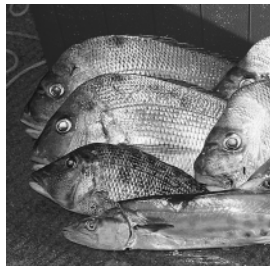


# PROPOSALS FOR COMMUNITY DISCUSSION

## *A QUALITY FUTURE FOR RECREATIONAL FISHING IN THE GASCOYNE*

**A FIVE-YEAR MANAGEMENT STRATEGY  
FOR RECREATIONAL FISHING**



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**Gascoyne Recreational Fishing Working Group**

May 1999

**Recreational Fisheries Program**



**FISHERIES**  
WESTERN AUSTRALIA



A quality future for  
recreational fishing in the Gascoyne.  
Final version: May 1999

Compiled by Ian Curnow on advice from the  
Gascoyne Recreational Fishing Working Group

Fisheries Management Paper No. 124  
ISSN 0819-4327

Photographs  
from left to right  
Spangled emperor, pink snapper  
and mulloway

Photo credits thanks to  
Fisheries WA staff Nigel Schofield,  
Nathan Harrison and Ian Curnow.



## Foreword

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The Gascoyne Region has long been recognised as one of WA's premier quality fishing holiday destinations. The estimated 50,000 fishing tourists who visit the region every year make recreational fishing-based tourism one of the Gascoyne's major industries.

Residents of the Gascoyne also highly value the fishing opportunities available to them, and many see recreational fishing as a major community asset and an important part of their lifestyle.

The Gascoyne is blessed with WA's most magnificent coral reef at Ningaloo, superb land-based fishing opportunities between Coral Bay and Carnarvon, sheltered coastal waters for dinghy fishing in the inner gulfs of Shark Bay, areas of coastal reef, dunes and golden beaches which still retain a near pristine character, and a diversity of fish species keenly sought by visiting and resident anglers alike.

However, there is no guarantee that the quality of fishing available throughout the region will be retained. Already, the signs of a fishery under increasing pressure are showing, and the pace of change is increasing.

In the past, we have had the luxury of being able to fish with the belief that our fisheries were abundant, if not inexhaustible. The little taken by recreational fishers could not possibly harm a population of fish, and a once a year fishing trip and a 40 or 50 kilogram take home supply was fair and reasonable.

However, what was common practice in the 1970s and 1980's among several thousand anglers became a different issue in the 1990s, with tens of thousands of anglers now seeking a quality recreational fishing experience.

Coastal roads and developments such as marinas are opening up access to waters previously protected from high levels of fishing through isolation. A growing tourism industry is placing additional pressure on coastal environments. Increasingly sophisticated recreational fishing gear is allowing anglers to target more accurately the reef habitats, drop-offs and spawning areas that are an essential part of the life history of many of our most sought after fish species.

In recent times, the Gascoyne has seen a series of rapid developments in recreational fisheries management, starting with the introduction of state-wide bag limits in 1991; followed by area specific controls at Ningaloo in 1992; landing limits in Exmouth Gulf in 1993; strict controls on the take of pink snapper in Shark Bay's inner gulfs in 1997; new bag limits for Shark Bay in 1998; and the introduction of a management system for the charter and aquatic tour industry in 1999.

These changes have in part been driven by community concern, a recognition of the need for precautionary management, and by a rapidly improving scientific understanding of the condition of our fish stocks and their vulnerability.

However, the result of dealing with fishery management issues in a reactive fashion has been a series of four complex sets of fisheries legislation, which still have gaps, raises questions of equity, and in the end may not achieve what we need to achieve.

This draft regional recreational fisheries management strategy comes at a crucial time in the development of the Gascoyne Region. The Gascoyne Working Group has developed the proposals and believes that a management approach based on the Gascoyne as a biogeographic region offers the best foundation for the successful management of fishing in the area.

## Foreword

The management proposals presented for community discussion in this paper are aimed at maintaining or improving the quality and diversity of the Gascoyne's recreational fisheries in the face of inexorable increases in population and fishing pressures.

A clear objective for the Working Group has been to establish an equitable and effective set of regulations, which not only allow fishers a fair catch, but meet the conservation needs of the many fish species that are an important part of the Gascoyne experience.

Healthy fish populations are a living asset for the region that will encourage fishing tourists to return each year – and produce catches for the children and great-grandchildren of those lucky enough to live here.

As Chairman of the Gascoyne Working Group, I would particularly like to thank the Denham, Carnarvon and Exmouth Regional Recreational Fishing Advisory Committees for the major role each has played in developing the far-reaching proposals in this paper.

The Working Group believes these proposals will go a long way to firmly establishing a more precautionary approach to looking after our coastal fish stocks. The alternative is to do nothing and watch our fishing quality decline as it has in many areas around the world.

Following community response to this discussion paper, the Working Group will prepare final recommendations for consideration by the Minister for Fisheries.

I encourage anyone who has an interest in the future of recreational fishing in the Gascoyne to carefully consider these proposals and provide us with your ideas, comments and support for this essential step forward in improving the management of the Gascoyne's recreational fisheries.



Doug Bathgate – Chairman  
Exmouth – April 1999

# Contents

Foreword .....	i
Summary of proposals.....	1
<b>Part 1 – Ensuring that WA’s recreational fisheries have a future.....</b>	<b>13</b>
1.1 Planning for the future of recreational fishing in WA .....	13
1.2 A regional approach to take WA’s recreational fisheries into the 21st century .....	15
1.3 Gascoyne Working Group terms of reference and membership .....	17
1.4 How to have your say.....	18
<b>Part 2 – Recreational fishing in the Gascoyne Region.....</b>	<b>21</b>
2.1 Profile of recreational fishing in WA .....	21
2.2 Profile of recreational fishing in the Gascoyne Region.....	22
• The regional marine environment .....	22
• Regional society and economy .....	23
• Key recreational species .....	25
2.3 Current management.....	27
<b>Part 3 – A strategic approach to management.....</b>	<b>31</b>
3.1 The proposed recreational fishing strategy.....	31
<b>Part 4 – Key issues and proposals.....</b>	<b>35</b>
4.1 Guiding principles for management.....	35
• Key principles for recreational fishing management .....	35
• Term of plan and review.....	37
4.2 Information for management .....	37
• Catch and effort.....	37
• Species biology .....	38
• Quality indicators for recreational fisheries .....	39
4.3 Protecting vulnerable fish and managing the recreational catch .....	40
• Bag, boat, trip and possession limits .....	40
• Groupings of species into bag and species limits .....	45
• Size limits .....	53
• Shark Bay pink snapper.....	55
• Filleting at sea .....	56
• Fishing methods.....	57



4.4	Improving recreational fishing quality .....	62
	• Recreational fishing priority areas and fisheries .....	62
	• Recreational fishing priority areas .....	63
	• Recreational fishing only areas .....	67
	• Fish replenishment areas and ecotourism – Broadhurst Reef .....	67
	• Low impact wilderness fishing experiences.....	68
	• Resource sharing .....	73
	• Fishery enhancement .....	75
4.5	Protection of fish and habitats.....	76
	• Identification and protection of key fish habitats.....	76
	• Need for integrated marine planning .....	77
	• Bycatch.....	78
4.6	Improving community stewardship of fish resource.....	79
	• Community education strategies .....	79
	• Field management and compliance.....	80
	• Volunteer Fishing Liaison Officers (VFLOs).....	81
	• Community consultation and involvement in management .....	81
4.7	Providing adequate resources for improved management.....	82
	• New funding requirements.....	83
	• Options for additional funding.....	83
Appendix A – Current recreational fishing management arrangements in the Gascoyne.....		87
Appendix B – Published information on recreationally important finfish species in the Gascoyne		91
Appendix C – Code of conduct – National code of practice for recreational and sport fishing.....		96
List of Management Papers .....		102
References.....		102

## List of Figures

Figure 1.	Number of days fishers intended to fish in the Gascoyne Region.....	24
Figure 2.	Place of residence for fishers interviewed.....	24
Figure 3.	Expenditure by fishers in the Gascoyne Region.....	25
Figure 4.	Most frequently caught recreational species in the Gascoyne.....	26
Figure 5.	Number of fishers taking home fish/fillets from the Gascoyne Region in previous trips by weight category.....	43
Figure 6.	Average number of key angling fish taken by recreational anglers per day.....	45
Figure 7.	Average number of table fish taken by recreational anglers per day.....	46
Figure 8.	Commercial catch of Spanish mackerel in the Gascoyne.....	74

# Guiding principles for management

## Proposal 1 – Key principles for recreational fisheries management

The Working Group felt it was important that recreational fisheries management in the region be based on the following key principles:

- A key aim should be to ensure that the biodiversity of fish communities and sustainability of fish stocks are preserved.
- Fisheries management should be proactive and recognise projected increases in fishing pressure.
- Management should incorporate the precautionary approach and seek to minimise risk to fish stocks.
- Fishing rules should acknowledge that equitable access to fishing opportunities across recreational user groups is important.
- The value of recreational fishing should be clearly recognised and given proper weight in all planning processes.
- Fishing rules be kept simple and where possible and practical, made uniform across the region.
- Recreational fishing rules should be designed to limit the total recreational catch, as well as protect fish at vulnerable stages in their life.
- The benefits from controls on the total recreational catch should flow back to the recreational sector and be reflected in improved fishing quality and sustainability.

# Term of plan and review

## Proposal 2 – Five year review

This regional management strategy should be reviewed every five years. Changes to recreational fisheries management within this period should only occur if there is compelling evidence that indicates a critical threat to the sustainability of fish stocks.

# Information for management

The Working Group noted that a major obstacle to the resolution of fishery management and resource sharing issues was a scarcity of robust long-term data on recreational fishing catches and activity in the region.

Only limited information was available on recreational catch, fishing effort and the biology of key species. Stock assessments were not available for many key species in the region. The Working Group supports the need for a comprehensive research program and database to be maintained to assist the monitoring of fisheries and the evaluation of management arrangements. Research should be conducted on a five-year program in sequence with the review cycle of this strategy.

## Proposal 3 – Major catch survey

A major recreational catch survey should be undertaken every year for a minimum of three years to establish a baseline data set on recreational fishing in the Gascoyne.

## Summary of proposals

The catch survey should be repeated every five years at a minimum to provide detailed information about the spatial and temporal distribution of recreational activity and catches on which to base management decisions.

### **Proposal 4 – Annual data collection program**

Fisheries officers and volunteers should collect data on a number of key indicator species as part of their patrols to provide an index of trends in recreational fishing in the years between five-year catch surveys.

### **Proposal 5 – Volunteer angler logbook program**

Fisheries WA should expand the voluntary angler's logbook program in the Gascoyne Region to provide additional monitoring of trends among highly successful recreational fishers.

### **Proposal 6 – Priority species for research**

Undertake research on the following key recreational species in the Gascoyne (in order of priority) to provide information on species biology and stock structure. Predictive fisheries stock assessment models and, where practical, indices of recruitment, should then be developed for these key species.

- Pink snapper (*Pagrus auratus*)
- Spangled emperor (*Lethrinus nebulosus*)
- Black snapper (blue-lined emperor – *Lethrinus laticaudis*)
- Red emperor (*Lutjanus sebae*)
- Baldchin groper (*Choerodon rubescens*)
- Spanish mackerel (*Scomberomorus commerson*)
- Cods – estuary, rankin (*Epinephelus coides*, *Epinephelus multinotatus*)
- Coral trout (*Plectropomus maculatus*)
- Black spot tuskfish (*Choerodon schoenleinni*)
- Mulloway (*Argyrosomus hololepidotus*)

### **Proposal 7 – Fishing quality indicators**

Fisheries WA develop a range of 'fishing quality indicators' based on angler surveys to identify trends in fishing quality in the region and assist in the review of the effectiveness of this strategy.

These indicators should cover fishing quality, diversity and the value associated with the fishing experience.

## **Protecting vulnerable fish and managing the recreational catch**

Four different sets of area specific recreational fishing management arrangements currently apply in the Gascoyne Region. The areas concerned are Ningaloo Marine Park, the western and eastern gulfs of Shark Bay and statewide rules apply in the region outside of these areas.

The Working Group have identified a clear need to adopt a consistent approach to management across the region.



### **Proposal 8 – Bag, possession and trip limits.**

Current state-wide recreational fishing regulations use a variety of controls to manage the catches of individual recreational fishers.

The Working Group considered that bag limits, trip limits and possession limits could not be considered in isolation, and needed to be used in combination to provide effective regulation of individual catches and ensure equity between various interest groups.

This is a key issue in regions such as the Gascoyne where the majority of fishing trips extend over several days or weeks and where the accumulation of multiple daily bag limits effectively negates many of the conservation benefits associated with daily bag limits.

While s50 of the Fish Resources Management Act currently provides that “a person may not take or bring onto land in any one day” more than a daily bag limit, a defence in the regulation exists for specified species provided a person lives aboard a boat. For shore-based fishers, there is effectively no limit on the quantity of fish that an individual can accumulate in most areas.

#### **Proposal 8 (a) – Possession and trip limits**

The Working Group believes a possession limit is essential to provide more effective control on individual catches and ensure equity between user groups. Possession limits also quantify the total recreational catch more clearly than daily bag limits.

The possession limit would be complemented by an easily understood ‘trip limit’ of twice the daily bag limit of whole fish for all fishers. The onus of proof would rest with individuals to demonstrate they had been fishing for more than one day when inspected, or that they had purchased the fish from a legitimate source.

To allow fishers the flexibility of deciding how they keep their catch, options in the regulation should include fillets, a combination of fillets and whole fish, or just whole fish.

Several options on the level of the possession limit were discussed, but the majority of the Working Group favoured an approach consistent with existing Ningaloo Marine Park regulations.

The proposed possession/trip limit for the Gascoyne is that a person may have at any time no more than:

- 17kg of fillets; or
- 10kg of fillets plus one days bag limit of whole fish; or
- two days bag limit of whole fish.
- A possession limit of two days bag limit should also apply to all other fish including baitfish, crustaceans and shell fish.

#### **Proposal 8 (b) – Daily bag limits**

The Working Group noted there was widespread acceptance of the existing Ningaloo and Shark Bay bag limit structure and this should form the basis for a regional limit.

To simplify the approach and recognise that recreational fishing is effectively a multi-species fishery, it is proposed that a mixed daily bag limit of seven be introduced for key angling fish across the Gascoyne and a mixed daily bag limit of 30 introduced for table fish.

The tables overleaf details specific bag limits proposed for each species.

## Summary of proposals

### Proposal 8 (b) – Recommended bag limit structure

#### **KEY ANGLING FISH – 7** **mixed daily bag limit of seven**

You may take or land a maximum of seven fish per day of all species listed in this table. Individual species limits apply for ‘Conservation Fish’ (one of each species) and ‘Trophy Fish’ (two of each species), ‘Prize Fish’ and ‘Key Angling Fish’. These must not be exceeded. For example, if you were to catch the maximum of seven fish from this group, you may not have more than one coral trout, one coronation trout, two Spanish mackerel and three trevally. Alternatively you may take four spangled emperor and three other NW snapper or the limit of seven may be comprised of six pink snapper and one other fish.

<b>Conservation Fish</b> 1 of each species	<b>Trophy Fish</b> 2 of each species	<b>Prize Fish</b> 4 of each species	<b>Key Angling Fish</b> 6 of each species
<i>These fish are extremely vulnerable to overfishing. For many species, very large fish are prolific breeders and warrant extra protection</i>	<i>These fish are highly sought after for catching or eating qualities and are vulnerable to overfishing</i>	<i>These fish are prized by recreational fishers or of relatively low abundance and require protection to minimise local depletion</i>	<i>These fish are keenly sought by recreational fishers and require some level of protection from excessive catches</i>
Coral trout Coronation trout Coronation cod Marlin, blue and black all Billfish (eg sailfish, swordfish) All fish over 70cm – <i>Only 1 fish of each species you have caught may be 70cm or greater in length. This limit does not apply to the pelagic species marked with an asterisk (*)</i>	Amberjack* Bone fish Cobia* Cods – rankin, estuary Dhufish Groper & Tuskfish Kingfish, yellowtail* Mackerel, spanish, wahoo,* Mulloway, Northern Mulloway Parrot fish Pearl perch Pink snapper (Freycinet stock) Red emperor Samson fish* Sharks * Tuna* – southern bluefin, northern luefin, yellowfin, bigeye, dogtooth	Barracuda* Cods – other Job fish Mahi mahi * Mangrove jack Spangled emperor Tunas (other than listed Prize sp.)	Mackerel, shark and school* NW snapper (Lethrinus spp) Pink snapper (excluding inner gulfs of Shark Bay) Queenfish Sea Perch Tailor Trevally

## TABLE FISH – 30

### A Mixed daily bag limit of thirty

You may take a maximum of 30 fish listed in this table. Species limits apply for some fish and these must not be exceeded. For example, if you were to catch the maximum of 30 fish, you may not have more than 10 bream, 10 threadfin salmon or 10 flathead. Alternatively you may take 10 bream and 20 whiting or 30 whiting.

Large fry – 10	Small fry – 30
Maximum of 10 of each species	These fish may make up all or part of the mixed daily bag limit
Bream – north-west, black & yellow fin Fingermark bream Flathead Flounder Goat fish Leatherjacket Threadfin salmon	Dart Gardies Gurnard Longtoms Milk fish Mullet Tarwhine Whiting All fish not included in other categories

## TOTALLY PROTECTED FISH – 0

Fish in this table are totally protected and may not be taken. Fishing bans apply due to their vulnerability, conservation value, scarcity or the high risk posed by fishing to the sustainability of fish stocks or species.

Potato cod Whale shark Hump head Maori wrasse Leafy seadragon Great white shark Pink snapper (eastern gulf of Shark Bay only) Live coral and rocks Specimen shells
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## Summary of proposals

### Baitfish, crustaceans, shellfish

Many crustaceans and shellfish are highly prized for their eating qualities, and susceptible to local depletion. Baitfish, while abundant, should not be taken in commercial quantities or in such quantities that they are wasted by recreational fishers.

<i>Species</i>	<i>Daily bag limit</i>	<i>Boat limit</i>
Baitfish (including fish of the Family Clupeidae and Engraulidae)	9 litres (plastic bucket)	
Rock lobster – in Ningaloo Marine Park	8 (not more than 4 tropical rock lobster) 4	16 (not more than 8 tropical rock lobster) 8
Crabs – blue manna	20	40
– mud	5	10
– other	10	20
Prawns	9 litres	
Octopus, squid, cuttlefish	15	30
Abalone – Roe's	20 (possession limit)	
Shellfish and sea urchins etc. (taken for consumption or bait)	mixed bag of 50	

### Proposal 9 – Size limits

- 9 (a) The minimum size limit for black snapper (blue lined emperor) be increased to 35cm to protect breeding stocks.
- 9 (b) The minimum size limit for pink snapper in the western gulf of Shark Bay be increased to 50cm to protect breeding stocks.
- 9 (c) The minimum size limit for pink snapper be increased to 50cm in the entire Gascoyne Region to standardise rules and promote fishing quality.
- 9 (d) The maximum size limit for cod be reduced to one metre.
- 9 (e) A maximum size limit of 70cm be introduced for reef and demersal species, allowing fishers to take only one fish of each species over 70cm in length each day. This limit will not apply to the following pelagic species: amberjack, barracuda, cobia, mackerel, mahi mahi, samson fish, sharks, tuna, yellow tail kingfish.

## **Proposal 10 Shark Bay Pink Snapper**

### **Proposal 10 (a) Western gulf**

A bag limit of two, with a minimum size of 50cm and a limit of one fish over a maximum size limit of 70cm. These arrangements should apply to the area south of a line drawn west from Eagle Bluff (latitude 26°10'S, longitude 113°58') across to the point (longitude 26°17', latitude 113°45') to protect the known areas of major spawning activity.

### **Proposal 10 (b) Eastern gulf:**

Once the target breeding stock of 100 tonnes is reached, a bag limit of two, coupled with restricted fishing times and minimum and maximum size limits, is an appropriate management approach.

### **Proposal 11 – Filleting at sea**

As daily bag and size limits are to remain important management tools in recreational fishing management, filleting at sea should not be permitted in the Gascoyne Region.

## **Fishing methods**

### **Proposal 12 – Line fishing**

All recreational anglers, both shore and boat fishers, be limited to a maximum of two rods, two handlines, or combination of one rod and one hand line, with no more than three hooks or gangs of hooks attached to each line.

The use of set lines by recreational fishers be banned.

### **Proposal 13 – Spear fishing**

The Working Group considered that particular fish species and water habitats could be easily exploited by spearfishers using underwater breathing apparatus, which represented a potential to seriously deplete populations of resident reef and demersal species.

It is proposed that spearfishing be prohibited by persons using artificial breathing apparatus and that existing restrictions on spearfishing for vulnerable species continue in areas of high conservation value, such as specified areas in Ningaloo Marine Park.

### **Proposal 14 – Net fishing**

The Working Group believed that set netting has had a history of being a wasteful and indiscriminate practice in the Gascoyne. Because of its potential to catch large quantities of schooling species, and to mesh turtles, dolphins and other marine predators, it is not in keeping with recreational fishing ethics and values, and not appropriate as a recreational fishing method. It is proposed that:

- (a) The use of set nets by recreational fishers be prohibited in the Gascoyne.
- (b) Haul netting be permitted in specified netting areas only.
- (c) Throw nets be permitted throughout the region (except 'no fishing' zones such as sanctuary zones and fish protection areas).

### Improving recreational fishing quality

#### Proposal 15 – Recreational fishing priority areas

The importance of recreational fishing as a component of tourism and lifestyle should be recognised by formally establishing recreational fishing priority areas under the *Fish Resources Management Act 1994*.

The Working Group believe that the majority of nearshore waters in the Gascoyne have a long history of importance as recreational fishing areas, and should be managed with recreational fishing as the highest priority.

Management decisions such as those affecting resource allocation and access should give prime consideration to recreational fishing values in these areas. Other uses such as commercial fishing and aquaculture should be of a type and level compatible with recreational fishing values for the area.

The Working Group considered that the establishment of discrete zones which recognise recreational fishing as a priority would have the following significant social benefits:

- guard against unmanaged shifts in resource sharing through increased commercial fishing activity
- secure long-term recreational access to key areas
- highlight the importance of recreational fishing in other planning processes
- help ensure that the majority of benefits from tighter regulation of recreational fishing flow back to the recreational sector in the shape of improved fishing quality and reduced risk of serious localised depletion
- help minimise social conflict by reducing the incidence of incompatible activities
- create a focus for recreational fishing as a major tourism drawcard in the Gascoyne.

The following areas have been identified as possible recreational fishing priority areas:

- Area extending from the high water mark to a distance of 3nm off shore from 240° 42' South extending north to the boundary of the Gascoyne Region (near Ashburton River).
- Eastern inner gulf of Shark Bay.
- Western inner gulf of Shark Bay.

In order to maintain and enhance the quality of recreational fishing in these zones, a number of key management initiatives which seek to limit in a specific way commercial fishing for particular species may be required. These are detailed in Proposal 19.

#### Proposal 16 – Recreational fishing only areas

A number of specific areas have been identified as key recreational fishing sites. It is proposed the following areas be designated as 'recreational fishing only' areas and commercial line fishing for finfish species should be prohibited.

##### Proposal 16 (a) – Carnarvon area

- One Mile Jetty – to a distance of 100m around the jetty.
- Coral patch – (latitude 25°15.812S, longitude 113° 46.845E) to a distance of 1nm.
- Tyre reef/Lady Joyce wreck – (latitude 25°02.788S, longitude 113°32.390E) to a distance of 1nm.

### **Proposal 16 (b) – Exmouth area**

- Y Island.

### **Proposal 16 (c) – Shark Bay area**

- Bernier/Dorre Islands – this area was identified in the ‘Shark Bay Management Paper for Fish Resources’ (Fisheries Management Paper No 91) as a recreational fishing only area.
- Steep Point – extending 800m from the shore.

### **Proposal 17 – Fish replenishment areas and ecotourism – Broadhurst Reef**

Fishing is currently prohibited in a number of areas in the Gascoyne including sanctuary zones in Ningaloo Marine Park and Shark Bay and a reef observation area at Point Quobba.

The Working Group expressed concern that there have not been any monitoring programs implemented to properly evaluate the effectiveness of these closures, and that the objectives for most closures were not clearly defined.

Fishing closures have some potential as a fisheries management strategy, but their usefulness in Western Australian conditions should be carefully evaluated before any widespread introduction.

Broadhurst Reef in the western inner gulf of Shark Bay was identified as a habitat for many juvenile fish species, including pink snapper, and would serve as a possible trial site for a fish replenishment area. It is also a popular dive site relatively close to Denham, and a closure to fishing would enhance its use for ecotourism.

It is proposed that a trial ‘fish replenishment area’ be established around Broadhurst Reef and a five-year monitoring program be implemented to evaluate the effect of no fishing areas as a means of enhancing fish populations.

### **Proposal 18 – Low impact wilderness fishing experiences**

The Working Group observed that some areas in the Gascoyne still retain a ‘pristine’ appearance and relatively unexploited populations of many species of fish. The unique ‘wilderness’ fishing experience in these areas is highly valued by recreational fishers and has enormous potential to provide experiences for the next 20 years or more, provided that fishing and other people pressures can be properly managed to support these values.

However, the Working Group considered that the fishing quality inherent in areas where access is limited by the environment would inevitably decline with increasing people pressure, unless specific management was developed and low impact fishing behaviours encouraged.

The establishment of specific areas to cater for low impact fishing may provide a high quality recreational fishing experience and associated tourism opportunities. A key objective would be to preserve the pristine nature of both the environment and the natural abundance and population structure of fish communities as closely as possible.

A range of special fisheries management arrangements to preserve the nature of this experience may be required including gear restrictions and limited take. However, the Working Group considered that in the first instance, an educational approach and the development of community support for this innovative approach was necessary.

Several sites were identified as having the potential to be explicitly managed to retain 'wilderness' recreational fishing qualities.

These included:

- Coastal fishing on Gnaraloo and Waroora Stations.
- Dirk Hartog Island.

It is proposed Fisheries WA identifies specific areas to be managed for high quality recreational fishing and implement appropriate management arrangements and community education strategies on a trial basis to determine both the level of community support and potential for retaining wilderness fishing values in these areas.

### **Proposal 19 – Resource sharing and commercial fishing**

The Working Group has formed the proposals contained in this strategy to improve the quality of recreational fishing in the region. For these strategies to be effective, it is important that benefits accruing from implementing controls on the recreational catch do not merely flow to the commercial sector as increased catches.

In addition to the initiatives outlined in proposals 13-16, a range of management initiatives are required to preserve the benefits of improved management of the recreational sector. These include:

- Commercial fishing activity should be capped at historic levels and no new commercial activity permitted in key recreational areas or fisheries.
- In the medium to longer term, commercial fishing for some key finfish species in these areas should be phased out through negotiation or compensation as appropriate.
- The significance of 'recreational fishing priority areas' should be recognised in other marine planning processes.

### **Proposal 20 – Fishery enhancement**

#### **Proposal 20 (a) Artificial reefs**

Future approvals for establishment of artificial reefs should require a monitoring program to evaluate impacts on fish populations.

#### **Proposal 20 (b) Stock enhancement**

A trial restocking program be considered for pink snapper in the eastern gulf of Shark Bay provided it can be demonstrated that it presents a low risk to the remaining population and that monitoring programs be put in place to assess the effectiveness of restocking.

## **Protection of fish habitats**

### **Proposal 21 – Identify and protect key fish habitats**

As a priority, Fisheries WA should take steps to identify important fish habitat areas and Government ensure that these are protected from environmental degradation.



### **Proposal 22 – Recreational fishing representation**

Fisheries WA ensure representation of recreational fishing interests on all planning processes/committees in the region.

### **Proposal 23 – Bycatch**

Bycatch action plans be introduced for all commercial fisheries in the Gascoyne Region. Recreational fishing methods that are wasteful and indiscriminate should not be permitted and community awareness programs should encourage recreational fishers to carefully release undersize and unwanted fish.

## **Improving community stewardship of fish resources**

The Working Group believes a structured communication strategy is the most effective mechanism of increasing individual responsibility and promoting local community and visitor support for a sustainable and quality fishing experience in the region.

The move to regional management will provide an opportunity to focus education programs on local issues in the Gascoyne. In particular, fishers must be made aware of the need for management to address the growing pressures on our fish resources.

### **Proposal 24 – Regional fishing guide**

A comprehensive regional guide to recreational fishing in the Gascoyne be produced to educate fishers about recreational fishing management arrangements, fishing ethics, conservation issues and conservation-oriented fishing behaviours.

### **Proposal 25 – Annual media campaign**

An annual media campaign should be implemented to promote recreational fishing and fishing ethics in the Gascoyne Region.

### **Proposal 26 – Community Education Officer**

A regional Community Education Officer be appointed to coordinate and develop community education programmes.

### **Proposal 27 – Additional patrol capacity**

That an additional four patrols (eight fisheries officers) be seasonally based in the Gascoyne to provide a more visible and effective enforcement capacity.

### **Proposal 28 – Enhanced volunteer program**

The VFLO program should be enhanced in the Gascoyne and a dedicated Fisheries WA officer assigned to coordinate the program in the region.

### **Proposal 29 – Regional Recreational Fisheries Council**

A Regional Recreational Fisheries Council be established to oversee the implementation and operation of the Gascoyne recreational fishing management strategy.

### Providing adequate resources for improved management

There are significant costs associated with management programs for recreational fishing, particularly in the areas of research and compliance. Government funding from consolidated revenue is unlikely to increase and if the initiatives identified in this paper are to be implemented, additional funding options must be identified.

The Working Group believes a recreational fishing licence would provide significant benefits in terms of increased revenue which could be dedicated to enhancing fishing quality in the region, improved community stewardship, more targeted and effective community education programs, enhanced research accuracy and reduced data collection costs, and ensuring that funding will keep pace with increases in recreational fishing participation rates.

The Working Group believed a regional licence had distinct advantages over a state-wide system for a variety of reasons. These included:

- the 'willingness to pay' by anglers who came to the Gascoyne specifically for the high quality fishing available
- the clearly visible benefits within the region from additional funding
- an improved education and management focus from a regional perspective, and
- enhanced recognition and servicing of regional priorities.

The Working Group also noted that strong local support had been expressed at various times for local finfish fishing licences. However, the current political and social climate was likely to act as a significant barrier to the introduction of a general scheme across the whole State.

#### Proposal 30 – Regional finfish licence

##### Proposal 30 (a)

A regional finfish licence be introduced in the Gascoyne and the revenue dedicated to implementing enhanced management, compliance and research programs for recreational fisheries.

##### Proposal 30 (b)

The fee structure for the Gascoyne regional licence should be:

weekly (seven days)	\$10
monthly (28 days)	\$14
annual	\$20
three year	\$55
Lifetime licence	\$500

##### Proposal 30 (c)

The following discounts should apply:

children < 12 years	free
children 12-15 years	- 50 per cent discount
pensioners, seniors cards holders	- 50 per cent discount

##### Proposal 30 (d)

Priorities for funding should be identified by the regional recreational fisheries council and should include comprehensive research programs on recreational catch and species biology and stock assessment, additional compliance capacity in region, targeted community education program and fishery enhancement projects.

## Part 1

# Ensuring that WA's recreational fisheries have a future

## 1.1 Planning for the future of recreational fishing in WA

The first management framework for recreational fisheries in Western Australia was developed by the Recreational Fishing Advisory Committee (RFAC) during a major two-year review between 1989 and 1991.

The review took a state-wide approach as the first step in bringing the complete recreational fishery under a management framework and establishing community consensus on both the need for control of recreational fishing and the major strategies that should be adopted.

Major outcomes from this review were:

- a state-wide set of daily bag and size limits for all fish species
- the establishment of a Recreational Fishing Trust Fund into which revenue from species-based recreational fishing licences flowed
- the establishment of specific management, research and community education programs for recreational fishing, and
- the creation of a network of State and Regional Recreational Fishing Advisory Committees.

The first area specific recreational fisheries management package was developed for the Ningaloo Marine Park in 1992.

Between 1991 and 1995, recreational fishery management strategies were further refined through community consultation on specific issues, regular advice through regional recreational fishing advisory committees and specific reviews of either individual fisheries or fishing practices such as netting.

A major public review of the operations of the Fisheries Department commissioned in 1995 by the Minister for Fisheries, Monty House, emphasised the importance of recreational fishing to Western Australia through the creation of a recreational fisheries program within the Fisheries Department.

In addition, the *Fish Resources Management Act* passed by Parliament in 1994, established a new legislative mandate for the Fisheries Department and provided the basis for improved management of fish resources and their habitats.

A major issue for the new Recreational Fisheries Program was to clearly identify the issues, challenges and priorities facing recreational fishing in WA over the next five to 10 years, and put in place the funding and projects to meet these challenges.

Consequently, a two-day community planning seminar for recreational fishing in Western Australia was held at the Sorrento Quay Function Centre on 4th and 5th of February 1996 and was the first step in identifying the management needs and priorities for the future direction of recreational fisheries management.

The 40 workshop participants represented a wide range of community groups with a stake in the management of recreational fisheries, including regional RFAC and RFAC members, Volunteer Fisheries Liaison Officers, fishing club members, recreational fishing media representatives, the WA Recreational and Sportfishing Council, charter boat and tour operators, dive and fishing tackle shop proprietors, the WA Fishing Industry Council (WAFIC), TAFE Aquaculture Unit and the Marine and Coastal Community Network, and Fisheries WA research, compliance and management staff.

The workshop strongly endorsed the theme *Fish for the Future* as the most important key concept for the management of recreational fisheries. It emphasised the value of recreational fishing as a community activity, the need to maintain and enhance the quality of the recreational fishing experience, and community stewardship of the fishery.

These outcomes have been progressed in a series of strategic planning sessions with State and Regional Recreational Fishing Advisory Committees, Fisheries WA staff and Volunteer Fisheries Liaison Officers.

Also closely considered in the strategic planning process were the five key goals and 16 principles for the management of recreational fishing which form the basis for the National Policy for Recreational Fishing in Australia. This policy was endorsed by all Australian States and Territories and the national Ministerial Council on Forestry, Fisheries and Aquaculture in December 1994.

As a result, a five-year business plan for the Recreational Fisheries Program was published in 1997, setting key objectives for the management of recreational fisheries to 2002. The plan guides priorities for annual operational and budget planning for the Recreational Fishing Advisory Committee and the Fisheries WA's Recreational Fisheries Program.

The program's key strategic objective is to maintain or improve the quality, diversity and value of recreational fishing and eco-tourism based on fish and fish habitats in Western Australia through partnerships with the community.

Other major program objectives include:

- The conservation of fish stocks and their habitats of importance to recreational users.
- Improved individual responsibility and community support for sustainable recreational fishing.
- Improved quality and diversity of opportunities for recreational fishing and activities associated with fish and the aquatic environment.

The plan clearly recognises that recreational fishing not only contributes to the quality of life of thousands of Western Australians, but provides the basis for a growing fishing tourism industry and important domestic market for the recreational fishing media and the fishing tackle, bait, boating and vehicle manufacturing industries.

Major issues identified in the plan included population growth, coastal development, improved fishing and fish storage technology, a low participation cost, the opening of access to areas previously protected from significant levels of exploitation by their remoteness, and, increasingly, localised depletion of key recreational fishing species.

It was also recognised that the combination of these factors has created an unprecedented pressure on many fish stocks at all stages in their life cycle. This is compounded by human-induced environmental change, including the eutrophication of rivers and estuaries and the destruction or alteration of fish habitats through industrial activities.

In addition, there were concerns expressed by the recreational fishing community about escalating commercial catches in some fisheries, including Australian herring, spanish mackerel, dhufish and blue manna crabs, community concerns about the impact of trawling on marine ecologies, and incremental loss of traditional recreational fishing access through the declaration of marine reserves and arbitrary road and beach closures by Local Government.

However, opportunities for the maintenance and development of recreational fishing as an important community activity and regional tourism drawcard were also occurring through growing community support for fishing that provided a quality experience, rather than focussing on the take of large quantities of fish.

Other opportunities included the natural environmental diversity of Western Australia, which provides the basis for a range of magnificent recreational fishing experiences, a demand by fishers to be involved in all aspects of resource management, and fishery enhancement opportunities provided through the developing aquaculture industry.

Improved research and an escalation in highly localised fishery management issues was clearly showing that the state-wide approach to recreational fisheries regulation was increasingly ineffective and inflexible.

Catch surveys were showing that anglers rarely achieved State daily bag limits for any species. The near collapse of Shark Bay's inner gulf pink snapper stocks and a marked reduction in the abundance of Australian herring in angler's catches on the West Coast gave a stark early warning that a new approach to recreational fisheries management was urgently needed.

Clearly, recreational fisheries management not only needed to cope with escalating fishing pressure – but also needed to take advantage of Western Australia's natural diversity and the relatively healthy condition of many fish stocks.

## 1.2 A regional approach to take WA's recreational fisheries into the 21st century

A solution to dealing with these issues was developed by RFAC and Fisheries WA, incorporating a more detailed management planning process better linked to the distribution of both fish stocks and fishing activity, and capable of developing better targeted and more flexible responses to key management issues.

A key element in planning the direction in which recreational fisheries management needed to develop was the preliminary findings of a national scientific working group (Interim Marine and Coastal Regionalisation of Australia, 1998), which had started to classify the marine environment by identifying the distribution of major elements in the ecology of various areas.

These marine biogeographic regions were used by Fisheries WA and RFAC as the basis for future recreational fisheries management, with some minor adjustments to boundaries to reflect patterns of human use and the practicalities of on-the-ground management.

