APPENDIX A

Australian Government

Australian Fisheries Management Authority

Regulation Impact Statement

for the

Western 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 *Western Tuna and Billfish Fishery Management Plan 2002* (the Management Plan). The RIS examines the general challenges facing fisheries management to provide a context for discussion of the problems in the Southern and Western Tuna and Billfish Fishery (SWTBF). Following a description of the problems with current management arrangements, the objectives for the introduction of the Management Plan is 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 conclusion of the RIS is to recommend the implementation of a Statutory Plan of Management, designate Total Allowable Catch (TAC), and grant Statutory Fishing Rights (SFRs) based upon Individual Transferable Quotas (ITQs). The implementation and review of the recommended option is also detailed.

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 the primary 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 size of boat or quantity of fishing gear that may be used in a season. 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 (tradable input control). 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

Output controls, as proposed for the SWTBF, set a definite limit on the total weight of a species that can be taken in a fishing season. Under such a system, an annual Total Allowable Catch (TAC) is set. Fishers hold Individual Transferable Quota units (ITQs), which entitle individual fishers to a proportion of the TAC. As with transferable input controls, such an arrangement will 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 over time resource rent dissipation ceases.

Output controls in the form of ITQs have significant theoretical advantages over input controls. They set a finite volume of a species to be taken from a fishery in a season and allow robust control in meeting international fisheries obligations set by RFMOs. TACs allow the targeting of more abundant quota species rather than basing a Total Allowable Effort (TAE) on the abundance of the most at risk species.

However, there are disadvantages. For example, in a multi-species fishery it is difficult to get a satisfactory balance in the TACs for individual species because the relative abundance between species fluctuates unpredictably between years. Additionally, the system may provide an incentive to discard or ‘high-grade’ catch to ensure maximum return on the ITQ allocated. This depends largely on the actual costs of discarding to the fisher.

Over the past half-decade, the concept of ecosystem-based management has developed. It is recognised that marine ecosystems are highly complex and to sustain fisheries effectively, management must not singularly focus on target species. This has caused management to move towards a combination of output and input control techniques in some fisheries. This is particularly so in multi-species and multi-method fisheries where impacts are not contained to just target species. Impacts on the environment (both physical and biological) are rarely addressed through limiting the catch on any particular species. Additionally, there are few incentives for fishers to invest in minimising such impacts where these do not appear to affect catches of the target species.

In the Commonwealth Government's 1989 policy statement *New Directions for Commonwealth Fisheries Management in the 1990s*, 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. The government reviewed this policy in 2003 and reiterated its view that ITQs provide the most effective mechanism to underpin management for ecologically sustainable development and economically efficient fisheries (Looking to the Future: A Review of Commonwealth Fisheries Policy, 2003).

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 the Australian Fisheries Management Authority (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 on 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 SWTBF is not managed under a management plan, and SFRs have not been granted (further details provided below).

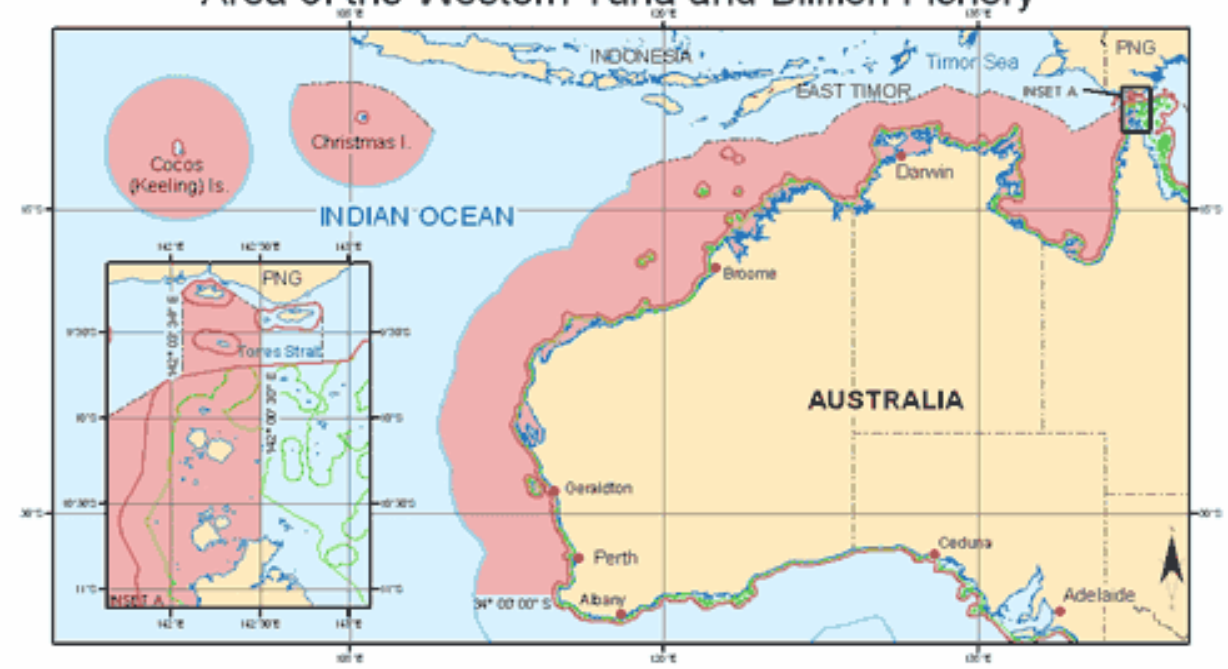
The Southern and Western Tuna and Billfish Fishery

