"More fish in the water/Kia maha atu nga ika ki roto i te wai"

Trudie Macfarlane
Ministry of Fisheries
PO Box 1020
Wellington
Trudie.Macfarlane@fish.govt.nz

13 August 2010

Review of Sustainability Measures for all Kahawai Stocks (KAH 1, 2, 3, 4, 8 and 10) October 2010

Contents

Appendices

Introduction

1. This submission is made on behalf of the Hokianga Accord, NZ Sport Fishing (NZSF), the Bay of Islands Swordfish Club and option4. This submission is also made in the interests of assisting the Minister of Fisheries (the Minister) and Ministry of Fisheries (MFish) fulfil the Crown's statutory obligations to have *particular regard* to Kaitiakitanga [guardianship] and so achieve abundant fisheries that will enable all New Zealanders to provide for their social, economic and cultural well-being.

2. The Accord, the mid north iwi fisheries forum, NZ Sport Fishing, the Bay of Islands Swordfish Club and option4 (the joint submitters) appreciate the opportunity to comment on the review of sustainability measures for all Kahawai stocks. The Initial Position Paper (IPP) was released for consultation on 25 June, with submissions due by 13 August 2010.

3. The joint submitters acknowledge that resolving the issues around the introduction of kahawai into the quota management system and determining how the Minister allows for our non-commercial interests has been contentious and expensive for all involved.

4. We also acknowledge the concerns raised in, and endorse, the submission made by the Kaikoura Boating Club on 9 August 2010.

5. On 11 August option4 initiated Alert #16 – Kahawai Survey, to enable the public to comment on the quality of the kahawai fishery in their area and determine people's preferred management option. Within 48 hours over 800 individuals expressed their concerns and experience. This is the current information from an informed public and must be included in the best available information that the Minister must consider under s10 of the Fisheries Act 1996 (the Act).

Overview

6. The Ministry's initial recommendation is to move the Kahawai 1 (KAH 1) stock size upwards, based on the *Fisheries 2030* objectives of maximising benefits from the use of fisheries, and the obligations required by the Hauraki Gulf Marine Park Act.

7. Non-commercial fishing and environmental interests endorse the overall intention to manage KAH 1 to better provide for the marine ecosystem, amateur and customary fishers; but we do not support any of the management options presented.

8. In our view, there is a fatal reliance on a highly uncertain stock assessment together with poor estimates of catch history, and customary allowances based on a variable proportion of recreational catch. There are no fishery-independent data to confirm the assumptions made, and no eye witness evidence in the form of experienced observation.

9. The Ministry's proposals are largely focused on recent information and fail to provide any background or historical context of the value placed on kahawai or the opportunity cost of what has been lost due to the mass exploitation of kahawai.

10. With the ability to now market wild kahawai at premium prices (we note a steady increase in the quantity of commercial catch taken by hand line), and sell sports fishing packages based upon the fighting quality of the fish, it is evident that the industrial destruction of this stock for barely profitable cray bait and pet food markets has resulted in a huge loss to the Nation.

Recommendations

⇒ That kahawai stocks are rebuilt to better allow people to provide for their social and cultural well-being. Non-commercial fishers reject MFish claims that there were never many adult kahawai in the Hauraki Gulf and demand that a high-quality kahawai fishery be re-established there.

⇒ That the Minister pays *particular regard* to sections 7 and 8 of the Hauraki Gulf Marine Park Act in order to protect and enhance the Park's natural, historic, and physical resources (including kai moana).

⇒ That during future management reviews a target biomass should be proposed and decided before the TAC is set, allowances made and the TACC is set or varied.

⇒ That the single stock assessment run for Kahawai 1 (KAH 1) is rejected, as it fails to represent the known uncertainty or to reflect reality.

⇒ That the three MFish-proposed management options for KAH 1 are rejected in favour of a fourth option to set commercial allocation to bycatch levels only.

⇒ That a TAC of 2000 t is set for KAH 1.

⇒ That the MFish-recommended TACC reductions are applied in KAH 2 and 3, to reduce the targeting of kahawai by the purse seine method, but current recreational allowances be retained.

⇒ That current individual daily bag limits for recreational fishers be retained.

⇒ That all mortality of kahawai caused by commercial fishing should be accounted for within the TACC.

⇒ That the Annual Catch Entitlement (ACE) generated the following year is reduced by the same proportion as the preceding year's TACC was exceeded i.e. A 110% catch one year is followed by a 90% ACE in the following year.

11. The joint submitters accept there will be no management changes in Kahawai 4, 8 and 10.

12. We recommend the following management measures for Kahawai 1, 2 and 3 -

Table 1: Recommended total allowable catch (TAC), allowances and total allowable commercial catch (TACC), in tonnes (t), for Kahawai 1 (KAH 1).

Fish stock	Management options	TAC	Customary allowance	Recreational allowance	Other mortality	TACC
Kahawai 1	Current	3315	495	1680	65	1075
	option 1 (*MFish preference*)	2190	200	900	45	1045
	option 2 (*MFish*)	2220	200	900	45	1075
	option 3 (*MFish*)	2885	200	900	60	1725
	Option 4 (*our recommendation*)	2000	200	1200	25	575

Table 2: Recommended total allowable catch (TAC), allowances and total allowable commercial catch (TACC), in tonnes (t), for Kahawai 2 (KAH 2).

Fish stock	Management options	TAC	Customary allowance	Recreational allowance	Other mortality	TACC
Kahawai 2	Current (*MFish preference*)	1530	185	610	30	705
	Option 2 (*MFish*)	1530	185	800	30	515
	Option 4 (*our recommendation*)	1340	185	610	30	515

Table 3: Recommended total allowable catch (TAC), allowances and total allowable commercial catch (TACC), in tonnes (t), for Kahawai 3 (KAH 3).

Fish stock	Management options	TAC	Customary allowance	Recreational allowance	Other mortality	TACC
Kahawai 3	Current (*MFish preference*)	935	115	390	20	410
	Option 2 (*MFish*)	935	115	510	20	290
	Option 4 (*our recommendation*)	815	115	390	20	290

Summary of Submission

13. For many years the kahawai stock was plundered by relentless purse-seining. If the Minister is to pursue increased value from kahawai then this method of opportunistic bulk harvesting, supplying cat food and cray bait, must be relegated to the past.

14. Kahawai catches by the public have collapsed over the past twenty years without any sign that the stock is rebuilding. Catch rates now deny the public the social well-being that is a critical part of their interests that the Minister must allow for. There is a quality component to interests that is over and above expected catch. During the Kahawai Legal Challenge[1] the Supreme Court referred to what 'should' be caught. That is, sufficient to enable the public's social well-being, but constrained by regulation to limit catches so they are unlikely to exceed this quantity.

15. It is a welcome change to have MFish propose managing the Kahawai 1 stock at 60% of virgin biomass. However, given the extremely high level of uncertainty within the stock assessment, the target figure becomes an aspiration to measure the immeasurable. The joint parties submit that:
    - ⇒ The TAC-setting process is preceded by the selection of a Target Biomass;
    - ⇒ Greater transparency of the Target Biomass selection process would be helpful; and
    - ⇒ The extent and reliability of available information, indeed all the principles in ss 10, 11, and 12 of the Fisheries Act should be incorporated into the process for selecting an appropriate Target Biomass.

16. The Kahawai Stock Assessment for Area 1 is rejected in its entirety. The assessment is riven by flawed assumptions, taken as a matter of convenience, and is unsupported by the experience and observations of hundreds of active non-commercial fishers in areas where kahawai are depleted. Specifically the assessment:
    a. Assumes no significant kahawai catch prior to 1975
    b. Uses incomplete commercial catch history
    c. Guesses at recreational catch history
    d. Ignores customary catch and other sources of fishing related mortality
    e. Has no informative index of abundance (e.g. Catch Per Unit of Effort, CPUE)
    f. Assumes recreational fishing samples evenly all fish over 40 cm in East Northland and Bay of Plenty
    g. Assumes recreational fishers cannot catch large fish that are present in the Hauraki Gulf (cryptic adult population)
    h. Assumes a convenient, but almost certainly inaccurate, natural mortality value
    i. Assumes natural mortality is constant for all ages and all seasons
    j. Guesses at the stock recruitment relationship
    k. Ignores losses in productivity
    l. Lacks any fishery-independent validation.

17. MFish has clear evidence of the poor catch rates and size structure in the largest recreational fishery in the country, the Hauraki Gulf. Claims that there were never many adult kahawai in the Hauraki Gulf are demonstrably false. The land-based catch of kahawai by customary and sustenance fishers has been significantly reduced since the stock was fished down in the late 1980s. This is most evident at the Motu and other eastern Bay of Plenty river mouths, which for centuries had supported Nga Tai and Whanau-a-Apanui (see Appendix 1). Until these fisheries are restored the Minister's job and statutory obligations are not fulfilled.

[1] New Zealand Recreational Fishing Council Inc and Anor v Sanford Limited and Ors, SC40/2008 [28 May 2009].

18. Restoring abundance to the Hauraki Gulf Marine Park (HGMP) is a key factor when setting catch limits. To comply with ss 7 and 8 of the Hauraki Gulf Marine Park Act 2000 the Minister must set about increasing abundance to a level high enough to repopulate the waters of the Marine Park.

