

FISHERIES MANAGEMENT ACT 1991

FISH RESOURCES MANAGEMENT ACT 1994

ANNUAL REPORT FROM THE WESTERN
AUSTRALIAN
FISHERIES JOINT AUTHORITY
1 JULY 2004 TO 30 JUNE 2005

Presented to the Commonwealth Parliament pursuant to section 70 of the *Fisheries Management Act 1991*.

Presented to the Western Australian Parliament pursuant to section 21 of the *Fish Resources Management Act 1994*.



The Hon. Tony Burke MP
COMMONWEALTH
MINISTER FOR AGRICULTURE,
FISHERIES, AND FORESTRY



Hon. Norman Frederick Moore MLC
MINISTER FOR MINES AND
PETROLEUM; FISHERIES;
ELECTORAL AFFAIRS

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Commonwealth of Australia 2009

ISSN 1033-9949

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Published by:

Australian Fisheries Management Authority
73 Northbourne Avenue
CANBERRA ACT 2600

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1. INTRODUCTION

This is the eighteenth report of the Western Australian Fisheries Joint Authority (WAFJA) providing detailed and validated catch, effort and population assessment figures for the WAFJA Joint Authority Fisheries for 2004-05.

The WAFJA was established under provisions of the Commonwealth *Fisheries Act 1952* (now replaced by the *Fisheries Management Act 1991*) and the Western Australian *Fisheries Act 1905* (now replaced by the *Fish Resources Management Act 1994*).

Since 1988, the WAFJA has been responsible for the management of the Joint Authority Southern Demersal Gillnet and Demersal Longline Managed Fishery (JASDGDLMF) in waters south of 33° south latitude to the South Australian border. The *Offshore Constitutional Settlement 1995* (1995 OCS) is the current agreement in place for the management of the JASDGDLMF (see Appendix 2).

Following the 1995 OCS agreement, the WAFJA was also given responsibility for the management of the Joint Authority Northern Shark Fishery (JANSF), being the coastal waters and waters of the Australian fishing zone that lie within the area described in Schedule 2 to the *Petroleum (Submerged Lands) Act* under the heading “Area that includes the Adjacent Area in respect of Western Australia”, east of the meridian of longitude 123° 45’ East and north of parallel latitude 17° South (see Appendices 3 and 4).

Routine administration of fisheries under WAFJA jurisdiction is carried out by the Department of Fisheries (WA) under Western Australian fisheries law.

This report details the activities of the WAFJA in managing the two Western Australian Joint Authority fisheries and the condition of the fisheries under WAFJA jurisdiction during the period 1 July 2004 to 30 June 2005.

The contact officer for enquiries about this report is Mr Peter Millington, Director Fisheries Management Services, Department of Fisheries, 3rd Floor The Atrium, 168 St Georges Tce, Perth, WA, 6000.

2. MEMBERSHIP OF THE WAFJA

The members of the WAFJA during the reporting period were: -

For the period 1 July 2004 to 9 March 2005

Hon Kim Chance MLC

Western Australian Minister for Agriculture, Forestry and Fisheries

For the period 10 March 2005 to 30 June 2005

Hon Jon Ford JP MLC

Western Australian Minister for Agriculture, Forestry and Fisheries

For the period 1 July 2004 to 30 June 2005

Hon Ian Macdonald

Commonwealth Minister for Fisheries, Forestry and Conservation

3. RELEVANT LEGISLATION OF THE JOINT AUTHORITY

Sections 61-70 of the *Fisheries Management Act 1991* set out the establishment, functions, administration and reporting requirements of the Joint Authority.

Part 3 of the Western Australian *Fish Resources Management Act 1994* sets out complementary State legislation and other matters relating to the establishment, functions, administration and reporting requirements of the Joint Authority and the management of Joint Authority fisheries in Western Australia.

4. GENERAL STATE LEGISLATION RELEVANT TO FISHERIES UNDER WAFJA JURISDICTION

The JASDGLMF operates under a management plan drafted in accordance with Part 6 of the *Fish Resources Management Act 1994*. No formal legislated arrangements are in place specifying the management regime for the JANSF but the existing fishers' right of access to the fishery is currently recognised by "permissive conditions" annotated on their fishing boat licences.

A prohibition on the use of hooks attached to rock lobster pots and float lines, boat mooring lines and anchor lines was introduced in November 2002 and applies to all persons fishing in Western Australian waters. This was introduced to restrict some rock lobster fishers and wetliners from using these other forms of fishing and boating equipment being used for what is essentially droplining for large whaler sharks for their fins.

In an attempt to prevent increased targeting of sharks purely for the value of their fins and due to the widespread public opposition to the practice, at sea finning and discarding of trunks was prohibited in all Western Australian waters in October 2000. All Western Australian licensed fishers are now obliged under the *Fish Resources Management Regulations 1995* to land either whole sharks, with fins attached or to land an equal number of shark trunks and sets of fins.

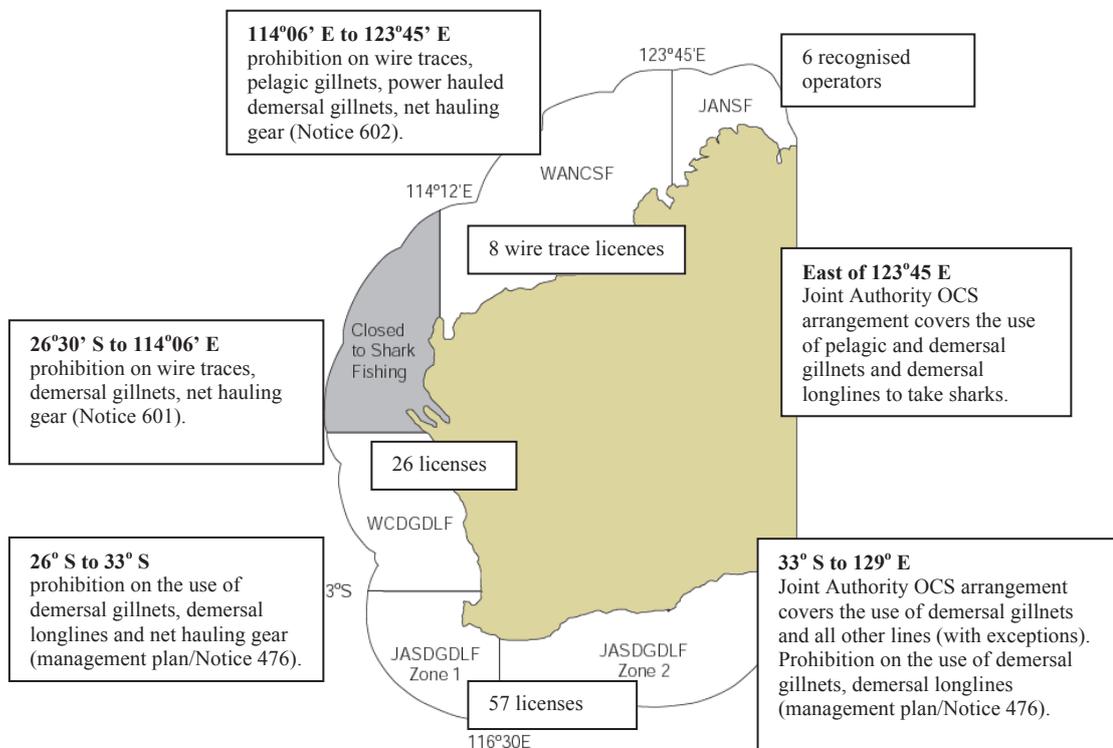
The *Net Hauling Restriction Notice 1991* was gazetted by Western Australia in April 1991. This Notice prevents those persons not endorsed from using any powered device for hauling a fishing net in the waters of the Indian Ocean, Southern Ocean and the Timor Sea.

Further details of the management of the JASDGDMF and the JANSF are detailed in parts 10 and 11 of this report respectively.

5. MEETINGS AND ACTIVITIES

There were no WAJA meetings during 2004-05 but the Chief Executive Officers of Western Australian Department of Fisheries and the Australian Fisheries Management Authority and other staff met on 15 September 2004 to discuss Joint Authority matters. Issues discussed included management of the JANSF and the JASDGDMF, the National Plan of Action for the Conservation and Management of Sharks (NPOA-Sharks) and the status of the Ecologically Sustainable Development (ESD) assessment process currently being administered to the Western Australian shark fisheries under the *Environment Protection and Biodiversity Act 1999*. Western Australian attendees emphasised concerns with the reliance of the JANSF fishery on fins and the need to consider closing the fishery if issues related to the full and appropriate use of the catch could not be addressed. The new management proposals being considered for the JASDGDMF and the need for these proposed changes were also explained.

MAP 1 - WA “SHARK FISHERIES” AS AT 30 JUNE 2005



6. STAFFING

The Department of Fisheries (WA) provides management, research and compliance staff to service the needs of the WAFJA and the fisheries for which it is responsible.

7. ADVISORY COMMITTEES

The State Minister for Fisheries appoints members to the Management Advisory Committee (the MAC) on behalf of the WAFJA to advise on issues relating to the management of the Western Australian Joint Authority Fisheries. In addition to advising the State Minister for Fisheries on matters relating to the management of the two State shark fisheries, the Western Australian Demersal Gillnet and Demersal Longline Fisheries Management Advisory Committee, advises the WAFJA on matters relating to the management of the two Western Australian Joint Authority Fisheries. On 1 January 2002 the Western the Western Australian Demersal Net and Hook Fishery Management Advisory Committee replaced the Western Australian Demersal Gillnet and Demersal Longline Fisheries Management Advisory Committee. Membership of this committee as at 30 June 2005 is presented in Appendix 4.

The MAC met on one occasion for the 2004-05 fiscal year on 2 November. The main focus of this meeting was consideration of future management option for the two temperate shark fisheries, including the JASDGLMF. This was in the context of the release in August 2004 of *Fisheries Management Paper 180 –Future Management Arrangements for Western Australia’s Temperate Shark Fisheries – A Discussion Paper, J. Borg and R McAuley*. The future management of the State’s two northern shark fisheries, including the JANSF was also discussed against the background of the Minister Chance’s letter that was distributed with this paper and said in part:

“I am aware of concerns about the management of shark species in the State’s tropical (northern) shark fisheries. Accordingly, I have also sought advice on the management options for these fisheries. I am also concerned about the extent to which these fisheries appear primarily dependent on shark fins and will be asking the industry to provide evidence that in future it will make fuller and more appropriate use of the catch.”

And further:

“I also expect that in liaison with Industry the Department will by 1 January 2005 come forward with recommendations on how the two tropical shark fisheries can be managed to ensure their ongoing sustainability.”

