

FINAL ADVICE

MANAGEMENT CONTEXT

- 1 To provide context to the options proposed for TACs and allowances MFish included in its IPP background fishery and biological information for kingfish and specific estimates of utility for this species. The estimates of utility attracted particular comment in submissions, as did MFish commentary on the implications for management of kingfish.

Estimates of utility and implications for the management of kingfish

MFish initial position

- 2 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 do commercial fishers. Further, 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.

Stakeholder submissions

- 3 The introduction of an explicit value based allocation model is contentious. Stakeholder views are summarised in the generic sections. MFish draws your attention to the original submissions attached for the detail of stakeholder views.
- 4 In summary industry submissions favour a claims based approach to allocation and strongly oppose allocation on the basis of value. Some industry submissions suggest flaws in:
 - recreational valuation
 - commercial valuation
 - any comparison of market and non-market values.
- 5 Recreational submissions consider that the value of the recreational fishery is underestimated, some favour the outcome of a utility approach others think it unnecessary and prefer an approach based on more realistic estimates of current catch.

MFish discussion

- 6 MFish considers that while there is uncertainty surrounding information on fishery values (and the fact that it can be anticipated that relative values will change depending on management decisions and other factors). MFish does not consider that this uncertainty makes the information unusable.

- 7 MFish has received independent advice on the issues raised in submissions. This advice is that the model documented in the IPP is not flawed. The model as laid out is correct, although it could be improved (eg, made dynamic). However, uncertainty surrounds value estimates for both sectors – commercial and recreational and this uncertainty was acknowledged in the IPP. MFish considers that you should take this uncertainty into account in the weighting you place on utility information when making a decision on allocation.
- 8 External impacts of allocation (ie, impacts on associated fisheries) were not explicitly considered in the cost-benefit model. Opportunity costs are incurred by one sector when there is a gain to the other. On balance, if we assume there is little external impact, the best available information suggests that the marginal value of recreational harvest is higher relative to commercial. It suggests that total net-benefits (the objective function for cost-benefit analysis) would be increased if the allocation were adjusted in the favour of the recreational sector. Exactly what the allocation should be cannot be answered with the information at hand.
- 9 A more detailed response to issues raised in submission is contained in Annex II.

TAC

Proposed target level

MFish initial position

- 10 MFish proposed that the target level for kingfish stocks should be above the biomass that will support the maximum sustainable yield (B_{MSY}) in order to provide greater opportunity for recreational catch of kingfish (by improving availability and size).

Stakeholder submissions

- 11 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 support the objective of managing this fishery above B_{MSY} .
- 12 Tolaga Bay East Cape Charters notes the uncertainty in current assessments of kingfish stocks and submits support for keeping the management target well above the estimated MSY.
- 13 The Area Six North Island West Coast Fishing Clubs submit that most recreational fishers would approve managing kingfish using MSY.
- 14 Richard Pollock supports a vibrant kingfish fishery and believes that recreational fishers can maintain/rebuild kingfish numbers at sustainable levels by use of voluntary agreements.
- 15 The submissions of Pelagic & Tuna New Zealand Ltd (PTNZL), The Snapper 8 Company Ltd and Sanford Ltd do not support reducing current landings for any purpose apart from ensuring sustainability. They submit that the decline in

commercial landings is not indicating a sustainability concern, rather the result of a combination of management tools implemented over the period, and a reduction in the size of the commercial fleet. Industry rejects any proposal to increase kingfish stocks for other than sustainability reasons.

- 16 There were no specific comments in industry submissions with regard to management above B_{MSY} .

MFish discussion

- 17 MFish notes that you have discretion under the Act to manage (and set a specific target level for) a stock at or above B_{MSY} (s 13(2)(a)). If a stock is currently below the target stock level, there is a requirement pursuant to s 13(2)(b) to set a TAC that will result in the stock being restored to the target stock level (that is, at or above a biomass that will support MSY) in a way and at a rate which has regard to the interdependence of stocks and within a period appropriate to the stock, having regard to the stock's biological characteristics and any environmental conditions affecting the stock.
- 18 If the stock is above the target stock level, there is a requirement to set a TAC that will result in the stock moving towards the target stock level, or alternatively remain above the target stock level, having regard to the interdependence of stocks (s 13(2)(c)). In considering the way in which, and rate at which, a stock is altered to achieve the target stock level, the Minister is to have regard to such social, cultural, and economic factors as he or she considers relevant (s 13(3)). Section 13(3) makes it explicit that such factors are relevant in the determination of the way and rate of progress to the target level, rather than in the determination of the target stock level itself.
- 19 There is no set rate, or time frame, within which a rebuild or a "fishing down" of a stock must be achieved. However, the progress of moving towards the target stock level must be suitable to the fishery in question, having also considered those matters specified in s 13 of the Act.
- 20 MFish notes that rebuild or maintenance of an important recreational fishery at levels above B_{MSY} will theoretically provide benefits to recreational fishers in terms of increased abundance and greater range of size classes. The benefits to the commercial sector from management above B_{MSY} are less apparent.
- 21 However, MFish notes that in the case of kingfish there is no information on current biomass nor is there sufficient information to identify a specific proposed stock level. In this case, management above B_{MSY} becomes a largely theoretical exercise, and MFish is not able to provide quantitative estimates for any stock. In the absence of this information MFish considers that a target level for kingfish stocks is not a crucial issue to determine at this time. Rather you should consider the socio-economic benefits at various stock sizes in relation to the TAC options proposed for consideration.

Information used to calculate TACs

MFish initial position

- 22 In the absence of estimates of stock size and yield (MSY), MFish proposed TACs for kingfish stocks based on the current levels of utilisation of the fishery (option 1) or on a proportion of these (option 2).

Stakeholder submissions

- 23 The NZBGFC, the New Zealand Recreational Fishing Council, the Northern Amateur Fishers Association, the Mangawhai Boating and Fishing Club and Tolaga Bay East Cape Charters support reductions in harvest that will see recreational and commercial fishers taking less kingfish. They support a “claims basis” for initially defining current levels of utilisation. These submissions support defining current recreational utilisation on the basis of the 1999-00 recreational harvest survey. Submissions are critical that MFish has not resolved outstanding issues with this survey and argue that despite its uncertainties it is the best representation of recreational catch.
- 24 These recreational submissions are also strongly opposed to the determination of current commercial catch proposed in the IPP. Submissions point out that both the average of catches over nine years and the option of a proportional reduction in these averages is well in excess of recent landings for most stocks. Further, the averages MFish has proposed take no account of the fact that trawl catches during much of the period were exempt from the kingfish minimum legal size (MLS).
- 25 Recreational submitters argue that the only real reductions in catch under proposed options would be to the recreational sector with the imposition of an increased MLS (proposed reductions to commercial catches are referred to as ‘Clayton’s reductions’). They submit that commercial utilisation should be defined on the basis of reported landings for the 2001-02 fishing year only, as this is the only full year in which the MLS applied to all commercial methods.
- 26 Option 4 supports the above position but suggests that commercial utilisation be defined in terms of reported landings adjusted for the delay in implementing a MLS for trawl and also be reduced by an arbitrary 30% to account for illegal target fishing for kingfish. Alternatively Option 4 suggests commercial catch history based on an average of the last three years (271 tonnes nationally).
- 27 Option 4 also submits that additional allowances of 100-200 tonnes should be added to the 1999-00 estimate of recreational catch (1014 tonnes nationally) to provide for the catch of children under 15 years of age and non-English speaking persons (not included in survey estimates). Option 4 would support an estimate of recreational catch for the purposes of calculating the TAC that includes fish taken by under 15 year olds and foreign visitors. Further, Option 4 supports a 20% reduction to the TAC which includes this estimate of recreational catch.
- 28 Mark Feldman submits that although commercial catches are probably reasonably accurate they fail to take into account past illegal targeting of kingfish and the period of time over which a differential size limit applied to commercial methods (trawling).

- 29 The Bay of Islands Charter Fishing Assoc (Inc) reluctantly supports a reduction in TACs for kingfish stocks.
- 30 The submissions of Pelagic & Tuna New Zealand Ltd (PTNZL), The Snapper 8 Company Ltd and Sanford Ltd support the setting of TACs for kingfish based on the current levels of utilisation of the fishery, using the average of the last twelve years catch data. Submissions do not support using average commercial landings between 1993-02 to define current commercial utilisation because it is using commercial catch landing figures from a period when targeting of kingfish was prohibited and commercial landings were unnecessarily restrained.
- 31 Industry submissions do not support reducing current landings for any purpose apart from ensuring sustainability. They submit that the decline in commercial landings over time is not indicating a sustainability concern, rather the result of a combination of management measures implemented over the period, and a reduction in the size of the commercial fleet. The submissions provide analysis to support the view that the reduction in commercial catches is due to operational changes in the commercial fishery rather than sustainability concerns.
- 32 Industry submits that anecdotal information of declining catches from the recreational sector is compounded by the uncertainties surrounding the 1999-00 recreational harvest survey results.
- 33 SeaFIC submits that the information and assumptions underpinning the rationale for proposed TACs presented in the IPP are extremely superficial and subjective. The submission claims that there is no concern from the industry regarding the sustainability of the kingfish fishery and notes that the Plenary considers that while current commercial catches are slightly higher than the MCY for most areas these yield estimates were probably conservative. SeaFIC notes that the IPP justifies a cautionary approach to setting proposed catch limits by pointing to the trend of declining commercial landings over time. SeaFIC considers that although the IPP provides a discussion of the reasons why the decline in landings is inconclusive, it makes no attempt to clarify what SeaFIC considers to be a cause and effect relationship. SeaFIC considers that MFish should have undertaken an analysis of catch per unit effort of the kingfish bycatch fishery to get a clearer indication of trends.
- 34 SeaFIC suggest that over the last twelve years the recreational catch has increased by 30% and concludes that claims by the recreational sector concerning the sustainability of the kingfish resource are based on localised observations of fishing areas subject to increased recreational fishing pressure. Further, because of an increase in charter boat activity in a number of areas, there is a strong likelihood that such activities have caused localised depletion, particularly of the prized larger kingfish. It submits that localised observations do not reflect the status of the entire kingfish stock, particularly given the results of tagging that indicate kingfish do not generally move large distances.
- 35 Guards Fisheries (Nelson) Ltd supports further research on stock levels in KIN 2 before reducing current landings and suggest the alternative of an increase in MLS if further control is desired.

MFish discussion

- 36 Submissions have raised issues about what information should be used for the purposes of establishing a TAC. These issues are addressed in the following sections;
- a) Estimates of commercial landings
 - b) Estimates of recreational landings
 - c) Estimates of customary landings
- 37 In the absence of any information on available yield, MFish uses landings as the best available information on abundance. The intent is to quantify the landings that have been taken from the fishery over a specified period. A separate question is then to assess whether the TAC using landings from that period is sustainable, whether there is an opportunity for the TAC to be set above historic landings levels or alternatively whether there is a need for the TAC to be set below historic landings levels. The status of the stock section provides an assessment of this issue.

Estimates of commercial landings

- 38 MFish's initial proposals were to average commercial landings for the period 1993-94 to 2001-02 to define the commercial landings for the purpose of setting TACs. Submissions specify a range of periods that could be used to calculate commercial landings for this purpose:
- a) One year period based on current commercial management measures (NZRFC, NZBGFC)
 - b) Three year period based on current management measures (Option 4)
 - c) Nine years average landings (contained in IPP)
 - d) Ten year average landings adjusted downward for current management measures (Option 4)
 - e) Twelve years average landings to include years in which catch is not constrained by permit moratorium, MLS and voluntary measures (industry).
- 39 A period of landings is required that best reflects the current state of the fishery and best represents a level of sustainable landings.
- 40 In the case of kingfish commercial landings in some fisheries have declined over the last ten years. A decision about what period should be used for the purposes of calculating the TAC is influenced by the assessment of the current status of the stock.

