Ministry for Primary Industries
Manatū Ahu Matua

Review of Sustainability Controls for Selected Inshore Finfish Stocks

Proposals to Alter Total Allowable Catch, Allowances and Total Allowable Commercial Catch for Red Gurnard 3 & 7, Rig 2 & 7 and Stargazer 7 from 1 October 2015

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Growing and Protecting New Zealand

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1 Introduction

This consultation document includes proposals to vary the total allowable catch (TAC), allowances and total allowable commercial catch (TACC) for five inshore finfish stocks (GUR3, GUR7, SPO2, SPO7 and STA7). Each fishstock has been discussed in a separate section and will require specific decisions by the Minister for Primary Industries for the 1 October 2015 Fishing Year. An accompanying consultation document, "Review of Deemed Value Rates for Selected Finfish Stocks" features complementary proposals for these stocks and should be read in conjunction with this paper.

The fishstocks featured in this consultation paper were prioritised for review following consideration of the latest science information. During the prioritisation process, a number of other stocks with more complex fisheries management considerations were also identified. The Ministry for Primary Industries proposes to initiate pre-consultation on the management approach for a number of these stocks during the 2015/16 year to support the development of proposals in 2016.

2 Submission Information

MPI welcomes written submissions on any or all of the proposals contained in the Consultation Document. All written submissions must be received by MPI no later than 5pm on 17 July 2015.

Written submissions should be sent directly to:

Inshore Fisheries Management
Ministry for Primary Industries
P O Box 2526
Wellington 6011

or emailed to FMsubmissions@mpi.govt.nz

2.1 OFFICIAL INFORMATION ACT 1982

All submissions are subject to the Official Information Act and can be released (along with personal details of the submitter) under the Act. If you have specific reasons for wanting to have your submission or personal details withheld, please set out your reasons in the submission. MPI will consider those reasons when making any assessment for the release of submissions if requested under the Official Information Act.

RED GURNARD 3 (GUR3)

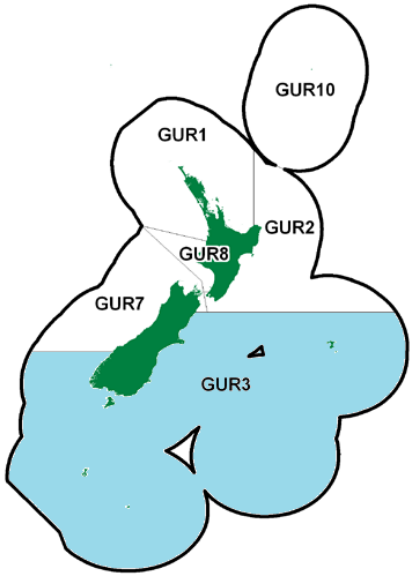


Figure 1: Quota Management Areas (QMAs) for red gurnard (GUR) fish stocks. GUR3 is indicated by shading.

1 Executive Summary

The Ministry for Primary Industries (MPI) is seeking information and views from tangata whenua and stakeholders to inform a review of catch limits for the GUR3 fishstock (red gurnard in the GUR3 quota management area, see Figure 1).

New information indicates the level of GUR3 biomass is capable of supporting higher catches, while ensuring sustainability. Continued monitoring of GUR3 will support future reviews of catch limits, which will likely be needed in the medium-term given that the abundance of gurnard tends to fluctuate in cycles.

MPI proposes the following options for the upcoming fishing year (Table 1):

Table 1: Proposed Management Settings for GUR3

Option	Total Allowable Catch (t)	Total Allowable Commercial Catch (t)	Allowances		
			Customary Māori (t)	Recreational	Other Sources of Fishing-Related Mortality
Option 1 (Status Quo)	1163	1100	3	5	55
Option 2	1248	1180	3	6	59
Option 3	1290	1220	3	6	61

2 Purpose

2.1 NEED FOR ACTION

The best available information on stock status for GUR3 supports observations that current abundance is relatively high compared to the long-term average, and above the target reference point. The information suggests that there is potential to provide for increased benefits from the stock through an increase to the total allowable catch (TAC) while ensuring sustainability.

2.2 MANAGEMENT APPROACH

The TAC for GUR3 can be varied under section 13 of the Fisheries Act 1996 (the Act). Section 13(2) of the Act sets out requirements for setting a TAC where a reliable estimate of the current biomass of the stock ($B_{CURRENT}$) and the level of biomass that can produce the maximum sustainable yield (B_{MSY}), is known. Alternatively, where current biomass and B_{MSY} are not known, section 13(2A) of the Act provides for the Minister to use the best available information to set a TAC that is not inconsistent with the objective of maintaining the stock at or above, or moving the stock towards or above, the B_{MSY} level.

The draft National Fisheries Plan for Inshore Finfish[1] acknowledges that it is currently not feasible or cost-effective to obtain robust estimates of biomass for a large number of inshore finfish stocks. The Plan refers to alternative approaches to monitoring stocks to inform management reviews including an approach based on accepted indicators of relative abundance. In these circumstances it is appropriate to set the TAC under section 13(2A) of the Act.

GUR3 currently[2] falls within a group of stocks where a relative abundance monitoring approach is being used. Key indicators used to monitor and inform management of GUR3 include catch per unit effort from the commercial fishery (CPUE), which has been updated to the end of the 2013/14 fishing year, and an estimate of relative biomass from the East Coast South Island trawl survey, which was last undertaken in 2014. These indicators are discussed alongside other relevant information in the background section below.

3 Background Information

3.1 BIOLOGICAL CHARACTERISTICS OF RED GURNARD

Red gurnard is a fast growing, moderately short-lived species, with a maximum age of 16 years. Red gurnard reach sexual maturity at 2-3 years old at a length of about 23cm. Due to the fast growth rate and short lifespan of red gurnard, fluctuations in recruitment (the addition of new fish to the population and fishery each year) tend to result in large cyclical fluctuations in stock biomass.

The fluctuations in stock biomass can provide opportunities for increased utilisation when there are consecutive years of good recruitment, which create strong year classes in the population. However, it also means that management action is required to reduce catches at times where there is a period of poor recruitment.

[1] The Draft National Fisheries Plan for Inshore Finfish is a working document being used to guide management of fishstocks by the Ministry for Primary Industries. The plan will be refined further before being submitted for the Minister's approval under s11A of the Fisheries Act 1996.

[2] Given the data available, there is potential to undertake a quantitative stock assessment to estimate biomass for GUR3. The costs and benefits of prioritising this piece of work will need to be considered as part of the further development of the draft Fisheries Plan.

3.2 FISHERY DESCRIPTION

Information on the fishery for GUR3 is not only relevant for decisions on setting the TAC, but for subsequent decisions to set allowances for Māori customary non-commercial fishing interests, recreational interests, a total allowable commercial catch limit (TACC) and make an allowance for all other mortality to that stock caused by fishing.

3.2.1 Commercial

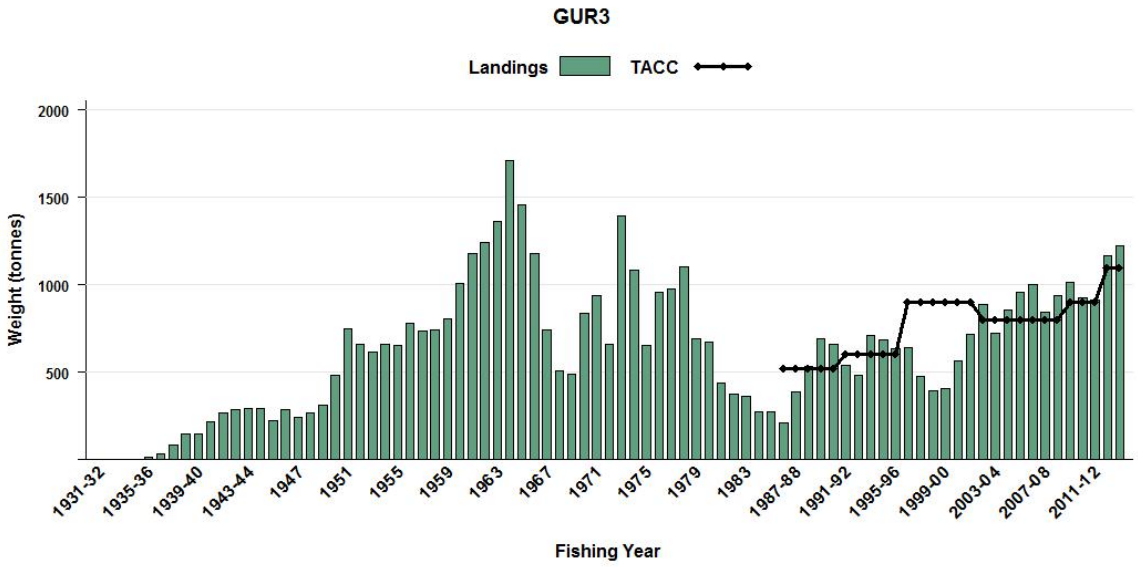


Figure 2: Reported commercial landings and TACCs for GUR3.

GUR3 is largely taken as a bycatch of inshore trawl fisheries with the highest catches taken in statistical area 22 (Canterbury Bight). There is also some direct targeting (< 10%) including minor target fisheries for GUR3 in Pegasus Bay. The proportion taken by Danish seining has increased over the last ten years up to about 20% of the commercial catch. Catches by other commercial fishing methods are very low.

Red gurnard was introduced into the Quota Management System (QMS) in 1986. GUR3 landings have fluctuated over time falling below an increased TACC in the late 1990s. Landings have increased since the early 2000s and the TACC has been regularly exceeded since 2004 despite TACC increases.

There is currently no commercial minimum legal size for red gurnard. MPI is aware of gear modification (including increases in mesh size and the use of square mesh escape panels) being implemented by some commercial fishers. These initiatives should result in fewer small gurnard of low market value being taken.

3.2.2 Recreational

While red gurnard is important to recreational fishers across New Zealand, the sector's catches within GUR3 are relatively low compared to those of the commercial sector. The National Panel Survey of Marine Recreational Fishers[3] 2011/12 provides the best available information on recreational harvest for GUR3. This survey estimated 2.01 tonnes (4605 individual fish) of red gurnard were caught in GUR3 in the 2011/12 fishing year. This estimate is based on a relatively small number of events and fishers and, as a result, is uncertain. Further, this estimate is understood to be an underestimate of harvest due to under-

[3] Available at http://fs.fish.govt.nz/Doc/23718/FAR_2014_67_2847_MAF2010-01.pdf.ashx

sampling of a key fishery within GUR3 during the National Panel Survey 2011/12. Recreational catch is likely to vary from year to year. Information on current catches is not available.

Red gurnard are mainly taken by recreational fishers using lines. The minimum legal size for recreational catch of red gurnard is 25 cm. The maximum daily bag limit[4] is 30 (as part of the combined finfish daily bag limit of 30) in the GUR3 area.

3.2.3 Māori Customary

Red gurnard (kumukumu) is an important species for customary non-commercial fishing interests, by virtue of its wide distribution in shallow, accessible coastal waters. It is identified by Te Waka a Mäui me Ōna Toka iwi forum[5] as a taonga species in the Te Waipounamu Iwi Fisheries Plan. This plan contains objectives to support and provide for the customary and commercial interests of South Island iwi.

Customary catch data available for most of the GUR3 area provides few reports of the take of red gurnard. Anecdotal information suggests catch by customary Māori fishers is occurring within the amateur daily bag limit. MPI is continuing to work together with the Te Waka a Māui me Ōna Toka Forum (the Forum) to improve customary catch reporting.

3.2.4 Other Sources of Fishing-Related Mortality

This allowance covers the mortality of fish that results from various factors associated with fishing, but not reported as catch. This can include fish that escape the gear, but die. In addition, this allowance covers any component of catch that is unlawfully discarded (in the case of QMS species).

No quantitative information is available to support the setting of the allowance for other sources of fishing-related mortality for GUR3.

3.3 PREVIOUS REVIEW

The management of GUR3 has been reviewed four times in the last fifteen years. The result of the most recent review was to increase the TAC from 953 t to 1163 tonnes effective 1 October 2012. At this time the TACC was increased to 1100 tonnes (from 900 tonnes). The recreational allowance was increased from 3 to 5 tonnes and an allowance for other sources of fishing-related mortality was increased from 45 tonnes to 55 tonnes. The customary Maori allowance remained unchanged at 3 tonnes.

3.4 NEW INFORMATION

The best available information on stock status for GUR3 is trends in relative abundance available from the fishery independent East Coast South Island (ECSI) trawl survey series[6] , and from standardised CPUE indices from the bottom trawl fishery (one targeting flatfish and one targeting a mix of other species, including red cod) that have been updated to the end of the 2013/14 fishing year. These series of data have been accepted as reliable indices of relative abundance for GUR3 and the CPUE index has enabled the setting of a management target that equates to B_{MSY}.

[4] There are some areas of GUR3, such as the Akaroa Harbour Taiapure, where lower bag limits apply.
[5] The Te Waka a Mäui me öna toka iwi forum represents the nine iwi of the South Island, each holding mana moana and significant interests (both commercial and non-commercial) in South Island fisheries.
[6] The ECSI trawl survey estimates presented in figure 3 are from winter surveys. For a period from the mid-1990s to 2007 surveys were undertaken during summer but this approach was discontinued due to uncertainties. The ECSI trawl survey has only covered the full depth range (10-400m) of GUR3 since the winter surveys were reinstated in 2007. A variable proportion of the population in the previously un-surveyed 10-30m depth range suggests that survey catchability varies between years in the core survey area (30-400m).

The trawl CPUE series increased steadily from the late 1990s to 2009/10, and then declined but has remained above the target level (see Figure 3). The ECSI trawl survey was conducted in water depths of 30-400m until 2007, and therefore excluded a substantial proportion of red gurnard habitat, occurring in shallower water. In 2007 the survey area was expanded to include the 10-30 m depth range in order to monitor red gurnard and elephant fish. GUR 3 relative biomass estimates for the 2012 and 2014 surveys are substantially higher than that for 2007. Estimates of relative biomass for the core area (30-400m), although less reliable, suggest an increasing trend in abundance since the mid-1990s (Figure 3). The status of the GUR3 stock has been discussed in 2015 through MPI's Fishery Assessment Working Group process. It was concluded that the current abundance of GUR3 is at historically high levels, and that it was likely to be above the target level.

The high levels of abundance suggest that there is potential to secure greater benefits from the GUR3 stock at a higher TAC at least over the short to medium term.

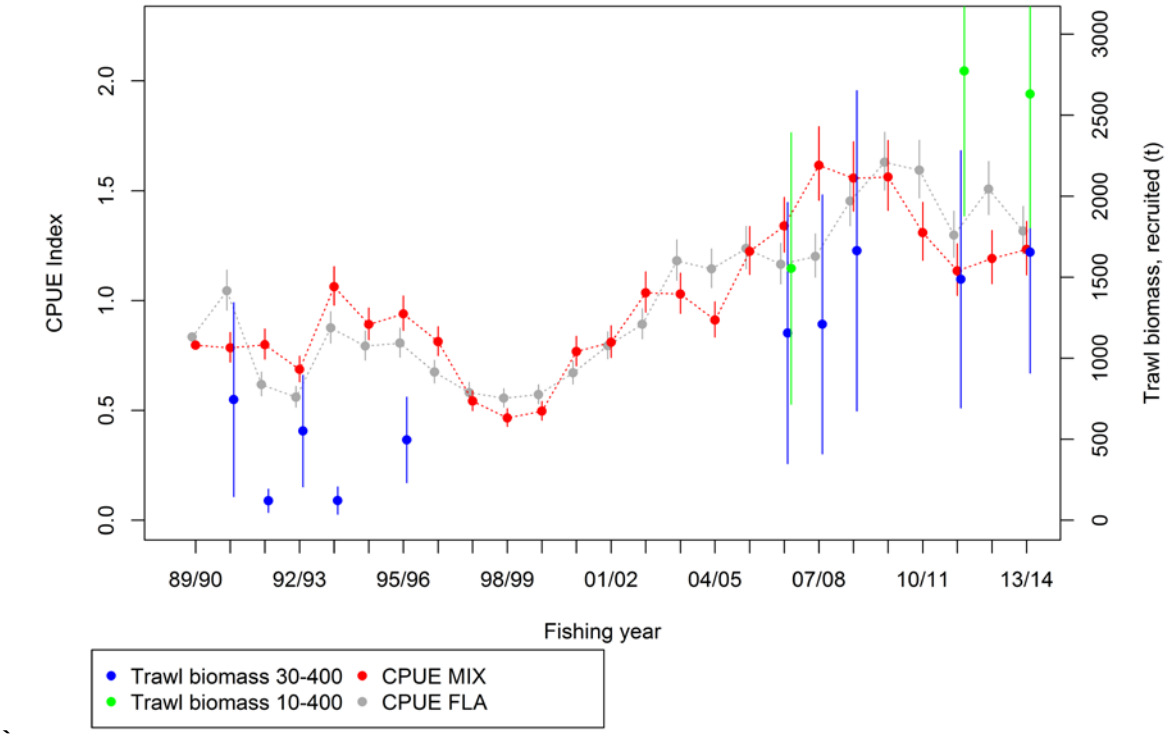


Figure 3: Standardised CPUE indices for two east coast South Island bottom trawl fisheries [BT(MIX) and BT(FLA)] compared to trawl survey estimates of recruited (>= 30 cm T.L.) biomass for red red gurnard from the winter ECSI inshore trawl survey for two survey areas (30-400 m and 10-400 m). Error bars show ±95% confidence intervals.

