A FIVE-YEAR MANAGEMENT STRATEGY FOR THE RECREATIONAL TROUT FISHERY

Discussion Paper for Public Comment on Future Management
Prepared by the Recreational Fishing Advisory Committee's
Recreational Freshwater Fisheries Stakeholder Sub-Committee

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Government of **Western Australia**
Department of **Fisheries**

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FOREWORD

In August 2004, the Fish and Fish Habitat Protection Program of the Department of Fisheries released Fisheries Management Paper No. 179 ('A draft policy for the translocation of brown trout (*Salmo trutta*) and rainbow trout (*Oncorhynchus mykiss*) into and within Western Australia for the purposes of recreational stocking, domestic stocking, commercial and non-commercial aquaculture'). This paper contained a range of proposals for community discussion on the translocation of trout for domestic stocking, recreational stocking, non-commercial and commercial aquaculture which took into account the previous 2002 review of the trout fishery.

The Recreational Fishing Advisory Committee (RFAC) was concerned over the delay in time in progressing this issue and recommended that the issue of trout stocking for recreational purposes be progressed in isolation. This matter was referred to the Recreational Freshwater Fisheries Stakeholder Sub-Committee (RFFSS) to progress the recreational aspects of stocking trout within State public waters. This strategy represents a significant step in ensuring the appropriate level of management is provided for the translocation of trout into and within Western Australia for recreational purposes. It is also hoped that this policy will serve as a guide for the management and translocation of trout for domestic stocking. A policy for the translocation of trout for aquaculture purposes will be developed through a separate process.

The release of Fisheries Management Paper No. 179 attracted a moderate level of comment with 17 written submissions being received from a variety of stakeholders. The RFFSS have considered these submissions and taken into account the issues raised in developing the proposals contained within this paper. The RFFSS would like to thank those people and organisations that took the time to provide this valuable feedback.

When considering the stocking of trout into rivers and dams of the south west of WA, a holistic approach needs to be adopted which takes into account the social and economic value of the trout fishery and the potential impacts that introduced trout may have on natural aquatic systems, native species and introducing diseases and parasites. It should be recognised that land management practices and reduced rainfall have drastically altered many freshwater systems in the south west of WA. These changes are likely to be ongoing and will need to be factored in when considering the appropriateness of future stocking proposals.

Finally, as Chairperson, I would like to thank all the members of the RFFSS for their voluntary efforts and patience during the comprehensive review process. Their efforts along with those who took the time to participate in the review process, will go a long way to assisting the management of the recreational trout fishery in Western Australia.

Kay Webber
Chairperson
RFAC Recreational Freshwater Fisheries Stakeholder Sub-Committee (RFFSS)

SECTION 1 SUMMARY OF PROPOSALS

Stocking of Trout

Proposal 1 *River systems and dams within the South West of WA are divided into three categories based on stocking activities to establish an appropriate level of environmental protection, while providing for sustainable recreational stocking activities. These are:*

Category 1 – Closed Waters - *Waters where the recreational stocking of trout will not be approved. The waters in this category have been identified as comprising of pristine or unique aquatic environments, or containing threatened or protected species vulnerable to trout stocking.*

Category 2 – Restricted Waters – *Waters approved to be recreationally stocked with trout that have been identified as containing areas of high conservation value in sections of the waterway. These waters may include tributaries and/or sections of the waterway where the recreational stocking of trout will not be approved if populations of threatened or protected species or areas of special significance are threatened by the introduction of trout. The waters in this category have also had a clear history of recreational stocking.*

Category 3 – Open Waters - *Waters that are approved to be recreationally stocked with trout. The waters provided for in this category have been identified as areas of lower conservation value where the introduction of trout will have lower impact on the existing ecosystem. These waters have a clear history of recreational stocking.*

Proposal 2 *Recreational trout stocking guidelines for river systems and dams are clearly set out and followed according to Table 1.*

Proposal 3 *Any proposal to stock brown or rainbow trout outside the provisions of this proposed management paper be considered on a case-by-case basis, through the Department of Fisheries' translocation risk assessment and/or the aquaculture licensing process.*

Proposal 4 *The Department of Fisheries is to maintain a schedule of individual public waters within Category 2 and 3 waters where the stocking of either rainbow trout or brown trout for recreational purposes is permitted. Any request to cease stocking practices in individual waters within Category 2 and 3 is to be considered by the RFFSS on a case-by-case basis, and approved by the Department of Fisheries' Chief Executive Officer.*

Proposal 5 *The RFFSS is responsible for the development of the annual trout stocking strategies for State public waters in accordance with the trout translocation policy. Stocking approval for public waters shall be sought prior to any stocking activities, from the Department of Fisheries' Chief Executive Officer, by providing formal advice in relation to annual stocking proposals. Advice should include the size, number and life stage of the fish to be stocked and the proposed stocking dates and locations. It should also detail the individuals and groups represented throughout the decision-making process.*

Proposal 6 *Recreational stocking activities in public waters may only be undertaken by the Department of Fisheries, or by persons authorised, and under conditions specified by the Department of Fisheries' Chief Executive Officer.*

Proposal 7 *The Pemberton Freshwater Research Centre should be the primary source of fish for recreational stocking purposes and disease tested to the satisfaction of the Department of Fisheries' Senior Fish Pathologist prior to release.*

Proposal 8 *If fish are required to be stocked from locations other than the Pemberton Freshwater Research Centre, they must be from a licensed hatchery, disease tested to the satisfaction of the Department of Fisheries' Senior Fish Pathologist, and shall be assessed on a case-by-case basis, through the translocation risk assessment process.*

Proposal 9 *Applications to import brown or rainbow trout from other states will be considered on a case-by-case basis through a translocation risk assessment process. Prior to the importation of trout from inter-state, written authority is required from the Chief Executive Officer of the Department of Fisheries, as required under the Memorandum of Understanding with the Environmental Protection Authority (EPA).*

Recreational Fishing Management Arrangements

Proposal 10 *The combined daily bag limit for brown and rainbow trout on the West Coast and South Coast remain at four fish.*

Proposal 11 *The reduced daily bag limit (two) for Waroona Dam and Logue Brook Dam be lifted to four.*

Proposal 12 *The minimum legal size limit for brown and rainbow trout remain at 300 mm, measured from the point of the snout to the tip of the tail.*

Proposal 13 *Recreational fishers can use a maximum of two rods, reels or two hand held lines at any time.*

Proposal 14 *The restrictive gear conditions on Waroona Dam and Logue Brook Dam (artificial lures only) be lifted to conform with state-wide rules.*

Proposal 15

(a) *The current trout closed season (1 May to 31 August) should be reduced to 1 July to 31 August.*

(b) *The closed season should apply to all line fishing.*

(c) *The following waters remain open all year to line fishing:*

- Blackwood River;
- Donnelly River;
- Murray River
- Serpentine River (between the Serpentine Pipe-Head Dam and Serpentine Falls only);
- Warren River;
- Logue Brook Dam;
- Wellington Dam;
- Big Brook Dam; and
- Glen Mervyn Dam.

Proposal 16 *The Minister approve the amendment to Order No. 10 of 1999 to remove the closed season relating to Stirling Dam and Samson Dam as the prohibition of*

fishing in these drinking water supplies are governed under the Metropolitan Water Supply, Sewerage and Drainage Act 1909 and Country Areas Water Supply Act 1947 by the Department of Water.

Proposal 17 *The Minister approve the amendment to Order No. 10 of 1999 to remove the closed season relating to the waters of Lake Leschenaultia, including all streams, brooks and tributaries flowing continuously or intermittently into the lake, as it is no longer applicable. Under this plan, Lake Leschenaultia is not currently recreationally stocked with trout and there is no proposal to stock this water in the future.*

SECTION 2 REVIEW PROCESS AND OPPORTUNITY FOR PUBLIC COMMENT

2.1 Review Process

The former Minister for Agriculture, Forestry and Fisheries established a Recreational Freshwater Fisheries Stakeholder Sub-Committee (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.

Past trout stocking practises have been developed by the trout stocking sub-committee of the RFAC through the annual production of a trout stocking list. The establishment of the RFFSS formalised the activities of the trout stocking committee, ensuring all decisions relating to trout stocking are made in conjunction with other inland fishery groups.

The RFFSS was tasked to review the current recreational trout stocking management guidelines and to oversee the development of a five-year management strategy for the ongoing monitoring and adaptive management of the recreational trout fishery.