Estimates of recreational landings

- 41 MFish's initial TAC proposals used an estimate of recreational landings based on an average of the 1996 and 1999-2000 recreational diary surveys. Submissions specified the following alternatives:
- a) 1999-2000 recreational survey only (NZRFC, NZBGFC)
 - b) 1999-2000 survey only adjusted upwards to account for non-survey participants (Option 4)

- c) 1996 diary survey only based on this being the only accepted estimate (SeaFIC and other industry submitters).
- 42 There is an apparent contradiction/inconsistency in the argument made by industry. Industry say generally that recreational landings of kingfish are unconstrained and have increased in recent years (SeaFIC suggest by 30%) but also argue that the 1996 recreational landings estimate should be used to determine current recreational utilisation of kingfish. Recreational fishers say that their landings have declined but argue that the 1999-2000 recreational survey should be used to define their utilisation. MFish can see no better alternative to the approach of averaging the two recreational surveys.
- 43 Internal and external experts have reviewed both 1996 and 2000 recreational surveys. The conclusion of the reviews is that neither survey is likely to be correct. Both surveys have known sources of bias, however the direction of likely bias in the estimates is known. The 1996 survey is likely to be an underestimate and the 2000 survey is likely to be an overestimate. The exact position is uncertain and real landings are likely to lie within a range (for example information on both surveys is contained in the 2003 Plenary Report which suggests a range of 500-700 tonnes for KIN 1: the IPP proposed a 600 tonne allowance for this stock).
- 44 With regard to the Option 4 submission that allowance should be made for the landings of under fifteen year olds and foreign visitors, MFish does not propose to “ban” these fishers from the fishery (as suggested by Option 4) but considers that their landings are taken into account within the uncertainty of recreational harvest estimates. This issue is addressed in more detail in the section on recreational allowances.
- 45 MFish notes you may consider the full range of possible recreational harvest estimates when considering setting the TAC (and subsequently the allowances) for each QMA.

Estimates of Customary Māori Landings

- 46 Original proposals for customary Māori landings were based on 10% of commercial and recreational utilisation combined for key stocks. No submissions were received about the information used to assess customary landings. MFish does not propose to adjust estimates for customary allowance

Status of the Stock

- 47 MFish notes that the range of potential TACs resulting from a combined total of all sector groups landings taken from all periods suggested in submissions is approximately 775-1890 tonnes on a national basis.
- 48 MFish notes the following issues are relevant to your consideration of TAC options. There is:
- a) No stock assessment information available
 - b) No information on sustainable yield available
 - c) No information available about status of stock relative to B_{MSY}

- d) No information available about a target level above B_{MSY}
 - e) Anecdotal information available about declines in abundance in some stocks
 - f) A decline in commercial landings in some stocks over recent years
 - g) Only a recent application of the MLS across all commercial fishing methods
 - h) A question regarding the potential for development of stocks beyond current landings.
- 49 Having regard to the factors (a-g) noted above, MFish considers there is a risk to sustainability linked to TACs set above the level of current utilisation in the fishery. However, estimation of current utilisation is problematic due to the change in management regime (65 cm MLS introduced in 1992-93 for all methods apart from trawl and in 2000 for trawl), the relevance of a decline in commercial landings, and uncertainty in recreational and customary harvest levels.
- 50 MFish's best estimate of current landings for the purpose of setting TACs is based on the best available information as follows:
- a) Recreational landings based on an average of the estimates from the 1996 and 1999-2000 diary surveys
 - b) Customary landings based on a 10% proportion of estimates of recreational and commercial current utilisation
 - c) Commercial landings based on the average over the most recent nine years (now with adjusted trawl landings adjusted to retrospectively reflect the 2000 implementation of MLS for the trawl method) for all kingfish stocks with the exception of KIN 1. For KIN 1 an average over the most recent five years is used. MFish considers that without these adjustments there are sustainability risks associated with TAC estimates.
- 51 MFish notes that some submitters have argued that commercial landings are not reflective of abundance. In particular industry suggest that any change in landings can be attributed to voluntary measures to reduce catch, regulatory and legislative measures implemented in the fishery (such as the permit moratorium and the implementation of a MLS) and a reduction in the number of vessels operating in the target fisheries. Industry has also argued about the need to undertake a CPUE analysis to better assess the cause and effect relationship of the decline in landings. MFish's position on these matters is set out in Annex III.
- 52 In summary, there is no stock assessment information available for kingfish. There is no estimate of current biomass nor an estimate of the relationship between current biomass and B_{MSY} . MFish notes that the plenary report concludes that it is not known if recent **combined** commercial and recreational landings levels are sustainable or at levels that will allow stocks to move towards a size that will support the MSY. A TAC is intended to incorporate all forms of mortality on a stock and this qualification of stock status is of particular relevance.
- 53 In the absence of information on yield from a stock assessment MFish has historically considered trends in landings as the next best available information. Interpreting trends in landings from the kingfish fishery is problematical because information on commercial fishing is influenced by changes to management regime and voluntary

measures that have reduced catch. Due to problems in the survey techniques used to estimate recreational harvest, in effect only a single point estimate is available (average of the two surveys undertaken).

- 54 Anecdotal information from recreational fishers (that land on average 70% of kingfish) suggests that the fishery has declined. Anecdotal information cannot be given the same weight as reported landing information or recreational surveys.
- 55 Nonetheless when this information is combined with a decline in commercial landings (although the rationale for that decline is also uncertain), MFish considers there is sufficient rationale for both of the TAC options outlined in the IPP to remain valid. However, you should give careful regard to the uncertainty in the information on stock status and the socio-economic impacts (outlined in the TAC and allocation sections) when deciding between the two options. You should note that the uncertainty in information should not be used as a reason for postponing or failing to take any measure to achieve the purpose of the Act.
- 56 MFish does not consider that the available information supports the ability to provide for a development opportunity by setting the TAC above the level of current landings. There is some uncertainty about the extent of any reduction from current landings required on sustainability grounds or to achieve a rebuild of the stock to an unspecified target level. Consideration of an appropriate TAC on a case by case basis is set out in the sections below.

TAC Options

- 57 MFish has revised proposals for TACs contained in the IPP on the basis of submissions received. Original proposals are shown in Table 1 below, revised proposals are shown in Table 2. Adjustments result from changes in the assessment of current commercial utilisation to better reflect sustainability risks to the fishery. Adjustments have been made to all stocks to take account of the fact that no MLS was applied to trawl catches during some of the years used to average landings. A further adjustment is applied to KIN 1 to use a shorter time period to average commercial landings.

Table 1: Previous proposed TAC options for kingfish stocks (IPP):

QMA	1	2	3	4	7	8	10	Total
Option one	885	228	3	3	21	108	1	1 249
Option two	708	182	3	3	21	86	1	1 004

- 58 MFish considers that the revisions shown in Table 2 better represent an estimate of current commercial utilisation under status quo management arrangements.

Table 2: Revised proposed TAC options for kingfish stocks:

QMA	1	2	3	4	7	8	10	Total
Option one	841	212	3	3	21	104	2	1 186
Option two	673	170	3	3	21	83	2	955

KIN 1

Option 1

- 59 A TAC of 841 tonnes is proposed. This is reduced from the original proposal in the IPP of 885 tonnes.
- 60 This option has been revised to better reflect current commercial utilisation. MFish has accepted the recreational view that the previous assessment of commercial utilisation did not take account of the period when no MLS applied in the trawl fishery. MFish confirms its view that this TAC option should reflect current utilisation based on status quo management arrangements (both regulatory and voluntary). This better reflects past measures taken to ensure the sustainability of kingfish stocks. MFish has therefore adjusted historical trawl landings by applying a proportional reduction based on an estimate of the weight of catch below 65 cm in length.
- 61 The declining trend in KIN 1 over the nine-year period used to average commercial landings lead to an average that exceeded annual reported landings over the last five years. MFish accepts the recreational view that commercial utilisation has been over estimated for this stock. MFish considers that there are sustainability risks associated with the estimates of commercial landings previously proposed for this stock. An average of five years has been used to better reflect the status quo management arrangements and recent trends in landings.
- 62 The result is a reduction in the estimate of current utilisation from 156 to 119 tonnes (a 24% reduction). The level of reduction is indicative of the degree to which landings from the stock have declined over time (the adjustment to trawl catches aside). MFish notes that this average level of 119 tonnes is 21 tonnes higher than the most recent years landings for this stock.
- 63 This change is likely to be strongly opposed by industry that instead proposed an average of landings over a twelve-year period. The industry alternative would have lead to an increase in estimate of current commercial utilisation from 156 to 209 tonnes (a 34% increase).

Option 2

- 64 A TAC of 673 tonnes is proposed (reduced from the 708 tonnes proposed in the IPP). The second TAC option for this stock provides a 20% reduction in the TAC based on current utilisation. Having considered the range of views expressed in submissions MFish concludes that this remains a valid option for KIN 1. Overall submissions confirm the uncertainty surrounding the status of the KIN 1 stock. On the one hand is the level of dissatisfaction among recreational fishers regarding the status of the stock and on the other are industry submissions that declining landings (the only definitive information) can be explained by management and operational changes that have occurred in the fishery over time. In the absence of information on stock abundance the MFish view is based on the plenary report conclusion that it is not known if recent **combined** commercial and recreational landings levels are sustainable or at levels that will allow stocks to move towards a size that will support the MSY. A TAC is intended to incorporate all forms of mortality on a stock.

KIN 2

Option one

- 65 A TAC of 212 tonnes is proposed (reduced from the 228 tonnes proposed in the IPP). This option has been revised to better reflect current commercial utilisation. MFish has accepted the recreational view that the previous assessment of commercial utilisation did not take account of the period when no MLS applied in the trawl fishery. MFish confirms its view that this TAC option should reflect current utilisation based on status quo management arrangements both regulatory and voluntary. This better reflects past measures taken to ensure the sustainability of kingfish stocks. MFish has therefore adjusted historical trawl landings by applying a proportional reduction based on an estimate of the weight of catch below 65 cm in length. This results in a small (16 tonnes) reduction in TAC from that originally proposed for this stock

Option two

- 66 A TAC of 170 tonnes is proposed (reduced from the 182 tonnes proposed in the IPP). The second TAC option for this stock provides for a 20% reduction in the TAC based on current utilisation. Having considered the range of views expressed in submissions MFish concludes that a 170 tonne TAC remains a valid option for KIN 2. Overall submissions confirm the uncertainty surrounding the status of the KIN 2 stock. On the one hand is the level of dissatisfaction among recreational fishers regarding the status of the stock and on the other are industry submissions that declining landings (the only definitive information) can be explained by management and operational changes that have occurred in the fishery over time. In the absence of information on stock abundance the MFish view is based on the plenary report conclusion that it is not known if recent **combined** commercial and recreational landings levels are sustainable or at levels that will allow stocks to move towards a size that will support the MSY. A TAC is intended to incorporate all forms of mortality on a stock.

KIN 3

- 67 A single TAC option of three tonnes is proposed for this stock which is unchanged from that proposed in the IPP.

KIN 4

- 68 A single TAC option of three tonnes is proposed for this stock which is unchanged from that proposed in the IPP.

KIN7

- 69 A single TAC option of 21 tonnes is proposed for this stock which is unchanged from that proposed in the IPP.

KIN8

Option 1

- 70 A TAC option of 104 tonnes is proposed for this stock (reduced from the 108 tonnes proposed in the IPP). This option has been revised to better reflect current commercial utilisation. MFish has accepted the recreational view that the previous assessment of commercial utilisation did not take account of the period when no MLS applied in the trawl fishery. MFish confirms its view that this TAC option should reflect current utilisation based on status quo management arrangements both regulatory and voluntary. This better reflects past measures taken to ensure the sustainability of kingfish stocks. MFish has therefore adjusted historical trawl landings by applying a proportional reduction based on an estimate of the weight of catch below 65 cm in length. This results in a small reduction in TAC from that originally proposed for this stock.