As a result the MAC made a number of recommendations about the future management of the State’s shark fisheries including:

- a) two help conserve at-risk whiskery shark stocks, the adoption of a two month closure west of Albany in the two temperate shark fisheries during the August-October whiskery pupping season together with measures to provide the equivalent to a 1/6 effort reduction;
- b) to better manage compliance in the fishery and aid administrative efficiency, the introduction of satellite based vessel monitoring systems into the two temperate shark fisheries;

- c) to ensure more timely response to changes in stock levels the adoption of a Ministerial Policy Guideline that would use appropriate trigger points to ensure the rapid introduction of any required future effort reductions in the temperate shark fisheries;
- d) to help reduce and discourage commercial fishers targeting large sharks for their fins and aid with the conservation and recovery of at-risk dusky shark stocks, the introduction of a prohibition on the majority of commercial fishermen in the State managed fisheries outside the four recognised Western Australian shark fisheries taking sharks, a prohibition on the use of longlines by State licensed commercial fishes outside the four State managed shark fisheries, legislative amendments to prohibit the use of wire traces outside the State managed mackerel fishery and the adoption of a maximum size limit for dusky sharks; and
- e) the tightening of the existing “anti-finning” regulations to ensure coverage of all sharks. Skates and rays.

Another issue discussed at the meeting included the fisheries interactions with seals and sea lions and the need to respond to the National Plan of Action – Seals and Sea lions. The resource sharing issues related to the take of sharks by the Commonwealth Southern, and Western Tuna and Billfish Fishery and the related Offshore Constitutional Settlement arrangements between the Commonwealth and the State, were also discussed by the MAC.

The MAC was also made aware of the status of the Western Australian Department of Fisheries negotiations with operators in the State managed tropical shark fisheries, including the JANSF, over improved management of these fisheries and the need to move the fisheries from ones primarily reliant on income from the sale of fins and encouraging the marketing of shark flesh from these fisheries into the food products market.

AFMA provides a permanent observer to the MAC and the person filling that position receives all MAC minutes and recommendations. The Joint Authority must agree to any proposed management policy that may result in changes to State subsidiary legislation and that decision must be recorded by the Joint Authority prior to the management policy being enacted in State law.

No changes to the subsidiary legislation used in the management of the JASDGLMF and the JANSF occurred during this reporting period.

8. NATIONAL PLAN OF ACTION FOR THE CONSERVATION AND MANAGEMENT OF SHARKS

The Western Australian Department of Fisheries was closely involved with the development of the NPOA-Sharks with a presence on the Shark Implementation and Review Committee (SIRC).

The NPOA-Sharks was endorsed in April 2004 and the inaugural meeting of the SIRC was held on 9 December 2004 and developed a standard reporting template for members to report on their progress in implementing the NPOA- Sharks.

The Western Australian Department of Fisheries also has a member on the National Shark Recovery Group that provides advice to the Department of Environment and Heritage on the development and implementation of recovery plans and related shark conservation issues including the need to protect certain species of sharks. This committee met once during the 2004-05 year.

9. ECOLOGICALLY SUSTAINABLE DEVELOPMENT ASSESSMENT PROCESS

The Department of Fisheries (WA) held an ESD workshop for the four shark fisheries in 2002. Separate draft ESD reports were developed for the temperate and northern shark fisheries managed in WA. Finalised drafts were forwarded to the Department of Environment and Heritage in September 2004 for advice and comment ahead of formal submission of an ESD report. However, due to the review status of the fisheries and proposal to significantly change the management arrangement for all the Western Australian managed shark fisheries, it was agreed that submission of reports and final assessment of the fisheries should be deferred until the proposals for the change in management arrangements has been finalised.

10. JOINT AUTHORITY SOUTHERN DEMERSAL GILLNET AND DEMERSAL LONGLINE MANAGED FISHERY

10.1 BACKGROUND

Licensees using demersal gillnets and demersal longlines in the JASDGDLMF mainly target three species of shark, although other sharks and a variety of scalefish species are also taken. The current management plan for the JASDGDLMF is referred to as the *Joint Authority Southern Demersal Gillnet and Demersal Longline Management Plan 1992*.

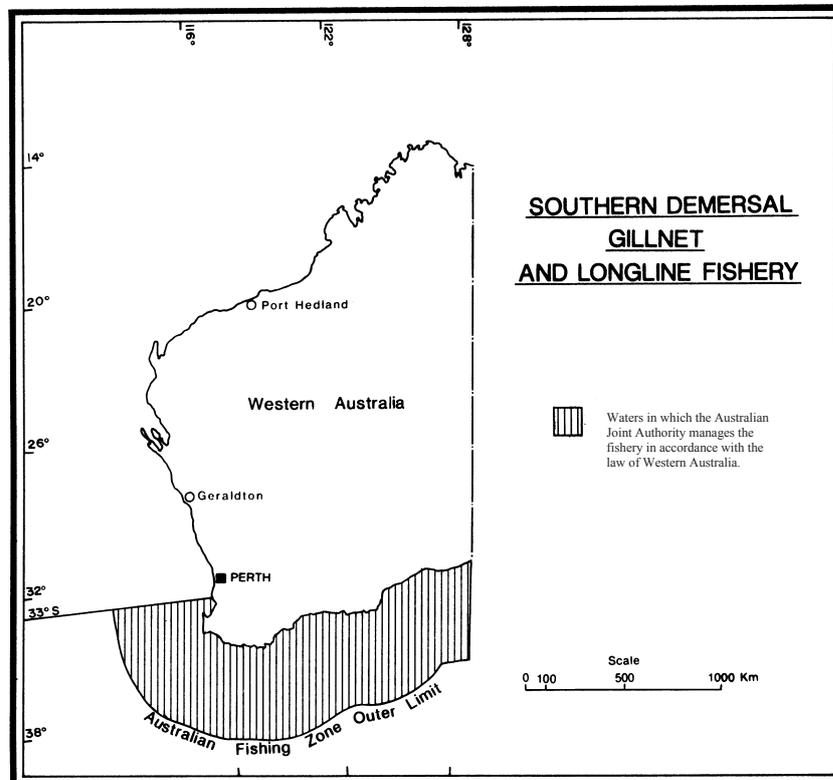
The OCS arrangements for the JASDGDLMF cover the take of sharks, rays and bony fish by “demersal gillnets and lines of all kinds other than those specified (ie handlines, troll lines and drop lines)” from 33° south latitude to the Western Australian/South Australian border and to the limit of the Australian Fishing Zone. Refer to Figure 1.

There are two main management zones within the JASDGDLMF:

- | | |
|--------|--|
| Zone 1 | western zone - south of 33° south latitude to 116° 30' east longitude; and |
| Zone 2 | eastern zone - east of 116° 30' east longitude to the WA/SA border. |

The fishing season runs from 1 June to 31 May.

MAP 2 - JOINT AUTHORITY SOUTHERN DEMERSAL GILLNET AND DEMERSAL LONGLINE MANAGED FISHERY



10.2 ECOLOGICALLY SUSTAINABLE DEVELOPMENT OBJECTIVES

As the relevant OCS arrangement provides for the JASDGDMF to be managed under State law, it is managed in accordance with the objectives of the *Fish Resources Management Act 1994*:

“The objects of this act are to conserve, develop and share the fish resources of the State for the benefit of present and future generations.”

Specifically, the *Fish Resources Management Act 1994* has the following objectives:

- “(a) to conserve fish and to protect their environment;*
- (b) to ensure that the exploitation of fish resources is carried out in a sustainable manner;*
- (c) to enable the management of fishing, aquaculture and associated industries and aquatic eco-tourism;*
- (d) to foster the development of commercial and recreational fishing and aquaculture;*

- (e) *to achieve the optimum economic, social and other benefits from the use of fish resources;*
- (f) *to enable the allocation of fish resources between users of those resources;*
- (g) *to provide for the control of foreign interests in fishing, aquaculture and associated industries;*
- (h) *to enable the management of fish habitat protection areas and the Abrolhos Islands reserve.”*

From 1997 to 2001, a series of gear unit reductions was implemented in the JASDGDLMF in response to concerns over the sustainability of shark stocks, particularly gummy and whiskery sharks. There was also a reduction in effort targeted at sharks on the West Coast when the West Coast Demersal Gillnet and Demersal Longline Interim Managed Fishery (WCDGDLIMF) Management Plan was gazetted in 1997. The aim of these reductions was to reduce active effort levels and reach biomass objectives set for the target species, particularly in relation to dusky and whiskery sharks.

The fisheries specific objectives for the JASDGDLMF and State managed WCDGDLIMF are as follows-

1. To cap effort levels for all shark species at 2001-02 levels;
2. To facilitate the breeding biomass of dusky sharks to exceed 40% of virgin levels by 2040;
3. To achieve an increase in whiskery shark biomass for three consecutive years prior to 2010, with the long term objective of returning the breeding stock to 40% of virgin biomass;
4. To maintain the biomass of gummy shark at or above 40% of virgin biomass; and
5. To maintain the annual State catch of sandbar shark below 360 tonnes.

10.3 RESEARCH

Major Fisheries Research Development Corporation (FRDC) -funded studies of the shark fishery on the south and west coasts of Western Australia, undertaken over the period 1993 to 2005, have provided a detailed basis for managing the fishery. The extensive biological and fishery information gained from these studies have been reported in three FRDC final reports and the data incorporated into the Department of Fisheries' research records. These data have been used to develop stock assessment models for the fisheries' key target stocks, to determine their likely responses to current levels of exploitation and to test alternative harvest regimes.

Fishing Effort

Research monitoring of the fishery involves analysis of catch and effort statistical (CAES) data and biological sampling of commercial catches. In 2002/03 the computer program that validates CAES records, standardises fishing effort and reapporions incorrectly reported catches from earlier seasons, was re-written using modified criteria to account for improved

species identification and reporting in recent years. Thus, catch and effort data provided in status reports since 2002/03 are not directly comparable to those given in previous years. Variations from previous year's catches of the key species are described below under 'Stock assessment'.

These research data are used to provide the status report on the fishery.

Dusky whaler. The total catch of dusky shark (which is recorded as 'bronze whaler') in the JASDGDLF and WCDGDLF during 2004/05 was 281 t, 19% lower than last year. The catch in Zone 1 of the southern fishery was 92 t (19% less than last year) and in Zone 2 was 74 t (20% less than last year). These were the lowest 'bronze whaler' catches in Zone 1 and 2 of the JASDGDLF since 1979/80 and 1983/84, respectively. After two consecutive years of rapid growth in dusky shark catches in the WCDGDLF, caused by the expansion of longline effort, catch fell by 14% in 2004/05, to 118 t. Despite this slight decline, the west coast dusky shark catch remains substantially higher than the six-year average of 69 t, for the period between the introduction of the WCDGDLF (interim) management plan in 1997 and the expansion of longline effort in the fishery in 2003.