19. This means the Minister must constrain the total allowable catch (TAC) and total allowable commercial catch (TACC) within Kahawai 1 (KAH 1) to a level that enables young kahawai to recruit into the waters of the Gulf, and adult schools to re-establish. Moreover, the allowances set aside by the Minister for customary Maori and recreational interests must provide for the amenity and intrinsic values that form the objectives of the Hauraki Gulf Marine Park Act.

20. None of the management options presented by MFish for KAH 1 is supported because they all suffer from the same fatal flaw – they assume a level of knowledge about kahawai far beyond anything that has any degree of certainty. The three KAH 1 proposals are options of convenience only and must be rejected as such.
    - ⇒ Option 1 is intended to increase the rate of rebuild, but an annual 30 tonne reduction is insignificant in a stock of several thousand tonnes. It is a sign of the misplaced faith MFish has in the single model run they selected, that an adjustment of less than 3% to the TACC is projected to deliver the target biomass in 18 years time.
    - ⇒ Option 2 is not the status quo, it has simply been plucked from the 'too hard' basket. MFish has environmental groups, recreational and customary fishers pulling one way and a few influential commercial entities pulling the other. Maybe if the Minister just sits tight it will all go away. An unacceptable option.
    - ⇒ Option 3 would mean that the Fisheries Act gives commercial interest priority over all others, and imposes a huge national opportunity cost on the nation. Non-commercial interests would then have to find a government which would rewrite the Act.
    - ⇒ No option acknowledges the dire state of kahawai in the Hauraki Gulf or will be successful in rebuilding kahawai in KAH1.

21. For the 2010 review, the initial stock target needs to be a doubling of the current biomass, whatever it may be. This year's strategy must encompass a target relative to current conditions. Because so little is known about kahawai, speaking in terms of B_{MSY} and absolute stock numbers becomes little more than hand waving. (a term used in fisheries to mean vague and unsubstantiated)

22. **KAH 1 -** Our recommended management option for KAH 1 over next five years is set out in Table 1 above and requires the Minister to set a total allowable catch (TAC) of 2000t, make an allowance of 1200t for recreational interests, make an allowance of 200t for customary Maori interests, make an allowance of 25t for other mortality and set the total allowable commercial catch (TACC) at 575t to cover inevitable bycatch. Doing so will eliminate the targeting of kahawai by purse seiners, the cause of most contention within KAH 1 over the past 30 years.

23. **KAH 2 and 3 -** We support the MFish-proposed TACC reductions in KAH 2 (Cape Runaway to Cook Strait) and KAH 3 (South Island), to reduce the potential targeting of kahawai by the purse seine method and allow enough to cover inevitable bycatch. (Refer Tables 2 and 3 above and Appendix 3.)
    - ⇒ Due to a lack of supporting data we recommend retaining the current overall recreational allowances in both KAH 2 and KAH 3.
    - ⇒ The TAC and TACC for KAH 2 and KAH 3 ought to be reduced by 190t and 120t respectively.

24. Kahawai is a target and bycatch in recreational set-net fisheries in many areas, so the bag limit needs to allow for catch by this method while enabling Maori in many areas to continue traditional fishing practices for kahawai without the need for a customary permit. We support retention of the current bag limits and reject the suggestion that reductions will be appropriate in 2014.

Biology and Fishery Characteristics

25. There are two species of kahawai found in New Zealand: *Arripis trutta* is the most common and occurs throughout the coastal waters of New Zealand, primarily in the North Island and the upper South Island. The other, *Arripis xylabion*, known as auriri to Maori, is generally larger and can be caught during spring and summer in coastal Northland and is known from the Kermedec, Lord Howe and Norfolk Islands[2].

26. Little is known of the life history of auriri. As far as is known auriri are not a large component of landed catch but may have been vulnerable to set netting and purse seine fishing in the far north especially around North Cape. Because of uncertainty in identification and catch history, the two species are combined in the TACs and quota allocations.

27. The biological characteristics used in the stock assessment are all for the coastal kahawai species. The existence of auriri is ignored in the assessment and management proposals.

28. Kahawai are relatively slow growing species of moderate productivity. They spawn over summer and early autumn. Juveniles inhabit bays and estuaries and generally school by size. They reach maturity at 4 years old and about 40 cm in length. Adults form mixed age schools and have been recorded reaching 26 years old[3].

29. Not much else is known about kahawai spawning and factors which affect recruitment. In general, recruitment for pelagic species (living mostly in surface waters) is known to be highly variable and, from the limited evidence available, this seems to be true of kahawai as well.

Interdependence

30. Kahawai have a unique role in the coastal marine ecosystem in concentrating krill or small fish at the surface. Kahawai are often joined by other fish species, marine mammals, and sea birds in the feeding mêlée. The size and frequency of these feeding frenzies (as described by T.E. Donne and others in Appendix 1) has certainly diminished over the years. Now it is rare to see thousands of redbill gulls and white fronted terns hovering over a boiling mass of kahawai.

31. It seems obvious to many experienced fishers that the decline in kahawai, in terms of numbers and its range, led to a reduction in the seabird population. The environmental principles of the Fisheries Act 1996 (s9) require all persons exercising or performing, duties or powers under the Act to take into account the long-term viability of associated and dependent species.

32. There is no other species in coastal waters that herd white bait and fry in the same way as kahawai. This is particularly important to the white fronted tern, also known as the kahawai bird. Kahawai also concentrate krill, anchovies and pilchard schools creating feeding opportunities for species such as snapper, kingfish, dolphin, whales, trevally, sharks, several species of seabirds including, shearwaters, gannets, terns and gulls. It is doubtful if any other coastal species is responsible for such diverse and concentrated feeding opportunities for such a long list of associated species.

33. The statutory obligation is clear - increase abundance and ensure the viability of the associated and dependent species by a meaningful and measurable amount over their natural range. Kahawai are absent now from coast Otago where they once were plentiful. In east Northland, the other end of the range, abundance has been massively reduced.

34. New Zealand is acknowledged as a biodiversity hotspot for marine life. We have an international obligation to tread carefully and maintain this extraordinarily rich biodiversity we were so fortunate to inherit. We also have an obligation to protect this biodiversity for future generations of New Zealanders, our mokopuna.

[2] New Zealand Fishes (Reed) Larry Paul.
[3] MFish Kahawai Plenary Report 2010.

Ecosystem productivity

35. Most of our customary, recreational and small-vessel commercial fisheries rely on the continued productivity of our coastal ecosystem. MFish need to start thinking about how ecosystem-based management objectives will take account of environmental and population fluctuations, and to provide for healthier and resilient marine ecosystems. Selecting biomass targets above B_{MSY} is one form of insurance against unpredictable events, whether natural or manmade.

36. There are many organisations around the world arguing that using single-species stock assessment to harvest the maximum sustainable yield is failing. Taking a constant annual catch from variable fish populations is risky and the models take no account of trophic links and associated and dependent species.

37. Kahawai are an important contributor to coastal productivity and ecosystems and need to be managed well above B_{MSY}.

38. It seems bizarre to many ecologists that fisheries scientists believe that if you stopped catching a species the population would return to the biomass that was present when all species were unfished. There are not the same nutrient cycling, egg production or environmental qualities in key habitats that there were many years ago. The huge tonnages of fish that were taken as the stocks were fished down have reduced the total productivity of the coastal marine ecosystem.

39. In our view, the Minister must be particularly cautious when managing our small pelagic species because they provide the link between plankton and larger predators. Fishing down species such as anchovy, pilchard, mackerels and kahawai will have an adverse effect on all species further up the food chain.

Non-commercial fisheries for kahawai

40. Kahawai has long been called the 'peoples fish'. There was a time when there would be a kahawai school around most shallow reefs and headlands, they would come into bays and estuaries where they could be caught from shore. Historically, some of the largest shore-based fisheries were located at river mouths, a resource extensively utilised by Maori, both in traditional and modern times. Most notable amongst these was located at the Motu River mouth, in the Bay of Plenty (see Appendix 1).

41. Kahawai is a special fish because it will feed readily on a bright, sunny day when other target species tend to be more wary. For most families fishing is a fair weather activity. Taking the kids fishing is part of the Kiwi experience. Often the first large fish that kids catch off the wharf or boat is a kahawai. They pull hard, swim in wide arcs near the surface and will jump to try to shake the hook free. Catching a kahawai is an unforgettable thrill for anglers of all ages.

42. Saltwater fly fishing is becoming increasingly popular with locals and big-spending international tourist fishers alike. Kahawai are an excellent target species because the angler can see the fish they are presenting the fly to, because they will strike at a slow moving fly and, once hooked, will jump and run harder than any trout. Small fly hooks do not unduly harm the fish and catch and release is widely practiced. It is the sight-fishing factor that gives kahawai such a wide international reputation.

43. Kahawai can be targeted more easily than many species because they can be seen feeding on the surface during the day.

44. When kahawai were ubiquitous they were widely used as bait. There was a time when fishers did not buy bait because kahawai was always available. Those times have gone, maybe forever. Now anglers buy their bait, which is caught by purse seine and set net. This, we are told, is good for the economy, taking a public resource and selling it back to them.

