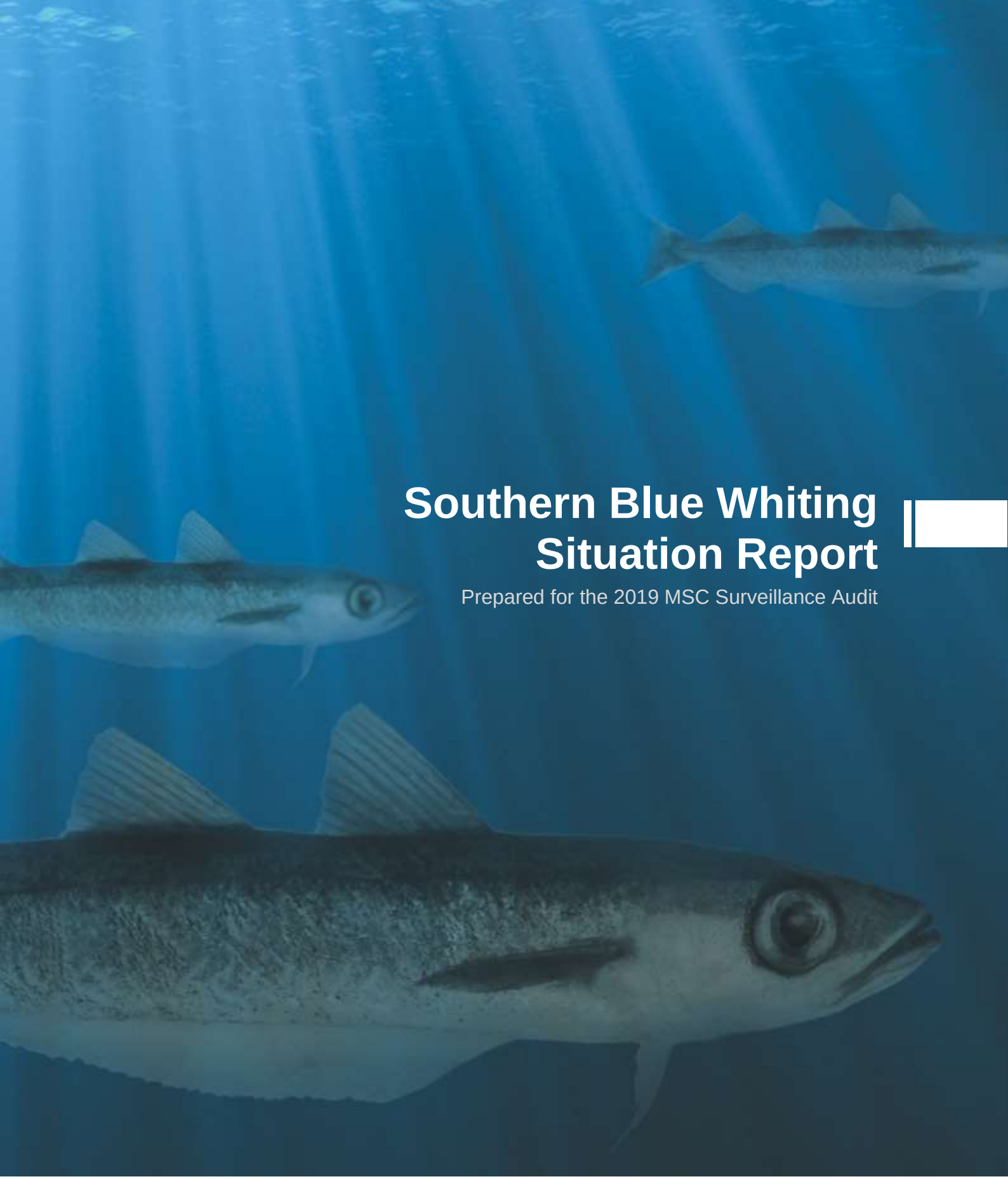

Southern Blue Whiting Situation Report

Prepared for the 2019 MSC Surveillance Audit

deepwater group

Table of Contents

New Zealand Southern Blue Whiting

Purpose of this report

This report is one of three prepared for the New Zealand 2019 combined MSC surveillance audits for hake, hoki, ling and southern blue whiting. It provides an update on two southern blue whiting Units of Certification (UoC): SBW 6B Bounty Platform and SBW 6I Campbell Island Rise and builds on the information previously provided for the 2017 reassessment.

