

Flatfish FLA 1

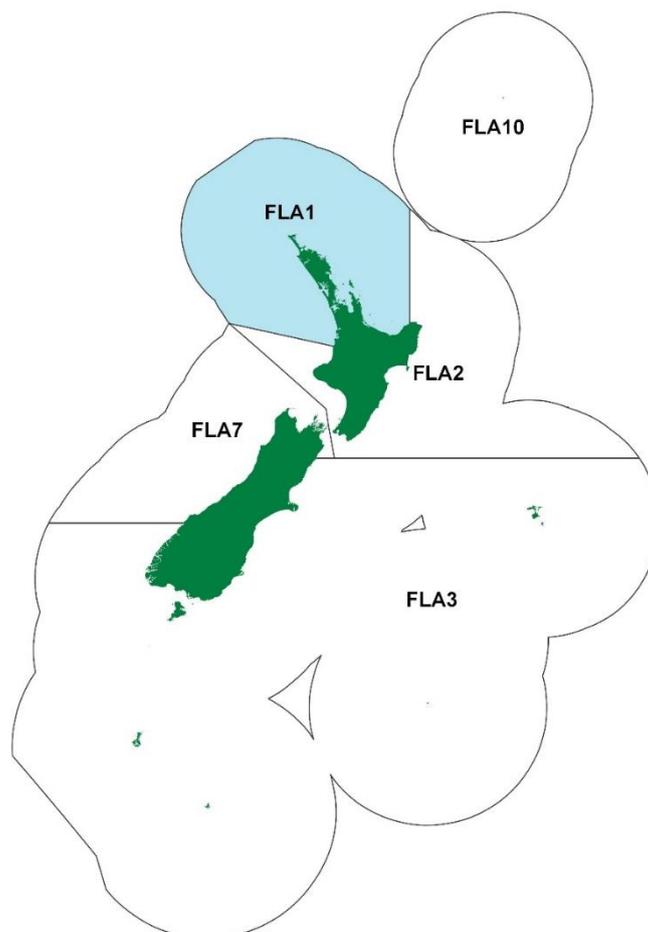


Figure 1: Quota Management Areas (QMAs) for flatfish (FLA), with FLA 1 highlighted in blue.

1. What is proposed?

456. Fisheries New Zealand is reviewing the total allowable catch (TAC), allowance for Māori customary fishing, allowance for recreational fishing, allowance for all other mortality to the stock caused by fishing, and the total allowable commercial catch (TACC) for flatfish in FLA 1¹ in the upper North Island (see Figure 1). Fisheries New Zealand is seeking information and views from tangata whenua, stakeholders and other interested parties on the following options proposed (Table 1).
457. Flatfish abundance varies from year to year and the current FLA 1 catch allowances are set to allow for increased catches in years of high abundance. However, there are indications that environmental influences are limiting the abundance of localised flatfish sub-stocks that are able to be caught. Fisheries New Zealand proposes reductions to the commercial catch limit, set at levels that reflect the recent or current commercial catches of flatfish in FLA 1, to support the sustainable utilisation of the stock. Reductions to non-commercial catch allowances are also proposed to reflect the best information available on Māori customary and recreational catch of flatfish in FLA 1.

¹ The FLA 1 stock complex is composed of eight species of flatfish: yellow-belly flounder, *Rhombosolea leporine* (YBF); sand flounder, *Rhombosolea plebeian* (SFL); black flounder, *Rhombosolea retiaria* (BFL); greenback flounder, *Rhombosolea tapirina* (GFL); lemon sole, *Pelotretis flavilatus* (LSO); New Zealand sole, *Peltorhamphus novaezeelandiae* (ESO); brill, *Colistium guntheri* (BRl); and turbot, *Colistium nudipinnis* (TUR). For management purposes, the commercial landing codes for these species are combined into the flatfish complex code FLA.

458. While the proposed allowances are significantly lower than the current FLA 1 management settings, the Fisheries Act 1996 (the Act) provides for the Minister to increase the FLA 1 TAC and catch allowances within a fishing year where there are indications of an increase in abundance.

Table 1: Proposed management settings in tonnes for FLA 1 from 1 October 2018

Option	Total Allowable Catch (TAC)	Total Allowable Commercial Catch (TACC)	Allowances		
			Customary Māori	Recreational	All other mortality to the stock caused by fishing
Option 1 (<i>Status quo</i>)	1762	1187	270	270	35
Option 2	487 ↓ (72%)	423 ↓ (64%)	27 ↓ (90%)	27 ↓ (90%)	10 ↓ (71%)
Option 3	444 ↓ (75%)	381 ↓ (68%)	27 ↓ (90%)	27 ↓ (90%)	9 ↓ (74%)

459. The current interim deemed value rate for FLA 1 is set at 50% of the annual rate. Consistent with Principle 7 of the Deemed Value Guidelines,² and to incentivise fishers to regularly cover catch with ACE throughout the year, Fisheries New Zealand recommends increasing the interim deemed value rate for FLA 1 to 90%, as outlined in Table 2. Further details on this proposed change can be found in the Deemed Values section of this discussion document. No changes are proposed for the annual deemed value rate or differential schedule.

Table 2: Current and proposed Standard Deemed Value Rates (\$/kg) for FLA 1

	Interim Rate (\$/kg)	Annual Differential Rates (\$/kg) for excess catch (% of ACE)					
		100-120%	120-140%	140-160%	160-180%	180-200%	200%+
<i>Status quo</i>	0.75	1.50	1.80	2.10	2.40	2.70	3.00
Proposed	1.35 ↑						

460. Following the setting of allowances proposed in this discussion document, Fisheries New Zealand is also considering a review of additional FLA 1 management measures. Given the limited movement out of enclosed bays and harbours, Fisheries New Zealand acknowledges that localised trends in flatfish commercial fishing catch-per-unit effort (CPUE) indices are likely to reflect the localised trends in FLA 1 stock biomass levels.

