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Marine Stewardship Council fisheries assessments

New Zealand Hake, Hoki, Ling and Southern Blue Whiting

Surveillance Report

Conformity Assessment Body (CAB)	LRQA
Assessment team	Jo Akroyd and Andre Punt
Fishery client	Deepwater Group Limited
Assessment type	Third Surveillance Audit
Date	August 2022

Assessment Data Sheet

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	Principle 1	André Punt
	Principle 2	Jo Akroyd
	Principle 3	Jo Akroyd

Contents

Table of Figures

Table of Tables

1 Executive summary

In 2018, after an MSC reassessment process was undertaken for the NZ Hoki, Hake, Ling and Southern Blue Whiting trawl fisheries and the NZ Ling longline fisheries, using the MSC Certification Requirements (CR) version (v) 1.3 (MSC 2013) default assessment tree, these fisheries were MSC certified with no conditions.

This report provides information for the third offsite audit that took place remotely during the week of 27 June 2022 involving the CAB auditors, the client, group, National Institute of Water and Atmospheric Research (NIWA) scientists, and the Fisheries New Zealand (FNZ) staff. No stakeholders wished to be involved nor wrote any submissions.

The client provided excellent situation reports for all fisheries and delivered relevant papers and documents via links. These were discussed at the off-site Zoom meeting.

As there were no conditions on the fisheries there was no reporting for this. However, information and reports were provided for one non–binding recommendation for the ling longline fishery, leading to it being closed. Two new non-binding recommendations were raised.

No Conditions were placed on these fisheries at this Year 3 audit. Two new recommendations were made. Recommendation 1(P2.1 and P2.2) An updated analysis of retained and bycatch species should be conducted and the results linked to information on trends and status relative to reference points. Recommendation 2 (P3.2.4) an updated external review of the management system is provided.

There were no material changes to the circumstances and practices affecting the original complying assessment of the fishery.

These fisheries continue to meet the MSC Standard and they remain certified.

2 Report details

2.1 Surveillance information

Table 1: Surveillance information

1	Fishery name
	New Zealand Hake, Hoki, Ling and Southern Blue Whiting
2	Unit(s) of Assessment (UoA)

New Zealand Hoki, Hake and Ling Trawl Fishery

Fishing Method	Species	Management Areas	Stock	UoC
Trawl	Hoki (*Macruronus novaezelandiae*)	HOK 1	Eastern	1
		HOK 1	Western	2
	Hake (*Merluccius australis*)	HAK 1	Sub-Antarctic	3
		HAK 4	Chatham Rise	4
	Ling (*Genypterus blacodes*)	LIN 3	Chatham Rise (LIN 3 & 4)	6
		LIN 4	Chatham Rise (LIN 3 & 4)	7
		LIN 5	Sub-Antarctic (LIN 5 & 6)	8
		LIN 6	Sub-Antarctic (LIN 5 & 6)	9
		LIN 7	West Coast South Island (LIN 7WC)	10

New Zealand Southern Blue Whiting Trawl Fishery

Fishing Method	Species	Management Areas	Stock	UoC
Trawl	Southern blue whiting (*Micromesistius australis*)	SBW 6B	Bounty Platform	1
		SBW 6I	Campbell Rise	2

New Zealand Ling Longline Fishery

Fishing Method	**Species**	**Management Areas**	**Stock**	**UoC**
Longline		LIN 3	Chatham Rise (LIN 3 & 4)	**1**

	Ling (*Genypterus blacodes*)	LIN 4	Chatham Rise (LIN 3 & 4)	**2**
		LIN 5	Sub-Antarctic (LIN 5 & 6)	**3**
		LIN 6	Sub-Antarctic (LIN 5 & 6)	**4**
		LIN 7	West Coast South Island (LIN 7WC)	**5**

3	Date certified	Date of expiry
	12th September 2018	26th February 2024
4	Surveillance level and type	
	Level 1 off-site surveillance audit.	
5	Surveillance number	
	3rd Surveillance	X
6	Surveillance team leader	
	Jo Akroyd Team Lead P2 & P3 Expert Jo has over 30 years' experience in marine fisheries policy, research, management and governance. She has extensive international and Pacific experience and has worked at senior levels in both the public and private sectors in these roles. Jo was with the Ministry of Agriculture and Fisheries in New Zealand for 20 years. Starting as a fisheries scientist, she was promoted to senior chief fisheries scientist, then Assistant Director, Marine Research. She was awarded a Commemoration Medal in 1990 in recognition of her pioneering work in establishing New Zealand's fisheries quota management system. As well as carrying out general fisheries consultancy since1994 she has undertaken all facets of MSC work as a lead assessor, expert team member and peer reviewer across a wide range of fisheries. Jo has completed the MSC v1.3, v2.0, v2.1 and v2.2 training modules including for enhanced fisheries, Risk based framework and traceability. She is a member of the MSC's Peer Review College, MSC projects include Team Leader and Fisheries Management expert for New Zealand fisheries, (hoki, hake, ling, southern blue whiting, albacore and skipjack), Fiji (albacore, yellowfin and bigeye tuna), Japan (scallops, skipjack and yellowfin), China (scallops, flounder and snowcrab), Maldives (skipjack), Ross Sea (toothfish), West Papua (skipjack and yellowfin). She has conducted multi species pre-assessments in Japan, China, Viet Nam and New Zealand and provided independent Peer review reports for tuna, scallops and prawn fisheries in various countries. Jo has passed MSC training and has no Conflict of Interest in relation to this fishery. Full CV available upon request.	
Team Leader Experience	Jo has completed a number of MSC assessment as TL and meets all Fishery TL Qualification and Competency Criteria under MSC FCP v2.2 Table PC1 and MSC GCR v2.4.1 Table 1.	
7	Surveillance team members	

	André Punt P1 and P2 Expert Dr. André Punt is a Professor in the School of Aquatic and Fishery Sciences at the University of Washington. He holds a PhD in Applied Mathematics from the University of Cape Town (South Africa). He has been involved in stock assessment and fisheries management for over 30 years and has been recognized for his contributions in this area with awards from CSIRO, the University of Washington, the Australian Society for Fish Biology, and the American Fisheries Society. His research relates broadly to the development and application of fisheries stock assessment techniques, bioeconomic modelling, and the evaluation of the performance of stock assessment methods and harvest control rules using the Management Strategy Evaluation approach. Dr. Punt has conducted stock assessments for a wide range of species, ranging from anchovies and sardines, to groundfish, tunas, and cetaceans. He has published over 400 papers in the peer-reviewed literature, along with over 400 technical reports. He was a member of a National Research Council panel on evaluating the effectiveness of fish stock rebuilding in the United States. Dr Punt is currently a member of the Scientific and Statistical Committee of the Pacific Fishery Management Council, the advisory committee for Center for the Advancement of Population Assessment Methodology, the Crab Plan Team of the North Pacific Fishery Management Council, and the Scientific Committee of the International Whaling Commission. He has been involved in MSC assessments, pre-assessments and surveillance audits for orange roughy, hoki, hake, and southern blue whiting in New Zealand. Dr. Punt has passed MSC training and has no Conflict of Interest in relation to this fishery. Full CV available upon request.
Local Context	English is widely spoken in New Zealand Both Jo and André have had assignments in the region in the last 10 years.
Traceability	Jo has completed the MSC traceability module in the last 2 years.
RBF	Jo has completed the RBF training.
8	Audit/review time and location
	Surveillance Audit 3 took place remotely during the week commencing 27 June 2022.
9	Assessment and review activities
	All relevant data

3 Background

The client Group, Deepwater Group Limited (DWG) http://deepwatergroup.org, was established in September 2005. This non-profit organisation is an amalgamation of New Zealand Exclusive Economic Zone (EEZ) deepwater fisheries quota owners. Species targeted by DWG are usually fished at depths between 400 and 1,200 m within the New Zealand EEZ. These include hoki, hake, ling, southern blue whiting, orange roughy, oreo dory, squid and jack mackerel. The client group catches about 95% of the recorded hoki, hake, ling and southern blue whiting landings.