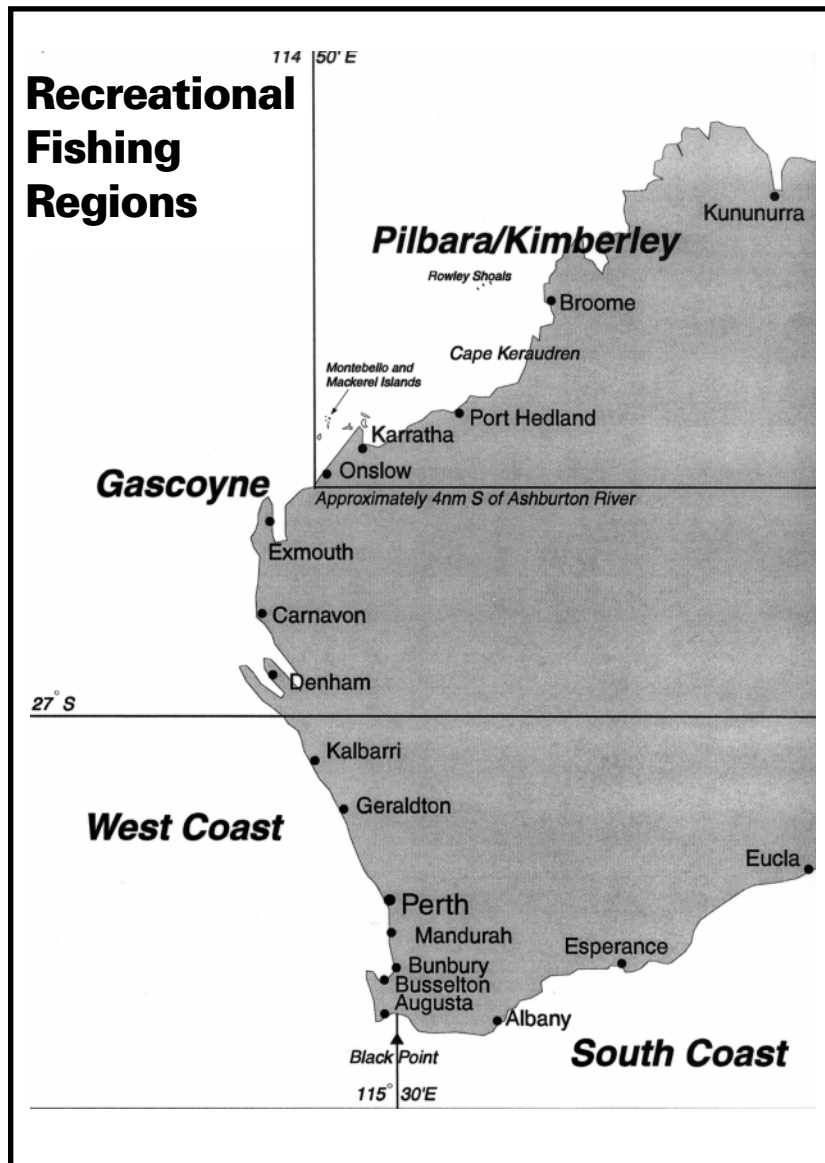
This approach has also recently been adopted on a national level by the Commonwealth agency *Environment Australia*, and is a key element in the Commonwealth's Oceans Policy.

In 1997, the Minister for Fisheries approved proposals put forward by RFAC for a major review of recreational fisheries management strategies, and the development of regional management plans.

A key element in the regionalised approach was to simplify legislation and provide a more uniform set of rules across each region. However, this does not necessarily preclude establishment of smaller management zones. For example 'recreational fishing priority areas' (eg Lower Ord River Barramundi fishery) or areas such as the inner gulfs of Shark Bay where local fish populations require specific management arrangements.

The recreational fishing regions (Map 1) are:

Zone 1: **Pilbara/Kimberley** – Waters east and north of the point where 114°50'00E intersects the North West coast of Western Australia (approximately 4nm South of the mouth of the Ashburton river) to the NT/WA border.



Zone 2: **Gascoyne** – Waters west of the point where Longitude 114°50'00E intersects the North West coast of Western Australia (approximately 4nm South of the mouth of the Ashburton River) South to 27°.00S (Zuytdorp Cliffs – between Kalbarri and Steep Point).

Zone 3: **West Coast** – Waters south of 27°.00S (Zuytdorp Cliffs) to West of the point where 115°30E intersects the Southern Western Australian coastline (Black Point).

Zone 4: **South Coast** – Waters to the south of the southern Western Australian coastline and East of the point where 115°30E intersects the southern Western Australian coastline (Black Point) east to the WA/SA border.

From a biological perspective, the boundaries of these regions are largely consistent with, or represent sub-sections of, the major biogeographic regions, coastal and climatic zones of Western Australia, and consequently the distribution of many fish species. This will improve the effectiveness of fishing controls based on species biology such as size limits and closed seasons, and enable bag limits to be tailored according to the target species and fishing pressures in each region.

These zones also coincide with discrete tourism regions of the State where visitor fishing activity tends to focus during identifiable seasons. This will reduce perceptions of inequity when setting differential fishing management arrangements, and provide clear demarcation lines.

The review process has commenced with the Gascoyne Region because of the complexity of existing management arrangements in that region. It is also timely, given management issues that have arisen over the decline in Shark Bay inner gulf pink snapper stocks and the transfer of fishing pressure to other species.

The West Coast is the next region to be reviewed and will commence in 1999. The Pilbara/Kimberley review is scheduled to commence in late 1999 and the South Coast in 2000.

## 1.3 Gascoyne Working Group membership and terms of reference

The Minister for Fisheries appointed a Working Group to develop proposals for a recreational fisheries management strategy for the region. The Working Group is comprised of members representing a range of interests including tourism, conservation, commercial fishing and recreational fishers (including representatives of the three Regional Recreational Fishing Advisory Committees (RRFAC's) in the Gascoyne Region) fisheries management and general community interests.

### Chairman

Mr Doug Bathgate          Gascoyne Development Commission

### Committee members

Mr Rob Cooper  
Mr Andrew Cribb  
Mr Les Fewster  
Mr Ned Kelly  
Mr Russel McCarthy

### representing

Carnarvon RRFAC  
Fisheries WA  
Denham RRFAC  
Exmouth RRFAC  
Community representative

Mr Peter Meecham	Community representative
Mr Richard Patty	Commercial fishing industry
Mr Les Rochester	RECFISHWEST representative
Mr Craig Shankland	Conservation interests
Mr Kieran Wardle	Tourism interests
Mrs Kay Webber	Recreational Fishing Advisory Committee

## **Executive Officer**

Mr Ian Curnow	Fisheries WA
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## **Terms of Reference**

1. To identify the key issues and development opportunities facing recreational fisheries in each region.
2. To prepare a draft five-year recreational fishery management strategy for the region, consistent with the strategic directions identified in the Coalition Fisheries Policy and Recreational Fisheries Program business plan.
3. To identify management and resourcing needs, and possible funding strategies, for implementation of the plan.
4. To conduct extensive public consultation, including key stakeholders.
5. To make final recommendations to the Minister for Fisheries for the management of recreational fisheries over five years within that region.

## **1.4 How to have your say**

The release of this discussion paper for public comment provides an opportunity to contribute your ideas and views on how recreational fisheries should be managed in the Gascoyne. It is equally important to respond whether you agree or disagree with the various proposals, as the Working Group will review each of these proposals in light of the comments received.

### **Points to consider for submissions**

To ensure your comments are as effective as possible, please:

- tell us whether you agree/disagree with any or all of the proposals or issues identified in each section
- suggest alternative ways to resolve any of the issues you have raised
- identify anything you think the Working Group has missed.



## How to make a submission

### Written

- clearly and briefly describe each separate subject you wish to address
- refer to the different section numbers/proposals/page numbers in the paper

### Questionnaire

- responses can also be made by completing the enclosed questionnaire in a 'mark the box' format
- additional copies of the questionnaire are available from Fisheries WA

### Internet

- written submissions and questionnaires can also be submitted through our website at <http://www.gov.au/westfish>

## Where and when to send your submission

The closing date for submissions is 27 August 1999. Please send your submission along with your full name, address and association details (if applicable) to:

Executive Officer  
Gascoyne Working Group  
c/- Recreational Fisheries Program  
Fisheries WA  
Locked Bag 39  
Cloisters Square Post Office  
PERTH WA 6850

## What happens to your submission

All submissions are confidential and will be reviewed only by members of the Working Group. All submissions will be summarised and the Working Group will review the proposals outlined in this paper in light of these submissions.

The Working Group will then prepare a final report for the Minister for Fisheries containing recommendations on future management arrangements.

Those recommendations approved by the Minister for Fisheries will form the basis of a new management package for recreational fishing in the Gascoyne Region.

## Part 2

# Recreational Fishing in the Gascoyne Region

## 2.1 Profile of recreational fishing in WA

In 1987, the Australian Bureau of Statistics (ABS) estimated that 26.6 per cent or 284,000 West Australians over the age of 15 years fished, producing an estimated three million recreational fishing days. A 1996 survey by Paterson (unpublished), indicated the participation rate had increased to 30 per cent of the State's population or some 520,000 recreational fishers.

Recent phone surveys indicate that participation rates for recreational fishing now average 36 per cent of the State's population across all age groups between 18 and 65, with a higher participation rate in regional areas. This places the number of recreational fishers in excess of 620,000 and it is estimated they contribute over \$500 million a year to the State's economy. Population projections when this five-year plan is due for renewal (approximately two million people in 2004) provide for some 720,000 recreational fishers at current participation rates.

These surveys also indicate that the average number of fishing days or trips per person is also increasing, and in 1997 it was estimated recreational fishing effort totalled 11.2 million fishing days. The increasing popularity of fishing as a recreational activity is evidenced by the number of television shows, magazines and newspaper columns on recreational fishing and the popularity of events such as the boat show and fishing competitions.

This represents a significant increase in both the number of fishers and the level of fishing effort since recreational fishing management was introduced in 1991.

In addition to increasing participation levels, other key threats which will affect both fishing quality and the sustainability of fish stocks include:

- increased pressure on inshore fish stocks through population growth and tourism
- improved access to once isolated areas that acted as fish refuges
- improved fish finding and fishing technology
- community attitudes to the take of large quantities of fish
- the level of community support for necessary management, and
- the adequacy of scientific information on fish stocks, biology and environmental influences.
- the adequacy of funding to maintain or improve management, research and community education.

Although Western Australian fisheries are comparatively low in productivity by world standards, and can only produce a limited annual quantity of fish on a sustainable basis, most stocks are still in a comparatively healthy condition, and represent a major community asset.

However, current indicators – both scientific and social – show that all major fish stocks are fully exploited, and the increases in overall catch inherent with population growth and new technology is beginning to reduce breeding stocks to the limits of sustainability. This is leading to low quality fisheries subsisting on new (just legal size) recruits and may ultimately cause stock collapse with attendant social and economic disruption if a proactive approach to management is not taken.

As these pressures continue to grow and impact on our fish stocks, we cannot continue to take more and more fish each year. The sustainability of near shore fisheries will therefore depend on the health of the environment, the conservation of important fish habitats and a reduction in either the number of people fishing or individual catch shares. These increasing demands on the resource have resulted in a need for management to focus on fishing as a recreational experience rather than the notion of a food gathering exercise.

In addition to its social and economic importance, the quality of recreational fishing is a key tourism drawcard for many regional coastal centres, and contributes to community and property values. Recreational fishing-based tourism has significant potential for further development through the promotion of unique high quality fishing experiences, associated development opportunities, eco-tourism and fishing charter activities, and the development of specific management arrangements for key areas or fish stocks.

Depletion of fish stocks has the potential to affect not only the local abundance of fish and fishing quality but also regional tourism and local economies. Those areas which can maintain their fishing quality will be positioned to reap benefits as fishers seek opportunities in an overall environment of declining fishing quality.

As we move into the next century, there must be community acceptance that past fishing practices, such as excessive take and use of indiscriminate fishing methods, are clearly no longer acceptable in light of increasing pressure on our fish resources. Significantly, 93 per cent of fishers interviewed during the 1996 Gascoyne Recreational Fishing Survey indicated they would support the introduction of additional rules if it would help maintain the quality of fishing in the region.

## 2.2 Profile of recreational fishing in the Gascoyne Region

### **The regional marine environment**

The Gascoyne is situated on the Tropic of Capricorn, in the north west of Western Australia. The region is bordered by the Geraldton Mid West area to the south and east, the Pilbara to the north and the Indian Ocean to the west.

The marine environment of the region is characterised by a mixing of tropical and temperate conditions, which are in turn reflected in the fish species found in the area.

In the northern part of the region near Exmouth, tropical species dominate, but further south, typically temperate species such as western rock lobster, tailor, pink snapper, mulloway and western sand whiting occur.

A major influence on both the distribution of species and their spawning success from year to year is the Leeuwin Current, which flows strongly between the months of May and August each year, bringing masses of warm tropical water and larvae, eggs and juveniles of tropical species down from the Indo-Pacific region.

The strength and timing of the current has been shown to have a critical effect on the spawning success and subsequent abundance of species such as scallops and prawns. It is highly likely that the survival and growth of finfish larvae and juveniles is also strongly affected by this, and by other environmental drivers such as cyclones.

The protected conditions in embayments such as Shark Bay support large populations of temperate species such as western sand whiting and tailor, as well as discrete stocks of pink snapper.

Scientific research into tailor has indicated that the Shark Bay population appears confined to the area between Shark Bay and the southern end of the Ningaloo Reef system. While some fish or larvae may be swept down the west coast periodically, it is highly unlikely that the local population is 'topped up' by fish moving in from more southerly waters.

Early results from a research project into the population structure of Spanish mackerel also indicate that the Gascoyne adult population appears to be discrete from other areas of the West Coast, Pilbara and Kimberley.

Consequently, on the limited scientific information available, it appears highly likely that many fish populations in the Gascoyne depend largely on local breeding populations for their abundance, with only limited and highly intermittent recruitment from other areas.

### **Regional society and economy**

The three major towns of the region, Exmouth (2500), Shark Bay (900) and Carnarvon (10,000) support the majority of the permanent population. The impact of visitor numbers to the region is significant, with the population more than doubling during the tourist season.

Fishing, pastoralism, horticulture, mining and tourism are the principle industries in the region and provide a firm and diverse base for the region's economy. The approximate annual earnings of the principal industries are:

- Commercial fishing \$70 million
- Tourism (inc. recreational fishing) \$70 million
- Mining \$50 million
- Horticulture \$30 million
- Pastoral \$20 million

In recent years tourism has become one of the major growth sectors of the Gascoyne economy. The tourism industry development has been based both on domestic demand and on the increase in eco-tourists from Europe and America (Regional Futures). Over 200,000 people a year converge on the Gascoyne to experience the range of unique attractions of the region including the Ningaloo Reef system, Shark Bay's fascinating and fragile environment, the pristine coastal environment between Carnarvan and Coral Bay and Mount Augustus, the world's largest monocline (single rock) near Carnarvon.

An important component of this sector is fishing-based tourism. The Gascoyne is home to some of Western Australia's most important and impressive recreational species and almost all accessible areas of the coastline in the region are utilised by recreational fishers.

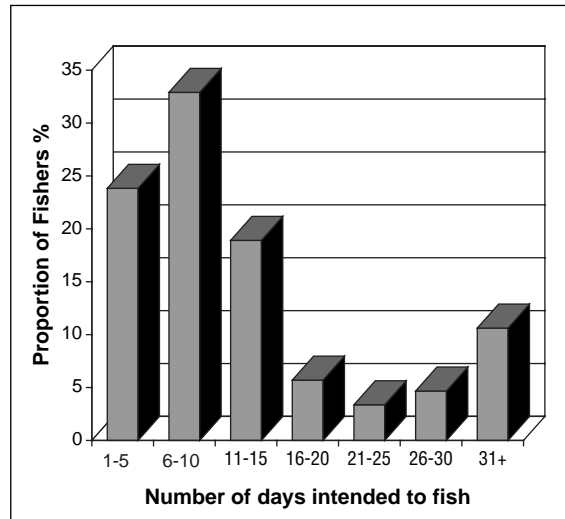
The Gascoyne offers a diversity of fishing experiences including fishing from cliffs at Steep Point and Quobba for mackerel and cobia, dinghy fishing in the inner gulfs of Shark Bay for pink snapper, black snapper and baldchin groper, beach fishing for tailor and whiting, reef fishing for cods, coral trout and emperors, game fishing off Exmouth and the opportunity for a wilderness type fishing experience along the remote coastline around Cape Farquhar.

A survey commissioned by Fisheries WA estimated more than 60,000 recreational fishers visit the Gascoyne each year (REARK Research 1997). The Western Australian Travel Survey, 1996 Regional Marketing Information, estimated that 72,000 fishers visit the Gascoyne each year. A catch survey currently being undertaken by Fisheries WA will also provide an estimate of total number of fishers and the total catch and fishing activity in the region for all species and areas.

# Recreational Fishing in the Gascoyne Region

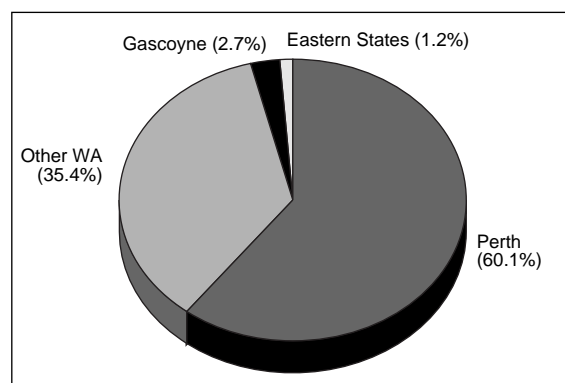
A 1996 study of recreational fishing activity in the Gascoyne found that most fishers stayed two weeks or less and intended to fish every day. Assuming most fishers fish five to 10 days per trip this places angler effort in the range of 300,000 to 600,000 angler days (based on REARK estimate of 50,000 fishers)

Figure 1. Number of days fishers intended to fish in the Gascoyne Region.



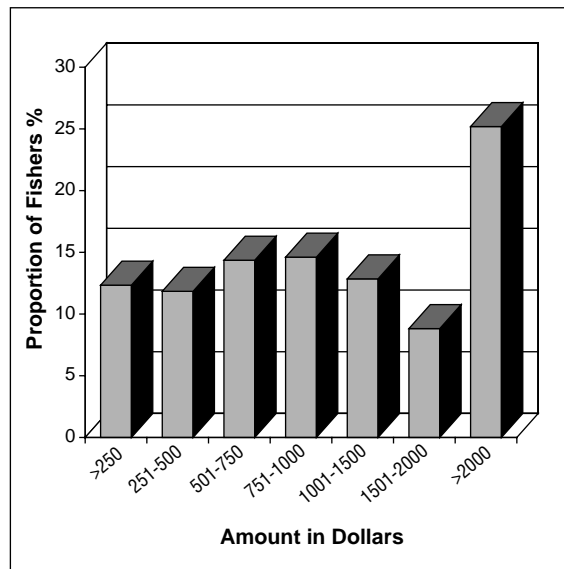
Most fishers were from the Perth region (61 per cent) or from other parts of the State outside the Gascoyne (35 per cent) (figure 2). The majority of fishers were in the 40-59 year bracket, and a large number also in 60 plus age group.

Figure 2. Place of residence for fishers interviewed.



The study also found that 62 per cent of fishers in the region spent more than \$751, while 25 per cent of fishers spent more than \$2000 (figure 3). Based on the REARK estimate of 60,000 fishers, a basic estimate of expenditure by recreational fishers of \$50 million is likely.

Figure 3. Expenditure by fishers in the Gascoyne Region.



## Key recreational species

A major recreational catch survey was conducted in the Gascoyne and was completed in March 1999. It will provide estimates of total recreational catch, while preliminary survey data has been used to indicate the most commonly caught species (figure 4).

The Emperor species or nor-west snappers as they are colloquially known, are the most abundant fish in the recreational catch from northern Gascoyne inshore waters. Inshore around Ningaloo Reef and the islands north of Exmouth, the spangled emperor (*Lethrinus nebulosus*) is the main species in the recreational catch both by weight and numbers. Black snapper, or blue-lined emperor, (*L. laticaudis*) is the second most commonly caught species and sweetlip emperor (*L. miniatus*) is the other main nor-west snapper taken by recreational fishers.

Golden trevally (*Gnathonoden speciosus*) are also caught in large numbers by recreational fishers in the northern Gascoyne, along with smaller trevally such as the silver trevally (*Pseudocaranx dentex*).

Pink snapper (*Pagrus auratus*) is the main recreational species in the area around Carnarvon and Shark Bay, both in the ocean waters around the offshore islands and within the inner gulfs of Shark Bay. The stocks found in the eastern and western gulfs of Shark Bay are genetically separate from each other and the wide ranging ocean stock. These discrete stocks do not interbreed or 'top up' each other through migration, making them vulnerable to overfishing. They must therefore be managed independently of the oceanic stock. Since the decline of pink snapper stocks in Shark Bay, much of the effort has transferred to other species, and black snapper in particular is heavily targeted and now taken in similar numbers to pink snapper.

Mackerel are also important around Ningaloo and the ocean coast in the Shark Bay and Quobba-Gnaraloo areas. The main species is the narrow-barred Spanish mackerel (*Scomberomorus commerson*) but wahoo (*Acanthocybium solandri*) and several smaller *Scomberomorus* species are also taken.

Cod (grouper) species of the family Serranidae are also a significant part of the recreational catch. In Ningaloo, small cod such as the chinaman cod (*Epinephelus rivulatus*) and black-tipped cod (*E. fasciatus*) are the most numerous species in the recreational catch after the

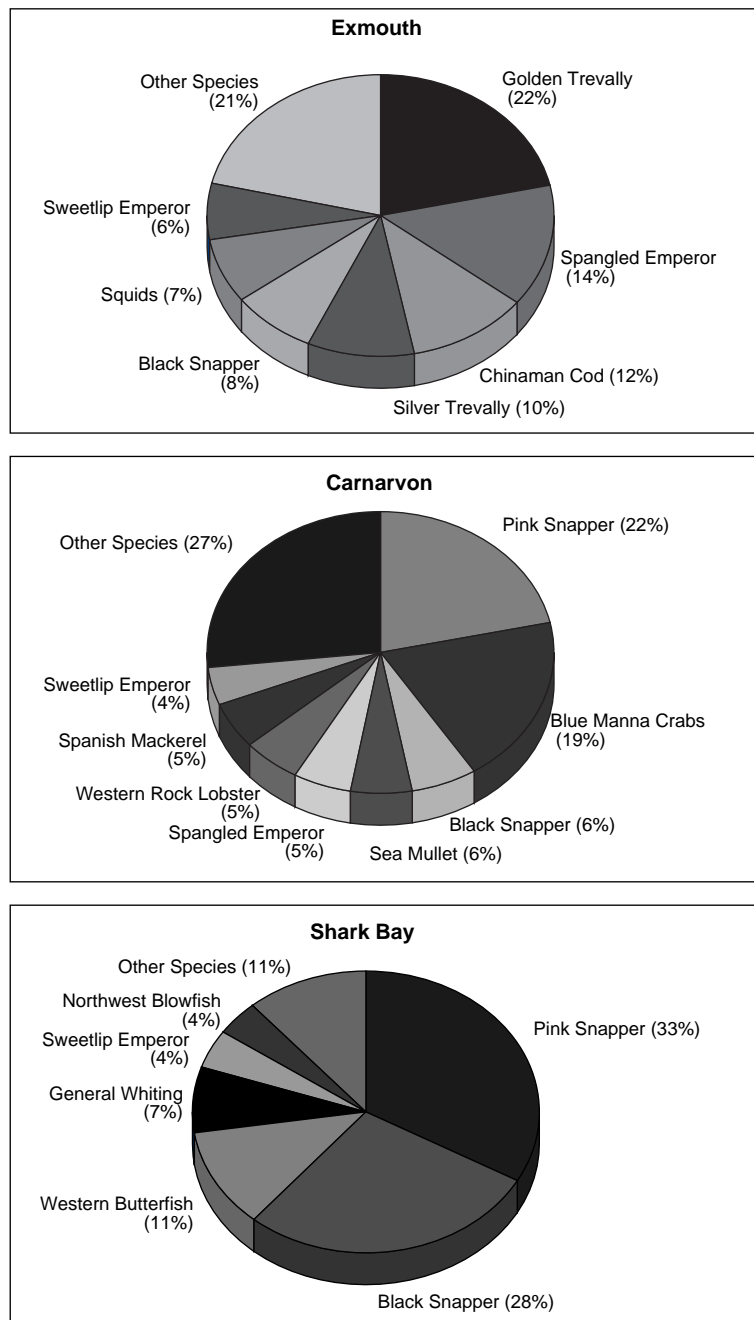
# Recreational Fishing in the Gascoyne Region

lethrinids. Large cod such as the slimy or estuary cod (*E. coioides*) although low in numbers, contribute substantially to the weight of the recreational catch throughout the Gascoyne Region.

Coral trout (*Plectropomus maculatus*) and coronation trout (*Variola louti*), although not a big part of the catch, are also part of the cod family and highly valued by recreational fishers.

Red emperor (*Lutjanus sebae*), and black spot tuskfish (*Choerodon schoenleinii*) are also important throughout the region.

Figure 4. Most frequently caught recreational species in the Gascoyne.



The major commercial finfish species in the Gascoyne and average annual catch are:

<b>Species</b>	<b>Average catch in tonnes/year (based on CAES data)</b>
Pink snapper	538.2
Mullet, sea	150.7
Whiting, west, sand	134.7
Spangled emperor	53.0
Spanish mackerel	48.2
Tailor	42.9
Herring, perth	19.2
Perch, pearl	17.4
Mackerel, other	17.4
Red emperor	15.7
Bream, west, y/fin	14.2
Cod	11.7
Mulloway	9.3
Rankin cod	8.0
Baldchin groper	3.2
Tuskfish, bluebone	2.3
Coral trout	1.0

## 2.3 Current management

Current state-wide controls are based on a system of daily bag limits and size limits which have been set to help share the available catch among the thousands of anglers who concentrate on these species. Seasonal closures are used as a key control in the licensed recreational fisheries such as rock lobster, abalone, marron and southwest freshwater fisheries, but generally have not been applied to marine finfish species.

Only someone actively fishing, not just watching, is entitled to a bag limit. These bag limits apply throughout the State, although there are special limits applying in Ningaloo Marine Park and the Shark Bay World Heritage Area which encompass much of the fishing activity in the Gascoyne Region.

Minimum size limits have been set for many species. Minimum size limits can be used to protect fish until they reach maturity and have been able to spawn at least once and can be set to help enhance fishing quality. Maximum size limits are currently only used for a small number of species (eg cod). These may provide valuable protection for larger specimens, which are the most prolific breeders for many species. The ability to determine appropriate



size limits and hence their applicability as a management tool is limited by the level of biological information available for many species.

Size limits generally apply equally to both the recreational and commercial sectors. Some existing size limits for particular species may therefore reflect the desirable market size of fish by the commercial sector or the availability of species for capture at a certain stage of their life cycle.

The *Fish Resources Management Act 1994* contains a number of other general provisions which control the take by recreational fishers and may override the general bag limit provisions. For example Section 50(3) of the Act states that

*“A person must not take, or bring onto land or into WA waters, on any one day more fish than the bag limit of those fish”.*

This provision restricts all persons to landing a single daily bag limit, irrespective of how many days they may have been fishing from a boat or island.

However, this situation is not ‘black and white’ as the *Fish Resources Management Regulations 1995* also provide a defence to this general rule for persons who live on board a boat. A number of exemptions to this requirement have been issued in the Shark Bay region as a temporary measure to overcome this inequity. This highlights the need to implement a simple set of rules that are uniform across the region which is discussed in greater detail in section 4.3.

There are currently four different ‘packages’ of management arrangements applying in the Gascoyne Region (Map 2). Specific arrangements apply in Ningaloo Marine Park, the eastern and western gulfs of Shark Bay, while the state-wide arrangements apply outside these areas. These arrangements are detailed in Appendix A, but the key features are summarised on the next page:

## Recreational Fishing in the Gascoyne Region

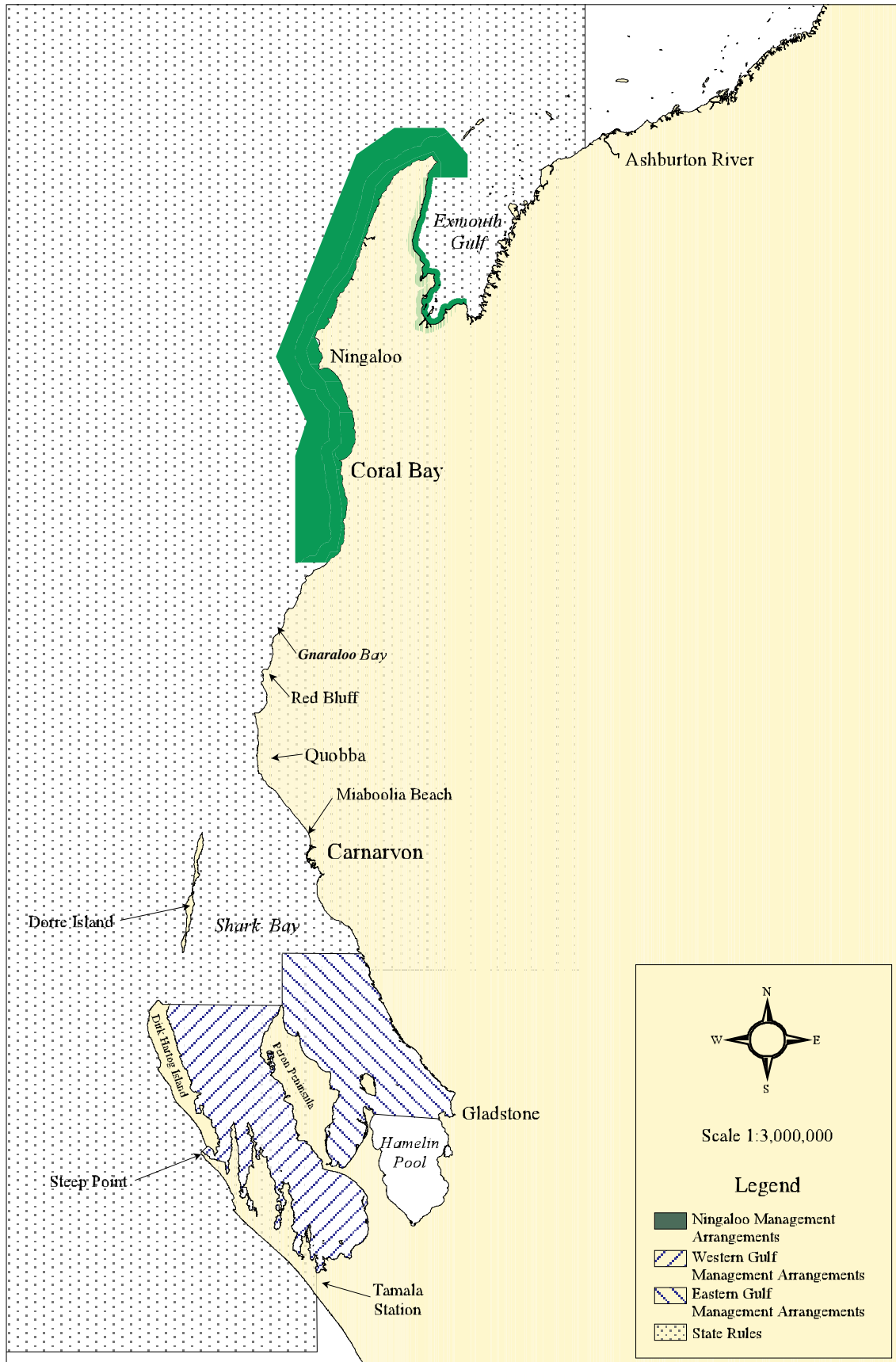
Figure 5. Current recreational management arrangements in the Gascoyne Region.

	<b>Ningaloo</b>	<b>Shark Bay western gulf</b>	<b>Shark Bay eastern gulf</b>	<b>Carnarvon (state rules)</b>
Daily bag limit	7	7	5	8 prize fish 8 reef fish 8 per species for key angling fish 20 per species for table fish
Boat limit	none	none	10	none
Filleting at sea	not permitted (except mackerel)	not permitted (except mackerel)	not permitted (except mackerel)	permitted
Possession limit	17kg fillets or 10kg fillets plus 7 fish	none	none	none

From a regional perspective, the current system is quite complex and onerous for recreational fishers to understand – particularly for occasional fishers and visitors. A fisher travelling across the Gascoyne may encounter, and be expected to be aware of, four separate sets of rules in the space of a two week holiday. Not surprisingly, the majority of fishers interviewed during the 1996 Gascoyne Recreational Fishing Survey supported the adoption of a uniform set of rules across the Gascoyne Region.

# Recreational Fishing in the Gascoyne Region

Existing Recreational Fishing Management Areas in the Gascoyne



## Part 3 – A strategic approach to management

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### 3.1 The proposed recreational fishing strategy

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The Working Group believed the business plan of the Recreational Fisheries Program, FWA provided an appropriate framework within which to base a regional strategy.

The group canvassed a wide range of issues which needed to be addressed through the review process and identified the goals they believed the management strategy should set out to achieve. Many of these issues had been identified at a state-wide level in other forums including the RFAC planning days.

In developing the objectives outlined below, the Working Group was conscious of developing a long term view for recreational fishing in the Gascoyne. The Working Group identified the following vision statement for the Gascoyne Recreational Management Strategy:

*“To establish a diverse range of high quality and sustainable recreational fishing experiences which acknowledge the needs of present and future users of the resource.”*

The Working Group was also determined to ensure that objectives and issues which had been identified were addressed by specific management strategies (Table 1).

Table 1: Objectives of management and key issues facing recreational fishing in the Gascoyne

**CONSERVATION AND SUSTAINABILITY**

<b>OBJECTIVE</b>	<b>KEY ISSUES</b>	<b>KEY ISSUES</b>
<p>To conserve and restore fish stocks in the Gascoyne Region to a level which can support a quality recreational fishing experience.</p>	<p>Increasing numbers of recreational fishers.                      Impacts of improving technology on fishing pressure.                      Limited information on recreational catch and fishing effort.                      Limited information on biology of species and status of stocks.                      Limited information on participation rates of recreational fishers.                      Growth in tourism.                      Impacts of infrastructure developments (eg boat ramps, marinas, tourist developments, new/sealed roads) on fish stocks.                      Increasing commercial catch of some species.                      Capacity for fisheries management to respond quickly to community concerns and perceived crisis.                      Mortality of returned fish.</p>	<p>Proposals 1,8-14,30                      Proposal 1, 8-14                      Proposals 3,4,5                      Proposal 6                      Proposals 3,4                      Proposal 8-14                      Proposals 8-14                      Proposal 19                      Proposals 1,2                      Proposal 8 (b) – Recommended bag limit structure</p>
<p>To protect fish habitat areas.</p>	<p>Limited information on significance of specific habitats in the region.                      Threats to fish and their habitats by oil spills, ballast water, damage by anchors, pots and other human impacts.                      Effectiveness of zones (eg fish habitat protection areas, sanctuary areas) as replenishment areas.                      Impact of zones in transferring/focussing fishing pressure on other areas.                      Lack of recognition of the value of recreational fishing in marine planning processes.</p>	<p>Proposal 21                      Proposal 21                      Proposal 22, 23                      Proposal 17, 22                      Proposals 1,22</p>
<p>To protect land zones.</p>	<p>Impacts of fishers on coastline.</p>	<p>Proposals 24, 25</p>

## COMMUNITY STEWARDSHIP

OBJECTIVE	KEY ISSUES	KEY ISSUES
Increase individual responsibility and local community and visitor support for a sustainable and quality fishing experience in the region.	Complexity of existing regulations. Range of recreational user groups with different values. Number of recreational fishers and vast coastline limits enforcement ability. Majority of fishers are visitors to region, making education difficult. Current management structure is top-down, rather than community driven. High level of community support.	Proposals 1, 8-14 Proposals 1, 18 Proposals 27,28 Proposals 24, 25 Proposal 29 Proposal 24, 25
Develop and maintain an acceptable standard of community fishing behaviour.	Inadequate level of fisher contact by fisheries officers. Need for wider promotion of fishing ethics.	Proposals 27, 28 Proposals 24, 25

## EQUITY

OBJECTIVE	KEY ISSUES	PROPOSED STRATEGIES
Provide equitable recreational access to fishing opportunities across recreational user groups.	Conflicts in high use recreational areas. Range of recreational fishers with different values. Greater effectiveness of larger vessels, particularly charter boats.	Proposal 19 Proposals 8-14, 19 Proposals 8-14
Provide equitable recreational access to fishing opportunities across all users of the resource.	Unmanaged shift in resource shares between sectors. Competition for available catch from commercial and recreational fishing activities in high use areas and associated conflict. Conflicts in high use areas between range of users (commercial, aquaculture, conservation). Inadequate recognition of values of recreational fishing in commercial fisheries management and marine planning processes.	Proposals 15-19 Proposal 15-19 Proposal 15 Proposal 1, 22
Provide opportunities for all users to contribute to the current and future cost of management/development of fish resources in the Gascoyne.	Increasing recreational effort is creating increase in management costs. User pays principle.	Proposal 30 Proposal 30

## QUALITY AND DIVERSITY

OBJECTIVE	KEY ISSUES	KEY ISSUES
To increase the quality and diversity of opportunities for recreational fishing and activities associated with fish and the aquatic environment.	Increasing importance of tourism – fishing quality as focus and drawcard. Niche marketing opportunities eg wilderness experience, techniques (fly only) game fishing. Opportunities for development of non extractive and low impact uses. Fishery enhancement and increased opportunities through aquaculture.	Proposal 15-18 Proposal 18 Proposals 17, 18

## VALUE TO THE COMMUNITY

OBJECTIVE	KEY ISSUES	PROPOSED STRATEGIES
To provide adequate funding for the management of recreational fisheries in the Gascoyne.	High cost of fisheries research and compliance programs. Demands on recreational management increasing as number of participants increases. Need to identify revenue opportunities for region.	Proposals 3-7, 27, 28 Proposal 30 Proposal 30
To develop partnerships between appropriate Government agencies, recreational fishing community and associated industries in the region.	Establish partnerships to ensure recreational fishing interests are widely recognised. Ensure representation of recreational interests in marine planning and development processes.	Proposal 22
To quantify and promote the value of recreational fishing to the region.	Lack of recognition of recreational fishing as a contributor to region's economy and lifestyle.	Proposal 22, 24, 25 Proposal 1, 25
To support the development of opportunities for commercial activities based on recreational fishing and activities associated with fish and the aquatic environment.	Need to promote fishing activities which optimise value to the community.	Proposal 19

## Part 4 – Key issues and proposals

### 4.1 Guiding principles for management

#### Proposal 1 – Key principles for recreational fisheries management

The Working Group felt it was important that recreational fisheries management in the region be based on the following key principles:

- *A key aim should be to ensure that the biodiversity of fish communities and sustainability of fish stocks are preserved.*

Management arrangements should take into account the biological characteristics of species, their abundance, and the level of fishing pressure being exerted upon them. The new plan should therefore encourage fishing across a range of species, permitting a higher take of more robust species, and limit the take of more vulnerable species. Management arrangements must also be revised to account for increasing recreational fishing pressure.