461. Due to the differing trends in abundance and commercial flatfish CPUE between the west coast and east coast of the northern North Island over recent years, as shown by Figures 3, 4, and 5, Fisheries New Zealand is also seeking feedback from tangata whenua, stakeholders, and other interested parties on alternative approaches to the management of the FLA 1 stock into the future. This may include a review of the FLA 1 stock management boundaries and appropriate catch limits and allowances.

² Available at www.mpi.govt.nz/document-vault/3663

2. Why the need for change?

462. The latest assessment in 2018³ indicated that the CPUE⁴ indices for two of the three main areas of targeted fishing for flatfish in FLA 1 (the Kaipara and Manukau Harbours) have continued to decline since the last assessment in 2015. The CPUE in the other main fishing areas, the Hauraki Gulf and Firth of Thames, has increased significantly since the last assessment, but it is uncertain if this reflects an increasing long-term trend in flatfish abundance.
463. Flatfish stocks are highly variable. On introduction to the QMS in 1986, the initial TACC for FLA 1 was set at a level of the highest catches on record, to allow for increased catches of flatfish in years of higher abundance. Given that this level of catch has not been reached since the introduction of FLA 1 to the QMS, and as there has been a long-term decline in commercial catches since setting this initial TACC setting, Fisheries New Zealand considers it appropriate to review this approach for setting the FLA 1 TACC.
464. To help move the stock to a level that could support the maximum sustainable yield (MSY), Fisheries New Zealand is proposing two options for a reduction to the FLA 1 TACC and allowances, in addition to retaining the current management setting. Taking into account the natural variability in abundance of the FLA 1 stock between fishing years, Fisheries New Zealand notes that all flatfish stocks are listed on Schedule 2 of the Act, which allows for an increase in a stock's TAC within fishing years of high abundance.
465. Fisheries New Zealand considers that a TACC reduction to a level of catch of the most recent years would still allow for ongoing utilisation opportunities of FLA 1 in years of increased flatfish abundance, when commercial catch reporting indicates that the 'in-season' TAC and catch allowances can be increased without posing a risk the long-term sustainability of the stock.

3. Background

3.1 FISHERY CHARACTERISATION

466. Flatfish is highly valued and the fishery is shared by commercial, recreational, and customary Māori fishers and they are principally taken by shallow water set netting by all sectors, and by hand-spear by non-commercial fishers.
467. In QMA 1 and 9 off the north-east and north-west coast of the North Island (see Figure 1), sand flounder and yellow-belly flounder are the principal flatfish species caught in FLA 1. Both species are fast-growing and short-lived, generally only surviving to 3-4 years of age. Size limits for both commercial⁵ and non-commercial fishers⁶ (set at 23 cm

³ Starr P. and Kendrick T 2018. FLA 1 Introduction and Characterisation. Draft report to the Northern Inshore Stock Assessment Working Group NINSWG-2018-13A

⁴ Catch per unit effort (CPUE) is often calculated as the catch weight (in kilogrammes) per metre of net used for set net fisheries such as flatfish. The length of time the net is in the water may also be a component of the CPUE. A declining CPUE means that more effort – metres of net and/or soak time – is required to catch a given volume of flatfish.

⁵ Fisheries (Commercial Fishing) Regulations 2001. Accessible at: <http://www.legislation.govt.nz/regulation/public/2001/0253/latest/DLM76407.html>

⁶ Fisheries (Amateur Fishing) Regulations 2013. Accessible at: <http://www.legislation.govt.nz/regulation/public/2013/0482/latest/DLM3629901.html>

for sand flounder and 25 cm for all other flatfish species) are generally at or above the size at which the fish first reach maturity and confer adequate protection for the juveniles.

468. Anecdotal information from coastal communities (including some commercial fishers) indicate that current catches of flatfish in FLA 1 are not sustainable. In addition, the commercial catch of flatfish species in FLA 1 has shown a long-term decline since the introduction of flatfish into the Quota Management System (QMS), suggesting the abundance of flatfish throughout FLA 1 may be declining, likely due to declining recruitment.
469. Tagging studies show that both flatfish species have a relatively small home range, and it is likely that the flatfish in FLA 1 consists of a number of sub-stocks with limited mixing, particularly between the east and west coasts. The long-term decline in various localised fisheries indicates that abundance of flatfish has declined throughout the FLA 1 QMA.
470. Because the adult populations of sand and yellow-belly flounder generally consist of only one or two year classes, the size of populations and flatfish available to catch depends heavily on the strength of the recruiting year class and is therefore highly variable. However, the long-term decline in abundance indicates that the spawning stock biomass has been significantly reduced.
471. A decline in the FLA 1 flatfish abundance in harbours on both the West and East coast of the northern North Island has been linked with a decline in water quality and increasing sea surface temperatures,⁷ suggesting that for enclosed bays and harbours there may be factors other than fishing that are contributing to the decline in flatfish abundance. However, the possible reduction in the carrying capacity⁸ of flatfish in the FLA 1 management area is limiting the ability to assess the impact of fishing on this stock.

3.2 CUSTOMARY FISHERY

472. Flatfish (pātiki) is a valued taonga species for tangata whenua and has traditionally been a popular source of food that can be easily caught by netting and spearing. The flatfish and flounder species included under the QMS code of FLA 1 have been identified as taonga species under the Iwi Forum Fisheries Plans of Te Hiku o Te Ika, the Mai I Ngā Kuri a Whareki Tihirau, and the Ngāa Hapu o te Uru o Tainui.
473. In discussion about the upcoming review of FLA 1 settings, the Ngāa Hapu o te Uru o Tainui Fisheries Forum, representing the Māori customary interests of the Waikato/Tainui area, emphasised the importance of flatfish species and the need to manage in a way that supports customary fishing, even if that means lower levels of commercial fishing. Members of the Mai I Ngā Kuri a Whareki Tihirau Iwi Fisheries Forum, representing customary interests of the Bay of Plenty/East Cape, noted observations of lower catches in the Tauranga Harbour and concerns that juvenile flatfish were also being impacted by black swans.
474. Information held by Fisheries New Zealand on Māori customary catch, where FLA 1 was authorised to be taken, shows that there were 35 confirmed customary authorisations

⁷ McKenzie, J.R., Parsons, D.M., and Bian, R. 2013. Can juvenile yellow-belly and sand flounder abundance indices and environmental variables predict adult abundance in the Manukau and Mahurangi Harbours? New Zealand Fisheries Assessment Report 2013/10. 31p.