The RFFSS consists of the following membership:

Members:

Kay Webber	Chairperson
Nathan Harrison	Department of Fisheries
Frank Prokop	Recfishwest
Harry Vosper	Western Australian Trout and Freshwater Angling Association
Peter Ryall	Freshwater finfish licence holder representative
John McConigley	Freshwater finfish licence holder representative
John Evans	Marron licence holder representative
David Morgan	Marron licence holder representative

Observers:

Rod Brooks	Water Corporation
Stephen Watson	Department of Water
Denam Bennetts	Department of Environment and Conservation

Executive Support:

Julia Pezzaniti	Fisheries Management Officer (Department of Fisheries)
Eileen Ferguson	RFAC Executive Officer (Department of Fisheries)

The RFFSS Terms of Reference are:

- To develop a five-year strategy for the management of recreational freshwater fisheries in Western Australia;
- To identify key short, medium and long term issues facing recreational freshwater fisheries in Western Australia, in particular the trout and marron fisheries;
- Consult with key stakeholder groups on management options for recreational freshwater fisheries in Western Australia; and

- Make recommendations via the RFAC to the Minister for Fisheries on the future management arrangements for recreational freshwater fisheries in Western Australia.

Following submissions received on Fisheries Management Paper No. 156 ('The translocation of brown trout and rainbow trout into and within Western Australia'), Fisheries Management Paper No. 179 ('A draft policy for the translocation of brown trout (*Salmo trutta*) and rainbow trout (*Oncorhynchus mykiss*) into and within Western Australia, for the purposes of recreational stocking, domestic stocking, commercial and non-commercial aquaculture') was written. Fisheries Management Paper No. 156 identified the issues associated with the translocation of brown trout and rainbow trout for recreational stocking, domestic stocking, commercial and non-commercial aquaculture and these were summarised in Fisheries Management Paper No. 179. The latter was released in August 2004 and sought advice on related issues from a wide range of stakeholders.

While Fisheries Management Paper No.179 dealt with commercial and non-commercial aquaculture, domestic, and recreational stocking, it is only within the scope of the RFFSS to deal with the management of recreational stocking of trout. The further policy development of the commercial and non-commercial aquaculture and domestic stocking will be reviewed through an alternative policy development procedure.

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 17 written submissions were received. Appendix A is a list of the names of individuals and organisations that forwarded submissions on Fisheries Management Paper No. 179.

The comments and suggestions put forward in the submissions provided valuable feedback for the RFFSS when formulating the final proposals in this paper. They not only considered the frequency with which issues where raised, but also discussed the validity of the various comments.

After further comments were sought on the submissions in May 2007, the RFFSS met in early 2008 to discuss the submissions and formulate final proposals to the Minister for Fisheries. All matters raised in the submissions were carefully considered by the RFFSS, prior to finalising the proposals contained in this report.

2.2 Opportunity for Public Comment

This paper ('A Five-Year Management Strategy for the Recreational Trout Fishery') is designed to inform the fishing community and general public about the issues and management proposals relating to the recreational trout fishery. The Department of Fisheries encourages comment about the issues raised and the proposed management recommendations in this report.

Following the receipt of comments, consideration will be given to a final policy position on the recreational stocking of brown trout and rainbow trout within Western Australia.

To ensure your submission is as effective as possible, please:

- Make it clear and concise;
- List your points according to the topic sections and page numbers in this paper;
- Describe briefly each topic or issue you wish to discuss;
- Say whether you agree or disagree with any or all of the information within each topic or just those of specific interest to you. Clearly state your reasons, particularly if you disagree, and give sources of information where possible; and

- Suggest alternatives to address any issues that you disagree with.

Your comments would be appreciated by **31 December 2009**, and should be addressed to:

The Chief Executive Officer
Attn: Executive Officer, Recreational Fishing Advisory Committee
Department of Fisheries
3rd Floor, The Atrium
168 St George's Terrace
PERTH WA 6000

SECTION 3 BACKGROUND

Australia's freshwater aquatic environments are home to a unique array of native aquatic flora and fauna, the south-west of Western Australia being a host to a number of significant areas and species of high conservation value. Some of these species are unique to WA, therefore serious consideration and management is required regarding the stocking of a non-endemic predatory species.

With the exception of the freshwater cobbler (*Tandanus bostocki*), the native freshwater fish in the south-west of WA are not of a sufficient size to be of interest to freshwater anglers. As a consequence, brown trout (*Salmo trutta*) and rainbow trout (*Oncorhynchus mykiss*) from the northern hemisphere were introduced in the late 1870s to provide a recreational fishery, which has since created significant economic and social benefits for Western Australians.

Since that time, brown trout and rainbow trout have been stocked into the State's rivers and impoundments under government auspices, generally for the purpose of supporting recreational fishing.

The introduction of trout has provided a valuable recreational fishery throughout the rivers, dams and impoundments of the lower south-west. However, as both brown and rainbow trout are non-endemic and predatory species, their introduction for recreational fishing has the potential to:

- Impact on the natural environment and biodiversity of endemic species;
- Impact on the genetic diversity of native species; and
- Introduce disease and parasites.

It should be noted that anecdotal evidence would suggest that other introduced species such as redfin perch pose a more significant threat to native species than trout due to their higher tolerance to changes in environmental conditions, the fact they can establish large breeding populations and their highly predatory nature.

3.1 Trout

3.1.1 Taxonomy

Brown trout (*Salmo trutta*) and rainbow trout (*Oncorhynchus mykiss*) are both members of the Salmonidae family.

3.1.2 Natural distribution

Brown trout are native to Iceland, the British Isles and all of Europe and western Asia, (extending northward from the Atlas Mountains in northern Africa to the Artic Circle in northern Scandinavia and north-western Russia, and eastward to the Urals, Iran, and the Hindu Kush of Afghanistan) (Frost and Brown, 1967; MacCrimmon and Marshall, 1968; MacCrimmon et al, 1970; Elliott, 1994).

Rainbow trout are native to the northern Pacific basin, occurring in North America (from Alaska to Mexico, nearly always on the western slopes of the Rocky Mountains) and in north eastern Asia (in Russia on the Kamchatka Peninsula) (MacCrimmon, 1971, 1972; Stolz and Schnell, 1991).

3.1.3 Environmental requirements

As outlined in Fisheries Management Paper No. 156, both brown trout and rainbow trout are basically coldwater fish with a favorable range for growth and survival of 5 - 20°C. The lethal high temperature range starts at about 26 - 27°C (depending upon prior acclimation) with a resistance time to death of many hours, but at 30°C death occurs within minutes (Morrissy, 1973). However, trout populations in the south-west rivers have a higher temperature resistance than normal, due to adaptation to Western Australian conditions (Fisheries Management Paper No. 156, Molony, pers com).

Trout are also intolerant of low oxygen levels, requiring more than 3 mg/L for survival and 5 mg/L for feeding and growth. Lower oxygen levels are caused by summer conditions of heat, poor flow, stagnation, and other aspects of eutrophication (Fisheries Management Paper No. 156, 2002).

3.1.4 Interaction with native species

The impact of trout on native fish populations is mainly through predation by adult trout and competition between juvenile trout and native fish. Predation can potentially reduce a gene pool, lead to the complete eradication of populations or species of native animals, or contribute to the overall genetic variation within populations.

Of the 14 native fish present in the south-west of Western Australia, trout pose the greatest risk to four of these species. These are the trout minnow (*Galaxias truttaceus*), spotted minnow (*Galaxias maculatus*), western mud minnow (*Galaxiella munda*) and western minnow (*Galaxias occidentalis*).

3.1.5 Stocking of brown trout

Brown trout are currently only stocked in a few selected waters. During 2008 only 200 brown ex-broodstock were released into Harvey Dam, while no yearlings were released. Historical stocking has shown that the species has an ability to form self-sustaining populations and their limited ability to co-exist with rainbow trout detracts from their general fishing attributes. However, brown trout can add to the quality and diversity of the fishery.

Fisheries Management Paper No. 179 recommended that no recreational stocking of brown trout should occur in any drainage basin for recreational stocking. This was on the basis that historical stocking levels have been low and past stocking has shown the species has the ability to form self-sustaining populations.

Due to the recreational fishing attributes of the species and the historical stocking practices, which includes stocking of brown trout for approximately 50 years, a number of drainage basins could potentially support the recreational stocking of brown trout. In addition to the assessment criteria set out in Appendix B of this paper, only waters where brown trout has been historically stocked have been considered for potential brown trout stocking.

3.2 Legislative requirements

3.2.1 Western Australia

This paper, prepared by the Recreational Freshwater Fisheries Stakeholder Sub-Committee (RFFSS), has taken into account the submissions made on Fisheries Management Paper No. 179 and has sought advice on related issues from a wide range of stakeholders.

It is intended that this policy paper will assist the Chief Executive Officer when considering the issue of authorisation for the translocation of live non-endemic species into or within Western

Australia under Regulation 176 of the *Fish Resources Management Regulations 1995* for recreational stocking purposes.

