KAHAWAI (KAH 1 - 10) – FINAL ADVICE

Initial Proposals

1 The Ministry of Fisheries (MFish) proposed to set total allowable catches (TACs) for kahawai pursuant to s 13 of the Fisheries Act 1996 (the Act). Two options were proposed for setting a TAC, allowances and total allowable commercial catches (TACC) for each kahawai stock as shown in Table 1 below.

Table 1: Options for setting TACs (t), allowances (t), and TACCs (t) for kahawai.

Stock	TAC	Customary allowance	Recreational allowance	TACC	Fishing-related incidental mortality
KAH 1					
Option 1 (*Status quo*)	3 685	550	1 865	1 195	75
Option 2	3 315	495	1 680	1 075	65
KAH 2					
Option 1 (*Status quo*)	1 705	205	680	785	35
Option 2	1 530	185	610	705	30
KAH 3					
Option 1 (*Status quo*)	1 035	125	435	455	20
Option 2	935	115	390	410	20
KAH 4					
Option 1 (*Status quo*)	16	1	5	10	0
Option 2	14	1	4	9	0
KAH 8					
Option 1 (*Status quo*)	1 155	125	425	580	25
Option 2	1 040	115	385	520	20
KAH 10					
Option 1 (*Status quo*)	16	1	5	10	0
Option 2	14	1	4	9	0

Submissions

2 Submissions on the proposals for kahawai are listed below and are summarised and addressed under the relevant sections of this advice.

- **Aotearoa Fisheries Limited** (AFL)
- **Council of Outdoor Recreation Associations of New Zealand Inc** (CORANZ)
- **Feldman, Mark**
- **Harley, Bill**
- **Kaikoura Boating Club**
- **Kaipara District Council**
- **Kaipara Harbour Study Group** (KHSG)

- **Leith, Hilton**
- **Marlborough Recreational Fishers' Association**
- **New Zealand Big Game Fishing Council** (NZBGFC)
- **New Zealand Recreational Fishing Council** (NZRFC)
- **New Zealand Seafood Industry Council** (SeaFIC)
- **Ocean Fisheries Limited**
- **option4**
- **Paua Industry Council Ltd**
- **Royal Forest and Bird Protection Society and Environment and Conservation Organisations of NZ**
- **Sanford Limited** (Sanford)
- **Sealord Group Limited** (Sealord).
- **Te Runanga A Iwi O Ngapuhi** (TRAION)
- **Te Runanga o Ngai Tahu**
- **Northern Inshore Fisheries Company Ltd** (Northern Inshore)
- **Towersey, Bob**
- **Urenui Boating Club Inc.**
- **Wells, Murray**

3 Aotearoa Fisheries Limited and Sealord Group Limited note that they support submissions made by the SeaFIC.

4 The submissions of the NZBGFC and option4 are almost identical in content. The NZRFC states that it supports the submissions of NZBGFC and option4 in principle.

5 Many of the submissions are lengthy and detailed. To ensure that you are able to refer to these directly rather than rely on MFish summaries, a bound copy of submissions is available as a supplement to this advice paper.

Key Issues to be Considered

6 MFish has reconsidered key issues outlined in the Initial Position Paper (IPP) that relate to reviewing sustainability measures for kahawai stocks and now consider these to be as follows:

a) Kahawai were introduced into the Quota Management System (QMS) on 1 October 2004. You set TACs, TACCs and allowances for kahawai stocks to apply from that date (the 2004 decisions).

b) Kahawai stocks are managed under s 13 of the Act. The purpose and principles require decision makers to provide for utilisation while ensuring sustainability. Section 13 of the Act provides that the biomass of the stock

should be managed at or above a level that can produce maximum sustainable yield (MSY).

c) When you set the TACs you stated you were concerned about the state of kahawai stocks. The primary concern was that the combined estimates of recreational catch, customary catch, fishing- related mortality and reported commercial landings exceeded the best available yield estimates, based on the 1997 stock assessment. You noted that these 1997 yield estimates were outdated and uncertain. However, they remained as reference points of sustainable yield for kahawai.

d) You were aware of the widespread perception of recreational fishers that there has been a marked decline in the amount and size of kahawai available to them. While recognising that anecdotal information was uncertain, you considered these perceptions to be important given the number of recreational fishers making them.

e) TACs totalling 7 612 tonnes were set. In the absence of reliable estimates of sustainable yield, the TACs were based on a 15% reduction below levels of use estimated at the time of introduction in 2004. Non-commercial allowances were set equivalent to 58%, and TACCs equivalent to 40%, of combined TACs (2% is allowed for fishing related mortality).

f) You considered that the TACs should at least maintain and preferably provide for an increase in the kahawai biomass.

g) The recreational sector, remains concerned that current measures are insufficient for ensuring that kahawai stocks rebuild. The New Zealand Recreational Fishing Council and the New Zealand Big Game Fishing Council have lodged notice of an application for judicial review against you and the Chief Executive of the Ministry of Fisheries in relation to the 2004 decisions. The case is scheduled for hearing no earlier than May 2006.

h) Recreational fishers consider that kahawai stocks have declined in abundance, availability and size of fish in the main stocks over the long term and in recent years. This view has not changed during the course of the current year and is reflected in submissions. These submit that the measures taken in 2004:

- Did not take into account the historical affects of commercial fishing on non-commercial fishing,
- Did not appropriately manage risk to the stock of further decline,
- Were inappropriately set on a national basis,
- Did not protect the Hauraki Gulf Marine park, and
- Were inadequate for promoting any increase in the fishery.

i) In contrast, industry considers the 2004 decisions to be overly conservative and say that there is no evidence of declining kahawai stocks over recent years. They support retaining *status quo* management of the fishery until such time as new information becomes available in 2007.

j) You agreed earlier this year to review the TACs for kahawai for the 2005–06 fishing year. The purpose was to evaluate options for providing greater confidence that the TACs would provide for an increase in biomass.

k) You also raised consideration of adopting an objective for managing kahawai above a level of biomass that can produce the maximum sustainable yield (B_{MSY}). The IPP noted that some commercial submissions and non–commercial submissions supported this concept in 2004 (commercial submissions have since refuted the fact that they provided support for this objective and MFish accepts this to be the case). However, it is important to note that there is currently insufficient information to specify a target stock size or the catch levels necessary to achieve any particular target level. This concept can only be applied as a theoretical construct to kahawai stocks on the basis of current information.

l) There is no new stock assessment information available to assist in determining sustainability of current TACs. The research programme for kahawai is intended to provide information for a stock assessment of kahawai in 2007.

m) At your request, some research from the current research program was fast tracked in support of this review of catch limits and allowances for kahawai in 2005. As a result, the following findings are now available to assist the review:

   i) The size and age of the kahawai sampled from the recreational fishery has remained relatively constant;

   ii) Hauraki Gulf surveys of recreational catch supports the assertion that recreational harvest in this area over the summer of 2003–04 was lower than expected if the estimates from the earlier diary harvest surveys are considered accurate;

   iii) Since 1991, recreational catch rates have fluctuated in the three regions sampled (Northland, Bay of Plenty and Hauraki Gulf), and there is some evidence of a declining catch per trip in the Hauraki Gulf in recent years;

   iv) A preliminary relative index of abundance for part of KAH 1 between 1977–78 and 2003–04 shows no clear trend in biomass.

n) For the most part, this new information consists of preliminary findings or is limited in scope to certain geographic areas of the fishery only.

o) Two options were proposed in the IPP.

   - The first was to maintain the *status quo* TACs, allowances, and TACCs pending new scientific information to support a change. This option assumes that current catch limits will at least maintain and preferably provide for an increase in the kahawai biomass.

   - A second option was to reduce TACs to take account of the uncertain information surrounding the status of kahawai stocks and achieve greater probability that these will rebuild pending a future reassessment of stock status.

p) The information available in support of decisions on TACs, allowances and TACCs is uncertain. New information on recent trends in stock abundance is conflicting. This needs to be considered in the context of recreational (and

some customary) submissions that suggest that the stocks have declined below acceptable levels and commercial submissions to the contrary.

q) A key issue in considering the different TAC options is the benefits of a change from the *status quo* (Option 1) relative to the socio-economic impacts of reduced catch limits (Option 2).

r) The IPP contained no proposals for controls to further constrain non-commercial catch. You have already agreed with recreational fishers that current catches are within the current allowance and therefore do not require additional management controls. Should you decide that the recreational allowance for one or more stocks be reduced and that additional management controls are required, separate advice can be provided as to the additional controls that may be appropriate.

Rationale for Management Options

Objective of managing above B_{MSY}

MFish initial position

7 The IPP noted that it would be possible to adopt a specific management objective for managing the stock above B_{MSY} as a management option in this fishery. The IPP noted that both commercial and non-commercial submissions supported this concept in 2004.

Submissions

8 **SeaFIC** notes that the Kahawai Final Advice Paper (FAP) in 2004[1] at paragraph 32 stated that, regardless of uncertainty around stock sizes and reliable estimates of sustainable yield, the kahawai stock is likely to be above B_{MSY} or moving in that direction. Accordingly, SeaFIC submits that if stocks are assumed to be above B_{MSY}, then measures designed to "provide greater certainty about an increase in biomass" are, in effect, measures to improve utilisation for non-commercial fishery, rather than measures to address sustainability concerns.

9 SeaFIC considers that the circumstances in which the Minister can legitimately manage a shared stock above B_{MSY}, are limited to where:

- An above B_{MSY} strategy is necessary to ensure the sustainability of interdependent stocks; or
- There is a demonstrable consensus amongst stakeholders that an above B_{MSY} strategy is appropriate to optimise utilisation; or
- There is an overwhelming case based on the best available information that an above B_{MSY} strategy optimises utilisation (for example where there are demonstrable utilisation benefits of such a strategy to the majority of stakeholders in the fishery).

[1] Setting of Sustainability and Other Management Controls for Stocks to be Introduced into the QMS on 1 October 2004 Kahawai Final Advice Paper August 2004.

10 SeaFIC submits that it expects your decision to be based on cogent evidence of the respective utilisation benefits to all stakeholders. In SeaFIC's view, a departure from the "default" optimum utilisation benchmark of B_{MSY} would require a compelling case that an above B_{MSY} target will deliver a greater utilisation benefit to stakeholders generally.

11 The IPP states that the Ministry considers that a decision to manage the stock above a level that can produce MSY would be likely to be reasonable where:

a) Stakeholders generally agree to management of the biomass above the level that can produce the MSY.

b) Where the available information suggests that greater utilisation would result and could be achieved by managing according to the preference of the sector that values the resource the most.

12 In relation to the first point, **SeaFIC** considers there has been overstatement of the amount of industry support for managing above B_{MSY}.

13 SeaFIC also disagrees with the second proposition, because it considers that the Ministry has relied on flawed "non-market estimation" valuations in relation to kahawai.

14 SeaFIC also considers it inaccurate for the IPP to assert, "all sectors are considered to benefit from a more rapid increase in the size of kahawai stocks". It submits that an increased abundance of kahawai will lead to increased by catch in other fisheries, potentially requiring commercial fishers to obtain additional ACE or pay deemed values.

15 **Northern Inshore** supports the SeaFIC analysis that a policy of managing above B_{MSY} has the potential to subvert the proper exercise of your discretion when setting a TAC under s 13, the purpose of the Act and the information principles. Northern Inshore says that without a substantive basis or analysis for ***each*** stock, which concludes that greater utilisation would result by managing each stock above B_{MSY}, there can be no basis for you to evaluate the benefits and effects of such a strategy to all sectors.

16 Northern Inshore submits that its 2004 submission did not support setting a management target above B_{MSY}. Northern Inshore submits that you should be informed unambiguously that contrary to the advice contained in the IPP, commercial rights holders do not support the proposed new management target.

17 **Sanford** submits that it did not support the concept of managing stocks above MSY in 2004, and clearly do not today. It is concerned that the FAP includes incorrect information relating to Sanford's position.

18 Sanford submits support for setting TACs at a level that can produce the maximum sustainable yield. The submission states that this will ensure both sustainability of the stocks, whilst maximising utilisation.

19 **NZBGFC** and **option4** submit that kahawai are an obvious candidate for management above B_{MSY}. They submit that the Fisheries Act 1996 requires you to set TACs such

that the biomass in each QMA is *at or above B_{MSY}*. They state this should occur where (as examples):

a) Stakeholders agree to manage fish stocks above B_{MSY} (as stated at paragraph 17 of the 2005 kahawai IPP);

b) Where the available information suggests that a greater utilisation benefit would result and could be achieved by managing according to the preference of the sector that values the resource the most (as stated at paragraph 17 of the 2005 kahawai IPP);

c) Where the scientific information on the status of stocks is uncertain. Applying the precautionary principle (which is mandatory under New Zealand's international obligations) stocks should be managed above B_{MSY} where stock information is uncertain;

d) Where there are reports from fishing clubs and experienced fishers of a decline in catch rates;

e) Where there is a significant non-commercial component to the fishery;

f) Where the environmental adverse effects of high volume commercial fishing are unknown;

g) Species have a relatively low commercial value.

20 NZBGFC and option4 agrees with the IPP (at paragraph 13 and 15) about these key benefits of managing stocks above B_{MSY}. They say that the potential outcomes of doing so - increased availability and fish size - would benefit the recreational sector.

21 The joint submission of the **Royal Forest and Bird Protection Society and Environment and Conservation Organisations of NZ** welcomes the consideration being given to this possibility of managing kahawai stocks above B_{MSY}.

22 This submission also raises a point about the 1997 stock assessment that estimated the stock size at B_{MSY} at between 14 and 18 percent of the virgin or unfished biomass (B_0). This is a very low theoretical stock size to be managing the species at and would not meet the requirements of Francis (1992)[2] that stocks only go below 20% of Bo 10% percent of the time.

23 **TRAION** submits that the kahawai fishery needs to be rebuilt to restore access to a healthy fish stock and therefore urges you to manage the biomass of kahawai above $B_{MSY,}$ to leave more fish in the water.

MFish response

24 Kahawai stocks are managed under s 13 of the Act. The purpose and principles of the Act require you to provide for utilisation while ensuring sustainability. Section 13 provides that the biomass of the stock should be managed at or above a level that can produce MSY. If you consider the biomass of a stock is below the level that supports the MSY, s 13 requires you to rebuild the stock to, at, or above that level within a

[2] R.I.C.C. Francis 1992 Recommendations concerning the calculation of maximum constant yield (MCY) and current annual yield (CAY) *New Zealand Fisheries Assessment Research Document 92/8*

period appropriate to the stock (having regard to biological characteristics, socio-economic factors and interdependence of stocks). Alternatively if the biomass of a stock is at or above the level that will support MSY you can take action to reduce the biomass to a target level.

25 In considering the target biomass, and the rate of change to achieve this, you must have regard to biological factors, interdependence of stocks and socio-economic impacts.

26 The key benefits of managing stocks above the biomass that supports the MSY include:

- The increased availability and catchability of fish; and
- The increased size of fish.

27 The key cost of managing stocks above the biomass that support the MSY include:

- Yields are not maximised; and
- The costs of moving the stock to the target level if below this level.

28 Further details of the costs and benefits of managing above B_{MSY} are contained in the General Issues section of this advice.

29 MFish acknowledges that the objective of managing kahawai stocks above B_{MSY} have not been formally discussed amongst stakeholders and that industry submissions during 2004 did not support managing above B_{MSY}. MFish accepts that its comments relating to industry supporting the management of kahawai above B_{MSY} at that time were based on informal discussions. These discussions included industry perceptions that kahawai stocks were currently above B_{MSY} and participants noting some economic advantages of retaining stocks at this level.

30 However, MFish acknowledges that its comments about industry supporting the management of kahawai above B_{MSY} in the IPP were an overstatement of those made during informal discussions during 2004. In order to clarify this position MFish advises that industry submissions state they do not now, and never have, supported managing kahawai stocks above B_{MSY}.

31 MFish notes that managing above B_{MSY} is supported by non-commercial submissions. This is largely because of the utilisation benefits that are listed in the generic section. Theoretically, stocks managed above B_{MSY} would be more abundant, providing greater opportunity for catches and improved catch rates. In addition, there would generally be a wider variety of sizes (age classes) of fish available in the population. Both of these factors potentially increase non-commercial enjoyment from a fishery. While efficiency gains in commercial harvesting can also be expected, MFish does agree that the primary outcome for kahawai of managing stocks above B_{MSY} is additional utilisation benefits accruing to non-commercial fishers.

32 MFish agrees with industry submissions that management of the stocks above B_{MSY} does not provide an opportunity to maximize yield from the fishery. Accordingly, catch levels must be reduced below MSY when fishing at a level of biomass above

B_{MSY} as compared to fishing at B_{MSY}. The degree to which yield declines as the stock moves above B_{MSY} will depend on the biological characteristics of the species. In many cases yield declines quite gradually. In these cases the costs of managing above B_{MSY} relate more to the cost of achieving this target level if catch reductions are required.