Option 2

- 71 A TAC of 83 tonnes is proposed for this stock (reduced from the 86 tonnes proposed in the IPP). The second TAC option for this stock remains a 20% reduction in the TAC based on current utilisation. Having considered the range of views expressed in submissions MFish concludes that this remains a valid though less compelling option for KIN 8. Overall submissions confirm the uncertainty surrounding the status of the KIN 8 stock while recreational submissions have emphasised the importance of KIN 8 to recreational fishers. On the one hand is the level of dissatisfaction among recreational fishers regarding the status of the stock. . On the other are industry submissions on the management and operational changes that have occurred in the fishery over time. The landing trends for KIN 8 are stable to increasing. They do not add weight to the recreational view of stock status, nor do they support industry submissions with regard to measures taken to limit kingfish catch. In the absence of information on stock abundance the MFish view is based on the plenary report conclusion that it is not known if recent **combined** commercial and recreational landings levels are sustainable or at levels that will allow stocks to move towards a size that will support the MSY. A TAC is intended to incorporate all forms of mortality on a stock.

KIN 10

- 72 MFish has considered the recreational submission that an increase of 1 tonne in the TAC for KIN 10 should be made to allow for a level of recreational landings. MFish agrees and proposes an increase from the one tonne TAC proposed in the IPP to a TAC option of two tonnes.

Impact of reduced TACs

- 73 If you accept the need for a reduction in the current level of utilisation to achieve a rebuild in kingfish stocks you are required to have regard to such social, cultural and economic factors as you consider relevant when deciding on the rate at which stocks should rebuild. The interests of future generations are also an important consideration.

- 74 Submissions show that reduced TACs will impact on submitter's respective interests. There is a divergent view between recreational and commercial sectors in their acceptance of the impacts associated with rebuilding kingfish stocks.
- 75 There are socio-economic impacts of both TAC options. The degree of impact will depend on the allocation option you choose. Detailed consideration of economic impact is outlined in the sections on allocation.
- 76 MFish has assumed that the interests of customary non-commercial fishers are best served by an improvement in the availability of kingfish. MFish has received no submissions in support or in opposition to this assumption. MFish has proposed no reduction in allowance for customary Māori fishing under the option of reduced TACs and considers that the benefits, or otherwise, to customary fishers of the TAC options proposed remains their ability to take kingfish within their allowance.
- 77 MFish concludes that the ability of Māori customary fishers to harvest kingfish within their customary allowance for the stock will be improved at higher levels of stock size. This will also be the case for Māori customary fishers who fish within the recreational allowance for the stock.
- 78 MFish assumes that the interests and aspirations of future generations of recreational fishers will be similar to those expressed by current fishers. That is access to stocks of kingfish where catches are reasonably available and fish are of good (in a recreational context) size. Recreational dissatisfaction with the current position is clearly apparent and MFish concludes that recreational interests will be improved at higher levels of stock size.
- 79 In a more general sense the maintenance of stocks at or above a level that will support B_{MSY} is likely to meet the needs of future generations.
- 80 There will be an impact on recreational landings of reduced TACs. Effective constraint will be required to achieve a reduction in recreational landings. Submissions indicate that the measure proposed in the IPP as a means of achieving reduced recreational landings (an increase in MLS) is likely to have a significant impact on recreational landings in some areas. There are social costs associated with an increase in the MLS, particularly for those recreational fishers who do not have access to boats and/or areas where larger kingfish are likely to be more abundant. The majority of recreational submitters are prepared to accept this impact in the knowledge that benefits will accrue to them from a rebuilt stock.
- 81 Commercial fishers perceive no such benefits to offset the impacts of lower commercial landings levels for kingfish. Clearly there are benefits to industry from constraints on the total removals of kingfish. Submissions have articulated the value of kingfish to the commercial sector as a bycatch and target fishery. Without management action this value could be potentially dissipated if stocks decline. At issue is whether longer term benefits can accrue to industry from rebuilt stocks leading to a greater availability of kingfish and who contributes to this rebuild.
- 82 Commercial impacts can be measured as direct opportunity costs. A tonne of kingfish has a value and any reduction in tonnage for the commercial sector as a result of a lower TAC is an opportunity cost. This is particularly the case for target fisheries or

where a component of the fishery is based on targeting. For bycatch fisheries additional impacts occur when catches are constrained to such a level that ACE is not available to cover the inevitable bycatch associated with other target fisheries. Impacts include the punitive measures associated with the balancing regime or the potential that bycatch constrains target fisheries and limits the landings of these fisheries. MFish is not aware of any current situations where target catches are constrained by the level of bycatch TACs. Typically landings are taken in excess of the bycatch TAC if this is required and deemed values are paid. There are also risks that catch in excess of ACE is discarded at sea.

- 83 MFish accepts that the level of kingfish bycatch may vary from year to year. In the event that a management strategy of rebuilding kingfish stocks is implemented and is successful, then management of bycatch is likely to remain an issue. It is for this reason that MFish proposed an option of allowing the release of live kingfish in order to provide flexibility to commercial fishers in managing their bycatch. This option found surprising acceptance in recreational submissions (albeit limited to release of fish above a size limit) but was rejected in industry submissions. It remains an option to mitigate the impact of increasing commercial kingfish bycatch in the future and also mitigating fishing related mortality.
- 84 The Snapper 8 Company Ltd additional submission suggests that an implication of reducing commercial landings below historical levels is that target fisheries will develop and absorb all available quota leaving little to cover unavoidable bycatch. MFish acknowledges that this is a risk, however this risk is apparent at all levels of commercial catch. Industry have rejected your suggestion that ways be found to ensure that kingfish is caught commercially as a bycatch. Further industry in other submissions has indicated that they based their support for kingfish entering the QMS in part on the prospect of developing a target fishery.
- 85 Ensuring that quota and or ACE flows to where it is most required in the fishery on entry to the QMS will be a test for the economic incentives provided in the QMS. At lower levels of TAC the majority of quota will be required to cover unavoidable bycatch. The risk of target fisheries developing is not only as outlined in the Snapper 8 Company Ltd submission (reduced quota available to cover bycatch) but also in the potential for direct and ongoing conflict with recreational fishers. Both sectors are likely to target kingfish in the same areas.
- 86 Without specific controls it is not possible to stop targeting in a QMS environment, however, method constraints are not without precedent in other QMS fisheries if required. At the outset MFish relies on the economic incentives and disincentives of the QMS to ensure that landings remain within the TAC (and TACC). However, as SeaFIC has identified the value of quota is likely to increase if ACE is scarce and required to cover bycatch so that target fisheries are not constrained. Again this is a consideration of both the TAC and allowances that you decide to set.
- 87 You will need to consider the balance of costs and benefits in your decision as to what TACs to set. Of necessity MFish has assumed the status quo distribution of landings when considering a more detailed assessment of possible economic impacts. MFish has considered the socio-economic impacts associated with TACC options later in this paper. The detail of impacts on each sector will vary for each stock. MFish notes that reduced TACs are only proposed for KIN 1, KIN 2 and KIN 8.

ALLOCATION

Introduction

- 88 The Act requires that, when setting a TACC, you must have regard to the TAC for that stock and you must allow for recreational and customary Māori fishing interests and other mortality to the stock caused by fishing. The Act does not provide any explicit criteria to guide determination of the allowances provided to each fishing sector. The nature of your discretion is broad. Subject to the constraints of the scope of the Act, you are able to take into account such factors you consider to be relevant to your decision and determine the weight you consider to be appropriate to be placed on such factors.
- 89 MFish set out a list of factors in the Statutory Considerations and Policy Guidelines section of the IPP (see page **Error! Bookmark not defined.**, para **Error! Reference source not found.****Error! Reference source not found.**) that it considers to be relevant to your decision. In addition MFish identified judicial decisions that consider the issue of allocation of the TAC. In particular, case law has identified that:
- a) you need to consider competing demands for a stock
 - b) you do not need to provide for the needs of any particular sector when specifying an allowance
 - c) you are able to vary the ratio between commercial and recreational interests
 - d) where commercial landings are reduced for sustainability reasons, reasonable steps should be taken to avoid the reduction being rendered futile through increased fishing by non-commercial stakeholders.
- 90 In general, the Act provides no legal recognition of landings taken by a sector prior to introduction to the QMS. Your discretion to determine allocation of the TAC is not fettered by catch histories of any sector.
- 91 In the instance of kingfish there are competing demands for the resource. The demands of the respective sectors in total exceed the quantum of the proposed TACs. In the IPP, MFish set out two fundamental policy approaches for addressing competing demands. Both approaches are consistent with the Act. The two approaches are:
- a) A claim-based allocation describes a situation where allocations are made on the basis of a consideration of the legitimacy of claims to the resource. Generally these claims are based on some form of present or historical association with the resource, giving rise to expectations on the part of fishers (or classes of fishers) with respect to on-going future involvement
 - b) A utility-based allocation describes a situation where allocations are based on the utility (or quantum of well being) that would flow from a particular allocation. This method tends to favour allocations to those who value the resource most (downplaying the importance of past associations with the resource). As such it tends to have a focus on the present rather than the past.

- 92 MFish noted that there is a great deal of uncertainty with information used to assess utility value, particularly for the recreational sector where non-market valuation techniques are used. The utility-based allocation option used recreational estimates of value provided by the South Australian Centre for Economic Studies (SACES) and a proxy valuation for kingfish to the commercial sector as the basis for reallocation of some landings from the commercial to the recreational sector.
- 93 The respective allocation approaches were reflected in the following allocation options in the IPP:
- a) claims based allocation – consisting of two options:
 - i) current landings of each sector (for recreational average landings as recorded in the 1996 and 1999-2000 diary surveys; customary landings based on 10% of commercial and recreational landings; commercial landings based on nine year average)
 - ii) 20% reduction to TAC resulting in proportional reduction of current landings of recreational and commercial fishers; or
 - b) utility based allocation – using the 20% reduction to the TAC as a starting point and then increasing the recreational allowance by reducing the commercial allocation.
- 94 You indicated to stakeholders an initial preference for the option of a reduced TAC allocated on the basis of utility value.

Allocation principles

Stakeholder submissions

- 95 Detailed analysis of the submissions on utility are contained in the generic section. In summary most submissions did not support its use as outlined in the IPP.
- 96 Submissions from commercial fishers and their representative organisations considered that:
- Information on utility was highly uncertain and techniques used to estimate utility flawed
 - Use of utility had the potential to undermine the QMS and the integrity of ITQ
 - A claims or catch history based allocation framework provides more certainty.
- 97 TOKM considers that use of utility without compensation could be considered bad faith because it would undermine treaty settlement assets.
- 98 Some recreational groups did not favour the quantitative assessment of utility outlined in the IPP. Some submissions noted that a quantitative assessment could affect recreational allowances in fisheries where commercial value was higher than recreational value (ie rock lobster). They did however favour a qualitative assessment of utility based on giving a preference to recreational fishers in a fishery that was obviously “important” to them. Other recreational groups proposed that a utility

option be considered for KIN 8 because of the importance of this area to recreational fishers.

MFish response

- 99 MFish notes that your discretion in regard to factors you can take into account when determining allocations is wide. These factors are outlined in the generic section of the IPP. The utility concept is one of these relevant factors.
- 100 MFish considers that there is subjectivity attached to both consideration of catch history and utility. As evidenced by the discussion on catch history in the front section of this paper, the period chosen for catch history is contentious. MFish considers that much of the detailed critique of the utility estimates provided in the IPP can be addressed, however MFish confirms its view (acknowledged in the IPP) that there is a great deal of uncertainty attached to quantitative assessments of value. MFish considers that catch history information is a more certain basis for allocation than utility. Utility information for kingfish is uncertain. You should weight this uncertainty when considering the use of utility information as a basis for allocations for kingfish.