Catch rates decreased by 6% and 17% in Zone 1 and Zone 2 of the JASDGDLF, respectively and increased by 5% in the WCDGDLF. The best available index of dusky shark abundance is the mean annual gillnet catch rate in the area corresponding to this species' distribution within the fishery. Between 2003/04 and 2004/05, this 'effective area' catch rate declined by 6% to its lowest ever level of 0.74 kg/km gillnet hr, less than one third of its rate during the late 1970s (Gillnet and Longline Figure 5).

The status of the Western Australian dusky shark stock has been reassessed using revised demographic modelling techniques and updated biological and fishing mortality parameters, developed during the recently completed FRDC-funded project.

The new demographic analysis has indicated that although catches of sharks born in 1994 and 1995 were likely to have been sustainable, the stock is less productive than previously thought. Whilst the model indicates that the population has the capacity to offset demersal gillnet fishing mortality of primarily first year (neonate) and second year sharks, it also indicates that fishing mortality of as low as 1-2% per year in older sharks (greater than 10 years of age), would cause stock recruitment to decline. Although this analysis was still based on age-specific mortality rates experienced by sharks born in 1994 and 1995, these results nonetheless provide a valuable reference for analysing recent catch rate trends. However, analysis of catch per unit effort (CPUE) data for this species has become complicated, since the relative contribution of neonates to the fisheries' catch appears to have declined and catches of older juveniles have increased since during recent years. Similarly, the increased targeting of large dusky sharks for their fins by hook methods, both within and outside the managed shark fisheries is biasing CPUE estimates. The reported 'wetline' catch of dusky shark outside the target fisheries has also doubled since the mid-1990s and it is believed that a significant proportion of demersal gillnet vessels' large hook-caught sharks might have been included within the reported gillnet catch. These factors are likely to have caused an overly optimistic trend in the CPUE for recent years. Nonetheless, the overall trend in effective area CPUE, still indicates that the stock is in decline.

Stock Assessment

Stock assessments are undertaken for both the State's temperate shark fisheries (the JASDGDLF and WCDGDLF) together and unless otherwise indicated, the following refers to the assessment for both these fisheries.

Whiskery shark. The combined catch of whiskery sharks in the JASDGDLF and WCDGDLF during 2004/05 was 153 t, a 17% reduction from the previous year. Landings in Zone 1 and 2 of the JASDGDLF were, respectively, 38% and 6% lower than in 2003/04 and at 34 t. Although the whiskery shark effective area catch rate decreased by 10% in 2004/05, the CPUE trend has remained relatively steady over the last 13 years (Gillnet and Longline Figure 5). Regionally, catch rates decreased by 29% (to their lowest ever level of 0.95 kg/km gillnet hr) in Zone 1 and by 3% in Zone 2.

The most recent assessment of the whiskery shark stock using the age structured population model was conducted in 2004 (based on 2002/03 data). This assessment indicated that although the whiskery shark stock had been depleted during the 1980s, subsequent management measures (effort reduction) had caused the stock to stabilise at about 35% of its total virgin biomass. The model also estimated that the mature female biomass had been increasing at between 1.0 and 1.6% per year since 2001/02. Based on these and previously reported model results, constraining whiskery shark catches at around their 2001/02 levels (12% more than in 2004/05), should be adequate to maintain their current biomass. However, further measures are still required to ensure and accelerate the recovery of this stock.

Gummy shark. The total catch of gummy sharks in both the State temperate shark fisheries increased by 8 t in 2004/05 to 472 t, the second highest in the fisheries' history (after 500.7 t in 1991/92). While the gummy shark catch was outside of the acceptable range (350–450 t) for the second consecutive year, the steady increase in catches since 1999/00 (when effort reductions were completed) appears indicative of a healthy stock. This conclusion is supported by the fact that, for the last four years effective area catch rates of gummy shark have been at their highest levels since 1977/78, at over 2 kg per km gillnet hr. Nonetheless, there is a possibility that increased targeting of effort towards this species may be providing an overly optimistic interpretation of the trends.

Previous age-structured modelling has indicated that, at 42.7% of its virgin level, the Western Australian gummy shark stock was above its target level in 1998. However, despite recent catch and CPUE trends indicating little cause for concern, this principal target stock has not been comprehensively assessed since 1997/98 and a new model that incorporates recent catch and effort data needs to be developed.

Breeding stock levels:

Dusky whaler: as dusky sharks give birth to live young, there is likely to be a relatively direct relationship between recruitment and breeding stock biomass. Therefore, it can be inferred from the declining CPUE of juvenile dusky whalers in the gillnet sector, that the breeding stock biomass is continuing to decline.

Whiskery shark: model results indicate that mature female biomass has been stable and possibly increasing marginally since 1999/00.

Gummy shark: as the catch of gummy sharks is primarily comprised of adults, the increasing trend in CPUE suggests that the breeding biomass is increasing.

10.4 PRODUCTION

All total shark catches given in this report include rays, unless otherwise specified. The total shark catch of 1,305 t from these fisheries in 2004/05 comprised 881 t from the JASDGDLF, made up as follows:

SPECIES	Tonnage
Dusky whaler*	163 t
Gummy shark*	460 t
Whiskery shark*	119 t
Sandbar shark [†]	13 t
Other shark	125 t
Total shark & ray	880 t

In addition to the shark catch, between 11 and 23% of the total demersal gillnet and longline catch from each zone was composed of scalefish (teleost) species that were retained for sale. In 2004/05, scalefish landings totalled 149 t in the JASDGDLF and 130 t in the WCDGDLF. For a detailed breakdown of the species composition of catches in the two south coast zones and the west coast fishery, see Demersal Gillnet and Longline Tables 1 and 2. The historical annual catches of the key target shark species are shown in Demersal Gillnet and Longline Figure 1 (for sandbar shark, also see Northern Shark Figure 1).

Sharks are also caught off the south and west coasts in a variety of other commercial fisheries and these catches are summarised here to provide a complete report on shark catches in the area. During 2004/05, vessels operating in other managed fisheries in the same overall area (i.e. between North West Cape and the South Australian border) reported catches of sharks totalling 13 t. An additional 135 t catch of sharks was taken by (mainly Demersal Gillnet and Demersal Longline) vessels using 'wetline' methods.

There were 57 licences in the JASDGDLF in 2004/05, 24 in Zone 1 and 33 in Zone 2, although only six Zone 1 vessels (two less than in 2003/04) and 18 Zone 2 vessels (one less than in 2002/03) reported active fishing returns during the year. The revised time series of validated effort agrees closely with reported (CAES) effort over the last several years and indicates that effort had been previously over-estimated for these fisheries, particularly in the years leading up to the implementation of the JASDGDLF management plan in 1988. The effort expended in 2004/05 for the JASDGDLF was 174,127 kilometre gillnet hours (Zone 1: 45,450; Zone 2: 128,677)

As gillnetting is by far the dominant method employed in the fisheries, effort is expressed in standardised units of kilometre gillnet hours by converting the historically small amount longline effort into the equivalent gillnet effort on the basis of comparative longline and gillnet catch and effort data (Demersal Gillnet and Longline Figure 2). On this standardised basis, effort in the JASDGDLF decreased by 6% in 2004/05. While combining gillnet and longline effort into a single standardised measure of effort will continue, increased use of longlines on the west coast has altered the composition of the fisheries' overall effort. Therefore, the trends in catch and effort by each method are also provided separately in this report (Demersal Gillnet and Longline Figures 3 and 4).

10.5 ECONOMIC VALUE

The JASDGDLF achieved an estimated catch value of \$3.5 million (shark and scalefish) \$600,000 (shark fins) in 2004-5 noting that as fishers do not specify the value of fins on their catch returns, fin values were calculated at an average of 3% of sharks' whole weight and value was conservatively estimated using a price of \$35/kg. Categories of shark which do not have saleable fins were excluded from fin valuation.

Estimated employment during 2004/05 was 60 skippers and crew in the JASDGDLF .

TABLE 1 DEMERSAL GILLNET AND LONGLINE - Shark catch species composition for the demersal gillnet and longline fisheries (JASDGDLF and WCDGDLIMF), 2004/05.

Species	JASDGDLF		
	Zone 1	Zone 2	Total
Gummy <i>Mustelus antarcticus</i>	55	405	460
Dusky <i>Carcharhinus obscurus</i>	92	71	163
Sandbar <i>Carcharhinus plumbeus</i>	5	8	13
Whiskery <i>Furgaleus macki</i>	43	76	119
Hammerhead <i>Sphyrnidae</i>	14	20	34
Wobbegong <i>Orectolobidae</i>	19	7	25
Blacktip <i>Carcharhinus</i> spp.	2	1	3
School <i>Galeorhinus galeus</i>	0	14	14
Shovelnose rays <i>Rhinobatidae, Rhynchobatidae</i>	0	0	0
Other sharks & rays	29	20	49

TABLE 2 - DEMERSAL GILLNET AND LONGLINE - Scalefish catch species composition for the demersal gillnet and longline fisheries (JASDGDLF), 2004/05.

Species	JASDGDLF		
	Zone 1	Zone 2	Total
Queen snapper <i>Nemadactylus valenciennesi</i>	10	24	33
Blue groper <i>Achoerodus gouldii</i>	12	17	29
Samson fish <i>Seriola hippos</i>	2	2	4
Pink snapper <i>Pagrus auratus</i>	1	8	9
Dhufish <i>Glaucosoma hebraicum</i>	7	1	8
Sweetlip emperor <i>Lethrinus miniatus</i>	0	0	0
Mulloyway <i>Argyrosomus japonicus</i>	0	4	4
Parrotfish <i>Scaridae</i>	0	0	0
Baldchin groper <i>Choerodon rubescens</i>	2	0	2
Other scalefish	41	18	59

FIGURE 1 - DEMERSAL GILLNET AND LONGLINE - Annual catches of target shark species in the demersal gillnet and longline fisheries (JASDGDLF and WCDGDLF) for the period 1975/76 to 2004/05.

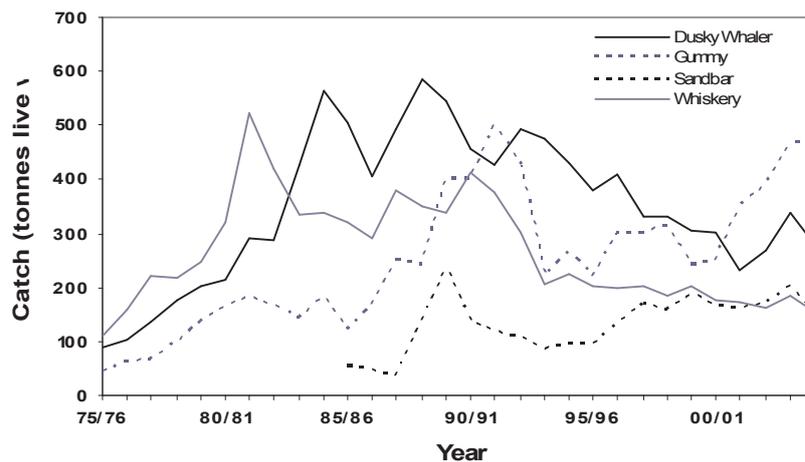


FIGURE 2 - DEMERSAL GILLNET AND LONGLINE - Effort in the demersal gillnet and longline fisheries (JASDGDLF and WCDGDLIMF) for the period 1975/76 to 2004/05.

