Fixing freshwater fish habitat

A report on 10 projects funded by the NSW Recreational Fishing Freshwater Trust Fund

NSW DEPARTMENT OF PRIMARY INDUSTRIES

Recreational Fishing Trusts

Cover images from left to right: new box culvert crossing Quart Pot Road, Murray cod © Gunther Schmida, Coobarragandra River riparian rehabilitation

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The health of our rivers and creeks is influenced by our activities on the land. In the past, waterways throughout NSW have undergone extensive change due to urban, industrial and agricultural development. Erosion, drainage of floodplains and wetlands, the construction of instream structures which restrict fish passage and the removal of riparian and aquatic vegetation have all degraded fish habitat. These changes have put significant pressure on native fish populations and recreational fishing opportunities.

Aquatic habitat rehabilitation has become progressively more important in NSW as the community recognises the benefits of natural, healthy systems for native plants and animals, our fisheries resources, the control of pollution and erosion, and the recovery of threatened species.

In 2002 the NSW Recreational Fishing Freshwater Trust Expenditure Committee (RFFTEC) provided $300,000 from recreational fishing licence fees for a three year fish habitat rehabilitation program within freshwater environments throughout the state. Angling clubs, local government, Landcare and Rivercare groups, community groups, and individual landholders were eligible to apply for up to $10,000 of funding.

The first three rounds of the Freshwater Fish Habitat Grant Program managed by NSW Department of Primary Industries (NSW DPI) Aquatic Habitat Rehabilitation (AHR) program provided grants to 41 successful applicants for innovative rehabilitation projects to improve native fish habitat and enhance recreational fishing opportunities across the state.

The projects aimed to:

- remove barriers to fish passage
- reinstate natural flow regimes
- rehabilitate riparian zones
- remove exotic vegetation
- revegetate with native species
- fence off waterways to restrict stock access.

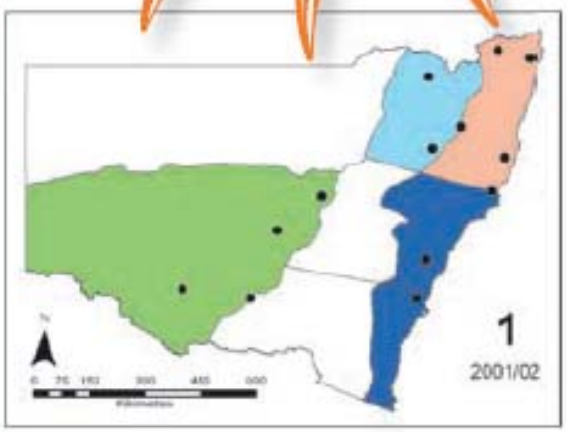
The success of the first three rounds of the program resulted in the continuation of the Fish Habitat Grant Program, with an increased allocation of $200,000 available each year. This increase in funding has allowed the program to fund potentially larger projects, with the upper limit for individual projects rising from $10,000 to $30,000. Round 5 projects are currently underway, with 2007 seeing the announcement of Round 6 funding.

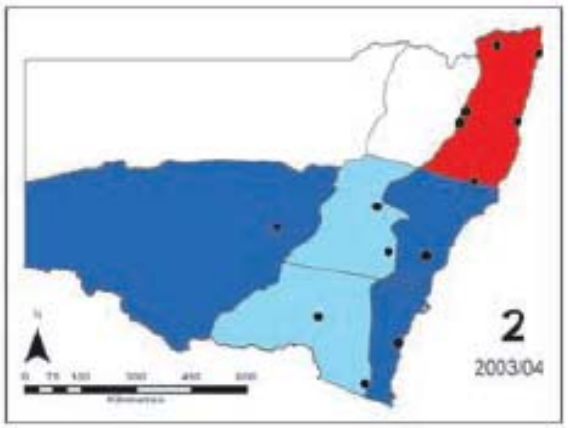
Funding from rounds 1- 4 of the freshwater fish habitat grant program has:

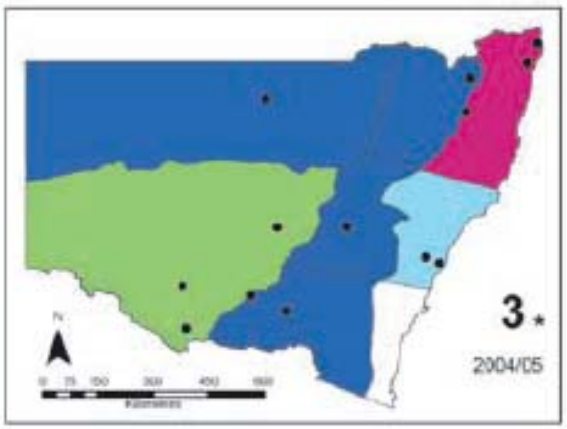
- secured matching funding and in-kind contributions of over $1,183,779
- rehabilitated 1076 hectares of wetlands
- reinstated 400 kilometres of fish passage
- carried out 5.5 kilometres of instream activities including re-snagging and erosion protection works
- completed 27.6 kilometres of riparian fencing
- completed 67 kilometres of riparian revegetation
- carried out 8 research related projects focusing on fish passage and recreational fishing
- produced educational material relating to fish habitat requirements and rehabilitation
- promoted projects in the media
- increased community interest in fish habitat rehabilitation.