The NZ hoki, hake, ling and southern blue whiting trawl fisheries, along with the ling longline fishery were reassessed and recertified in 2018. These fisheries were previously assessed against the MSC standard and certified separately at different times. The re-assessment was conducted using the MSC Certification Requirements (CR) version (v) 1.3 (MSC 2013) default assessment tree with no changes made to the text of any default Performance Indicator (PI). The assessment followed CR v 2.0 process (MSC 2014). At reassessment, no Performance Indicators scored < 80 and so no conditions of certification were applied to the fishery. Two recommendations were made at the reassessment relating to the ling longline fishery and relate to Principle 2:

1. It is recommended that a survey is conducted annually to determine the quantities and sources of bait species used in the fishery. Data should be retained and reported routinely at annual surveillance audits of the fishery.
2. It is recommended that a review of the data available from the increased observer coverage of the 2016/17 season is conducted at the earliest possible opportunity, to update the understanding of the fishery with respect to ETP species interactions.

In 2019 the first annual surveillance was conducted. At this surveillance audit appraisal, it became apparent that re-scoring was necessary for HAK7 (UoC 5). As such, this became an offsite surveillance audit (FCP V2.1 7.28.17.1 'If the CAB has access to new information that may affect the scoring of any PI under a review of information audit, it shall undertake an off-site audit according to 7.28.15.'). HAK 7 was rescored and it did not meet SG60 at PI 1.1.1a and consequently it was recommended that this UOC (5) be suspended. In this case the client elected for self-suspension prior to LR issuing the suspension notice.

The second offsite audit took place during 2021. There were no conditions on the fisheries. However, information and reports were provided for the two non–binding recommendations for the ling longline fishery. As a result of this one of the recommendations (2 above) was closed. No Conditions were placed on these fisheries at the Year 2 audit.

The third offsite audit took place during the week of 27 June 2022 involving the CAB auditors, the client, group, National Institute of Water and Atmospheric Research (NIWA) scientists, and Fisheries New Zealand (FNZ) staff. No stakeholders wished to be involved nor wrote any submissions. The client provided excellent situation reports for all fisheries and delivered relevant papers and documents via dropbox. These were discussed at the off-site Zoom Meeting. Information was also provided related to recommendation 1 above. The client provided a report giving a breakdown of bait use by ling longline vessels representing approximately 95% of the effort during the 2020-21 fishing year and an evaluation of the status of bait 'bycatch' species in relation to the overall catch composition. This recommendation can now be closed.

3.1 Changes in the management system and/or relevant regulations

None of significance

3.2 Changes to personnel in science management of industry

There have been a few changes in personnel, but these changes are not anticipated to make any fundamental differences to the way in which the client operates or engages with the MSC certification of the fishery.

3.3 Developments or changes that impact on Traceability

No changes and no issues encountered.

3.4 Total Allowable Catch (TAC) and catch data

Table 2: Total Allowable Catch (TAC) and catch data

UoC 1 & UoC 2 – HOK 1 East & HOK 1 West

TACC 2021-22	100,000 t (agreed catch limit split: East 55,000 t; West 45,000 t)[1]
TACC 2020-21	95,000 t (agreed catch limit split East 50,000 t; West 45,000 t)[2]
TACC 2019-20	115,000 t (agreed catch limit split East 60,000 t; West 55,000 t)
TACC 2018-19	150,000 t (agreed catch limit split East 60,000 t; West 90,000 t)[3]
UoA share of TACC	100%
UoC share of TACC	93%
HOK 1 catch 2020-21	101,319 t (HOK 1 East 54,981 t, HOK 1 West 46,338 t)
HOK 1 catch 2019-20	107,709 t (HOK 1 East 55,070 t, HOK 1 West 53,030 t)
HOK 1 catch 2018-19	122,460 t (HOK 1 East 63,524 t, HOK 1 West 56,953 t)

UoC 3 – HAK 1

TACC 2021-22	3,701 t
TACC 2020-21	3,701 t
TACC 2019-20	3,701 t
TACC 2018-19	3,701 t
UoA share of TACC	100%
UoC share of TACC	94%
HAK 1 catch 2020-21	1,503 t
HAK 1 catch 2019-20	1,062 t
HAK 1 catch 2018-19	896 t

UoC 4 – HAK 4

TACC 2021-22	1,800 t
TACC 2020-21	1,800 t
TACC 2019-20	1,800 t

[1] During the 2021-22 fishing year quota owners have agreed to an overall catch of 100,000 t with catch limits of 55,000 t for East and 45,000 t for West – delivered through shelving of ACE.
[2] During the 2020-21 fishing year quota owners agreed to an overall catch of 95,000 t with catch limits of 50,000 t for East and 45,000 t for West – delivered through shelving of ACE.
[3] During the 2018-19 fishing year, quota owners agreed to an overall catch of 130,000 t with catch limits of 60,000 t for East and 70,000 t for West – delivered through shelving of 30,144 t of ACE (i.e. including under-catch from 2017-18).

TACC 2018-19	1,800 t
UoA share of TACC	100%
UoC share of TACC	94%
HAK 4 catch 2020-21	207 t
HAK 4 catch 2019-20	137 t
HAK 4 catch 2018-19	183 t

UoC 6 – LIN 3 Trawl and Longline

TACC 2021-22	2,060 t
TACC 2020-21	2,060 t
TACC 2019-20	2,060 t
TACC 2018-19	2,060 t
LIN 3 catch 2020-21	1,489 t (Total reported catch) 489 t (Estimated catch trawl) 406 t (Estimated catch bottom longline) 594 t (Estimated catch other methods)
LIN 3 catch 2019-20	1,684 t (Total reported catch) 912 t (Estimated catch trawl) 554 t (Estimated catch bottom longline) 218 t (Estimated catch other methods)
LIN 3 catch 2018-29	2,016 t (Total reported catch) 1,255 t (Estimated catch trawl) 634 t (Estimated catch bottom longline) 127 t (Estimated catch other methods)
UoA share of TACC and total LIN catch	100% of TACC and 44% of total LIN catch (based on average estimated trawl catch over the last two years)
UoC share of TACC and total LIN catch	93% of TACC and 40% of total LIN catch (based on average estimated trawl catch over the last two years)

UoC 7 – LIN 4

TACC 2021-22	4,200 t
TACC 2020-21	4,200 t
TACC 2019-20	4,200 t
TACC 2018-19	4,200 t

UoA share of TACC and total LIN catch	100% of TACC and 32% of total LIN catch (based on average estimated trawl catch over the last two years)
UoC share of TACC and total LIN catch	94% of TACC and 30% of total LIN catch (based on average estimated trawl catch over the last two years)
LIN 4 catch 2020-21	2,103 t (Total reported catch)
	656 t (Estimated catch for all target trawl)
	1,447 t (Estimated catch for bottom longline)
	0 t (Estimated catch other methods).
LIN 4 catch 2019-20	1,778 t (Total reported catch)
	571 t (Estimated catch for all target trawl)
	1,048 t (Estimated catch for bottom longline)
	159 t (Estimated catch other methods).
LIN 4 catch 2018-19	2,044 t (Total reported catch)
	677 t (Estimated catch for all target trawl)
	1,106 t (Estimated catch for bottom longline)
	271 t (Estimated catch other methods).

