



Regulatory Impact Statement

Proposed Separation of South Island Eel Stocks

Prepared by the Ministry for Primary Industries

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Proposed Separation of South Island Eel Stocks

Agency Disclosure Statement

This Regulatory Impact Statement (RIS) has been prepared by the Ministry for Primary Industries (MPI).

It provides an analysis of options to address the proposed separation of South Island freshwater eel stocks.

The analysis relies on information held by MPI, some of which was supplied by the fishing industry under legislative requirements.

The Fisheries Act 1996 (the Act) states that decisions should be based on the best available information; that decision makers should consider any uncertainty in the information; that decision makers should be cautious when information is uncertain, unreliable, or inadequate; and that the absence of, or uncertainty in, any information should not be used as a reason for postponing or failing to take any measure to achieve the purpose of the Act.

The analysis in this RIS relies on the best available information, however, there is uncertainty in some of that information, including:

- Status of South Island eel stocks (ANG 11 – 16), this is because a complete stock assessment was not able to be undertaken due to the lack of catch data in ANG 11, 12 and 14. Where there was insufficient catch data to undertake a stock assessment a comparison of actual commercial catch versus Total Allowable Commercial Catch (TACC) e.g. 'potential catch' was undertaken. The assessment of potential catch allowed MPI to compare current fishing pressures to a 'worst case scenario' (taking the entire Total Allowable Catch (TAC) as one species) and make decisions based on this.
- While it is thought to be high, the exact impact on eel populations of instream structures e.g. dams and habitat loss is uncertain. These non-fishing related issues further impact on the sustainability of eels.
- Due to fluctuating market price, demand and accessibility to eels caused by changing environmental conditions, the costs/ benefits of separate management of eel stocks to the South Island eel industry are currently not clear. However, the commercial eel industry has been successfully operating on the Chatham and North Islands since 2002 and 2003 respectively with separate stocks.

The analysis considers these uncertainties and cautious recommendations have been put forward as a result.

Scott Gallacher
Deputy Director-General
Regulation and Assurance

11 May 2016

1 Executive summary

New Zealand's eels are considered taonga (treasured) by Māori and are traditionally an important food source. They are also recreationally and commercially harvested and sold both internationally and domestically. Due to their unique life history eels are vulnerable to harvesting, other anthropogenic impacts e.g. water pollution, and environmental factors.

One of the two main eel species found in New Zealand, the New Zealand longfin eel, is only found here. It is biologically distinct from the shortfin eel and is subject to different harvest and other pressures. In the South Island, however, these differences are not able to be reflected in catch limits and other sustainability settings because longfin and shortfin eels are managed as combined stocks within the quota management system (in the North and Chatham Islands the two species are managed separately).

Following a report in 2013 by the Parliamentary Commissioner for the Environment on longfin eels, and a subsequent independent expert peer review of the information available on eels, the Minister for Primary Industries decided to review whether the separation of South Island longfin and shortfin stocks (rather than the current combined approach) would support improved management of each species. The objective of the review was to ensure the sustainable harvest of longfin and shortfin eels within the South Island of New Zealand.

As part of the review the Ministry for Primary Industries undertook extensive consultation with tangata whenua and industry groups throughout 2015 and 2016. Tangata whenua supported the separation of South Island eel stocks, while the eel industry supported the status quo.

In reviewing the management of South Island eel stocks the following options were considered:

- 1) Manage South Island longfin and shortfin eels separately as six shortfin (SFE 11 – 16) and six longfin (LFE 11 – 16) stocks; or
- 2) Continue to manage South Island longfin and shortfin eels as six combined stocks (ANG 11 – 16) – *Status quo*.

During consultation, a number of alternative options were put forward by the South Island Eel Industry Association and considered as part of the review.

The review concluded that Option 1, managing South Island eels as separate stocks, as is the case in the North and Chatham Islands, is preferred to achieve the objective of the review.

Managing the species separately allows for:

- the different biological characteristics, economic, social, and cultural values associated with each species to be reflected in sustainability settings,
- a more precautionary approach to be taken for the more vulnerable longfin eel to help increase its abundance, without impacting on utilisation of the less vulnerable shortfin eel, and
- a more effective, targeted response to the current sustainability risks associated with some South Island eel stocks.

The current combined management arrangements poses a continuing risk that either of the two eel species, longfin or shortfin could be overfished as all of the Total Allowable Catch could potentially be taken as one species. While catch limits and other sustainability measures could be adjusted to try to address this risk, this is a more complex and less

effective approach for a multi species stock compared to a single species stock. This is because the TAC would need to be set at a level that, if fully caught, would be sustainable for the most vulnerable species (longfin), which creates a potentially utilisation cost for those commercial fishers that targeting the least vulnerable species (shortfin).

In terms of the alternative options put forward by the eel industry, these were primarily voluntary measures. Where sustainability concerns are evident, a strong regulatory environment is preferred to address the risks associated with current management.

Section 25 of the Fisheries Act 1996 allows for the two species to be managed separately by altering the current quota management areas for South Island eels. This alteration would occur in time for the start of the next fishing year for most of the eel stocks, which is 1 October 2016.

2 Status quo

Longfin and shortfin eel species are both native to New Zealand, but only the longfin eel is endemic (only found in New Zealand). Both species are found throughout New Zealand, but they have different habitat preferences (shortfin preferring coastal waterways and longfin preferring inland waterways), growth rates, and rates of reproductive maturity, which make them vulnerable to harvesting pressure in different ways.

In general, the longfin eel is characterised as more vulnerable to harvest pressures than the shortfin eel because they are slower growing, mature much later, live longer and do not migrate for spawning until later in life.

Despite the longfin and shortfin eels having significant physical and biological differences (refer Appendix 1), when South Island eels were introduced into the QMS in 2000 both species were combined into a single stock (ANG) and divided into six Quota Management Areas (QMA), ANG 11 – ANG 16 (refer figure 1). This approach was primarily due to time constraints to ensure South Island eels were included in the Quota Management System (QMS) by the start of the fishing year in 2000.