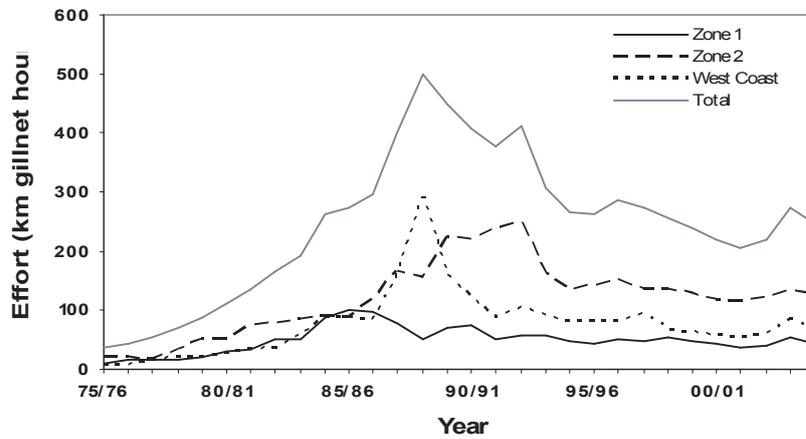


FIGURE 3 - DEMERSAL LONGLINE CATCH AND EFFORT - Catch and effort by demersal gillnet in the demersal gillnet and longline fisheries (JASDGDLF and WCDGDLIMF) for the period 1975/76 to 2004/05.

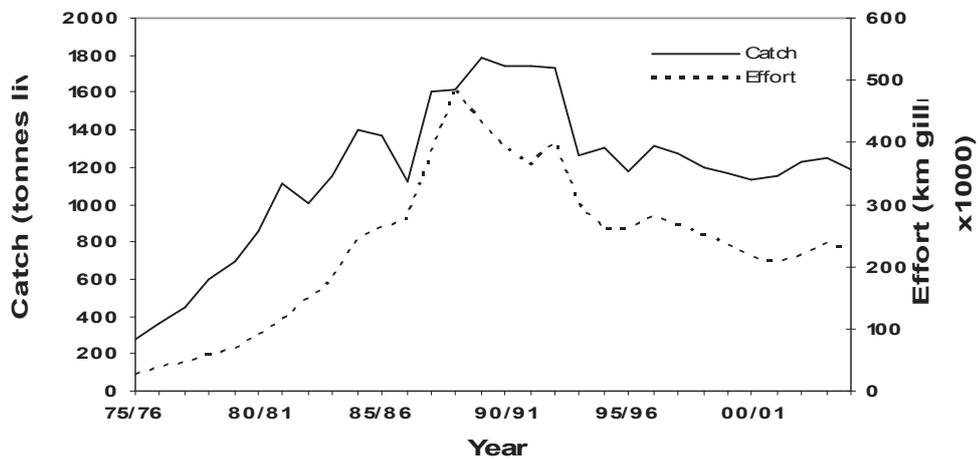


FIGURE 4 - DEMERSAL LONGLINE CATCH AND EFFORT - Catch and effort by demersal longline in the demersal gillnet and longline fisheries (JASDGLF and WCDGDLIMF) for the period 1975/76 to 2004/05.

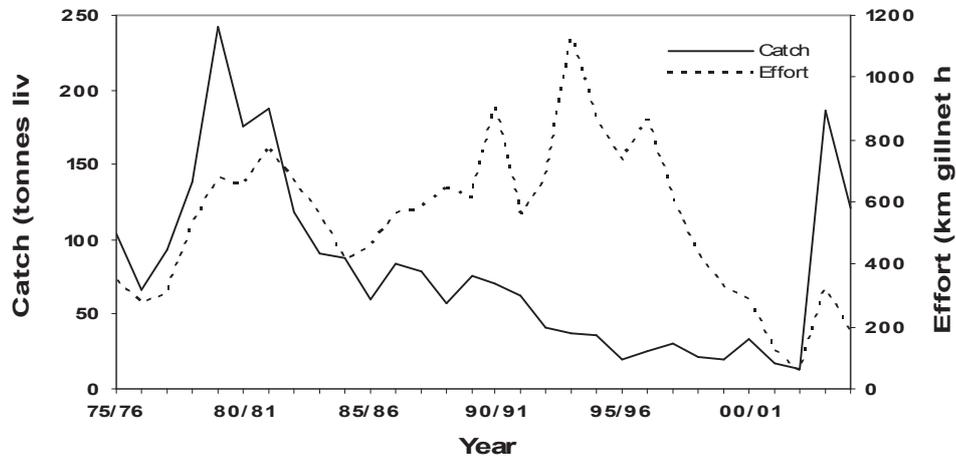
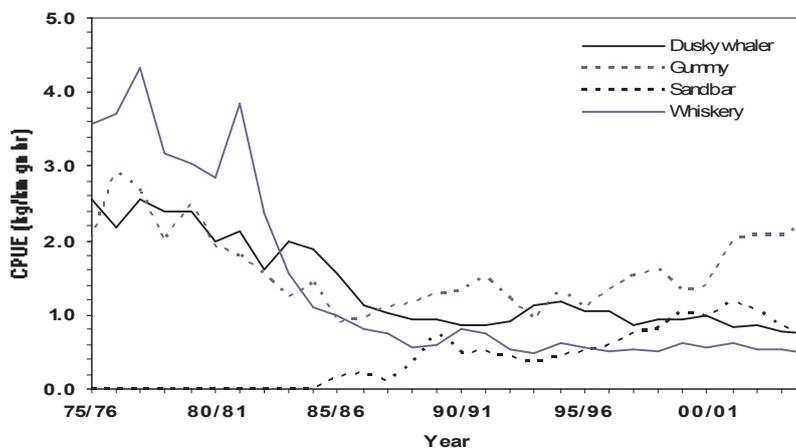


FIGURE 5 - DEMERSAL GILLNET EFFECTIVE AREA CATCH RATES -Effective area catch rates for three target species of the demersal gillnet and longline fisheries for the period 1975/76 to 2004/05.



There are three major species taken in the JASDGLMF: whiskery shark (*Furgaleus macki*); the dusky whaler shark (often called 'bronze' whaler) (*Carcharhinus obscurus*); and the gummy shark (*Mustelus antarcticus*). In the northern zone of the fishery sandbar sharks (*Carcharhinus plumbeus*) are emerging as an important commercial species.

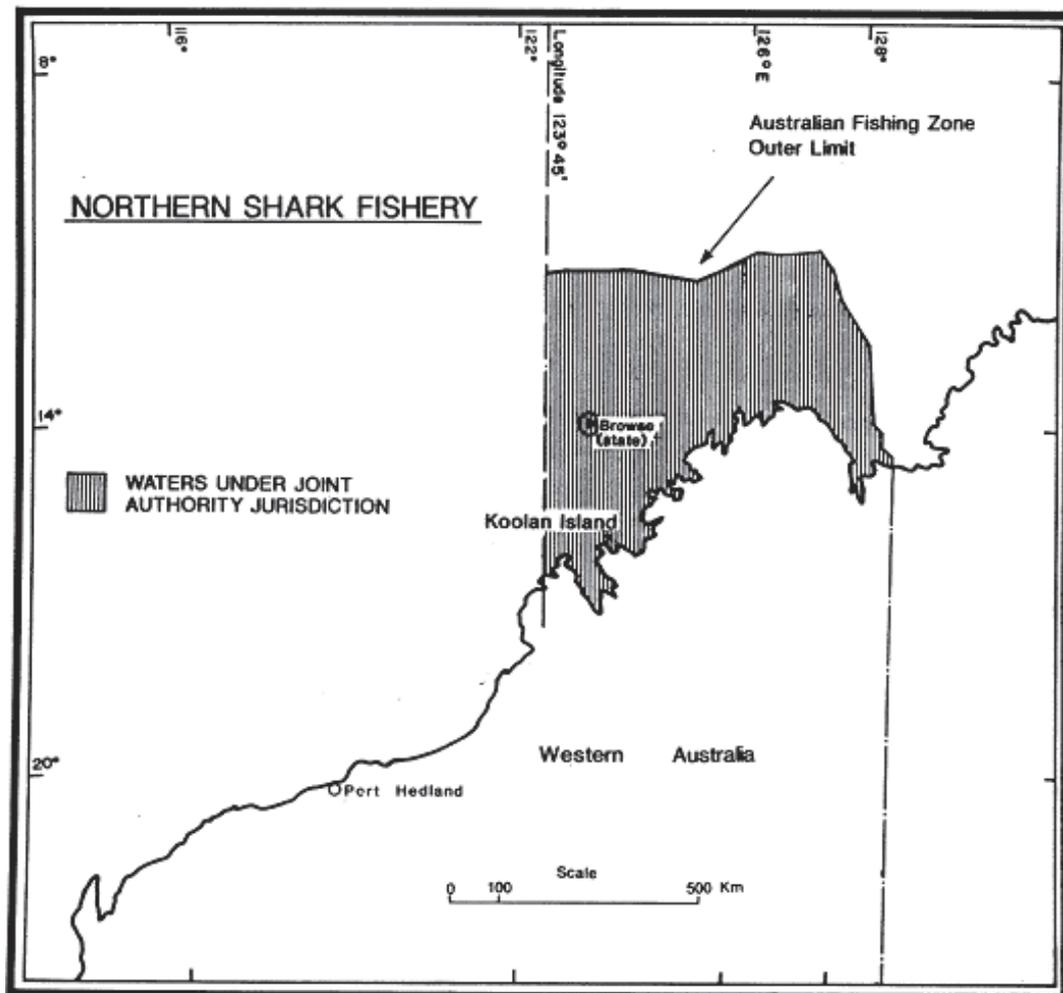
11. JOINT AUTHORITY NORTHERN SHARK FISHERY

11.1 BACKGROUND

The Joint Authority Northern Shark Fishery (JANSF) covers waters east of Koolan Island (123° 45' east longitude) and north of 17° south latitude to the limit of the Australian Fishing Zone and the Northern Territory border (near 129° east longitude). The fishery includes the taking of sharks, as well as scalefish bycatch, by pelagic and demersal gillnets and demersal longlines. Operators in the fishery most commonly use demersal longlines.