UoC 8 – LIN 5 Trawl and Longline

TACC 2021-22	5,208 t
TACC 2020-21	4,735 t
TACC 2019-20	4,735 t
TACC 2018-19	4,735 t
UoA share of TACC and total LIN catch	100% of TACC and 90% of total LIN catch (based on average estimated trawl catch over the last two years)
UoC share of TACC and total LIN catch	95% of TACC and 85% of total LIN catch (based on average estimated trawl catch over the last two years)
LIN 5 catch 2020-21	4,950 t (Total reported catch)
	4,380 t (Estimated catch for all target trawl)
	597 t (Estimated catch for bottom longline)
	3 t (Estimated catch for other methods)
LIN 5 catch 2019-20	4,662 t (Total reported catch)
	4,264 t (Estimated catch for all target trawl)
	387 t (Estimated catch for bottom longline)
	11 t (Estimated catch for other methods)
LIN 5 catch 2018-19	4,596 t (Total reported catch)
	4,228 t (Estimated catch trawl)
	336 t (Estimated catch bottom longline)
	32 t (Estimated catch other methods)

UoC 9 – LIN 6 Trawl and Longline

TACC 2021-22	8,505 t
TACC 2020-21	8,505 t
TACC 2019-20	8,505 t
TACC 2018-19	8,505 t
UoA share of TACC and total LIN catch	100% of TACC and 61% of total LIN catch (based on average estimated trawl catch over the last two years)
UoC share of TACC and total LIN catch	61% of TACC and 57% of total LIN catch (based on average estimated trawl catch over the last two years)
LIN 6 catch 2021-22	3,916 t (Total reported catch) 2,567 t (Estimated catch trawl) 1,349 t (Estimated catch bottom longline) 0 t (Estimated catch other methods
LIN 6 catch 2020-21	3,967 t (Total reported catch) 2,234 t (Estimated catch trawl) 1,733 t (Estimated catch bottom longline) 0 t (Estimated catch other methods
LIN 6 catch 2019-20	3,706 t (Total reported catch) 2,372 t (Estimated catch trawl) 1,334 t (Estimated catch bottom longline) 0 t (Estimated catch other methods)

UoC 10 – LIN 7 Trawl and Longline

TACC 2021-22	3,387 t
TACC 2020-21	3,387 t
TACC 2019-20	3,287 t
TACC 2018-19	3,080 t
UoA share of TACC and total LIN catch	100% of TACC and 50% of total LIN catch (based on average estimated trawl catch over the last two years)
UoC share of TACC and total LIN catch	73% of TACC and 46% of total LIN catch (based on average estimated trawl catch over the last two years)
LIN 7 catch 2021-22	3,308 t (Total reported catch) 1,414 t (Estimated catch trawl) 1,780 t (Estimated catch bottom longline) 114 t (Estimated catch other methods)

LIN 7 catch 2020-21	3,215 t (Total reported catch) 1,877 t (Estimated catch trawl) 1,313 t (Estimated catch bottom longline) 25 t (Estimated catch other methods)
LIN 7 catch 2019-20	3,059 t (Total reported catch) 2,015 t (Estimated catch trawl) 1,044 t (Estimated catch bottom longline) 0 t (Estimated catch other methods)

UoC 11 – SBW 6B Trawl

TACC 2021-22	2,264 t
TACC 2020-21	2,830 t
TACC 2019-20	3,145 t
TACC 2018-19	3,145 t
UoA share of TACC	100%
UoC share of TACC	87%
SBW 6B catch 2020-21	1,100 t
SBW 6B catch 2019-20	788 t
SBW 6B catch 2018-19	1,101 t

UoC 12– SBW 6I Trawl

TACC 2021-22	39,200 t
TACC 2020-21	39,200 t
TACC 2019-20	39,200 t
TACC 2018-19	39,200 t
UoA share of TACC	100%
UoC share of TACC	87%
SBW 6I catch 2020-21	11,982 t
SBW 6I catch 2019-20	26,517 t
SBW 6I catch 2018-19	15,147 t

4 Principle 1 : Changes to scientific base of information including stock assessment

4.1 Management strategies, reference points, and management changes

4.1.1. HOK2

The TACC for the 2020-21 fishing year was 115,000t. The assessment projected that over the next five years the biomass of the eastern stock will remain in the top third of the management target range under the current catch limits but the western stock was projected to drop below the lower limit of management target range in 2022 and remain there under current catches. The Minister for Oceans and Fisheries was provided with five options for the TACC for the 2021-22 fishing year: (a) option 1- the status quo (115,000t, with western and eastern stock limits of 55,000t and 60,000t), (b) option 2 (115,000t, with western and eastern stock limits of 50,000t and 65,000t), option 3 (110,000t, with western and eastern stock limits of 50,000t and 60,000t), option 4 (110,000t, with western and eastern stock limits of 45,000t and 65,000t), and option 5 (105,000t, with western and eastern stock limits of 45,000t and 60,000t). The options were consulted on and submissions were received from a broad range of stakeholders. Industry submissions supported option 1 and conservation organizations supported option 5. The Minister decided to reduce the TACC for HOK 1 to 110,000t (a reduction in TAC from 116,190t to 111,140t), with catch limits for HOK 1 West and HOK 1 East of 45,000t and 65,000t, respectively (FNZ, 2021a; Minister of Fisheries, 2021). The industry agreed to a catch limit of 100,000t by shelving 10,000t. Unlike the 2020-21 fishing year, there is no carry over of HOK 1 ACE from 2020-21 to 2021-22 owing to there having been a reduction in TACC.

4.1.2 LIN 5

The TACC for the 2020-21 fishing year was 4,735 t (TAC 4,834t). Given the stock status ("virtually certain" to be above the management target) and the low estimated fishing pressure, Fisheries New Zealand proposed that the Minister for Oceans and Fisheries review the TACC for the 2021-22 fishing year. The Minister for Oceans and Fisheries was provided with three options for the TACC for the 2021-22 fishing year: (a) option 1- the status quo (4,735t), (b) option 2 an increase in TACC of 473t, and (c) option 3 an increase in TACC of 947t. Stakeholders expressed support for option 1 (3), option 2 (10) and option 3 (3), with four other submissions reflecting opposition to any increases in TACC (FNZ, 2021a). The Minister for Oceans and Fisheries decided to increase the TACC for LIN 5 to 5,208t (TAC 5,314t).

4.1.3 SBW 6B

The TACC for the SBW 6B is intended to be based on a harvest control rule (Doonan, 2018). However, no acoustic surveys have been conducted of the Bounty Platform since 2017. Therefore, the harvest control rule was again not applied in 2021, and management advice again focused on evidence for recruitment. The TACC for SBW 6B was increased from 2,960t to 3,145t in 2017-18 based on the application of the HCR (Doonan, 2018), but catches have been well below the TACC since the 2017-18 fishing year. The Minister for Oceans and Fisheries reduced the TACC for SBW 6B from 3,145t to 2,830t for the 2020-21 fishing year. Fisheries New Zealand proposed reducing the TACC for SBW 6B further given evidence for poor recruitment. There was some evidence of a stronger 2017 year-class in 2019. However, this recruitment was not evident in the 2020 sampling. Further evidence for a stronger 2017 year-class was evident in the 2021 samples, but the size of the 2017 year-class remains uncertain. Two options were proposed in addition to the status-quo: (a) a 20% reduction in TACC, and (b) a 30% reduction in TACC, and made available for comment (FNZ, 2022a). Most comments (9) supported the status-quo, two comments supported the 30% reduction and two comments did not refer to the TACC for the 2021/22 fishing year. The Minister for Oceans and Fisheries decided to reduce the TACC for SBW 6B to 2,264t (Minister of Fisheries, 2022).

Work is currently under way to revise the HCR for SBW 6B to apply a discount factor for each year for which a survey was not completed.

4.2 Stock status and projections

Table 3 summaries stock status (biomass relative to B_0) and the probability of being below the limit and target reference points.

Table 3 **Summary of the stock status of the UoC based on the base model runs**

Stock	Most recent assessment	Depletion [Year]	P < Limit	P < Target
HOK 1 East*	2022	51 (38-65) [2022]	0.00	0.01+
HOK 1 West*	2022	28 (22-36) [2022]	0.01	0.94+
HAK 1	2021	62 (50-75) [2021]	< 1%	< 10%
HAK 4	2020	55 (46-66) [2020]	< 1%	< 10%
LIN 3 & 4*	2022	56 (47-66) [2022]	< 1%	< 1%
LIN 5 & 6	2021	71 (63-79) [2021]	0.00	0.00
LIN 7WC	2020	47 (35-60) [2020]	<1%	0.13
SBW 6B	Managed using an HCR			
SBW 6I	2020	58 (42-76) [2019]	< 1%	<10%

* Detailed stock assessment report not available.
+ Lower limit of the target range

4.2.1 Hoki

4.2.1.1 Catches

The TACC for the 2020-21 fishing year was set at 115,000t but the hoki quota owners agreed to voluntarily reduce the HOK 1 catch limit, by reducing the HOK 1 West catch limit from 55,000t to 45,000t and the HOK 1 East catch limit from 60,000t to 50,000t, for an effective TACC of 95,000t. The estimated catch was 100,819t (FNZ, 2022b), a reduction of 6,908t from the catch for the 2019-20 fishing year. The largest reductions in catch occurred in the West Coast South Island (WCSI) and Cook Strait spawning fisheries (20% and 26% respectively). Catches in the Sub-Antarctic and Chatham Rise/East Coast South Island (ECSI) non-spawning fisheries were larger during the 2020-21 fishing year than during the 2019-20 fishing year.