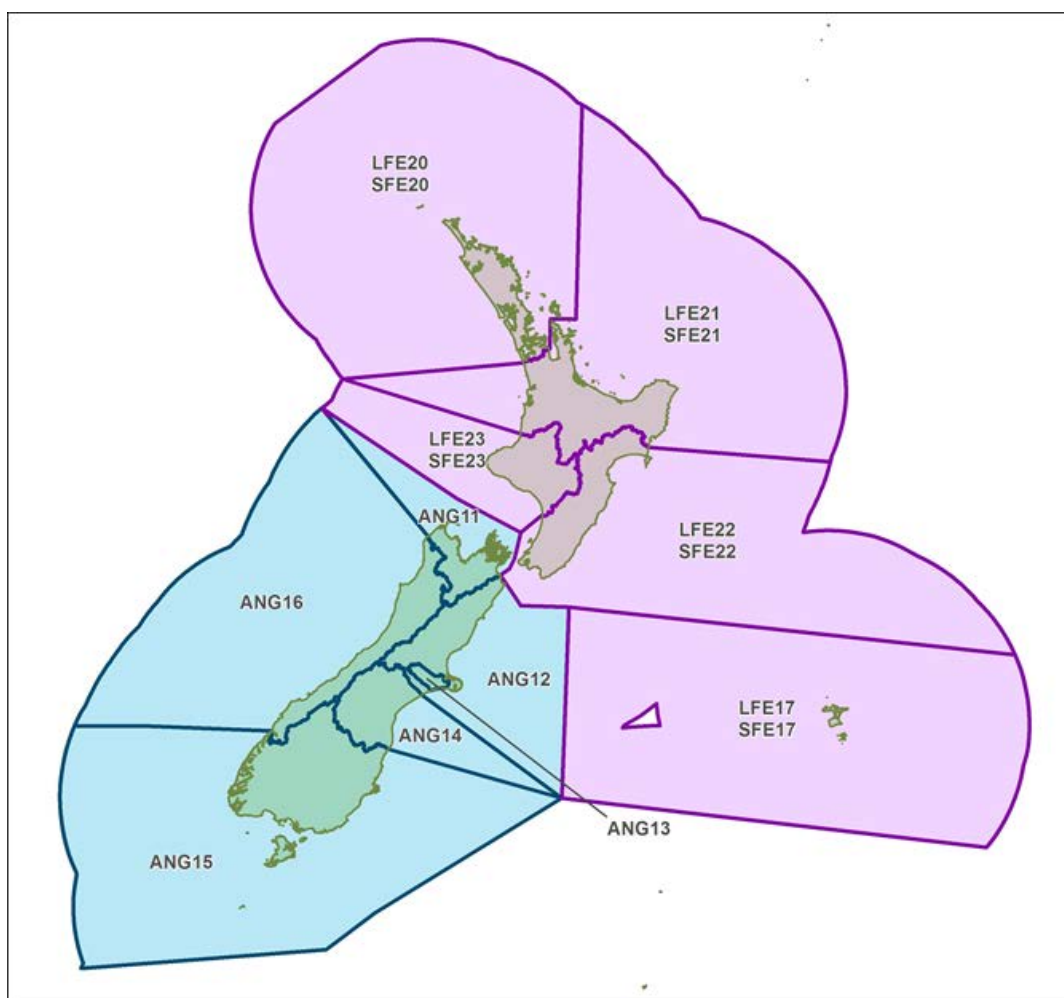


Figure 1: New Zealand Quota Management Areas (QMAs) for freshwater eels (shortfin and longfin). In the South Island (blue) both eel stocks are combined (ANG) and in the North and Chatham Islands (purple) the stocks are separated into longfin (LFE) and shortfin (SFE).

Subsequently, when Chatham and North Island eels were entered into the QMS in 2002 and 2003 respectively, they were introduced as separate stocks across 5 QMAs, (refer Figure 1). This was to allow for species specific management recognising their significant physical and biological differences.

Historically, MPIs preference has been to manage species separately, as is done for eels, in the North and Chatham Islands, with relatively few exceptions. The exceptions are usually highly productive species such as flatfish, rather than potentially vulnerable species such as eels. This is because individual species management allows for targeted species specific management, obtaining the best outcome for each species without being negatively influenced by, or negatively influencing, sustainable harvest of another species.

From a utilisation perspective, the status quo (combined management), allows commercial eel fishers to benefit from having both species managed as one stock, because this framework allows flexibility for fishers to switch between species, either:

- increasing the catch of the highest value species, as market demand changes; or
- targeting the species with the highest availability given prevailing environmental conditions.

From a management perspective, however, the status quo significantly reduces the ability for individual management of each species as both species are managed with a single Total Allowable Catch (TAC), Total Allowable Commercial Catch (TACC) and allowances. This

reduces the ability to maximise the use of the most abundant species while ensuring sustainability of the most vulnerable species.

Commercial Fishery:

There are 31 individual quota holders within the South Island, some of which own quota in multiple QMAs. The current combined TACC across all QMAs in the South Island is 421 tonnes. Graphs showing Commercial Catch by shortfin and by longfin species and TACCs since 2000–01 for each QMA are outlined in figure 2 below and tables of this data are set out in Appendix 2. In most QMAs the current catch is significantly below the TACC. This 'headroom' (difference between actual catch and potential catch) represents a significant sustainability risk to longfin eels if the market were to change and longfin eels became more desirable. Under the current combined management regime it would mean the entire TAC could be taken as longfin eel.

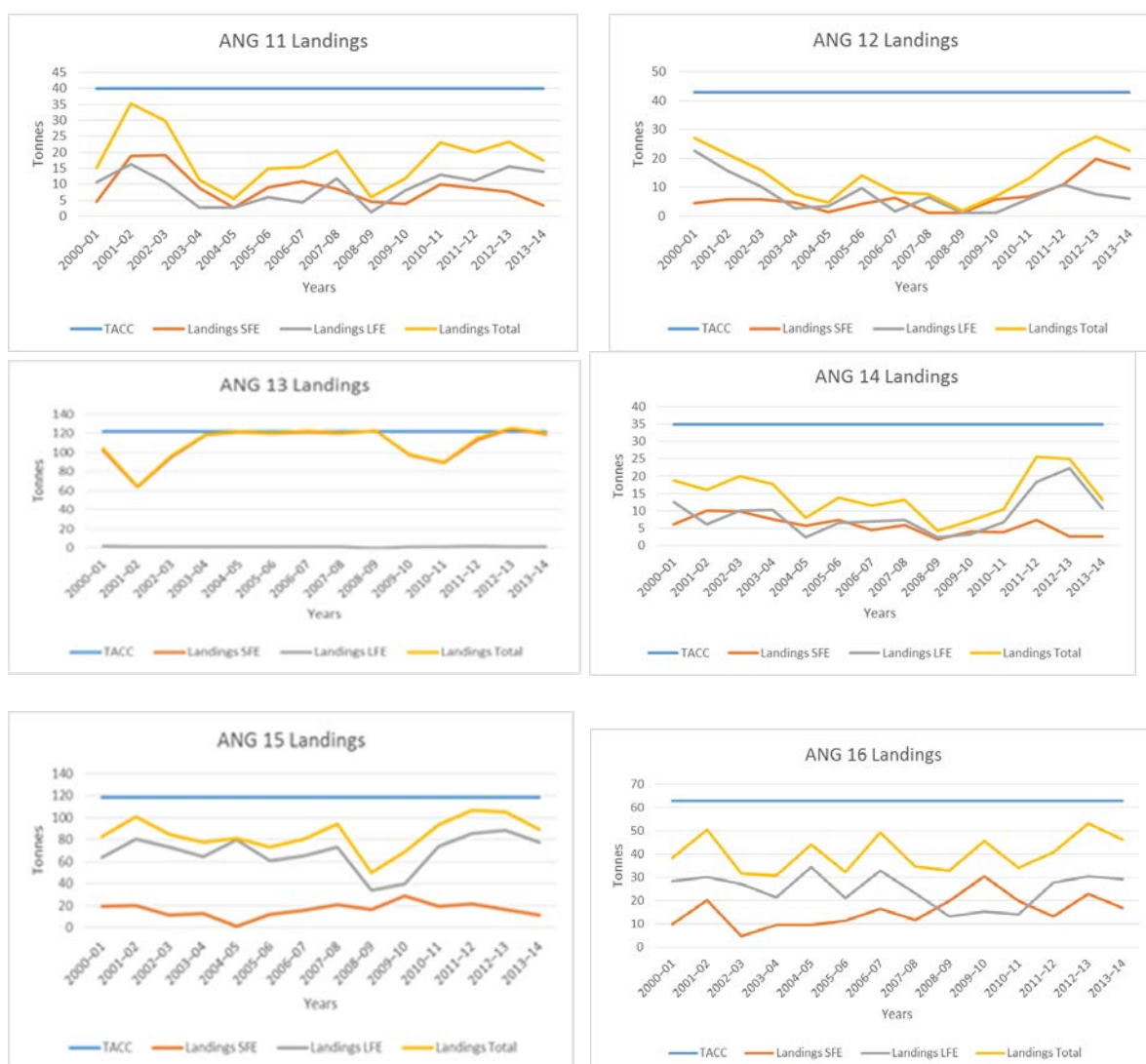


Figure 2 Catch landings by shortfin and by longfin species and Total Allowable Commercial Catches since 2000–01 for each Quota Management Area based on data recorded on Eel Catch Landing Return (ECLR) forms.

