



Fisheries New Zealand

Tini a Tangaroa

Review of Sustainability Measures for Ling (LIN 7) for 2019/20

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Contents

Page

1	Stock being reviewed	1
2	Summary	1
3	Quota Management System	1
4	Legal basis for managing fisheries in New Zealand	2
5	Treaty of Waitangi Obligations	2
5.1	Input and participation of tangata whenua	2
5.2	Kaitiakitanga	2
6	Relevant plans, strategies, statements and context	3
7	Current state of the stock	3
8	Environmental interactions	4
9	Recent catch levels and trends	5
10	Projections of biomass	6
11	Current TAC, TACC and allowances	6
12	Options – varying the TAC and TACC	6
13	Uncertainties and risks	6
14	Analysis of options	6
15	Questions for submitters	7
16	Deemed values	7
17	Referenced reports	7
18	How to get more information and have your say	7

1 Stock being reviewed

Ling (LIN 7)

(*Genypterus blacodes*; Hoka, Rari, Hokarari)

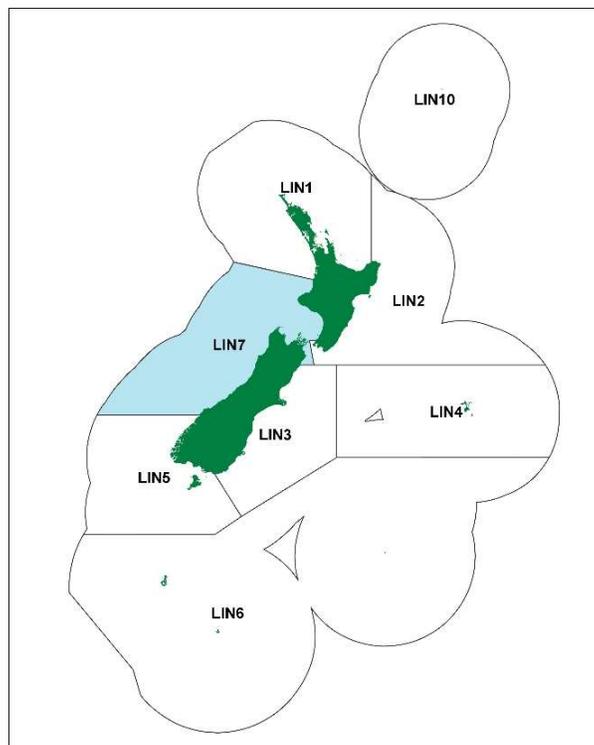


Figure 1: The Quota Management Area (QMA) for LIN 7

2 Summary

The best available information indicates that the biomass of ling in LIN 7 is very likely to be at or above the management target and that there is an opportunity to increase the catch limits for this stock.

Fisheries New Zealand proposes two options to increase the total allowable catch (TAC) and total allowable commercial catch (TACC) as follows:

1. A 10% increase in the TAC, TACC and allowance for other sources of fishing related mortality. The TACC would increase from 3,080 tonnes to 3,388 tonnes.
2. A 20% increase in the TACC, TACC and allowance for other sources of fishing related mortality. The TACC would increase from 3,080 tonnes to 3,696 tonnes.

It is proposed that the LIN 7 customary Māori and recreational allowance be retained at one tonne each for both options.

3 Quota Management System

New Zealand's ling fisheries have been managed within the quota management system (QMS) since 1986 with a 1 October to 30 September fishing year. For more information about the QMS go to <https://www.mpi.govt.nz/law-and-policy/legal-overviews/fisheries/quota-management-system/>.

4 Legal basis for managing fisheries in New Zealand

The Fisheries Act 1996 provides the legal basis for managing fisheries in New Zealand, including the Minister's responsibilities for setting and varying sustainability measures. See the separate document *Overview of legislative requirements and other considerations* on the Fisheries New Zealand sustainability consultation webpage (<https://www.fisheries.govt.nz/news-and-resources/consultations/review-of-sustainability-measures-for-1-october-2019>) for more information.

5 Treaty of Waitangi Obligations

5.1 Input and participation of tangata whenua

Input and participation is provided for through discussions with relevant iwi at Iwi Fisheries Forums. Each Iwi Fisheries Forum has developed an Iwi Fisheries Forum Plan, which describes how the iwi in the Forum exercise kaitiakitanga over the fisheries of importance to them, and their objectives for the management of their interest in fisheries.