The amount of HOK1 ACE available on 1 October 2020 was 121,724 t (which includes 6,724 t ACE caried forward from under-catch during 2019-20). Industry set their own catch limits for 2020-21 at 95,000 t (50,000 t E and 45,000 t W) plus an allowance to carry forward uncaught ACE from 2019-20, and to review these limits in May 2021, after consideration of 2021 assessment results. This process was implemented in October 2020 by setting aside 19,505 t HOK 1 ACE, leaving 102,219 t HOK 1 ACE to be caught. In May 2021, quota owners met to consider the 2021 stock assessment results and the performance of the hoki fisheries to that time and agreed to make no further management changes, recognising the total 2020-21 HOK1 catch would be around 100,000 to 102,000 t (i.e., 95,000 t plus most of the ACE carried forward) and would be well below the TACC (and below the Ministerial requested catch limits for each of HOK 1 E and HOK 1 W).

4.2.1.2 Stock assessment

The 2022 assessment was again based on CASAL (Bull et al., 2012) and was similar to the 2021 assessment, being again based on 10 model fisheries (Table 4). The main changes from the 2021 assessment were that the selectivity caps for the spawning fisheries were dropped, the survey minimum age was extended from 3 to 4 years, selectivity shifts as previously applied to the Sub-Antarctic fishery were not applied, and the West Coast north fishery did not have a change in selectivity in 2000.

Table 4 The division of annual catches by area and months into the 10 model fisheries. (Source: FNZ, 2022b).

Fishery	Description	Areas/months
CR_deep	Chatham Rise deep (effort depth ≥475m), non-spawning	CR, CS (Oct-May), ECNI, ECSI (Oct-May)
CR_shallow	Chatham Rise shallow (effort depth <475m), non-spawning	CR, CS (Oct-May), ECNI, ECSI (Oct-May)
CS	Cook Strait spawning	CS (Jun-Sep), ECSI (Jun-Sep)
SA_auck	Sub-Antarctic Auckland Islands, non-spawning	Sub-Antarctic Auckland Islands
SA_snares	Sub-Antarctic Snares shelf, non-spawning	Sub-Antarctic Snares, Puysegur (Oct-May)

SA_suba	Sub-Antarctic excluding Auckland Islands and Snares shelf, non-spawning	Sub-Antarctic
PUY_spn	Puysegur spawning fishery	Puysegur (Jun-Sep)
WC_inside	West coast, spawning, inside 25nmile line	West coast
WC_north	West coast north spawning fishery	West coast north
WC_south	West coast south fishery	West coast south

The assessment was based three model configurations:

- **2022A: Base2021 with Sub-Antarctic selectivity shifts**: Two spawning stocks, which spawn in Cook Strait and off the west coast. Recruits from both stocks reside on the Chatham Rise as juveniles. Western-spawned fish migrate to the Sub-Antarctic. Mature west coast-stock fish migrate from the Sub-Antarctic to the west coast to spawn and mature Chatham Rise-stock fish migrate from the Chatham Rise to Cook Strait to spawn. After spawning, all mature fish return (west coast to the Sub-Antarctic and Cook Strait to the Chatham Rise). Natural mortality for males and females are set to $0.3yr^{-1}$ and $0.25yr^{-1}$ respectively, with stock-recruitment steepness set to 0.75.
- **2022B: Base2021 with M(male)=0.35**: As for 2022A but with male natural mortality increased from 0.3 to $0.35yr^{-1}$.

The 2021 assessment included a model with no spatial structure. A similar model was explored for the 2022 assessment (and MPD estimates are provided in FNZ (2022b)), but this model was not accepted given the need for additional work related to achieve convergence of the MCMC algorithm. The assessment scientists plan to review the selectivity ogive functional forms and bounds, and also check the rest of the model structure such as timing of events within the model, and then re-examine the MCMC performance. The assessment also reported sensitivity tests that varied assumptions regarding natural mortality, stock-recruitment steepness and maturation, with changes in natural mortality having the largest impact on the estimates of B_{2022} to B_0.

The new data included in the 2022 assessment include new catches (2020-21 fishing year), survey index and age-composition data for the January 2022 trawl survey of the Chatham Rise and a winter acoustic survey of Cook Strait in 2021, as well as 2021 fishery catch-at-age data (FNZ, 2022b). The model provides an adequate fit to the new index data.

Biomass and recruitment

The biomasses of both stocks were at their lowest points from about 2004 to 2006 (~0.25 B_0 for the eastern stock and ~0.2 B_0 for the western stock) for the base model (Figure 1), after the western stock experienced seven consecutive years of poor recruitment from 1995 to 2001 inclusive, and the eastern stock had below average recruitment over the same period (Figure 2). Both stocks then increased to above the target range of 0.35-0.5 B_0, then declined, with the eastern stock now within the target range and the western stock below the lower limit of the target range. Recruitment to the western stock following the 1995–2001 period of poor recruitment remained low for two more years then was estimated to have been above average for about five years before dropping again, with recruitment below average for 2011-2019. The recruitment patterns were similar for the eastern stock over these years, except for two strong year classes in 2011 and 2015 (Figure 2).

The 2022 depletion (biomass relative to B_0) of the eastern stock is estimated to be 0.51 (95% credibility intervals 0.38-0.65) or 0.55 (95% credibility interval 0.41-0.70) [models 2022A and 2022B respectively] while the 2022 depletion of western stock is estimated to be 0.28 (95% credibility interval 0.22-0.36; Model 2022A) or 0.31 (95% credibility interval 0.24-0.40; Model 2022B). The 2022 depletion of HOK1 in total is 0.40, or 0.43 (models 2022A and 2022B respectively) (Table 5). The probability of 2022 biomass being below the soft limit is estimated to be < 0.01 for the HOK 1 East and 0.01 for HOK 1 west, with the probability of being below the lower limit of management target range of 0.01 for HOK 1 East and 0.94 for HOK 1 West (FNZ, 2022b).