33 Management above B_{MSY} can also provide sustainability benefits. MFish agrees with submissions that the 1997 stock assessment model suggests that kahawai has a relatively low theoretical biomass at B_{MSY}. Scientific advice provided in Francis 1992 is to manage at a level of biomass no lower than 20 percent of the virgin biomass 10 percent of the time (20% of B_0 is theoretically already above B_{MSY} for kahawai). A stock that has a relatively low biomass at B_{MSY} may be more susceptible to environmental influences. Environmental variability may affect stock abundance, and if kahawai stocks are reduced to B_{MSY} then the biomass may be subject to greater risk of susceptibility to increased recruitment failure when subjected to unfavourable conditions (such as climatic patterns, habitat modification, availability of prey or disease). Managing above B_{MSY} provides for a greater margin of error.

34 With regard to the submissions that suggest that the management objective for the kahawai fishery should relate to those stakeholders that value the fishery the most, MFish notes industry submissions that non-market estimation techniques are flawed. Therefore, industry considers that estimates suggesting recreational fisher value the fishery more highly (as well as holding the largest share) are incorrect. MFish does not agree with these submissions and refers to the discussion relating to kingfish in Annex II of the final advice paper[3]. A copy of this Annex is appended to this advice in Appendix II.

35 MFish notes the SeaFIC submission concerning potential economic implications of increased levels of by catch when managing above B_{MSY}. Under this scenario some fishers may need to exercise the choice between acquiring ACE from target fishers, modifying their fishing practice, payment of deemed value or restricting fishing for associated species. Accordingly, MFish considers there may be short term restructuring costs of managing above B_{MSY} as some commercial fishers adjust their fishing operations to increased catch rates. Overall such changes would reduce target fishing for kahawai in order to ensure by catch is covered by ACE.

36 In summary, there is no agreement among stakeholders on an objective of managing kahawai stocks above B_{MSY}. Management above B_{MSY} is a theoretical construct for the kahawai fishery as the stock status is uncertain. There would be utilisation benefits as kahawai would be more abundant, providing greater opportunity for recreational catches. However, yield would no longer be maximised from the fishery. Based on current information, it is not possible to determine the specific benefits of managing the kahawai stock above B_{MSY}. There is insufficient information available to determine where the current biomass of the stock is relative to any target level (although the plenary notes that the estimated 1996 biomass was still above B_{MSY}). In the absence of information it is not possible to determine a TAC that will move the stock toward any specified target level in a way and a rate you might consider reasonable. At best the setting of a management objective of above B_{MSY} would be a

[3] Setting of Sustainability and Other Management Controls for Stocks to be Introduced into the QMS on October 2003 Kingfish Final Advice Paper 8 August 2003.

factor you could take into account when weighting uncertainty in the status of the current stock and trends in biomass. The higher the biomass target level, the more cautious you may need to be when setting TACs in the absence of an estimate of sustainable yield.

Current stock status

MFish initial position

37 The current status of kahawai stocks remains uncertain and it is unknown whether stocks are currently above or below the biomass that can produce the maximum sustainable yield (B_{MSY}).

Submissions

38 **SeaFIC** submits that the IPP presents no credible evidence of sustainability concerns. The Council considers that regardless of uncertainty around stock sizes and unreliable estimates of sustainable yield, kahawai stocks are likely to be at or above B_{MSY} or moving in that direction. Further, SeaFIC notes in its submission:

a) The Pelagic Working Group has not identified any need to review the kahawai stocks;

b) The IPP contains an over-reliance on anecdotal information and an almost complete lack of credible supporting information;

c) The original TACs and TACCs for kahawai were set 15% below estimated landings using a "deliberately cautious approach". Nothing has changed and there is no new information suggesting a risk to sustainability at the current levels of catch that could justify a TAC reduction.

39 **AFL** support SeaFIC's view regarding the use of selective and anecdotal information.

40 **Northern Inshore** notes that there is no new stock assessment information available to assist in determining the sustainability of the current TACs since introduction into the QMS for the species. The IPP indicates that the purpose of this review of sustainability measures is to look at options for providing greater confidence that TACs would provide for an increase in biomass. In the absence of new information on the stock Northern Inshore finds it hard to see how either of the options provided meet the purpose of the review.

41 Northern Inshore notes that in 2007 new information based on a stock assessment will be available. Northern Inshore submits that this should be the appropriate time to review sustainability measures and management controls should, this be required through the working group process.

42 **NZBGFC** and **option 4** submits there is evidence that the kahawai fishery needs to be rebuilt to restore access to a healthy fish stock. They say this rebuilding is neded to provide all non-commercial fishers with a reasonable chance of catching a reasonable daily bag of acceptable size kahawai.

43 **CORANZ** states a major concern over the last decade has been the plight of kahawai, a major fish for recreational fishers. It states that stocks have been drastically reduced over the last 15 to 20 years by commercial over fishing. Warnings have been made, among them some by scientists, about the endangered state of the fishery due to heavy fishing by purse seiners.

44 It submits that it is now obvious the fishery has collapsed from this commercial over fishing. Catch rates by the recreational fishing public have fallen to a low fraction of 10 or 15 years ago. CORANZ say that although this is largely anecdotal, it cannot be ignored, especially with so little or no scientific data.

45 The joint submission of the **Royal Forest and Bird Protection Society and Environment and Conservation Organisations of NZ** notes the concerns from recreational and customary fishers that the fishery has declined around New Zealand. They refer to reports from commercial fishers in the south of the South Island that kahawai is no longer found at the extremes of its range, indicating that kahawai has reduced in range over the last 25 years.

46 **Marlborough Recreational Fishers' Association** submits that kahawai have been heavily depleted over the last one to two decades.

47 **Mark Feldman** submits that despite steadily declining commercial catches the recreational catch has not improved. He states that this suggests that the fishery is not recovering and requires an effective recovery plan.

48 **Hilton Leith** submits that he is a kahawai quota holder who witnessed the depletion of kahawai. He states that during the current year he has seen increased numbers around rocky headlands.

49 The **Kaikoura Boating Club Recreational Fishers** submit that kahawai in Kaikoura are still seriously depleted and that there has been no recovery in recent years.

50 **Murray Wells** submits that the central west coast kahawai fishery is healthy. This is based on his experience of 48 years of recreational fishing.

MFish response

51 A stock assessment of kahawai will be available in 2007. Until then there is considerable uncertainty in the estimates of yield and stock status for kahawai. In making the 2004 decisions, you took this uncertainty into account by reducing current commercial and recreational utilisation by 15%. New information has not added substantially to our understanding of the status of kahawai stocks.

52 MFish notes that the most recent Report from the Fishery Assessment Plenary states that the estimated 1996 biomass was still above the size that would support the maximum sustainable yield (MSY). However, the Plenary report also says that it is unknown if current catches, allowances or TACCs are sustainable, or at a level that will allow the stocks to move towards a size that will support the MSY.

53 The recreational perception of depleted kahawai stocks has not abated during the course of the current year. Reference is made in submissions of the need for

rebuilding kahawai stocks depleted by purse seining to restore access to a healthy fish stock and to give non-commercial fishers a reasonable chance of catching a reasonable daily bag of acceptable size kahawai.

54 The commercial view is that there is a lack of information to support any suggestion of a decline in stock size, and those views remain unchanged from 2004. Industry submissions refer to the lack of concern by the pelagic stock assessment-working group (PELWG), the lack of credible supporting information, and their belief that nothing has changed since your decisions in 2004.

55 MFish notes that the function of the PELWG is to review scientific information relating to stock assessment. The pelagic fisheries research-planning group (PELRPG) has formulated a medium term Research Plan that sets out the future research required to meet the management needs of kahawai. This Research Plan is reviewed and updated through an annual research planning process.

56 MFish notes that the research information provided through the current Research Plan is not particularly informative for reviewing the management of kahawai during 2005. A new stock assessment to allow evaluation of current stock size and sustainable yields is proposed to become available for decision making in 2007.

57 Notwithstanding the lack of new stock assessment information, all other relevant information provided by the working group has been considered in this advice paper.

58 Much of the debate about the stock status and the need for additional management measures relates to widely differing perceptions by stakeholders regarding fishery information. Information is considered in greater detail in a later section and a full consideration of matters raised in submissions is contained in Appendix 1.

Fishery information

MFish initial position

59 The current research programme for kahawai is intended to provide information for a reassessment of kahawai stocks in 2007. You asked MFish to fast-track research from the current research program to provide information in support of a review of catch limits and allowances in 2005. MFish agreed to do what was possible in the time available, but noted that substantive new information was unlikely to be available prior to 2007.

60 As a result of the fast tracking, some new information is now available and was summarised in the IPP at Appendix I. This information is discussed further in this report in Appendix I beginning at paragraphs 323. It was noted that for the most part this new information consists of preliminary findings or is limited in scope to certain geographic areas of the fishery only. The new information presented did add to our overall understanding of kahawai and fisheries for kahawai, but is of limited value for reviewing catch limits and allowances for kahawai on a national basis.

Submissions

61 Recreational fishers agree with information provided in the IPP concerning the benefits of managing above B_{MSY} but have expressed strong concerns over what they perceive is a marked decline in the amount of kahawai available to them in recent years. This they say has affected the level of non-commercial allocations unfairly, because the initial allocations were made on the basis of existing use.

62 The recreational fishers construct a scenario seeking to explain the detrimental affects of commercial fishing on non-commercial existing use. Recreation fishers reject MFish views presented in the FAP[1] that management of the kahawai fishery after 1991 was effective and that as a result no kahawai stock is depleted due to commercial fishing.

63 Central to the non-commercial view is that you accept the scenario that non–commercial catches have been detrimentally affected by historical commercial fishing and that you need to take into account a greater range of information (as the best available information). By this reasoning, if you are not solely reliant on recent catch history information, you will make what they refer to as more sophisticated decisions.

64 Industry suggests that there is a lack of information to support any suggestion of a decline in stock size. They refer to the lack of credible supporting information, and their belief that nothing has changed since your 2004 decisions in support of this view. Industry submits in favour of retaining ***status quo*** TACs until new stock assessment information becomes available in 2007.

MFish response

65 Sources of information about stock status for kahawai include: some recent scientific information and a dated stock assessment (1997); biological characteristics; information about commercial and non-commercial catches; and anecdotal information.

66 In determining whether to take management action you should consider the weight placed on this information. Section 10 of the Fisheries Act requires that decisions should be made on the best available information. You need to consider the uncertainty in information when giving weight to various information sources as part of your decision making process. MFish considers that scientific information on stock status should be given more weight than anecdotal information, which is inherently less certain. The more uncertain the information about a sustainability concern, the greater the weight that should be placed on information about the impacts of any reduction in catch limits.

67 Recreational fishers have constructed a scenario seeking to explain the detrimental affects of commercial fishing on their current use. They reject MFish views that management of the kahawai fishery after 1991 was effective and that as a result no kahawai stock is depleted due to commercial fishing. However, they are unable to explain why the 1999–2000 recreational harvest estimates are so high. The MFish

scenario that purse seine limits were effective might explain this estimate. For further information see the section on "Affects of commercial fishing on recreational catches" in Appendix I.

68 MFish notes Industry submissions that information that would confirm that there has been a decline in stock size is not readily apparent from the analysis of new information. Trends in the aerial survey analysis are variable, depending on the assumptions made in standardising the index, and assumptions about pilot learning.

69 The IPP also reported that the average number of kahawai caught per trip in KAH 1 is greatest in the Bay of Plenty, and lowest in the Hauraki Gulf. Since 1991, catch rates have fluctuated in all three regions sampled, although there is some evidence of declining catch per trip in the Hauraki Gulf in recent years. However, harvest rate data are collected as the lowest priority as part of the sampling of the recreational fishery to monitor the kahawai fishery.

70 Although highly localised and temporally limited, recent information from Hauraki Gulf surveys of recreational catch supports the assertion that recreational harvest in this area over a recent summer (2003–04) was low. Further details are provided in Appendix I.

71 Clearly the issue of best available information is of critical importance to reviewing kahawai TACs at this time, due to the vastly differing views held by stakeholders.

Total Allowable Catch (TAC)

MFish initial position

72 The IPP proposed that TACs be based on either:

- Option 1 to maintain the *status quo* TACs, allowances, and TACCs pending new scientific information to support a change;
- Option 2 to reduce TACs to take account of the uncertain information surrounding the status of kahawai stocks and achieve greater probability that these will rebuild pending a future reassessment of stock status.

Submissions

73 **SeaFIC** notes that the IPP proposes that, in the absence of any new information on stock status, any reduction option should be based on a "nominal percentage" applying across all KAH stocks. It submits that no attempt is made in the IPP to identify or build a case for particular sustainability concerns applying to particular kahawai stocks (KAH 1, KAH 2, KAH 3, KAH 4 and KAH 10), yet clearly the different stocks will have different fishing patterns and issues.

74 SeaFIC considers that the "nominal percentage" reduction is proposed to apply across all kahawai QMAs in a manner that is clearly arbitrary, rather than justified by sustainability concerns relating to individual kahawai stocks. Legal advice obtained by SeaFIC emphasises that the characterisation of the TAC reduction as "nominal"

highlights the complete lack of substantive *intra vires* justification for a TAC reduction.

75 **Northern Inshore** notes there is no new stock assessment information available to assist in determining the sustainability of the current TACs since introduction into the QMS for the species. The IPP indicates that the purpose of this review of sustainability measures is to look at options for providing greater confidence that TACs would provide for an increase in biomass. In the absence of new information on the stock, Northern Inshore find it hard to see how either of the options provided meet the purpose of the review.

76 Northern Inshore note that in 2007 new information based on a stock assessment will be available. Northern Inshore submits that this should be the appropriate time to review sustainability measures and management controls should it be required through the working group process. It submits support of Option 1 to maintain the current TACs for kahawai.

77 Northern Inshore submits there is so much uncertainty and conflicting information on the current level of recreational catch, particularly for KAH 1, that no decision should be made in relation to kahawai TACs and TACCs until reliable estimates on actual recreational catches are made, and appropriate management controls placed.

78 **Sanford** supports Option 1.

79 **NZRFC** submits that a rebuild of the kahawai fishery is required urgently. It asks that proper weighting be given to cultural and social well-being aspects of recreational fishing and not just the economic well being of commercial fishers. Social, cultural and economic factors relevant to the non-commercial sector should be evaluated. Such factors specifically include the importance of kahawai as food.

80 **NZBGFC** and **option4** submit support for a more precautionary approach favouring the setting of lower TACs to ensure sustainability in each QMA. They favour such an approach because of an information deficit in relation to kahawai stocks. They submit that basing TACs solely on catch history across all QMAs has the effect of concentrating allowances in areas of highest past fishing pressure, and is likely to result in some QMAs being over-utilised and others under-utilised.

81 They submit support for slightly lesser TACs for KAH 1, KAH 2 KAH 3 but propose a higher TAC for KAH 8 than proposed in Option 2. This increased TAC is supported to cover current and potential bycatch by commercial fishers in KAH 8 and because non-commercial fishers experience reasonable catch rates at times in the northern areas.

82 The joint submission of the **Royal Forest and Bird Protection Society and Environment and Conservation Organisations of NZ** supports Option 2.

83 **Kaipara District Council** submits support for implementing Option 2 in KAH 8.

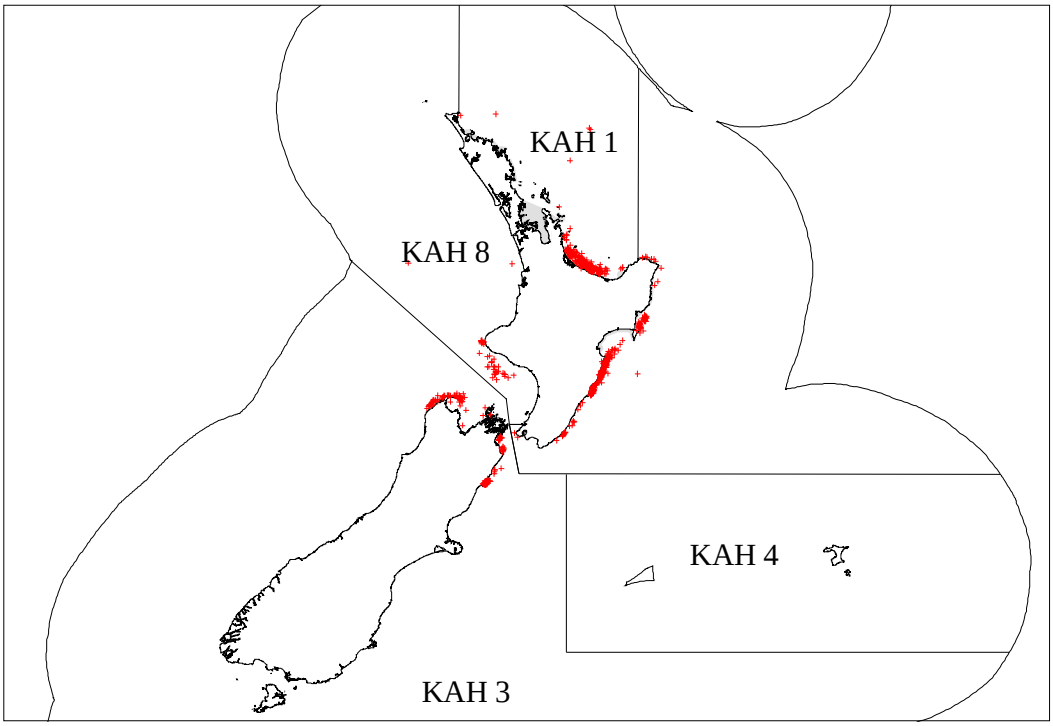
MFish response

84 Submissions are concerned that the IPP did not attempt to justify sustainability concerns for kahawai at a stock level. They submit that this could be achieved by evaluating the individual circumstances relating to sustainable utilisation for each QMA.

