

# Community Consultation Report

## South Esk – Great Lake Water Management Review

August 2000



Hydro Tasmania  
*the renewable energy business*



## EXECUTIVE SUMMARY

This document reports on the community consultation stage of Hydro Tasmania's Water Management Review (WMR) for the South Esk – Great Lake catchment. The aim of this review is to develop a program for environmentally sustainable water management for Hydro Tasmania operations.

The WMR is a multi-year project involving four stages – information review, community consultation, technical studies and program development. The community consultation stage reported on in this document involved consultation with the community and stakeholder groups to identify concerns with Hydro Tasmania water management practices, and to prioritise issues.

An initial mail-out was sent in January 2000 to 225 stakeholders identified through a wide-ranging search. Advertisements in local and regional newspapers were also placed during January 2000 to invite the participation of stakeholders not included on the initial mailing list. Several hundred copies of the *Environmental Review* document (produced during the information review stage of the WMR) were distributed. This document provides stakeholders and any interested parties with information on Hydro Tasmania activities in the South Esk – Great Lake catchment, and known environmental issues related to these activities. A total of 107 respondents returned the initial mail-out, and there were 22 responses to the advertising. In February 2000, 119 stakeholders who indicated an interest were sent a follow-up mail-out with a written issues survey. Forty-nine respondents returned the issues survey. Stakeholders were additionally contacted by telephone or personal visit if interested.

Issues and concerns raised by the consultation were individual to each waterway, and included bank erosion, water quality, fishing, public use and amenity, irrigation water availability, environmental flows, safety, flooding, and weed encroachment. Respondents noted where concerns were or were not directly related to Hydro Tasmania activities, and suggested management changes not only on the part of Hydro Tasmania but also by other agencies.

Twelve technical studies are proposed to be conducted by Hydro Tasmania in response to the issues raised. These studies involve four lake level reviews (Lake Augusta, Great Lake, Arthurs Lake, Woods Lake); five assessments of river management objectives (Upper Lake River, Lake River downstream Woods Lake, downstream Poatina Power Station, downstream Brumbys and Westons weirs, and Cataract Gorge); an assessment of Trevallyn spills as they relate to irrigation demand in the upper Macquarie and South Esk catchments; an assessment of fish passage past the Trevallyn power scheme; and an assessment of siltation issues in the Tamar estuary as they relate to power station operations.

Studies will be undertaken between the period July 2000 to June 2002. They all aim to present cost-benefit analyses on a range of options to address issues of concern individual to the particular waterway under assessment, and involve a standard methodology. Additional, more targeted, consultation will be undertaken as part of these studies to better understand issues, management objectives and available options.

DPIWE has been involved at the outset with review and input to the Hydro Tasmania WMR, and at all stages this review has not progressed without their endorsement. This WMR process has been made consistent with protocols for Water Management Plans (WMPs) as allowed for under the *Water Management Act* 1999, so that DPIWE may at a later stage incorporate information from this review into WMPs.

This community consultation report will be presented at a series of public meetings, and the report made available to those interested. Stakeholders will be informed of progress on technical studies through periodic newsletters, and of the results through public meetings and publicly available reports. Feedback will be sought and welcomed at all stages.

Consultation is an ongoing process and Hydro Tasmania does not wish to draw a line after which no further issues can be raised. All information derived through consultation to date or additional information that arises subsequent to release of this report will be made available to the researchers undertaking the technical studies stage of the Hydro Tasmania WMR.

## ACKNOWLEDGMENTS

The Hydro Tasmania Water Management Review for the South Esk – Great Lake catchment areas is being undertaken by Hydro Tasmania’s Environmental Services Group.

The project is managed by Dr. Helen Locher, and the first two stages of the review have been co-ordinated by Ms. Helga Pirzl. Both Helga and Helen have co-authored this report.

The assistance of Noel Carpenter, Duncan Wheeler and Chris Thompson (of Serve-Ag) with aspects of the community consultation process is gratefully acknowledged.

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The review and input by staff at DPIWE, notably Rob Phillips, Phil Roberts and David Fuller, at all stages of this Hydro Tasmania Water Management Review is most appreciated, as is the review of this document by staff at IFS, notably Warwick Nash.

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**INDIVIDUAL SCOPES FOR SOUTH ESK - GREAT LAKE WATER MANAGEMENT REVIEW**



# 1. INTRODUCTION

## 1.1 The Purpose of this Document

Hydro Tasmania is currently undertaking a review of its water management practices on a catchment-by-catchment basis. This project is referred to as Hydro Tasmania's Water Management Review (WMR) Project. The process is designed to be consistent with the Department of Primary Industries, Water and Environment (DPIWE) protocols for water management planning, so that outcomes of this WMR may be readily incorporated into a broader DPIWE Water Management Plan (WMP). This project will result in the development of programs for environmentally sustainable water management in each of Hydro Tasmania's major catchment groups.

This document reports on the community consultation phase of Hydro Tasmania's WMR for the South Esk – Great Lake catchment. This is the first catchment area to be reviewed by Hydro Tasmania, and is shown in Map 1. The power schemes in the catchment area are shown in Map 2.

## 1.2 Process for Hydro Tasmania Water Management Review

The WMR for the South Esk – Great Lake catchment is a multi-year project. The project comprises four stages as follows:

1. **Information Review** – This stage has been completed and was carried out by gathering background information and documenting known issues in the catchment. The outcome of this stage is a document titled *Environmental Review: South Esk – Great Lake Hydro Catchment*, which served as a starting point for the stakeholder consultation process.
2. **Community Consultation** – This stage involved consultation with the community and stakeholder groups to identify concerns and agree on important issues related to Hydro Tasmania water management in the study area. Outcomes from this stage are summarised in this document.
3. **Technical Studies** – The technical studies will research the identified issues and examine the feasibility of different options for their management. The proposed studies to be conducted during this stage are summarised in this document.
4. **Program Development** – The consolidation and program development will draw together the outcomes from the technical studies, consider the options available and propose a Hydro Tasmania program for environmentally sustainable water management of the waterways it influences. This in turn will be open to public review and feedback. Ultimately DPIWE may incorporate the Hydro Tasmania program into WMP(s) for the waterways considered in this review.

DPIWE is involved in this review throughout all its stages. They have endorsed the process outlined in this section, and review and endorse all written materials (including this report) prior to their finalisation.

## 1.3 Method for Community Consultation Stage

This document reports on the process and outcomes of Stage 2 – Community Consultation. The primary components of the consultation process (and where they are summarised in this report) are as follows:

- Stakeholder identification (section 2.1);
- Initial mail-out (section 2.2);
- Advertising the WMR and *Environmental Review* document (section 2.3);
- Distribution of the *Environmental Review* document (section 2.4);

- Issues survey (section 2.5);
- Telephone follow-up consultation (section 2.7); and
- Site visits follow-up consultation (section 2.8).

The results of the consultation are summarised in this report, and will also be presented to stakeholders at public meetings.

The primary objective of the consultation process was to identify the range of issues, and to obtain a general indication of the level of community concern there is for each issue. Quantitative information was not the main focus of the consultation. The consultation methods allowed for a large amount of flexibility so that the information from the stakeholders could be provided through telephone discussions and personal contact as well as by filling out survey forms. Because of the nature of the information obtained from the consultation, the method for interpreting the results was therefore mostly qualitative.

## **1.4 Structure of this Document**







In this introductory section of the report, the purpose of this document has been outlined, the overall process and the method used in the consultation process are described, and the structure of this document is summarised.

In the following section of this report (section 2), the consultation process and level of response is summarised. The issues survey results are summarised in section 3. Section 4 outlines the proposed technical studies, and section 5 describes the next stages of the WMR.



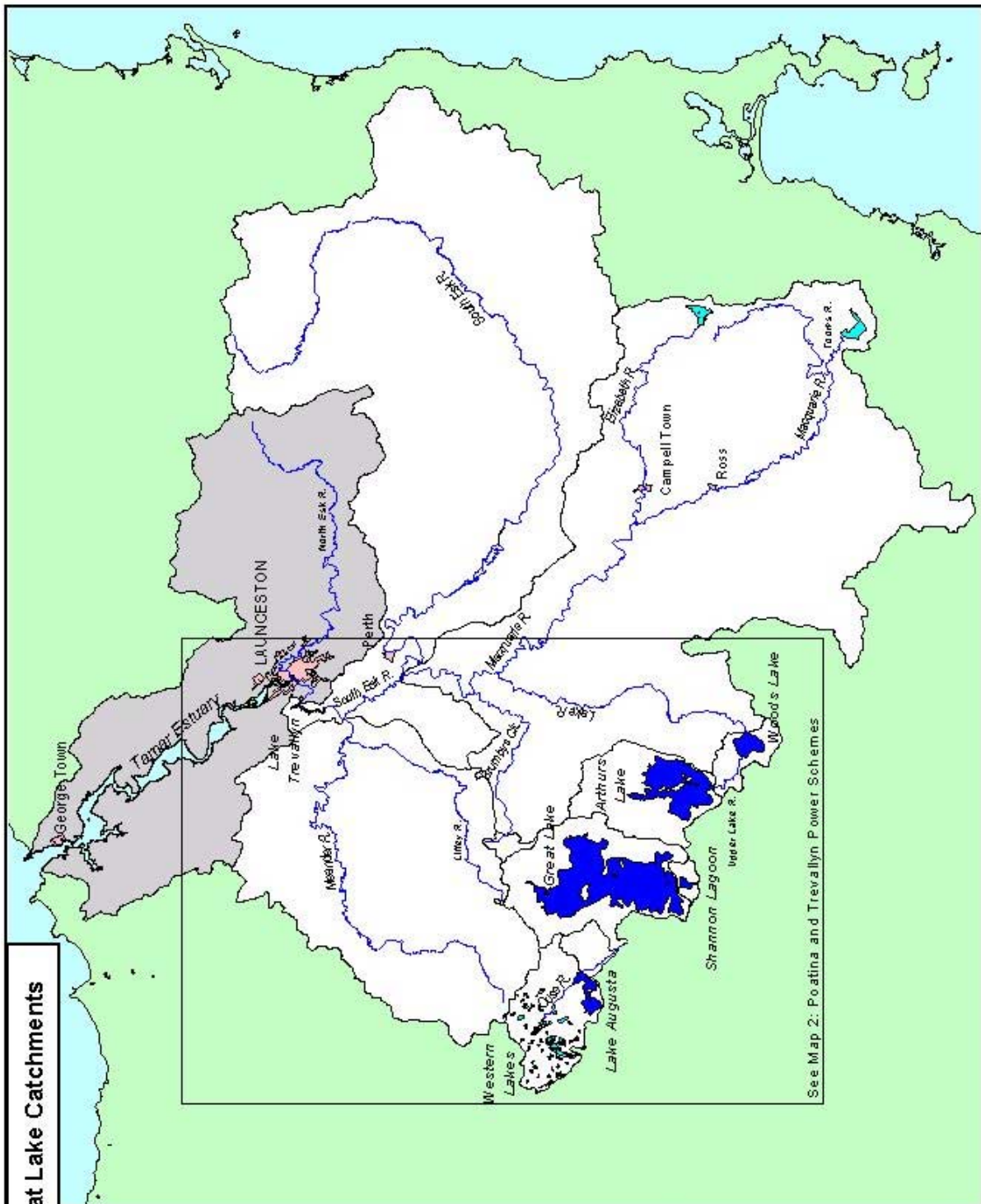
**Map 1. South Esk and Great Lake Catchments**

**Legend**

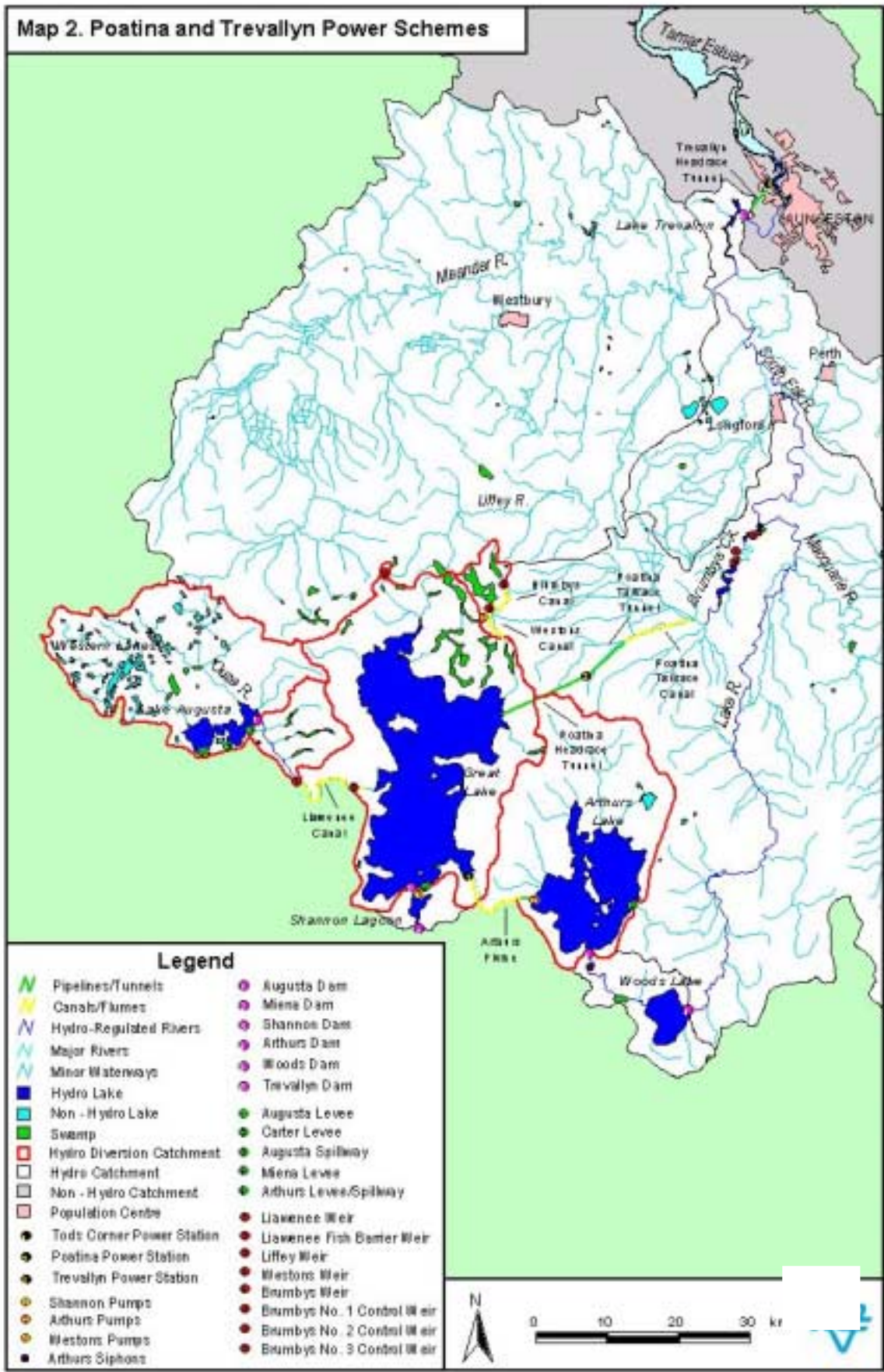
-  Major Rivers
-  Hydro Lake
-  Non - Hydro Lake
-  Hydro Catchment
-  Non - Hydro Catchment
-  Population Centre



