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## Summary of submissions to Fisheries Management Paper No 108 - issues affecting Western Australia's inshore crab fishery

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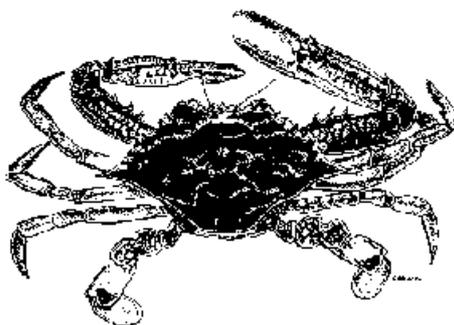
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# Fisheries management paper

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## Summary of submissions to Fisheries Management Paper No 108 - Issues affecting Western Australia's inshore crab fishery



*Portunus pelagicus*

Compiled by Cathy Campbell

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Fisheries management paper No.112

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## FOREWORD

Public consultation is integral to the process of fisheries management. The input provided by interested persons during the public consultation phase of Fisheries Management Paper No. 108, *Issues affecting Western Australia's inshore crab fishery*, (the '*Issues Paper*') is a valuable resource that will increase the scope of the consultative process in the review of inshore crab fishing in Western Australia. It will thereby influence the resulting management strategies adopted for both commercial and recreational crab fishers.

All comments offered in response to the *Issues Paper* warrant consideration. Overall, the submissions represent a broad range of ideas and opinions that are almost certainly influenced by individuals' experiences. The knowledge gained by Fisheries WA from members of the public sharing their experiences and viewpoints is what makes consultation such an important element of modern fisheries management.

Comments relating to the future management of the inshore crab fishery offer interesting insights in respect of the directions that the management of inshore crab fishing might take, and are indicative of the value that stakeholders place on the inshore crab resource. In addition, some submissions highlight important issues that were not identified during the initial rounds of discussion and consultation prior to the release of the *Issues Paper*.

Fisheries WA appreciates all submissions offered in response to the content of the *Issues Paper*. The content of the submissions has enhanced our understanding of the issues in the fishery. It is hoped the public release of the submission content will also contribute to the public debate about management of the crab resource.

The summary of submissions has been undertaken by officers of Fisheries WA. In compiling the summary, it has been the aim of agency personnel to ensure that the document is a true and accurate reflection of the content of responses to the *Issues Paper*.

I am confident that the value and benefits of seeking comment from the wider community on this issue will become obvious when meetings of key groups and individuals, who have an interest in crab fishing, are convened for the purpose of developing new management arrangements for inshore crab fishing. The meetings will be held over the next several weeks and will conclude before June 30 this year. New management arrangements for inshore crab fishing will be implemented in the latter part of 1998.



**Peter Rogers**  
**EXECUTIVE DIRECTOR**  
**8th April 1998**

## **CONSIDERATIONS**

It is intended that new management arrangements for inshore crab fishing will be determined before 30 June this year, with the implementation of those arrangements occurring in October 1998.

In developing these arrangements, Fisheries WA is obliged to respect the directions of the *Fish Resources Management Act 1994* (the Act) and ensure that they comply with its requirements.

The considerations with respect to the Act are:

The primary object of the *Fish Resources Management Act 1994* (the Act) is to conserve, develop and share the fish resources of Western Australia for the benefit of present and future generations. The subsidiary objects of the Act are explained more clearly in section 3(2) and include:

- conserve fish and protect their environment;
- ensure the exploitation of fish resources is carried out in a sustainable manner;
- enable the management of fishing, aquaculture and associated industries and eco-tourism;
- foster the development of commercial and recreational fishing and aquaculture;
- achieve the optimum economic, social and other benefits from the use of fish resource; and
- enable the allocation of fish resources between users of those resources.



## EXECUTIVE SUMMARY

The summary of submissions is a record of comments offered in respect to the content of Fisheries Management Paper No. 108; *Issues affecting Western Australia's inshore crab fishery* (the *Issues Paper*) and submitted by groups or individuals who have an interest in inshore crab fishing activity in this State.

The *Issues Paper* was published by Fisheries WA for the purpose of acquainting the general public with the various issues that are inherent with inshore crab fishing. The *Issues Paper* was the first tangible result of the review of inshore crab fishing announced by the Minister for Fisheries in November 1996.

The review of the inshore crab fishery was undertaken in response to a number of concerns about crab fishing on the part of recreational and commercial crab fishers, Fisheries WA and other individuals and groups.

The concerns of the respective parties included a perceived decline in recreational crab catches at specific locations; instances of conflict between commercial and recreational crabs fishers in Geographe Bay; concern for the types of gear used to take crabs; a substantial rise in the catch of crabs in the Cockburn Sound Crab Managed Fishery since pots were introduced into it; and, a rising total commercial catch that increased from 218 tonne in 1992 to 427 tonne in 1995.

The first phase of the inshore crab fishery review was completed in June 1997. The *Issues Paper*, which documented the findings of the review, was released for a 3 month public consultation period on 16 October 1997.

Fisheries WA printed 1300 copies of the *Issues Paper* and provided all Commercial Fishing Licence holders with a copy, along with those members of the public who, prior to the release of the *Issues Paper*, had expressed either verbal or written interest in inshore crab fishing activity to Fisheries WA.

Copies of the *Issues Paper* were also sent to all licensees with a crab fishing history, all licensees in estuarine and beach seine fisheries, all trawl licensees operating in, and south of, Exmouth Gulf, all members of the Recreational Fishing Advisory Committee and Regional Recreational Fishing Advisory Committees, all Volunteer Fisheries Liaison Officers, Shire and Council Offices and Libraries, Conservation Groups, Members of Parliament and all District and Regional Offices of Fisheries WA, totalling a distribution of approximately 1100.

The *Issues Paper* identified some of the significant elements of inshore crab fishing activity in the State. For instance, crab is the largest single species recreational fishery in Western Australia, providing a quality recreational experience. For commercial fishermen, inshore crabs represent a readily accessible resource that can be sold in existing markets. Anecdotal evidence suggests that the recreational pressure on inshore crab stocks is increasing, while records show that catches of inshore crabs taken by the commercial sector is definitely increasing.

The cumulative effect of the growth of the commercial catch and the increasing recreational interest in the fishery is that significant resource sharing considerations are now associated with inshore crab fishing activity. These and various other issues, including the high visibility of commercial crab fishers, were discussed in the *Issues Paper*.

The public consultation phase of the *Issues Paper* closed on 16 January 1998. A total of thirty six submissions were received by Fisheries WA.

Submissions originated from five key areas; the Perth metropolitan area, Mandurah, Bunbury, Busselton and Albany. The geographical origin of submissions is indicative of the profile of inshore crab fishing in particular areas and of the different views held with respect to localised resource sharing issues. Overall, the submissions confirmed that the public profile of the fishery is particularly significant in areas where crabbing has a special connection with lifestyle.

A large percentage of submissions from the recreational sector relate the intrinsic value of inshore crabbing to the experience of recreational fishing. The submissions also reinforce the popularity of recreational crabbing and the reasons for it - that is, it is an activity that requires little investment; it is accessible at key metropolitan and holiday destinations; and it is an activity that can be enjoyed by people of all ages.

In keeping with the reverence that recreational fishers attach to crabbing, a notable proportion of submissions suggest that inshore crab stocks should be targeted only by recreational fishers. A basis for this view is that in certain areas of the State, the crab fishery has historically, and predominantly, been a recreational fishery. Consequently, proposals for dedicated recreational crab fishing areas were put forward.

Submissions from some recreational fishers also reiterate the scientifically unsubstantiated view that inshore crab stocks are suffering from localised depletion, due primarily to pressure from the commercial fishing sector. To halt this perceived decline in stocks, some respondents called for a reduction to the number of commercial crab fishers, tighter controls on the way commercial fishers operate and a reduction to the number of commercial fishers who target crabs.

However, other respondents commenting on the perceived decline in crabs stocks and the alleged decline in individual recreational catches suggest that the situation is attributable to the recreational sector itself, and is a consequence of the growing recreational fishing pressure on crab stocks in certain locations. Many submissions seek a quantification of the recreational catch before any resource sharing arrangements between the commercial and recreational fishing sectors are entered into.

Some 22% of respondents supported the introduction of a recreational crab fishing licence. The reasons for this were twofold - the number of licences issued can be used to calculate the recreational crab fishing effort, and the funds raised from recreational crab fishing licence fees can be directed toward research into inshore crab stocks. An annual register of 'expressions of interest' lodged by those intending to fish for crabs in any one year was also proposed as a means of measuring the recreational fishing effort.

Comments on possible changes to the recreational bag limit for crabs were also submitted, with respondents supporting a reduction to the daily bag and boat limit. Suggestions for the lowering of the bag limit ranged from 10 to 18 crabs per person.

However, some respondents submitted views to the contrary, contending that there should be no change to the limit of 24 crabs per fisher. A reason for this view, as submitted by one respondent, is based on the premise that only one fisher per family is responsible for taking a bag limit of crabs. On this basis, 24 crabs per fisher is considered to be a reasonable and justifiable number of animals to feed a family.

## **Gear**

There were four main groups of responses that emerged from submissions addressing gear types:

- (i) support for the banning of set nets;
- (ii) support for a prohibition on the taking of crabs by trawl;
- (iii) support for the use of crab pots; and
- (iv) support for a mixed gear fishery.

The submissions from some commercial respondents expressed concern for the additional investment in gear that may be required if crab pots are deemed as the only available option available for crabbing. Pots used in deeper waters may require the installation of winches on boats which, in turn, could necessitate the use of larger vessels. Furthermore, there is concern that the use of larger vessels may require extra crew, hence increasing the costs of commercial crab fishing.

