-01	Improving estimates of cryptic mortality for use in seabird risk assessments
PRO2014-06	Update of level-2 seabird risk assessment
PRO2013-13	Southern Hemisphere seabird risk assessment (for ACAP species)
PRO2006-01	Data collection of demographic, distributional and trophic information on selected seabird species.
ENV2014-02	NPOA-sharks: age and growth of selected at-risk species
INS2014-01	Indicator based analysis of the status of New Zealand shark populations
BEN2014-01	Risk assessment for benthic habitats, biodiversity, and production
BEN2014-02	Monitoring Recovery of Benthic Fauna on the Graveyard Complex
ENV2014-09	Spatial decision support tools for multi-use and cumulative effects

Table 12: Ongoing biodiversity research that relates to the deepwater fisheries.

Project code	Title
ZBD2017-04	Buffering eutrophication and prioritising climate change issues in coastal ecosystems
ZBD2017-02	Linking primary and secondary productivity
ZBD2016-07	Multiple stressors on coastal ecosystems-in situ
ZBD2016-11	Quantifying benthic biodiversity across natural gradients
ZBD2014-03	Sub-lethal effects of environment change on fish populations
ZBD2014-09	Climate change risks and opportunities
ZBD2013-02	Vulnerable Marine Ecosystems Project - Genetic Connectivity
ZBD2008-01	Research on biogenic habit-forming biota & their functional role in maintaining biodiversity in the marine environment

9.3.2 2018/19 Deepwater Observer Coverage Plan

Biological sampling and environmental monitoring is carried out by the Fisheries New Zealand observer programme. Data collected by the observer programme is used:

- As an input to monitor key fisheries against harvest strategies;
- As an input to monitor biomass trends for bycatch species;
- To assess fishery performance against environmental benchmarks as available; and
- To enable more timely responses to sustainability and environmental impact issues.

Fisheries New Zealand has committed to full observer coverage on all foreign-owned vessels (FOVs) as of 1 October 2012[29]. This has consequently affected the distribution of observer coverage since the 2012/13 financial year. The principles and methods used to compile the Deepwater Observer Coverage Plan and Sampling Requirements, shown in Tables 13 and 14, is included below.

[29] Of the 27 FCVs/FOVs that operated at the time of the Inquiry, 16 have left New Zealand waters and 11 remain in New Zealand. Of the 11 vessels remaining, 10 are foreign-owned but have reflagged, and the other is now New Zealand-owned

Table 13: Deepwater fisheries observer plan for 2018/19

Fishery complex	Target stocks covered	Estimated FOV days	Domestic days (discretionary)	Total days planned	FNZ/ DOC cost recovery %
North Island Deepwater	ORH 1, ORH 2A, ORH 2B, ORH 3A BYX 2 CDL 2	0	100	100	90/10
Chatham Rise Deepwater	ORH 3B OEO 3A, OEO 4 BYX 3	0	220	220	90/10
Sub-Antarctic Deepwater	ORH 3B OEO 1, OEO 6	0	60	60	90/10
West Coast Deepwater	ORH 7A	0	60	60	90/10
Hoki and Middle Depth trawl fisheries:					
West Coast North Island	JMA 7 EMA 7 BAR 7	600	50	650	85/15
West Coast SI (FMA7)	HOK 1 HAK 7 LIN 7 SWA 1	800	200	1,000	85/15
WCSI HOK (Inside the line)	HOK 1	0	80	80	85/15
Cook Strait	HOK 1	0	120	120	85/15
Chatham Rise Middle depths (FMA3/FMA4)	HOK 1 HAK 1, HAK 4 LIN 3, LIN 4 SWA 3, SWA 4 JMA 3 BAR 1, BAR 4	550	300	850	85/15
Sub-Antarctic Middle depths (excl. SQU/SBW) (FMA5/FMA6)	HOK 1 SWA 4 WWA 5B BAR 5 JMA 3	600	200	800	85/15
Southern blue whiting	SBW (all)	300	130	430	80/20
Squid	SQU 1T SQU6 T	1,000	300	1,300	80/20
Deepwater bottom longline fisheries					
Bottom longline	LIN 3, LIN 4, LIN 5, LIN 6, LIN 7	0	400	400	85/15
Shellfish					
Scampi	SCI (all)	0	400	400	80/20
Total		**3,850**	**2,620**	**6,470**	-