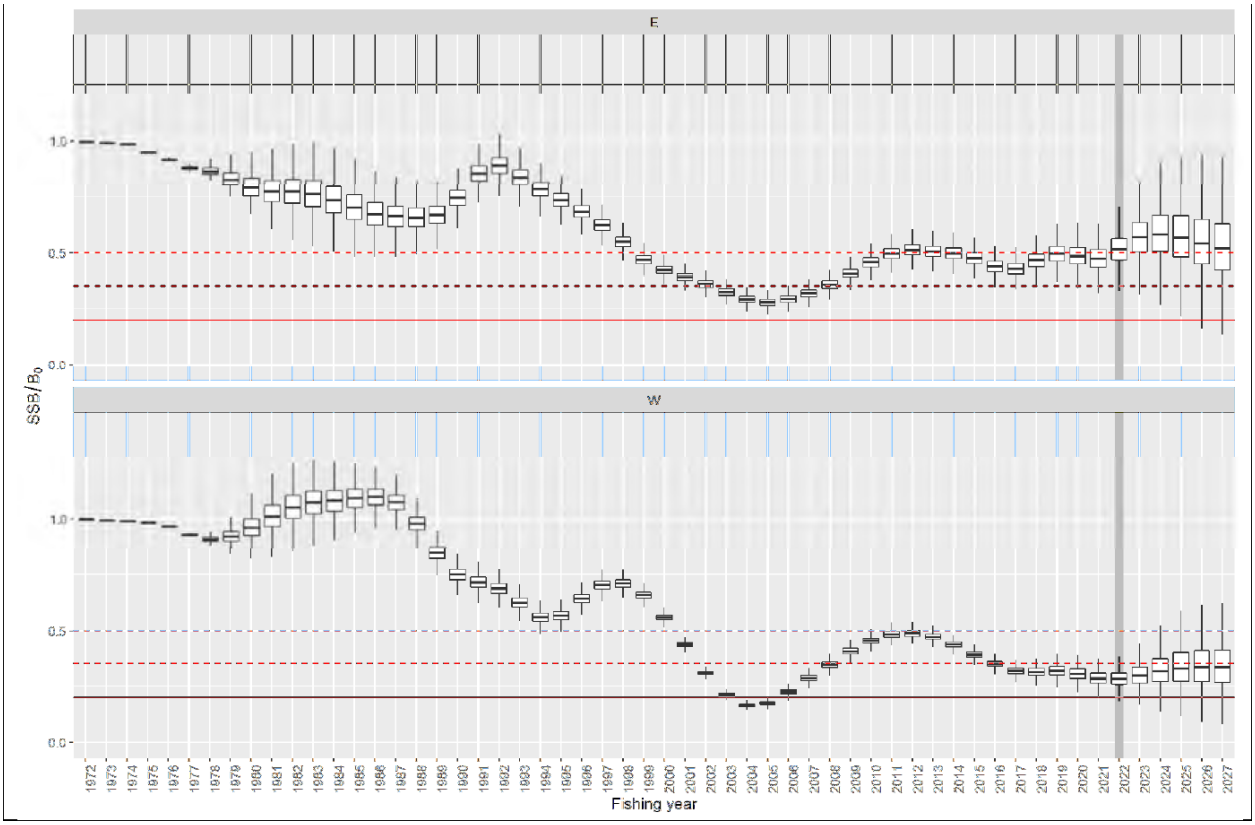

Figure 1 Projected spawning biomass (as % B_0) for HOK 1 from the base model (2022A) under recent recruitment (2009–2018), for the eastern stock (upper plot), and the western stock (lower plot). The horizontal dashed red lines represent the target management range of 0.35–0.50 B_0. The horizontal red lines show 0.2 B_0 (solid line). (Source: FNZ, 2022b).

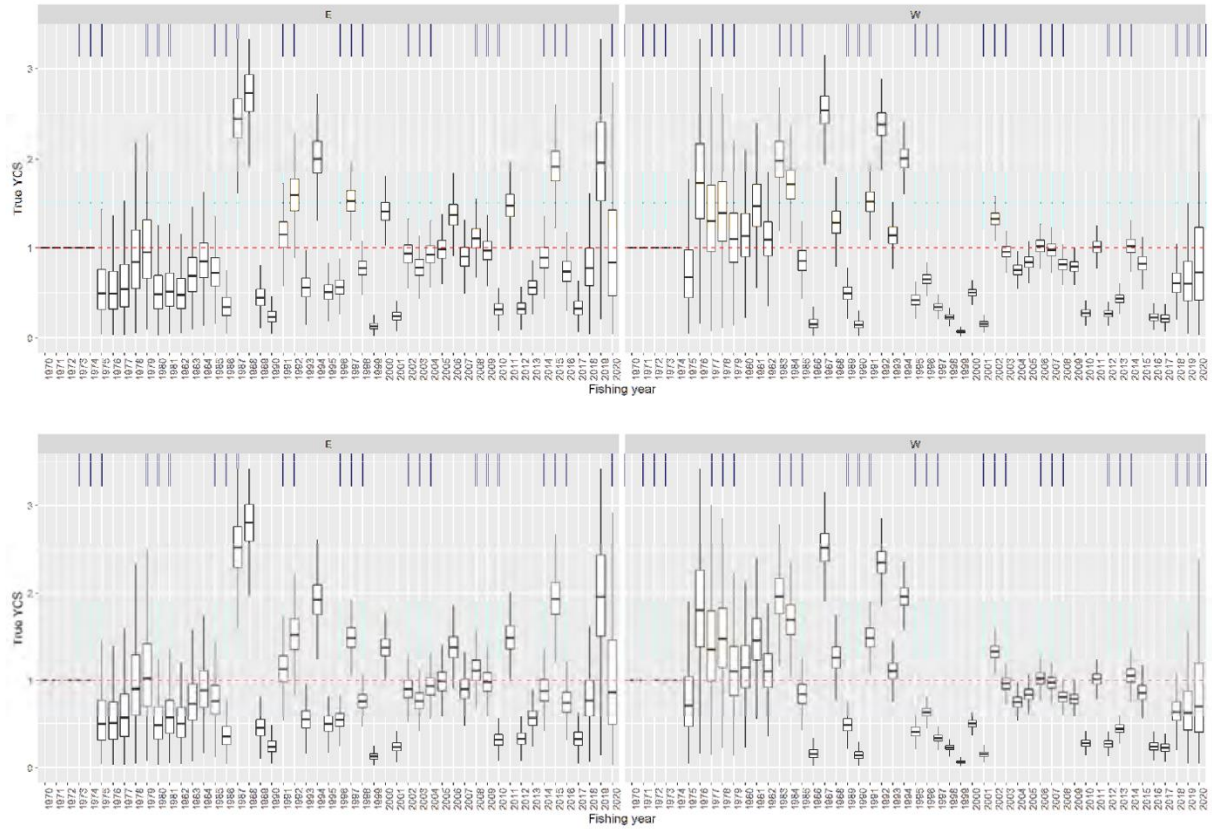

Figure 2 Year-class strengths (YCS) for the eastern (left) and western (right) stocks from models 2022A (top) and 2022B (bottom) from MCMC samples. Years are model years (1990 = 1989–90). (Source: FNZ, 2022b).

Table 5 Bayesian median estimates (95% credible intervals) (MCMC) of B_0, B_{2022}, and B_{2022} as a percentage of B_0 for two HOK 1 models. "E" denotes the east stock, "W" denotes the west stock, and "T" denotes the total. (Source: FNZ, 2022b).

Model	B_0 ('000t)			B_{2022} ('000t)			B_{2022}/B_0		
	E	W	T	E	W	T	E	W	T
2022A	682 (622-747)	1161 (1107-1227)	1843 (1729-1974)	351 (243-477)	327 (242-442)	678 (485-919)	51 (38-65)	28 (22-36)	40 (30-51)
2022B	689 (626-757)	1167 (1110-1239)	1856 (1736-1996)	381 (266,517)	362 (270-481)	743 (536-998)	55 (41-70)	31 (24-40)	43 (33-55)

Projections

Five-year projections were conducted for the two model runs by randomly selecting future recruitments based on two scenarios: (i) recruitments estimated for 2009–2018 (recent recruitment), and (ii) recruitments estimated for 1975–2020 (long-term recruitment). Total future annual catches were assumed to be constant and equal to that in 2021 of 110,000t (45,000 western stock; 65,000t eastern stock). The projections indicated that the eastern biomass would remain fairly constant over the next five years, and likely above the target range. The western biomass would increase under long-term recruitment, and remain constant under recent recruitment (FNZ, 2022b).

4.2.2 Hake

4.2.2.1 HAK 1

No assessment of the Sub-Antarctic area (HAK 1 south of Otago Peninsula) was undertaken during 2022, the last assessment having taken place in 2021. The next stock assessment for HAK1 is planned to take place in 2024 (FNZ, 2022c).

4.2.2.2 HAK 4

No assessment of the Chatham Rise area (HAK 4 plus HAK 1 north of Otago Peninsula) was undertaken during 2022, the last assessment having taken place in 2020. The next stock assessment for HAK4 is planned to take place in 2023 (FNZ, 2022c).