Māori customary allowance

MFish initial position

- 101 The IPP proposed that in the absence of quantitative information a customary allowance be set at 10% of the current level of commercial and recreational utilisation. The basis for the proposed allowance was that:
- a) kingfish has a broad coastal distribution and can also be found in harbours, particularly in northern New Zealand where a significant level of customary landings could be anticipated
 - b) Māori have had an historic interest in kingfish and it might be an important food source in some localities
 - c) The guidelines suggested that the customary allowance should be equate to 50% of the recreational allowance where the species was known to be taken by Maori, or be set at the same level as the recreational allowance if the species was known to be important for customary purposes. In this instance the extent of customary catch was unlikely to be half or equal to the recreational catch.
- 102 There was no proposal to reduce the customary allowance under any reduced TAC option. The IPP welcomed submissions, particularly from Māori customary fishers, to provide information about levels of customary kingfish landings.

Stakeholder submissions

- 103 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 noted that Māori customary harvest is not currently high and the allocations under all options, allows for potential increases in harvest for customary purposes.

104 Ngapuhi notes that it has significant interests in customary fishing but makes no comment on the setting of a customary allowance. This submission is primarily in support of the TOKM submission for the utility option being in bad faith to Māori commercial aspirations.

MFish discussion

105 MFish requested submissions to provide additional information about levels of customary kingfish landings, however, no submissions from Māori customary fishers were received. MFish notes the submissions from the recreational sector but in the absence of further information recommends no change to the allowance for customary Māori fishing proposed in the IPP.

TACC

MFish initial position

106 TACCs proposed in the IPP for each QMA are set out in Table 3 below. It was noted that the level of proposed TACC would vary within each option depending on the management tools used.

Table 3: Options to set TACCs for kingfish stocks:

	KIN 1	KIN 2	KIN 3	KIN 4	KIN 7	KIN 8	KIN 10
Average landings	156	93	1	1	7	50	1
Proportional	119	72				39	
Utility	80	50					

Stakeholder submissions

107 The New Zealand Big Game Fishing Council, the New Zealand Recreational Fishing Council, the Northern Amateur Fishers Association, the Mangawhai Boating and Fishing Club submit that the TACCs be based on a 20% proportional reduction of current commercial utilisation (the latter based on 2001-02 landings - 222 tonnes as these are the only data where the MLS applied to all methods). Submissions assert that TACCs proposed for the Proportional option do not represent a proportional reduction because current commercial utilisation has been overestimated.

108 Option 4 submits that TACCs be based either on 80% of the average of the last three years of commercial landings or the ten year average landings minus the component of the trawl catch that was less than 65 cm and minus landings caught by target fishing for kingfish.

109 Mark Feldman submits that because past landings figures are either irrelevant or incorrect kingfish should be divided up on the basis of what's best for society. Mark Feldman suggests that clearly kingfish are worth a lot more to the recreational sector and an effort should be made to define the true commercial bycatch and this should be used to determine the TACC. In Mark Feldman's view this would make rational use of the few facts available.

- 110 In a second submission Rick Pollock alerts you to the active market currently for kingfish PCH. He interprets this to mean that target fisheries for kingfish are planned and asks that you allow enough tonnage (TACC) for historical bycatch only – not “huge “amounts, which will encourage large scale targeting.
- 111 The submissions of Pelagic & Tuna New Zealand Ltd (PTNZL), The Snapper 8 Company Ltd Sanford Ltd and SeaFIC propose setting TACCs on the basis of the 1990-02 average landings.
- 112 Industry argues that 12 years best represents their ‘claim’ to the fishery and further provides opportunity for them to develop a target fishery for kingfish following years of self imposed restraint. Industry submit that declines in commercial kingfish landings are associated with operational changes and voluntary measures to restrict kingfish catch. The measures outlined in industry submissions are:
- a) the non-targeting of kingfish
 - b) fewer numbers of tows within the target fisheries (fleet capacity)
 - c) slower towing speeds enabling kingfish to avoid being caught
 - d) the demise of the pilchard target fishery and subsequent incidental catch of kingfish.
- 113 Further, industry acknowledges it can avoid incidental bycatch of kingfish by moving to less preferred areas and change fishing methods, albeit at increased costs of fishing.

MFish discussion

- 114 In the absence of yield information for kingfish stocks MFish has used estimates of current utilisation for the purposes of determining and recommending TAC options for kingfish stocks. The decision on TACCs is a separate one. In determining TACCs for kingfish stocks you are free to decide between MFish proposals or consider alternatives based on submissions if you so wish.
- 115 MFish has adjusted the quantitative estimates of current utilisation based on submissions but has retained the same structure of TACC options as proposed in the IPP. That is a TACC based on the average of historical commercial landings that best reflects use in the fishery (within a TAC based on total estimates of sustainable use) and either a proportional reduction or utility based TACC option for some kingfish stocks (within a TAC reduced by 20% from estimated levels of current utilisation).
- 116 The IPP proposed that allocation of the TACC be based on an average of nine years. However submissions have suggested that this overstates current commercial utilisation in terms of the period chosen for some stocks and inclusion of fish below the current MLS. MFish agree. As an alternative, MFish has recalculated average landings to exclude the proportion of trawl landings that was undersized and for KIN 1 has used an average of the five most recent years landings instead of the nine originally proposed. This has the effect of reducing some of the proposed TACCs for all options (refer Table 4).

Table 4: Revised options to set TACCs for kingfish stocks:

	KIN 1	KIN 2	KIN 3	KIN 4	KIN 7	KIN 8	KIN 10
Average landings	119	81	1	1	7	47	1
Proportional	91	63				36	
Utility	80	50					

117 The rationale for this change in calculation of the TACCs is that:

- a) TACC options based on current landings should reflect current utilisation and management measures
- b) Introduction of the 65 cm MLS was intended to address sustainability issues in the kingfish fishery and a result of its introduction was a reduction in catch for all sectors
- c) The 65 cm MLS was implemented for methods apart from trawl in 1993 and for the trawl in 2000
- d) An average of commercial landings over a period of time without consideration of the decline in commercial landings (in particular in KIN 1) and the application of the 65 cm MLS for trawl fishers elevates (or over-estimates) current utilisation
- e) Use of one or two calendar years of commercial landings may not provide a reasonable reflection of commercial utilisation – hence an average over a five year period (for KIN 1) is more representative of commercial landings under a 65 cm MLS management regime.

118 In deciding to revise the TACC options, MFish acknowledges that reduced commercial catches have come about due to the introduction of the 65 cm MLS for methods apart from trawl in 1993 and the removal of the trawl exception in 2000. Further, MFish acknowledges that some industry participants have applied additional voluntary constraints and you have acknowledged this action when outlining your initial view on catch limits and allowances for kingfish. However, MFish considers that landings based on the current management arrangements in the fishery should be used to develop allocation options. Hence for the same reasons, MFish does not agree with industry that the period used to define current utilisation should include the 1990-92 years.

119 MFish is not dismissing the efforts taken by commercial fishers to conserve the fishery. Nor is MFish, by the options proposed, intending to penalise commercial fishers for any conservation efforts that they have taken. MFish notes that similar actions have been taken by recreational fishers, in particular the catch and release practice adopted by recreational fishers. There is no practical way of determining the relative contribution of measures undertaken by each sector in ensuring the sustainability of kingfish stocks. By default, the baseline approach is to use estimates of current landings (with the exception of the utility based option).

120 There are economic impacts associated with all TACC options. MFish notes that the TACC proposed under the average landings option is above landings taken in the

most recent fishing year for most stocks. However, Industry note that development potential is forgone at this level of TACC. The following section contains an assessment of possible economic impacts associated with TACC options. At your discretion, socio-economic impacts are relevant to your consideration of allocation (in this case TACC) options particularly given the uncertainty over information on which to base allocations.

Loss of economic return

MFish initial position

- 121 The TACC options proposed in the IPP were compared with the most recent years landings to determine whether direct socio-economic impacts were likely. Little impact was predicted and it was further suggested that it was not clear whether any of the proposed TACCs would impact on the ability of fishers to target species in fisheries where kingfish is taken as a bycatch.
- 122 Fishery characteristics (particularly the relationship between kingfish and other target fisheries) indicated that the utility-based TACCs proposed may represent the minimum amount necessary to provide a manageable level of bycatch without detrimentally affecting the targeting of associated fisheries, although no quantitative assessment of this relationship was undertaken. The IPP noted that if there were further changes in fishing practices, or imposition of management measures such as inclusion on the Sixth Schedule or an increased MLS, then bycatch levels might be substantially reduced with a concomitant reduction in the risk of any economic impact associated with adopting any of the particular options.
- 123 Submissions were sought from stakeholders on this assessment of impacts.

Stakeholder submissions

- 124 The submissions of Pelagic & Tuna New Zealand Ltd (PTNZL), the Snapper 8 Company Ltd, and Sanford Ltd consider kingfish to be a high value product opposing any suggestion that the commercial sector values it only as a low value bycatch species. The submissions note that the commercial value of snapper in SNA 1 and SNA 8 is approximately \$42 million per annum (derived by combining the TACC for SNA 1 and SNA 8 and multiplying by a conservative \$7 per kilogram sale price). It is submitted that this value is very conservative as it does not include other species in the quota portfolio and although kingfish is a low proportion of this target catch it highlights the importance of having sufficient quota available in this mixed fishery.
- 125 The Snapper 8 Company Ltd asserts that currently kingfish is landed as both a target and bycatch species. Once kingfish is introduced to the QMS targeting will continue and as there will be limited ACE available for bycatch this causes three problems
- a) A requirement to deem all kingfish landed as bycatch without ACE, as industry participants who wish to target kingfish have purchased all available quota

- b) With bycatch continuing and target fishing absorbing available quota, there may be a two fold increase in kingfish landings that could effect the sustainability of kingfish
 - c) It will increase the consumer price of kingfish, due to the increased costs of landing the bycatch.
- 126 SeaFIC number among the failings of the IPP a lack of consideration of the impact on the commercial sector of failing to provide for a target fishery for kingfish. The submission asserts that it is absurd to conclude that setting a TACC in KIN 1 20% below the average commercial landings will not have any negative economic impact on the basis of using a single years commercial landings as a point of comparison. It submits that nowhere else in fisheries management have MFish ever considered one years landings a suitable estimate as a basis for any analysis. To reflect the value of kingfish to the commercial sector as a target and non-target fishery SeaFIC proposes that TACs be calculated using the average of the last 12 years landings data.
- 127 The Recreational Fishing Council (RFC) notes 316 vessels reported landing 222 tonnes of kingfish during the 2001-02 fishing year. The submission calculates each vessel would average \$274 per year from their kingfish landings based on current port price. The submission asserts that on the basis of this information no one could suggest that kingfish is an important species to industry.
- 128 Tolaga Bay East Coast Charters notes the increasing production of kingfish by aquaculture (at present 170 000 tonnes in Japan and over 2 000 tonnes in Australia with interest in this country) and submits that this level of production is likely to be devaluing the value of landings of wild fish.

MFish discussion

- 129 Having considered the issues raised in submission MFish has evaluated the potential economic impact of TACC options in more detail.