The use of pots and winches in Cockburn Sound is criticised, the combination being regarded by one respondent as an effective pooling of technology that has succeeded in stripping Cockburn Sound of its crab stock.

A significant number of recreational respondents call for a banning of commercial netting for crabs because of the inherent by-catch associated with nets. In contrast, some commercial respondents favour the continued use of nets, and strive to demonstrate that in the hands of knowledgeable and experienced fishermen, crab nets will ensnare a by-catch of less than 1% of the total net catch.

Submissions referring to trawl by-catch discuss various reasons why trawl-caught crabs should and should not be retained. Commercial enterprises associated with trawl fisheries in Exmouth Gulf and Shark Bay contend that the income derived from the crab component of the trawl catch provides valuable financial returns during poor prawn and scallop seasons. Other submissions identified trawl-caught crabs as a threat to the marketing prospects of higher quality crabs taken by other methods. The impacts upon other non-target species taken by trawlers was also raised.

The fishing gear used by commercial licensees in the Swan, Mandurah and Leschenault areas attracted criticism, and strong views opposing the continuation of commercial netting were put forward. The stimulus for this view appears to be the potential for nets

to take an incidental catch of other species and the likelihood that crabs will be damaged when removed from the nets.

## **Boat Lengths**

The current limitations on approved boat lengths for licensed fishing boats operating in various fisheries was identified as an issue in the inshore crab fishery. Commercial operators who are restricted to operating boats of less than 6.5 metres believe the use of pots may severely affect boat safety and any change to boat length requirements could increase the operating costs of commercial fishers. Some submissions suggested a maximum boat length of 8 metres for ocean-going commercial fishers.

## **Markets**

The views expressed in respect of the issue of markets for crabs varied, according to whether the submission was representative of the commercial or recreational sector. A proportion of the views submitted by recreational fishers concentrated on the immediate local market and, in essence, questioned the benefits of commercial crab fishing to local communities when locally-caught crabs are not offered for sale in local market places.

However, commercial fishers addressed the marketing issue from a broader perspective, that is, in terms of supply and demand. They contend that the incentive to take crabs is directly attributable to market demand and as market demand increases, commercial licensees adjust their fishing activity accordingly. Conversely, if markets decline, crab fishing effort is reduced. Markets may be local, interstate or overseas.

## **Research**

Over a third of the submissions identified the need for more research into inshore crab stocks.

Responses from commercial stakeholders associate the research effort with resource sharing issues, contending that there should be no re-allocation of the inshore crab resource until substantial and useful information about Western Australia's crab stocks has been ascertained. They identify the need for more biological knowledge of the blue swimmer and sand crabs and quantification of the recreational effort.

Recreational stakeholders also recognised the need for research and commented on the likely effect upon the catch-mix if more substantial information became available.

## Resource Sharing Issues

Comment on resource sharing issues was provided by eighty three percent (83%) of submissions. Again, respondents provided a clear demonstration of the different perspectives held by recreational and commercial fishers with regard to inshore crab fishing and the respective histories of various participants in the fishery.

Many submissions from the recreational sector requested that commercial fishing in key recreational crabbing areas be more closely controlled, or banned altogether. Other submissions proposed that the number of licensees in a particular area be restricted, and that the total annual catch of commercial crabbers be limited.

Commercial stakeholders also supported the principle of resource sharing, although their reasons for this view differed significantly from the reasons quoted by recreational stakeholders. Some submissions proposed that the number of recreational fishers should first be quantified in order to determine the recreational catch of crabs in particular areas, and that true resource sharing can only occur after an estimation of the annual recreational catch has been made.

## Future Management

Less than 50% of submissions provided explicit feedback about the five proposed management options presented in the *Issues Paper*. Nevertheless, it was possible to identify a number of key trends about possible future options for the management of inshore crab fishing.

There was a general consensus that pots could and should be used in ocean and estuarine waters. However, submissions also illustrated that estuarine and ocean-based crab fishing activities can be quite different, and there may be cause to consider more than one allowable gear type, depending on the inherent conditions of a particular location.

The allocation of access rights for commercial fishers was briefly addressed. However, submissions discussing this issue were more concerned with the number of licensees involved in inshore crab fishing activity, as opposed to how access rights should be granted - the exception being the right of trawl access to crab stocks.

Access to inshore crab stocks has been enjoyed by trawlers for a number of years. It was suggested that trawlers should be required to comply with an entry criterion based on catches taken in the 1980s, if trawl access is to be better controlled.

Some submissions suggested that the number of commercial licensees in a particular area should be limited by restricting the number of licences available, or access could be controlled by introducing closed waters for commercial fishermen. Other suggestions with respect to commercial licensing include the implementation of an owner-operator provision, a non-transferable licence condition and the allocation of licences in accordance with fishing history.

The future management of inshore crab fishing in Geographe Bay was discussed in many submissions, the majority of responses originating from this area proposing that commercial crab fishing be banned in Geographe Bay.

Temporal and spatial closures to commercial fishing in the Peel-Harvey and Leschenault Estuaries were also proposed.

Submissions demonstrated clear support for the introduction of arrangements that will enable Fisheries WA to quantify the number of recreational fishers who target inshore crabs, resulting in a more equitable share of the crab stock amongst competing recreational users.

A common view expressed related to recreational crab fishing licences and the potential for this mechanism to assist in assessing the recreational effort. Additionally, a reduction to the bag and possession limits was seen as a means of providing the recreational sector with a greater and more equitable opportunity to take their bag limit of crabs. A minority of submissions opposed the introduction of a recreational crab fishing licence and a reduction in recreational bag and possession limits.

A few respondents suggested that the minimum size limit of crabs should be increased and a prohibition on the taking of females should be implemented.

The issue of cost recovery was addressed by few submissions. Those who offered views on this issue suggested that any cost recovery program must consider the financial means of industry and include the recreational sector in the cost recovery process.

Enforcement issues were addressed, with one submission suggesting that Volunteer Fisheries Liaison Officers be granted authorisation to undertake some enforcement responsibilities and that fines for recreational fishers be increased.

From the perspective of administrative arrangements, it was suggested that representatives of Fisheries WA, the Western Australian Fishing Industry Council and fishermen's associations form a committee to guide and streamline the inshore crab fishing industry.

The *Issues Paper* and the summary of submissions to the *Issues Paper* provide important information on the status of inshore crab fishing in Western Australia. Both documents will be used as background papers in discussions with groups and individuals who have an interest in inshore crab fishing activity. The consultative forums for these discussions are scheduled to be held prior to June 30 1998. It is intended that new arrangements will be implemented in the latter part of 1998.

**SUMMARY OF RESPONSES TO FISHERIES  
MANAGEMENT PAPER NO. 108:  
ISSUES AFFECTING WESTERN AUSTRALIA'S INSHORE  
CRAB FISHERY.**

The summary of responses to each section of the *Issues Paper*, in order of its appearance, is detailed below.

Readers should keep in mind that of the 1300 papers circulated to individuals and groups who have an interest in blue swimmer and sand crab fishing, only 36 submission were received. Hence, the statistics that are quoted below represent a sample size of approximately 3%.

**PREFACE**

<i>2 submissions</i>	<i>respondents with recreational interests: nil</i>
	<i>respondents with commercial interests: 2</i>

Responses to the preface relate to resource sharing issues between the commercial and recreational sector and recreational fishing in general.

The nature of these issues are explained in more detail in the following summary of comments.

**1.0 INTRODUCTION**

No comment.

**2.0 BIOLOGY**

<i>2 submissions</i>	<i>respondents with recreational interests: 1</i>
	<i>respondents with commercial interests: 1</i>

Concern is expressed about the lack of information about crabs. There is also a view that there should be no cause for concern about the sustainability of the inshore crab stock.

## 2.1 Blue Swimmer Crabs

<i>3 submissions</i>	<i>respondents with recreational interests: nil</i>
	<i>respondents with commercial interests: 3</i>

Responses relating to Geographe Bay suggest that crabs use Busselton as a spawning area, and that larger crabs are found in the Bay up to depths of 50 metres.

Instances are also cited of small female crabs in Cockburn Sound being found with a spawn sack attached to the underflap.

Questions are raised about the relationship between Busselton crabs and crabs found in the Leschenault Estuary, with respondents noting that crabs caught in Busselton may often be encrusted with barnacles, whereas crabs in the Leschenault Estuary are not.

## 2.2 Sand Crab

<i>1 submissions</i>	<i>respondents with recreational interests: nil</i>
	<i>respondents with commercial interests: 1</i>

It is noted that the sand crab fishery is not large, but does have potential to become a significant fishery.

## 3.0 FISHERY OVERVIEW

### 3.1 Regulatory Approach

No comment.

### 3.2 Licensing Arrangements

<i>4 submissions</i>	<i>respondents with recreational interests: 1</i>
	<i>respondents with commercial interests: 3</i>

All respondents support a means of measuring the number of recreational crab fishers in WA, either through a register which requires recreational fishers to nominate their intent to fish for crabs, or a recreational crab (and prawn) licence. The introduction of a recreational licence is seen as a means of funding research into the fishery.

Respondents note that on two occasions, the State Government has rejected the introduction of a state-wide crab and prawn licence.

### 3.3 Boat Length Provisions

<i>5 submissions</i>	<i>respondents with recreational interests: 1</i>
	<i>respondents with commercial interests: 4</i>

25% of respondents expressed a desire to increase the size of boats used in the Cockburn Sound Crab Fishery from 6.49 metres to 8 metres. It is submitted that larger boats are required to accommodate slurry and refrigeration tanks to hold crabs and assist in maintaining landed crabs in peak marketable condition, especially for the live trade market.