It is being developed in accordance with:

- The principles of risk assessment;
- The principles outlined in Ministerial Policy Guideline No 5 ('The aquaculture and recreational fishing stock enhancement of non endemic species in Western Australia'); and
- The principles and procedures outlined in the Memorandum of Understanding between the Environmental Protection Authority and the Department of Fisheries for the environmental assessment of translocation proposals (Appendix B).

Currently, translocation assessments in WA are made on a case-by-case basis, through the translocation risk assessment process as required by the Memorandum of Understanding established between the Department of Fisheries and the Environmental Protection Authority in 1997.

The risk assessment process was developed from a need to provide the appropriate level of protection for the environment, while facilitating the environmentally sustainable development of commercial aquaculture and stock enhancement for recreational fishing.

3.2.2 National

It should be noted under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) certain actions, including the translocation of non-endemic species, may require approval from the Commonwealth's Environment Minister. The requirement for approval is triggered by an action that has, will have, or is likely to have, a significant impact on a matter of national environmental significance. As such, matters of environmental significance were taken into account during the development of stocking categories and during any stocking activities.

The matters of national environmental significance identified in the Act as triggers for the Commonwealth assessment and approval regime are:

- World Heritage properties;
- National Heritage places;
- Ramsar wetlands;
- Nationally-threatened species (Appendix C) and ecological communities;
- Migratory species;
- Commonwealth marine areas; and
- Nuclear actions.

3.3 Objectives

It is expected that this framework will provide for the sustainable development of related industries and the sustainable management of associated recreational activities dependent on the translocation of trout within and into Western Australia.

This Fisheries Management Paper outlines the rules, regulations and programs that are designed to manage the activity of stocking trout in the future from impacts by related activities such as recreational fishing. A key priority of the policy is the introduction of an appropriate management regime to minimise the environmental risks that may pose some threat to ecological sustainability.

This policy will ensure the required level of protection is provided for the State when considering the continued translocation of trout into and within Western Australia. This will assist in the protection of the Western Australian natural environment and endemic aquatic species. While the policy may impose additional restrictions on the future translocation of trout, the social and economic value of trout in WA has been acknowledged.

The majority of recreational stocking activities will be provided for in this paper. Any other proposed activities which are not and which are still considered to require an appropriate level of protection, may still be assessed on a case-by-case basis through the Department of Fisheries translocation risk assessment process.

3.4 Scope and policy review

Fisheries Management Paper No. 179 covered non-commercial, commercial, domestic and recreational stocking, but the policy in this Fisheries Management Paper only extends to recreational stocking. As a result the scope of this policy can only extend to State public waters. For the purposes of this policy, the stocking of trout in public waterways that traverse private properties is also considered as recreational stocking, as the fish are not contained within the property boundaries.

This Fisheries Management Paper provides a framework for the management of fish stocking activities in public freshwater rivers, streams and impoundments in Western Australia. The policy covers stocking for recreational fishing and implements these programs in a manner that reduces the environmental risks of the current stocking activity. The policy also defines the parameters within which the annual stocking events by the Western Australian Government will be reviewed and approved. The parameters will be updated as required.

The Fisheries Management Paper provides details on the species and waters that can be stocked. The species and waters provided for in the Fisheries Management Paper have been identified by taking into account issues such as translocation, the presence of native fish species and historical stocking activity.

This policy is intended as a five-year management document due for a comprehensive review in 2014. It is acknowledged that due to legislative requirements and potential issues associated with the translocation of non-endemic species into and within Western Australia that there is opportunity to review the document during this time frame as cases are presented. It will still be the responsibility of the RFFSS to develop the annual trout stocking strategy in line with this paper.

3.5 Compliance and education

A targeted compliance strategy will be developed to focus compliance activities in the high-risk areas and utilise the improved information management system developed under the Fisheries Management Paper. Improved education of stocking proponents and the community about the environmental risks associated with stocking is critical to promote responsible stocking.

An education program will highlight the potential damage that can be caused by people placing species of fish in areas that have not been approved for stocking. The education program will also include information provided to individuals or groups about best practice techniques for transporting and releasing fish at the stocking site.

SECTION 4 ISSUES AND PROPOSALS

4.1 Designated Stocking Activity

This document describes the trout stocking programs proposed to service recreational fishing within freshwater areas in the lower south-west of Western Australia. The stocking is dependent upon the annual production of fish from the Pemberton Freshwater Research Centre.

4.1.1 Recreational trout stocking policy

The Department of Fisheries will stock rainbow trout and brown trout into specified public inland waters of the lower south-west of WA, subject to the following stocking policy and other provisions of this Fisheries Management Paper.

Trout Stocking Policy

1. Trout species will be restricted to the traditionally stocked species: rainbow trout (*Oncorhynchus mykiss*) and brown trout (*Salmo trutta*).
2. Three categories will define waters which are either closed, restricted or open to recreational trout stocking, taking into account the sustainability requirements of native species, as well as other environmental, social and economic issues.
3. The Department of Fisheries will produce the stock of trout species for stocking programs.
4. The Department of Fisheries will carry out stocking in order to meet the objectives of this Fisheries Management Paper.

4.1.2 Categorisation of river systems and dams

The categorisation of rivers systems and dams has been created taking into account the assessment criteria outlined in Fisheries Management Paper No. 179 (Appendix B). Any modifications to the river systems or dams and to the stocking guidelines will take into account these criteria.

Proposal 1 *River systems and dams within the South West of WA are divided into three categories based on stocking activities to establish an appropriate level of environmental protection, while providing for sustainable recreational stocking activities. These are:*

Category 1 – Closed Waters - *Waters where the recreational stocking of trout will not be approved. The waters in this category have been identified as comprising of pristine or unique aquatic environments, or containing threatened or protected species vulnerable to trout stocking*.*

Category 2 – Restricted Waters – *Waters approved to be recreationally stocked with trout that have been identified as containing areas of high conservation value in sections of the waterway. These waters may include tributaries and/or sections of the waterway where the recreational stocking of trout will not be approved if populations of threatened or protected species or areas of special significance are threatened by the introduction of trout. The waters in this category have also had a clear history of recreational stocking.*

Category 3 – Open Waters - *Waters that are approved to be recreationally stocked with trout. The waters provided for in this category have been identified as areas of lower conservation value where the introduction of trout will have*

lower impact on the existing ecosystem. These waters have a clear history of recreational stocking.

* Native fish species of the South West of Western Australia most vulnerable to predation and competition with trout include:

- Trout minnow (*Galaxias truttaceus*);
- Spotted minnow (*Galaxias maculatus*);
- Western mud minnow (*Galaxiella munda*);
- Western minnow (*Galaxias occidentalis*); and
- native freshwater crayfish species.

4.2 Stocking Guidelines

4.2.1 Recreational trout stocking guidelines

The stocking guidelines have been developed through the consideration of historical stocking practices, current access to the fishery, recreational fishery values and environmental protection.

Since its inception, the RFFSS has annually developed the recreational trout stocking strategy based on the available figures of production from the Pemberton Hatchery and the previous years stocking figures and locations.

It has been proposed that the translocation of trout for stocking in public water bodies for the purposes of recreational stocking will only be permitted within Category 2 and 3 river systems and dams. The following are examples of waters that fall under each of the categories described under Proposal 1.

4.2.1.1 Category 1 – Closed Waters

The following three waters are the most recent waters in the south-west of Western Australia to be closed to recreational trout stocking.

Bancell Brook

Bancell Brook is used to supply irrigation water and is a relatively unregulated system between the Darling Scarp and the lower Harvey River. Most of the native fish species that are found in Bancell Brook are located downstream of the South West Highway and include western minnow, western pygmy perch and nightfish. Recreational stocking of trout has been ceased in the hope that by removing the trout, native species are able to expand their distribution within the brook and move into upstream waters. There is also a self-maintaining population of rainbow trout in this system (Morgan and Beatty, 2008).

Shannon River

The Shannon River is the only medium-sized catchment remaining on the south coast of Western Australia with no private (cleared) land. The river runs through the Shannon National Park. Though the Shannon River is a small river with low or intermittent flow in summer, it provides representative native marron (Fisheries Management Paper No. 156).

Some of the native fish species found in the Shannon River include the vulnerable Balston's pygmy perch, the 'rare' mud minnow, the black-stripe minnow, western minnow, western pygmy perch, nightfish and salamanderfish (Appendix D).

Margaret River

Margaret River is the only river in the world that contains the hairy marron (*Cherax tenuimanus*), also referred to as Margaret River marron, which are found almost exclusively in the upper reaches of the river. The hairy marron is listed as 'critically endangered' under the *Environment Protection and Biodiversity Conservation Act 1999*. As crustaceans form part of the diet of both rainbow trout and brown trout, recreational stocking has ceased in Margaret River in order to reduce the threat of predation on hairy marron.

