APPENDIX A

Australian Government

Australian Fisheries Management Authority

Regulation Impact Statement

for the

Eastern Tuna and Billfish Fishery Management Plan

October 2004

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A Introduction

This Regulation Impact Statement (RIS) examines the proposed introduction of the Eastern Tuna and Billfish Fishery (ETBF) Management Plan. The general challenges facing fisheries management are outlined to provide a context for discussion of the problems in the ETBF, and a brief description of the ETBF is provided. Following a description of the problems with current management arrangements, the objectives for the introduction of the ETBF Management Plan are outlined. Using qualitative policy review and analysis of the existing fishery management arrangements, the costs and benefits of the impacts of five possible options are assessed and the option that is most likely to achieve the desired objectives is recommended. The RIS concludes by recommending the implementation of a Statutory Plan of Management, designation of Total Allowable Effort (TAE) input controls, and the grant Statutory Fishing Rights (SFRs) based upon fishing effort units. The consultation process for the development of the recommended option is summarised, and the implementation and review processes of the preferred option is presented.

B Background

International fisheries developments

There have been two major avenues of approach to the development of more effective fisheries management regimes. The first of these has been developments in international law, which have permitted the progressive extension of national jurisdiction over fisheries. In the late 1960s exclusive fishing zones of 12 nautical miles replaced the previous three nautical mile Territorial Sea as the limit of national fisheries jurisdiction. About a decade later developments in the United Nations Convention on the Law of the Sea saw national jurisdiction over fisheries extended to 200 nautical miles. This means that national governments now have much greater authority and responsibility to effectively manage fisheries.

Over the same period, developments in fishing gear technology, fishing boat design and in particular in electronic fish finding and boat positioning technology has vastly increased the fishing capacity of fishers. Boats are now able to fish more effectively at greater depths and further from their homeports.

Developments in fisheries management

In parallel with this has been the development of fisheries management techniques that allow a more effective approach to both the biological problem of over-fishing and the economic problems of excess fishing capacity and resource rent dissipation.

Input and output controls are methods used to regulate fishing. The aim of both methods is to preserve fish stocks. Input controls work by controlling the effort put into finding and catching fish while output controls concentrate on the quantity of fish taken, largely ignoring how it is caught.

Input controls

Since the 1960s, limitations on the number of boats permitted to operate in specific fisheries have been progressively introduced into Australian fisheries. This prevented further increases in fishing capacity through increasing the size of the fishing fleet, but did nothing to restrict the increase in fishing capacity that resulted from the increases in the size of individual boats or developments in fishing technology.

To overcome these problems increasingly sophisticated systems for controlling fishing inputs have been implemented. These have mostly involved some form of units that regulate either the quantity of fishing gear or size of boat that may be used. In some fisheries these units are tradable so that a fisher may increase the size of his/her operation by buying units from other fishers. While these arrangements provide more flexibility for individual fishers they neither directly address the problem of existing excess capacity nor prevent the further growth in capacity that results from advances in fishing technology.

Output controls

While input controls represent a limited form of property right, a more effective form of individual property is provided through the use of individual transferable quotas (ITQs). Under such a system an annual total allowable catch (TAC) is set for the fishery. This is then apportioned to individual fishers in accordance with the proportion of the catch to which each is entitled. Under such an arrangement trading in quota will, over time, result in a flow of quota to the efficient fishers with the less efficient withdrawing from the fishery. Such a system results in the autonomous adjustment to the size of the fishing fleet so that the problem of excess capacity is removed and resource rent dissipation ceases over time.

While output controls in the form of ITQs have significant theoretical advantages over input controls they are not problem free. For example, where there is considerable and unpredictable variation in the catch of fish available each year. The cost of policing ITQs can also be considerably greater than the comparative cost of input controls. This can reduce the attractiveness of this form of control. With multi-species fisheries it is difficult to get a satisfactory balance in the TACs for individual species because the relative abundance between species fluctuates unpredictably from year to year.

In the Commonwealth Government's 1989 policy statement *New Directions for Commonwealth Fisheries Management in the 1990s* and in the Government's 2003 review of this policy (*Looking to the Future: A Review of Commonwealth Fisheries Policy*), the existence of significant excess fishing capacity was identified as a major impediment to the effective management of Australia's fisheries. ITQs were identified as the Government's preferred method for managing fisheries.

Statutory Fishing Rights

The *Fisheries Management Act 1991* (the FMA) specifically provides for the establishment of statutory fishing rights (SFRs) under management plans to provide fishers with stronger ongoing rights. Strong rights contribute to the use of fishery resources in an economically efficient manner and help maximise resource rents. It is also recognised that strong rights contribute to the use of fishery resources in an ecologically sustainable manner by encouraging operators to take a longer-term view and providing disincentives to overfish. The FMA requires AFMA to pursue five objectives, two of which are: 'maximising economic efficiency in the exploitation of fisheries resources'; and 'ensuring that the exploitation of fisheries resources and the carrying of any related activities are conducted in a manner consistent with ecologically sustainable development (ESD) and the exercise of the precautionary principle, in particular the need to have regard to the impact of fishing activities on non-target species and the long term sustainability of the marine environment'. Strong ongoing rights help to pursue both of these objectives.

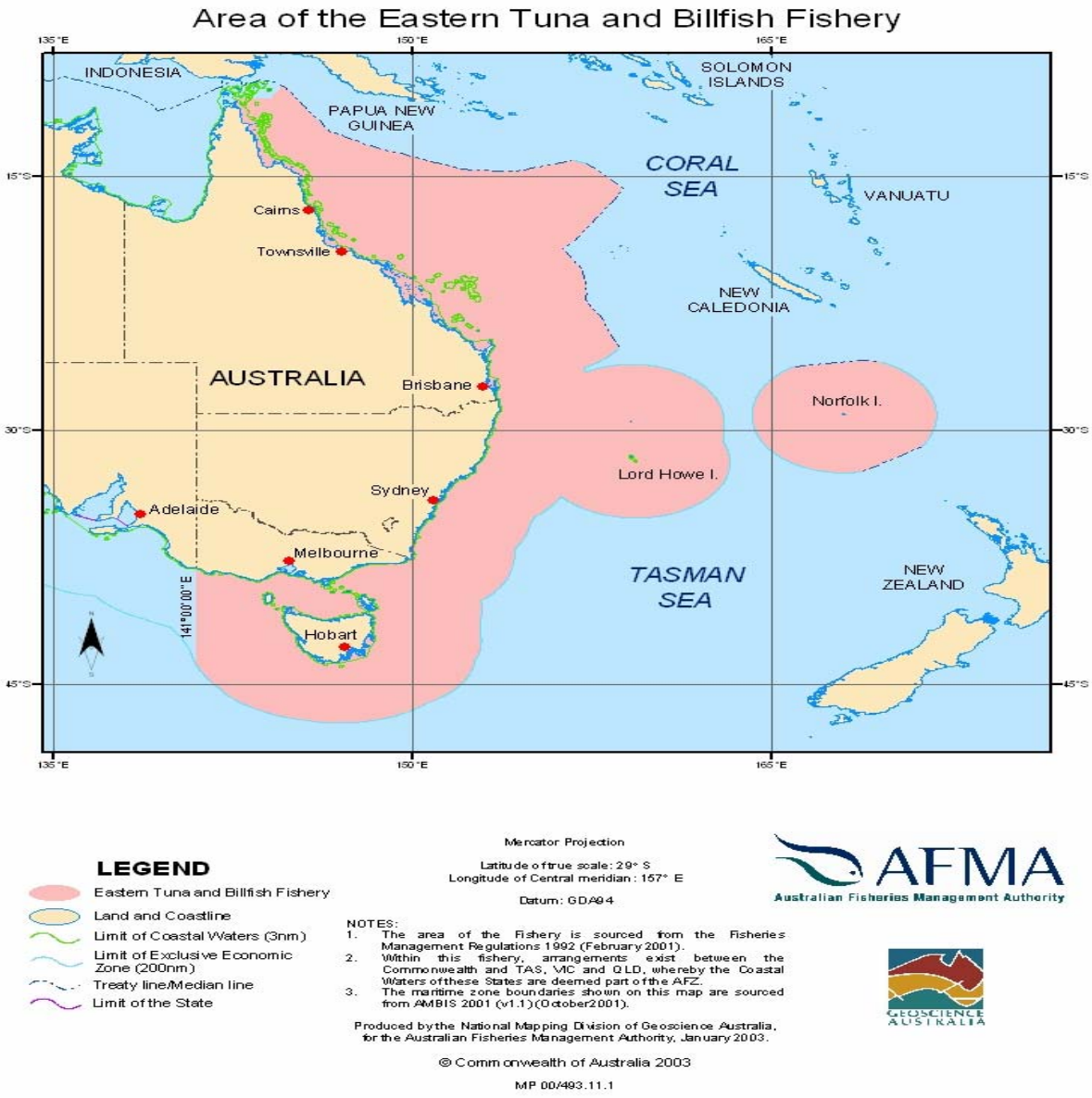
Currently the ETBF is not managed under a management plan, and SFRs have not been granted (further details provided below).

The Eastern Tuna and Billfish Fishery

Area of the fishery

The Eastern Tuna and Billfish Fishery (ETBF) comprises the eastern part of the Australian Fishing Zone (AFZ) which includes Commonwealth waters off Queensland, NSW, Victoria and Tasmania out to the 200 nautical miles limit of the AFZ, as well as waters around Norfolk Island (see figure below). The Commonwealth has reached agreements under offshore constitutional settlement (OCS) with Queensland, Victoria and Tasmania on the Commonwealth's jurisdiction over commercial fisheries for tuna and tuna-like species within state waters.

Since 1 July 2002, the ETBF has encompassed high seas within the area of competency of the Convention for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean. This area of water is also included within the Eastern Tuna and Billfish Fishery Management Plan. A Regional Fisheries Management Organisation (RFMO) is likely to be established by the end of 2004 to implement this Convention, within which Australia will have an active role in representing our national interests.



Species composition

The ETBF is a multi-species and multi-method fishery. Fishing activity targets tuna and tuna-like species (A full description of the species recorded as taken in the ETBF can be found in the data summary and analysis available on AFMA's website). However, the species that AFMA has jurisdiction and issues permits for are:

- Yellowfin tuna *Thunnus albacares*
- Bigeye tuna *Thunnus obesus*
- Longtail tuna *Thunnus tonggol*
- Albacore tuna *Thunnus alalunga*
- Skipjack tuna *Katsuwonus pelamis*
- Northern bluefin tuna *Thunnus orientalis*
- Striped marlin *Tetrapturus audax*
- Broadbill swordfish *Xiphias gladius*
- Pomfrets (or Rays Bream) family *bramidae*
- Indo-Pacific sailfish *Istiophorus platypterus*
- Shortbill spearfish *Tetraptusus augustirostris*

It should be noted that southern bluefin tuna (*Thunnus maccoyii*) is also taken in the ETBF but covered by quota under the Southern Bluefin Tuna Management Plan. Similarly, skipjack tuna is taken in the ETBF but due to the differences in the catching techniques and schooling behaviour of this species, this species is managed separately from ETBF. Black Marlin (*Makaira indica*) and Blue marlin (*Makaira mazara*) are protected species under the FMA and not permitted to be taken from the fishery.

The main catch of the pelagic longline and minor line sectors of the ETBF is yellowfin tuna, bigeye tuna, albacore tuna, broadbill swordfish and striped marlin.

