

# Water Management Review

October 2006 **Derwent Catchment**



## A Message from Hydro Tasmania's CEO, Vince Hawksworth

I have been CEO of Hydro Tasmania since August of this year and I am quickly coming to understand the significance of our business to the Tasmanian Community. We take our responsibility as the State's largest water manager and energy

generator very seriously, and strive to create a sustainable future for our business and the community.

The Derwent Water Management Review (DWMR) is a project that brings together Hydro Tasmania's social and environmental commitments. It is a priority to identify, study and attempt to resolve environmental and community issues relating to our water management so we can achieve our goal of attaining a more sustainable approach to water management.

From the start of the DWMR stakeholder input played a very important role. Many individuals, organisations and community groups provided feedback. This information gave us insight into the issues that were of most concern to the people using and managing the catchment and helped us target the areas where we needed to find out more.

A report was published on the consultation outcomes in 2004. Hydro Tasmania committed to eleven technical studies over the following two years. Most of these studies are now drawing to a close. The studies involved input from key stakeholders and have provided us with improved scientific understanding of the issues and methods to manage them.

In consultation with stakeholder groups and the broader community, Hydro Tasmania is committed to implementing sustainable measures to address issues that have been studied. Hydro Tasmania intends to communicate the outcomes of the studies and proposed management actions with the aim of eliciting community input. I encourage you to be involved and contact us with your feedback.

*Hydro Tasmania's Derwent Water Management Review aims to balance the needs of the community, the environment and the business, and is set to achieve tangible outcomes*

Vince Hawksworth  
CEO, Hydro Tasmania

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## What has been studied in the DWMR?

Over the last two years a number of studies have been done as part of the DWMR. These include investigations into fish migration and pest fish, recreational management of lakes, geomorphological assessment of rivers, lake level agreements, lake shore erosion and environmental research.

The studies will be profiled in this and subsequent newsletters. Reports will be available on the Hydro Tasmania website as they become available <http://www.hydro.com.au/wmr>



**Hydro Tasmania**  
*the renewable energy business*

## Penstock Plan gets stakeholders on board

A review of recreational use in the Derwent catchment in 2004-05 highlighted Penstock Lagoon as a priority area. A collaborative approach with stakeholders was adopted to develop a draft Recreational Management Plan for Penstock Lagoon.

"It became clear that a single-agency approach was not a feasible option, nor would it be acceptable to stakeholders," said Land and Facilities Officer Michael Bidwell.

The plan drafted by Hydro Tasmania has been reviewed by the Inland Fisheries Service and Marine and Safety Tasmania. It proposes actions to address a range of issues, including camping access, parking, boat ramps, day visitor use, wading and boat usage.

Michael says that protection of the environment is a priority and essential to the lagoon's long-term integrity.

"The main concern held by stakeholders is the impact of recreational use on the environment. It is important to find solutions to manage these activities in a way that protects the environment and still allows people to enjoy using the area," he said.

Hydro Tasmania has developed a partnership with Angling Alliance Tasmania, Inland Fisheries Service and Marine and Safety Tasmania to jointly implement the Recreational Management Plan. A document

is being drawn up that will define the roles and responsibilities of each organisation in enacting the management proposals.

"For management actions to be effective the plan must also be supported by interest groups and the broader community," Michael said.

"We've sent the draft plan to 78 stakeholders for consideration, including interested individuals, trout fishing tour operators, angling associations and government organisations."

Comment has been sought from stakeholders during September and October and a number of forums are being held with stakeholder groups. It is expected that implementation of the Penstock Lagoon Management Plan will commence in late January 2007.

For further information regarding the Penstock Management Plan please contact Michael Bidwell, Hydro Tasmania Land Management Officer on 6230 5160 or michael.bidwell@hydro.com.au



*Penstock Lagoon*

## Blowing in the wind: the answer to Shannon's muddy waters

A study has found that turbidity in Shannon Lagoon is caused primarily by resuspension of sediments which lie on the bed of the shallow lake.

Wind, a common visitor to the Central Highlands, causes rough conditions on the lake and the wave action stirs up the sediments, resulting in discolouration of the water. Hydro Tasmania consultant and researcher Dr Malcolm McCausland says that over 70% of the lake bed provides sediments for resuspension.

