

**ACTEW WATER**  
AUSTRALIAN CAPITAL TERRITORY

# Cotter Dam enlargement threatened fish protection case study

Saving of fish habitat while building a new dam

AUGUST 2012



To improve water security, ACTEW is enlarging Cotter Reservoir from 4 gigalitres to 78, raising dam level 50 meters and increasing shoreline from 10km to 25km. To provide alternative shelter habitats for fish species, including the endangered Macquarie Perch, as reed beds are inundated, seven kilometres of carefully researched, trialed, and strategically placed artificial rock reefs are being constructed. In addition, revegetation has been incorporated including the use of locally collected native seeds, trees, shrubs and grasses, and Xanthorrhoea trees. ACTEW worked closely with university experts and key environment stakeholders, and developed the plan to comply with the requirements of the ACT's Nature Conservation Act and the Federal Government's Environment Protection and Biodiversity Conservation legislation.



## ENSURING ENOUGH WATER WITH MINIMUM IMPACT ON THE ENVIRONMENT

In 2007, ACTEW committed to increase the capacity of the Cotter Reservoir from 4 gigalitres (GL) to 78GL as part of a suite of water security measures. Increasing the dam size will also mean raising the potential reservoir level by around 50 metres and lengthening the reservoir's shoreline from around 10 km to nearly 25 km.

The existing Cotter Reservoir and Cotter River provide critical habitat for several aquatic species that may be affected by the construction and operation of the Enlarged Cotter Dam. ACTEW is committed to addressing issues which may impact on these threatened species in order to comply with the requirements of the ACT's Nature Conservation Act and the Federal Government's

Environment Protection and Biodiversity Conservation legislation.

A key focus area is the protection of threatened aquatic species.

### Protecting threatened native fish species

ACTEW is committed to the ongoing protection of native fish species and the improvement of aquatic habitats in the vicinity of the dam. Working closely with experts from the University of Canberra, Australian National University and University of Sydney - and addressing the concerns of key stakeholders such as the ACT's Environmental Protection Authority, Territory and Municipal Services and the Commonwealth Department for Environment, Water, Heritage and the Arts - ACTEW has developed a comprehensive program to ensure environmental and water quality issues are addressed.

### Establishing artificial fish habitats

When the Enlarged Cotter Dam is complete and the reservoir begins to fill, the macrophyte reed beds that Macquarie Perch currently use as shelter will be inundated. As part of a comprehensive fish management program involving ACTEW Corporation and the University of Canberra, Australian National University and the University of Sydney, ACTEW completed a trial of artificial fish habitats for the endangered Macquarie Perch population in the Cotter Reservoir. Results showed that in the absence of reed beds Macquarie Perch prefer artificial rock reefs over other forms of artificial habitat that were trialled.

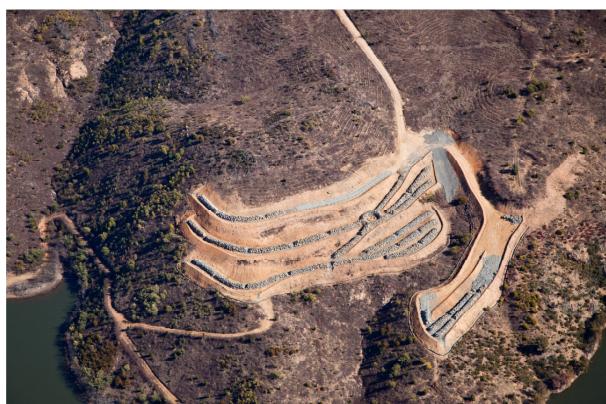
Following the submission of a Development Application to the ACT Planning and Land Authority in early 2011, work began on constructing artificial rock reef habitats at carefully selected sites around the Cotter Reservoir for the Macquarie Perch. The habitats will provide new shelter for the fish species when the enlarged reservoir begins to fill and the macrophyte reed beds that they currently shelter in are inundated. Rocks of the right size and quality have been sourced to create the habitats and it is expected construction of them will be complete before the water level starts to rise in the enlarged Cotter Reservoir.

### **Managing risk to aquatic species**

A series of studies are being undertaken by various government agencies, university researchers and ACTEW to mitigate potential risks associated with the construction and later operation of the Enlarged Cotter Dam. Results from these studies will enable ACTEW to understand and manage:

- > use of artificial habitats by Macquarie Perch;
- > the impact of fluctuating reservoir levels on Macquarie Perch food sources;
- > the possible recolonisation of the enlarged Cotter Reservoir by Two-spined Blackfish;
- > the ecology and habitat preferences of Murray River Crayfish;
- > measures to protect the Cotter Reservoir from the EHN virus (fatal to some threatened native fish species);
- > native fish access to upstream sections of the Cotter River;
- > establishing other populations of Macquarie Perch and Two-spined Blackfish in locations outside the Cotter River system;
- > the impact of alien fish species on threatened native fish populations;
- > monitoring and evaluation as the basis for adaptive management measures to protect threatened species from predators and competitors within the enlarged Cotter Reservoir.

ACTEW continues to work with our partners to help protect these fish species, and these activities remain integral to the ongoing Enlarged Cotter Dam works.



### **PROTECTING LAND, WATER AND CULTURAL HERITAGE**

ACTEW Corporation is committed to protecting the environment and heritage of the Cotter as we work to secure water supply for the local region.

Considerable work is being undertaken by ACTEW to protect the local environmental during construction and operation of the Enlarged Cotter Dam.

#### **Heritage**

The Cotter surroundings were a traditional dwelling point for Aboriginal people and the area is abundant in Aboriginal cultural history. ACTEW has a comprehensive heritage program to ensure the Cotter's history is recorded for present and future generations. European heritage has also been assessed and salvaged, including one of the oldest suspension bridges in Australia. The salvaging program identifies, examines, records and preserves European and Aboriginal artifact material in the area. Cultural heritage sites at the Cotter include occupation areas, quarries, open artifacts scatter, single artifacts and burial grounds. Sensitive areas have been identified and fenced off for protection.

#### **Landscape**

Xanthorrhoea trees were carefully removed prior to construction for reintegration into final landscaping plans once the project is complete. As a legacy of the existing dam, some plants were also donated to the National Arboretum and the Australian National Botanic Gardens for public display. In addition, progressive revegetation of disturbed areas has commenced onsite. This includes the integration of locally collected native seeds into revegetation works. Plans are currently underway for the planting of native trees, shrubs and grasses to reinstate the local landscape.

#### **Environmental Management Plans**

ACTEW has developed a range of environmental management plans to manage the potential impacts associated with construction activities. These plans meet both ACT and Commonwealth legislative requirements and have been approved by the Environment Protection Authority. They detail mitigation measures to manage dust, noise, vibration and other potential impacts during the course of construction. For example, sediment

basins have been built onsite to capture and treat all construction run-off generated from rain events.

#### **Accountability**

Our employees are regularly updated and reminded of environmental protection measures in place for the project. We also have a water conservation system onsite supporting construction operations through use of water tanks and recycling sediment basin water. All environmental protection measures implemented onsite are regularly audited by the project team, environmental agencies including the Environmental Protection Authority and an independent auditor.

#### **ACTEW WATER**

ACTEW Water (ACTEW) operates the water and sewerage assets and business in the ACT, supplying water services to over 150,000 customers and sewerage services to over 146,000 customers.