

# **A FIVE-YEAR MANAGEMENT STRATEGY FOR THE RECREATIONAL MARRON FISHERY**

*Final Report of the RFAC Recreational  
Freshwater Fisheries Stakeholder Sub-Committee*

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FISHERIES MANAGEMENT PAPER NO. 213

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the Recreational Marron Fishery

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## **FORWARD**

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The development of this strategy represents a significant step in protecting the quality of the recreational marron fishery and meeting the long-term needs for the sustainable management of recreational fishing.

In its discussion paper (Fisheries Management Paper No.198), which was widely distributed and publicised, the Recreational Freshwater Fisheries Stakeholder Sub-Committee (RFFSS) of the Recreational Fishing Advisory Committee (RFAC) put forward a range of proposals for community discussion. These proposals were developed after an assessment of historic catch information and the consideration of scientific advice. The proposals also took into account the outcomes and recommendations of the previous review of the recreational marron fishery that was undertaken in 2002.

The discussion paper attracted reasonable comment, with 78 written submissions being received from recreational fishers and other stakeholders. The RFFSS would like to thank those people and organisations that took the time to provide this valuable feedback.

All recommendations contained in this final report were only made after detailed consideration of the issues that were raised in submissions, along with the action needed to be taken to protect the long-term sustainability of our marron stocks.

The RFFSS recognised that the majority of comments in submissions supported a conservative approach in the future management of the marron fishery rather than putting the fishery at any unnecessary risk.

The RFFSS also noted the strong level of public concern over the loss of access to popular marroning waters in the past and the threat of additional water bodies being closed to the fishery in the future, as they are brought into use as drinking water supply dams.

Finally, as Chairperson, I would like to thank all the members of the RFFSS for their voluntary efforts during the comprehensive 18-month review process. Their efforts, along with those West Australians who took the time to participate in the review process, will go a long way to safe guarding the future of the recreational marron fishery.

**Kay Webber**

**Chairperson**

**RFAC Recreational Freshwater Fisheries Stakeholder Sub-Committee**



## **SECTION 1 SUMMARY OF RECOMMENDATIONS**

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### **1.1 Information for Management**

#### *Recommendation 1 – Priorities for Research*

To enable the estimation of Maximum Sustainable Yield (MSY) and the setting of an appropriate Total Allowable Catch (TAC) for the fishery each season, the following research is needed:

- The continuation of the logbook and phone surveys, so that quality time-series information is maintained to provide estimates of total catch and effort.
- The development of a more cost-effective fishery-independent method for estimating (relative) abundance of marron in representative water bodies, to provide a tool to evaluate the effects of management changes within the recreational marron fishery.
- Studies on the size at maturity of marron for a range of representative water bodies throughout the recreational marron fishery.
- A monitoring program to assess the annual volume of water available to the marron fishery and to evaluate the impact this water volume may have on marron stocks so that compensating changes to management can occur.

### **1.2 Managing the Catch and Breeding Stock Protection**

#### *Recommendation 2 – Target Catch Range*

It is recommended that the marron fishery be managed to a target catch of between 12 and 17 tonnes (96,000 to 136,000 individual marron) until such a time as the necessary information is available to develop an accurate catch prediction model that incorporates factors such as catch per unit effort, estimates of relative abundance, recruitment and environmental parameters.

In the interim, if the estimated catch exceeds 17 tonnes or falls below 12 tonnes this will be a ‘trigger’ for management action. The RFFSS will develop a matrix which outlines set management actions in the event that catches fall outside of the target catch range.

#### *Recommendation 3 – Length of the Marron Season*

To provide recreational fishers with a greater opportunity to participate in the marron fishery and to allow for a limited growth in the total catch within the recommended target catch range, it is recommended that season be increased from 16 to 23 days.

*Recommendation 4 – Start of the Marron Season*

It is recommended that the marron season continue to commence in January following the New Year holiday. To maximise the quality of the fishery, the season should commence on the Friday nearest to the start of the dark moon phase in January.

Under this recommendation, the date of the marron season will change each year to track the moon phase. The season dates should be clearly and adequately advertised in the press prior to the start of the season.

*Recommendation 5 – Marron Possession Limit*

To prevent fishers from stockpiling large potentially saleable quantities of marron while still enabling the accumulation of socially acceptable quantities, it is recommended that a possession limit of 20 marron per licence holder be introduced. This possession limit should apply to all areas outside of a person's permanent place of residence, with the exception of 'Trophy Waters' where a separate possession limit of five marron already applies.

*Recommendation 6 – Minimum Legal Size Limit*

To improve the quality of the recreational marron fishery by increasing the average size of marron, it is recommended that the general minimum legal size limit be increased from 76mm to 80mm carapace length.

### **1.3 Management of Specific Water Bodies**

*Recommendation 7 – Hutt River*

To ensure the long-term sustainability of Hutt River marron stocks, it is recommended that the Hutt River be managed as a 'Trophy Water', with a minimum size limit of 90 mm and a bag and possession limit of five marron per licensed fisher.

*Recommendation 8 – Warren River*

To enable users of the Warren National Park to effectively participate in the recreational marron fishery, it is recommended that the 'snare-only' requirement be removed from this section of the Warren River. This would enable all fishers on the Warren River to use marron drop nets, scoop nets or snares.



*Recommendation 9 – Donnelly River*

To enable marron fishers to access the relatively inaccessible sections of the Donnelly River, it is recommended that fishers be permitted to carry marron drop nets and scoop nets by boat to the area that they intend to fish (down stream of ‘Boat Landing’ only). The use of a boat to actively fish for marron with drop nets and scoop nets will remain prohibited.

This permission should be reviewed after a five-year trial period. However, if a significant level non-compliance is observed during the trial, it will be recommended that the permission be immediately terminated.

*Recommendation 10 – Shannon River*

It is recommended that the Shannon River be closed to all fishing, to provide a system that can be utilised to assess the impact of environmental factors on marron and native fish stocks in the absence of fishing pressure and predation from introduced fish. This closure should be monitored and re-evaluated after five years.

## **1.4 Protecting and Enhancing the Quality of the Marron Fishery**

*Recommendation 11 – Management of Dams*

To ensure a long-term quality future for marroning in public dams where fishing is currently permitted, it is recommended that a formal Memorandum of Understanding be developed between the Department of Fisheries and the relevant water management authorities.

The Memorandum of Understanding should cover an agreed risk assessment process for the water authorities and the Department of Fisheries, and a strategy towards future water allocation decisions, designed to minimise the impact of them on the quality of the recreational marron fishery.

*Recommendation 12 – Restocking Marron as a Stock Enhancement Strategy*

It is recommended that the restocking of marron, via a captive breeding program or via translocation, should be considered as a strategy to assist with the recovery of a stock where it can be identified that the stock has been significantly depleted and its recovery is endangered or will be prolonged.