85 The Plenary report notes that kahawai are presently considered to form one New Zealand wide stock, but are defined as separate units for the purpose of fisheries management: KAH 1 (FMA 1); KAH 2 (FMA 2); KAH 3 (FMAs 3-8); KAH 9 (FMA 8 & 9) and KAH 10 (FMA 10). These areas were defined in terms of the best alignment with key fisheries as provided for by s 19(2) of the Fisheries Act 1996.

86 In accordance with the concept of kahawai forming one stock, the stock reduction modelling undertaken in 1997 used to estimate MCY did so on a single nationwide basis.

87 Some submitters suggest that it is necessary to consider sustainability concerns on a fishery management unit basis because of the relative size of QMAs, differences in the lengths of coastline, and fishing patterns being concentrated in areas of intense purse seine fishing. The Plenary report notes that kahawai are found around the North Island, the South Island, the Kermadecs and Chatham Island. They occur mainly in coastal seas, harbours and estuaries and will enter the saltwater sections of rivers. MFish notes that purse seine catch records over the past decade are generally spread along the coast, as depicted in the map below, not in concentrated areas as suggested by recreational submissions.



88 MFish notes that when setting the total allowable catches (TACs) for kahawai in 2004, you had the choice either to use highly uncertain 1996 stock simulation information, or to base TACs directly on the current use of the kahawai fishery (or a

proportion of that use). You considered that the latter basis had the advantage of reflecting public policy decisions already made and agreed to for the fishery[4]. You considered that this also reflected each sector's current reliance on the kahawai fishery.

89 MFish considers that by choosing recent catch history, many of the individual circumstances concerning fisheries management units are inherently taken into account. While historical catches will tend to be concentrated in areas where the species is most prevalent, catches will also be influenced by regulatory and other fisheries management measures such as voluntary agreements in place, by changes in fishing practise, and by the commercial catch limits imposed on purse seining of kahawai.

90 For example, the TACC set for KAH 3 was markedly reduced from the purse seine catch limit that applied in that area because recent utilisation reflected changed fishing patterns (purse seine fishing ceased in this area) and catch limits in KAH 8 were set largely on the basis of existing bycatch levels because there was no recent history of target purse seine fishing.

91 MFish notes that recreational fishers submit the need for additional information to be taken into account at a stock level. However, rather than individual circumstances of stocks, the key recreational issue appears to be relative weighting of information. By placing weight on anecdotal information of declining abundance and size of fish, current recreational catch rates, the historical effects of past commercial fishing on non-commercial fishing, and by placing little or no weight on the economic cost to industry, or any other factor, recreational submissions recommend the setting of TACs simply on the basis of excluding purse seine target fishing.

92 MFish notes the non-commercial submissions suggesting a point of difference relating to KAH 8. While the KAH 8 fishery is of considerable social, and cultural importance to non-commercial fishers, they submit their view that this fish stock could be capable of additional utilisation. Recreational submissions have expressed satisfaction with their current catch rates. Further, they do not believe that they have been disadvantaged by any low historical biomass of the fishery in this area. Non–commercial fishers recognise the need for providing for commercial by catch in KAH 8. Potential economic impacts of TAC options in KAH 8 are considered further in the economic section.

Evaluation of TAC options

93 MFish notes that industry submissions favour Option 1, some non-commercial fishers and environment groups support Option 2; some non-commercial fishers reject all options and request that you consider an additional option. TAC options proposed are shown in Table 2.

[4] Policy for the kahawai fishery was first developed during 1991 when a working group comprising the NZ Recreational Fishing Council, the NZ Big Game Fishing Council and industry supported introducing purse seine catch limits. The resulting limits were effective in reducing commercial catches. After peaking at 9,600 tonnes in 1987-88, commercial landings of kahawai declined to average 3,200 tonnes over the five fishing years immediately prior to introduction into the QMS.

Table 2: TAC options (tonnes) for kahawai stocks:

TAC option	KAH 1	KAH 2	KAH 3	KAH 4	KAH 8	KAH 10	Total
Option 1 (*status quo*)	3 685	1 705	1 035	16	1 155	16	7 612
Option 2	3 315	1 530	935	14	1 040	14	6 848

94 MFish considers that the discussion of TAC options outlined in the IPP in paragraphs 13-24 and the discussion on statutory considerations outlined in paragraph 104 a-m remain relevant to your decision making.

95 In summary, in line with your obligations under the purpose and principles of the Act, you should consider the relative benefit to stakeholders to be obtained under management at or above the biomass that will support the MSY. This analysis should include consideration of the trade off between the benefits associated with increased availability and size of fish and the reduced yield that would be available at this level of biomass. You should note that increased availability and size range of fish will likely benefit the recreational sector, whereas the increased yield if the biomass was managed at a level that could produce the MSY will likely benefit the commercial sector. You should note that a quantitative valuation suggests that recreational fishers more greatly value the fishery than industry.

96 MFish notes the following are relevant factors for evaluating TAC options. There is:

a) a 1997 stock assessment with estimates of MCY of 7 600 tonnes and 8 200 tonnes (the 2004 decision considered the 7 600 tonnes as a reference point);

b) a 1997 stock assessment indicated the stock was at 50% of original biomass (B_0);

c) considerable uncertainty in the estimates of yield and stock status for kahawai;

d) agreement by the non-commercial sector for a target stock level above B_{MSY};

e) opposition from the commercial sector to a target stock level of above B_{MSY} and questions from the commercial sector relating to the lawfulness and/or collective benefits of this approach;

f) a commercial view that nothing has changed since the 2004 decisions;

g) a strong recreational perception about declining abundance, availability and size of fish in the main stocks; both long term and in recent years;

h) submissions by non-commercial fishers supporting 6 628 tonnes as a basis for combined TACs;

i) a revised stock assessment of kahawai is planned, but results will not be available for management consideration until the 2007 year.

97 MFish notes submissions concerning the benefits of a faster or more certain rebuild, or greater certainty that stock will not decline, being a relevant factor for you to consider, given the importance of the fishery to the recreational and customary sector. This sector will also gain benefits from greater abundance. However, you will need to consider the weighting that you give to this benefit, relative to the impact on the commercial sector of any reduction to harvest levels.

Option 1 (Status quo)

98 This option is intended to reflect the ***status quo*** management arrangements for kahawai. If you were to place greater weight on the following factors you may decide to retain the current TACs:

- The equivocal nature of information on sustainability concerns;
- The socio-economic impacts of any reduction to existing catch;
- The availability of new information in 2007 to support a revised stock assessment; and
- The assumption that kahawai stocks are likely to be at or above BMSY or moving in that direction.

KAH 1

99 A TAC of 3 685 tonnes is proposed on the basis of retaining the ***status quo*** management arrangements for kahawai.

100 This option assumes that, in the absence of confirmed information on fisheries trends and stock size, current landings are sustainable, and the stock is likely to be at or above B_{MSY} or be moving in that direction. This position is uncertain, and is not supported by anecdotal information from recreational fishers. Anecdote from the commercial fishery supports this option. The benefit of this option is that it will have no economic impact on the commercial sector.

101 There may be costs in adopting this option for the non-commercial sectors. Non-commercial fishers have indicated that the KAH 1 fishery is of considerable social, and cultural importance and has value as a food fish. Kahawai are a greatly sought after recreational species in this area. Recreational submissions have expressed concern at reduced catch rates in the fishery and have expressed a desire that catch rates and opportunities for catching kahawai are improved as rapidly as possible. They believe they have been disadvantaged by the low historical biomass of the fishery.

KAH 2

102 A TAC of 1 705 tonnes is proposed on the basis of retaining the ***status quo*** management arrangements for kahawai.

103 This option assumes that, in the absence of confirmed information on fisheries trends and stock size, current landings are sustainable, and the stock is likely to be at or above B_{MSY} or be moving in that direction. This position is uncertain, and is not supported by anecdotal information from recreational fishers. Anecdote from the commercial fishery supports this option. The benefit of this option is that it will have no economic impact on the commercial sector.

104 There may be costs in adopting this option for the non-commercial sectors. Non-commercial fishers have indicated that the KAH 2 fishery is of considerable social, and cultural importance and has value as a food fish. Kahawai are highly sought by recreational fishers in this area. Recreational submissions have expressed

concern at reduced catch rates in the fishery and have expressed a desire that catch rates and opportunities for catching kahawai are improved as rapidly as possible. They believe they have been disadvantaged by the low historical biomass of the fishery.

KAH 3

105 A TAC of 1 035 tonnes is proposed on the basis of retaining the *status quo* management arrangements for kahawai.

106 This option assumes that, in the absence of confirmed information on fisheries trends and stock size, current landings are sustainable, and the stock is likely to be at or above B_{MSY} or be moving in that direction. This position is uncertain, and is not supported by anecdotal information from recreational fishers. Anecdote from the commercial fishery supports this option. The benefit of this option is that it will have no economic impact on the commercial sector.

107 There may be costs in adopting this option for the non-commercial sectors. Non-commercial fishers have indicated that the KAH 3 fishery is of considerable social, and cultural importance and has value as a food fish. Recreational fishers in this area increasingly seek kahawai. Recreational submissions have expressed concern at reduced catch rates in the fishery and have expressed a desire that catch rates and opportunities for catching kahawai are improved as rapidly as possible. They believe they have been disadvantaged by the low historical biomass of the fishery.

KAH 4

108 A TAC of 16 tonnes is proposed on the basis of retaining the *status quo* management arrangements for kahawai.

109 This stock may be on the margins of the distribution of kahawai, and only occasional commercial landings have been reported. This option assumes that, in the absence of confirmed information on fisheries trends and stock size, current landings are sustainable, and the stock is likely to be at or above B_{MSY} or be moving in that direction. The benefit of this option is that it will have no economic impact on the commercial sector.

KAH 8

110 A TAC of 1 155 tonnes is proposed on the basis of retaining the *status quo* management arrangements for kahawai.

111 This option assumes that, in the absence of confirmed information on fisheries trends and stock size, current landings are sustainable, and the stock is likely to be at or above B_{MSY} or be moving in that direction. This position is uncertain, although anecdote from the commercial fishery supports this option. The benefit of this option is that it will have no economic impact on the commercial sector.

112 While the KAH 8 fishery is of considerable social, and cultural importance to non-commercial fishers they submit there may be fewer costs in retaining this option.

Recreational submissions have expressed satisfaction with their current catch rates. They do not believe they have been disadvantaged by any low historical biomass of the fishery.

KAH 10

113 A TAC of 16 tonnes is proposed on the basis of retaining the *status quo* management arrangements for kahawai.

114 This stock may be on the margins of the distribution of *A. trutta* although *A. xylabion* may be more prevalent. Only very occasional commercial landings have been reported. This option assumes that, in the absence of confirmed information on fisheries trends and stock size, current landings are sustainable, and the stock is likely to be at or above B_{MSY} or be moving in that direction. The benefit of this option is that it will have no economic impact on the commercial sector.

Option 2 (10% proportional reduction)

115 This option is intended to reflect a desire to introduce more certainty into the rebuild of kahawai stocks for all sectors with an associated economic cost to industry. If you were to provide greater weight to the following factors you may decide on this option:

- Uncertainty in information on status of the stock;
- Anecdotal information on declines in the abundance of kahawai from some non-commercial fishers;
- Value of the fishery to recreational and commercial users; and
- Desire to provide a greater level of certainty that the stock biomass will at least maintain its current level and preferably provide for an increase in biomass.

KAH 1

116 A TAC of 3 315 tonnes is proposed (as proposed in the IPP). This is based on a 10% reduction in current TACCs and allowances.

117 This option takes account of the uncertain information surrounding the status of kahawai stocks for achieving greater probability of a rebuild. There is no information to suggest if, or how rapidly, the stock will rebuild under this option. However, a TAC set at a level lower than the current TAC will provide greater opportunity for the stock to reach or be maintained at the proposed target level. This is despite the uncertainty in current information.

118 Non-commercial fishers have indicated that the KAH 1 fishery is of considerable social, and cultural importance and has value to them as a food fish. Kahawai is a highly sought after recreational species in this area. There could be additional utilisation benefits accruing to non-commercial fishers if you decide to adopt this option.

119 There are social and economic considerations associated with this option. There will be a loss in value particularly to commercial from reduced quota holdings.

MFish assesses that a reduction to current landings of 10% must balance the risk attached to anecdotal information of a decline in abundance, the uncertainty in that information, and the socio-economic impacts of reduced catch limits and allowances. A more detailed discussion of the socio-economic impact of this option is contained in the following section.

120 There are social and economic considerations associated with this option. There will be a loss in value, particularly to commercial interests due to reduced quota holdings. A more detailed discussion of the socio-economic impact of this option is contained in the following section.

KAH 2

121 A TAC of 1 530 tonnes is proposed (as proposed in the IPP). This is based on a 10% reduction in current TACCs and allowances.

122 This option takes account of the uncertain information surrounding the status of kahawai stocks for achieving greater probability of a rebuild. There is no information to suggest if, or how rapidly, the stock will rebuild under this option. However, MFish considers that a TAC set at a level lower than the current TAC will provide greater opportunity for the stock to reach or be maintained at the proposed target level. This is despite the uncertainty in current information.

123 Non-commercial fishers have indicated that the KAH 2 fishery is of considerable social, and cultural importance and has value to them as a food fish. Kahawai is a highly sought after recreational species in this area. There could be additional utilisation benefits accruing to non-commercial fishers if you decide to adopt this option.

124 There are social and economic considerations associated with this option. There will be a loss in value, particularly to commercial interests due to reduced quota holdings. A more detailed discussion of the socio-economic impact of this option is contained in the following section.

KAH 3

125 A TAC of 935 tonnes is proposed (as proposed in the IPP). This is based on a 10% reduction in current TACCs and allowances.

126 This option takes account of the uncertain information surrounding the status of kahawai stocks for achieving greater probability of a rebuild. There is no information to suggest if, or how rapidly, the stock will rebuild under this option. However, a TAC set at a level lower than the current TAC will provide greater opportunity for the stock to reach or be maintained at the proposed target level. This is despite the uncertainty in current information.

127 Non-commercial fishers have indicated that the KAH 3 fishery is of considerable social, and cultural importance and has value to them as a food fish. Recreational fishers in this area increasingly seek kahawai. There could be additional utilisation benefits accruing to non-commercial fishers if you decide to adopt this option.

128 There are social and economic considerations associated with this option. There will be a loss in value particularly to commercial from reduced quota holdings. MFish assesses that a reduction to current landings of 10% must balance the risk attached to anecdotal information of a decline in abundance, the uncertainty in that information, and the socio-economic impacts of reduced catch limits and allowances. A more detailed discussion of the socio-economic impact of this option is contained in the following section.

KAH 4

129 A TAC of 14 tonnes is proposed (as proposed in the IPP). This is based on a 10% reduction in current TACCs and allowances.

130 This option takes account of the uncertain information surrounding the status of kahawai stocks for achieving greater probability of a rebuild. There is no information to suggest if, or how rapidly, the stock will rebuild under this option. However, a TAC set at a level lower than the current TAC will provide greater opportunity for the stock to reach or be maintained at the proposed target level despite the uncertainty in information.

131 There are social and economic considerations associated with this option. There will be a small loss in value, particularly to commercial interests due to reduced quota holdings.

KAH 8

132 A TAC of 1 040 tonnes is proposed (as proposed in the IPP). This is based on a 10% reduction in current TACCs and allowances.

133 This option is based on a 10% reduction of the *status quo* recreational allowance and TACC to provide a greater certainty of achieving a target stock level at or above B_{MSY}. There is no information to suggest if, or how rapidly, the stock will rebuild under this option. However, MFish considers that a TAC set at a level lower than the current TAC will provide greater opportunity for the stock to reach or be maintained at the proposed target level despite the uncertainty in information.