**Locality Map**



**Map 2. Poatina and Trevallyn Power Schemes**



**Legend**

- |                             |                            |
|-----------------------------|----------------------------|
| Pipelines/Tunnels           | Augusta Dam                |
| Canals/Flumes               | Miens Dam                  |
| Hydro-Regulated Rivers      | Shannon Dam                |
| Major Rivers                | Arthurs Dam                |
| Minor Waterways             | Woods Dam                  |
| Hydro Lake                  | Trevallyn Dam              |
| Non - Hydro Lake            | Augusta Levee              |
| Swamp                       | Carter Levee               |
| Hydro Diversion Catchment   | Augusta Spillway           |
| Hydro Catchment             | Miens Levee                |
| Non - Hydro Catchment       | Arthurs Levee/Spillway     |
| Population Centre           | Lawrence Weir              |
| Todd's Corner Power Station | Lawrence Fish Barrier Weir |
| Poatina Power Station       | Liffey Weir                |
| Trevallyn Power Station     | Westons Weir               |
| Shannon Pumps               | Brumbys Weir               |
| Arthurs Pumps               | Brumbys No. 1 Control Weir |
| Westons Pumps               | Brumbys No. 2 Control Weir |
| Arthurs Siphons             | Brumbys No. 3 Control Weir |



## 2. THE CONSULTATION PROCESS

### 2.1 Stakeholder Identification

One of the first steps in the consultation process was to compile a list of stakeholders. The list attempted to cover as many stakeholders as could be identified and included individuals, interest groups, local Council officers and officers from relevant State Government departments. The initial stakeholder list included over 200 stakeholders and was a first pass, with the intention being to build on this list as more stakeholders were identified throughout the process. The initial list was derived from a systematic review of the following:

- riparian land titles on the Lake River and Brumbys Creek;
- riparian land holders on the lower South Esk River and Macquarie River who were identified through the DPIWE Landcare officer;
- a review of stakeholder lists from previous Hydro Tasmania consultation projects in the Brumbys Creek and lower Macquarie River area;
- Landcare groups;
- irrigation groups;
- stakeholders who had attended DPIWE Protected Environmental Values (PEV) setting meetings for waterways within the catchment;
- local and State government officers; and
- recreational groups (e.g. fishing clubs and tour operators, shack owners associations etc.).

### 2.2 Initial Mail-out

The first mail-out was sent to all stakeholders on the initial stakeholder list in January 2000. Other stakeholders were sent this mail-out as they were identified. In total, the initial mail-out was sent to 225 stakeholders.

The primary aims of the initial mail-out were to inform stakeholders about the WMR and invite them to be involved, to gauge the level of community interest, and to identify additional stakeholders.

The material sent in the initial mail-out is shown in Appendix A. It included the following:

- a covering letter describing the WMR and the process being undertaken;
- a brief questionnaire which asked whether the stakeholders wished to remain informed about the WMR, whether they would like to be involved in the consultation process and for confirmation of contact details;
- a list of interest groups already on the list (so that stakeholders could suggest new groups);
- a brochure describing the WMR process and the *Environmental Review* document (key interest groups and government officers were sent the document itself); and
- a reply-paid envelope.

### 2.3 Advertising

The WMR process and the *Environmental Review* document were advertised in January 2000 in *Tasmanian Country*, the *Advocate*, the *Examiner*, the *Mercury* and *Around the Region*. The advertisements that were placed are shown in Appendix B.

The advertisements were intended to reach any interested parties who were not included in the stakeholder list. The aim of advertising was to alert the public to the fact that Hydro Tasmania was undertaking this



project, to invite members of the community to participate in the WMR and to distribute the *Environmental Review* document.

There were 22 responses to the newspaper advertising.

## 2.4 Distribution of the *Environmental Review*

Production of the document, *Environmental Review: South Esk – Great Lake Hydro Catchment* was the main component of the information review stage of the South Esk – Great Lake WMR. The 82-page report was released to the public in December 1999 and can be viewed on Hydro Tasmania's website at <http://www.hydro.com.au>.

The *Environmental Review* document is a summary of background information and existing data for the catchment, and canvasses known environmental issues related to Hydro Tasmania water management, as well as other identified issues in the catchment. It therefore provided a useful starting point for the South Esk – Great Lake WMR and the free distribution of this document formed a major part of the stakeholder consultation.

The number of copies of this document that were distributed as part of the consultation process was in the vicinity of 110. One third of these were mailed to selected stakeholders with the initial mail-out (for instance Landcare group representatives and government officers). Most of the remaining documents were mailed to other stakeholders who requested copies in their response to the initial mail-out and 19 copies were distributed to people who called in response to the advertisements.

Feedback on the *Environmental Review* document was consistently positive. An additional 100 copies were distributed through internal and external liaison not directly related to this work. It is intended to update this document every 5 years, which will benchmark improvements to environmental issues as they are addressed.

## 2.5 Issues Survey

Additional stakeholders were identified as a result of contacting the stakeholders on the initial mailing list, and through the advertising process. The initial stakeholder list was therefore added to and refined throughout the consultation process. The refined mailing list comprised only those stakeholders who had indicated they wished to be involved in the consultation process, or remain informed of the progress of the WMR.

In February 2000, a second mail-out was sent to stakeholders on the refined mailing list who had indicated on their initial questionnaire that they wished to receive the issues survey. Most surveys were mailed in February, however surveys continued to be mailed out as the initial questionnaires were returned. In total, 119 stakeholders received the issues survey.

The aim of the second mail-out was to obtain information by survey on the main issues and areas of community concern with regard to Hydro Tasmania's water management, and ask for suggestions as to how Hydro Tasmania's water management practices could be changed to assist these concerns. Information was also sought on how other influences might impact on the issues identified, and whether there might be other management options (non-Hydro Tasmania) to address these issues.

The material sent in the second mail-out is shown in Appendix C, and included the following:

- a cover letter;
- a survey of water management issues in the catchment; and
- a reply paid envelope.

## 2.6 Response to the Written Consultation

### 2.6.1 Response to the Initial Questionnaire

A total of 107 respondents (48% of the 225 on the initial mailing list) returned the initial mail-out. Almost all respondents wished to remain informed of the progress of the WMR, and to be involved in the consultation process. Table 1 shows the stakeholder groups who were sent the survey and the percentage of respondents from each group.

**Table 1 Stakeholder Groups Responding to the Initial Mail-out Questionnaire**

Stakeholder Group	Initial Mail-outs Sent		Responses to the Initial Mail-out	
	Number	% of Initial Sample	Number	% of Initial Sample
Anglers/Fishing Clubs	18	8%	9	4%
Farmers/Irrigators/ Agricultural Groups	99	44%	54	24%
Government/Council Officers	45	20%	19	8.4%
Community Groups (e.g. Landcare, Waterwatch etc)	36	16%	13	5.8%
Conservation Groups/ Organisations	8	3.6%	6	2.7%
Other	19	8.4%	6	2.7%
Total	225	100%	107	47.6%

Of the 107 stakeholders who responded to the initial questionnaire, 104 wished to remain listed on the stakeholder database.

In the initial questionnaire, stakeholders were given the option to indicate whether or not they wished to be contacted by telephone or personal visit, assuming that not everyone is comfortable with responding to written questionnaires. 53% of the 104 respondents wanting to remain listed were satisfied with being informed of the process and providing input through written correspondence. 13% indicated that they wanted to communicate by telephone and 6% through personal visits. The remaining respondents (28%) wanted to communicate through a combination of two or more of these consultation methods.

Virtually all the 104 respondents who wanted to remain on the stakeholder database wished to receive the issues survey (96%) and most were also interested in attending a public meeting at a later date to hear the results of the consultation process (89%).

The initial questionnaire also asked the stakeholders to indicate the best places to advertise information relating to the WMR (e.g. the public meetings that are planned for later in this review process). The best places to advertise were indicated to be local and agricultural newspapers, in particular the *Examiner* and *Tasmanian Country*. Several respondents also mentioned the *Western Tiers* and the *Mercury*. Informing through interest group newsletters and direct mail were also considered to be effective. Other means of advertising suggested by a small number of respondents included radio, fax, phone, e-mail and window notices.

## 2.6.2 Response to the Issues Survey

As stated in section 2.5, the mailing list was refined based on responses to the initial questionnaire, and an issues survey was sent out to those on the refined mailing list. Some additional stakeholders who had indicated their interest in contributing to the consultation process, but had not necessarily received or returned the initial questionnaire, were added to the refined mailing list and were sent the issues survey.

49 respondents (41% of the 119 stakeholders on the refined mailing list) returned the issues survey. Table 2 shows the stakeholder groups that were sent the survey and the percentage of respondents from each group. More information on the issues and concerns raised is provided in section 3 of this report.

**Table 2 Stakeholder Groups Responding to the Issues Survey**

Stakeholder Group	Issues Surveys Sent		Responses to the Issues Survey	
	Number	% of Surveys Sent	Number	% of Surveys Sent
Anglers/Fishing Clubs	15	12.6%	13	10.9%
Farmers/Irrigators/ Agricultural Groups	57	48%	24	20.2%
Government/Council Officers	20	16.8%	6	5%
Community Groups (e.g. Landcare)	15	12.6%	4	3.4%
Conservation Organisations	6	5%	1	0.8%
Other	6	5%	1	0.8%
<b>Total</b>	<b>119</b>	<b>100%</b>	<b>49</b>	<b>41.1%</b>

## 2.7 Telephone Consultation

Telephone calls were made to the 38 stakeholders who indicated in their initial questionnaire that they wanted this type of communication. 74% (28) were contacted, however the remainder (10) were not contactable within the time frame of writing this report. Those stakeholders who were successfully contacted were invited to discuss any issues they wished to raise (including any issues already raised through their survey responses). Efforts will still be made to contact the remaining 10 stakeholders, and their issues will be passed on to the researchers studying the relevant waterways during the technical studies stage of the WMR. The issues discussed in the telephone consultation are included in section 3 of this report.

## 2.8 Personal Visits

All 22 stakeholders who indicated that they wished to receive personal site visits to discuss issues were called following the survey and phone consultation to determine whether they still wished to be visited to further discuss issues. All but two were successfully contacted. The majority of these people were satisfied that they had covered their issues adequately through the other forms of communication and did not want a personal visit. The final number of people to receive personal visits was six. Attempts to contact the remaining two stakeholders will continue.

The follow up visits are being made by Mr. Chris Thompson of Serve-Ag, concurrently with consultation being undertaken for Basslink (see section 2.9.3). Issues raised from these visits will be fully documented by



the WMR team and provided to the researchers undertaking the technical studies on the relevant waterbodies.

## 2.9 Concurrent Consultation and Water-Related Initiatives

### 2.9.1 Water Management Plans

This Hydro Tasmania WMR is only one of a number of water management initiatives occurring in Tasmania. It is being conducted in co-operation with the intent of the *Water Management Act 1999*, an act which encourages sustainable water management and allows for the development of WMPs.

Stakeholders in the upper Macquarie and South Esk catchments will be aware of a program currently being undertaken by DPIWE to develop WMPs in their catchments, including the setting of environmental flows. These stakeholders have been invited to participate in the Hydro Tasmania WMR, because they are included in the area covered by Hydro Tasmania's water licence under the new Act. Hydro Tasmania representatives have gone to a number of the water management planning meetings in these catchments to further their understanding of concerns and issues related to Hydro Tasmania water management practices lower in the Macquarie-South Esk catchments.

Ultimately WMPs may be developed by DPIWE for all the waterways being assessed in this WMR, utilising much of the information collected through this WMR.

### 2.9.2 Protected Environmental Values

DPIWE held a series of public meetings to set Protected Environmental Values (PEVs) for waterways affected by Hydro Tasmania operations in the South Esk – Great Lake catchment area. These meetings were held in December 1999 and March 2000. The setting of PEVs are a requirement under the *State Policy on Water Quality Management 1997*, which has force of law under the *State Policies and Projects Act 1993*. The PEVs will be shown in local government planning schemes.

The next stage under the State Policy on Water Quality Management will be to set Water Quality Objectives (WQOs). These are the actual standards for water quality that individual waterways should achieve. At this stage the timetable for setting WQOs in the South Esk – Great Lake catchment has not been determined by DPIWE.

### 2.9.3 Basslink Environmental Investigations

Hydro Tasmania is currently conducting a suite of studies to investigate environmental impacts to Tasmanian waterways which could arise if Tasmania is connected to the National Electricity Market via a Basslink transmission cable.

A document which provides a broad picture of the anticipated changes to Hydro Tasmania operations with Basslink is available on the can be found on the Hydro Tasmania web site at <http://www.hydro.com.au>. The document is called "Scoping Report: Basslink Aquatic Environmental Project" and it is located in "The Environment" area of the web site, under "Reports and Documents".

The major changes to Hydro Tasmania operations are expected to affect the Gordon and Poatina power stations. Water level fluctuations affecting Great Lake are anticipated to be within historical parameters, with a slight "flattening" of the operation in comparison with historical. The operation of the Poatina power station is anticipated to experience increased occurrences of "on-off" operation, more full capacity discharge, and a seasonal shift involving more winter discharge than historical. The rates of water level rise and fall downstream of Poatina predicted under Basslink are no different to current rates. No changes are anticipated for Arthurs Lake, Woods Lake or the Lake River under Basslink.