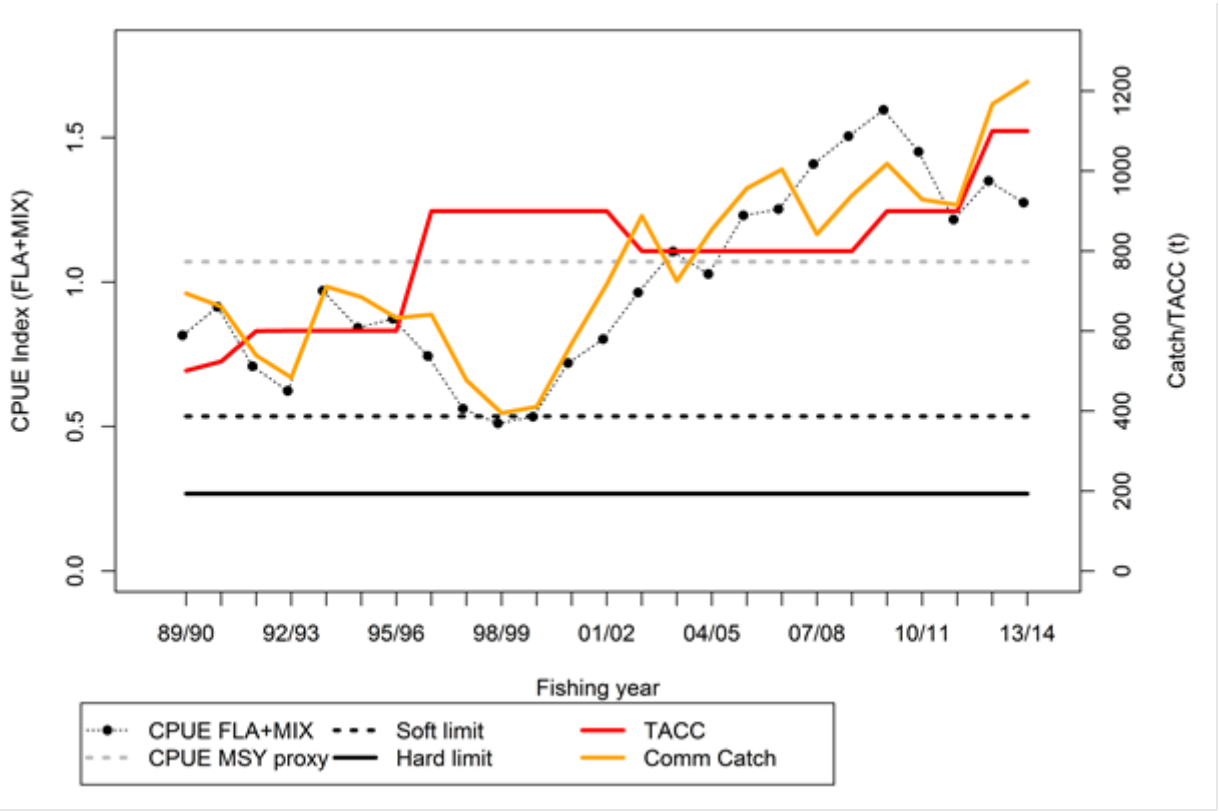


Figure 4: Comparison of east coast South Island winter trawl survey recruited biomass and CPUE indices (average FLA and MIX) and the trajectories of catch and TACCs from 1989/90 to 2013/14. The horizontal grey line represents the MSY proxy relative to the CPUE series. The black dotted and solid lines represent the soft and hard limits, respectively.

4 Legal Considerations

4.1 SETTING MANAGEMENT MEASURES

Given indications that the current biomass of GUR3 is relatively high, MPI considers that modest increases to catch limits for GUR3 are not inconsistent with the objective of maintaining the stock at or above B_{MSY}, or moving the stock towards or above B_{MSY}. Further legal considerations are discussed at 2.2 above.

4.2 FURTHER CONSIDERATIONS

When making a decision concerning the TAC for a stock, the Minister must have regard to the interdependence of stocks, the biological characteristics (discussed earlier) and any environmental conditions affecting the stock. MPI does not have sufficient information to comment on any environmental conditions affecting GUR3.

Sections 9(a) and (b) of the Act also require the Minister to take into account that associated or dependent species be maintained at or above a level that ensures their long-term viability, and that the biological diversity of the aquatic environment should be maintained.

The key environmental interactions associated with the GUR3 fishery are discussed below with reference to the likely impacts of the proposed management options.

4.2.1 Marine Mammals

Hector's dolphins, New Zealand fur seals and New Zealand sea lions occur on the east coast of the South Island and consideration needs to be given to the potential implications of an

increase in the GUR3 TAC. Red gurnard is taken mostly as a bycatch of trawling for other species and the higher TACC is likely to be caught during the current effort into the existing target species. No new effort targeting red gurnard is expected. Therefore, MPI concludes there will probably be little change in the risk posed by fishing to these marine mammals from an increase in the GUR3 TAC.

4.2.2 Fish Bycatch

MPI notes that the commercial catch of a number of species in the East Coast South Island and mixed trawl fisheries, including elephant fish and flatfish, are already at the level of their respective TACCs. However, gurnard is largely taken as bycatch so an increase in TACC for red gurnard is unlikely to exacerbate this situation. MPI anticipates that the proposed increase in TACC for red gurnard will cover the additional catch of GUR3 taken as bycatch when targeting the usual target species in this fishery, and not support additional target fishing.

4.2.3 Seabirds

As with marine mammals, MPI does not anticipate any significant change to the current practices within the mixed trawl fishery and, hence, no change in the interactions with seabirds.

4.2.4 Benthic Impacts

As red gurnard are largely a bycatch species, and no additional trawling effort to take the higher TACC is anticipated, MPI does not anticipate any significant increase in benthic impacts arising from the proposed TAC increases.

5 Proposed Options

Table 2: Proposed Management Settings for GUR3

Option	Total Allowable Catch (t)	Total Allowable Commercial Catch (t)	Allowances		
			Customary Māori (t)	Recreational	Other Sources of Fishing-Related Mortality
Option 1 (Status Quo)	1163	1100	3	5	55
Option 2	1248	1180	3	6	59
Option 3	1290	1220	3	6	61

5.1 OPTION 1 (STATUS QUO)

Option 1 is the status quo and proposes no changes to the TAC, TACC or allowances for customary Māori, recreational or other sources of fishing-related mortality.

Based on the available information (discussed above), this option takes a cautious approach to change, reflecting the uncertainty regarding how much the GUR3 biomass has increased, even though the best available information on abundance suggests that the current abundance is high. Although there has been a slight decline in the CPUE index in the latest year, the index is still well above the target reference point.

Impact
The available information suggests there is potential for at least short-term economic benefits that will not be realised under Option 1 and that therefore best value from the GUR3 fishery will not be achieved from the fishery under this option.

Option 1 does not reflect commercial catch trends of the last six years that have averaged 1170 t. This option also necessitates the ongoing cost to fishers of covering over-catch of GUR3 with deemed value payments. GUR3 deemed value payments in 2013/14 totalled $207,864.85.

The current TACC for GUR3 could be constraining associated target fisheries. In mixed fisheries, fishers have to change fishing practices and behaviours as they manage annual catch entitlement (ACE) constraints in bycatch species, such as red gurnard. In some cases this may mean stopping fishing for target species, if levels of red gurnard abundance are high.

5.2 OPTION 2

Option 2 proposes:

- The TAC be increased from 1164 tonnes to 1248 tonnes (an increase of 7%).
- The TACC be increased from 1100 tonnes to 1180 tonnes (an increase of 7%).
- The customary Māori allowance would remain at 3 tonnes.
- The recreational allowance would be increased from 5 to 6 tonnes (an increase of 20%).
- The allowance for other sources of fishing-related mortality be set at 59 tonnes (5% of the TACC).

Option 2 proposes an increase to the TAC to take advantage of an opportunity for greater sustainable utilisation. Option 2 provides for a TACC increase of 7% and an increase to the recreational allowance of 1 tonne.

Best available information suggests that biomass is at historically high levels and likely to be above the target. MPI considers that Option 2 is not inconsistent with maintaining or moving the stock to a level at or above B_{MSY}.

No changes are proposed to the Māori customary allowance as best available information suggests that current settings will provide for current levels of catch. The allowance for customary use is not set to constrain catch, but to reflect levels of current utilisation.

The increase to the allowance for recreational fishing recognises the likelihood of increased availability from the increased abundance and consequently increased catch, and that the available estimate of catch in 2011/12 is likely to be an underestimate.

Information for setting the allowance for other sources of fishing-related mortality is uncertain. In the absence of additional information, MPI proposes that if any changes are made to catch limits an allowance be set that equates approximately to 5% of the TACC to account for the likely mortality of small fish affected by the gear and other unquantified sources of mortality.

Impact
Option 2 provides for some economic opportunities, at least in the short-term. Based on a 2015/16 port price of $1.98/kg, Option 2 would generate an additional $158,400 of revenue compared to Option 1 (the status quo). Importantly it would also provide for greater

utilisation of target fisheries, where there is opportunity to increase catch, by providing more ACE to cover GUR3 bycatch. However, MPI is not able to quantify the level or value of this increased utilisation.

MPI considers continued monitoring (via the ECSI trawl survey and CPUE analysis) mitigates any additional risk posed by Option 2. The Working Group cautions "that for a short-lived species, management should be prepared to respond to declines in abundance which may result from increased catches or reduced recruitment." Because of the recruitment driven nature of the fishery, MPI considers that CPUE analysis should be undertaken relatively frequently. The ECSI trawl survey is currently repeated every two years. This and updated CPUE analyses should enable any decline in abundance to be detected and catch limits to be reviewed promptly.

5.3 OPTION 3

Option 3 proposes:

- The TAC be increased from 1164 tonnes to 1289 tonnes (an increase of 11%).
- The TACC be increased from 1100 tonnes to 1220 tonnes (an increase of 11%).
- The customary Māori allowance would remain at 3 tonnes.
- The recreational allowance would be increased from 5 to 6 tonnes (an increase of 20%).
- The allowance for other sources of fishing-related mortality be set at 61 tonnes (5% of the TACC).

Option 3 proposes an increase to the TAC to enable greater sustainable utilisation. Option 3 provides for an 11% increase to the TACC and an increase to the recreational allowance of 1 tonne.

Consistent with Option 2, no changes are proposed to the Māori customary allowance as best available information suggests that current settings will provide for current levels of catch.

The increase to the allowance for recreational fishing recognises the likelihood of increased availability from the increased abundance, as for Option 2.

Also consistent with Option 2, it is proposed that the allowance for other sources of fishing-related mortality be set at 5% of the TACC.

Impact

Like Option 2, MPI considers Option 3 is not inconsistent with maintaining or moving the GUR3 stock at or above B_{MSY}. However, as the risks are comparatively higher, continued monitoring would help to mitigate those risks under Option 3. Close monitoring of the stock would identify any potential decline in stock abundance and enable an appropriate management response. MPI considers the same monitoring noted under Option 2 should continue for Option 3.

Of the three options, Option 3 would enable the commercial fishing industry to obtain further value from the fishery. Based on a 2011/12 port price of $1.98/kg this would generate an additional $237,600 of revenue. It also provides further opportunities for the utilisation of associated target fisheries by providing more GUR3 annual catch entitlement. Again, MPI is not able to quantify the level or value of this.

6 Other Matters

6.1 DEEMED VALUES

Deemed values are an economic tool that incentivises commercial fishers not to catch in excess of their individual annual catch entitlements. A discussion of the deemed value rates for GUR3 is included in the accompanying consultation document "Review of Deemed Value Rates for Selected Finfish Stocks".

6.2 RECREATIONAL CONTROLS

There is no information to suggest a change to recreational controls would be needed and no changes to the recreational daily bag limit are proposed.

7 Conclusion

Available information suggests that current relative abundance is high and there is an opportunity for deriving increased benefits from GUR3, at least in the short term.

Retaining the status quo (Option 1) is the most cautious response, but is likely to constrain the fishery and complicate catch balancing in other target commercial fisheries within the area. Two options for increasing the TAC are proposed for 1 October 2015. These options recognise the higher abundance of GUR3 and propose increases to take advantage of the opportunity for greater sustainable utilisation. The proposed options include increases to the TACC which would assist with catch balancing in the commercial mixed fishery, increases to the recreational allowance to reflect the increased potential from increased availability and recognise the uncertainty in the estimate of recreational catch, and increases to the allowance for other sources of fishing-related mortality.

Gurnard abundance is known to fluctuate naturally, and alternative management approaches can be adopted to be more or less responsive to these changes. A more responsive approach would see more frequent changes to TACCs.

No changes are proposed to the Māori customary or recreational allowance as best available information suggests that current settings will provide for current levels of catch.

It is proposed that alongside increases to the TACC the allowance for other sources of fishing-related mortality be set at 5% of the TACC.

MPI is seeking information and views from tangata whenua, fishery stakeholders and other interested parties to support the development of final advice to the Minister.

It is important to note that the Minister has broad discretion in exercising his powers of decision-making. He will make his own independent assessment of the information presented to him before making a final decision on varying a TAC, allowances and TACC.

RED GURNARD 7 (GUR7)

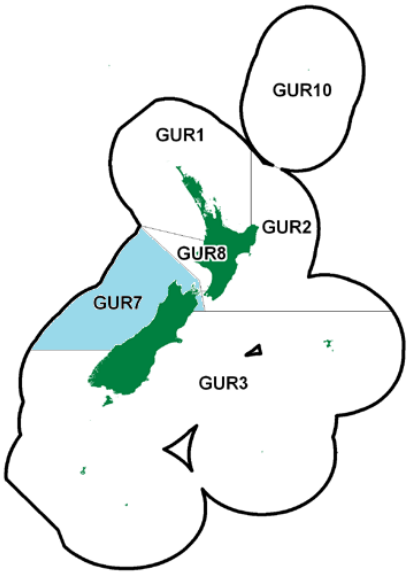


Figure 1: Quota Management Areas (QMAs) for gurnard fish (GUR) stocks. GUR7 is indicated by shading.

1 Executive Summary

The Ministry for Primary Industries (MPI) is seeking information and views from tangata whenua and stakeholders to inform a review of catch limits for the GUR7 fishstock (red gurnard in the GUR7 quota management area, see Figure 1).

New information indicates the level of GUR7 biomass is capable of supporting higher catches, while ensuring sustainability. Continued monitoring of GUR7 will support future reviews of catch limits, which will likely be needed in the medium-term given the abundance of gurnard tends to fluctuate in cycles.

MPI proposes the following options for the upcoming fishing year (Table 1):

Table 1: Proposed Management Settings for GUR7

Option	Total Allowable Catch (t)	Total Allowable Commercial Catch (t)	Allowances		
			Customary Māori (t)	Recreational	Other Sources of Fishing-Related Mortality
Option 1 (Status Quo)	855	785	10	20	40
Option 2	887	815	10	21	41
Option 3	919	845	10	22	42

2 Purpose

2.1 NEED FOR ACTION

The best available information on stock status for GUR7 supports observations that current abundance is relatively high compared to the long-term average and indicates above average recruitment in recent years. The information suggests there is potential to provide for increased benefits from the stock through an increase to the total allowable catch (TAC) while ensuring sustainability.

2.2 MANAGEMENT APPROACH

The TAC for GUR7 can be varied under section 13 of the Fisheries Act 1996. Section 13(2) of the Fisheries Act sets out requirements for setting a TAC where a reliable estimate of the current biomass of the stock ($B_{CURRENT}$) and the level of biomass that can produce the maximum sustainable yield (B_{MSY}), is known. Alternatively, where current biomass and B_{MSY} are not known, section 13(2A) of the Act provides for the Minister to use the best available information to set a TAC that is not inconsistent with the objective of maintaining the stock at or above, or moving the stock towards or above, the B_{MSY} level.

The draft National Fisheries Plan for Inshore Finfish[7] acknowledges that it is currently not feasible or cost-effective to obtain robust estimates of biomass for a large number of inshore finfish stocks. The Plan refers to alternative approaches to monitoring stocks to inform management reviews including an approach based on accepted indicators of relative abundance. In these circumstances it is appropriate to set the TAC under section 13(2A) of the Act.

GUR7 currently falls within a group of stocks where a relative abundance monitoring approach is being used. Key indicators used to monitor and inform management of GUR7 include catch per unit effort from the west coast commercial fishery (CPUE), which has been updated to the end of the 2012/13 fishing year, and an estimate of relative biomass from the West Coast South Island trawl survey from 2013 with preliminary information available for 2015. These indicators are discussed alongside other relevant information in the background section below.

3 Background Information

3.1 BIOLOGICAL CHARACTERISTICS OF RED GURNARD

Red gurnard is a fast growing, moderately short lived species, with a maximum age of 16 years, they reach sexual maturity at 2-3 years old at a length of about 23cm. Due to the fast growth rate and short lifespan of red gurnard, fluctuations in recruitment (the addition of new fish to the population and fishery each year) tend to result in large fluctuations in stock biomass.

The fluctuations in stock biomass can provide opportunities for increased utilisation when there are consecutive years of good recruitment, which create strong year classes in the population. But, it also means that management action is required to reduce catches at times of persistent low recruitment.

[7] The Draft National Fisheries Plan for Inshore Finfish is a working document being used to guide management of fishstocks by the Ministry for Primary Industries. The plan will be refined further before being submitted for the Minister's approval under s11A of the Fisheries Act 1996.

3.2 FISHERY DESCRIPTION

Information on the fishery for GUR7 is not only relevant for decisions on setting the TAC, but for subsequent decisions to set allowances for Māori customary non-commercial fishing interests, recreational interests, a total allowable commercial catch limit (TACC) and make an allowance for all other mortality to that stock caused by fishing.