4.2.3 Ling

4.2.3.1 LIN3 & LIN 4 (Chatham Rise)

The assessment of ling on the Chatham Rise was updated during 2022 (FNZ, 2022d). The specifications of the 2022 assessment were generally the same as those for the previous (2019) assessment. As in 2019, three model runs were undertaken, a base model that used age-frequency and survey index data, a sensitivity model that used the age-frequency data and longline CPUE data, and a sensitivity model in which natural mortality was fixed to the values used in the model fitted to the longline CPUE data.

Compared to the 2019 assessment, the 2022 assessment includes two new indices of abundance from *Tangaroa* (2020 and 2022), new survey age-frequency data for 2020, and new fishery proportion-at-age data for 2020 (longline) and 2019 and 2020 (trawl).

The fits to the biomass indices were reasonable. The trawl survey biomass index was again found to be in conflict with the age data (FNZ, 2022d).

Biomass and recruitment

The trends in recruitment were very similar to those from the 2019 assessment, although the posterior median for recent recruitment was below the long-term average (Figure 3). The biomass is estimated to have varied over time but to have consistently been larger than $0.4B_0$ (Figure 4). The estimates of 2022 biomass relative to B_0 (Table 6) differ markedly between the base model and the model that fits to the longline CPUE data. The Working Group considered that the sensitivity run with the longline CPUE not to be reliable because the longline CPUE showed a marked drop in the early 1990s that is not reflected in the survey index (FNZ, 2022d).

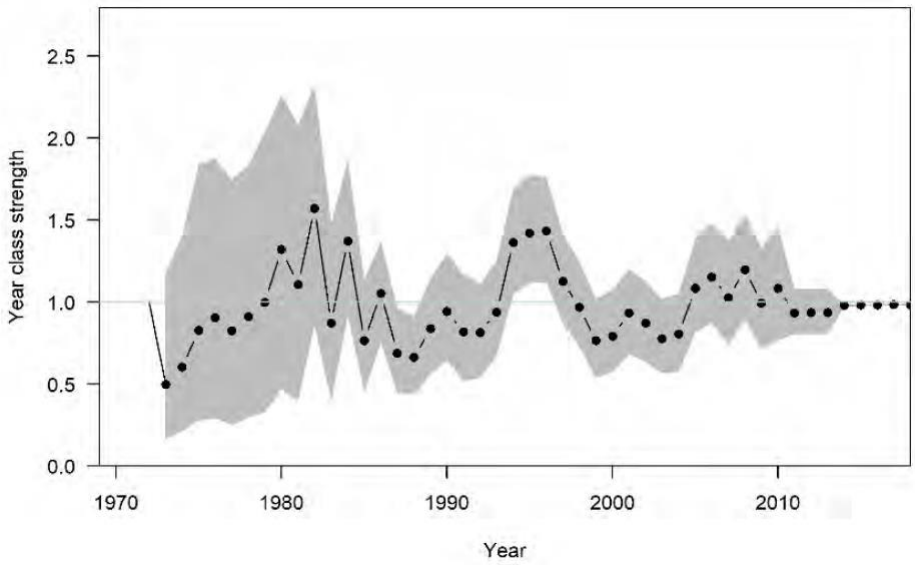

Figure 3 Estimated posterior distributions of year-class strength from the LIN 3&4 base model with median (line and individual points) and 95% credible intervals (grey band). The horizontal line indicates a year-class strength of one (Source: FNZ, 2022d).

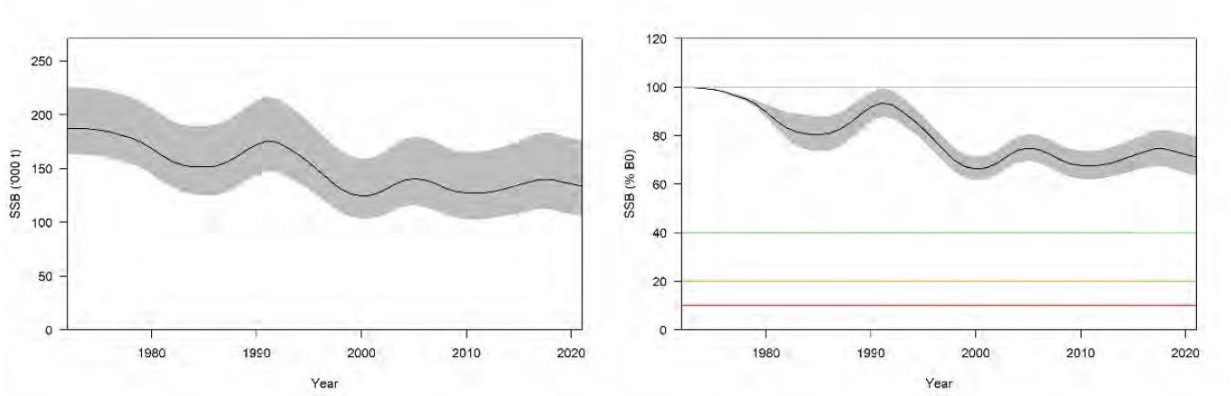

Figure 4 Estimated median trajectories (with 95% credible intervals shown as grey band) for absolute biomass and biomass as a percentage of B_0 for the LIN 3&4 base model. The red horizontal line at 0.1 B_0 represents the hard limit, the orange line at 0.2 B_0 is the soft limit, and the green line is the biomass target (0.4 B_0). (Source: FNZ, 2022d).

Table 6 Bayesian median (95% credible intervals) (MCMC) of B_0 and B_{2022} (t), and B_{2022} as a percentage of B_0 for LIN 3&4 for the two model runs (source: FNZ, 2022d).

Case	B_0	B_{2022}	B_{2022} (%B_0)	P(>40%B_0)	P(<20% B_0)
Base	110,040 (110,660-129,890)	62,380 (47,400-85,810)	56 (47-66)	1.000	0.000
With longline CPUE	92,190 (88,450-96,520)	30,860 (24,720-39,080)	34 (27-41)	0.052	0.000

Projections

Five-year projections (2023-2027) were undertaken assuming two scenarios for future catches: (1) the average of 2019-2021 (3,237t), and (2) the TACC (6,260t). Future recruitment deviates were sampled from either the full 1975-2013 range or from the 2003-2013 range (recent recruitment, given year-classes have been mostly low since 2000). The stock is likely to remain the same or increase, assuming future catches equal recent catch levels and year-class strengths are consistent with recent past (2003-2013) or all year-class strengths, or decrease if catches reach the TACC (FNZ, 2002d). The probability of being above 0.4B_0 in 2027 exceeds 0.85 for all scenarios considered.

4.2.3.2 LIN 5 & LIN 6
No assessment of the Sub-Antarctic area (less the Bounty Plateau) was undertaken during 2022, the last assessment having taken place in 2021. The next stock assessment for LIN 5 & LIN 6 is planned to take place in 2024 (FNZ, 2022d).

4.2.3.3 LIN 7W
No assessment of the west coast South Island area was undertaken during 2022, the last assessment having taken place in 2020. The next stock assessment for LIN 7W is planned to take place in 2023 (FNZ, 2022d).

4.2.1 Southern blue whiting

4.2.4.1 SBW 6B (Bounty Platform)
No assessment of the Bounty Platform area has been undertaken since the 2017 recertification.

4.2.4.2 SBW 6I (Campbell Island Rise)
No stock assessment for Campbell Island stock (SBW 6I) was conducted during 2021. The most recent assessment was conducted in 2020 (FNZ, 2020; Doonan, 2020). The base model estimate of B_0 was 329,000t), with a 2020 depletion (biomass relative to B_0) of 0.58 (95% credibility interval 0.40-0.72).

Principle 1:

Bull, B, Francis, R.I C.C, Dunn, A., McKenzie, A., Gilbert, D.J., Smith, M.H., Bian, R. & Fu, D (2012). CASAL (C++ algorithmic stock assessment laboratory): CASAL user manual v2.30-2012/03/21. *NIWA Technical Report 135*. 280 p.

Doonan, I.J. (2018). Objective 2: To apply the agreed harvest control rule to SBW6B, 2018. Final Research Report, unpublished manuscript held by FNZ. 2 p.