- *Fisheries management should be proactive, and recognise projected increases in fishing pressure.*

In the past, management has tended to be reactive as problems arise. Management arrangements must recognise projected increases in fishing pressure as well as impacts of planned developments in the region which may increase the number of visitors or focus fishing pressure in certain areas. The Working Group therefore felt management strategies should be based upon the impacts projected for the final year of each five-year plan.

As new information from research becomes available on biology or stock status, management arrangements should be modified accordingly.

- *Management should incorporate a precautionary approach and seek to minimise risk to fish stocks.*

The Working Group believes management must firmly encapsulate a precautionary approach, particularly in instances where there is no/inadequate scientific information on which to base a decision.

In the recent debate over management of pink snapper stocks in the eastern gulf of Shark Bay it was argued that insufficient research was available to conclusively prove stocks were in danger of collapse and existing management arrangements should continue until 'definitive' evidence existed.

The concept of precaution requires management authorities to take pre-emptive action where there is a risk of severe and irreversible damage to fish resources and the environment. In a situation of high potential risk and a lack or inadequacy of information, the concept of precaution requires the onus of scientific proof to be on those who intend to draw benefits from the resource and contend that there is no risk. This contrasts to the existing situation where management authorities may be subject to intense scrutiny to justify conservative management decisions without extensive research to support this need.

- *Fishing rules should acknowledge that equitable access to fishing opportunities across recreational user groups is important.*

The Working Group recognised that there are a wide range of recreational user groups who may have different values/requirements. These include local residents, visitors, boat fishers, shore based fishers, charter boat clients, spearfishers, gamefishers seeking 'trophy' fish



or fishers seeking a wilderness type experience to which a pristine environment may be as important as fishing quality.

A growing number of recreational fishers are not interested in obtaining their permitted bag limit, rather focussing on quality and enjoyment of fishing and retaining a fish or two as a fresh feed. The values of non consumptive users of this resource, such as recreational divers, and passive users must also be recognised.

The Working Group considered that fishing rules must endeavour to address the relative impacts of users on an equitable basis and that equity should be based on principles of ensuring 'fair and reasonable' access to the resource.

- *The value of recreational fishing should be clearly recognised and given proper weight in all planning processes.*

The value of recreational fisheries must be recognised by the community in terms of both sociological and economic benefits. It is important that recreational fishing is documented as a legitimate use of fish resources and given due consideration in marine planning processes.

- *Fishing rules should be kept simple, and where possible and practical, made uniform across the region.*

Four different packages of management arrangements currently apply in the Gascoyne, making it difficult for fishers to be aware of, and understand, fishing rules. In addition to the specific bag limit rules applying in these areas, the existing fisheries legislation contains a number of other complex provisions that are not widely known and are confusing to fishers.

Management strategies must be simple enough to educate the large numbers of occasional fishers and visitors to the region while providing effective control for the conservation of the resource. Where possible, management arrangements should be consistent throughout the region.

The Working Group recognised that a wide range of problems may arise from changing rules too frequently. It was also noted, however, that technology and fisher effort can change rapidly and there may be a need to react quickly to prevent over exploitation. The Working Group believed a five-year review cycle for the plan was appropriate, provided that it was flexible to modify management arrangements if sustainability problems arose.

With a client group of 36 per cent of the population, any new proposal for management will invariably attract some criticism and members agreed it was important to manage the resource for the majority of community (including passive users of resource). It is essential that management adopt least risk options to protect sustainability of stocks, rather than preserving fishing rights of one or more user groups or sectors.

- *Recreational fishing rules should be designed to limit the total recreational catch, as well as protect fish at vulnerable stages in their life history.*

Existing management arrangements do not currently place a ceiling on the total recreational catch. In face of increasing recreational effort, it is essential that the total catch is restricted to ensure sustainability of stocks and preserve fishing quality.

- *The benefits from controls on the total recreational catch should flow back to the recreational sector and be reflected in improved fishing quality and sustainability.*

Management arrangements must be put in place to ensure that benefits in recreational fishing quality accruing from controls on the recreational take do not flow instead to the commercial sector.

**Term of plan and review****Proposal 2 – Five-year review**

This regional management strategy should be reviewed every five years. Changes to recreational fisheries management within this period should only be made if compelling evidence indicates a critical threat to the sustainability of fish stocks.

**4.2 Information for management****Catch and effort**

A major obstacle to the resolution of fishery management and resource sharing issues was a paucity of robust long term data on recreational fishing catches and activity in the region.

Fisheries WA is currently undertaking a comprehensive recreational catch survey in the Gascoyne which will provide valuable baseline data for future management. The Working Group support the need for a comprehensive research program and database to be maintained to assist the monitoring of fisheries and the evaluation of management arrangements.

Detailed recreational catch surveys are expensive to conduct (in order of \$180,000) and utilise significant resources of Fisheries WA research and compliance officers. The Working Group therefore believes surveys should be conducted on a five-year program, in sequence with the review cycle of this strategy. Ideally, there would be significant benefits in repeating the current catch survey for the next two years to provide a comprehensive three year baseline data set. However, this would require a significant increase in funding for recreational fishing management in the region.

Following completion of the Gascoyne catch survey in 1999, estimates of the recreational catch will be available and in conjunction with commercial catch data, will provide valuable information on the total exploitation of fish stocks and provide a basis for future management decisions.

The Working Group believed it was important to monitor fishing effort and catch within the five-year surveys to detect any changes in fishing patterns or stock status. Continuous monitoring would help detect potential management problems before a crisis is apparent. For example, early recognition of increasing fishing pressure and immediate revision of management arrangements may have reduced the impacts on pink snapper stocks in the eastern gulf of Shark Bay.

The Working Group has proposed that ongoing catch information be collected by fisheries officers and possibly Volunteer Fisheries Liaison Officers (VFLOs) as part of their regular duties. It was also suggested that the volunteer logbook program could be expanded. Suggestions such as compulsory logbook returns and offering incentives to anglers to provide logbook returns were considered, but it was recognised that the quality/accuracy of responses, and therefore the usefulness of data, could decrease if the voluntary aspect was removed.

A national recreational catch survey is being developed, but the Working Group doubts whether this would provide sufficiently detailed information to assist in regional management of WA fisheries.

It was considered the regional catch surveys being undertaken by Fisheries WA would provide more detailed levels of information for management.

The Working Group noted the final report of the 'Future management arrangements for the aquatic charter operators' and supported the recommendation that all aquatic charter operators be required to submit a periodic and detailed logbook to Fisheries WA. The logbook would include the number of persons fishing, number of fish kept and released and length/frequency information.

### **Proposal 3 – Major catch survey**

A major recreational catch survey should be undertaken every year for a minimum of three years to establish a baseline data set on recreational fishing in the Gascoyne.

The catch survey should be repeated every five years at a minimum to provide detailed information about the spatial and temporal distribution of recreational activity and catches on which to base management decisions.

### **Proposal 4 – Annual data collection program**

Fisheries officers and volunteers should collect data on a number of key indicator species as part of their patrols to provide an index of trends in recreational fishing in the years between five-year catch surveys.

### **Proposal 5 – Volunteer angler logbook program**

Fisheries WA should expand the voluntary anglers logbook program in the Gascoyne Region to provide additional monitoring of trends among highly successful recreational fishers.

### **Species biology**

The Working Group was concerned that only a limited amount of biological information was available for many of the species targeted by recreational anglers in the Gascoyne.

Considerable information is known on the biology of pink snapper stocks in the Shark Bay area and extensive stock assessment work is being undertaken on the stocks in the eastern and western gulf areas. Good biological information is available on spangled emperor and mackerel and some research is being undertaken on a number of key Gascoyne species including red emperor, rankin cod, coral trout and baldchin groper. Very little stock assessment information is available for most of these species. A summary of known biological parameters for key recreational species in the Gascoyne is provided at Appendix B.

Research programs on fish stocks to obtain detailed information on species biology and stock status to assist management are expensive (eg approximately \$700,000 has been spent on snapper research in the inner gulfs of Shark Bay).

The Working Group believe research programs must be designed to meet management objectives agreed to by user groups. The Working Group has identified a list of priority species for research, and noted that a similar recommendation was adopted following the report 'Future of Recreational Fishing 1991'. However, this was a state-wide strategy and the highest priority species for research at the time were from the west coast or southern regions (eg herring, salmon and tailor).

The Working Group acknowledged it would be difficult to obtain the necessary level of funding from within the existing recreational fishing program budget, particularly at a regional level, and alternate sources of funding are required if necessary research is to be undertaken in the near future .

## Proposal 6 – Priority species for research

Research should be undertaken on the following key recreational species in the Gascoyne (in order of priority) to provide information on species biology and stock structure. Predictive fisheries stock assessment models and, where practical, indices of recruitment, should then be developed for these key species:

- Pink snapper (*Pagrus auratus*)
- Spangled emperor (*Lethrinus nebulosus*)
- Black snapper (blue-lined emperor – *Lethrinus laticaudis*)
- Red emperor (*Lutjanus sebae*)
- Baldchin groper (*Choerodon rubescens*)
- Spanish mackerel (*Scomberomorus commerson*)
- Cods – estuary, rankin (*Epinephelus coides*, *Epinephelus multinotatus*)
- Coral trout (*Plectropomus maculatus*)
- Black spot tuskfish (*Choerodon schoenleinii*)
- Mulloway (*Argyrosomus hololepidotus*)

## Quality indicators for recreational fisheries

In the absence of detailed information on the biology of species or status of many stocks, management has tended to be reactive as problems arise. The Working Group believes 'fishing quality indicators' should be developed to monitor recreational fishing in the Gascoyne and used to measure effectiveness of management strategies.

It is proposed that information be collected on a group of 'signature' species which are recognised as 'attractions' for fishing in the Gascoyne. The Working Group believes a sample from the list of priority species for research would provide an appropriate mix of species and have proposed pink snapper, spangled emperor, black snapper, red emperor, baldchin groper, mackerel and estuary cod.

Quality and diversity indicators should encompass the level of fishing activity, fishing success of anglers, the relationship of catches to bag limits, the range and number of species caught per trip, and the range of sizes for each key species caught.

Value indicators should encompass participation levels, including estimates of the number of recreational fishers who fish in the Gascoyne each year, the number of days fished, and expenditure by fishers.

## Proposal 7 – Fishing quality indicators

A range of 'fishing quality indicators' based on angler surveys should be developed to identify trends in fishing quality in the region and assist in the review of the effectiveness of this strategy.

These indicators should cover fishing quality, diversity and the value associated with the fishing experience.

## 4.3 Protecting vulnerable fish and managing the recreational catch

### Bag, boat, trip and possession limits

Current state-wide recreational fishing regulations use a variety of controls to manage the catches of individual recreational fishers.

The Working Group considered that bag limits, trip limits and possession limits could not be considered in isolation, and needed to be used in combination to provide effective regulation of individual catches and ensure equity between various interest groups.

This is a key issue in areas such as the Gascoyne where the majority of fishing trips extend over several days or weeks and where the accumulation of multiple daily bag limits effectively negates many of the conservation benefits associated with daily bag limits.

While s50 of the *Fish Resources Management Act 1994* currently provides that “a person may not take or bring onto land in any one day” more than a daily bag limit, a defence in regulation exists for specified species provided a person lives aboard a boat. For shore-based fishers there is effectively no limit on the quantity of fish that an individual can accumulate in most areas.

#### *Bag limits*

Bag limits provide a limit to the number of fish that can be caught by an individual fisher during a 24 hour period. They are designed to represent a catch sufficient for the immediate needs of fisher and family. Bag limits can apply to both the total number of fish that can be kept, as well as the number of a particular species which can be kept.

The current state-wide bag limit structure only impacts on the small number of fishers who regularly take large catches. However, they do provide a moral peg for the majority of people who fish to the law, but who in the absence of any controls, continue to take more fish than they need. Bag limits have therefore been used to define acceptable social behaviour.

Bag limits may also help control illegal sales by making accumulation of large quantities of fish more difficult. Illegal abalone operations uncovered during operation Singapore Noodle have shown however that ‘shamateurs’ can operate within recreational daily bag limits and still accumulate commercial quantities of fish.

Bag limits must be set at a conservative level if they are to protect the resource. If set too high, they may only restrict the small number of good fishers or help limit excessive takes when large schools of fish are found. Without constant review and adjustment, bag limits cannot account for increasing participation rates and impacts of technology on fishing ability. Their effectiveness may also be limited in years where low numbers of fish are present due to environmental factors.

While daily bag limits may restrict excessive daily takes when fish are available (eg spawning aggregations) the Working Group considered they are not an effective conservation measure as they can continue to be collected every day over extended periods. Additional strategies are required to effectively manage the resource sustainably and ensure fishing quality in the future.

### *Boat Limits*

Boat limits are already used to provide protection for a number of recreational species including rock lobster (two daily bag limits per boat), abalone (three daily bag limits per boat), squid, octopus and cuttlefish (two daily bag limits per boat) and crabs (two daily bag limits per boat). A boat limit of two daily fin fish bag limits was recently introduced in the eastern gulf of Shark Bay to protect other species following the ban on the take of pink snapper.

The Working Group noted that boat limits offered protection from overfishing to stocks of fish which are easy to target at certain times (eg snapper aggregations). The potential to overfish stocks has increased significantly with the technology available to recreational fishers such as GPS and fish finders. The 1996 survey of Gascoyne fishers indicated that 68 per cent of boats had echo sounders while one-third had a GPS on board. As this technology further improves and continues to become more affordable, these proportions are likely to rise.

It was noted that fishers in some areas of the Gascoyne travelled large distances to fish. This generally involved large boats which were costly to run and for this reason, there were typically four or more recreational fishers on each boat to share costs. While the cost of a fishing trip is always a consideration to individuals, the Working Group believes cost is a term more appropriately related to commercial fishing ventures and should not be a significant consideration in recreational fishing management arrangements. Recreational fishers should not be entitled to greater shares of the recreational catch purely on the basis of a more expensive fishing trip. Recreational fishing should focus on the enjoyment of the experience and the reward of taking home fresh fish rather than a cost/benefit analysis of the activity.

The Working Group did however acknowledge that boat limits may be seen to discriminate against these fishers as compared to dinghy fishers that may only have two fishers on board. The use of other management controls such as individual species bag limits and possession limits may therefore provide a more equitable means of controlling the potential take by recreational fishers.

### *Trip limits*

Trip limits impose a restriction on the number of fish that can be accumulated by a fisher on a fishing trip which extends for more than one day.

The *Fish Resources Management Act 1994* contains a number of general provisions which control the take by recreational fishers and override general bag limit provisions.

Section 50(3) of the Act states that

“A person must not take, or bring onto land or into WA waters, on any one day more fish than the bag limit of those fish.”

One day is defined as “a 24 hour period commencing at midnight” (except for marron and prawns where it commences at midday).

From discussions with recreational fishers, it appears that this provision is not widely known or understood. In effect, this provision means that persons staying on a boat or in a remote location from which they return to the mainland by a boat (eg Island) may only be in possession of a single daily bag limit, regardless of how many days they have been fishing.

Yet this situation is not ‘black and white’ as the fisheries regulations also provide a defence to this general rule for persons who live on board a boat. In effect, this defence enables fishers to accumulate their catch for the number of days they have been fishing

provided a possession limit is not exceeded (eg Ningaloo rules or boat possession limits for certain species such as crabs and abalone).

This is further complicated as this provision only applies to a number of prescribed species. These are coral trout, blue manna crab, red emperor, spangled emperor, baldchin groper, blue groper, Australian salmon, samson fish, Northwest snapper, pink snapper, queen snapper and tuskfish. It is interesting that the majority of these species are the key recreational species targeted by fishers in the Gascoyne. The Working Group was concerned that the existing legislation concentrates pressure on to these key species, many of which are susceptible to overfishing eg coral trout, goppers and tuskfish.

This current legislation is therefore inequitable in its application across recreational fishers. People staying on an island or camping in a remote location (and who may have been fishing for several days) are in breach of the law if they return by sea with more than a daily bag limit. This issue was recently highlighted at Shark Bay, where a person based in Denham could return each night with a daily bag limit, a person living on a boat could accumulate the bag limit for certain species on trips extending for more than one day, while a person camping in a remote location or staying on Dirk Hartog Island may only land a single daily bag limit on returning to Denham at the end of their visit.

The Minister for Fisheries has issued an interim exemption in Shark Bay to permit campers and boat fishers to accumulate their daily bag limit in a similar manner to persons staying at Denham. In practice, however, it is extremely difficult for fisheries officers to establish the exact number of days a person has been fishing.

The Working Group believe that the catch from aquatic charter operations must be recognised and managed as part of the recreational catch. Charter boats and large private boats may have many passengers on board, and even with individual bag limits, could have a significant impact on certain stocks or specific locations. The local experience and knowledge of charter operators also significantly adds to their ability to target stocks. Additional controls are therefore required to maintain the catch from these vessels at sustainable levels.

The Working Group felt the introduction of a trip limit would provide a more permanent and equitable management mechanism which addressed sustainability concerns. The Working Group considered that a trip limit of two days catch, represented a good collection of fish and was appropriate for the Gascoyne. If this proposal is accepted, Regulation 20(2) of the FRMA which provides a defence for persons living on board a boat to accumulate certain species, should be revoked in its application to the Gascoyne.

Members noted there may be some issues relating to enforcement, but agreed that the onus should be on fishers to prove they had been fishing for more than one day. This could be achieved in a number of ways – persons may have receipts if staying in accommodation or camping grounds, or may have logged their trip with local sea rescue, or could notify fisheries officers of their departure, and so on.

### *Possession limits*

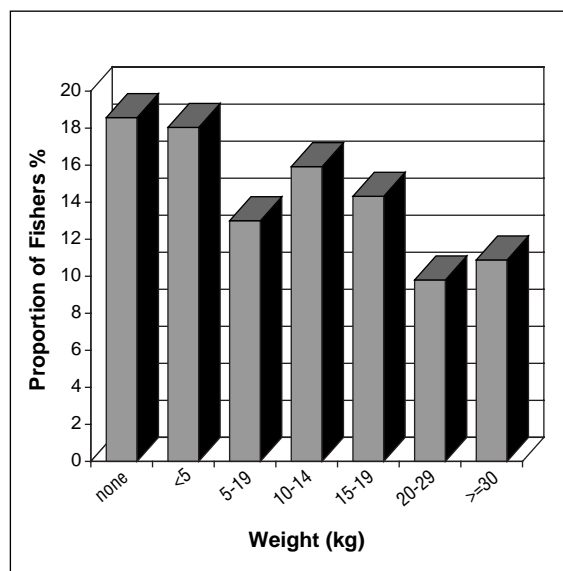
The Working Group was concerned that under the existing daily bag limit system persons could continue to accumulate large quantities of fish. The group considered this practice was no longer sustainable given the significant increase that has occurred in recreational fishing effort. An effective method of controlling recreational take needs to be implemented to ensure sustainable stocks and fishing quality in the future.

Possession limits specify the total number or weight of fish or fillets a person may have in their possession at any given time. As such, it provides a more effective way of controlling the amount of fish that can be taken by each fisher. Possession limits also provided a valuable educational tool for sustainable management.

Possession limits were introduced in Ningaloo to recognise conservation values in the marine park. Despite initial opposition by some sectors of the fishing community, these are now widely accepted. The Working Group believes the majority of the community now recognise the need to restrict the total recreational take and consider there is widespread support for the implementation of a possession limit as a key management tool.

The majority (80 per cent) of fishers interviewed during the 1996 Gascoyne Recreational Fishing Survey believed there should be an upper limit on the quantity of fish people are allowed to take for personal or family use. Most respondents (77 per cent) believed that a limit in the range of 15-19kg or less is a reasonable limit per person to take away from the region for personal or family use. The study also found that in practice, 66 per cent reported taking home 14 kg or less of fish or fillets while 80 per cent reported taking 19kg or less home (figure 5).

Figure 5. Number of fishers taking home fish/fillets from the Gascoyne Region in previous trips by weight category.

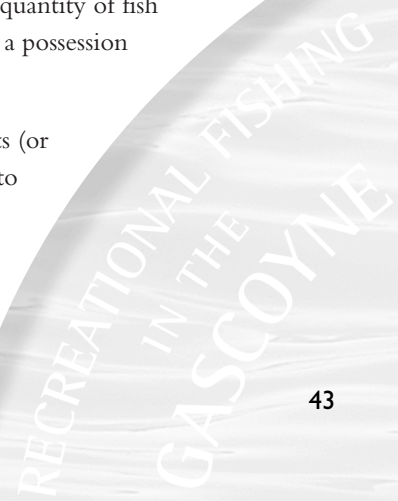


Some fishers who travel significant distances to fish or are only able to take holidays once a year argue that a possession limit would have a greater impact on them – and was inequitable as local fishers could catch their possession limit every few weeks. Alternatively, it was suggested that persons who fished regularly tended to only take sufficient fish for immediate needs. Preliminary results from the Gascoyne catch survey confirm that the majority of fish (over 80 per cent) taken by recreational fishers in the region are in fact caught by visitors.

The Working Group believes the introduction of possession limits for recreational fishers is an essential strategy in avoiding localised depletion of fish stocks and maintaining fishing quality across the region. Ceilings must be imposed on the total fish take, incorporating both the commercial and recreational sectors, to maintain sustainable stocks in face of increasing pressures on fish resources.

The group had considerable discussions over what level of take represented an appropriate quantity of fish for recreational purposes. While all members of the Working Group supported the need for a possession limit, consensus could not be reached on what an appropriate level was.

The majority of Working Group members felt the existing Ningaloo limit of 17kg of fillets (or 10kg fillets plus seven fish) represented a significant quantity of fish for an individual to





take home. A single possession limit of 17kg of fillets represented 85 servings of fish (assuming a 200g serve). For a family of four, this would provide one fish meal per week for a period of five months. If two people from this family accumulated these limits, it would provide almost a year's supply of a weekly fish meal; or more than three family meals per week for three months (three months is the recognised freezer life of fish before its quality diminishes).

The Working Group agreed that a range of options should be presented to the wider community for consideration during the consultation process. In considering the options, it is important to recognise that these quantities represent the amount of fish each individual recreational fisher may take home at the end of a fishing trip and does not include the amount of fish that may have been consumed while on holiday. The options are:

- Option 1: A possession limit of 17kg fillets or 10kg of fillets plus one daily bag limit of whole fish
- Option 2: A possession limit of 10kg fillets plus 14 whole fish
- Option 3: A possession limit of 20kg plus five whole fish or 25kg fillets

In considering these options, it is important that the cumulative impacts of these limits are considered. For example, if each recreational fisher in the Gascoyne caught one 17kg possession limit each year, this would represent a potential recreational catch of some 2,800 tonnes of fish (50,000 fishers x 17kg fillets = 850 tonnes fillets = approximately 2,800 tonnes whole fish).

### Proposal 8 (a) – Possession and trip limits

The Working Group believe a possession limit is essential to provide a more effective control on individual catches and ensure equity between user groups. Possession limits also quantify the total recreational catch far more clearly than daily bag limits.

The possession limit would be complemented by an easily understood 'trip limit' of twice the daily bag limit of whole fish for all fishers. The onus of proof would rest with individuals to demonstrate they had been fishing for more than one day when inspected, or that they had purchased the fish from a legitimate source.

To allow fishers the flexibility of deciding how they keep their catch options, the regulation should include fillets, a combination of fillets and whole fish, or just whole fish.

Several options on the level of the possession limit were discussed, but the majority of the working group favoured an approach consistent with existing Ningaloo Marine Park regulations.

The proposed possession/trip limit for the Gascoyne is that a person may have at any time no more than:

- 17kg of fillets; or
- 10kg of fillets plus one days bag limit of whole fish; or
- two days bag limit of whole fish.

In addition, the Working Group felt a two day bag limit should also apply as a trip/possession limit for all baitfish, crustaceans and shellfish. The Working Group considered that accumulating more than these amounts was beyond recreational requirements and encouraged excessive take, wastage and unethical fishing behaviour.



*The 17kg of fillets pictured above, represents 85 big meals of fish. Possession limits for recreational fishers are proposed as an essential strategy to ensure sustainable stocks and fishing quality in the future.*

**Groupings of species into bag and species limits**



**Key angling fish**

The Gascoyne Region is quite distinct from other regions in that the existing State bag limits do not apply across much of the region. In both Shark Bay and Ningaloo a mixed bag limit of seven applies to most finfish species (with the exception of tailor, threadfin, hardyhead, whiting, garfish and mullet). The daily bag limit has been reduced to five in the eastern gulf of Shark Bay on the basis of community concern over the possible transfer of fishing effort to other species (following the temporary ban on the take of pink snapper to permit the eastern gulf stock to rebuild). State limits apply in the areas outside Shark Bay and Ningaloo.

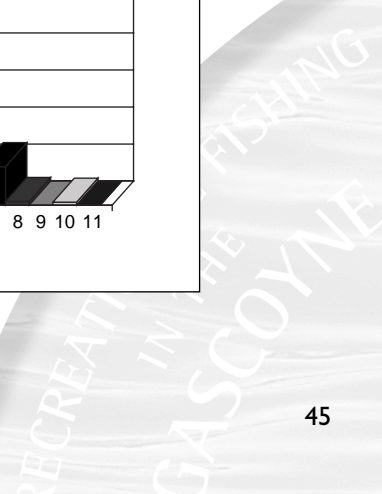
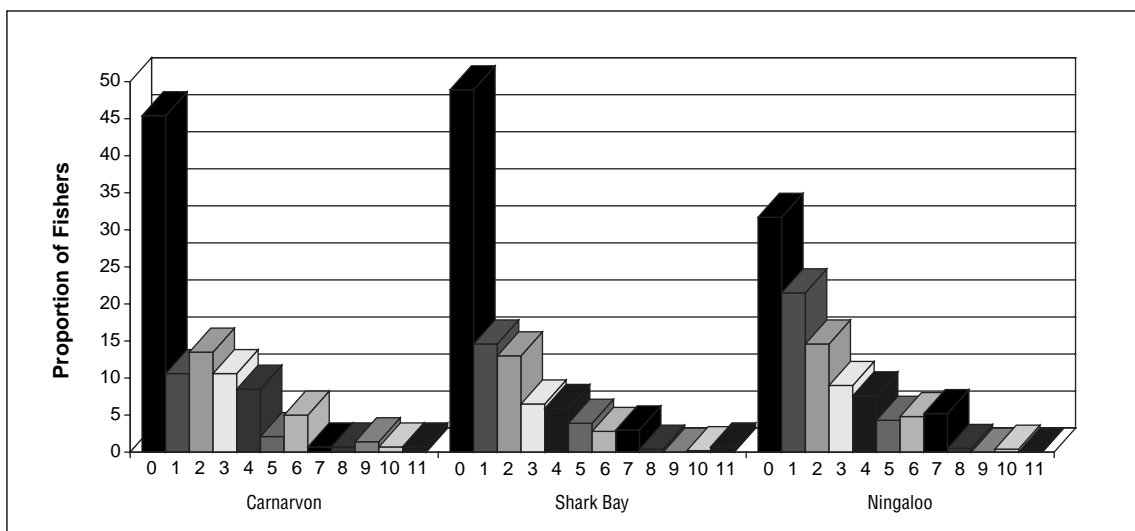
The Group agreed the state-wide limits were clearly inappropriate for the Gascoyne and were

*A daily bag limit of 7 for key angling species provides an excellent recreational catch and many fresh meals of fish*

far in excess of recreational needs. Members believed a bag limit of seven fish was widely accepted and appropriate for the type of fishing activity and species targeted in the Gascoyne. It was recognised that seven fish from this category represented an excellent recreational catch. For example, based upon catch survey data, a maximum daily bag limit may comprise two pink snapper, a spangled emperor, two black snapper, mackerel, and a baldchin groper – a superb recreational catch by any definition!

In practice, the majority of recreational fishers in the Gascoyne do not achieve anywhere near the daily bag limit of seven (figure 6 a,b,c ). Even in the Carnarvon area where State bag limits currently apply (and fishers could theoretically take eight prize fish plus eight reef fish plus key angling species) the vast majority of recreational fishers still catch less than five fish per day.

*Figure 6. Average number of key angling fish taken by recreational anglers per day.*

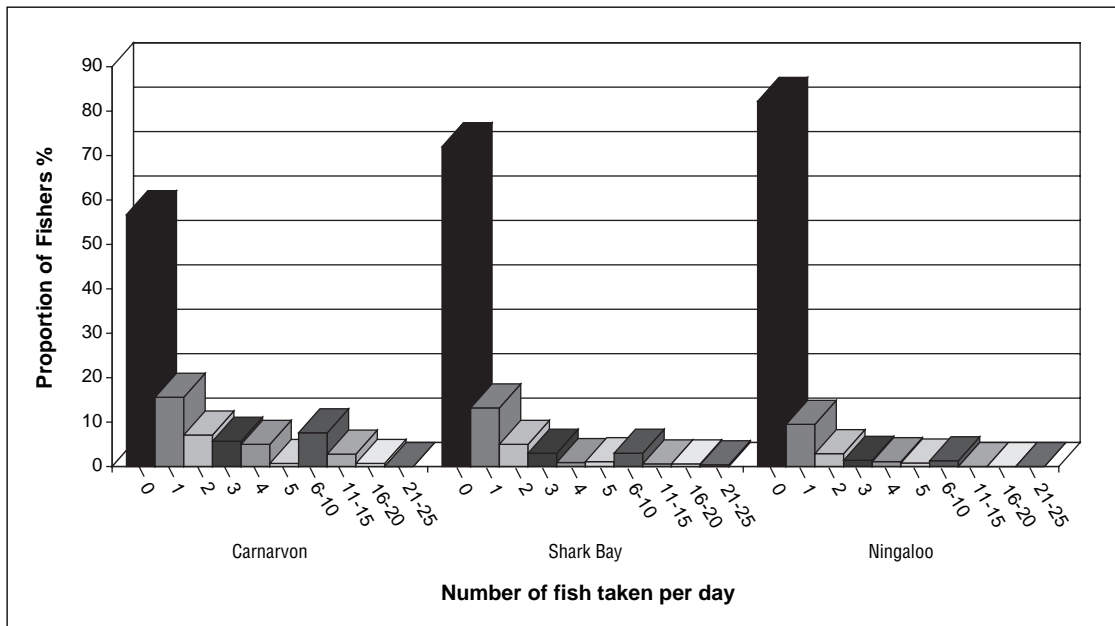


## Table fish

Under existing Shark Bay and Ningaloo rules, the only finfish species not covered by the bag limit of seven are garfish, hardyhead, mullet, whiting, tailor and threadfin (for which State rules apply). The group believed that this list was too restrictive and it was inappropriate that species such as bream and flathead should comprise part of the seven bag limit.

Recreational fishing activity in the Gascoyne tends to focus on the key angling species and the Working Group believed the significance of other species was much less than in other regions. This view is supported by catch survey results (figure 7) which show over 96 per cent of boat fishers caught a combined total of 10 or less fish from the proposed Group 2 category.

Figure 7. Average number of table fish taken by recreational anglers per day.



The Working Group believe a mixed bag limit of 30 is appropriate for table fish in the Gascoyne. This represents a catch more than sufficient for recreational needs, particularly since these could be taken in addition to key angling species.

The Working Group recognised that while this proposal had little impact on existing Ningaloo and Shark Bay arrangements, it represented a significant change from the state-wide limits for ‘bread and butter’ species. The Working Group believed any arguments based on the grounds of its inapplicability to other regions simply reinforced the benefits of a regional approach. These species do not comprise a significant portion of recreational catch in the Gascoyne Region. Members believed that visitors from the lower west coast and southern regions, where these species comprise an important part of the recreational catch, generally travelled to the Gascoyne for an opportunity to target the key angling species.

## Proposal 8 (b) – Daily bag limits

The Working Group noted there is widespread acceptance of the existing Ningaloo and Shark Bay bag limit structure and this should form the basis for a regional limit.

To simplify the approach and recognise that recreational fishing is effectively a multi-species fishery it is proposed that a mixed daily bag limit of seven be introduced for key angling fish across the Gascoyne and a mixed daily bag limit of 30 introduced for table fish.

### *Species limits*

The Working Group believe the bag limit structure must ensure fishing effort is spread across a range of species to help protect stocks in the face of increasing fishing pressure. Even with a daily bag limit of seven for key angling fish, it is still possible to significantly deplete stocks if fishers exclusively target a single species or small number of species. Individual species limits are therefore required, particularly for resident reef fish and species which are slow growing.

The existing rules in Shark Bay, Ningaloo and state arrangements for 'prize fish' impose a species limit of four for certain species. The Group did not consider the existing list of species was comprehensive enough to maintain the sustainability and biodiversity of fish species, given the increasing recreational effort. Further, for some species with particular biological characteristics or those highly targeted by fishers, a limit of four did not offer sufficient protection.

The Group acknowledged the need to try and keep the structure simple, and initially agreed a maximum of three species limit categories should be used for key angling fish. A number of possible structures including species limits of 1-2-4, 1-2-7 or 1-3-6 were examined, but the group did not believe these structures provided the necessary level of flexibility to categorise each species (nor indeed the flexibility to move fish between groups if the need arose).

The Working Group subsequently proposed a 1-2-4-7 structure. The additional category made it easier to group certain species and gave additional flexibility for moving fish between groups once further information on stocks became available. The group acknowledged this provided an extra level of complexity and would be more difficult for fishers to understand, but felt this could be overcome through a community awareness program.

It is proposed that a species limit of one be introduced for species which are extremely vulnerable to overfishing, a limit of two for slow growing fish and species highly sought after by fishers, a limit of four maintained for prize fish and a limit of six for the other key angling species targeted by recreational fishers.

A number of table fish also require an additional level of protection from overfishing (and possible localised depletion) and a category with a species limit of 10 is proposed.

### *Categorisation of species*

In determining which category particular species should fall under, it was agreed consideration must be given to their respective appeal as a target species for either angling or eating qualities, the status of stocks, and biological characteristics which may affect their vulnerability to overfishing (eg slow growing, resident nature, fecundity).

Members noted there were divergent views among fishers on what a suitable bag limit was for many species. The group carefully considered each species from a regional perspective (rather than at a local level) with the aim of achieving a package that was simple and uniform across the region while ensuring that primary objective of sustainability was met.

Some of the comments noted by members in classifying individual species included:

**Black snapper** – it was noted these are heavily targeted in the Gascoyne. Black snapper are now caught in equivalent numbers to pink snapper in Shark Bay and deserve protection as a ‘prize fish’.

There was some discussion as to whether a separate bag limit should apply to help protect stocks, but it was felt increasing the minimum size limit would address this. It was also noted that occasional fishers had difficulty in distinguishing between the various NW snappers and it is proposed a mixed species limit of six apply for all NW snapper (except spangled emperor).

**Cods** – due to their slow growth rates and highly resident nature they were easily depleted from reefs. Cods play an important role in reef ecosystems and their depletion could alter reef ecosystems. It is proposed that estuary and rankin cods should be limited to two per person and other cod species fall into the prize fish group (four fish).

**Mackerel** – it was noted this species was highly prized by boat and shore anglers, was quite possibly already overfished and warranted a high level of protection. The Working Group believe Spanish mackerel and wahoo should be classified as trophy fish while school and shark mackerel be classified quality angling fish.

**Mahi Mahi** – particularly targeted by game fishers, however they are fast growing and not vulnerable to overfishing. While fishers may catch large numbers in a day, they generally do not keep many as they do not freeze well. It is proposed they continue to be classified as prize fish.

**Mangrove jack** – it was noted these fish grew to a good size and were valued as a good sport fish. Majority of fish were not kept and the value of a large specimen as a sport fish justified its classification as a prize fish.