Area of the fishery

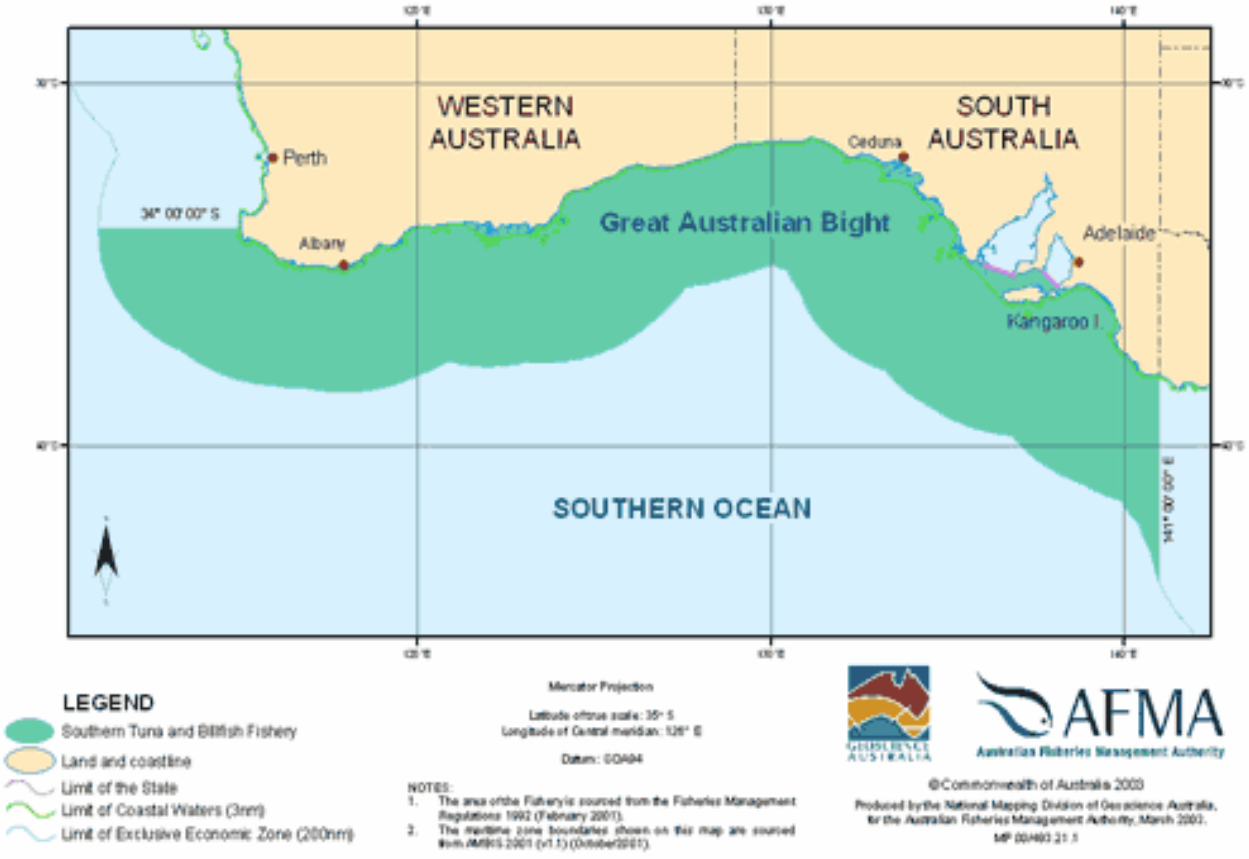
The waters of the SWTBF comprise the combined areas of the Western Tuna and Billfish Fishery (WTBF) and the Southern Tuna and Billfish Fishery (STBF). Currently, an internal barrier at latitude 34°S separates these two fisheries, although these fisheries are essentially managed as one single fishery. The SWTBF incorporates the western part of the Australian Fishing Zone (AFZ) westward from Cape York Peninsula in Queensland (142.30°S) to the South Australian/Victorian border (141ºE). The fishery includes Commonwealth waters off Queensland, the Northern Territory, Western Australia, South Australia out to the 200 nautical mile limit of the AFZ. The Commonwealth waters (outside 12nm) around Christmas and Cocos Islands, although managed separately at present, will become part of the SWTBF under the management plan. The Commonwealth has reached agreements under the Offshore Constitutional Settlement (OCS) with Queensland, Northern Territory, Western Australia and South Australia on the Commonwealth's jurisdiction over commercial fisheries for tuna and tuna-like species within these State and Territory waters.

Since 1 July 2002, following the ratification of the UN Fish Stocks Agreement, SWTBF fishing permits have encompassed high seas within the area of competency of the Indian Ocean Tuna Commission (IOTC). The IOTC is a Regional Fisheries Management Organisation (RFMO) established by agreement in Rome on 25 November 1993 and has responsibility for the management and conservation of tuna and tuna-like species in the Indian Ocean. This area of water is also encompassed within the draft Management Plan.

Area of the Western Tuna and Billfish Fishery



Area of the Southern Tuna and Billfish Fishery



Species composition

The draft Management Plan does not differentiate between target species and byproduct species. Instead, it refers to scheduled species. Schedule 2 of the draft Management Plan provides a list of target (or Primary) species in the fishery.

Species listed in schedule 2:

- Bigeye tuna — *Thunnus obesus*
- Billfish — species from the families *Istiophoridae* and *Xiphiidae*
- Yellowfin tuna — *Thunnus albacares*
- Northern bluefin tuna — *Thunnus thynnus*
- Rays Bream (or pomfret) — Family *Bramidae*
- Albacore — *Thunnus alalunga* (trolling, pole and line in the GAB)
- Longtail tuna — *Thunnus tonggol* (minor line WA and NT)

Significant numbers of by-product species are taken in the fishery (but not listed in Schedule 2). Southern Bluefin Tuna (*Thunnus maccoyii*) is also taken in the SWTBF but must be covered by quota under the *Southern Bluefin Tuna Fishery Management Plan 1995*. Skipjack tuna is also taken in the SWTBF but due to the differences in the catching techniques and schooling behaviour of this species (similar to southern bluefin tuna) this species will be managed separately from the SWTBF. Black Marlin (*Makaira indica*) and Blue marlin (*Makaira mazara*) are protected species under the FMA.

The main catch of the pelagic longline and minor line sectors of the SWTBF is broadbill swordfish, yellowfin tuna and bigeye tuna.

There are currently 125 permits in the SWTBF. While a variety of boats are used, ranging from small, general purpose inshore boats to large, purpose built boats capable of high seas fishing, compared to the Eastern Tuna and Billfish Fishery (ETBF), vessels are larger and fishing trips longer. Trips of seven to fourteen days are becoming common for longliners targeting swordfish. Historically, significant catches were taken by at least one Australian ULT L.L. (ultra-low temperature longline) vessel with trips that lasted up to 70 days. Many operators are committed to tuna and billfish fishing on a full-time basis.

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

Existing management regime

Southern and Western Tuna and Billfish Fishery Management Advisory Committee

The SWTBF is managed by AFMA with advice from the Southern and Western Tuna and Billfish Fishery Management Advisory Committee (Western Tuna MAC). Established in 1995, Western Tuna MAC is the principal forum where issues relating to the management of the fishery are discussed. Western Tuna MAC meets on average three times a year, and more frequently as required. The Chairman's Summary from each Western Tuna MAC meeting is routinely sent to all SWTBF operators and interested persons and is also placed on the AFMA website. The Western Tuna MAC is the peak consultative body for the SWTBF. It is currently comprised of an independent Chairman, an external executive officer, one AFMA member, scientific member, conservation member, recreational/charter fisheries member, and one State/Northern Territory government member and three industry members. There is also one permanent observer (from the Department of Environment and Heritage) who regularly attends MAC meetings and provides advice on specific issues related to the *Environment Protection and Biodiversity Conservation Act 1999*.

Management arrangements and fishing methods

Management arrangements presently in place for the SWTBF 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, including requirements relating to vessel monitoring systems (VMS), spatial management, reporting requirements and byproduct catch limits.

The fishing methods used in the fishery are pelagic longline and minor line. Purse seining, and poling are methods primarily associated with target fishing for skipjack tuna, and since skipjack tuna came under separate management arrangements, these methods no longer apply in the SWTBF. These methods can also be used to target schooling yellowfin tuna and will be allowed under the Management Plan but not for targeting skipjack tuna. These fishing methods will be allowed in order to permit development of farming operations for this species.