### 3.4 Allowable Gear and Gear Restrictions.

<i>1 submission</i>	<i>respondents with recreational interests: nil</i>
	<i>respondents with commercial interests: 1</i>

Respondents suggest that commercial fishers should be encouraged to use pots where possible, ie. in estuaries and in ocean waters more than 100 metres offshore.

#### 3.4.1. Cockburn Sound and Warnbro Sound Crab Managed Fisheries

<i>2 submissions</i>	<i>respondents with recreational interests: nil</i>
	<i>respondents with commercial interests: 2</i>

Respondents note that the current net-to-pot conversion ratio applying to licensees in the Cockburn Sound Crab and Warnbro Sound Crab Managed Fisheries is 100 pots to 2,400 metres of net.

A licensee in Cockburn Sound Crab Managed Fishery advises that licensees in the fishery generally commence fishing around 4.30 am.

#### 3.4.2 Estuarine and Beach Seine Fisheries

<i>4 submissions</i>	<i>respondents with recreational interests: nil</i>
	<i>respondents with commercial interests: 4</i>

#### *Leschenault*

Respondents request that they have the opportunity to use either drop nets or pots, or both drop nets and pots, on an experimental basis.

They also suggest that Leschenault Estuarine fishermen with a history of fishing for crabs in Geographe Bay have access to an inshore crab fishery in this area, by means of entry criteria similar to that which licensees in the Cockburn and Warnbro Sound Crab Managed Fisheries were required to satisfy.

### *Mandurah*

Some respondents criticise the net-to-pot conversion ratio calculated for the 1998 year. It is suggested that the 1997 pot allocation to fishermen should continue, noting that the number of licensees in the fishery will decline in ensuing years<sup>1</sup>.

## **3.5 Catch Information**

### **3.5.1 Catch Information - Recreational Sector**

<i>10 submissions</i>	<i>respondents with recreational interests: 6</i>
	<i>respondents with commercial interests: 4</i>

Some respondents note that the recreational pressure on crab stocks is intense and express concern for the sustainability of the stock.

Others conclude that many recreational crabbers choose not take as much as the daily bag limit allows, ie. take only enough crabs for their personal needs or are able to take during a set period. One submission suggests that recreational crabbers limit their activities to one or two outings per year.

One comparative benefit of recreational fishing is offered - because recreational fishers catch enough crabs to feed their family, the total number of people benefiting from a single activity could be 3 or 4 times the number of actual recreational fishers.

Latent recreational effort is also addressed, with one respondent suggesting that a reduction to the recreational crab bag limit will not reduce the latent recreational crabbing effort.

On a different issue, support is expressed for the five minute release rule for recreational fishers.

The research issue is again addressed, with a consensus amongst respondents that this section highlights the need for more research into the recreational fishery.

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<sup>1</sup> Comment offered in response to this section is based on events that have occurred since Fisheries Management Paper No. 108 was published. The issues arising from these events will be incorporated in discussions when the future management arrangements for the inshore crab fishery are developed.

### 3.5.2 Catch Information - Commercial Sector

<i>10 submissions</i>	<i>respondents with recreational interests: 7</i>
	<i>respondents with commercial interests: 3</i>

Recreational groups express concern for the upward trend of commercial catches in recent years - the increasing catch in Cockburn Sound prompting special comment. There is also concern that increasing catches may adversely affect the sustainability of crab stocks.

Some submissions contend that the increasing catch figures are related to an increase in the abundance of crabs and market demand, rather than an increase in commercial activity.

The quantity of gear (drop nets) currently used by commercial fishers in Geographe Bay and the types of gear currently used to take inshore crabs (illustrated in Table 1 of the paper) is also addressed. It is suggested that there are too many gear types currently authorised for use by commercial fishers.

Commercial and non-commercial stakeholders support the use of pots in estuarine and inshore waters.

## 3.6 Distribution of Commercial Catch

### 3.6.1 Commercial Activities in Cockburn Sound

<i>5 submissions</i>	<i>respondents with recreational interests: 4</i>
	<i>respondents with commercial interests: 1</i>

Again, the primary concern of the recreational sector is related to the rising commercial catch from this area over recent years and its perceived consequential effects on recreational crab fishing. Recreational respondents indicate that the increasing commercial catch is the reason that recreational crab fishers are not catching daily bag limits.

Some respondents call for a reduction in commercial pot allocations in this area and the imposition of a catch limit to control commercial fishing pressure. One submission suggests that the net allocation for licensees in the Cockburn Sound Crab Managed Fishery should be halved from 2,400 metres per licence to 1,200 metres per licence.

Submissions from the commercial sector compare crab pot allocations in WA with pot allocations in other blue swimmer crab fisheries, noting that WA's Shark Bay pot fishers and licensees in South Australia's Crab Pot Fishery are authorised to use up to 200 pots per licensee.

It is suggested that the catch figures produced by the allocation of 100 pots per licensee is the result of dedicated effort by less than half of the licensees in Cockburn Sound, and increased effort in this fishery is the result of fishermen using pots in preference to nets.

There is also a contention that Fisheries WA has allocated too many licences in the Cockburn Sound Crab Managed Fishery, and that the accuracy of catch information from the fishery is flawed. The latter view is based on the possibility that returns lodged by some commercial fishermen may be inaccurate.

It is predicted that the 1997-98 catch will level the Cockburn Sound Crab Managed Fishery's catch curve, before another catch increase in 1998-99.

### 3.6.2 Inshore Water Activities

#### 3.6.2.1 Exmouth Gulf

No comment.

#### 3.6.2.2 Shark Bay

<i>2 submissions</i>	<i>respondents with recreational interests: nil</i>
	<i>respondents with commercial interests: 2</i>

It is suggested that increased landings in Shark Bay are the result of the development of better markets, rather than an increase in the catch (ie. an increase in landings are the result of an increase in the numbers of crabs being offered to markets, rather than an increase in the catch).

#### 3.6.2.3 Geographe Bay

<i>8 submissions</i>	<i>respondents with recreational interests: 5</i>
	<i>respondents with commercial interests: 3</i>

The majority of responses attributable to the recreational sector express concern for the increasing commercial catch taken in Geographe Bay.

Other comments relate to the commercial crab fishing 'season' in the Bay. One submission states that commercial fishing can start as early as May, with the bulk of fishing ceasing in August. Another submission states that the closures to weekend commercial crab fishing between August and February, and all day between September 29 and October 14, do not benefit the recreational fisher, as commercial fishers have already harvested the bulk of the available stock.

Opposition to commercial trawling in Geographe Bay is also expressed.

Submissions from the commercial sector address some of the issues in this area from a different perspective. The increase in the catch from Geographe Bay in recent years is seen as a response to market demand, with the lower catches taken between 1991-93 reflecting a decline in demand. Geographe Bay is seen as a prime source of crabs for both local residents and visitors to the area who consume crab, but for various reasons do not catch crabs themselves.

Concern for the accuracy of returns lodged by commercial fishermen is also raised. It is contended that returns may be falsified in an effort to gain a history of fishing in the area if a dedicated fishery in the Geographe Bay is established. Some respondents suggest that returns should be justified by producing receipts of sales.

#### 3.6.2.4 Mandurah (ocean fishing)

<i>4 submissions</i>	<i>respondents with recreational interests: nil</i>
	<i>respondents with commercial interests: 4</i>

A percentage of submissions criticise Fisheries WA for its management of crab fishing in this area.

In respect of trawling in this area, one submission suggests that trawling has little impact on species of interest to recreational fishers.

Comment is provided on the boundaries for the Mandurah Oceanic Fishery, with an assumption that ocean fishing activity occurs from Tims Thicket to Cape Bouvard<sup>2</sup>. The assumption is made on the basis that beach seine fishermen and estuarine fishermen fish for crabs in these waters.

Another submission supports a trial of crab pots in Comet Bay, with pot allocations per licensee corresponding to the pot allocations in the Cockburn Sound Crab Managed Fishery.

### 3.6.3 Estuarine Fisheries

#### 3.6.3.1 South West Coast Estuarine Fisheries

<i>6 submissions</i>	<i>respondents with recreational interests: 4</i>
	<i>respondents with commercial interests: 2</i>

In addressing the issue of estuarine fishing and the use of set nets, one submission states that in recent years fishermen have refrained from using crab gill nets due to concerns about possible conflict with the recreational sector over the use of this gear.

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<sup>2</sup> The boundaries of this “fishery” were not defined in Fisheries Management Paper No. 108.

### *Swan-Canning*

Generally, recreational respondents call for a ban on the use of tangle nets because of the potential for this gear to take incidental catches of species other than crabs.

Again, responses from the commercial sector address different issues about estuarine fishing. Respondents advise that the majority of crabs caught in the Swan River are large males, and that the duration of the crab fishing season is determined by seasonal factors, such as the amount of winter rain and consequential salinity variations. Crabs leave the estuary when the weather starts to cool and as winter rains arrive.

### *Mandurah*

All submissions to this section are attributable to the recreational sector. They unanimously call for the banning of tangle nets.

It is contended that recreational crabbing in the Peel-Harvey Estuary is more valuable in economic terms to Mandurah than commercial crabbing in the area.

### *Leschenault Estuary*

Responses suggest that because the Leschenault Estuarine Fishery is a multi-species fishery, only fish that are economically viable to catch are targeted.

Respondents also address the number of licensees in the Leschenault Estuarine Fishery, suggesting that the existence of only a few licensees in the fishery is due to only a small number of fishermen satisfying the criteria for entry into it. It is inferred that the ability to satisfy the entry criteria, which was based on fishing history, was a consequence of market trends that existed over the criteria period.