Management options ignore uncertainty in KAH 1

45. Representatives of NZSF and/or option4 have been at all MFish Northern Inshore Working Group meetings discussing kahawai research projects and assessments. There is no doubt about the considerable uncertainty in the KAH 1 stock assessment model inputs, assumptions and results. A few of these are discussed below.

46. In the IPP MFish has selected a single model run, with current biomass about 50% of virgin biomass and projections 22 years into the future, as a basis of all their advice to the Minister.

47. Experienced fishers do not believe that Kahawai 1 stock is currently at 50% of the virgin biomass and has NEVER fallen much below that. By comparison, the northeastern snapper stock, SNA1, is estimated at below 20% of virgin biomass. There are still large holes in kahawai abundance and availability to non-commercial fishers.

48. We contend the stock assessment models must be over-estimating the stock size. The historical accounts, fishers' own experience and the absence of kahawai (empty ocean) in many areas cannot equate with a 50% reduction in biomass, which, in fisheries terms, is a lightly fished stock (refer break-out box below).

49. As noted from the respondents to the option4 Kahawai Survey[4], the majority of submitters believe the numbers of kahawai in KAH 1, and other areas, have drastically reduced. This exposes the stock assessment as completely unbelievable by any experienced recreational fishers.

KAH 1 Stock assessment assumptions

50. There is considerable uncertainly in almost all inputs to the kahawai shock assessment model. We agree with the NIWA chief fisheries scientist when he recently said, "*research into population size and sustainable catch levels is so limited that it cannot keep up with the dynamic nature of fish stocks. For most fish stocks we don't know much at all – in other words you guess*." [5]

51. Some of the problems encountered by the KAH 1 stock assessment model are listed here. The model is sensitive to the following assumptions and omissions –
    - ⇒ Natural mortality is not known, estimated from maximum age and assumed to be constant for all ages and all seasons.
    - ⇒ Assuming a uniform population structure but with different selectivity of fishing methods by sub-region to explain the absence of adult fish in the Hauraki Gulf
    - ⇒ That there is no movement of kahawai in or out of KAH1
    - ⇒ The relationship between size of stock and potential recruitment is unknown
    - ⇒ Recreational harvest assumed to be low and constant
    - ⇒ Customary harvest and other sources of mortality ignored
    - ⇒ Assumes no significant kahawai catch prior to 1975
    - ⇒ Large volumes of purse seine catch recorded as "mixed fish", "rejects" or "felix" throughout the 1980s not taken into account
    - ⇒ No index of abundance in the critical period 1975 to 1990
    - ⇒ Recreational catch per unit effort relatively constant since 1991 and not informative
    - ⇒ Assumes recreational fishing samples evenly all fish over 40 cm in East Northland and Bay of Plenty
    - ⇒ Assumes recreational fishers cannot catch large fish that are present in the Hauraki Gulf (cryptic adult population)

[4] Alert #16 – Kahawai Survey, http://www.option4.co.nz/Submissions/kahawai.htm. 11 August 2010.
[5] John McKoy Dominion Post 9/03/2010.

52. MFish must advise the Minister in the Final Advice Paper (FAP) that the model used as the basis of their advice is extremely uncertain, could be seriously flawed and should not be considered the 'best available information' as required by the Fisheries Act 1996.

What would a kahawai stock at 50% Virgin Biomass look like?

The answer may surprise some people.

As a stock is fished down the demographics change. Large old fish are caught faster than they can be replaced and this makes resources available for fast growing young fish. The major change in the population at 50% virgin biomass is not the number of fish present but the average weight of the remaining fish.

A 50% reduction in biomass could look like a 10% reduction in the number of fish and the average fish weight coming down from 2.1 kg to 1.2kgs, which is the current average weight from surveys in KAH1. This decrease in weight is plausible.

The contention that actual abundance has changed very little in north eastern New Zealand is clearly not plausible.

Comparing stocks with those in the early 1980s

53. Ministry scientists surveyed kahawai catch and tagged and released fish all around New Zealand between October 1981 and March 1984, and published in 1990[6]. Unfortunately it is not possible to separate out samples of the recreational catch from samples of the purse seine and set net catch from the data in the 1990 report, but the authors did state:

> Although the catching methods varied, the lengths of fish in each area did not vary with the method used.

54. Therefore, we assume that the lengths and ages of the fish they recorded are broadly similar to the fish available to amateur fishers at the time and have plotted the ages of the whole sample in Figure 1. (We note the MFish KAH 1 stock assessment did not use this combined data from the 1980s.)

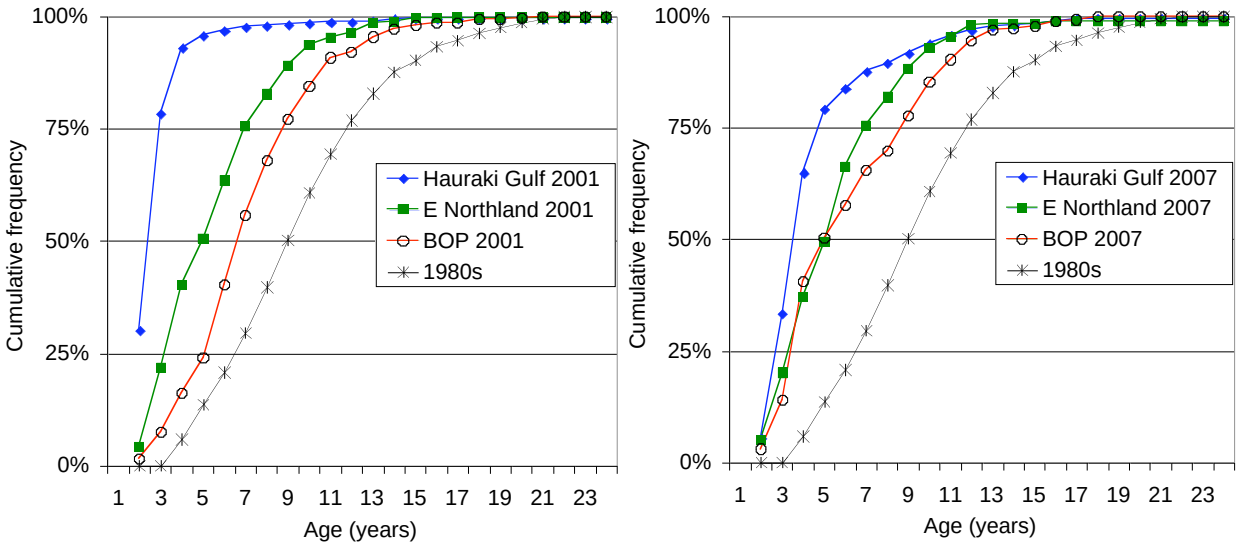

Figure 1: The cumulative age frequency of kahawai landed by recreational fishers in the Hauraki Gulf, East Northland and the Bay of Plenty in 2001 (left) and 2007 (right) and the cumulative age frequency of kahawai caught by recreational line, set net and purse seine around New Zealand from 1981 to 1984 (black line).

[6] Wood, Bradstock and James (1990) "Tagging of kahawai, *Arripis tutta*, in New Zealand, 1981-84.

55. We can compare the cumulative age frequency of kahawai from east Northland, Hauraki Gulf and Bay of Plenty collected more recently by NIWA boat ramp surveys[7]. It is clear that there was a much higher proportion of large older fish in the 1980s with 50% aged over 9 years old.

56. In 2001 just 11% of fish from the recreational catch in Northland were aged over 9 years old and 22% of fish from the Bay of Plenty. Clearly, schools of adult kahawai are not available to fishers in the Hauraki Gulf in 2001 with just 4% of fish landed by recreational anglers over 5 years old (Figure 1 left).

57. There was little change in age structure of kahawai collected by NIWA in 2007. East Northland is almost identical and there are more fish in the 4 to 7 year old age classes in the Hauraki Gulf. But in the important Bay of Plenty area the age structure has weakened, with more young fish and a shift away from the 1980s base line. (Figure 1 right).

58. We are reluctant to show the single model run selected by MFish because it fails to include the uncertainty explored using a range of assumptions. However, it does illustrate that, based on the data collected between 1990 and 2005, there has been no significant improvement in biomass since the early 1990s. In fact, in areas like the Hauraki Gulf, kahawai abundance has declined in the last 10 years. (Figure 2).

59. We also are concerned that there is no data, other than commercial catch, to inform the model prior to 1990. These uninformed catch curve models have been leading fisheries managers astray for many years. After 2005 the model extrapolates what would happen at various levels of catch. The Ministry must have a great deal of faith in these model projections to believe that a 30 t reduction in TAC (1.4% in option 1) will result in a 20% increase in biomass. We certainly consider this outcome implausible. (Figure 2).