Table 14. Biological sampling requirements for deepwater fisheries for 2018/19

Species		FMA/stock		LF target	Otolith target	Area	Months	Obs plan 'Fishery complex'
Hoki		Sub-Antarctic		400	1600	Sub-Antarctic	Year-round (except July-Aug)	Sub-Ant Mid-depths
		Chatham Rise		400	1600	Chatham Rise	Year-round (except Jul-Aug)	Chatham Rise Mid-depths
		WCSI		400	1000	WCSI	May-September	WCSI
		Cook Strait		200	1600	Cook Strait	Year-round	Cook Strait HOK
		Inside the line		200	600	WCSI	May-September	WCSI 'Inside the line' HOK
Orange roughy		ORH 1		30/area		ORH 1	Year-round	North Island deepwater
		ORH 2A North		30	Survey only	ORH 2A North	Year-round	North Island deepwater
		ORH MEC		30	Survey only	ORH MEC	Year-round	North Island deepwater
		ORH NW Rise		50	300	Northwest Rise	Year-round	Chatham Rise deepwater
		ORH E&S Rise		50	300	East & South Rise	Year-round	Chatham Rise deepwater
		ORH 7A + WB		50	300	ORH 7A	Year-round	West Coast deepwater
		ORH Puysegur		100	300	Sub-Ant ORH	Year-round	Sub-Ant DW
Southern blue whiting		SBW 6I		100	900	Campbell Island	August-September	Southern blue whiting
		SBW 6B		50	600	Bounties	August-September	Sub-Ant Mid-depths/ SBW
Hake		HAK 1		100	1,000	Sub-Ant	October-February	Sub-Ant Mid depths
		HAK 4		100	1,000	Mernoo Bank/CR	September-February	Chatham Rise Mid-depths
		HAK 7		200	1,000	WCSI	June – September	WCSI and inside line
Ling		LIN 3/4		100	1,100	Chatham Rise	October-May	Chatham Rise Mid-depths
		LIN 5/6		100	1,100	Sub-Ant	September-April	Sub-Ant Mid-depths
		LIN 7		200	1,100	WCSI	June-October	WCSI Mid-depths
Oreo	Black	BOE 3A		30	400	ECSI	October-March	Chatham Rise DW
	Smooth	SSO 3A		30	-	ECSI	October-March	Chatham Rise DW
		SSO 4		30	300	Chatham Rise	October-March	Chatham Rise DW
Jack mackerel	*T. declivis*		JMD 7	200	900	WCNI	October-July	WCNI
	T. murphyi		JMM 7	200	900	WCNI	October-July	WCNI
	T. novaezelandiae		JMN 7	200	900	WCNI	October-July	WCNI
Scampi		SCI 1		50	N/A	Auckland/BoP	All year	Scampi
		SCI 2		50		HB/Wairarapa	September-April	Scampi
		SCI 3		50		Mernoo Bank	All year	Scampi
		SCI 4A		50		Chatham Rise	All year	Scampi
		SCI 6A		50		Auckland Islands	February-November	Scampi

9.3.3 Principles and methods used to determine the observer coverage plan for 2018/19

Observer coverage for the 2018/19 year was planned based upon percentage coverage targets (including 100% coverage on FOVs), biological sampling requirements and international requirements. The different methods used to estimate the number of observer days required to meet sampling and percentage coverage targets are detailed below.

Biological sampling

Biological sampling requirements (numbers of length frequency samples and otoliths) were determined based primarily on the Medium Term Research Plan for Deepwater Fisheries 2018/19 – 2022/23[30] for all Tier 1 and selected Tier 2 middle depth and deepwater species. These species and fish stocks were then grouped by area to determine the 'fishery complexes' to be used for observer coverage planning. The number of observer days necessary to achieve the biological sampling requirements was based upon:

- The number of length frequency (LF) samples and otoliths collected by observers for each Tier 1 species during the 2014/15, 2015/16 and 2016/17 fishing years[31];
- The seaday tracking sheets for the 2014/15, 2015/16 and 2016/17 fishing years (used by the observer programme to track and report observer coverage throughout the year); and
- An estimate of the number of biological samples collected by observers per fishing day (specific to each fishery 'complex').