#### 3.6.3.2 South Coast Estuarine Fishery

<i>2 submissions</i>	<i>respondents with recreational interests: nil</i>
	<i>respondents with commercial interests: 2</i>

There is concern that the ability to take crabs in the South Coast Estuarine Fishery may be removed from licensees in this multi species fishery. Licensees request that blue swimmer crabs remain a permitted target species in the fishery.

One submission disputes the catch figures for Princess Royal Harbour and King George Sound shown in Fisheries Management Paper No. 108, but notes that a small by-catch of sand crabs is taken in King George Sound.

## 4.0 MARKETS

<i>1 submission</i>	<i>respondents with recreational interests: nil</i>
	<i>respondents with commercial interests: 1</i>

One submission notes that the pressure of markets on the resource has not been addressed and advises that if markets are strong, effort will increase.

### 4.1 Domestic Markets

<i>5 submissions</i>	<i>respondents with recreational interests: 2</i>
	<i>respondents with commercial interests: 3</i>

Information is provided about the activities of a Perth-based fishing company, indicating that some effort is going into developing Australian markets for live, cooked and raw whole crabs, and raw crab meat. It is stated that competition from trawler-caught crabs can have the effect of lowering the prices of crabs caught in the Cockburn Sound Crab Managed Fishery.

Concern is expressed for the crab by-catch of trawlers, respondents noting the low market value of this by-catch. Concern is also expressed for the by-catch of other species, which may suffer mortality as a result of trawling activity undertaken for the express purpose of satisfying crab markets.

However, justification for the continuation of trawling for crabs is presented, with some respondents citing the role of trawl-caught crabs in the development of markets for raw and frozen crabs on the eastern seaboard.

The market destination of crabs caught in Geographe Bay is again raised as an issue, with submissions noting that many of the crabs caught in this area are not sold in the Busselton region.

### 4.2 Overseas Markets

<i>4 submissions</i>	<i>respondents with recreational interests: 2</i>
	<i>respondents with commercial interests: 2</i>

As in the previous section dealing with domestic markets, responses to this section are diverse.

Doubt is expressed by one respondent that overseas markets for Western Australian crabs do actually exist, while another submission quotes countries to which crab samples have been sent, ie. France, England, Canada, Portugal, America, Japan and

other Asian destinations. The latter submission advises that samples have been received with mixed results.

Reference is again made to the price of trawler-caught crabs and the lower price received for this product.

There is support for the use of pots as a means of improving the quality of crabs destined for live export to overseas markets.

## 5.0 RESEARCH

### 5.1 Research in Australia

<i>3 submissions</i>	<i>respondents with recreational interests: 1</i>
	<i>respondents with commercial interests: 2</i>

Respondents acknowledge the lack of research on inshore crab stocks in Western Australia and support the adoption of a precautionary approach to the management of the resource, based on sound biological evidence.

### 5.2 Research in Western Australia

<i>9 submissions</i>	<i>respondents with recreational interests: 4</i>
	<i>respondents with commercial interests: 5</i>

Respondents note that the lack of biological knowledge appears to be a major impediment to informed management of this fishery and that while there is a desire to gain more knowledge, funding for research has been a major problem to date.

Particular types of research programs are suggested. For example, a trial of pots in Comet Bay, Leschenault Inlet and Geographe Bay, similar to the pot trial conducted in the Mandurah Estuary, along with a tagging program which targeted undersized crabs. It is also suggested that an age and size composition study and a population assessment be carried out in the Leschenault Estuary, Koombana Bay, Peel-Harvey Estuary, Comet Bay and Cockburn Sound.

A study into the migratory habits of crabs is also requested.

One respondent suggests that new knowledge resulting from a research study may have some effect on the current catch-mix of boat-based recreational fishers, who currently do not take female crabs at any time, or choose not to take females at certain times of year.

Another respondent expresses concern for the likely restrictions that may be imposed on commercial fishermen who fish in a research area.

## 6.0 MANAGEMENT ISSUES

<i>2 submissions</i>	<i>respondents with recreational interests: 1</i>
	<i>respondents with commercial interests: 1</i>

One submission expresses the view that Fisheries WA has not encouraged the commercial fishery to be innovative or to operate with flexibility.

Another submission suggests that throughout Fisheries Management Paper No. 108, the word *allocation* should be read as *access*. *Allocation* can mean granting or allotting, and use of this word can create false expectations. *Access*, on the other hand, can mean entry or permission to approach.

### 6.1 The Management Unit

<i>2 submissions</i>	<i>respondents with recreational interests: nil</i>
	<i>respondents with commercial interests: 2</i>

Respondents again criticise Fisheries WA for its management of commercial crab fishing activity in the Mandurah Estuary, and for the various conditions under which licensees operating in the Mandurah Estuarine Fishery must comply. However, one respondent acknowledges that Fisheries WA recognises that licensees would prefer to be given a choice of options that will provide them with flexibility in the way they fish for crabs.

It is suggested that one of these options include a 'trade-off' of estuarine licences for access to crab stocks in oceanic waters.

### 6.2 By-catch Issues

<i>11 submissions</i>	<i>respondents with recreational interests: 4</i>
	<i>respondents with commercial interests: 7</i>

#### *Shift of effort*

Submissions focus on the possibility of commercial effort shifting from the estuaries to oceanic waters, with the suggestion that the by-catch 'problem' in the Peel-Harvey Estuary could be reduced significantly if this were to occur.

#### *Set nets*

Some submissions call for commercial fishermen to check and clean their nets on an hourly basis, and for any catch less than 1% of the total catch to be regarded as by-catch.

Respondents again request that set nets be banned in the commercial crab fishery. The prohibition on the use of set nets would include both the recreational and commercial fishing sectors.

Conversely, there is support for the continued use of set nets on the basis that the 'code of conduct' practised by commercial fishers results in little or no catch mortality of crab and fin fish. Submissions from the commercial sector contend that in some estuaries, it is common practice not to set nets during the summer months.

It is also stated that the results of Fisheries Research Report No. 104 (Lenanton *et al*) does not apply to the crab fishery in the Peel-Harvey Estuary.

#### *Trawl nets*

A significant number of submissions refer to the crab by-catch of trawlers. Concern for the quality of trawled crab is repeated and it is requested that Fisheries WA ban crabs as a permitted by-catch of trawl activities. However, there is support for the continued taking of crabs by trawlers, with submissions again referring to the value of crabs as an important source of income for trawl fishers in times of poor prawn and scallop seasons.

There is also concern that the suggestion that trawl-caught crabs are damaged is pure assumption.

One submission is critical that Fisheries Management Paper No. 108 makes no reference to Fisheries Research Report No 100. (Laurenson *et al*) which showed that trawling had little impact on benthic communities or species of interest to recreational fishers.

#### *Pots*

There is support for the use of pots. They are seen as a means of eliminating by-catch when targeting crabs.

### **6.3 Management Issues Concerning Allowable Gear Types**

<i>6 submissions</i>	<i>respondents with recreational interests: 2</i>
	<i>respondents with commercial interests: 4</i>

Respondents support the introduction of pots throughout inshore crab fishing areas, noting they have the ability to increase catch quality and therefore increase the number of crabs that can be offered to markets.

From a different perspective, there is some concern that the use of pots will have an impact on boat safety, noting that in some waters winches may be required to haul pots on board. There is some concern that current boat length restrictions may somehow hinder the development of commercial crab fishing activity in oceanic waters.

Some respondents suggest that commercial fishers should have the opportunity to use a variety of gear, so that fishing methods can be adjusted according to prevailing conditions of a particular locality. It is contended that flexibility will optimise the economic performance of the commercial fishing unit, enhance the sustainability of the resource and help to overcome conflict between the recreational and commercial sectors.

The use of recreational crabbing gear is also addressed, with one submission calling for tighter controls on the design of scoop nets.

### 6.3.1 Management Issues and the Use of Drop Nets

<i>5 submissions</i>	<i>respondents with recreational interests: nil</i>
	<i>respondents with commercial interests: 5</i>

Submissions addressing this section repeat the desire for flexibility in the types of gear that can be used target inshore crabs.

Respondents highlight the limited applications of drop nets (but also suggest that crab pots may not be the best type of gear to use). A request for the use of scoop nets is also made.

There is a view that the issues raised in this section should be discussed at length by a working group, with various options regarding the use of gear types being presented to industry and the public for their consideration, before any firm decision about the use of drop nets is made.

### 6.3.2 Management Issues and the Use Of Set Nets

<i>10 submissions</i>	<i>respondents with recreational interests: 3</i>
	<i>respondents with commercial interests: 7</i>

A measure of the general public's views on the use of set nets is again demonstrated in responses to this section, with a proportion of respondents calling for set nets to be banned. Respondents base their views on the potential for lost or abandoned nets to continue fishing uncontrollably (ghost fishing) and the potential for nets to damage undersized and unmarketable crabs. One submission suggests that only ocean-based netting for crabs be banned.

Other respondents support the continued use of set nets in estuaries, stating that net mesh size, coupled with the design of the set net, ensures that only crabs are taken in these nets. In defence of the use of nets, one respondent quoted a 99.9% crab catch rate. Respondents state that the mesh size of crab set nets used in the Swan River are 152mm or 177mm (6 or 7 inches). Set nets are generally only one metre high and can be set in 20 metres of water.

Respondents suggest that estuarine licensees set and pull their net within an eight hour period, and acknowledge that damage to fish species increases with longer set times.

Again, it is proposed that the issues raised in this section should be discussed by a working group, and the various options to deal with them subsequently referred to industry and the public for their consideration.