[The historical development of the ETBF is documented in Appendix 1]

Existing management regime

Eastern Tuna and Billfish Fishery Management Advisory Committee

The ETBF is managed by AFMA with advice from the Eastern Tuna and Billfish Fishery Management Advisory Committee (Eastern Tuna MAC). Established in 1986, Eastern Tuna MAC is the principal forum where issues relating to the management of the fishery are discussed. The Chairman's Summary from each Eastern Tuna MAC meeting is routinely sent to all ETBF operators and interested persons. The Eastern Tuna MAC is the peak consultative body for the ETBF. It is currently comprised of an independent Chairman, an executive officer, one AFMA member, one scientific member, one conservation member, one recreational/charter fisheries member and four industry members. There are also two permanent observers (a recreational/charter fishing observer and a State government observer) who regularly attend MAC meetings and provide advice on specific issues. Eastern Tuna MAC meets on average three times per year, and more frequently when required.

Management arrangements and fishing methods

Management arrangements presently in place for the ETBF utilise a range of input controls which, together with various measures to ensure effective compliance, are designed to constrain total fishing effort. These include limited entry and a range of conditions on permits, such as requirements relating to vessel monitoring systems (VMS), spatial and temporal management, reporting requirements and byproduct catch limits.

The fishing methods used in the fishery are pelagic longline, minor line, purse seining, and poling. A **pelagic longline** consists of a mainline to which are attached branch lines, each fitted with one or more baited hooks or artificial lures. The longline is set during fishing operations in such a manner that the mainline, branch lines and hooks are suspended below the surface in the water by floats at the sea surface. **Minor line** fishing is based on fishing methods using trolling, rod and reel and handlining. During minor line fishing operations a fishing line or number of lines remain attached to the vessel throughout the fishing operation and only one hook, or one set of ganged hooks, or one lure is attached to each line at any time. **Poling** is a method by which fish is enticed to strike at an artificial or natural lure or bait at the end of a line attached to a pole, and is then brought on board the boat. Currently, the majority of effort in the ETBF is longline fishing. This is expected to continue when the Eastern Tuna and Billfish Fishery Management Plan comes into operation.

C Problem identification

The Fisheries Challenge

Marine fish in the wild are generally regarded as a community-owned resource due to the difficulty of allocating effective individual rights to a resource without pre-determined boundaries. For this reason a fish does not become the property of an individual fisher until it is actually caught. The inability to provide effective individual property rights results in what is termed a market failure. Contrary to the normal expectation, total investment in fisheries does not cease at the point where total profits are maximised, and as a consequence, fisheries tend to become significantly overcapitalised and economically inefficient with increasing pressure on the biological sustainability of the resource.

Because the fish does not become the property of the individual fisher until it is caught, each individual has the incentive to catch the maximum amount of fish in the shortest possible time. Each fish caught reduces both the numbers of fish remaining and the overall catch rate (this is referred to in fisheries management jargon as a decline in the 'catch-per-unit of fishing effort'). As a result of this, the cost of catching each additional fish increases. If there was only one fisher in a fishery (i.e. an unregulated monopoly) then all the costs associated with catching each fish, including the costs associated with declining catch rates, would have to be met by that fisher. Such a fisher would cease fishing when the cost of catching fish equaled the value of the fish caught (e.g. when marginal cost equaled marginal revenue). This is also the point where total profit from the fishery would be maximised.

However, where there is more than one fisher (i.e. unregulated and fully competitive), while each fisher receives the full value of the fish they catch, they are able to pass on most of the cost associated with a reduced catch per unit of fishing effort to others in the fishery. The end result of this is that excessive investment, in the form of additional boats and fishing equipment, tends to be attracted to the fishery and profits, that should be available in the form of resource rents, are dissipated. The most efficient situation is somewhere between a fully competitive and a monopolistic fishery. AFMA seeks to implement management arrangements that achieve ecologically sustainability for fish stocks whilst providing the greatest economic opportunities for operators and minimising the cost of management.

The dissipation of resource rents is not the most obvious result of excess fishing capacity. In most fisheries this is the over-exploitation of the fish resources themselves. Until quite recently the over-exploitation of fish resources was regarded only as a biological problem. Its economic dimension was not recognised, or was seen as a secondary consideration only (this is still the situation in many countries' fisheries). The approach generally taken to managing fisheries was to introduce restrictions that imposed inefficiencies on fishers (input controls) and, to the extent that they were successful in protecting the resource, succeeded in doing so only by making fishing more expensive and less economically efficient.

Fisheries around the world are characterised by the existence of excess fishing capacity (overcapitalisation). In a 1993 report by the FAO entitled "Marine Fisheries and the Law of the Sea: A Decade of Change", it was estimated that in 1989 global fishing costs were greater than global fishing revenues by US$54 billion. In effect it cost US$124 billion to harvest fisheries resources that were valued at only US$70 billion. The level of overcapitalisation is likely to have increased since this time but the figures are still indicative of overcapitalisation of fisheries worldwide. In many instances this has led to the collapse or severe decline of major fisheries. Although Australia has, in the main, avoided severe depletion of fish stocks there remains substantial excess fishing capacity in virtually all our fisheries.

Perceived issues with existing management arrangements

Between 1995 to 2000, the total production for the ETBF grew steadily from 5,357 tonnes (1995/96) to 10,028 tonnes (1999/2000). This corresponded to an increase in the value of production from $19.901 million to $64.534 million. Since 1999/2000, total production has remainder relatively stable, ranging from 8,202 tonnes to 8,555 tonnes, during 2000/01 to 2002/03. Since 1999/2000 the value of the fishery has fluctuated from $65.517 million in 2000/01, $79.29 million in 2001/02, to $67.913 million in 2002/03[1]. A range of factors have been attributed to these variations in value, including the SARS virus in Asia, weaker prices generally on the Japanese market (as a result of an influx of product from tuna farms in Europe) and reduced catches as a result of low target species abundance.

AFMA believes that potential rent is likely to be dissipated in this fishery over the long-term through competition between fishers unless management arrangements that provide incentives for efficiency are used. As fishers seek to increase their catch to maintain a marginal return, overall fishing effort (and hence harvest) for the fishery increases to unsustainable levels. Overcapitalisation is likely in these circumstances. AFMA is concerned that, without more sophisticated management measures, over-fishing or unsustainable fishing may result with the subsequent erosion of community benefits through degradation of the resource.

Stakeholder discussions for the ETBF show that implementing input controls in the form of Individual Transferable Effort (TAE) units is supported. While it is not necessary to discuss the output controls being adopted in the SWTBF, it should be noted that the difference in proposed management is due to strong stakeholder opposition to output controls in the ETBF and the converse situation in the WTBF. The vast historical difference in these two fisheries and levels of developed capacity are key factors in the divergence of view in the two fisheries. Since both methods can satisfy the goal of achieving a sustainable harvest and meeting international obligations, AFMA considered that an enhanced system of input controls in the ETBF would significantly improve the cost-effective management of the fishery. AFMA relies on a partnership-with-industry management approach in the pursuit of its objectives and stakeholder support for the management regime encourages compliance with management policies and legislation.

[1] *Australian Fisheries Statistics 2003,* Australian Bureau of Agricultural and Resource Economics.

There are advantages of input controls. Input controls allow operators to take advantage of fluctuations in abundance of target species over time. When abundance is high, operators could catch more fish using their allocated quantity of effort units than when abundance is low. Although input controls do not directly address the problems of excess capacity or 'effort-creep' in the ETBF, this flexibility for operators is the key advantage of input controls over output controls (such as ITQs). Also, AFMA has the ability to add additional management measures such as area and time closures if required.

The ETBF has entered a stage when pressures are likely to increase upon these stocks and RFMOs are being or have been developed to coordinate international fisheries management for the species in these fisheries. Either management technique (a TAC or TAE) allows AFMA to limit domestic catch to that set by an RFMO, thereby fulfilling Australia's international obligations.

Certainty for operators

AFMA is the responsible agency for managing Commonwealth fisheries. As such, it may make decisions to vary arrangements (through variations in fishing permits) without prior consultation with relevant stakeholders. At present, there are 305 permits in the ETBF. Under certain circumstances, AFMA may refuse to renew fishing permits each year. Also, conditions on an individual's fishing permit are subject to annual internal review and appeals processes. This uncertainty in management arrangements creates a potential for the fishery to be destabilised through litigation coupled with uncertainty in the fishery as a whole. Hence, the current arrangements could lead to a lack of confidence by investors (eg banks or third party interests) in the value and security of an operator's assets (including fishing concessions and catch entitlements).

Confidence in management arrangements

Similarly, the current administrative arrangements could lead to a lack of confidence by the fishing industry in the management regime through uncertain industry ownership of fishery management decisions. Under these conditions, industry tends to exert less stewardship over the long-term sustainability of the fishery. Consequently, this leads to lower compliance with management arrangements and increased costs of ensuring compliance.

Without full observer coverage (which is costly), industry stewardship is an important factor in ensuring compliance with management rules to maintain catch to sustainable levels. In addition, improved monitoring provides more accurate data to assess stock levels and the impacts of fishing. The practical difficulties of monitoring fishing activity and ensuring compliance with management arrangements requires a system that provides incentives to the fishing industry to ensure sustainable harvest of fishery resources. Greater confidence in the stability of management arrangements and the value of access rights to the resource, over the longer term, could encourage a greater responsibility to access these resources sustainably.

Fishing capacity and sustainability

In the last five years total catch in the ETBF has fallen from 10,998t (1998/99) to 8,466t (2002/03)[2]. During the same period, effort has increased from 9.9 million hooks to 12.7 million hooks set per annum[3].

The *Fishery Status Reports 2002–03*[4] indicate the following stock status:

- yellowfin tuna – fully fished;
- bigeye tuna – fully fished;
- broadbill swordfish – uncertain;
- striped marlin – uncertain; and
- albacore tuna – under fished.

Roughly one third of vessels are reported not operating due to high costs and low prices. Without appropriate management arrangements, the sustainability of the ETBF will be made more difficult. In addition, operators need a greater ability to adjust their fishing effort in response to changing catch level. This will allow industry to redistribute investment in response to changing business conditions.

D Objectives

The draft Management Plan reflects AFMA's legislative objectives, which are:

(a) to manage the fishery efficiently and cost-effectively for Commonwealth;

(b) to ensure that the exploitation of the resources of the fishery and the carrying on of any related activities are conducted in a manner consistent with the principles of ecologically sustainable development and the exercise of the precautionary principle and, in particular, the need to have regard to the impact of fishing activities on non-target species and the long-term sustainability of the marine environment;

(c) to maximise economic efficiency in the exploitation of the resources of the fishery;

(d) to ensure AFMA's accountability to the fishing industry and to the Australian community in the management of the resources of the fishery;

(e) to reach Government targets for the recovery of the costs of AFMA in relation to the fishery; and

(f) to ensure that conservation and management measures in the fishery implement Australia's obligations under international agreements that deal with fish stocks, and other relevant international agreements.

[2] Lynch, A.W. (2003). *Eastern Tuna and Billfish Fishery Data Summary 2002-2003.* Logbook Program, Australian Fisheries Management Authority, Canberra.
[3] *Ibid.*
[4] Australian Government, Department of Agriculture, Fisheries and Forestry.

