Ling Longline Situation Report

Prepared for 2017 MSC Reassessment



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1. Purpose of this report is one of three prepared for the New Zealand 2017 combined MSC reassessments for hake, hoki, ling and southern blue whiting. It provides an update on five ling longline Units of Certification (UoC) (LIN 3, 4, 5, 6 & 7), and builds on the information previously provided for the 2016 surveillance audit.

It is Deepwater Group Limited's (DWG) submission that these five fisheries continue to conform with the MSC Fisheries Standard (FCR V1.3) as evidenced in the following updated information and references.

All cited references are available here: http://deepwatergroup.org/species/ling/new-zealand-ling-longline-fishery-re-assessment-2017/

2. Overview of fishery status and information

Certification date	2014
Stock areas	UoC 4: LIN 3 UoC 5: LIN 4 UoC 6: LIN 5 UoC 7: LIN 6 UoC 8: LIN 7
Species	Genypterus blacodes
Method/gear	Longline

Stock status, TACC & catches

Ling longline certification details

UoC 4 - LIN 3 (MPI, 2017)

Update on stock status (Updated in 2015; McGregor, 2015)	For Chatham Rise (LIN 3 & 4), B_{2014} was estimated to be about 57% B_0 ; Very Likely (> 90%) to be above the target						
TACC 2016-17	2,060 t						
TACC 2015-16	2,060 t						
TACC 2014-15	2,060 t						



UoC share of TACC and catch	23% of TACC ¹ 44% of total estimated catch ¹					
LIN 3 catch 2015-16	1,440 t (Total reported catch)					
	454 t (Estimated catch for all target trawl) ²					
	507 t (Estimated catch for bottom longline) ²					
	185 t (Estimated catch for other methods) ²					
LIN 3 catch 2014-15	1,325 t (Total reported catch)					
	449 t (Estimated catch for all target trawl) ²					
	428 t (Estimated catch for bottom longline) ²					
	89 t (Estimated catch for other methods) ²					



Figure 1 Total Allowable Commercial Catches and reported catches for LIN 3 (all gear types)³

¹ Based on average of last two years and using estimated catch.

² There are typically differences between estimated and reported catches. "Estimated catch" is an at-sea estimate of the top 5-8 species per fishing event, whereas "reported catch" is the landings as reported against the TACC and balanced with ACE.

³ The LIN 3 fishery is largely a bycatch fishery in the much larger hoki trawl fishery. As the hoki TACC and fleet have reduced subsequently so have the catches for ling in this fishery. The reasons for the ling catch being lower than the TACC reflect these socio-economic factors for catching ling in this fishery.



UoC 5 – LIN 4 (MPI, 2017)

Update on stock status (Updated in 2015; McGregor, 2015)	For the Chatham Rise stock (LIN 3 & 4), B_{2014} was estimated to be about 57% B_0 ; Very Likely (> 90%) to be above the target
TACC 2016-17	4,200 t
TACC 2015-16	4,200 t
TACC 2014-15	4,200 t
UoC share of TACC and catch	33% of TACC ⁴ 68% of total estimated catch ⁴
LIN 4 catch 2015-16	2,659 t (Total reported catch) 582 t (Estimated catch for all target trawl) ⁵ 1,659 t (Estimated catch for bottom longline) ⁵
LIN 4 catch 2014-15	Negligible estimated catch for other methods. 2,246 t (Total reported catch) 721 t (Estimated catch for all target trawl) ⁵ 1,120 t (Estimated catch for bottom longline) ⁵ Negligible estimated catch for other methods.

⁴ Based on average of last two years and using estimated catch.

⁵ There are typically differences between estimated and reported catches. "Estimated catch" is an at-sea estimate of the top 5-8 species per fishing event, whereas "reported catch" is the landings as reported against the TACC and balanced with ACE.





