# Newstreams

**A newsletter for recreational fishers and others interested in improving fish habitat to build native fish stocks.**


## No 24 February 2010


## About Newstreams

Newstreams is an email newsletter to keep people up to date about NSW fish habitat activities and important aquatic habitat developments elsewhere. It is published electronically every two months by Industry & Investment NSW. In NSW many estuarine and freshwater habitats for juvenile and adult fish have been degraded or lost through urban, industrial and agricultural development. Communities around NSW work actively to restore fish habitat.

# DEPARTMENT NEWS

## More room for fish in Mullumbimby Creek

Mullumbimby Creek Weir 2 was owned by State Water Corporation (SWC). In a joint effort between I&I NSW and SWC the weir was removed and replaced with a bed control rock-ramp fishway. Fish now have improved access to 9 km of waterway in the Brunswick Catchment. The weir was redundant, but functioned as a bed control structure, which helped minimise erosion. The rock-ramp fishway improves fish passage and ensures bank and river bed stability. The works were completed over a 10 day period, and were funded primarily by SWC, with support provided by the Bringing Back the Fish Project through the Australian Government Natural Heritage Trust Program and the Northern Rivers CMA. Assistance was also provided by the Shearwater Steiner School (revegetation) and Byron Shire Council.

**Mullumbimby Creek weir before (left) and after (right) being demolished and replaced with a rock-ramp fishway. As well as opening up 9km of creek for fish, the fishway also controls erosion.**

## Mullet on the move through the new Wolli Creek fishway

The creation of a rock ramp fishway on Turella Weir at Wolli Creek means fish can now access more upstream habitat, an important improvement in this inner Sydney area. Wolli Creek is a tributary of the Cooks River, which flows through Sydney into Botany Bay. The weir and causeway were built in the early 1900s to provide access and water for adjacent Chinese market gardens. The weir no longer served its original purpose and prevented fish moving up- and downstream most of the time.

This project is part of Sydney Metropolitan Catchment Management Authority's 'Cooks River Urban Water Initiative' which is rehabilitating the Wolli Creek environment by controlling weeds, replanting these areas with native plants and cleaning up stormwater before it flows into the creek. I&I NSW and Rockdale and Canterbury City Councils partnered the Sydney Metropolitan CMA to undertake the fishway works and were supported by the Wolli Creek Preservation Society.

You can watch mullet using the fishway in this video made by Gavin Gatenby of the Wolli Creek Preservation Society: http://www.dpi.nsw.gov.au/fisheries/habitat/rehabilitating/fishways#Fishway-Projects.

## *One project: 94 sites and 1,235km of improved access to fish habitat*

In the past two years you've seen reports in Newstreams of many projects completed under the *Bringing Back the Fish* Project (BBTF). The project has ended, but fortunately its work continues to benefit fish and fish habitat across NSW coastal catchments. BBTF was a 3 year project to address priority fish passage and aquatic habitat sites. Fish habitat improvement works were completed at 94 key priority sites, including 10 weirs, 22 road crossings, 54 floodgates, and 8 key habitat sites. The result: improved fish access to 1,235 km of upstream habitat and habitat condition improved across 1,907 hectares.

Congratulations to Matthew Gordos, Scott Nichols, Cam Lay, Simon Walsh (I&I NSW) and their project partners in Southern Rivers, Hawkesbury Nepean, Sydney Metro, Hunter Central Rivers and Northern Rivers CMAs. The $3 million project was funded by the Federal Government's Natural Heritage Trust and administered through the Southern Rivers CMA, with I&I NSW managing project delivery. Contact: Dr Matthew Gordos (02) 6626 1395.

**Working with communities was all part of the process of implementing on-ground works and gathering support for rehabilitation of aquatic habitat during the BBTF project.**

## *Cultural surveying in the Namoi*

An exciting new cultural surveying project is about to commence in the Namoi demonstration reach. The project provides training and employment opportunities for the local Indigenous community who will survey priority on-ground sites within the reach. Information gathered will identify culturally significant sites for protection and enhancement in future rehabilitation works. Signage about the cultural significance of the reach will also be installed.

Two cultural survey workshops will be held along the reach over the coming months. The project is a collaboration between Namoi Catchment Management Authority and I&I NSW, and also involves the Namoi Aboriginal Advisory Committee, NSW Department of Environment Climate Change and Water, the local Indigenous community and landholders.

For more information about the project please contact Anthony Townsend, I&I NSW, on (02) 6773 1440 or Simon Taylor, Namoi CMA, on (02) 6764 5929.