⁸ Carrying capacity is the average stock size expected in the absence of fishing. Even without fishing the stock size varies through time in response to environmental conditions

since 2000. Total catches of flatfish in FLA 1 are uncertain as 16 of these authorisations have been applied for under regulation 50 of the Fisheries (Amateur Fishing) Regulations 2013, which does not require that customary permits or catches be reported. In some areas in FLA 1 there are tangata whenua that operate under the Fisheries (Kaimoana Customary Fishing) Regulations 1998, and the remaining 19 authorisations since 2000 were applied for under these regulations.

Recreational Fishery

475. Flatfish are important species for recreational fishers. Recreational fisheries for sand and yellow-belly flounder occur in most estuaries, coastal lakes, and inlets throughout the North Island, including the west coast harbours, the lower Waikato River, the Hauraki Gulf, the Firth of Thames, and Ohiwa and Tauranga Harbours. The main recreational fishing methods are netting and spearing. The recreational daily bag limit for all QMS flatfish species is 20 per person per day, and minimum legal sizes apply (23cm for sand flounders and 25 cm for yellow-belly and others).⁹
476. The best available information on current recreational catch is provided from the 2011/12 NPS, which estimated the total recreational catch of flatfish in FLA 1 was 26.6 tonnes.

Commercial Fishery

477. The commercial fishing sector harvests the greatest amount of flatfish in FLA 1, and flatfish quota provides for the landing of eight species of flatfish. The TACC for FLA 1 has not been changed since the first few years following the introduction of flatfish species into the QMS in 1986, when the TACC was set at the highest level of FLA 1 catch on record.
478. However, the 1 187 tonne TACC has not been fully caught since it was initially set (Figure 2), and FLA 1 commercial catches have fluctuated markedly and long-term declines are evident on both the east and west coast in the three main fishing areas in FLA 1.

⁹ Fisheries (Amateur Fishing) Regulations 2013 <http://www.legislation.govt.nz/regulation/public/2013/0482/latest/DLM3629901.html>

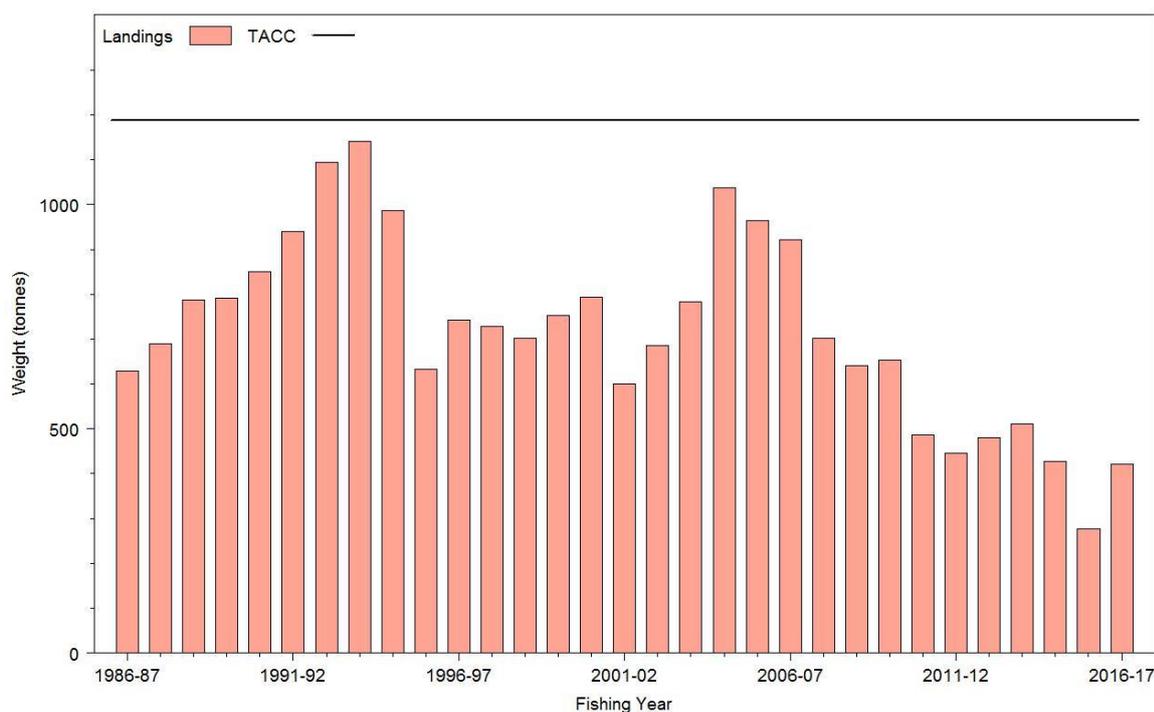


Figure 2. Landings vs TACC for FLA 1 from 1986/87 to 2016/17.

479. A combination of the low cost to enter the commercial FLA 1 fishery (ACE is available with a low trading value, easily accessible inshore fishing areas, low cost of investment in vessel type and fishing gear) and high market value has led to an excess of fishing capacity that has remained in the fishery since periods of higher flatfish abundance.
480. Fisheries New Zealand recognises that commercial fishers are not obliged to fully catch their entitlement, and there are various reasons unrelated to the abundance of the stock that can affect how much flatfish fishers choose to take (for example, ACE availability and market demand for the fish). However, the existing TACC appears to be artificially high, given that it has never been fully caught.

3.2 STATUS OF THE STOCK

Management Target

481. Neither a proxy for the biomass that will produce the MSY (B_{MSY}) nor a target biomass level to manage the stock for sustainability have been determined for FLA 1.