"The majority of the lagoon is shallow and sediments can be easily stirred up from most of the lake bottom," he said.

"This means that management options to reduce turbidity are limited to those that influence the lagoon as a whole."

Since establishing the source of turbidity in Shannon Lagoon, the question that Dr McCausland and his colleagues have been trying to answer is: what impact does the turbidity have on the ecology of the lake?

The study has included modelling of various environmental conditions which have enabled the scientists to determine how the high turbidity levels are affecting the ecosystem.

"The modelling showed that under current conditions there is enough light to support a healthy crop of submerged plants," Dr McCausland said.

"Field observations of significant numbers of aquatic plants certainly support this."

Different water level, installation of wind barriers and in-flow scenarios are also being modelled to help determine whether there are ways to reduce turbidity in the lagoon. Early indications are that while some of the simulated scenarios may reduce turbidity to a degree, none provides



*Shannon Lagoon*

a realistic option for returning Shannon Lagoon to a clear water fishery.

While the name 'Shannon' is synonymous with trout fishing in Tasmania, bringing to mind the legendary Shannon Rise, the lagoon itself has natural ecosystem values. Shannon Lagoon is home to populations of two threatened fish, the Shannon and Great Lake galaxiids. The robust macrophyte crop provides habitat for these fish species and other aquatic animals, and platypuses have been observed in the lagoon.

Dr McCausland says that this is all evidence of a healthy and functioning aquatic ecosystem and any proposed changes would need to be carefully considered to ensure that the existing natural values are protected.

"The most appropriate approach may in fact be to maintain the status quo."



*Green and gold frog*

## Croaking it at Meadowbank

Stakeholder requests to remove willows in the top part of Lake Meadowbank prompted a survey of green and gold frogs in 2004.

The purpose of the survey was to establish whether there is a green and gold frog population in the lake and if so, how the frogs might be affected by willow removal.

Green and gold frog researcher and Hydro Tasmania consultant John Ashworth said there had been no reports of the frog in Lake Meadowbank, but one specimen has been seen in the Clyde River at Hamilton, which is not far away.

Green and gold frogs will usually only breed where there is suitable habitat. This habitat consists of permanent or semi-permanent water bodies that have a combination of different types of plants.

"Green and gold frogs can be a bit fussy about where they call home. They like a lot of floating and emerging plants where their tadpoles can hide from predators such as fish," John said.

John surveyed the 18 km length of Lake Meadowbank by boat. The only area in the lake which showed potential for green and gold frog habitat was the northern part of the lake where the crack willows are located. However the areas were quite small and disconnected.

In addition to the lack of ideal habitat very little aquatic invertebrate life was observed in the lake, which means slim pickings on the lunch front for adult frogs. The large number of trout in the lake explains the lack of

invertebrates and is also a deterrent for frogs to breed as their tadpoles would be readily eaten.

John says that the best way of finding the green and gold frog is to listen quietly for the chorus of the male frogs as they advertise their charms. In spring, the males pick a territory and make loud calls which attract a mate and warn other males to keep away.

The call of the green and gold frog is a complex series of growls and grunts which is very distinctive.

"When it's quiet, I can usually get a response from the frogs by mimicking their call," said John. "But people can think you're a bit strange if they see you at the edge of a pond making strange grunting noises!"

Despite his best efforts, John was unable to locate any green and gold frogs in Lake Meadowbank. Given this apparent absence and the limited breeding habitat, the study concluded that the removal of willows would be unlikely to have any impact on the species.

Most of the disturbance resulting from willow removal is likely to be short-term according to John. Any improvement in habitat allowing aquatic vegetation to grow will encourage other frogs including the common brown frog, the brown tree frog and banjo frog, he said.



*Lake Meadowbank*

## Spring spruce-up for the Ouse wetlands

Hydro Tasmania and Greening Australia have joined forces in an environmental partnership that will target the Derwent catchment. The partnership is a natural fit for both organisations, with Hydro Tasmania progressing the DWMR and Greening Australia gathering momentum in its Derwent River Recovery Program.