**Pink snapper** – this is the major species taken by Carnarvon anglers and the oceanic stock in this area appears to be in healthy condition. There was considerable discussion on the appropriate limit for the oceanic stock. Four appeared suitable for the Denham Sound area while Carnarvon fishers believed the existing state limit of eight was appropriate. The Working Group have proposed that a bag limit of six be introduced for oceanic pink snapper.

Arrangements for pink snapper in Shark Bay are discussed separately and detailed in proposal 10.

**Sharks** – while it was recognised these are not targeted by most recreational anglers it was noted they are slow growing and susceptible to overfishing. It was felt two per day was sufficient for recreational needs.

**Spangled emperor** – recognised as a quality recreational species and warrants protection as they are heavily targeted in the northern Gascoyne. It is proposed a species limit of four fish per day should apply.



*Spangled emperor are a ‘prize fish’ and a daily bag limit of four is proposed to protect stocks.*

## Other fish species

### *Baitfish*

There is currently no bag limit for baitfish of the Family Clupeidae and Engraulidae (anchovy, pilchard (mulie) sandy sprat (whitebait), blue sprat and scaly mackerel).

The Working Group is concerned that some fishers take excessive quantities of baitfish and have proposed that a daily bag limit of nine litres (one plastic bucket) apply throughout the Gascoyne. Clearly commercially processed bait is excluded from this bag limit.

### *Crustaceans*

Rock lobster: The Working Group believe the existing bag limit of eight rock lobster is appropriate for the region and should continue. It is also proposed that a species limit of four tropical rock lobster applies throughout the region.

A daily bag limit of four rock lobster should continue in the Ningaloo Marine Park.

The Working Group also discussed the take of rock lobster by divers using artificial breathing apparatus. It was noted that divers using breathing apparatus may cause less damage to undersize/berried lobsters as they do not need to 'rush' to remove lobsters from crevices.

It was noted the ban on the use of artificial breathing apparatus in Ningaloo Marine Park restricted divers to shallower waters and may have some applicability for marine conservation values.

It is proposed that the take of lobster on air should continue to be permitted in the Gascoyne (with the exception of Ningaloo) and bag/size limits used as the primary management tool.

### *Crabs*

The Working Group have proposed the following limits apply

- Blue                    daily bag limit 20, boat limit of 40
- Mud                    daily bag limit 5, boat limit of 10
- other                  daily bag limit of 10

### *Cephalopods*

The Group believed the existing mixed bag limit of 15 (boat limit 30) for octopus, squid and cuttlefish was appropriate for the region and should continue.

However, there was concern over the localised depletion of species from reef tops near major centres. Many reef top areas which are highly accessible at low tide had been decimated by fishers.

The Working Group propose that a ban be implemented on the take of cephalopods from reef top areas (areas under the tidal influence).

The Working Group was particularly concerned to hear reports of fishers illegally using bleach, toilet cleaners and other chemicals, or alternatively breaking open coral reefs with a crowbar to access cephalopods. Communication strategies highlighting the environmental effects of these practices should be implemented to deter this behaviour.

### *Collecting*

Collecting by recreational fishers may include collecting for food, bait, aquariums or collections and it is important this is limited to a sustainable level. Overfishing can result in a reduction in biodiversity and the removal of a food source for other species.

Unmanaged collecting may also impact on the quality of experience for many recreational activities such as beachcombing, diving and so on.

### *Molluscs and echinoderms*

The existing regulations contain a limit of two litres on most edible shell fish, with the exception of oysters (40), mussels (nine litres) and abalone (separate management arrangements apply). A limit of 40 applies to sea urchins and other echinoderms.

The two litre limit equates to an 'ice cream container'. However, this has been shown to be impractical for some species because of their size or shape eg razor shells. There is also an increasing interest in the take of sea urchins and other species not traditionally utilised by recreational fishers. The group therefore believes a numerical bag limit may be more appropriate and have proposed that a mixed bag limit of 50 apply to all edible shell fish (other than abalone).

### *Coral/live rocks*

The Working Group was concerned over the damage to coral that has occurred in popular areas by many people breaking off pieces and have proposed a ban be introduced on the taking of live coral and live rocks (ie rocks covered with barnacles, corals and algae) in the Gascoyne Region.

### *Shell collecting*

The Working Group have also proposed a ban be introduced on the collection of live shells by recreational fishers. The definition of live shells should include shells with any part of the animal in the shell, either dead or alive.

This definition would not impact on the collection of old shells washed up on the beach.

### *Aquarium fish*

The collection of aquarium fish by recreational fishers was not considered to be a problem at present and it is proposed they should be considered as table fish (mixed bag of 30).

If this activity escalates in the future, management arrangements may need to be revised, and the introduction of specific controls may be appropriate.

**Proposal 8 (b) – Recommended bag limit structure**

<b>KEY ANGLING FISH – 7</b> Mixed daily bag limit of seven			
You may take or land a maximum of seven fish per day from all species listed in this table. Individual species limits apply for ‘Conservation Fish’ (one of each species) and ‘Trophy Fish’ (two of each species), ‘Prize Fish’ (four) and ‘Key Angling Fish’ (six). These must not be exceeded. For example, if you were to catch the maximum of seven fish from this group, you may not have more than one coral trout, one coronation trout, two Spanish mackerel and three trevally. Alternatively you may take four spangled emperor and three other NW snapper or the limit of seven may be comprised of six pink snapper and one other fish.			
<b>Conservation Fish</b> 1 of each species	<b>Trophy Fish</b> 2 of each species	<b>Prize Fish</b> 4 of each species	<b>Quality Angling Fish</b> 6 of each species
<i>Vulnerable to overfishing. For many species, very large fish are prolific breeders and warrant extra protection.</i>	<i>Sought after for catching or eating qualities and are vulnerable to overfishing.</i>	<i>Recreational fishers or of relatively low abundance and require protection to minimise local depletion.</i>	<i>Sought by recreational fishers and require some level of protection from excessive catches.</i>
Coral trout Coronation trout Coronation Cod Marlin, blue and black all Billfish (eg sailfish, swordfish) All fish over 70cm – <i>Only 1 fish of each species you have caught may be 70 cm or greater in length. This limit does not apply to the pelagic species marked with a asterisk (*) ( see proposal 9)</i>	Amberjack* Bone fish Cobia* Cods – rankin, estuary Dhufish Groper & Tuskfish Kingfish, yellowtail* Mackerel, spanish, wahoo,* Mulloway, Northern Mulloway Parrot fish Pearl perch Pink snapper (Freycinet stock) Red emperor Samson fish* Sharks * Tuna* – southern bluefin, northern bluefin, yellowfin, bigeye, dogtooth	Barracuda* Cods – other Job fish Mahi mahi * Mangrove jack Spangled emperor Tuna (other than listed Prize sp.)	Mackerel, shark and school* NW snapper (Lethrinus spp) Pink snapper (excluding inner gulfs of Shark Bay) Queen fish Sea perch Tailor Trevally



**TABLE FISH – 30**

**Mixed daily bag limit of 30**

You may take or land a maximum of seven fish per day of all species listed in this table. Individual species limits apply for ‘Conservation Fish’ (one of each species) and ‘Trophy Fish’ (two of each species), ‘Prize Fish’ (four) and ‘Key Angling Fish’ (six). These must not be exceeded. For example, if you were to catch the maximum of seven fish from this group, you may not have more than one coral trout, one coronation trout,

<b>Large fry – 10</b>	<b>Small fry – 30</b>
<b>Maximum of 10 of each species</b>	<b>These fish may make up all or part of the mixed daily bag limit</b>
Bream – north-west, black & yellow fin Fingermark bream Flathead Flounder Goat fish Leatherjacket Threadfin salmon	Dart Gardies Gurnard Longtoms Milk fish Mullet Tarwhine Whiting All fish not included in other categories

**TOTALLY PROTECTED FISH – 0**

Fish in this table are totally protected and may not be taken. Fishing bans apply due to their vulnerability, conservation value, scarcity or the high risk posed by fishing to the sustainability of fish stocks or species

- Potato cod
- Whale shark
- Hump head Maori wrasse
- Leafy seadragon
- Great white whark
- Pink snapper (eastern gulf of Shark Bay only)
- Specimen shells
- Live corals and rocks

### Baitfish, crustaceans, shellfish

Many crustaceans and shellfish are highly prized for their eating qualities, and susceptible to local depletion. Baitfish, while abundant, should not be taken in commercial quantities or in such quantities that they are wasted by recreational fishers.

<i>Species</i>	<i>Daily bag limit</i>	<i>Boat limit</i>
Baitfish (including fish of the Family Clupeidae and Engraulidae)	9 litres (plastic bucket)	
Rock lobster – in Ningaloo MP	8 (not more than 4 tropical rock lobster) 4	16 (not more than 8 tropical rock lobster)
Crabs – blue manna	20	40
– mud	5	10
– other	10	20
Prawns	9 litres	
Octopus, squid, cuttlefish	15	30
Abalone	20 (possession limit)	
Shellfish and sea urchins (molluscs and echinoderms taken for consumption or bait)	mixed bag of 50	

### Size limits

The lack of biological information made it difficult for the Working Group to review the appropriateness of existing size limits for most species. However, the group felt that where information was available from other similar parts of Australia, it could be used as a guide in adopting a conservative approach to management.

As discussed in section 2.3, size limits can be used to boost the average size of fish caught as well as protect breeding fish.

**Black snapper:** Members noted that research from the Northern Territory indicated black snapper were not sexually mature until a size of 35cm (fork length (FL)). This species is a protogynous hermaphrodite; fish mature and spawn first as females and subsequently change into males when about 38cm (FL). The Working Group considered the current minimum size of 28cm (total length(TL)) was clearly too small and represented a risk to the sustainability of stocks. The minimum size should be increased initially to 35cm (TL) to protect breeding stocks and reviewed following further research on black snapper which is currently being undertaken by Fisheries WA.

**Pink snapper:** The Working Group noted that research indicates the inner gulf stocks of pink snapper mature at a larger size than the oceanic stocks. The minimum size limit for snapper in the eastern gulf had previously been increased to 50cm while the minimum size limit in the western gulf is 45cm. A limit of 41cm applies for oceanic stock outside of the Shark Bay inner gulfs.

The Working Group felt that the minimum size limit for western gulf pink snapper should also be increased to 50cm to protect a greater proportion of spawning fish. This mechanism would also help protect fish in Denham Sound, particularly those fish outside the relocated snapper boundary (refer proposal 10).

The Working Group also considered there may be merit in applying a 50cm limit for pink snapper throughout the region. While there is no biological need for this increase outside of Shark Bay, it would standardise the rules across the region and help promote fishing quality for the recreational sector.

### *Maximum size limit*

**Cod:** The Working Group have also recommended the current maximum size of 1.2m be reduced to 1m to protect large specimens which are prolific breeding fish.

**Reef and demersal fish:** The Working Group believed there was considerable benefits for protecting valuable breeding stocks by introducing a maximum size limit for certain species. While they believed recreational fishers should retain the opportunity to catch a 'specimen' size fish, they considered a restriction of one 'large' fish per species would be appropriate.

The group felt that the system would be too complex and onerous for anglers if a range of limits tailored to each species were introduced and have consequently proposed that a generic limit be applied to certain demersal and reef species. A range of options were discussed including 70cm, 75cm and 80cm maximum size limits. The Working Group noted that the two larger sizes would have little real impact as very few fish were caught over this size. The group believed a 70cm fish represented a large specimen for many species including :

6 kg mulloway

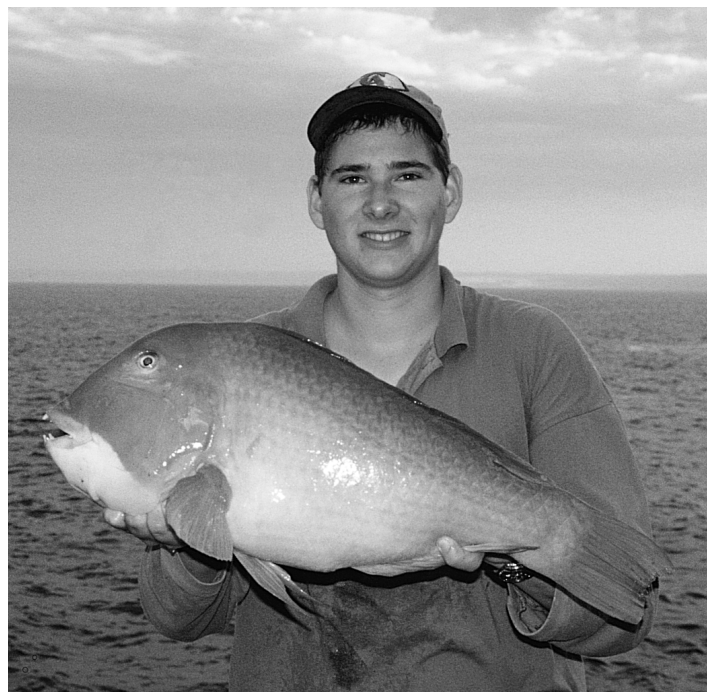
4 kg pink snapper

7 kg baldchin groper

3 kg tailor

7-8 kg cod or groper

The group recognised this limit would not be appropriate for many pelagic species and felt the following species should be excluded from this provision: amberjack, barracuda, cobia, mackerel, mahi mahi, samson fish, sharks, tuna and yellow tail kingfish.



*A daily limit of one reef or demersal fish over 70cm per species is proposed to protect large breeding and specimen fish which often take many years to reach this size.*

## Proposal 9 – Size limits

**9(a)** The minimum size limit for black snapper (blue lined emperor) be increased to 35cm to protect breeding stocks

**9(b)** The minimum size limit for pink snapper in the western gulf of Shark Bay be increased to 50cm to protect breeding stocks.

**9(c)** The minimum size limit for pink snapper be increased to 50cm in the entire Gascoyne Region to standardise rules and promote fishing quality.

**9(d)** The maximum size limit for cod be reduced to one metre.

**9(e)** A maximum size limit of 70cm be introduced for reef and demersal species, allowing fishers to take only one fish over 70cm in length from each species each day. This limit will not apply to the following pelagic species: amberjack, barracuda, cobia, mackerel, mahi mahi, samson fish, sharks, tuna and yellow tail kingfish.

## Shark Bay pink snapper

Pink snapper stocks in the inner gulfs of Shark Bay are genetically separate from each other and the wide ranging ocean stock. As these stocks do not interbreed or ‘top up’ each other through migration, they are vulnerable to overfishing and must be managed independently of the oceanic stock.

### *Western gulf*

The group noted that current research suggested that the western gulf stock of pink snapper was isolated from oceanic stock by saline boundaries within the gulf. The location of these boundaries may vary due to a range of environmental factors and it was difficult to ascertain a specific point where the stocks become separated. The Working Group have suggested that management arrangements for the western gulf stock be implemented for fish stocks south of a line drawn west from Eagle Bluff (113.58, 26.10) across to the point (113.45, 26.17). While this may not protect all of the western gulf stock, it would protect the known areas of major spawning activity.

A species limit of two is proposed for pink snapper south of this line in the western gulf of Shark Bay (Map 3).

Implementation of a possession limit (Proposal 8) and increased minimum size limit (Proposal 9) were also seen as essential tools to protect snapper stocks and particularly those fish in Denham Sound.

Should these management arrangements be ineffective in stabilising and improving the population, alternative measures such as closed seasons may need to be implemented.

### *Eastern gulf*

The group endorsed the current closure of the eastern gulf to pink snapper fishing. The group believed that once the stock had rebuilt, a precautionary approach to management should be adopted, with fishing gradually being phased in and the impact assessed. The group believed periodic closures to protect fish during the spawning season should be considered as a possible management tool once the fishery was reopened.

The group recognised there may be an opportunity to develop the eastern gulf as a premier snapper fishery once the stock has rebuilt. This would involve implementing controls aimed at achieving a high quality fishing experience, emphasising a low take of large ‘specimen’ fish. A range of possible management options such as gear restrictions, a possession limit for

whole snapper (similar to lower Ord Barramundi restrictions) and closed seasons during spawning may be required to offer a sufficient level of protection to meet these objectives. This would help meet quality and diversity objectives by providing different experiences for fishers to that in the western gulf or ocean areas.

### Proposal 10 – Shark Bay pink snapper

**10(a)** Western gulf: A bag limit of two, with a limit of one fish over a maximum size limit of 70cm. A minimum size limit of 50cm should apply. These arrangements should apply to the area south of a line drawn west from Eagle Bluff (latitude 26°10'S, longitude 113°58'E) across to the point (latitude 26°17'S, longitude 113°45'E) to protect the known areas of major spawning activity.

**10(b)** Eastern gulf: Once the target breeding stock of 100 tonnes is reached a bag limit of two, coupled with restricted fishing times and minimum and maximum size limits would be an appropriate management approach.

### Filleting at sea

Currently, fish must be transported whole in both Ningaloo and Shark Bay, although they may be gilled and gutted. In Ningaloo Marine Park, mackerel (family Scombridae) may be filleted provided that:

- (a) each fillet is taken from one side of the fish only
- (b) the skin and pectoral fin are intact and attached to each fillet.

Similar arrangements also apply for mackerel in Shark Bay.

The state-wide provisions which apply outside these two areas provide that a person may not have on board, or bring ashore from a boat, any fish that have the skin or scales removed. While this may permit identification of fillets, it does not enable the enforcement of legal size limits.

The group noted that boat fishers who either fish for a number of days each trip or fished with a number of anglers on board may be restricted by their capacity to store large quantities of whole fish. While the group acknowledged these concerns, they considered that since bag and size limits were to remain the primary management tool for recreational fishers, filleting at sea should not be permitted. Both bag and size limits can be easily compromised by persons at sea cutting up their catch to disguise both species and the number of fish involved. This problem can only be overcome by prohibiting the transport of fish, other than whole fish.

The issue of persons staying at tourist accommodation on islands (eg Dirk Hartog) was also considered and the group felt that there was some merit in allowing resort guests to return to the mainland with fillets. Options of 'authorising' some operators to provide consignment notices or similar were discussed however it was recognised this posed difficulties for enforcement. The group was also concerned that issuing such an exemption may create precedents which could be argued should be extended to other operators, such as charter boats.



*A daily bag limit of two pink snapper is proposed in Freycinet Inlet to protect key pink snapper spawning areas..*

### **Proposal 11 – Filleting at Sea**

As daily bag and size limits are to remain important management tools in recreational fishing management, filleting at sea should not be permitted and only whole fish should be transported and landed by sea in the Gascoyne Region.

### **Fishing methods**

#### *Line fishing*

The current regulations prescribe different rules for shore and boat based fishers. Shore based anglers are restricted to a limit of two rods or handlines per fisher. This limit was introduced to prevent anglers from ‘staking out’ large areas of shoreline, particularly in popular fishing locations. Boat based anglers are not restricted in the number of lines they can use, as it was considered there is a practical limit to number of lines a boat fisher(s) can manage at one time. Boat fishers may also use one set line per boat.

The Working Group accepted this rationale, but felt the regulations could be simplified and any arguments of inequity addressed by introducing the two line limit for all fishers. Given there are normally a number of anglers on the boat, it is unlikely a two line limit would impact on most boat fishers.

The group did not consider a set line was an acceptable recreational fishing method and considered this practice should be banned.

### **Proposal 12 – Line fishing**

All recreational anglers, both shore and boat fishers, be limited to a maximum of two rods, two handlines, or combination of one rod and one hand line, with no more than three hooks or gangs of hooks attached to each line.

The use of set lines by recreational boat fishers be banned.

### **Spearfishing**

The Working Group considered that particular fish species and water habitats could be easily exploited by spearfishers using underwater breathing apparatus, and represented a potential to seriously deplete populations of resident reef and demersal species.

Members noted that spearfishing could be a highly selective method – both on species and size classes. In some countries, separate bag limits have been introduced for spearfishermen to account for their ability to target large specimens of certain resident or demersal species that are highly vulnerable.

Some people believe spearfishing using artificial breathing apparatus is ‘unsporting’ and therefore not ethical in recreational fishing. It is restricted in Ningaloo Marine Park and other marine conservation areas around Australia as it is considered incompatible with conservation aims. Deeper caves and water habitats can be easily exploited on air and fish tend to relax around divers. QLD research shown that spearfishing on air can significantly reduce populations of resident reef species such as coral trout, cod and groper.

### **Proposal 13 – Spearfishing**

It is proposed that spearfishing be prohibited by persons using artificial breathing apparatus and that existing restrictions on spearfishing for vulnerable species continue in areas of high conservation value, eg specified areas in Ningaloo Marine Park.

### **Net fishing**

The Working Group believed that set netting has had a history of being a wasteful and indiscriminate practice in the Gascoyne. Because of its potential to catch large quantities of schooling species, and to mesh turtles, dolphins and other marine predators, it is not in keeping with recreational fishing ethics and values, and not appropriate as a recreational fishing method.

The netting review undertaken by the Department of Fisheries in 1994 recommended the phasing out of recreational net fishing in WA except where it can be demonstrated the target species cannot be caught by rod or line. It also recommended that estuarine and beach areas which are dominated by prime angling species be given priority in the phase out process. The Working Group has endorsed these principles and felt they should be implemented in the Gascoyne.

The group recognised that haul netting for species such as mullet was a popular activity and poses little threat to other stocks. However, the group has proposed that haul netting should be restricted to certain areas only (Map 4a,b,c). These are:

#### *Carnarvon*

- 500m North of Miaboolya Creek for a distance of 5km North
- One mile jetty extending to Prawn Jetty
- Rubbish tip to 400m North of Oyster Creek
- 400m south of Third Creek to Greenough Point
- Gladstone camping area – area extending 2nm North and 2nm South.

#### *Exmouth*

Existing netting areas in Ningaloo Park (Neds camp/Mesa netting area, Bruboodjoo, Winderabandi Point, 14 Mile Beach

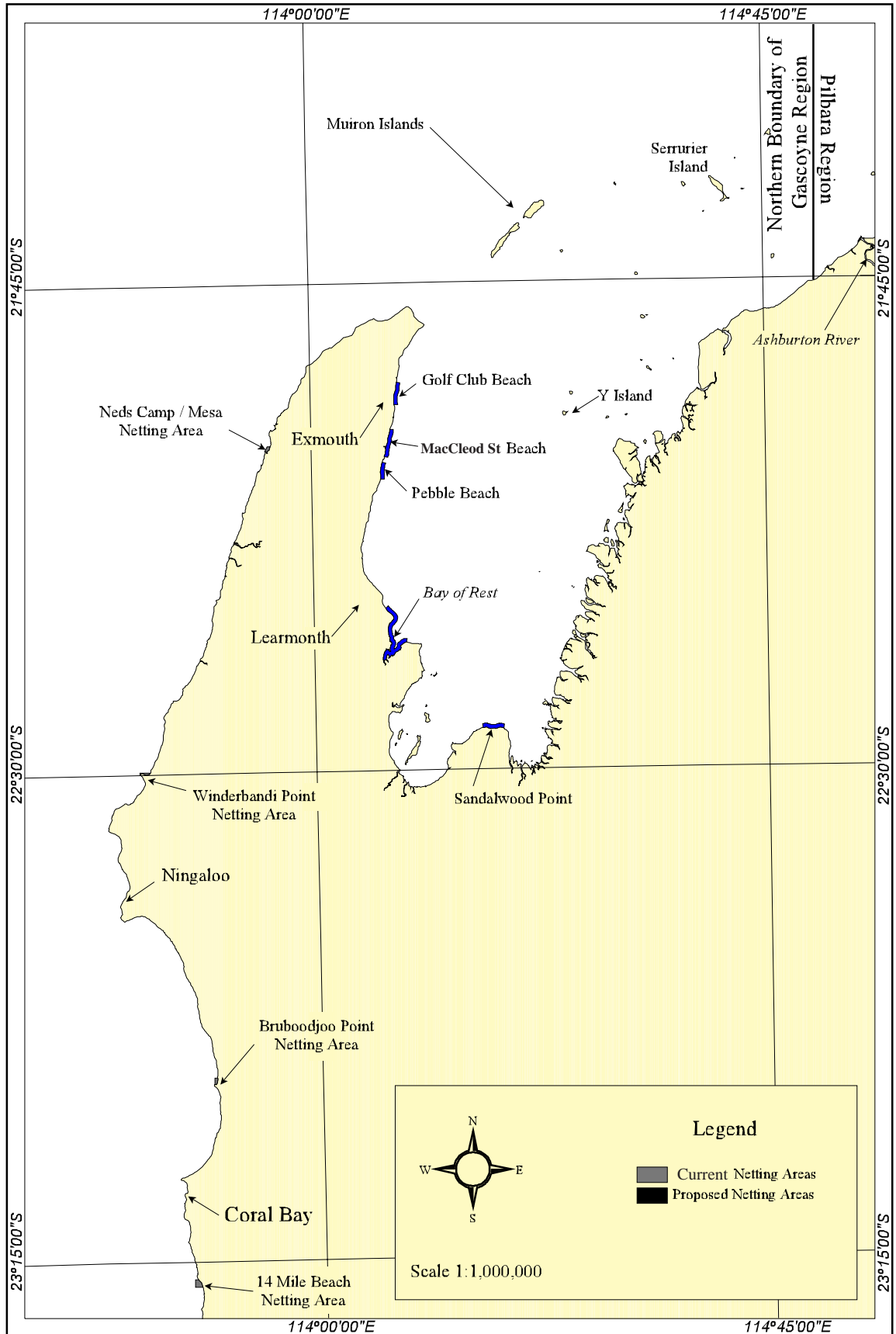
plus additional new areas at

- Pebble Beach,
- Golf Club Beach
- MacCleod St Beach
- Sandalwood Point

#### *Shark Bay*

- Steep Point to Blind Inlet
- Useless Inlet
- Disappointment Loop
- South of Denham to Nanga Bay
- Herald Bight
- Gladstone camping area

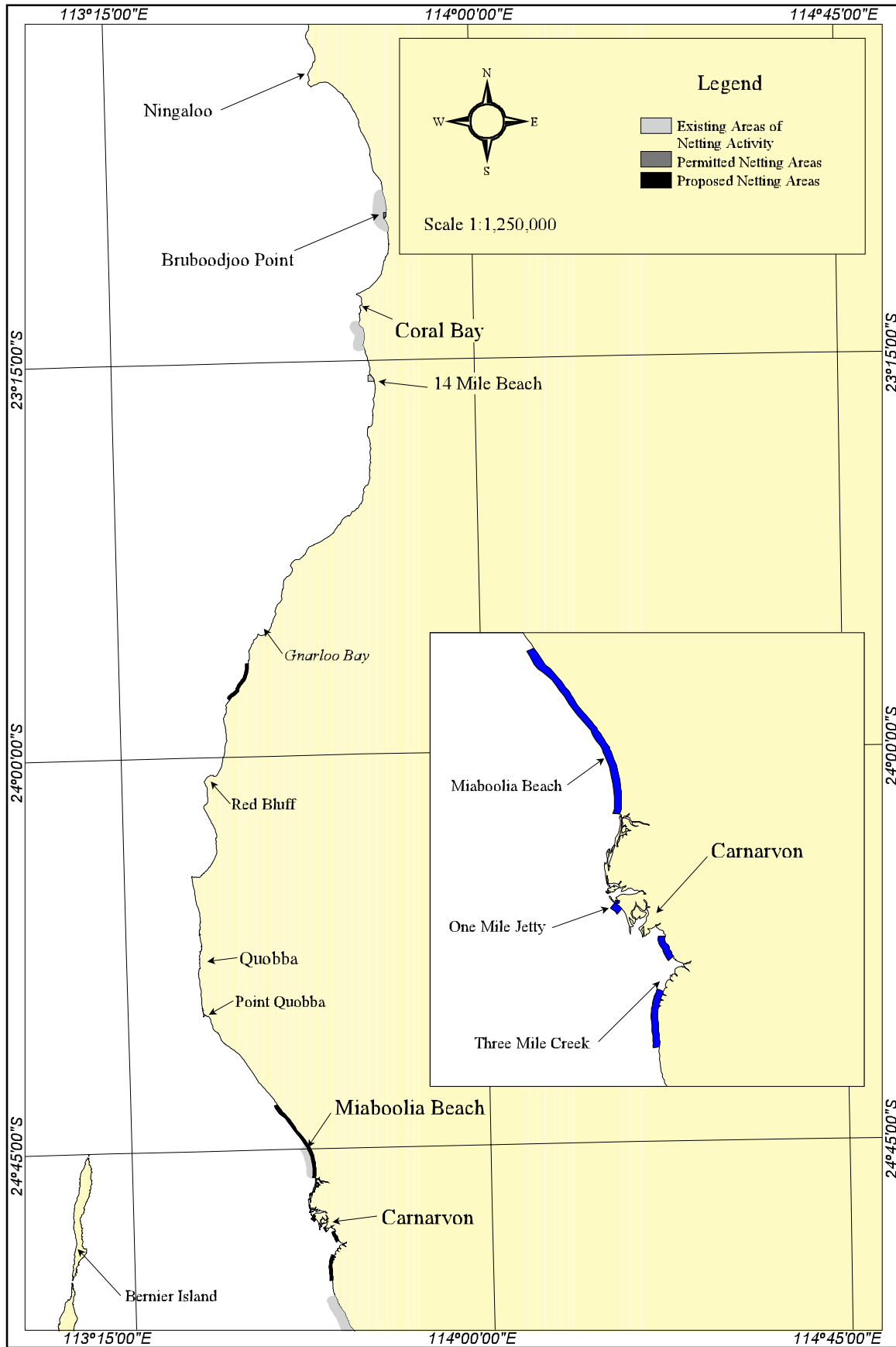
Proposed Netting Area: Coral Bay - Exmouth Gulf



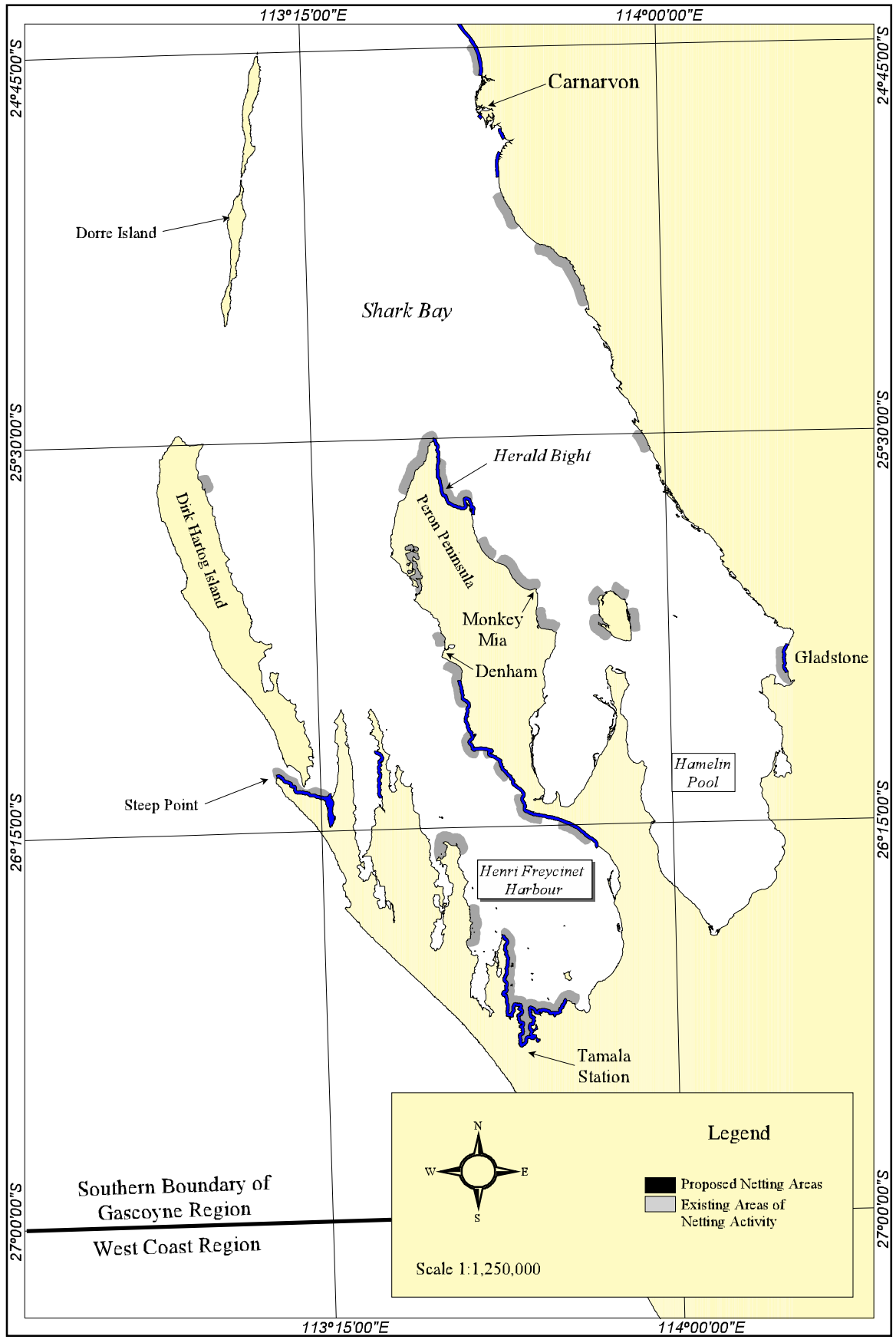


# Key issues and proposals

Proposed Netting Areas: Canarvon - Coral Bay



Proposed Netting Areas: Shark Bay - Carnarvon



### **Proposal 14 – Net fishing**

The Working Group believe that set netting has had a history of being a wasteful and indiscriminate practice in the Gascoyne, and because of its potential to catch large quantities of schooling species, and to mesh turtles, dolphins and other marine predators it was not in keeping with recreational fishing ethics and values, and not appropriate as a recreational fishing method. It is proposed that:

- (a) The use of set nets by recreational fishers be prohibited in the Gascoyne.
- (b) Haul netting be permitted in specified netting areas only.
- (c) Throw nets be permitted throughout the region (except 'no fishing' zones such as sanctuary zones and fish protection areas).

## **4.4 Improving recreational fishing quality**

### **Recreational fishing priority areas and fisheries**

Recreational users of fish resources fall into two main groups – those who wish to catch a fish and those who wish to enjoy the marine environment in a non-exploitative way. Recreational fishers obviously wish to catch a fish, but surveys indicate that the vast majority of recreational fishers regard the quality of the fishing experience more highly than the actual quantity of fish caught ( REARK 1997, Sumner in stet.).

Recreational fishing quality can therefore be defined as a combination of factors including:

- the availability of a variety of species
- the opportunity to catch species that are highly regarded for either their angling or eating qualities
- the opportunity to fish in an unpolluted natural environment, and
- the catch per trip or fishing success factor.

Catch and release or sport fishing is also a growing trend.

The Working Group noted concern that while the significance of recreational fishing had grown over the past 10 years, the overall management of fish stocks was still predominantly focussed on commercial fishing needs and values.

While sustainability is the primary objective of fisheries management, a number of other parameters may need to be considered for recreational fisheries management, including managing for sufficient stock density, the provision of a range of size classes for capture and in some instances managing exploitation to ensure that a number of large 'specimen' fish are retained in the population.

In heavily fished populations, the proportion of large fish available tends to diminish, along with the stock density. Under heavy fishing pressure which approaches the maximum sustainable yield, the stock may be sustainable but its structure changes. Larger, older individuals are quickly removed from the population and the fishery moves to targeting recruits as they reach legal size. While this may not always represent a threat to the sustainability of the stock as a whole, it represents a threat to the quality of the recreational fishing experience. This situation is exemplified where recreational and commercial fishers target the same species, particularly near major tourism centres.

The trade off for a high level of fishing quality in the face of growing fishing activity is a reduction in total exploitation of the resource. The Working Group is anxious to ensure that benefits obtained by controlling the recreational take do not merely 'spill over' as increased catches to the commercial sector. An important consideration is therefore the management of user conflict and competition for localised resources through spatial or temporal separation for different management objectives and different styles of fishing and fishing methods.

### **Recreational fishing priority areas**

The Working Group considered a key management strategy was the establishment of areas which are managed primarily for recreational fishing values. The key to defining these 'recreational priority areas' was to negotiate an appropriate level of resource allocation for recreational fishers with other user groups.

The Working Group believe that the majority of nearshore waters in the Gascoyne have a long history of importance as recreational fishing areas (Map 5), and should be managed with recreational fishing as the highest priority. Management decisions such as those affecting resource allocation and access should give prime consideration to recreational fishing values in these areas. Other uses such as commercial fishing and aquaculture should be of a type and level which is compatible with recreational fishing values for the area.

The management arrangements for 'recreational priority areas' should not necessarily exclude particular activities, although these must be assessed to be of a type or at a level that does not adversely impact on recreational values. For example, commercial fishing in the Gascoyne for species such as rock lobster, mullet or whiting may not conflict with recreational fishing. Similarly prawn or scallop trawling may be entirely compatible provided it is not damaging important habitats or bycatch is not having an adverse impact on stocks of key recreational species. Alternatively, intensive commercial fishing for particular species of finfish which are prized by recreational fishers may impact on recreational values.

In order to maintain and enhance the quality of recreational fishing in these zones, several key management initiatives will be required to limit the commercial exploitation of particular species or incompatible fishing techniques. These are detailed in Proposal 19.