It is Deepwater Group Limited's (DWG) submission that these three 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/certification/southern-blue-whiting-trawl-fishery-surveillance-audit-2019/

Overview of fishery certification and status

Southern blue whiting certification details

Certification date	Initial Certification: September 2014 Recertification: September 2018 (synchronised with Hoki)
Stock areas	UoC 1: Bounty Platform (SBW 6B) UoC 2: Campbell Island Rise (SBW 6I)
Species	*Micromesistius australis*
Method/gear	Mid-water and bottom trawling

Fishery background

Southern blue whiting is a benthopelagic species found in sub-Antarctic waters south of New Zealand on the Campbell Plateau and Bounty Platform. During August and September, fisheries occur on the dense spawning aggregations at depths between 300 – 600 m.

They are fast-growing, reaching 20 cm within the first year and 30 cm after two years, although years of high recruitment may be marked by slightly slower growth. Sexual maturity occurs at between 3-4 years of age. Southern blue whiting fisheries are characterised by episodic recruitment events, where roughly once a decade recruitment events substantially exceed the long-term average. As a result, year-class strengths, and fishable biomass, can be highly variable.

Stock status, TACC & catches

UoC 1 – Bounty Platform (SBW 6B)

Conventional stock assessments using Bayesian estimation procedures were attempted but failed to adequately fit the series of available acoustic biomass estimates and were rejected. Assessment now focuses on a Harvest Control Rule which, applied to annual acoustic abundance indices (O'Driscoll, 2018), provides for

a low risk of the stock falling below the soft limit reference point of 20% B_0 (Doonan, 2017; FNZ, 2019).

Update on stock status (Doonan, 2018)	Harvest control rule simulations based on the 2018 assessment estimated that stock status was Likely (>60%) to be below target *F* and overfishing was Unlikely (<40%) to be occurring.
TACC 2018-19 TACC 2017-18 TACC 2016-17 TACC 2015-16	3,145 t 2,377 t 2,940 t 2,940 t
UoA share of TACC UoC share of TACC	100% 87%
SBW 6B catch 2017/18 SBW 6B catch 2016-17 SBW 6B catch 2015-16	2,423 t 2,569 t 2,405 t

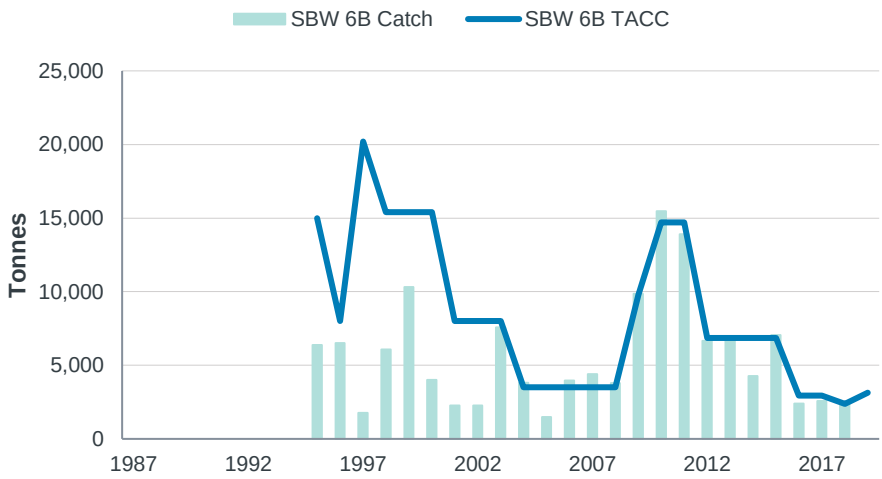

Figure 1: Total Allowable Commercial Catches and reported catches for SBW 6B

UoC 2 – Campbell Island Rise (SBW 6I)