Hydro Tasmania has several studies underway downstream of the Poatina power station investigating the implications of these projected changes. These studies include geomorphology (i.e. erosion, siltation and bank stability), water quality and instream biota (including fish and macroinvertebrates). Hydrological

analyses are underway to obtain more detail on the downstream effects of the predicted power station changes. An assessment of flood risks and adequacy of current flood rules is being undertaken. Feasibility of options to mitigate any potential impacts due to Basslink are being investigated. The Basslink studies should be complete by the end of September 2000. These studies will provide valuable information to this WMR, since many of the Basslink issues are also likely to be issues under current power station operations.

Stakeholders extracting water downstream of the Poatina power station were being consulted during June and July 2000 about effects the predicted Basslink changes to Poatina could have on their properties and individual land/water usage. Mr. Chris Thompson of Serve-Ag has been undertaking this consultation. All information gained from this consultation (on both current and Basslink water management issues) will be available to the Hydro Tasmania WMR team.

Hydro Tasmania is fully committed to honouring any existing environmental obligations and agreements related to its water management practices whether or not the Basslink development proceeds. Basslink operation of the Hydro Tasmania system would not override these obligations and agreements.

Additional information related to potential Basslink changes and outcomes of the environmental studies will be made accessible to the general public as it becomes available. This is anticipated to be within the next six months. Reports from the Basslink environmental investigations will be placed on the Hydro Tasmania web site. Hydro Tasmania is currently formulating a communications plan for its Basslink environmental studies to ensure information is made available to those interested.

All aspects of the Basslink cable will be assessed by a 'Joint Advisory Panel' comprising representatives of the Commonwealth, Victorian and Tasmanian governments. This assessment process is likely to commence at the end of this calendar year. All information being considered for assessment will be made available to the general public, and members of the public are able to make submissions on any aspects of Basslink.

## 3. ANALYSIS OF SURVEY INFORMATION

### 3.1 General

The issues and concerns raised through the WMR consultation process are outlined in this section. Concerns raised to date in relation to possible future water management changes (e.g. Basslink) and those that relate to other catchment practices have also been noted. These concerns will be passed on to the relevant agencies, so that they are aware of these concerns when undertaking catchment planning.

The issues raised during the consultation process have been summarised for each waterway in turn. It should be noted that the issues and suggested management options are summarised directly from the stakeholder surveys, and therefore reflect the feelings of the stakeholders as an entire group. As a result, in some instances, opposite issues and suggestions have been raised. The purpose of this report is simply to document all issues and suggestions raised by stakeholders.

The results from the surveys have been loosely quantified, and any additional issues raised as part of the follow-up consultation have been noted. Issues raised by the same respondent but relating to different waterways were treated as separate responses. Therefore one stakeholder may have submitted several responses. Where additional issues have been identified through telephone calls and personal visits, these have also been summarised. The full details of any written or verbal consultation related to a particular waterbody will be passed along to the researchers assessing that waterbody, in the technical studies stage of this WMR.

This report presents information gained in time for the publication of this document. Consultation is an ongoing process and Hydro Tasmania does not wish to draw a line after which no further issues can be raised. It is anticipated that further information will arise from the personal visits and Basslink consultation being undertaken by Chris Thompson of Serve-Ag. Issues may also be raised in response to any perceived omissions or errors in the information presented in this report or at the subsequent public meetings. All information derived through consultation to date or subsequent to release of this report will be made available to the researchers undertaking the technical studies stage of the Hydro Tasmania WMR.

The waterways that are addressed in turn in the following sections are:

- Lake Augusta
- Great Lake
- Arthurs Lake
- Woods Lake
- Upper Lake River
- Lake River below Woods Lake
- Brumbys Creek
- Downstream of Upper Brumbys and Westons weirs
- Macquarie River between Lake River & Brumbys Creek
- Macquarie River Between Brumbys Creek & South Esk River
- South Esk River
- Lake Trevallyn
- Cataract Gorge
- Tamar Estuary
- Upper Macquarie and South Esk catchments (upstream of the influence of Poatina)

Catchment-wide concerns are also summarised.

## 3.2 Lake Augusta

### 3.2.1 Responses

There were two responses from the issues survey regarding Lake Augusta. Both of these responses were from anglers. There were no specific issues for Lake Augusta raised through the telephone consultation.

### 3.2.2 Concerns

The issues raised by survey respondents regarding Lake Augusta were related to fishing quality and amenity. One concern was that the current summer water levels behind Augusta Dam should continue to be maintained for fishing in the future. The second issue raised was that access to the Western Lakes is cut off when Lake Augusta spills across the access road, and this is seen as a particular problem when it occurs at times when the fishing is good at the Western Lakes.

Both respondents rated their level of concern as “moderate”.

### 3.2.3 Management Options Suggested by Respondents

In the issues survey, respondents suggested management options for Hydro Tasmania to address stakeholder concerns. The suggestions included making no change to the management of the summer water levels behind Augusta Dam. A suggestion to help improve access to the Western Lakes was to release more water through the valve into the Ouse River to prevent the lake spilling across the road.

Suggested management options not under Hydro Tasmania control were for the Parks and Wildlife Service to leave an access gate open in September and October to improve access to the Western Lakes.

### 3.2.4 Other Issues to Consider

Other environmental issues at Lake Augusta of which Hydro Tasmania should be aware were identified in the document *Environmental Review: South Esk – Great Lake Hydro Catchment* (mentioned in section 2.4 of this report) and/or raised by reviewers of this report. These issues include:

- wind-blown sand dunes on the lake shore – these are geologically significant and potentially contain aboriginal heritage features;
- riparian vegetation around the lake margin;
- the threatened fish species *Paragalaxias julianus*; and
- the noxious aquatic weed *Elodea canadensis*.

## 3.3 Great Lake

### 3.3.1 Responses

Issues at Great Lake were raised in two of the issues survey responses. One response was from an angler and the other was from a Parks and Wildlife Service ranger. One stakeholder also raised concerns regarding Great Lake during the telephone consultation.

### 3.3.2 Concerns

Fishing concerns related primarily to lake levels. Low lake levels and rapid drops in lake levels were particularly an issue for boating safety, as submerged stumps and rocks may occur to just below the surface resulting in danger areas. There was a concern that low lake levels occur more often as a result of water being used for purposes other than power generation (e.g. irrigation in the Cressy-Longford region).

A concern was raised that natural habitats and flora and fauna should be protected. Care should be taken so that the introduction of pest species such as redfin perch to Great Lake does not occur.

Camping close to the lake shore was raised as an issue. Littering, unattended fires and lack of toilet facilities were all cited as related problems.

Both issues survey respondents rated their level of concern as “very high”.

### 3.3.3 Management Options Suggested by Respondents

In the issues survey, respondents suggested management options for Hydro Tasmania to address stakeholder concerns. Suggestions included working with the Inland Fisheries Service to highlight trees and rocks for boat safety, and restricting camping on Hydro Tasmania land to designated camping areas at least 30 metres from the lake shore.

Suggested management options not under Hydro Tasmania control included the construction of storage dams by farmers in the Cressy-Longford area to reduce the likelihood of low lake levels in summer, and the provision of toilet facilities by appropriate authorities at camping areas and other selected sites around the lake.

### 3.3.4 Other Issues to Consider

Other environmental issues at Great Lake of which Hydro Tasmania should be aware were identified in the document *Environmental Review: South Esk – Great Lake Hydro Catchment* (mentioned in section 2.4 of this report) and/or raised by reviewers of this report. These issues include:

- the unique algal beds in Great Lake which harbour some threatened species;
- the habitat requirements for trout, native fish and macroinvertebrate fauna as they relate to lake levels;
- potential for translocation of species to and from Great Lake;
- possible erosion of the western shoreline of Great Lake, which may impact on known Aboriginal sites in the area; and
- lake access issues.

## 3.4 Arthurs Lake

### 3.4.1 Response

Nine respondents raised issues for Arthurs Lake through the issues survey. Eight of the respondents were anglers and one was a Parks and Wildlife Service ranger. One respondent also noted issues at Arthurs Lake during the telephone consultation.

### 3.4.2 Concerns

The main issue at Arthurs Lake for anglers was the lake level. Some respondents believed that under the current minimum lake level agreement the lake is too low (particularly in summer) causing the shallow bays to be exposed. This was thought to have adverse effects on the biota and trout food chain. Some respondents believed that a 0.82 m difference in the lake level makes a critical difference to the fishery. Low lake levels were also cited as being a problem for boating safety due to submerged stumps and rocks close to the surface. There were concerns that the incidence of low lake levels is increased by excessive pumping of water from Arthurs Lake into Great Lake during summer, and by the use of water for purposes other than power generation (e.g. irrigation in the Cressy-Longford region).

Some respondents were happy with the current agreed minimum lake level, but were concerned that the agreement may not be secure, and could be changed in the future. The future of the lake level agreement was of particular concern in relation to potential changes in system operation due to Basslink. Some respondents believed that under Basslink, there would be increased economic incentive for Hydro Tasmania to draw the lake down.

Camping close to the lake shore was raised as an issue. Littering, unattended fires and lack of toilet facilities were all cited as related problems.

Five issues survey respondents rated their level of concern as “very high”, two as “high”, one as “moderate” and one as “low”.

### 3.4.3 Management Options Suggested by Respondents

In the issues survey, respondents suggested management options for Hydro Tasmania to address stakeholder concerns. A number of respondents indicated that there should be no change to lake level management and that management over the last 2-3 seasons has resulted in “fantastic fishing conditions”. These respondents indicated that providing Hydro Tasmania adheres to the agreed minimum level, anglers are generally happy. However, other respondents suggested that the minimum agreed level (948 mASL) should be raised. Two specific levels were suggested, 949 mASL, or 949.82 mASL (3 m below FSL).

Those respondents who were concerned that the agreement may be changed in the future, suggested that it should be made more concrete prior to Basslink, to ensure that the recreational trout fishery is protected.

It was suggested that water should be pumped into Great Lake regularly throughout the year (rather than as a summer activity) and it was thought that this would reduce pressure on the level of Arthurs Lake in summer.

In relation to boating safety, the suggestions were that Hydro Tasmania and the Inland Fisheries Service should work together to highlight dangerous trees and rocks to give warning of danger areas (use of buoys etc.).

A suggestion for Hydro Tasmania to address camping issues was to restrict camping on Hydro Tasmania land to designated camping areas at least 30 metres from the lake shore.

Suggested management options not under Hydro Tasmania control included the construction of storage dams by farmers in the Cressy-Longford area to reduce the likelihood of low lake levels in summer. Provision of toilet facilities by appropriate authorities at camping areas and other selected sites around the lake was also suggested.

### 3.4.4 Other Issues to Consider

Hydro Tasmania also needs to be aware of the occurrence of the threatened species (*Galaxias tanycephalus* and *Paragalaxias mesotes* in Arthurs Lake. This issue was identified in the document *Environmental Review: South Esk – Great Lake Hydro Catchment* (mentioned in section 2.4 of this report).

## 3.5 Woods Lake

### 3.5.1 Response

Four respondents raised issues at Woods Lake. Three of the respondents were adjacent and downstream riparian landowners and one respondent was an angler. No specific issues regarding Woods Lake were raised through the telephone consultation.

### 3.5.2 Concerns

Respondents to the issues survey raised a number of concerns for Woods Lake. Water quality was a common issue for anglers and for riparian users downstream on the Lake River. The primary water quality concern was high turbidity related to low lake levels. Low lake levels were also noted as being a problem for boating safety.

Management of releases from Woods Lake was an issue for downstream riparian irrigators. There was also a concern that Basslink could affect the management of Woods Lake to the detriment of recreational users.



Two of the issues survey respondents rated their level of concern as “very high”, one respondent rated it as “high” and one respondent rated it as “moderate”.

### 3.5.3 Management Options Suggested by Respondents

In the issues survey, respondents suggested management options for Hydro Tasmania to address stakeholder concerns. Suggestions included maintaining higher water levels in Woods Lake, possibly by releasing water into Woods Lake from Arthurs Lake. Continued consultation with downstream irrigators and the automation of the release valve from Woods Lake into Lake River were thought to be good strategies to address issues related to downstream irrigation supply.

It was also suggested that Hydro Tasmania and other relevant organisations (e.g. Inland Fisheries Service) work together on putting up boating warnings in areas that are hazardous at low lake levels.

### 3.5.4 Other Issues to Consider

Hydro Tasmania also needs to be aware of the occurrence of the threatened fish species (*Galaxias tanycephalus* and *Paragalaxias mesotes* in Woods Lake.

## 3.6 Upper Lake River

### 3.6.1 Response

There was only one response that raised issues with the upper Lake River. The respondent was a riparian landowner downstream of Woods Lake. No specific issues regarding the upper Lake River were raised through the telephone consultation.

### 3.6.2 Concerns

The issues raised for the upper Lake River related primarily to water availability in Woods Lake and the lower Lake River. The respondent was concerned that as a result of diversion of the water from Arthurs Lake into Great Lake and Lagoon of Islands, and insufficient releases from Arthurs Lake into the upper Lake River, this could lead to less available water supply in Woods Lake.

The issues survey respondent rated their level of concern as “high”.

### 3.6.3 Management Options Suggested by Respondents

In the issues survey, respondents suggested management options for Hydro Tasmania to address stakeholder concerns. The only suggestion for the upper Lake River was to implement a minimum flow release from Arthurs Lake.

### 3.6.4 Other Issues to Consider

Hydro Tasmania also needs to be aware of the possible occurrence of the threatened fish species (*Galaxias tanycephalus* and *Paragalaxias mesotes* in the upper Lake River. This issue was identified in the document *Environmental Review: South Esk – Great Lake Hydro Catchment* (mentioned in section 2.4 of this report).

## 3.7 Lake River below Woods Lake

### 3.7.1 Response

Nine survey respondents raised issues for the Lake River below Woods Lake. All the respondents were riparian landowners. Five stakeholders also raised issues for the Lake River through the telephone consultation.

### 3.7.2 Concerns

The primary issues raised for the Lake River were the security and quality of water supply for riparian irrigators. Respondents were unhappy that Hydro Tasmania diverts water from the upper catchment of the Lake River, and perceive that this reduces the amount of water available to them for irrigation during summer. Respondents were also concerned that the control of water releases from Woods Lake is inefficient and therefore the water that is available for irrigation can not be used to maximum effect.