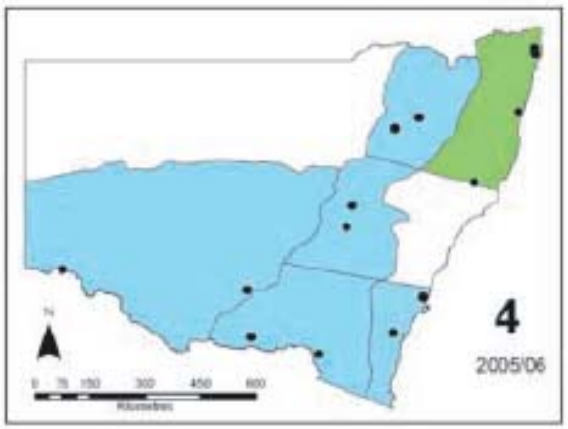
This booklet summarises a selection of projects from the first four rounds of the Freshwater Fish Habitat Grant Program and aims to provide an overview of fish friendly projects that have been undertaken by dedicated individuals and groups, who enjoy the positive benefits of their projects for native fish and river health.

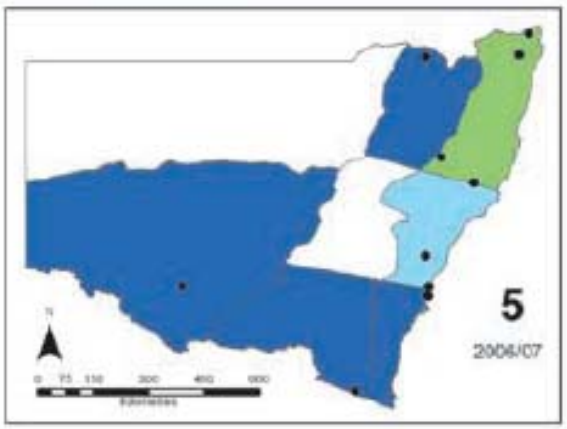
Freshwater Fish Habitat Grant Program project locations rounds 1 to 5











Recreational Fishing Trusts

NSW DEPARTMENT OF PRIMARY INDUSTRIES

* Round 3
Freshwater Fisher - special publication
Aquatic habitat rehabilitation, statewide distribution

Mid-Lachlan

willow removal

The site

Eight different locations near Condobolin in central west NSW were chosen by the 'Mid-Lachlan and Wallamundry Creek Water Users Group' for a willow removal program. A number of the sites were situated on Goobang Creek, Bumbuggan Creek and several along the Wallamundry and Little Lachlan Creek system.

Proponent	***Mid-Lachlan and Wallamundry Creek Water Users***
Nearest town	***Condobolin, NSW***
Land use	***Private property, grazing & recreational fishing***
RFFTEC grant	***$26,000 (3 years)***
In-kind support	***$71,950***
Funding year	***2002 - 2004***

The project

Initiated in 2003, Stage 1 of the project aimed to eradicate riparian and instream willow stands within Goobang Creek and Bumbuggan Creek. Stage 2 saw the removal of several stands of willows within Wallamundry Creek and the Little Lachlan River. The third and final stage of the project involved site surveys to identify any re-shooting willows (and a respray program), recording sites of natural native species regeneration and identifying areas requiring future revegetation. Upon completion, a maintenance program with individual landholders was established. Several contributors assisted in carrying out the project and the water users group were able to secure in-kind support for technical aspects of the project.

Invasion of willows along Goobang Creek (Lachlan Catchment) showing erosion impact on left hand bank (2002).

Post willow removal survey site after spraying (2004).

Natural regeneration post willow removal (2004).

The outcomes

Outcomes of the project include:

- willow removal over 10 kilometres of riparian and instream habitat
- selective revegetation
- landholder education and greater understanding of willow management techniques.

The 'Mid-Lachlan and Wallamundry Creek Water Users Group' continue to work with landholders to monitor willow infestations, carry out revegetation and encourage natural regeneration through stock exclusion.