Iwi Fisheries Forums may also be used as entities to consult iwi with an interest in a fishery.

It is proposed that input and participation with relevant iwi on the proposals for LIN 7 is provided for during the period of consultation on these proposals.

5.2 Kaitiakitanga

Ling is identified as a taonga species in the Te Tai Hauāuru Iwi Forum Fisheries Plan which covers the North Island portion of LIN 7.

The Te Tai Hauāuru Iwi Forum Fisheries Plan has the following high level management outcomes:

- Fisheries resources are used in a manner that provides greatest overall economic, social and cultural benefit.
- The capacity and integrity of the aquatic environment, habitats and species are sustained at levels that provide for current and future use.
- Commercial fisheries are sustainable and support the economic wellbeing of Te Taihauāuru Iwi; ACE values for core commercial stocks are stable or increasing.

The best available information indicates there is currently a negligible level of Māori customary take of ling because the majority of the fishery operates at depths of 200-800m. There are no reported customary authorisations for LIN 7 at this time. There are no mataitai reserves or closures/restrictions under s186A of the Fisheries Act 1996 that impact ling fishing in LIN 7.

The proposals in this paper are likely to contribute to the objectives identified by Te Tai Hauāuru Iwi.

Although the Te Waka a Māui me Ōna Toka Fisheries Forum Plan does not list ling as a tāonga species, two objectives of the plan are relevant to this proposal:

- To develop environmentally responsible, productive, sustainable and culturally appropriate commercial fisheries that create long-term commercial benefits and economic development opportunities for the South Island.
- To restore, maintain and enhance the mauri and wairua of fisheries throughout the South Island.

6 Relevant plans, strategies, statements and context

Ling in LIN 7 are managed as a Tier 1 species within the National Fisheries Plan for Deepwater and Middle-depth fisheries 2019 – Part 1A (National Deepwater Plan). This is because ling are considered high volume and/or high value fisheries. A species-specific chapter of the National Deepwater Plan for ling (Part 1B) was completed in 2012. The National Deepwater Plan sets out a series of Management Objectives for deepwater fisheries, the most relevant to LIN 7 being:

Management Objective 1: Ensure the deepwater and middle-depth fisheries resources are managed so as to provide for the needs of future generations.

Management Objective 4: Ensure deepwater and middle-depth fish stocks and key bycatch fish stocks are managed to an agreed harvest strategy or reference points.

There are no other plans, strategies or statements relevant to ling in LIN 7.

7 Current state of the stock

Ling is a moderately productive species found throughout New Zealand waters at depths between 200 and 800 metres. Ling are thought to reach a maximum age of around 30 years. The LIN 7 QMA includes the West Coast South Island (WCSI) biological stock and a small portion of the Cook Strait stock in Statistical Area 17.

There are regular stock assessments to ensure the LIN 7 fish stock is managed within the default reference points that are set out in the Harvest Strategy Standard (

Table 1).

Table 1: Ling default reference points, and the associated management response.

Reference point	Management response
Management target of 40% B_0	Stock permitted to fluctuate around this management target. TAC changes will be employed to move stock toward or above target.
Soft limit of 20% B_0	A formal time constrained rebuilding plan will be implemented if this limit is reached.
Hard limit of 10% B_0	The limit below which fisheries will be considered for closure.

The most recent stock assessment for LIN 7WC (WCSI) was in 2017. The Fisheries New Zealand Deepwater Fisheries Assessment Working Group (DWWG) chose three model runs for the provision of fishery management advice. There was no accepted 'base' case, rather the three model runs were chosen to represent the key alternative assumptions, and the range of model outcomes. All model runs were indicative of an unfished biomass (B_0) greater than 60,000 t, and estimated the stock status (B_{2017}) to be around 79% B_0 , 66% B_0 , and 54% B_0 (Figure 2, below). In all three model runs the stock was very likely (>90%) to be at or above the management target of 40% B_0 . Biomass is estimated to have been stable or slowly decreasing. The age structures of both the commercial ling catch and trawl survey catch are broad, indicating a low exploitation rate.

The 2017 stock assessment indicates that B_{2017} is exceptionally unlikely (<1%) to be below the soft limit (20% B_0) or hard limit (10% B_0). There is a very low likelihood (very unlikely <10%) that overfishing was occurring in 2017.