Some respondents were very concerned that the amount of water legally available to riparian irrigators would be changed under new legislation and agreements, and would not be sufficient for their needs. One respondent was concerned that Hydro Tasmania should continue provide all reasonable requirements for irrigators in the Lake River. Respondents were also concerned about how Basslink would affect water availability for riparian irrigators and recreational users.

A number of respondents were concerned about inequitable distribution of available water among individual farming enterprises. The main concern was that diversion of water into private channels results in less water available for irrigation on other properties. On the other hand, a concern was raised that one private channel is prone to drying up because its junction with Lake River is blocked with weeds.

Some respondents were concerned with the quality of water released from Woods Lake for riparian use, as a result of low lake levels encouraging high turbidity and algal blooms. Respondents commented that water in the Lake River is often not fit for human consumption. Erosion and river bank management were also raised as issues.

Six issues survey respondents rated their level of concern as “very high”, one as “high” and two as “moderate”.

### 3.7.3 Management Options Suggested by Respondents

In the issues survey, respondents suggested management options for Hydro Tasmania to address stakeholder concerns. Suggestions included more efficient management of releases from Woods Lake. Steps currently taking place between Hydro Tasmania and the Lake River Irrigators Committee were seen as a positive means of addressing this. Suggestions to achieve more efficient management of the releases were to install an automatic or remote control valve at Woods Dam for more timely control of releases, and a quicker response to release or shut-off water according to peaks in irrigation needs or rainfall. Releasing water from Arthurs Lake to increase the amount of water available in Woods Lake was also suggested.

Suggestions also included raising the level of Woods Lake and/or maintaining the minimum agreed level to improve water quality by decreasing turbidity. Maintenance of a constant flow in the Lake River was suggested to reduce fluctuations in the river level and therefore decrease turbidity and erosion. It was also suggested that Hydro Tasmania should clear some of the weeds from the river to allow flows into private channels from the Lake River.

Suggestions for management options not under Hydro Tasmania control included local support for the Lower Macquarie Landcare group, establishment of effective irrigation practices by farmers (e.g. pivot versus flood irrigation), and establishing acceptable water use within the amount of water available. Instream works to prevent erosion, such as baffles, riffles and other rock work were also suggested.

## 3.8 Brumbys Creek

### 3.8.1 Response

Eleven respondents noted issues for Brumbys Creek. Five respondents were landowners, five were anglers and one was in the aquaculture industry. Eight stakeholders also raised issues for Brumbys Creek through the telephone consultation.

### 3.8.2 Concerns

Issues raised for Brumbys Creek were varied, however a common concern for all stakeholder groups was the fluctuating river level, both under the current flow regime and future changes as a result of Basslink. Respondents were concerned that the water level fluctuations contribute to bank erosion, resulting in loss of land and stock. While erosion was a concern to some respondents, others thought that it was being satisfactorily addressed. Erosion was also linked to high turbidity and poor water quality, which was thought to impact on the instream biota and the trout food chain (and therefore the fishery). Fluctuating levels were also thought to have a negative effect on fishing success by the fish being flushed down the river with higher flows. Respondents were also concerned about damage to irrigation and domestic pumps as a result of pump intakes being left out of the water when levels drop and sucking in air, and also as a result of taking in particles in suspension. Respondents were concerned that the fluctuations would increase as a result of Basslink and therefore erosion, siltation and water quality would become worse.

A significant concern raised was that if Poatina is run during and after local flood events, the flooding is exacerbated and causes the water to back up into Palmers Rivulet, which could result in major loss of sheep. Stakeholders believed that the problem is caused by there being no means of communicating flood information to decision makers and no provision for decisions to be made about power station operation on a local level.

Concern was expressed that during some summers if Poatina is not often run, the water levels become very low, which can result in algal blooms behind the top weir in Brumbys Creek. In addition, exposure of the mud flats during times of low water levels was thought to interfere with the breeding of mayflies and therefore may have a negative impact on the fishery.

Water quantity and quality for riparian use (domestic and stock use) and riparian irrigators was noted as a concern, with water often too dirty for human use. An issue was raised with the quantity, quality and affordability of water for the Cressy-Longford Irrigation Scheme. The concerns were that the current agreement with the Cressy-Longford irrigators does not provide enough security with regard to cost and water supply.

Water quality was raised as a concern by anglers and aquaculture. The main concern was that water quality is being affected by run-off from forestry areas and farmland. Farming practices such as stock watering on banks, run-off of fertilisers and pesticides, dead stock left in water and diesel spills can all contribute to poor water quality. A concern was also raised with regard to the potential effects of aquaculture on water quality and fish disease.

Willows and other weeds were thought to be a problem, although some respondents thought that this was being addressed satisfactorily. In relation to weed encroachment, siltation was raised as an issue. The willow problem was thought to be exacerbated by duck hunters “planting” willows by using branches for hides.

High water levels in Brumbys Creek during summer were thought to result in salinity encroachment onto pastures.

Four of the issues survey respondents rated their level of concern as “very high”, four as “high”, two as “moderate” and one as “very low”.

### 3.8.3 Management Options Suggested by Respondents

In the issues survey, respondents suggested management options for Hydro Tasmania to address stakeholder concerns. Included in these suggestions was to reduce the fluctuation in water levels and implement a more appropriate flow regime to protect the fishery and help prevent erosion. A system of weirs was suggested to help to maintain a more constant water level, as was bank shielding to protect from erosion. It was suggested that the current flow regime should be retained due to its suitability for aquaculture, and a number of stakeholders made comment that no change should be made to the flow regime as a result of Basslink.

It was suggested that summer water levels should not be allowed to remain continually low, so as to prevent algal blooms behind the top weir (i.e. during some summers when Poatina has not been often operated). In addition, raising the top weir by 30 cm was recommended to prevent exposure of mud flats, and subsequent decline in mayflies. A “level agreement” for Brumbys Creek or a constant sufficient flow was also suggested to maintain the fishery. Anglers also felt that access to information (e.g. a well-publicised telephone number to ring) regarding the heights of popular rivers and lakes would be very useful.

During times of flooding, it was suggested that Poatina should be shut down to minimise the magnitude of flood events. It was suggested that the best way of approaching this would be to establish better communication channels. A previous locally-based communication system was thought by stakeholders to have worked more effectively.

A suggestion was made to draw up a new supply agreement for the Cressy-Longford Irrigation Scheme, in consultation with the irrigators, which would provide for more security in terms of supply and affordability.

Liaison between Hydro Tasmania and stakeholder groups was seen as important in relation to water level fluctuations (fishing groups) and erosion and weed control (Landcare groups and landowners). Removal of willows from the main channel was also suggested to improve water flow.

Suggested management options not under Hydro Tasmania control included changes to some farm management practices. Suggestions included changing stock watering practices to help reduce erosion (e.g. fencing off river banks and creating watering points off river), reducing the amount of fertilisers washing into the waterway by not allowing crops to be grown close to the river, and removing willows.

## **3.9 Back Creek**

### **3.9.1 Response**

One respondent raised issues for Back Creek. The respondent was a catchment management officer. No specific issues were raised for Back Creek through the telephone consultation.

### **3.9.2 Concerns**

The issue raised was in relation to water quality. Sewage treatment plant outfalls at Cressy and Longford contribute to high nutrients and faecal coliform levels. The respondent rated their level of concern as “very high”.

### **3.9.3 Management Options Suggested by Respondents**

In the issues survey, the respondent did not suggest any management options for Hydro Tasmania to address stakeholder concerns. However, a suggested management option not under Hydro Tasmania control was for the local council to take more responsibility for monitoring and ensuring the outfalls meet water quality guidelines.

## **3.10 Downstream of Westons and Upper Brumbys Weirs**

### **3.10.1 Response**

One respondent raised issues for waterways downstream of Westons and Upper Brumbys weirs (Westons Rivulet). The respondent was a landowner.

### **3.10.2 Concerns**

The concern raised was that during the 1999/2000 summer, Westons Rivulet was dry on several occasions and the respondent was concerned that Hydro Tasmania influences the availability of water, through having control of the upstream sources of these waterways. The respondent rated their level of concern as “very high”.

### 3.10.3 Management Options Suggested by Respondents

In the issues survey, respondents suggested management options for Hydro Tasmania to address stakeholder concerns. Suggestions were to ensure maximum availability in Westons Rivulet during the summer irrigation period, and to ensure flood control in winter and during times of heavy rainfall.

A suggested management option not under Hydro Tasmania control was that landowners in the area would eventually have to agree on a management strategy for the Brumbys/Westons region.

## 3.11 Macquarie River (Lake River to Brumbys Creek)

### 3.11.1 Response

There were three responses for the section of the Macquarie River between the Lake River and Brumbys Creek. Two of the respondents were landowners and one was an angler. No specific issues were raised for this section of the Macquarie River through the telephone consultation.

### 3.11.2 Concerns

The main concerns in the Macquarie River from the Lake River to Brumbys Creek related to water quantity. Agricultural users were concerned with future cost and availability of water for irrigation, and whether the current water rights would be maintained under new legislation and agreements (e.g. relating to the water level in Woods Lake). Respondents were concerned that a consensus could not be reached on the issues. Anglers were concerned with water quantity, and how water withdrawn for irrigation might affect the fishery.

Other concerns included erosion and degradation of the river bank associated with stock use, the quality of water used for domestic purposes (discolouration), maintenance of good water quality to protect the ecosystem and therefore the trout fishery, and litter and waste from recreational users.

Of the issues survey respondents, one respondent rated their level of concern as “very high” and two rated their level of concern as “high”.

### 3.11.3 Management Options Suggested by Respondents

In the issues survey, respondents suggested management options for Hydro Tasmania to address stakeholder concerns. Suggested options were to maintain an environmental flow in the Macquarie River, and to maintain higher levels in Woods and Arthurs lakes in wetter seasons so that a more constant moderate flow can be released in summer and autumn periods. Respondents suggested that Hydro Tasmania should provide water for irrigation from Arthurs and Great lakes. Respondents also suggested that Hydro Tasmania should supply irrigators with a reasonable quantity of water for irrigation from Woods Lake and that negotiations with the Lake River irrigators in regard to this should continue.

Suggested options, not under Hydro Tasmania control, for how to address some of the issues raised was that a balanced draw-off policy for irrigation should be developed, and that the cost of irrigation water should be borne by the community at large.

Other suggested options not under Hydro Tasmania control included changes to farm management practices. For instance encouraging fenced control lines along the river and off-river watering points to keep stock off the banks and reduce erosion, and limiting the growing of crops within leaching distance of the river to prevent run-off of pesticides and fertilisers into the river.

## 3.12 Macquarie River (Brumbys Creek to South Esk River)

### 3.12.1 Response

There were seven responses for the section of the Macquarie River between Brumbys Creek and the South Esk River. Three of the respondents were anglers and four were landowners. Three stakeholders raised issues for this section of the Macquarie River through the telephone consultation.

### 3.12.2 Concerns

Concerns for the Macquarie River between Brumbys Creek and the South Esk River, for both anglers and landowners were mostly related to fluctuations in flow.

Erosion of the river banks as a result of flow fluctuations was a concern for both farmers and anglers alike. Erosion was thought by some respondents to be exacerbated by cattle access to the river banks, and others by prolonged high flows. Water level fluctuation was also cited by several respondents as being a problem for pump intakes (causing damage when pumps are left out of the water). Respondents would like to be guaranteed of a reliable good quality water supply in the Macquarie River.

Respondents were also concerned about poor water quality caused by water level fluctuations and eroding banks. Some respondents were concerned that these problems would become worse in the advent of Basslink due to increased fluctuations, and that this would have a detrimental effect on the ecosystem, particularly the instream biota and therefore the fishery.

Water quality was also a concern with regard to farming practices. Run-off of fertilisers and pesticides, stock access to banks, dead stock left in the river and diesel spills were all of concern in relation to water quality.

Flooding was an issue raised by respondents, who were concerned that when Poatina is running, flooding is exacerbated. There were also concerns with levee banks being built along the river and altering the flows.

Three of the issues survey respondents rated their level of concern as “very high”, two as “high”, one as “moderate” and one respondent did not specify their level of concern.

### 3.12.3 Management Options Suggested by Respondents

In the issues survey, respondents suggested management options for Hydro Tasmania to address stakeholder concerns. Suggested options to address some of the issues included a reduction in fluctuations and a more even environmental flow, a lower maximum output from Poatina, and coordination of releases from Woods Lake with Poatina shutdowns. Other suggestions included stabilising of banks to prevent erosion, and provision of filters for pump intakes to prevent damage from particles in suspension.

It was suggested that Poatina should be turned off during even small floods, to prevent flooding from occurring.

One landowner indicated that they would prefer to be notified of changes to the flow approximately 48 hours prior, so that they can plan for the changes in water levels (for instance move irrigation equipment and livestock or undertake maintenance of inaccessible fences and equipment). Anglers also felt that access to information (e.g. a well-publicised telephone number to ring) regarding the heights of popular rivers and lakes would be very useful.

Suggested management options not under Hydro Tasmania control included suggestions for better stock watering practices (such as fencing and off-river watering points) and growing crops away from the river edge to reduce run-off of fertilisers and pesticides. Also suggested, was some form of bank protection (rock or vegetation) to prevent erosion.



### 3.13 South Esk River (below Macquarie River)

#### 3.13.1 Response

There were three responses that raised concerns for the South Esk River. All three respondents were riparian landowners. Four stakeholders also raised issues for the South Esk River through the telephone consultation.

#### 3.13.2 Concerns

The main issues raised for the South Esk River were related to river flow, both in relation to fluctuating water levels and flooding.

Respondents were concerned with the variability and fluctuation of flows (particularly high flows) from Poatina in relation to stream bank erosion and riparian vegetation loss. Stakeholders also had concerns that recreational use of speed boats on the river could also be contributing to erosion of the banks. Respondents noted that erosion of banks leads to loss of land, loss of stock and bogged stock, problems with fences being undermined and washed away, and water pump intakes being left out of the water to suck in air or getting clogged with mud. Respondents were concerned that they received no notification of changes to the levels in the river and were therefore not able to move irrigation equipment to prevent this. Respondents were also concerned that Basslink could further exacerbate current erosion problems.

Flooding was of concern and was thought to be exacerbated by willow growth in the river (particularly near Rutherglen) and high and variable discharges from Poatina. New levee banks further upstream were noted to have resulted in noticeably higher water levels during high rainfall periods.