3.2.1 Commercial

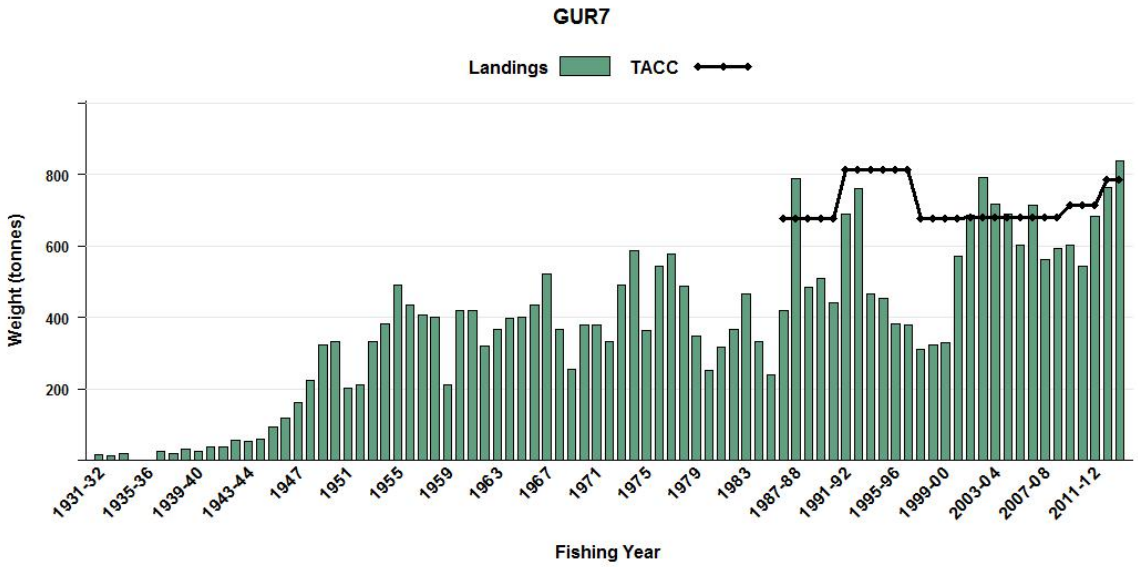


Figure 2: Reported commercial landings and TACCs for GUR7.

GUR7 is a major bycatch of inshore trawl fisheries including RCO, STA, BAR, TAR, WAR, and flatfish. Some target fishing for red gurnard occurs off the west coast South Island and a little in Tasman and Golden Bays (stat area 038).

Red gurnard was introduced into the Quota Management System (QMS) in 1986 and the TACC for GUR7 was based on the 1983 landings. The fishery landings have exhibited the peaks and troughs characteristic of changes in red gurnard abundance (see Figures 2 & 4).

There is currently no commercial minimum legal size for red gurnard. MPI is aware of gear modification (including increases in mesh size and the use of square mesh escape panels) being implemented by some commercial fishers. These initiatives should result in fewer small gurnard of low market value being taken.

3.2.2 Recreational

While red gurnard is an important recreational species across New Zealand, catches of gurnard by recreational fishers are relatively low within GUR7 compared to those of the commercial sector.

The National Panel Survey of Marine Recreational Fishers 2011/12[8] provides the best available information on recreational harvest for GUR7. This survey estimated 12 tonnes of red gurnard were caught in GUR7 in the 2011/12 fishing year. This estimate is based on a relatively small number of events and fishers and, as a result, is subject to relatively high

[8] Available at http://fs.fish.govt.nz/Doc/23718/FAR_2014_67_2847_MAF2010-01.pdf.ashx

uncertainty. Recreational catch is also likely to vary from year to year. Information on current catches is not available.

The main methods used to manage recreational harvests of red gurnard are minimum legal size limits (MLS), method restrictions and daily bag limits. Fishers can take up to 20 red gurnard as part of their combined daily bag limit and the MLS is 25 cm.

3.2.3 Māori Customary

Red gurnard (kumukumu) is an important species for customary non-commercial fishing interests, by virtue of its wide distribution in shallow, accessible coastal waters. It is identified by Te Waka a Mäui me Ōna Toka iwi forum[9] as a taonga species in the Te Waipounamu Iwi Fisheries Plan. This plan contains objectives to support and provide for the customary and commercial interests of South Island iwi.

Information currently held by MPI on Māori customary catch of GUR7 is uncertain. This may be a reflection that tangata whenua in the Tasman/Golden Bay and Marlborough Sounds area are still operating under regulations 51 and 52 of the Fisheries (Amateur Fishing) Regulations 2014 (the Amateur Regulations), which does not require the reporting of customary permits or catches. Or it may suggest that tangata whenua use of the recreational fishing regulations allows for current customary harvest levels at this time.

3.2.4 Other Sources of Fishing-related Mortality

This allowance covers the mortality of fish that results from various factors associated with fishing, but not reported as catch. This can include fish that escape the gear, but die. In addition, this allowance covers any component of catch that is unlawfully discarded (in the case of QMS species).

3.3 PREVIOUS REVIEW

The most recent reviews of the management settings for GUR7[10] occurred in 2009 and 2012. In 2009 the TAC was set at 759 tonnes, the TACC was increased by 5% to 715 tonnes and allowances for Māori customary (10 tonnes) recreational (20 tonnes) and other sources of fishing-related mortality (14 tonnes) were set for the first time. In 2012 the TAC was increased to 855 tonnes and the TACC was increased to 785 tonnes, based on the evidence of an increasing index of abundance from the WCSI trawl survey. Settings for non-commercial harvest where unchanged, however, the allowance for other sources of fishing-related mortality was increased from 14 to 40 tonnes.

3.4 NEW INFORMATION

The best available information on abundance to inform TAC setting for GUR7 at this time is the West Coast South Island (WCSI) trawl survey and catch per unit of effort (CPUE) analyses from the west coast bottom trawl fishery (mixed species and flatfish). These data series have been accepted as reliable indices of relative abundance for GUR7 and have enabled the setting of reference points (one from the CPUE and another based on the trawl survey (using the abundance of gurnard above 30 cm in length) to support management, both indices coming from the west coast area and excluding Tasman/Golden Bays). CPUE shows the abundance of GUR7 increasing considerably since 2009/10 but the index has not been updated since the end of the 2012/13 fishing year (see Figure 3). In 2014 MPI's Fishery Assessment Working Group concluded that the current abundance of GUR7 is about as likely

[9] The Te Waka a Mäui me öna toka iwi forum represents the nine iwi of the South Island, each holding mana moana and significant interests (both commercial and non-commercial) in South Island fisheries.

as not (40 to 60%) to be at or above the target, and that overfishing is unlikely (<40%) to be ocurring.

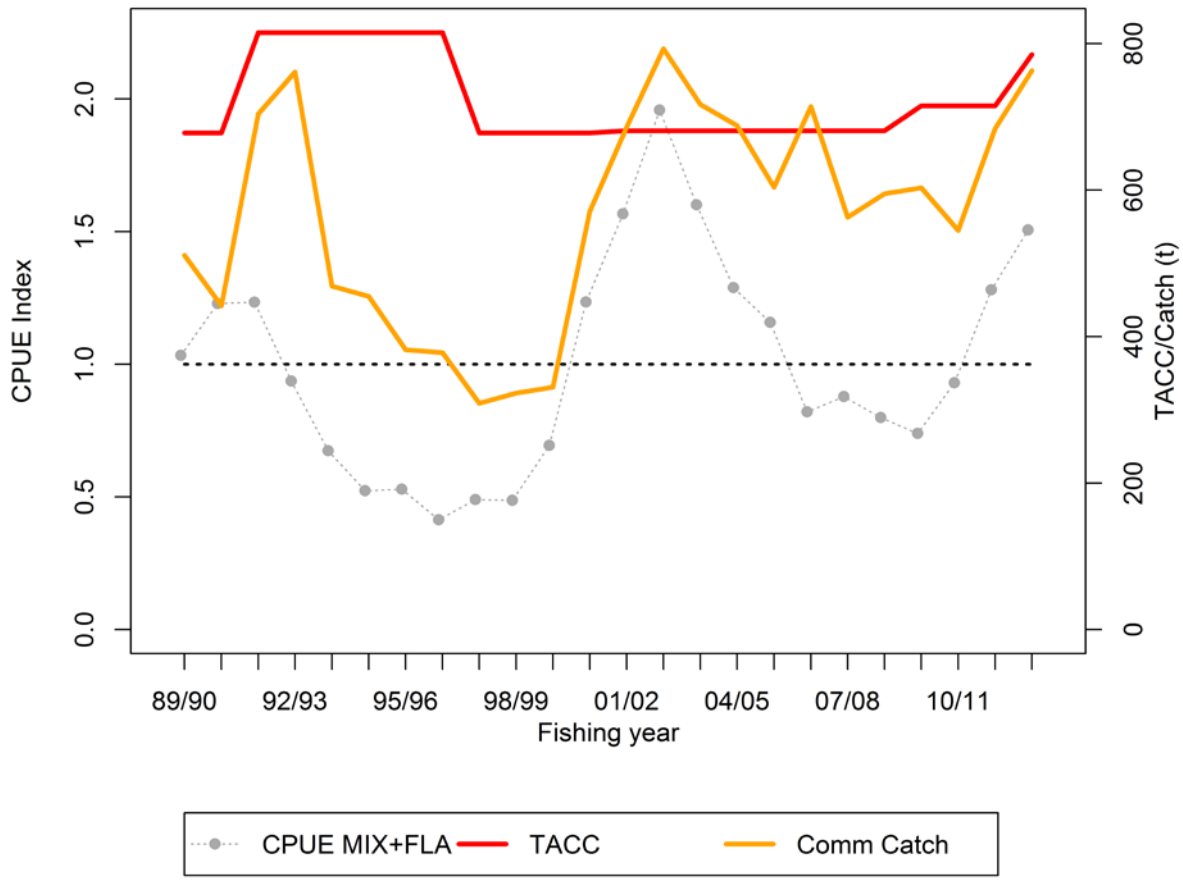


Figure 3: Standardised CPUE indices for GUR7 from a composite west coast inshore trawl fishery index series

The WCSI trawl survey relative biomass indices also indicate high abundance in recent years with the estimates from 2011 and 2013 the highest in the time series (see Figure 4). In 2013 Estimates of pre-recruit fish from the WCSI trawl survey indicated moderate recruitment in recent years. The Working Group concluded that biomass has increased considerably since 2009/10 while there was only a moderate increase in annual catches.

Although yet to be considered by the Science Working Group process, preliminary estimates of relative biomass in GUR7 (gurnard above 30 cm) from the West Coast area of the recently completed WCSI trawl survey (March 2015) shows a substantial increase to 952.1 tonnes (lower bound: 496.0, upper bound: 1408.2), CV 24.0%. Initial analysis suggests that this estimate is likely to be accepted and used to update the survey series, which provides support for the recent increasing abundance.

It is anticipated the updated WCSI trawl survey information, including length frequency data, will be available to inform the Minister's decisions for the 1 October 2015 fishing year.

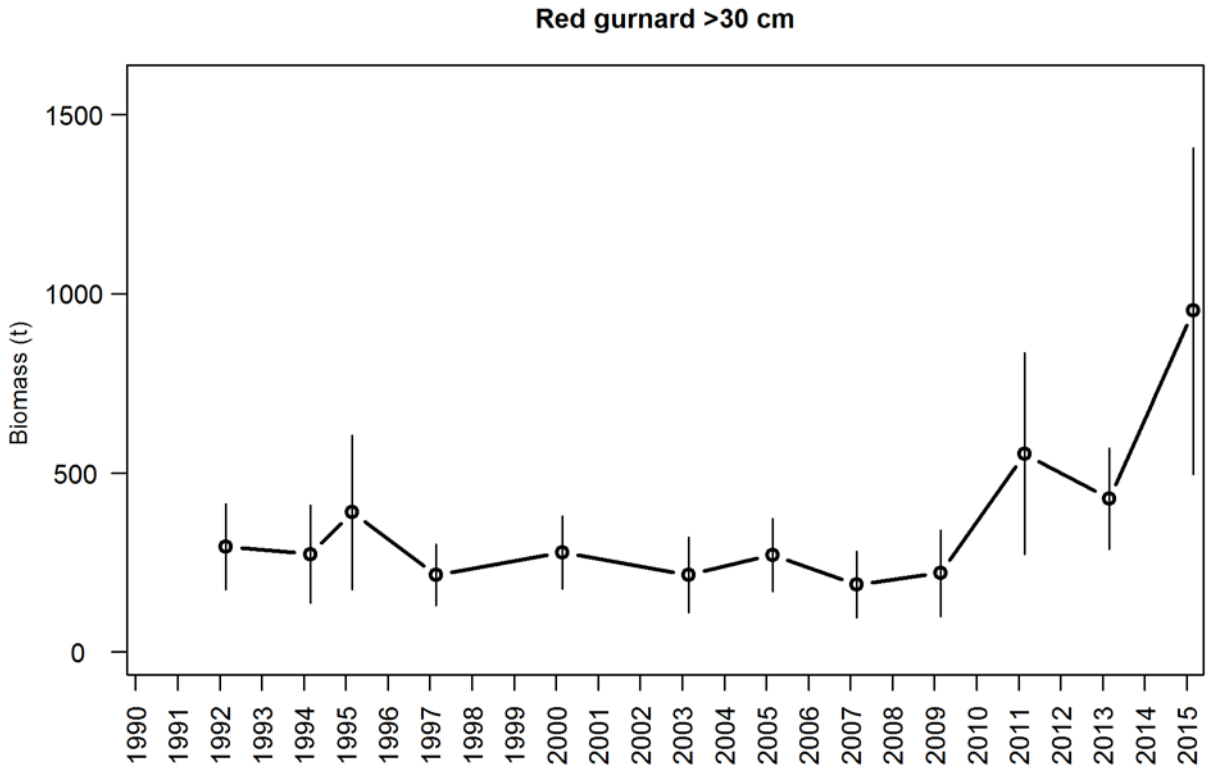


Figure 4: Red gurnard (>30 cm) biomass trends ± 95% CI (estimated from survey CVs assuming a lognormal distribution) from the West Coast part of the West Coast South Island trawl surveys.

4 Legal Considerations

4.1 SETTING MANAGEMENT MEASURES

Given indications that the current biomass of GUR7 is relatively high MPI considers that modest increases to catch limits for GUR7 are not inconsistent with the objective of maintaining the stock at or above B_{MSY}, or moving the stock towards or above B_{MSY}. Further legal considerations are discussed at 2.2 above.

4.2 FURTHER CONSIDERATIONS

When making a decision concerning the TAC for a stock, the Minister must have regard to interdependence of stocks, the biological characteristics (discussed earlier) and any environmental conditions affecting the stock. MPI does not have sufficient information to comment on any environmental conditions affecting GUR7.

Sections 9(a) and (b) also require the Minister to take into account that associated or dependent species be maintained at or above a level that ensures their long-term viability, and that the biological diversity of the aquatic environment should be maintained.

The key environmental interactions associated with the GUR7 fishery are discussed below with reference to the likely impacts of the proposed management options.

4.2.1 Marine mammals

Hector's dolphins, New Zealand fur seals and New Zealand sea lions occur on the west coast of the South Island and consideration needs to be given to the potential implications of an increase in the GUR7 TAC. The west coast South Island population of Hector's dolphins overlaps with the GUR7 trawl fishery. There is limited information on the interaction between Hector's dolphins and trawl fisheries however a trawl capture was observed as part of a scientific observer study on the east coast of the South Island in 1998 (Baird & Bradford 1999).

Red gurnard is taken mostly as a bycatch of trawling for other species and a proposed increased GUR7 TACC is likely to be caught during the current effort into the existing target species. No new effort targeting red gurnard is expected. Therefore, MPI concludes there will probably be little change in the risk posed by fishing to these marine mammals from an increase in the GUR7 TAC.

4.2.2 Fish bycatch

MPI notes that the TACCs for a number of species in the West Coast and Golden Bay/Tasman Bay mixed trawl fisheries, including snapper, are fully caught and that an increase in TACC for red gurnard may exacerbate this situation. MPI anticipates that the proposed increase in TACC for red gurnard will cover the additional catch of GUR7 taken as bycatch from the usual target species in this fishery, and not support additional target fishing.

4.2.3 Seabirds

As with marine mammals, MPI does not anticipate any significant change to the current practices within the mixed trawl fishery and, hence, no change in the interactions with seabirds.

4.2.4 Benthic impacts

As red gurnard are largely a bycatch species, MPI does not anticipate any significant increase in trawling activity and, therefore, benthic impacts arising from the proposed TAC increases.

5 Proposed Options

Option	Total Allowable Catch (t)	Total Allowable Commercial Catch (t)	Allowances		
			Customary Māori (t)	Recreational	Other Sources of Fishing-Related Mortality
Option 1 (Status Quo)	855	785	10	20	40
Option 2	887	815	10	21	41
Option 3	919	845	10	22	42

5.1 OPTION 1

Option 1 is the status quo and proposes no changes to the TAC, TACC or allowances for customary Māori, recreational or other sources of fishing related mortality.

This option proposes a cautious approach to change, and places greater weight on the uncertainty in information about the GUR7 stock status relative to target levels and the uncertainties around the level of the increase in biomass.

Impact
Given the information showing that relative abundance has increased, MPI considers it likely that the TACC could be exceeded again (the TACC was exceeded by 52 tonnes in 2012/13). However, catches are slightly lower than at the same time last year. As the majority of GUR7 is caught as bycatch, without additional annual catch entitlement (ACE) within the fishery, fishers might face higher deemed values bills. In 2013/14 GUR7 deemed value payments totalled $4,168.74.

Retaining the current TAC and TACC might result in opportunity loss through unnecessarily constrained catch.