Figure 2 Total Allowable Commercial Catches and reported catches for LIN 4 (all gear types)⁶

UoC 6 - LIN 5 (MPI, 2017)

Update on stock status (Updated in 2015; Roberts, 2016)	For the Sub-Antarctic stock (LIN 5 & 6, excluding the Bounty Plateau), B_{2014} was estimated to be between 70% and 101% B_0 ; Virtually Certain (> 99%) to be above the target.
TACC 2016-17	3,955 t
TACC 2015-16	3,955 t
TACC 2014-15	3,955 t
UoC share of TACC and catch	12% of TACC ⁷ 11% of total estimated catch ⁷
LIN 5 catch 2015-16	3,868 t (Total reported catch)
	3,660 t (Estimated catch for all target trawl)°
LIN 5 catch 2014-15	 3.4 t (Estimated catch for other methods)⁸ 3,924 t (Total reported catch)
	1

⁶ The LIN 3 fishery is largely a bycatch fishery in the much larger hoki trawl fishery. As the hoki TACC and fleet have reduced subsequently so have the catches for ling in this fishery. The reasons for the ling catch being lower than the TACC reflect these socio-economic factors for catching ling in this fishery.

⁷ Based on average of last two years and using estimated catch.



3,989 t (Estimated catch for all target trawl) 8

472 t (Estimated catch for bottom longline)⁸

8 t (Estimated catch for other methods)⁸



Figure 3 Total Allowable Commercial Catches and reported catches for LIN 5 (all gear types)

UoC 7 – LIN 6 (MPI, 2017)

Update on stock status LIN 5 & 6 (Updated in 2015; Roberts, 2016) LIN 6B (Updated in 2006; Horn, 2007)	For the Sub-Antarctic stock (LIN 5 & 6, excluding the Bounty Plateau), B ₂₀₁₄ was estimated to be between 70% and 101% B ₀ ; Virtually Certain (> 99%) to be above the target. For the Bounty Plateau stock (LIN 6B part of LIN 6), B ₂₀₀₆ was estimated to be 61% B ₀ ; Very Likely (> 90%) to be at or above the target.
TACC 2016-17 TACC 2015-16 TACC 2014-15	8,505 t 8,505 t 8,505 t
UoC share of TACC and catch	7% of TACC ⁹ 28% of total estimated catch ⁹

⁸ There are typically differences between estimated and reported catches. "Estimated catch" is an at-sea estimate of the top 5-8 species per fishing event, whereas "reported catch" is the landings as reported against the TACC and balanced with ACE.
⁹ Deced as success of last two users and using activated estable.

⁹ Based on average of last two years and using estimated catch.







Figure 4 Total Allowable Commercial Catches and reported catches for LIN 6 (all gear types)¹²

UoC 8 - LIN 7 (MPI, 2017)

Update on stock status Three alternative model runs were presented, with B ₂₀₁₇ estimated
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¹⁰ There are typically differences between estimated and reported catches. "Estimated catch" is an at-sea estimate of the top 5-8 species per fishing event, whereas "reported catch" is the landings as reported against the TACC and balanced with ACE.

¹¹ LIN 6B catches are included in the above reported and estimated totals for LIN 6, but have also been separated out here for ease of assessing the LIN 6B fishery.

¹² The LIN 3 fishery is largely a bycatch fishery in the much larger hoki trawl fishery. As the hoki TACC and fleet have reduced subsequently so have the catches for ling in this fishery. The reasons for the ling catch being lower than the TACC reflect these socio-economic factors for catching ling in this fishery.



(Updated in 2016; Dunn & Ballara, in prep)	to be 79%, 66% and 54% $B_0,$ Very Likely (>90%) to be at or above the target for all model runs.
TACC 2016-17 TACC 2015-16 TACC 2014-15 UoC share of TACC	3,080 t 3,080 t 3,080 t 24% of TACC ¹³ 31% of total estimated catch ¹³
LIN 7 catch 2015-16 LIN 7 catch 2014-15	3,337 t (Total reported catch) 1,682 t (Estimated catch for all target trawl) ¹⁴ 909 t (Estimated catch for bottom longline) ¹⁴ 54 t (Estimated catch for other methods) ¹⁴ 3,344 t (Total reported catch) 1,489 t (Estimated catch for all target trawl) ¹⁴ 552 t (Estimated catch for bottom longline) ¹⁴
	0.2 t (Estimated catch for other methods) ¹⁴



¹³ Based on average of last two years and using estimated catch.

¹⁴ There are typically differences between estimated and reported catches. "Estimated catch" is an at-sea estimate of the top 5-8 species per fishing event, whereas "reported catch" is the landings as reported against the TACC and balanced with ACE.