To minimise any ecological impacts, all stock enhancement projects should be assessed against disease risk, biodiversity and genetic diversity criteria. Any stock enhancement project should use stock from the water catchment where they originate and also be adequately monitored and evaluated.

*Recommendation 13 – Artificial Habitats*

To improve the survival of juvenile marron and increase the overall productivity of marron waters, it is recommended that funding be sought for the installation, monitoring and evaluation of artificial habitat to rehabilitate public dams identified to be lacking in natural habitat. The installation of any artificial habitat should be negotiated with the relevant management authorities and constructed in accordance with water body management plans.

## **1.5 Improving Community Stewardship – Education and Compliance**

*Recommendation 14 – State Freshwater Emblem*

In recognition of the unique place of marron in Western Australia's freshwater ecology and the high social value of the fishery as part of the heritage of all Western Australians, it is recommended that marron be nominated as a State freshwater faunal emblem.

*Recommendation 15 - Community Education Plan for the Recreational Marron Fishery*

It is recommended that a community education plan be developed for the recreational marron fishery that focuses on the most important issues and areas within the fishery. Such a plan should seek to keep the recreational fishing community informed of management decisions, give a clear lead on the values and attitudes which will assist in sustaining marron stocks, and develop a broad community recognition of the value of the marron fishery. As a minimum, it is recommended that the plan contain the following elements:

- *Marron fishing guide:* A comprehensive fishing guide should be produced to inform and educate fishers about the management arrangements for the marron fishery, fishing ethics, research, conservation issues and promoting stewardship for marron stocks and the environment.
- *Marron gauges and other educational resource materials:* Adequate quantities of practical educational tools, such as measuring gauges and fishing venue signs, should be produced to support the marron fishing guide.
- *Annual media campaign:* An annual media campaign should be implemented to promote marron fishing and fishing ethics.
- *Volunteer involvement in education:* Volunteer groups should be encouraged to continue their involvement in structured fisheries education activities for the marron fishery.

*Recommendation 16 - Field Management and Compliance*

To maximise the effectiveness of the five-year management plan for the recreational marron fishery, it is recommended that the Department of Fisheries aim to deliver at least 2,500 hours towards field compliance and education, both during and outside of the marron season.

## **SECTION 2 REVIEW PROCESS AND OVERVIEW OF PUBLIC SUBMISSIONS**

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### **2.1 Review Process**

The Minister for Fisheries established a Recreational Freshwater Fisheries Stakeholder Subcommittee (RFFSS) of the Recreational Fishing Advisory Committee (RFAC) in 2004 to ensure issues relating to the viability and sustainability of marron, trout and other recreational freshwater species were addressed in an integrated manner.

As a priority, the RFFSS was tasked with a major review to ensure a quality future for the recreational marron fishery in light of the available catch information from recent seasons. The RFFSS met six times during 2004/05 to consider issues relating to the marron fishery and oversee the development of a draft strategy.

The RFFSS consists of the following membership;

#### **Members**

Kay Webber - Chairperson  
Nathan Harrison - Department of Fisheries  
Frank Prokop – Recfishwest  
Harry Vosper – WATFAA  
Peter Ryall - Freshwater finfish licence holder representative  
John McConigley - Freshwater finfish licence holder representative  
David Morgan - Marron licence holder representative  
John Evans - Marron licence holder representative  
James Duggie - Conservation representative  
Vacant - Indigenous representative

#### **Observers**

Rod Brooks - Water Corporation  
Tom Rose - Department of Environment  
Denam Bennetts - Department of Conservation and Land Management

#### **Executive Support**

Clinton Syers – Recreational Fisheries Management Officer (Department of Fisheries)  
Martin De Graaf – Freshwater Research Scientist (Department of Fisheries)  
Eileen Ferguson – RFAC Executive Officer (Department of Fisheries)

The draft strategy (Fisheries Management Paper No.198 ‘A *Quality Future for the Recreational Marron Fishery*’) was released in September 2005 for a three-month public comment period. The draft strategy was publicised through print media and electronic media.

In addition, recreational umbrella and marron licence holders were contacted via renewal notices issued during the public comment period and advised of the release of the draft strategy. Copies of the draft strategy were also distributed to the RFAC and relative Regional RFACs, marron logbook holders and local members of parliament for comment.

Following the close of public submission, the RFFSS met in January 2006 to discuss the submissions and formulate final recommendations to the Minister for Fisheries. All matters raised in submissions were carefully considered by the RFFSS, prior to finalising the recommendations contained in this report.

## **2.2 Overview of Public Submissions**

The RFFSS would like to thank the individuals and associations who took the time to complete submissions on the proposals and issues outlined in the discussion paper.

A total of 78 written submissions were received from;

- Recreational marron fishers;
- Marron logbook holders;
- RFAC members;
- Regional RFAC members; and
- Recfishwest.

The comments and suggestions put forward in the submissions provided valuable feedback for the RFFSS. The RFFSS not only considered the frequency with which issues were raised, but also discussed the validity of various comments.

The key issues raised by the community on all proposals are detailed in ‘Section 3 – Issues and Recommendations’.

A summary of the level of support for each proposal as indicated in submissions is attached in Appendix A and a list of the individuals who provided a submission is attached in Appendix B.

## **SECTION 3 ISSUES AND RECOMMENDATION**

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The Recreational Freshwater Fisheries Stakeholder Sub-Committee's draft strategy (Fisheries Management Paper No. 198) provided a detailed rationale on the proposals and should be read in conjunction with this paper.

### **3.1 Information for Management**

#### **3.1.1 Research information**

The RFFSS' proposed priorities for research on the marron fishery received strong support in submissions. Over 90 per cent of submissions supported the continuation of the marron fisher logbook program, which has been going since 1971 and the marron licence holder telephone phone survey, which commenced in 1990.

The RFFSS believed that it was important for the Department of Fisheries to continue both the marron fisher logbook program and the licence holder telephone surveys to provide quality time-series estimates of total catch and effort.

The RFFSS believed it was also important to develop a cost-effective fishery-independent method for estimating the relative abundance of marron in representative water bodies as a tool to evaluate the effects of management changes within the recreational fishery. Around 80 per cent of submission supported the development of a fishery-independent method for estimating the relative abundance of marron.

While the RFFSSs proposal to support additional studies on size at sexual maturity of marron also received a high level of support in submissions (83 per cent), several comments indicated that there was some concern that the mortality associated with these studies may impact on numbers of marron available to recreational fishers.

Studies to determine the size at sexual maturity are essential to assess the appropriateness of minimum size limits for marron within various areas of the fishery. While basic maturity information can be obtained by passive visual techniques, information on fecundity (numbers of eggs) and viability (proportion of viable eggs) can usually only be obtained by dissecting specimens.

These studies may result in the mortality of a few hundred marron taken from representative water bodies across the fishery. However, this represents an insignificant proportion of the approximate 100,000 marron taken by fishers each season and is therefore unlikely to impact on the quality of the recreational fishery.