Doonan, I. (2020). Southern blue whiting (*Micromesistius australis*) stock assessment for the Campbell Island Rise for data up to 2018-19. New Zealand Fisheries Assessment Report 2020/43. 20 p. https://www.mpi.govt.nz/dmsdocument/43645-FAR-202043-Southern-blue-whiting-Micromesistius-australis-stock-assessment-for-the-Campbell-Island-Rise-for-data-up-to-201819

FNZ (2020). Fisheries Assessment Plenary May 2020. Stock Assessments and Stock Status Vol. 3: Pipi to Yellow-eyed Mullet. Southern blue whiting pp.1495-1522. https://www.mpi.govt.nz/dmsdocument/40787-Fisheries-Assessment-Plenary-May-2020-Stock-Assessments-and-Stock-Status-Volume-3-Red-Cod-to-Yellow-Eyed-Mullet

FNZ (2021a). Review of Sustainability Measures for the 2021-22 October Round. Fisheries New Zealand Decision Paper. 275 p. https://www.mpi.govt.nz/dmsdocument/47617-Review-of-Sustainability-Measures-for-the-2021-October-round-Decision-paper

FNZ (2022a). Review of Sustainability Measures for the 2022 April round. Fisheries New Zealand Decision Paper. Southern Blue Whiting (SBW 6B). pp. 12-23. Review of Sustainability Measures for the 2022 April round Fisheries New Zealand Decision Paper (mpi.govt.nz)

FNZ (2022b). Hoki (HOK). Fisheries Assessment Plenary May 2022: Stock Assessments and Stock Status, Vol. 1 Introductory Sections and Alfonsino to Hoki, pp.589-643. https://www.mpi.govt.nz/dmsdocument/51730-Fisheries-Assessment-Plenary-May-2022-Stock-Assessments-and-Stock-Status-Volume-1-Introductory-sections-and-Alfonsino-to-Hoki

FNZ (2022c). Hake (HAK). Fisheries Assessment Plenary May 2022: Stock Assessments and Stock Status, Vol. 1 Introductory Sections and Alfonsino to Hoki, pp 553-588. https://www.mpi.govt.nz/dmsdocument/51730-Fisheries-Assessment-Plenary-May-2022-Stock-Assessments-and-Stock-Status-Volume-1-Introductory-sections-and-Alfonsino-to-Hoki

FNZ (2022d). Ling (LIN). Fisheries Assessment Plenary May 2022: Stock Assessments and Stock Status, Vol. 2 Horse mussel to Red crab, pp.775-819. https://www.mpi.govt.nz/dmsdocument/51736-Fisheries-Assessment-Plenary-May-2022-Stock-Assessments-and-Stock-Status-Volume-2-Horse-Mussel-to-Red-Crab.

Minister of Fisheries (2021). Changes to sustainability measures for the 2021 October Round. 16 p. https://www.mpi.govt.nz/dmsdocument/47620-The-Decision-letter-Minister-for-Oceans-and-Fisheries

Minister of Fisheries (2022). Minister's Decision Letter. Changes to fisheries sustainability measures for 1 April 2022. Minister for Oceans and Fisheries decision letter – Review of sustainability measures for selected fish stocks – April 2022 round (mpi.govt.nz).

5 Principal 2 : Overview

5.1 Observer coverage

Observer coverage of deepwater fisheries is planned by financial year and is based on biological information requirements, international requirements, percentage-level coverage targets and observer programme capacity.

Table 7 Observer coverage in the hoki mixed-species trawl fisheries. Coverage is presented as the percentage of tows observed (G. Lydon, FNZ, pers. comm.).

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
HOK, HAK, LIN	28%	26%	37%	29%	44%	48%

Table 8 Fishing effort and observer coverage in SBW 6B and SBW 6I fisheries in 2018-19, 2019-20 and 2021-2022 (FNZ, pers. comm.).

Fishery	2018-19			2019-20			2021-22		
	Obs. tows	Total tows	% tows obs.	Obs. tows	Total tows	% tows obs.	Obs. tows	Total tows	% tows obs.
SBW 6B	152	152	100%	14	14	100%	13	22	59%
SBW 6I	596	596	100%	334	334	100%	297	389	76%

Table 9 Observer coverage in the ling longline fisheries (LIN 3, 4, 5, 6 & 7) as a percentage of hooks observed, 2015-16 to 2020-21.

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Observer Coverage	9%	15%	23%	11%	17%	0.24%

5.2 Retained and by catch species

There is no new information on the catch composition for the fisheries. The primary retained species for the trawl fisheries for hake, hoki and ling other than hake, hoki and ling are silver warehou and white warehou (FNZ, 2022a) but these species make up less than 5% of the catch of the combined fishery (Anderson et al., 2019). There are no primary retained bycatch species in the fisheries for southern blue whiting other than southern blue whiting (Finucci et al., 2019; FNZ, 2022b)

The primary bycatch species for the trawl fisheries for hake, hoki and ling are rattails, javelinfish and spiny dogfish (FNZ, 2022a). There is a broader set of primary retained and bycatch species in the longline fishery for ling other than ling (spiny dogfish, ribaldo, skates [smooth and rough], black cod, sea perch. Pale ghost shark, red cod, and shovelnose dogfish) (Anderson et al., 2020; FNZ, 2022c).

Recommendation

- An updated analysis of retained and bycatch species should be conducted and the results linked to information on trends and status relative to reference points.

5.3 ETP species

ETP species capture information, as reported by vessels and by MPI observers, is summarised in the Aquatic Environment and Biodiversity Annual Review report (FNZ, 2022d), and on the Protected Species Capture webpage,

(2021). The database provides open access to multi-year records of ETP species captures by fishery sector and fishing method, based on MPI observer data, and is updated annually through FNZ's Science Working Group process.

There have been no significant changes in capture mitigation since the previous audit

5.4 Seabirds

All trawl vessels >28m are required to notify DWG should they capture more than a given number of seabirds (or marine mammals) within a defined time period. These are known as trigger point notifications and are required to be reported to DWG within 24 hours. DWG's Environmental Liaison Officer (ELO) then contacts the vessel to determine the cause (e.g., mitigation measure failure, mechanical breakdown or weather conditions) and then determines what additional mitigation measures the vessel should take (if any).

There have been some changes to seabird mitigation management in the ling longline fishery implemented in 2021. The primary changes included:

- Setting streamer line requirements based on baiting method and vessel length to more accurately account for fishing effort.
- Introducing an outcome-focused approach to ensure that all vessels setting bottom longlines weight their line so that hooks sink to a depth of 5 metres within the aerial extent of the streamer line.
- Requirement for all BLL vessels active in FMA6 to use integrated weighted lines of 50g per metre.
- Allowing bottom longline vessels to discard all live fish and dead fish greater than 30cm on the same side of the vessel as the hauling station if a hauling mitigation device is deployed

Deepwater Group has responded to the regulatory changes by updating the Ling 2-7 Bottom Longline Operational Procedures (OP), the document that all DWG operators adhere to when targeting ling by bottom longline in these areas.

The OP reflects what was changed in the regulations and guides operators on how to meet them. The most significant regulator change was the area-specific line weighting, requiring vessels in FMA 6 to use IWL at all times when bottom longlining. IWL with a lead core of 50g per metre is considered best practice by Agreement on the Conservation of Albatrosses and Petrels (ACAP).

5.5 Benthic interactions

The trawl footprint of New Zealand's trawl fisheries is assessed annually to monitor their interactions with the benthic habitat. The trawl footprint has been determined for each year commencing in 1989-90 for all the main deep water target fisheries.

Bottom longline fishing has minimal interactions with the benthic habitat.

Principle 2:

Anderson, O.F., Edwards, C.T.T., & Ballara, S.L. (2019). Non-target fish and invertebrate catch and discards in New Zealand hoki, hake, ling, silver warehou, and white warehou trawl fisheries from 1990–91 to 2016–17 New Zealand Aquatic Environment and Biodiversity Report No. 220. 7117 p. https://fs.fish.govt.nz/Page.aspx?pk=113&dk=24700.