Conventional stock assessments using Bayesian estimation procedures are carried out using research time-series of abundance indices from wide-area acoustic surveys (O'Driscoll et al., 2018) and proportion-at-age data from the fishery (Roberts & Hanchet, 2019).

Update on stock status (Roberts & Hanchet, 2019)	B_{2016} was estimated at 70% B_0 and Very Likely (>90%) to be at or above the target of 40% B_0.
TACC 2018-19 TACC 2017-18 TACC 2016-17	39,200 t 39,200 t 39,200 t
UoA share of TACC UoC share of TACC	100% 87%
SBW 6I catch 2017-18 SBW 6I catch 2016-17 SBW 6I catch 2015-16	18,334 t 19,875 t 22,100 t

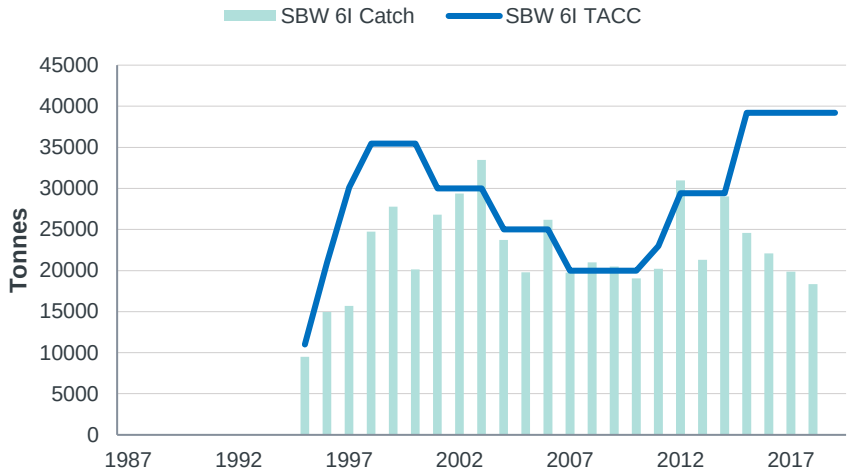

Figure 2: Total Allowable Commercial Catches and reported catches for SBW 6I1

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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.

[1] Southern blue whiting stocks are characterised by sporadic recruitment pulses and highly variable year-class strengths. Fisheries are characterised by high catches when strong year-classes enter the fishery, followed by gradual declines as these year-classes are fished down over time.

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Overview of environmental information

Observer Coverage

Southern blue whiting fisheries have been subject to 100% observer coverage as of the 2012-13 fishing year (Fig. 3), (Dragonfly, 2019).

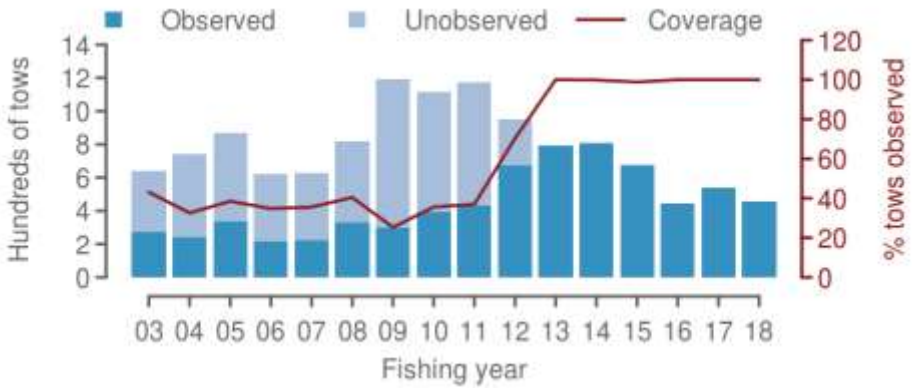

Figure 3: Fishing effort and observer coverage in all southern blue whiting fisheries 2002-03 to 2017-18.