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. **Purse seining** is a method by which an area of water is enclosed by a net at the surface. The net is then drawn shut or 'pursed' at the base to enclose the surrounded area from beneath and trap the targeted fish. The net is drawn in, bringing the captured fish with it. Currently, the majority of effort in the SWTBF is longline fishing. This is expected to continue when the 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. fully competitive and unregulated), 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 world 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 (over-capitalisation). In a 1993 report by the FAO entitled "Marine Fisheries and the Law of the Sea: A Decade of Change", it was report 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 over-capitalisation of fisheries worldwide. In many instances, overcapitalisation 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 many Australian fisheries.

Perceived issues with existing management arrangements

There has been considerable development over the last several years in the SWTBF. From 1995/96 to 2000/01 the value of the fishery increased from $1.7 million to $34.5 million. The value tapered off over the next two financial years to $33.7 million and $20 million respectively. A range of factors have been attributed to the recent decline, 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 a persisting weak Leeuwin current off Western Australia.

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.

AFMA has decided to amalgamate the Southern and Western Tuna and Billfish fisheries[1] under a single management plan, with the fishery to be known as the Western Tuna and Billfish Fishery (WTBF). There is no stock boundary associated with the current divided fishery and it is agreed that economic efficiency will improve with the removal of the boundary between the two fisheries. Its current use is associated with managing fishing effort until improved management arrangements are implemented.

Stakeholder discussions for the SWTBF show that implementing output controls in the form of Individual Transferable Quotas (ITQs) is overwhelmingly supported. While it is not necessary to discuss the input controls being adopted in the ETBF, 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] The Southern Tuna and Billfish and Western Tuna and Billfish fisheries are currently two fisheries as defined by regulation. They are separated by an internal boundary at 34 degrees south latitude. There are 3 types of area access, with fishing permits providing access to either or both fisheries.

There are advantages of output controls over input controls. A TAC can encourage more detailed stock assessment across the fishery and the broader ecosystem for each species in the fishery (schedule 2 of the management plan). Unlike a TAE, which is set across the fishery based on the most vulnerable species, operators can change harvest techniques to target more abundant species under a TAC. Industry surveys show that there is a reasonable amount of selectivity in longline operations, which can be utilised under a TAC. AFMA has the ability to add additional management measures such as area and time closures if required.

The SWTBF is entering 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 makes decisions about management arrangements (through variations in fishing permit conditions), sometimes with limited consultation with stakeholders if key sustainability issues arise. At present, there are 125 permits in the SWTBF. Under certain circumstances, AFMA may refuse to renew fishing permits each year (for example, for failure to pay levy or as a result of a serious breach of fisheries regulations). Conditions on an individual's fishing permit can be subject to internal review and appeals processes. There is a potential for the fishery to be destabilised through litigation coupled with uncertainty in the fishery as a whole. A fishing permit is a relatively weak form of access right because under a system of fishing permits, fishers readily compete for catch share. The capacity for a fishery to undergo restructure under fishing permits is limited and there is no mechanism for autonomous restructure. Operators generally understand that the fishery managed through fishing permits (basic limited entry) will not maximise economic efficiency over time.

Confidence in management arrangements

Under the fishing permit regime, there is an annual opportunity for fishers to appeal the conditions placed on permits and each time a condition is amended by AFMA these same appeal rights exist. Self-interest driven and vexatious appeals destabilise the management of a fishery. On the other hand, the building of management measures under a statutory management plan is undertaken in a consultative manner and when passed by Parliament is no longer subject to the same appeal processes. The consultative process also engenders stewardship among fishery participants.

The practical difficulties of monitoring fishing activity and ensuring compliance with management arrangements means that a system that provides incentives to the fishing industry to ensure sustainable harvest of fishery resources is desirable. Greater confidence in the stability of management arrangements and the value of access rights to the resource, over the longer term, would encourage a greater responsibility to access these resources in a sustainable way.

Fishing capacity and sustainability

Over the last five years the total catch has increased from 776t (1998/99) to 1,764t (2002/03). Catch peaked for this period at 3,355t (2000/01). Fishing effort increased from 1 million hooks set in 1998 to 6 million hooks set in 2002. The number of boats that fished in 2002 was still less than 50% of the number of fishing permits granted in the fishery.

The *Fishery Status Reports 2002-03* indicate the following stock status:

- broadbill swordfish – fully fished;
- bigeye tuna – overfished;
- yellowfin tuna – fully fished;
- albacore tuna – under fished; and
- skipjack tuna – under fished.

Without appropriate management arrangements, and given the significant increase in fishing effort (with potential for further significant increases), the sustainability of the SWTBF will be difficult to guarantee as will achieving maximum economic efficiency.

D Objectives

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

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

In development of the draft Management Plan, attention was given to Australia's obligations as a member of the IOTC. The IOTC provides a mechanism for encouraging participants in high seas tuna fisheries to comply with international conservation and management measures. The IOTC also provides a forum for stock assessment and regional management of the migratory tuna and billfish resources of the Indian Ocean. There is a need for Australia to respond quickly to decisions made in this body while maintaining consistent rights for the fishing industry. The draft Management Plan will provide stability through the grant of Statutory Fishing Rights (SFRs) while being supported by a number of instruments, such as regulations, directions and conditions on the SFRs. The tools and instruments provided through a statutory management plan allow industry flexibility and management capacity to respond quickly to developments in the region.

E Options

There have been a number of options proposed and discussed as possibilities for the future management of the SWTBF, ranging from maintaining existing arrangements to introducing SFRs in the form of input or output controls. Each of these options was discussed during a comprehensive consultation process undertaken with stakeholders between 2000 and 2004. Stakeholders included industry, state and Commonwealth fishery managers, recreational fishing groups, conservation groups and science agencies.

The five options considered were:

Option 1: Maintaining the Status Quo

This involves continuing the current management system of granting annual Fishing Permits for the SWTBF. The existing consultative arrangements with Western Tuna MAC would be retained. All management arrangements would continue to be implemented through conditions on the Fishing Permits.

Option 2: Hook Pool

SFRs defined as a 'hook' or 'hooks' under a management plan. Setting a limit on the total number of hooks that may be used in the fishery each season would regulate fishing effort. Fishers would be able to trade hook SFRs.

Option 3: Boat Days

SFRs defined as a boat day or number of boat days under a management plan. Setting a limit on the total number of boat days that may be employed in the fishery each season would regulate fishing effort. Fishers would be able to trade boat day SFRs.

Option 4: Hook-Days

SFRs defined as a hook day or number of hook days under a management plan. Setting a limit on the total number of hook days that may be employed in the fishery each season would regulate fishing effort. Fishers would be able to trade hook day SFRs.