Most of the eel catch is exported. While the fishery is only moderate in size it is a locally important provider of employment for fishers, processors and exporters. The average port price (the amount a commercial fisher receives from a licenced fish receiver for commercially caught eels) for South Island eels quoted in the Port Price analysis model is \$4.17 per kg, giving an estimated average value based on port price for eel landings of \$501,317.40 for longfin and \$647,184 for shortfin in the South Island. It is recommended caution be used when interpreting the above values because:

- anecdotal evidence suggest that eel fishers receive different prices for longfin and shortfin eels, however, the reported value is an average value covering both species;
- not all Licenced Fish Receivers provide information for the Port Price survey. MPI has not received sufficient results during the last three years to allow an update of the port pricing for eels; and
- the port price value is what the fisher receives, not what the eels are worth on the open market.

Recreational Fishery:

A recreational individual daily bag limit of six eels was introduced throughout New Zealand was introduced in October 1994. There is no quantitative information on the recreational harvest of freshwater eels, but it is considered to be low and likely to be less than the existing recreational allowance (refer Appendix 1, Table 1). The recreational fishery for eels includes any eels taken by people fishing under the amateur fishing regulations¹ and includes any harvest by Māori not taken under customary provisions.

When the South Island eel fishery was introduced into the QMS, an allowance was made for recreational harvest of 2% of the TAC for each QMA, currently equating to 11 tonnes across the South Island (refer Appendix 1, Table 1). Based on available information, current recreational harvest is within this allowance.

Customary Fishery

Eels (tuna) are considered taonga (treasured) by Māori and are traditionally an important food source. Māori developed effective methods of harvesting, and hold a good understanding of the habits and life history of eels. Māori retain strong ties to eels and their harvest.

In the South Island, a number of areas have been set aside as non-commercial areas for customary (and recreational) fisheries. For example seven mātaihai reserves covering freshwater (five that are solely freshwater, and two that cover both freshwater and saltwater bodies) have been established where commercial fishing is prohibited.

Customary non-commercial fishers prefer eels of a large size, i.e. over 750 mm and 1 kg. There is no complete assessment of the current or past customary non-commercial take for the South Island. However, there is information on customary non-commercial catches from authorisations issued under customary fisheries regulations. These regulations are in force across most of the South Island (not ANG 11). The data collected over the last 17 years shows the majority of customary catch is from ANG 12 (North Canterbury) and ANG 13 (Te Waihora/Lake Ellesmere). The records also suggest that eel customary permit fulfilment (comparison of quantity authorised to that able to be caught under that authorisation) is of particular concern for ANG 12 and ANG 14.

When the South Island eel fishery was introduced into the QMS, an allowance was made for customary non-commercial harvest. It was set at 20% of the TAC for each QMA, currently equating to 107 tonnes (refer Appendix 1, Table 1). Based on available information, current customary harvest is within this allowance.

Legal considerations

Sections 25 - 26 of the Act, provide for the alteration of QMAs (including dividing a multi-species stock) and set out certain roles and responsibilities to be undertaken by the Minister before an alteration can take place. For further information refer to Appendix 3.

Section 25A of the Act details a process the Minister must undertake when altering a QMA with support of at least 75% of quota owners, whereas section 25B details the process the Minister must undertake if less than 75% of quota owners support the proposed alteration.

Throughout the consultation period there was strong support from quota holders to remain with the status quo therefore, as less than 75% of quota owners support the separation, the separation will occur as detailed under section 25B of the Act.

¹ Fisheries (Amateur Fishing) Regulations 2013

Section 26 details the process for notifying the quota holders of their new quota allocation once QMA decision has been made and allows for cancellation of the old quota.

Parliamentary Commissioner for the Environment's Report

In 2013, the Parliamentary Commissioner for the Environment released a report outlining the status of longfin eel populations in New Zealand.² In this report, the Commissioner recommended that the Minister for Primary Industries:

- suspend the commercial catch of longfin eels until longfin eel stocks are shown to have recovered, and
- direct his officials to establish a fully-independent expert peer review panel to assess the full range of information available on the status of the longfin eel population.

Subsequently, an independent scientific review of the information available on the status of eels was carried out by a panel of international experts in November 2013.³ The independent panel concluded that there was a trend of decline from the early 1990s to the late 2000s, with relatively stable, and in some areas increasing abundance in recent years. Based on the panel's report, and after consideration of the relevant scientific evidence, the Minister decided that the information available was not sufficient to support a complete closure of the longfin eel fishery.

As an alternative, the Minister for Primary Industries decided to progress a package of management measures aimed at ensuring an increase in the number of longfin eels and their long-term sustainability. These management measures include:

1. A review to consider the separation of South Island longfin and shortfin stocks to support improved management of each species.
2. A review of catch limits for both North and South Island longfin eels to ensure that they will support/promote an increase in longfin eel abundance.
3. The introduction of abundance target levels to support assessment of the status of the longfin eel population and rate of rebuild.⁴
4. Improved information from the commercial longfin eel fishery to better inform stock assessment.⁵

This Regulatory Impact Statement relates to Part 1 of this package (review to consider separation of longfin and shortfin stocks). Note that, in relation to Part 2 of this package (review of catch limits), additional consultation will be undertaken on TACs, TACCs and allowances for South Island eel stocks as part of the 2016 sustainability round for stocks with a 1 October fishing year.

² On a pathway to extinction? An investigation into the status and management of the longfin eel, April 2013

³ www.mpi.govt.nz/Portals/0/Documents/fish/Eel-Review-Report-25-11-2013.pdf

⁴ Part 3 of the package for South Island eel stocks has already been completed. MPI completed a new stock assessment for South Island eel stocks in 2015. North Island eel stocks are scheduled for review in 2016. From the 2015 stock assessment, an abundance target (ANG 13 only) and sustainability limits have been set for those South Island eel stocks where there is sufficient data to do so. These targets are used to guide the options described in this paper as longfin and shortfin eel abundance is able to be compared with these levels.

⁵ In relation to Part 4 of the package, MPI is using a more comprehensive and integrated information base to inform the stock assessment process for longfin eels. This included improved commercial catch reporting and additional data provided by universities, the Department of Conservation and local councils to assist in monitoring eel abundance. Not all of this information was able to be utilised as part of the current stock assessment, but it still being collected and may be used in the future. MPI is also undertaking research looking at the percentage of available habitat that is commercially fished. The preliminary results of this work have been considered in the development of the options presented in this paper. Abundance indices have already been updated using the latest information for South Island longfin eel stocks, and will be updated in 2016 for North Island longfin eel stocks.

