Fisheries New Zealand
Tini a Tangaroa

Annual Operational Plan for Deepwater Fisheries 2022/23

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Prepared by the Deepwater Team, Fisheries Management, Fisheries New Zealand

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1 Overview

New Zealand's deepwater and middle-depth fisheries (deepwater fisheries) predominantly occur in waters beyond the 12 nautical mile (NM) limit of the territorial sea, out to, and beyond, the 200 NM limit of New Zealand's Exclusive Economic Zone (EEZ). Deepwater fisheries exceeded $NZ 672 million in FOB[1] export earnings during the 2021 calendar year.[2] In that year, five deepwater fish species (hoki, squid, ling, jack mackerel and orange roughy) accounted for NZ $508 million in FOB export earnings.

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

Input from tangata whenua occurs at the iwi fisheries forums. Industry and eNGO representatives and Treaty partner representatives such as Te Ohu Kaimoana are engaged in the management of our deepwater fisheries through the Deepwater Fish Plan Advisory Group (FPAG) which meets twice a year. The FPAG is an engagement forum for stakeholders to meet with FNZ.

Within the portfolio of deepwater fisheries, fish stocks have been categorised into three tiers (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 fisheries that are only target fisheries at certain times of the year, or that are taken as non-target catch of Tier 1 stocks. Tier 3 comprises non-target species that are not managed through the quota management system (QMS).

[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. Estimating the precise value of scampi exports is problematic as scampi export figures are not recorded by Statistics New Zealand (Stats NZ) using a unique species code. Figure includes exports reported as 'Shrimps & Prawns cold-water', 'Norway Lobster', 'Shrimps & Prawns other (frozen)' and 'Other Crustacea (frozen)'.

[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 collected by Stats NZ.

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	

2 Wider Context and Structure

The Annual Operational Plan (AOP) is driven by the National Fisheries Plan for Deepwater and Middle-depth Fisheries 2019 (Deepwater Plan 2019). The Deepwater Plan 2019 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 (Figure 1). These legislative requirements and policies inform the Deepwater Plan 2019, which in turn sets the direction and objectives for this AOP.

[3] For a number of species, management of some stocks falls under the Deepwater Plan 2019 and the remainder are managed under the National Inshore Finfish Plan.

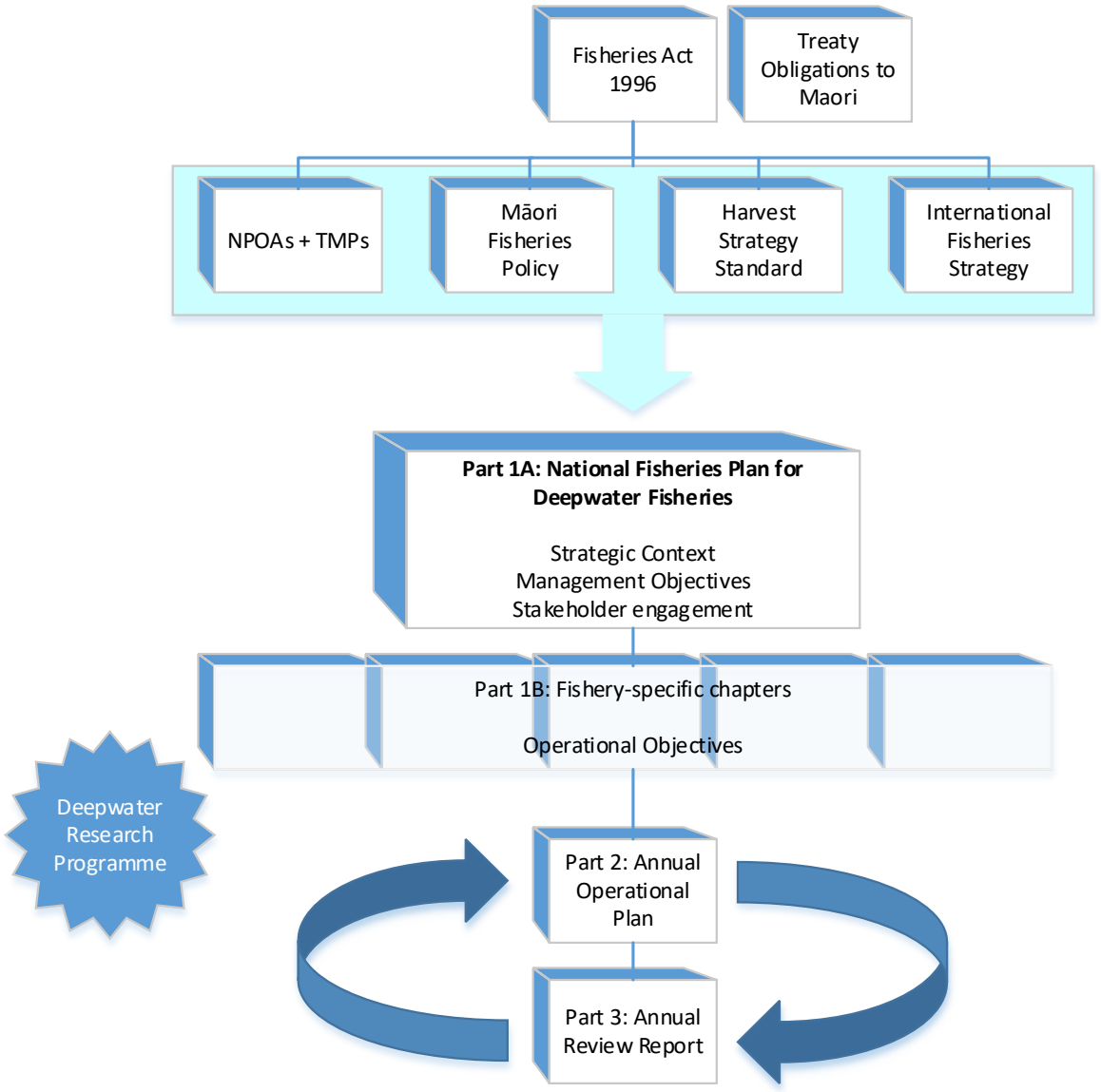


Figure 1. Wider Context and Structure

3 Outcomes

The Deepwater Plan 2019 establishes the high-level 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 achieve 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 the 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 Conditions: 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 the adverse effects of these fisheries on associated or dependent and incidentally caught fish species
	7	Manage deepwater and middle-depth fisheries to avoid, remedy or mitigate the adverse effects of these fisheries on the benthic habitat
	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 populations
Governance	**9**	Ensure the management of New Zealand's deepwater and middle-depth fisheries meets the Crown's obligations to Māori
	10	Ensure there is consistency and certainty of management measures and processes in the deepwater and middle-depth fisheries
	11	Ensure New Zealand's deepwater and middle-depth fisheries are transparently managed

The Deepwater Plan 2019, consists collectively of the three parts shown in Figure 2. Part 1 of the Deepwater Plan 2019 sets the objectives to guide the management of New Zealand's deepwater fisheries, consistent with the legislative framework provided by the Act. 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 Deepwater Plan will be implemented and how stakeholders will be engaged during the implementation phase.

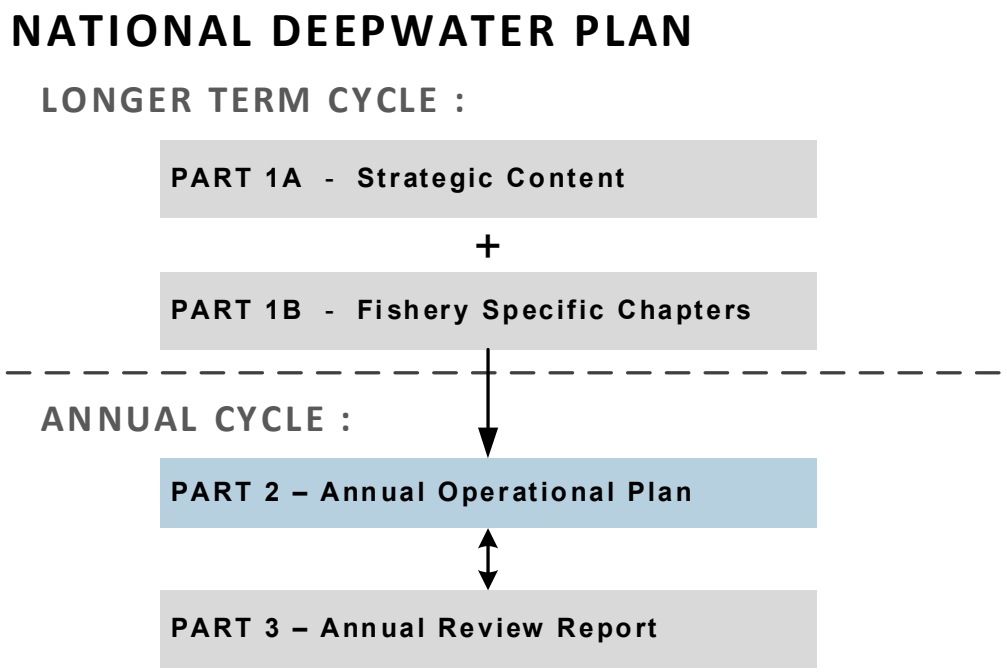


Figure 2: The Deepwater Plan structure highlighting the longer term cycle of Parts 1A and 1B, and the annual cycle of the AOP and Annual Review Report. This document is Part 2 (highlighted in blue).