Option 5: Individual Transferable Quotas (ITQs)

This was the only output control option considered and defines SFRs as a weight of fish. The total catch of species under quota is directly controlled under a total allowable catch determined prior to each fishing season. An operator would be able to take a proportion (the weight value of their ITQs) of the TAC for each species in a fishing season. Fishers would be able to trade quota SFRs.

Output controls involve limiting the total catch 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 ITQs as this provides a statutory basis for access to the fishery and a mechanism for individual operators to adjust their fishing activity. This autonomous adjustment of fishing effort provides efficiency benefits and can reduce management costs. The size of the TAC will determine the weight value of the SFR (in kilograms) for the period of the TAC. The weight value of individual SFRs would be set initially at around 1kg, making an individual's SFR holding highly divisible to enhance their trading capacity. Only the key species (in the SWTBF these are bigeye tuna, broadbill swordfish, yellowfin tuna and striped marlin) generally come under quota initially. As the fishery develops, byproduct species may or may not be added depending on their stock status and target rates.

Under the processes set out in the draft Management Plan, the TAC will be set on the basis of stock status, catch and effort data, and consultation with relevant interest groups (industry, recreational, NGOs etc). The Stock Assessment Group (SAG) provides recommendation to Western Tuna MAC regarding the level of the TAC on the basis of this available data and consultation. The AFMA Board, on advice of the MAC, may implement a TAC that is consistent with AFMA's legislative objectives. The SAG also provides decision rules for setting the TAC.

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 was assessed in terms of the management objectives of the SWTBF (described in Box 1).

Box. 1. Criteria used for comparison of the options

a) Ecological Sustainable Development

The criteria used to assess options against the 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 SWTBF 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 would not be considered cost effective.

d) International fisheries management obligations

Fish species in SWTBF 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 Indian Ocean (The IOTC).

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. The analysis against the above criteria was undertaken only at a qualitative level due to a lack of reliable comparative data.

Option 1. Status Quo (Limited Entry)

Ecologically Sustainable Development

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. Effective fishing effort is derived from many fishing inputs and constraints on any particular input are easily circumvented by increasing unregulated inputs. 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.

Limited entry is not a species-specific management regime. Limited entry regimes usually require a range of additional input restrictions that limit innovation and efficiency. This makes it impossible to manage the fishery at a fine scale, including at the species and ecosystem levels.

While it is possible to determine sustainable catch levels, limited entry provides little scope to manage either catch or effort to within specific levels because the primary unit is the boat and this is a coarse measure of effective fishing effort.

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, working against economic efficiency.

Limited entry does allow fishers to respond to inter-annual variability in the fish stocks. Benefits from capacity to respond to variability in abundance are offset by the lack of strong access rights and tendency to over-capitalise. Additionally, for stocks that are fully fished, spikes in abundance are not necessarily available to fishing.

Given that the existing arrangements offer little in the form of management, it can be expected that additional regulations will be needed. This reduces flexibility for operators and encourages investment in unregulated inputs and impedes the economic efficiency of the fishery. The activation of latent effort[2] over time will compound 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 costs can be expected to increase over time as the sustainability of the stocks decreases. In order to pursue AFMA's 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 to ensure that catch allocations are not exceeded.

Option 2. Hook Pool

Ecologically Sustainable Development

The hook pool approach is a poor proxy for 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. Other controls would be required to address sustainability concerns, including multi-species problems.

Data collection is normally of a reasonable quality under 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.

[2] "Latent Effort" refers to existing ability to fish that is not currently being utilised. In the SWTBF, 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.

In order to provide an acceptable level of confidence that the ESD objective will be met for example to address multi-species issues, the hook pool regime would need to include a mechanism for incremental reduction in hook numbers as other inputs are increased. This can be achieved but is rarely popular and can result in the need for increased compliance costs. The hook pool may need to be determined on the basis of a vulnerable species in the fishery if other measures fail to ensure their sustainability.

Economic efficiency

The hook pool is a relatively secure access right compared to other input forms however, the value of a hook will be different for species of different value. Similarly, the value of a hook to a highliner (highly effective fisher) will be greater than the value to his less experienced competitors. Therefore the fishing activities of one fisher can impact on the production capacity and efficiency of another.

Under the hook pool there will be an incentive for operators to increase certain unregulated elements of fishing capacity such as fishing technology. 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.

Input control systems do allow fishers to respond to inter-annual variability in the fish stocks. Benefits from capacity to respond to variability in abundance are offset by the lack of strong access rights and tendency to over-capitalise. Additionally, for stocks that are fully fished, spikes in abundance are not necessarily available to fishing.

The hook pool option does provide for autonomous adjustment of the fisheries but the relationship of a hook to a particular level of catch is weak and the rate of adjustment could be expected to be low.

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 to a reasonable 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 is a relatively poor proxy for catch and therefore it may be difficult to meet international management obligations related to national catch allocations. Other measures adopted by RFMOs could be met using a hook pool regime.

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 and catch. It will be difficult to determine and set the total boat days around a determined sustainable harvest level given that no two boat days are the same. This is because the boat size, crew skill and amount of fishing equipment will all have a significant influence on catch rates. Nevertheless, reductions in boat days could address some sustainability issues, such as stock depletion.

Data collection is normally of a reasonable quality under 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.

Multi-species issues are not readily addressed under a boat day system because the system is not species-specific. A boat day is not a good proxy for catch and therefore will not deliver high confidence in responding to stock needs.

Economic efficiency

While the number of fishing days is limited under this regime, other key inputs are not regulated. Therefore, overcapitalisation will remain a problem. The nature of the SFR makes it less than ideal as a type of access right in that competition for catch share will occur. The need for additional regulation will remain under this option and erosion of economic efficiency will result.

Input control systems generally allow fishers to respond to inter-annual variability in the fish stocks. Benefits from capacity to respond to variability in abundance are offset by the lack of strong access rights and tendency to over-capitalise. For stocks that are fully fished, spikes in abundance are not necessarily available to fishing.

The boat day option does provide for autonomous adjustment of the fisheries but the relationship of a boat day to a particular level of catch is weak and the rate of adjustment could be expected to be low.

Cost effective management

While boat days would be relatively cheap to monitor, their effectiveness in managing ESD and maximising economic efficiency is relatively low.

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 or catch this option could not meet international management obligations relating to national catch levels. Obligations related to fishing capacity could be met but is likely to require reductions in

boat days over time. Other conservation measures could be met under this option.

Option 4: Hook Days

Ecologically Sustainable Development

A system of input controls based on hooks and days could allow AFMA to pursue ESD within acceptable limits as it provides a reasonably flexible mechanism for adjustment of effort – and is a reasonable proxy for catch.

Data collection is normally of a reasonable quality under management arrangements that do not seek to limit catches. This system is likely to rate highly in relation to catch data and does offer reasonable investment security and therefore would not discourage broad-scale reporting of ecosystem information. Any SFR that regulates fishing effort will be susceptible to increases in unregulated inputs, which will undermine the ESD objective.