Willow growth was a major concern for some respondents, causing narrowing of the channel, taking over grazing land and affecting the flood patterns. Willow growth was thought to be encouraged by higher flows from Poatina creating backwaters. Others did not want willows to be removed from the river as they saw value in willows protecting from erosion.

Respondents were concerned that water allocations remain sufficient and there was a concern that users may be required to pay for water in the future.

Two of the issues survey respondents rated their level of concern as “very high” and one rated it as “high”.

#### 3.13.3 Management Options Suggested by Respondents

In the issues survey, respondents suggested management options for Hydro Tasmania to address stakeholder concerns. Respondents suggested that the effects of the Poatina power station are not limited to the Macquarie River and Brumbys Creek, and that Hydro Tasmania should recognise this by contributing to river management activities. It was suggested that Hydro Tasmania could do this by working with landowners and Landcare to address the problems and reach solutions in areas downstream of Longford. Stakeholders noted that some notification of changes to the water levels would be desirable to allow pumps irrigation equipment to be moved.

Some suggestions for solutions to the issues raised included willow management in backwater areas and in the section of the river near Rutherglen to help with flooding problems. It was suggested that flood management strategies should also be developed and put into place.

It was suggested that a holding/coffer dam be installed in Brumbys/Macquarie area, with 24 hour capacity so that Poatina discharges can be released constantly down the river and reduce fluctuations. An additional suggestion was that Hydro Tasmania should ensure that there is enough water in the river to supply all downstream requirements.

## 3.14 Lake Trevallyn

### 3.14.1 Response

One respondent to the issues survey raised concerns for Lake Trevallyn. The respondent was a landowner in the upper catchment. One stakeholder also raised issues for Lake Trevallyn through the telephone consultation.

### 3.14.2 Concerns

The issue raised was that the Trevallyn Dam may prevent migration of native fish species through the Trevallyn power scheme, and into the South Esk catchment.

The issues survey respondent rated their level of concern as “moderate”.

### 3.14.3 Management Options Suggested by Respondents

In the issues survey, the respondent did not suggest any management options for Hydro Tasmania to address stakeholder concerns, nor did they suggest any options for management not on the part of the Hydro.

### 3.14.4 Other Issues to Consider

Hydro Tasmania also needs to be aware of issues relating to the efficiency of the existing elver ladder at Trevallyn Dam. This issue was identified in the document *Environmental Review: South Esk – Great Lake Hydro Catchment* (mentioned in section 2.4 of this report).

## 3.15 Cataract Gorge

### 3.15.1 Response

Three survey responses raised concerns regarding the Cataract Gorge. Two responses were from local council officers and one was from a conservation/community organisation.

### 3.15.2 Concerns

Some respondents were concerned about water quality in relation to the general environmental well being in the Cataract Gorge. Algal blooms were raised as an issue, and respondents linked this to the presence of a sewage plant outfall in the region.

Water quantity was also raised as an issue. The environmental flow currently released was thought to be too low and too regular. Low flows were considered to be detrimental to environmental quality, tourism and recreation. There was also a concern raised that there is no allowance for an irrigation flow so that the lawns at the Gorge can be watered to assist with tourism and recreation.

A general note was made that whole catchment management practices contribute to an unhealthy ecosystem.

All the issues survey respondents rated their level of concern as “very high”.

### 3.15.3 Management Options Suggested by Respondents

In the issues survey, respondents suggested management options for Hydro Tasmania to address stakeholder concerns. Suggested management options included an increase in the environmental flows and a review of the flow pattern to better meet the community’s aesthetic, environmental and recreational needs (including a healthy ecosystem and sustainable tourism). A release of a small amount of water for irrigation purposes was also suggested, or alternatively it was suggested that the Council should be paid compensation to meet the cost of irrigating the Gorge lawns. It was suggested that some of the energy lost to environmental and irrigation flows could be recouped by installing a small turbine at Trevallyn Dam.

It was also suggested that Hydro Tasmania should maintain good water quality to ensure health of the river ecosystem and that Hydro Tasmania could lead an integrated catchment management program for the South Esk catchment.

#### 3.15.4 Other Issues to Consider

Hydro Tasmania also needs to be aware of the occurrence of the threatened snail species *Beddomeia launcestonensis* which is found in Cataract Gorge. This issue was identified in the document *Environmental Review: South Esk – Great Lake Hydro Catchment* (mentioned in section 2.4 of this report).

### 3.16 Tamar Estuary

#### 3.16.1 Response

There were two survey responses that raised issues for the Tamar Estuary. One was from a local council officer and one was from a conservation/community organisation. One stakeholder also raised issues for the Tamar Estuary through the telephone consultation.

#### 3.16.2 Concerns

Respondents were concerned about siltation in the upper reaches of the Tamar Estuary. Catchment management was cited as contributing to the siltation.

It was noted that better public information should be made available to counter public perception that the removal of Trevallyn Dam would not remove the sedimentation problem, as it is largely a natural process.

Both respondents to the issues survey rated their level of concern as “very high”.

#### 3.16.3 Management Options Suggested by Respondents

In the issues survey, respondents suggested management options for Hydro Tasmania to address stakeholder concerns. Suggested management options included the operation of Trevallyn turbines in phase with the tides to reduce the siltation rate.

Suggested management options not limited to Hydro Tasmania control were to improve catchment management practices with the aim of reducing the silt load delivered into the estuary.

### 3.17 Upper Macquarie and South Esk Catchments

#### 3.17.1 Responses

Four survey responses noted issues in the upper Macquarie and South Esk catchments (upstream of Hydro Tasmania influence). Three responses were from landowners and one was from a council officer. Two stakeholders also raised issues for the upper catchment through the telephone consultation.

#### 3.17.2 Concerns

Respondents were concerned with willows in the upper South Esk River (upstream of the Macquarie River). Erosion resulting from stock access was also mentioned. Good willow removal techniques and prevention of erosion through fencing and exclusion of livestock from the rivers edge were suggested as ways to combat problems in the upper South Esk River.

Issues raised for the Macquarie River upstream of the Lake River junction were the lack of water caused by low rainfall and inadequate storages in the upper reaches of the Elizabeth and Macquarie Rivers. Construction of farm storages and obtaining licenses to take water for irrigation is made difficult for farmers by “red tape”.

Issues raised by the Council were that a secure town water supply of sufficient quantity and quality is required for Oatlands and Tunbridge.

Two issues survey respondents rated their level of concern as “very high” and one as “moderate”.

### 3.17.3 Management Options Suggested by Respondents

In the issues survey, respondents suggested management options to address concerns. Most respondents noted that their concerns were not under the control of Hydro Tasmania and suggested management of their concerns should be carried out by other appropriate bodies or individuals. Suggestions included removal of willows on the upper South Esk River, building of storage dams in the upper Macquarie catchment, construction of a system of weirs on the South Esk above the Macquarie River, and fencing off livestock from the rivers edge.

### 3.17.4 Other Issues to Consider

Hydro Tasmania is also aware of stakeholder concerns relating to the timing and quantity of irrigation extractions on the upper Macquarie and South Esk rivers, as they relate to these rivers being in the Hydro Water District and spillage of water over Trevallyn Dam.

## 3.18 Catchment-wide Concerns

A number of stakeholders who were consulted raised general issues that were not specific to any particular waterway, but that should be considered catchment-wide.

Cultural heritage was noted as an issue to be considered. The concern was that there is little information on Aboriginal heritage in the catchment and it is therefore difficult to anticipate issues or impacts. It was suggested that particular note should be given to areas that may be eroding or susceptible to erosion, including lake shores, and rivers downstream of power stations. It would be beneficial in managing cultural heritage to build up a more complete knowledge of where issues may arise.

Environmental flows were raised as an issue for waterways throughout the catchment, particularly in relation to seasonally unnatural fluctuations of lake levels and seasonally unnatural flows in rivers.

The potential for geomorphological issues to occur downstream of power stations and within lakes throughout the catchment was raised. Examples of the types of issues included erosion, deposition and channel change downstream of power stations, and lake shore changes.

Strong concerns were raised regarding the lack of a catchment management framework in Tasmania. Catchment planning undertaken by different organisations and community groups is focussed on the particular issues that are relevant to that organisation, and it should be ensured that the approaches are integrated.

There was a concern raised regarding the effect of cooler water diverted into the South Esk system from Great Lake, and a “watching brief” was suggested.

## 4. PROPOSED TECHNICAL STUDIES

### 4.1 Overview

The waterways to be considered in the technical studies, which will be undertaken in the next stage of the WMR, can be divided into six groups as shown in Table 3. For these, twelve technical studies are proposed and are described in this section.

**Table 3 Groups of the Proposed Technical Studies**

Group Name	Waterways to be Considered in Technical Studies	Type of Study	Study No.
Central Highland Lakes	Lake Augusta	LLR <sup>1</sup>	1
	Great Lake	LLR	2
	Arthurs Lake	LLR	3
Woods Lake – Lake River Catchment	Woods Lake	LLR	4
	Upper Lake River	RMO <sup>2</sup>	5
	Lake River d/s Woods Lake	RMO	6
	Macquarie River d/s Lake River and u/s Brumbys Creek		
Downstream Poatina Power Station	Brumbys Creek d/s Poatina tailrace	RMO	7
	Macquarie River d/s Brumbys Creek		
	South Esk River d/s Macquarie River		
Downstream Brumbys & Westons Weirs	Brumbys Creek d/s Brumbys Weir	RMO	8
	Westons Creek d/s Westons Weir		
Upper Macquarie & South Esk Catchments	Macquarie River u/s Lake River	Assessment of Trevallyn Spills	9
	South Esk River u/s Macquarie River		
Trevallyn & the Tamar	Trevallyn Dam	Fish Passage	10
	Cataract Gorge	RMO	11
	Tamar Estuary	Siltation Assessment	12

<sup>1</sup>LLR - Lake level review

<sup>2</sup>RMO - Assessment of river management objectives

Table 3 also indicates the type of study proposed for each waterway being considered in this WMR.

For the Central Highland lakes including Woods Lake, the type of study indicated in Table 3 is a **Lake Level Review** (LLR). This is essentially a review of the current lake level regime, consideration of all issues raised by the community and in the *Environmental Review* document, and an assessment of options to address the issues of concern.

For most of the rivers under consideration, namely those downstream of Poatina power station, downstream of Woods Lake, downstream of Brumbys & Westons weirs, and Cataract Gorge, the type of study indicated in Table 3 is assessment of **River Management Objectives** (RMO). The setting of environmental flows may be one of the river management objectives for each of these waterways under consideration. Examples

of other objectives may encompass improving water quality, ensuring bank stability, and/or improving the condition of the riparian zone.

The remaining studies are individual to the waterways to which they apply.

## 4.2 Study Methodologies

The approach to be taken for each of these studies will be an approach common to all technical studies under the Hydro Tasmania WMR umbrella. The studies will aim to provide information on a range of management options to address issues of concern, so that decision-makers can make choices and trade-offs amongst options. The information produced by each study will essentially be cost-benefit analyses for each management option. The costs will be in terms of energy losses or maintenance costs if it involves a change to current water management practices, or in terms of dollar figures if it involves engineering or other on-ground works. The benefits will be in terms of ecological or environmental objectives, and options will be linked to objectives in as quantitative a manner as possible.

The aim of each of these studies, therefore, is to present cost-benefit analyses on a range of options to address issues of concern individual to the particular waterway under assessment. Obviously the issues, management objectives and options to address the issues of concern will vary amongst the waterways. However, the methodology for the lake level reviews and assessment of river management objectives will involve a standard approach with the following steps:

*Stage 1 – Assessment of issues and current status.* This will encompass general reviews and liaison with stakeholders, including a detailed look at all stakeholder submissions from the WMR consultation stage relevant to the individual waterway.

*Stage 2 – Formulation of management objectives and options.* This stage will include targeted consultation as appropriate to the individual waterway. This will also include consideration of information needed to refine these preliminary formulations, i.e. identification of data gaps and more detailed scoping of data collection needs.

*Stage 3 – Data collection and analysis.* Aim is to obtain sufficient understanding of the issues to be able to directly link options to management objectives. The outcome of this stage will be detailed descriptions of options and specifically quantified management objectives (e.g. planting of macrophytes in Woods Lake will assure turbidity levels are below 20 NTU 90% of the time).

*Stage 4 – Cost assessment of options.* Includes Hydro Tasmania system studies on electricity generation losses and effects of operational changes to other waterbodies, as well as engineering design and costings.

*Stage 5 – Compilation and reporting.* This will encompass information on options, management objectives, costs and benefits.

The timing of these stages for each of the studies is set out in the individual study scopes in Appendix D.

## 4.3 Setting of Environmental Flows

As stated under section 4.1, environmental flows may be included amongst the river management objectives for each of the river and streams under assessment. Environmental flows are ideally designed to meet specific river management, environmental and/or ecological objectives. These objectives should be set in a consultative fashion, and may be refined as more information is brought to hand during the study process.

There are many techniques available for the design and setting of environmental flows, each with their advantages and disadvantages (Stewardson & Gippel 1997). It is important not to be locked into any one technique, as the suitability can vary depending on the nature of the particular waterway, degree of complexity, the level of scientific rigour required, and the available budget. To varying degrees, all of the methods available consider setting of management goals, quantifying a range of environmental impacts, considering longitudinal variations in these impacts, allowing for trade-offs and involving stakeholders in the decision-making process.



The approach described in section 4.2 is consistent with these techniques. For the ecological assessments, the exact techniques utilised will be defined as issues are assessed and management objectives and options are formulated. This will be done in a consultative fashion with DPIWE review, involvement and endorsement at all stages. In all cases, Hydro Tasmania will utilise defensible and scientifically rigorous techniques for assessment of environmental flows.

#### 4.4 Individual Job Scopes

Table 3 identified twelve studies which will address all of the waterways listed in that table. The twelve studies are given study names, and the issues that must be addressed by each study are summarised in Table 4.