Invasive exotic vegetation
(eg willows and blackberry)

- **prevent the growth of native vegetation**
- **change the structure and function of the riparian zone**
- **create a poor habitat for native fish**
- **reduce shade levels and causes water temperature fluctuations**
- **may deflect flow and cause bank erosion and instability.**

Severn River

fish passage and riparian weed control

Proponent	*Glen Innis Severn Shire Council*
Nearest town	*Deepwater, NSW*
Land use	*Public reserve, private property (grazing)*
RFFTEC grant	*$10,000*
In-kind support	*$28,125*
Funding year	*2004 - 2005*

The site

Morven Road crossing, located on the Severn River near the township of Deepwater (approximately 40 kilometres north of Glen Innes), was preventing the passage of fish during the majority of flow conditions. The narrow pipe culvert crossing produced concentrated high flow velocities making it unsuitable for fish to move through.

The project

In consultation with NSW DPI, Glen Innes Severn Shire Council replaced the piped crossing with a fish friendly box culvert structure. The large box culverts, installed at bed level to allow creek substrate to be retained, provide a more natural channel and reduced flow velocity.

Council also negotiated with local landholders adjacent to the crossing to undertake riverbank weed control. The project was supported through in-kind assistance by the local LandCare group and two local fishing clubs.

Barrier to fish passage on the Severn River (2004). A round narrow pipe restricts flow and prevents upstream migration of fish.

Crossing after the installation of fish friendly box culverts (2006).

The outcomes

- reinstated fish passage to over 14 kilometres of upstream habitat
- improved flow and water quality in the Severn River
- rehabilitated 5 kilometres of riparian habitat, including weed control (eg blackberry), and natural regeneration of native species (eg Lomandra).

What happens when fish can't move freely?

- **Spawning or seasonal migrations are interrupted.**
- **Access to preferred habitat and available food resources are restricted.**
- **Fish communities can become fragmented.**
- **Fish can be exposed to predators and disease when congregating below barriers.**
- **Downstream fish larval drift can be impeded.**

“Toogimbie”

Wetland rehabilitation

Proponent	*Nari Nari Tribal Council*
Nearest town	*Hay, NSW*
Land use	*Conservation wetland reserve*
RFFTEC grant	*$4,450*
In-kind support	*$5,450*
Funding year	*2002 - 2003*

The site

“Toogimbie” Wetland covers an area of 1,000 hectares and is located approximately 45 kilometres west of Hay in the NSW Riverina area. The wetland is highly significant to the cultural, spiritual, social and heritage values of the local indigenous communities, and as such is part of the 5,000 hectare Indigenous Protected Area, which adjoins the Murrumbidgee River.

The project

Severe weed encroachment at the wetland and dumping of waste motivated the Nari Nari Tribal Council to embark upon a weed eradication and wetland rehabilitation project. The project involved the eradication of weeds using biologically sensitive herbicides and manual removal. In addition, scrap metal and other rubbish was removed from the entire site. Revegetation over a 20 hectare area was undertaken. In addition, innovative revegetation methods using seed balls were trialled that when inundated by flood waters germinate in-situ.

Intermittently inundated billabong within the 'Toogimbie' Wetlands (2003)

Preparation of site for planting (2003)

The outcomes

The efforts by the Nari Nari Tribal Council and community volunteers have resulted in:

- weed management of 20 hectares of wetland habitat 2,800 endemic plants planted, including common reed, lignum, black box and river cooba
- removal of debris from over 1000 hectares of wetland development of a water sharing plan for the “Toogimbie” Wetland, allowing artificial inundation of the wetland to promote “an ecologically balanced environment”.

The Council are keen to see further works carried out across “Toogimbie” Wetland, and are continuing to investigate plans to establish potential fish breeding sites and re-establish the link with the Murrumbidgee River to promote fish passage.

Important activities of wetlands and floodplains

- **They release nutrients and carbon; the basis of aquatic food chains.**
- **They provide essential breeding, feeding and nursery habitat for birds, amphibians, fish and other animals.**
- **They filter sediments and toxic materials from run-off before it reaches the waterway.**

Molong Creek

re-snagging project

The site

Molong Creek is situated within the town limits of Molong in the hills of the Macquarie Range. The creek suffered from a lack of adequate riparian vegetation, erosion, sedimentation and was devoid of instream woody debris. As a result, the available fish habitat was poor and uniformly shallow.

Proponent	*Molong Fishing Club & Cabonne Shire Council*
Nearest town	*Molong, NSW*
Land use	*Crown land & public reserve*
RFFTEC grant	*$5,500*
In-kind support	*$5,500*
Funding year	*2004-2005*

The project

The Molong Fishing Club were keen to see more native fish within the Molong Creek system and were aware that by providing habitat such as snags, fish would have a better opportunity to breed and survive. Cabonne Shire Council had previously undertaken some works to remove willows and other introduced plant species along the creek however more instream works were required.

Molong Fishing Club, in conjunction with Council, developed a re-snagging project to further improve fish habitat and provide instream structure in the form of large woody debris.