3 Problem definition

MPI considers the following sustainability risks are currently evident for South Island eels under the combined stock management regime:

- The biological characteristics of longfin eels make them more vulnerable to overexploitation, but catch of the species cannot effectively be controlled within a combined species catch limit without impacting on utilisation.
- The shortfin eel population within one of these stocks is at the 'soft limit' – the limit at which a rebuilding plan is recommended under the MPI Harvest Strategy Standard policy, and longfin eels in another stock are expected to decline under recent levels of catch.
- Catches are well below the TACC limit for most stocks. If catches were to increase to the limit then it is likely that overfishing would occur, and very likely, if all the catch was taken as longfin eels, that their abundance would decline.

Due to their unique life history, eels are vulnerable to harvesting and other impacts. The longfin eel is more vulnerable than the shortfin eel due to its biological characteristics. In the South Island, however, these differences are not currently reflected in catch limits and other sustainability settings because longfin and shortfin eels are managed as combined stocks within the QMS (in the North and Chatham Islands the two species are managed separately).

The abundance of eels is affected by numerous factors, in addition to fishing. Where data is available these factors are taken into account in assessing stock information for South Island eels and is included in this review. While the primary focus of fisheries legislation is to manage fishing and its impacts, where appropriate MPI works collaboratively with industry, other government agencies and research groups to improve scientific knowledge, enhance eel habitat and eel recruitment and reduce non-fishing related mortality. Nonetheless, fishing has a significant impact on eel populations and the Minister is obliged to ensure fishing activities are sustainable under the Act.

Under the current combined management arrangements, there is a continuing risk that either of the species could be overfished as all of the TAC could potentially be taken as one species. While sustainability settings e.g. annual catch limits for combined stocks could be adjusted to try to address this risk, this is more complex, less effective and less efficient for a multi species stock compared to a single species stock. For example, if the stocks were to remain combined, the TAC for both species would need to be set at a level that, if fully caught, would be sustainable for longfin eels. This creates a potentially significant utilisation cost for those commercial fishers that target shortfin.

For longfin and shortfin eel populations within ANG 11 (Nelson/Marlborough), 12 (North Canterbury) and 14 (South Canterbury), there is insufficient data to determine stock trends or status against limits and targets. For longfin and shortfin eel populations within ANG 13 (Te Waihora/Lake Ellesmere), 15 (Otago/Southland), and 16 (West Coast) there is sufficient data to determine stock status through the standardised Catch Per Unit Effort (CPUE) time series. In the case of longfin in ANG 15 and 16 the stock is above the 'soft limit', a limit at which MPI would consider implementing a stock rebuilding plan, but its status relative to legislative target levels is uncertain. In the case of ANG 13 (a shortfin only fishery) the stock is well above the target level.

4 Objective

MPI has analysed the options in this RIS against the following objective. The objective aligns with the purpose of the Act (to provide for the utilisation of fisheries resources while ensuring sustainability).

- Objective – To ensure the sustainable harvest of longfin and shortfin eels within the South Island of New Zealand.

5 Options and impact analysis

The options considered in the review were:

- 1) Manage South Island longfin and shortfin eels separately as six shortfin (SFE 11 – 16) and six longfin (LFE 11 – 16) stocks – (*Preferred*); or
- 2) Continue to manage South Island longfin and shortfin eels as six combined stocks (ANG 11 – 16) – (*Status quo*).

In addition to the above options, five alternatives, were put forward by the South Island Eel Industry Association which are outlined in the ‘Other options considered’ section below. MPI has not specifically included these in the options analysis because most of the options are voluntary and MPI supports a strong regulatory environment where there are sustainability concerns.

The impacts of each option in relation to the objective of the proposals are set out in the table below (refer Table 1).

Table 1. Summary of qualitative analysis of policy options against the objective

Options	Option 1 - Manage South Island eels as separate shortfin and longfin stocks	Option 2 – Continue to manage South Island eels as combined longfin and shortfin stocks
Objective 1 – To ensure the sustainable harvest of longfin and shortfin eels within the South Island of New Zealand.	✓✓ Option 1 would allow: • sustainability measures to be set in a way that takes into account the different biological characteristics, economic, social, and cultural values of each species, • a more precautionary approach to be taken for the more vulnerable longfin eel to help increase its abundance, without impacting on utilisation of the less vulnerable shortfin eel, and	✓ Option 2 does not provide the best means of ensuring the sustainability of longfin and shortfin eels. Under the current combined approach, management changes to address sustainability concerns will be unable to be targeted to the vulnerable species without a potentially significant utilisation cost on the other species.

	• a more effective, targeted response to current sustainability risks associated with some South Island eel stocks and ability to respond to any future sustainability risks. .	
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Option 1 - Manage South Island eels as separate shortfin and longfin stocks

Option 1 proposes that longfin and shortfin eels be managed separately by altering the current combined (ANG) QMAs in the South Island to become separate longfin (LFE) and shortfin (SFE) QMAs.

Seven of the 16 submissions received support Option 1. These submissions highlighted the physical, biological and geographical differences of the two species as the main reasons for separation. One submitter likened the combined management of longfin and shortfin eels to managing cows and sheep as a single stock.

MPI agrees with these submitters and notes that fisheries are generally managed as separate species, with relatively few combined stocks. The exceptions are usually highly productive species such as flatfish, rather than potentially vulnerable species such as eels. Separate management of longfin and shortfin eels would ensure the sustainability of longfin and shortfin eels by allowing:

- sustainability measures such as TACs, TACCs, allowances and deemed values to be set in a way that takes into account the different biological characteristics, economic, social, and cultural values associated with each species,
- a more precautionary approach to be taken for the more vulnerable longfin eel to help increase its abundance, without impacting on utilisation of the less vulnerable shortfin eel, and
- a more effective, targeted response to current sustainability risks associated with some South Island eel stocks and ability to respond to any future sustainability risks.

Option 2 – Continue to manage South Island eels as combined longfin and shortfin stocks

Under this option longfin and shortfin eels in the South Island would continue to be managed together in combined stocks. No changes would be made to the current combined (ANG) QMAs.

This option is supported by eight submissions from the fishing industry. These submissions consider separate management is not required to ensure sustainability of the longfin and shortfin eel stocks because:

- longfin stocks are stable or increasing under the current management regime;
- the Parliamentary Commissioner for the Environment's assessment of the status of longfin eels is incorrect, and therefore the rationale to separate the stocks doesn't exist,
- commercial fishing doesn't significantly threaten longfin populations, but other non-fishing related threats do (e.g. habitat connectivity, flooding and recruitment),
- eels have natural protection already as a substantial portion of eel habitat is unfishable (because it is within conservation land, a reserve, or is generally

- inaccessible to commercial fishers), and this factor needs to be included in the stock assessment, and
- it is unlikely the entire TAC for the current ANG stocks would be taken as longfin.

MPI's response to these submissions is set out below.

The independent panel commissioned to review the information available on the status of eels concluded that there was a trend of decline from the early 1990s to the late 2000s, with relatively stable, and in some areas increasing abundance in recent years. Since the panel produced its report MPI has completed a new stock assessment and has also undertaken consultation on management of eels. Based on this information MPI considers there are current and potential sustainability risks as outlined in option 1, that are evident for South Island eels that need to be addressed.

MPI's review of whether South Island eels should be managed as separate species is not based on the Parliamentary Commissioner for the Environment's Report. It is based on the independent panel's report, the recently completed stock assessment of South Island eels, and consultation it has undertaken on management of eels, which suggests that there are biological reasons to manage the species separately and some immediate and longer term sustainability risks associated with the current approach.