**Table 4 Issues to be Addressed by the Proposed Technical Studies**

Study No.	Study Name	Study Type	Issues to be Addressed
1	Lake Augusta Assessment	LLR	Fishing, threatened species, dune erosion, cultural heritage, public usage and amenity
2	Great Lake Assessment	LLR	Fishing, algal beds, threatened species, public usage and amenity
3	Arthurs Lake Assessment	LLR	Fishing, threatened species, public usage and amenity
4	Woods Lake Assessment	LLR	Fishing, water quality, threatened species, irrigation water supply
5	Upper Lake River Assessment	RMO	Environmental flows, threatened species, irrigation water supply
6	Lake River Assessment	RMO	Environmental flows, water quality, irrigation water supply, bank erosion
7	Downstream Poatina Assessment	RMO	Environmental flows, riverbank stability, water quality, fishing, flood risks, irrigation/township/industry water supply, salinity related to high flows
8	Downstream Brumbys & Westons Weirs	RMO	Environmental flows, flood risks
9	Trevallyn Spill Assessment	n/a	Irrigation extraction needs in the upper Macquarie and South Esk rivers
10	Trevallyn Fish Passage	n/a	Efficiency of existing elver ladder, other eel migration issues and needs of other fish species
11	Cataract Gorge Assessment	RMO	Environmental flows, public use and amenity, water quality, threatened species
12	Tamar Estuary Siltation	n/a	Relationships between power station operation and estuarine siltation issues

Individual job scopes are attached as Appendix D.

## **5. NEXT STAGES OF THE WATER MANAGEMENT REVIEW**

### **5.1 Public Meetings**

The next stage of the WMR is to hold public meetings at which the outcomes of the consultation process will be presented and the proposed technical studies will be outlined.

Meetings are planned for August 2000, and will be held in Hobart, Miena, Cressy, Longford and Launceston. All 225 stakeholders on the WMR mailing list will receive mailed notices of these meetings. Advertisements will also be placed in the *Examiner*, the *Mercury*, *Tasmanian Country*, the *Western Tiers* and *On the Rise*.

These public meetings will provide stakeholders with the opportunity to comment on the outcomes of the consultation process and the proposed studies. Copies of this report will be made available to meeting attendees and any others who express interest.

### **5.2 Technical Studies**

The technical studies will be carried out over the following two years (July 2000 – July 2002). Stakeholders will be kept informed of the progress of the technical studies through newsletters mailed to stakeholders on the WMR mailing list on a six-monthly basis.

Individual stakeholders may be consulted during early stages of the technical studies as researchers seek clarification or further input on issues raised for particular waterways.

Stakeholders will also be consulted on the formulation of river or lake management objectives for the waterway or waterways for which they have a particular interest.

The outcomes of the technical studies will be a series of reports which will be placed on the Hydro Tasmania web site, and made available in hard copy to those interested. The outcomes of the technical studies will also be presented at public meetings following the completion of these studies.

### **5.3 Development of a Hydro Tasmania Water Management Program**

The final outcome of the WMR process will be the development of a program of actions for sustainable management of the waters under Hydro Tasmania control. A summary report will be proposed which assesses all of the cost-benefit analyses in the individual reports, and proposes a Hydro Tasmania program of actions for the South Esk – Great Lake catchment. This summary report will accompany the individual technical reports and also be presented at the public meetings. Feedback will be sought on the proposed program.

### **5.4 DPIWE Water Management Plans**

At all stages, this Hydro Tasmania WMR process is consistent with the Department of Primary Industry Water and Environment protocols, so that the reviews of water management carried out by Hydro Tasmania can be readily incorporated into a broader DPIWE WMP for the catchment.

The development of WMPs is under the discretion and control of DPIWE.

### **5.5 Other Hydro Tasmania Catchment Areas**

This WMR for the South Esk – Great Lake catchment is the first of six such reviews being undertaken by Hydro Tasmania. The remainder are:

- the Derwent catchment,
- the Pedder – Gordon catchment,

- the Pieman – Anthony catchment,
- the Mersey – Forth catchment, and
- the King River catchment.

The Derwent WMR commences in July 2000. All Hydro Tasmania WMRs will follow a similar methodology to that described here. All are being undertaken to ensure that Hydro Tasmania is sustainable managing the waterways it influences in a manner acceptable to the Tasmanian community.

# **APPENDIX A**

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## **STAKEHOLDER CONSULTATION SOUTH ESK – GREAT LAKE WATER MANAGEMENT REVIEW INITIAL MAIL-OUT AND QUESTIONNAIRE**

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HYDRO-ELECTRIC CORPORATION  
4 ELIZABETH STREET  
HOBART TASMANIA 7000

TELEPHONE: (03) 6230 5899  
FACSIMILE: (03) 6230 5933

17 January 2000

<<NAME>>  
<<POSITION>>  
<<ORGANISATION>>  
<<ADDRESS>> <<PC>>

Dear <<NAME>>

**Re: Hydro Water Management Review for the South Esk – Great Lake Catchment**

The Hydro is undertaking a review of its water management practices in the South Esk – Great Lake catchment. This review will result in a plan for addressing issues related to Hydro water management practices, with the intention of operating the Hydro system as sustainably as possible. This review is being undertaken with the endorsement and involvement of the Department of Industry Water and the Environment (DPIWE), to ensure that the outcomes can be incorporated into a DPIWE water management plan for these waterways in the future.

The process for the Hydro Water Management Review is as follows:

- Liaise with DPIWE on setting of Protected Environmental Values for Hydro-affected waterways in the South Esk – Great Lake catchment, as required by the State Policy on Water Quality Management (November-December 99)
- Public release of the document *Environmental Review: South Esk – Great Lake Hydro Catchment* as described in the attached brochure (December 99)
- Community consultation (January – March 2000)
- Release of Community Consultation Report at a series of public meetings (April-May 2000)
- Commencement of technical studies to look at options to address issues with Hydro water management practices (July 2000 – June 2002)
- Final Summary Report (September 2002)

The Hydro is interested in whether, as a stakeholder in the catchment, you would like to contribute to the consultation process. This would involve responding to an issues survey and possibly follow up phone calls or site visits. If you are interested, please take a few minutes to fill out the enclosed form and return it in the reply paid envelope provided.

Yours sincerely  
Hydro-Electric Corporation

A handwritten signature in cursive script that reads 'Helen Locher'.

Helen Locher  
Project Manager  
South Esk – Great Lake Water Management Review



Return Fax 03 6230 5933

### South Esk - Great Lake Water Management Review Initial Mail-Out

Do you want to remain on the stakeholder mailing list? Please note that this information has also been forwarded to the listed interest groups (see attached).

- Remain listed
- Happy to be informed through interest group

Group \_\_\_\_\_

Would you like to receive the issues survey to be sent out in the next stage of consultation? YES   
 NO

What are your preferred methods of informing us of issues related to Hydro water management practices?

- Written correspondence
- Phone calls preferred times/days \_\_\_\_\_
- Personal visits preferred times/days \_\_\_\_\_

Are you interested in attending a public meeting at which we will present the results of our consultation on water management issues and propose technical studies for the next stage? YES   
 NO

If YES what are your preferred: times/days \_\_\_\_\_  
 locations/townships \_\_\_\_\_

What is the best way to advertise public meetings and other stages of this Water Management Review process? (e.g. local newspaper, through interest group newsletters, etc. - please be specific with names)

\_\_\_\_\_  
\_\_\_\_\_

What are your interests in being involved in the Water Management Review? You may have several roles (e.g. landowner, Government body, fishing, recreation, irrigation, domestic use, Landcare etc.). You may wish to circle the most significant of these. Please indicate the area/waterway if relevant.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

If you wish to be involved in the consultation process, would you like a copy of the Environmental Review Document? (approx. 100 pages - see enclosed brochure) YES   
 NO

Name & position \_\_\_\_\_

Postal address \_\_\_\_\_

Phone (BH) \_\_\_\_\_ (AH) \_\_\_\_\_ (Mob.) \_\_\_\_\_

Fax \_\_\_\_\_ e-mail \_\_\_\_\_

Property/Organisation \_\_\_\_\_

Best contact times \_\_\_\_\_

Are you aware of other organisations not on the enclosed list who may wish to be involved in the consultation process? YES   
 NO

If YES, please write the contact details on the other side of this page.

Thank you for taking the time to respond to these questions.



## INTEREST GROUPS

Animal Rescue Land Trust  
Archer Historical Foundation Inc  
Bracknell/Liffey Landcare Group  
Break O'Day Council  
Campbell Town Landcare Group  
Campbell Town Township Landcare Group  
Canoe Tasmania Inc  
Carrick Landcare Group  
Central Highlands Council  
Cluan/Westbury Landcare Group  
Connorville Shooters Club  
Cressy Branch NTFA  
Cressy/Longford Irrigation Association  
Deloraine Environment Centre  
Deloraine Field Naturalists  
Deloraine Landcare Group  
Deloraine Township Landcare Group  
Department of Primary Industry Water and the Environment  
Environment Association Inc  
Esk Branch of Field & Game Association  
Exton Landcare Inc.  
Federation of Tasmanian Bush Walking Clubs  
Fish Habitat Improvement Trust  
Fly-Fishers Club of Tasmania  
Forestry Tasmania  
Freshwater Anglers Council of Tasmania Inc  
Friends of the Tamar  
Independent Landcare Inc  
Inland Fisheries Commission  
Isis Valley Landcare Group  
Lake Augusta Shack Owners Association  
Lake River Irrigators Association  
Lake River Landcare Group  
Launceston City Council  
Launceston Environment Centre  
Launceston Field Naturalists  
Launceston Waterwatch  
Local Government Association of Tasmania  
Longford Branch NTFA  
Longford Landcare Group  
Lower Liffey Landcare Group  
Lower Macquarie Landcare Group  
Lower Meander Valley Landcare Group  
Meander Valley Catchment Management Group  
Meander Valley Council  
Nile Landcare Group  
Northern Midlands Council  
Northern Tasmanian Fisheries Association  
Perth and Evandale Rural Landcare Group  
Quamby Landcare Group  
Queen Victoria Museum  
Richmond Hill Nurseries Pty Ltd  
Shackowners Association  
Southern Midlands Council  
Tamar Natural Resources Management Strategy  
Tamar Valley Weed Strategy Working Group  
Tamar Watch  
Tasmanian Aboriginal Land Council  
Tasmanian Conservation Trust  
Tasmanian Farmers & Graziers Association  
Tasmanian Landcare Association  
Tayitikitheeker Landcare Group  
Trout 2000  
Upper Brumbys Landcare Group  
West Tamar Council  
World Wide Fund for Nature (Aust)

# **APPENDIX B**

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## **STAKEHOLDER CONSULTATION SOUTH ESK – GREAT LAKE WATER MANAGEMENT REVIEW ADVERTISEMENTS**

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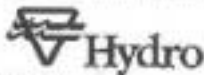
**South Esk - Great Lake  
Hydro Water  
Management Review**

**PUBLIC NOTICE**

The Hydro is seeking public feedback on its water management practices and associated environmental issues in the South Esk and Great Lake catchments.

The Hydro has described its operations and summarised the current state of knowledge on these issues in a document entitled "Environmental Review: South Esk - Great Lake Hydro Catchment".

For copies of this document and/or more information please ring (03) 6230 5899.



Hydro 2007 April 2007/08

**South Esk - Great Lake  
Hydro Water  
Management Review**

**PUBLIC NOTICE**

The Hydro is seeking public feedback on its water management practices and associated environmental issues in the South Esk and Great Lake catchments.

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For copies of this document and/or more information please ring (03) 6230 5899.



Hydro 2007 April 2007/08

# **APPENDIX C**

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## **STAKEHOLDER CONSULTATION SOUTH ESK – GREAT LAKE WATER MANAGEMENT REVIEW SECOND MAIL-OUT AND ISSUES SURVEY**

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HYDRO-ELECTRIC CORPORATION  
4 ELIZABETH STREET  
HOBART TASMANIA 7000

TELEPHONE: (03) 6230 5899  
FACSIMILE: (03) 6230 5933

15 February 2000

<<NAME>>  
<<POSITION>>  
<<ORGANISATION>>  
<ADDRESS>> <<PC>>

Dear <<NAME>>

**Re: Issues Survey for the South Esk – Great Lake catchment Hydro Water Management Review**

As previously communicated to you by letter, the Hydro is undertaking a review of its water management practices in the South Esk – Great Lake catchment. In your response to the initial mail-out in January, you indicated that you would like to be involved in the next stage of consultation by receiving a survey regarding issues related to water management in the South Esk – Great Lake catchment. Please find this survey enclosed.

If you are still interested in providing information on issues related to Hydro water management in the South Esk – Great Lake catchment, please fill out the enclosed survey and return it in the reply paid envelope provided. We would appreciate it if you could return this information by Monday the 3<sup>rd</sup> March 2000 so that follow up phone calls and personal visits can be made if required.

If you have any questions regarding this survey, please contact Hydro Environmental Services on 03 6230 5899.

Yours sincerely  
Hydro-Electric Corporation

A handwritten signature in cursive script that reads 'Helen Locher'.

Helen Locher  
Project Manager  
South Esk – Great Lake Water Management Review



**SOUTH ESK – GREAT LAKE  
WATER MANAGEMENT REVIEW**

**CONTACT DETAILS**

Name: <<NAME>>  
 Position: <<POSITION>>  
 Organisation: <<ORGANISATION>>  
 Contact: <<CONTACT>>  
 Postal Address: <<ADDRESS>> <<PC>>  
 Phone: <<PHONE>>

Please check your contact details and correct them if necessary  
 (if some of the above categories are not relevant to you, leave  
 them blank)

**ISSUES SURVEY**

**NAMES OF HYDRO-AFFECTED WATERWAYS IN THE SOUTH ESK – GREAT LAKE CATCHMENT**

Great Lake	Lake River upstream of Macquarie River
Lake Augusta	Macquarie River between Lake River and Brumbys Creek
Arthurs Lake	Macquarie River between Brumbys Creek and South Esk River
Woods Lake	South Esk River between Macquarie River and Lake Trevallyn
Lake Trevallyn	South Esk River downstream of Lake Trevallyn (Cataract Gorge)
Brumbys Creek	Tamar Estuary

These are the waterways that are directly affected by the Hydro's operations in the catchment currently under review. If there are other waterways in this catchment for which you would like to raise issues relevant to Hydro waterway management practices, please feel free to do so.