*Leschenault Estuarine Fishery*

One respondent requests a trial of crab pots while set nets are used concurrently, before a net-to-pot conversion ratio for estuarine crab fishing in the Leschenault Estuary is determined.

**6.3.3 Management Issues and the Use Of Crab Pots**

<i>11 submissions</i>	<i>respondents with recreational interests: 2</i>
	<i>respondents with commercial interests: 9</i>

The use of crab pots as a permitted gear type is not opposed by respondents from the recreational sector. However, concern is expressed for the increased fishing opportunities that may be available to commercial licensees as a result of using crab pots<sup>3</sup>.

Another concern raised addresses the visibility problem of commercial fishermen, noting that the introduction of pots for the purpose of inshore crab fishing may not necessarily resolve the recreational versus commercial ‘conflict’.

Net-to-pot conversion ratios are identified as an issue, with some respondents contending that the results of Fisheries WA’s net-to-pot conversions ratios (calculated for the Cockburn Sound Crab Managed Fishery and the Mandurah Estuarine Fishery) are disproportionate, and hence, contentious. Notwithstanding, one submission acknowledges that the issue is complicated when the quantity of the resource is unknown and the effect of fishing effort targeted at the inshore crab resource is also unknown.

Other points raised in opposition to the introduction of pots relate to the consequential aspects of pot usage. For instance, it is contended that larger boats will be required by commercial crabbers to accommodate winches for hauling pots; that pot float and ropes will be a hazard to navigation; that poachers will identify pot placements and therefore poaching activity will be encouraged; and that pots will affect the weed bottoms of estuaries.

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<sup>3</sup> For example, since pots were introduced in the Cockburn Sound (Crab) Managed Fishery, licensees have been able to fish for up to 10 months of the year, whereas nets enabled fishermen to fish for only approximately 4 months of the year.

Other concerns on the part of the commercial sector relate to boat size. Estuarine fishers are concerned that pot usage may generate the need for larger boats, which in turn, could increase costs to the fisher. Beach seine fishermen are concerned that current boat length restrictions in their particular fishery will exclude them from using pots.

Despite the arguments for and against the introduction of pots, there is consensus that crab pots enhance the survival of undersized and berried females.

Once again, it is suggested that the use of pots be discussed by a working group, with the outcomes of working group discussions presented to industry and the public.

#### 6.3.4 Management Issues and the Use Of Trawls

<i>9 submissions</i>	<i>respondents with recreational interests: 2</i>
	<i>respondents with commercial interests: 7</i>

A number of respondents are in favour of continued access to inshore crabs by trawlers, with the justification for this view based largely on the trawling industry's history of access to the crab resource. Respondents with this view contend that crabs are a legitimate by-catch of the trawl fleet and a valuable supplement to the income of those involved in prawn and scallop trawling.

Some respondents conditionally support continued access to inshore crab stocks by trawlers, proposing that the amount of crabs taken by trawlers is limited. Others favour a total ban on trawlers taking crabs.

There is also concern that processes designed to add value to the trawl-caught crab by-catch may prompt trawlers to target crabs.

#### 6.4 Habitat Related Issues

<i>1 submission</i>	<i>respondents with recreational interests: nil</i>
	<i>respondents with commercial interests: 1</i>

It is noted that the information provided in this section by Fisheries Management Paper No. 108 reaffirms the lack of knowledge about inshore crabs in Western Australia.

#### 6.5 Access, Displacement of Effort and Allocation Between Various Commercial Participants

<i>3 submissions</i>	<i>respondents with recreational interests: 1</i>
	<i>respondents with commercial interests: 2</i>

The transfer of crab fishing effort from estuarine to ocean waters is again discussed. Submissions from the recreational sector express concern for the manner in which access may be allocated, stating that it is their preference that no new West Australian Fishing Boat Licences be issued for the express purpose of inshore crab fishing in ocean waters.

Recreational respondents see the prime objective of transferring commercial effort from the estuaries to ocean waters as a means to providing recreational fishers with a greater share of the resource than currently exists.

Respondents from the commercial sector repeat the call for future management strategies to be discussed with all commercial fishermen who have access to inshore crab stocks.

### 6.5.1 Displacement of Effort From Other Fisheries

<i>1 submission</i>	<i>respondents with recreational interests: nil</i>
	<i>respondents with commercial interests: 1</i>

In respect of commercial licensees and their history of fishing for inshore crabs, it is stated that Fishing Boat licensees that are unable to demonstrate a history of targeting inshore crabs, or having a by-catch of inshore crabs, should be restricted from taking inshore crabs in the future.

Additionally, there is a view that uncontrolled commercial access needs to be addressed by licence holders in other managed fisheries.

### 6.5.2 Distortion Of Access Within The Commercial Fishery

<i>2 submissions</i>	<i>respondents with recreational interests: nil</i>
	<i>respondents with commercial interests: 2</i>

Respondents to this section indicate their appreciation of the complexity of this particular issue.

In particular, concern is expressed for future access to crab stocks in Geographe Bay. It is feared that commercial fishermen who have a history of fishing in the Bay, but do not have a history of high crab catches in this area, may be denied access when new management arrangements for inshore crab fishing are determined.

### 6.5.3 Allocation between Commercial Participants

<i>4 submissions</i>	<i>respondents with recreational interests: 1</i>
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Submissions to this section address various components of this issue.

Generally, there is concern that additional WAFBL holders may gain access to inshore crab stocks.

In addition, concerns relate to how persons with a genuine history of crab fishing might be disadvantaged should new participants enter the fishery. The concerns raised in relation to this aspect relate especially to the localities of Shark Bay, Cockburn Sound, Comet Bay (oceanic fishing off Mandurah) and Geographe Bay.

### *Shark Bay*

The advertised entry criteria and invitation for 'expressions of interest' from persons interested in applying for an authorisation to fish for crabs in the Shark Bay Crab Experimental Fishery is mentioned in submissions.<sup>4</sup> It is claimed that the entry criteria prevented all but one licensee in the Cockburn Sound Crab Managed Fishery from applying for an authorisation to fish in this new fishery.

With reference to licensees in the Shark Bay Beach Seine and Mesh Net Fishery, one respondent expresses the view that access to crab stocks by licensees in this fishery should be non-transferable.

### *Cockburn Sound*

One respondent comments on the fishing effort currently applied in the Cockburn Sound Crab Fishery and criticises Fisheries WA for not allowing Cockburn Sound licensees to fish in oceanic waters adjacent to Mandurah. The respondent suggests that such lack of scope for flexibility is an opportunity foregone to reduce the pressure on Cockburn Sound crab stocks.

### *Geographe Bay*

Commercial fishers express concern for ongoing access to inshore crab stocks in Geographe Bay. Respondents fear that the activities of commercial fishermen currently targeting crab in this area might inhibit future access by licensees who have refrained from crab fishing in areas of high visibility in Geographe Bay. Commercial fishermen who are licensed to undertake beach seine and haul netting activities in the Bay, and who also have a history of taking crabs, express their desire to continue to exercise their right to take crabs.

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<sup>4</sup> Expressions of interest for the Shark Bay Crab Experimental Fishery were called for in 12<sup>th</sup> November 1997 and closed on 9<sup>th</sup> January 1998. This fishery was not identified as a separate entity in Fisheries Management Paper No. 108, but the catch statistics for Shark Bay quoted in the paper do include crab catches taken in waters where this proposed fishery is likely to operate.

*Pot allocation*

The allocation of pots per licensee is again addressed in this section. There is a view that a maximum number of pots allocated for inshore crab fishing should not be determined until pots have been trialed in the area<sup>5</sup>.

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<sup>5</sup> It is unclear as to whether this comment relates to the allocation of pots per licensee, or the allocation of pots throughout the entire inshore crab fishery.

## 6.6 Allocation and Resource Sharing Between Commercial and Recreational Participants

<i>10 submissions</i>	<i>respondents with recreational interests: 3</i>
	<i>respondents with commercial interests: 7</i>

Comment from the recreational sector relates especially to the visibility of the commercial presence and the intensity of commercial effort. Respondents suggest that any efforts to keep commercial crabbers 'out of sight', may not necessarily mean 'out of mind'.

It is also stated that recreational fishers are unable to compete for the resource with commercial fishers. No additional information is provided to support this statement.

One respondent sees the loss of Cockburn Sound to recreational crab fishers as a forgone conclusion and is critical of Fisheries Management Paper No. 108 for neglecting to specifically address the resource sharing problems in this area.

The concerns of the commercial sector are broad ranging. It is noted that the development of WA's coastal fringe is a major factor in the current resource sharing debate, and that commercial fishermen should keep this in mind at all times. Some commercial respondents who live among strong pressure groups agree that there is considerable anti-commercial feeling in their area, but state that they make a conscious effort not to provide further grounds for strengthening this sentiment.

Commercial fishers also support more research into inshore crab stocks, noting that a better understanding of the resource can only improve our knowledge of the stocks and hence the certainty and equity of access arrangements for all stakeholders.

Commercial stakeholders state that while the number of commercial fishers are decreasing, the number of recreational fishers is increasing. However, the extent to which this increase is occurring cannot be determined unless a recreational licence is introduced. Real resource sharing could then occur, when the recreational fishing effort is known.

Another submission contends that commercial fishing has its place in supplying fish to 70% of the population who do not fish, but are entitled to their share of the resource.

**6.6.1 Exmouth**

No comment.

**6.6.2 Shark Bay**

No comment.