Finally the RFFSS' proposal to support the development of a monitoring program to measure the annual volume of water available to marron stocks received a high level of support in submissions (86 per cent). The RFFSS believes that further research into the effects of environmental factors such as rainfall is essential if fisheries scientists are going to be able to provide a reliable estimate of the maximum sustainable yield for the marron fishery.

The RFFSS noted that the Department of Fisheries was currently undertaking a Fisheries Research and Development Corporation (FRDC) funded research project which aimed to evaluate fishery-independent standardised trapping and underwater transects survey methodology. This project will also continue to investigate the links between rainfall and marron stocks as a possible indicator of future abundance.

While the outcomes of this project will go a long way to fulfilling the RFFSS' recommended research priorities, there will be a need to secure additional funds for ongoing trials once the FRDC funding has been exhausted. To aid in sourcing future funding for ongoing research into the marron fishery, the RFFSS supports the establishment of a Marron Research Sub-Committee.

### *Recommendation 1 – Priorities for Research*

To enable the estimation of Maximum Sustainable Yield (MSY) and the setting of an appropriate Total Allowable Catch (TAC) for the fishery each season, the following research is needed:

- The continuation of the logbook and phone surveys so that quality time-series information is maintained to provide estimates of total catch and effort.
- The development of a more cost-effective fishery-independent method for estimating (relative) abundance of marron in representative water bodies, to provide a tool to evaluate the effects of management changes within the recreational marron fishery.
- Studies on the size at maturity of marron for a range of representative water bodies throughout the recreational marron fishery.
- A monitoring program to assess the annual volume of water available to the marron fishery and to evaluate the impact this water volume may have on the marron stocks so that compensating changes to management can occur.

## **3.2 Managing the Catch and Breeding Stock Protection**

### ***3.2.1 Target catch range***

The RFFSS' proposal to manage the marron fishery to a target catch range of between 12 and 17 tonnes received strong support in submissions (79 per cent). The RFFSS noted that the majority of people who did not support this proposal commented that the proposed target catch range was still too high in their opinion.

The RFFSS believed that a target catch range of between 12 and 17 tonnes (96,000 to 136,000 individual marron) allowed for limited growth in the fishery while maintaining catches at a sustainable level until the necessary research information was available to set a Total Allowable Catch (TAC).

The RFFSS believes that it is important to develop a fixed management response matrix if the catch range is not met in any given season. This matrix should not only take into account total catches, but other variables such as catch per unit effort, biological characteristics, environmental parameters and any changes in access throughout the fishery.

To enable any real-time management response from one season to the next, the Department of Fisheries will need to be able to provide an estimate of the total catch within three months of the end of the season. This would allow sufficient time for the RFFSS to consider the need for any additional management changes, consult with stakeholders, seek Ministerial approval for legislation changes, and conduct a community education campaign prior to the following season.

### *Recommendation 2 – Target Catch Range*

It is recommended that the marron fishery be managed to a target catch of between 12 and 17 tonnes (96,000 to 136,000 individual marron) until such a time as the necessary information is available to develop an accurate catch prediction model that incorporates factors such as catch per unit effort, estimates of relative abundance, recruitment and environmental parameters.

In the interim, if the estimated catch exceeds 17 tonnes or falls below 12 tonnes, this will be a ‘trigger’ for management action. The RFFSS will develop a matrix which outlines set management actions in the event that catches fall outside of the target catch range.

### **3.2.2 Season length**

In its discussion paper (Fisheries Management Paper No. 198) the RFFSS considered the merits of increasing the length of the marron season to provide increased fishing opportunities for recreational fishers and allow for a slight increase in the total catch. The RFFSS’ proposal included a low-risk option of maintaining the current 16-day season, a medium-risk option of increasing the season to 23 days, or a relatively high-risk option of increasing the season to 37 days.

Fifty four per cent of submissions supported maintaining a 16-day season, while only 36 per cent supported an increase in the season length to either 23 or 37 days. Comments in submissions indicated that many fishers believed a 16-day season provided a more precautionary approach to management while allowing enough of an opportunity to enjoy to fishery.

Other comments suggested that the season should be held over several weekends. However, the RFFSS believes that this option would result in a significant increase in effort and present additional compliance implications.

The RFFSS believes that it is important to take into account the possible effects of other management recommendations contained in this report. In particular, the recommendations to introduce a marron possession limit (Section 3.2.4), increase the minimum legal size limit for marron (Section 3.2.5) and to establish a conservation area in the Shannon River (Section 3.3.4), which are likely to constrain the total catch.

Having considered the level of community support, the comments in submissions and the implications of other recommendations in this report, the RFFSS is of the view that a 23-day

season would allow for increased recreational fishing opportunities while managing catches to within the target catch range.

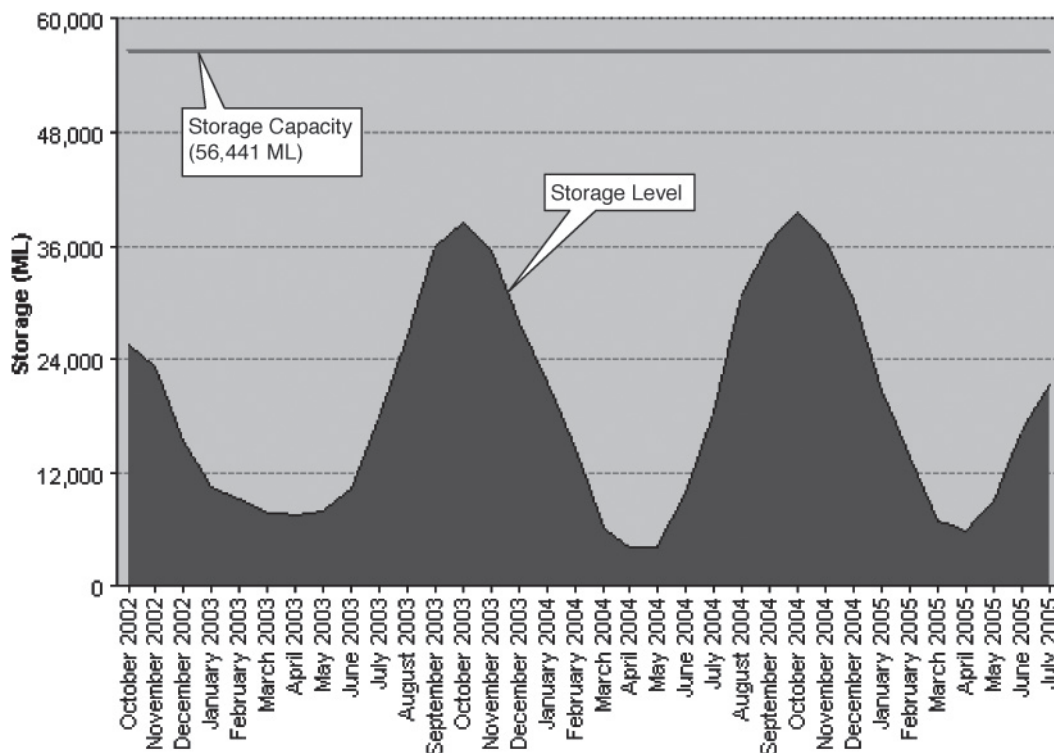
*Recommendation 3 – Length of the Marron Season*

To provide recreational fishers with a greater opportunity to participate in the marron fishery and to allow for a limited growth in the total catch within the recommended target catch range, it is recommended that season be increased from 16 to 23 days.