Snag being placed at Molong Creek site.

Molong Creek fish habitat post re-snagging (2006).

The outcomes

This collaborative project resulted in:

- the introduction of 15 large, hollow-bearing logs into an 800 metre reach of Molong Creek
- the provision of complex instream habitat for native fish and other aquatic species.

Molong Fishing Club and Cabonne Shire Council are keen to see the creek return to a more natural state and will pursue future opportunities to continue this work including willow removal, re-snagging and revegetation throughout the Molong Creek system.

Benefits of snags (large woody debris)

- **They provide habitat for aquatic plants, algae, invertebrates and micro-organisms.**
- **They provide refuge for fish from predators.**
- **They assist in creating complex habitat through the development of scour pools.**
- **They provide essential spawning and feeding sites for fish.**
- **Snag decomposition provides food for invertebrates and fish.**
- **They assist in the stabilisation of stream banks and beds..**

Goobarragandra River

riparian rehabilitation

Proponent	*Riverina Highlands Network*
Nearest town	*Tumut, NSW*
Land use	*Land use private & grazing*
RFFTEC grant	*$8,200*
In-kind support	*$9,750*
Funding year	*2004-2005*

The site

The Goobarragandra River is a renowned trout fishing stream, located near Tumut in the Tumut River Valley approximately 120 kilometres west of Canberra. The riparian habitat condition along the river at two chosen project sites was degraded as a result of livestock grazing to the water's edge and the encroachment of invasive introduced species such as willows.

The project

For a number of years a group of landholders adjacent to the Goobarragandra River erected fencing to manage stock access and revegetated their riparian zones to improve the condition of the river. A group of landholders, called the "Riverina Highlands Network" that are focused on further enhancing the health of the river, sought funding from RFFTEC to build upon the success gained by these landholders and increase the area of rehabilitation.

Goobarragandra River riparian fencing and revegetation (2006).

Goobarragandra River riparian revegetation (2006).

The outcomes

The combined efforts of the "Riverina Highlands Network" resulted in:

- 250 metres of riparian fencing erected weed removal along a 1.5 kilometre reach
- 825 trees and understorey shrubs planted
- a wildlife corridor established, which benefits fish habitat, water quality and native terrestrial wildlife.

The landholders involved in this project are pleased with the growth and survival rate of the trees and subsequently have been informing their neighbours about the benefits of riparian fencing and replanting. Ongoing maintenance of these sites continues, with weed removal and fence maintenance a high priority.

Benefits of riparian zones

- **Streambank vegetation traps sediment and nutrients before run-off drains into the waterway.**
- **Plant roots help stabilise streambanks and prevent erosion.**
- **Native trees provide organic litter and food for aquatic life.**
- **Native trees shade the water and control water temperature.**
- **Fallen branches offer habitat for native fish species.**

Gloucester River

fishway project

The site

The Faulklands Road crossing over the Gloucester River is located approximately 25 kilometres south east of Gloucester at the foot of the Bucketts Mountains. The causeway crossing prevented the free passage of fish throughout the majority of flow conditions due to a “waterfall effect” on the downstream side of the structure.

Proponent	*Gloucester Shire Council*
Nearest town	*Gloucester, NSW*
Land use	*Crown land & road reserve*
RFFTEC grant	*$8,090*
In-kind support	*$8,090*
Funding year	*2003 - 2004*

The project

The removal of this fish passage barrier was not a feasible option as the crossing provides access to both sides of the river for local residents. A solution was needed whereby the crossing could be retained and fish passage could be achieved. Following consultation with NSW DPI, a rock ramp fishway designed to simulate natural stream pools and riffles was incorporated into the right hand side of the crossing at a maximum slope of 1:20.

Barrier to fish passage on the Gloucester River prior to fish passage works taking place (2004).

Crossing after fishway installation (2006).

The outcomes

This new rock ramp fishway has:

- reinstated fish passage to over 15 kilometres of habitat
- improved access for key recreational fish species to upstream habitat.

Council has been proactive in their approach to fish habitat rehabilitation and have recently been successful in obtaining additional funding to continue their work to improve fish passage along the Gloucester River.

Road crossing fish passage barriers

- **Physical - a waterfall effect (steps greater than 100 mm), shallow flow depths (less than 500mm).**
- **Hydrological - excessive water velocity, turbulence.**
- **Behavioural - low light levels, acidic water.**

Wakool and Edward River

riparian rehabilitation

Proponent	*The Conallin family*
Nearest town	*Deniliquin, NSW*
Land use	*Land use private land, travelling stock route & grazing*
RFFTEC grant	*$8,000*
In-kind support	*$10,000*
Funding year	*2004 - 2005*

The site

The Wakool and Edward rivers run through the Conallin family property that is located approximately 10 kilometres north west of Deniliquin, in the Riverina area of western NSW. Heavy stock grazing on the river banks resulted in a highly degraded riparian zone with little understorey vegetation, proliferation of invasive weeds, increased erosion and sedimentation. The local fishermen regard the Edward River as a prime recreational fishing area with species such as Murraycod and golden perch prized catches.