E Options

A number of options were considered as possibilities for the future management of the ETBF, ranging from maintaining existing arrangements to introducing SFRs in the form of input or output controls. Each of these options has been discussed and a consultation process undertaken with various stakeholder groups including fishermen, fish receivers, licence and quota brokers, recreational fishing bodies, environment groups, scientists, managers and the general public. The five options being considered are:

Option 1: Maintaining the Status Quo

This involves no change to the existing limited entry arrangements based on transferable, annual fishing permits, together with zones and vessel length restrictions. It does not involve the grant of any form of SFR to individual fishers under a Statutory Management Plan. There is clear legal precedent that management arrangements such as these do not meet Government legislative objectives.

Option 2: Hook Pool

The hook pool refers to a total allowable number of hooks in the fishery. Hook SFRs would be granted to individuals in the fishery and nominated on a particular vessel. The hook pool would form the main mechanism for regulating catch levels through a total allowable effort (TAE) setting process. Stock assessment and estimations of effective fishing effort would form the basis of determining the TAE.

Option 3: Boat Days

The boat day system involves SFRs linked to some unit of transferable fishing time (for example, a fishing day). The SFR holdings of the vessel determine how much fishing time is available to the vessel in total.

Option 4: Fishing Effort Units

Fishing effort units SFRs would be a function of both fishing gear and fishing time, as a proportion of the Total Allowable Effort (TAE). Fishing effort would be monitored remotely and AFMA would then decrement effort against a person's SFR holdings. The effort unit will be measured in terms of branchline clips expended or an estimate based on the number of rotations of a longline drum[5].

Option 5: Individual Transferable Quotas (ITQs)

Output controls involve limiting the total allowable catch (TAC) in a fishery. This is usually done on an annual basis but can be done over longer or shorter periods depending on the species characteristics. The best option for administering an output control management system is to grant SFRs as Individual Transferable Quotas (ITQs). The size of the TAC will determine the weight value of the SFR (in kilograms) for the period of the TAC. AFMA suggests that if an ITQ system is adopted that only the key target species (in the ETBF these are bigeye tuna, broadbill, yellowfin tuna and striped marlin) come under quota. As the fishery develops, byproduct species may or may not be added.

[5] During a fishing trip, a longline is wound around a drum that rotates to deploy and retrieve the longline. Attached to each longline is a number of branchline clips (with a hook attached to each clip). It is proposed that equipment onboard each vessel will measure either the number of rotations made by the longline drum to derive an estimate of the number of branchline clips deployed or each branchline clip deployed.

Consistent with the objectives set out in the FMA (including Australia's recent ratification of the United Nations Fish Stocks Agreement) each of the above options is assessed in terms of the management objectives of the ETBF (described in Box 1).

Box. 1. Criteria used for comparison of the options

a. Ecological Sustainable Development

The criteria used to assess options against ESD objective include the relative capacity of each option to:

- directly control/constrain catch within agreed precautionary levels;
- ensure accurate data collection for stock assessment;
- address multi-species issues, including bycatch and broader ecosystem impacts; and
- the ability to determine the total allowable catch or effort limit with an acceptable level of confidence, and to vary these in response to stock needs.

b. Economic Efficiency

The criteria used to assess options against the economic efficiency objective include:

- the relative strength of the access right provided;
- the level of operational flexibility provided;
- the capacity to deal with inter-annual variability in abundance and therefore the ability to maximise return from available fish resources;
- the ability to limit catches on one species while allowing catches of another to expand;
- the need to minimise the day-to-day involvement by the management agency and provide maximum flexibility; and
- autonomous adjustment in the fisheries.

In maximising economic efficiency AFMA attempts to ensure that management arrangements send the right market signals to operators, that results in minimised overcapitalisation. That is, excess catching capacity is not drawn into the fishery.

c) Cost-effective management

This criterion requires that management of ETBF be undertaken in an efficient and cost effective way. If a management regime cannot deliver on ESD or economic efficiency, it is not effective. If high quality management comes at an exorbitant cost it could not considered cost effective.

d) International fisheries management obligations

Fish species in ETBF that are highly migratory are fished for by most of the neighbouring Pacific and Indian Ocean countries and are subject to international law in various forms. The management arrangements will need to be able to respond to management measures agreed to by the Regional Fishery Management Organisation in the Central and Western Pacific.

Source: Discussion Paper, Management Options for the Eastern Tuna and Southern and Western Tuna and Billfish Fisheries, July 2000.

The following discussion presents the different options against the above criteria. The impacts of each option are summarised reflecting how the stakeholders are affected by the different options.

Option 1. Status Quo (Limited Entry)

Ecologically Sustainable Development

The lack of a flexible, effective mechanism for adjustment of harvest levels within these arrangements is not consistent with a precautionary approach to the pursuit of ecologically sustainable development (ESD). The basic limited entry provides little scope for estimating effective fishing effort or constraining catches within sustainable limits. This is because boat numbers are very poor reflection of real fishing effort. The existing arrangements will not address sustainability issues at the individual species level unless additional restrictions are imposed.

Data collection is normally of a reasonable quality under basic management arrangements that do not seek to limit catches. However, incentives to provide broad-scale data on fishery interactions, discarding and catch and effort are relatively weak where the access rights do not provide high levels of investment security.

Methods of fishing are constrained under current arrangements, providing limited scope for innovation in reducing the impact of fishing on the marine environment.

The potential impact of activation of all latent effort[6] (both by active fishers and inactive permits) within the existing arrangements may impact on ESD.

Economic efficiency

The existing arrangements provide no long-term certainty of access to the fishery and provides a weak form of access right. The incentive for operators to compete for catch share is also high and therefore the potential for over-capitalisation is high. The current arrangements encourage operators to compete with each other and invest in additional fishing capacity and will therefore work against economic efficiency.

Given that the existing arrangements offer little in the form of management, it can be expected that additional regulations will be needed. This will further encourage investment in unregulated equipment and impede the economic efficiency of the fishery. The activation of latent effort over time will add to this situation.

The current arrangements do not provide for autonomous adjustment. That is, there is no economic incentive for individual operators to adjust their own fishing capacity in response to the fishery becoming over-capitalised.

Cost effective management

The costs of management are lowest under existing arrangements relative to all other options. As highlighted previously, it is the effectiveness of the existing regime that is questioned irrespective of the costs incurred. Monitoring and compliance is very low in both fisheries. In order to pursue the legislative requirements, additional regulation will be needed. This will increase the costs of management and reduce the economic efficiency of the harvesting sector.

International fisheries management obligations

As Regional Fisheries Management Organisations develop further, regional catch limits are likely to be the key management tool. Existing arrangements would need to change at this time to ensure that catch allocations are not exceeded. This would result in increased costs.

[6] "Latent Effort" refers to existing ability to fish that is not currently being utilised. In the ETBF, this relates to permits that are currently held under which no fishing is occurring. The activation of latent effort can significantly increase catch and effort levels in the fishery. Where the sum total of active and latent effort exceeds the sustainable yield of the fishery, the activation of latent effort may lead to unsustainable levels of catch and overcapitalisation.

Option 2. Hook Pool

Ecologically Sustainable Development

The hook pool approach is a poor link to effective effort and thus to total catch. Hook numbers alone only account for a proportion of effective fishing effort. Other elements of fishing capacity such as boat specifications, crew numbers and fishing time also contribute significantly to effort and catch. As these elements are increased to maintain or increase catch share, fishery adjustment will be required. As a mechanism for limiting catch, the hook pool option is therefore less than optimal.

The Eastern Tuna MAC has advised that if a gear pool becomes the basis of the SFR, the Management Plan should provide for the ability to introduce area closures and other gear controls to address sustainability concerns, including multi-species problems. AFMA agrees that additional regulation would be needed to pursue ESD goals under a hook pool regime.

Data collection is normally of a reasonable quality under basic management arrangements that do not seek to limit catches. However, incentives to provide broad-scale data on fishery interactions, discarding and catch and effort are relatively weak where the access rights do not provide high levels of investment security.

In order to provide an acceptable level of confidence that ESD will be met, the hook pool regime would need to include a mechanism for incremental reduction in hook numbers as other inputs are increased. Additionally, reductions in the hook pool may also be needed to address specific sustainability issues, for example, arising out of the multi-species nature of the fisheries.

Economic efficiency

The hook pool is a secure access right, as is any SFR granted under a Management Plan. However, the nature of this particular access right makes it less than ideal because of the high potential and relative ease for the fishing activity of other fishers to directly impact on the hook unit value of the individual's SFRs over time.

Under the hook pool there will be an incentive for operators to increase the unregulated elements of fishing capacity such as boat size and fishing days. This will attract additional regulation of these other inputs (or a reduction in the hook pool) to prevent over-capitalisation and will reduce the economic efficiency of the fleet. The hook pool option does not provide autonomous adjustment of the fisheries.

Cost effective management

The central management issue is the number of hooks on-board the vessel while fishing. AFMA is not able to guarantee a low risk of over-fishing without a logistically difficult and high cost 'at-sea' compliance program. The hook pool is therefore a high cost option that will have difficulty achieving the ESD objective with any real degree of confidence. There will also be costs associated with additional regulation under a hook pool and negative impacts on economic efficiency in the fishery.

International fisheries management obligations

The hook pool option could only meet international management obligations if it

contained a mechanism for incremental restructure. Difficulties will arise however under a hook pool if national catch limits are adopted. It could be expected that in the near future, a regime more closely allied to catch might be required to meet international obligations.

Option 3: Boat Days

Ecologically Sustainable Development

While a boat day is easy to monitor, its main constraint is that it provides only a crude proxy for effective fishing effort. It will be difficult to determine and set the total boat days around a sustainable harvest level given that no two boat days are the same. Nevertheless, reductions in boat days could address sustainability issues as they arise.

As a tool for dealing with multi-species problems, the boat day option provides some limited advantages over the hook pool through decrementing boat days at different rates, for example, one boat day may be taken to equal two boat days.

Data collection is normally of a reasonable quality under basic management arrangements that do not seek to limit catches. However, incentives to provide broad-scale data on fishery interactions, discarding and catch and effort are relatively weak where the access rights do not provide high levels of investment security.

Catch per unit effort may be increased under any control of fishing days through the cooperation of operators. Operators may collude in the use of regulated fishing days where one operator locates fish for a group of other operators. This factor will complicate the assessment of a boat day as it relates to fishing power and is likely to impact on ESD.

The boat day may also prove useful for managing impacts on conservation species and the broader marine environment, although determining the level of impact a boat day may contribute would be difficult.

Economic efficiency

While the number of fishing days is limited under this regime, other key inputs are not regulated. Therefore, overcapitalisation will be a major problem. Again it is the nature of the SFR that makes it less than ideal as a type of access right in that the activities of other operators will have a direct impact on the value of SFRs.

The need for additional regulation will remain under this option and the erosion of economic efficiency will result. The boat day option does not provide autonomous adjustment of the fisheries.

Cost effective management

Boat days are expected to offer a relatively powerful management tool for meeting the ESD objective without the need for costly in-port or at-sea compliance programs to ensure acceptable compliance. However, the boat day is not likely to pursue economic efficiency as well as other regimes, therefore the effectiveness of the regime is questionable.

It has been identified in other fisheries that the transfer of units of fishing effort that involve boat days may be complicated and costly due to the inherent differences one boat day has between operators. For example, a boat day allocated to an operator with 500 hooks is less likely to impact on the fishery in the same way as a boat day allocated to an operator with 1500 hooks.

International fisheries management obligations

Given that a boat day is not a good reflection of effective fishing effort this option could only address international management obligations relating to fishing capacity if it contained a mechanism for regular incremental restructure. Similar difficulties to the hook pool option will arise under the boat days option if national catch limits are adopted. Again it could be expected that a change to a regime more closely allied to catch might be required to fully meet international obligations.