Margaret River also contains a variety of native fish species including Balston's pygmy perch, mud minnow, western minnow, nightfish and western pygmy perch.

Goodga River and Angove River

The Goodga River and Angove River are located within the Albany Coast drainage basin, with sections of both rivers located within Two Peoples Bay Nature Reserve. The western trout minnow (*Galaxias truttaceus hesperius)* which is listed as 'critically endangered' under the *Environment Protection and Biodiversity Conservation Act 1999* once had a historical distribution in Western Australia in the King, Kalgan, Goodga and Angove Rivers but is now only found in the Goodga and Angove Rivers.

No recreational stocking of trout has occurred within the Goodga and Angove Rivers in the past and the recreational stocking of trout in these two rivers will not be considered in the future.

4.2.1.2 Category 2 – Restricted Waters

Blackwood River

The Blackwood River begins in the far wheatbelt and flows in a general south-westerly direction before entering the sea from the Hardy Inlet at Augusta. The health of the Blackwood River increases towards the estuary and much of the river flows through State Forest. As a consequence of clearing and farming inland, there is a very high input of highly salinised and eutrophic water down the river in the wet season.

Historically, brown and rainbow trout stocking occurred largely in tributaries near Bridgetown and Balingup. Since the 1970s, many of the tributaries of the Blackwood were stocked with rainbow trout and this practice is still continuing.

Of the many tributaries of the Blackwood River, the following tributaries have been closed to recreational trout stocking due to the presence of native fish which have been recognised as threatened species:

- Milyeannup Brook;
- Red Gully;
- Rosa Brook
- Ellis Creek;
- McAfee Brook;
- Adelaide Brook; and
- Poison Gully.

Donnelly River

The headwaters of the Donnelly River arise between Bridgetown and Manjimup, approximately 60 km inland, before flowing in a south-westerly direction where the river discharges into the Southern Ocean (Hodgkin and Clarke, 1989). The main tributary of the river is Barlee Brook. Due to the isolation of the Donnelly River, the major course of the river has not been dammed for private or public water supply.

The Donnelly River drainage basin contains national parks, Department of Environment and Conservation reserves, and significant coastal dune lakes within the D'Estrecasteaux National Park.

Populations of restricted fish species have been documented in the past within the Donnelly River. These include the mud minnow, salamanderfish, black-striped minnow, and Balston's pygmy perch which is listed as 'Vulnerable' under the *Environment Protection and Biodiversity Conservation Act 1999*. The Donnelly River is one of only two rivers in the south-west of Western Australia that houses all of the region's endemic fishes.

Balston's pygmy perch has been located in Fly Brook during past research undertaken by Morgan *et al*. (1998). The RFFSS have agreed to cease the stocking of Fly Brook while further research is undertaken to determine the population size of Balston's Pygmy Perch and if they are still located in this section of the Donnelly River.

The recreational stocking of trout will continue in the Donnelly River, although further research is required into the current distribution of vulnerable and endangered native fish species within the river.

King River

The King River rises east of Redmond and flows for approximately 27 km into Oyster Harbour, north east of Albany. Recreational trout stocking has been recorded in the King River since the 1970s.

As indicated in Fisheries Management Paper No. 156, the King River is one of many of the waterways in this area providing an important refuge for a number of rare or vulnerable species of aquatic fauna, including Balstons' pygmy perch, western trout minnow and the mud minnow. One submission indicated that King River forms part of the western most boundary of a number of these species, with populations at the extremes of a species' range normally being priorities for protection as they harbour genetic variations within the population. It is also thought that Balston's pygmy perch has disappeared from the King River.

The western trout minnow (*Galaxias truttaceus hesperius*), listed as 'critically endangered' under the *Environment Protection and Biodiversity Conservation Act 1999*, was historically found in the King River, but is now only found in the Goodga and Angrove Rivers.

The recreational stocking of trout will continue in the King River, although further research is required into the current distribution of vulnerable and endangered native fish species within the river.

Warren River

Much of the Warren River is within State Forest and the D'Entrecasteaux National Park. It is known to contain populations of western pygmy perch, nightfish and the near-threatened mud minnow. Since the introduction of brown trout into Warren River, it has been a long-established trout fishing water. After establishing spawning populations in the 1930s, brown trout used to

be the primary trout species in these waters. However, in recent years there have been greater numbers of rainbow trout introduced into the waters.

The recreational stocking of trout will continue in the Warren River, although further research is required into the current distribution of vulnerable and endangered native fish species within the river.

4.2.1.3 Category 3 – Open Waters

Brunswick River

The Brunswick River is a tributary of the Collie River, rising in the Darling Range and flowing generally south-southwest for about 48 km into the Collie near Australind. The upper branches of the Brunswick River are located in a large area of bauxite strip-mining and tailings ponds. The river has been regularly stocked with trout since the mid 1970s, which has created a consistent and worthwhile fishery.

Collie River

One of the larger rivers in the south west, the Collie River is about 154 km long, flowing westwards from its source in the Darling Range to its mouth in Leschenault Estuary.

The hydrology of the Collie River has been largely modified due to the construction of multiple water supply dams, diverting the river around coal mines and training the river to reduce flooding. Most of the land surrounding the Collie River has undergone extensive clearing in order to support agriculture and mining activities (ANRA, 2007).

Historical stocking occurred in the Collie River drainage basin in the upper branches of the Collie River, Wellington Dam and the popular fishery of Butlers Gorge below Wellington Dam. Rainbow trout stocking has continued to occur in recent years.

Harvey River

The Harvey River is approximately 90 km in length, rising near Mount Keats and flowing southerly, westerly, and then northerly into the Harvey estuary. The Harvey River once meandered through a long, low-lying seasonal wetland on the coastal plain. Construction of a major diversion to the ocean and two dams, which supply water to the Perth metropolitan area, has significantly changed the natural hydrology of the river.

Historic stocking of Harvey River included Samson and Stirling Dam, but these are now closed as public drinking water supplies by the Department of Water. The centre of Harvey River has been historically stocked with rainbow trout and brown trout and it is proposed that this practice continue.

The waterways of this basin feed into the Ramsar-listed Peel-Yalgorup System. Actions that are likely to have a significant impact on Ramsar wetlands are a trigger for Commonwealth assessment under the *Environment Protection and Biodiversity Conservation Act 1999.*

Studies by Morgan and Beatty (2003) found that no native fish were found in the upstream pristine environment where trout and gilgies occurred, while downstream in the drain section, three native fish species were found despite little riparian vegetation or in-stream habitat.

Murray River

The Murray River has been regularly stocked with trout since the 1930s. Since this time, an extremely popular rainbow trout fishery has developed. The river is one of the larger rivers of

the south-west, flowing 134 km from where it forms at the junction of the Hotham and Williams River to where it flows into the Peel Inlet at Yunderup.

The waterways of this basin also feed into the Ramsar-listed Peel-Yalgorup System. Actions that are likely to have a significant impact on Ramsar wetlands are a trigger for Commonwealth assessment under the *Environment Protection and Biodiversity Conservation Act 1999*.

Due to lower rainfall and reduced productivity, this river has not been stocked in the last five years.

Serpentine River

The Serpentine River rises in the Darling Scarp, draining forested areas to the east of the scarp, passing through the Youarling State Forest and then the Serpentine National Park. The river then flows through Serpentine Dam and then over the Serpentine Falls before meandering across farmland on the Swan coastal plain and discharging into the Geogrup lakes wetlands system, which connects with the Peel Inlet.

The Serpentine River has had a long history of trout stocking, commencing in 1947, which provided high quality trout fishing close to Perth. The upper reaches of the river has been subject to algal blooms in recent years.

Due to historical stocking of rainbow trout, in Serpentine Dam, Gooralong Brook and Dirk Brook, it was also requested that Serpentine River also be included in the proposed list for future stocking activities.

Irrigation Dams

Irrigation dams are man-made structures that rely on winter rainfall. These waters are not of a high conservation value, nor do they contain threatened or endangered species.

Relating to the recreational stocking of private dams linked to public waters, special circumstances relating to the stocking of trout may be addressed on a case-by-case basis through exemptions.