Retained & bycatch species

The southern blue whiting fishery is characterised as a “clean” fishery with bycatch comprising less than 1% of the total catch, on average. Bycatch estimates over the most recent five-year period for which data are available (i.e. 2013-14 to 2016-17), reveal that between seven and 16 species have had catches of greater than one tonne per annum, of which 11 are managed within the Quota Management system. During this period, bycatch has been dominated by five species: ling (147 t), porbeagle shark (104 t), hoki (87 t), hake (80 t) and opah (55 t), with all but opah being QMS species (Finucci et al., 2019).

ETP species

Southern blue whiting trawlers occasionally interact with marine mammals and seabirds. As a consequence of the 100% observer coverage on vessels targeting southern blue whiting from the 2012-13 fishing year, there is a high degree of confidence around the reported numbers of ETP species captures.

New Zealand sea lions

The population size of the endemic New Zealand sea lion is estimated to be around 12,000 animals and their conservation status was downgraded from ‘Nationally Critical’ in 2013 (Baker et al., 2016), to ‘Nationally Vulnerable’ in 2019 because the overall rate of decline has slowed and populations are stable or increasing at most breeding locations (Baker et al., 2019).

There are currently four known breeding areas: Auckland Islands (main breeding sites), Campbell Island, Stewart Island and South Island (Otago coast), (Fig. 4).

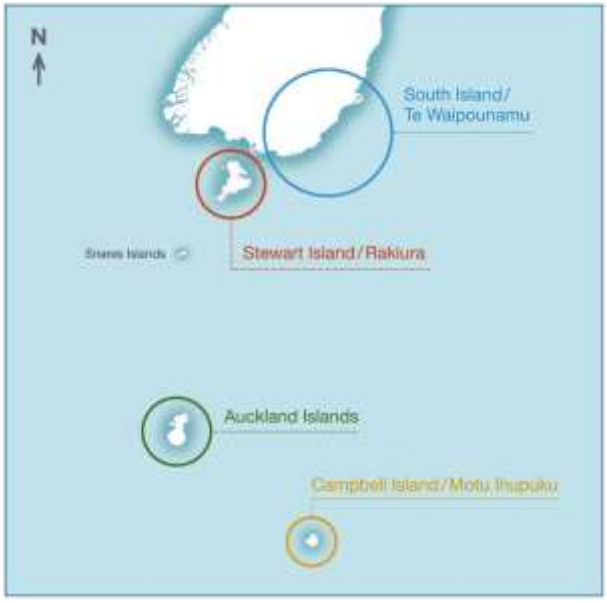

Figure 4: New Zealand sea lion breeding areas.

Fisheries New Zealand's Operational Plan to Manage the Incidental Capture of New Zealand Sea Lions in the Southern Blue Whiting Fishery, Campbell Islands (SBW6I), (FNZ, 2019a), sets out the stringent requirements for vessels in the fishery including:

- Requirement to carry two SLEDs built and approved by certified manufacturer
- Carrying of observers at all times
- Prior notification of vessel departures.

The OP requires the fleet to leave the fishery should the following occur:

- A limit of 12 female sea lion mortalities is reached, or
- 25 total sea lion mortalities occurs.

Captures of female sea lions are rare, with 97% of captures (i.e. 64 out of 66 since 2001/02 being males).

In addition to the FNZ Operational Plan, DWG's Vessel Management Plans (VMPs), Marine Mammal Operational Procedures (MMOPs) and a seasonal Vessel Advisory Memorandum, outline mitigation measures and procedures vessels are required to adhere to in order to minimise the risk of sea lion captures and any potential adverse effects on the population (DWG, 2018; DWG, 2019; DWG, 2019a).