Option 4: Fishing Effort Units

Ecologically Sustainable Development

A system of fishing effort units could allow AFMA to pursue ESD within acceptable limits as it provides a reasonably flexible mechanism for adjustment.

Data collection is normally of a reasonable quality under basic management arrangements that do not seek to limit catches. However, incentives to provide broad-scale data on fishery interactions, discarding and catch and effort are relatively weak where the access rights do not provide high levels of investment security.

Any SFR that regulates fishing effort will be susceptible to collusion among operators to increase the catch per unit of fishing effort. As described under the boat day option, this will present an ESD concern.

A fishing effort units system provides a direct incentive to ensure that every single effort unit 'counts' toward effective fishing effort for target and/or by-product species because every effort unit is linked directly to SFR decrementation. That is, every time a fishing event occurs, fishing effort units are expended. For the same reason, it would be in the best interests of operators to minimise interactions with unwanted species.

This option offers similar potential as boat days for managing multi-species issues.

Economic efficiency

This option provides autonomous adjustment of the fishery. It allows fishers to match their holding of rights in the fishery to their business decisions regarding the quantity of fishing they wish to undertake.

Fishing effort based SFRs offer a reasonable level of access right compared with other input regimes. Given that the key inputs to the fishery are regulated, the incentive/scope for overcapitalisation is somewhat reduced. However, many inputs remain unchecked so some additional regulation could be expected over time.

No matter how good a proxy for effective effort the effort units regime represents, competition among operators remains and so individuals still have an incentive to seek ways to increase catch share.

While cooperative behaviour would appear to reduce the costs of fishing, it will increase effective fishing effort and is likely to result in tighter additional controls being implemented.

Cost effective management

While AFMA believes this to be the most effective of the input regimes due to its adjustment flexibility and relationship to effective fishing effort, monitoring effort remains an expensive task.

Similar complexities arise under a fishing effort units regime as under boat days with respect to the transfer of units of fishing capacity between operators. That is, the transfer between operators with different catching efficiencies.

International fisheries management obligations

The fishing effort units option provides more scope to meet international fishing capacity obligations than the hook pool or boat day options in so far as it is more reflective of effective fishing effort.

This option offers the most flexible input control for meeting international fishing capacity obligations but it is not particularly better than other input options with respect to managing catch allocations.

Option 5: Individual Transferable Quotas (ITQs)

Ecologically Sustainable Development

ITQs offer the most direct and effective means of responding to overfishing (the key sustainability issue) because catch limits (TACs) are placed on particular species. This is the main reason they have been adopted in overexploited fisheries such as SBT, southern shark, orange roughy and gemfish. However, ITQs also have broad applicability for providing access to under-utilised species. ITQs offer scope to shift away from longlining to other methods to address both bycatch and multi-species issues. Multi-species issues are addressed to some extent through quotas providing operators can move from one species to another when quota is limited, and provided there is an efficient and sizeable quota market. The quota system is likely to encourage sustainable fishing practices around individual species more so than input regimes due to the particular emphasis ITQs places on particular species. This will have a positive impact on multi-species management.

A major benefit of ITQs is autonomous adjustment, which contributes significantly towards the ESD objective, as fishing capacity is minimised over time for any level of output.

The main issues that may impact on ESD under ITQs are discarding, the quality of data collected, catch monitoring and TAC setting. These are the issues that determine whether the regime can directly promote sustainability. These issues are somewhat compounded by the multi-species nature of the ETBF.

It would be imperative to include at least a low-level scientific monitoring program into a quota regime to reduce the uncertainty around data collection and to provide direct information on discarding. The most obvious benefit of implementing quotas in the tuna fisheries at this time is the fact that the fisheries are not overexploited and quotas should not limit fishing production to an extent that forces discarding. Nevertheless, independent monitoring would still be required for stock assessment purposes. Other tools such as seasonal or area closures can also be used to address discarding, for example, during years of high juvenile recruitment.

Economic efficiency

ITQs provide the greatest benefits in terms of economic efficiency. ITQs provide the strongest access right of any option considered because rights to a specified quantity of fish are not threatened by other operators. This leads to rational fishing planning and better use of markets.

Cost effective management

The cost of monitoring and compliance in the fisheries under ITQs is comparable to the key input regimes. Additionally, the need for further regulation due to effort creep (and therefore increasing costs) will not be a key feature of ITQs, however, some additional controls may be required to address particular multi-species or conservation issues that fail to be dealt with by quotas.

ITQs may attract higher management costs and these must be weighed against the objectives of ESD and economic efficiency, particularly if the costs (per operator) are not significantly higher relative to other regimes.

International fisheries management obligations

ITQs offer advantages with respect to managing fishing capacity since capacity is not relevant if catches are effectively limited. It is only when governments interfere with the free market nature of ITQs (through additional regulation) that investment in excess fishing capacity is encouraged. ITQs will have a clear benefit over other options in terms of implementing international obligations.

F Impact analysis

The following table summarises the impact analysis for different options reflecting on how the different options will affect the relevant stakeholders. These stakeholders are:

Community: In general, members of the Australian public are consumers and protectors of fishery resources. The key interests of the community in fisheries resources comes from:

- Long and short term impacts on supply and price of commercially caught fish;
- the stock of future wealth that can be gained from the resource if it is managed cost-effectively, including the recovery of the attributable costs of management from those that directly benefit financially form the use of fishery resources;

- access to recreational and sport fishing, diving and visiting experiences if the marine ecosystem is conserved under good management; and

- the intangible benefits associated with knowing the marine ecosystem is conserved under good management.

Business: The main business stakeholders are the fishers/fishery operators. The ETBF operators contribute significantly to the commercial fishery, with the gross domestic value of production (GVP) estimated at $67.9 million dollars in the 2002-03 financial year[7]. The key interests of fishers are:

- Secure access rights to fisheries resources;

- Management that will maximise the economic efficiency of the fishery resources;

- Cost-effective management; and

- Accountability of the management process.

Government: AFMA was established under the *Fisheries Administration Act 1991* (the FAA) and manages fisheries under the FMA. AFMA is the Commonwealth statutory authority responsible for ensuring the sustainable use and efficient management of Commonwealth fishery resources on behalf of the Australian community and key stakeholders. AFMA manages fisheries within the Australian Fishing Zone (AFZ) from 3 to 200 nautical miles and in some cases, by agreement with Australian states, to the low water mark. Since the ratification of the UN Fish Stocks Agreement, the FMA has been amended to require management of Australian fishers on the high seas when fishing for migratory and straddling fish stocks.

While not involved in AFMA's day-to-day operations, the Minister for Agriculture, Fisheries and Forestry oversights AFMA's activities through key accountability provisions within the legislation. The Minister of Environment and Heritage accredits Management Plans under the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act).

The following table summarises the impact analysis for different options reflecting on how the different options will affect the relevant stakeholders.

Table 1: Summary of qualitative impact analysis of options

Option 1 – Maintaining the status quo

No significant management of outputs or inputs of the fishery exist at present, apart from limiting the number of boats that may operate in the fishery.

	Community	**Business (fishers)**	**Government**
Benefits	No identifiable benefit.	Operators would not have to participate in trading SFRs. The requirement to purchase SFRs could act as a barrier to entry for new participants in the fishery. No significant changes to the	No identifiable benefit

[7] ABARE and FRDC, Australian Fisheries Statistics 2003, Canberra

		cost of compliance.	
Costs	High probability of overexploitation. High probability of over-capitalisation resulting in a waste of community resources (inappropriately directed capital). Lack of longer-term access deters fishers from taking greater responsibility for the health of resources. The possible consequence is less sustainable management of fishing. The community would not be making the best long-term use of resource. Likely consequences are reductions in quality and availability of fish and increases in prices for consumers over short and longer terms. Lifestyle aspirations will be eroded in the absence of effective management.	Operators have clearly expressed a preference for SFRs – retaining permits would result in low confidence by fishers in management arrangements. Uncertain long-term access to the ETBF due to short life of fishing permits (1 year). Operators pay a fixed annual fee regardless of the level of fishing activity individuals wish to undertake. Smaller operations are most disadvantaged. Catch limits, area closures and other measures used to pursue sustainability are appealable each year every time a new Fishing Permit is granted or conditions are amended, likely causing destabilisation and further uncertainty. Less than ideal access right as the activity of other fishers has the ability to impact upon an operator and decrease the value for their access right. Short-term view of fishery likely to be taken, possibly leading to over-exploitation of fish stocks and reduced medium and long term financial returns from the fisheries resources.	Fishing permits are a poor means to regulate fishing effort, sustainable catches or maintenance of the marine environment. AFMA does not satisfy its legislative requirement to develop and implement statutory management plans in all AFMA managed fisheries. Failure of government to pursue its legislative objectives. Difficult to meet international obligations set by RFMOs. Appeals can be made every time a permit condition is changed. If AFMA were to exercise its discretionary powers over the granting of Fishing Permits and in making changes to permit conditions to manage the fishery, Government funds are highly likely to be spent in repetitive litigation. Cost of sustainable management potentially greater than other options.

Option 2 – Hook Pool

	Community	**Business (fishers)**	**Government**
Benefits	Long-term access rights cause fishers to take a more responsible long-term approach to sustaining the resource, although the benefits are still less than options 3, 4 and 5 which improve the quality of the long-term access	A Hook SFR is an access right for the length of the management plan, which is better than an annually renewable right. Greater confidence to fishers, investors and third party interests in the value and security of fishing concessions although less than options 3, 4 and 5 which improve the quality of the long-term access	Government meets legislative requirements to develop and implement a statutory management plan in the fishery. Increased stability of management arrangements with marginally improved pursuit of legislative objectives over option 1. One appeals process administered by Statutory

	right.	right. Operators can trade SFRs for value to match their effort levels at maximum individual efficiency. Smaller operators can still remain competitive by minimising their cost of access to the fishery matching their desired effort level. Management arrangements are more stable under a management plan and offer a better framework for investment.	Fishing Right Allocation Review Panel considers all appeals regarding SFR allocation at the outset of the ETBF Management Plan and litigation is restricted to initial implementation.
Costs	No real confidence in achieving the ESD objective – possibility for the overexploitation of fisheries resources in the ETBF because other unregulated inputs can easily be applied to fishing. The consequence is possibly less sustainable management of fishing under this option relative to options 3, 4 and 5 (although better than option 1). The community would therefore not be making the best long-term use of the natural resource. Possible overfishing and overcapitalisation may result in reduced supply and quality of fish and increases in prices for consumers over the longer term.	Likelihood of additional regulations still provides some uncertainty in the fishery. If over-exploitation occurs because of a sub-optimal management regime this will increase the costs of fishing (including the costs of management). Lack of regulation of other inputs is likely to impose additional costs of fishing on fishers. Increases in fishing effort by one operator impact on all other operators. The above consequences are also likely to impact on the value of the access right over time. New compliance and training costs may be incurred by operators. Operators incur the cost of purchasing SFRs if they wish to expand their levels of effort. The need to purchase SFRs could act as a barrier to entry for new competitors. SFR holders must implement into their activities processes to monitor their SFR usage. This could include implementing new on-board monitoring devices.	Hook numbers are a poor proxy for effective fishing effort and are not likely to provide a long-term effective means for sustaining catch or the marine environment. Additional regulation may be required to meet AFMA's ESD and economic efficiency objectives. Not optimal for meeting international responsibilities.