Proposal 2 *Recreational trout stocking guidelines for river systems and dams are clearly set out and followed according to Table 1.*

Table 1 Rivers and dams to be recreationally stocked with trout

Water	Species to be stocked	Area to be stocked
Category 2		
Blackwood River	rainbow trout	Main channel and tributaries upstream of Jalbarragup Crossing. See 4.2.1.2 for details on closed tributaries.
Donnelly River	rainbow trout	Main channel and all of its tributaries except Fly Brook.
King River	rainbow trout	Main channel and all of its tributaries.
Warren River - Lefroy Brook	rainbow trout, brown trout	Main channel and all of its tributaries.
Category 3		
Brunswick	rainbow trout	Main channel and all of its tributaries.
Collie	rainbow trout	East of South West Highway, below the headwaters of the highest accessible dam or reservoir.
Harvey	rainbow trout, brown trout	Main channel and all of its tributaries.
Murray	rainbow trout	Main channel and all of its tributaries.
Serpentine	rainbow trout	Between the Serpentine Pipe-Head Dam and Serpentine Falls only.
Dams		
Waroona	rainbow trout	
Logue Brook	rainbow trout	
Harvey	rainbow trout, brown trout	
Oakley	rainbow trout	
Big Brook	rainbow trout	
Glen Mervyn	rainbow trout	
Norrilup	rainbow trout	

Proposal 3 *Any proposal to stock brown or rainbow trout outside the provisions of this proposed management paper will be considered on a case-by-case basis, through the Department of Fisheries' translocation risk assessment and/or the aquaculture licensing process.*

4.2.2 Schedule of waters

Proposal 4 *The Department of Fisheries is to maintain a schedule of individual public waters within Category 2 and 3 waters where the stocking of either rainbow trout or brown trout for recreational purposes is permitted. Any request to cease stocking practices in individual waters within Category 2 and 3 is to be considered by the RFFSS on a case-by-case basis, and approved by the Department of Fisheries' Chief Executive Officer.*

4.3 Translocation Management

4.3.1 Management responsibility

Past stocking practices were the responsibility of the trout stocking sub-committee of the Recreational Fishing Advisory Committee (RFAC) and were developed using annual trout production stocking lists. This process was formalised in 2004 by the formation of Recreational Freshwater Fisheries Stakeholder Sub-Committee (RFFSS), enabling decisions relating to recreational trout stocking to be made in conjunction with other inland fishery groups.

Annually the RFFSS develop the trout stocking strategies for the year based on the available production from the Pemberton Hatchery. It is recommended that this practice continue in accordance with this policy paper.

Proposal 5 *The RFFSS be responsible for the development of the annual trout stocking strategies for State public waters in accordance with the final trout translocation policy. Stocking approval for public waters shall be sought prior to any stocking activities, from the Department of Fisheries' Chief Executive Officer, by providing formal advice in relation to annual stocking proposals. Advice should include the size, number and life stage of the fish to be stocked and the proposed stocking dates and locations. It should also detail the individuals and groups represented throughout the decision-making process.*

4.4 Stocking Practices

4.4.1 Stocking responsibility

The Department of Fisheries took over the responsibility of stocking trout in the 1970s. Before this time, nominated anglers released trout given to them by the Department. This practice was not ideal, as there was potential for fish to be released in areas other than designated, and that proper release techniques may not be employed, compromising survival rates. Anecdotal information suggests that after the Department started carrying out the stocking, there was a marked improvement in catches recorded in several public waters, such as the Murray River and Blackwood River.

To reduce the potential impact of the trout on the environment, there is a need to mitigate the risk of illegal and accidental introductions. As such, it is appropriate for restrictions regarding stocking responsibility to be in place.

Proposal 6 *Recreational stocking activities in public waters may only be undertaken by the Department of Fisheries, or by persons authorised, and under conditions specified by the Department of Fisheries' Chief Executive Officer.*

4.4.2 Source of stock

The introduction of exotic or non-endemic parasites and diseases is always a potential risk with fish translocation. Western Australia is fortunate in that a number of significant diseases affecting trout and other fish in other States and Territories are not present here.

The most significant trout disease in Western Australia has been the bacterium *Mycobacterium marinum*. The bacterium remains viable in the environment for long periods of time and is practically impossible to eradicate once present. If the bacterium is present in the water, the trout usually become infected when they are stressed, generally from high temperatures and

poor water quality. Symptoms include lethargy, skin darkening, kidney lesions, inflammation and ulceration of the skin. This disease is now controlled through hatchery management and culling of infected fish.

Historically, trout for recreational translocations have been stocked from the Pemberton Freshwater Research Centre. Current management practices are applied to control *Mycobacterium marinum* at the centre and disease testing for epizootic haemotopoietic necrosis virus (EHNV) is also undertaken annually. Salmonid and non-salmonid finfish are susceptible to EHNV, transmitted through the movement of carrier fish. Symptoms include abdominal distension, pallor of skin and fins, a loss of equilibrium and flared opercula.

The disease-risk status of each individual aquaculture facility may potentially vary, depending on the diversity of the aquaculture activities undertaken at each location. It is proposed that those fish to be sourced by the Department of Fisheries for recreational stocking purposes shall primarily be sourced from the Pemberton Freshwater Research Centre and disease tested to the satisfaction of the Department of Fisheries' Senior Fish Pathologist prior to release.

There is also concern for potential introductions or artificial enhancement of harmful symbionts in natural waterways, despite the trout having a 'disease-free' status. The introduction of trout and even disease-tested trout, to waterways may increase the presence of parasites, due to an additional host source being available.

Such limitations to stocking procedures and disease testing will aid to reduce the risk of the unintentional release of non-endemic and or exotic parasites and diseases into the State's aquatic environments. Should fish need to be sourced from other locations, this shall be assessed on a case-by-case basis, through the translocation risk assessment process.

The communication of disease risk and any risk minimisation protocols required, associated with the source of stock, will be communicated to the proponent through either the translocation assessment or aquaculture licensing processes, as required.

Proposal 7 *The Pemberton Freshwater Research Centre should be the primary source for fish for recreational stocking purposes and disease tested to the satisfaction of the Department of Fisheries' Senior Fish Pathologist prior to release.*

Proposal 8 *If fish are required to be stocked from alternate locations they must be from a licensed hatchery, disease tested to the satisfaction of the Department of Fisheries' Senior Fish Pathologist and, shall be assessed on a case-by-case basis, through the translocation risk assessment process.*

4.4.3 Importation of stock

There are a number of diseases present in other States that affect brown and rainbow trout, which are currently not found in Western Australia. If these diseases are introduced to the trout aquaculture industry in Western Australia, the impacts could be significant. Furthermore, many of these diseases are infectious to native Australian species and if released to natural waterways have the potential to dramatically effect ecological systems. The relatively disease-free status of trout in Western Australia also gives our aquaculture industry a competitive advantage over other States (with the exception of Tasmania).

The Australian Quarantine and Inspection Service (AQIS) has banned the introduction of live or fresh trout products into Western Australia from overseas, due to the disease risk posed. Appropriate controls on the importation of trout from inter-state will minimise the risk of introducing new diseases and prevent the transfer of diseases to wild populations of native fish.

Proposal 9 *Applications to import brown or rainbow trout from other states will be considered on a case-by-case basis through the translocation risk assessment process. Prior to the importation of trout from inter-state, written authority is required from the Chief Executive Officer of the Department of Fisheries, as required under the Memorandum of Understanding with the Environmental Protection Authority (EPA).*

4.4.4 The use of triploid trout

There are potentially a number of direct benefits of using polyploid trout for stocking activities, but there has been limited adoption of triploid or polyploid technology in Western Australia. The benefits of triploid trout include female trout being genetically sterile and so not able to produce self-sustaining populations. Energy requirements for producing eggs and searching for suitable spawning grounds are instead used for growth, increasing the size and condition of the fish. This improvement in size and condition enhances the fishing for the recreational angler.

At the time of publication, the Pemberton Hatchery was the only centre in Western Australia with a hydrostatic pressure chamber. As a result, it is able to produce polyploid fish (both triploid and tetraploid fish) more reliably. The hatchery has been producing triploid fish for many years and research is being undertaken into creating a tetraploid line of fish to be used in the selective breeding program to improve growth and temperature tolerance of the fish.

One main difference in the development of triploid and tetraploid fish is that tetraploid fish are fertile. When they are bred with normal diploid fish, all progeny are triploid, sterile and grow much faster. One of the major uses of this research will be to supply temperature-tolerant, fast-growing, sterile fingerlings to overseas stocks which have 'crashed' due to increase in temperatures from climate change.

Currently, techniques to determine polyploids are time-consuming and require expensive equipment. Polyploids are usually determined by analysing the chromosome number, cell size or the DNA content of the cell. Triploid fish have three sets of chromosomes (one more than normal/diploid fish), their cells are 30 per cent larger and each cell contains 30 per cent more DNA than diploid fish. Tetraploid fish have four chromosomes, have 100 per cent larger cells and each cell contains 100 per cent more DNA than a diploid fish. It is important to be able to determine if fish released are in fact triploid and therefore sterile.

With limited use in Western Australia, the success of implementation of polyploidy trout cannot be quantified and more research is required into the method of 'polyploiding' and into an efficient, accurate process of determining polyploidy fish. It is therefore proposed that any application received in relation to the translocation of polyploid trout for any of these purposes will be assessed on a case-by-case basis.