The use of sea lion exclusion devices (SLEDs) is a requirement for all southern blue whiting vessels in the SBW 6I fishery. In the 2017-18 fishing season, 10 vessels undertook a total of 204 tows in the fishery. Two male sea lions were observed captured. There were no captures in 2016-17, three captures in 2015-16 and six captures in 2014-15 (Fig. 5).

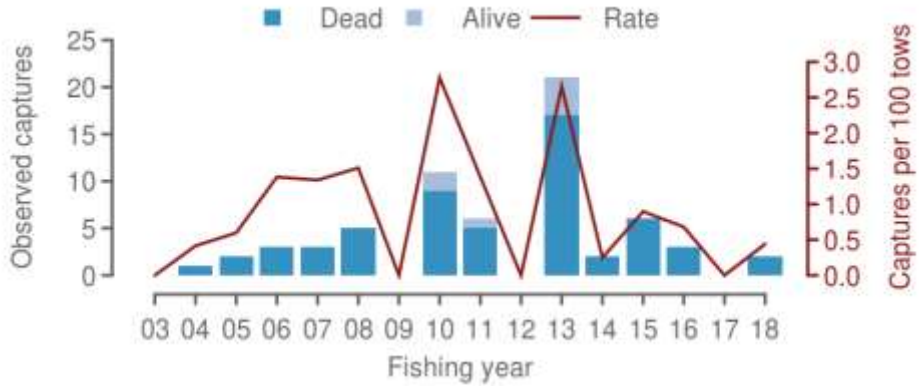

Figure 5: Captures of sea lions in southern blue whiting fisheries 2002-03 to 2017-18 (Note: 100% observer coverage from 2013).

Prior to each August-September fishing season[2], DWG's Environmental Liaison Officer (ELO) ensures that all vessels have up-to-date VMPs and MMOPs aboard and ensures all SLEDs are checked and approved by a nominated net-shed. A total

2 The SBW fishing year runs from 1 April – 31 March, SBW fishing occurs during August-September, and the 2018 season falls into the 2017-18 fishing year. HOK, HAK & LIN fishing years run from 1 October – 30 September.

of 36 SBW 6I SLED audit forms were processed prior to commencement of the 2017-18 fishing season (DWG, 2019b).

The ELO provides vessel owners and operators with the following information as a reminder of the strategies and actions required to reduce the fleet's interactions with sea lions (and seabirds):

- DWG memo to SBW 6I vessel skippers: sea lion risk management actions (DWG, 2019a)
- FNZ Operational Plan for SBW 6I sea lion risk mitigation (FNZ, 2019)
- DWG Marine Mammal Operational Procedures (DWG, 2019c).

A summary of performance against the SBW Operational Plan for managing the incidental capture of sea lions during the 2017-18 season at Campbell Island (SBW 6I) noted the following (FNZ, 2019b):

- Ten vessels participated in the fishery and each carried at least one MPI observer
- Observers reported a high level of adherence with VMPs and MMOPs. SLEDs were used on all vessels and during all tows
- Trigger point reports to DWG and MPI for each sea lion capture were made as required.

In response to a series of low pup census estimates at the main breeding colony at the Auckland Islands, a quantitative risk assessment of threats to New Zealand sea lions was undertaken in 2016 (Roberts & Doonan, 2016) to inform the development of a Threat Management Plan (TMP) for the species (DOC, 2017).

The TMP outlines a five-year plan that includes undertaking annual monitoring programmes at Campbell Island to increase the frequency and consistency of pup counts and tagging/re-sighting (https://www.doc.govt.nz/nature/native-animals/marine-mammals/seals/new-zealand-sea-lion/research-and-fieldwork/). The TMP "aims to halt the decline of the New Zealand sea lion population within five years and ensure the population is stable or increasing within 20 years", with the goal to achieve 'Not Threatened' status. The New Zealand Government announced a $2.8 million investment over four years to support the recovery of this species across its natural range as part of the TMP.