Option 3 – Boat Days

	Community	Business (fishers)	Government
Benefits	Long term and higher quality access right than options 1 and 2 and should cause fishers to take a more responsible long-term approach to sustaining the resource.	A boat day SFR is an access right for the length of the management plan, which is better than an annually renewable right. Greater confidence to fishers, investors and third party interests in the value and security of fishing concessions although less than options 4 and 5 which improve the quality of the long-term access right. Management arrangements are more stable under a management plan and offer a better framework for investment. Operators can trade SFRs for value to match their effort levels at maximum individual efficiency. Smaller operators can still remain competitive by minimising their cost of access to the fishery matching their desired effort level.	Government meets legislative requirements to develop and implement a statutory management plan in the fishery. Increased stability of management arrangements with marginally improved pursuit of legislative objectives over option 1 – similar to option 2. One appeals process administered by Statutory Fishing Right Allocation Review Panel considers all appeals regarding SFR allocation at the outset of the ETBF Management Plan and litigation is restricted to initial implementation.

Costs	Improved confidence in achieving the ESD objective relative to option 1 but only similar to option 2. Possibility for the overexploitation of fisheries resources in the ETBF because other unregulated inputs can easily be applied to fishing. The consequence is possibly less sustainable management of fishing under this option relative to options 4 and 5 (although better than option 1, similar to option 2). The community would therefore not be making the best long-term use of the natural resource. Possible overfishing and overcapitalisation may result in reduced supply and quality of fish and increases in prices for consumers over the longer term.	Likelihood of additional regulations still provides some uncertainty in the fishery. If over-exploitation occurs because of a sub-optimal management regime this will increase the costs of fishing (including the costs of management). Lack of regulation of other inputs is likely to impose additional costs of fishing on fishers. Increases in fishing effort by one operator impact on all other operators. The above consequences are also likely to impact on the value of the access right over time. New compliance and training costs may be incurred by operators. Operators incur the cost of purchasing SFRs if they wish to expand their levels of effort. The need to purchase SFRs could act as a barrier to entry for new competitors. SFR holders must implement into their activities processes to monitor their SFR usage. This could include implementing new on-board monitoring devices.	Boat days are also a poor proxy for effective fishing effort and are not likely to provide a long-term effective means for sustaining catch or the marine environment. Additional regulation may be required to meet AFMA's ESD and economic efficiency objectives. Cost of sustainable management is still high relative to options 4 and 5 (equal to option 2) and therefore the government fails to pursue its cost-effective management objective. Not optimal for meeting international responsibilities.

Option 4 – Fishing Effort Units

Fishing effort SFRs are a function of both fishing gear and fishing time, as a proportion of the Total Allowable Effort (TAE) in the Fishery. Fishing effort will be monitored remotely via equipment on board. AFMA will then deduct fishing effort against a person's SFRs. Fishing effort SFRs can be traded between operators.

	Community	**Business (fishers)**	**Government**
Benefits	Achieves sustainable exploitation of resources for current and future generations, and operator compliance with regulations. As longer-term access allows operators feel greater ownership of	AFMA will grant SFR's to fishers in the ETBF, giving confidence to fishers, investors and third party interests in the value and security of fishing concessions. This management method has consistently been favoured by industry so its implementation should give operators increased confidence in	Granting SFRs in the ETBF meets legislative requirements to develop and implement management plans in all AFMA managed fisheries. Fishing effort units allow flexible adjustment and pursuit of the ESD objective.

	decisions and exercise responsible resource steward-ship, this option will lead to improved compliance outcomes.	management arrangements. One appeal process when SFR's are initially granted under the ETBF Management Plan reduces possible litigation costs. The VMS is a current requirement so monitoring of Branchline clip usages with the linked technology is likely to be a minimal cost increase. Fishers can trade in SFRs to match business aspirations with holdings of SFRs. Operators can trade SFRs for value to match their effort levels at maximum individual efficiency. Smaller operators can still remain competitive by minimising their cost of access to the fishery matching their desired effort level.	Better able to meet international obligations set by RFMOs. Lower cost of stock assessment than using ITQs as TAE is determined by the species most at risk of over exploitation, and therefore assessment can focus on this species. Increased stability of management arrangements. One appeals process administered by Statutory Fishing Right Allocation Review Panel considers all appeals regarding SFR allocation at the outset of the ETBF Management Plan. No further appeals are possible once SFR's are allocated. Reduced cost of appeals and litigation. Tradeable SFRs encourages economic efficiency.
Costs	Community resource ownership assigned to individuals for the life of the management plan, ie. Indefinitely. Possible overfishing and overcapitalisation may result in reduced supply and quality of fish and increases in prices for consumers over the longer term.	Cost to industry to install a Drum monitoring system. Likelihood of additional regulations causes uncertainty. New compliance and training costs may be incurred by operators. Operators incur the cost of purchasing SFRs if they wish to expand their levels of catch. The need to purchase SFRs could act as a barrier to entry for new competitors. SFR holders must implement into their activities processes to monitor their SFR usage. This could include implementing new on-board monitoring devices.	Additional regulation such as area closures may be required. Cost of compliance may be significantly greater than Option 1.

Option 5 –Individual Transferable Quotas (TTQs)

Output controls involve limiting the Total Allowable Catch (TAC) in a fishery. SFRs would be granted as Individual Transferable Quotas (ITQs).

	Community	**Business (fishers)**	**Government**
Benefits	Achieves sustainable exploitation of	AFMA will grant ITQ SFR's to fishers in the ETBF, giving	The most direct and effective means to respond

	resources for current and future generations.	confidence to fishers, investors and third party interests in the value and security of fishing concessions. Security of access gives operators a greater ownership of decisions and impetus to exercise stewardship over the resources. One appeal process when SFR's are initially granted under the ETBF Management Plan reducing the possible litigation incurred. Scope to move from long-lining to other methods to address by-catch and multi-species issues.	to overfishing & implement RFMO obligations. Over-capitalisation is avoided, as ITQs are an incentive for efficient investment. Granting SFR's in the ETBF meets legislative requirements to develop and implement management plans in all AFMA managed fisheries. Increased stability of management arrangements. One appeals process administered by SFR Allocation Review Panel considers all appeals regarding SFR allocation at the outset of the ETBF Management Plan and litigation is restricted to this initial period. No further appeals are possible once SFR's are allocated. This reduces the costs associated with appeals and litigation. No need for further regulation of effort creep.
Costs	Community resource ownership assigned to individuals for the life of the management plan, ie. Indefinitely. If target species become over-exploited and a low TAC is set, there is a risk that unreported discards (high grading) might result. This could threaten the sustainability of the fishery. If assessment of stocks is poor, resources may still be under or over-exploited. This may result in short term	Strong industry opposition to ITQs could cause industry to feel disenfranchised with the management process and damage future negotiations with AFMA. Industry opposition to ITQs could lead to non-compliance with regulations and unsustainable fishing practices. New compliance and training costs may be incurred by operators. The costs of obtaining and assessment of fishery information will be higher (although fishers will benefit from more accurate TACs). Fluctuations in the stock levels may have an impact on investor certainty in TAC levels (and SFR value).	Rigorous stock assessment required for all target species and other species identified as at risk of over exploitation required to set the TAC. Whereas Options 2,3 and 4 input controls would require only assessment of the LCD species. Strong MAC and industry opposition to output controls (ITQs) could greatly increase the cost of monitoring and compliance with new management regulations in the short to medium term. AFMA's adoption of this action against the advice of industry could lead to a decrease in industry confidence in the

	reductions in supply and quality of fish, and increases in prices to consumers. However, a precautionary TAC minimises potential fluctuations.	Operators bear the cost of acquiring SFRs to increase their levels of potential catch. The need to purchase SFRs could act as a barrier to entry for new competitors. SFR holders must ensure they implement processes into their business activities to monitor and report on their usage of quota.	management arrangements and subsequent trust and cooperation. ITQs increase the temptation for industry to high-grade (unreported discard) quota species leading to a waste of resources and unreported reduction in target species biomass.

Assessment of impacts

The Commonwealth Government requires all regulation to be assessed for environmental, economic and social impacts. AFMA has assessed the environmental and economic impacts of the recommended option and will address the social impact more informally.

Environmental impacts

All Commonwealth fisheries must be assessed for environmental sustainability under the guidelines developed under the *Environment Protection and Biodiversity Act 1999* (EPBC Act) which is administered by the Department of the Environment and Heritage (DEH). AFMA has prepared a strategic assessment report in accordance with the Terms of reference for the Strategic Assessment of ETBF in parallel with the development of the ETBF Management Plan. The report assesses the fishery under the strategic assessment, protected species and export of wildlife provisions of the EPBC Act.

The assessment report is in three parts: Part I provides an overview of AFMA; Part II provides a description of the ETBF; and Part III provides an assessment of the management arrangements for the ETBF against the Commonwealth *Guidelines for assessing the ecologically sustainable management of fisheries*.

A summary of the assessment of ecological sustainability will not be included in this RIS due to the complexity generated by the multiple species, fishing methods and areas of water in the ETBF. The assessment report is 115 pages and has additional attachments. The report, along with the attachments and executive summary, are available on the AFMA website and will be tabled in Parliament with the ETBF Plan.

The ETBF Plan and assessment report are currently being considered by the Minister for Environment and Heritage. The Minister must signal his intention to accredit the ETBF Plan under the provisions of the EPBC Act before AFMA's Managing Director can determine it. Once determined, the ETBF Plan comes into effect upon gazettal. Accreditation of the ETBF Plan by the Minister for Environment and Heritage provides some assurance to the Australian community that the impacts of the fishery are acceptable to stakeholders and the ecosystem. The ETBF Plan is also the first step for AFMA to develop a more comprehensive ecosystem based approach to fisheries management for this pelagic fishery.

Economic impacts

Individual transferable fishing effort based SFRs provide the greatest benefits for economic efficiency for the ETBF compared with other options. As mentioned earlier, the recommended option provides the strongest access right as they are rights to a specified quantity of fishing effort. Given the complex nature of the ETBF, this input control allows operators to adjust their fishing effort on an individual basis in response to rapidly changing conditions. Management costs would not be as cost effective given the potential for rapid changes in stock levels in the many species caught in the fishery. This flexibility can also best lead to rational fishing planning and better use of markets.

Furthermore, the recommended option acts as an incentive for efficient investment and a disincentive for overcapitalisation. However, additional management costs may be incurred. Although the cost of monitoring and compliance in the fisheries is comparable with the current management regime, some additional controls maybe required addressing particular multi-species or conservation issues that are not by fishing effort based SFRs. These additional costs must be weighed against the more important objectives of the ESD and economic efficiency, particularly if the costs per operator are not significantly higher relative to other management regimes.

Social impacts

The AFMA Board is required to consider AFMA's legislative objectives of ecologically sustainable development (ESD), efficient and cost effective fisheries management and economic efficiency. While social impacts are part of both the considerations of ESD and economic efficiency, the AFMA Board gives primacy to the impact of fishing activities on non-quota species and the long-term sustainability of the marine environment. The Board does, however, consider the equity of the impact of the decision on operators.

AFMA believes that the introduction of the ETBF Plan will support steady decision making and promote certainty in the management of the fishery, which will:

- allow the operators of fishing businesses to undertake long-term business planning;
- provide security of access to the fishery regardless of method or species; and
- provide operators with an asset with a market value which will allow them to move in and out of the industry with relative ease. Although the cost of purchasing SFRs is incorporated into the day-to-day operations of fishers, the ability to trade SFRs allows operators to take advantage of fluctuations in price and supply in the SFR market according to individual needs and business aspirations.