This type of effort unit system should provide an incentive to target high value product because each fishing event will result in effort units being expended from the total allowable effort. However, any effort-based system is not species specific and may not effectively address multi-species issues.

Economic efficiency

Hook day SFRs offer a relatively strong 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, some inputs remain unchecked so additional regulation could be expected over time.

Input control systems do allow fishers to respond to inter-annual variability in the fish stocks. Benefits from capacity to respond to variability in abundance are offset by the lack of strong access rights and tendency to over-capitalise, although a higher quality input right such as hook days would be relatively less offset.

Competition among operators exists under any input control because the total catch of individuals is not directly defined.

This option provides for 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.

Cost effective management

While AFMA believes this to be the most effective of the input regimes due to its adjustment flexibility and close relationship to catch, monitoring effort remains an expensive task. Hook days would offer the most cost-effective input control regime where it receives majority support from the fishing industry. This aspect of fisheries management is complex and difficult to assess because the more complicated the input right, the more complicated becomes the allocation process. If the allocation process disaffects operators the benefits of the management regime itself can become marginal.

International fisheries management obligations

The hook day input regime provides adequate scope to meet international fishing capacity obligations and probably catch allocation obligations should these be adopted in the future.

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.

An ITQ system, which focus on catch rather than gear type, offers scope to shift away from longlining to other methods to address both bycatch and multi-species issues. Multi-species issues are also addressed to some extent because quotas are intended to be species-specific. When quota becomes limited for one species, effort can shift to other species where these can be effectively targeted.

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 promote sustainability. It is required that a statically robust scientific monitoring program is used that involves at-sea ground-truthing of fishery information. This is then used as a feedback for TAC setting.

The ITQ system can respond to fluctuations in abundance if the TAC setting process is highly predictive. This is not likely to be the case in the WTBF and there will be a need to maintain a precautionary approach in TAC setting to ensure that periods of low abundance do not lead to overfishing.

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.

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

ITQs can be readily valued and traded to promote both economic efficiency and where TACs are precautionary in nature, the fishery will tend to be managed closer towards maximum economic yield in the longer-term.

Cost effective management

The cost of monitoring and compliance under ITQs is comparable to the key input regimes. Catch monitoring for quota purposes is port based and this minimises cost. The need for at-sea fishery monitoring has grown in fisheries no matter what type of management regime is used because of the shift towards ecosystem based management. 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. Similar issues arise under input regimes. The direct focus on catch means that ITQs are likely to provide the most effective target species management. Other species can also be managed under quota if the need arises.

International fisheries management obligations

ITQs are as good as any other regime in terms of meeting international obligations and superior where national allocations have been adopted. All management regimes require complementary measures to ensure conservation of the marine ecosystem.

F Impact analysis

Three key stakeholder groups have been identified in relation to the analysis of changing management arrangements in the SWTBF. The interests of each group are also identified. These stakeholders are:

Community: In general, members of the Australian public are consumers and protectors of fishery resources. The key interest 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 SWTBF is a significant commercial fishery, with the gross domestic value of production (GVP) estimated at $20.0 million dollars in the 2002-03 financial year.[3] The key interests of fishers are:

- Secure access rights to fisheries resources;
- Management that will maximise the economic efficiency of the fishery resources;

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

- 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 Fisheries, Forestry and Conservation 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 - continue to grant annual permits in the SWTBF (Status Quo)

	Community	Business (fishers)	Government
Benefits	No identifiable benefit.	Operators would not have to participate in trading in SFRs. The requirement to purchase SFRs could act as a barrier to entry for new participants in the fishery. No significant changes to costs of compliance.	No identifiable benefit.
Costs	While this is better than allowing open access to fishery resources, the potential to erode community benefits over time is high. Over-fishing and degradation of the marine ecosystem is most likely under this regime. Likely consequences are reductions in quality and availability of fish and increases in prices for consumers over short and longer terms.	Given the lack of effectiveness of basic limited entry, the costs of management will increase over time to ensure fisheries are managed consistently with ESD principles. Operators pay a fixed annual fee regardless of the level of fishing activity individuals wish to undertake. Smaller operations are most disadvantaged. Economic efficiency	Government cannot optimally pursue its legislative objectives for the management of the fishery under a basic limited entry regime. The fishery will become more costly to manage over time and there will be high levels of redundant capital that could have been better employed for community benefit.

	Lifestyle aspirations will be eroded in the absence of effective management.	cannot be maximised under limited entry due to failure to define high quality fishing rights. Overcapitalisation is imminent. The potential for overcapitalisation requires continual adjustments to input management, leading to increasing costs of management.	

Option 2 – Impact of management of the WTBF under Hook SFRs

	Community	Business (fishers)	Government
Benefits	Community interests can generally be met if management constrains the fishery from over-capitalising / overfishing.	A Hook SFR is a stronger access right than an annual permit. Fishers, investors and third party interests can have greater confidence in the value and security of SFRs. 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.	The Government can meet its legislative objective to manage the fishery under a management plan. The Government can better achieve cost effective and efficient management of the fishery under these more stable management arrangements.
Costs	Community interests could be improved under another regime that provides greater certainty against over-fishing resulting from the competitive incentives of the input regime. Possible overfishing and overcapitalisation may result in reduced supply and quality of fish and increases in prices for consumers over the longer term.	Regulation is still required to control fishing effort. If over-exploitation occurs because of a sub-optimal management regime this will increase the costs of fishing (including the costs of management). The potential for overcapitalisation in unregulated inputs (which increases fishing effort) and possible additional regulation is likely to impact on the value of the	The Government cannot optimally pursue its ESD and economic efficiency objectives for the management of the fishery. 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. The fishery will become more costly to manage

		access right over time. 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.	over time and there will be high levels of redundant capital that could have been better employed for community benefit. Not optimal for meeting international responsibilities.

Option 3 – Impact of management of the WTBF under Boat Day SFRs

	Community	Business (fishers)	Government
Benefits	Community interests can generally be met if management constrains the fishery from over-capitalising / overfishing.	A Boat Day SFR is a stronger access right than an annual permit. Fishers, investors and third party interests can have greater confidence in the value and security of SFRs. 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.	The Government can meet its legislative objective to manage the fishery under a management plan. The Government can better achieve cost effective and efficient management of the fishery under these more stable management arrangements.
Costs	Community interests could be improved under another regime that provides greater certainty against over-fishing resulting from the competitive incentives of the input regime. Possible overfishing and overcapitalisation may result in reduced supply and quality of fish and	Regulation s is still required to control fishing effort. If over-exploitation occurs because of a sub-optimal management regime this will increase the costs of fishing (including the costs of management). The potential for overcapitalisation in unregulated inputs (which	The Government cannot optimally pursue its ESD and economic efficiency objectives for the management of the fishery. Boat Days are a poor proxy for effective fishing effort and are not likely to provide a long-term effective means for sustaining catch or the

	increases in prices for consumers over the longer term.	increases fishing effort) and possible additional regulation is likely to impact on the value of the access right over time. 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.	marine environment. The fishery will become more costly to manage over time and there will be high levels of redundant capital that could have been better employed for community benefit. Not optimal for meeting international responsibilities.