134 While the KAH 8 fishery is of considerable social, and cultural importance to non-commercial fishers they submit there may be fewer benefits in adopting this option. Recreational submissions have expressed satisfaction with their current catch rates. They do not believe they have been disadvantaged by any low historical biomass of the fishery.

135 There are social and economic considerations associated with adopting this option. There will be a loss in value to commercial fisheries from reduced landings. MFish notes that ACE will primarily be required to cover the by catch of fishing for other species in KAH 8, if Option 2 is adopted for this fishstock. This is discussed in further detail in the following section.

KAH 10

136 A TAC of 14 tonnes is proposed (as proposed in the IPP). This is based on a 10% reduction in current TACCs and allowances.

137 This option takes account of the uncertain information surrounding the status of kahawai stocks for achieving greater probability of a rebuild. There is no information to suggest if, or how rapidly, the stock will rebuild under this option. However, a TAC set at a level lower than the current TAC will provide greater opportunity for the stock to reach or be maintained at the proposed target level despite the uncertainty in information.

138 There are social and economic considerations associated with this option. There will be a small loss in value particularly to commercial interests due to reduced quota holdings.

Alternatives to TAC options proposed

NZBGF / option4 option

139 NZBGFC / option4 propose a combined TAC of 6 628 tonnes (reduced from 6 900 tonnes in 2004 submissions).

140 MFish notes that NZBGFC / option 4 support setting more conservative TACs to allow rebuilding of some of the management areas. NZBGFC / option 4 / Mark Feldman submit that removing the target purse seine proportion of the catch will achieve this.

141 MFish notes that the combined TACs proposed by these non-commercial representatives are not significantly different to those proposed in Option 2 (6 848 tonnes compared to 6 628 tonnes). The area of greatest difference lies in the proposals of NZBGFC / option 4 to allocate those TACs and their distribution between areas. These issues are addressed in the following sections.

142 In the absence of other information combined TACs of 6 628 tonnes may be more conservative than required for the fishery but have greater socio economic impacts. A reduction to this level would, however, provide greater certainty that the kahawai stock would increase in biomass. In this context MFish notes the commercial view that no changes in the current catch limits are required.

Social and cultural implications

Submissions

143 **NZBGFC** and **option4** submit that a high proportion of kahawai caught by non-commercial fishers is taken for food. Cooked fresh or smoked at home, it is becoming increasingly popular. Surveys of returning fishers at some boat ramps have shown that 90% of fishers return home with no fish. Attitudes to kahawai have changed and a wide range of fish species is now taken home for the table, as prime species have become less abundant.

144 NZBGFC and option4 submit that there are many people in small coastal communities who rely on the sea for food. They have no supermarket or often no shop at all where they live. Many cannot afford to buy fish at retail prices.

145 NZBGFC and option4 consider that commercial fishers have gained socially and economically from over fishing this resource at the expense of the social and cultural aspirations of other users. Now it is time to pay back those who have been deprived by excessive commercial activities.

MFish response

146 MFish notes submissions concerning the benefits of a faster or more certain rebuild, or greater certainty that stocks will not decline as being relevant factors for you to consider given the importance of the fishery to the recreational and customary sector and the benefits they will obtain from a higher abundance of kahawai. However, you will need to consider the weighting that you give to this benefit relative to the impact on the commercial sector of any reduction to harvest levels and the potential need for future constraints on recreational fishing.

147 MFish does not collect, nor have the resources available, or regulatory and legislative support, to gather other cost and earnings information that may provide more insight into the socio-economic effects of sustainability or utilisation changes as proposed in the IPPs.

148 MFish agrees it needs to improve its ability to gather and analyse social and cultural information. MFish has requested that stakeholders provide relevant information in the course of their submissions to you on management proposals. The summary of submissions above provides you with an outline of the information that has been provided.

Setting allowances

Proportional / Non-proportional

MFish initial position

149 Kahawai is a shared resource. Non-commercial allowances represent approximately 58% percent of the existing TAC. MFish generally favours the adoption of a proportional policy as a baseline position. As a default approach it reflects the case where there is no particular reason to reallocate between sectors. However, such an approach does not limit your discretion to recognise the competing demands on a resource by changing the relative proportions of the TAC allocated to each sector.

Submissions

150 **SeaFIC** notes that proportional allocation is the Ministry's preferred policy approach and rejects non-proportional allocation, as its basis is highly uncertain.

151 **NZBGFC** and **option 4** opposes MFish's policy preference for proportional allocation as stated at paragraph 66 of the 2005 IPP. They submit that it is incorrect to assume that the non-commercial sector and commercial sector are equally responsible for the

decline in kahawai biomass. Rather, they submit that the alarming decline in kahawai is overwhelmingly attributable to the commercial sector.

152 NZBGFC and option4 state that it is clear that commercial interests prior to the first recreational survey severely and unsustainably fished the kahawai fishery. Further the commercial harvest of kahawai prior to 1990 has reduced the biomass of kahawai stocks to a point where it has had serious impacts on non-commercial fishers ability to catch kahawai.

153 NZBGFC and option4 submit that when allowing for non-commercial "interests" you should evaluate the true nature and scope of those interests and allow for them in a way that provides for those interests (i.e. taking into account the history of the fishery, and criteria which measure the quality of the recreational fishing experience e.g. CPUE or fish size). Non-commercial interests should not be determined by recent catch history alone when there is a significant risk that past high levels of commercial catch have eroded the non-commercial catch.

154 Accordingly, they submit that proportional allocation improperly subordinates non-commercial fishing rights to the commercial sector where biomass has been reduced significantly, and consequently, the non-commercial catch is suppressed.

155 In addition they submit that a *status quo* catch history approach with fixed proportional reductions does not address the long-standing management issues in some QMAs.

156 NZBGFC and option4 submit that a non-proportional approach is the only method non-commercial fishers have of getting back the access to the kahawai that they lost when commercial fishers fished down kahawai stocks.

157 **CORANZ** and the **Marlborough Recreational Fishers Association** submit that they do not support proposals to proportionally reduce allocations for commercial and recreational sectors. CORANZ states that it is the corporate commercial sector which has over-fished, not the recreational public. It is just therefore that only the corporate sector should be restricted.

158 **Bob Towersey** submits it is wrong to apply proportional allowances to non-commercial fishing as this concept was strongly objected to during the Soundings process on recreational reform.

MFish response

159 If you decide to reduce TACs for kahawai stocks you will need to decide on allowances and TACCs for the relevant stocks.

160 In determining allocations for kahawai you have a choice between a proportional and non-proportional approach. A proportional approach would result in all allowances being adjusted proportionally so that each sector group shares in the pain of rebuilding the fishery. MFish favours the adoption of a proportional policy as a baseline position. As a default approach it reflects the case where there is no particular reason to reallocate between sectors. However such an approach does not fetter your discretion to recognise the competing demands on a resource by changing the relative

proportions of the TAC allocated to each sector. The generic issues of the Final Advice paper discusses various allocation options in more detail.

161 Submissions provide no agreement on whether you should use a proportional (claims-based) or non-proportional (utility-based) approach in setting TACCs and allowances. All non-commercial fishers that commented on the issue rejected a proportional approach.

162 Alternative models of allocation are available but are likely to be highly contentious. The use of relative value between commercial and recreational fishers as a guide to allocation was strongly opposed by TOKM (AFL) and industry when initially proposed for kingfish. A significant change in allocation may give rise to compensation claims.

163 Setting a TAC is a sustainability measure made under s 11 of Act. Section 308 of the Act explicitly protects decisions made under s 11 of the Act from compensation claims.

164 Decisions on TACCs and allowances are made pursuant to s 21 of the Act. No protection is provided by s 308 of the Act for decisions made under s 21 apart from the circumstance of the initial introduction of a species into the QMS. This does not in itself suggest that there is a liability for compensation; any compensation claim would still need to be made out to the satisfaction of the Courts if legal action ensued.

165 You should consider the factors outlined in the generic section, which may be relevant to the exercise of your discretion under s 21, in addition to the principles specified in s 5 (international law and Settlement Act obligations), s 8 (purpose statement), s 9 (environmental principles), and s 10 (information principles) of the Act.

166 However, a proportional approach does not fetter your discretion to explicitly recognise the competing demands on a resource. The proportional approach is the starting point, against which MFish provides you with relevant social, cultural and economic information to inform your decision on whether a deviation from this position is warranted or preferable. This consideration of individual circumstances may lead you to decide to depart from a proportional approach. In doing so, those decisions can be made transparently.

167 The following factors are described in more detail in the general issues section of this FAP. All are particularly relevant to the kahawai fishery. They are:

- Existing allocations;
- Current catch/landing levels;
- Previous decisions;
- The overall reasonableness of the resulting TAC allocation;
- Participation levels and importance of the resource, including customary values;
- Population trends;
- Assessment of relative value of resource to respective sectors;

- Current and past fishing practices or management measures;
- Impact on ability of sector to take allocation provided;
- Economic impact of allocative decisions; and
- Social and cultural impact of decisions.

168 MFish accepts that the proportional approach does have significant limitations, as outlined in the Policy and Management Issues section. A key factor outlined in submissions is that the recreational sector considers that for kahawai stocks, the proportion was determined at a point when the stock was depleted. Consequently, the recreational catch is now much smaller than when the biomass was at a more optimal level. Recreational submitters do not consider that the current recreational allowances of kahawai are fair or reasonable.

169 However, as outlined in the information section MFish does not believe that the kahawai fishery was depleted or that recreational fishing has been affected by commercial fishing in the manner, or to the degree, outlined in recreational submissions. Whilst biomass will have been reduced by fishing mortality caused by all sectors, and catch rates concomitantly reduced, the harvest of recreational catches as measured by diary surveys has never been greater than those assessed in recent times. In addition, the catch sampling of the recreational fishery shows a wide range of size classes available to the fishery in all years and areas with fish up to 60cm taken in all years sampled and areas sampled.

170 The recreational sector believes allowances are currently set too high and suggests shelving of that proportion of the recreational allowance that is currently not caught. There is insufficient information available to assess whether current recreational catches are sufficiently below current, or proposed, allowances to the extent that this concept applies to kahawai. New information will be required to assess whether the current level of non-commercial catch approaches the levels of allowances set and whether additional management controls are required for this sector. Currently planned research will address this issue for key stocks over time.

171 Commercial fishers have submitted a strong preference for proportional allocations. They consider that recreational catches are not constrained and management tools have been ineffective. They consider that the potential growth in recreational catches is not being addressed. They say that because of this, apportioning the whole TAC reduction to the TACC would in time be penalising the commercial sector and rewarding the recreational sector for bad management. Commercial fishers are concerned about the effect of a non-proportional allocation on their property right.

172 MFish does not agree with the commercial sector comments that the recreational sector has been unconstrained, that management tools have been ineffective and that this has been compounded by poor recreational catch estimates. With regard to the management of recreational fisheries in general, there have been a variety of bag limit reductions, size limit increases and method restrictions imposed on the recreational sector.

Recreational allowance

MFish initial position

173 Two options were outlined in the IPP.

Option 1 (Status quo)

174 To retain current allowances for recreational fishing for all kahawai stocks.

Option 2 (Reduced)

175 To reduce the allowances for recreational fishing for all fishstocks by 10%. Based on current anecdote from the fishery the IPP assessed that there would be limited socio-economic impacts associated with adopting this option.

Submissions

176 **SeaFIC** submits it is inexcusable that there is still insufficient information to adequately estimate non-commercial removals for a stock that is claimed to be so significant and of such value to non-commercial fishers. It submits that the highest priority should be placed on obtaining reliable estimates of recreational and customary kahawai catch. The Council considers that no further constraints on commercial fishing should be considered or imposed until MFish has fulfilled its obligations with respect to obtaining credible non-commercial catch information.

177 SeaFIC submit that once reliable information on recreational catches is obtained the recreational allowance should be reduced if new information shows that the allowance was set implausibly high in 2004.

178 **Sanford** notes that the IPP at paragraph 78 states that recreational estimates "*are thought to be considerable over-estimates for some stocks*" and that "*at the time initial allowances for recreational fishing were set for kahawai MFish had no information to suggest that this was the case for this species*". Sanford submits that this is incorrect.

179 Sanford submits that when allocating kahawai during 2004, MFish had a clear recommendation from the Recreational Technical Group (RTWG) regarding the use of the 1996 and 2000–2001 diary surveys[5]. It submits that these recommendations have not been referred to in the IPP and that MFish has removed itself from the RTWG recommendations, and rejected the recommendations. Sanford submits that for MFish to state that the 2000–2001 surveys are considerable overestimates, but that the Ministry does not consider this to be the case for the kahawai species is wrong and misleading.

180 Sanford submits that allocations within the current TAC should be adjusted, reducing the current recreational allowances, and increasing TACCs. This is based on the recent recreational harvest estimates in the Hauraki Gulf.

[5] The Recreational Technical Working Group recommends that the harvest estimates from the diary surveys should be used only with the following qualifications: a) they may be very inaccurate; b) the 1996 and earlier surveys contain a methodological error; and, c) the 2000 and 2001 estimates are implausibly high for many important fisheries.

181 **NZBGFC** and **option 4** submit that when the fishery rebuilds, the low current non-commercial catch rates and/or small size of fish are likely to improve in many key fisheries. Only if non-commercial allocations allow for possible increased harvest will future problems be avoided. The restoration of this important non-commercial fishery should be celebrated and not punished by reducing allowances. In addition they submit that the 15% reduction to recreational allowances made last year should be remedied.

182 The **NZRFC** agrees with the IPP at paragraph 7(p) that there is no new information to suggest that a revised recreational allowance would be exceeded with current management controls and at current levels of abundance.

183 **Royal Forest and Bird Protection Society and Environment and Conservation Organisations of NZ** submits that stocks should not be reduced to low levels, that it is a high risk strategy, does not recognise the ecological role of kahawai address or the important customary or recreational fishery. On this basis they recommend a reduction in the commercial catch by 10 percent but retention of the current limits on customary and recreational catches. Such a reduction would:

- Recognise the importance of kahawai to customary and recreational fishers;
- Acknowledge that cuts do not have to be proportional which is consistent with the Court of Appeal decision on catch limits;
- Meet the social and cultural well-being provided by utilisation in the purpose of the Fisheries Act 1996.

MFish response

184 MFish accepts that there is uncertainty about the results of the 1999 and 2000 recreational harvest surveys. However, as discussed further in the information section in Appendix I this does not mean that this information should be disregarded. It is the best available information for basing allowances. Further reasons are outlined in Appendix I as to why MFish does not agree with the submissions claiming that the information used for setting allowances was inconsistent or outside RTWG recommendations. In summary, MFish remains of the view that there was little information to suggest that the caveats relating to the 2000 and 2001 estimates applied to kahawai at the time initial allowances were set.

185 MFish notes that the statutory basis for determining allowances within a TAC is clear. You do not need to provide for the needs of the recreational sector (or any other sector group) in full. You will need to make an assessment as to the competing needs of the sector groups for a limited resource.

186 There is no constraint (within the scope of the Act) on the basis upon which you can decide to allocate the TAC or on the quantum you elect to allocate to each sector. As noted previously, it is important for you to have regard to the relevant social, economic and cultural implications when making your decision.

187 There are competing demands for the use of kahawai. Non-commercial fishers constitute the largest fishing sector and account for about 60% of all kahawai currently caught. Kahawai is one of the few species that has this characteristic. It is

highly sought after by recreational fishers. MFish notes that the 2000–01 harvest survey reported kahawai was the second most harvested finfish nationally and the South Australian Centre for Economic Studies (SACES) survey reported that kahawai was the second most important of the five key recreational species it evaluated by value. Recreational fishers express a preference for increased abundance and greater ability to catch large sized fish.

188 Accordingly, MFish considers it is appropriate that due recognition be given to the importance of the stock to recreational fishers. This importance can be recognised in a number of ways including determination of target biomass levels, the weighting accorded to uncertain information on stock size and in determining allowances within TACs. However, it is problematic to ascertain what the precise needs of recreational fishers are. While some recreational fishers remain critical of the 2004 decisions, the recreational position is far from clear. Having submitted that the most recent estimates of recreational catch should be used when setting allowances, some recreational fishers are saying they are unable to catch within reduced allowances.

189 MFish recommends that the recreational allowance be based on either the *status quo* or a 10% reduction of current utilisation depending on which TAC option you elect.

Table 3: Recreational options (tonnes) for kahawai stocks:

TACC option	KAH 1	KAH 2	KAH 3	KAH 4	KAH 8	KAH 10	Total
Option 1 (*status quo*)	1 865	680	435	5	425	5	3 415
Option 2 (proportional reduction)	1 680	610	390	4	385	4	3 073

Customary

MFish initial position

190 The IPP proposed two options for setting an allowance for customary Mäori fishing.

Option 1 (Status quo)

191 To retain current allowances for customary Maori fishing for all kahawai stocks.

Option 2 (Reduced)

192 To reduce the allowances for Maori customary fishing for all fishstocks by 10%. Anecdotal information on the level of customary fishing for kahawai was the basis of the IPP assessment that there would be limited socio-economic impacts associated with adopting this option.