**3.2.3 Season start date**

The RFFSS proposal to maintain a January start to the marron season received 50 per cent support in submission while the proposal to base the marron season around the Easter holiday period only received 28 per cent support. The remainder of the submissions either supported a split season over both periods or did not have a view on this proposal.

While the RFFSS acknowledged that both options presented their own advantages and disadvantages, ultimately the level of community support, potential increased fire risk and the lower water levels experienced during the Easter holidays detracted from this period being a preferred option. The following figure gives an indication of the relative water level in Harvey Dam throughout the year.



Courtesy of Water Corporation – [www.watercorporation.com.au](http://www.watercorporation.com.au)



In its discussion paper, the RFFSS also proposed that the season start on a Friday and end on a Sunday to encompass as many weekend days as possible and that the season be based around moon phases so as to take advantage of the more productive darker phase of the moon.

#### *Recommendation 4 – Start of the Marron Season*

It is recommended that the marron season continue to commence in January following the New Year holiday. To maximise the quality of the fishery, the season should commence on the Friday nearest to the start of the dark moon phase in January.

Under this recommendation, the date of the marron season will change each year to track the moon phase. The season dates should be clearly and adequately advertised in the press prior to the start of the season.

#### **3.2.4 Possession limits**

The RFFSS' proposal to introduce a possession limit for marron received strong support, with 56 per cent of submissions supporting a possession limit of 20 per person and a further 19 per cent of submissions supporting a possession limit of 30 marron per person.

Comments in submissions indicated that while there was strong support for the introduction of a possession limit that enable fishers to accumulate a socially acceptable quantity of marron, many fishers were still uncertain as to the difference between a daily bag limit and a possession limit.

A daily bag limit is the number of marron that a licensed fisher may legally take during a 24-hour period (midday to midday) during the marron season. Generally a daily bag limit of 10 marron per licensed fisher currently applies throughout the marron fishery with the exception of 'specific nominated trophy waters' where a bag limit of 5 applies.

A possession limit is the maximum number of marron a person may have in their possession. Generally, possession limits apply throughout the State but do not apply in a person's permanent place of residence.

It should be noted that the Harvey Weir and Waroona Dam are currently managed as 'Trophy Waters' and a separate possession limit of five marron already applies within 500 metres of these waters. The RFFSS also recommending the Hutt River be managed as the recreational marron fisheries' third 'Trophy Water' (Section 3.3.1).

Given the level of community support, the RFFSS supports the introduction of a possession limit of 20 marron, noting that the daily bag limit of 10 marron per licensed fisher would still apply. A possession limit of 20 marron, or two days' bag limit, would also be consistent with the general finfish possession limit of two days' bag limit of whole fish.

The RFFSS is also of the view that the possession limit should also be linked to a recreational marron licence. That is, only the holder of a recreational marron licence should be entitled a possession limit of 20 marron.

#### *Recommendation 5 – Marron Possession Limit*

To prevent fishers from stockpiling large potentially-saleable quantities of marron while still enabling the accumulation of socially-acceptable quantities, it is recommended that a possession limit of 20 marron per licence holder be introduced. This possession limit should apply to all areas outside of a person's permanent place of residence, with the exception of 'Trophy Waters' where a separate possession limit of five marron already applies.

#### **3.2.5 Minimum legal size limits**

In its discussion paper the RFFSS proposed several options for increasing the minimum legal size limit for marron. In total, over 50 per cent of submissions supported increasing the minimum size limit, while only 34 per cent of submissions supported no change to the current 76mm minimum size limit. Most significantly, 38 per cent supported increasing the minimum size limit to 80mm.

Comments in submissions indicated that many fishers are of the view that a 76mm marron is relatively small and the overall quality of the fishery could be improved by increasing the size limit to at least 80mm. While research advice suggests that the current minimum size limit of 76mm provides adequate breeding stock protection across most of the fishery, an increase in the minimum size limit may increase total egg production due to an increase in the average size of marron.

Given the level of support in submissions, the RFFSS supports an initial increase in the minimum size limit to 80mm across the fishery. The effects of an 80mm minimum size limit should be evaluated after several seasons and the possibility of further increases should be considered in the future if this is likely to bring additional benefits to the fishery.

#### *Recommendation 6 – Minimum Legal Size Limit*

To improve the quality of the recreational marron fishery by increasing the average size of marron, it is recommended that the general minimum legal size limit be increased from 76mm to 80mm.

### **3.3 Management of Specific Water Bodies**

#### **3.3.1 *Hutt River***

In its discussion paper (Fisheries Management Paper No. 198) the RFFSS proposed that the Hutt River, north of Geraldton, be managed as a 'Trophy Water' with a minimum size limit of 90mm and a daily bag and possession limit of five marron per licensed fisher. The RFFSS' proposal was based on research that indicated Hutt River marron were faster growing and matured at a significantly larger size than marron populations in southern river systems.

Over 60 per cent of submissions supported a minimum size limit of 90mm and a daily bag and possession limit of five marron per licensed fisher. The majority of comments from those who did not support the proposal stated that they were not familiar with the Hutt River and did not fish the area.

Given the level of community support for the proposal, the RFFSS believes that a size limit of 90 mm and a bag and possession limit of five marron would ensure the long-term sustainability of Hutt River marron stocks and the adoption of consistent management arrangements for all 'Trophy Waters' would also aid in fisher education and compliance.

#### *Recommendation 7 – Hutt River*

To ensure the long-term sustainability of Hutt River marron stocks, it is recommended that the Hutt River be managed as a 'Trophy Water', with a minimum size limit of 90 mm and a bag and possession limit of five marron per licensed fisher.

#### **3.3.2 *Warren River***

The RFFSS' proposal to remove the snare-only requirement from the area of the Warren River within the Warren National Park received moderate support in submissions (58 per cent). Comments in submissions generally supported the RFFSS' views that the river was not conducive to snare fishing and that the current boundary of the snare-only area created confusion among fishers, as drop nets could be used on one side of the river and snare-only on the other side.

It should be noted that the Department of Conservation and Land Management (CALM) did not support this proposal on the basis that the snare-only requirement was in keeping with the conservation principles of the Warren National Park. While CALM acknowledged the issue of confusion over the boundaries of the snare-only area, they believe that this could be overcome through community education and appropriate signage.