Stock Assessment

482. It is assumed that the changes in commercial CPUE reveal a proportional change in the abundance of flatfish in FLA 1. The commercial CPUE has shown a long-term decline since the introduction of flatfish into the QMS. The decline is most evident in the Manukau and Kaipara Harbours, which are two of the three main areas providing most of the flatfish catch in FLA 1 (Figures 3 and 4).
483. More than 90% of the reported commercial catch of flatfish on the west coast is yellow-belly flounder and CPUE indices for the west coast therefore likely reflects the abundance of yellow-belly flounder rather than other, less commonly caught, FLA species. Both the

Manukau and Kaipara Harbours have shown a moderate, but fluctuating, declining trend in CPUE since the mid-90s (Figures 3 and 4).

484. Approximately three-quarters of the flatfish catch in FLA 1 comes from the east coast, and significant quantities of both sand and yellow-belly flounders are caught in the Hauraki Gulf, particularly the Firth of Thames. The FLA 1 CPUE series (combined indices of sand and yellow-belly flounder) for the Hauraki Gulf shows an overall declining trend for the last ten years up to 2015/16 (Figure 5). There was a sharp upturn in the CPUE series in the final 2016/17 fishing year, with the final index being above the long-term series mean. Given the short life history of flatfish in FLA, however, it is uncertain if this recent CPUE increase will be reflected in increased flatfish abundance in the coming years.

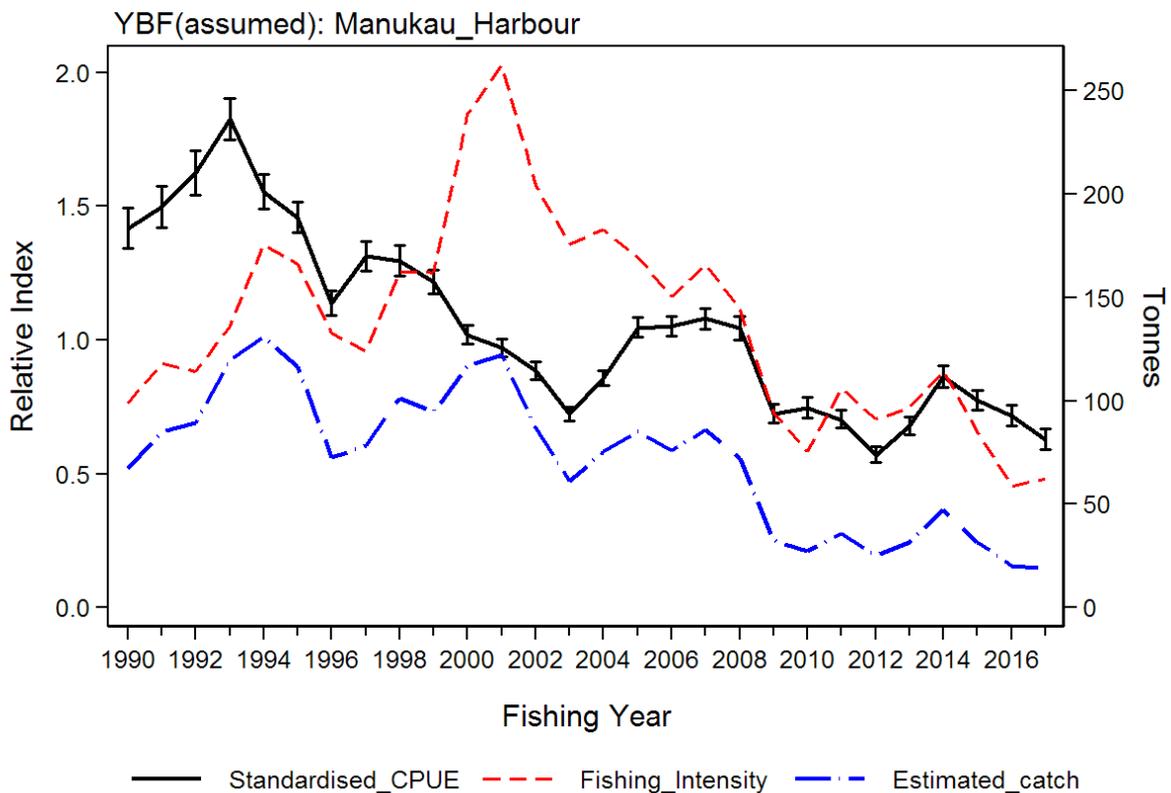


Figure 3: CPUE and total annual estimated catches for YBF in Manukau Harbour. Also shown is the fishing intensity (catch/CPUE), standardised relative to the geometric mean. Fishing year designated by second year of the pair.