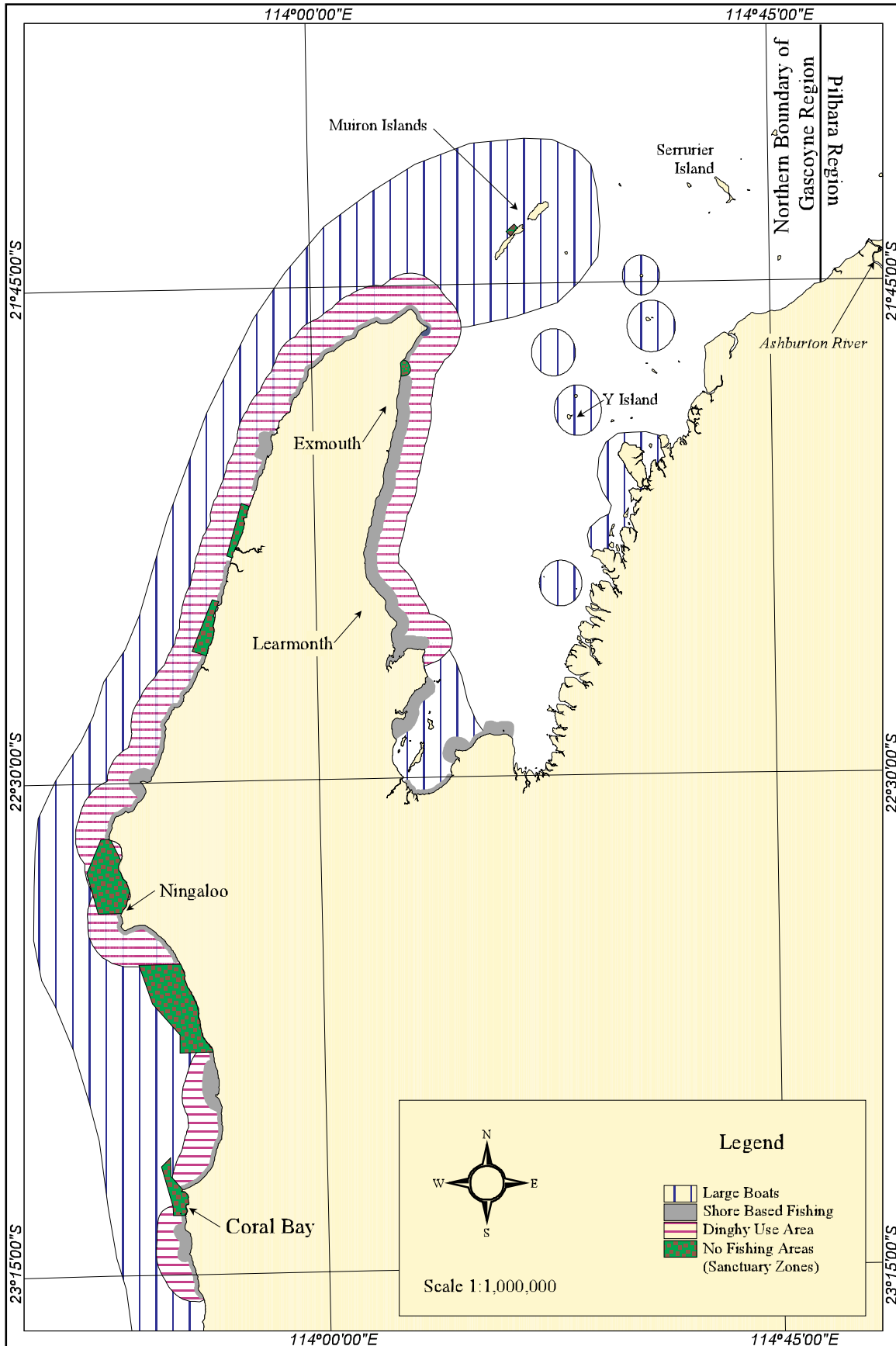
The Working Group considered that the establishment of discrete zones which recognise recreational fishing as a priority would have the following significant social benefits:

- Guard against unmanaged shifts in resource share through increased commercial fishing activity.
- Secure long-term recreational access to key areas.
- Highlight the importance of recreational fishing in other planning processes.
- Help ensure that the majority of benefits from tighter regulation of recreational fishing flow back to the recreational sector in the shape of improved fishing quality and reduced risk of serious localised depletion.
- Help minimise social conflict by reducing the incidence of incompatible activities.
- Create a focus for recreational fishing as a major tourism drawcard in the Gascoyne.

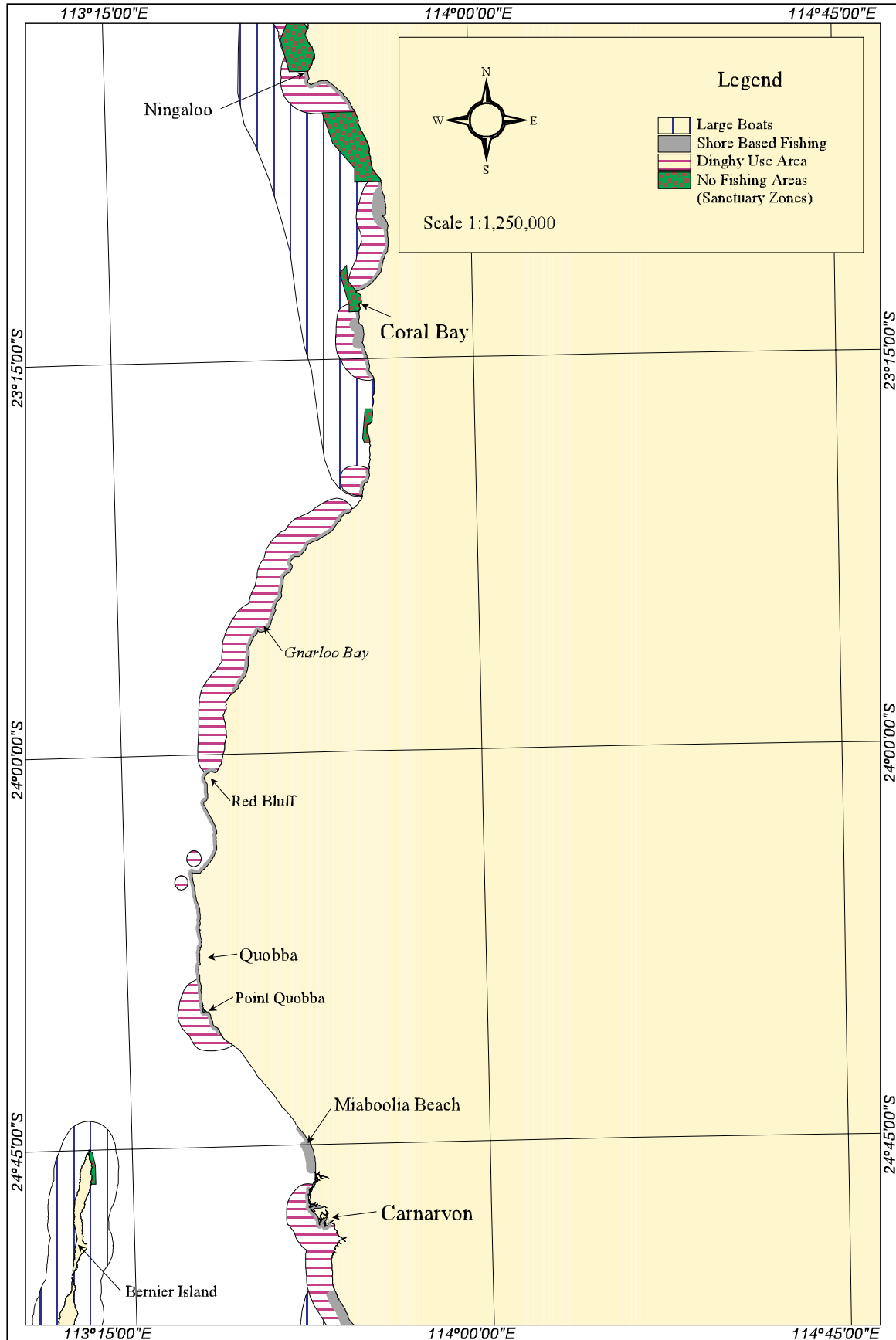
The Working Group acknowledged that this initiative should not be arbitrarily imposed on existing resource users. However a process of negotiation should commence and be finalised during the course of this plan.

# Key issues and proposals

Map 5. Important Recreational Fishing Areas: Coral Bay - Exmouth Gulf

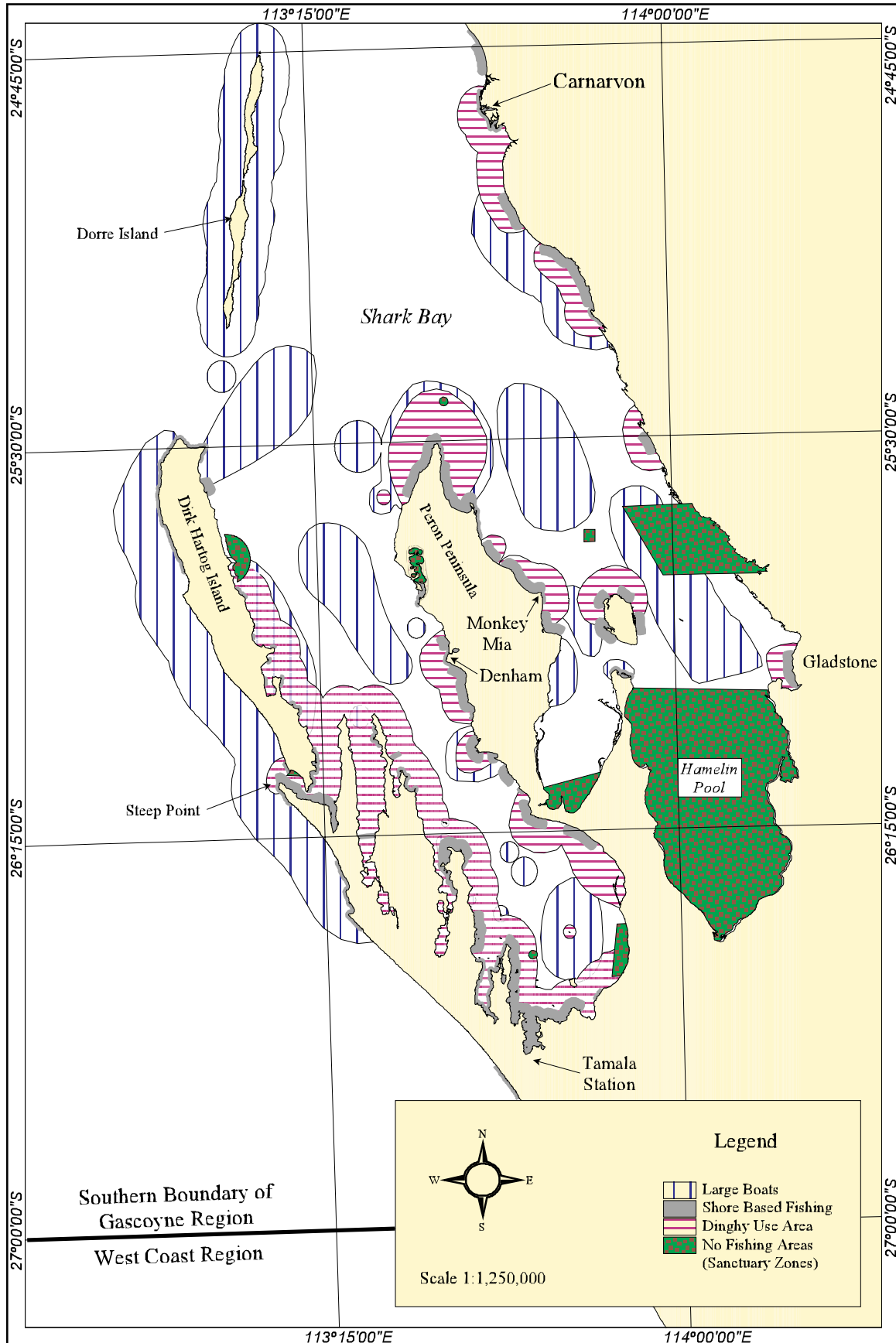


Map 5. Important Recreational Fishing Areas: Carnarvon - Coral Bay



# Key issues and proposals

Map 5. Important Recreational Fishing Areas: Shark Bay - Carnarvon



### Proposal 15 – Recreational fishing priority areas

The importance of recreational fishing as a component of tourism and lifestyle should be recognised by formally establishing recreational fishing priority areas under the *Fish Resources Management Act*.

The following areas (Map 6) have been identified as possible recreational fishing priority areas:

- Area extending from the high water mark to a distance of 3nm off shore from 24° 42' south extending north to the boundary of the Gascoyne Region (near Ashburton River).
- Eastern inner gulf of Shark Bay.
- Western inner gulf of Shark Bay.

### Recreational fishing only areas

In addition to recreational priority areas, the group also identified a number of specific areas which they believe were key recreational fishing sites. The group consider that all commercial line fishing and other incompatible uses should be prohibited from these areas.

The group believed these areas could be established immediately as they would not significantly impact on other user groups.

### Proposal 16 – Recreational fishing only areas

It is proposed the following areas be designated as 'recreational fishing only' areas and commercial line fishing for finfish species should be prohibited.



*One Mile Jetty, Carnarvon, offers shore based anglers a unique opportunity to catch prime angling species such as mulloway. The area is proposed as a recreational fishing only area.*

#### Proposal 16 (a) – Carnarvon area

- One mile jetty – to a distance of 100m around the jetty
- Coral patch – (latitude 25°15.812'S, longitude 113°46.845'E) to a distance of 1nm
- Tyre reef/Lady Joyce wreck – (latitude 25°02.788'S, longitude 113°32.390'E) to a distance of 1nm.

#### Proposal 16 (b) – Exmouth area

- Y Island.

#### Proposal 16 (c) – Shark Bay area

- Bernier/Dorre Islands – this area was identified in the 'Shark Bay Management Paper for Fish Resources' (Fisheries Management Paper No 91) as a recreational fishing only area but has not been gazetted.
- Steep Point – extending 800m seaward from the high water mark.

### Fish replenishment areas and ecotourism – Broadhurst Reef

Fishing is currently prohibited in a number of areas in the Gascoyne including sanctuary zones in Shark Bay and Ningaloo Marine Parks and a reef observation area at Point Quobba. A fishing closure is in place in the eastern gulf of Shark Bay to protect one of the major pink snapper spawning areas.



The Working Group expressed concern that there have not been any monitoring programs implemented to properly evaluate the effectiveness of these closures, and that the objectives for most closures were not clearly defined.

The Working Group believes that fishing closures have some potential as a fisheries management strategy, but their usefulness in Western Australian conditions should be carefully evaluated before any widespread introduction.

Broadhurst Reef in the western inner gulf of Shark Bay was identified as a habitat for many juvenile fish species, including pink snapper, and would serve as a possible trial site for a fish replenishment area. It is also a popular dive site relatively close to Denham, and a closure to fishing would enhance its use for ecotourism.

The proposed boundaries of this area are:

latitude 25°37.0'S, longitude 113°21.3'E; thence eastwards to

latitude 25°37.0'S, longitude 113°23.5'E; thence southwards to

latitude 25°39.3'S, longitude 113°23.5'E; thence westwards to

latitude 25°39' S, longitude 113°21.3'E thence northward to starting point.

### **Proposal 17 – Fish replenishment area**

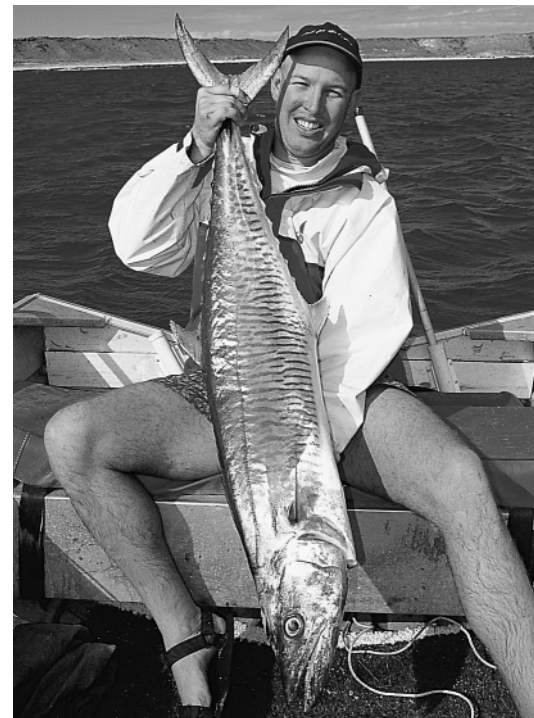
A trial 'fish replenishment area' should be established around Broadhurst Reef and a five-year monitoring program be implemented to evaluate the effect of no fishing areas as a means of enhancing fish populations.

### **Low impact wilderness fishing experiences**

While catching a large quantity of fish is seen by some fishers as the primary goal of fishing, increasing numbers of anglers appear to want the ability to regularly catch fish with the expectation of possibly catching a large or 'specimen' fish. The high take by either commercial and/or recreational fishers at, or close to, the maximum sustainable yield is not conducive to the values of high quality fishing.

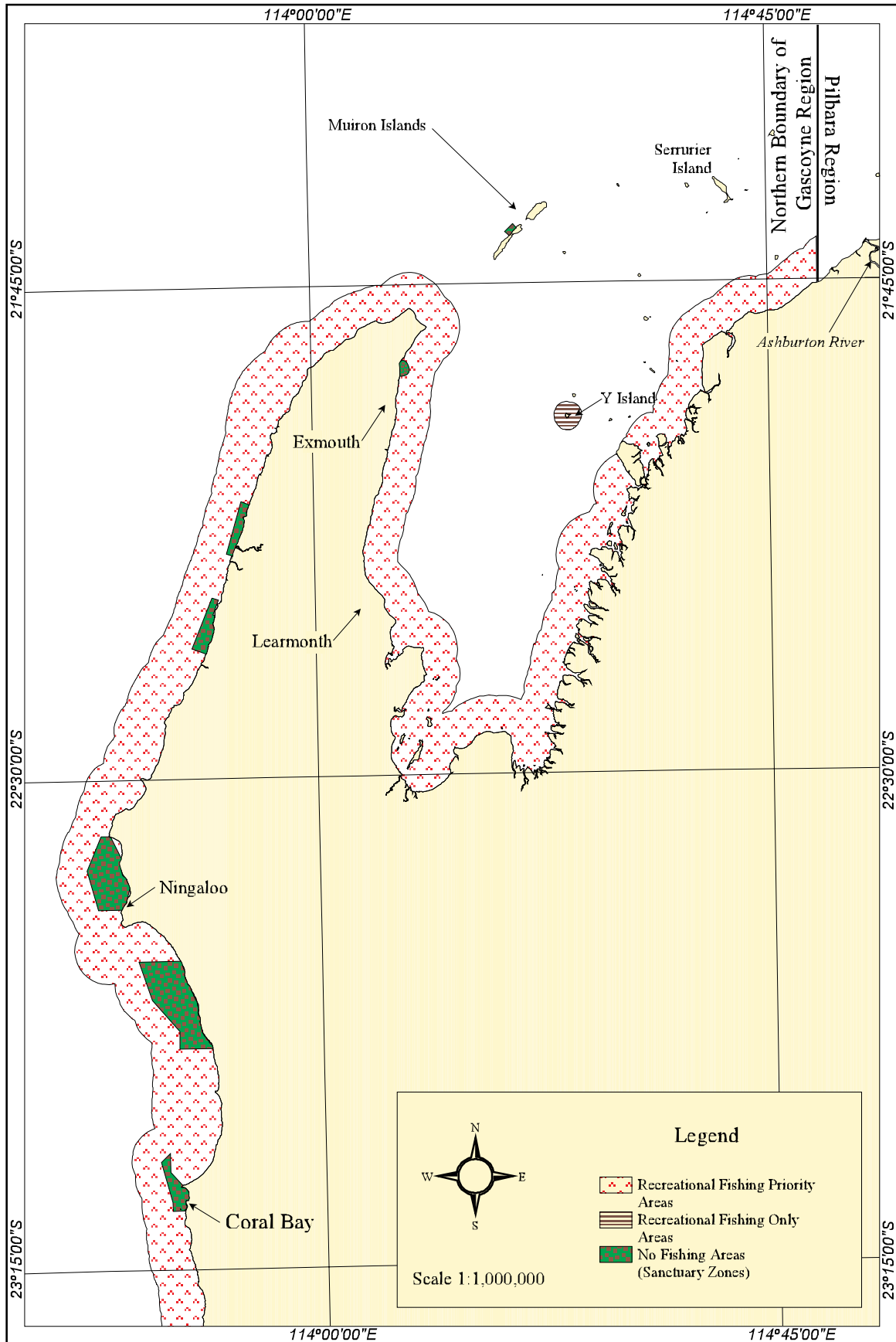
The Working Group discussed the possibility of establishing some 'trial' areas to cater for low impact fishing. The emphasis in these areas would be on providing a high quality fishing experience in both quality of fishing activity and experiencing a pristine environment. Management strategies in these areas would emphasise eating fresh fish you had caught each day throughout the holiday, but limiting the quantity of fish taken out of the area.

The establishment of specific areas to cater for low impact fishing may provide the opportunity for a high quality recreational fishing experience and associated tourism opportunities. A key objective would be to preserve as closely as possible the pristine nature of both the environment and the natural abundance and population structure of fish communities.



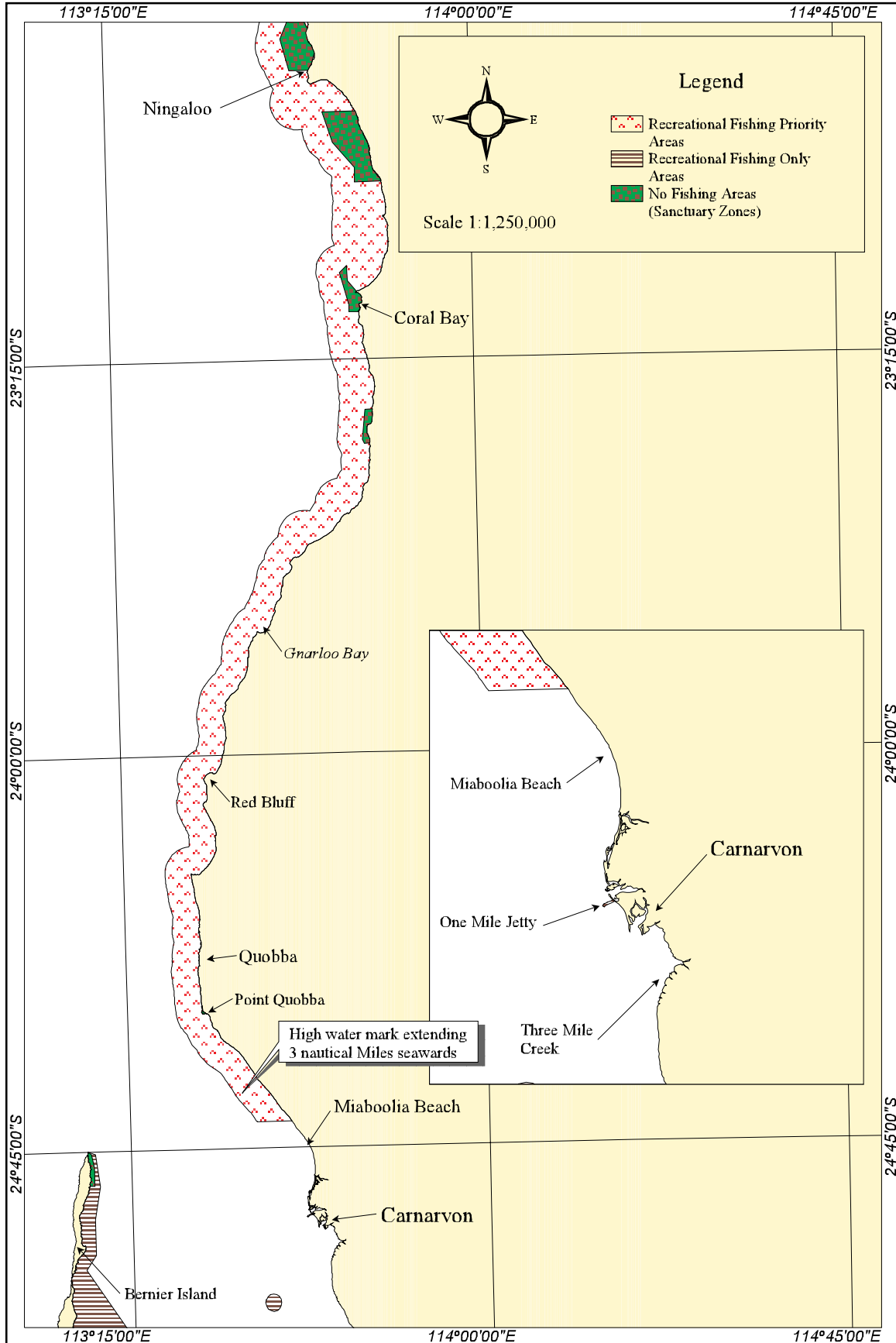
*The opportunity to catch a large or 'trophy' fish is an important factor of the recreational experience and needs to be preserved.*

Map 6. Proposed Recreational Fishing Management Areas: Coral Bay - Exmouth Gulf

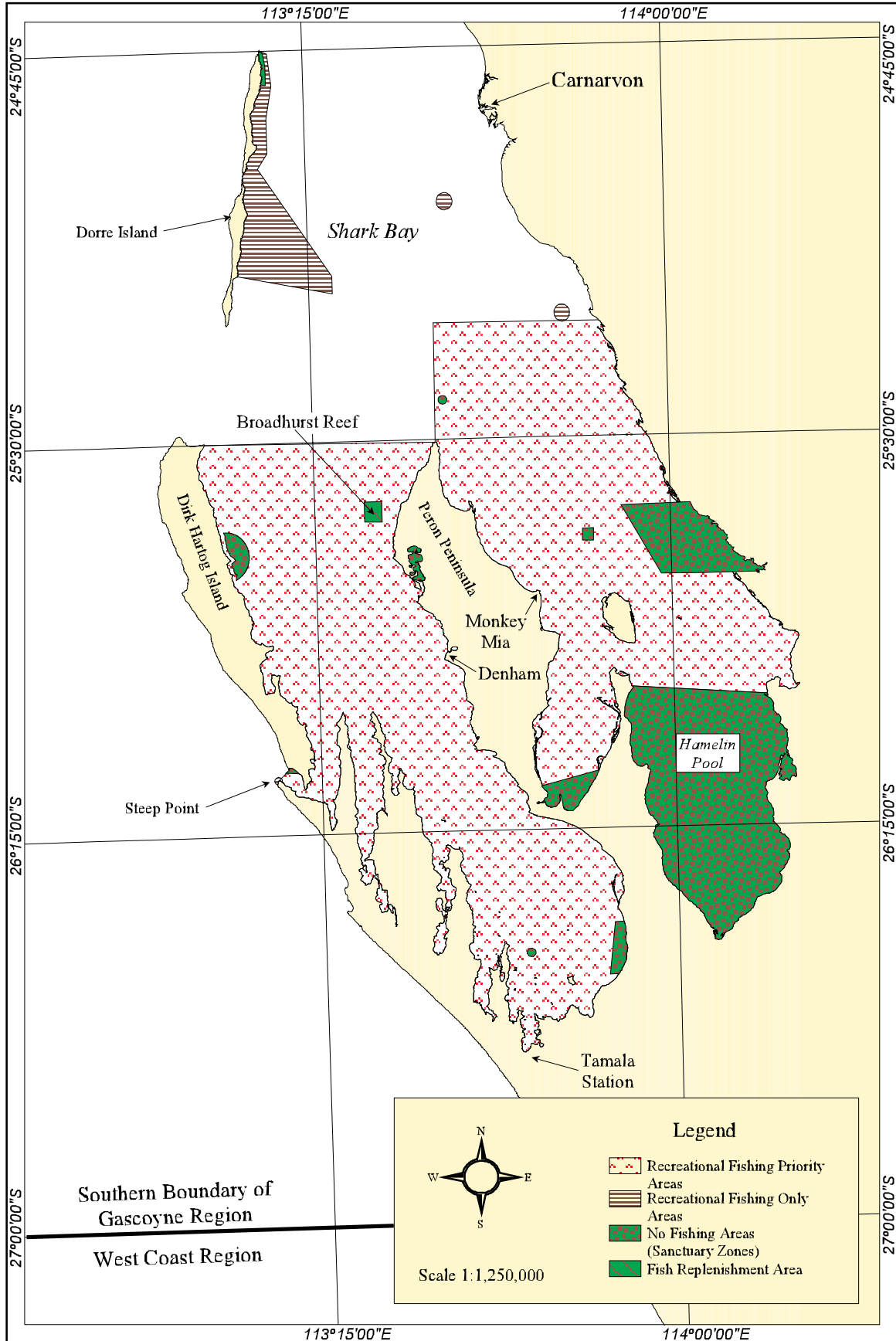


# Key issues and proposals

Map 6. Proposed Recreational Fishing Management Areas: Carnarvon - Coral Bay



Map 6. Proposed Recreational Fishing Management Areas: Shark Bay – Carnarvon



The Working Group observed that some areas in the Gascoyne still retain a 'pristine' appearance and relatively unexploited populations of many species of fish. The unique 'wilderness' fishing experience in these areas is highly valued by recreational fishers and has enormous potential to provide experiences for the next 20 years or more, if fishing and other people pressures can be properly managed to support these values.

The Working Group considered that the fishing quality inherent in areas where access is limited by the environment would inevitably decline with increasing people pressure, unless specific management was developed and low impact fishing behaviours encouraged.

Consequently, a range of special fisheries management arrangements to preserve the nature of this experience may be required in the future including gear restrictions and limited take. However, the Working Group considered that in the first instance, an educational approach and the development of community support for this positive and innovative approach was necessary.

For example, a recreational fishing priority area has recently been established on the Ord River to provide opportunities for fishers to experience values such as the chance to fish in a wilderness, the beauty and isolation of the area, the chance to catch a trophy fish or delicious fresh meal for the family. A possession limit of one barramundi applies in this area to protect these values.

It has been suggested that the coastal strip around Cape Farquhar could provide a suitable area for this type of experience. The access road extending north from Gnaraloo to Waroora has been closed for a number of years. This closure has provided a barrier to widespread access and by limiting visitor numbers, this area has provided a wilderness type experience in a largely pristine environment. While this type of experience has been enjoyed throughout many parts of the Gascoyne in the past, increased accessibility has significantly reduced these opportunities.

This area is extremely vulnerable to environmental degradation and any uncontrolled increase in visitors to this area represents significant potential for detrimental environmental impacts. Clearly, without proper and careful management, these fragile areas are likely to deteriorate and the localised depletion of reef fish populations will result in a reduction in fishing quality. Fisheries WA believes there are significant benefits in controlling access to this area not only to ensure the protection of its intrinsic environmental values, but to provide an opportunity for the development of a unique and highly desirable 'wilderness' holiday experience.

Dirk Hartog Island may also present similar opportunities for this type of 'wilderness' fishing holiday experience.

Given limited access to date, these areas present an opportunity for the development and management of such experiences which will provide an important attraction for visiting fishers to the Gascoyne. The fish stocks in these areas are likely to still resemble a 'virgin' stock with good numbers of very large, old fish. There are very few areas remaining where fishers can expect to catch a 'trophy' size fish. These populations would not be able to withstand high levels of exploitation and would be particularly vulnerable if there was a sudden increase in fishing pressure.

A range of special management arrangements controlling take, fishing methods and gear restrictions may be necessary to enhance this experience. The Working Group believes commercial finfishing activities would be incompatible with these values and should be prohibited in these areas.



*The coastline between Gnaraloo and Warroora stations offers a unique set of wilderness fishing experiences which will be lost unless fishing and other pressures can be managed.*

### **Proposal 18 – Low impact wilderness fishing experiences**

It is proposed Fisheries WA identify specific areas to be managed for high quality recreational fishing and implement appropriate management arrangements and community education strategies on a trial basis to determine both the level of community support and potential for retaining wilderness fishing values in these areas.

Several sites were identified as having the potential to be explicitly managed to retain 'wilderness' recreational fishing qualities.

These included:

- Coastal fishing on Gnaraloo and Warroora Station.
- Dirk Hartog Island.

### **Resource sharing**

The Working Group noted that the issue of resource allocation remained a key concern of recreational fishers. The majority of recreational fishers held the view, perceived or otherwise, that the commercial catch of finfish was increasing to the detriment of the recreational sector.

The Working Group was concerned that the current approach to fisheries management involves the separate management of various sectors and does not take account of the cumulative impacts of various users of the resource. While controls have been placed on some components of the commercial fishing industry, full control does not currently extend to the total finfish resource. Similarly, as outlined in this paper, the current recreational controls do not place any constraints on total catch.

The Working Group believes there may be significant benefits in adopting a more integrated approach to management which encompasses the requirements and impacts of recreational, commercial, tourism and passive uses of the resource.

An integral component of this approach will be the establishment of appropriate catch levels for various users and the implementation of management strategies which control take by these sectors. Key initiatives in this area may include:

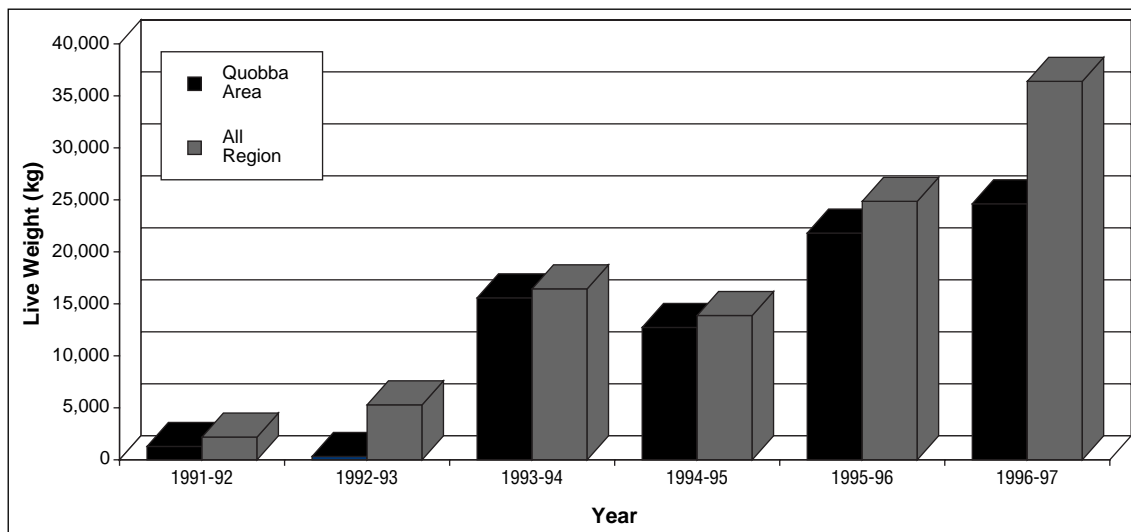
- Removal of surplus capacity from the commercial finfish fleet.
- Restoring catch to historic levels where there has been a recent shift in resource sharing to the commercial sector.
- Implementing ceilings on recreational catch – as effort increases, management controls may need amending.
- Ensuring community benefits from the resource are optimised.

The Working Group recognised that this was a complex issue beyond the scope of this report on recreational fishing. This issue may be better progressed through the establishment of a structured process to develop strategic direction and facilitate mediated changes between resource users.

The Working Group believed the recreational fishing sector is generally unaware of when or if shifts in resource allocation are occurring. While commercial fishermen are required to submit catch returns, the Working Group is concerned that little attention appears to be paid to them unless information is specifically requested. While catch information from the managed fisheries is published annually by Fisheries WA in the 'State of the Fisheries Report', a breakdown of finfish catches is not included. The Working Group believed this issue is fundamental to future management, and Fisheries WA should closely monitor catch data and if increasing catches by either sector are detected, these must be carefully assessed in consultation with other users of the resource.

For example, the commercial take of Spanish mackerel in the Gascoyne Region has increased significantly from two tonne in 1991-92 to about 48 tonne in 1996-97. The majority of this catch has been taken around the Quobba area which is also an extremely popular mackerel fishing site for recreational fishers.

Figure 8: Commercial catch of Spanish mackerel in the Gascoyne – live weight kg.



The Working Group believe increases of this magnitude in the commercial take are inappropriate and catch levels should be closely monitored so that necessary steps can be taken to avoid unmanaged shifts in resource shares. Where there have been significant increases in commercial catch of species important to recreational fishers, these should be restored to historic levels.

The Working Group suggest that following completion of the recreational creel survey currently underway in the Gascoyne, catch results for each major species, showing both recreational and commercial catch, should be published annually to assist in this debate (for example in the regional fishing guide recommended in proposal 24).

The Working Group also noted ongoing concerns of recreational fishers over the ability of the commercial sector to shift effort away from managed fisheries in poor years and target other finfish. This issue may create considerable conflict between commercial and recreational fishers, particularly in high use areas. While recognising some commercial fishers have established catch history in wetlining, the Working Group believes as an initial step, all

latent effort should be removed. The group believes this issue is a priority and must be addressed immediately by Fisheries WA in consultation with key commercial and recreational groups.

A key concern of the Working Group is that potential benefits in recreational fishing quality to be gained from introducing tighter controls on the recreational take (such as those proposed in this paper) may not eventuate if this surplus is simply transferred to the commercial sector through increased catch. The establishment of areas which are managed primarily towards meeting recreational fishing values may provide a key strategy in conserving these benefits.

### **Proposal 19 – Resource sharing and commercial fishing**

The Working Group has formed the proposals contained in this strategy to improve the quality of recreational fishing in the region. If these strategies are to be effective, it is important that benefits accruing from implementing controls on the recreational catch do not merely flow to the commercial sector as increased catches.