5.2 OPTION 2

Option 2 proposes:

- The TAC be increased from 855 tonnes to 886 tonnes (an increase of 4%).
- The TACC be increased from 785 tonnes to 815 tonnes (an increase of 4%).
- The customary Māori allowance would remain at 10 tonnes.
- The recreational allowance would increase from 20 to 21 tonnes (an increase of 5%).
- The allowance for other sources of fishing-related mortality be set at 41 tonnes (5% of the TACC).

Option 2 proposes an increase to the TAC to recognise the best available information showing increased relative abundance and biomass in GUR7, and the likelihood that the biomass is at or above target levels. Option 2 provides for a 4% increase to the TACC and an increase to the recreational allowance of 1 tonne. Increasing the TAC will provide an opportunity to allow for an increase in utilisation and in the benefit obtained from the fishery. MPI considers that Option 2 is not inconsistent with maintaining or moving the stock to a level at or above B_{MSY}.

No changes are proposed to the Māori customary allowance as best available information available suggests that current settings will provide for current levels of catch. The allowance for customary use is not set to constrain catch, but to reflect levels of current utilisation.

The increase to the allowance for recreational fishing recognises the likelihood of increased availability from the increased abundance and the uncertainty in the estimate of catch.

Information to inform the setting of the allowance for other sources of mortality for GUR7 is uncertain. In the absence of additional information MPI proposes that an allowance be set that equates approximately to 5% of the TACC to account for the likely mortality of small fish affected by the gear and other unquantified sources of mortality.

Impact
Based on the $1.82 per kilogram 2015/16 port price, a 30 tonne increase in commercial catch is worth approximately $54,600 annually to fishers.

It is expected that the current biomass of GUR7 will be able to produce a commercial catch of 815 tonnes in the short-term, during this period of elevated biomass. However, it is expected biomass will decrease over time due to natural fluctuations and, hence, a TACC of 815 tonnes will need to be monitored in the longer term. MPI proposes that ongoing biennial monitoring

through the WCSI trawl survey continue under this option, with the view to consider reviewing the TAC again when this information is updated in two years' time.

5.3 OPTION 3

Option 3 proposes:

- The TAC be increased from 855 tonnes to 916 tonnes (an increase of 8%)
- The TACC be increased from 785 tonnes to 845 tonnes (an increase of 8%).
- The customary Māori allowance would remain at 10 tonnes.
- The recreational allowance would increase from 20 tonnes to 22 tonnes (an increase of 10%).
- The allowance for other sources of fishing-related mortality be set at 42 tonnes (5% of the TACC, an increase of 5%).

Option 3 places greater weight on the information showing increased abundance and further opportunities for sustainable utilisation. Option 3 proposes an increase to the TAC of 8% and within that an 8% increase to the TACC and an increase to the recreational allowance of 2 tonnes.

An increase of 8% to the TACC will provide for greater utilisation and economic growth opportunities than Option 2. Based on the $1.82 per kilogram 2015/16 port price, a 60 tonne increase in commercial catch is worth approximately $109,200 annually.

No changes are proposed to the Māori customary allowance as best available information available suggests that current settings will provide for current levels of catch. The allowance for customary use is not set to constrain catch, but to reflect levels of current utilisation.

The increase to the allowance for recreational fishing recognises the likelihood of increased availability from the increased abundance, as for Option 2.

Consistent with Option 2 it is proposed that the allowance for other sources of fishing-related mortality be set at 5% of the TACC.

As with Option 2, MPI proposes that biennial monitoring through the WCSI trawl survey continue, with the view to review the TAC again once this information is updated in two years' time.

6 Other Matters

6.1 DEEMED VALUES

Deemed values are an economic tool that incentivises commercial fishers not to catch in excess of their individual annual catch entitlements. A discussion of the deemed value rates for GUR7 is included in the accompanying consultation document "Review of Deemed Value Rates for Selected Finfish Stocks".

6.2 RECREATIONAL CONTROLS

There is no information to suggest a change to recreational controls would be needed and no changes to the recreational daily bag limit are proposed.

7 Conclusion

Available information indicates that the biomass of GUR7 is as likely as not to be at or above target levels and increasing. GUR7 is monitored by CPUE and a relative abundance index derived from the WCSI biennial trawl survey. Gurnard abundance is known to fluctuate naturally, and alternative management approaches can be adopted to be more or less responsive to these changes. A more responsive approach would see more frequent changes to TACCs.

Option 1 is the most cautious response but is likely to constrain the fishery and complicate other target commercial fisheries within the area.

Option 2 recognises the information about increased abundance and the opportunity for increased sustainable utilisation. The proposed modest increase to the TAC will enable greater utilisation by all sectors, including an increase to the recreational allowance and making more ACE available for the commercial fishery.

Option 3 proposes greater utilisation opportunities within the scope of the available information, but places less weight on the uncertainties in the available information and possible risks to sustainability.

It is proposed that alongside increases to the TACC the allowance for other sources of fishing-related mortality be set at 5% of the TACC.

Red gurnard is known to fluctuate in cycles and MPI proposes ongoing monitoring under all options. This would allow adjustments to the TAC if abundance was shown to be declining below target levels.

MPI is seeking information and views from tangata whenua and stakeholders to support the development of final advice to the Minister on management settings for GUR7 for the fishing year commencing 1 October 2015.

It is important to note that the Minister has broad discretion in exercising his powers of decision-making. He will make his own independent assessment of the information presented to him before making a final decision on varying a TAC, allowances and TACC

RIG 2 (SPO2)

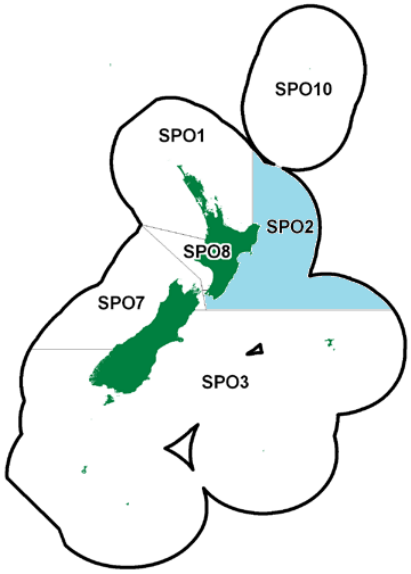


Figure 1: Quota Management Areas (QMAs) for rig (SPO) stocks. SPO2 indicated by shading.

1 Executive Summary

The Ministry for Primary Industries (MPI) is seeking information and views from tangata whenua and stakeholders to inform a review of catch limits for the SPO2 fishstock (rig in the SPO2 quota management area, see Figure 1). As part of the consultation process, the proposals for SPO2 will be discussed with the FMA2 Recreational Fishing Forum and the Legasea Hawkes Bay group to continue the dialogue about managing fisheries within the area.

Recently updated indicators of abundance for SPO2 show the biomass has continued to increase since the 2011 adjustment of the SPO2 total allowable catch (TAC). The information indicates there is an opportunity to allow increased utilisation of the stock, while ensuring sustainability.
MPI proposes the following options for the upcoming fishing year (Table 1):

Table 1: Proposed Management Settings for SPO2

Option	Total Allowable Catch (t)	Total Allowable Commercial Catch (t)	Allowances		
			Customary Māori (t)	Recreational	Other sources of fishing-related mortality
Option 1 (Status Quo)	130	108	5	10	7
Option 2	148	124	5	12	7

2 Purpose

2.1 NEED FOR ACTION

The best available information on the relative abundance of rig in SPO2 shows that abundance has trended upward since the early 2000s, and substantially increased over the last three successive years. The information indicates that there is an opportunity to increase the sustainable utilisation of SPO2 while ensuring sustainability.

2.2 MANAGEMENT APPROACH

The TAC for SPO2 can be varied under section 13 of the Fisheries Act 1996. Section 13(2) of the Fisheries Act sets out requirements for setting a TAC where a reliable estimate of the current biomass of the stock ($B_{CURRENT}$) and the level of biomass that can produce the maximum sustainable yield (B_{MSY}), is known. Alternatively, where current biomass and B_{MSY} are not known, section 13(2A) of the Act provides for the Minister to use the best available information to set a TAC that is not inconsistent with the objective of maintaining the stock at or above, or moving the stock towards or above, the B_{MSY} level.

The draft National Fisheries Plan for Inshore Finfish[11] acknowledges that it is currently not feasible or cost-effective to obtain robust estimates of biomass for a large number of inshore finfish stocks. The Plan refers to alternative approaches to monitoring stocks to inform management reviews including an approach based on accepted indicators of relative abundance. In these circumstances, it is appropriate to set the TAC under section 13(2A).

MPI notes that the management of rig stocks should also take into account the National Plan of Action-Sharks 2013 (NPOA-Sharks)[12]. This policy instrument is part of New Zealand's responsibility to act in accordance with the objectives of the International Plan of Action for the Conservation and Management of Sharks. Work to improve management of sharks in line with the objectives of the NPOA is ongoing, with further consideration of the management approach of all rig stocks scheduled for 2016. In the meantime, SPO2 currently falls within a group of stocks where a relative abundance monitoring approach is being used. The key indicator for SPO2 is currently catch per unit effort from the commercial fishery (CPUE). The CPUE time series has recently been updated to the end of the 2013/14 fishing year.

Another key component of the management framework for SPO2 and other rig stocks is its inclusion on Schedule 6 of the Fisheries Act 1996. The provision has been in place since May 2012 and provides for commercially caught rig that is likely to survive to be returned to the sea, rather than the standard requirement to land all catch.

The implications of the Schedule 6 provision and the results of the latest CPUE analysis are discussed alongside other relevant information in the background section below.

[11] The Draft National Fisheries Plan for Inshore Finfish is a working document being used to guide management of fishstocks by the Ministry for Primary Industries. The plan will be refined further before being submitted for the Minister's approval under s11A of the Fisheries Act 1996.

[12] http://www.fish.govt.nz/en-nz/Environmental/Sharks/default.htm

3 Background Information

3.1 BIOLOGICAL CHARACTERISTICS OF RIG

Rig is found around New Zealand, usually in waters no more than 200m deep. Information on the lifespan of rig is limited and uncertain but indicates rig could live to 20 years or longer. Females reach a maximum length of 151 cm fork length (FL) and males 126 cm FL. On the South Island male and female rig attain maturity at 5–6 years (about 85 cm FL) and 7–8 years (about 100 cm FL), respectively.

Rig give birth to young during spring and summer following a 10-11 month gestation period. Most females begin a new pregnancy soon after the birth of the previous litter, and therefore breed every year. The number of young produced increases exponentially with the length of the mother, and ranges from 2 to 37 (mean about 11).

Young are generally born in shallow coastal waters, especially in harbours and estuaries, throughout North and South Islands. They grow rapidly during their first summer, and then disappear as water temperatures drop in autumn–winter. They presumably move into deeper water.

Rig make extensive coastal migrations, with one tagged female moving a least 1160 km. Over half of tagged rig that have been recaptured had moved over 50 km, and over half of the females had moved more than 200 km. Females travel further than males, and mature females travel further than immature females.

Information relevant to determining rig stock structure in New Zealand was reviewed in 2009.[13] These reviews concluded that the boundaries between biological rig stocks are poorly defined, especially in the Cook Strait region. Biological links between the current management stocks will be investigated further in a project scheduled for 2016.

3.2 FISHERY DESCRIPTION

Information on the fishery for SPO2 is not only relevant for decisions on setting the TAC, but for subsequent decisions to set allowances for Māori customary non-commercial fishing interests, recreational interests, a total allowable commercial catch limit (TACC) and make an allowance for all other mortality to that stock caused by fishing.

[13] Francis, M P (2010) Movement of tagged rig and school shark among QMAs, and implications for stock management boundaries. New Zealand Fisheries Assessment Report 2010/03. 22 p.

3.2.1 Commercial

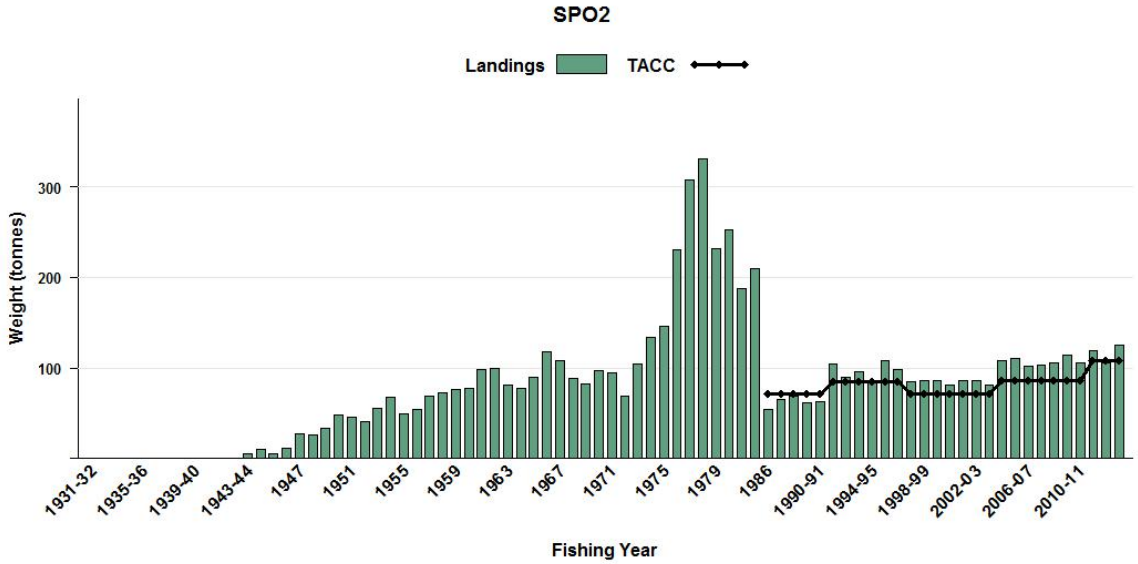


Figure 2: Landings and the TACC for SPO2 from 1931-32 to 2013-14

Rig are caught in coastal waters throughout New Zealand. Most of the catch is taken in water less than 50 m deep during spring and summer, when rig aggregate inshore. Following the introduction of rig to the QMS in 1986, landings declined to less than half those of the previous decade in response to the lower TACCs.

The majority of rig taken commercially in SPO2 is bycatch of other target fisheries. Rig is predominantly taken as bycatch from the tarakihi (TAR 2) and red gurnard (GUR 2) trawl fisheries (approximately 54%). Other fisheries catching rig include the flatfish (FLA 2), rig target (SPO2), blue warehou (WAR 2) and blue moki (MOK 1) set net fisheries.

The TACC for rig has been exceeded every year since it was set in 1992/1993 except for the 2012/13 fishing year. Since 2006, the annual commercial landings have fluctuated between 101 and 127 tonnes (Figure 2). The average catch of SPO2 in the last 5 fishing years was 114.5 tonnes.

In the 2013/14 fishing year 20,395 kg of SPO2 was landed in excess of the TACC (approximately 18.9% of the TACC), with deemed values paid. In contrast 1462 kg of SPO2 was released under Schedule 6, possibly indicating a misalignment between deemed value and port price, or that SPO caught cannot be returned to the sea alive as they might not survive capture and release. A discussion of the deemed value rates for SPO2 is included in the accompanying consultation document "Review of Deemed Value Rates for Selected Finfish Stocks.

3.2.2 Recreational

Rig are caught by recreational fishers throughout SPO2.

Due to the need for better information on recreational harvests, in 2011/12 MPI commissioned new recreational research (a large-scale, multi-species study called the National Panel Survey) to obtain better harvest estimates for a range of stocks. The National Panel Survey[14] estimate for SPO2 is based on a relatively small number of events and fishers and, as a result, is subject to relatively high uncertainty. It also does not include amateur catch

[14] Available at http://fs.fish.govt.nz/Doc/23718/FAR_2014_67_2847_MAF2010-01.pdf.ashx

taken on charter vessels or by commercial fishers under section 111 approvals (which provide for recreational catch on board commercial vessels). The survey estimated that 7172 individual rig were taken in SPO2 in the 2011/12 fishing year. Using the average weight of rig from the survey (1.09kg), it has been calculated that around 7.8 tonnes of rig was harvested recreationally in SPO2 for the 2011/12 fishing year. In addition to the uncertainty in the harvest estimate, recreational catch is likely to vary from year to year. Information on current catches is not available.

The recreational harvest within SPO2 is managed under a mixed species total bag limit of 20 fish per person per day. No minimum legal size limit applies to rig. There is a minimum mesh size of 150mm for nets targeting rig in SPO2.

3.2.3 Māori Customary

Māori fishers traditionally caught large numbers of "dogfish" during the last century and early this century. Rig was probably an important species, although spiny dogfish and school shark were also taken. MPI recognises that customary fishers harvest rig and that rig was historically of importance to Māori.

For those tangata whenua groups operating under the customary fishing regulations[15], there is a requirement for Tangata Kaitiaki/Tiaki to provide MPI with information on Māori customary harvest of fish.

However, some tangata whenua in SPO2 are still operating under regulation 50-52 of the Fisheries (Amateur Fishing) Regulations 2013 (the Amateur Regulations), and it is not mandatory to report permits that are issued.

MPI has few records of customary catch of SPO2 and considers information on Māori customary catch of SPO2 to be uncertain.

3.2.4 Other Sources of Fishing-Related Mortality

This allowance covers the mortality of fish that results from various factors associated with fishing, but not reported as catch. This can include fish that escape the gear, but die after contact with fishing gear. In addition, this allowance covers any component of catch that is unlawfully discarded (in the case of QMS species).

The Schedule 6 provision only allows for the return of commercially caught SPO2 in the case that they are alive and likely to survive. Schedule 6 is only provided for species known to be robust and generally likely to survive capture and release. However, there is a risk that some rig released under the schedule will not survive, and this risk is likely greatest for rig caught with set nets.