**PLEASE FILL OUT THE FOLLOWING PAGES AS PER THE EXAMPLE BELOW**  
 (use additional pages if needed)

Name of Waterway: *Lake Augusta*

Pattern of Use: *Camping/trout fishing once a year (every Christmas) at boat ramp*

What is your concern or issue? *Erosion around the lake shore*

What is your level of concern? (Very High)–(High)–**Moderate**–(Low)–(Very Low)

How do you believe the Hydro influences this area of concern?  
*Water level fluctuations in Lake Augusta*

Are you aware of other influences on this area of concern?  
*Not sure, possibly recreational use of the lake and lake shores*

Suggested management changes on the part of the Hydro to address this area of concern:  
*Keep lake levels below base of dunes*

Other suggested management changes (not limited to the Hydro) which would also address this area of concern:  
*Restrict recreational use on the sensitive dune areas*

Do you have any other additional information or comments related to this issue?  
*The fishing is still good*



**Name of Waterway:** .....

**Pattern of Use:** .....

**What is your concern or issue?** .....

**What is your level of concern? (Very High)--(High)--(Moderate)--(Low)--(Very Low)**

**How do you believe the Hydro influences this area of concern?** .....

**Are you aware of other influences on this area of concern?** .....

**Suggested management changes on the part of the Hydro to address this area of concern:**

**Other suggested management changes (not limited to the Hydro) which would also address this area of concern:** .....

**Do you have any other additional information or comments related to this issue?** .....

# **APPENDIX D**

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## **INDIVIDUAL SCOPES FOR SOUTH ESK – GREAT LAKE WATER MANAGEMENT REVIEW**

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# STUDY 1

## Lake Augusta Assessment

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### 1. STUDY AIM

To present cost-benefit analyses on a range of options to address issues of concern associated with lake level management of Lake Augusta. These include geoheritage and cultural heritage issues associated with dune erosion, fishing, threatened species (*Paragalaxias julianus*), and public usage and amenity.

### 2. METHODOLOGY

#### Stage 1 – Assessment of Issues and Current Status

A desktop survey will be performed which will cover:

- Current and historical operational parameters of lake level
- Hydrological data of inflows and outflows
- Existing information on issues with erosion, cultural heritage, recreational fishing, and paragalaxiid habitat and distribution.
- Reviewing existing information on issues and values identified through the Hydro Tasmania WMR process, and the PEV-setting process.

This will identify gaps in knowledge that need to be filled. Activities will include consultation with the Department of Primary Industry, Water and Environment (DPIWE), the Tasmanian Aboriginal Land Council (TALC) and the Inland Fisheries Service (IFS) to obtain further information on issues.

Timing July-August 2000.

#### Stage 2 –Formulation of Management Objectives and Options

This stage will involve stakeholder consultation to derive a preliminary formulation of management objectives for Lake Augusta, and options to achieve these objectives. During this stage, the data requirements to quantitatively link options to objectives that they may achieve will be defined.

Timing August-September 2000.

#### Stage 3 – Data collection and analysis

The aim of this stage is to obtain sufficient understanding of the issues to be able to directly link options to management objectives. The outcome of this stage will be detailed descriptions of options and specifically quantified management objectives.

Studies may be carried out to fill in any perceived gaps in information identified during the desktop study. This may include:

- Identification of geoheritage or aboriginal heritage features around the lake margin, which may be impacted by lake level changes.

- Survey of riparian vegetation around lake margins. Identification of vulnerability of vegetation types present to the frequency and duration of inundation (or duration of exposure if aquatic vegetation).
- Surveying to obtain field level data on elevations of particular features to protect identified in the above studies, to tie them in with lake levels.
- Data analysis of *Paragalaxias julianus* distribution, life history and habitat requirements (using available information).
- Data analysis of fishing activity at Lake Augusta through information provided by IFS, local angler clubs and targeted stakeholder consultation (as identified from the overview stakeholder consultation).

Timing October 2000 – June 2001 (some may be shorter or longer).

#### **Stage 4 – Cost assessment of options**

Includes system studies on generation losses and effects of changes to other waterbodies, as well as engineering design and costings.

Timing July – September 2001.

#### **Stage 5 – Compilation and reporting.**

This will encompass information on options, management objectives, costs and benefits.

Timing October – December 2001.

## **STUDY 2**

### **Great Lake Assessment**

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#### **1. STUDY AIM**

To present cost-benefit analyses on a range of options to address issues of concern associated with lake level management of Great Lake. These include algal beds, threatened species, fisheries, and public use and amenity.

#### **2. METHODOLOGY**

##### **Stage 1 – Assessment of Issues and Current Status**

A desktop survey will be performed which will cover:

- Current and historical operational parameters of lake level
- Hydrological data of inflows and outflows
- Existing information on issues with threatened species, fishing and public use.
- Reviewing existing information on issues and values identified through the Hydro Tasmania WMR process, and the PEV-setting process.

This will identify gaps in knowledge that need to be filled. Activities will include consultation with the Department of Primary Industry, Water and Environment (DPIWE), the Tasmanian Aboriginal Land Council (TALC) and the Inland Fisheries Service (IFS) to obtain further information on issues.

Timing September-November 2000.

##### **Stage 2 –Formulation of Management Objectives and Options**

This stage will involve stakeholder consultation to derive a preliminary formulation of management objectives for Great Lake, and options to achieve these objectives. During this stage, the data requirements to quantitatively link options to objectives that they may achieve will be defined.

Timing November-December 2000.

##### **Stage 3 – Data Collection and Analysis**

The aim of this stage is to obtain sufficient understanding of the issues to be able to directly link options to management objectives. The outcome of this stage will be detailed descriptions of options and specifically quantified management objectives.

Field studies may be carried out to fill in any perceived gaps in information identified during Stage 1 (the desktop study). This is likely to include:

- Further survey of the distribution of algal beds around the lake margins.

- Assessment of habitat requirements for trout, native fish and macroinvertebrate fauna, both within and outside the algal beds.
- Data analysis of fishing and boating activity at Great Lake through information provided by IFS, local angler clubs and targeted stakeholder consultation (as identified from the overview stakeholder consultation).

Timing December 2000-June 2001

## **Stage 4 – Cost Assessment of Options**

This includes system studies on generation losses and effects of changes to other waterbodies, as well as engineering design and costings.

Timing July – September 2001.

## **Stage 5 – Compilation and Reporting**

This will encompass information on options, management objectives, costs and benefits.

Timing October – December 2001.



# STUDY 3

## Arthurs Lake Assessment

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### 1. STUDY AIM

To present cost-benefit analyses on a range of options to address issues of concern associated with lake level management of Arthurs Lake. These include fishing, boating, public usage and amenity, and threatened species (*Galaxias tanycephalus* and *Paragalaxias mesotes*).

### 2. METHODOLOGY

#### Stage 1 – Assessment of Issues and Current Status

A desktop survey will be performed which will cover:

- Current and historical operational parameters of lake level
- Hydrological data of inflows and outflows
- Existing information on issues with fishing (trout), boating and threatened species.
- Reviewing existing information on issues and values identified through the Hydro Tasmania WMR process, and the PEV-setting process.

This will identify gaps in knowledge that need to be filled. Activities will include consultation with the Department of Primary Industry, Water and Environment (DPIWE), the Tasmanian Aboriginal Land Council (TALC) and the Inland Fisheries Service (IFS) to obtain further information on issues.

Timing August-September 2000.

#### Stage 2 –Formulation of Management Objectives and Options

This stage will involve stakeholder consultation to derive a preliminary formulation of management objectives for Arthurs Lake, and options to achieve these objectives. During this stage, the data requirements to quantitatively link options to objectives that they may achieve will be defined.

Timing September 2000.

#### Stage 3 – Data Collection and Analysis

The aim of this stage is to obtain sufficient understanding of the issues to be able to directly link options to management objectives. The outcome of this stage will be detailed descriptions of options and specifically quantified management objectives.

Studies may be carried out to fill in any perceived gaps in information identified during the desktop study. This may include:

- Survey of threatened species habitat(s) around lake margins (namely *Galaxias tanycephalus* and *Paragalaxias mesotes*).
- Surveying to obtain field level data on elevations of particular features to protect identified in the above studies, to tie them in with lake levels.

- Data analysis of fishing activity at Arthurs Lake through information provided by IFS, local angler clubs and targeted stakeholder consultation (as identified from the overview stakeholder consultation).

Timing October 2000 – June 2001

## **Stage 4 – Cost Assessment of Options**

This includes system studies on generation losses and effects of changes to other waterbodies, as well as engineering design and costings.

Timing July – September 2001.

## **Stage 5 – Compilation and Reporting**

This will encompass information on options, management objectives, costs and benefits.

Timing October – December 2001.

# STUDY 4

## Woods Lake Assessment

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### 1. STUDY AIM

To present cost-benefit analyses on a range of options to address issues of concern associated with lake level management of Woods Lake. These include fishing, water quality, irrigation water supply and threatened species (*Galaxias tanycephalus* and *Paragalaxias mesotes*).

### 2. METHODOLOGY

#### Stage 1 – Assessment of Issues and Current Status

This stage will involve:

- Gathering information about lake levels, inflows and outflows over the past 10 years.
- Conducting a literature review of the habitat requirements and life history of the threatened species, the habitat requirements of native macrophyte species, and the rehabilitation of shallow lakes.
- Conducting a field assessment to gather information about the lake's present condition, especially the distribution of macrophytes.
- Liaising with IFS about threatened species and fisheries issues.
- Reviewing existing information on issues and values identified through the Hydro Tasmania WMR process, and the PEV-setting process.

Timing July-August 2000.

#### Stage 2 –Formulation of Management Objectives and Options

This stage will involve stakeholder consultation to derive a preliminary formulation of management objectives for Woods Lake, and options to achieve these objectives. During this stage, the data requirements to quantitatively link options to objectives that they may achieve will be defined.

Timing August-September 2000.

#### Stage 3 – Data Collection and Analysis

The aim of this stage is to obtain sufficient understanding of the issues to be able to directly link options to management objectives. The outcome of this stage will be detailed descriptions of options and specifically quantified management objectives.

Studies will be carried out to fill any perceived gaps in information identified during Stage 1. These may include:

- Threatened species studies;
- Monitoring of the zooplankton communities to determine timing and extent of spawning of the threatened species;

- Conducting a bathymetric and macrophyte distribution survey of the lake;
- Conducting trials with macrophyte species for their ability to colonise the lake and reduce turbidity; and
- Liaise with the “Woods Lake Flow Releases Management Committee” to understand irrigation water supply requirements and patterns.

Timing October 2000 – December 2001

#### **Stage 4 – Cost Assessment of Options**

This includes system studies on generation losses and effects of changes to other waterbodies, as well as engineering design and costings.

Timing January - March 2002.

#### **Stage 5 – Compilation and Reporting**

This will encompass information on options, management objectives, costs and benefits.

Timing April - June 2002.

# STUDY 5

## Upper Lake River Assessment

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### 1. STUDY AIM

To present cost-benefit analyses on a range of options to address issues of concern in the Upper Lake River (the Lake River between Arthurs Lake and Woods Lake). These issues include environmental flows, threatened species (*Galaxias tanycephalus* and *Paragalaxias mesotes*), and irrigation water supply.

### 2. METHODOLOGY

#### Stage 1 – Assessment of Issues and Current Status

This stage will involve:

- Gathering information about data availability for existing inflows to the upper Lake River (eg Hydrol location 849.1), locations of Rivpacs sites, and data, in the area (if any), information about the use of this reach of the river by native fish species.
- Preliminary field assessment to gather information relevant to above requirements.
- Liaison with IFS about threatened species and fisheries issues and Systems Operations about the costs and benefits of augmenting Woods Lake for irrigation purposes.
- Reviewing existing information on issues and values identified through the Hydro Tasmania WMR process, and the PEV-setting process.

Timing July-August 2000

#### Stage 2 –Formulation of Management Objectives and Options

This stage will involve stakeholder consultation to derive a preliminary formulation of management objectives for the Upper Lake River, and options to achieve these objectives. During this stage, the data requirements to quantitatively link options to objectives that they may achieve will be defined.

Timing August-September 2000.

#### Stage 3 – Data Collection and Analysis

The aim of this stage is to obtain sufficient understanding of the issues to be able to directly link options to management objectives. The outcome of this stage will be detailed descriptions of options and specifically quantified management objectives.

Studies will be carried out to fill any perceived gaps in information identified during Stage 1. These may include:

- Conducting a series of field surveys to determine the use, or attempted use, of the reach by *G. tanycephalus* and *P. mesotes* for habitat and migration requirements. This program will need to be

carried out in conjunction with a similar program in Woods Lake, and over a minimum period of one year to obtain seasonal data;

- Modelling natural inflows to determine seasonal patterns and expected discharge;
- using the Rivpacs rapid assessment method to determine the condition of the macroinvertebrate community along the reach. This will show the parts of the reach which are adversely impacted by flow diversion; and
- Surveying the river at each Rivpacs sampling site to determine discharge;
- Generating flow release options and associated costs; and
- Consideration of fish passage, water quality and irrigation supply issues.

Timing October 2000 – December 2001

### **Stage 4 – Cost Assessment of Options**

This includes system studies on generation losses and effects of changes to other waterbodies, as well as engineering design and costings.

Timing January - March 2002.

### **Stage 5 – Compilation and Reporting**

This will encompass information on options, management objectives, costs and benefits.

Timing April - June 2002.



# **STUDY 6**

## **Lake River Assessment**

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### **1. STUDY AIM**

To present cost-benefit analyses on a range of options to address issues of concern in the Lake River and Macquarie River downstream of Woods Lake (note that the Macquarie River between the Lake River and Brumbys Creek used to be called the Lake River). The issues to be addressed include environmental flows, water quality, bank erosion and irrigation water supply.

### **2. METHODOLOGY**

#### **Stage 1 – Assessment of Issues and Current Status**

This stage will involve:

- Determining the applicability and availability of models that will allow the development of quasi-natural discharge values from Woods Lake, based on inflows, seasonal conditions, and lake level.
- Examining historical and projected irrigation demand, in terms of quantity and pattern.
- Consultation with stakeholders to determine the appropriate locations for water quality monitoring (eg upstream of off-takes, downstream of the dam and the irrigation scheme).
- Consultation with stakeholders on bank erosion issues.
- Examining existing water quality data for Woods Lake and the Lake River.
- Reviewing existing information on issues and values identified through the Hydro Tasmania WMR process, and the PEV-setting process.

Timing July-August 2000

#### **Stage 2 –Formulation of Management Objectives and Options**

This stage will involve stakeholder consultation to derive a preliminary formulation of management objectives for the Lake River, and options to achieve these objectives. During this stage, the data requirements to quantitatively link options to objectives that they may achieve will be defined.

Timing August-September 2000.

#### **Stage 3 – Data Collection and Analysis**

The aim of this stage is to obtain sufficient understanding of the issues to be able to directly link options to management objectives. The outcome of this stage will be detailed descriptions of options and specifically quantified management objectives.