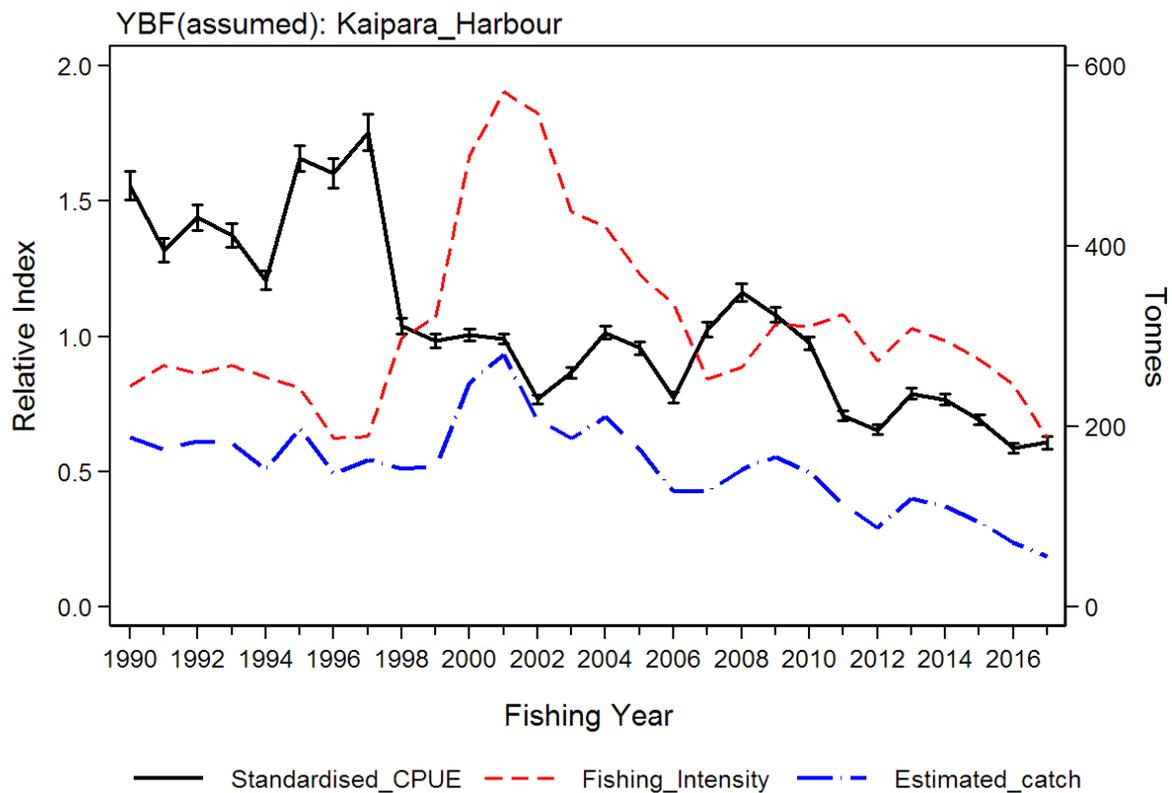


Figure 4: CPUE and total annual estimated catches for YBF in Kaipara Harbour. Also shown is the fishing intensity (catch/CPUE), standardised relative to the geometric mean. Fishing year designated by second year of the pair.

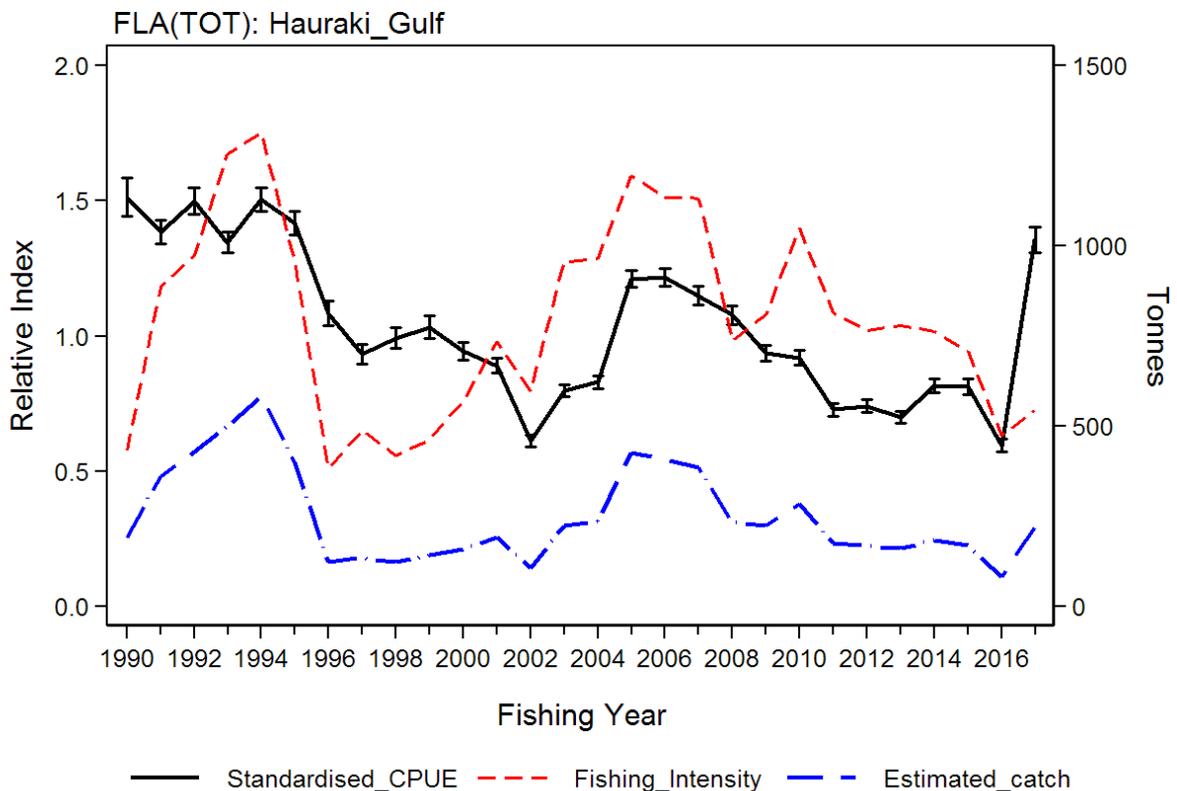


Figure 5: CPUE and total annual estimated catches for FLA(TOT) in the Hauraki Gulf. Also shown is the fishing intensity (catch/CPUE), standardised relative to the geometric mean. Fishing year designated by second year of the pair.

4. Why are these options proposed?

4.1 VARYING THE TAC

Table 3: Proposed management settings in tonnes for FLA 1 from 1 October 2018

Option	Total Allowable Catch (TAC)	Total Allowable Commercial Catch (TACC)	Allowances		
			Customary Māori	Recreational	All other mortality to the stock caused by fishing
Option 1 (<i>Status quo</i>)	1762	1187	270	270	35
Option 2	487 ↓ (72%)	423 ↓ (64%)	27 ↓ (90%)	27 ↓ (90%)	10 ↓ (71%)
Option 3	444 ↓ (75%)	381 ↓ (68%)	27 ↓ (90%)	27 ↓ (90%)	9 ↓ (74%)