Part 1A of the Deepwater Plan 2019 was approved by the Minister of Fisheries in 2019 under Section 11A of the Act. 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 the Deepwater Plan 2019. The content of this AOP reflects the management objectives, structure, and content of the Deepwater Plan 2019.

Part 1B comprises the fishery-specific chapters of the Deepwater Plan 2019, which provide greater detail on how deepwater fisheries will be managed at the fishery level, in line with the management objectives. Prior to the Deepwater Plan 2019 being approved, fishery-specific chapters were completed for the hoki, orange roughy, oreo, hake, ling, jack mackerel, and southern blue whiting fisheries[4]. The Minister for Oceans and Fisheries approval will be

[4] 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

sought for any Fisheries Plans developed or updated under the Deepwater Plan 2019. Fisheries Plans describe Operational Objectives for each of the Tier 1 target fisheries and the key Tier 2 non-target species and also describe any harvest strategies that have been agreed for the relevant species.

Part 2 of the Deepwater Plan 2019 consists of this AOP, which provides the Management Actions scheduled for delivery during the financial year (July 2022 – June 2023), and the Management Services needed for delivery of those Management Actions.

The AOP is primarily an internal planning and prioritisation document so is not approved by the Minister for Oceans and Fisheries under section 11A of the Act. 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 Deepwater Plan 2019 is the Annual Review Report (ARR), which assesses the progress towards meeting the Operational Objectives, Management Objectives and priorities described in Part 1, through a review of the delivery of this AOP.

4 The 2022/23 Deepwater Annual Operational Plan (AOP)

This AOP details the Deepwater Fisheries Management Actions and Services that will be implemented during the 2022/23 financial year. Completion of these Management Actions will contribute to meeting the Management Objectives and outcomes described in Part 1 of the Deepwater Plan 2019.

4.1 AOP STRUCTURE

This 2022/23 AOP includes the following sections, described in more detail below:

- Part 2A: Management Actions for 2022/23; and
- Part 2B: Management Services required for 2022/23.

4.1.1 Part 2A: Management Actions for 2022/23

This section of the AOP details the Management Actions that have been scheduled for delivery during the 2022/23 Financial Year. These Management Actions will contribute to delivery of the Management Objectives specified in Part 1A, and the fishery-specific Operational Objectives specified in Part 1B, of the Deepwater Plan 2019.

The Management Actions in Part 2A are provided in Table 2 below in order of priority, indicated by the number on the left-hand side of the table. Table 3 outlines projects and work areas that the Deepwater Fisheries Management Team (Deepwater Team) will contribute towards, but not lead. These projects are led by other teams, either within FNZ or in other Ministry for Primary Industries (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 2022/23 Financial Year

This section of the AOP details the Fisheries Management Services that will be required to deliver on Management Actions described in Part 2A of this AOP (Figure 3). This section also outlines projects and work areas for which the Deepwater Team will work on and engage with other teams, both within FNZ and across MPI.

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

Delivery of the 2022/23 AOP will be assessed through the ARR that will be completed in 2024 after the end of the 2022/23 Fishing Year (30 September 2023).

National Deepwater Plan 2019 Part 1A	**Fishery-specific chapters Part 1B**	**Annual Operational Plan (AOP)**	
		Part 2A	**Part 2B**

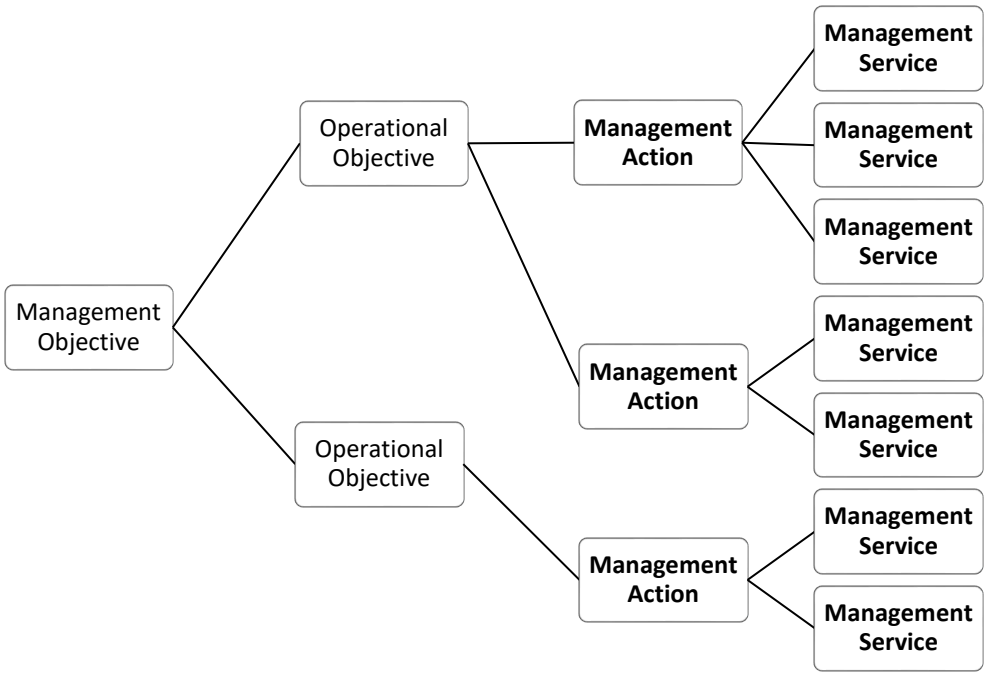


Figure 3: Flowchart of progression from Management Objective to Management Services specified in this AOP

5 Part 2A: Deepwater Fisheries Management Actions for delivery during the 2022/23 financial year

Table 2 – Management actions scheduled for completion during the 2022/23 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 rates across the fish stocks managed within the Deepwater Plan 2019. 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. Most stocks for deemed value rate review will be identified through the Catch Balancing Review Process. The process is informed by the Commercial Catch Balancing Forum, which meets at least annually to discuss stocks that have met the criteria for review.[5] Conversion factors reviews for specific species/product states will be consulted on. Changes to conversion factors are FNZ decisions and the process does not have to run to the same timeframes as the sustainability rounds.
	Core Actions[6]: Stocks being considered for review October 2022: • SCI 1, SCI 2, ORH MEC (ORH 2A South + ORH 2B + ORH 3A), HOK 1, SKI 3 & SKI 7 • April 2023: SBW 6I and SBW 6B • Review deemed value rates for deepwater stocks identified as meeting criteria for review • Review conversion factors as required
2	**Fisheries Planning:** Implement National Deepwater Plan 2019
	The implementation of the National Deepwater Plan 2019 for the 2022/23 financial year will include the following core actions.
	Key Actions[7]: • Ministerial approval of fisheries-specific plans for Ministerial sign off (Scampi, Southern Blue Whiting and Squid) **Core Actions:** • Compile and publish the Annual Review Report for 2021/22; and • Develop and publish the Annual Operational Plan for 2023/24.
3	**Ministerial Services:** Ensure timely completion of all Ministerial correspondence and communication requests assigned to the Deepwater Team

[5] More information is available about the Catch Balancing Review Process is available in the deemed value guidelines

[6] Core Actions are usually undertaken every year (business as usual)

[7] Key Actions are major pieces of work, often tied to the AOP fishing year

	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 for Oceans and Fisheries; • Respond to all Official Information Act requests and government correspondence regarding deepwater fisheries issues in a timely manner.
4	**Engagement:** Engage with tangata whenua and stakeholders in the management of deepwater fisheries
	Engagement with tangata whenua and stakeholders is an integral part of fisheries management. Engagement aims to ensure that deepwater fisheries management information is available and accessible for all stakeholders to enable an informed contribution to decision making. Providing opportunity for input and participation in the Deepwater Fisheries Planning process and the ongoing management of deepwater fisheries for tangata whenua, is a key objective of engagement.
	Core Actions: • Ensure that all deepwater fisheries management information, such as Fisheries Plans and Consultation Documents, is available on FNZ's website; • Engage with Treaty partner representatives such as Te Ohu Kaimoana and industry and eNGO stakeholders through biannual Fish Plan Advisory Group meetings; and • Provide for input and participation through Iwi Fisheries Forums.
5	**Protected Species Framework:** National Plan of Action (NPOA) Seabirds (2020)
	The vision of the NPOA Seabirds (2020) is 'New Zealanders work towards zero fishing-related seabird mortalities'. This Management Action outlines the priority work areas for deepwater fisheries in 2022/23 to implement the NPOA Seabirds (2020). Further detail on the objectives of the NPOA Seabirds (2020), and how the Deepwater Team will support the achievement of those objectives, can be found in Section 8.1 and Table 6.
	Core Actions: • Actions are defined in the Seabird section (8.1) below with additional information in the Seabird Implementation Plan.[8]
6	**Protected Species Framework: New Zealand Sea Lions:** Work collaboratively with the Department of Conservation on implementation and review of the New Zealand sea lion/rāpoka Threat Management Plan 2017-2022
	The New Zealand sea lion/rāpoka Threat Management Plan 2017-2022 (Threat Management Plan) prioritises management actions to enable the recovery of the sea lion population.[9]

[8] The Seabird Implementation Plan is available here. It will be updated annually.