Actively eroding bank of the Edward River with little or no understorey vegetation (2004).

The project

In a dedicated approach to the surrounding environment and farm productivity, the Conallin family applied for funding for a riparian rehabilitation program. The project involved fencing to restrict stock access, weed control and revegetating the area with species native to the locality. In addition, as part of their in-kind support, the Conallin's have undertaken an intensive off-stream stock watering program and installed numerous troughs and dams.

Riparian fencing and laying pipe for watering troughs (2006).

The outcomes

This extensive riparian rehabilitation project has resulted in:

- rehabilitation of a total riparian area of 30 hectares
- approximately 10 kilometres of riparian fencing erected
- around 2,000 understorey plantings
- six alternative off-stream stock watering points installed.

The ongoing maintenance of fences, weed control and plants are important in-kind contributions that the Conallin family have made, and it is this long term commitment to the project that has made it successful.

Why livestock cause problems around waterways

- **Livestock manure and urine increase water nutrient levels which reduce water quality and can lead to algal blooms.**
- **Grazing stock damage native vegetation, disturb streambank soils and increase erosion.**
- **These impacts can be reduced by excluding stock from riparian areas using fencing and providing alternative shade and water points.**

South Creek bass

habitat rehabilitation

The site

South Creek located near St Clair in western Sydney provides important habitat for a number of native fish species including the popular recreational catch, Australian bass. However, the riparian zone along several parts of the creek was severely infested with woody weeds including the African olive tree.

Proponent	*Greening Australia*
Nearest town	*Marylands, NSW*
Land use	*Land use public reserves & recreation*
RFFTEC grant	*$31,000 (3 years)*
In-kind support	*$82,240*
Funding year	*2002 - 2005*

The project

Greening Australia was successfully funded by RFFTEC for a three stage South Creek rehabilitation project along sites adjacent to areas previously targeted for bush regeneration and weed control programs. The local recreational fishing community, including Sydney Fly Rodders, Bass Fishing Club Sydney and the Hawkesbury/ Nepean Bass Anglers provided their support for the project and a number of members participated in the on-ground works and a carp fishing day.

Community tree planting day at South Creek.

Bass caught in South Creek (2004).

The outcomes

This project has improved Australian bass habitat and also resulted in:

- the removal of riparian weeds including African olive, privet and willow
- the successful removal of a barrier to fish passage by Greening Australia and
- the rehabilitation of the surrounding site as in-kind support revegetation of plants endemic to the area including Lomandra, Juncus and Carex sp
- improved instream fish habitat and bank stabilisation with introduced timber.

Greening Australia will continue to monitor and maintain the project site and plan to continue their work to provide better habitat for the resident bass population.

Bass basics

Australian bass (Macquaria novemaculeata) depend upon specific water qualities to complete their life cycle.

- **Downstream migration occurs during higher flows at 11-18 ° C.**
- **Spawning takes place in brackish water at salinities 1/3 to 1/2 that of sea water.**
- **Juveniles avoid areas with a low (acidic) pH.**
- **Increased turbidity can affect bass respiration, feeding and breeding.**

Swampy Plains Creek

rehabilitation

Proponent	*Bruce Saxton*
Nearest town	*Khancoban, NSW*
Land use	*Private*
RFFTEC grant	*$7,000*
In-kind support	*$17,300*
Funding year	*2005 - 2006*

The site

Swampy Plains Creek is a tributary of the Murray River that is located approximately 5 kilometres west of the township of Khancoban and flows through a private grazing property.

Over the past three years the landholder has been carrying out riparian rehabilitation works including stock exclusion fencing, riparian revegetation, weed control and erosion protection works.

A damaged crossing on the creek restricted water flow and the upstream movement of fish. As the crossing was not functional, livestock and machinery were crossing the creek in-stream, leading to an increase in turbidity and eutrophication of the water.

Construction of fish friendly crossing, March (2006).

Crossing, fencing and erosion protection works completed November (2006).

The project

Swamp Plains Creek is recognised as an important breeding ground for native fish and trout. With the support of the local fly-fishing clubs the landholder sought funding to construct a fish friendly crossing and undertake further willow removal, riparian fencing and revegetation along the creek.

The outcomes

The effort made by the landholder has resulted in:

- 200 metres of willow eradication in a heavily infested reach
- construction of a fish friendly crossing providing access to over 17 kilometres of upstream fish habitat
- 50 metres of erosion protection works
- 200 metres of riparian fencing
- 200 metres of revegetation.