G Consultation

AFMA's management philosophy (as set out in its governing legislation) involves a partnership approach to the management of marine resources under its jurisdiction. Cooperation with relevant stakeholders, such as the fishing industry, government agencies, the community and others with an interest in the sustainable management of the Commonwealth managed fisheries resources, is a vital part of this approach. It provides opportunities for stakeholders to have input into the management process through Management Advisory Committees (MACs). To ensure enforcement and monitoring of the Management Plan mechanisms, AFMA works closely with industry. Throughout the consultation processes, industry representatives have expressed a clear preference for effort controls over ITQs.

Development of the ETBF Management Plan

In November 2000, Eastern Tuna MAC produced a discussion paper about the Management Options for the ETBF, which was considered by the Board on 8 December 2000 at its 82nd meeting. The Board agreed that:

- SFR for the pelagic longline sector covered by the ETBF Management Plan be hook days, and
- agreed to establish an AAP for the ETBF longline and minor line sectors as soon as practicable.

However, strong dissatisfaction with the AAP process and potential negative side effects of ITQs on the fishing industry and management efficiency has led to significant debate over the efficacy of ITQ SFRs. It was argued that input controls would allow operators to take advantage of fluctuations in stocks levels, and provides the flexibility for individual businesses to adjust their activity based on these fluctuations. This strong opposition to ITQ SFRs is a significant factor in the AFMA Board's decisions to use an TAE SFR system. A key factor in the success fisheries management arrangements is the active involvement and stewardship by industry. Management of the ETBF through SFRs based on effort units will allow AFMA to achieve its legislative objectives more effectively if industry accept and actively adopt the measures outlined under this system.

A letter informing ETBF permit holders of these decisions was distributed on 22 December 2000 with copies of the Chairman's summary from Eastern Tuna MAC on the future management direction for ETBF.

Public comment phases

The Draft ETBF Management Plan has been the subject of extensive consultation since the concept of a management plan was first proposed in 1995. Since that time Eastern Tuna MAC has met regularly to discuss and recommend the array of management measures and other key elements of the draft Management Plan. These meetings allowed AFMA to canvass management ideas among the interest groups and to receive valuable input on possible problems and solutions. MAC papers are made available on the AFMA web-site. Other groups are included in the consultation process (for example, NGOs) to ensure that a range of sectors of the community is represented in the consultative process. The AFMA Board makes its decision in accordance with AFMA's legislative objectives, and taking into account the advice given to it from the MAC and the Fisheries Advisory Group (FAG), which provides scientific advice, as well as opinions from an extensive public consultation process. These groups represent a spectrum of interest groups and a wide range of opinions.

During the consultation phases for the ETBF Management Plan during 2002 and 2003, the Eastern Tuna MAC was consulted in order to achieve appropriate outcomes.

As a result of public comments received, AFMA prepared a comparative evaluation of gear-based versus ITQ-based SFRs, which was reviewed by the MAC and at port meetings in 1998. In the same year, following increasing calls by industry for the granting of SFRs in the ETBF under a management plan, Eastern Tuna MAC released the paper '*Development of a management plan for the Eastern Tuna and Billfish Fishery - fishing permits or statutory fishing rights?*' The paper called for submissions, which would form the basis of Eastern Tuna MAC's recommendation on Statutory Fishing Rights (SFRs) to AFMA. As a result, the AFMA Board considered the range of comments received, including recommendations from the Eastern Tuna MAC. The Board decided to make a number of changes to the draft ETBF Management Plan in response to pubic comments. The key change to the ETBF Management Plan since the first round of public comment is to allow for differing hook values for effort units in different areas of the fishery. A second round of public comment was conducted in 2003. A number of issues are presently being considered as a result of the comments received.

[For greater detail on the development of the ETBF Management Plan, the consultation undertaken and public comment phases please see Appendices 1 and 2]

[The structure of the ETBF Management Plan and supporting instruments is provided in Appendix 3]

H Recommended option and conclusion

Based on the consultations conducted, AFMA concluded that the TAE option was the most cost effective management tool for the ETBF in terms of pursuing the Government's legislative objectives. Consequently, AFMA believes that this option will promote certainty for industry by allocating secure fishing rights. The key benefits identified by AFMA for managing the fisheries under TAE SFRs include:

- direct control over fishing effort that can accommodate environmental and oceanographic influences on variability in fish available to the fleet;
- ability to focus resources on species most at risk of overexploitation via time and spatial management of gear and effort;
- flexibility for operators to choose the amount of fishing effort;
- strong access right granted under a management plan;
- minimum intervention by the managing agency and maximum flexibility for operators to make rational investment decisions – low risk of over-capitalisation;
- autonomous adjustment (no requirement for Government driven restructure); and
- will meet all international management obligations.

The recommended course of action in the ETBF is to issue SFRs based upon fishing effort units (option 4). This is a flexible and indirect control on the amount of fish that can be harvested. Of the input control options considered, this management approach best allows operators flexibility in achieving sustainable harvesting. This recommendation is the result of extensive consultation. Industry favours this approach, which is more likely to result in industry complying with regulations. AFMA management will only recommend an option that has the strength to achieve legislative objectives under the FMA, and consideration of future compliance with the Management Plan is critical to this process. It was considered that any management approach would not achieve AFMA's objectives where industry would not comply with the measures implemented. In addition, allowing operators to focus their effort on ETBF species in high abundance (in conjunction with a range of conservation measures) means that operators can adjust their individual activity in accordance with business needs, and provides a more certain supply of sustainably caught fish product. Setting TACs may not be as effective, and would be more costly to manage, for a multi-species fishery with significant fluctuations in abundances of fish stocks.

AFMA has placed great emphasis upon management through a partnership approach with industry under its legislative objective of providing transparency to the fisheries management process. By adopting the management approach preferred by industry and the Management Advisory Committee, individual fishers may feel greater ownership of management decisions. Assigning property rights and managing the resource on an ecosystem basis is believed to most efficiently achieve AFMA's legislative objectives. It should also be noted that the loss of community access rights to the fisheries resource in assigning those rights to individuals is outweighed by community returns from sustainable exploitation of that resource.

It should be noted that the AFMA Board, in light of AFMA's legislative objectives and advice from the Eastern Tuna MAC and operators and other stakeholders, determines the preferred option. AFMA believes implementing the preferred option will assist management in pursuing its objectives and encourage efficient fishing practices by assigning rights and managing fishery resources on an ecosystem basis.

I Implementation and review

Implementing the ETBF Management Plan falls into three distinct phases: before the ETBF Management Plan comes into effect; after the ETBF Management Plan comes into effect; and after SFRs come into effect. AFMA anticipates that the ETBF Management Plan will be gazetted in 2004. In order for the ETBF Management Plan to come into effect the following steps must be taken:

1. the Minister for Environment and Heritage must signal his intention to accredit the ETBF Management Plan;

2. AFMA's Managing Director must sign (determine) the ETBF Management Plan;

3. the Minister for the Environment and Heritage must accredit the ETBF Management Plan;

4. the Minister for Fisheries, Forestry and Conservation must accept the ETBF Management Plan;

5. a notice must be published in the Commonwealth Government Gazette; and

6. the ETBF Management Plan, the RIS and the strategic assessment report must be tabled in Parliament for 15 sitting days.

Before the ETBF Management Plan comes into effect

The current management arrangements for ETBF must be revoked before SFRs come into effect under the ETBF Management Plan.

After the ETBF Management Plan comes into effect

Granting SFRs

An independent Allocation Advisory Panel (AAP) was established to advise AFMA on determining a method for the allocation of SFRs under the Management Plan. In undertaking this task, the AAP consulting widely, undertook formal public comment periods, and met a number of times to thoroughly considered all issues. The final formula for allocation of SFRs had regard to AFMA policy and legislative objectives. In accepting the AAP recommendation, the AFMA Board sought to maintain the relative economic standing of members of the fishery with regard to:

- the flow of wealth to operators (measured by history of catch); and

- the stock of wealth (measured by the value of the permit held).

SFRs will be granted on the basis of the activity status of a permit as defined in section 29 of the draft Management Plan. The activity status is determined by reference to catch history during the relevant period and type of permit held. This process ensures SFRs are granted in a way that maintains the relative economic position of permit holders. In contrast, a competitive auction would base the allocation on financial circumstances at the time of auction and does not necessarily take into account the longer term activity of individual operators. This method of allocation best allows the AFMA to achieve its legislative objectives for the ETBF of providing efficient and cost effective fisheries management and maximising the economic efficiency of the fishery, in the context of ecological sustainability.

The TAE will be set through a process of consultation with all key stakeholders for the fishery. The AFMA Board may only accept recommendations developed through this process where they accord with AFMA's legislative objectives. SFR holders will be notified of the TAE units for each fishing year, the number of SFRs (in effort units) held, the value of a longline SFR (in effort units) and the specified areas within the fishery and their associated clip usage rates set for each season.

The draft ETBF Management Plan details in section 47 that SFRs expended will be monitored by either determining an estimate of the number of branchline clips 'expended' (used in a fishing operation) through measuring the number of rotations made by a longline drum (around which the longline is wound during a fishing operation) or directly measuring the number of branchline clips expended. AFMA will monitor the number of longline operations and arrive at the number of branchline clip usages expended.

The process for granting SFRs may take up to 8 months to complete, depending on appeals of the grants (see below) during the granting process. Consequently, AFMA intends to start the grant process as early as possible. The process for granting SFRs for the ETBF fishery is set out in Part 4 of the ETBF Management Plan.

Policy development

During the Eastern Tuna MAC meetings and other fora in 2002 there have been suggestions made by AFMA management and industry member about policies which need to be developed to support the functioning of the ETBF Management Plan. In 2004, the following policies will be developed in cooperation with the MACs:

- packaging of licences within the ETBF;
- annual quota reconciliation process;
- consultation, including how to address issues that affect more than one sector and accountability in decision making;
- the application of discretion and circumstances in which AFMA will approve applications for exemptions to obligations imposed on concession holders;
- a risk-based compliance program and catch monitoring program;
- A risk-based compliance program and catch monitoring program to ensure industry compliance.

Appeals

Operators who are unhappy with decisions made under the new Management Plan have several avenues of appeal open to them. The avenue of appeal depends on the type of decision to be appealed, as set out in the table below.

Table 2: Avenues of appeal for each type of decision under the FMA

Decisions made by AFMA	***Avenues of appeal***
In the Plan, Regulations, Directions and Determinations.	Parliament may disallow any of these management tools within 15 sitting days of their being tabled in parliament. Once these management tools have been accepted by parliament the only avenue of appeal is through the Federal Court.
Registered as being eligible for the grant of an SFR	If you have not been registered as eligible for the grant of an SFR under the conditions of registration set out in the Plan and believe you should be, then you may seek an internal review by AFMA within 21 days. If you are dissatisfied with the outcome of the review then you may apply to the Administrative Appeals Tribunal (AAT) within 14 days for a further review.
Grant of an SFR under the Plan	If you have been registered as eligible for the grant of SFRs but are dissatisfied with the number of SFRs you have been granted under the Plan then you can apply for the decision to be reviewed by the Statutory Fishing Rights Allocation Review Panel (SFRARP) within 14 days.
Grant of a fishing permit	If you are dissatisfied with the grant of a fishing permit under the Plan then you may seek an internal review by AFMA within 21 days. If you are dissatisfied with the outcome of the review then you may apply to the AAT for a further review within 28 days.