**Cultural surveying workshops will be held along the Namoi demonstration reach, and may include priority sites such as Gulligal Lagoon (above).**

## *Luck for the Lachlan*

Rainfall in the Lachlan catchment over the Christmas - New Year period has added precious water to remnant fish habitats in the catchment. A significant fresh in the Boorowa River has flowed into the Lachlan River and is continuing to move downstream and should reach Brewster weir by mid February. This will help replenish the remnant river and creek pools to which native fish have retreated in an attempt to survive the drought. The ongoing drought represents the most significant threat to fish communities in the Lachlan since the invasion of carp in the 1970s due to a massive contraction in the availability of habitat. If you see signs of distressed or dying fish, contact I&I NSW as soon as possible so that options for fish rescues can be investigated and implemented. I&I NSW has a 24 hour service 1800 043 536.

## *Fish rescued from Nangudga Lake*

In late January 2010, Nangudga Lake, an enclosed estuary in the Batemans Bay Marine Park on the NSW south coast, had shrunk to a string of pools and fish were running out of water. Fisheries officers and Marine Parks Authority rangers have been corralling stranded fish and eels using nets and re-locating them to nearby Corunna Lake. With recent rains water levels in Nangudga Lake are now high enough to rehabilitate the seagrass and keep the fish happy. Contact: Trevor Daly, I&I NSW, on (02) 4478 9103.

## *Effects of irrigation pumps on riverine fish*

Department researchers have been looking at the impact of irrigation pumping on fish in the Namoi River. After finding out what fish were present in the river, they examined how many fish were caught in high and low flow pumps. Over the two year study period more than 2300 fish passed through the pump outlets; the highest number of fish passing in a single day was 232. Many individuals (7.5% of total) were killed or injured. Mortality was significantly higher at the high volume pump site, but only large (>200 mm long) or small (<50 mm long) fish were killed. Sampling of storage dams showed that only four species were present, suggesting that survival through the pump systems may be size and species specific. Fish that survived the water extraction process had no opportunity to return to the main river system and were therefore effectively lost from the main river population. The research article includes suggested mitigation measures to prevent fish extraction and minimise any adverse impacts arising from irrigation development.

**Research is underway to quantify the impact on fish of pumping from rivers into irrigation storage dams.**

Read the article by Baumgartner et al in *Fisheries Management and Ecology.*

http://www3.interscience.wiley.com/journal/122649780/abstract

## *Preliminary identification of critical habitat – Oxleyan Pygmy Perch*

Oxleyan pygmy perch (OPP) is a small freshwater fish found on parts of the NSW north coast. It is listed as Endangered under the *NSW Fisheries Management Act 1994*. Submissions are currently being sought from the public on the preliminary identification made by the Minister for Primary Industries of Oxleyan Pygmy Perch critical habitat on public lands. Copies of the preliminary identification report and maps are available from I&I NSW Head Office, regional fisheries offices and on the I&I NSW website: www.industry.nsw.gov.au. Submissions close: 12 March 2010. Submissions can be made online or faxed to (02) 4916 3880 or mailed to:

I&I NSW, Oxleyan pygmy perch critical habitat, Locked Bag 1, Nelson Bay NSW 2315

For further information please contact: Mr Peter Gallagher, I&I NSW, on (02) 4916 3875.

## *Carp muster a must*

The next Namoi Carp Muster is being held in Narrabri on the 6 – 7 March. These events form an integral part of the Namoi Aquatic Habitat Initiative, a joint project between I&I NSW, the Murray Darling Basin Authority and the Namoi Catchment Management Authority, which aims to bring back native fish to the Namoi. For more information contact Milly Hobson, I&I NSW, on (02) 6763 1206.

**Previous carp musters have led to more than four and a half tonnes of carp being removed from the Namoi River.**

## *Important Date: Fishers for Fish Habitat Forum June 4 - 5, 2010*

Following the success of the first Fishers for Fish Habitat Forum held in Ballina last year, planning is underway for the 2010 Forum. Event organisers anticipate the forum, to be held at Swansea RSL, Lake Macquarie, on June 4 and 5, will attract a large number of participants interested in the health of NSW waterways and fisheries. Interested recreational anglers can join the Fish Habitat Network to find out more about the upcoming Forum. Email fish.habitat@industry.nsw.gov.au or visit www.dpi.nsw.gov.au/fisheries/habitat/rehabilitating/fishers/fishers-for-fish-habitat-forum