In short, an initial calculation was made by dividing the number of LF samples required for each fisheries 'complex' by an estimate of the number of biological samples collected per fishing day for that 'complex'. To calculate the number of observer days required, this number was adjusted (to account for training trips and days on which no sampling was conducted (i.e. steaming days)) by comparing the number of samples collected during the 2014/15, 2015/16 and 2016/17 years to the seaday tracking sheet for that year.

Percentage coverage targets

Many fisheries have a requirement that a proportion of fishing effort be observed, primarily to enable reliable estimations of protected species interactions and to provide a high level of confidence in fishers' at-sea compliance with regulatory and non-regulatory measures. The level of coverage required differs both between and within fisheries complexes (i.e. 100% requirement for coverage on FOVs).

Fisheries New Zealand considers that 30% is a suitable target but that in some cases it is appropriate for the percentage coverage target to be higher or lower than 30%. The fisheries 'complexes' that have a coverage target of less than 30% are the Cook Strait and West Coast South Island "inside the line" [32] hoki fisheries, the scampi trawl fishery and the small vessel ling bottom longline fishery. In the case of the two hoki fisheries, both are supported by on-shore factory sampling however some coverage is required to monitor protected species interactions, primarily fur seals. The scampi and ling bottom longline fisheries have had relatively low levels of observer coverage for several years, as a result of other fisheries having a higher priority for the limited number of observer days available. Fisheries New Zealand has proposed that these fisheries have approximately 25% coverage based on an average of 2014/15, 2015/16 and 2016/17 fishing effort.

[30] https://www.mpi.govt.nz/dmsdocument/21746/send

[31] As reported in the 2014/15, 2015/16 and 2016/17 Deepwater Annual Review Reports

[32] This refers to regulations prohibiting vessels >46 m from operating within specific areas

The number of observer days necessary to achieve the relevant percentage coverage targets was based upon:

- The number of days fished for Tier 1 and selected Tier 2 species in each fisheries 'complex' during the 2014/15, 2015/16 and 2016/17 fishing years; and
- The seaday tracking sheets for the 2014/15, 2015/16, 2016/17 and 2017/18 fishing years.

In short, for each fisheries 'complex' with a percentage coverage target, a historical average of the number of days on which fishing was conducted was calculated based on effort during the 2014/15, 2015/16 and 2016/17 fishing years. The number of days fishing required to be observed to meet the percent coverage target was then calculated with reference to the historical average number of days fished in that 'complex'. This number was then compared to the seaday tracking sheets and adjusted accordingly to account for seadays on which no fishing was conducted (i.e. steaming days), training trips and recent changes in fleet dynamics (particularly within the FOV fleet).

Finalisation

The number of days estimated to meet sampling requirements was then compared to the number of days estimated to meet percentage coverage targets with the larger estimate put forward as the proposed number of days. This number is shown in column two of Table 15. For fisheries in which FOVs are active and the estimated number of days required to meet the 100% FOV requirements was higher than the estimated number of days required to meet sampling requirements, additional days were added to ensure representative sampling across the fleet. The rationale behind the number of observer days proposed for each fisheries 'complex' is shown in Table 15.

After the initial calculations were made, coverage requirements across all fisheries (deepwater, inshore, HMS and other categories) were assessed against the observer programme's capacity and then prioritised. The number of days allocated to each deepwater fisheries 'complex' following prioritisation is shown in column three of Table 15.[33]

[33] Note that the deepwater numbers are still preliminary and subject to change depending on prioritisation.