The landholder and the local fishing clubs will continue to work together to rehabilitate Swampy Plains Creek and create a healthy environment for fish.

Restricting natural water flow can degrade aquatic habitat by:

- **increasing deposited sediments**
- **filling in essential fish habitat**
- **inundating previously dry land**
- **producing lentic environments dominated by exotic fish species and nuisance weeds.**

Quart Pot Road crossing

fish passage project (Buckenbowra River)

Proponent	*Eurobodalla Shire Council*
Nearest town	*Batemans Bay, NSW*
Land use	*Road reserve*
RFFTEC grant	*$30,000*
In-kind support	*$40,000*
Funding year	*2005 - 2006*

The site

The Quart Pot Road crossing located on the Buckenbowra River in the Clyde River Catchment restricted the upstream movement of fish due to a slight “waterfall effect” on the downstream side and insufficient flow depths across the structure.

The crossing was identified as a high priority site for fish passage remediation in the catchment by NSW DPI and the Southern Rivers Catchment Management Authority (CMA). It was also noted that the crossing location had a good cover of riparian vegetation and a diverse range of habitat features including pools, riffles, gravel beds, snags and undercut banks.

Quart Pot Crossing before fish passage works (2005).

Quart Pot Crossing after fish passage works (2006).

The project

Eurobodalla Shire Council applied for funding to remove the causeway and replace it with a fish friendly box culvert structure to reinstate fish passage to the upper reaches of the Buckenbowra River and its tributary Quart Pot Creek. As an important development that would provide benefits for recreational fishing and the health of the catchment, Council gained support for the project from the Malua Bay Fishing Club and the CMA.

The outcomes

This local Council managed project has resulted in:

- over 18 kilometres of fish passage being opened up
- improved local water quality
- increased community awareness to the importance of fish passage.

Eurobodalla Shire Council have been active participants in the fish habitat grant program over the last three years and are involved in several other projects that will help protect and enhance fish habitat within the region.

Habitat rehabilitation is essential for the recovery of threatened freshwater fish

- **Restoration of riparian vegetation improves water quality for endangered Oxleyan pygmy perch, vulnerable Macquarie perch and vulnerable southern pygmy perch.**
- **Snags are important for endangered trout cod and eastern freshwater cod.**
- **Re-instatement of fish passage facilitates dispersal and re-establishment of populations of endangered Murray hardyhead and vulnerable silver perch.**

The Freshwater Fish Habitat Grant Program

If you'd like to improve fish habitat in your local area or your favourite fishing spot, here's 5 steps to get you started:

1. Talk with local anglers, NSW DPI Fisheries Conservation Managers, council officers, Landcare, Rivercare or local environment groups to identify habitat issues.
2. Involve your neighbours and your neighbours' neighbours!
3. Apply for permits, funds and resources, and encourage others to contribute.
4. Plan well but start quickly – good progress encourages other people to help.
5. Involve your local media and create awareness about your project and its benefits to your community.

How can you get involved in fixing fish habitat?

To date the freshwater fish habitat grant program has been a great success and with the continued interest and participation of recreational anglers, councils, landholders and other community groups, the Fish Habitat Grant Program will continue to bring about discernible benefit to fish and their habitat. Remember that without healthy habitat there are no fish.

"There has been a direct improvement in the riparian and aquatic habitats…which will benefit the survival and recruitment of juvenile fish and ultimately provide better recreational fishing opportunities" said John Conallin, recreational angler and private landholder, Deniliquin.

"The planting days conducted by Greening Australia under the Fisheries Habitat Program have also involved the participation of local community and sporting groups such as Bass Sydney and the Hawkesbury/ Nepean Bass Anglers Club. This participation by community groups has led to a greater understanding and appreciation of the importance of maintaining healthy native riparian vegetation in terms of instream water quality and native fish habitat." Ben Smith, Greening Australia NSW.

Project Reviews 2003-2006

Round 1 (2003)

Project	Applicant	Funding	Inkind Contribution
Goobang & Bumbuggan Creeks willow removal, Condobolin NSW	Mid-Lachlan & Wallamundry Creek Water Users	$11,000	$10,000
Clarksons Crossing fish passage rehabilitation, Nabiac NSW	Great Lakes Council	$10,000	$10,000
Toogimbie Wetland Rehabilitation, Hay NSW	Nari Nari Tribal Council	$4,450	$5,450
South Creek riparian and instream rehabilitation, Western Sydney NSW	Greening Australia	$11,000	$10,000
Murrumbidgee River fish habitat utilisation research, Narranderra NSW	Narrandera Recreational Fishing Club	$260.50	$1,060.60
Macquarie River riparian revegetation and weed removal, Narromine NSW	Ross Bignall (land owner)	$1,300	$2,160
Vertical slot fishway research, Armidale NSW	University of New England	$10,000	$20,000
Wilson River riparian and instream rehabilitation, Rollands Plains NSW	Rollands Plains Landcare Group Inc	$6,610	$6,930