# NSW NEWS

## Fish populations and floods in the Clarence River

Floods in the big coastal rivers, like the Clarence in northern NSW, are newsworthy events and can have immediate, obvious impacts on fish populations. CSIRO scientists are looking at how fish populations respond after flooding. In a 2-year study, they tracked how communities of fish in five tributary creeks of the Clarence River responded to two sequential floods. Before the floods, they found clear differences in the mix of fish species present among tributaries, and clear but relatively small seasonal changes in all creeks. Flooding triggered large shifts in the mix of species in all creeks; but only a few species were part of this response. After an initial rapid recovery period, the species that made up the fish community in all tributaries slowly returned to resemble those before the floods. Overall, the results suggest that the current state of the Clarence floodplain has achieved a strong resilience to major flood disturbances. Read the paper by Kroon and Ludwig in *Marine and Freshwater Research.*

http://www.publish.csiro.au/nid/126/paper/MF08357.htm

## Water for Whittakers Lagoon

In January, 70 megalitres of environmental water purchased through the Department of Environment, Climate Change and Water (DECCW) RiverBank program was delivered to Whittakers Lagoon on the travelling stock route next to the Gwydir Highway, west of Moree. The lagoon is an isolated floodplain wetland along the Mehi River and has suffered over the years from a reduction in natural water flows due to floodplain development, invasion of exotic weeds and soil compaction by livestock. The environmental water will help to kill exotic weeds and foster growth of native wetland plants. The Moree Livestock Health & Pest Authority (LHPA) has erected an alternate stock watering point to reduce the impact of stock around the Lagoon area. Recent rain in the area will support the environmental water flow.

http://www.environment.nsw.gov.au/media/DecMedia10010601.htm

# AUSTRALIAN NEWS

## The rain in the drain - what about urban aquatic habitat?

Urban stormwater can be a real issue for the health of waterways, both within an urban area and downstream. A new program led by Monash University's Cities as Water Supply Catchments research program, will encourage greater uptake of stormwater harvesting systems by governments. The program will address technology and governance issues that limit the capture and re-use of stormwater. Specifically, it will deliver a 'how to' guide on managing urban stormwater and integrating 'how to" into urban design, planning and development.

http://www.ecosmagazine.com/view/dsp_download.cfm?article_id=EC152p14.pdf&jid=ec091216&xhtml=3d20f97b-d844-441b-b57a-13b26a8c0cdd&issue_id=152&issue_year=2010&direct=1

**Improving the design and management of urban stormwater will lead to benefit for aquatic environments.**

## Can carp push themselves into a trap?

Scientists based in Adelaide are looking at exploiting the tendency carp have to push at barriers. They've created a push trap designed to capture big carp (more than 25cm long) and initial work in the lab is promising. Over 90% of the fish pushed through the trap element and none escaped. The fish also didn't have to work too hard, using only about 5% of carp's known pushing capacity to push through the 'fingers' and enter the trap. Field trials are likely to follow. If these too prove successful then the push trap will be another tool available to combat carp. Read the paper by Thwaites et al in *Marine and Freshwater Research*

http://www.publish.csiro.au/nid/126/paper/MF09011.htm

## *Report card for the marine environment*

The Marine Climate Change Impacts and Adaptation Report Card for Australia, provides a biennial guide for scientists, government and the community on observed and projected impacts of climate change on marine ecosystems. The Report Card and accompanying website is available on line at:

http://www.oceanclimatechange.org.au/content/index.php/site/welcome/

## *Native fish benefit from environmental flows*

Environmental flows are often delivered to mimic a river's natural flow regime, aspects of which are thought to be linked to spawning and recruitment of native fish. A 3-year study on the effects of water management on the spawning and recruitment of four native fish species in the mid-Murray River system provides important evidence of a link between the provision of an environmental flood and fish spawning and recruitment. This has significant implications for managing flows in regulated rivers. Read the article by King et al in *River Research and Applications*

http://www3.interscience.wiley.com/journal/121517872/abstract

Similar research on the effects of environmental flows into the Barmah-Millewa Forest, a large river red gum forest on the Murray River floodplain, has also found that native fish respond to environmental flows. Read the article by King et al in *Freshwater Biology*

http://www3.interscience.wiley.com/journal/122222210/abstract

## *Strategy for Queensland's declared Fish Habitat Areas*

Fisheries Queensland has released its *Declared Fish Habitat Area Network Strategy 2009-14*, which sets the direction for the future of Queensland's declared Fish Habitat Area (FHA) network.