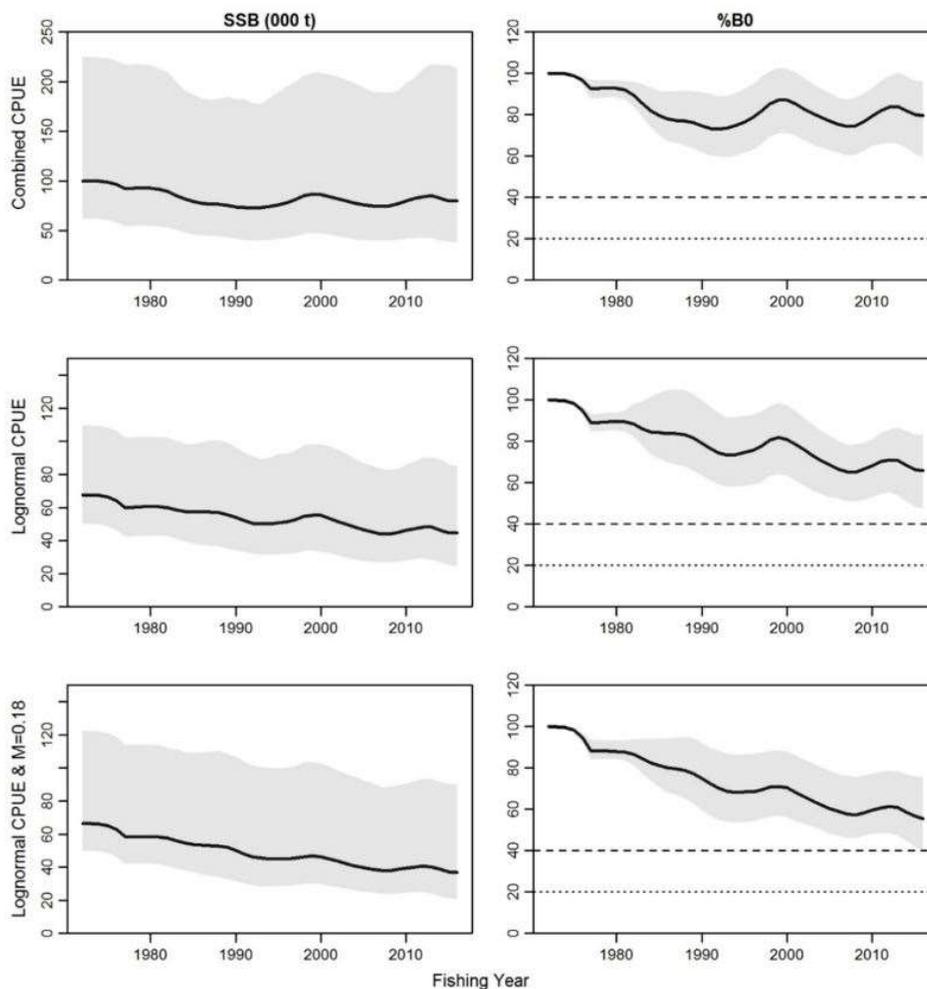


Figure 2: LIN 7WC: Estimated spawning stock biomass (t) trajectory and % B_0 for the three model runs. The solid lines are the median values and the shaded area the 95% CIs.

The LIN 7WC stock assessment accounts for 96% of the LIN 7 stock. It is undertaken every three years and will be updated in 2020.

The LIN 7 QMA includes a small portion of the Cook Strait stock in Statistical Area 17. The Cook Strait ling biological stock was assessed in 2013 but the assessment was not accepted by the working group as a reliable assessment of stock status. Ling caught in Cook Strait accounts for around 4% of total LIN 7 catch. This proportion of total catch is not expected to change under the two options proposed.

8 Environmental interactions

The key environmental interactions with the ling fishery, which must be taken into account when considering sustainability measures are:

Marine mammals

Interactions with marine mammals in ling target fisheries are rare. From 2013/14 to 2017/18 no marine mammals were observed as incidental captures in target ling bottom longline effort in LIN 7. One New Zealand fur seal was caught and released alive in the target LIN 7 inshore trawl fishery over this period.