485. There is no information to determine whether or not the FLA 1 stock is at, above, or below the level that would produce the maximum sustainable yield (B_{MSY}), and there are no established stock biomass reference points for management targets associated with the current catch levels for flatfish in FLA 1.
486. Flatfish stocks can have high inter-annual variability in abundance. The initial FLA 1 TACC of 1 187 tonnes was set on the introduction of flatfish to the QMS in 1986 at the highest catch level on record, and to provide for an increase in commercial catches in years of high abundance. The TAC and non-commercial allowances were initially set in 2005. The TAC, TACC, and allowances have not been reviewed since initial settings and there are indications that environmental influences may be limiting the abundance of localised flatfish sub-stocks.
487. Fisheries New Zealand considers that the proposed reductions to the commercial catch limit would better reflect the current abundance and commercial catches of flatfish in FLA 1, and may better support the sustainable utilisation of the stock. Reductions to non-commercial catch allowances are also proposed to reflect the best information available on Māori customary and recreational catch of flatfish in FLA 1. Further information on non-commercial allowances and commercial catch settings are outlined in Sections 3.2 and 3.3.
488. While the proposed TAC options are set to reflect the current catch levels for all sectors, Fisheries New Zealand also notes that all flatfish stocks (including FLA 1) are listed on Schedule 2 of the Act. This allows for the TAC and catch allowances for all sectors to be increased within a fishing year where an increase in abundance of flatfish in FLA 1 indicates that there is an utilisation opportunity that would not risk the long-term sustainability of the stock.
489. In cases such as flatfish, where the biomass level that can produce the maximum sustainable yield (B_{MSY}) is not known, s 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.
490. Fisheries New Zealand considers that it is unlikely that the current FLA 1 TAC (Option 1, status quo) is moving the stock towards a level that supports MSY and, should current fishing pressure continue or increase in the future, this could exacerbate ongoing sustainability concerns for the stock.

491. Section 13(2A) of the Act also requires the Minister to consider the interdependence of stocks and environmental conditions in setting or varying a TAC. The significant decline in flatfish biomass may be having an impact on predator species, subject to the availability of alternative food sources. A decline in abundance may also affect other complex interactions within the ecosystem, but Fisheries New Zealand cannot quantify the scale of the impact of the low abundance of flatfish.
492. Section 13(3) requires the Minister to consider social, cultural and economic factors that may be relevant to the way and rate a stock is moved towards or above B_{MSY} . Fisheries New Zealand is proposing two TAC options that are not inconsistent with moving the stock towards B_{MSY} and include setting the allowances for recreational and Māori customary fishers to reflect the best available information on estimates of non-commercial take of flatfish in FLA 1.

4.2 VARYING ALLOWANCES

493. In setting or varying the TAC and TACC, the Minister must make allowances for Māori customary non-commercial fishing interests, recreational fishing interests, and all other mortality to the stock caused by fishing (s 20 & 21 of the Act).
494. The best information on estimates of recreational catch of flatfish come from the most recent 2011/12 National Panel Survey (NPS)¹⁰ and indicates a moderate recreational catch of FLA 1 species compared to other fish species taken in FMA 1 and FMA 9. FLA 1 species are the eighth highest species harvested (by number) in the combined regions, and more important on the west coast of the North Island, being the fourth highest (by number) taken by recreational fishers in FMA 9. However, current catches do not necessarily reflect the importance of the species, as the ability to catch flatfish species in FLA 1 is also likely to have been impacted by reductions in local flatfish abundance in these areas.
495. The current allowance for recreational fishing in FLA 1 is 270 tonnes, whereas Fisheries New Zealand considers the estimate from the NPS of 26.6 tonnes of flatfish taken in 2011/12 as providing the best available information on recreational flatfish catch in FLA 1. As such, Fisheries New Zealand is proposing that the recreational catch allowance be reduced from 270 tonnes to 27 tonnes. A new NPS is due to begin this year and will provide updated estimates of recreational flatfish catches to help inform the future setting of recreational allowances.
496. The current allowance for Māori customary fishing in FLA 1 is 270 tonnes. There is currently not enough information available to confirm whether or not this amount of flatfish is being taken under customary authorisation. It is also likely that a significant amount of customary non-commercial catch occurs under the recreational flatfish catch allowance. Fisheries New Zealand is proposing that the allowance for customary Māori allowance be reduced from 270 tonnes to 27 tonnes for both Option 2 and Option 3 which would align with the proposed allowance for recreational fishing.
497. There are various other potential sources of mortality caused by fishing, but Fisheries New Zealand is not able to quantify these precisely. The allowance for other mortality

¹⁰ Wynne-Jones, J.; Gray, A.; Hill, L.; Heinemann, A. (2014). National Panel Survey Of Marine Recreational Fishers 2011–12: Harvest Estimates. New Zealand Fisheries Assessment Report 2014/67. 139p. Accessible at: <https://www.mpi.govt.nz/dmsdocument/4719/send>

caused by fishing is currently set at 35 tonnes, approximately 2% of the combined total of the TACC, Māori customary, and recreational allowances. Fisheries New Zealand considers that this is an appropriate allowance for a shared fishery which is mostly caught by set net by all sectors. For Option 2 and Option 3, it is proposed that the allowance be varied accordingly, to 10 tonnes and 9 tonnes, respectively.

4.3 VARYING THE TACC

Option 1 (*Status quo*)

498. Option 1 (*status quo*) proposes no change to the current TAC or allowances and presents the greatest sustainability risk to the stock, given the long-term decline in catch and abundance of flatfish in FLA since the introduction of the stock into the QMS.

Option 2

499. Option 2 proposes a TAC of 487 tonnes and includes a TACC set at 423 tonnes based on the average commercial FLA 1 catch level (from reported landing returns) in the most recent 5 year period, an allowance for all other sources of fishing related mortality of 10 tonnes, and customary Māori and recreational allowances at 27 tonnes each. Option 2 equates to a TACC reduction of 64% and is set at a level approximating the current commercial catch of flatfish in FLA 1 and foreseeable future catches in the short-term.

Option 3

500. Option 3 proposes a TAC of 444 tonnes and includes a TACC set at 381 tonnes based on a catch level of 10% below the most recent 5 year average catch, as outlined in Option 2. This option also includes an allowance for other sources of fishing related mortality of 9 tonnes, and customary Māori and recreational allowances of 27 tonnes each. Option 3 is a more risk-averse approach to the sustainability of the FLA 1 stock and equates to a TACC reduction of 68%. Option 3 also places greater weight on the anecdotal information from community groups regarding ongoing FLA 1 sustainability concerns for all fishing sectors.