[9] The New Zealand sea lion Threat Management Plan is available here

	Key Actions: • Complete review of the Threat Management Plan with DOC in 2022/23; • Engage with key stakeholders at meetings of both the Threat Management Plan Forum and Advisory Groups in 2022/23.
7	**Protected Species Framework: Benthic Interactions**: Work collaboratively with the Department of Conservation to monitor and measure the nature and extent of benthic interactions from 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. Interactions between deepwater vessels and benthic invertebrates are monitored by FNZ observers. The trawl footprint is also monitored each year and reported in the ARR.[10]
	Key Actions: • Support the development of potential management actions to mitigate any adverse effects on benthic biodiversity from fishing. • Contribute to development of publicly available trawl footprint information. • Establish and support a forum to design options for managing the benthic effects of bottom trawling in New Zealand's EEZ. **Core Actions:** • Report extent of new areas trawled, and the volume/species (where possible) of benthic bycatch.[11]
8	**Protected Species Framework: Sharks**
	The NPOA-Sharks (2022) will set out goals, accompanying objectives and performance measures, to support the management of sharks. This Management Action is focused on addressing concerns for at-risk species identified in the risk assessments as well as sustainable utilisation of sharks taken by commercial fishers. The review is underway and the NPOA-Sharks 2022 is expected to be released for consultation in the coming months (late 2022).[12]
	Key Action: • Analyse submissions and prepare advice for Ministerial approval of NPOA-Sharks 2022. **Core Actions:** • Monitor and respond to captures of protected sharks; and • Ensure that the management of sharks in New Zealand is consistent with the CMS Sharks MOU and other international management instruments.
9	**Deepwater Monitoring:** Deepwater observer coverage/sampling requirements

[10] The most recent trawl footprint report (2018/19) is available here

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

[12] The 2017 chondrichthyans risk assessment is available here (https://fs.fish.govt.nz/Page.aspx?pk=113&dk=24619)

	Observer coverage of deepwater fisheries is planned by financial year. Planning is based on biological sampling requirements, international requirements, percentage-level coverage targets and observer programme capacity. 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 is available in section 9.
	Core Actions: • Work with vessel operators to ensure fishing plans that accurately reflect likely fishing activity are provided to FNZ in a timely manner; • Work with the observer programme to ensure that observers are informed of biological sampling targets and other requirements; • Debrief observers after trips if required; • Monitor percent coverage levels to ensure adequate and representative coverage is achieved; and • Develop the observer coverage plan for the 2023/24 financial year by reviewing and updating sampling targets.
10	**Deepwater Monitoring:** Monitor the deepwater fleet adherence to the range of measures in place to manage the effects of fishing activity on protected species and sharks
	A range of management measures (including DWG non-regulatory initiatives) are employed to reduce the risk of adverse effects on protected species. Measures are described in the following Operational Procedures or Plans:[13] • Marine Mammal Operational Procedure (DWG initiative); • Protected Species Risk Management Plans (trawl and bottom longline) and Vessel Management Plans (VMPs) – seabirds (DWG and DOC liaison programmes); • Ling Operational Procedures (bottom longline) – seabirds (DWG initiative); • Deepwater Trawl Benthic Operational Procedure (DWG initiative); • Shark Operational Procedure (DWG initiative); • Scampi Fisheries Operational Procedure – seabirds and marine mammals (DWG initiative); and • SQU 6T and SBW 6I Operational Plans - sea lions.[14]
	Core Actions: • Audit Protected Species Risk Management Plans against the Mitigation Standards developed to support implementation of the NPOA Seabirds (2020); • Monitor and report adherence of the deepwater fleet to non-regulatory management measures; and • Monitor protected species interactions, notify DWG of trigger points, and report outcomes in ARR.
11	**Deepwater Monitoring:** Monitor adherence to non-regulatory measures in place to manage Tier 1 deepwater fish stocks at a sub-QMA scale.

[13] DWG operational documents can be accessed here

[14] Fisheries New Zealand Operational Plans can be accessed here

	In conjunction with DWG, FNZ has implemented a series of non-regulatory sub-area catch limits in the hoki, orange roughy, and oreo fisheries. In addition, Hoki Management Areas (HMAs) and Hoki Seasonal Spawn Areas (HSSAs) have been developed by industry. The purposes of these areas are to reduce fishing mortality of juvenile hoki in important nursery areas and allow spawning to occur undisturbed at peak times respectively. Measures are described in the following Operational Procedures: • Reporting Operational Procedures; • Orange Roughy & Oreo Operational Procedures; and • Hoki Operational Procedures.
	Core Actions: • Audit and report adherence to sub-QMA catch limits; • Consider additional management where sub-QMA catch limits are exceeded; and • Audit and report adherence to HMA and HSSA management measures.
12	**Deepwater Research Planning**
	The research required to manage deepwater fisheries is detailed in the Medium-Term Research Plan for Deepwater Fisheries.[15] Some research is contracted on an annual basis, while other research, such as trawl surveys, are contracted via multi-year contracts.
	Core Actions: • Finalise and agree the Deepwater Fisheries Research Programme for delivery during the 2023/24 Financial Year (including any proposals for industry-led research) before December 2022; • Update the Medium-Term Research Plan[16]; and Support delivery of 2022/23 research for deepwater fisheries.
13	**Fisheries Management Controls:** Regulatory amendments
	Progressing amendments to secondary legislation, such as regulation, includes: analysis of options, drafting the Preliminary Impact and Risk Assessment (PIRA), consultation documents, Regulatory Impact Statement (RIS), and decision documents.
	Key Actions • Coordinate final advice, drafting and implementation of the technical regulation package. **Core Actions:** • Progress any other legislative amendments as required.
14	**Fisheries Management/Sustainability Controls:** Support existing approaches to market initiatives for New Zealand's deepwater seafood

[15] The Medium Term Research Plan for Deepwater Fisheries is available here

[16] This is updated every year

	Work with DWG to support the requirements of the Marine Stewardship Council (MSC) assessment and certification processes. FNZ supports industry initiatives to achieve and maintain certification of key deepwater fisheries through the provision of fisheries data and expertise.[17]
	Core Action: • Provide information for annual surveillance audits of ORH, SBW, LIN bottom longline, and the HOK, HAK and LIN trawl complex. • Commence the reassessment process for the HAK/HOK/LIN/SBW fisheries. The 5-year MSC certification period expires at the end of February 2024.
15	**Fisheries Sustainability Controls:** Develop and implement specific harvest strategies for Tier 1 species, and management approaches for low information stocks, that enable deepwater and middle-depth fisheries to be economically viable 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 (MSE) will be undertaken which assesses a range of different management strategies, including those that incorporate economic aspects of the fishery.
	Core Action: • Support development of MSEs and reviews of existing MSEs for deepwater species.
16	**Digital Monitoring**
	The current digital monitoring framework for the deepwater fleet comprises: • ER - electronic reporting of catch, effort, protected species captures, and landing information; and • GPR - electronic position reporting. Funding is in place for the wider roll out of on-board cameras for up to 300 inshore commercial fishing vessels by 2024. Some inshore vessels periodically target deepwater fish stocks.
	Core Actions: • Implement changes to Electronic Reporting Circulars as required; • Contribute to post implementation assessment of ER and GPR; • Contribute to monitoring and reviewing the data quality standards and specifications process; • Utilise geospatial position reporting and electronic catch reporting to aid management; and • Work with vessel operators to ensure all geospatial position reporting and electronic catch reporting requirements are well understood and implemented consistently.