3.3 PREVIOUS REVIEW

The TAC was last reviewed in 2011. The review resulted in a TAC increase that allowed the fishery to relieve the constraining component of the SPO2 TACC on the FMA 2 associated target fisheries.

The TAC was increased to 130 tonnes, from 122 tonnes (6% increase). The TACC was increased from 86 tonnes, to 108 tonnes (20% increase). The customary allowance was considered to not reflect the available information on customary catch levels and was adjusted

[15] Fisheries (Kaimoana Customary Fishing) Regulations 1998 and/or Fisheries (South Island Customary Fishing) Regulations 1999.

down from 20 tonnes, to 5 tonnes. The recreational allowance was not adjusted and remained at 10 tonnes. The allowance for other sources of fishing-related mortality was increased by 1 tonne.

3.4 NEW INFORMATION

The best available information on stock status for SPO2 is a standardised trip-based bottom trawl CPUE index. A corresponding set net CPUE index has been investigated but not accepted as a meaningful indicator of abundance due to small amounts of available data. CPUE indices have been updated in 2009, 2011, 2013, and in 2015. The most recent updated analysis was based on complete trips which landed SPO2 using the bottom trawl method from 1989/90 to 2013/14, adjusted for changes in conversion factors.

This CPUE series suggests biomass had an upward trend from the beginning of the series to the early 2000s, after which biomass fluctuated to a low in 2010/11 followed by a substantial increase over three successive years (see Figure 3).

The status of the SPO2 stock has been discussed in 2015 through MPI's Fishery Assessment Working Group process. It was concluded that current catches of SPO2 (which have exceeded the current TACC) are unlikely to cause the stock to decline.

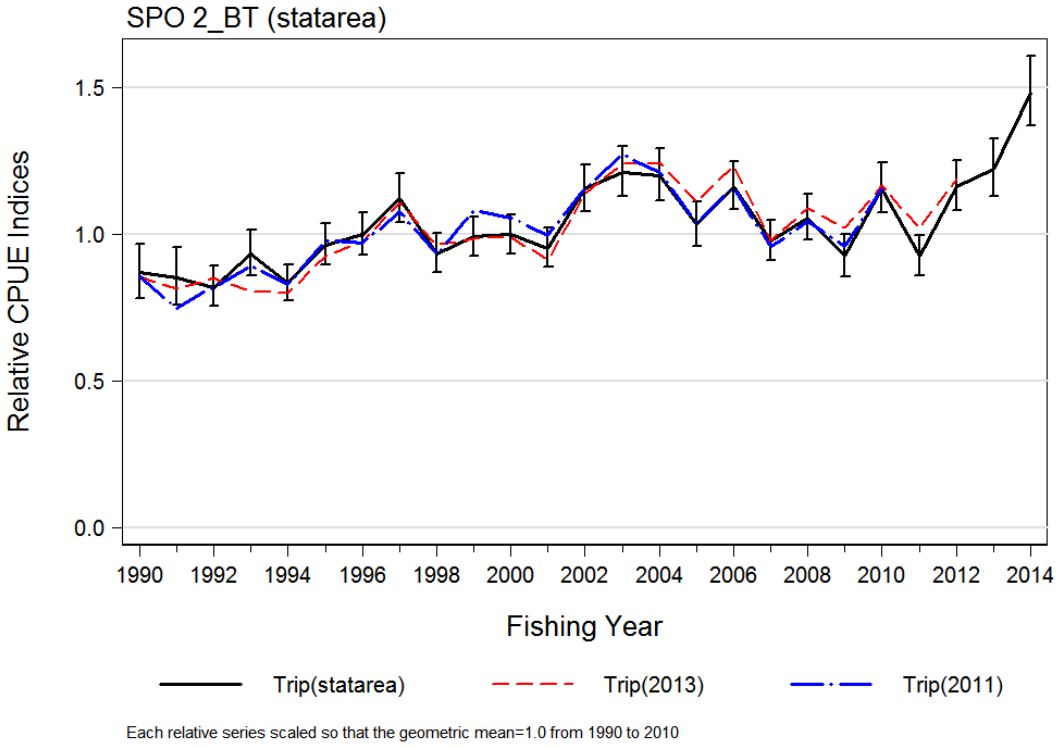


Figure 3: Lognormal standardised CPUE series and associated 95% error bars for SPO2 based on the "statarea" definition to identify valid bottom trawl setnet trips which landed to SPO2 up to 2013–14. Also shown for comparison are the equivalent SPO2 BT CPUE series calculated in 2011 (Kendrick & Bentley in prep) and 2013 (Starr & Kendrick in prep).

Information is not currently available to determine the stock size in relation to an accepted management target as promoted through the NPOA-Sharks. A process to determine the management target is planned for 2016 alongside updated information.

4 Legal Considerations

4.1 SETTING MANAGEMENT MEASURES

Given that the index of abundance over the most recent few years is high relative to past years, is increasing, and catches have exceeded the current TACC, MPI considers that the proposed TACs are not inconsistent with the requirement to maintain or move stock biomass towards or above the B_{MSY} level. Further legal considerations are discussed at 2.2 above.

4.2 FURTHER CONSIDERATIONS

When making a decision concerning the TAC for a stock, the Minister must have regard to interdependence of stocks, the biological characteristics (discussed earlier) and any environmental conditions affecting the stock. MPI does not have sufficient information to comment on any environmental conditions affecting SPO2.

Sections 9(a) and (b) also require the Minister to take into account that associated or dependent species be maintained at or above a level that ensures their long-term viability, and that the biological diversity of the aquatic environment should be maintained.

The key environmental interactions associated with the SPO2 fishery are discussed below with reference to the likely impacts of the proposed management options.

4.2.1 Fish bycatch

There is no evidence on interdependence of stocks of significant magnitude to impact on the setting of the TAC for SPO2. Several species are taken in association with SPO2, but most are managed by catch limits under the QMS.

It is MPI's position that a modest increase to the TACC is unlikely to affect the way commercial fishers operate in fisheries where SPO2 is taken as bycatch for two reasons. Firstly, the proposed TACC increase is modest and would only account for recent levels of catch. Secondly, given that rig is a Sixth Schedule species, it is unlikely that the supply of annual catch entitlement (ACE) for SPO2 has been constraining trawl fisheries for other stocks. An increase to the TACC is not expected to translate to a significant increase in trawl fishing effort and associated impacts on other species.

4.2.2 Seabirds

MPI does not anticipate any significant change to the current practices within the mixed trawl fishery and, hence, no change in the interactions with seabirds.

4.2.3 Benthic impacts

The majority of SPO2 taken is as a bycatch of the mixed species bottom trawl fleet in FMA 2. The trawl gear used by vessels in this fleet is often fished hard down on the seabed. Given that SPO2 is not a trawl target species it is highly unlikely that the effects of increasing the SPO2 TACC would have a significant change on trawler behaviour. Furthermore if vessels were to increase effort it is highly likely that any future fishing effort will occur over ground that has been trawled previously. MPI does not anticipate any significant increase in trawling activity and, therefore, benthic impacts arising from the proposed TAC increases.

5 Proposed Options

Option	Total Allowable Catch (t)	Total Allowable Commercial Catch (t)	Allowances		
			Customary Māori (t)	Recreational	Other sources of fishing-related mortality
Option 1 (Status Quo)	130	108	5	10	7
Option 2	148	124	5	12	7

5.1 OPTION 1

Under Option 1, the existing TAC would be retained. This option reflects a cautious approach to change, reflecting the uncertainty in information about the SPO2 stock status relative to B_{MSY}.

Impact
Retaining the current TAC and TACC would result in opportunity loss for the commercial sector and reduce the ability of commercial stakeholders to maximise the value of catch taken in SPO2 and associated target fisheries.

In addition, deemed values paid for over catch of the SPO2 TACC reduce the value of catch landings in target fisheries that take rig as bycatch in instances where Schedule 6 cannot be used. SPO2 deemed value payments in 2013/14 totalled $68,161.17.

5.2 OPTION 2

Option 2 proposes:

- The TAC be increased from 130 tonnes to 148 tonnes (an increase of 14%).
- The TACC be increased from 108 tonnes 124 tonnes (an increase of 15%).
- The customary Māori allowance would remain at 5 tonnes.
- The recreational allowance would be increased from 10 tonnes to 12 tonnes (an increase of 20%).
- The allowance for other sources of fishing-related mortality would remain at 7 tonnes (5% of the TACC).

Option 2 proposes a less cautious approach to take advantage of the opportunity for increased utilisation and create some economic opportunities in light of the indications of increasing abundance, but recognising there is some uncertainty in stock status (as the relationship between current biomass and B_{MSY} is not known).

Option 2 proposes an increase to the TAC, provides for a TACC 10 tonne above recent catches and provides for an increase to the recreational allowance of 2 tonnes.

No changes are proposed to the Māori customary allowance as best available information available suggests that current settings will provide for current levels of catch.

The increase in the recreational allowance recognises the likelihood of increased availability from increased abundance.

Information to inform the setting of the allowance for other sources of mortality for SPO2 is uncertain. In the absence of additional information MPI proposes that the allowance be retained at the current setting, which equates approximately to 5% of the TACC.

Impact
Option 2 provides for some economic opportunities, at least in the short-term. Based on a 2015/16 port price of $5.28/kg, Option 2 would generate an additional $84,480 of revenue compared to Option 1 (the status quo).

The proposals provide for a small increase to the recreational allowance to allow for increases in availability and therefore catch from increased abundance.

Option 2 is a less cautious approach, however, risks are mitigated by the anticipated CPUE analysis for all New Zealand rig stocks in 2016 which will support a further review if updated information indicates this is needed.

6 Other Matters

6.1 DEEMED VALUES

Deemed values are an economic tool that incentivises commercial fishers not to catch in excess of their individual annual catch entitlements. A discussion of the deemed value rates for SPO2 is included in the accompanying consultation document "Review of Deemed Value Rates for Selected Finfish Stocks".

6.2 RECREATIONAL CONTROLS

There is no information to suggest a change to recreational controls would be needed and no changes to the recreational daily bag limit are proposed.

6.3 ENGAGEMENT

MPI is currently working with recreational and commercial groups in Hawke Bay on concerns over abundance of key recreational species. While SPO 2 is not a key recreational species of concern identified by the recreational sector in Hawke Bay, MPI intends to discuss this proposal directly with local groups.

7 Conclusion

Available information suggests the biomass of SPO2 has continued to increase since the TAC and TACC were last increased in 2011.

Option 1 proposes a cautious response of retaining the current TAC, TACC and allowances. This recognises uncertainty in information and the biological characteristics of shark species.

Option 2 provides for a modest increase to the TAC, TACC and recreational allowance in response to indications of increased abundance. This approach could be reviewed again when new information becomes available on all rig stocks in 2016.

No changes are proposed to the Māori customary allowance as best available information available suggests that current settings will provide for current levels of catch.

It is proposed that alongside an increase to the TACC the allowance for other sources of fishing-related mortality be set at 5% of the TACC.

MPI is seeking information and views from tangata whenua and stakeholders to support the development of final advice to the Minister on management settings for SPO2 for the fishing year commencing 1 October 2015.

It is important to note that the Minister has broad discretion in exercising his powers of decision-making. He will make his own independent assessment of the information presented to him before making a final decision on varying a TAC, allowances and TACC.

RIG 7 (SPO7)

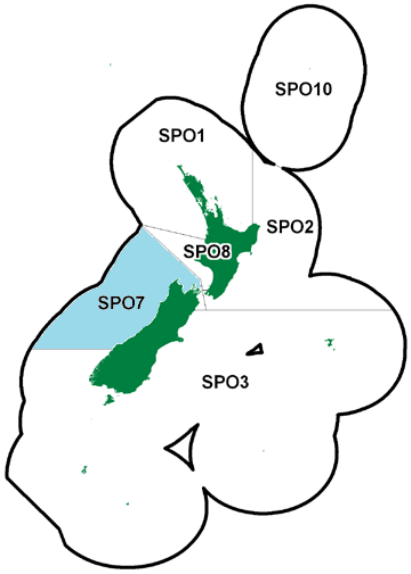


Figure 1: Quota Management Areas (QMAs) for rig (SPO) stocks. SPO7 indicated by shading.

1 Executive Summary

The Ministry for Primary Industries (MPI) is seeking information and views from tangata whenua and stakeholders to inform a review of catch limits for the SPO7 fishstock (rig in the SPO7 quota management area, see Figure 1).

The available information suggests that the abundance of SPO7 has increased in recent years. This information suggests that there is an opportunity to provide for greater utilisation from SPO7 while ensuring sustainability.

MPI proposes the following options for the upcoming fishing year (Table 1):

Table 1: Proposed Management Settings for SPO7

Option	Total Allowable Catch (t)	Total Allowable Commercial Catch (t)	Allowances		
			Customary Māori (t)	Recreational (t)	Other sources of fishing-related mortality (t)
Option 1 (*Status Quo*)	270	221	15	29	5
Option 2	306	246	15	33	12

2 Purpose

2.1 NEED FOR ACTION

The best available information on the stock status of SPO7 suggests that abundance has increased following catch reductions in 2006, and that the biomass is as likely as not to be at or above the target level. MPI considers there is potential to provide for increased benefits

from the stock through an increase to the total allowable catch (TAC), while ensuring sustainability.

2.2 MANAGEMENT APPROACH

The TAC for SPO7 can be varied under section 13 of the Fisheries Act 1996. Section 13(2) of the Fisheries Act sets out requirements for setting a TAC where a reliable estimate of the current biomass of the stock ($B_{CURRENT}$) and the level of biomass that can produce the maximum sustainable yield (B_{MSY}), is known. Alternatively, where current biomass and B_{MSY} are not known, section 13(2A) of the Act provides for the Minister to use the best available information to set a TAC that is not inconsistent with the objective of maintaining the stock at or above, or moving the stock towards or above, the B_{MSY} level.

The draft National Fisheries Plan for Inshore Finfish[16] acknowledges that it is currently not feasible or cost-effective to obtain robust estimates of biomass for a large number of inshore finfish stocks. The Plan refers to alternative approaches to monitoring stocks to inform management reviews including an approach based on accepted indicators of relative abundance. In these circumstances it is appropriate to set the TAC under section 13(2A) of the Act.

MPI notes that the management of rig stocks should also take into account the National Plan of Action-Sharks 2013 (NPOA-Sharks)[17]. This policy instrument is part of New Zealand's responsibility to act in accordance with the objectives of the International Plan of Action for the Conservation and Management of Sharks. Work to improve management of sharks in line with the objectives of the NPOA is ongoing with further consideration of the management approach of all rig stocks scheduled for 2016. While an estimate of the biomass of SPO7 was determined in 2006, SPO7 currently falls within a group of stocks where a relative abundance monitoring approach is being used.

Key indicators used to monitor and inform management of SPO7 include catch per unit effort from the commercial fishery (CPUE), which has been updated to the end of the 2013/14 fishing year, and an estimate of relative biomass from the West Coast South Island trawl survey from 2013 with preliminary information available for 2015.

Another key component of the management framework for SPO7 and other rig stocks is its inclusion on Schedule 6 of the Fisheries Act 1996. The provision has been in place since May 2012 and provides for commercially caught rig that is likely to survive to be returned to the sea, rather than the standard requirement to land all catch.

The implications of the Schedule 6 provision and the latest abundance information are discussed alongside other relevant information in the background section below.

3 Background Information

3.1 BIOLOGICAL CHARACTERISTICS OF RIG

Rig is found around New Zealand, usually in waters no more than 200m deep. Information on the lifespan of rig is limited and uncertain but indicates rig could live to 20 years or longer. Females reach a maximum length of 151 cm fork length (FL) and males 126 cm FL. On the

[16] The Draft National Fisheries Plan for Inshore Finfish is a working document being used to guide management of fishstocks by the Ministry for Primary Industries. The plan will be refined further before being submitted for the Minister's approval under s11A of the Fisheries Act 1996.

[17] http://www.fish.govt.nz/en-nz/Environmental/Sharks/default.htm

South Island male and female rig attain maturity at 5–6 years (about 85 cm FL) and 7–8 years (about 100 cm FL), respectively.

Rig give birth to young during spring and summer following a 10-11 month gestation period. Most females begin a new pregnancy soon after the birth of the previous litter, and therefore breed every year. The number of young produced increases exponentially with the length of the mother, and ranges from 2 to 37 (mean about 11). Within SPO7, large numbers of pregnant females are found in the Farewell Spit area over summer months.

Young are generally born in shallow coastal waters, especially in harbours and estuaries, throughout North and South Islands. They grow rapidly during their first summer, and then disappear as water temperatures drop in autumn–winter. They presumably move into deeper water.

Rig make extensive coastal migrations, with one tagged female moving a least 1160 km. Over half of tagged rig that have been recaptured had moved over 50 km, and over half of the females had moved more than 200 km. Females travel further than males, and mature females travel further than immature females.

Information relevant to determining rig stock structure in New Zealand was reviewed in 2009.[18] These reviews concluded that the boundaries between biological rig stocks are poorly defined, especially in the Cook Strait region. Biological links between the current management stocks will be investigated further in a project scheduled for 2016.

3.2 FISHERY DESCRIPTION

Information on the fishery for SPO2 is not only relevant for decisions on setting the TAC, but for subsequent decisions to set allowances for Māori customary non-commercial fishing interests, recreational interests, a total allowable commercial catch limit (TACC) and make an allowance for all other mortality to that stock caused by fishing.