Table 15: Summary of information used

Fishery complex	Proposed number of days	2017/18 planned days	Rationale
Deepwater trawl fisheries:			
North Island Deepwater	170	100	180 LF samples required. Using an estimate of 2 LF samples taken per fishing day it is estimated that 100 days is the minimum number of days required to support assessments. 100 days would provide coverage of approximately 15-20% of effort.
Chatham Rise Deepwater	250	220	Coverage target of 30%. 220 days of coverage would provide coverage of approximately 40-50% of effort and be sufficient to collect the required number of samples at a rate of 2 LF samples per day.
Sub-Antarctic Deepwater	90	60	100 LF samples required. Using an estimate of 2 LF samples taken per fishing day, it is estimated that 60 days is the minimum number of days required to support assessments. 60 days would provide coverage of approximately 50% of effort.
West Coast Deepwater	90	60	100 LF samples required. Using an estimate of 2 LF samples taken per fishing day it is estimated that 60 days is the minimum number of days required to support assessments. 60 days would provide coverage of approximately 40% of effort
Hoki & Middle Depth trawl fisheries:			
West Coast North Island	650	650	The majority of the JMA 7 catch is taken by FOVs. The average number of days fished by FOVs for JMA 7 over the last three years was approximately 600. Biological sampling requirements include 200 LFs from each JMA species. Observers typically sample one JMA species per day, therefore it is estimated that 600 days will be sufficient to meet sampling requirements. 50 domestic days added to ensure representative sampling and to cover domestic vessels targeting JMA 7 on their way to or from fisheries with higher coverage targets (e.g. SBW).
West Coast SI (FMA7)	1,000	1,000	It is estimated that 800 WCSI days are required to ensure 100% coverage on FOVs. Given that approximately 50% of effort is conducted by domestic vessels, 200 days are required to ensure representative sampling across the fleet. Tier 1 biological sampling requirements from this fishery include 400 HOK, 200 HAK and 200 LIN LF samples. Observers typically sample one target species and one bycatch species per day, therefore it is estimated that 1,000 days is sufficient to meet Tier 1 sampling requirements.
Chatham Rise Middle depths (FMA3/4)	950	850	It is estimated that 550 Chatham Rise middle depth days are required to ensure 100% coverage on FOVs. Given that approximately 75% of effort is conducted by domestic vessels, 300 days are required to ensure representative sampling across the fleet. Tier 1 biological sampling requirements include 400 HOK, 100 HAK and 100 LIN LF samples. Observers typically sample one target species and one bycatch species per day, therefore it is estimated that 850 days are sufficient to meet Tier 1 sampling requirements.
Sub-Antarctic Middle depths	850	800	It is estimated that 600 days are required to ensure 100% coverage on FOVs. Given that approximately 60% of the effort is by domestic vessels an extra 200 days are

(ex.SQU/ SBW) (FMA5/6)			required to ensure representative sampling across the fleet. Tier 1 biological sampling requirements include 400 HOK, 100 HAK, and 100 LIN LFs. Observers typically sample one target species and one bycatch species per day, therefore it is estimated that 800 days are sufficient to meet Tier 1 sampling requirements.
Southern blue whiting	430	430	Planned coverage based on expected effort given 100% coverage required to monitor sea lion interactions.
Squid	1,300	1,300	Coverage based on expected effort given minimum coverage of 70% to monitor sea lion interactions. No additional days necessary for biological sampling.
Cook Strait	120	120	200 HOK LFs required. Using an estimate of 2 LFs taken per fishing day, it is estimated that 120 days is the minimum number of days required to meet sampling requirements. Note that observer sampling in Cook Strait will be supported by on shore shed sampling to ensure adequate biological samples are available to inform the stock assessment. 120 days would provide coverage of approximately 20-30% of effort for the monitoring of protective species interactions.
WCSI HOK (Inside the line)	150	80	200 HOK samples required. Using an estimate of 2.5 LF samples taken per day, it is estimated that 80 days is the minimum number of days required to meet sampling requirements. Note that observer sampling in the WCSI 'inside the line' HOK fishery will be supported by on shore shed sampling to ensure adequate biological samples are available to inform the stock assessment. 120 days would provide coverage of approximately 15-20% of effort for the monitoring of protective species interactions.
Deepwater bottom longline fisheries:			
Ling bottom longline	400	400	400 days would provide coverage of approximately 25-30% of effort with observers to be placed on both small (< 28 m) manual baiters and larger autoliners. Observers to collect information regarding protected species interactions, audit vessel adherence to BLL-Operational procedures and collect biological samples.
Shellfish:			
Scampi	450	400	400 days would provide coverage of approximately 20-25% of effort to collect information regarding protected species interactions and to allow observer auditing of vessel management plans. 400 days is also sufficient to collect 50 LF samples from each of the main fishing areas SCI 1, SCI 2, SCI 3, SCI 4A & SCI 6A.

9.4 DIRECTORATE LINKAGES WITH WIDER MPI

Table 16: Directorates and business groups outside Fisheries New Zealand from which some fisheries management services will be required.