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

6 Management Actions delivered in conjunction with other directorates within FNZ and MPI

Table 3: Management Actions that are led by other teams within FNZ and within MPI

A	**Input to wider strategic MPI projects:** Assist relevant branches within MPI with policy development and provide necessary fisheries management information LEAD: project dependent (see below)
	MPI's Policy and Trade branch is leading the Fisheries System Reform which is a programme of work to strengthen, and modernise, the way we manage fisheries and ensure the sustainability of New Zealand's fisheries. Fisheries System Reform is focussed on changing fishing rules and policies to make them simpler, fairer and more responsive, while also incentivising better fishing practices.
	Key Actions • Contribute to the process for progressing the Fisheries Amendment Bill and Primary Industries Regulatory Systems Amendment Bill; and • Contribute to policy development as required particularly on marine protection and the Fisheries System Reform Programme.
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 research projects that relate to deepwater fisheries.
	Core Actions: • Assist the Fisheries Science team to deliver outputs of all 2022/23 research projects as listed in Tables 8-11; and • Assist Fisheries Science to ensure that all science research used to support management of deepwater fisheries is assessed against the Research Standard.[18]
C	**Observer Coverage Delivery:** LEAD: Fisheries Monitoring (Observer Programme)
	FNZ's Observer Programme is responsible for delivering observer coverage and ensuring that the required biological sampling targets are met. Observer coverage plans, biological sampling targets and other observer tasks are prepared annually for all fisheries. The Deepwater Team will continue to work closely with the Observer Programme to ensure the necessary targets are achieved.
	Core Actions: • Ensure that the Observer Programme is adequately informed of the biological sampling targets and other observer requirements for 2022/23;

[18] The Research Standard can be accessed here

	• Provide training to observer recruits as part of the intake process to provide context to the work they will be conducting and to highlight the importance of their work to the management of deepwater fisheries; • Engage with, and provide feedback to observers through the observer newsletter and observer catch up sessions; and • Monitor coverage and liaise with the Observer Programme on observer deployment throughout the year.
D	**Cost Recovery Process:** LEAD: Corporate Services (Cost Recovery)
	Assist the Business and Financial Advice Team with the cost recovery processes for 2022/23. MPI undertakes an annual cost recovery process to recover costs associated with fisheries compliance, registry, research, and observer coverage. There are two stages to the process: (i) undertaking a port price survey and (ii) calculating the levies for each stock.
	Core Action: • Ensure the cost recovery levy process recovers costs consistent with deepwater observer coverage and research plans, including providing information to support the levy order and 'Unders and Overs' process.[19]
E	**Compliance monitoring work** LEAD: Compliance Directorate (Compliance Services Branch)
	MPI's Compliance Directorate will continue to monitor fishing activity and catch reporting in 2022/23 in relation to whole fleet reporting changes to electronic catch and position reporting, and the VADE model.[20]
	Core Actions • The Deepwater Team will be involved in discussions with Compliance relating to the priorities for the future monitoring of deepwater fisheries; at-sea and in-port inspections; and • Fisheries Compliance will maintain an investigative response capability for investigating identified breaches and will advise Fisheries Management of any systemic issues that arise from investigations.
F	**Aquaculture & Fisheries Permits:**
	The Aquaculture and Fisheries Permitting Team is responsible for analysis and advice on applications made regarding a range of regulatory tools in the marine and freshwater space.
	Core Actions The Deepwater Team will provide: • Advice on the registration of Foreign Owned Fishing Vessels (FOVs); • Input into High Seas Permit applications; and • Input into annual tenders of Crown-held ACE.

[19] In setting levies, the Minister of Fisheries is required to have regard to the costs of services incurred by the Crown in a previous financial year that were either not recovered or were over-recovered.

[20] Voluntary, Assisted, Directed, Enforced

7 Management Actions Initiated by Industry

Table 4: Management actions that the Deepwater Team will contribute to initiated by the fishing industry.

Core Actions for 2022/23:
• Respond to quota owner 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 that relate to deepwater fisheries; and • Respond to any requests to use innovative trawl gear.

8 National Plans of Action

8.1 NATIONAL PLAN OF ACTION – SEABIRDS (2020)

8.1.1 Implementation of the National Plan of Action – NPOA Seabirds (2020)

This AOP sets the prioritised actions and services needed to manage the interactions of deepwater fisheries with seabirds. The New Zealand Government's commitment to reducing interactions with fisheries is set out in the NPOA – Seabirds (2020) which sets out the commitment to reducing fishing-related captures and associated mortality of seabirds. The NPOA Seabirds' (2020) vision is that New Zealanders work towards zero fishing-related seabird mortalities. Guided by this vision, the NPOA Seabirds (2020) has four goals:

1. Avoiding bycatch — effective bycatch mitigation practices are implemented in New Zealand fisheries
2. Healthy seabird populations — direct effects of New Zealand fishing do not threaten seabird populations or their recovery
3. Research and information — information to effectively manage direct fisheries effects on seabirds is continuously improved
4. International engagement — New Zealand actively engages internationally to promote measures and practices that reduce impacts on New Zealand seabirds

The NPOA Seabirds (2020) is underpinned by the outputs from the seabird risk assessment. The seabird risk assessment allows for identification of the seabird species most at risk from commercial fishing, as well as the fisheries that contribute the greatest risk to these species and seabirds more generally. This information is used to prioritise management action to reduce the overall risk that commercial fishing poses to seabirds over time.

8.1.2 Deepwater Management Approach – Seabirds

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

- Mandatory use of seabird scaring devices (>28m trawl vessels and >7m bottom longline vessels) and implementation of seabird mitigation measures (all bottom longline vessels);[21]
- Continued implementation of Mitigation Standards on trawl vessels >28m, all scampi trawlers, and <28m hoki trawlers through vessel-specific Protected Species Risk Management Plans (PSRMPs);[22]
- Auditing of vessel-specific PSRMPs against the Mitigation Standards developed to support the NPOA Seabirds 2020;
- Continued implementation of Mitigation Standards on ling bottom longline vessels via the Ling Bottom Longline Operational Procedures together with ongoing development of PSRMPs;[23]
- An ongoing vessel outreach programme, which includes annual (where possible) crew training;
- Ongoing exploration of new or improved mitigation methods; and
- FNZ observers monitoring vessel adherence to PSRMPs and the Ling Bottom Longline Operational Procedures.

PSRMPs outline a set of operational procedures that are specific to each vessel. For trawl vessels, 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 2022/23, actions in deepwater fisheries to support the NPOA Seabirds 2020 will be focused on:

- Ongoing management of the PSRMP process as it applies to trawlers >28m, scampi trawlers <28m, <28m hoki trawlers, and ling bottom longline vessels;
- Auditing PSRMPs against Mitigation Standards;
- Continuing to improve and manage the process that applies to the ling bottom longline operational procedures (for any vessels for which a PSRMP has not yet been developed); and
- Investigating and implementing 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.

Table 5 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.

Table 5: NPOA-Seabirds services planned for Deepwater Fisheries Management during 2022/23

NPOA Objectives	Planned Deepwater Services for 2022/23
Cross-objective work driven by NPOA	• Coordinate publication of Seabird Annual Report for 2021/22 on behalf of FNZ and DOC
Goal 1: Avoiding bycatch	

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

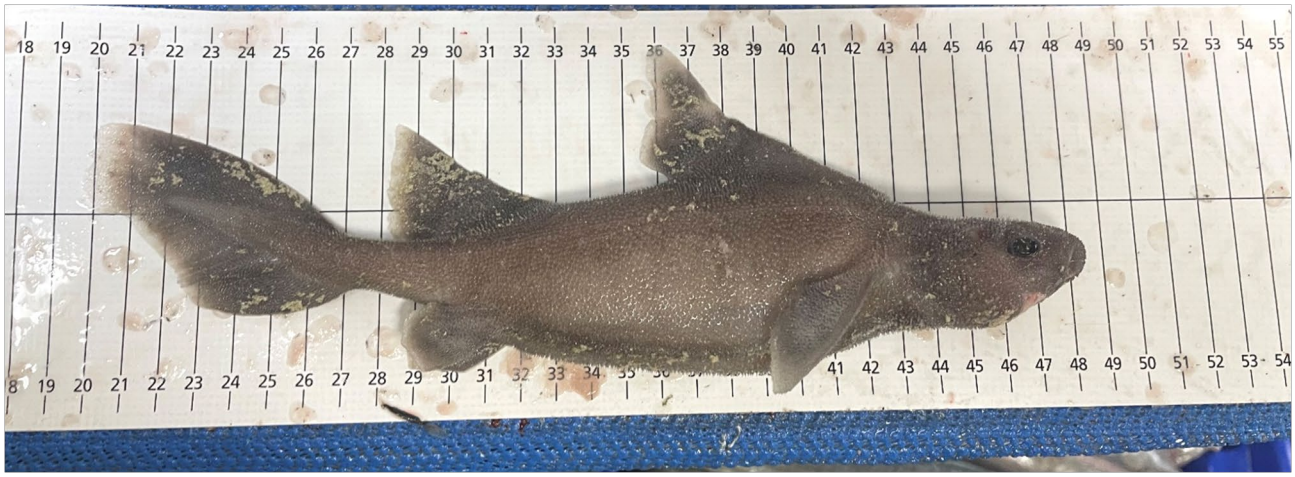
[22] Information on PSRMPs for >28m trawlers, scampi trawlers and <28m hoki trawlers is contained in the Seabird Operational Procedures, Scampi Fisheries Operational Procedures and the Coastal Hoki Trawler Operational Procedures respectively, which are available on the DWG website here