New Zealand fur seals

The New Zealand fur seal was classified as "Least Concern" by IUCN in 2008 and as "Not Threatened" under the New Zealand Threat Classification System in 2010 (Baker et al. 2016).

In the 2017-18 fishing year, there were 17 observed captures of New Zealand fur seal in southern blue whiting trawl fisheries (Fig. 6). Most captures were from the SBW 6B fishery which is prosecuted within range of a large fur seal colony comprising approximately 20,000 animals (DOC, 2019), on the Bounty Islands.

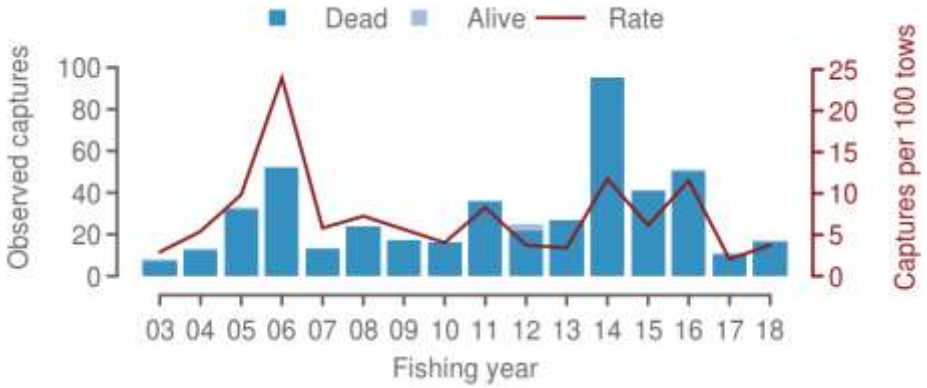

Figure 6: NZ fur seal captures and capture rates in southern blue whiting fisheries 2002-03 to 2017-18.

There are relatively few NZ fur seal captures in the SBW 6I fishery, possibly due to the greater distances between the fishing operations and fur seal colonies or haul-outs. NZ fur seals are distributed over a very extensive area, including all of the sub-Antarctic islands, and their numbers are believed to be increasing across their range. An excerpt below from the Department of Conservation website, for all of New Zealand supports this view (DOC, 2016):

> **Population:** about 200,000.
> **Threat status:** least concern (population trend: increasing).
> **Found on:** rocky shores throughout mainland New Zealand, the Chatham Islands, and the Subantarctic islands, as well as parts of Australia.

Exclusion devices, whilst effective for the much larger New Zealand sea lions, are less practicable for the smaller New Zealand fur seals (DOC, 2009).

Seabirds

In the 2017-18 fishing year there were six observed captures of seabirds in the southern blue whiting trawl fisheries (Fig. 7). As there is 100% observer coverage in these fisheries the observed and estimated capture numbers are identical. All of the seabirds captured in 2017-18 were grey petrels. There are an estimated 53,000 breeding pairs on Antipodes Island and their conservation status in 2013 was moved from 'at risk-declining' to 'at risk – naturally uncommon' (Bell, 2013).

The high observer coverage (i.e. 100%) is scheduled to continue, as are seabird mitigation measures guided by the NPOA seabirds (MPI, 2013).