Majority of the submissions received referring to triploid trout indicated support with the use of triploid trout, with the requirement for more research into the technology prior to adoption of the use of the fish.

4.5 Management Controls

4.5.1 Possession limits

Possession limits are used for trout primarily as a social control measure that prevent the accumulation of excessive quantities of fish by individuals on a fishing trip, and set a clear ceiling for socially-acceptable catch levels.

For brown and rainbow trout, the possession limits only apply to the West and South Coast, as trout have historically only been stocked in these regions. Currently, rainbow trout and brown trout are classified as Category 1 'high risk' fish under the *Fish Resources Management Regulations 1995*. This is due to their high social value as opposed to sustainability risks. The combined recreational daily bag limit for brown and rainbow trout is four fish. The grouped bag limit for Category 1 fish is four fish.

The numbers of trout that are being stocked each year are declining and it is proposed in this plan that only a limited number of drainage basins are potentially stocked. For that reason, there is no proposal to change the current daily bag limit.

Historically, Lake Navarino (Waroona Dam) and Logue Brook Dam have both been stocked with ex-brood stock. To ensure these fish were not immediately fished out at the beginning of the season, the *Fish Resources Management Regulations 1995* was amended to include certain conditions for trout fishing in these waters, such as introducing a possession limit of two.

Due to a recent decline in the quality of trout fishing in Waroona Dam and Logue Brook Dam, the RFFSS cannot justify these waters to remain as trophy waters. Therefore, it is proposed that the bag limit for trout at Waroona Dam and Logue Brook Dam should be increased to four fish per angler, so as to standardise the daily bag across all trout fishing waters on the West Coast and South Coast.

Proposal 10 *The combined daily bag limit for brown and rainbow trout on the West Coast and South Coast remain at four fish.*

Proposal 11 *The reduced daily bag limit (two) for Waroona Dam and Logue Brook Dam be lifted to four.*

4.5.2 Minimum legal size limits

Minimum size limits are usually based on the breeding biology of a species, and, in the case of trout, are set to help enhance recreational fishing quality by increasing the average size of the fish available. As a Category 1 fish, being a highly targeted species, it ensures that the fry and yearlings stocked reach a reasonable size before being taken from the fishery.

For brown and rainbow trout, the minimum legal size limit is 300 mm total length, measured from the point of the snout to the tip of the tail. There is no proposal to change this minimum size limit.

Proposal 12 *The minimum legal size limit for brown and rainbow trout remain at 300 mm total length, measured from the point of the snout to the tip of the tail.*

4.5.3 Permitted fishing method

As a recreational fishery, the regulations regarding the permitted fishing method enables the catch to be spread over the season by making it more challenging for recreational fishers to catch the fish, adding to the enjoyment of the fishery.

Currently the only permitted fishing method for rainbow and brown trout is a single rod, reel or line, or a single line held in the hand.

The RFFSS believe this may be too restrictive and cause compliance issues for recreational fishers on fishing trips, when more than one rod or reel may be taken on a trip. .

At Waroona Dam and Logue Brook Dam, anglers are only allowed to use artificial lures with no bait attached. Due to the recommendation that these two dams no longer be classified as

trophy waters, the RFFSS recommends that this restriction be lifted so that the permitted fishing methods are consistent across all trout fishery waters.

Proposal 13 *Recreational fishers can use a maximum of two rods, reels or two hand held lines at any time.*

Proposal 14 *The restrictive gear conditions on Waroona Dam and Logue Brook Dam (artificial lures only) be lifted to conform with state-wide rules.*

4.5.4 Closed recreational season

The extent of trout stocking within Western Australian waters was historically more extensive than at present. This is reflected in the current legislative controls for closed seasons over trout waters.

Under current management strategies, a closed season exists from 1 May to 31 August, with exceptions for a number of waters. Waters open all year include Murray River, Blackwood River, Donnelly River and Warren River, and the Serpentine River between the Serpentine Pipe-Head Dam and Serpentine Falls.

The production cycle of trout only allows recreational stocking at certain times of the year, with trout artificially spawned in July each year. Closed seasons were implemented to allow the trout to be stocked and to allow the fish (especially the ex-brood stock) to acclimatise to their environment before being fished. Season openings help to profile the sport, with large numbers of recreational fishers attending the opening days. As there is no reason to change the current management controls, the RFFSS recommends that the closed season remains.

Stirling Dam and Samson Dam are currently included in a list of trout waters open all year. At the time of this report, Stirling and Samson Dams have both been closed to recreational fishing as public drinking water supply dams. They are governed by the Department of Water under the relevant state legislation of the *Metropolitan Water Supply, Sewerage and Drainage Act 1909* and *Country Areas Water Supply Act 1947*. The condition relating to these dams within Order No. 10 *Prohibition on fishing (trout) Order 1999* of the *Fish Resources Management Act 1994* is no longer applicable, as they are governed under the above stated legislation.

A closed season from 1 May to 30 November exists for the waters of Lake Leschenaultia. This condition is no longer applicable as Lake Leschenaultia is no longer stocked with either rainbow trout or brown trout, and it has not been recommended in this report as a water to be potentially stocked in the future. It is for this reason that it is recommended that the provisions relating to the closed season for Lake Leschenaultia be removed from the legislation.

Proposal 15 *(a) The current trout closed season (1 May to 31 August) should be reduced to 1 July to 31 August.*

(b) The closed season should apply to all line fishing.

(c) The following waters remain open all year to line fishing:

- *Blackwood River;*
- *Donnelly River;*
- *Murray River*
- *Serpentine River (between the Serpentine Pipe-Head Dam and Serpentine Falls only);*
- *Warren River;*

- *Logue Brook Dam;*
- *Wellington Dam;*
- *Big Brook Dam; and*
- *Glen Mervyn Dam.*

Proposal 16 *The Minister approve the amendment to Order No. 10 of 1999 to remove the conditions relating to Stirling Dam and Samson Dam as the prohibition on fishing in these drinking water supplies are governed under the Metropolitan Water Supply, Sewerage and Drainage Act 1909 and Country Areas Water Supply Act 1947 by the Department of Water.*

Proposal 17 *The Minister approve the amendment to Order No. 10 of 1999 to remove the closed season relating to the waters of Lake Leschenaultia, including all streams, brooks and tributaries flowing continuously or intermittently into the lake, as it is no longer applicable. Under this plan, Lake Leschenaultia is not currently recreationally stocked with trout and there is no proposal to stock this water in the future.*

4.5.5 Grant of recreational fishing licence

Under current legislation, fishing for all freshwater fish (other than crustaceans) in waters south of 29º south latitude above the tidal influence including all lakes, dams, rivers and their tributaries requires a licence. As such, possessing a licence is a requirement to fish for brown trout and rainbow trout (except for persons under 16 years of age).

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SECTION 6 APPENDICES

APPENDIX A Names of individuals and organisations who forwarded submissions

Aquaculture Council of Western Australia

City of Armadale

Conservation Commission of Western Australia

Conservation Council of Western Australia Inc.

Department of Conservation and Land Management

Harvey River Restoration Trust

Land Conservation District Committee

McAppion, Peter

McConigley, John

Murdoch University, Division of Veterinary & Biomedical Sciences

Murdoch University, Freshwater Fish Section, Centre for Fish & Fisheries Research

Native Fish Australia (SA) Inc.

Recfishwest

Recreational Freshwater Fisheries Stakeholder Sub-Committee

Shire of Harvey

Shire of Jerramungup

The Western Australia Trout and Freshwater Angling Association Inc.

APPENDIX B Memorandum of Understanding between the Department of Fisheries and the Environmental Protection Authority

Memorandum of Understanding

between

the Environmental Protection Authority and
the Fisheries Department of Western Australia

the environmental assessment of translocationa of live aquatic non-endemic species into or within Western Australia


Environmental Protection Authority

1. Purpose

The objectives of this Memorandum of Understanding are:

(a) To facilitate an efficient and effective assessment process for translocation proposals while maintaining the responsibilities of all parties.

(b) To minimise the risk to terrestrial and aquatic environments where translocation of aquatic organisms occurs with particular reference to-

* maintenance of water quality
* maintenance of the integrity of stream and river banks
* maintenance of genetic composition and biodiversity
* protection from the introduction of disease.

(c) To promote a commitment to continual improvement in environmental performance within the aquaculture industry.

2. Obligations

This Memorandum of Understanding (MOU) clarifies arrangements between the Environmental Protection Authority (EPA) and the Fisheries Department of Western Australia (FDWA) for the environmental assessment of translocation proposals of live non-endemic aquatic species into or within Western Australia for aquaculture or recreational fishing stock enhancement purposes.