4.4 EVALUATION OF OPTIONS

501. Fisheries New Zealand considers that Option 1 is inconsistent with the Minister's statutory obligation to set a TAC that would move the stock biomass towards a level that would support MSY. Option 1 would have no short term negative effects on commercial fishers, but could have impacts on both commercial and non-commercial fishers if the FLA 1 biomass declines further under current catch limits.

502. Fisheries New Zealand considers that both Option 2 and Option 3 are based on the best available information on the status of FLA 1 and the allowances for both options may help prevent any additional catch or effort in this fishery, where abundance and recruitment are likely to have declined and there is uncertainty about the biomass level that would produce MSY.

503. Option 2 reflects the short-term average commercial catch of flatfish in FLA 1, noting the inter-annually variable nature of flatfish abundance in the fishery. This option is likely to

better reflect the current abundance of flatfish in FLA 1 as observed from more recent catch levels. Fisheries New Zealand also notes that the proposed commercial fishing levels for Option 2 may unduly constrain commercial flatfish catches in years of higher abundance than has been observed in recent years.

504. Option 3 is set at a level 10% lower than Option 2, a level at which the commercial catch would be constrained below the catch levels of recent years. Fisheries New Zealand notes that catch of FLA 1 has continued to decline under the current commercial allowance setting. Setting an allowance below more recently observed catch levels is intended to reduce current commercial fishing pressure (both catch and effort) on the depleted FLA 1 stock, which may in turn help rebuild flatfish abundance in FLA 1.
505. While utilisation of FLA 1 would be constrained under Option 3, there is a lower long-term sustainability risk associated with this option and, because both the sand and yellow-belly flounder species in FLA 1 have high productivity, given favourable environmental conditions flatfish biomass is likely to rebound relatively quickly even if the stock is currently at relatively low levels
506. Any reduction in the TACC will mean an opportunity cost for commercial fishers, who will no longer be able to catch up to the current catch limit (1187 tonnes TACC). As FLA 1 is listed on the Second Schedule of the Act, there is provision for an in-season increase to the TAC (under s 13(7)), through the allocation of additional 'in-season ACE' under section 68 of the Act, which could allow for increased FLA 1 catch during years of high abundance and potentially mitigate some of the lost opportunity costs.
507. The proposed TACCs under both Option 2 and Option 3 are lower than levels of historic FLA 1 catches, however, the uncertainty about current recruitment suggests that earlier catches are unrepresentative of what the fishery can now support. Option 3 will, and Option 2 may, constrain commercial catch, particularly in years of high flatfish abundance where commercial fishers have the opportunity to catch more than the proposed TACCs. However, because most of the commercial FLA 1 catch is targeted, fishers would probably be able to adjust their activities without unintentionally exceeding the proposed TACCs under both Option 2 and Option 3.
508. Option 3 would nonetheless have greater economic impacts on commercial fishers than Option 2.
509. FLA 1 has a relatively high commercial value (port price of \$6.23/kg in 2016/17) and a large number of fishers are involved in the fishery. Most of the FLA 1 commercial catch is taken by fishers that do not own quota, but buy annual catch entitlement (ACE) from quota holders. The majority of quota owners do not fish their own quota but provide ACE to fishers through an active ACE trading market. If the commercial catch limit is reduced, Fisheries New Zealand anticipates that most commercial fishers will still be able to obtain FLA 1 ACE to cover their catches, based on the assumption that currently active FLA 1 ACE market practices will continue.
510. However, if the FLA 1 TACC is reduced under either Option 2 or Option 3, ACE and quota will become scarcer and these prices are likely to increase above the current average trade values of around \$0.50/kg and \$0.80/kg, respectively. These increases are likely to affect the profitability of individual (ACE) fishing operations, and conversely, quota holders may benefit over the medium term, because trade prices for both quota and ACE may increase.

511. Fisheries New Zealand considers that existing fishers will remain more likely to be able to access ACE as they are likely to already have existing relationships with quota holders. However, reducing the FLA 1 TACC under either Option 2 or Option 3, and restricting the availability of ACE, is also likely to limit the number of new fishers entering the fishery and may help mitigate any increase in fishing effort.

5. Other Relevant Matters

5.1 REVIEW OF QMA BOUNDARIES

512. The sand flounder and yellow-belly flounder stocks appear to be comprised of localised populations in FLA 1, especially in the enclosed areas such as bays and harbours. However, the inter-relationships of neighbouring populations have not been thoroughly studied, and fish in fairly enclosed waters may be effectively isolated from neighbouring populations and could be considered as separate biological stocks.
513. Due to differing CPUE analyses in the west coast harbours and the Hauraki Gulf and Firth of Thames there is relatively strong evidence to separate the northeast and northwest coast stocks of FLA 1.
514. Fisheries New Zealand seeks input from tangata whenua and stakeholders on considerations for a future review of QMA boundaries for flatfish to better align with biological stocks.

5.2 ENVIRONMENTAL PRINCIPLES AND SUSTAINABILITY

515. The Minister is required to consider any environmental impacts of the proposed management settings (section 9). Fisheries New Zealand considers that the proposals are not expected to significantly change the environmental impacts and interactions of the flatfish fishery.
516. Set netting is considered unlikely to impact on seabed habitat. However, the use of set nets can potentially impact on species diversity, because set nets catch a wide range of inshore species. Many harbour or enclosed inlet areas where flatfish are targeted are important nurseries for a wide range of inshore species. There is no indication that set netting for flatfish adversely affects the productive value of FMA 1 and FMA 9 harbours and inlets as nurseries for both flatfish species and other fish species.
517. There have been instances on the west coast of the North Island where the endangered Maui dolphins have been caught on commercial and non-commercial set nets. To manage this risk, set netting has been prohibited within four nautical miles of much of the coast in FMA 9, and within the entrance to the Manukau Harbour. There have been reports of Maui dolphin sightings in some west coast harbours where set netting for flatfish occurs. However, at present there is insufficient evidence to confirm that the dolphins regularly come into the harbours. Fisheries New Zealand considers that the proposed TACs under Option 2 and Option 3 will not result in an increase in set net effort in areas where Maui dolphins may be encountered.