In considering this issue, the RFFSS noted that there were currently no sustainability concerns associated with marron stocks in the Warren River. As the river is not suited to snare fishing, the RFFSS believes that the removal of the snare-only requirement from within the Warren National Park would give users of the park, typically family groups, the opportunity to effectively participate in the marron fishery.

### *Recommendation 8 – Warren River*

To enable users of the Warren National Park to effectively participate in the recreational marron fishery it is recommended that the ‘snare-only’ requirement be removed from this section of the Warren River. This would enable all fishers on the Warren River to use marron drop nets, scoop nets or snares.

#### **3.3.3 Donnelly River**

The RFFSS’ proposal to allow fishers to transport marron drop nets and scoop nets by boat on the Donnelly River downstream of ‘Boat Landing’ received moderate support in submissions (50 per cent). The majority of comments in submissions indicated that while this proposal would enable access to areas of the fishery that are relatively inaccessible by land, there would be an increased compliance risk of fishers using a boat to fish for marron.

The Department of Conservation and Land Management provided comment on this proposal stating that the majority of the banks of the Donnelly River downstream of the Boat Landing were generally not conducive to marron fishing from the shore and that the shoreline was heavily vegetated with muddy banks that are not easily accessible. This is particularly true when the sand bar at the mouth of the river is breached and water levels in the river drop substantially.

CALM advised that the lack of opportunity to fish from the banks would encourage the use of drop nets and scoops from boats if the proposal to allow the transportation of equipment in boats was supported. The proposal would also be inconsistent with the approach taken for other river systems in national parks. In addition, the resources required to monitor and manage the illegal use of drop nets and scoops from boats would need to increase substantially to properly regulate this activity.

Finally, CALM also recommended that the RFFSS give consideration to the 43 squatters huts located near the mouth of the river. Options for the long-term management of the squatters huts were discussed in the Draft Shannon and D’Entrecasteaux National Parks Management Plan. Some or all these huts are likely to remain for at least the next six years and the river banks near the squatter huts are more conducive to marron fishing from the shore.

Having considered this issue, the RFFSS is very cautious of the compliance implications this proposal may create. However, the RFFSS also believes that it is necessary to develop strategies that enable marron fishing in certain inaccessible areas of the fishery to offset the loss of access to areas such as drinking water supply dams.

The RFFSS believes that fishers should be permitted to transport marron drop nets and scoop nets on the Donnelly River downstream of ‘Boat Landing’ on a five-year trial basis. The use of boats to fish for marron will remain prohibited.

The trial should be supported by appropriate signage and the Department of Fisheries should monitor the level of compliance in the trial area and provide an annual report to the RFFSS for further consideration. If a significant level of non-compliance is reported, the RFFSS is of the view to recommend that this permission be revoked.

### *Recommendation 9 – Donnelly River*

To enable marron fishers to access the relatively inaccessible sections of the Donnelly River, it is recommended that fishers be permitted to carry marron drop nets and scoop nets by boat to the area that they intend to fish (down stream of 'Boat Landing' only). The use of a boat to actively fish for marron with drop nets and scoop nets will remain prohibited.

This permission should be reviewed after a five-year trial period. However, if a significant level non-compliance is observed during the trial, it will be recommended that the permission be immediately terminated.

### **3.3.4 Shannon River**

The RFFSS' proposal to close the Shannon River to the marron fishery received 44 per cent support in submissions, while 35 per cent of submissions did not support the proposal and a further 21 per cent were uncertain.

Comments in submissions indicated that there was a level of support for the closure, provided that it was supported by a structured research-monitoring project. Other comments suggested that the closure should be re-assessed after a trial period, but there was also a level of concern that a closure would place increased pressure on adjacent areas of the fishery.

Recfishwest indicated that it supported the proposal, provided it was implemented for an initial five-year period. Recfishwest highlighted that the proposal was driven by the recreational fishing sector to satisfy research requirements for the sustainable management of the fishery and that this should not be seen as precedent for any additional river closures.

The proposal to close the Shannon River was supported by the Department of Conservation and Land Management.

The Department of Fisheries has indicated that the Shannon River catchment will be included in a list of representative sites for a new monitoring project set to commence in September 2006. The closure of the Shannon River would provide research scientists with a system that can be utilised to assess the impact of environmental factors on marron stocks in the absence of fishing pressure and predation from introduced fish.

Given the level of community support and the identified need for a representative unfished river system for research monitoring purposes, the RFFSS recommends that the Shannon River be closed to all fishing for an initial five-year period.

### *Recommendation 10 – Shannon River*

It is recommended that the Shannon River be closed to all fishing, to provide a system that can be utilised to assess the impact of environmental factors on a marron and native fish stocks in the absence of fishing pressure and predation from introduced fish. This closure should be monitored and re-evaluated after five years.

## **3.4 Protecting and Enhancing the Quality of the Marron Fishery**

### **3.4.1 Management of dams**

In its discussion paper, the RFFSS proposed that the Department of Fisheries develop a formal Memorandum of Understanding with the relevant authorities on an agreed water management strategy for those dams that form a key component of the recreational marron fishery.

The timing of various water treatment techniques or water diversion strategies has the potential to affect the recreational marron fishery. For example, significant changes in water levels during the marron season may increase turbidity, which in turn makes it difficult to use a marron snare.

Over 90 per cent of submissions supported this proposal, but there was a high level of concern raised in comments regarding possible future closures of water bodies as they became drinking water supply dams. While the RFFSS noted these concerns, this issue needs to be progressed through the relevant consultation processes around any future proposals to prohibit recreational access to water catchment areas.

#### *Recommendation 11 – Management of Dams*

To ensure a long-term quality future for marroning in public dams where fishing is currently permitted, it is recommended that a formal Memorandum of Understanding be developed between the Department of Fisheries and the relevant water management authorities.

The Memorandum of Understanding should cover an agreed risk assessment process for the water authorities and the Department of Fisheries, and a strategy towards future water allocation decisions, designed to minimise the impact of them on the quality of the recreational marron fishery.

### **3.4.2 Restocking as a stock enhancement strategy**

The RFFSS proposed policy on restocking as a stock enhancement strategy received a high level of support in submissions (92 per cent). In considering this proposal, the RFFSS reiterated that restocking should not be used as a substitute for the responsible management of the wild stock fishery.

Restocking can be of benefit to assist with the recovery of a stock where it can be identified that the stock has been significantly depleted and its recovery is endangered or prolonged.

If restocking is adopted as a strategy to assist in the recovery of a stock, either via a captive breeding program or by translocation, the marron used for restocking should be sourced from within the same water catchment area as the depleted stock to maintain the genetic integrity. Restocking strategies should also be assessed against disease risk and biodiversity criteria.

The stocking of marron in a water body which is at, or near, its carrying capacity is unlikely to increase long-term levels of abundance. However, the stocking of legal-size marron in it immediately prior to the marron season may increase the quality of the fishery. While it would not be viable to breed marron for this purpose, there may be an opportunity to translocate marron from dams that are closed to the fishery into popular areas within the fishery.