Restructuring costs

- 130 There are short-term impacts arising from introducing kingfish into the QMS associated with the need for individual fishers to acquire quota to reflect their current fishing operations. Kingfish is unusual in that landings in the criteria years for catch history were substantially higher than they are currently. This has led to a situation where the sum of provisional catch history exceeds most of the proposed TACCs for kingfish stocks. Unless provisional catch history is cancelled (this occurs if it is not transferred) current fishers who were also fishing during the criteria years will have their provisional catch history reduced. The level of reduction is dependent on the TACC that is finally set. For any of the TACC options there is likely to be a substantial reduction in provisional catch history (that is provisional catch history will transfer to a smaller share of actual quota). Accordingly once quota is allocated, many current fishers may hold insufficient quota to cover kingfish landings from their current fishing operations.
- 131 However, under a QMS regime the balancing regime will require fishers landing kingfish without ACE to pay the deemed value. Differential deemed values are also proposed. Those fishers consistently landing kingfish, particularly those landing

kingfish as an unavoidable bycatch, will place a greater value on quota to avoid a future stream of deemed value payments. This will create an incentive for quota to flow to those fishers with a long-term interest in the fishery. MFish expects that there will be short-term restructuring costs for these long-term fishers while quota is repositioned to where it is most required and valued. A similar situation (and impact) is anticipated for new entrants to target fisheries of which kingfish is a bycatch who will receive no allocation of kingfish quota.

- 132 Industry submissions note the market for provisional catch history is the first opportunity for acquiring access to the kingfish fishery for those that may wish to target this species. MFish is not in a position to assess the likelihood of target fisheries for kingfish developing but notes that this could affect the cost and availability of quota to cover bycatch.

Reference points

- 133 MFish has used reference points to compare the socio-economic impacts of TACC options as follows:
- a) The average of the most recent twelve years of landings (industry preferred TACC option)
 - b) The average of the most recent nine years of landings (five years in the case of KIN 1) (MFish TACC option 1)
 - c) The average of the most recent two calendar years of landings (to reflect landings with full implementation of the MLS regime)
 - d) The average of kingfish landings reported as bycatch over the most recent five years.
- 134 Industry has submitted that it prefers that the twelve years from 1990 to 2002 be used as a basis to set TACCs to reflect the value of kingfish to the commercial sector as a target and non-target species. MFish has used the industry proposal as a point of comparison to evaluate TACC options and provide you an industry perspective on the potential impacts of the TACC options proposed.
- 135 The MFish estimate of current commercial utilisation forms the basis of the TAC and TACC option 1. This is the highest of the TACC options proposed by MFish and it is used as a reference point for the lower TACC options proposed.
- 136 The IPP used the 2001-02 fishing year as a point of comparison to ascertain whether TACC options would represent changes in overall landings in comparison to the most recent reported landings. The 2001-02 year was chosen not only because it was the most recent fishing year but also because it reflected the most recent patterns of fishing including the removal of the exemption enabling trawl operators to retain undersized fish. Since the exemption was only removed in December 2000 the period of the point of comparison is limited. However, in response to industry submissions that one-year is insufficient, MFish has broadened the period of the point of comparison to include the two most recent calendar years 2001 and 2002.
- 137 Further, to address the issue of impacting on the ability of fishers to target species where kingfish is taken as a bycatch, MFish has analysed the level of bycatch recently

reported for kingfish in greater detail. Given the changes in fishing practise noted in industry submissions, MFish considers that the average bycatch reported over the past five years provides the best point of comparison for comparing TACC options and ascertaining whether fishing for associated species might be constrained. However, it must be emphasised that this level of reported bycatch probably reflects an upper limit to the actual bycatch.

- 138 Kingfish bycatch at moderate levels is associated with target fishing for snapper, trevally, and tarakihi and at low levels for ten other target fisheries. The level of bycatch reported from these fisheries has been stable or declining over the past twelve years. In addition, MFish does not consider that recent reported commercial kingfish landings necessarily represent a minimum level in terms of a manageable bycatch. The distribution or location of some fishing methods is likely to influence the level of bycatch of kingfish. For example, longlining and setnetting in areas of reef or around promontories might expect a proportionally higher bycatch of kingfish than when fishing in other habitats. In a largely unrestrained management environment it is to be expected that some fishers have attempted to optimise the level of bycatch of kingfish. In addition, recently reported bycatch levels are based on current methods in use in the fishery. MFish notes that methods may change under QMS management.

Table 5: Reference points of comparison (tonnes of kingfish) for evaluating annual loss of economic return

	KIN 1	KIN 2	KIN 3	KIN 4	KIN 7	KIN 8	KIN 10
Industry proposal	209	92	1	0	6	46	0
Average landings	119	81	1	1	7	47	1
2001-02 average	115	71	1	0	8	61	0
Reported bycatch	119	69	1	0	7	43	0

Estimates of loss of economic return

- 139 MFish has estimated the potential loss of economic return with respect to the reference points above for each of the following factors:
- loss in earnings from kingfish (based on port price)
 - loss in quota value
 - potential deemed value costs
 - potential costs of foregone fishing for associated species due to kingfish bycatch limitations.
- 140 Commercial impacts can be measured as direct opportunity costs. A tonne of kingfish has a value and any reduction in tonnage for the commercial sector as a result of a lower TACC can be measured as an opportunity cost. MFish considers that impacts can best be measured by asset value and by forgone annual earnings as provided by the port price of kingfish (MFish notes that port prices will overestimate annual earnings as these include handling costs).
- 141 In the IPP asset value (quota value) for kingfish was estimated between \$15,000 and \$22,000. MFish notes the SeaFIC submission that the use of a proxy to derive these

values is problematic as quota value of a species taken as bycatch may have little to do with the export price (the basis for proxy selection). MFish agrees that there is uncertainty in estimations of the future quota price for kingfish but, in the absence of any alternative asset values provided by submissions, consider these to be the best available information.

- 142 The loss of annual earnings from the potential to target kingfish is estimated by taking the difference between each TACC option and the point of comparison and multiplying by the port price of \$3.92 for all stocks.
- 143 The loss of quota value is estimated by taking the difference between each TACC option and the point of comparison and multiplying by the estimate of quota value per tonne for all stocks.
- 144 For associated fisheries, economic impacts can occur when ACE is not available to cover the inevitable bycatch associated with other target fisheries. Impacts include the payment of deemed values for any kingfish taken above ACE.
- 145 The potential for costs associated with payment of deemed values is estimated from taking the difference between each TACC option and the reported bycatch and multiplying by the proposed deemed value of \$8,900 per tonne. MFish notes that this assessment is based on the fishery as a whole. The potential for deemed value costs is further influenced by the circumstances of individual fishers with respect to their future quota holdings of kingfish.
- 146 MFish notes that this analysis is based on the payment of annual deemed values and does not apply to differential deemed value rates. If differential deemed value rates are incurred the impacts could be up to two fold greater. On the other hand, industry have outlined in submissions measures enabling fishing practices that reduce catches of kingfish and if adopted to a greater extent would mitigate incurring deemed value payments.
- 147 An alternative to the payment of deemed value when there is insufficient ACE to cover bycatch is that fishers could stop fishing for their target species. MFish is not aware of any current situation where the landing of target species is constrained by the level of bycatch TACCs. Typically when landings are taken in excess of the bycatch TACC deemed values are paid. Nevertheless, MFish agrees with industry submissions that if fishers choose forgoing valuable catches in other QMS fisheries because of bycatch limitations, there may be substantial economic impacts that require further consideration.
- 148 In the absence of a market for kingfish or of any comparative economic analysis involving QMS species where a target fishery is constrained by the TACC of a bycatch species, MFish has estimated the loss of earnings for that proportion of associated fisheries potentially affected by TACC options.
- 149 The aggregate value of key associated target fisheries has been determined using the ACE price for each species. The potential impact of kingfish TACC options on associated fisheries is then estimated as a proportion of the aggregate value. This proportion is determined by the difference between the TACC option and the average

of five years of reported bycatch [Potential impact=Aggregate value * (TACC-reported by catch/reported by catch)].

150 MFish accepts industry submissions that by not including all other bycatch species in the analysis any value derived for the fishery will be conservative. However, this concern is mitigated by the relatively high prices for snapper, trevally and tarakihi that together contributes most to any estimate of those particular fisheries total value.

151 The assessment of the potential loss of economic return associated with TACC options is summarised in Table 6 and in the following sections for each kingfish stock.

Table 6: Assessment of loss of economic return for TACC options (in thousands of \$)

Potential Impact	Point of comparison	KIN 1	KIN 2	KIN 8	KIN 3, 4, 7 & 10
Average landings					
Port price	Industry proposal	353	43	0	0
	Average landings	0	0	0	0
Quota value	Industry proposal	1,350-1,980	165-242	0	0
	Average landings	0	0	0	0
Deemed value	Reported bycatch	0	0	0	0
Associated species	Reported bycatch	0	0	0	0
Proportional					
Port price	Industry proposal	463	114	39	
	Average landings	110	71	43	
Quota value	Industry proposal	1,770-2,596	435-638	150-220	
	Average landings	420-616	270-396	165-242	
Deemed value	Reported bycatch	250	53	142	
Associated species	Reported bycatch	4,135	207	1184	
Utility					
Port price	Industry proposal	505	164		
	Average landings	153	121		
Quota value	Industry proposal	1,935-2,838	630-924		
	Average landings	585-858	465-682		
Deemed value	Reported bycatch	347	169		
Associated species	Reported bycatch	5,686	643		

Conclusion

152 MFish concludes that restructuring costs above what may be usual for a QMS introduction are likely for kingfish because historical catch (and therefore PCH) is

higher than any TACC option proposed. MFish considers that these costs will be short term but are relevant for you to consider.

- 153 Assessing loss of economic return for kingfish TACC options is problematic. MFish has therefore provided a range of reference points for you to consider with respect to the choice of TACC options. MFish has used port prices and derived an asset value (quota price) to assess opportunity costs of TACC options with respect to these reference points. Because no quota market currently exists for kingfish, the assessment has relied on proxy values. MFish notes that there is uncertainty associated with this approach, however it is considered best information currently available.
- 154 MFish concludes that apart from forgone annual economic returns and asset values with respect to the Industry preferred option for TACCs, no other impacts are incurred by setting TACCs at the level of the MFish average landings option.
- 155 With regard to the MFish option for proportionally reduced TACCs, MFish notes that there are both opportunity costs and potential impacts on associated fisheries for KIN 1, KIN 2 and KIN 8. The latter impact suggests that either deemed values or losses from forgoing fishing on associated species might be incurred by setting a TACC under the proportionally reduced option. MFish considers that you should note the potential impacts associated with this option.
- 156 With respect to the utility options proposed for KIN 1 and KIN 2 there are greater potential socio-economic impacts on associated fisheries and / or the requirement for deemed value payments. MFish considers that these are potential economic impacts that you will need to carefully consider when making your decision to set TACCs for kingfish. MFish notes that under some TACC options fishers may need to exercise the choice between payment of deemed value or restricting fishing for associated species. MFish considers that there is also the potential for any economic impacts from constraining associated fisheries to be mitigated by management measures or by fishers altering fishing practices that reduce the level of bycatch as they submit that they have done in the past. Potential mitigation measures are considered further in the following section.

Management of commercial landings

MFish initial position

- 157 MFish TACC options were proposed on the basis of the existing MLS of 65 cm. Alternative options of raising the MLS to 75 cm (to match a proposed increase in recreational MLS) or removing the MLS (to reduce fishing-related mortality) were proposed for consultation.
- 158 The option of listing kingfish on the Sixth Schedule of the 1996 Act (allowing the release of live kingfish to the water subject to specified conditions set out for the stock) to reduce the socio-economic impacts of constraining TACCs was also proposed subject to a commitment from industry to manage the more complex compliance issues that result.