Prior to February 1995, the Commonwealth managed the take of shark using gillnets and demersal longlines seaward of three nautical miles between 120° east longitude and 129° east longitude on the north coast. At the same time, the WA North Coast Shark Fishery (WANCSF) permitted the operation of shark longlines and shark droplines in State waters between North West Cape and the WA/NT border. The old Commonwealth Northern Shark Fishery became a Joint Authority fishery managed under WA law following the 1995 Offshore Constitutional Settlement. It is now known as the JANSF (and the western boundary has been moved from 120° east longitude to 123° 45' east longitude).

MAP 3 - JOINT AUTHORITY NORTHERN SHARK FISHERY



Since the inception of the JANSF, the Joint Authority has developed no formal licensing arrangements. It is considered a priority of the Department of Fisheries (WA) to formalise access arrangements to the JANSF.

11.2 ECOLOGICALLY SUSTAINABLE DEVELOPMENT OBJECTIVES

Similar to the JASDGLMF, the objectives of management for the JANSF are the same as those for the *Fish Resources Management Act 1994*. A list of these objectives has previously been presented in section 10(b), as well as general management principles underpinning ecologically sustainable development.

11.3 RESEARCH

Research into the JANSF is undertaken in conjunction with that of the adjoining Western Australian North Coast Shark Fishery (WANCSF). Accordingly, unless the JANSF is specifically referred to the following refers to both these tropical fisheries.

Research to monitor the status of northern shark stocks was initiated as an extension of the south and west coast shark research project. A three-year research project funded by the FRDC, has provided an age-structured demographic assessment of the status of the fisheries' principal target species, the sandbar (thickskin) shark. Data collected from the northern shark fisheries during this project have also provided an improved understanding of the fisheries and of northern shark stocks generally. Additional information on these fisheries and those which take sharks as bycatch on the north coast was collected during a series of Department of Environment and Heritage and FRDC funded research projects, beginning in 1999, to examine the sustainability of Australia's tropical sharks and rays. Results from these projects have further improved our understanding of the impacts of the various fishing sectors that exploit elasmobranchs across the northern half of Australia. This work involves shark researchers from the Department of Fisheries, CSIRO, and the Northern Territory and Queensland fisheries agencies. Phase 2 of the latest FRDC funded component is scheduled for completion in October 2006.

This status report is prepared based on research data from these projects, CAES data supplied by industry and additional knowledge of tropical shark stocks obtained from the scientific literature. CAES data from the northern shark fisheries are available from 1994/95, although the reliability of early records is uncertain due to species identification and related issues. Since July 2000, catch identification and reporting in the northern fisheries has been validated by at-sea observation of catches and voluntary research logbooks.

Future research will involve monitoring the catch and effort of the northern shark fisheries and will also need to focus on the biology of secondary target species.

Fishing Effort

Because longlining is the primary fishing method in the northern shark fisheries, effort has been standardised in terms of hook days, using comparative longline and gillnet catch and effort data from the JANSF to convert gillnet effort into an equivalent longline effort. Effort in the northern shark fisheries is therefore expressed in terms of numbers of hooks (*i.e.* the number of longline or dropline hooks multiplied by the number of fishing days).

There are 14 licenses that are endorsed to fish in the northern shark fisheries, nine in the WANCSF and five in the JANSF. In 2004/05, the total fishing effort was 1.2 million hook days, which was expended by nine vessels (two less than in 2003/04). Total northern shark fishing effort was 74% higher than in 2003/04 (Northern Shark Figures 6 & 7). Given the continued high value of shark fins, the increasingly full-time operation of vessels and the large amount of latent capacity in the fisheries, longline effort in this fishery is likely to rise further, without additional management constraints.

Stock Assessment

As sandbar shark (*Carcharhinus plumbeus*) is the primary target species in the multispecies northern shark fisheries, it has been selected as the indicator species for the fishery. The life history characteristics of sandbar sharks, i.e. relatively long-lived, slow growing and low fecundity, make it a suitably conservative indicator species for the array of other species in the catch.

Stock assessment of the sandbar shark was undertaken using demographic analysis, which is widely used in assessing the status of long-lived shark species. This method has previously been used in Western Australia to assess the status of the related and co-occurring dusky shark, *C. obscurus*. The demographic model developed for sandbar sharks estimates the potential capacity (or rate) for the sandbar stock to increase or decrease, using biological information and fishing mortality rates derived from tagging data collected during the recently completed FRDC-funded project. Model results indicated that under zero fishing mortality the sandbar stock had the capacity to grow at only 2.5% yr⁻¹, making it among the least productive shark populations for which demographic analyses have been conducted.

The model also predicted that the combined levels of fishing mortality from the northern shark fisheries, the temperate Demersal Gillnet and Demersal Longline Fisheries and bycatch in non-target fisheries caused a depletion of the sandbar stock during 2001/02, 2002/03 and 2003/04. The rate of depletion was highest in 2003/04 when, in addition to the 204 t landed by the temperate Demersal Gillnet and Demersal Longline Fisheries, the reported catch from the northern shark fisheries was 209 t, nearly a quarter of the catch reported during the current year.

The cumulative effect of fishing on this indicator species, since targeting began in 1997/98, is reflected in the total shark catch rates shown in Northern Shark Figures 6 & 7. These data indicate that since 1998/99, there was a reduction in CPUE from approximately 2.3 kg/hook in 1997/98 to 0.8 kg/hook in 2003/04. Despite the slight increase to 1.0 kg/hook in 2004/05, which is believed to largely reflect efficiency increases within the fleet, this trend suggests that total shark biomass is now at about 35% of its level prior to the commencement of full-time northern shark fishing. Furthermore, as a result of the observed concentration of fishing effort into areas where sandbar sharks are most prevalent, recent catch rates are considered to be biased upwards.

Breeding Stock Level

Fishery-independent survey data collected from the area between northern Shark Bay and Eighty Mile Beach, where mature sandbar sharks are prevalent, show a 58% decline in the species' abundance between 2002 and 2005. Furthermore, the full extent of the depletion of mature sandbar sharks has not yet manifested as previous levels of juvenile fishing mortality in the temperate Demersal Gillnet and Demersal Longline Fisheries are likely to cause declining recruitment to the breeding stock over the next decade. As the breeding biomass is

already likely to be at the minimal acceptable limit reference point of at least 40% of virgin biomass and continuing to decline due to a period of over-exploitation by the temperate Demersal Gillnet and Demersal Longline Fisheries, management intervention is urgently required.

11.4 PRODUCTION

All total shark catches given in this report include rays, unless otherwise specified. The combined shark catch in the state's two northern shark fisheries has risen significantly over the past three years (Northern Shark Figure 7). In 2004/05, the fisheries' total shark catch increased to 1,294, more than double its previous highest level of 591 t in 2003/04.

The northern shark fisheries' reported catch of sandbar sharks nearly quadrupled from 209 t in 2003/04 to 762 t in 2004/05. This massive increase was caused by a combination of a continued escalation in fishing effort, which was concentrated in the Pilbara and western Kimberley where sandbars are prevalent and increasing efficiency as the fleet's targeting practices have improved. Conversely, the fisheries' catch of 'blacktip' sharks (primarily the Australian and common blacktip whaler sharks, *Carcharhinus tilstoni* and *C. limbatus*, and the spot-tail shark, *C. sorrah*), which are more common in northern Kimberley waters, remained relatively low at 78 t in 2004/05.

Most of the remainder of the fisheries' catch was comprised of: 114 t of hammerhead species (family Sphyrnidae), 83 t of pigeye sharks (*Carcharhinus amboinensis*, 81 t of tiger sharks (*Galeocerdo cuvier*) and 62 t of lemon sharks (*Negaprion acutidens*). The pigeye shark catch includes – note this includes a reported 45 t of the similar looking bull shark (*Carcharhinus leucas*) which, extensive research has shown does not occur in the fisheries' catch. Comparison of reported CAES catches from the northern shark fisheries with logbook and fishery-independent research data prior to 2004/05 suggested that catches of some target species may previously have been under-reported. However, no such comparison was possible this year.

At 8 tonne, the northern shark fisheries' scalefish catch was 175% higher than in 2003/04 but nonetheless accounted for only 0.1% of total fishery landings.

In addition to the catch by the two dedicated shark fisheries, sharks are also incidentally caught by other commercial operators in waters off the north coast. During 2004/05, vessels licensed in other managed fisheries operating in the area between North West Cape and the WA/NT border reported catches of sharks and rays totaling 36 t, which was 20 t less than the previous year. A further 17 t of sharks and rays was reported to have been landed by 'wetline' methods, (i.e. taken by vessels not operating in managed fisheries), which was 8 t less than in 2003/04. The causes of these reductions are varied but, notably, the introduction of bycatch reduction devices in the Pilbara fish trawl fishery has significantly reduced shark and ray catches in that fishery.

The total shark catch by all State-managed sectors in the north coast bioregion during 2004/05 was therefore 1,347 t.

There was a 26% increase in the northern shark fisheries' overall catch rate of sharks in 2004/05. Catch rates of sandbar and 'blacktip' sharks increased by 110% and 11%, respectively. Although the overall catch rate of other sharks declined by 66%, catch rates of the four most important secondary target species all increased: tiger sharks by 31%, lemon sharks by 66%, pigeye sharks by 167% and hammerheads by 191%. The interpretation of CPUE trends in the northern shark fisheries is somewhat complicated by the continual redistribution of effort within the extensive fishing area and the high turnover of fishing vessels over the last several years. However, the doubling of sandbar CPUE together with a

relatively low ‘blacktip’ CPUE and declining CPUE of other sharks in 2004/05, indicates the fleet’s more efficient targeting of adult sandbar sharks within the Pilbara and western Kimberley regions.

11.5 ECONOMIC VALUE

Estimated employment in the northern shark fleet during 2004/05 was approximately 35 fishers. The combined value of the catch from the two tropical managed fisheries was approximately \$2.9 million (mainly from the estimated value of shark fins). As fishers do not separately identify the weight of fins on their catch returns, fin weight was calculated at an average of 3% of sharks’ whole weight and value was estimated using an average price of \$45/kg. During the 2004/05 season, shark fins maintained their value of between \$25/kg and \$120/kg, depending on fin size and species. Categories of shark, which do not have saleable fins were excluded from fin valuation.

TABLE 3 - NORTHERN SHARK - Elasmobranch catch species composition for the northern shark fisheries (WANCSF and JANSF) from 2000/01 to 2004/05.