The abundance of eels is affected by numerous factors, in addition to fishing. Where data is available these factors are taken into account in assessing stock information for South Island eels and is included in this review. While the primary focus of fisheries legislation is to manage fishing, where appropriate MPI works collaboratively with industry, other government agencies and research groups to improve scientific knowledge, enhance eel habitat and eel recruitment and reduce non-fishing related mortality. Nonetheless, fishing has a significant impact on eel populations and the Minister is obliged to ensure fishing activities are sustainable under the Act.

For those QMAs where only a relatively small proportion of the area is commercially fished, the status of longfin eels is likely to be more optimistic than estimated from commercial CPUE. MPI has commissioned research outlining the percentage of longfin eel habitat that is fished and unfished. This information is taken into account in MPI's assessment and will feed into future management decisions. It is particularly relevant, for example, to the review of TACs for South Island eels that will occur later this year. For shortfin eels, the proportion of the habitat fished is considerably higher, but has not yet been estimated either on an aggregate basis or by separate QMAs. Nonetheless, this doesn't address the sustainability concerns that have been identified for longfin.

From a utilisation perspective, commercial eel fishers currently benefit from having both species managed together. This allows flexibility for fishers to switch between species, either:

- increasing the catch of the highest value species, as market demand changes, and/or
- targeting the species with the highest availability given prevailing environmental conditions.

MPI does not have data to quantify the benefits of this flexibility to fishers. Reduced flexibility (under Option 1) would be mitigated by the tradability of annual catch entitlement (ACE) and the deemed value framework. As for other quota species, including longfin and shortfin eels in the North and Chatham Islands, these mechanisms can be used throughout the year to match local/seasonal catch. There will, however, be additional transaction costs associated

with more frequent trading of quota and ACE, compared to the current combined management approach.

In addition, some fishers have historically caught more of one species than the other. If the species are managed separately this issue will be resolved in the following ways:

- By the TAC review process that will occur later this year once a decision has been made on separation of the stocks. For example, initial TAC proposals may take into account historical total catches for each species in each QMA, in which case for areas where historically either more shortfin or more longfin has been caught the TAC for each species would reflect this.
- Both quota and ACE are tradeable and fishers can buy or sell entitlement to meet their requirements. Once TACs have been set, fishers can trade quota and ACE on a willing seller-willing buyer basis.

Overall, MPI considers continuing to manage the South Island eel species together does not provide the best means of ensuring the sustainability of longfin and shortfin eels. Under the current combined approach, management changes to address sustainability concerns will be unable to be targeted to the vulnerable species resulting in a potentially significant utilisation cost.

Other options considered

MPI also considered whether South Island eels could be managed separately in only some QMAs. However, the risks associated with combined management, and the benefits of separate management apply across all QMAs. In addition, such an approach is likely to cause confusion for fishers and additional complexity for future management.

SIEIA put forward five alternatives to stock separation as part of their submission. These alternatives and MPI's response are outlined below. MPI considers some of the proposed measures, such as amending regulations to decrease the maximum size of takeable eels from 4 kg to 2 kg, have merit, however most of the options are voluntary and MPI supports a strong regulatory environment where there are sustainability concerns.

1) Reduce the maximum size of longfin from 4 kg to 2 kg;

This measure would see the commercial maximum size limit for longfin eels reduced from the current 4 kg to 2 kg. The maximum size limit is currently specified in regulation; therefore this measure could be implemented voluntarily or by way of regulation change (the industry submission does not specify).

MPI considers this measure would improve longfin eel abundance and increase longfin eel spawner escapement from fished areas. Currently the proportion of catch between 2 and 4 kg is relatively small as eels smaller than 2 kg are preferred in most markets. However, market preferences may change and this measure would help safeguard large eels from future changes in the market.

2) Voluntary shelving of Annual Catch entitlement;

This proposal is not well-specified in industry submissions. Voluntary shelving arrangements could be used to ensure catch levels are constrained so that a disproportionate amount of either species is not taken, or to maintain the level of catch below the TACC.

Voluntary arrangements can be difficult to administer and monitor. They rely on strong industry governance to ensure fishers adhere to them. The eel industry has not provided detail on how these issues would be addressed or how the voluntary arrangements would be implemented. In the absence of strong and self-enforcing governance arrangements MPI

supports a strong regulatory environment when there are sustainability concerns, rather than relying on voluntary shelving to ensure sustainability.

3) *Removal of the 4 tonne minimum holding requirement and carryover entitlements;*

This provision is regulated and means that a fisher cannot fish for eels unless he or she holds a minimum 4 tonnes of ACE for the relevant stock.

MPI considers removing the 4 tonne minimum holding requirement, under the current combined management framework, and providing for carry over of unused ACE will not improve the sustainability or management of South Island eels. It is likely to increase the number of eel fishers, and may increase the overall catch of eels and make any voluntary agreements more difficult to enforce. However, if the stocks are separated, then MPI will approach industry to discuss whether the minimum holding requirement should be reviewed - given that smaller ACE holdings may be available under separate management as the available ANG ACE would be divided between SFE and LFE.

4) *Trap and transfer programs, allowing young eels to move upstream and large migrating eels to move down stream past dams;*

It is not clear from the industry submissions what new actions or initiatives the eel industry would implement as a result of this proposal.

MPI recognises the eel industry has been working with dam operators to undertake trap and transfer programs aiding the migration of eels up and down stream. MPI agrees this has a positive impact on eel populations and looks forward to working with both dam operators and eel industry representatives in the future to maximise this opportunity.

5) *Additional voluntary measures; catching a minimum of 20% of SFE, voluntary restrictions on LFE catch;*

Currently this proposal is not well-specified in eel industry submissions. Voluntary restrictions could be used to ensure catch levels are constrained so that a disproportionate amount of either species is not taken.

While this approach could help address sustainability risks, voluntary arrangements are difficult to administer and monitor and rely on strong industry governance. The eel industry has not provided sufficient detail in its submissions to show how the arrangements would be implemented. MPI supports a strong regulatory response when there are sustainability concerns.

6 Consultation

Prior to the release of the formal consultation paper, MPI undertook preliminary consultation regarding separate management of South Island eel stocks with the South Island Eel Industry Association. During the initial consultation the association stated it is not entirely opposed to separate management of each species, however, it has stressed that this is a difficult process and caution should be exercised during implementation.

MPI has also provided for the input and participation of tangata whenua through Te Waka a Māui me ona Toka and Ngāi Tahu Mahinga Kai Hī Ika Kōmiti. Tangata whenua through these forums have stated they support the proposal to manage longfin and shortfin eels as separate stocks.

Following the initial consultation, MPI undertook its standard consultation process of posting a consultation paper on the MPI website and alerting stakeholders to this. The Discussion

Document was released on the 14 January 2016 for four weeks of public consultation. The document was published on the MPI external website, and South Island Eel Industry Association, quota holders, active Annual Catch Entitlement fishers, and other persons and organisations with an interest in and/or affected by the proposals were notified of the consultation and directed to the consultation web page.

Sixteen submissions were received in response to the consultation process. Seven submissions supported the separation and 8 submissions supported retaining the status quo – combined.