Studies will be carried out to fill any perceived gaps in information identified during Stage 1. These may include:

- modelling natural inflows to determine seasonal patterns and expected discharge at various points down the river;

- conduct RIVPACS bio-assessment at five sites along the river in Spring and Autumn to determine the condition of the macro-invertebrate community;
- using the locally applicable AUSRIVAS model to compare the river sites with appropriate 'reference' sites.
- establishing a monthly monitoring program to evaluate water quality in the river;
- linking these data with the water quality monitoring program in Woods Lake and bio-assessment in the Lake River;
- determining the sources of poor water quality and developing a range of options for minimising those produced by Hydro Tasmania management;
- assess bank erosion issues and their relationship to water levels;
- deriving a range of flow options which will improve stream condition under irrigation and provide an appropriate environmental flow downstream of the irrigators.

Timing October 2000 – December 2001

### **Stage 4 – Cost Assessment of Options**

This includes system studies on generation losses and effects of changes to other waterbodies, as well as engineering design and costings.

Timing January - March 2002.

### **Stage 5 – Compilation and Reporting**

This will encompass information on options, management objectives, costs and benefits.

Timing April - June 2002.

# **STUDY 7**

## **Downstream Poatina Assessment**

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### **Background Note**

A considerable amount of environmental investigation has been undertaken downstream of the Poatina Power Station during 1999-2000 as part of the Basslink Environmental Impact Assessment.

### **1. STUDY AIM**

To assess the management issues and options which were identified through the Basslink environmental investigations, and review management options in light of community-endorsed river management objectives.

### **2. METHODOLOGY**

#### **Stage 1 – Assessment of Issues and Current Status**

This stage will involve:

- Reviewing existing information on bank erosion, instream biota, flood risks, public usage and water quality as they relate to aspects of the flow regime downstream of the Poatina power station. Most of this information will be readily available and up-to-date from the Basslink investigations which have been taking place during 2000.
- Reviewing existing information on the feasibility of mitigation options to address issues of concern, again as compiled from the Basslink investigations.
- Reviewing existing information on issues and values identified through the Hydro Tasmania WMR process, and the PEV-setting process.
- Consultation with landowners regarding environmental issues.
- Liaising with DPIWE, Hydro Tasmania, local Landcare groups, the Inland Fisheries Service, Northern Midlands Council and other stakeholders to ascertain the scope and current status of any other river improvement initiatives which may relate to the waterways under consideration. Such initiatives would include the Rivercare Plan for the lower Macquarie-South Esk rivers, and the Brumbys Creek Rehabilitation Plan.

Timing October-November 2000

(Note that the delayed commencement of this assessment relative to the others is to maximise the amount of information which can be obtained from the Basslink investigations, and avoid duplication of effort).

#### **Stage 2 – Consultation on Management Objectives and Options**

This stage will involve stakeholder consultation review the information summarised from Stage 1, and confirm management objectives and options for the rivers downstream of the Poatina Power Station.

Timing December 2000 – January 2001.

### **Stage 3 – Data Collection and Analysis**

Although the Basslink studies were designed to be very comprehensive, the research team and community may feel that there are gaps. This stage allows for studies to be carried out to fill in any perceived gaps in information.

Timing February 2001 – December 2001.

### **Stage 4 – Compilation and Reporting**

This stage will summarise the outcomes of the previous three stages, and propose plans of actions on any issues which are not considered adequately addressed through the Basslink environmental investigations.

Timing January - March 2002.

## **STUDY 8**

### **Downstream Brumbys & Westons Weirs Assessment**

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#### **1. STUDY AIM**

To present cost-benefit analyses on a range of options to address issues of concern downstream of Upper Brumbys and Westons weirs. The issues to be addressed include environmental flows and flood risks.

#### **2. METHODOLOGY**

##### **Stage 1 – Assessment of Issues and Current Status**

This stage will involve:

- Examining available hydrological information on Upper Brumbys and Westons creeks downstream of the weirs.
- Reviewing operations guidelines and current practices governing Upper Brumbys and Westons weirs.
- Reviewing any other available documentation on these waterways, for example local Rivercare plans.
- Reviewing existing information on issues and values identified through the Hydro Tasmania WMR process, and the PEV-setting process.
- Liaising with stakeholders who have expressed concerns about these waterways.
- Liaising with DPIWE on any concurrent or planned stream improvement measures planned for these waterways.

Timing October-November 2000

##### **Stage 2 –Formulation of Management Objectives and Options**

This stage will involve stakeholder consultation to derive a preliminary formulation of management objectives for upper Brumbys and Westons creeks related to Hydro Tasmania operations, and options to achieve these objectives. During this stage, the data requirements to quantitatively link options to objectives that they may achieve will be defined.

Timing November-December 2000.

##### **Stage 3 – Data Collection and Analysis**

The aim of this stage is to obtain sufficient understanding of the issues to be able to directly link options to management objectives. The outcome of this stage will be detailed descriptions of options and specifically quantified management objectives.

Studies will be carried out to fill any perceived gaps in information identified during Stage 1. These may include:

- Field investigations to determine water quantity requirements.
- Hydrological assessments.
- Investigations of the weirs and consultation with relevant Hydro Tasmania staff to assess potential for alterations to current management practices.

Timing January-June 2001

## **Stage 4 – Cost Assessment of Options**

Timing July - August 2001.

## **Stage 5 – Compilation and Reporting**

This will encompass information on options, management objectives, costs and benefits.

Timing September 2001.

# STUDY 9

## Trevallyn Spill Assessment

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### 1. STUDY AIM

To present cost-benefit analyses on a range of options to address issues of concern in the upper Macquarie and South Esk rivers. The issues to be addressed relate to the timing and quantity of irrigation extractions as they relate to these rivers being in the Hydro Water District and spillage of water over Trevallyn Dam.

### 2. METHODOLOGY

#### Stage 1 – Assessment of Issues and Current Status

This stage will involve:

- Analysis of hydrological records on patterns of spill over Trevallyn Dam.
- Reviewing relevant information on water rights for Hydro Tasmania and the irrigators in the upper Macquarie and South Esk rivers. This will involve liaison with relevant staff at DPIWE.
- Reviewing existing information on issues and values identified through the Hydro Tasmania WMR process, the PEV-setting process, and the water management planning process currently underway in the upper Macquarie and South Esk catchments.

Timing October-November 2000

#### Stage 2 –Formulation of Management Objectives and Options

This stage will involve stakeholder consultation to derive a preliminary formulation of management objectives to address the issues of concern, and options to achieve these objectives. During this stage, the data requirements to quantitatively link options to objectives that they may achieve will be defined.

Timing November-December 2000.

#### Stage 3 – Data Collection and Analysis

The aim of this stage is to obtain sufficient understanding of the issues to be able to directly link options to management objectives. The outcome of this stage will be detailed descriptions of options and specifically quantified management objectives.

Studies will be carried out to fill any perceived gaps in information identified during Stage 1. These may include:

- Hydrological assessments.
- Assessments of communication mechanisms to facilitate advance and concurrent notice to irrigators of spills over Trevallyn Dam.

Timing January-June 2001



## **Stage 4 – Cost Assessment of Options**

Timing July-August 2001.

## **Stage 5 – Compilation and Reporting**

This will encompass information on options, management objectives, costs and benefits.

Timing September 2001.

## STUDY 10

### Trevallyn Fish Passage Assessment

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#### 1. STUDY AIM

To present cost-benefit analyses on a range of options to address issues of concern related to fish passage at Trevallyn Dam. The issues to be addressed include the efficiency of the existing elver ladder, alternatives mechanisms to facilitate migration of eels over this barrier, problems for migratory fish associated with the Trevallyn Power Station, and the needs of other migratory fish species affected by the Trevallyn power scheme.

Note that Hydro Tasmania is an “industry partner” with the Inland Fisheries Service (IFS) to a grant application with the Fisheries Research and Development Corporation (FRDC) to address these and related issues, and that this grant application has been successful. Work outlined in this scope supplements a considerable amount of work which will be undertaken by the IFS.

#### 2. METHODOLOGY

##### Stage 1 – Assessment of Issues and Current Status

This stage will involve:

- Literature review
- Liaison and co-ordination with IFS
- Scoping of work and task assignment, project set-up.

Timing July-September 2000

##### Stage 2 –Formulation of Management Objectives and Options

This stage will involve:

- Analysis of hydrological records on patterns of spill over Trevallyn Dam.
- Reviewing relevant information on water rights for Hydro Tasmania and the irrigators in the upper Macquarie and South Esk rivers. This will involve liaison with relevant staff at DPIWE.
- Reviewing existing information on issues and values identified through the Hydro Tasmania WMR process, the PEV-setting process, and the water management planning process currently underway in the upper Macquarie and South Esk catchments.

Timing September-October 2000

##### Stage 3 – Data Collection and Analysis

Specific investigations are likely to include:

- Monitoring of migratory fish stocks at Trevallyn Dam base, Cataract Gorge, mouth of the North Esk River, etc on a seasonal basis.

- Elver ladder investigations.
- Upstream habitat classification.

Timing October 2000-April 2002

### **Stage 4 – Cost Assessment of Options**

This stage will involve cost-benefit analyses and feasibility studies for viable options.

Timing December 2001-May 2002.

### **Stage 5 – Compilation and Reporting**

This will encompass information on options, management objectives, costs and benefits. It may also include implementation planning.

Timing July-September 2002.

# STUDY 11

## Cataract Gorge Assessment

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### 1. STUDY AIM

To present cost-benefit analyses on a range of options to address issues of concern in Cataract Gorge. The issues to be addressed include the environmental flows, public use and amenity, water quality (notably blue-green algal blooms) and threatened species (*Beddomeia launcestonensis*).

### 2. METHODOLOGY

#### Stage 1 – Assessment of Issues and Current Status

This stage will involve:

- Review and analysis of available hydrological and water quality data.
- Determination of an appropriate ‘reference’ site for Rivpacs analysis of the gorge’s macroinvertebrate community, and ensuring access to the data for that site.
- A literature search and information gathering exercise on the rare snail species (*Beddomeia launcestonensis*) in the gorge.
- Liaison with the concurrent Hydro Tasmania WMR investigations into fish passage at the Trevallyn power scheme.
- Liaison and consultation with relevant stakeholders to determine extent of existing investigations, initiatives, stakeholder groups etc.
- Reviewing existing information on issues and values identified through the Hydro Tasmania WMR process and the PEV-setting process.

Timing October-November 2000

#### Stage 2 –Formulation of Management Objectives and Options

This stage will involve stakeholder consultation to derive a preliminary formulation of management objectives to address the issues of concern in Cataract Gorge, and options to achieve these objectives. During this stage, the data requirements to quantitatively link options to objectives that they may achieve will be defined.

Timing November-December 2000.

#### Stage 3 – Data Collection and Analysis

The aim of this stage is to obtain sufficient understanding of the issues to be able to directly link options to management objectives. The outcome of this stage will be detailed descriptions of options and specifically quantified management objectives.

Studies will be carried out to fill any perceived gaps in information identified during Stage 1. These may include:

- Conducting Rivpacs bio-assessment at three sites in the gorge in Spring and Autumn, and comparison of the results with suitable reference sites if available (if not available, these will have to be determined and sampled).
- Establishing a monthly water quality monitoring program.
- Conducting field surveys to determine the distribution and population size of the hydrobiid snail.
- Investigating public usage patterns, needs and opportunities.

Timing January-March 2001

## **Stage 4 – Cost Assessment of Options**

This includes system studies on generation losses and effects of changes to other waterbodies, as well as engineering design and costings.

Timing April-June 2002.

## **Stage 5 – Compilation and Reporting**

This will encompass information on options, management objectives, costs and benefits.

Timing June-September 2002.

## **STUDY 12**

### **Tamar Estuary Siltation Assessment**

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#### **1. STUDY AIM**

To present cost-benefit analyses on a range of options to address issues of concern associated with the relationships between Trevallyn Power Station operation and siltation in the Tamar Estuary.

#### **2. METHODOLOGY**

##### **Stage 1 – Assessment of Issues and Current Status**

This stage will involve:

- A desktop review of existing information and studies covering information on estuarine dynamics, previous hydraulic modelling, siltation rates, operation of Trevallyn and loss of amenity in the estuary as a result of siltation.
- Detailed assessment of the significant work carried out in the 1970s which involved hydraulic modelling of the estuarine system, studies on the rate of siltation and most significantly, an experiment in operating Trevallyn Power Station in phase with the tides.
- Analysis of Trevallyn Power Station operations since the 1970s research.
- Consultation with the Launceston City Council and the Tamar Estuary Working group to obtain further information on relevant issues and concerns, as well as information on concurrent, recent or planned initiatives which relate to this assessment.

Timing November 2000-January 2001

##### **Stage 2 –Formulation of Management Objectives and Options**

This stage will involve consultation with the Launceston City Council and the Tamar Estuary Working group to clearly formulate management objectives to address the issues of concern, and options to achieve these objectives. During this stage, the data requirements to quantitatively link options to objectives that they may achieve will be defined.

Timing February-March 2001.

##### **Stage 3 – Data Collection and Analysis**

The aim of this stage is to obtain sufficient understanding of the issues to be able to directly link options to management objectives. The outcome of this stage will be detailed descriptions of options and specifically quantified management objectives.

Studies will be carried out to fill any perceived gaps in information identified during Stage 1. These are likely to involve some sort of modelling, probably an update to the power station operating analyses which were conducted in the 1970s.

Timing April-July 2001

## **Stage 4 – Cost Assessment of Options**

This includes system studies on generation losses and effects of changes to other waterbodies, as well as engineering design and costings.

Timing August-September 2001.

## **Stage 5 – Compilation and Reporting**

This will encompass information on options, management objectives, costs and benefits.

Timing October 2001.

## **CONTACT AND FEEDBACK**

**HYDRO TASMANIA CONSIDERS CONSULTATION WITH STAKEHOLDERS AS AN ONGOING PROCESS AND DOES NOT WISH TO DRAW A LINE AFTER WHICH NO FURTHER ISSUES CAN BE RAISED.**

**IF YOU HAVE ANY COMMENTS OR FEEDBACK ON THIS REPORT, OR WISH TO RAISE FURTHER ISSUES, PLEASE CONTACT HYDRO TASMANIA'S ENVIRONMENTAL SERVICES SECTION ON**

**03 6230 5899**

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