Species	Catch (tonnes)			
	2001 /02	2002 /03	2003 /04	2004/0 5
Sandbar (thickskin) shark <i>Carcharhinus plumbeus</i>	72	88	209	762
Hammerhead shark <i>Sphyrnidae</i>	43	45	33	114
Pigeye shark <i>Carcharhinus amboinensis</i>	25	32	43	83
Tiger shark <i>Galeocerdo cuvier</i>	37	43	51	81
Blacktip shark <i>Carcharhinus spp.</i>	185	178	40	78
Lemon shark <i>Negaprion acutidens</i>	26	57	24	62
‘Bronze whaler’ shark <i>Carcharhinus obscurus</i>	6	7	17	36
Shovelnose/fiddler rays <i>Rhinobatidae, Rhynchobatidae</i>	11	11	8	32
Grey reef shark <i>Carcharhinus amblyrhynchos</i>	6	7	9	8
Other sharks/rays	45	19	156	46
TOTAL	456	490	591	1,294

FIGURE 6 - NORTHERN SHARK - Annual landings for the northern shark fisheries (WANCSF and JANSF) for the period 1994/95 to 2004/05.

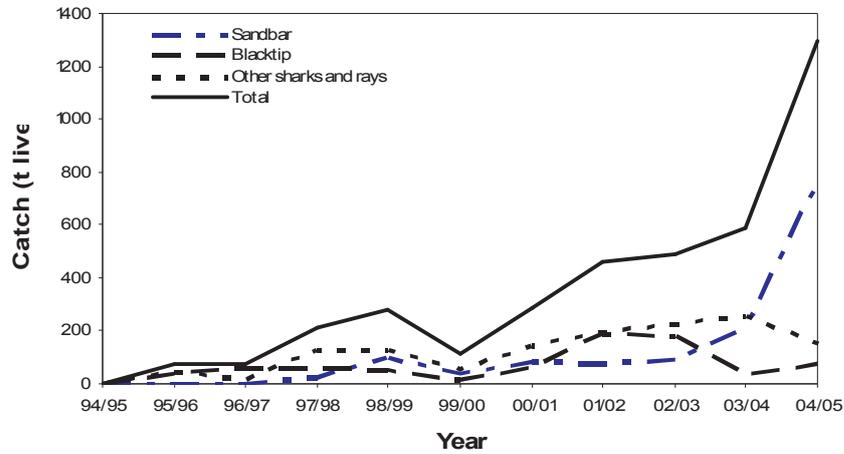
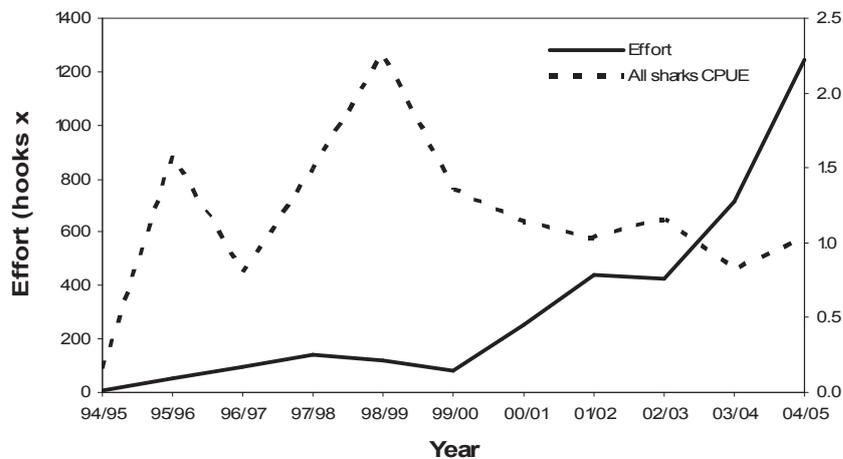


FIGURE 7 - NORTHERN SHARK - Annual effort and catch rate of all sharks and rays for the northern shark fisheries (WANCSF and JANSF) for the period 1994/95 to 2004/05.



12. FUNDING ARRANGEMENTS:

Management of the two Western Australian joint authority fisheries is funded from Consolidated Funds through the annual budget provision for the WA Department of Fisheries.

APPENDICES

APPENDIX 1 - FURTHER READING

Borg J. and McAuley R.–*Future Management Arrangements for Western Australia's Temperate Shark Fisheries – A Discussion Paper* Fisheries Management Paper 180 , Fisheries WA: Perth.

Bray, T. and Kennedy, J. (1998) *A Strategy for the Future Management of the Joint Authority Northern Shark Fishery*, Fisheries Management Paper No. 114, Fisheries WA: Perth.

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Fowler, J., McLoughlin, K. and Ramin, D. (eds) (1996) *Northern Fish Trawl Fishery and Northern Shark Fishery 1994*, Fisheries Assessment Report compiled by the Northern Fisheries Resource Assessment Group. Australian Fisheries Management Authority: Canberra.

Heald, D.I. (1987) *The Commercial Shark Fishery in Temperate Waters of Western Australia*, Fisheries Research Report No. 75, Fisheries Department of Western Australia: Perth.

Lenanton, R., Millington, P. and Smythe C., (1989) Shark and Chips: Research and Management Into Southern Western Australia's Edible Shark Fishery, *Western Fisheries*, May/June, 17-23.

Lenanton, R.C.J., Heald, D.I., Platell, M., Cliff, M. and Shaw, J., (1990) *Aspects of the Reproductive Biology of the Gummy Shark *Mustelus antarcticus* Gunther, from the Waters off the South Coast of Western Australia*, Aust. J. Mar, Freshwater Res., 41: 807-22.

Simpfendorfer, C.A. and Donohue, K. (1998) *Keeping the fish in fish 'n' chips: research and management of the Western Australian shark fishery*. Aust. J. Mar, Freshwater Res., 49: 593-600.

Simpfendorfer, C.A., Lenanton, and Unsworth, P. (1996) *Stock Assessment of large coastal and demersal sharks*, Final Report to the Fisheries Research and Development Corporation for Project 93/067, 59pp September 1996 (Copies of this report can be ordered from : Fisheries Research and Development Corporation, PO Box 222, Deakin West, ACT, 2600, Australia)

Simpfendorfer, C.A., McAuley, R., Chidlow, J., Lenanton, R., Hall, N. and Bastow, T. (1999) *Biology and Stock Assessment of Western Australia's Commercially Important Shark Species*, Final Report to the Fisheries Research and Development Corporation for Project 96/130, 105pp December 1999. (Copies of this report can be ordered from : Fisheries Research and Development Corporation, PO Box 222, Deakin West, ACT, 2600, Australia)

Simpfendorfer, C.A. and Unsworth, P. (1998a) Reproductive biology of the whiskery shark, *Furgaleus macki*, from south-western Australia. Aust. J. Mar, Freshwater Res., 49: 687-93.

Simpfendorfer, C.A. and Unsworth, P. (1998b) *Gillnet mesh selectivity of dusky (*Carcharhinus obscurus*) and whiskery (*Furgaleus macki*) sharks from south-western Australia*. (Aust. J. Mar, Freshwater Res., 49: 713-18.

Southern Western Australian Shark Working Group, (1986) *Interim Report by the Chairman, Mr P. Rogers*, Fisheries Department of Western Australia: Perth.

Southern Western Australian Shark Working Group, November (1986) *Report by the Chairman, Mr P. Millington*, Fisheries Department of Western Australia: Perth.

Walters, C. and Buckworth, R. (1997) *Assessment of Spanish Mackerel and Blacktip Shark Stocks in the NT*.

APPENDIX 2 - ARRANGEMENT BETWEEN THE COMMONWEALTH AND THE STATE OF WESTERN AUSTRALIA IN RELATION TO THE JOINT AUTHORITY DEMERSAL GILLNET AND LONGLINE FISHERY IN WATERS SOUTH OF LATITUDE 33° SOUTH

AN ARRANGEMENT entered into between the Commonwealth of Australia (the Commonwealth) of the one part and the State of Western Australia (the State) of the other part.

WHEREAS-

- (a) paragraph 4(1)(a) of the *Acts Interpretation Act 1901* of the Commonwealth provides that where an Act is enacted on or after the date of commencement of this section that is not to come into operation immediately upon its enactment, is expressed to confer power, *inter alia*, to make an instrument of a legislative or administrative character, then, unless the contrary intention appears, the power may be exercised, and anything may be done for the purpose of enabling the exercise of the power, before the Act concerned comes into operation as if it had come into operation;
- (b) subsection 2(2) of the *Fisheries Management Act 1991* of the Commonwealth (the Management Act) provides that Part 5 of the Management Act, which provides for co-operation with the States and Northern Territory in the management of fisheries, commences upon the repeal or the ceasing to have effect (as the case may be) of Part IVA of the *Fisheries Act 1952* of the Commonwealth;
- (c) by subsection 7(3) of the *Fisheries Legislation (Consequential Provisions) Act 1991* of the Commonwealth (the Consequential Provisions Act), as amended by section 24 of the *Primary Industries and Energy Legislation Amendment Act 1993* Part IVA of the *Fisheries Act 1952*, unless sooner repealed, ceases to have effect at the end of the period of 3 years beginning on 3 February 1992, the day on which section 7 of the Consequential Provisions Act commenced;
- (d) paragraph 7(4)(a) of the Consequential Provisions Act provides that upon the commencement of Part 5 of the Management Act, the Western Australian Joint Authority, established by subsection 12D(1) of the *Fisheries Act 1952* continues in existence as if it had been established under Part 5 of the Management Act;
- (e) an Arrangement was entered into under section 12H(1) of the *Fisheries Act 1952* between the Commonwealth and the State of Western Australia in relation to the:
 - (i) Demersal Gillnet Fishery in waters south of Latitude 33° South, published in the Commonwealth of Australia Gazette No. S 109 14 April 1988;
 - (ii) Demersal Longline Fishery in waters south of Latitude 33° South, published in the Commonwealth of Australia Gazette No. S 109 14 April 1998;
- (f) paragraph 7(4)(b) of the Consequential Provisions Act provides that upon the commencement of Part 5 of the Management Act, any arrangement made with a State or Territory under subsection 12H(1) or (4) of the *Fisheries Act 1952* that was in force immediately before that commencement continues in force as if it had been made under Part 5 of the Management Act;

- (g) the Arrangements referred to in paragraph (e) of this Arrangement were made under Division 3 of Part IVA of the *Fisheries Act 1952*;
- (h) subsection 75(1) of the Management Act provides that an Arrangement under Division 3 of Part 5 of the Management Act may be terminated by instrument approved by the Governor-General and the Governor or Governors of the State or States concerned;
- (i) subsection 33(3) of the *Acts Interpretation Act 1901* provides *inter alia* that where an Act confers a power to make any instrument, the power shall, unless the contrary intention appears, be construed as including a power exercisable in the like manner and subject to the like conditions (if any) to repeal any such instrument;
- (j) subsection 8H(2) of the *Fisheries Act 1905* of the State (the State Act) will on the coming into operation of the *Fisheries Amendment Act 1994* of the State empower the State to terminate an arrangement as provided for by the Management Act;
- (k) subsection 71(1) of the Management Act provide that the Commonwealth may make an arrangement with a State or States represented on a Joint Authority that the Joint Authority is to have the management of a particular fishery in waters relevant to that or any of those States;
- (l) subsection 74(1) of the Management Act provides that an arrangement under, *inter alia*, subsection 71(1) is to be made by an instrument approved by the Governor-General and the Governor or Governors of the State or States concerned;
- (m) subsection 8H(1) of the State Act will on the coming into force of the *Fisheries Amendment Act 1994* of Western Australia, empower the State to make an arrangement referred to in, *inter alia*, subsection 71(1) of the Management Act for the management of a particular fishery;
- (n) both the Commonwealth and the State are desirous of exercising their powers to make a further Arrangement in relation to the fishery referred to in clause 2 of this Arrangement.