Stakeholder submissions

- 159 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 support retaining the MLS for commercial fishers at 65 cm.
- 160 Tolaga Bay East Cape Charters and Richard Pollock submit support for raising the MLS to the size of maturity of 50% of the females at either 97 cm or rounded to 100 cm.
- 161 The Recreational Fishing Council (RFC), Area Six North Island West Coast fishing Clubs support raising the MLS for both the recreational and commercial sectors from 65 cm to 75 cm to assist the fisheries recovery.
- 162 Option 4 submits support for raising the MLS for both the recreational and commercial sectors from 65 cm to 75 cm to assist the fisheries recovery. The submissions question MFish's assumption that wastage in the commercial sector at greater size limits will be unacceptably high. Further, Option 4 notes that the only defence for possessing undersized fish is that the fish be returned to the sea as soon as practical and the submission queries how the practise described in the Snapper 8 Company research report (which assesses the likely mortality of trawl caught kingfish in KIN 8) is consistent with that legal requirement.
- 163 The submissions of Pelagic & Tuna New Zealand Ltd (PTNZL), The Snapper 8 Company Ltd and Sanford Ltd submit that the commercial MLS be removed requiring all commercial catch to be landed and thereby reducing the commercial fishing-related incidental mortality to zero.
- 164 SeaFIC submits that there should be further consultation on measures to manage commercial catch once your decisions on TACs and allowances are known. TOKM share this view.
- 165 Guards Fisheries (Nelson) Ltd recommend increasing the commercial MLS as an alternative to a reduction in TAC for KIN 7 until biomass surveys for this stock have been undertaken.
- 166 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 submits that all sectors should review their handling practices to reduce incidental mortality of kingfish.
- 167 The Option 4 submission considers it disturbing that the Snapper 8 Company research report acknowledges that the kingfish catch is sorted and binned, and any discarding of kingfish is made at the end of this sorting process. The submission notes that the Fisheries Act only allows the defence for possessing undersized fish as long as fish are returned to the water as soon as practicable. Option 4 considers it unthinkable that recreational fishers would leave undersized fish on deck while helping other fishers deal with their fish and asks why MFish allows this commercial practice to continue.
- 168 The New Zealand Big Game Fishing Council, the New Zealand Recreational Fishing Council, the Northern Amateur Fishers Association, the Mangawhai Boating and

Fishing Club, Tolaga Bay East Coast Charters and Option 4 submit support for inclusion of kingfish on the Sixth Schedule to allow the release of live kingfish above the minimum size as long as industry develops a code of compliance.

- 169 The submissions of Pelagic & Tuna New Zealand Ltd, The Snapper 8 Company Ltd and Sanford Ltd do not support inclusion of kingfish on the Sixth Schedule.
- 170 Tolaga Bay East Cape Charters supports raising the minimum mesh size applicable to kingfish and banning the taking of kingfish by setnet.
- 171 The Whakatane Charter Fishing Cluster submission supports the need for a prohibition on gillnetting around reefs before these ecosystems are destroyed.

MFish discussion

- 172 Having considered submissions and the results of a provisional analysis of yield per recruit for kingfish MFish concludes that the MLS of 65 cm should be retained for kingfish taken by commercial fishers.
- 173 MFish notes submissions that consider that it is important that there should be equity between stakeholders and methods for size limits but considers that there are good reasons to suggest otherwise for kingfish.
- 174 The recreational sector believes that raising the MLS for all sectors will immediately reduce the number of fish extracted from the stock and ensure a stock rebuild. This is correct¹ and there are also biological advantages in moving the MLS closer to the mean size of maturity for kingfish. However, a MLS is not required to limit commercial landings, the TACC is intended to achieve this. Further the biological benefits of an increased MLS are likely to be outweighed by the increase in fishing related mortality estimated to be associated with an increase in MLS for commercial fisheries.
- 175 Provisional yield per recruit analysis suggests that, because of the high mortality of kingfish taken and released by commercial fishing methods, there are no gains in yield for the fishery as a whole from an increase in MLS from 65cm to 75 cm, in fact yield is reduced albeit marginally.
- 176 MFish also considered the role an increase to the commercial MLS from 65 cm to 75 cm could play in mitigating bycatch and providing a disincentive to the development of target fisheries for kingfish. This is because MFish now accepts there could be socio economic effects from you adopting options of low TACCs (associated with the utility option) in the absence of other management measures to assist fishers in managing their bycatch. An increase in MLS would assist in this regard by reducing the proportion of bycatch that could be lawfully landed – but it is reliant on the ability to return undersized fish to the sea and the survivability of undersized fish on return to the sea.

¹ MFish notes that a length weight relationship is available for kingfish. Further, by using that relationship and the results from the Akroyd Walshe and Snapper 8 Company research projects, changes in landings for any proposed change in MLS can be estimated. The assessment of commercial MLS suggests that landings will be reduced by 21% for an increase in MLS from 65 cm to 75 cm.

- 177 MFish's preferred option however is that, if you decide to set TACCs based on the utility option, you give consideration over time to the use of the Sixth Schedule as a means of mitigating bycatch. MFish notes that the Sixth Schedule can be used as a management tool at any level of TACC .
- 178 SeaFIC and TOKM are silent on options for managing commercial catch, instead suggesting that further discussion occur once your decisions on catch limits are known. Other industry submissions favour the option of removing the commercial MLS to reduce wastage in the fishery. MFish does not favour this option without the development of strategies to manage bycatch. There are biological benefits from the MLS at the current size and there are further benefits in the management of bycatch. The IPP noted that the removal of the MLS with the requirement to land all catch would substantially increase commercial landings and potentially substantially increase the cost to industry of deemed value payments.
- 179 MFish notes that estimates of commercial fishing related mortality at the current MLS have been estimated on the basis of current industry practice and that there is considerable scope for reductions in commercial sources of incidental mortality if current practises can be improved. Recreational submissions correctly point out that there is a legal requirement that kingfish taken below the MLS are returned immediately to the water. Adoption of improved handling practises is therefore the preferred option for reducing wastage associated with the current commercial MLS rather than its removal.
- 180 MFish notes that recreational fishers support using the Sixth Schedule, so that fish that are likely to survive could be returned to the sea as soon as is practicable after being taken. This support applies for fish caught above the MLS. However, industry does not support using this provision to manage their kingfish bycatch. The IPP assessed that ensuring compliance with the Sixth Schedule provisions in order to prevent discarding of dead kingfish is potentially a significant problem, especially where a high-deemed value relative to port price is proposed (as is the case with kingfish). Therefore, in the absence of any industry support for the measure and any commitment to manage the more complex compliance issues that result, MFish no longer proposes inclusion of kingfish on the Sixth Schedule at this time.
- 181 However, MFish notes that this remains an option available to assist in the management of kingfish landings to the available ACE. The importance of this option will in part depend on your decisions with regard to TACCs. MFish proposes that further discussion take place with industry once your decisions on catch limits are known. There are benefits of this option even if applied in a limited fashion. For example there is currently a voluntary agreement that no kingfish is to be landed as a bycatch of purse seine operations. In a non-QMS environment this agreement is supported by the minimum mesh size applying to kingfish. Once kingfish is in the QMS the rules are different. Any kingfish taken above the MLS must be retained and landed. Continuation of this voluntary agreement once kingfish is introduced to the QMS will require listing kingfish onto the Sixth Schedule for purse seining.
- 182 Recreational stakeholders have highlighted certain set netting practises and set net mesh size as issues requiring further review. MFish notes that minimum mesh sizes are imposed largely to complement the minimum legal size of fish. MFish recognises that the default net mesh minimum for kingfish could reasonably be set at a higher

level, but the exact measure would require more extensive evaluation. Therefore, depending on what MLS applies to kingfish and the priority for any mesh size changes with respect to other sustainability measures, MFish considers this issue is best addressed during a future sustainability round. MFish does not support banning any particular method for taking kingfish at this time, especially while the majority of kingfish is taken as bycatch.

Recreational allowance

MFish initial position

183 The recreational allowances (in tonnes) proposed in the IPP for each QMA are set out in Table 7 below.

Table 7 Options to set recreational allowances for kingfish fishstocks:

	KIN 1	KIN 2	KIN 3	KIN 4	KIN 7	KIN 8	KIN 10
Average landings	600	85	1	1	10	40	1
Proportional	460	66				31	
Utility	504	92					

184 Under a TAC based on the current level of utilisation of the fishery, the average of the two most recent estimates of recreational landing was proposed as the basis for setting the recreational allowance. Under the option of a smaller TAC for KIN 1, KIN 2 and KIN 8, reduced recreational allowances were calculated on the basis of the proportions of landings established for each sector by current levels of utilisation. For KIN 1 and KIN 2 (on the basis that these stocks are of most significance to the recreational sector) an option of increasing the share of recreational harvest (based on the current comparison of commercial and recreational fishery values) while still providing for a viable level of commercial bycatch of kingfish was proposed.

Stakeholder submissions

185 The New Zealand Big Game Fishing Council, the New Zealand Recreational Fishing Council, the Northern Amateur Fishers Association, the Mangawhai Boating and Fishing Club and Option 4 are strongly opposed to the allowances proposed in the IPP. These submitters propose that the allowances should be based on the results of the most recent survey. Submissions state that an error in the 1996 recreational harvest survey allowed for many refusals in the survey to be counted as non-fishing households. Further, the submissions note that independent expert advice reported harvest estimates in the 1999-00 survey were self-adjusting for the number of non-fishers included in the survey. The submissions reject the IPP assertion that recreational fishing is of less importance in KIN 8 and consider that the 1999-2000 recreational harvest estimate for KIN 8 is seriously underestimated.

186 Option 4 submits that the IPP fails to recognise legitimate landings caught by people excluded from the recreational harvest surveys. These include children under the age of 15 years of age and any overseas visitors that come to fish for kingfish. It suggests adding a nominal allowance of 100-200 tonnes to the most recent estimates of recreational harvest for survey non-participants.

- 187 Option 4 submits that recreational landings are also likely to have declined over recent years following a similar trend as commercial landings. The most recent estimates of harvest are therefore likely to under represent the recreational share. Option 4 and the NZ Recreational Fishing Council consider that recreational interests are being penalised for past voluntary constraints by the low allowances proposed by MFish. The NZ Recreational Fishing Council view is that recreational landings could have been as high as 3000 tonnes if not for the voluntary measures imposed by that sector.
- 188 Industry submissions also oppose the MFish proposed allowances. Industry submits that the 1996 survey alone should be used to determine an allowance as the most recent survey has yet to receive full review and acceptance. The New Zealand Seafood Industry Council (SeaFIC) considers it unacceptable that a recreational allocation has been progressed with the uncertainty surrounding recreational harvest estimates and weak management frameworks in place for this sector. It submits that the IPP provides no information to support the proposal that increasing the MLS will constrain the recreational harvest.
- 189 Commercial submissions and that of TOKM strongly oppose the setting of recreational allowances on the basis of a transfer of value away from the commercial sector. This option is also opposed by many recreational submitters who regard the option as a 'double edged sword'. Other recreational submissions support this option and suggest it also apply in KIN 8, as well as in KIN 1 & KIN 2 as currently proposed.

MFish discussion

- 190 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.
- 191 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. MFish considers that landings history information is a more certain basis for allocation than utility. Utility information for kingfish is uncertain. You should weigh this uncertainty when considering the use of utility information as a basis for allocations for kingfish.
- 192 MFish proposes no change to the method used to determine recreational allowances stated in the IPP (with the exception of the addition of a 1 tonne recreational allowance in KIN 10). MFish notes however, that there is a reduction in allowances under the utility option, because TAC options have been revised. While the lower TACs proposed are based on a revision of estimates of commercial landings, it has the effect of reducing the allowances proposed for recreational fishing for the utility option in order to remain within the TAC.
- 193 There are competing demands for the use of kingfish. Recreational fishers constitute the largest fishing sector and account for approximately two thirds of all kingfish currently caught. Kingfish is one of the few species, that has this characteristic. It is highly sought after by recreational fishers. The charter boat industry also has a

significant interest in the species. Recreational fishers express a preference for increased abundance and greater ability to catch large sized fish.