Submissions

193 **Te Ohu** note that when kahawai first entered the QMS the IPP at paragraph 42 contained a recommendation that the customary allowance should be set at 50% of the recreational allowance based on it being *"an important customary species"*. Despite that the Minister decided to set the customary allowance at 550 tonnes in KAH 1,

whereas the recreational allowance was set at 1865. The customary allowance was therefore set at approximately 29.5% (around a quarter of the recreational allowance).

194 In the current IPP at paragraph 67, MFish proposes an option to reduce the customary allowances again by a further 10% (i.e. to 495 tonnes) despite the assessment that it is *"known to be a species of customary importance to Maori"*. Te Ohu submit if MFish were to follow their policy the customary allowance should be set at 932.5 or half of the recreational allowance and not subject to reduction because of TAC reductions.

195 Te Ohu disagrees with the MFish policy on estimating customary catch (based on what it regards as poor information derived for recreational catch) and notes the inconsistent application of that policy.

196 **NZBGFC** and **option4** note that at hui they have attended, iwi have supported a concept of retaining more fish in the sea. They submit the need for greater customary allowances for KAH 3 and KAH 8 than those currently set.

197 **Royal Forest and Bird Protection Society and Environment and Conservation Organisations of NZ** submits support for retaining the current customary allowances.

198 **Te Rünanga o Ngai Tahu** submits that there is no justification for reducing the customary allowance in KAH 3 as proposed in Option 2.

MFish response

199 Te Ohu is correct in noting that when kahawai was introduced into the QMS there was an IPP recommendation that customary allowances for this species should be set at 50% of the estimate of current recreational utilisation. However, in response to matters raised in submissions, actual customary allowances were set at 25% of estimates of current recreational utilisation.

200 MFish acknowledges that there is no quantitative information to support the basis of these allowances. Consequently, you will need to take this uncertainty into account when determining allowances for customary Maori fishing within the TACs proposed. The level of customary harvest becomes more important if you decide to set TACs that reduce existing use in the fishery.

201 MFish recognises an on-going obligation under the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 to give recognition to the use and management practices of Maori in the exercise of non-commercial fishing rights. However, if sustainability concerns for kahawai lead you to adopting Option 2, you have the option of reducing customary allowances in this case.

202 Accordingly, MFish recommends that you either retain the current Maori customary allowances, or reduce these by 10%, depending on which TAC option you elect.

Table 4: Customary options (tonnes) for kahawai stocks:

TACC option	KAH 1	KAH 2	KAH 3	KAH 4	KAH 8	KAH 10	Total
Option 1 (*status quo*)	550	205	125	1	125	1	1 007
Option 2 (proportional reduction)	495	185	115	1	115	1	912

Other sources of fishing related mortality

203 No submissions were received on this topic. Consequently, MFish proposes retaining an arbitrary 2% of the TAC as a basis for providing an allowance for all other sources of fishing relating mortality as proposed in the IPP.

Total allowable commercial catch

Submissions

204 **Northern Inshore** believe there is so much uncertainty and conflicting information on the current level of recreational catch, particularly for KAH 1, that no decision should be made about the current kahawai TACs and TACCs until reliable estimates on actual recreational catches are available and appropriate management controls applied. In the absence of monitoring and management controls Northern Inshore endorses the view of SeaFIC that allowances are merely "paper controls". In their view such controls have no socio-economic impact on the non-commercial sector. They regard this lack of control as allowing a non-proportional reallocation of catch away from the commercial sector by default.

205 Northern Inshore supports Option 1.

206 **Sanford** submit that the allocations within the current TACs should be adjusted, reducing the current recreational allowances, and increasing the TACCs based on the recent recreational harvest estimates in the Hauraki Gulf.

207 **NZBGFC** and **option4** submits that further reductions to catch are required for rebuilding the kahawai fishery and these should be applied only to the TACC to recognise and address the historical issues they have identified in their submissions. They submit that the reduction to the TACCs needs to be greater than the 10% reduction proposed in Option 2.

208 **Ocean Fisheries Limited** notes that kahawai is taken as bycatch of general trawl operations in KAH 3. It submits that these catches remain reasonably stable and there is no reason to reduce the TACC below the existing level. Accordingly, it supports Option 1 for KAH 3.

209 **Te Runanga o Ngai Tahu** submits support for reducing the TACC for KAH 3. It submits that the size of the reduction needs to reflect the importance of the species to non-commercial fishers and is determined by anecdotal evidence from customary and recreational fishers about the importance of the stock.

210 **Mark Feldman, Bill Hartley,** and **Bob Towersey** submit support for reducing TACCs for kahawai beyond the level proposed in Option 2.

MFish response

211 The primary concern to some recreational fishers is the continuation of targeted purse seine fishing for kahawai. Their argument is that kahawai TACCs should only be sufficient to cover the unavoidable bycatch of kahawai. The NZBGFC / option4 solution is to remove the purse seine target fishery, leaving bycatch as the basis for all commercial landings. MFish considers that industry should be free to operate within

that TACC as they see fit (regarding the choice of fishing method and target versus non-target fishing).

212 The NZBFC / option4 solution would involve a significant change in allocations based on perceptions of the relative value of kahawai to each sector. There would be substantial economic consequences associated with removing the target component of commercial landings and no legal mechanism for effecting it. MFish considers that it is possible to manage fishing for kahawai stocks in a way that enables all sectors to gain a reasonable level of utilisation. For example, the two options here give scope either for retaining current catch limits until there is more comprehensive stock assessment information available as a basis for revised limits, or to reduce catches now to promote the longer term aim of achieving greater probability that stocks will rebuild pending a future reassessment of stock status.

Table 5: TACC options (tonnes) for kahawai stocks:

TACC option	KAH 1	KAH 2	KAH 3	KAH 4	KAH 8	KAH 10	Total
Option 1 (*status quo*)	1 195	785	455	10	580	10	3 035
Option 2 (proportional reduction)	1 075	705	410	9	520	9	2 728

213 MFish notes that the TACC proposed under proportional reduction is a 10% reduction in the *status quo* TACC. The following section contains an assessment of possible economic impacts associated with TACC options. At your discretion, economic impacts are relevant to your consideration of TACCs particularly those that involve a reduction from current levels of use.

Economic factors

Submissions

214 **Sanford** submits that its Tauranga operation is fundamentally dependant on kahawai catches. It states that the economic value of kahawai sustains the operation and any further reduction of the TACC will jeopardise this entire operation, including other purse seine target species such as blue mackerel (EMA) and trevally (TRE). Sanford considers that managing kahawai bycatch is a challenge at current TACCs when fishing for mixed species schools.

215 Sanford does not support use of port prices to measure value, as it does not reflect costing that vertically integrated businesses such as Sanford incorporate into the value of kahawai. It submits that sale prices are more reflective of kahawai value.

216 Sanford submits that estimates of economic return in the IPP fail to consider the kahawai bycatch in the non-kahawai target purse fishery. The estimated forgone annual earning in the IPP are therefore underestimates, and not a fair reflection of the commercial value of kahawai.

217 Sanford rejects the analysis provided in Table 3 of the IPP and submits an alternative table that assesses the potential loss of economic return of adopting Option 2 as proposed in the IPP. Table 6 estimates forgone annual catch earnings for kahawai when there is insufficient kahawai quota to cover catches with ACE.

Table 6: Sanford estimates of forgone earnings if Option 2 is adopted

All KAH stocks combined	Combined TACC reduction (t)	Forgone Annual Catch Earning ($) KAH only	Sanford 40.3% of the fishery - Total annual forgone KAH catch earnings only	Forgone earnings where KAH is bycatch to p/s target of EMA and TRE	Sanford 40.3% of the fishery - Total Annual forgone KAH catch earnings including target catch
KAH 1, 2, 3, 8	295	$362 850	$146 228	$8 690 500	$8 836 628

218 **NZBGFC** and **option4** dismisses commercial fishing interests' economic arguments. This is on the basis that commercial fishers have had a huge economic benefit at the direct expense of non-commercial fishing interests, and now it is time to return that which they consider has been unfairly taken from them.

MFish response

219 MFish have limited economic information and data to do a full economic assessment of the impacts that changes to the TACC and deemed values have on firms, fishers, and the fishery as a whole. MFish supports the sharing of economic information such that more accurate and timely economic information be provided to you.

220 The economic data that is available to MFish includes port price, ACE and quota trade price and the associated prices deemed value payments and cost recovery levies. This information has been included in the IPP. However, MFish acknowledges that quota owners and ACE fishers themselves are generally better placed to assess the economic impacts of changes to TACCs.

221 MFish has received economic information from Sanford in response to the analysis provided in the IPP. It is information that you will have to weigh up in relation to potential socio-economic benefits for non-commercial fishers, and impacts on them if TAC changes are made. This additional economic information has been incorporated into a revised discussion of the TACC options below.

222 MFish notes submitters' views that managing bycatch is challenging when fishing mixed species schools. However, MFish is aware that purse seine fishers have an ability to target discrete schools by species and therefore the proportion of bycatch species is generally quite low. In addition, MFish notes from media reports that Sanford's purse seine fleet intends targeting kahawai from August or September 2005, only if the company's kahawai quota is not filled. MFish notes this highly responsible approach to managing the kahawai bycatch issue.

223 Analysis presented in the IPP concluded there would not be any potential costs of foregone fishing for associated species. MFish notes there is a large capacity of quota available to cover bycatch, assuming responsible management practises such as those of Sanford are adopted.

224 MFish has further analysed the reported landings of the two Sanford vessels referred to in the company's submission. MFish notes that the vessels have never reported bycatch for the target species listed during the past five fishing years in amounts

approaching the current quota holdings of kahawai by Sanford. Accordingly, given Sanford's responsible management of its fleet, MFish does not believe that the landing of target species will be constrained by the level of bycatch TACCs, even if these are reduced as proposed in option 2.

225 MFish notes that catch limits in KAH 8 were set largely on the basis of existing bycatch levels because there was no recent history of target purse seine fishing. Accordingly, it is more likely that the TACC might constrain landings of kahawai under option 2 in KAH 8, than for other fishstocks, where there was more historical purse seining for kahawai. The impact of this constraint would be a requirement that fishers alter their fishing practices in order to avoid the catch of kahawai when targeting other species.

226 The extent to which any alteration in fishing practices would reduce the amount of bycatch taken is unclear. If it is assumed that kahawai TACCs would constrain landings, and it was not possible for fishers to alter their practices, then MFish concludes that this constraint would have implications for associated species. For fishing in KAH 8, the fisheries that would be most affected are trevally, grey mullet, and snapper. Fishers could either stop fishing once their kahawai ACE has been utilised. Alternatively they could pay the deemed value on any kahawai landings made in excess of ACE, thus increasing the cost of fishing.

Other Management Controls

Managing recreational landings

Submissions

227 **SeaFIC** submit that once reliable information on actual recreational catches is obtained management measures to ensure that catch remains within the allowances should be considered.

228 SeaFIC submits that given the acknowledged lack of reliable information on recreational and customary catch levels, any reallocation to the recreational sector increases the proportion of the kahawai fishery that is essentially unmonitored and unmanaged. This in turn increases sustainability risks to the stocks and increases uncertainty in stock assessments – a detrimental outcome for all sectors.

229 **Paua Industry Council Ltd** rejects the precedents that are being set in the Kahawai IPP as highly dangerous and undermining to both the QMS and the Government's growth and innovation strategy. It is critical that the rights based framework underpinning the QMS is not yet complete in respect to recreational and customary fishing. This must include mechanisms to constrain non-commercial catch to that set by allowances.

230 **Sanford** notes that when setting allowances, you must ensure that catches are kept within these allowances. This includes setting effective recreational management controls such as bag limits, and minimum size limits, and monitoring these. It submits this has not occurred for the kahawai recreational fishery.

231 **Te Ohu** notes the need for robust monitoring. That information enables managers to take action if and when the recreational allowance is exceeded. Current systems are not designed to allow real-time monitoring of recreational catch. But in the commercial fishery, and to some extent customary, they are.

232 Te Ohu submit that allowing the recreational catches to exceed their allowance inevitably undermines the TAC setting process and any actions taken by stakeholders and MFish in ensuring the sustainability of the fishery.

233 **NZBGFC** and **option4** supports no change to recreational bag limits, size limits or gear restrictions. They note that recreational catch estimates and allowances are uncertain and will be subject to review when better catch information is available.

234 **Urenui Boating Club** submits it sees no reason for altering the daily allowance for KAH 8, as catch rates recorded in club records have remained constant.

MFish response

235 Annual variability in recreational catches is to be expected and estimates of recreational catch are uncertain. Anecdote from the recreational sector suggests that in the short term, recreational kahawai catches should be within the allowances that have been set for recreational fishing, even if no change is made to recreational bag limits. However, MFish has no independent information to confirm or refute this view.

236 MFish is concerned to ensure that management measures are in place to protect the integrity of TACs set for QMS stocks. In some cases this may require constraints on recreational catch. It is probable that management intervention will be required earlier to constrain recreational catch if you elect the lower of the TAC options proposed and impose a proportional reduction of TACCs and allowances.

237 There remains a sustainability risk if no change is made to recreational harvesting rules. Some level of risk is unavoidable, if recreational fishers are catching at the level indicated by telephone diary surveys in 2000 and 2001. However, MFish notes the submissions relating to better information soon becoming available. You have previously agreed to fast track some existing research programmes to better inform a review of catch limits and allowances. Furthermore, better information on recreational fishing success will be available from boat ramp surveys. A research project is underway to estimate recreational catches of kahawai in KAH 1 in 2004-05 and a similar programme is proposed for KAH 8 in 2006-07.

238 A review of kahawai catch limits in the longer term is more likely to have better information than that currently available to consider both sustainability and allocation issues. Such information would enable a more informed review than is possible now.

239 MFish considers that management measures should be applied to affect such constraint as effectively as possible. You may, for example, decide from time to time that changes (higher or lower) may be needed in the recreational allowance for sustainability reasons or due to rebuilding. Such changes could be given effect through adjustments to daily bag limits or other controls to ensure that overall catch matches allowances.

240 Management measures are available for controlling recreational kahawai catches. These include the imposition of a minimum legal size (effective for some species such as kingfish) or the setting of a separate and altered daily bag limit. MFish recommends it be a priority to review all allowances, including recreational, as soon as improved information is available. In the case of recreational catches, such a review would provide a basis for determining whether the recreational allowance needs to be changed. This in turn would determine whether bag limit changes are needed.

Environmental Considerations

Hauraki Gulf Marine Park

Submissions

241 **NZBGFC** and **option4** submit there are particularly strong sustainability concerns in the Hauraki Marine Park area, which is an area of significant national importance. It notes that a recent NIWA survey indicated that it took a recreational fisher eight boat trips on average to catch a kahawai in the Hauraki Gulf in 2004. This is typical of the wider sustainability concerns that exist for kahawai in the Hauraki Gulf.

242 They submit a more drastic rebuild is needed in KAH 1 to protect the national social, cultural and economic importance of the area. Significant reductions in the TACC for KAH 1 are needed to assist in rebuilding stocks to allow reasonable catch rates and fish size in the Hauraki Gulf Marine Park Area.

MFish response

243 As mentioned in the IPP at paragraph 104 k, you are required under s 11(2)(c) of the Act to consider how the proposals for KAH 1 meet the requirements of sections 7 and 8 of the Hauraki Gulf Marine Park Act 2000. This Act's objectives are to protect and maintain the natural resources of the Hauraki Gulf as a matter of national importance. MFish considers that, under both options, the management measures for KAH 1 will meet the purpose of the Hauraki Gulf Marine Park Act, however, Option 2 will provide a more certain position in this regard.

244 As noted below most of the Hauraki Gulf Marine Park area is closed to purse seine fishing for kahawai by voluntary agreement.

Closed areas

Submissions

245 The **KHSG** submits that trawling activity at the entrance to the Kaipara Harbour and adjacent coastal areas has had a significant negative impact on the ability of kahawai to enter the harbour.

246 The **NZRFC** submits that the Hauraki Gulf should be closed to all purse seining. It submits that the Hauraki Gulf is recognised as a juvenile kahawai area. While the submission notes that a voluntary agreement applies to the Hauraki Gulf, it submits that the area should be excluded from purse seining by regulation.

MFish response

247 MFish notes that there is an existing trawl closure around the Kaipara Harbour to mitigate the affects of commercial fishing on fish populations adjacent to the harbour entrance.

248 The recreational sector believes that there is conflict with commercial fishing for kahawai, particularly with purse seiners and set netters. These concerns are currently mitigated by voluntary agreements[6]. MFish notes that other submissions have accepted that industry comply with these agreements. Accordingly there is no need for regulating this closure at this time.