3.2.1 Commercial

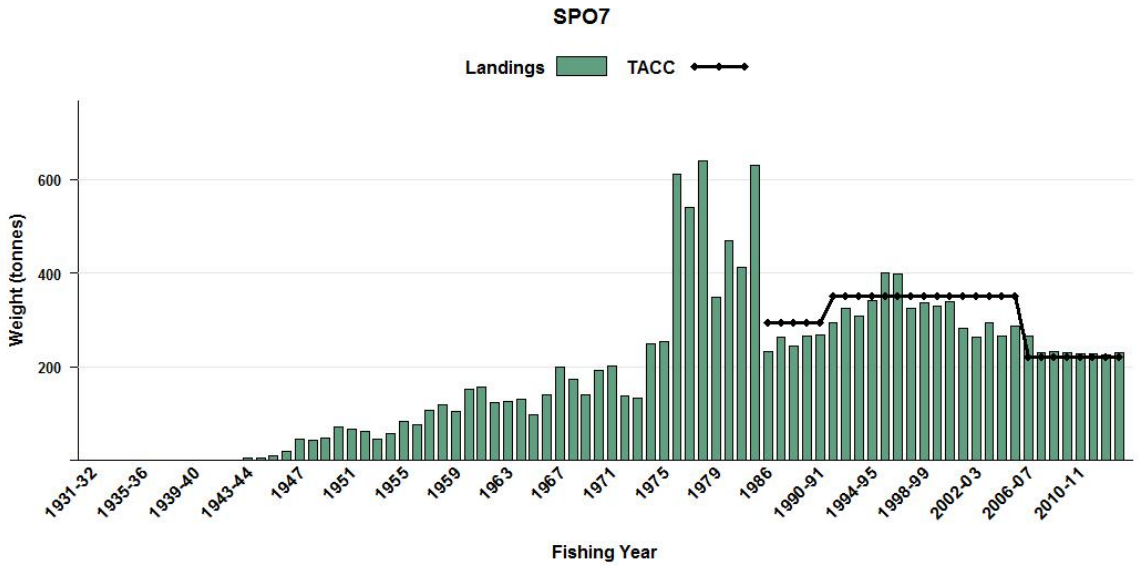


Figure 2: Historical SPO 7 TACCs and landings

[18] Francis, M P (2010) Movement of tagged rig and school shark among QMAs, and implications for stock management boundaries. New Zealand Fisheries Assessment Report 2010/03. 22 p.

Rig are caught in coastal waters throughout New Zealand. Most of the catch is taken in water less than 50 m deep during spring and summer, when rig aggregate inshore. Before the introduction of the QMS in 1986, 80% of the commercial catch was taken by bottom set net and most of the remainder by trawl. Total reported landings of rig increased rapidly during the 1970s, and averaged about 3200 tonnes per year during the late 1970s and early 1980s. Since then, a larger proportion has been taken by trawlers as bycatch.

SPO7 is caught in a targeted setnet fishery, which also targets school shark and spiny dogfish, and in a bottom trawl fishery mainly targeting flatfish, gurnard and tarakihi. The set net fishery has historically been focused in statistical area 038 (Tasman and Golden Bays). Setnet catches are mainly taken in the spring and summer, and have reduced relative to other fishing methods as a result of setnetting area restrictions implemented to protect Hector's dolphins. The seasonal distribution of catch from the bottom trawl fishery extends more or less evenly through the fishing year, with some attenuation of the catch in the latter months.

Following the introduction of rig to the QMS in 1986, landings declined to less than half those of the previous decade in response to the lower TACCs (see Figure 2). The TACC for SPO7 was increased by 20% for the 1991/92 fishing year under the adaptive management programme (AMP). The latest review was for the 2006/07 fishing year, in which the TACC was decreased from 350 tonnes to its current level of 221 tonnes based on stock assessment information showing that the SPO7 stock was below B_{MSY} and had declining abundance indices. Since this review, the reported annual commercial catch has consistently exceeded the TACC, although by relatively small volumes.

In SPO7, both commercial and recreational setnetting were banned to 2 nautical miles offshore from Awarua Point north of Fiordland to the tip of Cape Farewell at the top of the South Island, as part of a suite of regulations intended to protect Hector's dolphins implemented from 1 October 2008. The commercial closure is restricted to the period 1 December to the end of February, while the recreational closure is effective for the entire year. Since this closure there has been a decline in the number of commercial setnet vessels on the west coast of the South Island as much of the rig fishery was within the restricted boundary during the summer months. Industry has also voluntarily refrained from fishing in an area around Farewell Spit since the 2004/05 fishing year in order to protect pupping females.

3.2.2 Recreational

Rig are caught by recreational fishers throughout SPO7. Due to the need for better information on recreational harvests, in 2011/12 MPI commissioned new recreational research (a large-scale, multi-species study called the National Panel Survey) to obtain better harvest estimates for a range of stocks. The National Panel Survey[19] estimate for SPO7 is based on a relatively moderate number of events and fishers and, as a result, is characterised by moderate uncertainty. It also does not include amateur catch taken by commercial fishers under section 111 approvals (which provide for recreational catch on board commercial vessels).

The survey estimated that 19,126 individual rig were taken in FMA7 in the 2011/12 fishing year. Using the average weight of rig from the survey (1.09kg), it has been calculated that around 21 tonnes of rig was harvested recreationally in SPO 7 for the 2011/12 fishing year. In addition to the uncertainty in the harvest estimate, recreational catch is likely to vary from year to year. Information on current catches is not available.

[19] Available at http://fs.fish.govt.nz/Doc/23718/FAR_2014_67_2847_MAF2010-01.pdf.ashx

The recreational harvest of rig in FMA7 is managed under a mixed species total bag limit of 20 fish per person per day. No minimum legal size limit applies to rig. There is a minimum mesh size of 150mm for nets targeting rig in FMA7.

3.2.3 Māori Customary

MPI recognises that customary fishers harvest rig and that rig was historically of importance to Māori. It is identified by Te Waka a Māui me Ōna Toka iwi forum[20] as a taonga species in the Te Waipounamu Iwi Fisheries Plan. This plan contains objectives to support and provide for the customary and commercial interests of South Island iwi.

Information currently held by MPI on Māori customary catch of SPO7 is uncertain. For those tangata whenua groups operating under the customary fishing regulations[21], there is a requirement for Tangata Kaitiaki/Tiaki to provide MPI with information on Māori customary harvest of fish. However, for those tangata whenua groups still operating under regulations 50-52 of the Fisheries (Amateur Fishing) Regulations 2013 (the Amateur Regulations), it is not mandatory to report permits that are issued or catch taken.

There have been few customary authorisations for SPO7 reported to MPI in recent years. This may be a reflection that tangata whenua in the Tasman/Golden Bay and Marlborough Sounds area are still operating under the Amateur Regulations and/or it may suggest that tangata whenua use of the customary fishing regulations to harvest SPO7 is low at this time.

3.2.4 Other Sources of Fishing-Related Mortality

The other sources of fishing-related mortality (OSFRM) allowance covers the mortality of fish that results from various factors associated with fishing, but not reported as catch. There are various potential OSFRM in SPO7, but these are not able to be quantified.

The Schedule 6 provision only allows for the return of commercially caught SPO7 in the case that they are alive and likely to survive. Schedule 6 is only provided for species known to be robust and generally likely to survive capture and release. However, there is a risk that some rig released under the schedule will not survive, and this risk is likely greatest for rig caught with set nets.

3.3 PREVIOUS REVIEW

SPO7 was last reviewed for the 2006/07 fishing year. Information from a stock assessment at that time indicated that the stock size was almost certainly below B_{MSY}. In conjunction with this assessment, the commercial setnet CPUE and relative biomass estimates from trawl survey data were both declining. Given this information, and the low productivity of the stock, the TAC was reduced from 403 tonnes to 270 tonnes.

To implement the TAC decrease, the TACC was reduced from 350 tonnes to 221 tonnes. It was considered appropriate to apply the greatest reduction to the TACC because commercial fishers harvested the majority of the SPO7 TAC and had benefitted from a high TACC under the AMP framework for 15 years. Commercial catches in the years leading up to that review were significantly less than the TACC in place.

The customary allowance for SPO7 was reduced to 15 tonnes because the previous allowance was considered as not accurately reflecting customary catch levels or likely needs for the foreseeable future. On the other hand, the recreational allowance remained unchanged at 29

[20] The Te Waka a Mäui me öna toka iwi forum represents the nine iwi of the South Island, each holding mana moana and significant interests (both commercial and non-commercial) in South Island fisheries.
[21] Fisheries (Kaimoana Customary Fishing) Regulations 1998 and/or Fisheries (South Island Customary Fishing) Regulations 1999.

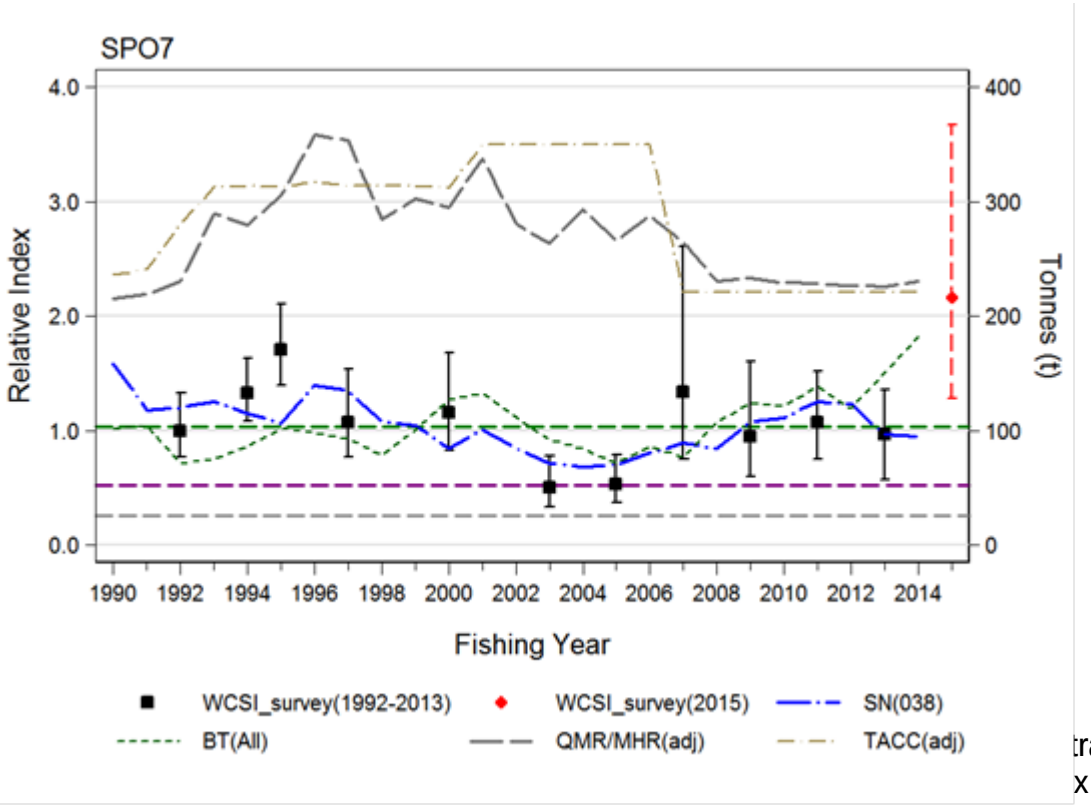
tonnes because there was no information to suggest recreational catch levels had increased or contributed significantly to the decline in the SPO7 stock size.

3.4 NEW INFORMATION

The best available information on abundance to inform TAC setting for SPO7 at this time is the West Coast South Island (WCSI) trawl survey and catch per unit effort (CPUE) analyses. These have been accepted as reliable indices of relative abundance for adult male and sub-adult female rig in SPO7 and have enabled the setting of reference points, based on the trawl survey series of relative abundance, to support management.

Using the available sources of information to estimate relative changes in stock status in relation to the proxy B_{MSY} target, abundance trends suggest that the stock is about as likely as not to be at or above the proxy B_{MSY} target.

Trends in stock status for SPO7 were assessed through: West Coast South Island (WCSI) trawl survey data; bottom trawl CPUE and setnet (SN(038) - statistical area 038) CPUE analysis to assess trends in the catch rates and hence relative abundance; and size frequency analysis (from the WCSI trawl survey). The series of relative abundance indices are shown in Figure 3. Collectively, these indicators suggest an increasing SPO7 biomass.



trawl
x values
for the West Coast South Island trawl survey. The most recent WCSI survey value is indicated in red because it is preliminary. The agreed Soft Limit is shown as a purple line, the B_{MSY} proxy target is shown as a green line and the Hard Limit is shown as a grey line (discussed under 2.2).

The accepted bottom trawl CPUE series and the WCSI trawl survey do not representatively sample large female rig, but they cover the whole SPO7 QMA. In 2015, the WCSI setnet series, previously also used to assess SPO7, was dropped from consideration due to data scarcity. However, another set net index (which does provide an index of mature female abundance) provides an index of abundance for SPO7 in the Tasman and Golden Bays portion

of SPO7 (SN038 - statistical area 038). The target setnet fishery in this area accounts for approximately 35% of the total SPO7 commercial catch.

The WCSI trawl survey estimated that the relative biomass of SPO7 was stable, at around the target level, from 2007 to 2013, but increased sharply in 2015. MPI notes that the most recent WCSI trawl survey value is preliminary.

The SPO7 bottom trawl CPUE series shows a strong increasing trend in recent years from a low point in 2004/05, while the SPO7 setnet (statistical area 038) series has flattened out after showing an increase from 2006/07. Size composition analysis of SPO7 from WCSI trawl survey catches also suggests strong recruitment in recent years.

In summary, the working group report concludes that the stock is increasing and about as likely as not (40 to 60%) to be at or above the proxy target. At the current level of catches and TACC, the stock is unlikely (<40%) to decline.

4 Legal Considerations

4.1 SETTING MANAGEMENT MEASURES

Best available information on abundance to inform TAC setting for SPO7 at this time shows that the stock is about as likely as not to be at or above the target based on a proxy for B_{MSY}, and is increasing in size. Given indications that the current biomass of SPO7 is increasing, MPI considers that modest increases to catch limits for SPO7 supported by future monitoring are not inconsistent with the objective of maintaining the stock at or above B_{MSY}, or moving the stock towards or above B_{MSY}. Further legal considerations are discussed at 2.2 above.

4.2 FURTHER CONSIDERATIONS

When making a decision concerning the TAC for a stock, the Minister must have regard to interdependence of stocks, the biological characteristics (discussed earlier) and any environmental conditions affecting the stock. MPI has insufficient information to comment on environmental conditions affecting SPO7.

Sections 9(a) and (b) also require the Minister to take into account that associated or dependent species be maintained at or above a level that ensures their long-term viability, and that the biological diversity of the aquatic environment should be maintained.

The key environmental interactions associated with the SPO7 fishery are discussed below with reference to the likely impacts of the proposed management options.

4.2.1 Marine mammals

The west coast South Island population of Hector's dolphins overlaps with the SPO7 trawl fishery. There is limited information on the interaction between Hector's dolphins and trawl fisheries however a trawl capture was observed as part of a scientific observer study on the east coast of the South Island in 1998 (Baird & Bradford 1999).

In SPO7 setnet fisheries there is a risk of incidental capture of Hector's dolphins, other dolphins and New Zealand fur seals. In particular, the west coast South Island population of Hector's dolphins overlaps with the SPO7 setnet fishery. However, this risk has been mitigated by a suite of regulations intended to protect Maui's and Hector's dolphins implemented from 1 October 2008 onwards for all of New Zealand. For SPO7, both commercial and recreational setnetting were banned to 2 nautical miles offshore, with the

recreational closure effective for the entire year and the commercial closure restricted to the period 1 December to the end of February (the main target months for rig). The closed area extends from Awarua Point north of Fiordland to the tip of Cape Farewell at the top of the South Island.

4.2.2 Fish bycatch

There is no evidence on interdependence of stocks of significant magnitude to impact on the setting of the TAC for SPO7. School shark and spiny dogfish are occasional bycatch in the SPO7 target setnet fishery but are both managed by catch limits under the QMS.

Although the target setnet fishery in the entire SPO7 area accounts for around 44% of the catch, roughly the same amount of rig is taken as bycatch in trawl fisheries for other QMS stocks, particularly those targeting flatfish, gurnard and tarakihi.

It is MPI's position that a modest increase to the TACC is unlikely to affect the way commercial fishers operate in fisheries where SPO7 is taken as bycatch for two reasons. Firstly, the proposed TACC increase would only be slightly larger than the level of present catch. Secondly, given that rig is a Schedule 6 species, it is unlikely that the supply of ACE for SPO7 has been constraining trawl fisheries for other stocks. Thus, an increase to the TACC is not expected to translate to a significant increase in trawl fishing effort and associated impacts on other species.

4.2.3 Seabirds

Management of seabird interactions with New Zealand's commercial fisheries is driven through the 2013 National Plan of Action to Reduce the Incidental Captures of Seabirds in New Zealand fisheries (NPOA-Seabirds). The NPOA-Seabirds has established a risk-based approach to managing fishing interactions with seabirds, targeting management actions at the species most at risk as a priority but also aiming to minimise captures of all species to the extent practicable.

Inshore trawl and setnet fisheries in FMA7 were assessed to contribute very low levels of risk to a small number of seabird species. As a modest TACC increase is unlikely to intensify effort associated with bycatch trawl fisheries (as discussed above), MPI does not anticipate any significant change to the current practices within the mixed trawl fishery and, hence, no change in the interactions with seabirds.

4.2.4 Benthic impacts

Due to negligible bottom contact, the SPO7 setnet fishery has minimal impacts on the benthic environment. On the other hand, SPO7 bycatch trawl fisheries use bottom trawl gear on the seabed, as this is where the target fish species aggregate. The gear is generally fished hard down on the seabed, impacting benthic habitats.

Research has been reported to characterise both New Zealand's benthic environment and the level of benthic impact from fisheries activity.[22] This research combined the trawl footprint created for all target species for five years and overlaid benthic habitat classes to get a measure of the coverage of habitat classes by trawl gear.