In addition to the initiatives outlined in proposals 13–16 a range of management initiatives are required to preserve the benefits of improved management of the recreational sector.

These include:

- Commercial fishing activity should be capped at historic levels and no new activity permitted in key recreational areas or fisheries.
- In the medium–longer term, commercial fishing for some key finfish species in these areas should be phased out through negotiation or compensation as appropriate.
- The significance of ‘recreational fishing priority areas’ should be recognised in other marine planning processes.

### **Fishery enhancement**

#### *Artificial reefs/FAD's*

Fish Aggregating Devices (FAD's) provide boating anglers with the opportunity to catch game fishing species which are otherwise difficult to catch in the open ocean. It is simply a structure – commonly an anchored buoy which can be used as a habitat by small fish – which in turn attracts larger pelagic species.

An artificial reef is a structure or formation placed on the seabed for the purpose of increasing or concentrating populations of fish or other marine plants and animals. They may be of particular value in areas like Carnarvon where limited suitable features exist nearby for fishing. For example, the Lady Joyce/Tyre reef at Carnarvon has proven very popular with anglers.

These structures aggregate both fish and recreational fishing activity and may serve to increase fishing pressure without necessarily increasing the available fish stocks. The Working Group supports the establishment of limited numbers of structures in appropriate areas, however they have identified the need for research into the effects of artificial reefs on fish stocks.

#### *Stock enhancement*

While preventative management should always remain the primary tool to protect wild stocks, the Working Group believe there is merit in examining the feasibility of stock enhancement, particularly in instances where stocks have been severely depleted.



Marine stock enhancement has a relatively short history in Australia, particularly in WA. Black bream have been stocked into the Swan River, but the impact of this stocking in terms of catch rates for fishers is uncertain.

Large scale stocking programs are expensive and it is important that benefits are identified before limited funding available for recreational fishing management is committed. The Working Group supports the establishment of trial stocking programs which incorporate monitoring programs so that benefits of restocking can be assessed for particular species.

The Gascoyne Development Commission has recently funded a feasibility study into possible stock enhancement of pink snapper in the eastern gulf of Shark Bay. If this study indicates restocking may be feasible, the Working Group believes a trial stocking program should be undertaken to evaluate the effectiveness and cost/benefits of restocking.

Restocking should certainly not be seen as an alternative management measure but as an additional tool to possibly help hasten the recovery of stocks. Large scale restocking of the magnitude needed to build numbers in the eastern gulf would probably be expensive. It is important that funding for such a project does not compromise existing management priorities in the region.

Before a trial restocking of pink snapper in the eastern gulf is undertaken a wide range of potential issues will need to be considered, including:

- The collection of broodstock from a severely depleted population (there may be as few as 1200 spawning fish)
- Possible adverse effects on genetic diversity and 'robustness' of stock
- Disease risk to wild stocks
- Cost/benefits of restocking.

The risks will need to be carefully assessed, particular given the environmental values and World Heritage status of this region.

### **Proposal 20 (a) – Artificial reefs**

Future approvals for the establishment of artificial reefs, should require a monitoring program to evaluate impacts on fish populations.

### **Proposal 20 (b) – Stock enhancement**

A trial restocking program be considered for pink snapper in the eastern gulf of Shark Bay provided it presents a low risk to the remaining population and monitoring programs can be put in place to assess the effectiveness of restocking.

## **4.5 Protection of fish habitats**

### **Identification and protection of key fish habitats**

The importance of marine embayments, estuarine areas and inshore sea grass beds in the life cycle of many fish species is widely recognised. It is therefore essential that these areas are protected from degradation caused by coastal development or agricultural, industrial and domestic pollution.

The Working Group is concerned that insufficient resources appear to have been devoted to the identification and protection of important fish habitats which are subject to increasing pressure through population increases, industry and infrastructure developments and increasing tourism.

The Government introduced the Acts Amendment (Marine Reserves) Act 1997 to amend six Acts of Parliament including the Fish Resources Management Act 1994 to allow for the establishment of a representative system of multiple use marine conservation reserves along the Western Australian coastline. However, the Working Group believes that this process does not necessarily ensure that habitats important to fish stocks, such as breeding grounds or nursery areas, are identified or protected. The Working Group believed it is important this issue is addressed as a matter of priority and believe Fisheries WA should take steps to establish a comprehensive database on important fish habitats in the region.

It is also important that recreational fishers are recognised as important stakeholders in planning processes. The potential impacts of proposed developments must be carefully assessed not only with regard to impact on important habitat or nursery areas, but on the impacts of increasing or focussing fishing pressure into particular areas created from infrastructure developments (eg new roads, boat ramps, marinas, tourist resorts), and associated potential impacts such as anchor damage to coral reefs and pollution.

Where development proposals are approved, monitoring programs must be put into place so that the impacts of these developments can be assessed. Where impacts are detected any remedial action required should be undertaken at the developer's expense.

While Fisheries WA is consulted at a State planning level, the Working Group believes there would be significant benefits in establishing formal links between recreational fishing groups and regional planning bodies such as the Gascoyne Development Commission.

### **Need for integrated marine planning**

Currently long term planning for the use and allocation of marine resources in Western Australia is the responsibility of a number of State agencies. These agencies undertake a wide variety of strategic and statutory planning processes, primarily on a narrow sectoral basis: the Ministry for Planning prepares regional plans which include consideration of future use of coastal areas and more recently in the case of Shark Bay inshore marine areas; Fisheries WA undertakes long term planning to ensure the sustainability of fish stocks and is initiating planning processes for recreational fishing and aquaculture activities. Additionally, there is a multitude of petroleum, exploration, transport and development planning activities being undertaken .

Many State agencies are now recognising the need to develop an integrated 'all of government' approach to planning in the marine environment. Increasing population will increase pressure on marine resources and it is inevitable that integration will be needed to ensure multiple use of marine waters is both socially equitable and ecologically sustainable. Without a clear framework within which this planning can occur, there will be resource sharing conflicts and inter-agency tension between the agencies responsible for resource use in the marine environment.

Competition for access to marine areas and resources by all sectors of the community is increasing and a planning process will more clearly define which sectors will have access in the future. The Working Group believes a comprehensive marine planning and management strategy will be required in future to address the expanding use and development of the marine environment and to reduce conflict between interest groups, including commercial and recreational fishing, aquaculture, conservation groups and the petroleum and transport industries.

### **Proposal 21 – Identify and protect key fish habitats**

Fisheries WA take steps to identify, as a matter of priority, important fish habitat areas and Government ensures these are protected from environmental degradation.

### **Proposal 22 – Recreational fishing representation**

The needs and values of recreational fishing must be represented on all planning and development processes/committees in the region.

### **Bycatch**

A draft National Policy on Bycatch has been prepared by the Standing Committee on Fisheries and Aquaculture. The main objectives of the policy are to reduce bycatch, improve protection for vulnerable species and minimise adverse impacts of fishing on the aquatic environment.

The policy notes that bycatch ‘includes discards and also that part of the catch that is not landed but killed as a result of interaction with fishing gear’. By definition, this includes unobserved mortality associated with lost gear or habitat damage. Byproduct is product which is retained by the fisher in addition to the species targeted.

The draft National Policy advocates the preparation of Bycatch Action Plans tailored to the specific requirements of various fisheries. The Minister for Fisheries has adopted the draft national policy on bycatch for Western Australia, and trials of bycatch reduction devices on prawn trawlers have already commenced in Shark Bay.

The Working Group support development of bycatch action plans as a priority for major fisheries in the Gascoyne including Shark Bay Prawn, Shark Bay Scallop and Exmouth Gulf Prawn fisheries. The Working Group believes industry should be encouraged to fit suitable bycatch reduction devices and develop more ‘environmentally friendly’ methods of fishing which minimise impact on habitat and non target species.

The Working Group noted that trawling may substantially change species composition in heavily trawled areas and support the use of closures to protect important nursery and habitat areas from damage by trawlers.

Bycatch is not just an issue for commercial fishing but also relates to recreational fishing. The Working Group believe that wasteful and indiscriminate fishing methods are not appropriate for recreational fishers (refer Proposals 12, 13, 14.) Recreational fishers must be also encouraged to release undersize and excess fish in the correct manner.

### **Proposal 23 – Bycatch**

Bycatch action plans should be introduced for all commercial fisheries in the Gascoyne Region. Recreational fishing methods which are wasteful and indiscriminate should not be permitted. Community awareness programs in the region should encourage recreational fishers to carefully release undersize and unwanted fish.

## 4.6 Improving community stewardship of fish resource

### Community education strategies

The Working Group believes a structured communication strategy is the most effective mechanism of increasing individual responsibility and promoting local community and visitor support for a sustainable quality fishing experience in the region.

Fisheries WA has placed an increasing emphasis on education about fishing rules and the development of conservation ethics within the recreational fishing community. Phone surveys, interview data collected by the VFLO program and research surveys indicate that community awareness of fishing rules and levels of compliance are generally on the increase across all recreational fisheries, and are rating better than 80 per cent on average.

The Working Group remained concerned that there are still reports of a small number of irresponsible fishers taking excessive quantities of fish, damaging fences and vegetation to gain unauthorised access, and illegal methods such as the use of chemicals to catch octopus.

Communication strategies must continue to promote ethical fishing behaviour. The Working Group believe the guidelines listed in 'Recreational Fishing in Australia – A National Policy' provide an appropriate basis (appendix C) and should be incorporated into community education strategies. These should be refined during the course of the plan to take account of current local issues.

The move to regional management will provide an opportunity to focus education programs on local issues in the Gascoyne. In particular, fishers must be made aware of the need for management to address the growing pressures on our fish resources.

The Working Group believe a key initiative in this area should be development of a regional guide to recreational fishing to replace the wide range of brochures and leaflets currently produced by Fisheries WA. The new booklet would provide a comprehensive guide to recreational fishing in the Gascoyne Region including management objectives, fishing rules, fishers code of conduct, availability of facilities such as boat ramps and accommodation, management reports on fishing effort and catch, and status reports on research projects.

The Working Group believes a 'regional guide' would offer significant opportunities for sponsorship and advertising which could be used to cover the cost of the publication. If marketed effectively, the guide could also contain discount coupons for various shops/services in the region that are attractive and offer benefits to recreational fishers.

This would enable existing funds to be used for wider campaigns which could incorporate television, radio, magazines and newspapers and other advertising opportunities. These options would provide wider coverage to develop recognition of the value of recreational fishing, and promote community support for responsible fishing behaviour and key management initiatives. For example, the widespread promotion of fish handling and release techniques may reduce the mortality of undersize or unwanted fish, particularly for occasional fishers.

The Working Group noted that school holiday activities previously conducted in Denham and Coral Bay in recent years have proved extremely successful and believe expansion of this program would also provide the opportunity to enhance community awareness of fishing and aquatic environmental issues.

Members believed there may be considerable benefit in appointing a person in the region to coordinate community consultation and education activities. This could include overseeing the establishment and promotion of a 'regional guide' and organising community education activities such as fishing clinics, fostering local support for these initiatives, including potential sponsorship opportunities. Some of these tasks have been undertaken in the past by Fisheries officers, but it is increasingly difficult for them to dedicate sufficient resources to this task because of other compliance duties.

### **Proposal 24 – Regional fishing guide**

A comprehensive regional guide to recreational fishing in the Gascoyne be produced to educate fishers about recreational fishing management arrangements, fishing ethics, conservation issues and conservation-oriented fishing behaviours.

### **Proposal 25 – Annual media campaign**

An annual media campaign be implemented to promote recreational fishing and fishing ethics in the Gascoyne Region.

### **Proposal 26 – Community Education Officer**

A Community Education Officer be appointed to coordinate and develop community education programs for the region.

### **Field management and compliance**

Effective policing is required to ensure compliance with management arrangements and provide a visible presence to reinforce community education. The vast distances of land and sea in the Gascoyne make enforcement and direct contact education programs costly. The placement of Fisheries officers in the field is expensive and typically cost in the range of \$120,000 a year per officer.

The Working Group believes there is widespread support in the community for an enhanced presence of Fisheries officers to provide an effective deterrent to the minority of fishers who may ignore the rules. This was also identified in many public submissions received during the Shark Bay snapper consultation process.

There are currently seven Fisheries Officers based full-time in the Gascoyne: three at Carnarvon, two at Denham and two at Exmouth. Fisheries Officers are required to operate in pairs on patrol for Occupational Health and Safety requirements, which means for example there is only one patrol in Shark Bay. These officers are responsible for monitoring commercial and aquaculture activities as well as recreational fishing compliance.

In the past Fisheries WA has sought new funding from Government to increase the number of Fisheries Officers in the field but has been unsuccessful. Fisheries WA are attempting to utilise seasonal staff to rotate between peak seasons (eg southern regions in summer months moving to Gascoyne for winter months). The Working Group fully supports this initiative and while recognising the additional costs involved, still believe significant benefits would be gained by further increasing field presence in the region. It will be particularly important to ensure an adequate level of contact by Fisheries Officers to promote and increase awareness of new management arrangements which may be implemented from this review process.

The Working Group consider an additional patrol (two officers) should be placed in each of the Exmouth, Carnarvon and Denham District Offices during peak season which would effectively double the existing compliance capacity, with an additional 'floating' patrol available to target areas as required.

### **Proposal 27 – Additional patrol capacity**

That an additional four patrols (eight Fisheries Officers) be seasonally based in the Gascoyne to provide a more visible and effective compliance capacity in the region.

### **Volunteer Fishing Liaison Officers (VFLOs)**

The effective use of properly coordinated and trained volunteers can provide a massive, and highly cost effective, opportunity for increasing the profile of fisheries management at the beach front and providing direct access to the recreational fishing community.

The VFLO program has provided a valuable mechanism around the State for education of anglers at fishing venues, the collection of fishing management information on community fishing behaviour and assistance with data collection for major research projects.

The Working Group believes VFLOs could provide a key community education role in promoting awareness of a new regional management package.

VFLOs are currently operating at Exmouth (10 volunteers) and Carnarvon (six volunteers). The Working Group believes there are significant benefits to be gained by expanding this program in the region, particularly in the Shark Bay area. The key to an effective VFLO program is coordination and it is essential that adequate resources are dedicated for the management of this program. The Working Group believes that these duties must be assigned to a specific Fisheries WA officer (such as the community education officer flagged in proposal 26).

### **Proposal 28 – Enhanced volunteer program**

The VFLO program should be enhanced in Gascoyne and a dedicated Fisheries WA officer assigned to coordinate the program.

### **Community consultation and involvement in management**

Community consultation on recreational fishing issues in the Gascoyne is predominantly focussed through three Regional Recreational Fishing Advisory Committees, one each at Denham, Carnarvon and Exmouth.

The Working Group strongly supported the need to maintain and enhance consultation processes with the recreational fishing community. With the move to regional management, the Working Group believed the existing system needed modifying, and have suggested the establishment of a regionally based council to provide advice on management priorities in the Gascoyne Region. A regional council would be better placed to assess competing funding priorities on a range of issues across the region including fisheries research, compliance capacity, promotion of public awareness and development of new facilities such as boat ramps, FAD's, artificial reefs and so on.

The new council could include representatives from the Exmouth, Carnarvon and Denham RRFAC's, as well as representatives from the commercial fishing industry, Fisheries WA, Gascoyne Development Commission, tourism sector and independent fishers from outside the region (to represent the views of visiting fishers).

The Working Group believes the existing RRFAC's could continue to operate as locally based committees to develop proposals for their representative to take to the regional consultative committee.

A regional council would be better placed to establish strong links with local government and planning and development authorities and ensure that recreational fishing interests are strongly represented in these processes.

The roles of the regional council should include

- Oversee implementation of the Gascoyne Recreational Fishing Management Strategy.
- Conduct five yearly reviews of this plan.
- Provide advice on community education.
- Develop sponsorship opportunities for regional projects.
- Provide advice on funding priorities for recreational fishing across the region.

### **Proposal 29 – Regional Recreational Fisheries Council**

A Regional Recreational Fisheries Council be established to oversee the implementation and operation of the Gascoyne Recreational Fishing Management Strategy.

## **4.7 Providing adequate resources for improved management**

There are significant costs associated with management programs for recreational fishing, particularly in the areas of research and compliance. If the full range of initiatives in this paper are to be implemented, additional funding options must be identified.

The total identified recurrent cost for management, consultation, research, education and compliance activities through the Fisheries Department's Recreational Fisheries Program was \$6.68m in 1997/98. An average of \$1.2m per year (20 per cent of recurrent expenditure) is contributed by resource users through existing recreational fishing licence fees, predominantly for mollusc and crustacean fisheries. The remaining 80 per cent is contributed as a community service obligation from the Consolidated Fund.

Current licences and fees are:

Abalone	\$25
Rock Lobster	\$25
Marron	\$20
Netting	\$20
South-West Freshwater Fishing	\$15

Expenditure which can be directly attributed to the ongoing management of recreational fishing in the Gascoyne Region is approximately \$600,000.

## New funding requirements

In this paper, a range of initiatives have been proposed which will require additional funding above existing levels. These include.

<i>Activity</i>	<i>Cost p.a.</i>
Continue existing catch survey for a further 2 years to provide a comprehensive 3 year baseline data set.....	\$180,000
Conduct catch survey every 5 years .....	\$36,000
Additional fisheries patrol capacity in each of Shark Bay, Exmouth and Carnarvon plus additional floating patrol (2 officers per patrol) .....	\$480,000
Research on key species (biology, stock assessment) .....	\$100,000
Community awareness program (media campaign to educate fishers) .....	\$150,000
Fishery enhancement (eg stocking programs, FAD's, facilities such as boat ramps, cleaning tables etc, artificial reef.....	\$60,000
Recreational Management Officer (eg service regional council, coordinate community awareness/education activities, seek sponsorship, represent recreational fishing interests) .....	\$80,000
Total.....	\$1,086,000

While the Working Group believe sponsorship options may help fund brochures or promotional activities such as fishing clinics, it is unlikely these will assist in major items such as research and compliance. It is therefore essential that additional sources of revenue are identified if these strategies are to be implemented.

## Options for additional funding

The Government's contribution for the management of recreational fishing from consolidated revenue is unlikely to increase. The current Government has imposed a strict financial discipline on all government agencies including Fisheries WA. Outside an increase in funding from the State Consolidated Fund, two principal options are available to fund the management and development of recreational fishing:

- 1) An increased allocation from Commonwealth funds.
- 2) Application of the user pays principle through additional recreational licensing.

Option 1 was vigorously pursued in the previous term of Government, and while limited short term funding for specific projects is likely to flow through the Federal Government's Natural Heritage Trust initiatives, this will not meet core management needs. At an Australian and New Zealand Fisheries and Aquaculture Council meeting in 1994, increased funding was dismissed by the Commonwealth. Although this avenue for funding in the interests of national stewardship will continue to be pursued, it is highly unlikely a positive result would be achieved, particularly in the short or medium term.

In Western Australia, a number of options for increased user pays contributions for recreational fishing have been canvassed at various times in the public arena. While there are widely divergent views within the community, there has been a clear indication from many sectors of the recreational fishing community that user pays is regarded as acceptable if the benefits are clear and seen to flow directly to recreational fishing.



As part of a general review of recreational fisheries management in 1991, the Recreational Fishing Advisory Committee proposed a general saltwater angling licence as a means of raising sufficient revenue on a user pays basis to meet management needs. Extensive public consultation during this review indicated that although the majority of people who responded to the discussion paper were initially opposed to a general fishing licence, there was considerable support if revenue was seen to directly benefit recreational fisheries management, and if the recreational fishing community received some say in the direction of priorities.

The basis for this recommendation was that angling for finfish was by far the largest form of recreational fishing and this in turn generated the highest management costs, the greatest resource sharing conflicts, and had the most significance for tourism and potential development. In addition, angling also represented the broadest revenue base, and any growth in activity and impact would be matched by a corresponding growth in funds available for management.

The proposal for a general fishing licence was not supported by the Government of the day due to a perception that its introduction would be viewed by the public as an unreasonable impost on low-income earners, and it would have negative electoral repercussions, particularly in marginal regional areas. However, by the end of the review period there was growing support from key user groups and a discernible shift in public attitudes to the concept.

While sectors of the recreational fishing community have indicated on several occasions that they are prepared to consider a general fishing licence, community opinion is widely divergent, and a widespread public consultation process is essential to develop broad consensus on the issue.

The Working Group consider that the application of the user pays principle to recreational fishing provides the best long-term option for adequately meeting the increased demands entailed by a growing population and high participation rate. It has the significant benefit of ensuring continuity of funding (free from Government budget cuts) and that contributions to management increase commensurate with increases in participation.

The Working Group believe that the introduction of a regional recreational fishing licence for finfish can be seen as a key management strategy that delivers significant benefits which need to be clearly recognised:

- Increased revenue which can be used to fund additional research, compliance and community awareness programs aimed at preserving and enhancing the fishing quality in the region.
- Enhanced personal responsibility through a user contribution to management. (People tend to value more highly what they pay for).
- Improved community stewardship. The community takes a greater interest in outcomes when there is a direct financial contribution from user groups.
- Enhanced community education through targeted programs.
- Enhanced research accuracy and reduced data collection costs (ability to target surveys, source of data on potential effort).
- Improved and more efficient compliance activities through the application of user identification principles and the development of an interactive database which can identify problem areas.
- Increases in participation result in increases in revenue for management.

The Working Group noted a number of disadvantages could be associated with a licensing system:

- seen as an additional Government tax, particularly for an activity which has traditionally been 'free'

- further burden on low income earners/families/occasional fishers
- equity of residents versus visitors
- accessibility to licences in remote areas.

The Working Group believed that the benefits far outweighed these concerns and felt that many of the disadvantages could be addressed by giving careful consideration to the fee structure and developing a package to provide a range of benefits to licence holders.

The Working Group is therefore supportive of a recreational finfish licence provided existing funding levels are not affected and the additional revenue generated is used exclusively for management and enhancement of recreational fishing. The Working Group has therefore endorsed seeking wider community opinion on a regional recreational licence through the public consultation process. A possible format for a regional licence is outlined over the page for discussion.

### *Proposed licensing option*

The Working Group believe the introduction of a regional rather than state-wide licence was preferable as fishers would be contributing directly to management in the areas they fish, rather than subsidising initiatives in other areas of the State. Fishers would therefore more readily be able to see benefits arising from the increased funding for management. Under a state-wide system, management initiatives would be prioritised and fishers in some areas may not readily observe any benefits accruing to them.

The Working Group has supported the introduction of a regional finfish licence which would be required for all methods of taking of finfish (line fishing, netting, spearing etc) in the Gascoyne Region. Under this option, the existing netting licence would no longer be required in the region.

The Working Group also discussed the option of allowing fishers who take out a finfish licence to seek additional endorsements for the other licenced fisheries (eg rock lobster) at a reduced cost. It was suggested that visitors to the region who may already have such endorsements could be granted these free of charge.

The Working Group recognised that marketing of the licence would be crucial and if issued in conjunction with a regional fishing guide, a wide range of opportunities exist including sponsorship, discount coupons to local services such as tackle shops, accommodation, petrol. The concept could be marketed as a 'passport to fishing in the Gascoyne' – anglers not just buying a licence but providing them with access to a range of information, services and discounts.

Licences would have to be easily accessible in areas where there is no Fisheries WA Office (or limited hours). Possibilities which should be examined include internet access and on-line licensing at selected tackle shops/businesses in the region.

The Working Group believed licences should be annual, with options for monthly and weekly licences for occasional fishers. The Working Group noted that overseas experience has shown that a lifetime pass is popular as a gift and also believed a three year licence may prove a popular option.

### **Proposal 30 – Regional finfish licence**

#### **Proposal 30 (a)**

A regional finfish licence be introduced in the Gascoyne and the revenue dedicated to implementing enhanced management, compliance and research programs for recreational fisheries.

#### **Proposal 30 (b)**

The fee structure for the Gascoyne regional licence should be:

Weekly (7 days)	\$10
Monthly (28 days)	\$14
Annual	\$20
3 year	\$55
Lifetime licence	\$500

#### **Proposal 30 (c)**

The following discounts should apply:

children < 12 years	- free
children 12-15 years	- 50 per cent discount
pensioners, seniors card holders	- 50 per cent discount

#### **Proposal 30 (d)**

Priorities for funding from licence revenue should be identified by a regional recreational fisheries council and should include comprehensive research programs on recreational catch and species biology and stock assessment, additional compliance capacity in region, targeted community education programs and fishery enhancement projects.

## Bag Limits for Ningaloo Marine Park, Ningaloo Marine Park Land Zone and Exmouth Gulf Land Zone

**A mixed bag limit of 7 applies to all species caught except those listed in (b)**

<i>Species</i>	<i>Bag limit for one day</i>
Cobia	4
Cod (a) Family Serranidae, except <i>Epinephelus</i> spp.: or (b) <i>Epinephelus</i> spp. In excess of 30kg in weight or in excess of 1200mm in length	4 0
Coral trout & coronation trout	1
Dolphinfish (mahi mahi)	4
Mackerel	4
Mackerel, wahoo & shark	4
Mullocky & northern mullocky	4
Queenfish	4
Samson fish	4
Sharks except whale shark	4
Tuna, southern bluefin	4
Yellowtail kingfish	4

(b) Species not included in mixed bag 7

<i>Species</i>	<i>Bag limit for one day</i>
Garfish	40
Hardyhead	40
Mullet, sea & yellow-eye	40
Whiting	40
Tailor	8
Octopus, squid and cuttlefish	15
Oyster	40
Rock lobster, western & tropical	4
Threadfin (threadfin or bluenose salmon)	20

## Fish possession limit

You may have a maximum of 17kg of processed fish in your possession - or 10 kg of fillets plus 7 fish or parts of fish of any weight (excluding squid, octopus, cuttlefish and rock lobster)

## Bag Limits for eastern and western gulfs of Shark Bay

**Western Gulf: A mixed bag limit of 7 applies to all species caught except those listed in (b)**

**Eastern Gulf: A mixed bag limit of 5 and a boat limit of 10 applies to all species caught except those listed in (b)**

<i>Species</i>	<i>Bag limit for one day</i>
Cobia	4
Cod (a) Family Serranidae,	4
(b) <i>Epinephelus</i> spp. In excess of 30kg in weight or in excess of 1200mm in length	0
Coral trout & coronation trout	4
Dolphinfish (mahi mahi)	4
Mackerel	4
Mackerel, wahoo & shark	4
Mullocky & northern mullocky	4
Pink snapper (western gulf)	4
Pink snapper (eastern gulf)	0
Queenfish	4
Samson fish	4
Sharks except whale shark	4
Tuna, southern bluefin	4
Yellowtail kingfish	4

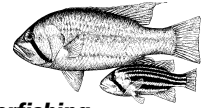
(b) Species not included in mixed bag 7 (western gulf) or 5 (eastern gulf)

<i>Species</i>	<i>Bag limit for one day</i>
Garfish	40
Hardyhead	40
Mullet, sea & yellow-eye	40
Whiting	40
Tailor	8
Octopus, squid and cuttlefish	15
Oyster	40
Threadfin (threadfin or bluenose salmon)	20

## STATE BAG AND SIZE LIMITS

**Prize fish - 4 of each species, total mixed bag 8**

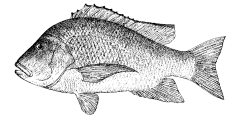
**Prize fish are highly sought after for catching or eating qualities and some are vulnerable to overfishing.**



<b>Billfish</b> such as marlin, sailfish and swordfish ( <i>Xiphiidae</i> and <i>Istiophoridae</i> spp)	<b>mixed bag of 4</b>	
<b>Cobia</b> ( <i>Rachycentron canadus</i> )		
<b>Cods</b> ( <i>Serranidae</i> family) - return larger fish alive to the water	<b>mixed bag of 4</b>	Max. size of 1200mm [about 30kg]
<b>Coral Trout</b> ( <i>Plectropomus</i> spp)		[450mm]
<b>Dhufish, WA</b> ( <i>Glaucosoma hebraicum</i> )		[500mm]
<b>Mackerel, wahoo</b> ( <i>Acanthocybium solandri</i> ) <b>Spanish, broad-barred, narrow-barred</b> ( <i>Scomberomorus</i> spp)		[750mm]
<b>Mackerel, shark</b> ( <i>Grammatorcynus bicarinatus</i> ) <b>Spotted and Old school</b> ( <i>Scomberomorus</i> spp)		[500mm]
<b>Mahi mahi</b> (dolphinfish - <i>Coryphaena hippurus</i> )		
<b>Mulloway</b> ( <i>Argyrosomus hololepidotus</i> ) <b>&amp; northern mulloway</b> ( <i>Protonibea diacanthus</i> )	<b>combined bag of 4</b>	[450mm]
<b>Queenfish</b> ( <i>Scomberoides commersonianus</i> )		
<b>Salmon, Australian</b> ( <i>Arripis truttaceus</i> )		[300mm]
<b>Samson fish</b> ( <i>Seriola hippos</i> )		[600mm]
<b>Sharks</b> (all species except whale sharks)	<b>mixed bag of 4</b>	
<b>Trout, brown &amp; rainbow combined</b> ( <i>Salmo trutta</i> and <i>Oncorhynchus mykiss</i> )	<b>Closed season most areas 1 May - 31 August</b>	[300mm]
<b>Tuna, Southern bluefin</b> ( <i>Thunnus maccoyii</i> )		
<b>Yellowtail kingfish</b> ( <i>Seriola lalandi</i> )		

**Reef fish - mixed bag 8**

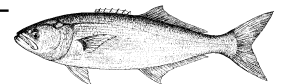
**Reef fish are usually resident species and are highly vulnerable to overfishing.**



<b>Emperor, red</b> ( <i>Lutjanus sebae</i> )		[410mm]
<b>Groper &amp; tuskfish</b> (baldchin <i>C. rubescens</i> , blue tuskfish <i>C. cyanodus</i> & black spot tuskfish <i>C. shoeneleini</i> )		[400mm]
<b>Snapper, pink</b> ( <i>Pagrus auratus</i> ) Special rules apply in Shark Bay and Perth metro area – contact Fisheries WA		[410mm]
<b>Spangled emperor</b> <i>Lethrinus nebulosus</i> [410mm] <b>Snapper, north-west</b> ( <i>Lethrinus</i> spp) and all other <i>Lethrinus</i> species		[280mm]
<b>Snapper, queen</b> (blue morwong <i>Nemadactylus valenciennesi</i> )		[410mm]

**Key angling & sport fish - 8 per fisher**

**A new protection category - cobbler and tailor stocks have both declined in recent years, with fish often caught before spawning.**



<b>Bonito</b> ( <i>Sarda orientalis</i> , <i>Cybiosarda elegans</i> )		
<b>Cobbler</b> ( <i>Cnidoglanis macrocephalus</i> )		[430mm total length]
<b>Tailor</b> ( <i>Pomatomus saltatrix</i> )		[250mm]
<b>Mangrove jack</b> ( <i>Lutjanus argentimaculatus</i> )		
<b>Fingermark bream</b> ( <i>Lutjanus russelli</i> )		
<b>Giant threadfin salmon</b> ( <i>Eleutheronema tetradactylum</i> )		

**Table fish - 20 per fisher**

**This group contains many of WA's most popular angling species and bag limits are crucial for maintaining future stocks.**



<b>Bream, black, Northwest black and yellowfin</b> ( <i>A. butcheri</i> , <i>A. palmaris</i> , <i>A. latus</i> )		[250mm]
<b>Flathead</b> ( <i>Platycephalus</i> spp) [300mm] <b>&amp; flounder</b> ( <i>Pseudorhombus</i> spp) (combined)		[250mm]
<b>Leatherjackets</b> ( <i>Monacanthidae</i> family)		[250mm]
<b>Pike</b> ( <i>Dinolestes lewini</i> ) [280mm] <b>&amp; snook</b> ( <i>Sphyraena novaehollandiae</i> ) (combined)		[330mm]
<b>Skipjack trevally</b> ( <i>Pseudocaranx</i> spp)		[200mm]
<b>Snapper, red</b> ( <i>Centroberyx</i> spp)		[230mm]

# Appendix A

**Tarwhine** (silver bream)(*Rhabdosargus sarba*) [230mm]

**Threadfin** (bluenose salmon) **northern, Gunther's and black-finned salmon** (*Polydactylus spp*)

**Whiting, king george** (*Sillaginodes punctata*) [250mm] [ South coast east of Pt D'Entrecasteaux - 280mm]

## Bread & butter fish - 40 per fisher - no legal size

All WA fish species not included in other categories are 'bread and butter' fish. Baitfish of the sardine and anchovy families (*Clupeidae* and *Engraulididae* - mulies, whitebait, scaly mackerel, anchovies), redfin perch, goldfish, carp and tilapia are NOT in this category. Popular 'bread and butter' species include:

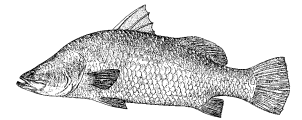
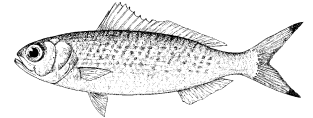
**Garfish** (*Hyporhamphus spp*)

**Herring, Australian** (*Arripis georgianus*)

**Mackerel, blue** (*Scomber australasicus*)

**Mullet, sea & yelloweye** (*Mugil cephalus, Aldrichetta forsteri*)

**Whiting, western sand, school and yellowfin** (*Sillago spp*)



## Special bag limits

Individual bag limits may be set as a conservation strategy for species considered rare or vulnerable to overfishing.

**Barramundi** (*Lates calcarifer*) - possession limit 5 (see special section "Ord River Barramundi") [550mm]

**Groper, western blue** (*Achoerodus gouldii*) - daily bag limit 1 [400mm]

## Shellfish - 2 litres

WA's delicious shellfish are often slow-growing and extremely vulnerable to overpicking from inshore reefs. A mixed bag of 2 litres of whole edible shellfish applies unless a separate bag limit is specified.



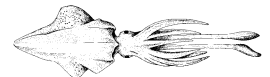
**Abalone, Greenlip and brownlip** bag & possession limit 10, boat limit 30 combined [140mm]

**Abalone, Roe's** bag & possession limit 20 [60mm]

**Mussels** bag limit 9 litres

## Cephalopods

Cephalopods are easily caught in reef or seagrass areas and bag limits help share the catch.



**Squid, octopus, cuttlefish** combined bag limit 15 per fisher, boat limit 30

## Crustacea

WA's crustaceans make fine dining during open seasons but a licence is needed for marron and lobster.



**Crab, mud** bag limit 10 combined green [150mm] brown [120mm]

**Crab, blue manna** bag limit 24, boat limit 48 (min. 2 people) [127mm]

**Cherabin** bag limit 9 litres

**Marron** bag limit 10 [carapace 76mm]

**Prawns, king and school** bag limit 9 litres closed season Swan River & Mandurah

**Rock lobster** closed season combined bag limit 8, boat limit 16 southern [98.5mm]

Maximum size limits also apply Western [77mm(15 Nov. - 31 Jan.) 76mm (1 Feb. - 30 Jun.)]

Special rules apply Nigaloo and Dampier - contact Fisheries WA, see rock lobster brochure. tropical [76mm]

## Protected species These species are totally protected and may not be taken

**Potato cod** (*Epinephelus tukula*)



**Leafy seadragon** (*Phycodurus eques*)

**Whale shark** (*Rhiniodon typus*)

**Great white shark** (*Caracharodon carcharias*)

**Hump head maotri wrasse** (*Cheilinus undulatus*)

Published information on recreationally important finfish species in the Gascoyne

	Pink snapper <i>Pagrus auratus</i>	Spangled emperor <i>Lethrinus nebulosus</i>	Blue-lined emperor (black snapper) <i>Lethrinus laticaudis</i>	Red emperor <i>Lutjanus sebae</i>	Spanish mackerel <i>Scomberomorus commerson</i>
Maximum weight (kg)	16 kg <sup>2</sup>	6.6 kg <sup>1</sup>		16 kg TL <sup>1</sup>	Queensland <sup>11</sup> : 40 kg 42.2 kg TL <sup>1</sup>
Maximum age (yrs)	SA waters <sup>4</sup> : 30 yrs. Shark Bay: 25-30 years	Mid West region <sup>5</sup> : 27 yrs.	Nth Territory <sup>7</sup> : > 10 yrs.		Queensland <sup>10</sup> : >14 yrs (females live longest)
Depth range	1-200m depth			Great Barrier Reef: to at least 160 m, deepest during spawning season.	
Habitat juveniles	Shark Bay: O <sup>+</sup> and 1 <sup>+</sup> in deeper waters (7-12m) in inner gulfs.	Great Barrier Reef: Significant positive correlation between depth and length at capture for fish taken by line.		Great Barrier Reef: Significant positive correlation between depth and length at capture for fish taken by line and trawl juveniles from shallow waters to 50m depth.	Queensland <sup>11</sup> : Creeks, estuaries, sheltered mudflats and shallow waters (including up to 12 m).
Habitat adults	Shark Bay: adults associated with rocky reefs, coral, mud banks. Offshore rocky reefs to 35m.	Great Barrier Reef: Significant correlation between depth and length at capture for fish taken by line. Adults only in waters deeper than 20 m.			