Figure 5 Total Allowable Commercial Catches and reported catches for LIN 7 (all gear types)

Key P1 references

- Bagley, N.W. O'Driscoll, R.L. & Oeffner, J. (2014). Trawl survey of hoki and middledepth species in the Southland and Sub-Antarctic areas, November–December 2012 (TAN1215). *New Zealand Fisheries Assessment Report 2014/12*.
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- McGregor, V. (2015). Stock assessment of ling (*Genypterus blacodes*) on the Chatham Rise (LIN 3&4) for the 2014-15 fishing year. *New Zealand Fisheries Assessment Report 2015/82*. 54 p.
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3. Overview of environmental information

Observer Coverage

The MPI observer programme collects data from fisheries including ETP incidental capture information. This ETP component, under New Zealand law, is administered and funded by the Department of Conservation (DOC) through levies recovered from relevant fisheries sectors. Personnel and observer deployment are managed by MPI. Table 1 outlines observer coverage in these fisheries for the last five years.

Table 1 Observer coverage in the ling longline fisheries (LIN 3, 4, 5, 6 & 7). Coverage is given as the percentage of hooks observed (Abraham & Thompson, 2015)

	2011-12	2012-13	2013-14	2014-15	2015-16	
Observer Coverage	11%	2%	10%	3%	10%	

For the current fishing year, DOC has a specific focus on the ling longline fisheries, as outlined in their CSP Annual Plan 2016-17 (DOC, 2016). This focus will continue into 2017-18 (DOC, 2017a).

It has been recognised that observer coverage, especially of small vessels, is sometimes inadequate to satisfactorily estimate interactions with a high degree of confidence. This has in part been due to the reprioritisation of observer effort toward foreign charter vessels (FCVs) and some priority coastal fisheries (e.g. SNA1 and to support the Maui Dolphin monitoring strategy. MPI have therefore used a Risk Assessment process to methodically consider risk in a conservative way when data are sparse. However, there have been significant steps to improve the availability of ETP capture information for the fleet of small vessels in the ling longline fleet.

In 2014-15, MPI planned for 150 days of ling longline coverage, of which 122 days were accomplished. In 2015-16, 175 observer-days were planned and 160 were achieved. These improvements, while positive, are still recognised as insufficient and the MPI Annual Operating Plan 2016-17 includes 450 days for these fisheries, a significant increase, with the objective of achieving 25% coverage of the LIN 3-7 bottom longline (BLL) fisheries.

MPI's Annual Operational Plan (MPI, 2016) provides the Deepwater Observer Coverage Plan for 2016-17. This includes:

- Briefing (where required) and debriefing (all trips) observers allocated to deep water trips
- Planning the annual observer coverage requirements for the deep water fisheries
- Updating biological sampling targets and observer tasking
- Monitoring progress towards sampling targets during the year.

Data collected by the observer programme are used:

- As an input to monitor key fisheries against harvest strategies, including through various approaches to stock assessment
- As an input to monitor biomass trends for target and bycatch species
- To assess fishery performance against environmental benchmarks as available
- To enable more timely responses to sustainability and environmental impact issues



• To evaluate certain compliance issues.

Information on incidental captures of ETP species reported by the MPI Observer Programme is summarised in a series of annual reports (e.g. Abraham & Thompson, 2015, published on the Dragonfly website (www.dragonfly.co.nz/data/) and, MPI, 2016), which enable the incidental captures of seabirds, marine mammals and turtles by the commercial fisheries to be monitored on an ongoing basis.

In addition to MPI's Observer Programme, a range of management measures, including some industry-led non-regulatory initiatives, are employed to monitor environmental interactions in deep water fisheries and to reduce the risk of any adverse effects on protected species populations. Measures relating to the monitoring of seabirds are described in the Vessel Management Plans (DWG, 2014), in the Interim Code of Practice (DWG, 2013), and in the newly developed Operational Procedures (DWG, 2016d).

DWG has been closely following progress of an initiative to establish camera-based monitoring on small vessels, with the explicit objective of enumerating seabird captures (number and species). This complex and expensive development is currently being trialled in the snapper-targeted bottom longline fishery around the top of the North Island. Initial trials, using model seabirds have provided sufficient information and confidence in the technology to advance to the next, "proof of concept" stage on a broad scale in that fishery (Middleton *et al.*, 2016). The methodology was presented to a meeting of the MPI Aquatic Environment Science Working Group in October 2016 and the results and final report are expected to be available during 2017. If successful, this approach will then be linked to the Integrated Electronic Monitoring and Reporting System (IEMRS) that is currently under development by MPI.