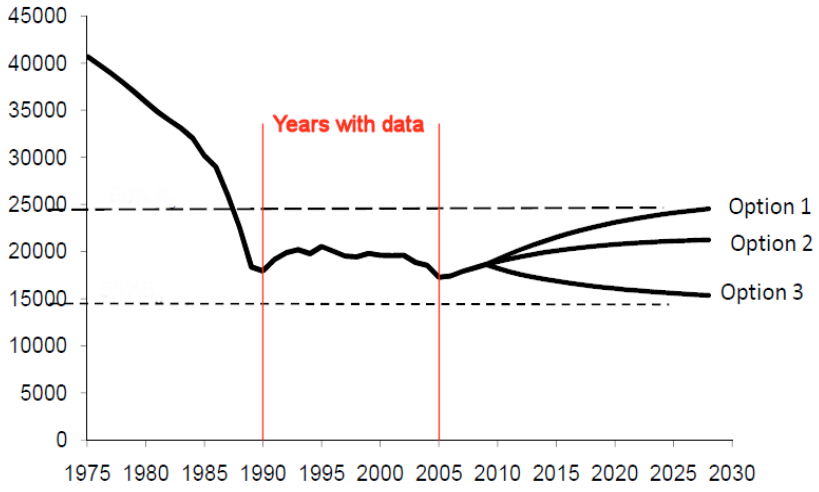

Figure 2: The stock biomass trajectory for the single model run used by MFish in the 2010 kahawai IPP, tonnes by fishing year, showing the years where the model is asked to fit CPUE and catch at age data.

60. During the period where there is Catch Per Unit of Effort (CPUE) and catch at age data the model shows a slight rise in the early 1990s and a slight decline in the early 2000s. This is the period with the most certainty as the model is fitting to CPUE and catch at age. There has been no improvement in the kahawai stock since the uproar in the early 1990s saw purse seine restrictions introduced for the first time.

61. Non-commercial fishers do not believe that KAH 1 stocks have been at 50% virgin biomass, then or now, and therefore submit that far more decisive action is needed to rebuild the stock.

[7] Hartill et al (2008) Length and age compositions of recreational landings of kahawai in KAH 1.

Setting the Total Allowable Catch (TAC)

Ministerial discretion

62. There has been a lot written about section 13 of the Fisheries Act 1996 granting discretion for the Minister to set a total allowable catch (TAC) at any level that maintains or alters a stock at or above the level which can produce the maximum sustainable yield (B_{MSY}) – Refer Appendix 2.

Target biomass

63. Under the MFish interpretation of s13(2)(c) the Minister will make a policy choice when selecting a target spawning stock biomass (SSB). This target is not decided by sustainability constraints alone, but with the intention of promoting the Purpose of the Fisheries Act by choosing a biomass that best enables the economic social and cultural well-being of New Zealanders.

64. Care must be taken not to lose sight of the sustainability constraint on utilisation. *Fisheries are to be utilized, but sustainability is to be ensured*[8].

65. This kahawai Initial Position Paper (IPP) is significant for MFish as it departs from the previously institutionalised target of B_{MSY}. The objective is to meet the statutory duty, to promote the Purpose of the Fisheries Act by better enabling people to provide for their economic, social, and cultural well-being.

66. Since the Kahawai Legal Challenge it has become a lot clearer that the extent and reliability of information, including the well-being derived from utilising a stock, the interdependent species, the intrinsic value and the interrelationships with other management agencies, may all be incorporated into a TAC decision.

67. An improvement would be to separate the total allowable catch (TAC) setting process from the total allowable commercial catch (TACC) setting process, with the intention of better complying with the Fisheries Act and securing better risk/reward decisions and value propositions.

68. This IPP chooses to express target stock size relative to the unfished biomass. This may be a valid approach for information-rich stocks, where there is certainty around stock status and projections. But for kahawai, where there is great uncertainty about any of the stock parameters, it makes more sense to set targets relative to existing conditions.

69. Kahawai will demand a target spawning stock biomass that most suits non-commercial environmental and fishing interests.

Value

70. Giving effect to the Government's objective to maximise value from the kahawai stock raises a new raft of problems. This requires the Minister to ***know*** the value accruing to different sectors, and the nation, from utilising the kahawai stock at various levels.

71. The Ministry is searching for a means to calculate and ascribe values in a way that enables a calculation to be made that identifies what target biomass and allocation mix delivers the highest value proposition.

72. Three reports have been released by the Ministry recently in an effort to generate support for the notion that maximum value is generated from maximising non- commercial catch opportunities. The three reports we refer to are:

    ⇒ The *Value of New Zealand Recreational Fishing*. The final report for the Ministry of Fisheries by the South Australian Centre for Economic Studies. November 1999 (SACES).

[8] Supreme Court [39]

⇒ *Cutting the Cake in a Shared Fishery with a Minimally Managed Non-commercial Sector*. Report for the Ministry of Fisheries by the Economic Research Associates. April 2010 (ERA); and

⇒ *Motivations and Perceptions of Seawater Recreational Fishers in New Zealand*. Report for the Ministry of Fisheries by Akroyd Walshe. March 2000 (Walshe).

73. MFish is attracted to these reports as they address the vexed subject of value, and appear to support the notion that recreational fishers value kahawai higher than commercial fishers. We are attracted to the advantageous preference the reports give to public use of the kahawai stock, but in the end we must reject all three reports as a basis for arriving at that conclusion.

74. We are not sure of what method, if any, is able to accurately and reliably ascribe sector values to catch allocations over time in a useful manner. Even single point estimates rely on assuming single point values from a large possible range and quickly become an exercise divorced from reality.

75. The ERA report does illustrate one clear point - that changes to target stock spawning biomass and catches are driven by the total allowable commercial catch (TACC). In most fisheries non - commercial catches are just what they are, but TACC reductions are needed to build the target biomass and drive value.

76. To our knowledge the ERA report has not been peer reviewed and it is unsuitable for inclusion in what is to be the considered 'best available information'. A quick read reveals the inconsistency in choosing monetary values, and the use of published Annual Catch Entitlement (ACE) trade values when these are acknowledged as inaccurate and a poor reflection of actual ACE costs or their suitability as a measure of present value. From the August 2010 Fishserve newsletter:

> **ACE and Quota Share Transfer Prices**
>
> Each month we publish the "Blue Book" which gives ACE and quota share trading prices. This information is compiled from all registered transfers.
>
> To be able to give reasonable figures for these trades, we need your support by providing accurate prices for ACE and quota share transfers.
>
> Please provide the "real" value for each line in the transfer and do not use $1 or $1 per kg as this distorts the figures. Some traders use $0 which is fine but if you ever want an estimate of value then the Blue Book figures will be of no help.
>
> The figures you provide as transfer prices are confidential. The more accurate the figures we produce the more value this publication is to you.

77. The ERA work is a great example of numerical relationships built to react to changes in assumed yields and productivity of fish stocks, **but they are not real!**

78. The ERA exercise is slick modelling but the need to build this model based on assumed inputs and run it over another model built on assumed inputs delivers a worthless result. It is complete confirmation of the first law of statistics *the more precise the answer the more general the lie.*

79. For example, the basic determining input of ACE value for kahawai (28c/kg) is listed as higher than the port price (23c per kg) in 2008-09 [9], meaning that fishing for kahawai is a loss-making business. Does anyone on the planet believe that to be true? Yet it is used as the cornerstone input of commercial value.

80. Relative values between sectors is highly variable, and often applicable only over short time periods. Using the convenient prices of ACE and fictional numbers drawn from the SACES report will not defend the Minister against charges of unreasonableness.

[9] MFish Kahawai IPP, page 14.

81. The Minister ***must*** be advised that these reports have so far been unable to factually support any value judgment.

Fisheries 2030

82. Cabinet has signed off on discretionary policy outcomes chosen by the Government, as set out in the *Fisheries 2030* policy goal to have "*New Zealanders maximising benefits from the use of fisheries within environmental limits*".

83. Supporting this policy is the outcome – "Fisheries resources are used in a manner that provides the greatest overall economic, social, and cultural benefit". Our comments on the four supporting outcomes mentioned in the Kahawai IPP are:

    ⇒ *An internationally competitive and profitable seafood industry that makes a significant contribution to our economy*.

        i. Internationally there are huge fisheries for tuna and mackerel species that provide consistent volumes of cheap fish. These form extremely large volume; low value fisheries and kahawai cannot compete. The local smoked fish market is easily serviced by unavoidable bycatch from commercial vessels.

    ⇒ *High-quality recreational fisheries that contribute to the social, cultural, and economic well-being of all New Zealanders.*

        i. Ordinary New Zealanders have been complaining loudly and repeatedly about the quality of the recreational kahawai fishing in some areas since before 1990. KAH 1 in particular has seen steady declines in the quality of fishing (see discussion above). The Minister needs to consider where the best value lies.

    ⇒ *Thriving customary fisheries, managed in accordance with kaitiakitanga, supporting the cultural well-being of iwi and hapu*.

        i. Some of the most important customary fisheries for kahawai around the eastern Bay of Plenty river mouths and Northland have been affected by the decline in kahawai abundance. The Minister must do more to restore this taonga [treasure] and meet the Crown's Treaty of Waitangi obligations.

    ⇒ *Healthy fisheries resources in their aquatic environment that reflect and provide for intrinsic and amenity value*.

        i. The tourism and amenity value of large surface feeding schools of kahawai with attendant seabirds needs to be allowed for, as does the critical role kahawai play in the interdependence of species at both higher and lower trophic levels.