Option 4 – impact of management of the WTBF under Hook Day SFRs

	Community	Business (fishers)	Government
Benefits	Community interests can generally be met if management constrains the fishery from over-capitalising / overfishing	Of the input control options analysed, a Hook Day SFR is the strongest access right. Fishers, investors and third party interests can have greater confidence in the value and security of SFRs. 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.	The Government can meet its legislative objective to manage the fishery under a management plan. Hook Days are an reasonable proxy for effective fishing effort and should provide a long-term effective means for sustaining the marine environment. Government can better achieve cost effective and efficient management of the fishery under these more stable management arrangements. Provides an improved mechanism for meeting international responsibilities.
Costs	Community interests could be improved under another regime that provides greater certainty against over-fishing resulting from the competitive incentives of	Regulation s is still required to control fishing effort. If over-exploitation occurs because of a sub-optimal management regime this will increase the costs of	Catches of vulnerable species can be sustained but other species may be under-exploited. Over-exploitation on one species will impact on fisher's ability to catch

	an input regime. Possible overfishing and overcapitalisation may result in reduced supply and quality of fish and increases in prices for consumers over the longer term.	fishing (including the costs of management). The potential for overcapitalisation in unregulated inputs (which increases fishing effort) and possible additional regulation may impact on the value of the access right over time. If over-exploitation occurs on any particular species, reductions in the quantity of hook days will limit fishers ability to catch other species and this will increase the costs of fishing. 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.	other species and therefore may make it difficult for the government to maximise economic efficiency in the fishery. Without the appropriate control over fishing inputs, the fishery will become more costly to manage over time and there will be high levels of redundant capital that could have been better employed for community benefit.

Option 5 – Impact of management of the WTBF under Individual Transferable Quota SFRs

	Community	Business (fishers)	Government
Benefits	Community interests can generally be met if management constrains the fishery from over-capitalising The access right is defined in terms of a quantity of fish based on an assessment of sustainability and is most likely to achieve sustainable exploitation of resources for current and future generations.	An ITQ SFR is a stronger access right than an annual permit, and industry has expressed a strong preference for this option. Of the options considered, it provides the greatest confidence to fishers, investors and third party interests in the value and quality of the long-term access right – because catch is defined at the individual level, the fishing of one operator does not impact on other operators.	Government meets legislative requirements to develop and implement a statutory management plan in the fishery. Government can pursue its domestic and international obligations, particularly minimising overfishing, through stable management arrangements. ITQs provides for autonomous restructure as efficient operators have an incentive to buy out less efficient operators and minimise their costs

		Management arrangements are more stable under a management plan.	of fishing. This best pursues the Government's economic efficiency objective for fisheries management.
Costs	If assessment of stocks is poor, resources may still be under or over-exploited. This may result in short term reductions in supply and quality of fish, and increases in prices to consumers. However, a precautionary TAC minimises potential fluctuations. The greatest incentive for discarding (to maximise quality of catch and return to fisher) exists under ITQ management.	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). Fishing inputs need not be regulated if their impacts on the marine environment are to be sustainable. 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.	Higher cost of fishery assessment and greater reliance on catch monitoring may increase government contributions to management.

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 the WTBF in parallel with the development of the WTBF 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 WTBF; and Part III provides an assessment of the management arrangements for the WTBF 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 WTBF. The assessment report is 131 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 WTBF Management Plan.

The WTBF Management Plan and assessment report are currently being considered by the Minister for Environment and Heritage. The Minister must signal his intention to accredit the WTBF Management Plan under the provisions of the EPBC Act before AFMA's Managing Director can determine it. Once determined, the WTBF Management Plan comes into effect upon gazettal. Accreditation of the WTBF Management 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 WTBF Management 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

ITQ based SFRs provide the greatest benefits for economic efficiency for the fishery compared with other options. As mentioned earlier, the recommended option provides the strongest access right as they are rights to a specified proportion of a total quantity of allowable catch (the TAC). The TAC is to be set in accordance with a long term level of sustainable harvest providing more business certainty. The ability to trade ITQs can also lead to more 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 WTBF Management 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 foreshadowed 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's fisheries resources, is a vital part of this approach. This approach provides opportunities for SWTBF stakeholders to have input into the management process through Western Tuna MAC and other forums.

The draft Management Plan has been the subject of extensive consultation since the concept of a management plan was first proposed in 1999. Since that time, Western Tuna MAC has met regularly (3-4 times each year) 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 at the time the meetings take place.

The chairman’s summary from each Western Tuna MAC meeting is routinely sent to all SWTBF operators and interested persons and posted on the AFMA web-site.

Development of the WTBF Management Plan

In December 1999, the AFMA Board agreed to apply a single management plan to both the STBF and WTBF, and a paper reviewing the management options was considered by the Western Tuna MAC in February 2000. Following further discussion, the AFMA Board endorsed ITQs as the preferred management arrangement. In July 2000, a range of stakeholders, including ETBF and SWTBF operators, MACs and interested parties, were advised of this decision and submissions were sought. Further meetings were held with operators during July 2000 to discuss the options. In December 2000, pending further advice from the Western Tuna MAC, the AFMA Board deferred the decision on the style of SFRs to be applied under the WTBF Management Plan. At its meeting in February 2001, the Western Tuna MAC recommended that ITQs was the appropriate management style for the SWTBF. A draft Management Plan was developed and the AFMA Board released it for public. In total, three rounds of public comment have been conducted.

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

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

H Recommended option and conclusion

The recommended course of action in the SWTBF is to issue SFRs based upon ITQs

(option 5). ITQs directly control the amount of fish which can be harvested, and promotes a fleet size of that which is most economically efficient for the level of catch. AFMA will pursue an ecologically sustainable harvest by setting precautionary TACs. TACs will more aligned to actual stock capacity with improvements in fishery information over time. This option, along with a range of other management measures, is the result of extensive consultation and has the capacity to achieve AFMA's legislative objectives under the FMA. The key benefits identified by AFMA for managing the fisheries under ITQ SFRs include:

- direct control over catch;
- catch limits set according to the sustainability of individual species (observing the precautionary principle);
- strong access right granted under a management plan;
- minimum intervention by the managing agency in the levels of fishing inputs 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.

ITQ management is in line with the government's 1989 policy statement and the review of this policy in 2003. Using a TAC for each species will promote detailed stock assessment of all the major species in the fishery, as opposed to only the lowest common denominator species, and will give AFMA a better understanding of ecosystem effects of fishing in the SWTBF. A TAC for each target species allows operators the flexibility to focus effort on one particular species as the TAC for others becomes exhausted. This is an advantage over a TAE where there is no differentiation in regard to the abundance of individual species. Cost of at sea monitoring and compliance should be less under ITQs, however, in-port monitoring is higher in an ITQ fishery. Overall, compliance costs are likely to be similar to those in the ETBF under the TAE system.