Retained & bycatch species

Fish bycatch and discard estimates are available for the ling longline fisheries from 1992-93 to 2012-13 (Ballara, 2015, & Anderson, 2014). Based on these estimates, the most commonly caught bycatch species over the entire commercial fishery were (in decreasing order by weight) spiny dogfish, ribaldo, smooth skate, sea perch, blue nose, and red cod (refer Anderson, 2014, Appendices 1 & 11 for tabulated data). Eight of the top ten bycatch species are managed within the QMS, and therefore catches are well monitored and direct controls exist to limit their overall catch.

The top five bycatch species for 2012-13 were: spiny dogfish (4,562 t), red cod (621 t) sea perch (423 t), smooth skate (220 t), and conger eel (154 t) (Ballara, 2015, Table 4b)

Bycatch in both of the combined fish species categories, non-QMS species discards, and total bycatch and total discards, all showed a decreasing trend over the 20-year period.

Ballara (2015) describes the ling longline fishery as having "low bycatch levels".

There are no reasons to expect that the reported patterns will have changed.

ETP species

Seabirds are subject to incidental capture by vessels fishing for ling using bottom-set longlines.



Seabirds

The following information is available for use in assessing the nature and extent of ETP seabird interactions with these fisheries:

- Seabird interactions recorded by MPI Observers (as reported by MPI/Dragonfly)
- Assessments of the risk that the ling longline fishery poses to ETP bird species using the estimation of Annual Potential Fatalities (APFs) and Potential Biological Removals (PBRs) (Richard & Abraham, 2015, 2015a, in prep; Baker & Hamilton, 2016)
- Population studies (e.g. Chatham Island, Southern Bullers, and Salvin's albatrosses and white-chinned petrels, DOC, 2016, 2017)
- Annual Environmental Liaison Officer report (DWG, 2016b)
- Trigger reports (i.e. real time responses to actual incidents)
- The development and testing of tori lines specifically for small vessels (the small vessel tori line project, reported by Pierre & Goad, 2016)
- Assessment of the nature and extent of the seabird interaction in ling longline fisheries (Baker & Hamilton, 2016)
- Review of ETP species monitoring (MPI, 2015).

Between 2010-11 and 2014-15, there were 77 observed captures of seabirds in ling longline fisheries (LIN 3-7) with many released alive (Table 2).

White-chinned petrel is the species captured most often (accounting for around 56% of captures over the last five years) and are classified as having 'very low' fisheries risk according to the most recent updated of the Spatially Explicit Fisheries Risk Assessment for seabirds (MPI, 2016, Table 8.32, and Richard and Abraham, in prep). These birds are capable of swimming down to considerable depths and are adept at accessing baited hooks during longline deployment. They are at increased risk when tori line deployment is sub-optimal (e.g. during periods when there are strong winds).

DOC has projects in train related to the risks posed by ling longliners to seabirds (DOC, 2016) including Chatham Island albatross seabird research that continues to monitor adult survival and will help improve data available to the risk assessment process (Bell, 2017).

DWG, in collaboration with MPI, have developed a strategy for managing risks to seabirds from small (<34 m) ling longline vessels (DWG, 2016).

Table 2 Observed (both dead, D, and released alive, A) and estimated (Dragonfly's statistical model) seabird incidental captures in the ling longline fisheries (LIN 3-7) for fishing years 2010-11 to 2014-15 (Abraham & Thompson, 2015)

Species	201	0-11	201	1-12	201	2-13	201	3-14	201	4-15	Totals	Avg/Yr
Albatrosses:	D	Α	D	Α	D	Α	D	Α	D	Α		
Salvin's	-	2	-	-	-	-	4	-	-	-	6	1.2
Southern Buller's	-	-	-	3	-	-	1	2	-	-	6	1.2