[23] The Ling Bottom Longline Operational Procedures document is also available on the DWG website here

1. Ensure all New Zealand commercial fishers are using practices that best avoid the risk of seabird bycatch, enabled by appropriate regulations 2. Practices that effectively avoid risk of seabird capture are supported and promoted to non-commercial fishers	• Collect data to better understand line sink rates on bottom longline vessels • Audit existing PSRMPs against Mitigation Standards • Report on at-sea audits of adherence to PSRMPs • Review and update Mitigation Standards as required • Report capture and capture rate data for the previous fishing year • Review and update mitigation regulations as appropriate
Goal 2: Healthy seabird populations 3. Research, monitoring, and management actions are prioritised for seabird populations of particular concern and their risk ratios reduce 4. The number of fishing-related mortalities is decreasing towards zero	• Implement research programme along with the Observer Programme on hook sink rates utilising time-depth recorder • Clearly identify additional priority research or management actions.
Goal 3: Research and Information 5. Research is undertaken to improve bycatch mitigation across sectors, especially where there are high bycatch rates and no known effective mitigation (note: mitigation may include spatial and temporal closures) 6. Monitoring programmes for New Zealand commercial fisheries are designed and implemented to provide statistically robust information to assess progress towards the NPOA Seabirds 2020's objectives 7. Observation and monitoring methods are researched, developed, and implemented across all sectors 8. A research programme provides information to reduce uncertainty in estimates of risk to seabirds from fishing across all sectors.	• Continue to review the factors that contribute to seabirds getting caught in trawl nets in deepwater fisheries • Review the forms and data collection methods used by observers and fishers to make sure they are appropriate to support the NPOA Seabirds 2020 • Document monitoring objectives and needs based on risk assessment outputs

Goal 4: International engagement	• Contribute to advocacy for management of fishing impacts on seabirds on the high seas through participation in the South Pacific Regional Fisheries Management Organisation
9. The risk to New Zealand seabirds from fisheries outside the New Zealand EEZ is assessed and communicated to international organisations, governments, and other stakeholders 10. New Zealand advocates for the development, adoption, improvement, and update of seabird conservation measures 11. New Zealand actively works bilaterally, multi-laterally, and with international organisations to build capacity to reduce the risk to New Zealand seabirds	

8.2 NATIONAL PLAN OF ACTION FOR THE CONSERVATION AND MANAGEMENT OF SHARKS (NPOA-SHARKS 2022)



(Prickly dogfish *Oxynotus bruniensis* being measured by an observer)

Increasing recognition that sharks play an important role as apex predators in maintaining healthy ocean ecosystems, and understanding that sharks[24] share biological characteristics that can make them susceptible to over-fishing[25] led to global initiatives to improve the conservation and management of sharks. These developments culminated with the United Nations Food and Agriculture Organisation's (FAO) International Plan of Action for the Conservation and Management of Sharks (IPOA-Sharks) in 1999. The overarching objective of the IPOA-Sharks is "to ensure the conservation and management of sharks and their long-term sustainable use."

The IPOA-Sharks creates an expectation that signatories (such as New Zealand) will develop their own National Plan of Action for the Conservation and Management of Sharks (NPOA-Sharks). New Zealand developed its first NPOA-Sharks in 2008, which was updated in 2013.

[24] The NPOA-Sharks includes all species of cartilaginous fish (Class Chondrichthyes) within New Zealand waters; sharks, rays and elephantfish
[25] Including being slow to mature, producing only a small number of young with low rates of survival

FNZ established a Shark Advisory Group in 2020 to support the review of the NPOA-Sharks (2013) and develop a new plan of action, NPOA-Sharks 2022. This multi-stakeholder group is chaired by FNZ and comprised of representatives from the Department of Conservation (DOC), the Ministry of Foreign Affairs and Trade (MFAT), the fishing industry (DWG and Fisheries Inshore New Zealand), environmental groups (WWF-New Zealand, ECO, and Forest & Bird), Te Ohu Kaimoana, and the recreational fisheries sector.

A qualitative risk assessment of all shark species informs prioritisation of management actions and research.[26] Ongoing actions both within FNZ and MPI, and across other agencies has focused on:

- Reviewing appropriate management categories and protection status;
- Contracting research to fill information gaps about higher risk species (based on the outcomes of the risk assessment); and
- Working with fishers to ensure best practice handling and mitigation measures are employed where appropriate.

The draft NPOA-Sharks 2022 incorporates Te Tiriti obligations, the role of te Ao Māori and mātauranga Māori relating to sharks, including information on why sharks are considered taonga species.

9 Part 2B: Service Requirements to Support Deepwater Fisheries Management during the 2022/23 financial year

The Deepwater Team will work and engage effectively with Māori, key external organisations, and other teams across FNZ and MPI. All FNZ business groups will work together on strategic matters and key projects that cross over the different portfolios in 2022/23.

Table 7: FNZ teams through which fisheries management services will be delivered

Branch	Directorate	Team
Fisheries New Zealand	Fisheries Management	Deepwater Fisheries
		Inshore Fisheries - North
		Inshore Fisheries - Central
		Inshore Fisheries - South
		Highly Migratory Species and Pacific Fisheries
		National Direction (including Spatial planning and Allocations and Dolphins TMP)
	Science & Information	Science
		Data and Insights
		Fisheries Contracts Portfolio
		Economics

[26] Available here

Branch	Directorate	Team
	Verification and Operations	Fisheries observer and Verification services
		Aquaculture and Fisheries Permitting
	Aquaculture	Aquaculture Strategy and Development
		Aquaculture Settlement and Operational Policy
	Strategy and Governance	Governance and Performance
		Strategic Engagement
		Strategy and System Design
		Sector Support and Innovation
	Fisheries and Aquaculture Treaty Partnerships	Customary Fisheries
		Treaty Analysis and Capability

9.1 FISHERIES MANAGEMENT DIRECTORATE

The Fisheries Management Directorate is responsible for the operational management of New Zealand's fisheries under the Act.

9.1.1 Fisheries Management teams

In addition to the Deepwater Team, there is the Highly Migratory Species and Pacific Fisheries team and three Inshore teams (North, Central and South).

The Highly Migratory Species and Pacific Fisheries team is responsible for the management of all highly migratory stocks and the management of the environmental effects of fishing for these species. This team liaises with MPI's International Fisheries Policy Team and MFAT, to represent New Zealand interests at international meetings and also helps to develop fisheries management capacity in Pacific Island countries.

The Inshore Fisheries teams are responsible for managing inshore fisheries (including shellfish, inshore finfish, freshwater and marine plant resources), and the environmental effects of fishing for these species. There are commercially fished species such as jack mackerel, gemfish and barracouta, that have stocks managed by the inshore fisheries team and other stocks of the same species managed by the Deepwater Team.

9.1.2 National Direction team (including Spatial Planning and Allocations and Dolphins TMP)

National Directions:

Whilst fisheries management continues to occur at a local level, there are a number of issues and system improvements that can be made at a national level. The National Direction team tackles priority strategic and cross cutting projects to address these issues and effect change.

Spatial Planning and Allocations:

- 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, and 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.