Of the other options considered, the Hook Pool (Option 2) and input controls in the form of Boat Days (Option 3) do not pursue AFMA's ESD objective as well as ITQs. These options do not provide an adequate capacity for AFMA to effectively regulate fishing effort and thereby ensure a sustainable harvest. Fishing effort units (the preferred option in the ETBF) is more robust than options 2 and 3 as it combines the elements of hooks and time spent fishing. Hooks used or time spent are a blunt proxy for fishing catch and would not provide AFMA with an effective management tool for either sustainability or economic efficiency.

Maintaining the Status Quo (Option 1) in managing the SWTBF does not pursue AFMA's legislative objectives nor does it increase stakeholder confidence in the management regime.

I Implementation and Review

The WTBF Management Plan will be advertised in *The Gazette* and *The Australian* once accepted by the Minister for Agriculture, Fisheries and Forestry and the Minister for Environment and Heritage. All those eligible for the grant of SFRs in the fishery will be notified in writing of the commencement of the plan and the steps they must undertake to be granted SFRs. People who believe they are eligible to apply for the grant of an SFR will be given the opportunity to do so on an approved form. AFMA will register as eligible all people who meet the criteria set out in the draft Management Plan.

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

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

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

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

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

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

Before the WTBF Management Plan comes into effect

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

After the WTBF 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 best two years of 'catch history' for eligible persons between the years 1997-2001 (inclusive). This process ensures SFRs are granted in a way that minimises the impact of the transition to a quota system by basing allocation on historical fishing activity of operators. 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 of providing efficient and cost effective fisheries management and maximising the economic efficiency of the fishery, in the context of ecological sustainability.

The level of the TACs is unlikely to be set lower than the highest historical catch levels recorded in the fisheries. The draft WTBF Management Plan sets out a process of consultation with all key stakeholders through which TACs are set. The AFMA Board may accept the recommendations provided through this process where they accord with AFMA's legislative objectives.

The process for granting SFRs may take up to 6 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 WTBF is set out in Part 4 of the WTBF Management Plan.

Policy development

During the Western 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 WTBF Management Plan. In 2004/05, the following policies will be developed in cooperation with the MACs:

- packaging of licences within the WTBF;
- 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; and
- a risk-based compliance program and a 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 WTBF 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 WTBF 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 WTBF, 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 Western Tuna MAC (involving consultation with key stakeholders), and a decision by the AFMA Board consistent with AFMA's legislative objectives.

Appendix 1: Historical development of the SWTBF

- **1950s:** The Japanese began pelagic longlining off the west coast of Australia. The majority of this catch was taken to Japan.

- **1960 to 2002:** Pole and line fishery for southern bluefin tuna develops off Port Lincoln. Purse seining becomes an important catching method in the 1970s.

- **1975 to 1985:** Pole and line fishery for juvenile southern bluefin tuna develops off southern Western Australia.

- **1979:** After implementation of the AFZ under the United Nations Convention on Law of the Sea, Japanese activity within the zone was licensed under bilateral agreements.

- **1983/84:** Individual transferable quotas implemented in the SBT Fishery.

- **1988 to 1995:** Australian/Japanese joint venture longline vessels began fishing in 1988/89. Joint venture vessels were restricted to waters south of 34ºS and into the Great Australian Bight. The joint venture concluded in October 1995.

- **1985:** July - Freeze on the issue of new Commonwealth fishing boat licences.

- **1986:** Domestic pelagic longliners first operate in the waters of the SWTBF.

- **1990:** Domestic longliners only fish sporadically in the waters of the SWTBF. Until 1996 most of the domestic catch (by weight) in the fishery was skipjack tuna taken by purse seine vessels.

- **1991:** The Commonwealth Fisheries Management Act 1991 replaced the Commonwealth Fisheries Act 1952.

- **1992:** AFMA began replacing CFBLs in the area of the SWTBF 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.

  This reduced the number of fishing entitlement holders for the SWTBF to 278.

- **1994:** AFMA closes the SWTBF to new entrants.

- **1994 to 1996:** The Commonwealth signs Offshore Constitutional Settlements (OCS) with the Northern Territory (December 1994), Western Australia (January 1995) and South Australia (December 1996). These agreements place the management of tuna and tuna-like species under Commonwealth jurisdiction.

- **1995:** AFMA established Western Tuna and Billfish Management Advisory Committee (WTBF MAC) in order to establish a formal consultation process for the development of management arrangements for the fishery.

  March - The AFMA Board revised the initial boundaries set for the jurisdiction of WTBF MAC to waters north of 34 S. The responsibility of SBTMAC was extended to include management of non-southern bluefin tuna species in waters south of 34 S. The boundary at 34 S then delineated the jurisdictional administrative boundary between these two MACs and became an external area boundary within the SWTBF.

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:** March - The Indian Ocean Tuna Commission (IOTC) came into effect in March 1996. The IOTC is an inter-governmental organisation established under Article XIV of the FAO constitution. It is mandated to manage tuna and tuna-like species in the Indian Ocean and adjacent seas.

- **1997:** Following the restructure of the permit system the number of permit holders in the SWTBF was reduced from 278 to the current 124 permit holders.

  November - The bilateral agreement lapsed 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:** The AFMA Board approved the removal of all internal boundaries in the WTBF and the STBF with the exception of the line at 34º S. The decision was taken in the context of AFMA's legislative objectives.

  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.

  Interest in the SWTBF increased in 1998 with a considerable increase in investment and in prices paid for the transfer of fishing permits. Some 20 vessels operated eight taking individual catches in excess of 35 t. In previous years there were few if any dedicated WTBF domestic longline vessels.

- **1999:** December - The commercial landing of fish of the family *Istiophoridae* (blue, black or striped marlin, sailfish or spearfish) in Western Australian waters had been prohibited by state legislation since October 1995. Until this time, striped marlin were caught and retained by some operators. In December 1999, the Fisheries Department of Western Australia announced that it would enforce legislation to prevent the commercial landing of these species in WA waters.

- **2000:** October – 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. This followed an announcement by the Federal Minister for Agriculture, Fisheries and Forestry of a new Government policy, banning shark finning.

- **2001:** February - SWTBF MAC recommended that that the appropriate style of SFR for the SWTBF was ITQs and that the allocation of SFRs should occur in parallel with the development of the draft Western Tuna and Billfish Fishery Management Plan 2002.

  October - The Australian Tuna and Billfish Fisheries Bycatch Action Plan 2001 for Australia's Tuna Fisheries was launched.

- **2002:** The draft Western Tuna and Billfish Fishery Management Plan 2002 and the draft Assessment Report – Western Tuna and Billfish Fishery were released for public comment for a period of six weeks between 2 October to 15 November 2002.
- **2003/04:** Second and third public comment phases were held.