Southern royal albatross	-	1	-	2	-	-	1	-	-	-	4	0.8
NZ white- capped albatross	-	-	1	1	-	-	-	-	-	1	3	0.6
Albatrosses (unidentified)	-	-	-	-	-	-	1	-	-	-	1	0.2
Shearwaters & p	Shearwaters & petrels:											
White-chinned petrel	11	4	1	-	-	-	14	2	11	-	43	8.6
Fairy prion	-	-	-	-	-	-	-	5	-	-	5	1
Grey petrel	-	-	-	-	-	-	1	-	3	-	4	0.8
Cape petrel	-	-	-	1	-	-	-	1	-	-	2	0.4
Short-tailed shearwater	-	-	-	-	-	-	1	-	-	-	1	0.2
Westland petrel	-	-	-	-	-	-	-	-	1	-	1	0.2
Grey-backed storm petrel	-	-	-	1	-	-	-	-	-	-	1	0.2
Totals	1	8	1	0	0		33		16		77	15.4
Observer coverage	99	%	11	%	2%		10%		3%		-	7%
Estimated incidental captures (all species)	49	91	4()4	4()2	730		517		2,544	508

Marine mammals

There have been no reported incidental captures of New Zealand sea lions, New Zealand fur seals, whales or dolphins in the ling longline fisheries.

Benthic interactions

Bottom longline fishing has minimal interactions with the benthic habitat.

The New Zealand EEZ contains 17 Benthic Protection Areas (BPAs) representatively distributed around the EEZ that close 30% of the EEZ to bottom fishing and include about 52% of all seamounts over 1,500 m elevation and 88% of identified hydrothermal vents (Helson *et al.*, 2010).

Tingley (2017) summarises New Zealand's strategy for managing benthic effects from fishing.



Key P2 references

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- DOC (2017a). Conservation Services Programme Annual Plan 2017/18. DOC: Wellington
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- DWG (2013). Interim Code of Practice for the Mitigation of Incidental Seabird Capture in New Zealand Bottom Longline Fisheries. 12 p.
- DWG (2016). Operational Procedures 2016-17.
- DWG (2016). A strategy for managing the risk to ETP seabirds by small (< 34 m) ling longline vessels. 8 p.
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- DWG (2016b). Environmental Liaison Officer's report seabird risk reduction programme, ling bottom longline vessels, 2015/16. 3 p.

DWG (2016c). 10 Commandments for ling longliners. 1 p.



4. Overview of management

information

DWG (2016d). Ling FMA2-7 Bottom Longline Operational Procedures 2016-17. 19 p.

- Fu, D. & Sagar, P. (2016). The 2014 demographic assessment of the Snares Islands population of Southern Buller's albatross (Diomedea bulleri bulleri). New Zealand Aquatic Environment and Biodiversity Report No. 165. 40 p.
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Legal & customary framework

New Zealand's fisheries management is centred on the Quota Management System (QMS), a system introduced in 1986 based on Individual Transferrable Quota (quota), Total Allowable Catch (TAC) limits and Total Allowable Commercial Catch (TACC) limits.

Quota provides a property right to access commercial fisheries and has been allocated to Maori as part of the Treaty of Waitangi Settlements that acknowledge the Treaty guaranteed Maori *"full exclusive and undisturbed possession of their…fisheries."*

Quota is a tradable property right that entitles the owner to a share of the TACC. At the commencement of each fishing year, quota gives rise to Annual Catch Entitlements



(ACE) which are tradable, expressed in weight, and entitle the holder to land catch against them. The QMS enables sustainable utilisation of fisheries resources through the direct control of harvest levels based on the best available science. The QMS is administered by MPI through the Fisheries Act 1996.

New Zealand has implemented one of the most extensive quota-based fisheries management systems in the world, with over a 100 species or species-complexes of fish, shellfish and seaweed now being managed within this framework. Almost all commercially targeted fish species within New Zealand's waters are now managed within the QMS.

At an operational level, the ling fisheries are managed in accordance with the National Fisheries Plan for Deepwater and Middle-depth Fisheries (Ministry of Fisheries, 2010, and MPI, 2016a). There is a species-specific chapter for ling within this plan (MPI, 2011).

The National Deepwater Plan was developed to align with Fisheries 2030 (Ministry of Fisheries, 2009) and collectively consists of three parts:

- Five-year plan divided into two sections, Part1A (of which an updated draft is currently being publicly consulted on¹⁵) and Part1B. Part 1A sets the strategic direction for deep water fisheries. Part 1B comprises fishery specific-chapters and how the Management Objectives will be applied at a species level
- Annual Operational Plan (AOP) this details the management actions for delivery during the financial year
- Annual Review Report which reports progress towards meeting the five-year plan and annual performance of the deep water fisheries against the AOP.