The Water Corporation has recently advised that it will be incrementally draining several drinking water dams over the next few years, in order to carry out routine maintenance programs. To maintain species diversity and increase water quality in these dams, Water Corporation contract research bodies, such as the Department of Fisheries or the WA universities, hope to conduct structured and supervised destocking and restocking projects in them.

While the RFFSS recognises that recreational fishing is not permitted in these water bodies, there may be an opportunity to use any excess marron collected during the de-stocking component of these projects to stock water bodies open to the fishery. The RFFSS will be investigating the feasibility of this option with the Water Corporation.

#### *Recommendation 12 – Restocking Marron as a Stock Enhancement Strategy*

It is recommended that the restocking of marron, via a captive breeding program or via translocation, should be considered as a strategy to assist with the recovery of a stock where it can be identified that the stock has been significantly depleted and its recovery is endangered or will be prolonged.

To minimise any ecological impacts, all stock enhancement projects should be assessed against disease risk, biodiversity and genetic diversity criteria. Any stock enhancement project should use stock from the water catchment where they originate and also be adequately monitored and evaluated.

#### **3.4.3 Artificial habitat**

In its discussion paper, the RFFSS highlighted that the installation of artificial habitat has the potential to not only increase the survival rates of juvenile marron but also to increase the overall carrying capacity of a water body. The RFFSS' proposal to actively seek funding for the installation, monitoring and evaluation of artificial habitats in public dams received a high level of support in submissions (87 per cent).

If the recreational sector is to lose access to additional areas of the marron fishery in the future then appropriate compensation for this loss could be the installation of artificial habitat into public dams where recreational fishing will be permitted in the long term.

The Department of Fisheries and Murdoch University are currently undertaking a joint FRDC-funded research project to measure the abundance of marron associated with different types of benthic habitats. The project also seeks to evaluate other factors, such as depth, in order to determine the most productive locations for the installation of artificial marron habitats in dams.

### *Recommendation 13 – Artificial Habitats*

To improve the survival of juvenile marron and increase the overall productivity of marron waters, it is recommended that funding be sought for the installation, monitoring and evaluation of artificial habitat to rehabilitate public dams identified to be lacking in natural habitat. The installation of any artificial habitat should be negotiated with the relevant management authorities and constructed in accordance with water body management plans.

## **3.5 Improving Community Stewardship – Education and Compliance**

### ***3.5.1 Marron as a freshwater faunal emblem***

The RFFSS' proposal to apply to have marron listed as the State's freshwater faunal emblem received moderate support in submissions (68 per cent). While the majority of people supported the RFFSSs proposal, several people were uncertain of the benefits this would bring to the marron fishery.

The RFFSS believe that if marron were successfully listed as a faunal emblem, it would increase the profile of marron on a state, national and international level. This, in turn, may also help attract additional funding for research projects and could also lead to the recreational marron fishery being given greater priority in future debates focusing on land and water management in the State's south west.

### *Recommendation 14 – State Freshwater Emblem*

In recognition of the unique place of marron in Western Australia's freshwater ecology and the high social value of the fishery as part of the heritage of all Western Australians, it is recommended that marron be nominated as a State freshwater faunal emblem.

### ***3.5.2 Community education strategy***

The RFFSS' proposals for the development of a comprehensive fishing guide, additional educational resources such as gauges, and the increased use of volunteers in education received a high level of support (94, 91 and 86 per cent, respectively).

The proposal to conduct an annual media campaign around the recreational marron fishery received moderate support in submissions (63 per cent). Comments in submissions indicated that many people were concerned that the promotion of the marron fishery would lead to an increase in fishing effort, placing additional pressure on marron stocks.

While the RFFSS acknowledges these concerns, it should be noted that the primary purpose of the education strategy isn't to promote the fishery but to educate fishers on the basis for management decisions and fishing rules, the values and attitudes that will assist in sustaining marron stocks, and to develop a broad community recognition of the value of the marron fishery.



### *Recommendation 15 - Community Education Plan for the Recreational Marron Fishery*

It is recommended that a community education plan be developed for the recreational marron fishery that focuses on the most important issues and areas within the fishery. Such a plan should seek to keep the recreational fishing community informed of management decisions, give a clear lead on the values and attitudes which will assist in sustaining marron stocks, and develop a broad community recognition of the value of the marron fishery. As a minimum, it is recommended that the plan contain the following elements:

- *Marron fishing guide:* A comprehensive fishing guide should be produced to inform and educate fishers about the management arrangements for the marron fishery, fishing ethics, research, conservation issues and promoting stewardship for marron stocks and the environment.
- *Marron gauges and other educational resource materials:* Adequate quantities of practical educational tools, such as measuring gauges and fishing venue signs, should be produced to support the marron fishing guide.
- *Annual media campaign:* An annual media campaign should be implemented to promote marron fishing and fishing ethics.
- *Volunteer involvement in education:* Volunteer groups should be encouraged to continue their involvement in structured fisheries education activities for the marron fishery.

#### **3.5.3 Field management and compliance**

There was strong support in submissions (83 per cent) for the RFFSS' proposal for increased compliance resources being allocated to the marron fishery. The RFFSS noted comments in submissions which indicated that the level and strength of community support for marron stock conservation was linked to the frequency of a visible fisheries management presence, as well as an effective education program.

Increased compliance presence would provide a more effective deterrent to illegal and irresponsible fishing behaviour, and also to strongly reinforce the positive community attitudes and behaviours needed to ensure a quality future for the marron fishery.

Based on the need to direct increased compliance and education resources towards the marron fishery and the strong community support, the RFFSS recommends that the Department of Fisheries should achieve a compliance target of at least 2,500 hours. The RFFSS also recommends that performance measures for the delivery of compliance hours that involve compensatory mechanisms if the delivery target is not met should be negotiated with the Department of Fisheries.

The RFFSS also noted comments in submission which suggested increased cooperation between other relevant Government agencies, such as the Department of Conservation and Land Management and the Water Corporation, given the cross-jurisdictional nature of the marron fishery.

While Fisheries Officers and CALM and Water Corporation Rangers have had a close working relationship in many parts of the marron fishery over the years, the option to formally train rangers as marron patrol officers would enable them to enforce fisheries legislation. The RFFSS believes that the feasibility of this option should be investigated by the Department of Fisheries in consultation with CALM and the Water Corporation.

*Recommendation 16 - Field Management and Compliance*

To maximise the effectiveness of the five-year management plan for the recreational marron fishery, it is recommended that the Department of Fisheries aim to deliver at least 2,500 hours towards field compliance and education, both during and outside of the marron season.