Finucci, B., Edwards, C.T.T., Anderson, O.F. & Ballara, S.L. (2019). Fish and invertebrate bycatch in New Zealand deepwater fisheries from 1990-91 until 2016-17. New Zealand Aquatic Environment and Biodiversity Report No. 210. 77 p. https://fs.fish.govt.nz/Doc/24680/AEBR-2019-210-Bycatch-in-deepwater-fisheries.pdf.ashx

FNZ (2022a). Hoki (HOK). Fisheries Assessment Plenary May 2022: Stock Assessments and Stock Status, Vol. 1 Introductory Sections and Alfonsino to Hoki, pp.589-643. https://www.mpi.govt.nz/dmsdocument/51730-Fisheries-Assessment-Plenary-May-2022-Stock-Assessments-and-Stock-Status-Volume-1-Introductory-sections-and-Alfonsino-to-Hoki

FNZ (2022b). Southern blue whiting (SBW). Fisheries Assessment Plenary May 2022. Stock Assessments and Stock Status Vol. 3: Red Gurnard to Yellow-eyed Mullet. pp.1621-1650. https://www.mpi.govt.nz/dmsdocument/51739-Fisheries-Assessment-Plenary-May-2022-Stock-Assessments-and-Stock-Status-Volume-3-Red-Gurnard-to-Yellow-eyed-Mullet

FNZ (2022c). Ling (LIN). Fisheries Assessment Plenary May 2022: Stock Assessments and Stock Status, Vol. 2 Horse mussel to Red crab, pp.775-819. https://www.mpi.govt.nz/dmsdocument/51736-Fisheries-Assessment-Plenary-May-2022-Stock-Assessments-and-Stock-Status-Volume-2-Horse-Mussel-to-Red-Crab

FNZ (2022d). Aquatic Environment and Biodiversity Annual Review 2021. Compiled by the Aquatic Environment Team, Fisheries Science and Information, Fisheries New Zealand, Wellington New Zealand. 779 p. https://www.mpi.govt.nz/dmsdocument/51472-Aquatic-Environment-and-Biodiversity-Annual-Review-AEBAR-2021-A-summary-of-environmental-interactions-between-the-seafood-sector-and-the-aquatic-environment

6 Principle 3

6.1 Overview of Management Information

There have been no major changes in the governance or management of NZ Deepwater fisheries since the previous surveillance audit

New Zealand's fisheries management is centred on the Quota Management System (QMS), a system introduced in 1986 based on Individual Transferrable Quotas (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 Māori as part of the Treaty of Waitangi Settlements that acknowledge the Treaty guaranteed Māori *"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.

At an operational level the fisheries covered in this surveillance report are managed in accordance with the National Fisheries Plan for Deepwater Fisheries (FNZ, 2019). There are species-specific chapters for hake, hoki, ling and southern blue whiting.

The National Deepwater Plan consists of three parts:

- Fisheries management framework and objectives:
  - Part 1A - strategic direction for deep water fisheries
  - Part 1B - fishery-specific chapters and management objectives at the fishery level
- Annual Operational Plan (AOP) – detailing the management actions for delivery during the financial year
- Annual Review Report – reporting on progress towards meeting the five-year plan and on the annual performance of the deep water fisheries against the AOP.

In 2018, MPI completed an external review of the Deepwater Fisheries Management conducted by Independent Quality Assurance New Zealand (IQANZ 2018). The review covered the relevant parts of fishery management described in CR v1.3 GCB4.11 and CR v2.0 GSA4.10. It is generally considered that five years is the maximum period for complying with the "occasional" requirement under SG80 for 3 .2.4b.

Recommendation

- An updated external review should be carried out prior to recertification.

6.2 Compliance and enforcement

FNZ maintains a comprehensive compliance programme, which includes both encouraging compliance through support and creating effective deterrents.

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 FNZ to monitor all hake/hoki/ling/southern blue whiting vessel locations at all times. Paper-based catch reporting was also required by all fishing vessels operating in NZ's EEZ. These systems have now been replaced by near-real-time Geospatial Position Reporting and daily Electronic Catch Reporting. FNZ still combines this functionality with at-sea and aerial surveillance, supported by the New Zealand Defence Force. This independently provides surveillance of activities of deep-water vessels through inspection and visual capability to ensure these vessels are fully monitored and verified to ensure compliance with both regulations and with industry-agreed Operational Procedures.

MPI Fishery Officers carried out a total of 122 in-port and at-sea inspections for the period 1 January 2019 to 31 December 2021. Some minor noncompliance (no Major) was detected and all were followed up by Fisheries Officers. If there are any serious offences this could result in forfeiture of vessel and quota as well as financial penalties.

Principle 3:

FNZ (2019). National Fisheries Plan for Deepwater and Middle-depth Fisheries 2019. Fisheries New Zealand Technical Paper No: 2019/03. 34 p. https://www.mpi.govt.nz/dmsdocument/3967-National-Fisheries-Plan-for-Deepwater-and-Middle-depth-Fisheries-2019

7 Version details

The report shall include a statement on the versions of the fisheries program documents used for this assessment.

Table 10. Fisheries program documents versions

Document	Version number
MSC Fisheries Certification Process	**Version 2.2**
MSC Fisheries Standard	**Version 1.3***
MSC General Certification Requirements	**Version 2.4.1**
MSC Surveillance Reporting Template	**Version 2.1**

* default assessment tree

8 Results

8.1 Surveillance results overview

There were no material changes to the circumstances and practices affecting the original complying assessment of the fishery. It is recommended that these fisheries continue to meet the MSC Standard and they remain certified

8.2 Summary of conditions

There are no conditions for these fisheries

8.3 Summary of recommendations

Recommendation 1: P 2.1. & 2.2 (Retained Species & Bycatch Species).

- An updated analysis of retained and bycatch species should be conducted and the results linked to information on trends and status relative to reference points

- Recommendation 2: P3.2.4 b. SG80. “The fishery-specific and associated enhancement program(s) management system is subject to regular internal and occasional external review. ”The current external review of the management system will expire within 5 years. Currently it does meet the “occasional” external requirement however it is recommended that a new review is produced before the current one expires, in order to avoid a condition at the next surveillance audit and reassessment.

9 Appendices

9.1 Evaluation processes and techniques

9.1.1 Site visits

The offsite meetings took place during the week of 27th June 2022. Zoom was used and the CAB audit team initially "met" with members of the client group, members of the Deepwater group from Fisheries New Zealand and NIWA and some relevant consultants. Follow up "meetings" took place on 5 July and 4 August with the CAB audit P1 expert, the client group and Dr. Geoff Tingley.

The following is the attendance list

LRQR Assessors:

- Jo Akroyd. Team lead, P2 and P3
- Andre Punt P1 and P2

DWG:

- George Clement george@deepwatergroup.org
- Aaron Irving aaron@deepwatergroup.org
- Inge Wisselink inge@deepwatergroup.org
- Ben Steele Mortimer bensm@southswell.co.nz

Consultants

- Geoff Tingley gingerfish.ltd@gmail.com
- Alistair Dunn alistair.dunn@oceanenvironmental.co.nz

FNZ:

- James Andrew james.andrew@mpi.govt.nz
- Dave Foster David.Foster@mpi.govt.nz
- Gretchen Skea Gretchen.Skea@mpi.govt.nz

NIWA:

- Richard O'Driscoll <richard.odriscoll@niwa.co.nz>

9.2 Stakeholder participation and input

All relevant stakeholders were contacted and made aware of the dates for this second annual surveillance. No stakeholders wished to participate nor provided any reports.

10 Surveillance program

No change

11 Harmonised fishery assessments

There are no MSC certified overlapping fisheries.

These fisheries are all fished in NZs EEZ.

12 Template information and copyright

This document was drafted using the 'MSC Surveillance Reporting Template v2.1'.

Template version control

Version	Date of publication	Description of amendment
1.0	08 October 2014	Date of issue
2.0	17 December 2018	Release alongside Fisheries Certification Process v2.1
2.01	28 March 2019	Minor document change for usability
2.1	25 March 2020	Minor document change for usability

A controlled document list of MSC program documents is available on the MSC website (msc.org).

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