Branch	Directorate
Corporate Services	Finance, Property and Procurement,
	Business Technology & Information Services
	Cost Recovery
Operations	Compliance
Policy and Trade	International Policy
	Agriculture, Marine & Plant Policy
Strategy, Performance & Engagement	Ministerials & Business Support Group
	Communication, Engagement & Channels
	Legal Services
Regulation & Assurance and New Zealand Food Safety	Science & Risk Assessment
	Performance, Oversight & Approvals
Sector Partnerships & Programmes	Spatial, Forestry & Land Management

9.4.1 MPI Corporate Services Branch

The Finance, Property and Procurement Directorate is responsible for asset management, centralised purchasing, facilities and contracting. The key projects that the Deepwater Fisheries Management team will work with this Directorate to progress will be the annual fisheries and long-term research procurement and conservation services levy cost recovery process and budget administrative support.

The Business Technology & Information Services Directorate is responsible for the information systems of MPI, ensuring effective collection of information, and the development of technology solutions. This includes MPI software development, the Records and Geo-spatial Data Management function and any changes needed to fisheries reporting. The Information Services team is also responsible for day-to-day IT support for the Deepwater Team and MPI as a whole. Given the fundamental services that this Directorate provides to the Deepwater Team, all Management Actions are dependent on the functionality of one or more teams within the Business Technology & Information Services Directorate.

9.4.2 Operations Branch - Compliance Directorate

The Compliance Directorate, within the Operations Branch, is responsible for monitoring, assessment and deployment of fisheries resources to address compliance risk across the fleet. The Fisheries Compliance Group provides advice to fisheries managers and scientists on compliance risk as well as any required intervention to manage compliance risk in support of achieving the management objectives set out in this plan.

Successfully delivering on the management objectives for deepwater fisheries is dependent upon high levels of compliance with various sustainability and environmental management measures, both regulatory and non-regulatory. In deepwater fisheries, areas of compliance concern, in relation to regulatory measures, include:

- misreporting in terms of areas fished (known as ‘trucking’);
- species fished (falsifying returns and misidentification);
- quantities taken (unreported discarding or slippage in systems used to record catch); and
- failure to use seabird mitigation devices.

MPI compliance activities are based on education, monitoring, surveillance, audit, analysis, and enforcement through investigation and prosecution of offences. Since 2009, MPI has revised its compliance model to incorporate a Voluntary, Assisted, Directed, Enforced (VADE) model of compliance. While the enforcement and prosecution tools remain available (and continue to be used where appropriate), effort is also focussed on achieving compliance through a programme of educating and assisting the commercial sector to comply. For more information on how the VADE model is operating in deepwater fisheries, please see section 5.6 of Part 1A of the National Deepwater Plan.

A further component of compliance activities involves collaborating with fisheries managers on reporting overall levels of compliance in publically available documents, primarily the deepwater ARR. This will be a priority during the 2018/19 financial year.

The specific compliance services required to support the successful delivery of 2018/19 management objectives are listed below.

These service requirements are in addition to the general monitoring and surveillance activities undertaken by the Compliance Directorate, which includes the work set out in Table 3.

- Reviewing consultation and decision documents for the 1 April and 1 October sustainability rounds and providing compliance advice to the Fisheries Management Directorate to help inform risk ratings for foreign-owned vessel registration purposes
- Compliance coordinate delivery of at-sea patrols to monitor proper deployment of seabird mitigation devices, and follow up on non-compliance referrals from observers on recording and deployment of mitigation devices
- Continue to operate VADE compliance model

The key projects that the Deepwater Fisheries Management team will work with this Directorate to progress will be:

- Finalising the work undertaken during 2016/17 on the compliance profiling of in-zone orange roughy fisheries;
- Finalising reports on follow-up work on the hoki and southern blue whiting fisheries, which has been undertaken since 2015/16. Monitoring of some aspects of these fisheries was undertaken in order to compare current performance to where it was at the conclusion of the initial risk profiling;
- Compilation and review of advice provided to the Director General regarding his consent to the registration of foreign-owned or operated vessels under section 103 of the Fisheries Act 1996;
- Review the regulatory settings associated with shark processing and reporting (including the finning ban) in order to inform the two-year review of their implementation and effectiveness.