9.2 SCIENCE AND INFORMATION DIRECTORATE

9.2.1 Science team

The Science team (Stock Assessment, and Aquatic Environment and Biodiversity) provide expert advice and are responsible for evaluating and delivering science research that meets the 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 2022/23 will be:

a) delivery of deepwater research services and incorporation where necessary into management actions and services – research projects scheduled for delivery during the 2022/23 financial year are provided in Tables 8 to 11 below

b) maintaining and updating of the Medium-Term Deepwater Research Plan

c) planning and prioritisation of the 2023/24 deepwater fisheries research programme including industry-led surveys, to be agreed before 31 December 2022

d) implementation of protected species frameworks, including the NPOA-Seabirds (2020), NPOA-Sharks 2022 and the New Zealand sea lion/rāpoka Threat Management Plan

e) research evaluation via the Science Working Group processes

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

g) outlining what observer sampling is required

9.2.2 Research services scheduled for 2022/23 financial year

The following proposed fisheries research plan (Tables 8 and 9) is based on the Medium-Term Research Plan previously published, and incorporates changes resulting from subsequent discussions.[27]

[27] The Medium Term Research Plan is available here

Table 8: Deepwater Fisheries Research Plan for 2022/23

Project code	Title
HOK2022-01	Stock assessment of hoki in HOK 1
HOK2022-02	Acoustic survey of Cook Strait and ECSI hoki
LIN2022-01	Stock assessment of ling in LIN 7
ORH2022-01	Stock assessment of orange roughy on the southwest Challenger Plateau (including Westpac Bank) (ORH7A)
ORH2022-04	Estimation of the abundance of orange roughy using acoustic surveys in ORH 3B Northwest Rise (NWCR) and East and South Chatham Rise (ESCR)
SBW2022-01	Stock assessment of southern blue whiting around Campbell Island (SBW 6I)
SCI2022-01	Estimation of the abundance of scampi in SCI 6A using trawl and photographic surveys
SCI2022-02	Estimation of the abundance of scampi on the Chatham Rise in SCI 3 and SCI 4A using trawl and photographic surveys
SQU2022-01	Development of harvest strategies for squid in SQU 1T and SQU 6T

Table 9: Deepwater Fisheries Research Projects – ongoing projects that have significant deliverables in 2022/23

Project code	Title
BAR2020-01	Update of barracouta in BAR 4 and 5
DAE2018-01	Bycatch monitoring and quantification in deepwater fisheries
HAK2021-01	Stock assessment of hake in HAK 7
HOK2019-03	Hoki population modelling and stock assessment
HOK2020-01	Estimation of spawning hoki biomass in Cook Strait using acoustic surveys
HOK2020-02	Land-based sampling of hoki
HOK2021-01	Hoki population modelling and stock assessment
JMA2021-01	Stock assessment of jack mackerel in JMA 7
LIN2021-01	Stock assessment of ling in LIN 3 and 4
MID2018-01	Estimation of hoki and middle depth fish abundance using trawl surveys
MID2020-01	Routine age determination of middle depth and deepwater species from commercial fisheries and resource surveys
MID2021-01	Routine age determination of middle depth and deepwater species from commercial fisheries and resource surveys
MID2021-02	Multi-year trawl surveys
OEO2020-01	Investigating monitoring and assessment approaches for oreo species
ORH2020-01	Acoustic survey of orange roughy in ORH MEC (ORH 2A, 2B, and 3A)
ORH2021-01	Stock assessment of the orange roughy Mid-East Coast Stock
ORH2021-02	Stock assessment of orange roughy in ORH 3B
ORH2021-03	Estimation of the abundance of orange roughy on the southwest Challenger Plateau (ORH 7A including Westpac Bank)
SBW2021-01	Biomass estimation of the Campbell Island southern blue whiting stock using acoustic surveys
SBW2021-02	Analysis of Bounty Plateau southern blue whiting (SBW 6B) acoustic survey
SCI2020-01	Stock assessment for SCI 3
SCI2020-02	Estimation of the abundance of scampi in SCI 1 and SCI 2 using photographic surveys
SCI2021-02	Stock assessment of scampi in SCI 1 and SCI 2
SEA2020-00	Use of otolith shape to differentiate jack mackerel species in New Zealand
SKI2020-01	Gemfish Monitoring
SQU2020-01	Data Grooming and Characterisation of SQU 6T and SQU 1T
SQU2020-01	Squid Management Strategy
SWA2021-01	Assessment of biomass for silver warehou in SWA 3 and 4

Tables 10 and 11 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.

Table 10: Aquatic Environment and Biodiversity Research relevant to deepwater fisheries for 2022/23

Project code	Title
BEN2022-01	The extent and intensity of seabed contact by mobile bottom fishing in the New Zealand Territorial Sea and Exclusive Economic Zone and development of an interactive bottom fishing footprint website
BYC2022-02	Risk assessment for selected shark species
ZBD2022-02	The impacts of marine heatwaves on fisheries and habitats of particular significance for fisheries management in New Zealand

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

Project code	Title
BEN2019-01	Monitor the extent and intensity of bottom contact by trawl and dredge fishing in the Territorial Sea and Exclusive Economic Zone
BEN2019-04	(Part Two) A spatially explicit benthic impact assessment for inshore and deepwater fisheries in New Zealand
BEN2019-05	Towards the development of a spatial decision support tool for managing the impacts of bottom fishing on in-zone, particularly vulnerable or sensitive habitats
BEN2020-01	Extent and intensity of seabed contact by mobile bottom fishing in the New Zealand Territorial Sea and Exclusive Economic Zone
BEN2020-07	Extent and intensity of trawl effort on or near underwater topographic features in New Zealand's Exclusive Economic Zone
BEN2021-03	Taxonomic identification of benthic invertebrate samples
BYC2021-01	Trialling a semi-quantitative shark and turtle risk assessment
BYC2021-02	Protected Chondrichthyan captures characterisation
BYC2021-03	Bycatch monitoring and quantification in deepwater fisheries
DAT2020-05	Risk atlas development for protected species risk models
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 NZSL
PMM2018-07	Updated spatially explicit fisheries risk assessment for NZ marine mammal populations
PMM2018-11	Update Auckland Islands NZ sea lion population model
PRO2013-01	Estimation of Seabird and Marine Mammal Captures
PRO2013-13	Southern Hemisphere seabird risk assessment (for ACAP species)
PRO2017-05A	Population specific modelling of adult survival of black petrels
PRO2017-05B	Population specific modelling of adult survival of Chatham Island albatross
PRO2017-10	Analysis of New Zealand sea lion tracking data to estimate overlap with fisheries
PRO2017-19	Factors affecting capture rate of black petrels and flesh-footed shearwaters
PSB2019-01	Estimation of total seabird captures using standardised estimation methods
PRO2019-09	Spatial distribution modelling of at-risk seabirds in New Zealand commercial fisheries
PRO2019-10	Refine SEFRA model parameterisation for at-risk protected species (seabirds)
PRO2019-12	Protected Species Database - Document, test and update to include 2018-19 fishing year
PRO2021-02	Estimation of warp capture cryptic mortality multipliers with seabird corpse catcher devices

PRO2021-03	Antipodean albatross multi-threat risk assessment
PRO2021-04	Comparing results of protected species captures interactions using different data collection methods
PRO2021-07	Review, cataloguing and continuation of footage collected from the 2020/21 Black Petrel Electronic Monitoring project
PSB2019-02	Research into the demographic parameters for Antipodean albatross
PSB2019-09	Opportunistic Aerial survey of white-capped albatross on the Auckland Islands
SEA2021-06	Re-production of Spatial Layers predicting cetacean probability and density estimates
ZBD2018-01	5 year continuous plankton survey (phase 3)
ZBD2018-02	Climate change, fish distribution meta-analysis
ZBD2018-05	Ecosystem function and regime shifts in the Sub-Antarctic
ZBD2019-01	Quantifying benthic habitats (part 2)
ZBD2019-11	Development of Electronic Automated Reporting System (EARS) to improve seabird bycatch monitoring
ZBD2020-06	Recovery of biogenic habitats: assessing the recovery potential offered by spatial planning scenarios proposed in the Sea Change Plan
ZBD2020-07	Recovery of Seamount Communities

9.3 VERIFICATION AND OPERATIONS DIRECTORATE

9.3.1 Aquaculture and Fisheries Permitting team

The aquaculture and 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, high seas fishing permits, and registering foreign-owned vessels.

9.3.2 Fisheries Observer and Verification Services

The Deepwater Team works with Fisheries Observer and Verification Services to respond to requests for data, observer coverage, biological sampling requests and monitoring of the environmental effects of fishing. FNZ 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 actions and core services that the Deepwater Team will work on with Observer Services during 2022/23 will be:

- Participating in the training of new observers
- Briefing (where required) and debriefing observers placed on board deepwater vessels
- Planning the 2022/23 observer coverage requirements for deepwater fisheries (the 2021/22 deepwater observer coverage plan is set out below)
- Contributing towards the ongoing redesign of observer forms
- Updating biological sampling targets and observer tasking (the current biological sampling requirements for deepwater fisheries are set out in Table 13)
- Monitoring progress towards sampling targets throughout the year
- Engaging with, and providing feedback to, observers through the observer newsletter and observer catch up sessions

9.3.3 2022/23 Deepwater Observer Coverage Plan

Biological sampling and environmental monitoring is carried out by the FNZ 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 non-target species;
- To assess fishery performance against environmental benchmarks as available; and
- To enable more timely responses to sustainability and environmental impact issues.

The principles and methods used to compile the Deepwater Observer Coverage Plan (Table 12) and sampling requirements, shown in Tables 13 and 14, are included below. The observer coverage plan for 2022/23[28] has been based solely on the science and management requirements of the respective fisheries.