- 194 MFish considers it is appropriate that the due recognition is given to the importance of the stock to recreational fishers. However, in doing so MFish does not support fully allocating the fishery to recreational fishers or endeavouring to provide for the needs of recreational fishers in full. Such a situation would ignore the inevitable bycatch of kingfish in associated target commercial fishers and would potentially lead to excessive waste of catch and socio-economic impacts. It is also problematic to ascertain what the precise needs of recreational fishers are. Estimates of recreational landings are as high as 1000 tonnes per annum. MFish does not believe, based on indications of declining commercial landings and anecdotal recreational reports, that the stock can sustain landings at this level.
- 195 MFish recommends that the recreational allowance be based on the best available information of current use in the fishery. MFish considers that the average of the 1996 and 1999-2000 recreational diary surveys represents best available information on current use. Both recreational and commercial submissions favour the use of a single survey estimate (albeit different surveys proposed by each sector) as opposed to an average. MFish holds a different view. Both the 1996 and the 2000 surveys have known sources of bias, however the direction of likely bias in the estimates is known. The 1996 survey is likely to be an underestimate and the 2000 survey is likely to be an overestimate. The exact position is uncertain and real landings are likely to lie within a range.
- 196 A single figure is required for the purposes of setting a TAC and allowances. MFish considers that an average is the best estimate available at this time. MFish acknowledges that by using the average harvest level as estimated by the two surveys, recreational needs may not be fully provided for. In determining allocations you must consider the competing demands for the resource and the socio-economic impacts of allocations proposed.
- 197 MFish acknowledges that recreational voluntary conservation efforts have likely influenced recreational landings levels. However, MFish has defined status quo management arrangements (both voluntary and regulatory) as a basis for providing estimates of current utilisation for the purposes of determining TACs. MFish notes that commercial submissions contain similar concerns with regard to past voluntary constraints on landings.
- 198 Option 4 proposes the addition of a nominal amount to recreational allowances to account for non-participants in recreational surveys. MFish notes that *Statistics New Zealand, Census of Populations and Dwellings 1996* reports 7.3% of the population being between 10 and 14 years of age. Further, the IPP noted that 7% of charter fishers were overseas visitors. These data suggest that at best these sources could contribute a further 8.3% to recreational harvest estimates (assuming children between the age of 10-14 fished as often and as successfully as adults and that overseas anglers only utilised charter vessels and were as successful and landed their catch in the same proportion as New Zealand charter boat fishers).
- 199 MFish notes that there is considerable uncertainty about recreational estimates. In addition, the Recreational Working Group has discussed under reporting of younger

fishers but has determined no policy on how this proportion of landings should be treated. Therefore, while MFish has no wish to exclude 10-14 year old fishers or overseas fishers from the recreational harvest estimates, it considers that with the level of uncertainty in recreational harvest estimates and the small magnitude of the omission, no specific correction to the proposed allowances need be applied at this time.

- 200 MFish agrees with recreational fishers that there are important recreational kingfish fisheries in parts of KIN 8. However, MFish notes that no option for utility based allocation was provided in KIN 8 because under a reduced TAC, a proportional reduction was likely to result in a TACC at or about the level of commercial bycatch. MFish confirms this view.

Management of recreational landings

MFish initial position

- 201 In order to constrain recreational removals within options for reduced allowances and to provide biological benefits to the stocks, MFish proposed an increase in recreational MLS from 65 cm to 75 cm. MFish invited submissions in favour of a higher MLS in order to promote a more rapid rebuilding of stocks.

Stakeholder submissions

- 202 The New Zealand Big Game Fishing Council, the New Zealand Recreational Fishing Council, the Northern Amateur Fishers Association and the Mangawhai Boating and Fishing Club submit that they will only support raising the recreational MLS to 75 cm on the condition that there be reallocation of current levels of utilisation in favour of the recreational sector. The submissions recognise that for young and inexperienced fishers, landing any size kingfish is a significant event and they therefore do not support increasing the MLS beyond 75 cm.
- 203 Tolaga Bay East Cape Charters and Richard Pollock submits support for raising the MLS to the size of maturity of 50% of the females at either 97 cm or rounded to 100 cm.
- 204 The Recreational Fishing Council and Area Six North Island West Coast fishing Clubs assert that it was recreational fishers that insisted on the introduction of a 65 cm MLS during the early 1990s and that the MLS reduced landings by both the commercial and recreational sectors. The submissions note that the MLS reduces landings rather than constrains them. The RFC is concerned that in the Hauraki Gulf an increase in the MLS to 75 cm would make it difficult to land legal sized fish. Nevertheless, these submissions support raising the MLS for both the recreational and commercial sectors from 65 cm to 75 cm to assist the fisheries recovery.
- 205 Option 4 submits support for raising the MLS for both the recreational and commercial sectors from 65 cm to 75 cm to assist the fisheries recovery.
- 206 The submissions of Pelagic & Tuna New Zealand Ltd (PTNZL), The Snapper 8 Company Ltd and Sanford Ltd submit that the MLS for other sectors be reviewed once age at sexual maturity has been determined. They submit that the introduction of

the MLS in 1993 was based on insufficient information concerning the size composition of the kingfish catch and biological parameters of the species. They note that there have been recent studies on kingfish biological parameters for the purpose of aquaculture research, however very little research has been carried out for wild kingfish stocks.

- 207 SeaFIC submits that due to the paucity of reliable information collected on recreational catches, there is no information to suggest that by increasing the MLS for recreational fishers from 65 cm to 75 cm that the recreational harvest will be constrained.

MFish discussion

- 208 MFish confirms its view that adjustment to the recreational MLS is an effective mechanism to constrain recreational landings. Recreational submissions confirm the likely impact of this measure on recreational landings.
- 209 A length weight relationship is available for kingfish (NZ Fisheries Assessment Report 2003/25). By using this relationship in combination with length frequency distributions of recreational catch derived from a 1991 boat ramp survey of recreational kingfish catch, an assessment can be undertaken of the likely level of catch reduction associated with various MLS for recreational fishing. These assessments suggest that a substantial reduction in landings could be achieved by increasing the MLS from 65 cm to 75 cm, at least in the short term.
- 210 The assessment of a recreational MLS suggests that landings will be reduced by 23% for an increase in MLS from 65 cm to 75 cm and reduced by 40% for an increase from 65 cm to 85 cm. MFish considers that adoption of a TAC option below current landings levels will require an increase to the recreational MLS from 65 cm to 75 cm to constrain landings to within the proposed recreational allowances.
- 211 A further rationale for a MLS is to optimise yield per recruit. In general, there is more benefit to the fishery by delaying recruitment to the fishery until fish have passed through the most rapid phase of their growth. MFish notes that provisional yield per recruit analysis suggests that there are potential gains in yield from increasing the MLS from 65 cm to 75 cm because of the high likelihood of survival of kingfish taken and released by recreational line fishing.
- 212 MFish does not agree with industry submissions that research on biological parameters is applicable only to kingfish reared for aquaculture. As mentioned in the IPP, a recent review of reproductive information for kingfish has led to a revision of estimates of the length at which kingfish attain (on average) sexual maturity. Current information now suggests that the fork length at which 50% of the kingfish have reached sexual maturity is 70 cm for males and 97 cm for females (Report from the Fisheries Assessment Plenary, May 2003). MFish understands that this study on kingfish biological parameters sampled kingfish landed from recreational and commercial fisheries from west and east coasts of northern New Zealand and is therefore applicable to wild kingfish.

Allowances for other sources of mortality

MFish initial position

- 213 Fishing-related incidental mortality is associated with the catching and releasing of kingfish caught under the MLS. The IPP contained estimates of fishing-related incidental mortality derived by multiplying the estimated proportion of fish taken by fishers that were less than the MLS by mortality rates assessed for each method of fishing.

Stakeholder submissions

- 214 The Recreational Fishing Council (RFC) submission notes that the IPP suggests that increasing the commercial MLS from 65 cm to 75 cm would increase the allowance for other sources of mortality substantially (in the case of KIN 1 from 29 to 40 tonnes). It submits that it fails to see how these figures have been derived especially as the percentage increase in fishing related mortality varies substantially amongst fishstocks.

MFish discussion

- 215 As noted in the IPP, estimates of fishing-related incidental mortality was derived by multiplying the estimated proportion of landings of fish less than 65 cm by mortality rates estimated for each method of fishing. Mortality rates used were: 41% for the KIN 1 and KIN 2 trawl fishery (Akroyd Walshe), 65% for the KIN 8 trawl fishery (Snapper 8 Company Ltd), 100% for the setnet fishery (assumed), 5% for the bottom longline fishery (assumed), 10% other methods (assumed), 5% recreational fishing (assumed). MFish notes that the length frequencies of kingfish vulnerable to fishing, the composition of fishing methods and the assessed mortality rates varies between fishstocks, this accounts for the variation in fishing reported mortality reported in the IPP.
- 216 No other information was received in submissions. MFish proposes no change to the procedures for estimating other sources of mortality, but notes that the estimates themselves vary depending on the management option being considered and are based on several assumptions that require further investigation.

Other Management Measures

Schedule 5A

MFish initial position

- 217 MFish proposed not listing any kingfish stock on Schedule 5A of the Act and proposed to allow under-fishing rights to be carried forward.

Stakeholder submissions

- 218 No submissions were received on this issue.

MFish discussion

- 219 MFish confirms its initial view that no kingfish stocks should be listed on Schedule 5A of the Act.

Deemed values

MFish initial position

- 220 MFish proposed two options for setting annual deemed values for kingfish of \$8.00 and \$8.90. MFish further proposed that differential deemed values apply to different levels of landings in excess of annual catch entitlements.

Stakeholder submissions

- 221 The Recreational Fishing Council (RFC) submits support for setting the deemed value at \$8.90 per kg.
- 222 Tolaga Bay East Cape Charters notes that a punitive deemed value is likely to result in illegal discarding of kingfish.
- 223 The submissions of Pelagic & Tuna New Zealand Ltd (PTNZL), The Snapper 8 Company Ltd and Sanford Ltd submit support for raising the deemed value on the basis of export price or the market value of quota.
- 224 SeaFIC submits that although the method outlined in the IPP is often used as a basis for deemed values, this is an arbitrary method that is not consistent with MFish's own policies regarding the appropriate basis for setting deemed values. Furthermore, the proposals are not consistent with MFish's own valuation of quota (and thus ACE) for this fishery.
- 225 Guards Fisheries (Nelson) Ltd submits opposition to high and ramped deemed values.

MFish discussion

- 226 MFish notes that there is an interesting contrast in commercial views with regard to the level of deemed value for kingfish. Pelagic & Tuna New Zealand Ltd (PTNZL), The Snapper 8 Company Ltd and Sanford Ltd all favour increased deemed values (a subsequent submission from the Snapper 8 Company indicated that this was not the view of all their members) whereas SeaFIC consider that the deemed value options proposed in the IPP are extortionate.
- 227 MFish notes that SeaFIC concedes it is probably not possible to set an appropriate deemed value prior to the end of the first fishing year under a QMS regime. While MFish does not agree with this submission, it does intend reviewing deemed values for fishstocks at least annually.
- 228 Given industry commentary on the high value of kingfish taken commercially and the specific comment from northern industry companies that port prices may be kept artificially low because they form a basis for cost recovery levies, MFish concludes that the higher of the deemed value options proposed (\$8.90) should apply. MFish

confirms its view that differential deemed values apply to different levels of landings in excess of annual catch entitlements.

Over fishing threshold

MFish initial position

229 MFish proposed that no over fishing threshold apply to kingfish stocks at this time.

Stakeholder submissions

230 No submissions were received on this proposal.

MFish discussion

231 MFish confirms its view that no over fishing threshold should apply to kingfish stocks. Rather the effectiveness of the deemed value regime in ensuring that commercial landings remain within the available ACE should be monitored and an over fishing threshold only considered if and when it is apparent that further control is required.

Consequential amendments to the Fisheries (Reporting) Regulations

MFish initial position

232 MFish proposed amending regulations to reflect your decisions on QMAs for kingfish stocks.

Stakeholder submissions

233 No submissions were received.

MFish discussion

234 MFish confirms its proposal to amend regulations to reflect your decisions on QMAs for kingfish stocks and notes that these amendments are in hand.