9.4.3 Policy and Trade Branch

The Policy and Trade Branch is responsible for providing advice on a wide range of legislation administered by MPI. It provides forward-looking analysis on policy development and strategic issues. Although multiple directorates within the Policy Branch may be called upon for feedback or review, there are two main Directorates that will interact with the Deepwater Team at more frequent intervals. These Directorates are the International Policy Directorate and the Agriculture, Marine and Plant Policy Directorate.

9.4.4 International Policy Directorate

The Deepwater Fisheries Management Team works with International Fisheries Management on a range of issues, including New Zealand's activities in the South Pacific Regional Fisheries Management Organisation (SPRFMO) and trade issues (e.g. US Marine Mammal Protection Act requirements). The Deepwater team also provides review and advice on international issues that may impact on New Zealand's domestic fisheries management or where operational experience is required to inform New Zealand's positions on fisheries issues.

9.4.5 Agriculture, Marine and Plant Policy Directorate

The Sector Policy Directorate is responsible for high level policy, working with stakeholders and other Government agencies to develop and implement policy, including the various legislative and regulatory frameworks that support the development of New Zealand's primary industries. It is responsible for monitoring, reviewing and amending policy that relates to the primary sector and will be leading on implementation of outcomes from the Fisheries System Review. The Economic Information and Analysis team within the Agriculture, Marine and Plant Policy Directorate also has the capacity to respond to requests for information on, for example, export statistics.

9.4.6 Strategy, Performance & Engagement Branch

The Strategy, Performance & Engagement Branch's responsibilities include Legal Services, monitoring the performance of the MPI, external communications such as press releases, and all Ministerial communications. The three groups within this Branch that will support the Deepwater Team in achieving the 2018/19 objectives are:

- Ministerials and Business Support team;
- Communications and Engagement Channels Directorate; and
- Legal Services Directorate.

9.4.7 Ministerials and Business Support Group

The Ministerial and Business Support Group is the point of contact between Fisheries New Zealand and the Minister's Office. This Group is responsible for ensuring the Ministerial process is managed effectively. They help with Ministerial correspondence including Briefings, Aide-Memoires, and the Official Information Act process.

9.4.8 Communications, Engagement and Channels Directorate

The Communications, Engagement and Channels Directorate is responsible for providing strategic communications advice, to ensure that Fisheries New Zealand teams communicate with internal and external stakeholders in an effective and efficient manner. This Directorate is also responsible for overseeing and developing Fisheries New Zealand's communications channels (e.g. websites), and assist the Deepwater Fisheries Management Team when responding to media queries and making announcements.

9.4.9 Legal Services Directorate

MPI's Legal Services Directorate provides expert knowledge and legal opinion on the interpretation of relevant fisheries legislation to support policy development and management interventions. The key projects that the Deepwater Fisheries Management team will work with this Directorate to progress will be:

- review of all advice papers drafted as part of consultation and decision documents for sustainability rounds;
- review of any contractual arrangements that Fisheries New Zealand proposes to enter, for example to secure research services;
- legal input and review for any legislative or regulatory changes that are progressed by the Deepwater FM team during the 2018/19 year; and
- review of High Seas Fishing Permits, general statutory interpretation and other decision papers.

9.4.10 Performance, Oversight & Approvals Directorate

The Branch Administration Unit provides administrative and budgetary support for all of Fisheries New Zealand. The Unit also liaises with the Ministerial Team and the Office of the Director General.

9.4.11 MPI Spatial, Forestry and Land Management Directorate

The Spatial Intelligence unit operates within the Spatial, Forestry and Land Management Directorate. The unit's function is to provide spatial visualisation, integration, automation, modelling and analysis across MPI. The Deepwater FM team requires GIS analysis services from the unit on an ad hoc basis.

9.4.12 Science & Risk Assessment Directorates

Directorates that the Deepwater Fisheries Management team may engage with during 2018/19 include the Biosecurity Science (for example advice on sea lion disease research) and the Food Science & Risk Assessment Directorate. Both teams have a specialised role in providing the science and risk assessment advice that is essential to robust development of food safety and biosecurity import, domestic and export standards.