Appendix 2: Development of the draft WTBF Management Plan

- In December 1999 the board agreed to advise the tuna MACs that a single management plan would apply in the SWTBF, and that it saw no reason why similar arrangements should not apply to both the SWTBF and ETBF. The Board acknowledged the increase in investment and effort in the SWTBF in the previous 12 months and agreed as a matter of urgency, to develop and implement a management plan that would effectively manage fishing effort, by early 2001. No further licence splitting would be approved until the Management Plan is implemented as this would potentially result in increased fishing effort in the SWTBF.
- 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 SWTMAC on 4 February 2000 and ETMAC on 24-25 January 2000.
- At its meeting on 16 June 2000, after further discussion regarding management options, the AFMA Board agreed that the nature of the SFRs to underpin management arrangements in the ETBF and WTBF should be the same. The status quo and hook pool options were rejected, as they were not effective and cost efficient management approaches for these two fisheries. The Board endorsed ITQs as the preferred management arrangement for both fisheries and, that of the input controls considered, hook-days is the preferred control. These decisions were reported in the July 2000 edition of the 'AFMA News'.
- On 10 July 2000, a discussion paper entitled, *"Management options for the Eastern Tuna and Southern and Western Tuna and Billfish Fisheries"*, was sent to all ETBF and WTBF operators, relevant MACs and interested parties. A covering letter seeking submissions by 1 September 2000 was included. SWTBMAC considered but did not provide a formal response to the discussion paper.
- From 17-19 July 2000, AFMA officers held meetings with over 30 commercial and recreational operators in Fremantle and Geraldton, WA. They discussed the current management environment in the SWTBF and the SFR options presented in the discussion paper.
- On 26 October 2000, the board agreed to seek MAC advice on the issue of proceeding with a parallel allocation and comment on terms of reference for an AAP before taking a decision on initiating an allocation process for the ETBF and SWTBF at the December 2000 meeting.
- On 13-14 November 2000, SWTBF MAC met to consider the style of SFR they would recommend to underpin a management plan for the fishery. The twelve submissions received in response to the call for comments on the AFMA discussion paper were also available to the MAC. Whilst the MAC fully endorsed development of a management plan based on statutory fishing rights, it was not able to recommend the style of SFRs at that time. The MAC recommended that the AFMA Board not make a decision on SFR style for the SWTBF until the MAC has consulted further and met again in early 2001.

- At its meeting on 7-8 December 2000, the board agreed to defer a decision on the style SFRs in the SWTBF on the basis that SWTBF MAC provide specific advice on the preferred style of SFRs to the board by early February 2001. The board agreed that the pelagic longline sector of the ETBF be managed using hook-day SFRs. It was intended to consider draft management plans for both ETBF and SWTBF in June 2001. The Board noted that AFMA management is preparing separate advice on mechanisms to incorporate the minor-line sectors of the ETBF and SWTBF into the respective management plans as well as advice on future management arrangements for the purse-seine sector. This was reported in the December 2000 edition of the 'AFMA News'.
- A one-day industry workshop was held in Fremantle on 26 February 2001, to discuss issues related to output and input controls as the basis of management arrangements under a management plan. A letter requesting attendance at the workshop was sent to all operators in the SWTBF on 19 January 2001.
- SWTBF MAC met on 27 February 2001. At this meeting, the MAC recommended that that the appropriate style of SFR for the SWTBF was ITQs and that the allocation of SFRs should occur in parallel to the development of a management plan.
- Six further meetings of SWTBF MAC were held, each with a focus on developing the detail of management arrangements under a management plan, prior to the AFMA Board approving a draft Management Plan for release for public comment. Stakeholders are welcome to attend these meetings as observers.
- In September 2002 the Board approved the release of the draft WTBF Management Plan for public comment. The draft Management Plan and Strategic Assessment Report were released for public comment on 2 October 2002. The public consultation phase was concluded on 15 November 2002 and comments have been collated and analysed.
- In 2003, a second public comment phase was held between 17 July and 18 August regarding improvements made to the draft Management Plan based on comments received and advice from the MAC.
- In 2004, a third public comment phase was held between 7 April and 10 May regarding further improvements to the draft Management Plan.

Appendix 3: Structure of the draft WTBF Management Plan and supporting instruments

As detailed in the following table the majority of management measures under the Management Plan are aimed at allowing the fisheries resources in the area to be exploited 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 TACs, 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. The table below lists possible instruments that will support the Management Plan. The particular instrument may change following an assessment of the need for flexibility and other issues may be addressed through supporting instruments over time, for example, a time or area closure not yet considered may be implemented through Directions.

Table 1: The structure of the draft WTBF Management Plan and supporting instruments

MANAGEMENT PLAN	
Management Measure	**Purpose**
Bycatch Action Plan requirements	To identify and manage bycatch issues in the fishery.
Boat SFRs	To manage access to and protect species not under quota.
ITQ SFRs	To ensure long term, secure access rights to a share of the TACs in the WTBF.
Boat nomination	Outlines the administrative process for nominating eligible boats against the SFRs. Also provides for AFMA to de-nominate boats that are 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, the supporting legislation and other elements of the management regime.
Obligations relating to injury or death of seabird 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 - jurisdictional issues (State waters and the high seas). - inspection of nominated boat - disposal of fish landed - areas in which the holder can fish	These obligations on concession holders are designed to ensure the integrity of the ITQ management arrangements.
Directions not to engage in fishing	Allows for restrictions on fishing activity through restrictions on things such as fishing areas and fishing gear.
Schedule 1 – Area of the fishery	Describes all the geographical boundaries for the fishery.
Schedule 2 – Primary and Secondary species	Lists the target species in the fishery including those where a TAC has been set and provides for other species to be taken (where a law provides for such take).
SUPPORTING INSTRUMENTS	
Regulations	**Comments**
Application fees for details recorded in SFR register	Administrative cost recovery.
Bycatch	Regulates catches for species as per OCS arrangements between states/NT and the Commonwealth.
Incidental catch of state species – allowance	Sets out bycatch provisions allowed for in OCS arrangements.
Directions	**Comments**
Area Closures	
Mermaid Reef Marine National Nature Reserve	Shelf edge reef.
Ashmore Reef National Nature Reserve	Shelf edge reef. Important turtle breeding ground for sea turtles. Traditional Indonesian fishers are permitted access to nearby waters.
Ningaloo Marine Park	Green turtle nesting rookeries. Whale shark aggregations.
Great Australian Bight Marine Park	Tuna fishing permitted within benthic protection zone.
Determinations	
Setting Total Allowable Catch (TAC)	Provides for the total catch of a species that can be taken in the fishery annually – calculated to result in a sustainable harvest of target and by-catch species.

Setting the percentage or quantity of over/under-catch	To allow a determined amount of fish to be caught in excess of the TAC or to allow a determined amount of fish not caught in one season to be caught in the next season.
Conditions on SFRs/Permits	
Logbook requirements	Information for stock assessment, monitoring, quota adjustments and management information.
Fishing gear	To provide for the use of a fishing method not otherwise prescribed in the Management Plan.
Reporting requirements	Compliance and monitoring.