Seabirds

For LIN 7 the key seabird interaction with the proposed TACC increase will be for inshore ling bottom longline effort: over the last 5 fishing years (2013/14 to 2017/18), an average of 5 seabirds have been observed caught annually in this fishery. Observer coverage has been low, averaging 4.7% annually over this period. Inshore trawl vessels targeting ling also have low rates of observer coverage averaging 2% annually over the same 5-year period with zero seabirds observed caught. Required seabird mitigation measures are that trawlers larger than 28m and bottom longline vessels larger than 7m deploy seabird mitigation devices when fishing gear is in use. Non-regulatory measures include vessel-specific plans, known as Vessel Management Plans (VMPs), which set out practices vessels must implement to reduce the risk of seabird interactions. Fisheries New Zealand has processes in place to audit performance against these seabird mitigation measures.

Fish bycatch

The main fish species that have been observed caught in association with trawling for ling on the west coast of the South Island are the QMS species hoki, hake, and silver warehou. Observations have mainly been from trawl vessels larger than 28m. Observer data indicates that bottom longline fishing for ling has low levels of fish bycatch, which include spiny dogfish, sea perch, ribaldo, sharks and skates.

Benthic effects

Bottom trawling interacts with the seabed and the associated benthic environment. Management measures to address the effects of deepwater trawl activity have focused on avoiding these benthic effects. This has been achieved through closing areas to bottom trawling; first with seamount closures in 2001. In addition, the implementation of Benthic Protection Areas (BPAs) in 2007 effectively closed approximately 30% of the New Zealand Exclusive Economic Zone (EEZ) to bottom trawling. There are two BPAs in LIN 7: Challenger North and Challenger South (Figure 3). Bottom longline fishing gear also contacts the seabed and benthic environment, however, much less than bottom trawl gear.

9 Recent catch levels and trends

Ling catch has been steadily increasing since the LIN 7 TACC was increased in 2013/14 (Figure 3). Catch has exceeded the TACC in every year since 2013/14 by an average of 9.2% (282 tonnes).

The main fishing area for LIN 7 is the west coast of the South Island where around 96% of LIN 7 catch is taken. A small amount of LIN 7 comes from Cook Strait (around 4% of total catch) either as bycatch from target hoki trawl effort, or from target ling bottom longline effort.

Around 56% of total catch is taken on the west coast of the South Island by trawl gear; as bycatch from large deepwater vessels (over 28m) using bottom and midwater trawl to target hoki and hake mainly north of the Hokitika Canyon, and a smaller amount from target ling catch by small bottom trawl inshore vessels (under 28m) mainly to the south of the Hokitika Canyon (around 8% of total catch). Around 38% of total catch is taken by bottom longline inshore vessels (under 28m) targeting ling. There is also a very small amount of catch by set net gear (around 1%).

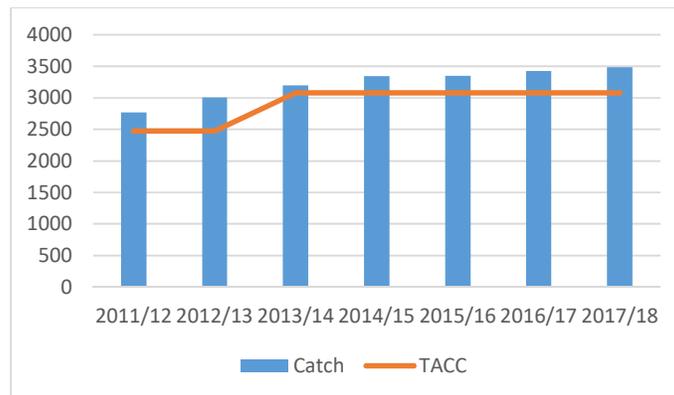


Figure 3 Landings vs TACC LIN 7 2011/12 - 2017/18 fishing years.

10 Projections of biomass

Constant catch projections out to 2022 as part of the LIN7 WC stock assessment indicate that ling biomass is likely to remain about the same if future catches are around 3,000 tonnes, or if catches were to increase by around 10%.

11 Current TAC, TACC and allowances

Table 2: LIN 7 TAC, TACC and allowances

Stock	Total Allowable Catch	Total Allowable Commercial Catch	Allowances		
			Customary Māori	Recreational	All other mortality to the stock caused by fishing
LIN 7	3144	3080	1	1	62

12 Options – varying the TAC and TACC

Table 3 shows the proposed TAC, TACC and allowances in tonnes for LIN 7 from 1 October 2019, with the percentage change relative to the current settings in brackets.

There is no proposal to change existing customary Māori or recreational settings.