9.5 EXTERNAL ORGANISATIONS

9.5.1 Deepwater Group Ltd. (DWG)

The Deepwater Group Ltd (DWG), is a non-profit company that represents owners of deepwater fishing quota. The DWG works collaboratively with Fisheries New Zealand to help ensure New Zealand gains the optimum economic yield from New Zealand's deepwater fisheries resources while ensuring fish stocks are managed sustainably and environmental effects are managed appropriately.[34]

A primary function of the DWG is to represent the interests of quota owners and provide a communication channel between Fisheries New Zealand and the deepwater fishing industry to facilitate full engagement on the management of deepwater fisheries.

In 2006 the then Ministry of Fisheries, signed a Memorandum of Understanding (MOU) with the Deepwater Group Ltd. This MOU was subsequently updated in 2008, and 2010.[35] The MOU establishes a structured collaborative framework that enables Fisheries New Zealand and DWG to work together. Because of this collaborative arrangement, the Deepwater AOP also specifies how the industry will contribute to the delivery of Management Actions and, in turn, the Management Objectives within the National Deepwater Fisheries Plan.

[34] DWG's website can be accessed here. www.deepwatergroup.org

[35] The 2010 MOU can be accessed here. www.fish.govt.nz/NR/rdonlyres/2E71D225-5866-4C47-8C72-96FBC7F4B66E/0/MOU2010_signed.pdf

The key projects that the Deepwater Fisheries Management team will work with industry to progress during 2018/19 will be:

- Prioritising fish stocks for annual sustainability reviews and coordinating industry input;
- Administering sub-QMA catch limit management in conjunction with FishServe and required reporting to Fisheries New Zealand;
- Supporting the deepwater industry to maintain third party certification, reassessment of HOK, HAK, LIN, SBW and audits for ORH;
- Assisting with delivery of the observer coverage plan for 2018/19;
- Planning research and observer coverage for delivery in 2019/20 and beyond;
- Management and monitoring of interactions with protected species and sharks; and
- Planning and operation of the DWG/MPI Compliance Group.

9.5.2 Department of Conservation (DOC)

The key projects that the Deepwater FM team will work with DOC to progress during 2018/19 will be:

- Implementation of protected species frameworks, including the NPOA-Seabirds, NPOA-Sharks and the New Zealand sea lion/rāpoka Threat Management Plan; and
- Planning research and observer services for delivery in 2018/19.

DOC carries out research each year focussed on protected species interactions with fisheries in New Zealand waters. Some of the research DOC plans to carry out in 2018/19 will be relevant to the deepwater management actions, and should be taken into account for future management decisions and research planning activities.

For more detail on the projects in Table 17, please see the Marine Conservation Services Annual Plan for 2018/19 on the DOC website (http://www.doc.govt.nz/our-work/conservation-services-programme/).

Table 17: 2018/19 DOC research projects that relate to deepwater fisheries[36]

Observers and Communication	
INT2018-01	Observing commercial fisheries
MIT2018-01	Protected species engagement project
INT2017-02	Supporting the utility of electronic monitoring to identify protected species interacting with commercial fisheries
INT2018-03	Development of Observer photograph protocols and curation
Seabirds	
POP2017-04	Auckland Islands seabird research
	Objective 3 White-chinned petrel (Crown contribution)
INT2016-02	Identification of seabirds captured in New Zealand fisheries
POP2018-02	Hoiho population and tracking project
POP2018-05	Westland petrel population estimate
POP2017-02	Salvin's albatross: Bounty Islands population project
MIT2018-04	Options for temporal and spatial management
INT2018-02	Trialling innovative Electronic Monitoring (EM) systems for small vessels
Marine Mammals	
POP2018-03	New Zealand sea lion Auckland Island pup count
Protected Fish and other Species	
POP2017-07	The age and growth of New Zealand protected corals at high risk
POP2018-01	Improving distribution maps of protected cold-water corals
POP2018-06	Cold-water coral connectivity in New Zealand
INT2018-04	Improving the collection of data and samples from bycaught basking sharks
INT2018-05	Updated analysis of spine-tailed devil ray post release survival
INT2017-03	Identification of marine mammals, turtles and protected fish captured in New Zealand fisheries
INT2015-03	Identification of cold-water coral bycatch specimens

[36] Subject to Approval by the Minister of Conservation as of 12 July 2018