	Pink snapper <i>Pagrus auratus</i>	Spangled emperor <i>Lethrinus nebulosus</i>	Blue-lined emperor (black snapper) <i>Lethrinus laticaudis</i>	Red emperor <i>Lutjanus sebae</i>	Spanish mackerel <i>Scomberomorus commerson</i>
Age at maturity (yrs)	Spencer Gulf SA <sup>3</sup> : 2-3 yrs. Shark Bay: 4-5 years				
Size at maturity (yrs)	Spencer Gulf SA <sup>3</sup> : 28 cm FL. Shark Bay: 40-41cm oceanic & inner gulfs 45- 50cm.	WA <sup>5</sup> : 38 cm FL.	Nth Territory <sup>7</sup> : 50 % of females about 30 cm FL (Note: change sex, from female to male)	Great Barrier Reef: Minimum: 48.5 cm FL 50%: 54.8 cm FL	Queensland <sup>10</sup> : minimum 79 cm FL
Spawning period	Spencer Gulf SA <sup>3</sup> : Oct-Feb. Shark Bay: May-Sept/Oct	Mid-West region <sup>5</sup> : Oct-Mar. NW Cape and NW shelf <sup>6</sup> 1 or 2 months earlier.		Great Barrier Reef: Oct-Dec	Queensland north <sup>10</sup> : Aug to Dec/ Mar. Queensland south <sup>10</sup> : Oct to Dec
Sex change		Throughout WA: no sex change behaviour	Nth Territory <sup>7</sup> : Protogyn. Herm. 100% female: <32 cm FL 50:50 at 38 cm FL 100% male >44 cm FL	Great Barrier Reef: No	
Maximum size (cm)	SA waters <sup>1</sup> : L <sub>inf</sub> <sup>1</sup> 93.1 cm FL 101.6 cm <sup>2*</sup>	NW Cape and NW shelf <sup>5</sup> : L <sub>inf</sub> <sup>5</sup> =56.8 cm FL. 86 cm TL <sup>1</sup>	Nth Territory <sup>7</sup> : >50 cm FL 80 cm TL <sup>1</sup>	Great Barrier Reef: Males: L <sub>inf</sub> <sup>1</sup> 102.3 cm FL. Females: L <sub>inf</sub> <sup>1</sup> 87.5 cm FL. 100 cm TL <sup>1</sup>	235 cm TL <sup>1</sup>

	Baldchin groper	Black spot tuskfish	Coral trout	Estuary cod	Rankin cod	Mulloway
	<i>Choerodon rubescens</i>	<i>Choerodon schoenicini</i>	<i>Plectropomus maculatus</i>	<i>Epinephelus coioides</i>	<i>Epinephelus multinotatus</i>	<i>Agyrosomus hololepidotus/japonicus</i>
Age at maturity (yrs)			Great Barrier Reef <sup>4</sup> : 2 yrs (50%); 3 yrs (100%)	Northeast Queensland <sup>16</sup> : >5yrs. (spend about first five years as juveniles in estuaries).		Sth Africa <sup>17</sup> : 50%: 5 yrs (male) 6 yrs (female) 100%: 7 yrs (m) 8 yrs (f)
Size at maturity (yrs)		Japan <sup>13</sup> : “about 24 cm TL”	Great Barrier Reef <sup>4</sup> : 30.0 cm SL (50%) 35.0 cm SL (100%)	Northeast Queensland <sup>16</sup> : >50 cm FL; 156 fish sampled between 12.0 and 50.0 cm FL were all immature. All in estuaries.		Sth Africa <sup>17</sup> : 50%: 92 cm TL (male) 107 cm TL (female) 100%: 110 cm TL (m) 120 cm TL (f)
Spawning period	Abrolhos <sup>12</sup> : Sep-Dec	Japan <sup>13</sup> : Feb-May	Great Barrier Reef <sup>4</sup> : Sept-Nov:			Cockburn Sound <sup>18</sup> : Sept-Oct  Sth Africa <sup>17</sup> : Spring/early summer
Sex change	Abrolhos <sup>12</sup> : Protogynous hermaphrodites	Japan <sup>13</sup> : Protogynous hermaphrodites Sex transition stage from 40-64 cm TL. 100% males >65 cm TL	Great Barrier Reef <sup>4</sup> : Change sex from female to male. Mean over-lap at 35.38 cm SL and 4.42 yrs	Northeast Queensland <sup>16</sup> : Change sex from female to male at an unknown size greater than 50 cm FL.		
Maximum size (cm)	90 cm TL <sup>1</sup>	80 CM TL <sup>1</sup>	Great Barrier Reef <sup>5</sup> : L <sub>inf</sub> 60.0 cm FL.  70 cm TL <sup>1</sup>	>95 <sup>1</sup> cm,	100 cm TL <sup>1</sup>	167.4 cm <sup>2</sup>

	Baldchin groper <i>Choerodon rubescens</i>	Black spot tuskfish <i>Choerodon schoenleinii</i>	Coral trout <i>Plectropomus maculatus</i>	Estuary cod <i>Epinephelus coioides</i>	Rankin cod <i>Epinephelus multinotatus</i>	Mulloway <i>Argyrosomus hololepidotus/japonicus</i>
Maximum weight (kg)	7 kg <sup>1</sup>	9 kg <sup>1</sup>	6 kg <sup>1</sup>		9 kg <sup>1</sup>	42.5 kg <sup>2</sup>
Maximum age (yrs)			Great Barrier Reef <sup>5</sup> ; 12 yrs			
Depth range						
Habitat juveniles				Northeast Queensland <sup>6</sup> ; Juveniles (12.0 to 0.0 cm FL) only in estuaries.		
Habitat adults						

## References

- 1 Allen, G. (1997). *Marine Fishes of Tropical Australia and south-east Asia*. Western Australian Museum.
- 2 Hutchins, B. and Swainston, R. (1986). *Sea Fishes of Southern Australia*. Swainston publishing.
- 3 Cassie, R.M. (1956b). *The spawning of the snapper *Chrysophrys auratus* Forster, in the Hauraki Gulf*. Trans R Soc NZ 84: 309–28.
- 4 Jones, G.K. (1987). *A review of the commercial fishery for snapper (*Chrysophrys auratus*) in South Australian waters (1983-1986)*. South Australian Department of Fisheries. Discussion Paper No. 2, 20p.
- 5 Moran, M., Edmonds, J., Jenke, J., Cassells, G. and Burton, C. (1993). *Fisheries biology of emperors (*Lethrinidae*) in northwest Australian coastal waters*. Final Report, FRDC Project 89/20, WA Marine Research Laboratories.
- 6 McPherson, G., Squire, L. and O'Brien, J. (1988). *Age and Growth of four important reef fish species*. Qld Dept Prim Ind, Fisheries Research Branch Technical Report No. FRB 88/6. A report to the Great Barrier Reef Marine Park Authority.
- 7 Knuckey, I., Hay, T. and Calogeras, C. (1996). *Population biology of the Tricky Snapper (*Lethrinus laticaudis*)*. Dept Prim Ind & Fish, Northern Territory, NT coastal reef fish, Fishnote. No 23.
- 8 McPherson, G., Squire, L. and O'Brien, J. (1992). *Reproduction of three dominant *Lutjanus* of the Great Barrier Reef inter-reef fishery*. Asian Fisheries Science 5(1): 15–24.
- 9 McPherson, G., Squire, L. and O'Brien, J. (1988). *Age and Growth of four important reef fish species*. Qld Dept Prim Ind, Fisheries Research Branch Technical Report No. FRB 88/6. A report to the Great Barrier Reef Marine Park Authority.
- 10 McPherson, G. (1993). *Reproductive biology of the narrow barred spanish mackerel (*Scomberomorus commerson Lacepede, 1801*) in Queensland waters*. Asian Fisheries Science 6: 169–182.
- 11 McPherson, G. (1981). *Preliminary report: investigations of spanish mackerel (*Scomberomorus commerson*) in Queensland waters*. In Grant CJ and Watler DG (eds) *Northern Pelagic Fish Seminar*. Dept Prim Ind, Australian Government Publishing Service. Pp 51–58.
- 12 Nardi, K., Fisheries WA Geraldton office, unpublished data from Abrolhos Islands region.
- 13 Ebisawa, A., Kanashiro, K., Kyan, T. and Motonaga, F. (1995). *Aspects of reproduction and sexuality in the black-spot tuskfish, *Choerodon schoenleinii**. Japanese Journal of Ichthyology, 42(2) 121–130.
- 14 Ferreira, B.P. (1993). *Reproduction of the inshore coral trout *Plectropomus maculatus* (Perciformes: Serranidae) from the central Great Barrier Reef, Australia*. J Fish Biol. 42: 831–844.
- 15 Ferreira, B.P. and Russ, G.R. (1992). *Age, growth and mortality of inshore coral trout *Plectropomus maculatus* (Pisces: Serranidae) from the central Great Barrier Reef*. Aust J Mar Freshw Res 43:1301–12.
- 16 Sheaves, M.J. (1995). *Large lutjanid and serranid fishes in tropical estuaries: are they adults or juveniles*. Mar Ecol Prog Ser 129(1–3): 31–40.
- 17 Griffiths, M.H. (1996). *Life history of the dusky kob *Argyrosomus japonicus* (Scianidae) off the east coast of South Africa*. S Afr J Mar. Sci 17:135–154.
- 18 Penn, J.W. (1977). *Trawl caught fish and crustaceans from Cockburn Sound*. Dept of Fisheries and Wildlife, Western Australia. Report No. 20.

### **The National Code of Practice for Recreational and Sport fishing**

#### **Code of Conduct**

- Observe bag and size limit rules and other fisheries regulations, and try to guide other fishers along the same path.
- Take no more than your immediate needs, even if this is less than the bag limit.
- Aim to release unwanted or excess fish unharmed wherever possible.
- Co-operate in recognised fish tagging problems for research purposes.
- Promote fishing ethics by killing fish quickly, using tackle appropriate to the fishing situation, and frequently attending gear.
- Respect the needs of fellow fishers, other resource users including commercial fishers, and especially the environment.
- Treat fishing locations with respect. Don't leave bait to foul rocks and beaches and plastic packaging or discarded nylon line to pollute the aquatic environment and possibly entrap birds and other aquatic creatures.
- Travel carefully, especially in 4WD vehicles in fragile conservation areas. Stick to gazetted roads and obvious tracks and resist the temptation to go "bush bashing" to create your own track.
- Respect the rights of owners when travelling through or camping on private property.
- Report pollution and degradation of the aquatic environment, especially as a result of irresponsible use of fertilisers and pesticides or thoughtless runoff of toxic waste.
- Report illegal fishing activities (such as fish selling by recreational fishers) as soon as they are noticed, and with as much information as is available.
- Work through recreational fishing bodies, the fishing media or government authorities, rather than trying to deal with such problems in isolation.

## Fisheries management papers

- No.1** The Report of the Southern Western Australian Shark Working Group. Chairman P. Millington (1986).
- No.2** The report of the Fish Farming Legislative Review Committee. Chairman P. Rogers (1986).
- No.3** Management Measures for the Shark Bay Snapper 1987 Season. P. Millington (1986)
- No.4** The Esperance Rock Lobster Working Group. Chairman A. Pallot (1986).
- No.5** The Windy Harbour - Augusta Rock Lobster Working Group. Interim Report by the Chairman A. Pallot (1986).
- No.6** The King George Sound Purse Seine Fishery Working Group. Chairman R. Brown (1986).
- No.7** Management Measures for the Cockburn Sound Mussel Fishery. H. Brayford (1986).
- No.8** Report of the Rock Lobster Industry Advisory meeting of 27 January 1987. Chairman B. Bowen (1987).
- No.9** Western Rock Lobster Industry Compensation Study. Arthur Young Services (1987).
- No.10** Further Options for Management of the Shark Bay Snapper Fishery. P. Millington (1987).
- No.11** The Shark Bay Scallop Fishery. L. Joll (1987).
- No.12** Report of the Rock Lobster Industry Advisory Committee to the Hon Minister for Fisheries 24 September 1987. (1987)
- No.13** A Development Plan for the South Coast Inshore Trawl Fishery. (1987)
- No.14** Draft Management Plan for the Perth Metropolitan Purse Seine Fishery. P. Millington (1987).
- No.15** Draft management plan, Control of barramundi gillnet fishing in the Kimberley. R. S. Brown (1988).
- No.16** The South West Trawl Fishery Draft Management Plan. P. Millington (1988).
- No.17** The final report of the pearling industry review committee. E.J. Malone, D.A. Hancock, B. Jeffries (1988).
- No.18** Policy for Freshwater Aquaculture in Western Australia. (1988)
- No.19** Sport Fishing for Marron in Western Australia - Management for the Future. (1988)
- No.20** The Offshore Constitutional Settlement, Western Australia 1988.
- No.21** Commercial fishing licensing in Western Australia. (1989)
- No.22** Economics and marketing of Western Australian pilchards. SCP Fisheries Consultants Pty Ltd (1988).
- No.23** Management of the south-west inshore trawl fishery. N. Moore (1989)
- No.24** Management of the Perth metropolitan purse-seine fishery. N. Moore (1989).
- No.25** Rock Lobster Industry Advisory Committee report to the Minister for Fisheries November 1988. (1989)
- No.26** A report on marron fishing in Western Australia. Chairman Doug Wenn MLC (1989).
- No.27** A review of the Shark Bay pearling industry. Dr D.A. Hancock, (1989).
- No.28** Southern demersal gillnet and longline fishery. (1989)
- No.29** Distribution and marketing of Western Australian rock lobster. P. Monaghan (1989).
- No.30** Foreign investment in the rock lobster industry. (1989)
- No.31** Rock Lobster Industry Advisory Committee report to the Hon Minister for Fisheries September 1989. (1989)
- No.32** Fishing Licences as security for loans. P. Rogers (1989)

## List of Management Papers

- No.33** Guidelines for by-laws for those Abrolhos Islands set aside for fisheries purposes. N. Moore (1989).
- No.34** The future for recreational fishing - issues for community discussion. Recreational Fishing Advisory Committee (1990).
- No.35** Future policy for charter fishing operations in Western Australia. P. Millington (1990).
- No.36** Long term management measures for the Cockburn Sound restricted entry fishery. P. Millington (1990).
- No.37** Western rock lobster industry marketing report 1989/90 season. MAREC Pty Ltd (1990).
- No.38** The economic impact of recreational fishing in Western Australia. R.K. Lindner, P.B. McLeod (1991).
- No.39** Establishment of a registry to record charges against fishing licences when used as security for loans. P. Rogers. (1991)
- No.40** The future for Recreational Fishing - Forum Proceedings. Recreational Fishing Advisory Committee (1991)
- No.41** The future for Recreational Fishing - The Final Report of the Recreational Fishing Advisory Committee. Recreational Fishing Advisory Committee (1991).
- No.42** Appendix to the final report of the Recreational Fishing Advisory Committee. (1991)
- No.43** A discussion of options for effort reduction. Southern Gillnet and Demersal Longline Fishery Management Advisory Committee (1991).
- No.44** A study into the feasibility of establishing a system for the buy-back of salmon fishing authorisations and related endorsements. (1991)
- No.45** Draft Management Plan, Kimberley Prawn Fishery. (1991)
- No.46** Rock Lobster Industry Advisory Committee, Chairman's report to the Minister (1992)
- No.47** Long term management measures for the Cockburn Sound restricted entry fishery. Summary of submissions and final recommendations for management. P. Millington (1992).
- No.48** Pearl oyster fishery policy guidelines (Western Australian Pearling Act 1990). Western Australian Fisheries Joint Authority (1992).
- No.49** Management plan, Kimberley prawn fishery. (1992)
- No.50** Draft management plan, South West beach seine fishery. D.A. Hall (1993).
- No.51** The west coast shark fishery, draft management plan. D.A. Hall (1993).
- No.52** Review of bag and size limit proposals for Western Australian recreational fishers. F.B. Prokop (May 1993).
- No.53** Rock Lobster Industry Advisory Committee, Chairman's report to the Minister for Fisheries. (May 1993)
- No.54** Rock Lobster Industry Advisory Committee, Management proposals for 1993/94 and 1994/95 western rock lobster season (July 1993).
- No.55** Rock Lobster Industry Advisory Committee, Chairman's report to the Minister for Fisheries on management proposals for 1993/94 and 1994/95 western rock lobster seasons (September 1993).
- No.56** Review of recreational gill, haul and cast netting in Western Australia. F. B. Prokop (October 1993).
- No.57** Management arrangements for the southern demersal gillnet and demersal longline fishery 1994/95 season. (October 1993).
- No.58** The introduction and translocation of fish, crustaceans and molluscs in Western Australia. C. Lawrence (October 1993).

## List of Management Papers

- No.59** Proceedings of the charter boat management workshop (held as part of the 1st National Fisheries Manager Conference). A. E. Magee & F. B. Prokop (November 1993).
- No.60** Bag and size limit information from around Australia (Regulations as at September 1993) F. B. Prokop (January 1993).
- No.61** Economic impact study. Commercial fishing in Western Australia Dr P McLeod & C McGinley (October 1994)
- No.62** Management arrangements for specimen shell collection in Western Australia. J. Barrington, G. Stewart (June 1994)
- No.63** Management of the marine aquarium fish fishery. J. Barrington (June 1994)
- No.64** The Warnbro Sound crab fishery draft management plan. F. Crowe (June 1994)
- No.65** Not issued
- No.66** Future management of recreational gill, haul and cast netting in Western Australia and summary of submissions to the netting review. F.B. Prokop, L.M. Adams (September 1994)
- No.67** Long term management strategies for the Western Rock Lobster Fishery. (4 volumes) Evaluation of management options Volume 1. B. K. Bowen (September 1994)
- No.68** Long term management strategies for the Western Rock Lobster Fishery. (4 volumes) Economic efficiency of alternative input and output based management systems in the western rock lobster fishery, Volume 2. R.K. Lindner (September 1994)
- No.69** Long term management strategies for the Western Rock Lobster Fishery. (4 volumes) A market-based economic assessment for the western rock lobster industry, Volume 3. Marec Pty Ltd (September 1994)
- No.70** Long term management strategies for the Western Rock Lobster Fishery. (4 volumes) Law enforcement considerations, Volume 4. N. McLaughlan (September 1994)
- No.71** The Rock Lobster Industry Advisory Committee Chairman's Report, October 1994, The Western Rock Lobster Fishery - Management proposals for the 1994/95 and 1995/96 seasons (November 1994)
- No.72** Shark Bay World Heritage Area draft management plan for fish resources. D. Clayton (November 1994)
- No.73** The bag and size limit review: new regulations and summary of submissions. F Prokop (May 1995)
- No.74** Report on future management options for the South West trawl limited entry fishery. South West trawl limited entry fishery working group (June 1995)
- No.75** Implications of Native Title legislation for fisheries management and the fishing industry in Western Australia. P. Summerfield (February 1995)
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- No.77** The Offshore Constitutional Settlement, Western Australia. H. Brayford & G. Lyon (May 1995)
- No.78** The Best Available Information - Its Implications for Recreational Fisheries Management. Workshop at Second National Fisheries Managers Conference, Bribie Island Queensland. F. Prokop (May 1995)
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- No.80** Management arrangements for specimen shell collection in Western Australia, 1995. J. Barrington & C. Campbell (March 1996)



## List of Management Papers

- No.81** Management Options (Discussion Paper) for the Shark Bay Snapper Limited Entry Fishery. Shark Bay Snapper Limited Entry Fishery Working Group, Chaired by Doug Bathgate (June 1995)
- No.82** The Impact of the New Management Package on Smaller Operators in the Western Rock Lobster Fishery R. Gould (September 1995)
- No.83** Translocation Issues in Western Australia. Proceedings of a Seminar and Workshop held on 26 and 27 September 1994. F Prokop (July 1995)
- No.84** Bag and Size Limit Regulations From Around Australia. Current Information as at 1 July 1995. Third Australasian Fisheries Managers Conference, Rottneest Island. F Prokop (July 1995)
- No.85** West Coast Rock Lobster Fishery Management Plan 1995 - Draft for Public Comment. Edited by M. Moran (August 1995)
- No.86** A Review of Ministerial Policy Guidelines for Rock Lobster Processing in Western Australia from the Working Group appointed by the Minister for Fisheries and chaired by Peter Rich (December 1995)
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- No. 88** Balancing the Scales - Access and Equity in Fisheries Management - Proceedings of the Third Australasian Fisheries Managers Conference, Rottneest Island, Western Australia 2 - 4 August 1995. Edited by P. Summerfield (February 1996)
- No. 89** Fishermen's views on the future management of the rock lobster fishery. A report. Prepared on behalf of the Rock Lobster Industry Advisory Committee by The Marketing Centre. (August 1995)
- No. 90** A report on the issues effecting the use of the Dampier Archipelago. Peter Driscoll, Landvision Pty Ltd (March 1996)
- No. 91** Shark Bay World Heritage Property - Management Paper for Fish Resources. Kevin A Francesconi (September 1996)
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- No. 93** Shark Bay World Heritage Property - Summary of Public Submissions to the Draft Management Plan for Fish Resources. Kevin A Francesconi (September 1996)
- No. 94** Rock Lobster Industry Advisory Committee Report - Management arrangements for the Western Rock Lobster Fishery for the 1997/98 season. Frank Prokop (May 1997)
- No. 95** Australian Salmon and Herring Resource Allocation Committee. P McLeod & F Prokop (*in press*)
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- No. 97** (*in press*)
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- No.117** Management of the Houtman Abrolhos System. Prepared by the Abrolhos Islands Management Advisory Committee in conjunction with Fisheries Western Australia. (December 1998)
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- No. 124** A Quality Future for Recreational Fishing in the Gascoyne. Proposals for Community Discussion. A five year management strategy prepared by the Gascoyne Recreational Fishing Working Group (May 1999)

## References

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- CALM (1989). *Ningaloo Marine Park (State Waters) Management Plan 1989-1999*. Department of Conservation and Land Management Perth.
- CALM (1995). *Shark Bay marine reserves management plan*. Department of Conservation and Land Management Perth.
- CALM (1994). *A representative marine reserve system for Western Australia*. Department of Conservation and Land Management Perth.
- CSIRO (1999). *Final Report on Effects of Prawn Trawling on Far Northern Section of Great Barrier Reef 1991-1996*. CSIRO Canberra.
- Fisheries Department of Western Australia (May 1993). *Review of bag and size limit proposals for Western Australian recreational fishers*. Fisheries Management Paper No. 52 Fisheries Department of Western Australia, Perth.
- Fisheries Department of Western Australia (1994). *Future management of recreational gill, haul and cast netting in Western Australia and summary of submissions to the netting review*. Fisheries Management Paper No. 56 Fisheries Department of Western Australia, Perth.
- Fisheries Department of Western Australia (1995) *The bag and size limit review: new regulations and summary of submissions*.
- Fisheries Department of Western Australia (November 1996). *Gascoyne Aquaculture Development Plan*. Fisheries Department of Western Australia, Perth.
- Fisheries Department of Western Australia (1996). *Shark Bay World Heritage Property - Management Paper for Fish Resources*. Fisheries Management Paper No. 91 Fisheries Department of Western Australia, Perth.
- Government of Western Australia (1994). *New horizons in marine management*. Government of Western Australia, Perth.
- Ministry for Planning (March 1996). *Gascoyne Coast Regional Strategy*. Western Australian Planning Commission, Perth.
- National Recreational Fisheries Working Group (December 1994). *Recreational fishing in Australia - a National Policy*.
- REARK Research (1997). *Community attitudes survey 1997 - Final Report*. Fisheries Department Western Australia.
- Recfish Australia (1996). *We fish for the Future - The National Code of Practice for Recreational and Sport Fishing*.
- Recreational Fishing Advisory Committee (1990). *The future for recreational fishing - issues for community discussion*. Fisheries Management Paper No.34 Fisheries Department of Western Australia, Perth.

- Recreational Fishing Advisory Committee (1991). *The future for Recreational Fishing - Forum Proceedings*. Fisheries Management Paper No. 40 Fisheries Department of Western Australia, Perth.
- Recreational Fishing Advisory Committee (1991). *The future for Recreational Fishing - The Final Report of the Recreational Fishing Advisory Committee*. Fisheries Management Paper No. 41 Fisheries Department of Western Australia, Perth.
- Recreational Fishing Advisory Committee. (1991). *Appendix to the final report of the Recreational Fishing Advisory Committee (1991)*. Fisheries Management Paper No. 42 Fisheries Department of Western Australia, Perth.
- Standing Committee on fisheries and Aquaculture (March 1998) *The National Policy on Fisheries Bycatch*.
- Sumner, N. and Steckis, R. (in press). *Statistical analysis of Gascoyne region recreational fishing study July 1996*.
- Tour Operators Fishing Working Group (September 1997) *Future management of the aquatic charter industry in Western Australia*. Fisheries Management Paper No. 103 Fisheries Western Australia, Perth.
- Tour Operators Fishing Working Group (September 1998). *Future management of the aquatic charter industry in Western Australia - Final Report*. Fisheries Management Paper No. 107. Fisheries Western Australia, Perth.
- Weaver, Dr P. R. (August 1998). *An oral history of Ningaloo Reef - Transcripts*.

### Scientific References

- Baddar, M.K. (1987). *A preliminary study of the population dynamics of a sheiry, the starry pigface bream, Lethrinus nebulosus*. Kuwait Bulletin Marine Science, 9:215:220.
- Baddar, M.K. and Morgan, G.R. (1984). *Stock assessment of hatnoor, Epinephelus tauvina, in Kuwait waters. Proceedings, shrimp and fin fisheries management workshop, 9-11 October, 1983*. Kuwait Inst. for Scientific Research, Pp 499-522.
- Black, M. and Dixon, P.I. (1992). *Stock identification and discrimination of mulloway in Australian waters*. Centre for Marine Science, University of New South Wales, FIRTA final report 86/16.
- Brewer, D.T, Blaber, S.J.M., Salini, J.P. and Farmer, M.J. (1995). *Feeding ecology of predatory fishes from Groote Eylandt in the Gulf of Carpentaria, Australia, with special reference to predation on Penaeid prawns*. Est. Coast. Sh. Sci. 40(5): 577-600.
- Bruce, N.L. (1990). *Redescription of the Ascaridoid nematode Hysterothylacium scomberomori (Yamaguti) from Australian Spanish mackerel Scomberomorus commerson (Lacepede)*. Mem. Queensl. Museum. 28(2): 427-434.
- Carpenter, K.E. and Allen, G.R. (1989). *Emperor fishes and large-eye breams of the world (family Lethrinidae)*. FAO species catalogue, Vol. 9.
- Cassie, R.M. (1955). *The escapement of small fish from trawl nets and its application to the management of the New Zealand snapper fisheries*. Fish. Bull. NZ. 11: 1-99.

## References

- Cassie, R.M. (1956a). *Age and growth of the snapper Chrysophrys auratus Forster, in the Hauraki Gulf.* Trans. R. Soc. NZ. 84: 329-39.
- Cassie, R.M. (1956b). *The spawning of the snapper Chrysophrys auratus Forster, in the Hauraki Gulf.* Trans. R. Soc. NZ. 84: 309-28.
- Choat, (1968). *Feeding habits and distribution of Plectropomus maculatus (Serranidae) at Heron Island.* Proc. R. Soc. Queens. 80(2): 13-18.
- Colman, J.A. (1972). *Food of snapper Chrysophrys auratus (Forster) in the Hauraki Gulf, New Zealand.* NZ J Mar. Freshw. Res. 6: 221-239.
- Crossland, J. (1977). *Fecundity of the snapper Chrysophrys auratus (Pisces: Sparidae) from the Hauraki Gulf.* NZ J. Mar. Freshw. Res. 11: 767-775.
- Crossland, J. (1977). *Seasonal reproductive cycle of snapper Chrysophrys auratus (Forster) in the Hauraki Gulf, New Zealand.* NZJ Mar. Freshw. Res. 11: 37-60.
- Dalzell, P., Sharma, S. and Nath, G. (1992). *Estimation of exploitation rates in a multispecies emperor (Pisces: Lethrinidae) fishery in Fiji, based on length frequency data.* Tech. Doc. Inshore Fish. Res. Proj. S. Pac. Comm. 1: 43-50.
- Devaraj, M. (1981). *Age and growth of three species of seerfishes Scomberomorus commerson, S.guttatus and S. lineolatus.* Indian J Fish., 28(1-2): 104-127.
- Devaraj, M. (1983). *Maturity, spawning and fecundity of the king seer, Scomberomorus commerson (Lacepede), in the seas around the Indian peninsula.* Ind. J. Fish., 30(2) 203-230.
- Donohue K., Edsall, P., Robins, J. and Tregonning R. (1982). *Exploratory fishing for Spanish mackerel in waters off Western Australia during the period June 16 to October 16, 1981.* Dept. of Fisheries and Wildlife, Western Australia, Report No. 57.
- Druzhinin, A.D. and Filatova, N.A. (1980). *Some data on Lutjanidae from the Gulf of Aden area.* J Ichthyol. 20(1): 8-14.
- Dudley, R.G., Aghanashinikar, A.P. and Brothers, E.B. (1992). *Management of the Indo-Pacific mackerel (Scomberomorus commerson) in Ornan.* Fish. Res. 15(1-2): 17-43.
- Ebisawa, A., Kanashiro, K., Kyan, T. and Motonaga, F. (1995). *Aspects of reproduction and sexuality in the black-spot tuskfish, Choerodon schoenleinii.* Japanese Journal of ichthyology, 42(2) 121 - 130.
- Edmonds, J.S., Caputi, N., Moran, M.J., Fletcher, W. and Morita M. (1995). *Population discrimination by variation in concentrations of minor and trace elements in sagittae of two Western Australian teleosts.* In Recent Developments in Fish Otolith Research. USC press
- Edmonds, J.S., Moran, M.J., Caputi, N. and Morita, M. (1989). *Trace element analysis of fish sagittae as an aid to stock identification: pink snapper (Chrysophrys auratus) in Western Australian waters.* Can. J. Fish. Aquat. Sci. 46(1): 50-54.
- Edwards, R.R.C., Bakhader A. and Shaher, S. (1985). *Growth, mortality, age composition and fishery yields of fish from the Gulf of Aden.* J. Fish. BioL 27: 13-21

- Fabricius, K.E. (1994). *Spatial patterns in shallow-water crinoid communities on the central Great Barrier Reef*. *Aust. J. Mar. Freshw. Res.* 45(7): 1225-36.
- Ferreira, B.P. (1993). *Reproduction of the inshore coral trout *Plectropomus maculatus* (Perciformes: Serranidae) from the central Great Barrier Reef, Australia*. *J. Fish Biol.* 42: 831-844.
- Ferreira, B.P. and Russ, G.R. (1992). *Age, growth and mortality of in shore coral trout *Plectropomus maculatus* (Pisces: Serranidae) from the central Great Barrier Reef*. *Aust. J. Mar. Freshw. Res.* 43:1301-12
- Ferrell D and Sumpton W (1997) *Assessment of the fishery for snapper (*Pagrus auratus*) in Queensland and New South Wales*. Queensland Dept. Prim. Ind., NSW Fisheries Res. Inst., and Fish. Res. & Dev. Corp. FRDC report 93/074.
- Fish Chemistry section (J. Edmondson), Fisheries WA Research Division, *otolith chemistry research in progress*.
- Fisheries WA Research Division *Catch and Effort Statistics system* (CAES).
- Fisheries WA Research Division, *Recreational Fishing Research Section survey* (in progress).
- Francis, M.P. (1994). *Duration of larval and spawning periods in *Pagrus auratus* (Sparidae) determined from otolith daily increments*. *Env. Biol. Fishes.* 39(2): 137-152.
- Francis, M.P. (1994). *Growth of juvenile snapper, *Pagrus auratus**. *NZ J. Mar. Freshw. Res.* 28(2): 201-218.
- Francis, M.P. (1995). *Spatial and seasonal variation in the abundance of juvenile snapper (*Pagrus auratus*) in the north western Hauraki Gulf*. *NZ J. Mar. Freshw. Res.* 29(4): 565-579.
- Francis, M.P. and Pankhurst, N.W. (1988) *Juvenile sex inversion in the New Zealand snapper *Chrysophrys auratus* (Bloch and Schneider, 1801) (Sparidae)*. *Aust. J. Mar. Freshw. Res.* 39: 625-31.
- Francis, M.P., Williaims, M.W., Pryce, A.C., Pollard, S. and Scott, S.G. *Daily increments in otoliths of juvenile snapper, *Pagrus auratus* (Sparidae)*. *Aust. J. Mar. Freshw. Res.* 43(5): 1015-1032
- Francis, R.I.C.C. and Winstanley, R.H. (1989). *Differences in growth rates between habitats of southeast Australian snapper (*Chrysophrys auratus*)*. *Aust J Mar. Freshw. Res.* 40: 703-710.
- Godfriaux, B.L. (1974). *Food of snapper in western Bay of Plenty, New Zealand*. *NZ J Mar. Freshw. Res.* 8(3): 473-504.
- Goeden, G.B. (1977). *The life and loves of the coral trout*. *Aust. Fish.* 36(8): 16-18. NB: Although claiming to refer to *P. maculatus*, this may refer to *P. leopardus*.
- Govender, A. (1995). *Mortality and biological reference points for the king mackerel (*Scomberomorus common*) fishery off Natal, South Africa (based on a per-recruit assessment)*. *Fish. Res.* 23(3-4): 195-208.
- Gray, C.A. and McDonall, (1993). *Distribution and growth of juvenile mulloway, *Argyrosomus hololepidotus* (Pisces: Sciaenidae), in the Hawkesbury River, southeastern Australia*. *Aust. J. Mar. Freshw. Res.* 44: 401-409.
- Griffiths, M.H. (1996). *Life history of the dusky kob *Argyrosomus japonicus* (Scianidae) off the east coast of South Africa*. *S. Afr. J. Mar. Sci.* 17: 135-154.

## References

- Griffiths, M.H. and Hecht, T. (1995). *Age and growth of South African dusky kob *Argyrosomus japonicus* (Sciaenidae) based on otoliths*. S. Afr. J. Mar. Sci. 16: 119-128.
- Hall, D.A. (1984). *The Coorong: Biology of the major fish species and fluctuations in catch rates 1976-1983*.
- Hall, D.A. (1986). *An assessment of the mullocky (*Argyrosomus holepidotus*) fishery in South Australia with particular reference to the Coorong Lagoon*. Discussion paper. Dept. of Fisheries, South Australia.
- Holt, C.P. (1978). *The biology of three teleost species in the Swan River estuary*. Honours thesis, Murdoch University.
- Johnson, M.S., Creagh, S. and Moran, M. (1986). *Genetic subdivision of stocks of snapper, *Chrysophrys unicolor*, in Shark Bay, Western Australia*. Aust J Mar. Freshw. Res. 37: 337-345.
- Johnson, M.S., Hebbert, D.R. and Moran, M.J. (1993). *Genetic analysis of populations of northwestern fish species*. Aust. J Mar. Freshwater Res. 44: 673-85.
- Jones, G.K. (1987). *A review of the commercial fishery for snapper (*Chrysophrys auratus*) in South Australian waters (1983-1986)*. South Australian Department of Fisheries. Discussion Paper No. 2, 20p.
- Jones, K. (1981). *Biological research on snapper (*Chrysophrys auratus* syn. *unicolor*) and an analysis of the fishery in northern Spencer Gulf*. SAFIC 5(6): 5-8.
- Knuckey I., Hay T. and Calogeras, C. (1996). *Population biology of the Tricky Snapper (*Lethrinus laticaudis*)*. Dept. Prim. Ind. & Fish., Northern Territory. NT coastal reef fish, Fishnote No. 23.
- Kuo, C.L. and Lee, S.S. (1990). *Maturation and spawning of common porgy *Lethrinus nebulosus* (Forsskal) in the northwestern shelf of Australia*. J Mar. Biol. Assoc. India, 32(1-2): 201-207.
- Lablache, G. and Carrara, G. (1988). *Population dynamics of emperor red snapper (*Luoanus sebae*) with notes on the demersal fishery of the Mahe Plateau, Seychelles*. In Venema JM, Christensen JM and Pauly (eds.) *Contributions to Tropical Fisheries Biology*.
- Lee, J.U. and Al-Baz, A.F. (1989) *Assessment of fish stocks exploited by fish traps in the Arabian Gulf area*. Asian Fish. Sci. 2:213-231
- Lenanton, R.C.J. (1974). *The abundance and size composition of trawled juvenile snapper *Chrysophrys unicolor* (Quoy and Gaimard) from Cockburn Sound, Western Australia*. Aust J. Mar. Freshw. Res. 25:281-5.
- Lewis, A.D. (1981). *Population studies of northern Australian pelagic species utilizing the electrophoretic approach*. In Grant CJ and Walter DG (eds) *Northern Pelagic Fish Seminar*. Dept. Prim. Ind., Australian Govt. Publishing Service. Pp 35-44.
- Liu, C.C. and Yeh, S.Y. (1991). *Age determination and growth of red emperor (*Luyanus sebae*) in the Arafura Sea off north Australia*. Acta Oceanographica Taiwanica. Taipei; 26: 36-52.
- Loneragan, N.R., Potter, I.C. and Lenanton, R.C.J. (1989). *Influence of site, season and year on contributions made by marine, estuarine, diadromous and freshwater species to the fish fauna of a temperate Australian estuary*. Mar. Biol. 103: 461-479.