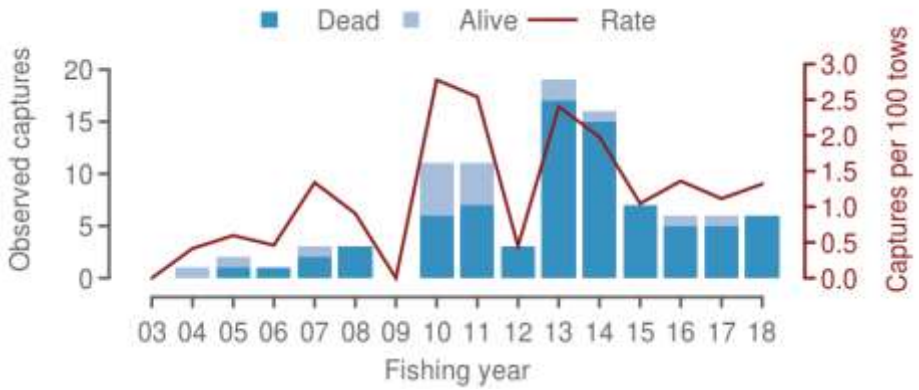

Figure 7: Observed incidental captures of seabirds in southern blue whiting fisheries and capture rates per 1oo tows, 2002-03 to 2017-18.

DWG's Environmental Liaison Officer (ELO) visited all factory vessels involved in the SBW fisheries in 2017-18 to:

- Deliver PowerPoint-assisted training courses to senior crew (and at times vessel managers) on the need for ETP species capture mitigation and on best practice mitigation methods
- Provide training material on best practice environmental operations and procedures and ensure updated versions of all OPs are on each vessel
- Check that VMP's are updated and appropriate for each vessel's fishing operations
- Physically check their seabird mitigation equipment is fit-for-purpose and functional and ensure officers and crew are aware of the need to maintain conformance with offal control and mitigation systems to reduce seabird interactions
- Be on-call 24/7 for any communications or requests for support, including trigger capture events
- Compare fishery information with that from observers to ensure the best information is available regarding the nature of significant capture events.

The ELO additionally visits any vessel that has reported trigger-point captures in order to assess the possible reasons for the captures, whether they could have been prevented, and to educate the skipper on how to reduce the risk of such events re-occurring (DWG, 2019b).

Whales & dolphins

There have been no reported whale or dolphin captures in the southern blue whiting fisheries.

Basking sharks

For the first and only time in the history of the southern blue whiting fisheries a basking shark was reported captured in SBW 6B during the 2016 fishing season.

The Department of Conservation (DOC) has undertaken a review of basking shark interactions in all commercial fisheries (Francis, 2017).

An active mitigation programme, based on capture triggers and awareness, administered by DWG and monitored by FNZ, has been in place since 2013 to reduce basking shark captures in the deepwater fisheries (DWG, 2019d).

Corals

Protected coral bycatch has been negligible in southern blue whiting fisheries, even though most trawls are on or close to the seabed for at least part of the time. Around 99% of trawl tows are undertaken using midwater nets, which are fished both on the bottom and in midwater and it is estimated that around 56% of tows occur on the seabed (FNZ 2019, SBW Chapter). The light groundrope used on these midwater nets is likely to be much less impactful than the heavier bobbin-rigs used on conventional bottom trawls.

Benthic interactions

The trawl footprint of New Zealand's trawl fisheries is assessed annually to monitor their interactions with the benthic habitat (Baird & Wood, 2018). The trawl footprint has been determined for each year, commencing in 1989-90, for all the main deep water target fisheries including southern blue whiting.

For the 2016–17 fishing year, 307 southern blue whiting bottom tows had an estimated footprint of 748 km^2 which represented coverage of < 0.1% of the EEZ and Territorial Sea combined, and 0.1% of the fishable area shallower than 1,600 m outside of area closures), (Baird & Wood, 2018).

New Zealand's strategy to guard against adverse impacts on the benthic environment includes multiple area closures in the EEZ. A total of 17 Benthic Protection Areas (BPAs), representatively distributed around the EEZ, and 17 'seamount' closures, collectively close 30% of the EEZ to bottom fishing (Helson et al., 2010). The area closures protect:

- 28 percent of underwater topographic features (including seamounts)
- 52 percent of seamounts over 1000 metres in height
- 88 percent of known active hydrothermal vents.

Aquatic environment and biodiversity research initiatives related to the benthic effects of fishing are detailed in the Annual Operational Plan for Deepwater Fisheries (FNZ, 2018, pp. 29-31) and include undertaking a spatially explicit benthic impact assessment for deepwater fisheries.