The procedures in this MOU are designed to ensure that appropriate assessment occurs on translocation proposals.

Through this MOU, the EPA and FDWA have established procedures for the efficient implementation of their duties, while retaining the responsibilities of both parties. The MOU is not a formal delegation of powers under the Environmental Protection Authority Act but provides administrative arrangements concerning the FDWA environmental assessment process for translocation proposals.

The EPA does not abrogate its responsibilities in regard to environmental assessment and the EPA can, under the *Environmental Protection Act 1986*, call in any proposal for assessment, including those that are identified by FDWA as not requiring environmental impact assessment as a result of the assessment process outlined within this document.

This MOU is predicated upon the following principles:

1. That the Environmental Protection Authority has lead responsibility for environmental protection in the State;

2. That the Fisheries Department of Western Australia has lead responsibility for the management and development of aquaculture, recreational fishing and fisheries-related activities in the State and the protection of fish habitats;

3. That the conservation significance of environmentally sensitive areas must be identified and recognised when assessing translocation proposals in these environments.

The parties to this MOU recognise that it facilitates the administration of the following legislation:

* *Environmental Protection Act 1986*
* *Fish Resources Management Act 1994* and Regulations.

The Department of Environmental Protection (DEP) provides technical and professional services to the EPA. The DEP also performs many of the procedural arrangements on behalf of the EPA when carrying out environmental impact assessment.

The development of this MOU has involved extensive consultation between the EPA, DEP and FDWA. The FDWA has also undertaken an extensive review of the issues associated with translocation. The review process has included public consultation. Results have been published in Fisheries Management Paper No. 58 (1993) and Fisheries Management Paper No. 85 (1995) available from the FDWA.

3. Interpretation

The *Fish Resources Management Act 1994* defines 'fish' generally as any aquatic organism of any species (whether alive or dead), except aquatic mammals, aquatic reptiles, aquatic birds, amphibians or pearl oysters of the species *Pinctada maxima.*

Translocated aquatic organisms are those species, both native and introduced, which have been transferred, live, to waters outside their natural or previous distributional ranges. Therefore translocated aquatic organisms include not only species which are imported into a country but also the movement of species or strains within a country to regions in which they previously did not exist.

Translocation proposals can be categorised into five types:

Type A	Introduction of an exotic (foreign) species from overseas into (Western) Australia. Any proposed introduction of a foreign fish from overseas is considered under the *Commonwealth Wildlife Protection Act* (1982) by the Australian Nature Conservation Authority and any such proposal is outside the scope of the assessment process set down in this MOU.
Type B	Introduction into Western Australia of an exotic (foreign) species that has been previously introduced into another state of Australia.
Type C	Introduction of an Australian aquatic species from another state into Western Australia.
Type D	Further spread of a species previously introduced into Western Australia.
Type E	Extension of the natural distribution of a Western Australian native species into a drainage basin(s) outside of its natural distribution.
Type F	Translocation of a native Western Australian species within its natural distribution- (a) Between drainage basins

(b) Within a drainage basin

For Type E translocations, it may need to be established whether or not the species has subspecies or genetically different strains in different drainage basins or parts of its distribution.

This MOU and associated translocation assessment process does not relate to:

(i) the translocation of species into Western Australia from overseas;

(ii) the translocation of fish into or around Western Australia for aquarium/ornamental purposes;

(iii) the translocation of fish into and around Western Australia for the restaurant trade;

(iv) the translocation of fish into and around Western Australia for the purposes of scientific experimentation;

(v) the translocation of pearl oysters of the species *Pinctada maxima* for the purposes of pearl culture; and

(vi) the translocation of species for which specific translocation proposals are in place.

These matters will be managed separately by the FDWA on a case by case basis with appropriate liaison with the EPA.

4. Translocation Proposal Management System

4.1 Environmental Policy

To reduce the risk of release or escape of non-endemic, aquatic species and to minimise the environmental impacts when this occurs.

4.1.1 The environmental policy is predicated under the following assumptions:

a) All species translocated for aquaculture purposes may escape or be released into, or spread in, the natural environment at some time and place.

b) Every species translocated has the potential to impact on the Western Australia environment to some degree.

c) The degree of impact will depend on the characteristics of the species and the condition of the environment.

4.2 Procedure

The FDWA will assess translocation proposals in accordance with the following arrangements:

(a) All proponents seeking to translocate aquatic organisms into or within Western Australia for the purposes of aquaculture or recreational fishing stock enhancement will need to make application to the FDWA under Regulation 176 (1) (b) of the Fish Resources Management Regulations 1995.

(b) All applicants will need to follow a set of guidelines provided by the FDWA and submit a formal application as well as a 'translocation synopsis' (Attachment 1).

(c) The application and 'translocation synopsis' will be assessed by the FDWA against a decision-making schema (as described in Attachment 2) and in accordance with the following principles:

Principles of Assessment

1. Introductions into Australia of foreign species in the first category (Type A) must be assessed at a national level because of the susceptibility to disease and ecological competition of our unique and evolutionary isolated fauna, as a whole. These translocations are not the subject of this MOU or translocation guidelines.

2. Any species to be translocated must undergo a risk management assessment prior to translocation and, for it to be acceptable, the assessment must show that it presents a low risk to the Western Australian environment. The risk assessment procedure will be conducted in accordance with the principles outlined in "Risk Management", Australian/New Zealand Standards AS/NZS 4360:1995.

3. The risk assessment should be based upon the best available scientific knowledge of the species' biological status, which is supplied in the 'translocation synopsis' accompanying the translocation application. Proposed foreign introductions to Australia are often disallowed on the basis of an obvious very dangerous capability (eg. poison spines) or diseases. However the other categories of translocation which are addressed at the State level usually involve lesser, and less obvious, potential risk. In these cases, the translocation decision needs to weigh the justification of significant economic and social benefits of the translocation against the biological risk.

4. Western Australia spans an exceptionally wide range of climatic and geographic conditions and contains water bodies which range in environmental value from highly modified or degraded to near pristine in condition. Consequently, it may not be possible on biological or management grounds to have a single statewide policy for a species. It may be that a species will have net benefits to some areas of the State but have negative impacts in other areas.

5. If approved, Type B translocations will necessitate some form of quarantine and health testing. Type C, D and E translocations also may require quarantine and health testing.

6. All water accompanying translocated fish must be adequately treated to ensure that no disease organisms or invertebrate flora or fauna enter, or are spread within, Western Australia accidentally.

4.3 Implementation and operation

4.3.1 Roles and responsibilities

A schematic representation of the assessment process under the MOU is provided in Figure 1 and explained below.

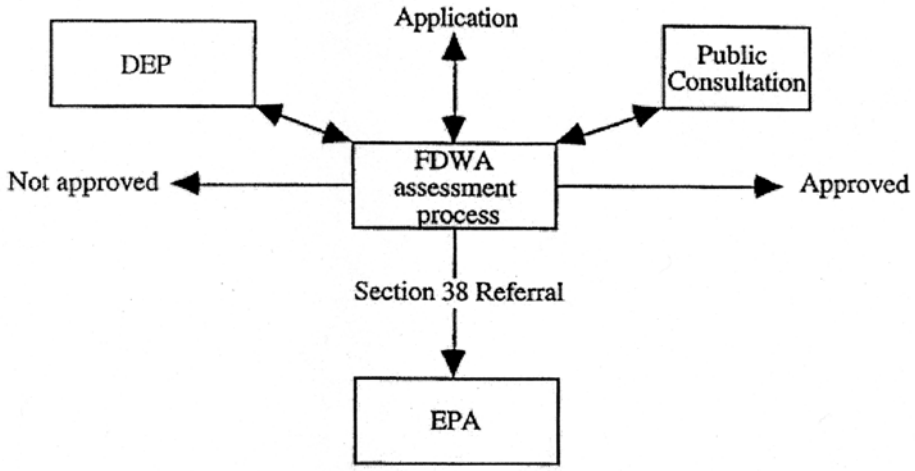

Figure 1 Schematic representation of the MOU assessment process for applications for translocation aquatic species.

Fisheries Department of Western Australia

Assessment of Applications

* Applications will be assessed by the FDWA using the 'translocation synopsis' and associated decision-making schema. A statement of decision will be prepared by the assessing officer(s) within the FDWA (Attachment 3). In the event that an application is refused, a copy of the decision statement will be provided to the applicant.

* If an application for translocation relates to more than one inland drainage basin (refer to Attachment 4) or more than one marine geographic area, separate assessments will be made.

* If the application for translocation relates to either of the two following classifications, the application will not be approved:

- drainage basins, or areas within drainage basins evaluated as being of high conservation value using all available environmental and biological data; or

- buffer areas where the translocation into a drainage basin that adjoins a high conservation value area would threaten the conservation status of the adjoining drainage basin.