Submissions supporting stock Separation – Option 1 (Preferred)

Seven of the 16 submissions supported the separation of South Island eel stocks. These submissions noted the following reasons for their support of stock separation:

1. Longfin and shortfin eels have differing physical, geographical and biological differences that warrant them being managed as separate species;
2. Eels are affected by numerous other factors e.g. habitat destruction, decreasing water quality issues and predation from introduced fish species (e.g. salmon and Trout), which further highlight the need for individual species-specific management.

The New Zealand Forest and Bird Society submission also registered their concern that MPI did not follow the Parliamentary Commissioner for the Environment's recommendation to ban the commercial harvest of longfin eels and recommend that all commercial fishing of longfin eels should be banned while the species are listed on the Department of Conservation's 'Threatened Species List' as 'at risk-declining'.

Submissions supporting combined stock management – Option 2 (Status quo)

Eight submissions (all from the eel industry) supported retaining the status quo – combined management of South Island eel stocks. Of the eight submissions three also directly supported the South Island Eel Industry Association's submission.

Industry submissions note stock separation is not required to ensure sustainability of the longfin and shortfin eel stocks as they consider:

- longfin stocks are stable or increasing under the current management regime and disagree with biological limits produced in the stock assessment;
- the Parliamentary Commissioner for the Environment's assessment of the status of longfin eels is incorrect, and therefore the rationale to separate the stocks doesn't exist;
- commercial fishing doesn't significantly threaten longfin populations, but other non-fishing related threats do (e.g. habitat connectivity, flooding and recruitment);
- eels have some natural protection already, as a substantial portion of eel habitat is unfishable because it is within Department of Conservation land, a reserve, or generally inaccessible to commercial fishers. Furthermore this unfished area is currently not included in the stock assessment; and
- it is unlikely the entire TAC for the current ANG stocks would be taken as longfin.

MPI response to the submissions

MPI considers the current combined management approach does not provide the best means of ensuring sustainability of longfin eels due to the differences in biological characteristics of longfin eel in comparison to shortfin eel.

These differences, and the need for separate management are further highlighted by shortfin eels being significantly more abundant than longfin eels and being considered as 'not threatened' on the Department of Conservation Threat Classification system, whereas longfin eels are classed as 'At Risk/Declining'.

Option 1 would allow sustainability measures to be set that take into account that longfin eel is more vulnerable to harvest pressures than shortfin eel because they are slower growing, mature much later, live longer and do not migrate for spawning until later in life. This approach was strongly supported in 8 of the sixteen submissions. In addition one submission maintained support to ban the commercial harvest of longfin eels as recommended in the Parliamentary Commissioner for the Environment's Report.

7 Conclusions and recommendations

The options analysis indicates that Option 1, managing South Island eels as separate stocks as is the case in the North and Chatham Islands stocks, is the only option that achieves the objective. The benefits would increase the sustainability of both species through species specific management whilst allowing for the maximum level of sustainable utilisation for both species. Furthermore, separate stocks more accurately reflects the physical and biological differences of the two species.

8 Implementation plan

The relevant legislation for the separation of South Island eel stocks is the Fisheries Act 1996. The preferred option would see the existing ANG 11 – 16 QMAs within the South Island be replaced with LFE and SFE 11 -16. The new QMAs LFE/SFE 11 – 16 would utilise the same geographical boundaries as the existing ANG 11 – 16 QMAs

The public and those with an interest in South Island eel quota, or leases and transfers, will be notified of the intention to amend the QMAs to manage the stocks separately by letter, and the decision documents will be published on the MPI website.

The proposed separation of stocks would be effective on and from the first day of the next fishing year, being 1 October 2016 for all stocks except for those stocks created within ANG 13, which has a different fishing year and would come into effect on 1 February 2017.

In addition, all submitters and those persons with an interest that were contacted regarding the proposed changes will be notified by a letter from the Minister for Primary industries of his decision.

9 Monitoring, evaluation and review

MPI monitors and reviews the effectiveness of current fisheries regulations in supporting the management objective through the annual fisheries planning process.⁶

⁶ MPI's fisheries planning process is the main mechanisms to guide and prioritise fisheries management interventions for deepwater, highly migratory species, inshore finfish, inshore shellfish and freshwater fisheries based on an objective-based framework. The process is based on National Plans for each of the fishery groupings. The Plans define management objectives and performance

The performance of South Island eel QMAs will be monitored and reviewed in discussion with tangata whenua, the fishing industry, and other stakeholders as part of the Annual Review Report. Through this process, MPI will be able to gather information directly from stakeholders about the impacts of any regulatory changes in the South Island eel fishery.

There will be ongoing compliance effort devoted to ensuring accurate reporting of all commercially harvested eels.

measures. Each year an assessment of fishery performance against the management objectives, based on the performance measures, is carried out. Annual Operational Plans for each of the fishery groupings, specifying services and interventions, are developed to address identified gaps in performance or to enable identified opportunities. This is done in close discussion with tangata whenua, the fishing industry and other stakeholders. For more information please refer to the [MPI Fisheries website](#).

10 Appendix 1: Background Information

BIOLOGICAL CHARACTERISTICS OF EELS

New Zealand has two main species of freshwater eel⁷, the native shortfin eel *Anguilla australis* (also found in South Australia, Tasmania and New Caledonia) and the endemic (found only in New Zealand) longfin eel *Anguilla dieffenbachii*.

New Zealand freshwater eels are regarded as temperate species and have a unique life history. They live predominantly in freshwater and undertake a spawning migration to an oceanic spawning ground. The majority of the life cycle is spent in freshwater or estuarine/coastal habitat. Spawning of New Zealand species, occurs only once at the end of their life span and is presumed to take place in the Southwest Pacific. Offspring undertake a long oceanic migration back to freshwater where they grow to maturity before migrating back to the oceanic spawning grounds.

The habitat of both species overlap, however, shortfins prefer lowland lakes and slow moving soft bottom rivers and streams and are predominant in coastal areas. Longfins prefer fast flowing stony rivers and are dominant in high country lakes.

Growth is highly variable and dependent on food availability, water temperature and eel density. Eels, particularly longfins, are generally long-lived. The maximum recorded age is 106 years for longfins and 60 years for shortfins. Longfin eels take approximately 4.7 years longer to reach the minimum legal size (220 g). South Island shortfin eels take, on average, 12.8 years to reach the minimum legal size, compared with 17.5 years for longfins.

Migration appears to be dependent on attaining a certain length/weight combination and condition. The range in recorded age at migration for shortfin males is 5–22 years and 9–41 years for females. For longfin eels the range in recorded age at migration is 11–34 years for males, and 27–61 years for females.

COMMERCIAL FISHERY

Virtually all commercially caught eels (98%) are taken with fyke nets. Eel catches are greatly influenced by water temperature, flood events (increased catches of shortfin) and drought conditions (reduced catches). Catches decline in winter months (May to September), particularly in the South Island where fishing ceases.

Total Allowable Catches (TAC), Total Allowable Commercial Catches (TACC), allowances and other management settings for management within the Quota Management System (QMS) were developed in consultation with tangata whenua and stakeholders (Table 1).

⁷ A third species of freshwater eel, the Australasian longfin (*Anguilla reinhardtii*) was identified in the North Island 1996. When caught it is included as part of the shortfin catch as this species has productivity characteristics closer to shortfins than longfins, and because the catch is not sufficient to justify its own separate stocks

Table 1: Current TACs, TACCs, and customary non-commercial and recreational allowances (t) for South Island eel stocks. Note as eels are a selective target fishery there is no allowance for other sources of fishing-related mortality.