**6.6.3 Mandurah**

<i>4 submissions</i>	<i>respondents with recreational interests: 2</i>
	<i>respondents with commercial interests: 2</i>

It is stated that resource sharing is primarily of interest to resident commercial operators and local resident recreational fishers, thereby implying that the ‘casual crabber’ has no interest in this issue, nor with compliance to recreational crabbing regulations. It is also stated that the greatest pressure on the resource comes from ‘day-trippers’ to the area.

One submission criticises Fisheries Management Paper No 108 for inaccuracies with respect to the number of visitors to the Mandurah area. The submission quotes figures from a publication by the Department of Commerce and Trade and the Peel Development Commission (1996) which illustrates that in 1994/95, approximately 900,000 ‘day trippers’ visited the area, with the peak activity period occurring between December and April.

Another respondent believes Mandurah should be the first locality where the banning of set nets should be introduced.

Respondents from the commercial sector suggest that estuarine licences should be traded for access to crab stocks in ocean waters adjacent to Mandurah. Other suggestions to overcome resource sharing arguments include the continued use of pots and the long-lining of this gear to reduce the number of surface floats.

Closures to commercial and/or recreational fishing by time and area, and the introduction of a minimum commercial legal size for crabs which is greater than the minimum recreational legal size for crabs, are also suggested.

Commercial respondents contend that commercial fishers in the Mandurah Estuary should have the opportunity to use drop nets and scoop nets.

**6.6.4 Bunbury**

No comment.

**6.6.5 Geographe Bay**

<i>12 submissions</i>	<i>respondents with recreational interests: 8</i>

All respondents to this section call for a prohibition on commercial fishing effort in Geographe Bay. The points of reference for the proposed closure to commercial fishing vary slightly.

The proposals for a closure focus primarily on the concept that Geographe Bay is a recreational fishing area and that crab stocks should not be targeted by the commercial sector.

Submissions are critical of the fact that crabs caught by the commercial sector in Geographe Bay are not available in local commercial outlets. It is stated that as this activity does not benefit the local community, therefore there is no need for commercial effort in this area. A reduction in the commercial effort will therefore result in flow-on benefits to the recreational sector.

Some submissions do identify an increase in recreational fishing pressure in Geographe Bay over recent years and support a reduction to recreational bag limits. However, one respondent refutes the crabs-per-kilogram measurement quoted in the paper, suggesting that 5 crabs per kilogram is more realistic than 4 crabs per kilogram.

Commercial fishermen are criticised for not observing weekend crabbing closures in Geographe Bay.

A significant proportion of the submissions from the commercial sector address the effects of recreational fishing upon crab stocks. Respondents contend that recreational fishers harvest more crabs than commercial fishers and request that resource sharing be a 'two-way street'.

Commercial fishers dispute the effect that their activities may have on the recreational catch, saying that crab fishing ceases by the time the greatest percentage of holiday makers arrive in Geographe Bay.

Concern is expressed for the perceived conflict between the recreational and commercial sector, suggesting that the lack of biological knowledge on the part of the recreational community is a major factor in the misunderstandings that occur. Submissions propose closures to commercial fishing, by time and area, should be introduced.

Size limits and bag limits are also discussed, with a reduction to the recreational boat limit suggested, ie. reduced from 48 to 45 crabs per boat. It is also suggested that the legal size limit is increased from 127cm to 137cm.

A number of submissions offered thoughts as to how the current issues in Geographe Bay may be alleviated.<sup>6</sup> These were:

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<sup>6</sup> These suggestions were not necessarily confined to comment under this particular heading, but for ease of comprehension they have been collated and presented in this section.

- (i) decrease the number of licensed commercial fishermen in the Bay through the Fisheries Adjustment Scheme (1988);
- (ii) impose annual catch restrictions on commercial fishers;
- (iii) reduce the number of drop nets used by each licensed commercial fisherman;
- (iv) reduce the bag limit for recreational fishers;
- (v) reduce the boat possession limit for the recreational fishery;
- (vi) prohibit commercial fishing in the Bay. The areas nominated fell generally between Wonnerup and Dunsborough;
- (vii) develop a deep water crab fishery in Geographe Bay;
- (viii) allow commercial fishers to use pots that can be set and pulled at night; and
- (ix) introduce a recreational crab fishing licence.

**6.6.6 Swan Canning Estuary**

<i>6 submissions</i>	<i>respondents with recreational interests: 4</i>
	<i>respondents with commercial interests: 2</i>

Responses attributable to the recreational sector express concern for the visibility of commercial fishers on the Swan Canning Estuary, and note that commercial fishermen are observed during daylight hours.

Again, comment relating to the introduction of measures to reduce the visibility of commercial fishermen was that ‘out of sight’ may not necessarily mean ‘out of mind’.

By contrast, respondents from the commercial sector believe that the current management arrangements work well, and attribute the minimal conflict with recreational fishers to the efforts of fishermen who keep clear of fishing sites, where their presence may cause recreational fishers to feel threatened.

It is suggested that resource sharing concessions should be made by both sectors.

**6.6.7 Warnbro Sound**

<i>1 submission</i>	<i>respondents with recreational interests: 1</i>
	<i>respondents with commercial interests: nil</i>

There is support for the dedication of the Warnbro Sound fishery to the recreational fishing sector when the sole commercial licence in this fishery ceases to exist.

**6.7 Cost Recovery**

<i>4 submissions</i>	<i>respondents with recreational interests: 2</i>
	<i>respondents with commercial interests: 2</i>

Recreational respondents reject the introduction of cost recovery arrangements for the recreational sector, stating that:

- (i) recreational fishers already contribute to the cost of the fishery by injecting funds into the economy and the general payment of taxes and charges;
- (ii) cost recovery is an effective and irritating rationale that cannot be justified on any grounds; and
- (iii) licensing will require more money to be spent on inspectors and administrative costs that would be covered by monies collected.

The commercial sector is also concerned about cost recovery measures, especially with respect to the likely implications to their industry and their ability to pay for any new management options introduced.

It is suggested that both the commercial and recreational sector should share the costs incurred under a cost recovery regime.

### 6.8 Inter Agency Considerations

<i>1 submission</i>	<i>respondents with recreational interests: nil</i>
	<i>respondents with commercial interests: 1</i>

The commercial fishing sector advised that the issue of four wheel drive access to the area south of Belvidere Beach has been resolved, in conjunction with the South West Regional Recreational Fishing Advisory Committee and Conservation and Land Management.

## 7.0 MANAGEMENT OPTIONS

<i>3 submissions</i>	<i>respondents with recreational interests: 1</i>
	<i>respondents with commercial interests: 2</i>

Comment on issues raised in this section highlight the need for a clear definition of any inshore crab fishery and suggest that access arrangements are developed with the assistance of input from a working group formed expressly for this task.

Some submissions from the commercial sector indicate their likely lack of support for spatial resource partitioning and for the introduction of a standard net-to-pot conversion rate, preferring that conversions be addressed area-by-area, taking into account the special conditions of each area. There was support for the policy that net-to-pot conversions should be based on the best available information.

Commercial responses suggest that recreational bag limits should be addressed by the Recreational Fishing Advisory Committee in consultation with Fisheries WA's

Research Division. However, other respondents from the recreational sector who comment on this particular section indicate that they do not view further limits on recreational crab fishers favourably.

### 7.1 Management Options

15 respondents advised of their preferred Option for the management of the fishery.

The responses are classified below.

<b>Option 1:</b>	<b>Option 2:</b>	<b>Option 3:</b>	<b>Option 4:</b>	<b>Option 5:</b>
No change	Same gear + address local issues	Single gear + changes to commercial and recreational fishing arrangements	TAC, multiple gear types, strategic recreational fishing arrangements	TAC, ITQs multiple gear types, strategic recreational fishing strategies
3	4	7	1	nil

31 respondents did not indicate a preference for any of the management options proposed in the Fisheries Management Paper No. 108.

### Comments relating to the various options as suggested by submissions

*Option 1* One submission suggests that this is their preferred option for the management of the inshore crab fishery, but notes it is the least acceptable by politicians and recreational fishers.

Another submission contends that this option does not appear to ensure the sustainability of the crab resource.

*Option 2* Modifications are proposed for this option (although the proposed nature of those modifications is not identified). It is also proposed that the various management options are discussed by a working group and their finding sent to industry and the public for consideration and comment.

Option 2 is the second choice of one respondent. (first choice was Option 1), while another respondent comments that this option does not appear to ensure the sustainability of the resource.

*Option 3* There is argument for a modification of this option by allowing a variety of gear types to be used in the fishery, noting in particular that crabs form an important incidental catch in the Shark Bay trawl fisheries.

Another submission suggests that Option 3 fails the test of ensuring an equitable sharing of the resource among competing users.

*Option 4* Concern is expressed for the possible introduction of a Total Allowable Catch (TAC) with fears that a TAC could result in a chase for quota and compromise the quality of crab catches.

Another view is that Option 4 has merit in terms of its ability to ensure the sharing of the resource among competing users, but whether arrangements for the equitable sharing of the resource is possible under such a scheme remains to be seen.

*Option 5* One submission is of the view that TACs and Individual Transferable Quotas (ITQs) are not appropriate in this fishery.

Other submissions state that Option 5 does nothing to ensure that the cost of managing the fishery can be met by industry.

**7.2./7.3/7.4 Additional Controls to Resolve Resource Sharing Conflict/Input Controls/Output Controls/Regulatory and Management Approach**

<i>30 submissions</i>	<i>respondents with recreational interests: 16</i>
	<i>respondents with commercial interests: 14</i>

A number of recommendations and suggestions are offered by respondents. The tables that follow illustrate the various suggestions, which are classified according to the sector that submissions represent.

It will be noted that in some instances, respondents from both sectors have offered similar suggestions and solutions for the future management of inshore crab fishing.