## APPENDIX A    LEVEL OF COMMUNITY SUPPORT FOR PROPOSALS IN DISCUSSION PAPER (FISHERIES MANAGEMENT PAPER NO.198)

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### *Proposal 1 - Priorities for research*

To enable the estimation of Maximum Sustainable Yield (MSY) and the setting of an appropriate Total Allowable Catch (TAC) for the marron fishery each season, the following research is needed:

- a)     The continuation of the logbook and phone survey methods so that quality time-series information is maintained to provide estimates of total catch and effort.

<b>Proposal 1a</b>	<b>Totals</b>	<b>%</b>
Strongly Agree	47	60.3
Agree	25	32.0
Don't Know	2	2.6
Disagree	4	5.1
Strongly Disagree	0	0

- b)     The development of a more cost-effective fishery-independent method for estimating (relative) abundance of marron in representative water bodies, to provide a tool to evaluate the effects of management changes within the recreational marron fishery.

<b>Proposal 1b</b>	<b>Totals</b>	<b>%</b>
Strongly Agree	28	35.9
Agree	33	42.3
Don't Know	6	7.7
Disagree	5	6.4
Strongly Disagree	1	1.3

- c)     Studies on the size at maturity of marron for a range of representative water bodies throughout the recreational marron fishery.

<b>Proposal 1c</b>	<b>Totals</b>	<b>%</b>
Strongly Agree	32	41.0
Agree	33	42.3
Don't Know	3	3.8
Disagree	5	6.4
Strongly Disagree	1	1.3

- d) A monitoring program to measure the annual volume of water available to the marron stocks so that compensating changes to management can occur.

<b>Proposal 1d</b>	<b>Totals</b>	<b>%</b>
Strongly Agree	39	50.0
Agree	28	35.9
Don't Know	5	6.4
Disagree	2	2.6
Strongly Disagree	0	0

### ***Proposal 2 – Target catch range***

Based on the available research data and knowledge of the marron fishery, it is proposed that the fishery be managed to a target catch of between 12 and 17 tonnes. It should be noted that under current management arrangements the estimated recreational catch is around 9 to 12 tonnes. If the catch exceeds 17 tonnes or falls below 12 tonnes, this will be a ‘trigger’ for management action.

<b>Proposal 2</b>	<b>Totals</b>	<b>%</b>
Strongly Agree	23	29.5
Agree	31	39.7
Don't Know	5	6.4
Disagree	12	15.4
Strongly Disagree	7	9.0

### ***Proposal 3 - Season duration***

In an effort to increase the overall quality of the marron fishery, while ensuring the sustainable management of the fishery by containing catches to within the proposed target catch range, the Recreational Freshwater Fisheries Stakeholder Sub-committee (RFFSS) is seeking to determine the level of community support for each of the following options:

- 16-day season – (current season length) maintaining a low-risk precautionary approach to management and allowing some growth in the catch.
- 23-day season – a low-to-medium risk strategy to allow for increased fishing opportunities and an increase in the total catch.
- 37-day season – a medium-to-high risk strategy to allow for increased fishing opportunities and include two complete dark moon phases to benefit dam fisheries.

<b>Proposal 3</b>	<b>Totals</b>	<b>%</b>
16 days	42	53.8
23 days	19	24.4
37 days	9	11.6
Other	8	10.2

***Proposal 4 – Season start date***

To enhance the overall quality of the recreational marron fishery, the RFFSS is seeking to determine the level of community support for each of the following options:

- Commencing the marron season in January following the New Year holiday. This option would take in the summer school holiday period and the dark moon phase where possible; or
- Commencing the marron season at Easter. This option would take advantage of the milder climatic conditions, include the Easter holiday period and often include the first-term school holiday period.

<b>Proposal 4</b>	<b>Totals</b>	<b>%</b>
Easter	22	28.2
January	39	50.0
Don't know	7	9.0
Other	10	12.8

***Proposal 5 – Marron possession limit***

To prevent fishers from stockpiling large potentially saleable quantities of marron while still enabling the accumulation of socially acceptable quantities, the RFFSS is seeking the level of community support for the introduction of a possession limit of either:

- 20 marron per person, or
- 30 marron per person.

<b>Proposal 5</b>	<b>Totals</b>	<b>%</b>
20	44	56.4
30	15	19.2
Don't know	6	7.7
Other	13	16.7

**Proposal 6 – Minimum legal size limit**

The Department of Fisheries is currently evaluating the net benefits of a higher size limit on the marron fishery. Subject to the outcomes of this study, the RFFSS is seeking to determine the level of community support for an increase (or otherwise) in the minimum legal size limit (carapace length) for marron to:

- 76 mm – i.e. no change to the existing minimum legal size limit.
- 80 mm
- 82 mm
- 85 mm
- Other minimum legal size limit.

<b>Proposal 6</b>	<b>Totals</b>	<b>%</b>
76	27	34.6
80	30	38.5
82	9	11.5
85	4	5.1
Don't know	2	2.6
Other	6	7.7

**Proposal 7 – Hutt River**

To provide increased protection for marron breeding stocks, the Hutt River should be managed as a 'Trophy Water', with:

- a) a bag limit of five marron, and
- b) a minimum size limit of 90 mm applying.

<b>Proposal 7a</b>	<b>Totals</b>	<b>%</b>		<b>Proposal 7b</b>	<b>Totals</b>	<b>%</b>
Strongly Agree	25	32.0		Strongly Agree	25	32.0
Agree	22	28.2		Agree	22	28.2
Don't Know	20	25.6		Don't Know	20	25.6
Disagree	3	3.8		Disagree	3	3.8
Strongly Disagree	7	9.0		Strongly Disagree	7	9.0

***Proposal 8 – Warren River***

To reduce the confusion over the boundaries of the Warren River National Park and enable fishers to use marron drop nets and scoop nets, the ‘snare-only’ requirement should be removed from the Warren River within the Warren National Park.

<b>Proposal 8</b>	<b>Totals</b>	<b>%</b>
Strongly Agree	16	20.5
Agree	29	37.2
Don't Know	12	15.4
Disagree	2	2.6
Strongly Disagree	19	24.4

***Proposal 9 – Donnelly River***

To enable marron fishers to access the relatively inaccessible sections of the Donnelly River, fishers should be permitted to carry marron drop nets and scoop nets by boat to the area that they intend to fish (down stream of ‘Boat Landing’ only). The use of a boat to actively fish for marron with drop nets and scoop nets will remain prohibited.

<b>Proposal 9</b>	<b>Totals</b>	<b>%</b>
Strongly Agree	8	10.26
Agree	31	39.7
Don't Know	10	12.8
Disagree	7	9.0
Strongly Disagree	22	28.2

***Proposal 10 – Shannon River***

The RFFSS is seeking to determine the level of community support to permanently close the Shannon River, to provide a system that can be utilised to assess the impact of environmental factors on a marron stock in the absence of fishing pressure and predation from introduced fish.

<b>Proposal 10</b>	<b>Totals</b>	<b>%</b>
Strongly Agree	17	21.8
Agree	17	21.8
Don't Know	17	21.8
Disagree	14	18.0
Strongly Disagree	13	16.7

***Proposal 11 – Management of dams***

To ensure the long-term future of recreational fishing in dams where fishing is currently permitted, a formal Memorandum of Understanding should be developed between the Department of Fisheries and the relevant water management authorities.