Collaboration

In 2006, DWG and MPI entered into a formal partnership to enable collaboration in the management of New Zealand's deepwater fisheries. This partnership was updated in 2008 and 2010 and has directly facilitated improved management of the ling fisheries through:

- A close working relationship under a shared and agreed vision, objectives and collaborative work plans
- Real-time, open communication between DWG and MPI on information relevant to management measures, particularly from the MPI Observer Programme and commercial catching operations.

MPI and DOC actively consult with interested parties to inform management decisions through their open scientific working groups and public consultation processes.

Compliance & enforcement

MPI maintains a comprehensive compliance programme, which includes both encouraging compliance through support and creating effective deterrents. This strategy is underpinned by the VADE model, which focuses on all elements of the compliance spectrum as follows:

¹⁵ Refer https://www.mpi.govt.nz/news-and-resources/consultations/national-fisheries-plans-for-highly-migratory-species-and-deepwater-fisheries/



- 1. Voluntary compliance outcomes are achieved through education, engagement and communicating expectations and obligations
- Assisted compliance reinforces obligations and provides confidence that these are being achieved through monitoring, inspection, responsive actions and feedback loops
- Directed compliance directs behavioral change and may include official sanctions and warnings
- 4. Enforced compliance uses the full extent of the law and recognises that some individuals may deliberately choose to break the law and require formal investigation and prosecution.

Since 1994, all vessels over 28 m have been required by law to be part of the Vessel Monitoring System (VMS) which, through satellite telemetry, enables MPI to monitor all deepwater vessel locations at all times. In combination with at-sea and aerial surveillance, supported by the New Zealand joint military forces, the activities of deepwater vessels are fully monitored and verified to ensure compliance with both regulations and with industry-agreed operating procedures.

All commercial catches from QMS stocks must be reported and balanced against ACE at the end of the month. It is illegal to discard or not to report catches of QMS species. Catches may only be landed at designated ports and sold to Licensed Fish Receivers (LFRs). Reporting requirements for deepwater trawl vessels include logging the location, depth, main species caught for each tow, and total landed catch for each trip.

MPI audits commercial vessel catch-effort and landing reports, reconciles these against multiple sources including VMS records, data collected by onboard MPI observers, and catch landing records from LFRs to ensure that all catches are reported correctly.

Commercial fishermen face prosecution and risk severe penalties, which include automatic forfeiture of vessel and quota upon conviction of breaches of the fisheries regulations (unless the court rules otherwise). Financial penalties are also imposed in the form of deemed values to discourage fishermen from over-catching their ACE holdings.

The extensive regulations governing these fisheries are complemented by additional industry-agreed non-regulatory measures, known as the New Zealand Deepwater Fisheries Operational Procedures. The Minister for Fisheries relies on the effectiveness of both regulatory and non-regulatory measures to ensure the sustainable management of these fisheries.

As part of DWG's Operational Procedures, DWG has an Environmental Liaison Officer whose role is to liaise with vessel operators, skippers and MPI to assist with the effective implementation of these Operational Procedures.

Fisheries plans

The National Fisheries Plan for Deepwater and Middle-depth fisheries is a statutory document approved by the Minister of Fisheries. This Plan provides an enabling framework outlining agreed management objectives, timelines, performance criteria and review processes. There is a fisheries-specific chapter for the ling fisheries within this Plan.

The actual management measures and delivery outcomes in the Plan are specified in



MPI's Annual Operational Plan (AOP), which is reviewed and updated annually. In addition, an Annual Review Report assesses performance against the AOP and is publicly available.

Research plans

Research needs for deep water fisheries are driven by the Objectives of the National Deepwater Plan and delivered through the research programme for deep water fisheries.

All research projects are reviewed by MPI's Science Working Groups and assessed against MPI's Research and Science Information Standard for New Zealand Fisheries.

Tables 8-10 of MPI (2016a) specify planned research for 2016-17.

MPI's medium-term research plan for deep water fisheries provides a five-year outlook on planned research to support sustainable management of deep water fisheries.

Key P3 references

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