Project	Applicant	Funding	Inkind Contribution
Pelican Creek fish passage rehabilitation, Lismore NSW	Lismore City Council	$10,000	$29,320
Kangaroo River, Broughton and Brogers Creeks revegetation and weed removal, Kangaroo Valley NSW	Shoalhaven City Council	$9,996	$26,524
Clarence River riparian and instream rehabilitation, Tabulum NSW	Clarence River Wilderness Lodge	$4,770	$4,900
Peel River riparian rehabilitation, Tamworth NSW	Tamworth City Council	$8,400	$8,460
Macintyre River weed removal, Wallangra NSW	Masterman Range Landcare Group and Graman Fishing Club	$4,780.90	$4,780.90

Round 2 (2003-04)

Project	Applicant	Funding	Inkind Contribution
Skinners Creek crossing modify cation and revegetation, Ballina NSW	Ballina Shire Council	$10,000	$40,750
Cudgegong River riparian rehabilitation – willow removal and revegetation, Mudgee NSW	Cudgegong Catchment Committee	$8,805	$9,040
Gloucester River fish passage remediation – causeway modification, Gloucester NSW	Gloucester Shire Council	$8,095	$14,000
South Creek rehabilitation, Western Sydney	Greening Australia	$10,000	$35,840
Little Lachlan willow removal works, Condobolin NSW	Mid-Lachlan & Wallamundry Creek Water Users	$10,000	$51,950
Tooloom Creek riparian rehabilitation, Tabulum NSW	Clarence River Wilderness Lodge	$3,850	$3,850
Deua River riparian rehabilitation, Moruya NSW	Eurobodalla Shire Council	$9,000	$9,000
Swamp forest and wetland rehabilitation, Urunga NSW	Jack Buttsworth (land owner)	$1,965	$3,240
Thegoa Lagoon fish passage rehabilitation, Wentworth NSW	Wentworth Shire Council	$10,000	$10,000
Duckmaloi River riparian rehabilitation, Oberon NSW	Duckmaloi River Rivercare andLithgow – Oberon Landcare	$1,000	$1,000
Bombala River aquatic habitat rehabilitation, Bombala NSW	Snowy River Interstate Landcare Group	$10,000	$11,760
Vertical slot fishway research, Armidale NSW	University of New England	$10,000	$16,000

Round 3 (2004-05)

Project	Applicant	Funding	Inkind Contribution
Bogan River fish passage remediation, Brewarrina NSW	Nidgery Weir Trust	$8,600	$35,800
South Creek riparian revegetation and re-snagging, Marylands NSW	Greening Australia	$10,000	$36,400
Murrumbidgee River Billabong (Twynams Lagoon) rehabilitation, Hay NSW	Murrumbidgee Wetlands Working Group	$10,000	$14,405
Old Man Creek riparian rehabilitation, Wagga	NSW Conservation Volunteers Australia	$10,000	$19,000
Wakool and Edward Rivers riparian rehabilitation, Deniliquin NSW	PF & BJ Conallin Farming Enterprises	$8,000	$10,000
Molong Creek instream fish habitat rehabilitation, Molong NSW	Molong Fishing Club/Cabonne Shire Council	$5,500	$5,500
Goobang, Bumbuggin and Little Lachlan Creeks willow removal, Condobolin NSW	Mid-Lachlan and Wallamundry Creek Water Users	$5,000	$10,000
West Coraki wetland rehabilitation, North Coast NSW	Wetland Care Australia	$10,000	$19,580
Freshwater Fisher - special publication, Aquatic habitat rehabilitation, statewide distribution	NSW Council of Freshwater Anglers	$2,980	$7,226
Brunswick River fish passage remediation, Mullumbimby NSW	Byron Shire Council	$10,000	$140,000
Goobarragandra River riparian rehabilitation, Tumut NSW	Riverina Highlands Landcare Network	$8,200	$9,750
Severn River fish passage remediation, Deepwater NSW	Glen Innes Severn Shire	$10,000	$28,125
Parramatta River fish passage remediation, Parramatta NSW	Parramatta City Council	$5,000	$30,000
Thegoa Lagoon fish passage rehabilitation, Wentworth NSW	Wentworth Shire council	$10,000	$40,000
Lake Talbot Research - fish movement in off stream irrigation channels, Narrandera NSW	Narrandera Fishing and Bowling Club	$10,000	$14,080

Round 4 (2005-06)