Deemed values for kahawai

84. The deemed values rates for kahawai are not constraining commercial catch to the legal limits set by the Minister in 2005. This is serious given the paucity of information on kahawai stock levels and its high social, environmental, and cultural value.

85. Deeming depletes our kahawai stocks and deprives current and future generations of much-needed abundance. Any excessive fishing beyond the TACC needs to be credited back to the fishery resource in the following season.

86. Moreover, the Crown has conflicting interests in the deemed value regime. On the one hand it sets both the total allowable commercial catch (TACC) and deemed value rates. Conversely, the Crown is charged with ensuring compliance, but gains a pecuniary advantage if the TACC is exceeded.

87. As shareholders in a common TACC pool commercial fishers ought to be solely responsible for managing their collective catch within that statutory limit and meeting the cost of overcatch.

88. TACC shareholders are quick to claim private under and over fishing rights, but ignore the collective overfishing that is not privately accounted for when fish are deemed – the cost is left to the non-commercial sector.

89. Setting a fee that strives to be both an incentive to land catch and a disincentive to catch is an exercise in futility, as shown by the endless changes made over the years to deemed value rates in response to perverse outcomes.

90. All commercial catch of kahawai must be accounted for within the total allowable catch (TAC) and total allowable commercial catch (TACC).

91. Annual Catch Entitlement (ACE) generated the following year should be reduced by the same proportion as the preceding year's TACC was exceeded i.e. A 110% catch one year is followed by a 90% ACE in the following year.

The Hauraki Gulf Marine Park Act (HGMPA)

92. The views of the Court of Appeal in the Kahawai case, with respect to the Hauraki Gulf Marine Park Act 2000, are sustained. The judgment describes how a Minister meets statutory obligations to the HGMPA when exercising powers under the Fisheries Act 1996, and in particular with respect to setting a TAC and a TACC. The Judgment included –

> ***A. The declaration made in the High Court is amended so that it now reads as follows:***
>
> *A declaration is made that the Minister's decisions in 2004 and 2005 were unlawful to the extent that the Minister:*
>
> *a) failed to have particular regard to ss 7 and 8 of the Hauraki Gulf Marine Park Act 2000 when fixing the Total Allowable Commercial Catch for Quota Management Area KAH1;*

93. Sections 7 and 8 of the HGMPA provide:

> **7 Recognition of national significance of Hauraki Gulf**
>
> (1) The interrelationship between the Hauraki Gulf, its islands, and catchments and the ability of that interrelationship to sustain the life-supporting capacity of the environment of the Hauraki Gulf and its islands are matters of national significance.
>
> (2) The life-supporting capacity of the environment of the Gulf and its islands includes the capacity-
>
> a. to provide for –
>
> i. the historic, traditional, cultural, and spiritual relationship of the tangata whenua of the Gulf with the Gulf and its islands; and
>
> ii. the social, economic, recreational, and cultural well-being of people and communities:
>
> b. to use the resources of the Gulf by the people and communities of the Gulf and New Zealand for economic activities and recreation:
>
> c. to maintain the soil, air, water, and ecosystems of the Gulf.
>
> **8 Management of Hauraki Gulf**
>
> To recognise the national significance of the Hauraki Gulf, its islands, and catchments, the objectives of the management of the Hauraki Gulf, its islands, and catchments are—
>
> a. the protection and, where appropriate, the enhancement of the life-supporting capacity of the environment of the Hauraki Gulf, its islands, and catchments:
>
> b. the protection and, where appropriate, the enhancement of the natural, historic, and physical resources of the Hauraki Gulf, its islands, and catchments:

c. the protection and, where appropriate, the enhancement of those natural, historic, and physical resources (including kai moana) of the Hauraki Gulf, its islands, and catchments with which tangata whenua have an historic, traditional, cultural, and spiritual relationship:

d. the protection of the cultural and historic associations of people and communities in and around the Hauraki Gulf with its natural, historic, and physical resources:

e. the maintenance and, where appropriate, the enhancement of the contribution of the natural, historic, and physical resources of the Hauraki Gulf, its islands, and catchments to the social and economic well-being of the people and communities of the Hauraki Gulf and New Zealand:

f. the maintenance and, where appropriate, the enhancement of the natural, historic, and physical resources of the Hauraki Gulf, its islands, and catchments, which contribute to the recreation and enjoyment of the Hauraki Gulf for the people and communities of the Hauraki Gulf and New Zealand.

94. The Minister must have *particular regard* to ss 7 and 8 of the Hauraki Gulf Marine Park Act in relation to the TACC, but is required only to have *regard* to ss 7 and 8 of the HGMPA in relation to the TAC decision[10].

95. The Appeal Court in [96] to [99] step through the obligation to have particular regard to ss 7 and 8 of the HGMPA when setting a TACC. Essentially, greater weight must be given to this relevant factor, that is, achieving the objectives of the HGMPA.

96. In a general sense it translates to giving a higher weighting to the recreational, cultural, species interdependence, life supporting capacity, and catchability outcomes when choosing a Target Biomass and setting a TACC for Kahawai.

97. The obligation on the Minister, to give a weighting that favours replenishing the kahawai stocks within the Hauraki Gulf Marine Park is a statutory one confirmed by the Court of Appeal. It is a compelling directive to increase the biomass throughout the waters of the Marine Park to a level sufficient to deliver the outcomes demanded by the Hauraki Gulf Marine Park Act.

98. The MFish IPP fails to properly inform the Minister on the obligations arising from the Hauraki Gulf Marine Park Act. Paras [33] to [36], which are devoted to the Hauraki Gulf Marine Park Act, contain no data that would inform the Minister on how best to meet his obligations. This is a serious omission.

99. In Annex 1 at [91] the IPP is again misleading. MFish characterise recreational catches in the Hauraki Gulf as consisting mainly of younger fish, and then postulate that only juvenile kahawai populate the Gulf.

100. This assertion is refuted by the joint submitters with a long experience of kahawai abundance in the Hauraki Gulf. This assertion cannot be supported by the catch sampling results, and anyway, it is irrelevant.

101. The waters of the Hauraki Gulf Marine Park extend far beyond the boundaries of the Gulf. The Hauraki Gulf is a nursery area for dozens of species and encounters with younger cohorts in no way reflects on the range, age structure, and distribution of mature populations.

102. The invitation for the public to submit on the topic is weak when there is commercial and recreational catch data, Customary management plans, and known depletion.

103. At the very least, the Ministry must inform the Minister that failure to take affirmative action to quickly restore kahawai abundance to the waters of the Hauraki Gulf Marine Park will risk being in breach of statutory duty.

[10] Appeal Court Judgment [92]

Kahawai 1 TAC

104. The Ministry propose three options for the future management of kahawai in Area 1 (KAH1), based on three different Target Biomass levels. But these are based on a seriously flawed stock assessment and are characterised as:

⇒ Increasing the spawning stock biomass (SSB) to 60% of the unfished stock size

⇒ Maintain the SSB at current levels estimated in the IPP at 50% of unfished stock size.

⇒ Reduce the SSB towards B_{MSY}.

105. This IPP ushers in a new and welcome era where MFish first sets a stock target determined by considerations other than B_{MSY}. This innovation is supported as being the only practical method of balancing the utilisation and sustainability demands of the Purpose of the Fisheries Act, as prescribed in section 8.

106. The submitters support the intent of the Ministry's first option for KAH 1, to increase the abundance and availability of kahawai. But, because the current status of the stock has been over-estimated in the stock assessment model, it is important to note that the strategy of option 1 will not deliver the objective.

107. The opportunity must be grasped to move further toward maximising the potential social, economic, and cultural values of a rebuild. In our view this can only be achieved if the KAH 1 total allowable catch (TAC) is reduced further.

108. The Minister must have regard to the interdependence of stocks when setting a TAC, as per ss 13(1) and 13(2) of the Fisheries Act 1996.

Allowing for Non-commercial Interests

109. Before setting or varying a TACC under ss 20 and 21 of the Fisheries Act 1996 the Minister must firstly set the total allowable catch (TAC) and 'allow for' non-commercial interests, both Maori customary and recreational. The Minister must also set aside a sufficient allowance that covers fishing related mortality. The Supreme Court decision contains a section titled: The correct approach to applying s21.

> SC [53] It follows that the total allowable commercial catch is ultimately determined by a calculation.
>
> We describe this as -
>
> TACC=TAC-(CA+RA+OM)
>
> Where CA = Customary allowance; RA = Recreational allowance OM= Other mortality

110. The Supreme Court continued -

> SC [59] In s 8 Parliament has stipulated the overall purpose and objects of the Act. The scope of the Minister's powers under ss 20 and 21 has limits, set by that purpose, in that they must be exercised to promote the policy and objects of the Act.

111. The Purpose of the Act must be promoted.

112. What comprises Customary and Recreational interests is not defined in the Act however, the Supreme Court had this to say:

> SC [54] The notion of people providing for their wellbeing, and in particular their social wellbeing, is an important element of recreational interests[11].

[11] by having a right to, a claim upon, or a share in something. Oxford Shorter Dictionary p.1026

> SC [59] The terms of the definition of utilisation, including the wellbeing concept, are contextually relevant to what is meant by recreational interests[10] and in that sense are relevant considerations in decisions under s 21.