Conclusion

249 You indicated your intention to review catch limits and allowances for kahawai stocks in order to ensure that there is some certainty that stocks will be rebuilt for the benefits of all sectors of the fishery.

250 In reviewing sustainability and other controls for kahawai, you have decisions to make about:

a) The target stock level size (at or above B_{MSY});

b) The level of the TACs and allocations to the fishing sectors;

c) Other associated management measures.

251 The IPP outlined legislative obligations relating to these matters and suggested options for reviewing TACs, allowances and TACCs including the decision to make no change to recreational bag limits pending the availability of further information on the recreational take. MFish has received detailed submissions on the IPP proposals and these have been evaluated as part of this advice paper and full submissions are provided under separate cover.

252 While the option of reduced TACs for kahawai stocks was proposed to provide greater certainty in sustainability measures for kahawai stocks, MFish also discussed the option of managing kahawai stocks above B_{MSY}. Industry strongly opposed this management objective and wished to have emphasised to you that, contrary to statements in the MFish IPP, they have never supported this idea. Further, Industry suggests that the lawfulness of this objective is questionable and in the absence of clear and obvious benefits to all fishing sectors it should not be adopted.

253 Recreational submissions support this objective and highlight the benefits for recreational fishing. MFish discusses both views in this advice and concludes that,

[6] There are voluntary purse seine closures in place in Parengarenga Harbour, Rangaunu Bay, Doubtless Bay, Cavalli Island, The Bay of Islands, Rimariki Island to Bream Head, the Hauraki Gulf, the Bay of Plenty, Cape Runaway to East Cape, Waikahawai Point to Poverty Bay and Hawke Bay to spatially separate non-commercial and commercial sectors. In addition a voluntary moratorium was placed on targeting kahawai by purse seine in the Bay of Plenty between 1 December and the Tuesday after Easter.
There is an agreement to close to purse seine specific inshore waters of Nelson Bays, Marlborough Sounds, Cloudy Bay and Kaikoura. In addition commercial fishers agree not to target juvenile kahawai by purse seine within Tasman Bay, Golden Bay, Marlborough Sounds, Cloudy and Clifford Bays.

based on current information, it is not possible to provide quantitative advice on the target level and the costs and benefits of managing against this objective.

254 The information available in support of decisions on TACs, allowances and TACCs is uncertain. There is a stock assessment for kahawai but it is dated (1997) and inputs into the assessment are increasingly regarded as being unreliable. The stock assessment indicated that by 1996 the biomass of kahawai had declined to around 50% of its original level. Information on recent trends in stock abundance is conflicting. This needs to be considered in contrast to the recreational (and some customary) submissions that suggest that the stocks have declined below acceptable levels.

255 Accordingly, MFish considers that you can take the following matters into account when reviewing TACs:

- Uncertainty in information on status of kahawai stocks;
- Anecdotal information on declining abundance from some non-commercial fishers;
- The value of the fishery to recreational and commercial users;
- Desire to provide a greater level of certainty that the stock biomass will at least maintain its current level and preferably provide for an increase in biomass;
- Socio-economic information including the potential impacts and benefits to all sectors;
- The individual circumstances relating to sustainable utilisation of QMAs; and
- Availability of new information to support a stock assessment of kahawai in 2007.

256 Two options were proposed in the IPP and evaluated in this FAP.

- The first option is to maintain the *status quo* TACs, allowances, and TACCs pending new scientific information to support a change. This option assumes that current catch limits will at least maintain and preferably provide for an increase in the kahawai biomass.
- The second option is to reduce TACs further to take additional account of the uncertain information surrounding the status of kahawai stocks and provide greater certainty in sustainability measures set for kahawai stocks.

257 All industry submissions support Option 1 (no change) suggesting that there is no evidence of sustainability concern for kahawai stocks and submitting that any review of TACs must await a revised assessment planned for 2007. Recreational submissions support reducing TACs.

258 Recreational submissions support reducing TACs submitting the need for rebuilding kahawai stocks depleted by purse seining to restore access to a healthy fish stock and to give non-commercial fishers a chance of catching a reasonable daily bag of acceptable size kahawai. Some support Option 2; while others reject both options and request that you consider an additional more conservative option.

259 MFish notes that the TAC option based on a reduction of 10% in current TACs allowances and TACCs will have socio-economic impacts on commercial fishers. For example, Sanford emphasise the importance of kahawai to their purse seine operations. These impacts should be considered along with weighting of the uncertain information on stock status when making your decision. You should take into account the fact that, while a new stock assessment of kahawai is planned, results will not be available until 2007.

260 It is probable that management intervention will also be required earlier to constrain recreational catch if you elect the lower of the TAC options proposed. As with any reduction in commercial catch limits, you also need to consider potential impacts on recreational fishers if you choose Option 2. Once again such impacts need to be weighed against both the uncertain information base at present, and the consideration that new stock assessment information will not be available until 2007.

261 If you decide to reduce TACs for kahawai stocks you will need to decide on allowances and TACCs for the relevant stocks. The policy discussion on utility and claims based approaches contained in this advice is not intended to fetter your discretion, but rather provides policy guidance in order to provide a more robust framework when considering allowances.

262 There are competing demands for kahawai. You are not required to fully satisfy the demands of any sector group. In determining allocations you must consider competing demands for the resource and the socio-economic impacts of allocations proposed. The recreational sector considers that the historic effects of commercial fishing are responsible for what they perceive to be the poor state of kahawai stocks today. MFish considers that information does not support that view. Consequently, because kahawai have considerable value for all sectors, MFish considers that the proportional mechanism for reducing allowances and TACCs be preferred for kahawai, in the event that you decide to adopt Option 2.

263 On balance, MFish considers that the TACs, allowances and TACCs depicted in Table 1 appropriately reflect sustainability concerns and competing demands, current use in the fishery, and the socio-economic effects of current versus reduced use. To a large extent the options for determining allowances and TACCs will be driven by the TAC option you consider most reasonable. As mentioned, MFish support a proportional reduction to recreational allowances and TACCs for the fishery if the lower TAC option is chosen.

264 MFish notes a point of difference relating to individual circumstances in KAH 8. While the KAH 8 fishery is of considerable social, and cultural importance to non-commercial fishers, their view is that this fish stock is capable of additional utilisation. Further recreational fishers:

- Have expressed satisfaction with their current catch rates.
- Do not believe they have been disadvantaged by any low historical biomass of the fishery in this area.
- Recognise the need for providing for commercial by catch in KAH 8.

265 MFish has evaluated potential economic impacts of TAC options in KAH 8 and concludes there may be a greater risk of economic impacts of a TAC reduction in this fishstock than for other fishstocks. This is because catch limits in KAH 8 were set largely on the basis of existing by catch levels.

266 Accordingly, should you decide that the TACs for one or more stocks be reduced you may chose not to reduce the TAC in KAH 8 on the basis of both industry and recreational submissions in support and the potential economic impact.

267 There is no proposal for applying additional management controls to further constrain non-commercial catch. You have already agreed with recreational fishers that current catches are within the current allowance and therefore do not require additional management controls. There is no new information to suggest that current controls on recreational catch would allow for catch in excess of either current allowances, or any proposed reduced allowances, at present levels of abundance. Monitoring recreational catch of kahawai to ensure that it is within allowances set for the fishery, so ensuring the integrity of TACs, is a priority.

268 Should you decide that the recreational allowance for one or more stocks be reduced and that additional management controls are required, separate advice can be provided as to the additional controls that may be appropriate.

Final Recommendations

269 The Ministry of Fisheries recommends that you:

a) Note the views of stakeholders on the option of managing kahawai stocks above B_{MSY}.

AND EITHER

b) Retain *status quo* total allowable catches (TACs), allowances and total allowable commercial catches (TACCs) for KAH 1 with no change made to recreational bag limits, pending the availability of further information on the recreational take (Option 1).

OR:

c) **Agree** to set a TAC of 3 315 tonnes for KAH 1 and within that TAC set:

i) A customary allowance of 495 tonnes;

ii) A recreational allowance of 1 680 tonnes;

iii) An allowance for other fishing-related mortality of 65 tonnes; and,

iv) A TACC of 1 075 tonnes;

v) with no change made to recreational bag limits, pending the availability of further information on the recreational take (Option 2)

AND Agree EITHER to

d) Retain *status quo* TACs, allowances and TACCs for KAH 2 with no change made to recreational bag limits, pending the availability of further information on the recreational take (Option 1).

OR

e) **Agree** to set a TAC of 1 530 tonnes for KAH 2 and within that TAC set:

i) A customary allowance of 185 tonnes;

ii) A recreational allowance of 610 tonnes;

iii) An allowance for other fishing-related mortality of 30 tonnes; and,

iv) A TACC of 705 tonnes;

v) with no change made to recreational bag limits, pending the availability of further information on the recreational take (Option 2)

AND Agree EITHER to

f) Retain *status quo* TACs, allowances and TACCs for KAH 3 with no change made to recreational bag limits, pending the availability of further information on the recreational take (Option 1).

OR

g) **Agree** to set a TAC of 935 tonnes for KAH 3 and within that TAC set:

i) A customary allowance of 115 tonne;

ii) A recreational allowance of 390 tonne;

iii) An allowance for other fishing-related mortality of 20 tonne; and,

iv) A TACC of 410 tonnes

v) with no change made to recreational bag limits, pending the availability of further information on the recreational take (Option 2)

AND

h) **Agree EITHER** to

i) Retain *status quo* TACs, allowances and TACCs for KAH 4 with no change made to recreational bag limits, pending the availability of further information on the recreational take (Option 1).

OR

j) **Agree** to set a TAC of 14 tonnes for KAH 4 and within that TAC set:

i) A customary allowance of 1 tonne;

ii) A recreational allowance of 4 tonnes;

iii) No allowance for other fishing-related mortality; and,

iv) A TACC of 9 tonnes

v) with no change made to recreational bag limits, pending the availability of further information on the recreational take (Option 2)

AND agree EITHER to

k) Retain *status quo* TACs, allowances and TACCs for KAH 8 with no change made to recreational bag limits, pending the availability of further information on the recreational take (Option 1).

OR

l) **Agree** to set a TAC of 1 040 tonnes for KAH 8 and within that TAC set:

i) A customary allowance of 115 tonnes;

ii) A recreational allowance of 385 tonnes;

iii) An allowance for other fishing-related mortality of 20 tonnes; and,

iv) A TACC of 520 tonnes;

v) with no change made to recreational bag limits, pending the availability of further information on the recreational take (Option 2)

AND agree EITHER to

m) Retain *status quo* TACs, allowances and TACCs for KAH 10 with no change made to recreational bag limits, pending the availability of further information on the recreational take (Option 1).

OR

n) to set a TAC of 14 tonnes for KAH 10 and within that TAC set:

i) A customary allowance of 1 tonne;

ii) A recreational allowance of 4 tonnes;

iii) No allowance for other fishing-related mortality; and,

iv) A TACC of 9 tonnes;

v) with no change made to recreational bag limits, pending the availability of further information on the recreational take (Option 2)

APPENDIX ONE

Other Sources of Information

MFish initial position

270 Other sources of information were summarised in the IPP beginning at paragraph 106.

Submissions

271 The **NZRFC** notes that tagging studies were undertaken during 1983 and 1991 and that a simple comparison of the tag return rates supports the conclusion of kahawai changing from a predominantly recreational to a predominantly commercial fishery during this time (the proportion had reduced from 72% of the 1983 tags to 27% of the 1991 tags being returned by recreational fishers).

272 The NZRFC also submit that the average size of purse seine caught fish reduced by a mean size of 5.2cm over a period of eight years. The submission acknowledges that the 1983 purse seine data may be a bit scant, but when combined with the RV *Kaharoa* report (discussed below) provides a clear indication of reducing sizes of kahawai during this period.

273 RV *Kaharoa* trawl survey data. The NZRFC cites a report summarising trawl survey results between 1982-93 (biennial trawl surveys were undertaken by the Ministry of Agriculture and Fisheries research vessel *Kaharoa* during this period). These research data suggested declining mean lengths of kahawai taken in trawl surveys on the west coast North Island and the Bay of Plenty during this period. The NZRFC submits that there may be two explanations for this reported decline:

i) A major increase in recruitment;

ii) A major increase in the removal of adults (overfishing).

274 The NZRFC submits that recruitment indices for the Hauraki Gulf suggested poor recruitment during 1981, 1984, 1996 and for each year between 1987–91. Accordingly, the NZRFC concludes that decreases in mean lengths cannot be due to recruitment of small fish and so are most likely due to overfishing of the larger fish by purse seining.

275 NZBGFC and option4 notes that the size and age structure of kahawai in the Hauraki Gulf is certainly not broad.

MFish response

276 MFish notes that the objective of tagging studies in the 1990s was to study the movements of kahawai and not to measure the proportion of catches by the fishing sectors. Any detailed analysis of tagging returns relies on tagged fish becoming well mixed within the wider population. However, the 1990s tagging studies produced largely inconclusive results because of the effect of tagging on kahawai physiology

and behaviour. In addition, all tags recovered were not returned and the fishing effort distribution of the sectors was not the same. Accordingly, MFish does not consider these data are useful for determining the relative proportion of catches by sector groups as suggested by some submissions.

277 Discussion at the 1994 Plenary highlighted the ability of purse seine vessels to selectively target kahawai by size. The Plenary concluded that historical comparison of purse seine catch did not provide reliable information on length frequency trends in the population.

278 MFish notes that a subsequent report[7] has further highlighted that the schooling behaviour and short and long term movements makes sampling of kahawai lengths randomly and representively very difficult. Nevertheless, the report considered samples from the recreational fishery were better from a statistical point of view and recommended that the recreational fishery be used to monitor kahawai. Results of the first four years of the recreational monitoring have detected no changes in annual length frequencies between 2001-2004. These results show a broad spread of ages and a strong proportion of older fish.

279 MFish notes the R.V. *Kaharoa* trawl survey data but considers that these small data sets are probably biased and unrepresentative of the kahawai population. Trawl surveys are not considered a good sampling method for kahawai because of their pelagic habit (trawl surveys sample fish mainly found on the seabed most effectively). The small number of samples obtained and the nature of the method suggest no helpful conclusions may be drawn from these data.

280 MFish notes that the majority of fish landed in the Hauraki Gulf are juveniles, and in recent years, the proportion of larger fish appears to have declined. It is unknown whether this skewed size distribution relates to the importance of the Gulf as a nursery area or to other factors. MFish notes that the NZRFC recognises the Gulf as a juvenile kahawai area.

Commercial catch estimates

Submissions

281 **NZBGFC** and **option4** submit that the history of kahawai management has created problems. Most recently, the 2004 kahawai decisions created an incorrect baseline from which the 2005 decisions will be made. They submit that past high purse seine target catch had depleted the kahawai stocks and they have not recovered. This depletion continues to adversely affect the quality of amateur and customary fisheries.

282 NZBGFC and option4 have concerns regarding the way in which fishery information has been presented in the2004 Kahawai Final Advice Paper, the accuracy of the information, and the conclusions MFish have drawn from the information.

283 The submissions state it is necessary to take commercial misreporting and under-reporting into account to accurately evaluate the impact of the dramatic rise in

[7] Bradford, E. 2000 Feasibility of sampling the recreational fishery to monitor the kahawai stock New Zealand Fisheries Assessment Report 2000/11

commercial catch during 1974 – 1988 on non-commercial fishers. Further they submit that during the late 1980s, commercial fishers had an incentive to "fish for quota" in anticipation of kahawai being introduced to the quota management system and commercial quota being allocated according to catch history. Accordingly they submit that the adverse effects of this large-scale commercial purse seining of kahawai during this period have not been fully addressed by MFish.