	ANG 11	ANG 12	ANG 13	ANG 14	ANG 15	ANG 16
	Nelson/ Marlborough	North Canterbury	Te Waihora Lake Ellesmere	South Canterbury	Otago/Southland	West Coast
TAC	51.29	54.8	156.32	45	150.85	80.41
TACC	40	42.74	121.93	35.1	117.66	62.72
Customary Non- Commercial Allowance	10.258	10.96	31.26	9	30.17	16.082
Recreational Allowance	1.0258	1.096	3.13	0.9	3.017	1.608

The fishing year for all stocks extends from 1 October to 30 September except for ANG 13 (Te Waihora/Lake Ellesmere), which has a fishing year from 1 February to 31 January (since 2002). Currently, there are minimum and maximum commercial size limits for both longfins (220 g and 4 kg, respectively) throughout New Zealand. Quota owners from both islands formally agreed in 1995–96 not to land migratory female longfin eels. Since about 2006 there has been a voluntary code of practise to return all longfin eels caught in Te Waihora/Ellesmere; catches of these longfins are recorded on Eel Catch Effort Returns (ECERs), but not on the Eel Catch Landing Returns (ECLRs).

Commercial catch data is available from 1965 and comes from different sources. Catch data prior to 1988 is for calendar years, whereas those since 1988 is for fishing years (Figure 1).

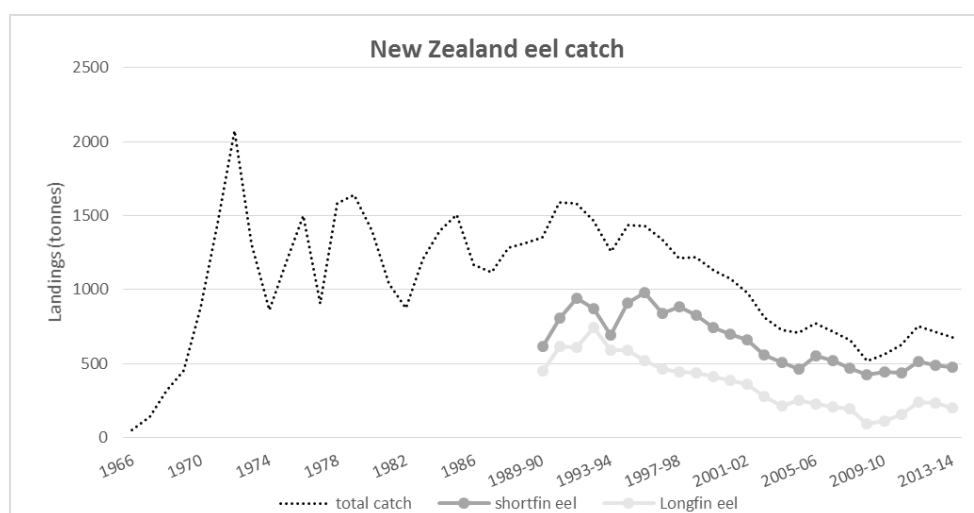


Figure 1: Total eel landings from 1965 to 2012–13, as well as separate shortfin and longfin landings from 1989–90 to 2012–13.

Commercial catch landings for South Island stocks have been reported separately for longfin and shortfin eels since QMS entry in 2000 (refer to Figure 2).

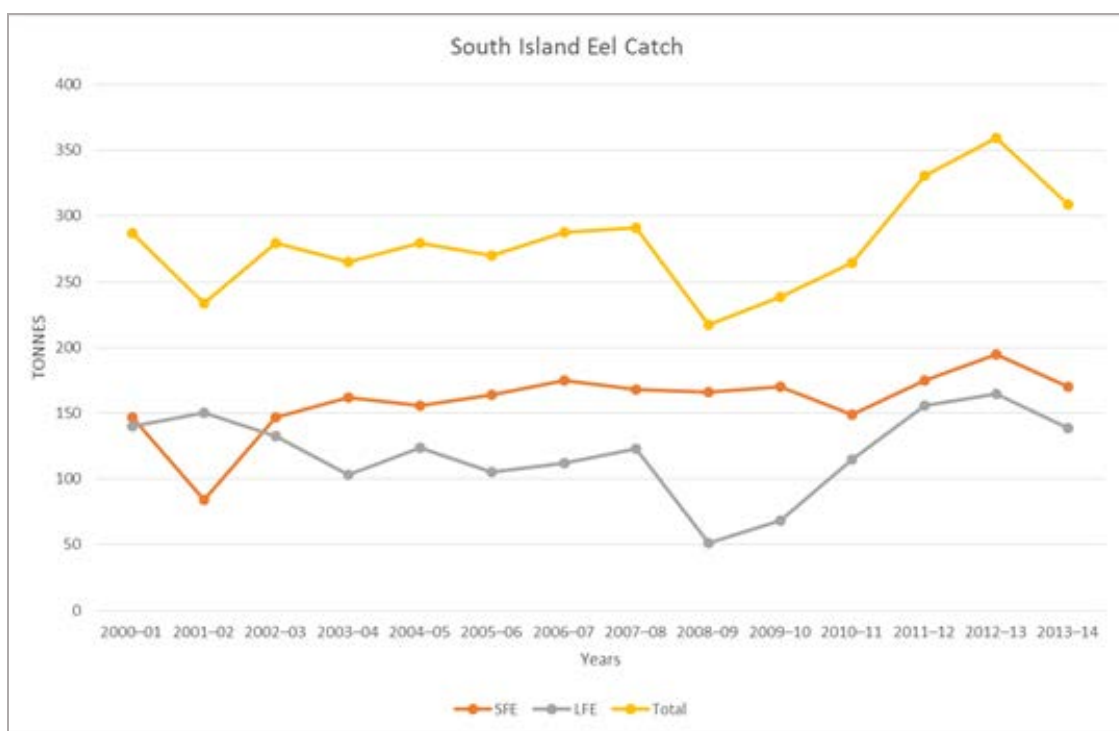


Figure 2: Total commercial landings (t) for South Island eel stocks (based on ECLR data).⁸

The species proportion of the landings varies by Quota Management Area (QMA). From analyses of landings to eel processing factories and estimated catch from ECLRs, longfin are the dominant species in most areas of the South Island, except for discrete locations such as lakes Te Waihora / Ellesmere, Brunner, and the Waipori Lakes, where significant quantities of shortfin are landed.

Graphs showing catch landings by shortfin and by longfin species and TACCs since 2000–01 are presented in figure 2 of the Status Quo section of this document. Tables of this data are set out in Appendix 2.

RECREATIONAL FISHERY

In October 1994, a recreational individual daily bag limit of six eels was introduced throughout New Zealand. There is no quantitative information on the recreational harvest of freshwater eels, but it is considered to be low and likely to be less than the existing recreational allowance (refer Table 1). The recreational fishery for eels includes any eels taken by people fishing under the amateur fishing regulations⁹ and includes any harvest by Māori not taken under customary provisions.

When the South Island eel fishery was introduced into the QMS, an allowance was made for recreational harvest of 2% of the TAC for each Quota Management Area (QMA), currently equating to 11 tonnes (Table 1). Based on available information, current recreational harvest is within this allowance.

CUSTOMARY FISHERY

Eels (tuna) are considered taonga (treasured) by Māori and are traditionally an important food source.