The Memorandum of Understanding should cover an agreed risk assessment process for the water authorities and the Department of Fisheries, and a strategy towards future water allocation decisions, designed to minimise the impact on the quality of the recreational marron fishery.

<b>Proposal 11</b>	<b>Totals</b>	<b>%</b>
Strongly Agree	40	51.3
Agree	31	39.7
Don't Know	5	6.4
Disagree	1	1.3
Strongly Disagree	1	1.3

***Proposal 12 – Restocking as a stock enhancing policy***

Restocking of marron via a captive breeding program or via translocation should be considered as a strategy to assist with the recovery of a stock where it can be identified that the stock has been significantly depleted, and its recovery is endangered or will be prolonged.

To minimise any ecological impacts, all stock enhancement projects should be assessed against disease risk, biodiversity and genetic diversity criteria. Any stock enhancement project should use stock from the existing water catchment and also be adequately monitored and evaluated.

<b>Proposal 12</b>	<b>Totals</b>	<b>%</b>
Strongly Agree	53	67.9
Agree	19	24.4
Don't Know	3	3.9
Disagree	2	2.6
Strongly Disagree	1	1.3

***Proposal 13 – Artificial habitats***

To improve the survival of juvenile marron and increase the overall productivity of marron waters, funding should be sought for the installation, monitoring and evaluation of artificial habitat in dams identified to be lacking in natural habitat. The installation of any artificial habitat should be negotiated with the relevant management authorities and constructed in accordance with water body management plans.



<b>Proposal 13</b>	<b>Totals</b>	<b>%</b>
Strongly Agree	42	53.8
Agree	26	33.3
Don't Know	7	9.0
Disagree	2	2.6
Strongly Disagree	1	1.3

#### ***Proposal 14 – State freshwater emblem***

In recognition of the unique place of marron in Western Australia's freshwater ecology and the high social value of the fishery as part of the heritage of all Western Australians, marron should be declared as a State freshwater faunal emblem.

<b>Proposal 14</b>	<b>Totals</b>	<b>%</b>
Strongly Agree	19	24.3
Agree	34	43.6
Don't Know	12	15.4
Disagree	8	10.3
Strongly Disagree	5	6.4

#### ***Proposal 15 – Community education plan***

A community education plan should be developed for the recreational marron fishery that focuses on the most important issues and areas within the fishery. Such a plan should seek to keep the recreational fishing community informed of management decisions, give a clear lead on the values and attitudes which will assist in sustaining marron stocks, and develop a broad community recognition of the value of the marron fishing. As a minimum, the plan should contain the following elements;

- a) *Marron fishing guide*: A comprehensive fishing guide should be produced to inform and educate fishers about the management arrangements for the marron fishery, fishing ethics, research, conservation issues and promoting stewardship for marron stocks and the environment.

<b>Proposal 15a</b>	<b>Totals</b>	<b>%</b>
Strongly Agree	42	53.8
Agree	31	39.7
Don't Know	3	3.8
Disagree	2	2.6
Strongly Disagree	0	0.0

- b) *Marron gauges and other educational resource materials:* Adequate quantities of practical educational tools, such as measuring gauges and fishing venue signs, should be produced to support the marron fishing guide.

<b>Proposal 15b</b>	<b>Totals</b>	<b>%</b>
Strongly Agree	47	60.3
Agree	24	30.8
Don't Know	5	6.4
Disagree	2	2.6
Strongly Disagree	0	0.0

- c) *Annual media campaign:* An annual media campaign should be implemented to promote marron fishing and fishing ethics.

<b>Proposal 15c</b>	<b>Totals</b>	<b>%</b>
Strongly Agree	23	29.5
Agree	26	33.3
Don't Know	12	15.4
Disagree	12	15.4
Strongly Disagree	5	6.4

- d) *Volunteer involvement in education:* Volunteer groups should be encouraged to continue their involvement in structured fisheries education activities for the marron fishery.

<b>Proposal 15d</b>	<b>Totals</b>	<b>%</b>
Strongly Agree	30	38.5
Agree	37	47.4
Don't Know	8	10.3
Disagree	2	2.6
Strongly Disagree	1	1.3

***Proposal 16 – Field management and compliance***

To maximise the effectiveness of the five-year management plan for the recreational marron fishery, the Department of Fisheries should aim to deliver at least 2,500 hours towards field compliance and education, both during and outside of the marron season.

<b>Proposal 15d</b>	<b>Totals</b>	<b>%</b>
Strongly Agree	32	41.0
Agree	33	42.3
Don't Know	12	15.4
Disagree	1	1.3
Strongly Disagree	0	0.0

## **APPENDIX B NAMES OF INDIVIDUALS AND ORGANISATIONS WHO FORWARDED SUBMISSIONS**

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Annandale, Alexander  
Bailey, T R  
Barber, Clinton  
Bartle, Donald  
Basnett, C R  
Bathgate, Doug  
Beeck, Kevin  
Biggs, Evan  
Bird, C  
Bone, Robert G  
Bradbury, Jim  
Breedon, Rob  
Brown, Darren  
Bunn, Geoff  
Burgess, Michael  
Bury, Geoff  
Butler, Don  
Clayton, Kim  
Cooper, G  
Coulson, John  
Cowley, Terry  
Cresswell, Colin  
Demonds, John  
Dennis, Wayne  
Duncan, Matthew  
Eames, Tony  
Elliott, Greg  
Ellul, Raphael  
Forrest, Philip  
Gilchrist, J C  
Gillard, John  
Gillard, Mathew  
Gillard, Steven  
Gillett, Malcolm  
Golding, Colin  
Grantham, P R  
Greig, James  
Hall, Graeme  
Holtom, Kane

Kelly, Brad  
Kenny, Graeme  
Lerch, Jeni  
Lister, R S  
Littleton, Wayne  
Lymbery, Sandra  
Lyons, Wayne  
Masters, Peter  
McIlhagga, Basil  
Miller, Warren  
Mills, Stephen  
Murray MLA, M  
Myburgh, Dr C J  
Naylor, W R  
O'Hara, Terry  
Oreo, Sonny L  
Pain, Josh  
Pannett, Barry  
Powell, Peter  
Prafford, Ken  
Recfishwest  
Regan, Grant  
Roberts, P  
Rytiers, Ben  
Sinclair, Colin  
Smith, Edwin B  
Smith, Kevin  
Smith, Ron  
Smith, William  
Strickland, David  
Thomas, Kerry D  
Timms, Jim  
Tyler, Shane  
Underwood, Nick  
Urlich, Clem  
Wakka, O  
Westbrook, Jason  
White, Janis  
Winfield, Graeme

## **FISHERIES MANAGEMENT PAPERS**

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- 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)
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