Table 12: Deepwater fisheries observer plan for 2022/23. Excludes training and days provided on request.

Fishery complex	Planned number of days 2022/23	% coverage estimate (all stocks)
Deepwater trawl		
North Island Deepwater (ORH 1,2A, 2B & 3A, BYX 2, CDL 2)	110	20%
Chatham Rise Deepwater (ORH 3B, OEO 3 & 4, BYX 3)	290	30%
Sub-Antarctic Deepwater (ORH 3B, OEO 1 & 6)	100	75%
West Coast Deepwater (ORH 7A)	70	50%
Middle-depth trawl		
West Coast North Island (JMA 7, BAR 7, EMA 7)	300	30%
West Coast South Island (HOK 1, HAK 7, LIN 7, SWA 1)	400	30%
Chatham Rise Middle depths (FMA 3 & 4) (HOK 1, HAK 1 & 4, LIN 3 & 4, SWA 3 & 4, JMA 3, BAR 1 & 4)	555	30%
Sub-Antarctic Middle depths (ex. SQU/SBW) (FMA 5 & 6) (HOK 1, HAK 1, LIN 5 & 6, SWA 4, WWA 5B, JMA 3, BAR 5)	325	30%
Southern blue whiting (all)	250	100%
Squid (SQU 1T, SQU 6T)	1846	70%
Cook Strait	200	20%
WCSI HOK (Inside the line)	105	20%
Bottom longline		
> 34 m ling bottom longline (LIN 3 – LIN 7)	185	30%

[28] The number of days will be finalised in August 2022

< 34 m mixed BLL		445	30%
Scampi trawl			
Scampi	SCI 6A	200	25%
	SCI (other)	300	20%
	Total Days	**5,681**	

Table 13. Biological sampling requirements for deepwater fisheries for 2022/23

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	1000	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 (trawl)	100	500	Chatham Rise	October-May	Chatham Rise Mid-depths
	LIN 3/4 (BLL)	100	500	Chatham Rise	Year-round	Chatham Rise BLL
	LIN 5/6 (trawl)	100	500	Sub-Ant	September-April	Sub-Ant Mid-depths
	LIN 5/6 (BLL)	100	500	Sub-Ant	Year-round	Sub-Ant BLL
	LIN 7	200	500	WCSI	June-October	WCSI Mid-depths
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

Species	FMA/stock	LF target	Otolith target	Area	Months	Obs plan 'Fishery complex'
	SCI 3	50		Mernoo Bank	All year	Scampi
	SCI 4A	50		Chatham Rise	All year	Scampi
	SCI 6A	50		Auckland Islands	February-November	Scampi

9.3.4 Principles and methods used to determine the observer coverage plan for 2022/23

Observer coverage for the 2022/23 year was planned based on percentage coverage targets, biological sampling requirements, Ministerial commitments 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 2021/22 to 2025/26[29] 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 on:

- The number of length frequency (LF) samples and otoliths collected by observers for each fisheries complex during the 2017/18, 2018/19 and 2019/20 years;[30]
- The number of observer days delivered for the 2017/18, 2018/19 and 2019/20 years ; 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 collected for the fisheries complex by the observer days delivered during the fishing year and an average taken for the 2017/18, 2018/19 and 2019/20 years. The number of LF samples required for each fisheries complex was then divided by the average number of LF samples collected per observer day delivered for that fishery complex.

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 of the Campbell Island southern blue whiting fishery).

FNZ 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" hoki fisheries,[31] 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.

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

- The percentage of tows observed for each fisheries complex during the 2017/18, 2018/19 and 2019/20 years; and

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

[30] As reported in the 2017/18, 2018/19 and 2019/20 Deepwater Annual Review Reports. Reports back to 2015/16 are available here (https://www.mpi.govt.nz/growing-and-harvesting/fisheries/fisheries-management/deepwater-fisheries/)

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

- The number of observer days delivered for the 2017/18, 2018/19 and 2019/20 years.

In short, for each fisheries complex to calculate the number of observer days to meet the percentage coverage target for the 2017/18, 2018/19 and 2019/20 years, the number of observer days delivered for the fishery complex was divided by the percentage of tows observed for the fishing year and then this was multiplied by the percentage coverage target. The number of days to meet the percentage coverage target was then averaged across the 2017/18, 2018/19 and 2019/20 years.

Training

All training occurs as paired trips between an experienced observer and a new recruit. Trainees' days are counted towards the 'Training' allocation with the trainers' days counted towards the appropriate fisheries complex. All training occurs on >28 m trawl vessels with time of year, vessel size, and suitability determining which vessels are used for training purposes. For 2022/23, 300 training days have been included in the plan.

For cost recovery purposes, the 'Training' allocation is spread across all deepwater stocks from which the costs of observer coverage are recovered.

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.

After the initial calculations were made, coverage requirements across all fisheries (deepwater, inshore, Highly Migratory Species, and other categories) were assessed against the observer programme's capacity and then prioritised.

The number of days planned for each fisheries 'complex', and accompanying rationale is shown in Table 14.

Table 14: Summary of information used

Fishery complex & stocks covered	Planned days 2022/23	Main objective(s) of observer coverage planning	Rationale and comment
Deepwater trawl			
North Island deepwater ORH 1, ORH 2A, ORH 2B, ORH 3A, BYX 2, CDL 2	110	Biological sampling of ORH	75 days estimated to provide coverage of approx. 20% of effort (all stocks in complex) and approx. 25-30% of effort (ORH target only).[32]
Chatham Rise deepwater ORH 3B (Northwest and East & South Chatham Rise) OEO 3A, OEO 4, BYX 3	290	Biological sampling of ORH & OEO 30% coverage of effort in MSC certified stocks	290 days estimated to provide coverage of approx. 30% of effort in MSC certified stocks. Coverage will be tracked over the course of the year to ensure that 30% coverage target is obtained for both stocks. Using an estimate of two LFs per day, 275 days estimated to be sufficient to collect required number of biological samples (50 LFs per ORH sub-stock, and 30 LFs from SSO & BOE in OEO 3A and SSO in OEO 4).
Sub-Antarctic deepwater ORH 3B (Sub-Antarctic & Puysegur), OEO 1, OEO 6	100	Biological sampling of ORH & OEO	Using an estimate of two LFs per day, 100 days estimated to provide coverage of approx. 75% of effort.
West Coast deepwater ORH 7A	70	Biological sampling of ORH 50% coverage of effort in MSC certified stocks	70 days estimated to provide coverage of approx. 50% of effort. Coverage will be tracked over the course of the year to ensure that 50% coverage target is obtained. Using an estimate of two LFs per day, 70 days estimated to be sufficient to collect required number of biological samples.
Hoki and middle-depth trawl			
West Coast North Island JMA 7, EMA 7, BAR 7	300	Biological sampling of JMA Protected species monitoring	300 days estimated to provide coverage of approx. 30% of effort. Using an estimate of 2 LFs per JMA species per day, 300 days estimated to be sufficient to collect necessary samples (200 LFs per JMA species).
West Coast South Island HOK 1, HAK 7, LIN 7, SWA 1	400	Biological sampling of HOK, HAK, LIN Protected species monitoring	800 LFs in total (400 HOK, 200 HAK & 200 LIN). Using an estimate of 2 LFs per day, 400 days estimated to be sufficient to collect required number of biological samples. 400 days estimated to provide coverage of approx. 30% of effort (HOK target only).

[32] All percentage coverage estimates are based upon average fishing effort between the 2016/17 and 2018/19 years and take into account estimates of the number of observer seadays when fishing did not occur (i.e. steaming).