The allowance for ‘Other Sources of Fishing Related Mortality’ estimates ling mortality that is not reported such as ling lost due to burst nets, broken hooks, ling that are damaged by fishing activity but not caught, or fish that have been discarded at sea and not reported. It is proposed that this allowance be increased proportionally to remain at 2% of the TACC under both options.

Table 3: Proposed TACs, TACC and Allowances in tonnes for LIN 7 from 1 October 2019, with the percentage change relative to the current settings in brackets.

Option	Allowances				
	TAC (t)	TACC (t)	Customary Māori (t)	Recreational (t)	Other sources of fishing related mortality (t)
Current Setting	3,144	3,080	1	1	62
Option 1	3,458 ↑ (10%)	3,388 ↑ (10%)	1	1	68 ↑ (10%)
Option 2	3,772 ↑ (20%)	3,696 ↑ (20%)	1	1	74 ↑ (20%)

13 Uncertainties and risks

Biomass indices for the LIN 7 stock are relatively flat, which makes it difficult for the model to estimate absolute biomass.

14 Analysis of options

Option 1 is to increase the LIN 7 TACC by 10% to 3,388 tonnes. The new TACC would cover the existing average catch in the fishery (3,362 tonnes) over the last 5 fishing years (2013/14 to 2017/18) which is 9% above the current TACC (see Figure 3).

Constant catch projections out to 2022 in the stock assessment model indicate that biomass is likely to remain about the same if catches were to increase by around 10% (this option). The proposed TAC/TACC increase is not expected to adversely affect the populations of marine mammal species or seabirds given the low capture rates of these animals in LIN 7. The majority of the fishing effort is likely to occur in the same areas that are already fished, therefore the trawl footprint is unlikely to

increase significantly. The trawl footprint will continue to be mapped and monitored annually to assess if new areas are being impacted.

Option 2 would increase the LIN 7 TACC by 20% to 3,696 tonnes. Based on \$9.80 per kilogram for dressed frozen fillets; if the TACC is fully caught under Option 2 this would result in an additional \$1.2m in export earnings above the current annual catch over the past 5 years, based on an average conversion factor of 2.7.

The proposed TAC/TACC increase under Option 2 is not expected to have any significant environmental effects, or adversely affect the populations of marine mammal species or seabirds given the low capture rate of these animals in LIN 7.

The increase in fishing effort under this option is likely to occur in the same areas that are already fished, therefore the trawl footprint is unlikely to increase significantly. An increase in target bottom longline effort is likely to occur, however this fishing gear type has a low impact on the benthic environment. The trawl footprint will continue to be mapped and monitored annually to assess if new areas are being impacted. The environmental impacts of fishing are summarised annually by Fisheries New Zealand¹.

15 Questions for submitters

- Which option(s) do you support for revising the TAC, TACC and allowances? Why?
- If you do not support any of the options listed, what alternative should be considered? Why?

16 Deemed values

The purpose of deemed values are to provide incentives for commercial fishers to balance the catch of QMS species with ACE within each fishing year. The deemed value rates for LIN 7 were reviewed for the start of the 2014/15 fishing year. As the deemed value settings are consistent with the Principles of the Deemed Value Guidelines, no changes are proposed to the deemed value rates.

17 Referenced reports

Dunn, M.R & Ballara, S.L. (in prep.) Fishery description and stock assessment for ling off the West Coast South Island (LIN 7) to the 2015–16 fishing year.

Fisheries Assessment Plenary May 2019: <https://www.fisheries.govt.nz/news-and-resources/science-and-research/fisheries-research/>

[Harvest Strategy Standard for New Zealand Fisheries](#)

[National Fisheries Plan for Deepwater and Middle-Depth Fisheries 2019](#)

18 How to get more information and have your say

Fisheries New Zealand invites you to make a submission on the proposals set out in this discussion document. We must receive your submission by 5pm on 26 July 2019. Please see the Fisheries New Zealand sustainability consultation webpage (<https://www.fisheries.govt.nz/news-and-resources/consultations/review-of-sustainability-measures-for-1-october-2019>) for related information, a helpful submissions template, and information on how to submit your feedback. If you cannot access the webpage or require hard copies of documents or any other information, please email FMSubmissions@mpi.govt.nz.

¹ Aquatic Environment and Biodiversity Annual Review 2017, available at: <https://www.mpi.govt.nz/news-and-resources/open-data-and-forecasting/fisheries/>