113. Providing for the cultural and social wellbeing of the public are key relevant factors when the Minster determines allowances. How this 'important element' of people providing for their well-being is to be 'allowed for' was subsequently refined, if a little clumsily;

> SC [56] Although what the Minister allows for is an estimate of what recreational Interests will catch, it is an estimate of a catch which the Minister is able to control. The Minister is, for example, able to impose bag and fish length limits. The allowance accordingly represents what the Minister considers recreational interests should be able to catch but also all that they will be able to catch. The Act envisages that the relevant powers will be exercised as necessary to achieve that goal. The allowance is an estimate and an allocation of part of the total allowable catch in that way. (emphasis added)

114. It follows that the recreational allowance will be a quantity of kahawai that ***should*** be able to be caught, and is sufficient to enable people to provide for their social well-being. It will lie between two bounds;

> (a) *all* that the recreational fishers will be able to catch (in effect this expression "will" represents a minimum, as allowing anything less than what will be taken would imperil the sustainability objectives) and
>
> (b) an allowance, an allocation which recreational fishers should be able to catch. The use of the verb "should" by the Supreme Court contemplates the Minister forming a normative opinion about what ought to be, and reflects a value judgment by the Minister which enables the fulfilment of the statutory utilisation purpose i.e. of enabling people to provide for their social economic and cultural well-being. At the maxima, what "should" be taken by non-commercial interests could amount to a wholly non-commercial fish, recognising that the TACC may be set to zero: section 21 (3).

115. It is not reasonable to make an allowance in a depleted fishery for what may be caught when such an allowance fails to enable people's social well-being.

116. The allowance to be made for recreational interests at s21 refers to *future* catches that ***should*** be caught, not past catches, nor catches chosen by convenience for use in a numerical model.

117. The key relevant factor is to make an allowance for a quantity of kahawai that enables people's social well-being, and then manage the stock so it should get caught. It is not necessary that this allowance is fully caught in the year following the gazetting, in fact it is not necessary that any allocation for commercial or non-commercial allowance, is ever fully caught.

118. The total allowable catch (TAC) must be fully allocated, as directed by the Courts, but the TAC does not necessarily need to be fully caught.

119. The majority of TACCs are not fully caught; many are less than half caught. The Fisheries Act neither expresses nor implies any expectation that non-commercial fishers should have an allowance made on a use-it or lose-it basis. Such a concept has never been anticipated in the Fisheries Act, yet is apparent in MFish proposals.

120. It is not anticipated that KAH 1 will be reviewed again for several years and allowances need to be durable and sufficient to keep catches within the TAC. The Customary allowance of 200t reflects this principle, when caught it is expected to satisfy customary demand. There is no concern expressed by MFish that this allowance will not be immediately caught.

121. The correct principle to be applied to the recreational allowance is the same as that used for the Customary allowance - the Minister sets aside an allowance in anticipation of what future catches should be to satisfy those interests, and also what might be caught given stock abundance, availability and regulations.

122. The estimates used in the KAH 1 stock assessment model were 800t and 1865t as the respective lower bound and upper bound of probable catches. In all three management options for KAH 1 MFish propose to reduce the recreational allowance by 46 percent, from 1680 tonne to 900 tonne based on a contrived adjustment to the 2005 aerial overflight harvest estimate.

123. Our review of recreational harvest estimates is provided in Appendix 3. Clearly the over flight survey under-estimates the recreational catch in KAH 1.

124. The Ministry must rethink its advice on non-commercial allowances and base it on what we are able to catch in 2010-11 and beyond, not based on an adjusted under-estimate from five years ago.

125. The overarching relevant factor to consider is that any allowance decisions made using s21 must promote the Purpose of the Act (s 8). Those decision must be made using the best available information and conform to the Principles in Part 2 of the Act.

126. Another critical factor is to have particular regard to the Hauraki Gulf Marine Park Act 2000, as directed by the Court of Appeal. This requires TACC decisions to promote and further the objectives of ss 7 and 8 of the HGMPA.

127. The Minister must also give effect to the obligations prescribed in s12 of the Act. Before the Minister does anything with kahawai using s13 he must not only consult with Maori and the wider public, but he is obliged to provide for the "input and participation" of tangata whenua having a non-commercial interest in the kahawai stock and in the area concerned. In doing all of the above the Minister is also duty-bound to have 'particular regard' to Kaitiakitanga [guardianship of the resource and people].

128. The Minister is advised to seek wise counsel from tangata whenua in KAH 1, 2 and 3 to ensure any decisions conform with the principles of the Treaty of Waitangi, and stock targets and catch allowances meet Crown obligations.

129. Kahawai is a taonga [treasure] for many iwi, hapu and whanau throughout Aotearoa. A lack of abundance and availability has a heavy and inordinate affect on the ability of iwi, hapu and whanau to provide for their social and cultural well-being.

130. In KAH 2 and KAH 3 MFish use 2004 estimates of recreational catch. There were no surveys that year and it is not clear in the IPP how these estimates were arrived at. We assume they are taken from the 2000 and 2001 national surveys with the proportional reductions imposed on non-commercial fishers by previous Ministers in 2004 and 2005.

131. Given the nature and size of recreational fisheries in these areas, our knowledge of the survey method and the recognition that the overall allowances do not constrain individual catch, we do not believe that the recreational allowances for KAH 2 and KAH 3 need to be increased at this time.

132. Kahawai is an important component of recreational catch on the west coast of the North Island (KAH 8), taken from the shore and by boat. The current allocation for recreational and customary fishers need not change this year but will probably need to be increased when new harvest information comes to hand.

Setting the Total Allowable Commercial Catch (TACC)

133. In KAH 2 and KAH 3 we support the MFish-proposed TACC reductions. This will help rebuild stocks, reduce the potential targeting of kahawai by purse seine method, but still allow enough TACC to cover unavoidable bycatch.

134. The proposed 30t reduction of the TACC in Kahawai 1 is less than the current variation in annual catch. To claim that a reduction in TAC from 2220 t to 2190 t (less than 1.4%) will result in an increase in stock size to 60% of virgin biomass is not plausible. Neither is it acceptable that non-commercial fishers are expected to wait 18 years for this 'rebuild' to occur.

135. Since kahawai were introduced to the quota management system in 2004 reported commercial landings in KAH1 have been 90 t per year under caught (range 29 t to 172 t) (Figure 3).

136. A 30 t per year reduction in TACC for Kahawai 1 will have no effect on current landings. The only justification for selecting such a timid option is that the model predictions say that is all that is required.

137. The joint submitters strongly urge the Minister and the Ministry to take such assertions (that no change in actual catch will significantly increase the biomass) as further evidence the model is fatally flawed and has to be discarded. It cannot be considered the best available information as prescribed by the Fisheries Act 1996.

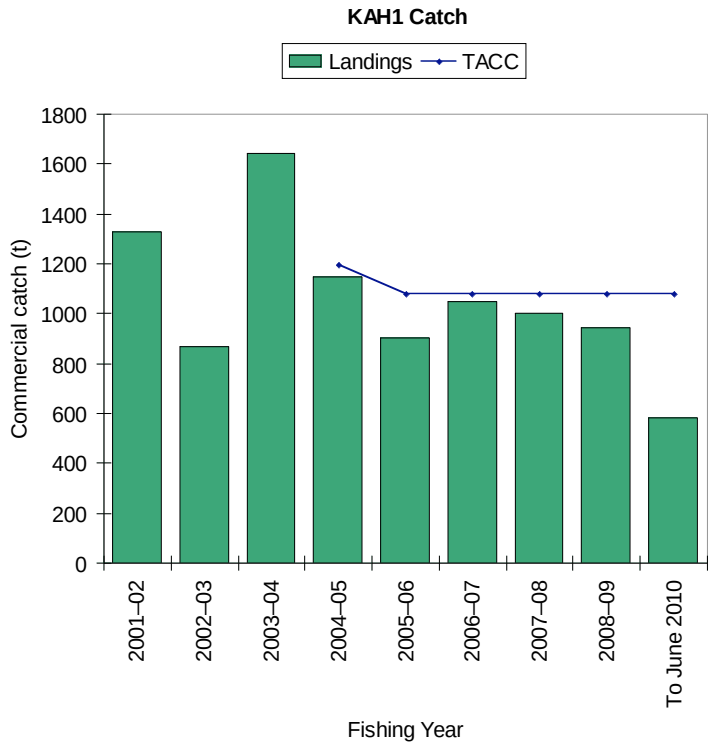

Figure 3: Commercial landings of kahawai in KAH1 and the total allowable commercial catch (TACC) since 2001. TACC under caught by 90 t average 2004–05 to 2008–09.

138. Under current management the TACC is the most effective regulatory instrument to allocate the available catch between the commercial fishing sector and the non-commercial fishing sector. We do not believe that setting the TACC at levels higher than recreational allowances will achieve the goals of restoring abundance in the Hauraki Gulf and maximising value to all New Zealanders.