Classification of particular areas will be developed over time using available environmental and biological data and incorporated into the translocation guidelines published by FDWA.

Public Consultation

Prior to any approval being granted for a translocation proposal, FDWA will seek comment from the public by way of a public advertisement. Specifically, consultation with the public and/or specified interest groups will be included at a number of points in the decision-making schema. A copy of the 'translocation synopsis' questionnaire will be provided to interested parties as part of the public consultation process.

It may be that following an assessment of public comment received on a particular proposal the Executive Director of Fisheries determines at that point that the proposal should not be approved.

If further assessment is undertaken and additional consultation is considered necessary by the FDWA at a later point in the decision-making schema for that proposal, the opportunity for comment will only be provided to those individuals and groups who provided comment at the initial decision-making point.

This public consultation is additional to and separate from any public consultation that may be required by the EPA as part of its formal assessment process.

Department of Environmental Protection

The FDWA will refer to the Department of Environmental Protection for comment:

* those applications which following the assessment process are considered by the FDWA to be marginal cases; and

* those applications which are proposed to be approved subject to either a large number of conditions or conditions which are considered to be of special importance.

Environmental Protection Authority

As a result of the assessment under this MOU the Executive Director of FDWA may decide that a proposal being assessed may be of a nature that it should be referred to the EPA under Section 38 of the *Environmental Protection Act 1986*.

In addition if there are differing views on a particular assessment between the DEP and FDWA, the proposal will be referred to the EPA by FDWA.

Translocation proposals that have been referred to the EPA by either FDWA or any other body will be treated as a referral under Section 38 of the *Environmental Protection Act 1986*.

The EPA shall also have an audit role to ensure that translocation proposals have been assessed in accordance with this MOU and associated guidelines.

4.3.2 Documentation

The proponent will be required to complete the 'translocation synopsis' which will form the basis of the application to translocate aquatic organisms for the purposes of aquaculture or recreational fishing stock enhancement.

Public comment will be sought by way of a public advertisement. Comments will be reviewed as part of the assessment process.

Where proposals are referred to the DEP written documentation will be provided to FDWA.

A copy of the "Statement of Decision" will be provided to the proponent if requested.

Proposals referred to the EPA shall include a copy of the following information:

- 'translocation synopsis';
- any public comments received on the application;
- comments provided from the DEP or other Government Agency;
- a copy of the "Statement of Decision"; and
- any other relevant information.

4.4 Internal audit and performance assessment

It will be the responsibility of each organisation to evaluate its involvement in the assessment process against its own performance indicators.

4.5 Review

This MOU will be reviewed by both parties in three years from date of signature. This MOU can be changed prior to the three year review with the written agreement of both parties.

The translocation guidelines and 'translocation synopsis' will be reviewed by FDWA on a continuous basis and will be amended as considered necessary by the Executive Director of FDWA. Any amendments which he considers significant will be referred to the EPA for advice. The EPA and DEP will be informed of any changes made.

5. Audit by the EPA of the Translocation Proposal Management System

The EPA will conduct an audit of the implementation of the Translocation Proposal Management System every 12 months or at such other periods greater than twelve months as the EPA so determines.

The purpose of the audit will be to:

(a) determine compliance with the system set out in the MOU;

(b) determine whether the system has been properly implemented and maintained;

(c) identify areas of potential improvement; and

(d) examine the effectiveness of the internal review procedure, including its ability to achieve the objective of continuous improvement.

The method of audit will be determined by the EPA during the first twelve months of operation following discussions between the EPA and FDWA.

AGREED TO BY

.....	25/6/97	.....	26/6/97
Chairman Environmental Protection Authority	Date	Executive Director Fisheries Department	Date

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APPENDIX C Assessment criteria

Rivers and dams of the South West of Western Australia be permitted for recreational stocking activities through the consideration of the following criteria evaluating economic, social and environmental aspects:

- Past recreational stocking practices;
- Quality of and access to individual recreational fisheries;
- The environmental values/beneficial uses of the area into which stocking is proposed to take place;
- Ability of introduced trout to impact on existing food chains and webs and other existing ecosystem processes;
- Presence of habitats or native species of special significance;
- Presence of Ramsar wetlands;
- Presence of non-native predatory species;
- Distribution of native fish recognised as threatened under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the *Wildlife Conservation Act 1950* (WC Act) *; and
- Distribution of native fish vulnerable to predation from or competition with trout.

* **Table 2.** Threatened native freshwater species of Western Australia and their distribution.

Species	Status
Balston's pygmy perch (*Nannatherina balstoni*)	Vulnerable (EBPC Act) Rare or is likely to become extinct (WC Act)
Western trout minnow (*Galaxias truttaceus hersperius*)	Critically Endangered (EPBC Act) Rare or is likely to become extinct (WC Act)
Mud minnow (*Galaxiella munda*)	Rare or is likely to become extinct (WC Act)
Margaret River marron (Hairy marron) (*Cherax tenuimanus*)	Critically Endangered (EPBC Act) Rare or is likely to become extinct (WC Act)

APPENDIX D Native fishes of South-Western Australia and their distribution by river system

Compiled by D. Morgan and S. Beatty, Centre for Fish & Fisheries Research, Murdoch University

River	Freshwater Cobbler	Salamanderfish	Western Minnow	Trout Minnow	Common Jollytail	Mud Minnow	Black-stripe Minnow	Western Pygmy Perch	Balston's Pygmy Perch	Nightfish
Arrowsmith			*					*		
Hill								*		*
Moore	*		*			*		*	*	*
Swan	*		*				*	*		*
Canning	*		*					*		*
Serpentine			*					*		*
Murray	*		*					*		*
Harvey	*		*		*			*		*
Collie	*		*					*		*
Preston	*		*					*		*
Brunswick	*		*				*	*		*
Capel			*					*		
Abba/Ludlow			*					*		*
Carbanup			*					*		
Vasse			*			*		*		*
Margaret			*			*		*	*	*
Blackwood	*	*	*			*	*	*	*	*
Donnelly	*	*	*			*	*	*	*	*
Warren	*		*			*		*		*
Gardner		*	*			*	*	*	*	*
Shannon		*	*			*	*	*	*	*
Deep		*	*			*	*	*	*	*
Walpole		*			*	*		*		*
Frankland	*	*	*			*	*	*		*
Kent			*		*	*		*	*	*
Denmark			*	*		*		*	*	*
Hay			*			*		*	*	*
King			*			*		*	*	*
Kalgan			*					*		*
Goodga				*	*	*		*	*	
Angove				*	*	*		*	*	
Waychinnicup			*							
All rivers east of Pallinup					*					

Key – Rivers highlighted in white are currently stocked with trout by the Department of Fisheries

SECTION 7 GLOSSARY

Appropriate level of protection - The level of protection deemed appropriate by the State, establishing measures to protect environmental health.

Bio-security - The level of security, generally associated with biological risks such as disease and feral species' introductions.

Commercial aquaculture - The stocking of fish for commercial aquaculture purposes. The translocation of trout for stocking in farm dams or ponds on private property for pay-fishing ventures is also considered commercial aquaculture.

Category 1 fish – Fish classified as generally being long-lived, slow-growing, mature at plus-four years, form semi-resident populations, are vulnerable to localised depletion due to their life history, or are low abundance or highly targeted.

Department of Fisheries translocation risk assessment process - Risk assessment process establish to assess the risk of the translocation of non-endemic species into and within the State, in accordance with a Memorandum of Understanding established with the Environmental Protection Authority.

Diploid trout – Trout having the normal number of sets of homologous chromosomes.

Domestic stocking - The stocking of fish on private property for non-commercial recreational purposes.

Endemic - Native to and exclusive to a particular geographical region.

Ecologically Sustainable Development – "Using, conserving and enhancing the community's resources so ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can, be increased". Refer to the *National Strategy for Ecological Sustainable Development, 1992*.

Fish – As per the *Fish Resources Management Act, 1994* and includes eggs, ova, fry, fingerlings and adults or as detailed.

Native - Indigenous animal or plant.

Non commercial aquaculture - The stocking of fish for non-commercial aquaculture purposes.

Non-endemic - A species that exists or is translocated beyond its natural range.

Polyploid trout – Trout having more sets of homologous chromosomes than normal trout (see tetraploid trout and triploid trout).

Recreational stocking – The stocking of fish in public water bodies for recreation fishing purposes.

Tetraploid trout – Trout having four sets of homologous chromosomes generally achieved through artificial breeding techniques, which are usually fertile with larger growth, increased longevity and biological vigour.

Translocation - Movement of aquatic organisms.

Triploid trout – Trout having three sets of homologous chromosomes generally achieved through artificial breeding techniques, which usually represent reduced fertility, increased longevity and biological vigour.