As explained above, increasing the TACC for the bycatch SPO7 stock is unlikely to translate to a significant increase in overall trawling effort. Therefore, the trawl footprint and

[22] https://www.mpi.govt.nz/document-vault/5287

associated impacts on benthic habitat classes that have been assessed are not set to change under the proposed options below.

5 Proposed Options

Option	Total Allowable Catch (t)	Total Allowable Commercial Catch (t)	Allowances		
			Customary Māori (t)	Recreational (t)	Other sources of fishing-related mortality (t)
Option 1 (*Status Quo*)	270	221	15	29	5
Option 2	306	246	15	33	12

5.1 OPTION 1

Under Option 1, the existing TAC would be retained. The current TAC is not inconsistent with the objective of maintaining the stock at or above, or moving the stock towards or above, a level that can produce the maximum sustainable yield. This option takes a cautious approach to change, reflecting that there is some uncertainty regarding how much the SPO7 biomass has increased, even though the best available information on abundance suggests that the stock is about as likely as not to be at or above the B_{MSY} proxy based target.

Option 1 gives more confidence that the SPO7 biomass will be at or above the proxy target in future, and reflects the susceptibility of rig to over fishing. A benefit of Option 1 is that as the SPO7 stock size increases, the recreational and customary fishing experience will improve (bigger fish and more of them). There could also be benefit to commercial fishers with a higher abundance of rig in SPO7, in terms of increased catch rate efficiencies and the potential for greater future yields.

In 2013/14 deemed value payments for SPO7 totalled $20,857.32.

Impact
Retaining the current TACC may result in opportunity loss for the commercial sector. This is because this option does not enable industry to respond to elevated biomass in a way that could allow them to maximise value in the short to medium term.

Furthermore, $23,873.00 in deemed values were paid for over-catch in the 2013/14 fishing year. Abundance and catchability of rig in SPO7 currently seems such that commercial over-catch of SPO7 in the flatfish, gurnard, tarakihi and baracoutta target fisheries is difficult to avoid. This has been the case even though rig is a Schedule 6 species able to be returned if caught alive. Option 1 is unlikely to reduce deemed value payments.

5.2 OPTION 2

Option 2 proposes:

- The TAC be increased from 270 tonnes to 306 tonnes (an increase of 13%).
- The TACC be increased from 221 tonnes to 246 tonnes (an increase of 11%).
- The customary Māori allowance would remain at 15 tonnes.

- The recreational allowance be increased from 29 tonnes to 33 tonnes (an increase of 14%).
- The allowance for OSFRM be set at 12 tonnes (5% of the TACC).

A TAC increase from 270 tonnes to 306 tonnes can provide potential to obtain higher benefits from the stock. A 306 tonne TAC is relatively modest given available information and takes the biological vulnerability of rig into account. An 11% increase to the TACC and 4 tonne increase to the recreational allowance as proposed will provide for greater benefits from utilisation.

Option 2 responds to the best available information showing biomass has been increasing and is about as likely as not to be at or above B_{MSY} . This option is consistent with the objective of moving biomass towards or above the B_{MSY} at a way and rate considered by the Minister to be appropriate. Increased catch under Option 2 would slow the rate at which biomass is increasing toward or above $B_{MSY.}$

MPI considers that some risk as to how the SPO7 stock will respond to increased catch levels is mitigated for two reasons: (1) TACs for rig may be adjusted after the planned characterisation for all rig stocks and their boundaries in 2016; and (2) the Hector's dolphin setnetting closure and the voluntary commercial closure of Farewell Spit protect significant pupping areas thereby potentially improving future recruitment. Therefore, in view of the current increase in abundance, and on-going monitoring, MPI considers that Option 2 is consistent with the objective of moving the stock towards or above B_{MSY}.

MPI also considers Option 2 to be consistent with the NPOA-Sharks. In particular an assessment has been made to determine the SPO7 stock size in relation to an accepted management target and on that basis review the catch limit to maintain the stock at or above the target.

No changes are proposed to the Māori customary allowance as best available information available suggests that current settings will provide for current levels of catch. The allowance for customary use is not set to constrain catch, but to reflect levels of current utilisation.

The increased allowance for recreational fishing recognises the likelihood of increased availability from the higher abundance, and that the available information on recreational catch is uncertain.

Information to inform the setting of the allowance for other sources of mortality for SPO7 is uncertain. In the absence of additional information MPI proposes that if any changes are made to catch limits an allowance be set that equates approximately to 5% of the TACC.

Impact
Any increase in the TACC is likely to enable fishers to maximise value in SPO7 and associated target fisheries. An increase of 11% to the TACC will provide for greater utilisation opportunities than Option 2. Based on the $17.63 per kilogram quota price and the $3.30 per kilogram port price for the 2013/14 fishing year, a 25 tonne increase in commercial catch is worth approximately $440,750.00 to quota owners, and $82,500.00 to commercial fishers per annum. Any increase in TACC will also reduce deemed value payments.

6 Other Matters

6.1 DEEMED VALUES

Deemed values are an economic tool that incentivises commercial fishers not to catch in excess of their individual annual catch entitlements. A discussion of the deemed value rates for SPO7 is included in the accompanying consultation document "Review of Deemed Value Rates for Selected Finfish Stocks".

6.2 RECREATIONAL CONTROLS

There is no information to suggest a change to recreational controls would be needed and no changes to the recreational daily bag limit are proposed.

7 Conclusion

Available information suggests the SPO7 stock size has increased in recent years.
Option 1 recognises the biological vulnerability of rig and takes a cautious approach by proposing to retain existing settings. Benefits of Option 1 could include improvement of the recreational fishing experience and possible efficiency and future yield benefits to commercial fishers under a higher SPO7 biomass.

Option 2 proposes to increase the TAC by 11%. Although this may slow the rate of increase to the stock size, it is likely that Option 2 will enable the Minister to set a TAC that will permit enhanced utilisation and is not inconsistent with the objective of moving the stock towards B_{MSY}. Option 2 provides for the greatest economic return from SPO7 during this period of increasing abundance and an increase to the recreational allowance.

Under Option 2, risks to the sustainability of the stock are mitigated by the anticipated national characterisation of rig stocks and updated CPUE analysis in 2016 and regulatory and non-regulatory setnetting closures already in place for SPO7.

MPI is seeking information and views from tangata whenua and stakeholders to support the development of final advice to the Minister on management settings for SPO7 for the fishing year commencing 1 October 2015.

It is important to note that the Minister has broad discretion in exercising his powers of decision-making. He will make his own independent assessment of the information presented to him before making a final decision on varying a TAC, allowances and TACC.

STARGAZER 7 (STA7)

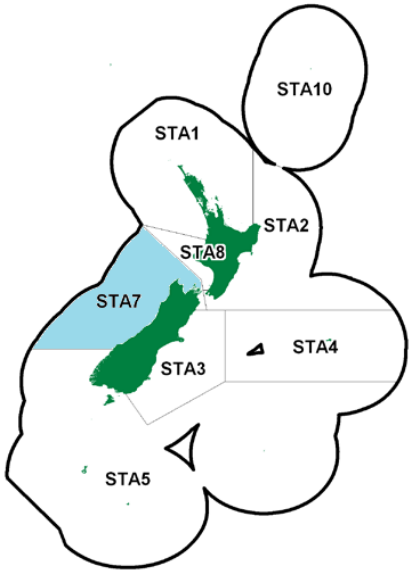


Figure 1: Quota Management Areas (QMAs) for stargazer (STA) stocks. STA7 indicated by shading.

1 Executive Summary

The Ministry for Primary Industries (MPI) is seeking information and views from tangata whenua and stakeholders to inform a review of catch limits for the STA7 fishstock (stargazer in the STA7 quota management area, see Figure 1).

The available information suggests that the abundance of stargazer in STA7 has increased in recent years. This information supports options that provide an opportunity for increased utilisation while maintaining the sustainability of the stock.

MPI proposes the following options for the upcoming fishing year (Table 1):

Table 1: Proposed Management Settings for STA7

Option	Total Allowable Catch (t)	Total Allowable Commercial Catch (t)	Allowances		
			Customary Māori (t)	Recreational	Other sources of fishing-related mortality
Option 1 (Status Quo)	1072	1042	1	2	27
Option 2	1138	1082	1	3	52
Option 3	1181	1122	1	4	54

2 Purpose

2.1 NEED FOR ACTION

The best available information suggests that the STA7 biomass is at a level that would allow for increased utilisation while maintaining the sustainability of the stock.

A stock assessment in 2008 provided a reference biomass estimate which indicated that, at that time, the stock was likely to be at or above the biomass that can support the maximum sustainable yield (B_{MSY}). Since that time ongoing monitoring through the west coast South Island (WCSI) trawl survey has shown that the biomass is likely to be at least stable, if not increasing.

Based on this information the commercial stakeholder organisation for STA7, the Southern Inshore Fisheries Management Company (SIFMC), has requested a modest total allowable commercial catch (TACC) increase for STA7. Under current circumstances fishers have reported being hindered in their ability to freely target other, more highly valued fisheries, as consideration must be given to avoiding STA7 bycatch to mitigate deemed value penalties.

2.2 MANAGEMENT APPROACH

The total allowable catch (TAC) for STA7 can be varied under section 13 of the Fisheries Act 1996. Section 13(2) of the Fisheries Act sets out requirements for setting a TAC where a reliable estimate of the current biomass of the stock ($B_{CURRENT}$) and the level of biomass that can produce the maximum sustainable yield (B_{MSY}), is known. Alternatively, where current biomass and B_{MSY} are not known, section 13(2A) of the Act provides for the Minister to use the best available information to set a TAC that is not inconsistent with the objective of maintaining the stock at or above, or moving the stock towards or above, the B_{MSY} level.

The draft National Fisheries Plan for Inshore Finfish[23] acknowledges that it is currently not feasible or cost-effective to obtain robust estimates of biomass for a large number of inshore finfish stocks. The Plan refers to alternative approaches to monitoring stocks to inform management reviews including an approach based on accepted indicators of relative abundance. In these circumstances it is appropriate to set the TAC under section 13(2A) of the Act.

While a biomass estimate has been obtained in the past, STA7 currently falls within a group of stocks where MPIs default position is to manage cautiously based on reported commercial landings. However, information is available for STA7 from the West Coast South Island trawl survey series, and this supports a management approach based on the survey as an indicator of relative abundance. This type of management approach better reflects the value of STA7 to the commercial mixed fishery and the adjustment of TACCs in response to information from regular monitoring. The results from the West Coast South Island trawl survey series are discussed alongside other relevant information in the background section below.

[23] The Draft National Fisheries Plan for Inshore Finfish is a working document being used to guide management of fishstocks by the Ministry for Primary Industries. The plan will be refined further before being submitted for the Minister's approval under s11A of the Fisheries Act 1996.

3 Background Information

3.1 BIOLOGICAL CHARACTERISTICS OF STA7

Two species of giant stargazer are present in New Zealand waters, the giant stargazer (*Kathetostoma giganteum*) and the banded giant stargazer (*Kathetostoma* sp.). STA7 includes both species. Banded giant stargazer is thought to be relatively uncommon and almost all catch in STA7 is likely to be giant stargazer.

Giant stargazer is widely distributed around New Zealand. It is generally found on muddy and sandy substrates to depths of 500m, but is most common between 50 and 300m on the continental shelf around the South Island.

Age and growth studies indicate giant stargazers reach sexual maturity at a total length of about 40-55cm depending on sex, at an age of 5-7 years. Giant stargazers are known to reach a total length of approximately 90cm and can reach a maximum age of at least 25 years. Spawning occurs annually during winter, most likely in mid and outer shelf waters.

3.2 FISHERY DESCRIPTION

Information on the fishery for STA7 is not only relevant for decisions on setting the TAC, but for subsequent decisions to set the TACC and make allowances for Māori customary non-commercial fishing interests, recreational interests, and all other sources of mortality to that stock caused by fishing.

3.2.1 Commercial

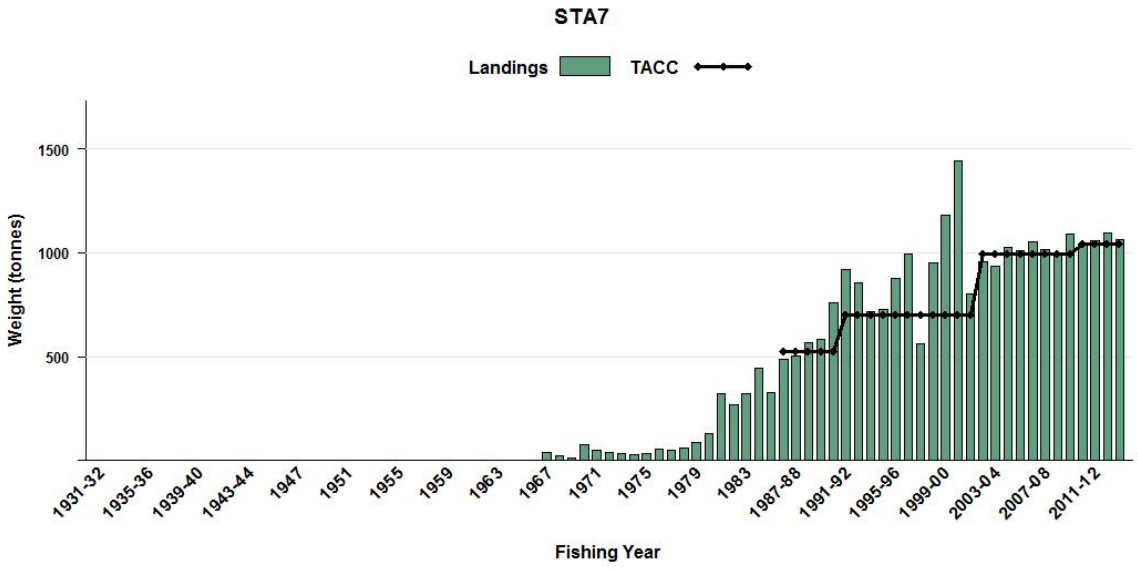


Figure 2: STA7 reported commercial landings and TACC between 1986/87 and 2013/14

Following the introduction of STA7 into the QMS in 1986, landings have increased in line with TACC increases (see Figure 2).

Catch effort data reported by commercial fishers indicates that the vast majority of STA7 is caught by the method of bottom-trawl, with most of these trawl landings coming from statistical areas 33 and 34 (refer Figure 3).

While there is some targeted effort, stargazer in STA7 is primarily caught as a bycatch of fisheries targeting other species. In particular, within the inshore fisheries, vessels targeting

red cod, tarakihi, flatfishes and barracouta encounter stargazer bycatch, as well as those deep water vessels targeting hoki, ling and jack mackerels. All of these target species are also managed within the QMS.

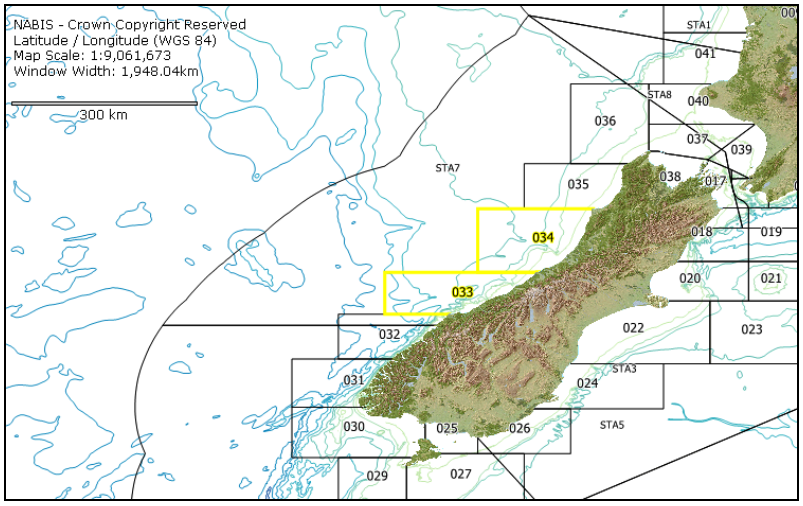


Figure 3: Map showing inshore statistical areas within the STA7 QMA

3.2.2 Recreational

Stargazer is not a highly sought after recreational species and there is very limited bycatch in other recreational target fisheries. The FMA7 data from the National Panel Survey of marine recreational fishers 2011/12[24] estimated that 481 stargazer were taken by recreational fishers through the use of set nets. This level of stargazer catch is very low when compared to that of the commercial sector. The estimate is based on a relatively small number of events and fishers and, as a result, is subject to relatively high uncertainty. Recreational catch is also likely to vary from year to year. Information on current catches is not available.

Historically, stargazer were not reported as being caught by recreational fishers in surveys conducted in the Ministry of Fisheries South region in 1991/92. No giant stargazer catch was recorded for recreational fishers during the 1999/2000 national diary survey (Boyd & Reilly 2005).

Currently there are no specific management controls for the recreational take of stargazer.

3.2.3 Māori Customary

Stargazer is not identified by Te Waka a Māui me Ōna Toka iwi forum[25] as a tāonga species in the Te Waipounamu Iwi Fisheries Plan. This plan includes objectives relating to supporting and providing for the customary and commercial interests of South Island iwi.

For those tangata whenua groups operating under the customary fishing regulations[26], there is a requirement for Tangata Kaitiaki/Tiaki to provide MPI with information on Māori customary harvest of fish.

However, most tangata whenua in STA7 are operating under regulations 50, 51 and 52 of the Fisheries (Amateur Fishing) Regulations 2013 (the Amateur Regulations), and it is not mandatory to report permits that are issued or the catch that is taken.