WCSI (inside the line) HOK 1	105	Biological sampling of HOK Protected species monitoring	200 LFs required. Using an estimate of 2 LFs per day, 105 days estimated to be sufficient to collect required number of biological samples. 100 days estimated to provide coverage of approx. 20% of effort.
Cook Strait hoki HOK 1	200	Biological sampling of HOK Protected species monitoring	200 LFs required. Using an estimate of 2 LFs per day, 200 days estimated to be sufficient to collect required number of biological samples. 200 days estimated to provide coverage of approx. 20% of effort.
Chatham Rise middle-depth HOK 1, HAK 1, HAK 4, LIN 3, LIN 4, SWA 3, SWA 4, JMA 3, BAR 1, BAR 4	555	Biological sampling of HOK, HAK, LIN Protected species monitoring	400 LFs in total. Using an estimate of 2 LFs per day, 555 days estimated to be sufficient to collect required number of biological samples, will provide coverage of approx. 30% of effort (HOK target only).
Sub-Antarctic middle-depth HOK 1, HAK 1, LIN 5, LIN 6, SWA 4, WWA 5B, BAR 5, JMA 3	325	Biological sampling of HOK, HAK, LIN Protected species monitoring	400 LFs in total using an estimate of 2 LFs per day, 325 days estimated to be sufficient to collect required number of biological samples and estimated to provide coverage of approx. 30% of effort (HOK, HAK & LIN target only).
Southern blue whiting SBW (all)	250	Biological sampling of SBW Protected species monitoring	Estimated number of days required to obtain 100% coverage
Squid SQU 1T, SQU 6T	1,970	Protected species monitoring	Estimated number of days required to meet minimum 70% observer coverage requirement in SQU 6T
Scampi trawl			
Scampi SCI (all)	500	Biological sampling of SCI Protected species monitoring	500 days estimated to provide coverage of approx. 20-25% of effort (all areas) and sufficient to collect required number of biological samples (50 LFs from SCI 1, SCI 2, SCI 3, SCI 4A & SCI 6A)
Bottom longline			
Ling bottom longline LIN 3-7	650	Biological sampling of LIN Protected species monitoring	650 days estimated to provide coverage of approx. 30% of effort (all areas). Days to be split by vessel size with 185 days targeted at large (>34 m) vessels and 465 days targeted at small (< 34 m) vessels.
Total days	**6,525**		

9.4 FISHERIES AND AQUACULTURE TREATY PARTNERSHIPS DIRECTORATE

Customary Fisheries and Treaty Analysis and Capability Teams:

The Customary Fisheries and Treaty Analysis and Capability teams provide advice and support to the Deepwater Team so they can provide advice to enable the Minister to fulfil the obligations to tangata whenua and Māori set out in section 12 of the Act, and in Treaty settlement agreements entered into by the Minister with responsibility for fisheries. The Deepwater Team will consult with Māori 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 provided by the directorate include:

- Facilitating input and participation, primarily through Iwi Fisheries Forums;
- Review of consultation and decision documents produced by the Deepwater Team as part of each sustainability round; and
- Supporting the Deepwater Team to undertake appropriate engagement with tangata whenua by providing the opportunity for Iwi to be consulted on changes to deepwater fisheries management or changes to policy and regulation that may affect deepwater fisheries.

9.5 AQUACULTURE DIRECTORATE

This Directorate comprises the Aquaculture Strategy and Development and the Aquaculture Settlement and Operational Policy teams. The Aquaculture directorate is the government's principal adviser on aquaculture matters and provides branch planning, project and process improvement, and wide-ranging general support to FNZ.

9.6 STRATEGY AND GOVERNANCE DIRECTORATE

This Directorate comprises the Governance and Performance, Strategic Engagement, Strategy and System Design and Sector Support and Innovation teams. These teams aim to support the implementation of priorities and bring a long-term view to FNZ's operations, whilst also supporting a consistent approach to planning and ensuring the delivery of performance requirements. This directorate is also responsible for consolidating and strengthening the approach to working with stakeholders and supporting the fisher wellbeing programme and sector innovation.

9.7 LINKAGES WITH WIDER MPI

Table 15: Directorates/teams outside FNZ from which some fisheries management services will be required.

Branch	Directorate or Team
Corporate Services	Finance, Property and Procurement
	Business Technology & Information Services (BTIS)
	Cost Recovery
Compliance and Governance[33]	Compliance
	Legal Services
Policy and Trade	International Policy
	Agriculture, Marine & Plant Policy
Public Affairs	Ministerials & Business Support Group
	Communication, Engagement & Channels
New Zealand Food Safety	Science & Risk Assessment
	Performance, Oversight & Approvals
Te Uru Rākau	Spatial, Forestry & Land Management

The teams/directorates of most relevance to the Deepwater Team, together with the fisheries management services required, is outlined below.

9.7.1 Corporate Services

The Corporate Services branch provides a broad range of business functions to the whole of the Ministry including financial, information, human resources, legal, and business support services.

9.7.2 Compliance and Governance

The Compliance Directorate, within the Compliance and Governance Business Unit, 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.

In deepwater fisheries, compliance risk includes:

- 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 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.[34]

[33] An amended organisational structure, which includes this new branch, was implemented on 1 July 2019
[34] An outline of the compliance delivery model is available here

A further component of compliance activities involves collaborating with fisheries managers on reporting of compliance activities in publicly available documents, such as the Deepwater Annual Review Report.

The specific compliance services required to support the successful delivery of 2022/23 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.

- Provide compliance advice to the Fisheries Management Directorate to help inform risk ratings for Foreign Owned Vessel registration purposes
- Coordinate delivery of at-sea patrols to monitor adherence to regulations, including deployment of seabird mitigation devices, and follow up on non-compliance referrals from observers on recording and deployment of seabird mitigation devices
- Continue to operate VADE compliance model

9.7.2.1 Policy and Trade

The Deepwater Team works with Fisheries & Aquaculture sector policy on a number of strategic fisheries issues. Joint work programmes look at long-term improvements to New Zealand's fisheries management system including minimising the environmental impacts of fishing. Examples include improvements to New Zealand's approach to marine protection, exploring climate change impacts on New Zealand fisheries and looking at landings and discards of our catch.

The Deepwater 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.

9.7.2.2 Public Affairs

There are three Directorates that make up Public Affairs: Government Services, Engagement and Information, and Communications. Public Affairs brings together the functions that assist MPI's Director-General to:

- Meet MPI's obligations under the Official Information Act
- Provide quality and timely advice and information to ministers
- Build relationships with key industry stakeholders
- Manage MPI's narrative and reputation externally
- Produce high quality design collateral
- Develop and manage our communications channels
- Support regulatory education and enforcement through things like marketing campaigns
- Lead a number of major MPI events
- Inform and engage MPI people through effective internal communication.

9.7.2.3 Agriculture, Marine and Plant Policy Directorate

This Directorate is responsible for system 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 leads the Fisheries Change Programme.

9.8 EXTERNAL ORGANISATIONS

9.8.1 Department of Conservation (DOC)

The key projects that the Deepwater Team will work with DOC to progress during 2022/23 will be:

- Implementation of protected species frameworks, including the NPOA Seabirds 2020, NPOA Sharks 2022, New Zealand sea lion/rāpoka Threat Management Plan; and
- Planning research and observer services for delivery in 2022/23.

DOC carries out research each year focused on protected species interactions with fisheries in New Zealand waters. Some of the research DOC plans to carry out in 2022/23 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 16, please see the Conservation Services Programme Annual Plan, available on the DOC website (https://www.doc.govt.nz/our-work/conservation-services-programme/csp-plans/)

Table 16: DOC research projects that relate to deepwater fisheries

Interaction projects	
INT2021-02	Characterisation of protected coral interactions
INT2021-03	Review of commercial fishing interactions with marine reptiles
INT2021-04	Collection and curation of tissues samples from protected fishes and turtles
INT2020-02*	Identification of marine mammals, turtles and protected fish captured in New Zealand fisheries
INT2019-02*	Identification of seabirds captured in New Zealand fisheries
INT2019-04*	Identification and storage of cold-water coral bycatch specimens
Population projects	
POP2021-01	Black petrel research
POP2021-02	Identification of protected coral hotspots using species distribution modelling
POP2021-03	Seabird population research: Chatham Islands
POP2021-04	Flesh-footed shearwater population monitoring
POP2021-05	Age estimation of white sharks
POP2021-06	Fur seal population estimate and bycatch analysis: Cook Strait
POP2021-07	Otago and Foveaux shag census
POP2021-08	Assessment of causes of low burrow occupancy rates in Westland petrels
POP2018-03*	New Zealand sea lion: Auckland Islands pup count
POP2019-04*	Southern Buller's albatross: Snares/Tini Heke population project
Mitigation projects	
MIT2021-01	Protected species liaison project
MIT2021-03	Develop methods for increasing sink rates for bottom longline
MIT2020-01*	Hook-shielding use in the surface longline fishery

* indicates multi-year project

9.8.2 Deepwater Group Ltd.

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.[35]

A primary function of 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 DWG. This MOU was subsequently updated in 2008, and 2010.[36] The MOU establishes a structured collaborative framework that enables Fisheries New Zealand and DWG to work together. Because of this collaborative arrangement, the 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.

The key projects that the Deepwater Team will work with industry to progress during 2022/23 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 by contributing to the MSC annual audits for HOK, HAK, LIN, SBW and ORH;
- Assisting with delivery of the observer coverage plan for 2022/23;
- Planning research and observer coverage for delivery in 2023/24;
- Management and monitoring of interactions with protected species and sharks; and
- Planning and operation of the DWG/MPI Operators Group. The purpose of the meetings is to discuss issues of relevance (compliance, management / operational) to deepwater operators, consistent with the Deepwater Fisheries Plan.

[35] DWG's website can be accessed here (www.deepwatergroup.org)

[36] The 2010 MOU can be accessed here (https://www.mpi.govt.nz/dmsdocument/19715-memorandum-of-understanding-2010)