Headings in the tables identify the relationship between management suggestions and particular geographical areas.

**Suggestions for the future management of the inshore crab fishery, as offered in submissions attributable to recreational stakeholders**

<b>Estuarine Access</b>	<b>Ocean Access</b>	<b>Estuarine and Ocean Access</b>

<ul style="list-style-type: none"> <li>•</li> </ul> <p><u>Swan Canning</u></p> <p><i>Gear</i></p> <ul style="list-style-type: none"> <li>• ban commercial set nets</li> <li>• retain drop nets for use by recreational fishers</li> </ul> <p><u>Mandurah</u></p> <p><i>Management</i></p> <ul style="list-style-type: none"> <li>• first fishermen trialing pots to have first offer of a pot licence</li> <li>• Fisheries WA to offer only 4 pot fishing licences</li> <li>• pot licences for exclusive use in estuary</li> <li>• no change to maximum boat length restrictions</li> </ul> <p><i>Gear</i></p> <ul style="list-style-type: none"> <li>• maximum of 40 pots per licensee</li> </ul> <p><u>Leschenault Estuary</u></p> <p><i>Management arrangements</i></p> <ul style="list-style-type: none"> <li>• continue to buy back licences</li> </ul> <p>consolidate Leschenault Inlet Management Authority with Fisheries WA</p> <p><u>General Estuarine</u></p> <p><i>Management</i></p> <ul style="list-style-type: none"> <li>• keep shipping lanes clear of floats at all times</li> </ul> <p><i>Gear</i></p> <ul style="list-style-type: none"> <li>• move to pots only</li> <li>• ban set nets</li> </ul>	<p><u>Mandurah</u></p> <p><i>Management</i></p> <ul style="list-style-type: none"> <li>• dedicated crab fishery</li> <li>• permit fishing between Long Point and Preston Beach</li> <li>• licences only for ocean access</li> <li>• maximum of 6 oceanic licences</li> </ul> <p><i>Gear</i></p> <ul style="list-style-type: none"> <li>• maximum of 80 pots per licensee</li> <li>• maximum boat length of 8 metres.</li> </ul> <p><i>Temporal Closures</i></p> <ul style="list-style-type: none"> <li>• operate only during rock lobster season</li> </ul> <p><u>Cockburn Sound</u></p> <p><i>Management</i></p> <ul style="list-style-type: none"> <li>• non transferable TACs</li> <li>• closed waters for commercial fishers</li> <li>• dedicated recreational fishing areas in Cockburn Sound</li> </ul> <p><i>Gear</i></p> <ul style="list-style-type: none"> <li>• reduce number of pots per licensee</li> </ul>	<p><u>Mandurah</u></p> <p><i>Commercial Licensing</i></p> <ul style="list-style-type: none"> <li>• owner-operated licences</li> <li>• non-transferable licences</li> <li>• licences allocated on history</li> </ul> <p><i>Gear</i></p> <ul style="list-style-type: none"> <li>• standardise pot sizes</li> <li>• ‘pot only’ fishery</li> </ul> <p><u>General Comments (estuarine and ocean)</u></p> <p><i>Licensing</i></p> <ul style="list-style-type: none"> <li>• introduce recreational crab and prawn licence</li> <li>• annual register of persons who intend to fish for crabs in a given year</li> </ul> <p><i>Gear</i></p> <ul style="list-style-type: none"> <li>• ban gill nets</li> <li>• introduce pots</li> <li>• drop nets only between Wonnerup and</li> </ul>
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## Suggestions for the future management of the inshore crab fishery offered in submissions from commercial stakeholders

(table runs over next two pages)

<b>Estuarine Access</b>	<b>Ocean Access</b>	<b>Estuarine and Ocean Access</b>
<p><u>Swan-Canning Estuary</u></p> <p><i>Management</i></p> <ul style="list-style-type: none"> <li>no change to current management</li> </ul> <p><i>Gear</i></p> <ul style="list-style-type: none"> <li>multi-gear fishery - keep tangle nets</li> </ul> <p><u>Mandurah Estuarine Fishery</u></p> <p><i>Management</i></p> <ul style="list-style-type: none"> <li>changes to be supported by scientific evidence</li> <li>clearly define participants</li> <li>standardise exit and entry through transferability arrangements</li> <li>include trawlers in fishery</li> </ul> <p><i>Gear</i></p> <ul style="list-style-type: none"> <li>multi-gear fishery, include               <ol style="list-style-type: none"> <li>trawl gear</li> <li>drop nets</li> <li>scoop nets</li> <li>pots</li> </ol> </li> <li>standardise conversion rates for different gear types</li> </ul> <p><i>Cost Recovery</i></p> <ul style="list-style-type: none"> <li>must be affordable to industry</li> </ul>	<p><u>Cockburn Sound</u></p> <p><i>Management</i></p> <ul style="list-style-type: none"> <li>licensees to have access to crab stocks outside Cockburn Sound</li> </ul> <p><i>Gear</i></p> <ul style="list-style-type: none"> <li>pot numbers per licensee to increase as licences in the fishery decrease</li> </ul> <p><u>Geographe Bay</u></p> <p><i>Management</i></p> <ul style="list-style-type: none"> <li>limit number of licensees to 5 or 6</li> <li>access based on fishing history</li> <li>develop an oceanic crab fishery 100 - 150 metres offshore</li> <li>develop an exploratory fishery in deeper waters of Bay</li> <li>introduce:               <ol style="list-style-type: none"> <li>temporal closures (not specified)</li> <li>area closures (not specified)</li> </ol> </li> <li>pots to be set at night</li> </ul> <p><i>Gear</i></p> <ul style="list-style-type: none"> <li>permit pots</li> <li>multi-gear fishery</li> </ul>	<p><u>General</u></p> <p><i>Management</i></p> <ul style="list-style-type: none"> <li>resource sharing allocations only after recreational catch is ascertained</li> <li>input controls to be discussed with industry on an area by area basis</li> <li>introduce crab possession limits on trawlers and annual quota based on criteria for years 1981 to 1985 inclusive.</li> </ul> <p><i>Input controls</i></p> <ul style="list-style-type: none"> <li>reduce recreational bag limit to 12</li> <li>reduce recreational boat limit to 24</li> <li>increase minimum legal size (not specified)</li> <li>increase minimum legal size to 130mm for the commercial sector only</li> </ul> <p><i>Gear</i></p> <ul style="list-style-type: none"> <li>ban trawl gear</li> </ul> <p><i>Licensing</i></p> <ul style="list-style-type: none"> <li>introduce a recreational crab and prawn licence</li> </ul> <p><i>Research</i></p> <ul style="list-style-type: none"> <li>revenue from recreational licensing to support research into recreational crab fishery</li> <li>further research required</li> </ul>

<b>Estuarine Access</b>	<b>Ocean Access</b>	<b>Estuarine and Ocean Access</b>
<p><u>Leschenault Estuarine Fishery</u></p> <p><i>Management</i></p> <ul style="list-style-type: none"> <li>introduce:               <ul style="list-style-type: none"> <li>(I) temporal closures (not specified)</li> <li>(ii) area closures (not specified)</li> </ul> </li> </ul> <p><u>South Coast Estuarine Fishery</u></p> <p><i>Management</i></p> <ul style="list-style-type: none"> <li>crabs not to be excluded from estuarine fishing activities</li> </ul> <p><i>Gear</i></p> <ul style="list-style-type: none"> <li>multi-gear fishery</li> </ul> <p><u>Shark Bay</u></p> <p><i>Management</i></p> <ul style="list-style-type: none"> <li>fundamental management changes to be justified by research knowledge</li> </ul> <p><i>Gear</i></p> <ul style="list-style-type: none"> <li>trawl access to continue</li> </ul> <p><u>Exmouth Gulf</u></p> <p><i>Gear</i></p> <ul style="list-style-type: none"> <li>trawl access to continue</li> </ul>	<p><i>Research</i></p> <ul style="list-style-type: none"> <li>quantify recreational catch in Geographe Bay</li> </ul> <p><u>South West Beach Seine Fishery</u></p> <ul style="list-style-type: none"> <li>licensees involved in beach seining activities to retain the right to access crabs</li> </ul>	<p><i>Cost Recovery</i></p> <ul style="list-style-type: none"> <li>include recreational sector in cost recovery process</li> </ul> <p><i>Administration</i></p> <ul style="list-style-type: none"> <li>increase money available to buy-back scheme</li> <li>crab committee comprising representatives from Fisheries WA, WAFIC and fishermen's associations to streamline industry</li> </ul>

## **ADDITIONAL COMMENT PROVIDED IN SUBMISSIONS**

A majority of submissions offered general comment pertaining to different geographical areas of the fishery and the management arrangements relating to those areas. Many of these comments do not relate to the specific issues identified in the *Issues Paper*, but nevertheless are relevant. It is appropriate therefore to mention these comments in the interests of public information.

From a broad perspective, several respondents asked for consistent, simple rules that will not change. If changes are being considered, many submissions requested more consultation with stakeholders - a common theme of the commercial submissions is that insufficient consultation occurs between Fisheries WA and commercial licensees when changes to commercial fishing arrangements are made. There were also expressions of concern that certain commercial licensees may be forced into a fishery-wide management strategy that would be unsuitable for their particular area of the crab fishery.

Other respondents offered comment on the political influences effecting commercial and recreational fishing rules, not only in key recreational crab fishing areas like Mandurah, but across the State. It is contended that the continual push by the recreational sector against commercial crab fishermen is being heard by politicians, while a large proportion of the community who like to buy seafood when they want it, rather than fish for it, are not being considered.