139. Therefore we recommend for KAH 1 the Minister:

- ⇒ Set a TAC of 2000 tonnes to make a difference to the availability of kahawai in all areas of KAH 1;
- ⇒ make an allowance of 200 tonnes for customary interests;
- ⇒ make an allowance of 1200 tonnes for recreational interests;
- ⇒ allow 25 tonnes for other mortality; and
- ⇒ set the KAH 1 TACC at bycatch levels[12] and allocate 575 tonnes to commercial interests.

140. There has been little targeting of kahawai in KAH8. The current TACC is set to cover the long-term bycatch level and should remain at 520 tonnes.

Closing

The joint submitters of the Hokianga Accord, NZ Sport Fishing, the Bay of Islands Swordfish Club and option4 appreciate the opportunity to submit on the review of sustainability measures for all kahawai stocks. We would like to be kept informed of future developments and are available to discuss our submission in more detail if required.

Yours faithfully,

George Riley On behalf of the Hokianga Accord PO Box 263 Kaikohe	Richard Baker On behalf of NZ Sport Fishing PO Box 93 Whangarei	Jerry Garret On behalf of the Bay of Islands Swordfish Club PO Box 31 Russell.	Trish Rea On behalf of the option4 team PO Box 37951 Parnell Auckland.

[12] Bycatch of 483 tonne reported in 2005-06.

Appendix One - History of Kahawai Fisheries

Kahawai has a long history of use in New Zealand. It was a frequent catch, and an important food for Maori in some areas. Early New Zealand authors have described the abundance and sheer visual spectacle of huge schools of kahawai. They describe the hard fighting qualities of kahawai on rod and reel and lament the decline of this major inshore species. Some of this history is best described by the authors of the time, as in the excerpts below.

There have been some large customary kahawai fisheries that have performed poorly over the last twenty years, notably the fishery at the Motu River mouth and the mouths of other eastern Bay of Plenty rivers. The director of the Dominion Museum published an account by Tiimi Waata Rimini describing what the fishery was once like,

Fishing and sea-food of the ancient Maori. *A. Hamilton 1908*
"After the ceremony, word is sent to the people on the East Coast and northwards that Motu is open for fishing. This is in early December, and lasts for two or three months… the shoals of fish are of great size, and thickly packed. The men and women stand on both sides of the tidal portion of the river so that all the space is taken up. The river is here about 100 ft wide. The fish caught during the day are cooked in huge ovens, over 200ft in length and about 4 ft wide. About 20,000 or 30,000 fish are cooked in an oven."

Rod Fishing in New Zealand Waters *by T. E. Donne 1927*
Page 112
'The schooling or "shoaling" of the kahawai is a truly wonderful sight and one not to be forgotten on a long summer day; thousands upon thousands of these active fishes enter into a riotous ravenous feed of small mullet; amongst the myriads of these "sprats" the kahawai dart hither and thither, never for a moment ceasing to snap and swallow their prey, the jumping, splashing, twisting sea salmon, as he is termed, lashes the surface water into violent agitation as if a huge super-heated cauldron were at it greatest activity in the midst of the calm sea; it appears as if fishdom has gone quite crazy, and, to add additional turmoil and a tremendous accession of noise, ten thousand sea birds – gulls and terns – appear like a huge, animated black and white cloud, falling on and rising from the sea. They dart down on the unlucky sprats that have no rest either in the sea or out of it; the voracious kahawai drive them to the surface and the hungry birds drive them down again until the bewildered sprat does not know whether in the immediate future he is to become bird or fish. The general melee and the calling, crying, discordant, air-piercing shrieking of the birds, creates a pandemonium that is indescribable.'

The Golden Years of Fishing in New Zealand *by Phillip Holden 1984*
Page 223
'The kahawai ascends many of New Zealand rivers, and frequently be taken in fresh water, though more generally it follows only as far as the tide flows. Out at sea the fish is to be found in great schools and it is no uncommon sight in Auckland waters to see schools or shoals many acres in extent'.

In 1987 Dr Lew Ritchie prophetically wrote in an article to the Northern Advocate –

"Right now we may be witnessing the end of kahawai as we know it. The commercial catch of kahawai has risen from an insignificant level 10 or even five years ago to currently (1985, the most recent year for which full catch statistics are available) second in landed weight among coastal and sixth in finfish overall in the New Zealand 200 mile exclusive economic zone. This is nothing short of a tragedy. It is a classic case of the last available and easily exploited coastal fish being plundered just "because it is there" by the greedy, the thoughtless and the over-capitalised. It is a sad reflection on New Zealand, its policy makers, and its industry chiefs that virtually every available natural resource is plundered, whether valuable or not, and irrespective of its place in our heritage, tradition, culture and recreation."

Being Pakeha Now: Reflections and Recollections of a White Native by Michael King 1988 Page 22

"The strongest such memory is a composite one of what I loved most. Waking each morning with the bedroom windows open and the smell of flowers and fruit, or rain on earth, from the garden outside. Getting up before dawn and making my way barefoot through the macrocarpas and pines to the beach. There I would collect oars, rowlocks and fishing gear from the shed and walk the short distance across sand and shells to the water. By now the sun would be lighting the crests of hills around the harbour, and they seemed to hang in the still air. I would wade out to the anchored dinghy, peering ahead as mullet scattered in front of me and flounders kicked up mushrooms of sand.

"Once in the boat and moving I loved the dip of the oars, the creak of the rowlocks and the whisper of water along the sides. The sun would be coming up as I slipped past the bleached shellbank we called Cockleshell Island. In the channel, where the water ran green and deep opposite Moorhouse Point, I tossed the anchor over the side and waited for it to grip. Then I baited my line, watched it sink, and waited with exquisite anticipation for the pecking of mullet the sucking of trevally, or — best of all — the sudden pull of kahawai or kingfish. The excitement came from never knowing what would be delivered out of the deep. But it was complemented by a profound sense of peace and delight that came from being alone, surrounded by water and hills."

Purse seining of kahawai began with the foreign fleets of the seventies that ostensibly targeted skipjack. These vessels operated without supervision and landed their catch outside New Zealand. They fished so close to the Northland coast they must have been catching kahawai and trevally schools. It was complaints about this activity that prompted regulations to move them further offshore.

Until the mid 1970s kahawai were caught as a bycatch of commercial fishing methods targeting other species such as snapper, the preferred table fish on the domestic market. Some kahawai was used for bait, but much of it was dumped at sea particularly by trawlers and longlingers prior to 1983[13]. In the mid 1970s domestic purse seine vessels started fishing for skipjack tuna in the summer and other species during the winter, mainly in the Bay of Plenty and around Poverty Bay. By the late 1970s purse seining for kahawai during the winter and spring months had extended from Northland to the Wairarapa Coast, into the Taranaki Bight and around the north and east of the South Island.

Kahawai stocks were left out of the quota management system (QMS). Commercial catch was unrestricted and companies knew that in future quota for the next species introduced into the QMS would be allocated based on catch history. Catches peaked in the late 1987–88 at about 10,000 tonnes nationally.

The public was very concerned about the decline in the kahawai fishery in the late 1980s. The discontent was sufficient to spark a Ministry discussion document in 1990, looking at the issues of the time. Under the heading 'Need for Management Change' the document sums up the concerns of non-commercial fishers as follows:

'Recreational fishers state that the recreational kahawai fishery:

- *has suffered significantly reduced catch rates because of increasing fishing pressure on the stock;*
- *has significantly declined in quality in recent years, both in size of the fish available and in abundance of fish;*
- *is no longer managed to provide recreational access to a reasonable share of the kahawai resource;*
- *is in conflict with commercial fisheries, particularly with purse seiners and set netters.*

[13] Sylvester C.T.A. 1989. Kahawai fisheries assessment 1989.

Maori consider that management of the kahawai fishery needs to recognise:

- *that kahawai has been traditionally fished by Maori;*
- *that Maori share the same concern about reduced quality of fishing, sizes of kahawai and catch rates, as stated by recreational fishers.'* [14]

The Ministry had recommended a new Term Transferable Quota for kahawai but this was squashed under the weight of Maori, the Waitangi Tribunal, and the courts that were looking to resolve Treaty rights to all fisheries. The problem remained and in 1991 purse seine catch limits were imposed, rather than issuing a new property right. These catch limits were required to prevent excessive commercial catch damaging the stock further, and to better provide for the needs of non-commercial fishers.

The Minister in 1991 set out to improve the non-commercial fishery, saying at the time, "It is essential that any future *management plan enables reasonable access by non-commercial fishers to a quality fishery*." [15]

[14] Ministry of Agriculture and Fisheries. 1990. Kahawai. Proposals for the management of the kahawai fishery.

[15] Ken Shirley. 1990. Introduction from the Minister of Fisheries. Kahawai discussion document.

Appendix Two - TAC Setting - Legal Constraints

The Scheme of the Fisheries Act 1996

The scheme of the Fisheries Act 1996 requires the Minister to set the total allowable catch (TAC) before making non- commercial allowances and setting a total allowable commercial catch (TACC). The Supreme Court wrote;

> *[*52] The scheme of the Act envisages that the Minister **first** sets the total allowable catch for the fishing year under s 13, and then sets the total allowable commercial catch under ss 20 and 21.