Conclusion

235 Kingfish is an important species for recreational fishers. Recreational fishers account for close to two thirds of the current kingfish landings. Accordingly, recreational fishers have a high level of interest in decisions relating to the species. Kingfish is also an important species for customary and commercial fishers. The extent of customary landings is unknown. However, it is widely available in northern waters and historically has been accessible in harbours to customary fishers. For commercial fishers, the species is principally taken as a bycatch of associated target fisheries, such as snapper and trevally. Commercial fishers wish to ensure that the TACCs for kingfish to not act as a constraint on catch in the associated target fisheries and provide an opportunity to develop the species for commercial purposes.

- 236 In introducing kingfish to the QMS, you have decisions to make about:
- a) Target level (at or above B_{MSY})
 - b) TAC and allocations
 - c) Associated management measures – MLS, Sixth Schedule, and deemed values
- 237 The IPP outlined your legislative obligations in relation to these matters.
- 238 In the IPP MFish noted that kingfish could be managed above B_{MSY} to provide benefit to recreational fishers via increased abundance and greater range of size classes. However, MFish notes that there is no information to assess where the stock was currently in relation to B_{MSY} nor any reduction in yield necessary to achieve management above B_{MSY} . Given the lack of information about current biomass, the proposed target level, and any change in yield necessary to achieve the target level, MFish does not regard the setting of a target level above B_{MSY} to be a critical issue that you need to determine at this time when setting the TAC for kingfish stocks.
- 239 MFish notes that there is no stock assessment for this species. Therefore there is no estimate of sustainable yield. The status of the stock is uncertain. There is limited information on which to assess trends in biomass. However, MFish considers there is some uncertainty in relation to sustainability in KIN 1 and 2, and potentially KIN 8 stocks in particular based on the following factors:
- Anecdotal information from recreational fishers suggesting a decline in abundance
 - A declining trend in commercial landings since 1993.
- 240 Based on an assessment of information about the state of the stocks in KIN 1, KIN 2 and KIN 8, and the lack of stock assessment information for other areas, MFish does not believe that development opportunity can be provided in any fishery. It is MFish's view that the TAC should be based on an average of historical landings.
- 241 A number of submissions have raised issues about the period used to calculate average landings. MFish proposes the following estimates be used to calculate the TAC:
- Average of commercial landings taken during a specified period
 - Average of the recreational survey estimates from the 1996 and 1999-2000 surveys
 - 10% of the total of commercial and recreational landings for customary Māori
 - Assessments of fishing related mortality for each sector.
- 242 In the IPP the average of historical landings for commercial fishers was based on a nine year period between 1993-94 and 2001-02. Submissions have suggested that this period does not accurately reflect current use in the fishery. MFish considers that the nine year average of commercial landings proposed in the IPP may be unsustainable, given:
- the factors noted in paragraph 239 (above)
 - that it does not take into account implementation of the MLS (65 cm) for all methods.

- 243 As an alternative, MFish proposes (for calculation purposes) to reduce commercial catches for years in which no MLS applied to trawling, and to use the five most recent fishing years to average commercial landings for KIN 1. MFish assess that the TAC resulting from that the revised calculations, provides greater assurance of meeting any sustainability concerns, in particular by taking greater account of landings in the more recent fishing years.
- 244 However, MFish notes that the average landings TAC is above landings taken from the most recent fishing year for key kingfish stocks. If the current biomass is declining there is a risk that an increase in removals may result in further decline. MFish notes that while there is no definitive information to suggest that this is occurring, there is considerable uncertainty with regard to the current status of stocks.
- 245 What is apparent from submissions is the view of the recreational sector which is that there has been a decline in the fishery, and management action is required to the extent that this sector supports measures to restrict recreational landings.
- 246 On balance, having regard to information which, although uncertain, suggests there is a risk associated with current levels of catch in terms of:
- a) preventing possible decline in the stock
 - b) improving abundance, MFish have a preference for TAC that is 20% below average landings. However in reaching a decision the Minister needs to consider the uncertainty in information suggesting a decline and the socio-economic impacts.
- 247 MFish notes that the TAC option based on a reduction to average landings will have socio-economic impacts in terms of lost commercial development opportunity (based on current commercial landings levels). This impact should be considered along with weighting of the uncertain information on stock status when making your decision.
- 248 On the issue of allocation, the IPP and FAP continue significant discussion on the use of alternative allocations options – the “claims based” and “utility” approaches. The policy discussion on utility and claims based approaches is not intended to fetter your discretion, but rather provide to policy guidance in order to provide a more robust allocation framework.
- 249 There are competing demands for kingfish in excess of the proposed allowances within the TAC. 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.
- 250 MFish considers that there is subjectivity attached to both consideration of catch history and utility. As evidenced by the discussion on catch history in the front section of this paper, the period chosen for catch history is contentious. MFish considers that much of the detailed critique of the utility estimates provided in the IPP can be addressed however MFish confirms its view (acknowledged in the IPP) that there is a great deal of uncertainty attached to quantitative assessments of value.
- 251 MFish considers that catch history information is a more certain basis for allocation than utility. As noted, utility information for kingfish is uncertain. You should

weight this uncertainty when considering the use of utility information as a basis for determining allocations for kingfish.

252 The proposed allocation options are outlined in Table 8.

Table 8: Final proposal to set TACs, TACCs, and other allowances.

Stock	TAC	Customary allowance	Recreational allowance	Recreational fishing-related incidental mortality *	TACC	Commercial fishing-related incidental mortality #
KIN 1						
Proportional	673	76	459	30	91	17
Utility	673	76	471	31	80	15
KIN 2						
Proportional	170	18	65	4	63	20
Utility	170	18	81	5	50	16
KIN 3	3	1	1		1	
KIN 4	3	1	1		1	
KIN 7	21	2	10	1	7	1
KIN 8						
Proportional	83	9	31	2	36	5
KIN 10	2		1		1	

* assumes MLS of 75 cm

assumes MLS of 65 cm

253 No change has been made to the proposed allowances for customary fishers.

254 The allocations for commercial fishers have changed from the IPP to better reflect an estimate of current use in the fishery. The revised average landings TACC is now based on the commercial landings taken during the last five fishing years (for KIN 1) and adjusted to remove fish that are likely to be smaller than the current 65cm minimum legal size (for all stocks).

255 MFish considers it is appropriate that due recognition is given to the importance of the species to recreational fishers when considering allocation decisions. However, in doing so MFish does not support fully allocating the fishery to recreational fishers or endeavouring to provide for the needs of recreational fishers in full. Such a situation would ignore the inevitable bycatch of kingfish in associated commercial target fisheries, that potentially would lead to excessive waste of catch and socio-economic impacts.

256 On balance, MFish considers the allocations noted above to appropriately reflect competing demands, current use in the fishery, and the socio-economic effects. To a large extent the allocation options will be driven by the TAC option you consider reasonable. If you agree to set a TAC based on a 20% reduction to average landings, MFish support a proportional reduction to allowances in the fishery.

257 In this case MFish proposes, in respect of associated management measures that you:

- a) Increase the MLS for recreational fishers from 65 to 75 cm, in order to provide some surety that recreational landings will not exceed the allowances proposed

- b) Retain the 65 cm MLS for commercial fishers at this time so that the level of other sources of mortality (ie, wastage) is minimised
- c) Agree to consider listing kingfish on the Sixth Schedule of the Act for purse seining to allow current voluntary agreements to be maintained under the QMS, subject to further discussion with industry
- d) Set a deemed value of \$8.90 to remove the incentive for kingfish to exceed the proposed TACCs.

Final Recommendations

258 MFish recommends that you:

- a) **Note** the views of stakeholders summarised in this document and outlined in full in Annex I
- b) **Note** that information with regard to the status of kingfish stocks is uncertain
- c) **Note** that information with regard to the relative values of kingfish to the recreational and commercial sectors is uncertain
- d) **Note** that, having regard to the uncertainty surrounding stocks status, MFish has a preference for the lower of the TAC options proposed
- e) **Note** that, having regard to the uncertainty in estimates of utility for kingfish and the views of stakeholders MFish has a preference for the lower TACs proposed to be allocated between recreational and commercial fishers on a proportional basis
- f) **Agree** to set a TAC for KIN 1 of 673 tonnes. Within this TAC:
EITHER (MFish preferred option)
 - i) Set a customary allowance of 76 tonnes
 - ii) Set a recreational allowance of 459 tonnes
 - iii) Set an allowance of 47 tonnes for other fishing mortality
 - iv) Set a TACC of 91 tonnes**OR**
 - v) Set a customary allowance of 76 tonnes
 - vi) Set a recreational allowance of 471 tonnes
 - vii) Set an allowance of 46 tonnes for other fishing mortality
 - viii) Set a TACC of 80 tonnes
- g) **Agree** to set a TAC for KIN 2 of 170 tonnes. Within this TAC:
EITHER (MFish preferred option)
 - i) Set a customary allowance of 18 tonnes
 - ii) Set a recreational allowance of 65 tonnes

- iii) Set an allowance of 24 tonnes for other fishing mortality
 - iv) Set a TACC of 63 tonnes
- OR**
- v) Set a customary allowance of 18 tonnes
 - vi) Set a recreational allowance of 81 tonnes
 - vii) Set an allowance of 21 tonnes for other fishing mortality
 - viii) Set a TACC of 50 tonnes
- h) **Agree** to set a TAC for KIN 3 of 3 tonnes. Within this TAC:
 - i) Set a customary allowance of 1 tonne
 - ii) Set a recreational allowance of 1 tonne
 - iii) Set an allowance of 0 tonnes for other fishing mortality
 - iv) Set a TACC of 1 tonne
 - i) **Agree** to set a TAC for KIN 4 of 3 tonnes. Within this TAC:
 - i) Set a customary allowance of 1 tonne
 - ii) Set a recreational allowance of 1 tonne
 - iii) Set an allowance of 0 tonnes for other fishing mortality
 - iv) Set a TACC of 1 tonne
 - j) **Agree** to set a TAC for KIN 7 of 21 tonnes. Within this TAC:
 - i) Set a customary allowance of 2 tonnes
 - ii) Set a recreational allowance of 10 tonnes
 - iii) Set an allowance of 2 tonnes for other fishing mortality
 - iv) Set a TACC of 7 tonnes
 - k) **Agree** to set a TAC for KIN 8 of 83 tonnes. Within this TAC:
 - i) Set a customary allowance of 9 tonnes
 - ii) Set a recreational allowance of 31 tonnes
 - iii) Set an allowance of 7 tonnes for other fishing mortality
 - iv) Set a TACC of 36 tonnes
 - l) **Agree** to set a TAC for KIN 10 of 3 tonnes. Within this TAC:
 - i) Set a customary allowance of 0 tonnes
 - ii) Set a recreational allowance of 1 tonne
 - iii) Set an allowance of 0 tonnes for other fishing mortality
 - iv)** Set a TACC of 1 tonne
 - m) **Agree** to retain the MLS of 65 cm for kingfish taken by commercial fishers.

- n) **Agree** to increase the MLS from 65 cm to 75 cm for kingfish taken by recreational fishers
- o) **Agree** to consider the addition of kingfish to the Sixth Schedule of the Fisheries Act 1996 subject to further discussion with industry representatives for:
 - i) Kingfish taken by the method of purse seine
 - ii) Kingfish taken by other fishing methods to be determined
- p) **Agree** to set a deemed value of \$8.90 for kingfish
- q) **Agree** that differential deemed values apply to kingfish
- r) **Agree** that if you choose to reallocate from commercial to non-commercial fishers, MFish will provide you with further advice on the issue of redress

Arthur Hore
For Chief Executive
Ministry of Fisheries

APPROVED / NOT APPROVED / APPROVED AS AMENDED

Hon Pete Hodgson
Minister of Fisheries

/ / 2003