[24] Available at http://fs.fish.govt.nz/Doc/23718/FAR_2014_67_2847_MAF2010-01.pdf.ashx

[25] The Te Waka a Mäui me öna toka iwi forum represents the nine iwi of the South Island, each holding mana moana and significant interests (both commercial and non-commercial) in South Island fisheries.

[26] Fisheries (Kaimoana Customary Fishing) Regulations 1998 and/or Fisheries (South Island Customary Fishing) Regulations 1999.

Information currently held by MPI on Māori customary catch of STA7 is uncertain. This is possibly due to the fact that the lack of recreational controls on the take of STA7 means there is no need to apply for a permit to harvest the species. MPI currently has one record of a customary permit being issued for the take of stargazer under which 3kg was taken.

3.2.4 Other Sources of Fishing-related Mortality

This allowance covers the mortality of fish that results from various factors associated with fishing, but not reported as catch. This can include fish that escape the gear, but die. In addition, this allowance covers any component of catch that is unwanted and unlawfully discarded (in the case of QMS species).

3.3 PREVIOUS REVIEW

The management settings for STA7 have been reviewed 3 times since stargazer was introduced into the quota management system on 1 October 1986. On all three occasions catch limits have been increased.

The most recent review on 1 October 2010 increased the TAC to the current setting of 1072 tonnes based on stock assessment information. The TAC increase of 72 tonnes (7%) included a 42 tonnes (4%) increase to the TACC and an allocation of 27 tonnes to account for other sources of fishing-related mortality (OSFRM). The allowances for Māori customary and recreational catch were retained at 1 tonne and 2 tonnes respectively.

3.4 STOCK STATUS INFORMATION

Target reference biomass, B_{MSY}, for STA7 is assumed to be 40% of the virgin biomass (B_0). Under the Harvest Strategy Standard Guidelines, 40% B_0 is the recommended target reference point for stocks with productivity characteristics such as STA7, in the absence of any other information.

The stock assessment of STA7 in 2008 estimated the 2008 biomass at 24.1-51% B_0 with a median of 38.8% B0 for the base case model, and ranged between 24.2 and 87.4% B_0 for the two model sensitivities. The stock assessment showed that, at the time and provided the assumptions about recruitment held, STA7 was likely to be at or near B_{MSY}. This 2008 estimate provided a reference biomass by which to track the performance of the stock.

Alongside the 2008 stock assessment, relative biomass indices are available for STA7 from a series of bottom-trawl research surveys of the West Coast South Island that began in 1992 (see Figure 4). These surveys are undertaken every two to three years with the most recent survey completed in 2015. The 2015 preliminary point estimate is 1981 tonnes and while this is down slightly on the previous survey (2013), it is still above the mean. Overall the survey series indicates that abundance is at least relatively stable since 2009, and is likely to have doubled since 2003.

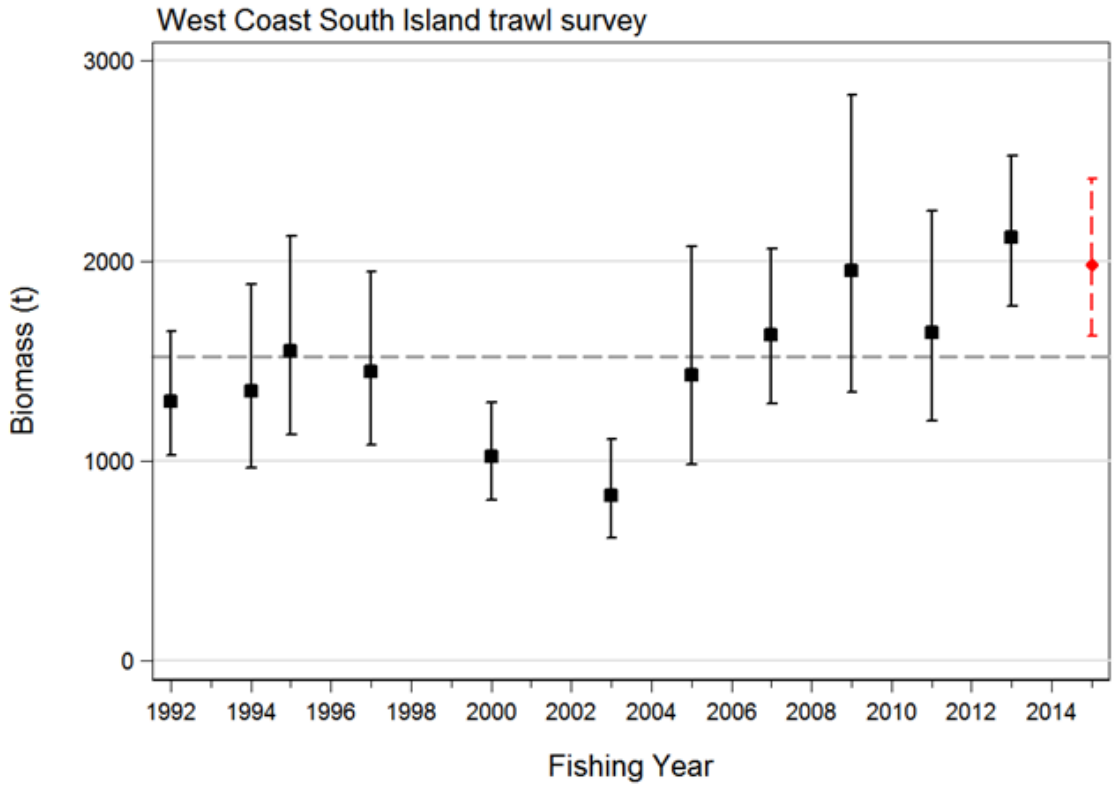


Figure 4: Stargazer biomass estimates and c.v.s from the West Coast South Island trawl survey series and mean biomass for the survey (dotted line) from 1991 to 2015. Note the 2015 point estimate (in red) is preliminary and has not yet been formally accepted.

Catch per unit effort (CPUE) indices have also been investigated as a monitoring tool for STA7. Latest analyses for the fishing years 2007/08-2012/13 indicated a relatively stable trend, however further analysis is required before this tool will be accepted as a reliable indicator of abundance.

In 2014, MPI's Fishery Assessment Working Group concluded that STA7 is likely (>60%) to remain at or above B_{MSY} at current catch levels. In addition it has been concluded that overfishing is unlikely (<40%) to be occurring in this fishery. The preliminary estimate from the trawl survey in 2015 does not suggest a substantial change in status.

4 Legal Considerations

4.1 SETTING MANAGEMENT MEASURES

Given indications that the current biomass of STA7 is likely at or above B_{MSY}, MPI considers that modest increases to catch limits for STA7 paired with ongoing monitoring of relative abundance is not inconsistent with the objective of maintaining the stock at or above B_{MSY}, or moving the stock towards or above B_{MSY}. Further legal considerations are discussed at 2.2 above.

4.2 FURTHER CONSIDERATIONS

When making a decision concerning the TAC for a stock, the Minister must have regard to the interdependence of stocks, the biological characteristics (discussed earlier) and any environmental conditions affecting the stock. MPI does not have sufficient information to comment on any environmental conditions affecting STA7.

Sections 9(a) and (b) also require the Minister to take into account that associated or dependent species be maintained at or above a level that ensures their long-term viability, and that the biological diversity of the aquatic environment should be maintained. There is no information to suggest that any of the options provided will have an adverse effect on associated or dependent species, or that they would hinder the maintenance of the biological diversity within the aquatic environment.

Where environmental interactions associated with the STA7 fishery exist, they have been characterised below. Reference has been made to the likely impacts of the proposed management options.

4.2.1 Marine mammals

The west coast South Island population of Hector's dolphins overlaps with the STA7 trawl fishery. There is limited information on the interaction between Hector's dolphins and trawl fisheries however a trawl capture was observed as part of a scientific observer study on the east coast of the South Island in 1998 (Baird & Bradford 1999).

The best-available information indicates interactions with Hector's dolphins appear to be limited to inshore trawl vessels operating in waters of less than 100 m depth, and this may be due to their observed habitat preference for these shallower, inshore waters.

Risk to sea lions from trawl fisheries in FMA7 is considered low however there may be some risk to New Zealand fur seals.

Keeping in mind that a modest TACC increase is unlikely to intensify effort associated with FMA7 trawl fisheries, and noting that while stargazer catch is a component of these fisheries it generally does not determine fishing activity or practices, the management proposals should have limited effects on marine mammals.

4.2.2 Fish bycatch

Smooth skates are caught alongside stargazer as a bycatch in FMA7 bottom trawl fisheries, and the biomass index for smooth skates in the west coast trawl survey has declined substantially since 1997. There may be similar concerns for rough skates but the evidence is less conclusive.

As discussed above, increasing the TACC for the STA7 stock is unlikely to translate to a significant increase in overall trawling effort. Therefore, the management proposals should have limited effects on the catch levels of smooth and rough skates. In addition both skate species are include on Schedule 6 in the Act which, despite being a QMS species, allows them to be released alive if they have a likely chance of survival. As such any increased catch of skates could be mitigated, where possible, through their live release.

4.2.3 Seabirds

Management of seabird interactions with New Zealand's commercial fisheries is driven through the 2013 National Plan of Action to Reduce the Incidental Captures of Seabirds in New Zealand fisheries (NPOA-Seabirds). The NPOA-Seabirds has established a risk-based approach to managing fishing interactions with seabirds, targeting management actions at the species most at risk as a priority but also aiming to minimise captures of all species to the extent practicable.

The level of risk from commercial fishing to individual seabird species has been identified through a comprehensive hierarchical risk assessment[27] that underpins the NPOA-Seabirds. Seabird interactions with target fisheries in which STA7 is caught generally occur at low rates, although interactions are known to occur. Inshore and deep water trawl fisheries in FMA7 were assessed to contribute low levels of risk to a small number of seabird species.

As discussed above, increasing the TACC for the STA7 stock is unlikely to translate to a significant increase in overall trawling effort. Therefore, the management proposals should have limited effects on seabirds.

4.2.4 Benthic impacts

Bottom trawl fisheries such as those in which STA7 is a bycatch use trawl gear which is towed along the sea floor. The gear is generally fished hard down on the seabed, impacting benthic habitats.

Research has been reported to characterise both New Zealand's benthic environment and the level of benthic impact from fisheries activity.[28] This research combined the trawl footprint created for all target species for five years and overlaid benthic habitat classes to get a measure of the coverage of habitat classes by trawl gear.

As discussed above, increasing the TACC for the STA7 stock is unlikely to translate to a significant increase in overall trawling effort. Therefore, the trawl footprint and associated impacts on benthic habitat classes that have been assessed are not set to change under the proposed options below.

5 Proposed Options

Option	Total Allowable Catch (t)	Total Allowable Commercial Catch (t)	Allowances		
			Customary Māori (t)	Recreational	Other sources of fishing-related mortality
Option 1 (Status Quo)	1072	1042	1	2	27
Option 2	1138	1082	1	3	52
Option 3	1181	1122	1	4	54

5.1 OPTION 1

Under Option 1, the existing TAC and allowances would be retained. This option reflects a cautious approach to change, placing greater weight on the uncertainty in the information about the STA7 stock status relative to target levels and the uncertainty associated with how much the biomass has increased.

Option 1 reflects the moderate susceptibility of stargazer to over fishing. There could also be some benefit to commercial fishers with a higher abundance of stargazer in STA7, in terms of increased catch rate efficiencies and the potential for greater future yields.

[27] http://www.mpi.govt.nz/document-vault/4265
[28] https://www.mpi.govt.nz/document-vault/5287

Deemed values for STA7 in 2013/14 totalled $21,042.00.

Impact
Given that reported commercial landings of STA7 have been constrained at or near the TACC for the last 10 years, retaining the current TACC despite evidence to support an increase may result in opportunity loss for the commercial sector. This is because option 1 does not enable industry to fully utilise elevated biomass in a way that could allow them to maximise value.

5.2 OPTION 2

Option 2 proposes:

- The TAC be increased from 1072 tonnes to 1138 tonnes (an increase of 6%).
- The TACC be increased from 1042 tonnes to 1082 tonnes (an increase of 4%).
- The customary Māori allowance would remain at 1 tonne.
- The recreational allowance be increased from 2 tonnes to 3 tonnes (an increase of 50%).
- The allowance for other sources of fishing-related mortality be set at 52 tonnes (5% of the TACC).

Option 2 proposes an increase to the TAC that can provide potential to obtain higher benefits from the stock. A 1082 tonne TACC is slightly higher than recent average annual landings, but is still relatively modest to take the moderate biological vulnerability of stargazer into account.

Given the information available from the 2008 stock assessment and regular monitoring through the WCSI trawl survey, Option 2 involves a low risk to the sustainability of the stock.

Impact
An increase in the TACC is likely to enable commercial fishers and quota owners to maximise value from STA7 catch and its associated target fisheries. An increase of 4% to the TACC will provide for greater utilisation opportunities than Option 1, the status quo.

Based on the $7.17 per kilogram quota price and the $1.18 per kilogram port price, a 40 tonne increase in commercial catch is worth approximately $286,800.00 and $47,200.00 annually to quota owners and commercial fishers respectively. In addition, relief from STA7 deemed value pressure through increasing the TACC will provide maximised benefit from the available catch.

No changes are proposed to the Māori customary or recreational allowance as best available information suggests that current settings will provide for current levels of catch. The allowance for customary use is not set to constrain catch, but to reflect levels of current utilisation.

Option 2 provides for a small increase to the recreational allowance to recognise increases in availability from increased abundance, and the uncertainty in the estimate of catch.

In the absence of additional information, MPI proposes that the allowance for other sources of fishing-related mortality be set at 5% of the TACC. This would align the basis for the allowance with the other trawl-caught stocks being reviewed.

5.3 OPTION 3

Option 3 proposes:

- The TAC be increased from 1072 tonnes to 1181 tonnes (an increase of 10%).
- The TACC be increased from 1042 tonnes to 1122 tonnes (an increase of 8%).
- The customary Māori allowance would remain at 1 tonne.
- The recreational allowance be increased from 2 tonnes to 3 tonnes (an increase of 50%).
- The allowance for other sources of fishing-related mortality be set at 55 tonnes (5% of the TACC).

A TAC increase of 109 tonnes can provide potential to obtain further benefits from the stock. An 1122 tonne TACC is moderately higher than recent average annual landings.

Given the information available from the 2008 stock assessment, regular trawl surveys and recent CPUE indices, Option 3 involves a low risk to the sustainability of the stock, however, the risk is greater than Options 1 and 2. While an increase in commercial catch will likely slow the rate of biomass increase in STA7, this may be appropriate if the stock is in fact already at or above B_{MSY}.

Consistent with Option 2, no changes are proposed to the Māori customary or recreational allowance as best available information suggests that current settings will provide for current levels of catch.

Option 3 provides for a small increase to the recreational allowance as for Option 2.

Also consistent with Option 2, it is proposed that the allowance for other sources of fishing-related mortality be set at 5% of the TACC.

Impact
Any increase in the TACC is likely to enable fishers to maximise value in STA7 and associated target fisheries. An increase of 8% to the TACC will provide for greater utilisation opportunities than Options 1 and 2. Based on the $7.17 per kilogram quota price and the $1.18 per kilogram port price, an 80 tonne increase in commercial catch is worth approximately $573,600.00 and $94,400.00 annually to quota owners and commercial fishers respectively. In addition relief from STA7 deemed value pressure through increasing the TACC will provide maximised benefit from the available catch.

6 Other Matters

6.1 DEEMED VALUES

Deemed values are an economic tool that incentivises commercial fishers not to catch in excess of their individual annual catch entitlements. A discussion of the deemed value rates for STA7 is included in the accompanying consultation document "Review of Deemed Value Rates for Selected Finfish Stocks".

6.2 RECREATIONAL CONTROLS

There is no information to suggest a change to recreational controls would be needed and no changes to the recreational daily bag limit are proposed.

7 Conclusion

MPI is seeking information and views from tangata whenua and stakeholders to support the development of final advice to the Minister on management settings for STA7 for the fishing year commencing 1 October 2015.

The 2008 stock assessment of the STA7 fishery suggested that, at that time, the stock was likely to be at or above $B_{MSY.}$ Biennial trawl surveys since then have indicated that the biomass has at least remained stable, but more likely increased. This is despite annual catch levels being at or above the TACC during this period.

This is potentially affecting the ability of the trawl fleet in FMA7 to freely target other species as fishers need to consider avoiding the increased abundance of stargazer in order to mitigate deemed value penalties.

Option 1 retains the status quo and accounts for the fact that, despite the strong information available, there is still some uncertainty around the state of the stock and that there is some vulnerability if overfishing was to occur. This option would most likely lead to further increases in the biomass to a level above $B_{MSY.}$ Under this option it is likely that STA7 deemed value payments will increase as fishers become less and less able to avoid stargazer.

Option 2 provides for a modest increase in utilisation, including increasing the TACC by 40 tonnes or 4%. Based on the available information this option is consistent with the principles of providing for utilisation while maintaining the sustainability of the stock.

Option 3 provides for a moderate increase in utilisation, including increasing the TACC by 80 tonnes or 8%. Although this may slow the rate of biomass increase more than option 2, again this may be an appropriate approach, if the biomass is in fact at or above $B_{MSY.}$ Based on the available information this option is also consistent with the principles of providing for utilisation while maintaining the sustainability of the stock.

No changes are proposed to the Māori customary allowance as best available information suggests that current settings will provide for current levels of catch.

The proposals in Option 2 and 3 provide for a small increase to the recreational allowance to recognise increases in availability from increased abundance, and the uncertainty in the catch estimate.

It is proposed that alongside increases to the TACC the allowance for other sources of fishing-related mortality be set at 5% of the TACC.

It is important to note that the Minister has broad discretion in exercising his powers of decision-making. He will make his own independent assessment of the information presented to him before making a final decision on varying a TAC, allowances and TACC.