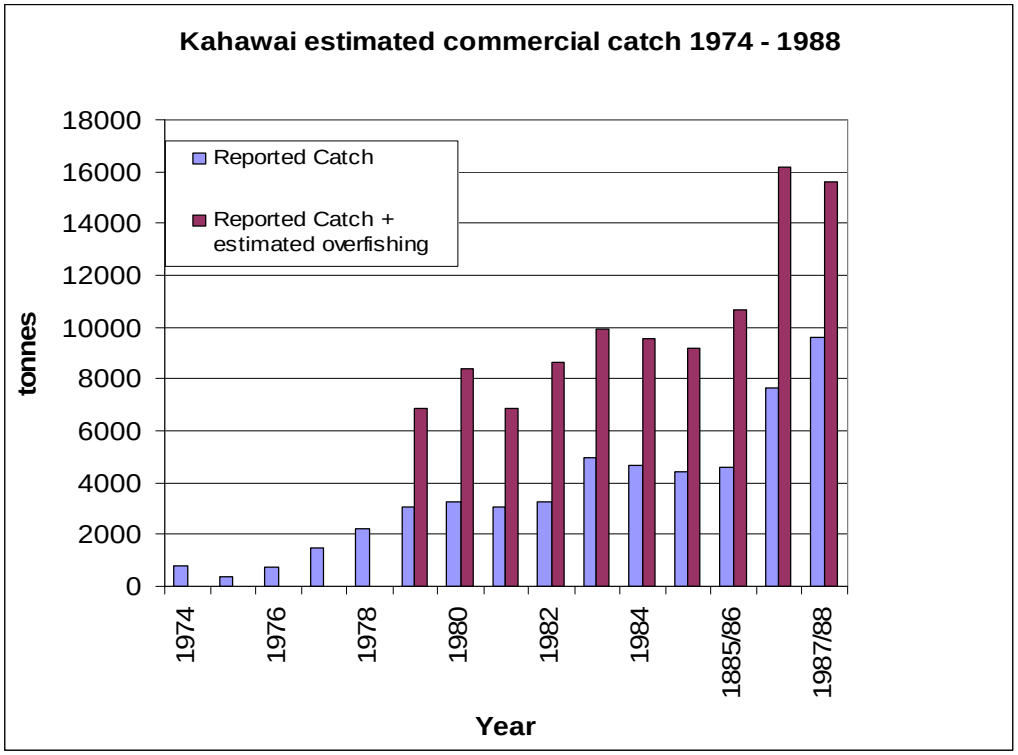
284 NZBGFC and option4 submit that historical catch rates in Figure 1 (depicted under paragraph 117 of the 2004 Kahawai Final Advice Paper) did not include estimates of under-reported and misreported catch.

285 For instance, they submit the total catch in 1984 was believed to be 8000 tonnes as opposed to the reported 4400 tonnes. They state that from 1983-1986 MFish estimated that the commercial catch was 6000 tonnes to 9000 tonnes annually when the reported catch was only 3700 tonnes – 4800 tonnes. They submit that three main sources of commercial under-reporting were noted in MFish's 1990 Plenary report:

- Kahawai dumped at sea;
- Bait for line and rock lobster fisheries; and
- Catch reported as mixed fish by the purse seine fishery.

286 NZBGFC and option4 submit that Plot 1 displays reported commercial catch compared to reported commercial catch with MFish's estimates of mis-reported commercial catch (taken from Table 2 of MFish's 1990 Plenary Report).

Plot 1



MFish response

287 MFish accepts that data reported in table 5 of the IPP does not contain estimates of mislabelled fish, dumped fish or fish landed as bait. Kahawai may have been dumped by longliners and pair trawlers and landed as bait in substantial amounts prior to 1983 but the amount was unable to be quantified (Sylvester[8]).

288 However, MFish does not agree with submitters' interpretation of the data reported in the 1990 plenary document[9] and presented more explicitly in Sylvester. Estimates of the species composition of "mixed fish" were undertaken between 1983 and 1989 by Sylvester because of an industry practise at the time of landing mixed schools of fish and not reporting these as separate species. These estimates added to the reported catch of kahawai are reported in table 2 of the plenary document. MFish does not interpret values provided in table 2 as being in addition to the reported landings as suggested in submissions. The data provided in table 2 is the total catch, containing both reported and the estimates of kahawai reported as "mixed fish". In support of this interpretation the 1990 plenary document helpfully notes that *…in the years after 1983 there was only a 100-200 t increase* (from reported landings) *due to "mixed fish*".

289 MFish notes that contrary to submissions regarding Figure 1 of the 2004 FAP the commercial data depicted does include the total catch (including estimates of kahawai reported as "mixed fish") as presented in table 2 of the 1990 Plenary report.

Effects on biomass

290 **NZBGFC** and **option4** submits that Figure 1 does not portray the full picture with respect to past commercial catch. In light of this information, the high levels of past commercial kahawai catch are likely to have had a greater impact on the present biomass of kahawai stocks and non-commercial catch.

291 The estimated additional 53,000 tonnes of misreported kahawai catch plus other non-reported catch are likely to have had significant adverse effects on kahawai biomass and non-commercial catch in each QMA. This impact continues to be more apparent in some QMAs than in others.

292 This additional 50,000 tonnes of kahawai taken out of the fishery was not factored into the national estimate of MSY, which was used as a reference point for TAC setting in 2004.

293 The 2005 kahawai FAP should properly evaluate the impact of this past high commercial catch on the biomass of kahawai stocks and non-commercial catch in each QMA.

[8] C.T.A. Sylvester Kahawai stock assessment 1989 *New Zealand fisheries Research Assessment Document 89/10*

[9] J. H. Annala May 1990 *Report from the Fishery Assessment Plenary, April-May 1990: stock assessments and yield estimates*

MFish response

294 MFish does not agree with submissions on the quantum of misreported kahawai catch. However MFish notes that the 1997 stock reduction model investigated the implication of greater historical catches (in this case greater recreational catches) on MCY estimates. Using the higher historical catch for each value of M, the estimates of virgin biomass, B_{1996}/ B_{MSY} and MCY increased. Accordingly, the implications of additional unreported commercial catch (as submitted by recreational fishers) is to increase theoretical yields available from the fishery and if correct would suggest the current TACs were set very conservatively.

Comparisons of recreational catch after the peak commercial catch

Submissions

295 **NZBGFC** and **option4** notes comments made in the IPP at paragraph 24 that for the main recreational fisheries in KAH 1, recreational claims of declining sizes of kahawai were not supported by catch sampling and age structure data from the recreational fishery, which has been closely monitored since 2000–01.

296 The submissions note that comparisons by MFish of recreational catch rates and sizes of fish since January 2001 are somewhat short sighted. This is not when the rapid decline in abundance occurred; in fact if existing management measures were effective this is when the stock should show a rebuilding trend.

297 **The Royal Forest and Bird Protection Society and Environment and Conservation Organisations of NZ** submits that evidence of a recreational decline is found in declining catch rates around the Motu river mouth between 1982 and 1991. This river mouth is an important recreational and customary fishing area.

MFish response

298 The IPP noted that the size and age of the fish sampled has remained relatively constant since 2000–01 with a broad age structure evident in the catches. MFish notes that in fished population a reduction in the size of fish might be expected as larger older fish are removed during harvesting and replaced by smaller more productive fish.

299 A four-year time series of size and age composition data for recreational catches taken in KAH 1 is available (2001 to 2004). Sampling was stratified into three areas: east Northland, the Hauraki Gulf; and, the Bay of Plenty.

300 In the Hauraki Gulf fewer kahawai were encountered in 2004 than in previous years despite increased levels of sampling. The majority of fish landed in the Hauraki Gulf are juveniles, and in recent years, the proportion of larger fish has declined. The age distribution of fish landed in East Northland has broadened in recent years, with a higher proportion of older fish being caught. There has been less change in the Bay of Plenty, where catch rates are higher and the average age of those fish landed is greatest.

301 Runs of kahawai in the Motu River are highly seasonal. A study found that most of the kahawai at the Motu River are adults, many of which are not feeding, but are approaching sexual maturity, and may be part of a spawning migration[10]. Alternatively, because of the influence of the moon on the timing of runs of kahawai, their presence may be influenced by the availability of foods in the estuary such as smelt and whitebait. By surveying later in the year during 1991 it is possible that seasonal effects were responsible for the much lower CPUE. Alternatively there might have been changes to spawning migrations or changed river usage during 1982-91 may have reduced the runs of smelt or whitebait that are a food source for kahawai.

Recreational catch estimates

Submissions

302 **SeaFIC** submits there is still insufficient information to adequately estimate non-commercial removals for a stock that is claimed to be so significant and of such value to non-commercial fishers. It submits that the highest priority should be placed on obtaining reliable estimates of recreational and customary kahawai catch and that no further constraints on commercial fishing should be considered or imposed until the Ministry has fulfilled its obligations with respect to obtaining credible non-commercial catch information.

303 **Northern Inshore** submits there is so much uncertainty and conflicting information on the current level of recreational catch, particularly for KAH 1, that no decision should be made to the current kahawai TACs and TACCs until reliable estimates on actual recreational catches are made and appropriate management controls placed.

304 **Sanford** notes that the IPP at paragraph 78 states that recreational estimates "*are thought to be considerable over-estimates for some stocks*" and that "*at the time initial allowances for recreational fishing were set for kahawai MFish had no information to suggest that this was the case for this species*". Sanford submits that this is incorrect.

305 Sanford submits that when allocating kahawai during 2004, MFish had a clear recommendation from the Recreational Technical Group (RTWG) regarding the use of the 1996 and 2000/2001 diary surveys[11]. It submits that these recommendations have not been referred to in the IPP and that MFish has removed itself from the RTWG recommendations, and rejected the recommendations. Sanford submits for MFish to state that the 2000/2001 surveys are considerable overestimates, but does not consider this to be the case for the kahawai species is wrong and misleading.

[10] Penlington B.P. 1988 The kahawai fishery at the Motu River mouth, New Zealand Freshwater Fisheries Report No 103.

[11] The Recreational Technical Working Group recommends that the harvest estimates from the diary surveys should be used only with the following qualifications: a) they may be very inaccurate; b) the 1996 and earlier surveys contain a methodological error; and, c) the 2000 and 2001 estimates are implausibly high for many important fisheries.

MFish response

306 Allowances set for kahawai in 2004 were based on estimates of recreational catch from telephone diary surveys conducted in 2000 and 2001 and for customary fishing were based on 25% of recreational estimates of current use

307 In final advice to you MFish concluded that the telephone diary estimates from 2000 and 2001 provided the best available information on recreational catch. Because of the uncertainty in estimates for some stocks in some years a combination of estimates across the two years was used.

308 You made a decision to reduce recreational and commercial removals from key kahawai stocks (KAH 1, KAH 2, KAH 3, KAH 8) by 15% to achieve a more certain sustainability position and allowances for these stocks for recreational use were therefore set at 85% of the estimates of recreational catch for these stocks (refer table below).

309 Estimates of recreational catch and ranges for the estimates are shown in the table below. The point estimates of recreational catch were used to set recreational allowances and for some stocks the ranges of these estimates are wide. The table also includes the allowances for recreational fishing that you have set for each kahawai stock. For most stocks the allowance is within or close to the lower bound of estimates of recreational catch.

310 MFish does not agree with the industry submission that the information used for setting allowances were inconsistent or outside RtWG recommendations. MFish notes that there was no available information to suggest that 2000 and 2001 estimates selected for kahawai stocks were implausibly high.

Table 8 **Information from the 1999 and 2000 diary harvest surveys and current recreational allowances.**

Fishstock	Lower range	Estimate	Upper range	Recreational allowance
KAH 1	1,915	2,195	2,475	1,865
KAH 2	640	800	960	680
KAH 3	465	570	675	435
KAH 4		5		5
KAH 8	355	440	530	425
KAH 10		5		5
Total		4,015		3,415

* 50 tonnnes taken from KAH3 and added to KAH8 to account for boundary changes

Effects of commercial fishing on recreational catches

Submissions

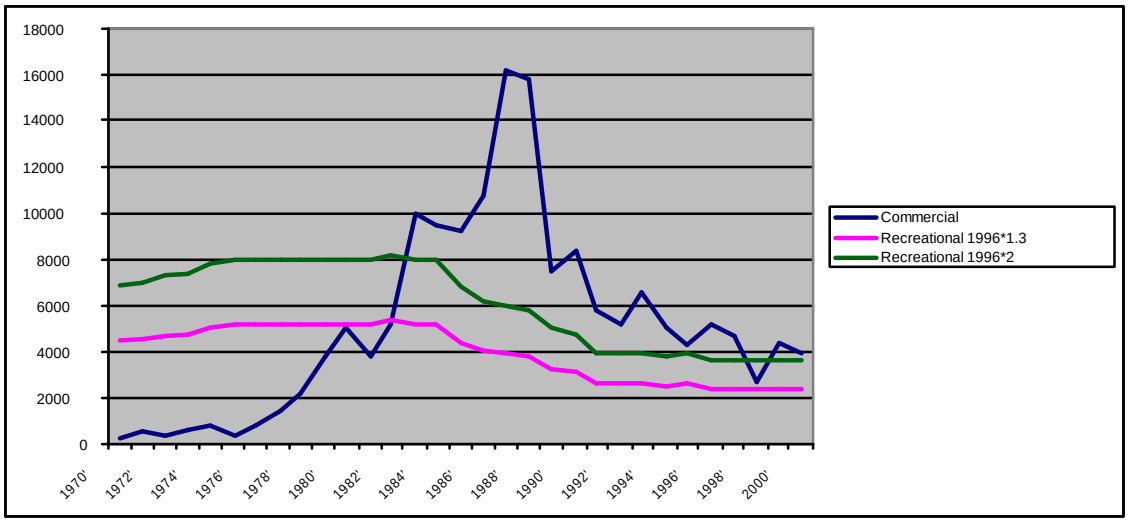
311 **NZBGFC** and **option4** also notes the conclusions of the RTWG[3]. They submit that these warnings apply to the recreational catch series used in the 2004 FAP.

It suggests in its submission that a current upper and lower bound be used for modelling recreational catch and model both figures as separate series back until 1970 as a proportion of the expected biomass.

312 NZBGFC and option4 submit that the non-commercial part of Figure1 in the 2004 FAP should also be reconsidered and say that the graph should show the non-commercial catch clearly, without confounding the graph with incompatible data series (as was the case in the 2004 FAP).

313 NZBGFC and option4 suggest that an example of the type of national line plot that would more accurately show trends in commercial and non-commercial catch is given below in plot 2. NZBGFC and option4 ask the Ministry to include this type of information for the Minister to consider in the FAP.

Plot 2



314 As it stands Figure 1 shows a halving of the recreational catch by the early 1990s based on the low commercial catch figures used. The decline in recreational catch would be greater when the additional commercial catch is included in the data series.

MFish response

315 The recreational catch of kahawai is unlikely to be depicted in Plot 2 because the line is:

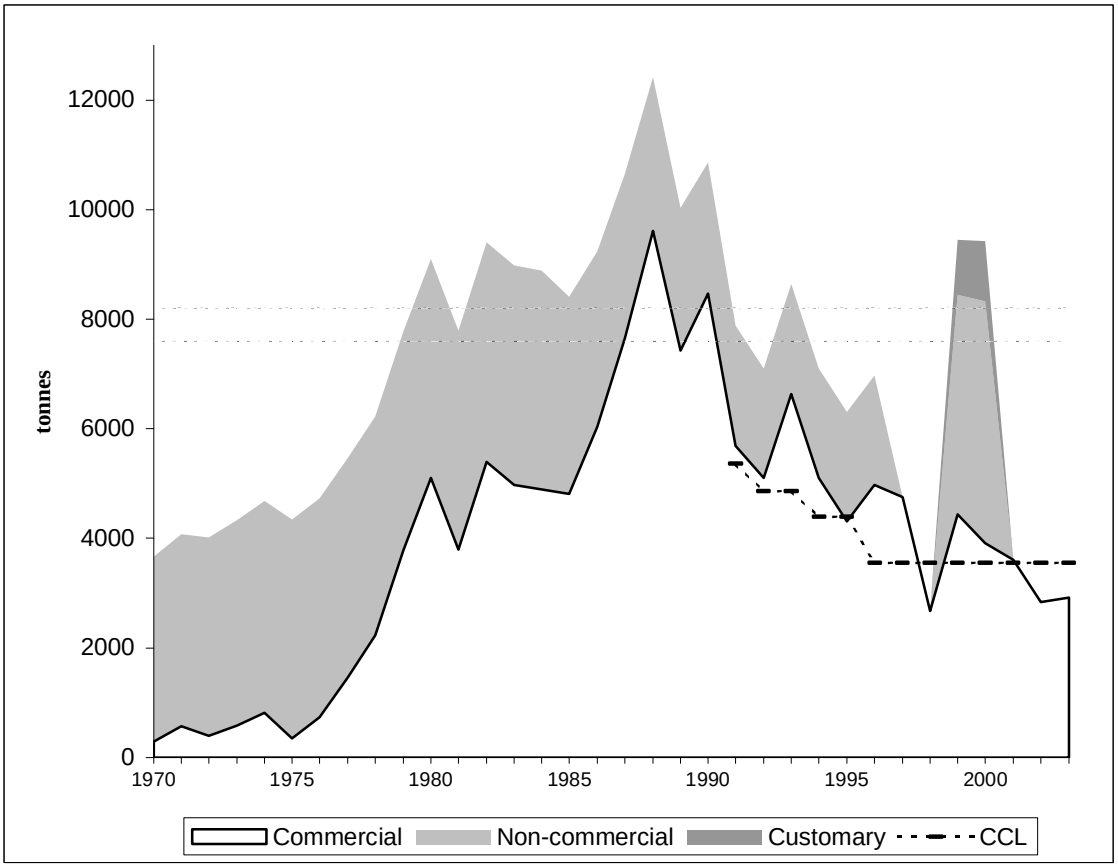
a) Reflecting potential catch rates as reflected by a simulation of changes to biomass over time. However Bradford (2000) states it is not known how catch rates relates to population size;

b) Not reflecting population size or the proportion of fishers fishing for kahawai;

c) Not reflecting that kahawai is predominantly a by catch of more popular recreational species and is often caught on an opportunistic basis;

d) Not reflecting the history of the fishery or the increasing popularity of kahawai by recreational fishers as acknowledged in submissions.