NOW THEREFORE, in pursuance of the Management Act and the State Act and of all other powers so enabling:

1. The Arrangements entered into between the Commonwealth and the State referred to in paragraph (e) of the recitals to this Arrangement are, pursuant to subsection 75 (1) of the Management Act, and subsection 8H(2) of the State Act terminated.
2. The Commonwealth and the State hereby arrange that the fishery in waters relevant to the State, being coastal waters and waters of the Australian fishing zone that lie within the area described in Schedule 2 to the *Petroleum (Submerged Lands) Act 1967* under the heading "Area that includes the Adjacent Area in respect of Western Australia", south of Latitude 33° South for:
 - (a) all fish of the Class Osteichthyes (bony fish) and Class Chondrichthyes (cartilaginous fish) when the methods of demersal gillnets and lines of all kinds are used, other than:

- (i) handlines;
- (ii) troll lines;
- (iii) drop lines; and
- (iv) pelagic longlines used in accordance with the exercise of a right conferred by a fishing concession granted by the Australian Fisheries Management Authority under the Management Act to permit the use of pelagic longlines for the taking of tuna and tuna-like species;

but excluding fish to which this paragraph otherwise would apply taken in the exercise of a right conferred in relation to another fishery by a fishing concession granted by the Australian Fisheries Management Authority under the Management Act;

- (b) all other fish taken by the methods provided for in paragraph (a) in the exercise of a right conferred by a licence or other authority granted by the State on behalf of the Western Australian Fisheries Joint Authority for the fish to which paragraph (a) applies:

is to be managed by the Western Australian Fisheries Joint Authority in accordance with the law of Western Australia.

3. The Minister responsible for administering the Management Act and the Minister responsible for administering the State Act may agree in writing to the maximum quantity of other fish, the subject of paragraph 2(b), that may be taken from time to time under a licence or other authority referred to in that paragraph and on matters of mutual interest in relation to the fishery.
4. This Arrangement shall, upon being executed on behalf of the Commonwealth and of the State and upon being approved by the Governor-General of the Commonwealth and the Governor of the State, take effect on 3 February 1995.
5. Without affecting the construction which this Arrangement would have if no provision of this Arrangement or part thereof is invalid, it is the intention of this Arrangement that if any provision of this Arrangement or part thereof is invalid, the remainder of that provision and of this Arrangement shall be construed as if that provision or part thereof was not included in this Arrangement even if the result is to extend the fishery described by this Arrangement.

Dated the 19th day of December 1994

Signed for and on behalf of the
Commonwealth of Australia by the
Honourable DAVID PETER
BEDDALL, Minister for Resources

Signed for and on behalf of the
State of Western Australia by the
Honourable MONTAGUE GRANT
HOUSE, Minister for Fisheries

(DAVID PETER BEDDALL)
in the presence of

(MONTAGUE HOUSE)
in the presence of

I, THE GOVERNOR-GENERAL of the Commonwealth of Australia, acting with the advice of the Federal Executive Council, in pursuance of subsections 74(1) and 75(1) of the *Fisheries Management Act 1991*, hereby approve this instrument.

Dated 24 - 1 - 1995.

By His Excellency's command

(BILL HAYDEN)

(DAVID PETER BEDDALL)
Minister for Resources

I, Michael Jeffery, the governor of the State of Western Australia, acting by and with the advice of the Executive Council in pursuance of the provisions of the *Fisheries Act 1905*, hereby approve this instrument.

Given under my hand this 4th day of Jan 1995.

(MICHAEL JEFFERY)
Governor

By His Excellency's Command

(MONTAGUE HOUSE)
Minister for Fisheries

APPENDIX 3 - ARRANGEMENT BETWEEN THE COMMONWEALTH AND THE STATE OF WESTERN AUSTRALIA IN RELATION TO THE NORTHERN SHARK FISHERY IN WATERS EAST OF KOOLAN ISLAND

An ARRANGEMENT entered into between the Commonwealth of Australia (the Commonwealth) of the one part and the State of Western Australia (the State) of the other part.

WHEREAS-

- (a) paragraph 4(1)(a) of the *Acts Interpretation Act 1901* of the Commonwealth provides that where an Act is enacted on or after the date of commencement of this section that is not to come into operation immediately upon its enactment, is expressed to confer power, *inter alia*, to make an instrument of a legislative or administrative character, then, unless the contrary intention appears, the power may be exercised, and anything may be done for the purpose of enabling the exercise of the power, before the Act concerned comes into operation as if it had come into operation;
- (b) subsection 2(2) of the *Fisheries Management Act 1991* of the Commonwealth (the Management Act) provides that Part 5 of the Management Act, which provides for co-operation with the States and Northern Territory in the management of fisheries, commences upon the repeal or the ceasing to have effect (as the case may be) of Part IVA of the *Fisheries Act 1952* of the Commonwealth;
- (c) by subsection 7(3) of the *Fisheries Legislation (Consequential Provisions) Act 1991* (the Consequential Provisions Act) of the Commonwealth as amended by section 24 of the *Primary Industries and Energy Legislation Amendment Act 1993* Part IVA of the *Fisheries Act 1952*, unless sooner repealed, ceases to have effect at the end of the period of 3 years beginning on 3 February 1992, the day on which section 7 of the Consequential Provisions Act commenced;
- (d) paragraph 7(4)(a) of the Consequential Provisions Act provides that upon the commencement of Part 5 of the Management Act, the Western Australian Joint Authority, established by subsection 12D(1) of the *Fisheries Act 1952* continues in existence as if it had been established under Part 5 of the Management Act;
- (e) Arrangements were entered into under section 12H(4) of the *Fisheries Act 1952* between the Commonwealth and Western Australia in relation to the:
 - (i) North West Pelagic Gillnet Fishery, published in the Commonwealth of Australia Gazette No. S109 on 14 April 1988;
 - (ii) Line Fishery East of 120° East, published in the Commonwealth of Australia Gazette No. S109 on 14 April 1988;
- (f) paragraph 7(4)(b) of the Consequential Provisions Act provides that upon the commencement of Part 5 of the Management Act, any arrangement made with a State or Territory under subsection 12H(l) or (4) of the *Fisheries Act 1952* that was in force immediately before that commencement continues in force as if it had been made under Part 5 of the Management Act;

- (g) the Arrangements referred to in paragraph (e) of this Arrangement were made under Division 3 of Part IVA of the *Fisheries Act 1952*;
- (h) subsection 75(1) of the Management Act provides that an Arrangement under Division 3 of Part 5 of the Management Act may be terminated by instrument approved by the Governor-General and the Governor or Governors of the State or States concerned;
- (i) subsection 33(3) of the *Acts Interpretation Act 1901* provides *inter alia* that where an Act confers a power to make any instrument, the power shall, unless the contrary intention appears, be construed as including a power exercisable in the like manner and subject to the like conditions (if any) to repeal any such instrument;
- j) subsection 8H(2) of the *Fisheries Act 1905* of the State (the State Act) will on the coming into operation of the *Fisheries Amendment Act 1994* of the State empower the State to terminate an arrangement as provided for by the Management Act;
- (k) subsection 71(1) of the Management Act provide that the Commonwealth may make an arrangement with a State or States represented on a Joint Authority that the Joint Authority is to have the management of a particular fishery in waters relevant to that or any of those States;
- (l) subsection 74(1) of the Management Act provides that an arrangement under, *inter alia*, subsection 71 (1) is to be made by an instrument approved by the Governor-General and the Governor or Governors of the State or States concerned;
- (m) subsection 8H(1) of the State Act will on the coming into force of the *Fisheries Amendment Act 1994* of the State empower the State to make an arrangement referred to in, *inter alia*, subsection 71(1) of the Management Act for the management of a particular fishery;
- (n) both the Commonwealth and the State are desirous of exercising their powers to make a further Arrangement in relation to the fishery referred to in clause 2 of this Arrangement.

NOW THEREFORE, in pursuance of the Management Act and the State Act and of all other powers so enabling:

1. The Arrangements entered into between the Commonwealth and the State referred to in paragraph (e) of the recitals to this Arrangement are, pursuant to subsection 75 (1) of the Management Act and subsection 8H(2) of the State Act terminated.
2. The Commonwealth and State hereby arrange that the fishery in waters relevant to Western Australia, being coastal waters and waters of the Australian fishing zone that lie within the area described in Schedule 2 to the *Petroleum (Submerged Lands) Act 1967* under the heading “Area that includes the Adjacent Area in respect of Western Australia”, east of the meridian of longitude 123° 45' East and north of parallel latitude 17° South for:
 - (a) all fish of the Class Chondrichthyes (cartilaginous fishes) when any methods of pelagic gillnetting, demersal gillnetting and demersal longlining are used;

but excluding fish to which this paragraph otherwise would apply taken in the exercise of a right conferred by a fishing concession granted by the Australian Fisheries Management Authority under the Management Act;

(b) all fish of the Class Osteichthyes (bony fishes) taken in the exercise of a right conferred by a licence or other authority granted by the State on behalf of the Western Australian Fisheries Joint Authority for the fish to which paragraph (a) applies;

is to be managed by the Western Australian Fisheries Joint Authority in accordance with the law of Western Australia.

3. The Minister responsible for administering the Management Act and the Minister responsible for administering the State Act may agree in writing to the maximum quantity of other fish, the subject of paragraph 2(b), that may be taken from time to time under a licence or other authority referred to in that paragraph and on matters of mutual interest in relation to the fishery.
4. This Arrangement shall, upon being executed on behalf of the Commonwealth and of the State and upon being approved by the Governor-General of the Commonwealth the Governor of the State, take effect on 3 February 1995.
5. Without affecting the construction which this Arrangement would have if no provision of this Arrangement or part thereof is invalid, it is the intention of this Arrangement that if any provision of this Arrangement or part thereof is invalid, the remainder of that provision and of this Arrangement shall be construed as if that provision or part thereof was not included in this Arrangement even if the result is to extend the fishery described by this Arrangement.