Conditions on SFRs	The conditions on an SFR are appellable to AFMA within 21 days of being granted the SFR. If the conditions of the SFR are modified then the condition is appellable within 21 days of being notified of the change. If you are dissatisfied with the outcome of the appeal (review) then you may apply to the AAT for a further review within 28 days. SFRs will only be granted once in the life of the Plan.
Conditions on fishing permits	The conditions on a fishing permit are appellable to AFMA within 21 days of being granted the fishing permit. If the conditions of the fishing permit are modified then the condition is appellable within 21 days of being notified of the change. If you are dissatisfied with the outcome of the appeal (review) then you may apply to the AAT for a further review within 28 days. Fishing permits will be granted each year, as is currently the case.

Review of ETBF Management Plan

The FMA does not require fishery management plans to have a "sunset clause", that is an end date. However, there are three performance criteria in Section 7 of the ETBF Management Plan that require AFMA and the MACs to undertake periodic reviews. The criteria are:

7(2) AFMA and relevant management advisory committees must, at least once every 5 years, assess the effectiveness of the Management Plan, including the measures taken to achieve the objectives of the Management Plan, by reference to the performance criteria mentioned in subsection (1).

7(3) AFMA must include in its annual report for each financial year a statement of the extent to which the performance criteria mentioned in subsection (1) were met in the year.

7(4) Each year, relevant management advisory committees must assess the extent to which the performance criteria mentioned in subsection (1) have been met in that year.

Cost Recovery

In February 2004, AFMA completed a cost recovery impact statement consistent with the Commonwealth Government guidelines. The statement indicated that a number of Commonwealth fisheries, including the ETBF, were cost neutral. The process for determining levies for the fishery will be triggered as part of implementing the Management Plan (which is expected to occur in early 2005). The process involves consideration and recommendation by the Eastern Tuna MAC (involving consultation with key stakeholders), and a decision by the AFMA Board consistent with AFMA's legislative objectives.

Appendix 1: Developmental history of the ETBF

1950s	Early 1950's - the Japanese began pelagic longlining off the east coast of Australia. The majority of this catch was taken to Japan. Mid 1950's - Australian commercial fishers began sporadically targeting yellowfin tuna off NSW. The catch from the domestic fleet was sold to canneries and local fresh fish markets.
1950s/ 1960s	Japanese fishing effort spread and began targeting southern bluefin tuna in temperate oceans and bigeye tuna in tropical waters. Markets developed for billfish, particularly striped marlin.
1979	Following implementation of the AFZ under the *United Nations Convention on the Law of the Sea*, Japanese activity within the zone was licensed under bilateral agreements.
1984	Fishing by the domestic fleet increased markedly after local operators began airfreighting fresh-chilled tuna to Japan.
1985	July 1985 - freeze on the issue of new Commonwealth Fishing Boat Licences (CFBLs).
1986	August – first meeting of the East Coast Management Advisory Committee. Longlining became permitted in Commonwealth waters between Cape Grenville and Townsville (known as Area E or the *Coral Sea Zone*). This allowed a restricted number of domestic operators to assess the potential for development of a tuna export fishery in the area.
1987	Two types of access to the Eastern Tuna Fishery were permitted – historical access for inshore waters off southern NSW and developmental access only to underdeveloped areas of the fishery including offshore waters.
1989	The inshore longline boundary north of Sydney was extended out to 50 nautical miles. Previously this boundary reflected the inshore boundary of the Japanese access zone which at places came in as close as 15 nautical miles off the coast. The primary reasons for extending the boundary out to 50 nautical miles appears to be due to gear conflict between the domestic and Japanese longline fleets. 50 nautical miles reflected the extent of the majority of Australia's domestic longline operations at the time.
1990s	The fishery expanded rapidly, particularly in northern Queensland waters where catch rates of yellowfin and bigeye were high.
1991	The Commonwealth *Fisheries Management Act 1991* replaced the Commonwealth *Fisheries Act 1952*. Area E waters were extended southward, following recreational gamefishing concerns over the amount of marlin being taken as bycatch by Japanese vessels in these waters. Management of the ETBF was expanded to Victorian and Tasmanian waters.
1992/ 1993	AFMA began replacing CFBLs in the Eastern Tuna Fishery with fishery specific fishing permits under the *Fisheries Management Act 1991*. These differed from CFBLs by clearly stating the operator's area of access and access conditions.
1994	Under formal management arrangements, tuna fishing methods, 'other methods' (now known as 'minor line' and incorporating troll, rod & reel and handline) and 'pole' were incorporated into the fishery, along with longlining.
1995	Oceanic longline fishing operations are listed as a key threatening process under the *Endangered Species Act 1992* (now administered under the *Environment Protection and Biodiversity Conservation Act 1999*).
1996	The take of black marlin was banned as a condition of Area E fishing permits

	during September – January each year. All other billfish species were permitted to be retained (ie blue marlin, striped marlin, broadbill swordfish, sailfish and spearfish) on a year round basis. The fishery became known as the Eastern Tuna and Billfish Fishery (ETBF), and East Coast Tuna Management Advisory Committee became known as Eastern Tuna Management Advisory Committee.
1997	Many Australian longliners began to fish out of southern Queensland ports such as Mooloolaba to target both bigeye tuna and swordfish. The bilateral agreement lapsed in November due to Japan's failure to agree on a global total allowable catch for SBT within the *Commission for the Conservation of Southern Bluefin Tuna* (CCSBT). As a result, there is currently no Japanese bilateral fishing access agreement and no Japanese fishing effort is permitted inside the AFZ.
1998	28 July - all domestic and foreign commercial fishing operators were required to return black and blue marlin to the sea, irrespective of life status, through an amendment to the *Fisheries Management Act 1991*. August – the *Threat Abatement Plan for the incidental catch of seabirds during pelagic longline operations* (EA, 1998) (TAP) was released.
1999	The area of the ETBF was extended to include the waters of the AFZ around Norfolk Island. The Great Barrier Reef Marine Park Authority adopted a multiple hook policy, which prevented the granting of permits to undertake fishing with more than six hooks per line.
2000 October	Following an announcement by the Federal Minister for Agriculture, Fisheries and Forestry of a new government policy banning shark finning, a condition was placed on Commonwealth tuna and billfish fisheries fishing permits preventing operators in the Eastern, Southern and Western Tuna and Billfish Fisheries from removing shark fins at sea. 1st introduction of area management for Southern Bluefin Tuna.
2001 October	The *Australian Tuna and Billfish Fisheries Bycatch Action Plan for Australian Tuna Fisheries* was launched.
2002 July	Introduction of Integrated Computer Vessel Monitoring System (ICVMS) for all ETBF vessels.
2002-2004	Three rounds of public comment were held on the draft ETBF Management Plan.

Appendix 2: Development of the ETBF Management Plan

- Since 1991 there has been considerable concern about the sustainability of the ETBF. AFMA developed a '*Report on latent effort in the East Coast tuna longline fishery for the East Coast Tuna Management Advisory Committee*'. The main concern was that a large and relatively sudden increase in effort would lead to, localised stock depletion, reduced economic performance via market flooding, and increased gear conflict. The paper was distributed to operators and interested persons for consideration.

  These concerns were founded, as there was a five-fold increase in fishing effort in the ETBF in the decade prior to 1998. In 1998 domestic activity in terms of catch and effort (5,000 tonnes and 6.4 million hooks) passed historical Japanese catch and effort in the ETBF.

- This expansion of the longline sector saw many operators enter the fishery on a full time basis, investing in large custom-built vessels capable of offshore and high seas fishing. This investment in the fishery resulted in increasing calls by industry for more secure access rights (than fishing permits).

- In December 1996, following increasing calls by industry for the granting of SFRs in the ETBF under a management plan, Eastern Tuna MAC released the paper '*Development of a management plan for the Eastern Tuna and Billfish Fishery - fishing permits or statutory fishing rights?*' The paper called for submissions, which would form the basis of Eastern Tuna MAC's recommendation on Statutory Fishing Rights (SFRs) to AFMA.

- In response to the paper, the vast majority of operators considered SFRs preferable to Fishing Permits, with gear-based SFRs preferable to ITQ-based SFRs. The 33rd meeting of Eastern Tuna MAC confirmed that the MAC favoured gear based management in the ETBF to ITQ-based management.

- The following 12 months saw substantial discussion on this issue between AFMA, Eastern Tuna MAC and industry. Discussions focused on which management regime could best meet AFMA's legislative objectives in the short and long term.

  - AFMA prepared a comparative evaluation of gear-based versus ITQ-based SFRs entitled '*Future management arrangements for the Eastern Tuna and Billfish Fishery - an AFMA management perspective*' (October 1997).
  - In response to AFMA's concerns, Eastern Tuna MAC released a paper entitled '*A review by Eastern Tuna MAC of the relative strengths and weaknesses of gear-based SFRs and ITQ-based SFRs as access rights for the Eastern Tuna and Billfish Fishery under a management plan*' (February 1998).
  - These issues were further discussed at Eastern Tuna MAC meetings in March and April 1998, and port meetings in April 1998. The results of these port meetings were summarised in '*Open port meetings by the Eastern Tuna Management Advisory Committee and the Australian Fisheries Management Authority to discuss future management arrangements in the Eastern Tuna and Billfish Fishery under a management plan*'.

- In May 1998, the AFMA Board agreed to gear unit based SFRs.

- Additionally, in August 1998, after further advice provided by AFMA management,

the AFMA Board approved the introduction of Boat SFRs as part of the statutory management plan for the ETBF.

- Eastern Tuna MAC 39 met between the 15-16 December 1998 and was unable to reach a consensus on a sustainable level of effort in the ETBF under a gear unit system and whether such a system should be extended to include high seas fishing under a management plan. It was agreed to hold a science / industry / management 'effort setting workshop' from the 27-29 Feb 1999 in Hobart.

- On the 24th of February 1999, the AFMA Board agreed with Eastern Tuna MAC that:

  (a) the ETBF Management Plan only provide fishery access to Australian-flagged Boats;
  (b) operators must nominate a boat in respect to the boat SFR if actively fishing in the ETBF;
  (c) gear SFRs not be linked to boat SFRs; and
  (d) there be no initial transferability between the hook sectors of the ETBF under a management plan.

- The 'effort setting workshop' estimated that there was a gear pool of about 125,000 hooks deployed by the pelagic longline sector. The amount of gear resulted in a nominal effort of 8.7 million hooks in 1998. While the average number of hooks equated to approximately 900 hooks per vessel actual gear deployment per shot ranged from 400 to more than 2,000 hooks per boat depending on the scale of operations. The logbook data also indicated that the average number of days fished by a longline operator at that time was 66 days per year.

- Eastern Tuna MAC 40 met in March 1999. The MAC was unanimous that current catch and effort levels for Yellowfin Tuna could be substantially increased. However it was also recognised that under the proposed management plan, gear constrains would need to be based on the species most susceptible to overfishing, namely Broad Bill swordfish and big eye tuna. On that basis, Eastern Tuna MAC recommended that the lower end of the medium risk approach be adopted in determining a nominal effort limit for the longline sector and that a nominal effort level of 10 million hooks be considered for the allocation of longline SFRs.