- MacDonald, C.M. *Life history characteristics of snapper *Chrysophrys auratus* (Bloch and Schneider, 180 1) in Australian waters*. Fisheries and Wildlife Paper, Victoria, No. 29.
- Mackie, M. (unpubl data). *Plectropomus maculatus research in progress, from Pilbara Region*. Zoology Dept., UWA and Fisheries WA Research Division.
- Marais, J.F.K. (1983). *Fish abundance and distribution in the Gamtoos Estuary with notes on the effects of floods*. S. Afr. J. Zool. 18(2): 103-109.
- Marais, J.F.K. (1984). *Feeding ecology of major carnivorous fish from four Eastern Cape estuaries*. S. Afr. J. Zool. 19(3): 210-223.
- Marais, J.F.K. (1985). *Some factors influencing the size of fishes caught in gillnets in Eastern Cape estuaries*. Fish. Res. 3: 251-26 1.
- Mathews, C.P. (1991). *Growth, mortality and length-weight parameters for some Kuwaiti fish and shrimp*. Fishbyte 9(2): 30-33.
- Mathews, C.P. and Samuel (1987). *Growth and mortality assessments for groupers from Kuwait*. Kuwait Bull. Mar. Sci. 9:173-19 1.
- McPherson, G. (1981). *Research helps track Spanish mackerel*. Aust. Fish., 40(6): 9-1 1.
- McPherson, G. (1988). *Search for Spanish mackerel stocks*. Aust. Fish. 47(6):34-35
- McPherson, G. (1993). *Reproductive biology of the narrow barred Spanish mackerel (*Scomberomorus commerson* Lacepede, 1801) in Queensland waters*. Asian Fisheries Science 6: 169-182.
- McPherson, G., Squire, L. and O'Brien, J. (1988). *Age and Growth of four important reef fish species*. Qld Dept. Prim Ind., Fisheries Research Branch Technical Report No. FRB 88/6. A report to the Great Barrier Reef Marine Park Authority.
- McPherson, G., Squire, L. and O'Brien, J. (1992). *Reproduction of three dominant Luoanus of the Great Barrier Reef inter-reef fishery*. Asian Fish. Sci 5(1): 15-24.
- McPherson, G.R. (1981). *Preliminary report: investigations of spanish mackerel *Scomberomorus commerson* in Queensland waters*. In Grant CJ and Walter DG (eds) Northern Pelagic Fish Seminar. Dept. Prim. Ind., Australian Govt. Publishing Service. Pp 51-58.
- McPherson, G.R. (1989). *Nordi-eastern Australian mackerel (*Scomberomorus*) fishery*. In Chavez (ed) *Proceedings of the workshop Australia-Mexico on Marine Sciences, Quintana Roo, Mexico, July 6-1 7, 1987*. Mexico: Quintana Roo. Pp 341-348.
- McPherson, G.R. (1992). *Age and growth of the Narrow-barred Spanish Mackerel (*Scomberomorus commerson* Lacepede, 1800) in north-eastern Queensland waters*. Aust. J Mar. Freshw. Res. 43:1269-82
- McPherson, G.R. and Squire, L. (1992). *Age and growth of three dominant Luoanus species of the Great Barrier Reef inter-reef fishery*. Asian Fisheries Sci. 5:25-36
- Mees, C.C. (1992). *Seychelles demersal fishery. An analysis of data relating to four key demersal species*. Tech Rep. Seychelles Fishing Auth. Victoria, Sychelles. SFA 1992, No. 0 19: 143 p.



## References

- Melville-Smith, R. and Baird, (1980). *Abundance, distribution and species composition of fish larvae in the Swartkops estuary*. S. A. fr. J Zool. 15(2): 72-78.
- Milton, D.A., Short, S.A., O'Neill, M.F., Blaber, S.J.M. (1995). *Aging of three species of tropical snapper (Lutjanidae) from the Gulf of Carpentaria, Australia, using radiometry and otolith ring counts*. Fishery Bulletin, Seattle WA. 93(1): 103-115.
- Moran, M., Edmonds, J., Jenke, J., Cassells, G. and Burton, C. (1993). *Fisheries biology of emperors (Lethrinidae) in northwest Australian coastal waters*. Final Report, FRDC Project 89/20, WA Marine Research Laboratories.
- Moran, M., Jenke, J., Burton, C. and Clarke, D. (1988). *The Western Australian trap and line fishery on the north-west shelf*. Final report, FIRTA project 86/28.
- Moran, M. (1992). *Yield and egg-per-recruit models of Shark Bay snapper: a case study in justification and implementation of an increase in minimum legal length*. Bureau of Rural Resources Proceedings No. 13: 89-93.
- Moran, M.J. (unpublished data). *Unpublished and in progress research on pink snapper (Pagrus auratus) in the Shark Bay region*.
- Moran, M.J. and Jenke, (1989). *Effects of fish trapping on the Shark Bay snapper fishery*. Fisheries Report No. 82, Fisheries Research Branch, WA Marine Research Laboratories.
- Moran, M.J. (1987). *Tagging confirms separate stocks of snapper in the Shark Bay region*. Fishing Industry News 20(4): 3-8.
- Morgans, J.F.C. (1982). *Serranid fishes of Tanzania and Kenya*. JLB Smith Inst. Ichth., Ichth. Bull. No. 46, 44p.
- Munro, I.S.R. (1942). *The eggs and early larva of the Australian barred Spanish mackerel, Scomberomus commersoni (Lacepede) with preliminary notes on the spawning of that species*. Proc. Roy. Soc. Qld. 54(4) 33-48.
- Nardi, K., Fisheries WA Geraldton Office, unpublished data from Abrolhos Islands region.
- Neira, F.J. and Potter, I.C. *Movement of larval fishes through the entrance channel of a seasonally open estuary in Western Australia*. Est. Coast. Shelf Sci. 35(2): 213-224.
- Newman, S.J. (unpublished manuscript). *Age, growth, mortality and yield of red snappers from the Great Barrier Reef*.
- Newman, S.J. and Williams, D.M. (1996). *Variation in reef associated assemblages of the Lutjanidae and Lethrinidae at different distances offshore in the central Great Barrier Reef*. Env. Biol. Fishes. 46(2): 123-138.
- Newman, S.J., Williams, D.M. and Russ, G.R. (1997). *Patterns of zonation of assemblages of the Lutjanidae, Lethrinidae and Serranidae (Epinephelinae) within and among mid-shelf and outershelf reefs in the central Great Barrier Reef*. Mar. Freshw. Res. 48(2):119-28
- Northern Territory Dept. Prim. Ind. & Fish. and Fisheries WA Research Division (D. Gaughan) (research in progress). *The stock structure of Northern and Western Australian Spanish mackerel*. FRDC funded project R1 25.

- Nowara, G. (in prep.). *Recreational fishing survey of Ningaloo Marine Park for 1992 and 1993*. Fisheries Research Report, uncatalogued, Fisheries WA Research Division, WAMRL.
- Penn, J.W. (1977). *Trawl caught fish and crustaceans from Cockburn Sound*. Dept. of Fisheries and Wildlife, Western Australia. Report No. 20.
- Pilbara Trawl section (P. Stephenson), Fisheries WA Research Division, research in progress.
- Potter, I.C., Loneragan, N.R., Lenanton, R.C.J., Chrystal, P.J. and Grant, C.J. (1983). *Abundance, distribution and age structure of fish populations in a Western Australian estuary*. J Zool. , Lond.
- Roubal, F.R. (1996). *A comparison of the ectoparasite assemblage on snapper Pagrus auratus from different regions in Australia and New Zealand*. Int. J for Parasit. 26(6): 661-665.
- Roubal, F.R., Quartararo, N. and West, A. (1996). *Spatial and temporal variation in populations and community of ectoparasites on young snapper, Pagrus auratus, from wild and captivity at Port Hacking, Sydney, Australia*. Mar. Freshw. Res. 47(4): 585-593.
- Sakanari, J. (1989). *Grillotia heroniensis*, sp.nov., and *G. overstreeti*, sp.nov., (Cestatoda: Trypanorhyncha) from Great Barrier Reef fishes. Aust. J Zool., 37(1): 81-87.
- Sanders, M.J. and Powell, D.G.M. (1979). *Comparison of growth rates of two stocks of snapper (Chrysophrys auratus) in south-east Australian waters using capture-recapture data*. NZJ Mar. Freshw. Res. 13: 279-284.
- Sanders, M.J. (1974). *Tagging indicates at least two stocks of snapper Chrysophrys auratus in south east Australian waters*. NZJ Mar. Freshw. Res. 8: 371-4.
- Sarti, N. (in prep.). *An analysis of data from a survey of recreational fishing in the Ningaloo Marine Park, Western Australia*. For Grad. Dip. Appl. Sci. (Survey from 1989 to 1993).
- Scott, S.G. and Pankhurst, N.W. (1992). *Interannual variation in the reproductive cycle of the New Zealand snapper Pagrus auratus (Bloch & Schneider) (Sparidae)*. J Fish Biol. 41(5): 685-696.
- Sharples, A.D. and Evans, C.W. (1995). *Metazoan parasites of the snapper, Pagrus auratus, in New Zealand. 1. Prevalence and abundance*. NZJ Mar. Freshw. Res. 29(2): 195-201.
- Sharples, A.D. and Evans, C.W. (1995). *Metazoan parasites of the snapper, Pagrus auratus, in New Zealand. 2. Site specificity*. NZJ Mar. Freshw. Res. 29(2): 203-21 1.
- Sheaves, M.J. (1992). *Patterns of distribution and abundance of fishes in different habitats of a mangrove-lined tropical estuary, as determined by fish trapping*. Aust. J Mar. Freshw. Res. 43: 1461-79.
- Sheaves, M.J. (1993). *Patterns of movement of some fishes within an estuary in tropical Australia [Queensland]*. Aust. J Mar. Freshw. Res. 44(6): 867-880.
- Sheaves, M.J. (1995). *Large lutjanid and serranid fishes in tropical estuaries: are they adults or juveniles*. Mar. Ecol. Prog. Ser. 129(1-3): 31-40.
- Sheaves, M.J. (1996). *Do spatial differences in the abundance of two serranid fishes in estuaries of tropical Australia reflect long-term salinity patterns?* Mar. Ecol. Prog. Ser. 137: 39-49.

## References

- Sheaves, M.J. (1996). *Habitat-specific distributions of some fishes in a tropical estuary*. *Mar. Freshw. Res.* 47(6): 827-830.
- Stephenson, P. and Dunk, I. (1996). *Relating fishing mortality to trawl effort on the North-West shelf of Western Australia*. Final report, Fisheries WA and Fisheries Research and Development Corporation, Project 93/25.
- Sumner, N.R. and Steckis, R. (in press). *Statistical analyses of Gascoyne Region recreational fishing study, July 1996*. Fisheries Research Report.
- Thiagarajan, R. (1987). *Growth of King Seerfish (Scomberomerus commerson) from the south east coast of India*. In Venema SC and van Zalinge (eds), *Contributions to Tropical Fish Stock Assessment in India*. FAO, United Nations.
- Tropical Finfish Section (S. Newman), *Fisheries WA Research Division. Research in progress, Kimberley region*.
- Walker, M.H. (1975). *Aspects of the biology of emperor fishes, family Lethrinidae, in north Queensland barrier reef waters*. Unpubl. PhD thesis, James Cook University of North Queensland.
- Wallace, J.H. and Schleyer, M.H. (1979). *Age determination in two important species of South African angling fishes, the kob (Argyrosomus hololepidotus Lacep.) and the spotted grunter (Pomadasys commersonni Lacep.)* *Trans. Roy. Soc. S. Afr.* 44: 15-26.
- Williams, A. (1989). *Some monogenean parasites of the genera Calceostoma vanbeneden, 1852 and Diplectanum Diesing, 1858 from Argysomus hololepidotus (Lacepede, 1802) (Sciaenidae: Teleostei) in Western Australia*. *Systematic Parasitology*, 14(3): 187-201.
- Williams, A., Moran, M., Caputi, N. and Water, C. (1993). *Didymozoid trematode infection of snapper Pagrus auratus (Sparidae), of Western Australia: parasite population biology and fishery implications*. *Fisheries Research* 16:113-129.
- Winstanley, R.H. (1983). *The food of snapper Chrysophrus auratus in Port Phillip Bay, Victoria*. *Victorian Dept. Conservation, Forests and Lands, Fisheries and Wildlife Service*. Commercial Fisheries Report 10. 14p.
- Yeh, S.Y., Chen, C.Y. and Liu, H.C. (1986). *Age and growth of Ludanus sebae in the waters off northwestern Australia*. *Acta. Oceanog. Taiwan. Sci. Rep.* 16: 90-102
- Young, P.C. and Martin, R.B. (1982). *Evidence for protogynous hermaphroditism in some lethrinid fishes*. *J Fish Biol.* 21:475-49

# **'A QUALITY FUTURE FOR RECREATIONAL FISHING IN THE GASCOYNE.'**

NAME: \_\_\_\_\_

RESIDENTIAL ADDRESS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ POST CODE: \_\_\_\_\_

Please indicate your response by  
marking one box with a tick (✓).

Any additional comments you may care to make can be made  
in the space provided. Please feel free to add additional pages of  
comments if insufficient space is available.

**Comment on proposals contained  
in Fisheries Management Paper No: 124**

***'A QUALITY FUTURE FOR RECREATIONAL  
FISHING IN THE GASCOYNE.'***

**Proposals for Community Discussion.  
A five year management.**



**FISHERIES**  
WESTERN AUSTRALIA

Recreational Fisheries Program

MAY 1999

# Comments on proposals

## Guiding principles for management

### Proposal 1 - Key principles for recreational fisheries management

The Working Group felt it was important that recreational fisheries management in the region be based on the following key principles:

	Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree
<ul style="list-style-type: none"> <li>A key aim should be to ensure that the biodiversity of fish communities and sustainability of fish stocks are preserved.</li> </ul>					
<ul style="list-style-type: none"> <li>Fisheries management should be pro-active and recognise projected increases in fishing pressure.</li> </ul>					
<ul style="list-style-type: none"> <li>Management should incorporate a precautionary approach and seek to minimise risk to fish stocks.</li> </ul>					
<ul style="list-style-type: none"> <li>Fishing rules should acknowledge that equitable access to fishing opportunities across recreational user groups is important.</li> </ul>					
<ul style="list-style-type: none"> <li>The value of recreational fishing should be clearly recognised and given proper weight in all planning processes.</li> </ul>					
<ul style="list-style-type: none"> <li>Fishing rules be kept simple and where possible and practical, made uniform across the region.</li> </ul>					
<ul style="list-style-type: none"> <li>Recreational fishing rules should be designed to limit the total recreational catch, as well as protect fish at vulnerable stages in their life.</li> </ul>					
<ul style="list-style-type: none"> <li>The benefits from controls on the total recreational catch should flow back to the recreational sector and be reflected in improved fishing quality and sustainability.</li> </ul>					

Comments:

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## Term of plan and review

### *Proposal 2 – Five year review*

This regional management strategy should be reviewed every five years. Changes to recreational fisheries management within this period should only occur if there is compelling evidence that indicates a critical threat to the sustainability of fish stocks.

Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

Comments:

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## Information for management

The Working Group noted that a major obstacle to the resolution of fishery management and resource sharing issues was a scarcity of robust long-term data on recreational fishing catches and activity in the region.

Only limited information was available on recreational catch, fishing effort and the biology of key species. Stock assessments were not available for many key species in the region. The Working Group supports the need for a comprehensive research program and database to be maintained to assist the monitoring of fisheries and the evaluation of management arrangements. Research should be conducted on a five-year program in sequence with the review cycle of this strategy.

### *Proposal 3 – Major catch survey*

A major recreational catch survey should be undertaken every year for a minimum of three years to establish a baseline data-set on recreational fishing in the Gascoyne.

The catch survey should be repeated every five years at a minimum to provide detailed information about the spatial and temporal distribution of recreational activity and catches on which to base management decisions.

Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

Comments:

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# Comments on proposals

**Proposal 4 – Annual data collection program**

Fisheries officers and volunteers should collect data on a number of key indicator species as part of their patrols to provide an index of trends in recreational fishing in the years between five-year catch surveys.

Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

Comments:

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**Proposal 5 – Volunteer angler logbook program**

Fisheries WA should expand the voluntary angler's logbook program in the Gascoyne Region to provide additional monitoring of trends among highly successful recreational fishers.

Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

Comments:

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**Proposal 6 – Priority species for research**

Undertake research on the following key recreational species in the Gascoyne (in order of priority) to provide information on species biology and stock structure. Predictive fisheries stock assessment models and, where practical, indices of recruitment, should then be developed for these key species: Pink snapper, spangled emperor, black snapper, red emperor, baldchin groper, spanish mackerel, cods (estuary, rankin), coral trout, black spot tuskfish, mulloway.

Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

Comments:

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**Proposal 7 – Fishing quality indicators**

Fisheries WA develop a range of ‘fishing quality indicators’ based on angler surveys to identify trends in fishing quality in the region and assist in the review of the effectiveness of this strategy.

These indicators should cover fishing quality, diversity and the value associated with the fishing experience.

Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

Comments:

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**Protecting vulnerable fish and managing the recreational catch**

Four different sets of area specific recreational fishing management arrangements currently apply in the Gascoyne Region. The areas concerned are Ningaloo Marine Park, the western and eastern gulfs of Shark Bay and state limits apply in the region outside these areas.

**Proposal 8 – Bag, possession and trip limits**

Current state-wide recreational fishing regulations use a variety of controls to manage the catches of individual recreational fishers.

The Working Group considered that bag limits, trip limits and possession limits could not be considered in isolation, and needed to be used in combination to provide effective regulation of individual catches and ensure equity between various interest groups.

This is a key issue in areas such as the Gascoyne where the majority of fishing trips extend over several days or weeks and where the accumulation of multiple daily bag limits effectively negates many of the conservation benefits associated with daily bag limits.

While s50 of the Fish Resources Management Act 1994 currently provides that “a person may not take or bring onto land in any one day” more than a daily bag limit, a defence in the regulation exists for specified species provided a person lives aboard a boat. For shore-based fishers, there is effectively no limit on the quantity of fish that an individual can accumulate in most areas.



# Comments on proposals

## **Proposal 8(a) — Possession and trip limits**

- The Working Group believes a possession limit is essential to provide more effective control on individual catches and ensure equity between user groups. Possession limits also quantify the total recreational catch more clearly than daily bag limits.
- The possession limit would be complemented by an easily understood ‘trip limit’ of twice the daily bag limit of whole fish for all fishers. The onus of proof should rest with individuals to demonstrate they had been fishing for more than one day when inspected, or that they had purchased the fish from a legitimate source.
- To allow fishers the flexibility of deciding how they keep their catch, options in the regulation should include fillets, a combination of fillets and whole fish, or just whole fish.
- Several options on the level of the possession limit were discussed, but the majority of the Working Group favoured an approach consistent with existing Ningaloo Marine Park regulations.

	Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree
The proposed possession/trip limit for the Gascoyne is that a person may have at any time no more than: <ul style="list-style-type: none"> <li>• 17kg of fillets; or</li> <li>• 10kg of fillets plus one days bag limit of whole fish; or</li> <li>• two days bag limit of whole fish</li> </ul>					
• a possession limit of two days bag limit should apply to all other fish including baitfish, crustaceans and shellfish					

## **Proposal 8(b) – Daily bag limits**

The Working Group noted there was widespread acceptance of the existing Ningaloo and Shark Bay bag limit structure and this should form the basis for a regional limit.

To simplify the approach and recognise that recreational fishing is effectively a multi-species fishery, it is proposed that a mixed daily bag limit of seven be introduced for key angling fish across the Gascoyne and a mixed daily bag limit of 30 introduced for table fish.

	Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree
The bag limits proposed for each species in the following tables should be adopted.					

Comments:

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## Proposal 8(b) – Recommended bag limit structure

### KEY ANGLING FISH – 7

#### Mixed daily bag limit of seven

You may take or land a maximum of seven fish per day of all species listed in this table. Individual species limits apply for ‘Conservation Fish’ (one of each species) and ‘Trophy Fish’ (two of each species), ‘Prize Fish’ and ‘Key Angling Fish’. These must not be exceeded. For example, if you were to catch the maximum of seven fish from this group, you may not have more than one coral trout, one coronation trout, two Spanish mackerel and three trevally. Alternatively you may take four spangled emperor and three other NW snapper or the limit of seven may be comprised of six pink snapper and one other fish.

<b>Conservation Fish 1 of each species</b>	<b>Trophy Fish 2 of each species</b>	<b>Prize Fish 4 of each species</b>	<b>Key Angling Fish 6 of each species</b>
<i>These fish are extremely vulnerable to overfishing. For many species, very large fish are prolific breeders and warrant extra protection</i>	<i>These fish are highly sought after for catching or eating qualities and are vulnerable to overfishing</i>	<i>These fish are prized by recreational fishers or of relatively low abundance and require protection to minimise local depletion</i>	<i>These fish are keenly sought by recreational fishers and require some level of protection from excessive catches</i>
Coral trout Coronation trout Coronation cod Marlin, blue and black all Billfish (eg sailfish, swordfish) All fish over 70cm - Only 1 fish of each species you have caught may be 70 cm or greater in length. This limit does not apply to the pelagic species marked with a asterisk (*)	Amberjack* Bone fish Cobia* Cods - rankin, estuary Dhufish Groper & tuskfish Kingfish, yellowtail* Mackerel, Spanish, wahoo,* Mulloway, northern mulloway Parrot fish Pearl perch Pink snapper (Freycinet stock) Red emperor Samson fish* Sharks * Tuna* - southern bluefin, northern bluefin, yellowfin, bigeye, dogtooth	Barracuda* Cods - other Job fish Mahi mahi * Mangrove jack Spangled emperor Tunas (other than listed Prize sp.)	Mackerel, shark and school* NW snapper (Lethrinus spp) Pink snapper (excluding inner gulfs of Shark Bay) Queenfish Sea perch Tailor Trevally

# Comments on proposals

## TABLE FISH – 30

### A mixed daily bag limit of thirty

You may take a maximum of 30 fish listed in this table. Species limits apply for some fish and these must not be exceeded. For example, if you were to catch the maximum of 30 fish, you may not have more than 10 bream, 10 threadfin salmon or 10 flathead. Alternatively you may take 10 bream and 20 whiting or 30 whiting.

Large fry – 10 Maximum of 10 of each species	Small fry – 30 These fish may make up all or part of the mixed daily bag limit
Bream – north-west, black & yellow fin Fingermark bream      Flathead Flounder                      Goat fish Leatherjacket              Threadfin salmon	Dart                      Gardies Gurnard                  Longtoms Milk fish                  Mullet Tarwhine                  Whiting All fish not included in other categories

## TOTALLY PROTECTED FISH – 0

Fish in this table are totally protected and may not be taken. Fishing bans apply due to their vulnerability, conservation value, scarcity or the high risk posed by fishing to the sustainability of fish stocks or species.

Potato cod Whale shark Hump head Maori wrasse Leafy seadragon Great white shark Pink snapper (eastern gulf of Shark Bay only) Live coral and rocks Specimen shells
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## BAITFISH, CRUSTACEANS, SHELLFISH

Many crustaceans and shellfish are highly prized for their eating qualities, and susceptible to local depletion. Baitfish, while abundant, should not be taken in commercial quantities or in such quantities that they are wasted by recreational fishers.

Species	Daily bag limit	Boat limit
Baitfish (including fish of the Family Clupeidae and Engraulidae)	9 litres (plastic bucket)	
Rock lobster	8 (not more than 4 tropical rock lobster)	16 (not more than 8 tropical rock lobster)
in Ningaloo Marine Park	4	8
Crabs – blue manna	20	40
– mud	5	10
– other	10	20
Prawns	9 litres	
Octopus, squid, cuttlefish	15	30
Abalone	20 (possession limit)	
Shellfish and sea urchins etc (taken for consumption or bait)	mixed bag of 50	

**Proposal 9 – Size limits**

	Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree
9 (a) The minimum size limit for black snapper (blue lined emperor) be increased to 35cm to protect breeding stocks.					
9 (b) The minimum size limit for pink snapper in the western gulf of Shark Bay be increased to 50cm to protect breeding stocks.					
9 (c) The minimum size limit for pink snapper be increased to 50cm in the entire Gascoyne Region to standardise rules and promote fishing quality.					
9 (d) The maximum size limit for cod be reduced to 1 metre;					
9 (e) A maximum size limit of 70cm be introduced to protect large reef and demersal species, allowing fishers to take only one fish of each species over 70cm in length each day. This limit will not apply to the following pelagic species: amberjack, barracuda, cobia, mackerel, mahi mahi, samson fish, sharks, tuna, yellowtail kingfish.					

Comments:

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**Proposal 10 – Shark Bay Pink Snapper**

**Proposal 10(a) – Western gulf**

A bag limit of two, with a minimum size of 50cm and a limit of one fish over a maximum size limit of 70cm. These arrangements should apply to the area south of a line drawn west from Eagle Bluff (lat. 26.10S, long. 113.58E) across to the point (lat. 26.17S, long. 113.45E) to protect the known areas of major spawning activity.

Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

# Comments on proposals

## 10(b) – Eastern gulf:

Once the target breeding stock of 100 tonnes is reached a bag limit of two pink snapper, coupled with restricted fishing times and minimum and maximum size limits, is an appropriate management approach.

Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

Comments:

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## Proposal 11 – Filleting at sea

As daily bag and size limits are to remain important management tools in recreational fishing management, filleting at sea should not be permitted in the Gascoyne Region.

Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

Comments:

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## Fishing methods

### Proposal 12 – Line fishing

All recreational anglers, both shore and boat fishers, be limited to a maximum of two rods, two handlines, or combination of one rod and one hand line, with no more than three hooks or gangs of hooks attached to each line.

Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

The use of set lines by recreational fishers be banned.

Comments:

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**Proposal 13 – Spear fishing**

The Working Group considered that particular fish species and water habitats could be easily exploited by spearfishers using underwater breathing apparatus, which represented a potential to seriously deplete populations of resident reef and demersal species.

It is proposed that spearfishing be prohibited by persons using artificial breathing apparatus and that existing restrictions on spearfishing for vulnerable species continue in areas of high conservation value, such as specified areas in Ningaloo Marine Park.

Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

Comments:

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**Proposal 14 – Net fishing**

The Working Group believed that set netting has had a history of being a wasteful and indiscriminate practice in the Gascoyne. Because of its potential to catch large quantities of schooling species, and to mesh turtles, dolphins and other marine predators, it is not in keeping with recreational fishing ethics and values, and not appropriate as a recreational fishing method. It is proposed that:

- (a) The use of set nets by recreational fishers be prohibited in the Gascoyne.

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- (b) Haul netting be permitted in specified netting areas only.

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- (c) Throw nets be permitted throughout the region (except 'no fishing' zones such as sanctuary zones and fish protection areas).

Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

Comments:

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# Comments on proposals

## Improving recreational fishing quality

### *Proposal 15 – Recreational fishing priority areas*

The importance of recreational fishing as a component of tourism and lifestyle should be recognised by formally establishing recreational fishing priority areas under the Fish Resources Management Act 1994.

The Working Group believe that the majority of nearshore waters in the Gascoyne have a long history of importance as recreational fishing areas, and should be managed with recreational fishing as the highest priority.

Management decisions such as those affecting resource allocation and access should give prime consideration to recreational fishing values in these areas. Other uses such as commercial fishing and aquaculture should be of a type and level compatible with recreational fishing values for the area.

The Working Group considered that the establishment of discrete zones which recognise recreational fishing as a priority would have the following significant social benefits:

- guard against unmanaged shifts in resource sharing through increased commercial fishing activity
- secure long-term recreational access to key areas
- highlight the importance of recreational fishing in other planning processes
- help ensure that the majority of benefits from tighter regulation of recreational fishing flow back to the recreational sector in the shape of improved fishing quality and reduced risk of serious localised depletion
- help minimise social conflict by reducing the incidence of incompatible activities
- create a focus for recreational fishing as a major tourism drawcard in the Gascoyne.

The following areas have been identified as possible recreational fishing priority areas:

- Area extending from the high water mark to a distance of 3nm off shore from 240°42' south extending north to the boundary of the Gascoyne Region (near Ashburton River).
- Eastern inner gulf of Shark Bay.
- Western inner gulf of Shark Bay.

	<b>Strongly Agree</b>	<b>Agree</b>	<b>Don't Know</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
• Area extending from the high water mark to a distance of 3nm off shore from 240°42' south extending north to the boundary of the Gascoyne Region (near Ashburton River).					
• Eastern inner gulf of Shark Bay.					
• Western inner gulf of Shark Bay.					

Comments:

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**Proposal 16 – Recreational fishing only areas**

A number of specific areas have been identified as key recreational fishing sites. It is proposed the following areas be designated as ‘recreational fishing only’ areas and commercial line fishing for finfish species should be prohibited.

**Proposal 16(a) – Carnarvon area**

- One Mile Jetty – to a distance of 100m around the jetty
- Coral patch – (25°15.812S, 113°46.845E) to a distance of 1nm
- Tyre reef/Lady Joyce wreck – (25°02.788S, 113°32.390E) to a distance of 1nm

	Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree
• One Mile Jetty – to a distance of 100m around the jetty					
• Coral patch – (25°15.812S, 113°46.845E) to a distance of 1nm					
• Tyre reef/Lady Joyce wreck – (25°02.788S, 113°32.390E) to a distance of 1nm					

**Proposal 16(b) – Exmouth area**

- Y Island

**Proposal 16(c) – Shark Bay area**

- Bernier/Dorre Islands – this area was identified in the ‘Shark Bay Management Paper for Fish Resources’ (Fisheries Management Paper No 91) as a recreational fishing only area
- Steep Point – extending 800m from the shore.

	Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree
• Bernier/Dorre Islands – this area was identified in the ‘Shark Bay Management Paper for Fish Resources’ (Fisheries Management Paper No 91) as a recreational fishing only area					
• Steep Point – extending 800m from the shore.					

Comments:

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**Proposal 17 – Fish replenishment areas and ecotourism – Broadhurst Reef**

Fishing is currently prohibited in a number of areas in the Gascoyne, including sanctuary zones in Ningaloo Marine Park and Shark Bay and a reef observation area at Point Quobba.

The Working Group expressed concern that there have not been any monitoring programs implemented to properly evaluate the effectiveness of these closures, and that the objectives for most closures were not clearly defined.



## Comments on proposals

Fishing closures have some potential as a fisheries management strategy, but their usefulness in Western Australian conditions should be carefully evaluated before any widespread introduction.

Broadhurst Reef in the western inner gulf of Shark Bay was identified as a habitat for many juvenile fish species, including pink snapper, and would serve as a possible trial site for a fish replenishment area. It is also a popular dive site relatively close to Denham, and a closure to fishing would enhance its use for ecotourism.

	Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree
It is proposed that a trial 'fish replenishment area' be established around Broadhurst Reef and a five-year monitoring program be implemented to evaluate the effect of 'no fishing areas' as a means of enhancing fish populations.					

Comments:

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### ***Proposal 18 – Low impact wilderness fishing experiences***

The Working Group observed that some areas in the Gascoyne still retain a 'pristine' appearance and relatively unexploited populations of many species of fish. The unique 'wilderness' fishing experience in these areas is highly valued by recreational fishers and has enormous potential to provide experiences for the next 20 years or more, provided that fishing and other people pressures can be properly managed to support these values.

However, the Working Group considered that the fishing quality inherent in areas where access is limited by the environment would inevitably decline with increasing people pressure, unless specific management was developed and low impact fishing behaviour encouraged.

The establishment of specific areas to cater for low impact fishing may provide a high quality recreational fishing experience and associated tourism opportunities. A key objective would be to preserve the pristine nature of both the environment and the natural abundance and population structure of fish communities as closely as possible.

A range of special fisheries management arrangements to preserve the nature of this experience may be required including gear restrictions and limited take. However, the Working Group considered that in the first instance, an educational approach and the development of community support for this innovative approach was necessary.

Several sites were identified as having the potential to be explicitly managed to retain 'wilderness' recreational fishing qualities.

These included:

- Coastal fishing on Gnaraloo and Waroora Stations.
- Dirk Hartog Island.

It is proposed Fisheries WA identifies specific areas to be managed for high quality recreational fishing and implement appropriate management arrangements and community education strategies on a trial basis to determine both the level of community support and potential for retaining wilderness fishing values in these areas.

Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

Comments:

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***Proposal 19 – Resource sharing and commercial fishing***

The Working Group has formed the proposals contained in this strategy to improve the quality of recreational fishing in the region. For these strategies to be effective, it is important that benefits accruing from implementing controls on the recreational catch do not merely flow to the commercial sector as increased catches.

In addition to the initiatives outlined in proposals 13-16, a range of management initiatives are required to preserve the benefits of improved management of the recreational sector.

These include:

- Commercial activity should be capped at historic levels and no new commercial activity permitted in key recreational areas or fisheries.

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- In the medium to longer term, commercial fishing for some key finfish species in these areas should be phased out through negotiation or compensation as appropriate.

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- The significance of 'recreational fishing priority areas' should be recognised in other marine planning processes.

Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

Comments:

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# Comments on proposals

**Proposal 20 – Fishery enhancement**

**Proposal 20(a) – Artificial reefs**

Future approvals for establishment of artificial reefs should require a monitoring program to evaluate impacts on fish populations.

Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

**Proposal 20(b) – Stock enhancement**

A trial restocking program be considered for pink snapper in the eastern gulf of Shark Bay, provided it can be demonstrated that it presents no major risks to the remaining population and that monitoring programs be put in place to assess the likely effectiveness of restocking.

Comments:

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**Protection of fish habitats**

**Proposal 21 – Identify and protect key fish habitats**

As a priority, Fisheries WA should take steps to identify important fish habitat areas and Government ensure that these are protected from environmental degradation.

Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

Comments:

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**Proposal 22 – Recreational fishing representation**

Fisheries WA ensure representation of recreational fishing interests on all planning processes/committees in the region.

Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

Comments:

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**Proposal 23 – Bycatch**

Bycatch action plans be introduced for all commercial fisheries in the Gascoyne Region. Recreational fishing methods that are wasteful and indiscriminate should not be permitted and community awareness programs should encourage recreational fishers to carefully release undersize and unwanted fish.

Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

Comments:

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**Improving community stewardship of fish resources**

The Working Group believes a structured communication strategy is the most effective mechanism of increasing individual responsibility and promoting local community and visitor support for a sustainable and quality fishing experience in the region.

The move to regional management will provide an opportunity to focus education programs on local issues in the Gascoyne. In particular, fishers must be made aware of the need for management to address the growing pressures on our fish resources.

# Comments on proposals

**Proposal 24 – Regional fishing guide**

A comprehensive regional guide to recreational fishing in the Gascoyne be produced to educate fishers about recreational fishing management arrangements, fishing ethics, conservation issues and conservation-oriented fishing behaviours.

Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

**Proposal 25 – Annual media campaign**

An annual media campaign should be implemented to promote recreational fishing and fishing ethics in the Gascoyne Region.

Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

**Proposal 26 – Community Education Officer**

A regional Community Education Officer be appointed to coordinate and develop community education programmes.

Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

**Proposal 27 – Additional patrol capacity**

That an additional four patrols (eight fisheries officers) be seasonally based in the Gascoyne to provide a more visible and effective enforcement capacity in the region.

Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

**Proposal 28 – Enhanced volunteer program**

The VFLO program should be enhanced in the Gascoyne and a dedicated Fisheries WA officer assigned to coordinate the program in the region.

Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

**Proposal 29 – Regional Recreational Fisheries Council**

A Regional Recreational Fisheries Council be established to oversee the implementation and operation of the Gascoyne recreational fishing management strategy.

Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

Comments:

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## **Providing adequate resources for improved management**

There are significant costs associated with management programs for recreational fishing, particularly in the areas of research and compliance. Government funding from consolidated revenue is unlikely to increase and if the initiatives identified in this paper are to be implemented, additional funding options must be identified.

The Working Group believes a recreational fishing licence would provide significant benefits in terms of increased revenue which could be dedicated to enhancing fishing quality in the region, improved community stewardship, more targeted and effective community education programs, enhanced research accuracy and reduced data collection costs, and ensuring that funding will keep pace with increases in recreational fishing participation rates.

The Working Group believed a regional licence had distinct advantages over a state-wide system for a variety of reasons.

These included:

- the 'willingness to pay' by anglers who came to the Gascoyne specifically for the high quality fishing available
- the clearly visible benefits within the region from additional funding
- an improved education and management focus from a regional perspective, and
- enhanced recognition and servicing of regional priorities.

The Working Group also noted that strong local support had been expressed at various times for local finfish fishing licences. However, the current political and social climate was likely to act as a significant barrier to the introduction of a general scheme across the whole State.

# Comments on proposals

## Proposal 30 – Regional finfish licence

30(a) A regional finfish licence be introduced in the Gascoyne and the revenue dedicated to implementing enhanced management, compliance and research programs for recreational fisheries.

30(b) The fee structure for the Gascoyne regional licence should be:

weekly (seven days)	\$10
monthly (28 days)	\$14
annual	\$20
three year	\$55
lifetime licence	\$500

30(c) The following discounts should apply:

children < 12 years	free
children 12-15 years	50 per cent discount
pensioners, seniors cards holders	50 per cent discount

30(d) Priorities for funding should be identified by the proposed regional recreational fisheries council and should include comprehensive research programs on recreational catch, species biology and stock assessment; additional compliance capacity; targeted community education programs; and fishery enhancement projects.

	Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree
30(a) A regional finfish licence be introduced in the Gascoyne and the revenue dedicated to implementing enhanced management, compliance and research programs for recreational fisheries.					
30(b) The fee structure for the Gascoyne regional licence should be: weekly (seven days) \$10 monthly (28 days) \$14 annual \$20 three year \$55 lifetime licence \$500					
30(c) The following discounts should apply: children < 12 years free children 12-15 years 50 per cent discount pensioners, seniors cards holders 50 per cent discount					
30(d) Priorities for funding should be identified by the proposed regional recreational fisheries council and should include comprehensive research programs on recreational catch, species biology and stock assessment; additional compliance capacity; targeted community education programs; and fishery enhancement projects.					

Comments:

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