In 2009, the FHA Network celebrated its 40th anniversary, with the first areas declared in Moreton Bay near Brisbane in 1969. The network of 70 declared FHAs now protects 880,000 ha of high quality fish habitats. Declared FHAs help sustain commercial and recreational fishing sectors by protecting the habitats that sustain fish stocks while still allowing legal fishing. For more information or to get a copy of the strategy visit http://www.dpi.qld.gov.au/28_16051.htm or contact DEEDI on 13 25 23.

**Trinity Inlet: declared Fish Habitat Area, north Queensland.**

# *INTERNATIONAL NEWS*

## *Hydropower – avoiding adding fish to the mix*

Two articles have highlighted the problem of fish, fishways and hydropower plants. At Yarrawonga Weir, on the upper Murray River in south-eastern Australia, the positioning of a fish lock resulted in the potential for upstream migrating fish to be swept back into the adjacent power station by cross flows. In 2004, a 4.5-m long steel extension flume was attached to the exit to alleviate this problem and this study shows that now the majority of fish are now exiting the fishway successfully, although more get caught up when in-flows fall. In the Pitea° River in Sweden, migrating smolt are avoiding spillways and attempting to move downstream via the station's turbines. The study suggests that a non-permeable mechanical fish guiding device that directs some of the surface water towards the spillways should be built to improve fish survival. Read the Australian article by Stuart et al in *Marine and Freshwater Research*

http://www.publish.csiro.au/nid/126/paper/MF08340.htm

Read about the Swedish research by Lundström et al in *River Research and Applications*

http://www3.interscience.wiley.com/journal/122267549/abstract

## *Vegetation good for fish*

Two research projects looked at the effects of riparian manipulation on stream communities in small streams in New Zealand. In the first, overhanging bank vegetation and in-stream wood were removed from short reaches of a small pastoral stream that had intact riparian margins. As a result, both stream structure and the structure and density of fish populations changed. The second study looked at the results 10 years after two areas were restored by planting riparian vegetation and preventing stock access. The researchers found increased fish numbers and macroinvertebrate communities more similar to those at upstream native forest reference sites. This work shows that riparian margins can influence the composition of the fish and macroinvertebrate communities in small streams and suggests that riparian restoration was most effective for the fish species that use cover and pool habitat. Read the article about these projects by Jowett et al in *NZ Journal of Marine and Freshwater Research.*

http://www.royalsociety.org.nz/Site/publish/Journals/nzjmfr/2009/066.aspx

## *Great trouble for Great Lakes' fish*

Researchers from Cornell University have verified that viral hemorrhagic septicemia virus (VHSV), which causes fatal anaemia and haemorrhaging in many fish species, is now present in all of the Great Lakes (north eastern USA). This deadly fish virus was first discovered in the Northeast US in 2005. In 2008 the U.S. Department of Agriculture prevented transport of the 28 species within the Great Lakes catchment in an attempt to limit the spread of the disease. The virus, which has been identified in all 28 freshwater fish species in the Great Lakes, has reached epidemic proportions. On a worldwide basis, VHSV is considered one of the most serious pathogens of fish because it kills so many fish, is not treatable and infects a broad range of fish species.

http://www.news.cornell.edu/stories/Jan10/FishVirusEpidemic.html

## *Anglers not washing their boots*

A study into the habits of recreational anglers in Montana has identified a hygiene problem: by not washing their boots and other gear, anglers are potentially contributing to the spread of aquatic pests and diseases. Fifty percent of anglers reported occasionally, rarely or never cleaning their boots and waders between uses. Anglers can play an important role in managing infestations and preventing introductions. The researchers suggest that future control of the dispersal of aquatic pest and disease may require restricting the use of felt-soled wading boots, requiring river-specific wading equipment or providing cleaning stations and requiring their use. Read the paper by Gates et al in *Fisheries Management and Ecology*

http://www3.interscience.wiley.com/journal/122659289/abstract

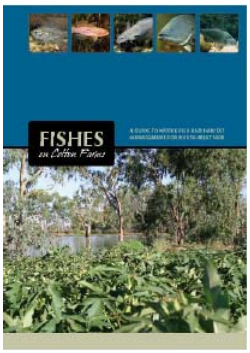
## *Environmental change bad news for freshwater biodiversity*

Biodiversity in freshwater systems is impacted as much or more by environmental change than tropical rain forests, according to research undertaken by Professor Caryn Vaughn of the University of Oklahoma. By studying changes in the diversity of freshwater mussels (of which there are 300 species) Vaughn has found widespread decline. Many of the species in decline are the common ones. Globally, the rate of decline in freshwater biodiversity is greater than that in terrestrial systems. Read the full research paper in *Bioscience* (Jan 2010) Vol. 60 (1).