- The AFMA Board also discussed setting effort levels for the ETBF and agreed with the MAC recommendations on risk and effort levels for the ETBF, with the provision that these issues be reviewed in the light of changes in technology and the status of the resource. Additionally they decided that the gear unit systems be applied to ETBF SFR holders fishing on the high seas adjacent to the eastern AFZ.

- During the previous year an Independent Allocation Advisory Panel had been investigating allocation models for SFRs in the ETBF. After a drawn-out period of consultation with industry, the MAC and AFMA management, the panels' advice was found to be unsatisfactory to all parties.

- A paper reviewing input and output based management options, including individual transferable quotas (ITQs), gear pool and enhanced input controls such as hook-days, was considered by Eastern Tuna MAC on 24-25 January 2000 and SWTMAC on 4 February 2000.

- Once it had become obvious that the AAP process was having difficulties, AFMA

management sought to review and refine the proposed management methods through a discussion paper entitled *"Management options for the Eastern Tuna and Southern and Western Tuna and Billfish Fisheries."*

- On the 16 of June 2000 the AFMA Board considered the discussion paper. The Board formally abandoned the AAP process for the ETBF, rejecting the status Quo and Hook Pool options as not being effective and cost efficient management approaches for the two fisheries. It also endorsed AFMA's management recommendation that output control in the form of ITQs or input control in the form of branchline clip usage were the preferred control.

- In early July 2000, AFMA advised all ETBF permit holders of upcoming port visits aimed at seeking comments on the discussion paper and feedback on proposed future access arrangements, given the failure of the first AAP. Comments were also sought through a notice in the August 2000 edition of the AFMA News.

- In November 2000, Eastern Tuna MAC submitted a reply to AFMA managements' discussion paper (sharing the same title) *"Management options for the Eastern Tuna and Southern and Western Tuna and Billfish Fisheries"*, which was considered by the board on the 8 of December 2000 at its 82nd meeting. The board agreed that SFRs for the pelagic longline sector covered by the ETBF management plan be Branchline clip usages and agreed to establish an AAP for the ETBF longline and minor line sectors as soon as practicable.

- A letter informing ETBF permit holders of these decisions was distributed on the 22 of December 2000 with copies of the chairman's summary from Eastern Tuna MAC 46 and the Eastern Tuna MACs submission to the Board.

- At the July 2002 Board meeting, it was agreed that the draft ETBF Management Plan could be released for public comment, pending the resolution of a few small issues.
- At the 9th meeting of the environment committee of the Board on 17 July 2002 the Strategic Assessment was approved for release for public comment.
- In June 2002 the second Allocation Advisory Panel report is produced.
- In 28 September to 22 November 2002 the draft *Eastern Tuna and Billfish Fishery Management Plan 2002* and the draft *Assessment Report - Eastern Tuna and Billfish Fishery* were available for public comment. During 19 September to 14 November 2003 a second round of public comment was conducted. Public comments have been collated and analysed.
- In accordance with the draft ETBF Management Plan, AFMA assigned preliminary activity status to all eligible permit holders in the ETBF (which forms the basis for future SFR grants under the Management Plan). Following industry concerns over the non-inclusion of catches of southern bluefin tuna in catch histories, an AAP meeting was held on 22 March 2004 and the panel examined submissions on this issue.

- The AFMA Board accepted the recommendation of the ETBF Allocation Advisory Panel to include SBT catches in calculating the activity status of longline permits. The draft ETBF Management Plan was released for a third round of public comment (from 21 August to 21 September 2004) focussing on this issue.

Appendix 3: Structure of the ETBF Management Plan and supporting instruments

Relationship between the FMA, ETBF Management Plan and supporting instruments

The FMA provides detailed guidance on the structure of management plans (Section 17 FMA). One key feature of management plans under the FMA is that they provide a framework from which arises a range of supporting instruments in which detailed management arrangements can be found. A good analogy is that the Management Plan is a toolbox that provides the tools with which to manage a fishery. These tools are regulations, directions, determinations and conditions on statutory fishing rights and fishing permits. The tools implement the detailed management arrangements such as the TAE, requirements to carry onboard Vessel Monitoring System equipment, and areas closed to fishing. The figure below shows how these tools relate to each other, the FMA and the ETBF Management Plan.

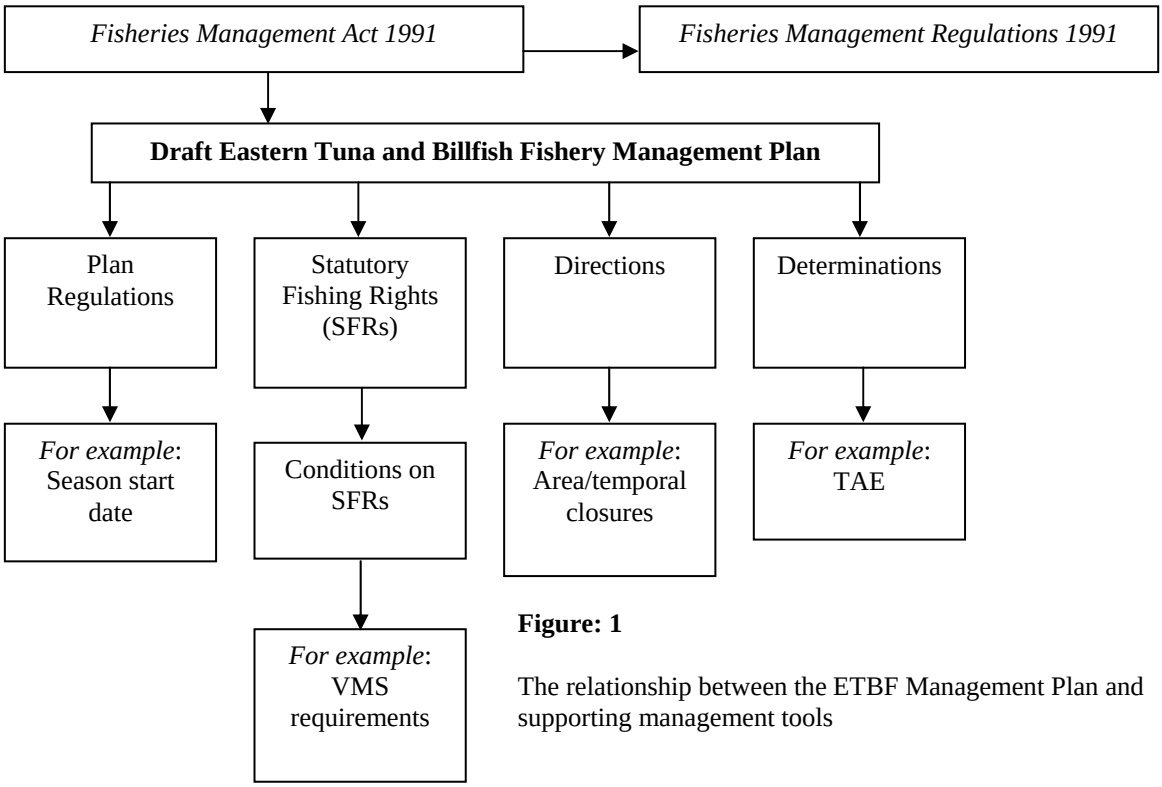


Figure: 1

The relationship between the ETBF Management Plan and supporting management tools

Measures, regulations, directions, determinations and conditions

The framework and tools described above provide the flexibility required in managing natural resources (such as fish stocks) that are prone to variability within and between years. This level of flexibility is essential to ensure AFMA retains the ability to alter management arrangements that need periodic revision and adjustment such as levels of total allowable effort (TAE), administrative fees and area closures. Any amendments to the nature or amount of SFR's or the sections of the Management Plan must, however, go through a lengthy and defined legislative process, thereby providing security of access to operators and a stronger form of ongoing rights than currently exists. As detailed in the following table, the majority of management measures under the Management Plan are aimed at allowing the fishery resources in the area to be utilised in an ecologically sustainable and economically efficient manner. The FMA provides for AFMA to amend the Management Plan, but requires that the same consultation process be undertaken when the original Management Plan was determined.

The need for administrative flexibility is incorporated into the draft Management Plan through the use of supporting instruments such as regulations, directions, determinations and conditions on SFRs, where AFMA may, with consultation, vary certain requirements. This level of flexibility is essential to ensure AFMA still has the ability to periodically revise and adjust management measures such as the TAEs, fishing areas, and fishing methods. Any amendments to the nature or amount of SFRs must, however, go through a defined legislative process, thereby providing security of access to operators and a stronger form of ongoing right than currently exists.

Table 3: Structure of the ETBF Management Plan and supporting instruments

MANAGEMENT PLAN	
Management Measure	**Purpose**
Bycatch Action Plan requirements	To identify and manage bycatch issues in the fishery
Boat permits issued for 3 years and reviewed at 2years	To provide a proxy for secure rights to use a vessel in the fishery, but allowing effort to be reduced if required.
Branchline clip usage (longline) SFRs	To ensure long term, secure access rights to a share of the TAE in the ETBF.
Minor line SFRs	To ensure long term, secure rights to use minor line entitlements in the ETBF.
Boat nomination	Outlines the administrative process for nominating eligible boats against the SFRs. Also provides for AFMA to denominate boats unsuitable to carry observers in the fishery.
Transfer and lease of statutory fishing rights	To promote economic efficiency through trading of fishing rights
Scientific permit	Allows a vessel without a fishing permit or SFR to be used in the fishery for the purposes of scientific research.
Obligations on holders of fishing concessions	To ensure operators comply with the Management Plan and the supporting legislation and other elements of the management regime.
Obligations relating to injury or death of seabirds or marine mammals	To ensure the reporting requirements are met and appropriate actions are taken where other animals are affected by fishing operations.

Obligations relating to - the carrying of fish - inspection of nominated boat - disposal of fish landed - areas in which the holder can fish	All these obligations on the concession holders are designed to ensure the integrity of the Branchline clip usage management arrangements.
Directions not to engage in fishing	Allows for restrictions on fishing such as fishing areas and fishing gear.
Schedule 1 – Area of the fishery	Describes all the geographical boundaries for the fishery and that of Area E.
SUPPORTING INSTRUMENTS	
Regulations	**Purpose**
Application fees for details recorded in SFR register	Administrative cost recovery.
Under and over expenditure of clips	Flexibility of fishing operations.
Incidental catch of state managed species – allowance	Sets out provisions, arrangements and regulation for catch of species as per OCS arrangements between the states and the commonwealth.
Directions	**Purpose**
Area Closures - Limited entry to Coral Sea Zone. - Lord Howe Island and Balls Pyramid	 - To protect Billfish spawning grounds to specific operators and methods. - State and Commonwealth Marine Park
Gear restrictions - Stowing State gear when fishing in Commonwealth waters - Requirement to carry only nominated number of clips.	 - For compliance reasons - For compliance reasons
By-product	Makes provisions to reduce the catch of non-target species
Prohibited Species	Prevents the taking of protected or endangered species
Determinations	**Purpose**
Set Total Allowable Effort (TAE)	Provides for the total effort that can be expended in the fishery annually – calculated to result in a sustainable harvest of target and by-catch species. Allows the TAE to be altered to ensure sustainability of most at risk species on an annual basis.
Conditions on SFRs/Permits	**Purpose**
Logbook requirements	Information for stock assessment, monitoring, quota adjustments and management information.
Vessel Monitoring System (VMS) triggers & drum monitoring system and conditions of use	Compliance and monitoring
Reporting requirements	Compliance and monitoring
Take home pack	To allow fishermen to take small quantities of fish home for personal consumption