Project	Applicant	Funding	Inkind Contribution
Murrumbidgee River- field testing of a fishway pump at Yanco Weir, Yanco NSW	NSW Council of Freshwater Anglers	$10,800	$19,000
Molong Creek riparian revegetation and fencing, Molong NSW	David and Alison Trowbridge (land owners)	$2,100	$2,100
Orara River fish passage rehabilitation - road crossing modification, Karangi NSW	Orara Valley Rivercare Groups Management Committee	$27,500	$9,500

Thegoa Lagoon fish passage remediation, Wentworth NSW	Wentworth Shire Council	$26,600	$68,000
Broughton Mill and Broughton Creek riparian rehabilitation, Berry NSW	Shoalhaven City Council	$27,378	$39,954
Maquires Creek riparian rehabilitation, Alstonville NSW	G&M Fleming (land owner)	$4,000	$4,000
Macquarie River riparian rehabilitation, Wellington NSW	Sam and Penny Deshon (land owner)	$6,500	$9,000
Richmond catchment fish passage remediation, Richmond NSW	Richmond Valley Council	$25,000	$25,000
Namoi River riparian rehabilitation, Boggabri NSW	Boggabri Landcare/Rivercare Group Inc	$5,682	$5,700
Gloucester River fish passage remediation - causeway modification, Gloucester NSW	Gloucester Shire Council	$8,450	$8,450
Buckenbowra River fish passage remediation – replacement of a causeway, Batemans Bay NSW	Eurobodalla Shire Council	$30,000	$40,000
Swampy plains Creek riparian rehabilitation, Corryong NSW	Khancoban Station	$7,000	$17,300
Rehabilitation of the riparian zone-Wilson River, Clunes NSW	Alandale Farm	$9,350	$9,910
Fish Passage on the Manilla River, Barraba NSW	Tamworth Regional Council	$10,000	$10,000

Round 5 (2006-07)

Project	Applicant	Funding	Inkind Contribution
Gloucester River fish passage project, Gloucester NSW	Gloucester Shire Council	$9,000	$9,000
Toogimbie Riparian rehabilitation, and re-snagging project, Murrumbidgee River, Hay NSW	Nari Nari Tribal Council	$6,775	$9,075
Macintyre River Revegetation, Yetman NSW	Yetman Fishing Club	$1,195	$5,000
Lower Oxley River fish passage project, Murwillumbah NSW	Tweed Shire Council	$30,000	$96,535
Broughton Creek fish habitat rehabilitation, Gerringong NSW	Barbara Mathie	$9,000	$25,300
Little Plains River riparian rehabilitation, Craigie NSW	Snowy River Interstate Landcare Committee	$15,240	$46,350
South Creek fish habitat rehabilitation, St Mary's NSW	Greening Australia, NSW	$29,995	$224,075
Mullet Creek riparian rehabilitation program, Wollongong NSW	Wollongong City Council	$9,910	$43,000
Jabour Weir Fishway refurbishment, Richmond River, Casino NSW	Richmond Valley Council	$12,500	$12,500
Namoi Catchment riparian revegetation, Tamworth NSW	Nemingha Tavern Fishing Club	$2,000	$3,350

If you would like additional information on aquatic habitat rehabilitation projects or the Recreational Fishing Trust Fish Habitat Grant Scheme please contact a member of the NSW DPI Aquatic Habitat Rehabilitation team:

Region	Catchments covered by region	Postal Address	Phone	Fax
North West	Border Rivers, Namoi, Gwydir, Barwon-Darling	Aquatic Habitat Rehabilitation PO Box 3047, Tamworth, NSW 2340	(02) 6765 4591	(02) 6762 1993
Central West	Macquarie, Castlereagh, Lachlan	Aquatic Habitat Rehabilitation PO Box 865, Dubbo, NSW 2830	(02) 6881 1284	(02) 6881 1295
South West	Murrumbidgee, Murray, Lower Darling	Aquatic Habitat Rehabilitation Unit 3/556 Macauley Street, Albury, NSW 2640	(02) 6042 4205	(02) 6021 0113
North Coast	Coastal catchments from QLD border to Macleay River	Aquatic Habitat Rehabilitation 1243 Bruxner Highway, Wollongbar NSW 2477	(02) 6626 1107	(02) 6626 1377
Central Coast	Coastal catchments from Hastings to Brisbane Water	Aquatic Habitat Rehabilitation Private Bag 1, Nelson Bay, NSW 2315	(02) 4916 3926	(02) 4982 2265
South Coast	Coastal catchments from Hawkesbury Nepean to Victorian border	Aquatic Habitat Rehabilitation PO Box 1 Sydney Markets, Flemington, NSW 21	(02) 9764 3067	(02) 9746 3409

For further information about aquatic habitat rehabilitation projects visit: www.dpi.nsw.gov.au/aquatic_habitats or subscribe to Newstreams, the free NSW DPI bi-monthly e-newsletter. Email the editor at rebecca.lines-kelly@dpi.nsw.gov.au

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