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Overview of management information

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 southern blue whiting fisheries are managed in accordance with the National Fisheries Plan for Deepwater Fisheries (FNZ, 2019d). There is a species-specific chapter for southern blue whiting within this plan (MPI, 2011).

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 (FNZ, 2019f)

- 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 (FNZ, 2018).

Collaboration

In 2006, DWG and FNZ (then MPI), entered into a formal partnership to enable collaboration in the management of New Zealand's deep water fisheries. This partnership (MPI, 2010) was updated in 2008 and 2010 and has directly facilitated improved management of the southern blue whiting fisheries in almost all respects through:

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

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

Compliance & enforcement

FNZ 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:

1. Voluntary compliance – outcomes are achieved through education, engagement and communicating expectations and obligations
2. Assisted compliance – reinforces obligations and provides confidence that these are being achieved through monitoring, inspection, responsive actions and feedback loops
3. Directed compliance – directs behavioural 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 FNZ to monitor all deep water vessel locations at all times. This system is now being replaced by Geospatial Position 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.

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 southern blue whiting vessels include

logging the location, depth, main species caught for each tow, and total landed catch for each trip.

Introduced in January 2019, all New Zealand vessels are transitioning in a staged implementation programme to new Electronic Reporting and Geospatial Position Reporting (replaces VMS) regulations. All New Zealand vessels now report catch daily on an event-by-event basis. These reports are validated against positional data allowing for timely interventions and compliance oversight in near real time.

FNZ audits commercial vessel catch-effort and landing reports, reconciles these against multiple sources including GPR records, electronic catch data, data collected by onboard FNZ observers, and catch landing records from LFRs to ensure that all catches are reported correctly (FNZ, 2019d).

FNZ conducts annual audits of the performance of the Campbell Island southern blue whiting fishery against the SBW 6I Operational Plan (FNZ, 2019h). The audit assesses:

- Observer coverage of fishing operations in relation to the target observer coverage
- Adherence to DWG's VMPs and Marine Mammal Operational Procedures
- The use of prescribed SLEDS by vessels
- Sea lion capture trigger points and limits.

For the SBW fishery commencing September 2013, all vessels carry FNZ observers to ensure compliance (i.e. 100% observer coverage). Further to this, a number of in-port inspections and aerial patrols are conducted in this fishery.

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 FNZ to assist with the effective implementation of these Operational Procedures.

DWG personnel and vessel operators meet with FNZ's Management and Compliance teams annually to discuss and evaluate any issues that may have arisen (MPI, 2019). Any identified risks are communicated to the fleet along with proposed remedial action to be undertaken (DWG, 2019g).

Fisheries plans

The National Fisheries Plan for Deepwater Fisheries (FNZ, 2019d) 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 southern blue whiting fisheries within this Plan (MPI, 2011).

The actual management measures and delivery outcomes in the Plan are specified in FNZ's Annual Operational Plan (AOP), (FNZ, 2018), which is reviewed and updated annually. In addition, an Annual Review Report assesses performance against the AOP and is publicly available (FNZ, 2019c).

Research plans

Research needs for deepwater fisheries are driven by the Objectives of the National Fisheries Plan for Deepwater Fisheries (FNZ, 2019d), and delivered through the Medium-Term Research Plan for deep water fisheries (MTRP), (MPI, 2017). The MTRP provides a five-year schedule of science and monitoring projects (e.g. biomass surveys and stock assessments), required to support the sustainable management of deepwater fisheries.

All research projects are reviewed by FNZ's Science Working Groups and assessed against FNZ's Research and Science Information Standard for New Zealand Fisheries (MFish, 2011).

Tables 8 – 11 and 16 of FNZ's Annual Operational Plan 2019/20 provide lists of research projects to be undertaking that relate to deep water species (FNZ, 2019f).

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