The first project supported by the partnership is rehabilitation of the Ouse wetlands. Greening Australia will coordinate the project and Hydro Tasmania will contribute financially, and in-kind with engineering and hydrological advice. The project will also involve Green Corps and the Derwent Catchment NRM Committee.



*A multi-talented tree planting team at the Ouse Wetlands in September are from left John Shoobridge (local farmer), Melanie Gent (volunteer), Cynthia Nixon (Hydro Tasmania), Steve Joyce (Derwent Catchment Natural Resource Management Committee), Simon Chapman (Green Corps), Bridget Jupe (Green Corps team leader and River Recovery project officer), Sebastian Burgess (Greening Australia), Anna Atherton-Griggs (Greening Australia River Recovery Project manager), Glenn Hall (Green Corps)*

*Photo courtesy of Greening Australia Tasmania*

## A study of quality for Lagoon of Islands

Deakin University PhD candidate Carolyn Maxwell has been studying nutrient cycling in the Lagoon of Islands since 2003. Growing up on the banks of the Murrumbidgee, Carolyn has had a lifelong interest in how water resources can be managed to balance conflicting demands and still achieve good environmental outcomes.



*Carolyn Maxwell, PhD candidate*

"The opportunity to study a lake where the results are so desperately needed to improve the water quality and benefit those reliant on it is really unique," said Carolyn.

Lagoon of Islands has suffered from high nutrient concentrations intermittently since 1989. The risks of algal blooms and the release of poor quality water to the Ouse River prompted Hydro Tasmania to offer the PhD study to identify the causes and possible solutions to the long-standing problem.

The PhD study is supervised by Professor Peter Tyler and Associate Professor John Sherwood from Deakin University, and funded by the Australian Research Council and Hydro Tasmania. The study has looked at:

- the transfer of nutrients from the sediments to the water column,
- the contribution of nutrients from Ripple Canal,
- impact of annual dieback of the macrophyte crop on nutrient cycling in the lagoon,
- the influence of climatic conditions on ecosystem processes.

After surviving long days of fieldwork and longer days of writing up her results, Carolyn has almost completed her thesis. It is due to be submitted by the end of 2006.

But Carolyn hasn't seen the last of Lagoon of Islands. She is working part-time as an environmental scientist with Hydro Tasmania and continues to apply her expertise to the ongoing management of the lagoon.

DWMMR Project Manager, Alison Howman says that Hydro Tasmania is developing options to manage the issues in the Lagoon of Islands, based on Carolyn's PhD recommendations.

"The knowledge we've gained through Carolyn's study is essential in understanding the Lagoon of Islands and applying appropriate management measures" she said.

Options have been identified for the short, medium and long-term management of Lagoon of Islands, including remediating Ripple Canal, controlling phosphorus in the lake and doing a pilot study on biomanipulation (removal of fish). The feasibility of these options is being investigated as part of the 2006-07 DWMMR program.



*Geoff Nicholson (Marine and Freshwater Research Institute, Victoria) and John Sherwood (Deakin University) deploying a benthic chamber to measure nutrient release from the sediment at Lagoon of Islands*

## Ouse Stakeholder Working Group

An Ouse Stakeholder Working Group has been established involving landowners, the Department of Primary Industries and Water, the Central Highlands Council and Hydro Tasmania. The aim of the group is to discuss management options for the Ouse River primarily focusing on water quality. The Working Group was established in response to landowners along the river raising concerns about poor water quality.

Should Ouse River landowners wish to participate in the Working Group please contact Derwent Catchment Natural Resource Management (NRM) Officer Steven Joyce on 0428 863323 or [sjoyce@centralhighlands.tas.gov.au](mailto:sjoyce@centralhighlands.tas.gov.au)

## Contact Us

If you have questions or any feedback relating to the Derwent Water Management Review program we are keen to hear from you. Please contact the Communications Coordinator Helga Grant or the DWMMR Project Manager Alison Howman.

We are keeping our mailing list updated so if you'd like someone added to it, if your details have changed, or if you'd like your name removed please let us know. The next newsletter will also be available by email so send us your email address if you'd like to receive an electronic copy.

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