Dated the 19th day of December 1994

Signed for and on behalf of the
Commonwealth of Australia by the
Honourable DAVID PETER
BEDDALL, Minister for Resources

(DAVID PETER BEDDALL)
in the presence of

Signed for and on behalf of the
State of Western Australia by the
Honourable MONTAGUE GRANT
HOUSE, Minister for Fisheries

(MONTAGUE HOUSE)
in the presence of

I, THE GOVERNOR-GENERAL of the Commonwealth of Australia, acting with the advice of the Federal Executive Council, in pursuance of subsections 74(1) and 75 (1) of the *Fisheries Management Act 1991*, hereby approve this instrument.

Dated 24 - 1- 1995.

By His Excellency's command

(BILL HAYDEN)
Governor-General

(DAVID PETER BEDDALL)
Minister for Resources

I, Michael Jeffery, the governor of the State of Western Australia, acting by and with the advice of the Executive Council in pursuance of the provisions of the *Fisheries Act 1905*, hereby approve this instrument.

Given under my hand this 4th day of Jan 1995.

(MICHAEL JEFFERY)
Governor

By His Excellency's Command

(MONTAGUE HOUSE)
Minister for Fisheries

APPENDIX 4 – EXTRACT FROM SCHEDULE 2 OF PETROLEUM EXPLORATION (SUBMERGED LAND) ACT 1967

Area that includes the adjacent area in respect of Western Australia

The area the boundary of which commences at a point that is the intersection of the coastline at mean low water by the boundary between the States of South Australia and Western Australia and runs thence southerly along the geodesic to a point of Latitude $31^{\circ} 45'$ South, Longitude 129° East, thence southerly along the meridian of Longitude 129° East to its intersection by the parallel of Latitude 44° South, thence westerly along that parallel to its intersection by the meridian of Longitude 104° East, thence northerly along that meridian to its intersection by the parallel of Latitude 14° South, thence easterly along that parallel to its intersection by the meridian of Longitude 114° East, thence northerly along that meridian to its intersection by the parallel of Latitude $13^{\circ} 05' 32''$ South, thence easterly along that parallel to its intersection by the meridian of Longitude $118^{\circ} 10' 04.3''$ East, thence northerly along the geodesic to a point of Latitude $12^{\circ} 49' 59.8''$ South, Longitude $118^{\circ} 14' 18''$ East, thence northerly along the geodesic to a point of Latitude $12^{\circ} 04' 29.9''$ South, Longitude $118^{\circ} 06' 12.6''$ East, thence northerly along the geodesic to a point of Latitude $12^{\circ} 04' 13.8''$ South, Longitude $118^{\circ} 06' 09.8''$ East, thence northerly along the geodesic to a point of Latitude $12^{\circ} 04' 24.0''$ South, Longitude $118^{\circ} 07' 39.4''$ East, thence south-easterly along the geodesic to a point of Latitude $12^{\circ} 06' 26.0''$ South, Longitude $118^{\circ} 20' 40.4''$ East, thence south-easterly along the geodesic to a point of Latitude $12^{\circ} 07' 51''$ South, Longitude $118^{\circ} 25' 02.4''$ East, thence south-easterly along the geodesic to a point of Latitude $12^{\circ} 10' 11''$ South, Longitude $118^{\circ} 35' 11.4''$ East, thence south-easterly along the geodesic to a point of Latitude $12^{\circ} 10' 31''$ South, Longitude $118^{\circ} 37' 23.4''$ East, thence south-easterly along the geodesic to a point of Latitude $12^{\circ} 11' 06''$ South, Longitude $118^{\circ} 38' 55.4''$ East, thence south-easterly along the geodesic to a point of Latitude $12^{\circ} 13' 17''$ South, Longitude $118^{\circ} 43' 04.4''$ East, thence south-easterly along the geodesic to a point of Latitude $12^{\circ} 16' 02''$ South, Longitude $118^{\circ} 49' 25.4''$ East, thence south-easterly along the geodesic to a point of Latitude $12^{\circ} 17' 59''$ South, Longitude $118^{\circ} 55' 07.4''$ East, thence south-easterly along the geodesic to a point of Latitude $12^{\circ} 18' 55''$ South, Longitude $118^{\circ} 58' 26.4''$ East, thence south-easterly along the geodesic to a point of Latitude $12^{\circ} 20' 00''$ South, Longitude $119^{\circ} 02' 35.4''$ East, thence south-easterly along the geodesic to a point of Latitude $12^{\circ} 20' 26''$ South, Longitude $119^{\circ} 04' 55.4''$ East, thence south-easterly along the geodesic to a point of Latitude $12^{\circ} 21' 56''$ South, Longitude $119^{\circ} 08' 58.4''$ East, thence south-easterly along the geodesic to a point of Latitude $12^{\circ} 23' 47''$ South, Longitude $119^{\circ} 15' 18.4''$ East, thence south-easterly along the geodesic to a point of Latitude $12^{\circ} 24' 03''$ South, Longitude $119^{\circ} 16' 30.4''$ East, thence south-easterly along the geodesic to a point of Latitude $12^{\circ} 25' 04''$ South, Longitude $119^{\circ} 20' 29.4''$ East, thence south-easterly along the geodesic to a point of Latitude $12^{\circ} 25' 48''$ South, Longitude $119^{\circ} 21' 30.4''$ East, thence south-easterly along the geodesic to a point of Latitude $12^{\circ} 29' 24''$ South, Longitude $119^{\circ} 27' 12.4''$ East, thence south-easterly along the geodesic to a point of Latitude $12^{\circ} 32' 36''$ South, Longitude $119^{\circ} 33' 11.4''$ East, thence south-easterly along the geodesic to a point of Latitude $12^{\circ} 35' 48''$ South, Longitude $119^{\circ} 40' 28.4''$ East, thence south-easterly along the geodesic to a point of Latitude $12^{\circ} 40' 38''$ South, Longitude $119^{\circ} 50' 23.4''$ East, thence south-easterly along the geodesic to a point of Latitude $12^{\circ} 41' 41''$ South, Longitude $119^{\circ} 52' 33.4''$ East, thence south-easterly along the geodesic to a point of Latitude $12^{\circ} 41' 51''$ South, Longitude $119^{\circ} 52' 52.4''$ East, thence south-easterly along the geodesic to a point of Latitude $12^{\circ} 42' 02''$ South, Longitude $119^{\circ} 53' 13.4''$ East, thence south-easterly along the geodesic to a point of Latitude $12^{\circ} 43' 51''$ South, Longitude

119° 56' 08.4'' East, thence south-easterly along the geodesic to a point of Latitude 12° 45' 43'' South, Longitude 119° 59' 10.4'' East, thence south-easterly along the geodesic to a point of Latitude 12° 45' 52'' South, Longitude 119° 59' 26.4'' East, thence south-easterly along the geodesic to a point of Latitude 12° 46' 32.9'' South, Longitude 120° 00' 42.3'' East, thence south along the meridian to a point of Latitude 13° 56' 36.7'' South, Longitude 120° 00' 42.3'' East, thence north-easterly along the geodesic to a point of Latitude 12° 43' 13.3'' South, Longitude 121° 49' 11.3'' East, thence south-easterly along the geodesic to a point of Latitude 12° 56' South, Longitude 122° 06' East, thence south-easterly along the geodesic to a point of Latitude 13° 20' South, Longitude 122° 41' East, thence easterly along the geodesic to a point of Latitude 13° 19' 30'' South, Longitude 123° 16' 45'' East, thence easterly along the parallel of Latitude 13° 19' 30'' South to its intersection by the meridian of Longitude 124° 27' 45'' East, thence north-easterly along the geodesic to a point of Latitude 13° 13' 15'' South, Longitude 124° 36' 15'' East, thence north-easterly along the geodesic to a point of Latitude 12° 46' 15'' South, Longitude 124° 55' 30'' East, thence north-easterly along the geodesic to a point of Latitude 11° 51' South, Longitude 125° 27' 45'' East, thence north-easterly along the geodesic to a point of Latitude 11° 44' 30'' South, Longitude 125° 31' 30'' East, thence north-easterly along the geodesic to a point of Latitude 10° 21' 30'' South, Longitude 126° 10' 30'' East, thence north-easterly along the geodesic to a point of Latitude 10° 13' South Longitude 126° 26' 30'' East, thence north-easterly along the geodesic to a point of Latitude 10° 05' South, Longitude 126° 47' 30'' East, thence south-easterly along the geodesic to a point of Latitude 11° 13' 15'' South, Longitude 127° 32' East, then south-easterly along the geodesic to a point of Latitude 11° 48' South, Longitude 127° 53' 45'' East, thence south-easterly along the geodesic to a point of Latitude 12° 26' 30'' South, Longitude 128° 22' East, thence south-easterly along the geodesic to a point of Latitude 12° 32' 45'' South, Longitude 128° 24' East, thence south-easterly along the geodesic to a point of Latitude 12° 55' 30'' South, Longitude 128° 28' East, thence southerly along the meridian of Longitude 128° 28' East to its intersection by the parallel of Latitude 13° 15' 30'' South, thence south-easterly along the geodesic to a point of Latitude 13° 39' 45'' South, Longitude 128° 30' 45'' East, thence south-easterly along the geodesic to a point of Latitude 13° 49' 45'' South, Longitude 128° 33' 15'' East, thence south-easterly along the geodesic to a point of Latitude 14° South, Longitude 128° 42' 15'' East, thence south-easterly along the geodesic to a point of Latitude 14° 19' 30'' South, Longitude 128° 53' East, thence south-easterly along the geodesic to a point of Latitude 14° 32' 30'' South, Longitude 129° 01' 15'' East, thence southerly along the geodesic to a point of Latitude 14° 37' 30'' South, Longitude 129° 01' 45'' East, thence southerly along the geodesic to the intersection of the coastline at mean low water by the boundary between the Northern Territory of Australia and the State of Western Australia, thence along the coastline of the State of Western Australia at mean low water to the point of commencement.

**APPENDIX 5 MEMBERSHIP OF THE WESTERN AUSTRALIAN
DEMERSAL NET AND HOOK MANAGEMENT ADVISORY
COMMITTEE AS AT 30 JUNE 2005**

Members:

Mr T McNeil	Chairman	Independent
Mr G Diver	Member	Commercial Fishermen Representative - North
Mr N Soulos	Member	Commercial Fisherman – South West
Mr G Campbell	Member	Commercial Fisherman - South
Mr J Smythe	Member	Commercial Fisherman - West
Mr J Baas	Member	Recreational Sector
Ms M Barter	Member	Conservation Sector
Mr R Gould	Member	Department of Fisheries (Executive Director's nominee)

Others

Mr A Townley	Observer	Australian Fisheries Management Authority
Mrs J Munckton	Executive Officer	Department of Fisheries