Some submissions offered comments with regard to the tone of Fisheries Management Paper No. 108, contending that the paper demonstrated an alarming bias toward the commercial sector, with insufficient attention being given to the issues facing the recreational sector, and the effect(s) of commercially-driven overfishing on the recreational catch share.

## **CONCLUSION**

There are some clear consistencies in the comments offered by submissions. These are:

- support for the need for more research into the crab fishery;
- support for the introduction of a recreational crabbing licence;
- support for a reduction in the daily recreational bag limit of crabs;
- support for amended management controls in the fishery;
- support for the introduction of pots and the banning of set nets;
- support for continued access to crabs by a variety of gear; and
- support for a dedicated recreational crab fishery in Geographe Bay.

The content of the submissions successfully identified an issue that had not been dealt with in the *Issues Paper* - the implication of boat length policies and the use of pots.

The identification of this issue, and the clearly different and similar responses to the particular subjects addressed in the *Issues Paper*, demonstrate the value of public consultation in the generation of new ideas and ways of addressing particular problems and matters.

The comments herein will be used as a basis for discussion in the process of developing policy and management arrangements for the future management of blue swimmer and sand crab fishing in this State.

## **APPENDIX 1**

### **List of Respondents**

1. Baxter, Mr A
2. Bennet, Mr J
3. Beurteaux, N
4. Carrigg, R H
5. Ellul, Mr R
6. Hadley, Mr A
7. Far West Scallops
8. Geographe Bay fishermen - Messrs Lear, Miles and Farrell
9. Kailis Pty Ltd, M G Gulf Fisheries
10. Littleton, Mr K
11. Lucas, Mr A
12. Lucas, Mr M
13. Lucas , Mr N
14. Mandurah Licensed Fishermen's Association
15. Marsh, Ms J
16. Marsh, Mr W
17. McDavitt, Mr & Mrs R C
18. Peak, Mr & Mrs A J
19. Pinnock, Mr D
20. Powell, Mr P (Chairman, Peel Regional RFAC)
21. RFAC
22. RECFISHWEST
23. Santaromita, Mr R
24. Shaw, Mr M
25. Shire of Busselton
26. Soulos, N & H
27. South Coast Licensed Fishermen's Association Inc.
28. South West Licensed Fishermen's Association
29. Swan River Professional Fishermen's Association
30. Templeman, Mr A
31. Tickle, Mr P
32. Toussaint, A B & K L
33. Valentine, J
34. Watts, Messrs J, A and B
35. West Australian Fishing Industry Council
36. Williams, M.

## APPENDIX 2

### STATISTICAL ANALYSIS

#### 1. Origin of submissions

Submissions originate from five key areas, shown in the table below.

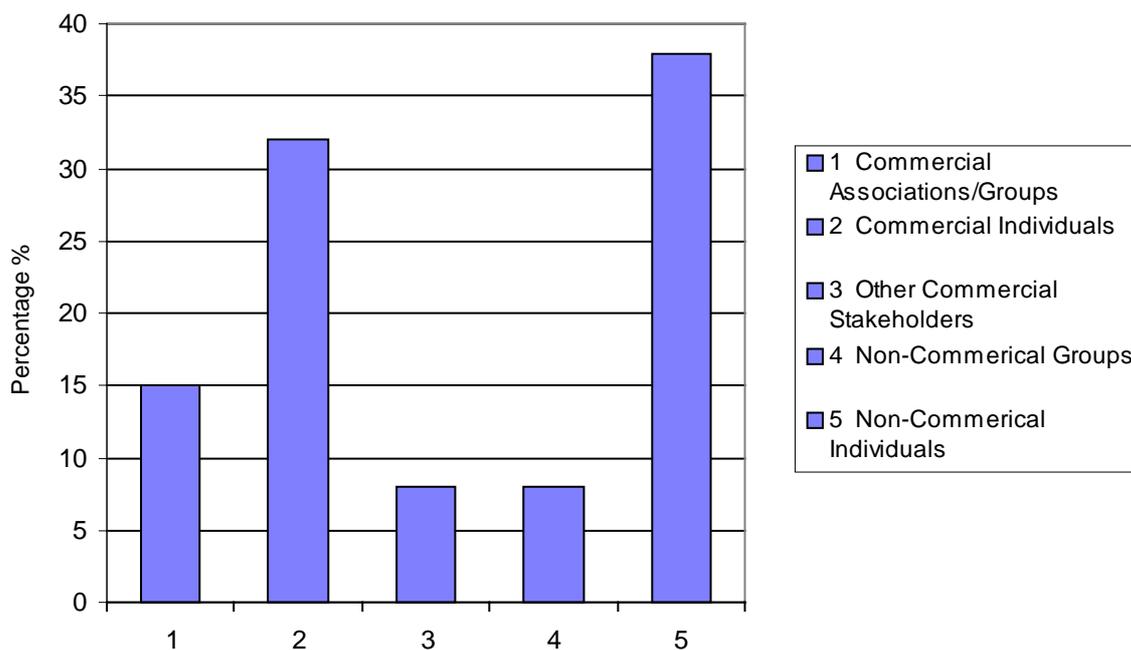
TABLE 1 GEOGRAPHIC ORIGIN OF SUBMISSIONS

	Metro	Mandurah	Bunbury	Busselton	Albany
<b>No. of responses</b>	13	5	6	10	2
<b>% of responses</b>	36%	14%	16.6%	28%	5.4%

#### 2. Stakeholder groups

The graph below (Figure 1) shows the percentage of submissions attributable to particular stakeholder groups.

Figure 1: Percentage of responses attributable to particular stakeholders





### 3. Key issues to be considered in the future management of inshore crab fishing activity

Five key issues were identified in the submissions. Each of these issues will require further consideration in the ensuing discussions about the future management of inshore crab fishing activity:

- need for more research;
- the use of particular gear types;
- adjustment of recreational bag and possession limits;
- the allocation of dedicated areas for recreational fishing; and
- the introduction of a recreational crab licence.

The tables below illustrate the percentage of support for a particular issue.

Comment on these issues has been categorised according to respondents' status in the fishery, ie. commercial stakeholders (commercial licensees or other commercial interests) or recreational stakeholders (non-commercial participants).

#### A. Need for more research

Approximately 51% of submissions commented on research activity. The majority of submissions explicitly identified the need for more research on inshore crabs in Western Australia. Other submissions commented on the current 'unknowns' about the fishery and future needs. For the purpose of the analysis, this second group of comments has been interpreted as implicit support for more research.

TABLE 2 PERCENTAGE OF RESPONDENTS INDICATING SUPPORT FOR MORE RESEARCH INTO INSHORE CRAB STOCKS

Explicit support for research		Implicit support for research	
Commercial	Non-commercial	Commercial	Non-commercial
22.22%	15%	8.3%	5.5%
Sub Total: 37.22%		Sub Total: 13.8%	
<b>Total = 51.02%</b>			

**B. The use of particular gear types**

Approximately 72% of submissions provided comment on the use of particular gear types and/or the future of the continued use of particular gear types.

TABLE 3 PERCENTAGE OF RESPONDENTS WHO FAVOUR THE BANNING OF SET NETS TO TAKE CRABS

Commercial	Non-Commercial
nil	25%
<b>Total = 25%</b>	

TABLE 4 PERCENTAGE OF RESPONDENTS WHO FAVOUR THE BANNING OF TRAWLERS TAKING CRABS

Commercial	Non-Commercial
5.5%	8.3%
<b>Total = 13.8%</b>	

TABLE 5 PERCENTAGE OF RESPONDENTS WHO EXPLICITLY EXPRESS SUPPORT FOR THE USE OF POTS TO TAKE INSHORE CRABS

Commercial	Non-Commercial
22.2%	22.2%
<b>Total = 44.4%</b>	

TABLE 6 PERCENTAGE OF RESPONDENTS WHO FAVOUR A MULTI GEAR FISHERY

Commercial	Non-Commercial
36%	nil
<b>Total = 36%</b>	

**C. Recreational bag limits and boat limits**

39% of submissions provide explicit comment on the issue of recreational bag and boat limits. The majority of submissions favour lowering the limits. Some submissions support discussion of the issue at a later time, while others oppose any change.

TABLE 7 RECREATIONAL BAG AND BOAT LIMITS

% of submissions favouring a reduction to recreational and possession limits		% of submissions favouring discussion of the issue at a later date		% of submissions opposed to any change	
Commercial	Non-Commercial	Commercial	Non-Commercial	Commercial	Non-commercial
11%	16.6%	nil	5.5%	nil	5.5%
<b>Total = 27.6%</b>		<b>Total = 5.5%</b>		<b>Total = 5.5%</b>	

**D. Allocation of dedicated areas for recreational crab fishing**

TABLE 8 PERCENTAGE OF RESPONDENTS SUPPORTING THE ALLOCATION OF DEDICATED AREAS FOR RECREATIONAL CRAB FISHING

Commercial	Non-Commercial
5.5%	25%
<b>Total = 30.5%</b>	

**E. Recreational crab licence**

Approximately 33% of submissions provided comment on the possible introduction of a recreational crab (and prawn) licence as a means of funding research into inshore crab fishing activity and quantifying the recreational catch of inshore crabs.

TABLE 9 PERCENTAGE OF SUBMISSIONS PROVIDING COMMENT ON THE INTRODUCTION OF A RECREATIONAL CRAB LICENCE

In favour of a recreational crab licence		Not in favour of a recreational crab licence	
Commercial	Non Commercial	Commercial	Non Commercial
8.0%	14.0%	nil	11%
<b>Total = 22%</b>		<b>Total = 11%</b>	