518. The proposals are also considered to adequately address the requirements of section 11 (Sustainability Measures). As FLA 1 incorporates the Hauraki Gulf Marine Park, s 7 and 8 of the Hauraki Gulf Marine Park Act (HGMPA) 2000 are applicable to any management decisions. Fisheries New Zealand notes that there is a significant catch of flatfish within the Hauraki Gulf Marine Park and that the proposed TAC options are consistent with these sections of the HGMPA.
519. Fisheries New Zealand notes that environmental factors such as the decline in water quality in enclosed bays and sheltered harbours may be affecting flatfish recruitment. Fisheries New Zealand does not have a direct role in managing such environmental impacts. Nonetheless, Fisheries New Zealand will monitor existing work being done in this field, and may be able to advocate for future work.

5.3 INPUT AND PARTICIPATION OF TANGATA WHENUA

520. In the pre-consultation stages of the October 2018 Sustainability Round, information about the proposal to review the management of FLA 1 was provided to the Te Hiku o te Ika Fisheries Forum, and presented to the Mai I Ngā Kuri a Whareki Tihirau Iwi Fisheries Forum and Ngaa Hapu o te Uru o Tainui Fisheries Forum. Fisheries New Zealand was unable to discuss this with Te Hiku o Te Ika forum prior to consultation but will engage with this forum during the formal consultation period.
521. The Mai I Ngā Kuri a Whareki Tihirau Iwi Fisheries Forum and Ngaa Hapu o te Uru o Tainui Fisheries Forum both supported a review and changes to support management of flatfish. Ngaa Hapu o te Uru o Tainui Fisheries Forum emphasised the high importance for customary fishers.
522. In Fisheries New Zealand's discussions with Ngaa Hapu o te Uru o Tainui Iwi Fisheries Forum and Mai I Ngā Kuri a Whareki Tihirau Iwi Fisheries Forum, both of which have agreed that 270 tonnes is likely to be higher than what is being taken under current customary authorisations. Fisheries New Zealand was unable to discuss this with Te Hiku o Te Ika forum in the pre-consultation stages of these proposals, however Fisheries New Zealand is continuing to make contact and engaging with those Iwi, customary protocol holders and tangata whenua representatives to seek their input and participation prior to the formal consultation period.
523. Fisheries New Zealand acknowledges that the views of iwi forums identified are not entirely representative of all customary interests and seeks input and information on alternative proposals for this setting. In the pre-consultation stages Fisheries New Zealand has also provided information on proposals for the management for FLA 1 to other iwi representatives that were not in attendance at the recent Fisheries Iwi forums.
524. Feedback on the proposals from the iwi forums and any other input from tangata whenua will be incorporated into the final advice to the Minister

Kaitiakitanga

525. Under Section 12(1)(b) the Minister must also have particular regard to kaitiakitanga before setting or varying a TAC. Under the Act, kaitiakitanga is the exercise of guardianship, and in relation to any fisheries resources, includes the ethic of stewardship

based on the nature of the resources, as exercised by the appropriate tangata whenua in accordance with tikanga Māori.

526. Relevant Iwi or Forum Fish Plans provide a view of the objectives and outcomes iwi seek from the management of the fishery and can provide an indication of how iwi exercise kaitiakitanga over fisheries resources. Iwi views from Forum meetings and submissions received from iwi can also provide an indication.
527. Flatfish and flounder species (pātiki) are identified as taonga species in the Te Hiku o Te Ika, Ngaa Hapu o Te Uru o Tainui and Mai I Ngā Kuri a Whārei ki Tihirau Iwi Fisheries Plans. These plans contain objectives to support and provide for the interests of Northern North Island iwi.
528. The Te Hiku o Te Ika Fisheries Plan contains three management objectives which are relevant to the management options proposed for FLA 1.
- a) Management objective 1: Iwi management systems support Te Hiku iwi in their fisheries decision making;
 - b) Management objective 2: Fish stocks are healthy and support the social, cultural and economic prosperity of Te Hiku iwi and Hapu; and
 - c) Management objective 3: To maximise iwi influence on all key environmental decisions that impact on fisheries.
529. The Ngaa Hapu o Te Uru o Tainui Fisheries Plan contains two management objectives which are relevant to the management options proposed for FLA 1.
- d) Management objective 1: Ngaa Hapu o Te Uru o Tainui kaitiaki are able to participate in and influence fisheries decision-making; and
 - e) Management objective 2: Relationships and partnerships with key stakeholders, managers and agencies are established and maintained.
530. The Mai I Ngā Kuri a Whārei ki Tihirau Iwi Fisheries Plan contains four management objectives which are relevant to the management options proposed for FLA 1.
- f) Management objective 1: Iwi fisheries management activities support the growth and wellbeing of our people;
 - g) Management objective 2: Iwi are actively engaged with others to increase their fisheries potential within environmental limits;
 - h) Management objective 3: The fisheries environment is healthy and supports a sustainable fishery; and
 - i) Management objective 4: Tino rangatiratanga is advanced to ensure that iwi driven goals are achieved.
531. Fisheries New Zealand considers that the management options presented in this advice paper will contribute towards the achievement of these management objectives in ensuring that appropriate allowances are made for customary non-commercial fishing, the fishery remains sustainable, and that environmental impacts are minimised.

6. Further Information

Should you require further information, please see:

Fisheries Act (1996)

<http://www.legislation.govt.nz/act/public/1996/0088/latest/DLM394192.html>

Fisheries New Zealand Plenary document

Fisheries New Zealand (2018). Fisheries Assessment Plenary, May 2018: stock assessments and stock status. Compiled by the Fisheries Science Group, Fisheries New Zealand, Wellington, New Zealand.