The Supreme Court appears to have contradicted their opinion on the scheme of the Fisheries Act by adding:

> [44] While sustainability is the guiding criterion, the Minister has some flexibility under s 13 to consider aspirations of the fishing sectors for utilisation of the resource. In considering the way in which, and rate at which, a stock is moved towards or above a level producing a maximum sustainable yield, the Minister must have regard to "social, cultural and economic factors as he or she considers relevant". This imports into the process for setting the total allowable catch a key aspect of the definition of "utilisation" in s 8(2).

We find this unhelpful as the Minister is not guided by sustainability, he has a statutory obligation to ensure it.

Total allowable catch (TAC) recommendations in MFish proposal papers are progressively being discussed in terms of the allowances and total allowable commercial catches (TACCs). TAC options are offered in combination with set allocation consequences. The TAC and TACC are being set contemporaneously in contradiction of s 20(5)(a) of the Fisheries Act, and the decision of the Supreme Court.

It is not stated how the Supreme Court contemplated the Minister would consider the aspirations of fishing sectors for utilisation when setting a TAC; the TAC has previously been concerned with managing stock size, not allocation. The only apparent utilisation aspirations relevant to the TAC lie with the choice of target biomass. Matters of allocation are the realm of ss 20 and 21 and must wait until the TAC has been set.

Currently, in consultation documents, both TAC and TACC options are combined, and following the FAP being submitted and the Minister making his choice, both are then gazetted together.

The total allowable catch (TAC) is increasingly being set by ss 20 and 21 matters. This may be convenient, but MFish need to change this process as it is illegal.

Ministerial discretion

MFish rely on section 13(2)(c) of the Fisheries Act 1996 granting discretion for the Minister to set a TAC at any level that maintains or moves a stock to anywhere between B_{MSY} and the original, unfished biomass (B_0).

Section 13(2)(c) expresses an explicit discretion;

> (c) Enables the level of any stock whose current level is above that which can produce the maximum sustainable yield to be altered in a way and at a rate that will result in the stock moving towards or above a level that can produce the maximum sustainable yield, having regard to the interdependence of stocks.

The Supreme Court rather clumsily had this to say:

> [43] When the current level of the stock is above that which can produce the maximum sustainable yield, the Minister has a discretion to set the total allowable catch at a level that either maintains the level of the stock above the maximum sustainable yield or otherwise enables the stock to move towards the level that can produce the maximum sustainable yield. The way the section is drafted seems to contemplate that stock may be moved towards maximum sustainable yield when it is already above the level which can produce that yield.

Section 13(2)(c) expresses a more explicit discretionary authority for the Minister to move a stock in either direction when it is above B_{MSY}, while the Supreme Court used the phrase *'either maintains the level of the*

stock above the maximum sustainable yield or otherwise enables the stock to move towards the level that can produce the maximum sustainable yield', thus importing the notion of maintaining a stock at current biomass levels or reducing it to B_{MSY} – not explicitly further increasing the level.

The wording of s.13(2)(c) clearly contemplates increasing a stock further above B_{MSY} when to do so would best achieve the Purpose of the Act. The meaning of the words in s.13(2)(c) are unequivocal; *Enables the level of* ***any stock*** *whose current* ***level is above*** *that which can produce the maximum sustainable yield to be* ***altered in a way*** *and at a rate that will result in the stock moving towards or* ***above a level*** *that can produce* ***the maximum sustainable yield****, having regard to the interdependence of stocks*

It follows then that the Minister is able to choose a target stock size as a policy choice, having regard to the Purpose of the Fisheries Act (including the wellbeings), ensuring sustainability, the information and environmental principles, the duty to consult; and then set a TAC that moves the stock towards that target, provided of course the stock is above B_{MSY}.

This IPP is a first for the Ministry to propose managing stocks above B_{MSY} in efforts to better achieve the Purpose of the Fisheries Act. The key to implementing this policy is choosing the correct target biomass (SSB).

Sustainability

Notwithstanding any discretion the Minister might have when choosing a target biomass, he must always be mindful of the statutory duty to ensure sustainability. As noted by the Supreme Court;

> [39] Fisheries are to be utilised, but sustainability is to be ensured.

To ensure means to ***make sure something will happen***. This sets a very high legal threshold and removes almost all of a Minister's ability to take sustainability risks.

Ensuring sustainability means setting a TAC that fully accounts for the uncertain, unreliable, and unknown nature of the information used. The sustainability obligation will force the Minister to choose estimates at the edge of a range, not the middle, to provide greater certainty that targets are met or exceeded, and sustainability is ensured – not that it's plausible it will be.

The kahawai stock assessment used recreational harvest estimates and natural mortality assumptions that exposed some conditions where current catches would not be sustainable. All assumptions used were considered possible. The Minister must be mindful that ensuring sustainability requires adopting those assumptions that are toward the worst-case end of the range.

The Supreme Court has clarified the dilemma the Minister confronted in 1997:

> Phil Heatley, Hansard 2007…..
>
> > The Fisheries Act 1996 did, in fact, have the intention that the Minister would take a cautionary approach. Unfortunately, in setting the total allowable catch, the legislation states that the Minister will have regard to the purpose of the Act. Of course, the purpose of the Act is to have utilisation of the fish stock alongside ensuring sustainability. Unfortunately, when there is not enough information the Minister cannot necessarily err on the side of sustainability. He must still consider the purpose of providing for utilisation.

To ensure sustainability the Minister must move beyond these terms of uncertainty and find a TAC that, within the bounds on reasonableness, absolutely ensures sustainability, even if that results in less utilisation opportunities by adopting a risk adverse strategy. The information principles in s.10 are now clear – the Minister **must** err on the side of sustainability.

Appendix Three - Recreational Harvest Estimates

Recreational harvest estimates (RHE) which cover large areas for a whole year have proved difficult and expensive to obtain. What is more, the tonnage estimated appears to differ depending on the method used. Non-commercial fishers share the scepticism of other stakeholders when it comes to using a single point estimate from one survey as THE answer to the riddle of recreational harvest.

In Kahawai 1 (KAH 1) telephone diary surveys give Recreational Harvest Estimates ranging from 960t in 1996 to 2200 t in 2000.

Individual diarists seemed to be catching about the same amount of kahawai in the two surveys but a correction to the estimate of the prevalence for recreational fishers in the population is responsible for the change. Non-commercial fishers believe the true recreational catch for KAH 1 in 2010 lies somewhere between the two estimates of 960 and 2200 tonnes.

MFish has used more recent aerial overflight survey data for the Recreational Harvest Estimate in KAH 1. These surveys count, from the air, the number of boats fishing and collect catch information from some of these vessels when they return to a boat ramp. The method assumes that the recreational catch intercepted at ramps is representative of the catch from all boats including launches, yachts, dinghies and kayaks. The overflight method relies on telephone diary data on the proportion of landbased catch of kahawai from the national survey in 2000. This also is an under-estimate.

These days almost all trailer boats are fast and are on the plane when moving from place to place. The main target species are snapper, gurnard and tarakihi. Many of the other vessel types are relatively slow. When travelling they are able to tow lures targeting kahawai inshore and small tunas offshore. The aerial overflight method has under-estimated the kahawai catch by launch, yacht and small vessels and does not count moving vessels as "fishing".

We also believe that the shore-based catch of kahawai has increased due to the prevalence of various kontiki longlines in regular use.

The aerial overflight estimates of recreational kahawai catch in the Hauraki Gulf were 56 t in 2004 and nearly double that (98 t) in 2005. In 2005 the overflight estimate for all of KAH1 was 530 t (CV = 0.09). This is outside the range of all previous surveys and NIWA and the Ministry note that it represents a much lower proportion of the catch (when compared with snapper) than in all the previous surveys.

We strongly agree that the overflight method under-estimates kahawai catch.

We strongly object to the Ministry's fudged estimate of 892 t based on an adjusted aerial overflight estimate from KAH1 (see Annex 3 of the MFish kahawai IPP). The Ministry *"considers the most plausible estimates are in the vicinity of 500-900 tonnes"* for recreational catch in KAH1.

We believe there are enough plausible reasons to completely reject the overflight estimates of kahawai harvest by recreational fishers.

We also believe the Ministry is clearly wrong when it *"proposes an allowance of 900 tonnes for recreational fishing interests based on the upper bound of the most plausible estimates of current use"*.

During the kahawai proceedings the Supreme Court made it clear that *"the allowance accordingly represents what the Minister considers recreational interests **should** be able to catch but also all that they **will** be able to catch"*. The Ministry must rethink its advice on non-commercial allowances and base it on what we are able to catch in 2010-11 and beyond, not based on an underestimate from 5 years ago. While we admit that the catch rates in the Hauraki Gulf are appalling still, this will hopefully not last for ever.

A realistic recreational allowance for KAH1 is 1200 t, within a TAC of 2000t. In addition, an allowance for fishing related mortality needs to be set at 25t and an allowance of 200t made for Maori customary interests.

In KAH 2 and KAH 3 MFish use 2004 estimates of recreational catch. There were no surveys that year and it is not clear in the IPP how these estimates were arrived at. We assume they are taken from the 2000 and 2001 national surveys with the proportional reductions imposed on non-commercial fishers by previous Ministers.