Figure 1 **(From Setting of Sustainability and Other Management Controls for Stocks to be Introduced into the QMS on 1 October 2004 Kahawai Final Advice Paper August 2004.)**



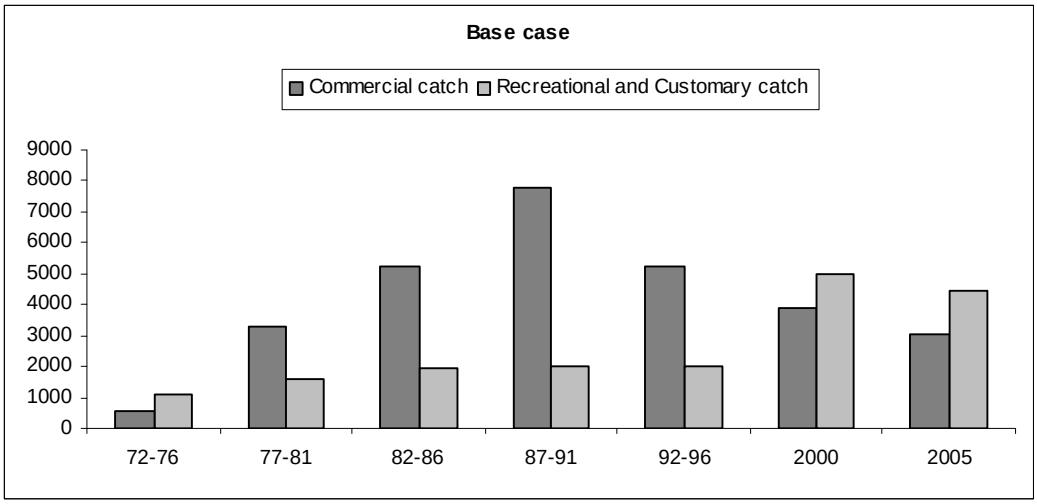
316 MFish notes that the purpose of Figure 1 was to portray total catches in relation to MCY estimates. Figure 1 does suggest the level of commercial fishing alone was in excess of MCY estimates between 1987 and 1991. However, more importantly, the figure suggests that management of the kahawai fishery after 1991 was effective and accordingly it is unlikely that kahawai were depleted due to commercial fishing, though there may have been fishing down of biomass.

317 Recreational and customary values between 1972 and 1986 depicted in Figure 1 are data used to test the sensitivity of the 1997 NIWA stock assessment of kahawai to increased recreational and customary landings from that used in the original study. This was to portray the worst-case scenario. These data were based on Recreational Fishing Council representatives' suggestions of the time. Accordingly, Figure 1 reflects declining recreational catches not apparent in the original NIWA study. In addition, recreational and customary catches for 1992 to 1996 were based on regional diary harvest estimates undertaken between 1991 and 1994 and values between 1987 and 1991 were arbitrarily and progressively reduced to merge into these harvest estimates. The methodological framework used for the telephone interviews between 1991 and 1993 produced low eligibility figures and these are now considered unreliable. Accordingly it is doubtful that recreational and customary catches between 1992 and 1996 were ever as low as 2,000 tonnes per year as depicted in Figure 1.

318 Given the uncertainty in the early values for recreational and customary fishing depicted in Figure 1 (data for 1972-91 is the greater of available estimates and the value for 1992-96 is unreliably low) MFish does not consider it possible to delineate trends in recreational and customary utilisation during this period. Accordingly, it is not possible to conclude that recreational and customary fishers have had their catches drop by 2000 tonnes since the advent of purse seining as stated in submissions.

319 Another way of viewing catch per sector is by taking a yearly average of the five yearly catches to allow comparison with more accurate data available for the year 2000 and your 2004 decision. This is illustrated in Figure 2.

Figure 2.



320 Figure 2 depicts commercial catches increasing between 1972 and 1991, their progressive reduction reflecting the introduction of purse seine catch limits and the setting of total allowable commercial catches in 2005.

321 Trends in non-commercial catch between 1972–96, while developed for the 1997 assessment model, are uncertain. The two most recent harvest estimates (2000) suggest recreational fishers may currently account for a much greater component of total landings than the commercial sector. Whether this is the result of a more recent increase in recreational catches as depicted in Figure B, is due to the documented problems with the harvest survey estimates, or recreational catches have been substantially greater than previously thought in the past, is unknown.

322 MFish considers that Figure 2, while uncertain, is a more likely depiction of non-commercial trends in the fishery than Graph 2 because of the factors listed in paragraph 315. Recreational fishers have constructed a scenario seeking to explain the detrimental affects of commercial fishing on their current use. While recreational fishers have rejected MFish views that management of the kahawai fishery after 1991 was effective and that as a result no kahawai stock is depleted due to commercial fishing they are unable to explain why the 2000 recreational harvest estimates are so high. The MFish scenario that purse seine limits were effective may do so.

New information

323 New information was summarised in the IPP between paragraphs 138-139.

Submissions

324 **Sanford** submits that a preliminary relative index of abundance for kahawai was developed using aerial sightings data. It states that the data shows a slight trending of the index in an upward direction and submits that no weighting was given to this in the IPP to confirm anecdotal commercial evidence of a healthy kahawai fishery.

325 **NZBGFC** and **option4** submits that catch rates post 1991 shows that the non-commercial fishery has not improved since the period of peak commercial catch, even under commercial catch limits imposed since 1991. They note that despite extensive boat ramp sampling over the peak months in the recreational fishery, NIWA were frequently unable to meet their target sample size in these surveys due to low catch rates.

326 **Mark Feldman** submits that despite steadily decreasing commercial catches the recreational catch has not improved. He notes declining catch rates of kahawai caught by recreational fisher s in two North Island locations depicted in the IPP in Figure 3.

327 **The Royal Forest and Bird Protection Society and Environment and Conservation Organisations of NZ** submits there is evidence of a declining kahawai catch per trip in the Hauraki Gulf since 2000.

MFish response

328 MFish notes that the PELWG reported that trends in the aerial survey analysis are variable depending on the assumptions made in standardising the index and assumptions about pilot learning. Accordingly MFish does not agree that this information is able to support anecdotal information in the manner suggested by Sanford.

329 MFish notes that a number of recreational submissions refer to the data presented in Figure 3 of the IPP for supporting their view that recreational kahawai catches are in decline. The IPP stated that the average number of kahawai caught per trip in KAH 1 is highest in the Bay of Plenty, and lowest in the Hauraki Gulf. Since 1991, catch rates have fluctuated in all three regions sampled, although there is some evidence of declining catch per trip in the Hauraki Gulf in recent years.

330 MFish notes that these harvest rate data are collected as the lowest priority as part of the sampling the recreational fishery to monitor the kahawai fishery. This because Bradford 2000[6] states that recreational harvest rates can be confounded by many unquantified factors, including changes in fisher behaviour or skill mix, and changes in local distributions of fish from year to year. Bradford noted that the catch size distributions of kahawai fall more rapidly as the catch size increases than for many other species considered. She states that this probably reflects how many kahawai fishers caught rather than how many they could catch. The influence of fisher behaviour on the shape of the distribution of recreational catch rates and other factors

mean that changes in average catch rates are difficult to measure and interpret. Accordingly it is not known how recreational catch rates for kahawai relates to populations size.

331 Although highly localised and temporally limited, recent information from Hauraki Gulf surveys of recreational catch supports the assertion that recreational harvest in this area over a recent summer (2003-04) was low. However, it is unknown whether effects of fishing, changes in abundance of the stock, availability due to environmentally induced effects, previous catch estimates being too high, or other seasonal effects are responsible for the catch of kahawai in this area for that particular summer. A seasonal effect is possible as MFish notes that the 1996 survey and initial boat ramp survey data showed highest recreational harvest rates in autumn.

APPENDIX TWO

Response to Submissions on Estimates of Utility Value for Kingfish

MFish initial position

332 The IPP contained estimates of recreational and commercial value and concluded that, based on these estimates (recreational: $32 600 to $65 200 per tonne; commercial: $15 000 to $22 000 per tonne) recreational fishers place a greater value on kingfish than commercial fishers. The IPP noted that there was considerable uncertainty associated with estimates of utility but concluded that the information presented informed decision makers with respect to two key decisions in relation to kingfish: (i) setting the target biomass level; and, (ii) allocation between sectors.

Submissions

333 The New Zealand Big Game Fishing Council (NZBGFC), the New Zealand Recreational Fishing Council, the Northern Amateur Fishers Association, the Mangawhai Boating and Fishing Club, Tolaga Bay East Cape Charters and Option 4 consider that the use of utility is problematic as there is little comparable data on values and no data on stock size. Recreational submissions suggest that the IPP has failed to take into account the considerable tourist value in recreational fishing for kingfish.

334 The Snapper 8 Company Ltd, Sanford Ltd and Pelagic & Tuna New Zealand Ltd (PTNZL) note that both the recreational and commercial sector groups value kingfish. All three submissions suggest that the methodology used to value recreational kingfish is biased and results in over-estimates of recreational value. Further, the submissions suggest that the commercial value of kingfish is significantly underestimated using only port price. In a second submission The Snapper 8 Company Ltd suggest that the IPP fails to take into account the high value of kingfish in the restaurant trade and the downstream tourist value of the hospitality trade.

335 SeaFIC does not support the utility model as a basis for allocation, suggesting that the valuation model underpinning the valuation methodology for kingfish is not clearly defined and applied consistently across recreational and commercial landings. SeaFIC provide specific critique (based on advice from an independent expert) of the methodology in support of a value based allocations approach and raise specific criticisms of the SACE report that MFish used as a basis for determining information on the value of recreational fishing for kingfish.

MFish discussion

336 The South Australian Centre for Economic Studies (SACES) undertook a survey of the Value of New Zealand Recreational Fishing for MFish in 1998. The results of the SACES survey produced estimates of the value of the recreational fishery for kingfish (and other species) based on non-market estimation techniques (contingent valuation

to determine the willingness of a fisher to pay to catch a kingfish). MFish approved the report in 2000.

337 During consultation on a proposal to introduce kingfish into the QMS, MFish received a substantial number of submissions that this species should not enter the QMS and instead be managed as a "recreational only" species. In support of these submissions recreational fishers cited information based on the SACES report. However, MFish considered that the recreational values cited (estimates of expenditure) were not directly comparable to commercial values. In advice at that time MFish did not dispute the importance of kingfish to the recreational sector, but did not consider that the case had been made to exclude commercial harvesting from the fishery.

338 MFish contracted further work for the IPP to derive comparable values for both the recreational kingfish fishery and the commercial fishery. The results (based on estimates of marginal willingness to pay for recreational fishers and estimates of future quota value for kingfish) suggested recreational values ranging between $32 600 to $65 200 per tonne and commercial values ranging between $15 000–22 000 per tonne, which is approximately one half to one third of the estimated value of one tonne of kingfish caught by recreational fishers.

339 MFish has sought independent economic advice on the criticisms raised by industry submissions. This advice has been incorporated into this discussion. Generic issues associated with the utility based allocation concept are addressed in preceding sections of this document. Specific comment in relation to the recreational and commercial values used in the IPP is as follows.

340 SeaFIC suggest that recreational fisheries information from the SACE report cannot be used in the way MFish proposed in the IPP, quoting from the report to support this view as follows: "*These values are not directly comparable with gross production commercial value – hence any policy decisions based on this would be misleading"*. While the quote is correct, it should be noted that the statement is referring to gross production commercial value. Moreover, the SACE report goes on to say: "*… that marginal WTP are the best illustration of how much recreational fish are worth to New Zealand recreational fishers. These are the values that are most useful for policy purposes, ie, cost-benefit analysis, fishery allocation, legal situations and for comparing against commercial fishing economic values.*"

341 Clearly SACE had a cost-benefit framework in mind. MFish independent advice is that this framework is one of the principal foundations of applied economic analysis, especially as it relates to public policy. Further advice to MFish is that the balancing of marginal benefit across competing interests, as proposed by the IPP is correct. Obviously the model can be finessed, but the basic structure is correct.

342 The IPP provided estimates of quota value. Industry consider that these under-estimate value, but have offered no alternative values. Rather they dispute the validity of any comparisons of value between sectors.

343 The SeaFIC submission correctly notes that the quota value for kingfish must take into account *inter alia* the level of the TACC. Again MFish independent advice is that this is consistent with the cost-benefit framework proposed in the IPP. The commercial value of harvest is what firms are willing to pay for the right to fish at a

given level of landings. A lower TACC may well affect quota price and could also impact catches in other QMS fisheries. Any loss of net benefit (as evidenced by lower ACE prices, which are acknowledged in the SeaFIC submission as being a measure of marginal rent) is a cost associated with the "reduced TACC option".

344 The true value of quota will only be apparent once kingfish is in the QMS and trading occurs. SeaFIC is likely to be correct that scarcity will impact on quota value. A contributor to scarcity (in the context of managing bycatch) will be the degree to which individual fishers chose to reverse past trends in the fishery and use quota to target fish for kingfish. This will be a feature of QMS management regardless of the level of TACC and to a degree any resolution of this issue lies with industry.

345 For the purposes of comparison MFish concludes that estimates of quota value are within a likely range for kingfish.

346 The model of value used in the IPP uses a linear function. SeaFIC suggest that a linear utility function is unacceptable on theoretical grounds. MFish independent advice is that economic theory does not assert that a linear utility function is unacceptable; rather that this is an empirical issue. In other words, it is for the analyst to discover the functional form that best describes preferences. There is no theoretical reason why linear utility is unacceptable.

347 It might be that a non-linear function performs better on that particular data set. In order to address this concern directly contact was made with one of the researchers who contributed to the SACE valuation report. Her recollection was that a number of functional forms were tried and the reported model was considered to best capture the information in the data.

348 The conclusion in the SeaFIC submission that the use of a linear functional relationship implies that "*if the unit recreational value of catch exceeds (is less than) the commercial value, then all (none) of the fishery should be allocated to recreation*," is incorrect. This conclusion is conditional on the relationship between quota value and the TACC. More importantly, the scenario painted by the valuation study is implicitly anchored in the *status quo* – that is, existing allowances for kingfish, stock size, minimum legal limits, and so on. Therefore, marginal willingness to pay must be interpreted within the policy conditions that prevailed at the time. The SACE report provides a point estimate of marginal willingness to pay under particular conditions.

349 The SeaFIC submission raises a criticism about using marginal boat catch to estimate value using individual catch rates. MFish independent advice is that the questionnaire used to determine recreational value was directed at one individual, possibly, but not necessarily, the person leading the fishing trip. If this person was the boat owner, then he/she reported information on, boat characteristics, total expenditure, and so on. It would appear that the correct interpretation of value is along the lines of what the respondent (possibly with > 1 fisher on board) would be willing to pay over and above their costs.

350 For example, if there were four fishers on board (one being the owner) then expenditures by the three are not accounted for, nor is the valuation question directed at the other three. We can't tell if this person's response captured values other than

his/hers. It would seem that a "non-boat owner" in the sample could have a different expenditure profile (eg, did not pay for the fuel, lures, etc) and this would have formed the basis for answering the valuation question. MFish advice is that, given that ownership can be controlled for and does not appear in the preferred model this suggests that it was not a suitable explanatory variable.

351 The estimate of marginal value must be carefully interpreted within the context of the survey questionnaire. A number of points are related to interpretation. First, data on boat ownership were collected and the fact that it does not appear in the preferred model suggests that its contribution to explaining willingness to pay was not important. Presumably the data set included individuals who were not boat owners as well as boat owners. Expenditure should vary across these two groups. Second, valuation is based on *status quo* conditions that is, no change to allocation, no change to the minimum legal size, current expectations, about catch rates, and so on. Value is anchored on the trip and by association the number of fish caught during that trip, other things remaining as they are.

352 The Snapper 8 Company Ltd considers that the IPP is silent on the high-end commercial value of kingfish, especially to the hospitality trade. Any reduction would force the market to import kingfish from Australia at significant economic cost to the consumer.

353 MFish notes that value is best represented by marginal values, not average price or the highest price. With respect to industry submission, the IPP is similarly silent that some recreational fishers travel from overseas or are willing to pay hundreds of dollars to their taxidermist for a mounted kingfish and likewise these values have not been taken into account. Further, recreational interests submit that the value assessments attributed to their sector ignore the substantial value to the nation of tourist trade associated with game fishing. MFish considers that the value of kingfish to any sector is determined by the marginal price that end users are willing to pay.