⁸ Appendix 2 – Eel catch per QMA

⁹ Fisheries (Amateur Fishing) Regulations 2013

In the South Island, a number of areas have been set aside as non-commercial areas for customary (and recreational) fisheries. Additionally, there are seven mātaihai reserves covering freshwater (five that are solely freshwater, and two that cover both freshwater and saltwater bodies) that have been established where commercial fishing is prohibited.

Customary non-commercial fishers prefer eels of a large size, i.e. over 750 mm and 1 kg. There is no complete assessment of the current or past customary non-commercial take for the South Island. However, there is information on customary non-commercial catches from authorisations issued under customary fisheries regulations. The data collected over the last 17 years shows the majority of customary catch is from ANG 12 (North Canterbury) and ANG 13 (Te Waihora/Lake Ellesmere). The records also suggest that eel customary permit fulfilment (comparison of quantity authorised compared to the amount able to be caught under that authorisation) is of particular concern for ANG 12 and ANG 14.

When the South Island eel fishery was introduced into the QMS, an allowance was made for customary non-commercial harvest. It was set at 20% of the TAC for each QMA, currently equating to 107 tonnes (Table 1). Based on available information, current customary harvest is within this allowance.

11 Appendix 2: TACCs and commercial landings (t) for South Island eel stocks (based on ECLR data)

Fishing Year	ANG11		ANG12		ANG13		ANG14		ANG15		ANG16		Total landings
	TACC	Landings	TACC	Landings	TACC	Landings	TACC	Landings	TACC	Landings	TACC	Landings	
Shortfin Eel (SFE)													
2000–01	40	4.5	43	4.4	122	102.2	35	6.1	118	19.4	63	9.8	146.6
2001–02	40	18.9	43	5.7	122	63.6*	35	10.1	118	20.2	63	20.2	83.8
2002–03	40	19.2	43	5.9	122	95.4	35	9.9	118	11.7	63	4.5	146.7
2003–04	40	8.7	43	4.8	122	118.2	35	7.5	118	13.0	63	9.4	161.8
2004–05	40	2.7	43	1.4	122	121.3	35	5.7	118	1.5	63	9.6	156.0
2005–06	40	9.0	43	4.3	122	119.9	35	7.4	118	12.0	63	11.2	164.0
2006–07	40	10.9	43	6.3	122	121.5	35	4.4	118	15.4	63	16.5	175.2
2007–08	40	8.5	43	1.2	122	119.7	35	5.8	118	21.2	63	11.5	167.9
2008–09	40	4.7	43	< 1	122	123.0	35	1.8	118	16.6	63	19.7	166.0
2009–10	40	3.8	43	5.8	122	97.3	35	3.9	118	29.1	63	30.3	170.2
2010–11	40	10.0	43	6.9	122	89.3	35	3.7	118	19.4	63	19.9	149.2
2011–12	40	8.8	43	10.8	122	113.3	35	7.3	118	21.4	63	13.1	174.8
2012–13	40	7.6	43	19.9	122	125.0	35	2.6	118	16.7	63	22.8	194.6
2013–14	40	3.4	43	16.5	122	119.3	35	2.5	118	11.7	63	16.8	170.2
Longfin Eel (LFE)													
2000–01	40	10.6	43	22.6	122	2.1	35	12.6	118	63.6	63	28.4	140.1
2001–02	40	16.4	43	15.6	122	1.0*	35	6.0	118	80.5	63	30.2	150.1
2002–03	40	10.6	43	10.1	122	1.4	35	10.0	118	73.0	63	27.2	132.6
2003–04	40	2.8	43	2.7	122	< 1	35	10.2	118	64.7	63	21.2	102.9
2004–05	40	2.8	43	3.4	122	< 1	35	2.3	118	79.6	63	34.4	123.7
2005–06	40	6.0	43	9.8	122	< 1	35	6.4	118	61.1	63	21.1	105.5
2006–07	40	4.4	43	1.7	122	< 1	35	7.0	118	65.0	63	32.8	112.1
2007–08	40	11.9	43	6.5	122	< 1	35	7.4	118	73.0	63	23.1	122.9
2008–09	40	1.4	43	< 1	122	0	35	2.3	118	33.7	63	13.2	51.0
2009–10	40	8.0	43	< 1	122	< 1	35	3.2	118	40.0	63	15.3	68.0
2010–11	40	13.1	43	6.1	122	< 1	35	6.7	118	73.9	63	14.1	114.9
2011–12	40	11.2	43	11.0	122	2.0	35	18.4	118	85.4	63	27.6	155.7
2012–13	40	15.6	43	7.6	122	<1	35	22.3	118	88.6	63	30.4	164.5
2013–14	40	14.0	43	6.1	122	<1	35	10.7	118	77.9	63	29.3	138.5

*For the transition from a 1 October to 1 February fishing year, an interim TACC of 78 t was set for the period 1 October 2001 to 31 January 2002. From January 2002 the Te Waihora (Lake Ellesmere) fishing year was 1 February to 31 January. Fishing year for all other areas is 1 October to 30 September.

12 Appendix 3: Legal considerations

Sections 25 - 26 of the Act, provide for the alteration of Quota Management Areas (QMA) (including dividing a multi-species stock) and set out certain roles and responsibilities to be undertaken by the Minister before an alteration can take place.

Section 25 of the Act enables the Minister to recommend to the Governor General, by Order in Council, that a QMA be altered by dividing a multi-species stock (e.g. ANG) into 2 or more stocks (e.g. LFE and SFE). The Minister may make such a recommendation if—

- a) the Minister complies with section 25A and quota owners who hold in the aggregate not fewer than 75 000 000 (75%) quota shares for any stock that would be affected by the proposed alteration have requested the Minister to make such a recommendation; or
- b) the Minister complies with section 25B, in which case a request specified in paragraph (a) is not required.

Under section 25(3), before recommending the alteration of any QMA, the Minister must:

- a) have regard to
 - i. non-commercial fishing interests in the affected area,
 - ii. the biological characteristics of each stock that would be affected by the recommendation and
 - iii. any other such matters that the Minister considers important.
- b) consult the persons and organisations considered by the Minister to be representative of those classes of persons having an interest in the relevant QMA, including Māori, recreational, commercial and environmental interests; and
- c) provide for the input and participation of tangata whenua who have
 - i. a non-commercial interest in the stock concerned, or
 - ii. an interest in the effects of fishing on the aquatic environment in the area concerned; and
- d) for the purpose of paragraph (c), have particular regard to kaitiakitanga.

Separation of the South Island eels stocks is being considered under section 25B of the Act. Section 25B of the Act sets out the matters that must be addressed in the absence of a request from quota owners for a QMA alteration. The Minister may recommend the alteration if the Minister has:

- a) approved a plan that provides for all of the following matters:
 - i. the boundaries of the proposed QMA or QMAs;
 - ii. the species that comprise the stock or stocks after the proposed alteration; and
 - i. the manner in which quota shares are to be apportioned after the alteration;
- b) is satisfied, having considered alternative options, that the alteration as specified in the plan is necessary to ensure sustainability; and
- c) has publicly notified his or her intention to recommend the alteration of the QMA or areas; and

- d) has also notified his or her intention to recommend the alteration of the QMA or areas to:
- i. persons who are noted on the Quota Register as having an interest in the quota to which the proposed alteration relates; and
 - ii. parties to leases or transfers registered on the Transitional Register in respect of quota to which the proposed alteration relates.