http://www.ou.edu/publicaffairs/archives/ChangeImpactsRivers.html

# HABITAT RESOURCES

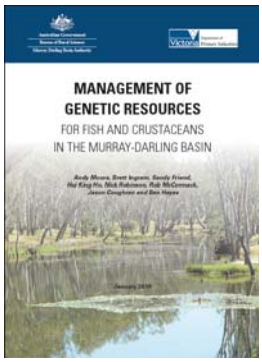
## *Fishes on Cotton Farms*




*Fishes on Cotton Farms* provides information about fish-friendly practices that landholders can use to improve the health of waterways and give native fish a better opportunity to feed and breed. The guide also contains information on common fish species of north-west NSW. Details about the fish's appearance, habitat and distribution are outlined, as well as some interesting 'fishy facts'.

www.dpi.nsw.gov.au/fisheries/habitat/rehabilitating/fish-friendly-farms

## *Management of Genetic Resources for Fish and Crustaceans in the Murray-Darling Basin*




This report is a resource for scientists and fisheries managers in the Murray-Darling Basin. It provides practical guidelines for better management of fish genetic resources and is based on the existing genetic knowledge of the wide range of fish and crustaceans in the Basin and a comprehensive account of current management and legislative processes.

http://www.daff.gov.au/brs/publications/all_brs_publications/management_of_genetic_resources_for_fish_and_crustaceans_in_the_murray-darling_basin

# HABITAT DATES

| | |
|---|---|
| **22 – 26 February** | **2010 Ocean Sciences Meeting, Portland, Oregon, USA.** http://www.agu.org/meetings/os10 |
| **23 - 26 February** | **Floodplain Management Authorities Conference, Gosford** http://www.iceaustralia.com/gosford2010fma/ |
| **25 – 26 February** | **Water leaders congress, Sydney** http://watercongress.infrastructurenewsonline.com.au/ |
| **8 – 10 March** | **OzWater 10, Brisbane** http://www.ozwater10.com.au/ |
| **22 – 25 March** | **National Landcare Forum, Adelaide** http://www.nationallandcareforum.com.au/ |
| **14-15 April** | **River restoration conference, York UK** http://www.therrc.co.uk/rrc_conferences.php |
| **4 - 5 June,** | **Fishers for Fish Habitat Forum, Lake Macquarie (details TBA)** |
| **15-17 June** | **Inaugural Roundtable of Ocean Industry Association Leaders, Sustainable Ocean Summit, Belfast, Ireland** http://www.oceancouncil.org/site/pdfs/SOS_Info-Registration-Sponsor_22-01-10.pdf |
| **12-14 July** | **Australian Fish Biology, conference, Melbourne** http://www.asfb.org.au/ |
| **13 - 16 July** | **IIFET 2010: Economics of fish resources and aquatic ecosystems: balancing uses, balancing costs, Montpellier, France** http://www.colloque.ird.fr/iifet-2010 |

# ABOUT I&I NSW AND FISH HABITAT

I&I NSW is responsible for management of, and research into, fish habitat in NSW.

**On-ground activities**

- Map, prioritise and modify structures that block fish passage.
- Map and rehabilitate aquatic habitat such as wetlands.
- Reintroduce snags (large woody debris) into streams.
- Revegetate streambanks to provide habitat and improve the quality of water running into streams.

**Research activities**

- Document the fish communities associated with different aquatic habitats.
- Understand the basic biology of key fish species- what they eat, when they breed, and their habitat requirements.
- Evaluate management actions to see how effective they have been and what improvements may be possible.

**Policy and planning activities**

- Review developments that may impact on fish habitats and negotiate impact reduction and/or compensatory works.
- Incorporate aquatic habitat protection requirements into land use planning, water management, and estuary and floodplain management.
- Help developers, local councils and other state agencies understand the importance of aquatic habitats for fish and options for ensuring their protection and rehabilitation.

**Aquatic habitat staff**

Sydney (Cronulla) 02 9527 8411
Sydney (Wollstonecraft) 02 8437 4909
Batemans Bay 02 4478 9103
Huskisson 02 4441 8969
Port Stephens 02 4982 1232
Wollongbar 02 6626 1200
Tamworth 02 6763 1100
Dubbo 02 6881 1270
Tumut 02 6947 4188
Albury 02 6042 4200
Research staff
Port Stephens 02 4982 1232
Narrandera 02 6959 9021
Cronulla 02 9527 8411

**Website**

http://www.dpi.nsw.gov.au/fisheries/habitat

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newstreams@industry.nsw.gov.au

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