

# Newstreams

A NSW DPI email newsletter for recreational fishers and others interested in improving fish habitat to build native fish stocks

**No 13 April 2008**

## **About Newstreams**

Newstreams is an email newsletter to keep people up to date about NSW fish habitat activities, and about important aquatic habitat developments in Australia and around the world. It is published electronically every two months by NSW Department of Primary Industries. 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 are working actively to restore fish habitat.

## **NSW DPI NEWS**

### **Anglers monitor success of resnagging effort**

Twenty anglers are helping monitor the success of a resnagging project in the Murray River between Hume Dam and Yarrowonga. The anglers have logbooks and are trained in removing the otoliths (earbones) from fish that they are taking for the table. The otoliths determine the age and growth of the fish in response to the resnagging work. Since December 2007 the fishers have captured more than 65 Murray Cod, with more than 95 per cent of these fish released. Anglers have caught and released other native species such as golden perch and the endangered trout cod. Anglers who are interested in joining the monitoring program can contact NSW DPI conservation management officer Matt Morrow on 02 6042 4200 or [matt.morrow@dpi.nsw.gov.au](mailto:matt.morrow@dpi.nsw.gov.au). Source: <http://www.dpi.nsw.gov.au/aboutus/news/recent-news/fishing-and-aquaculture/anglers-monitor-success>.

### **Automated fishlock opens at Balranald**

The first automatic Deelder fishlock is now operating on the Murrumbidgee River at Balranald. The lock, pictured right, was constructed as a trial by State Water and DPI in 2003 and was automated with a grant from the environmental Trust. The lock is now remotely controlled from State Water's Leeton office. The lock enables a wide range of native species to move upstream. A one day workshop in May will include an official opening and demonstration.



### **Fish friendly funding available for farmers**

The Environmental Trust has provided funding for on farm demonstrations of fish friendly farm management. Funding is available to implement on-ground works including (but not limited to): river bank rehabilitation, fish passage restoration and livestock management around rivers, creeks and wetlands. Money is also available for farmers who want to host field days to showcase their existing fish friendly work. This project is being managed by NSW DPI in association with NSW Council of Freshwater Anglers, NSW Farmers Association and Murray Darling Basin commission. To obtain an application form or for more information, contact Charlie Jenkins on (02) 6626 1007 or [charlotte.jenkins@dpi.nsw.gov.au](mailto:charlotte.jenkins@dpi.nsw.gov.au).

### **Research into Clarence catfish habitat**

Declining catfish stocks in coastal rivers have prompted research into their habitat and flow requirements. The project involves NSW DPI, Northern Rivers CMA, North-Coast Water, Coffs Harbour Water and Country Energy. It will focus on freshwater catfish in the mid sections of the Nymboida River, where radio-tagged catfish will be monitored over 12 months. The tagged fish have an aerial protruding from their underbelly, near the vent region, and anyone catching them is urged to return them to the water unharmed. Another study also underway, funded by the Recreational Fishing Trust of NSW, is looking at the genetics and ecology of western catfish populations, which have declined significantly in recent years. Source: <http://www.dpi.nsw.gov.au/aboutus/news/recent-news/fishing-and-aquaculture/study-into-catfish>.

## **Tilligerry Creek habitat project**

NSW DPI has received \$250,000 from Hunter Central Rivers CMA to improve aquatic habitat in Tilligerry Creek in the Port Stephens area. The first part of the project will revegetate riparian areas and fence off the creek and associated drains to improve water quality. The second part of the project will modify floodgates and drains in the Anna Bay drainage area to reduce the impact of acid sulfate soils on water quality. Drains will be reshaped and widened to reduce acid production and runoff into surrounding creek systems, but still allow drainage of surface flood waters. Material removed from drains will be limed to neutralise the acid in it. Dropboard weirs will maintain groundwater levels above the acid sulfate soil horizon, thereby limiting further acid production and runoff. Existing floodgates will be assessed for their suitability for active management. More details from Adrienne Burke on 02 4984 3846 or [adrienne.burke@dpi.nsw.gov.au](mailto:adrienne.burke@dpi.nsw.gov.au).

## **Namoi carp muster a huge success**

More than 300 anglers caught more than 350 carp between Boggabri and Narrabri at the recent Namoi muster. The fish weighed almost 500 kg in total. NSW DPI, Namoi CMA and Narrabri Fishing Club hosted the inaugural muster and more are planned. More than 1500 entries were received from school children for the muster's colouring-in competition, and members of the Narrabri Community Bushcare Group planted 500 native trees and shrubs along the Namoi River. Source: <http://tamworth.yourguide.com.au/news/local/general/anglers-hook-carp-by-the-kilo/1195246.html>.

## **NSW NEWS**

### **Native Fish Awareness Week 19-23 May**

Native Fish Awareness Week promotes the Murray Darling Basin Commission's native fish strategy to bring back native fish populations to 60% of their estimated pre-European settlement levels within 50 years. This year NSW DPI is helping MDBC host native fish events at Narrandera, Condobolin, Forbes, Dubbo, Macquarie Marshes, Narrabri and Tamworth. Check out the MDBC website and follow the links for all the details on where you can catch up with Native Fish Awareness Week: <http://www.mdbc.gov.au/NFS/>.

### **Fish to get a lift over Tallowa Dam**

Sydney CMA has appointed contractors to start construction on environment flow release and fish passage works at Tallowa Dam on the Shoalhaven River. The works involve installation of a mechanical lift to lift fish 43m up the wall of the dam. The lift is the size of a small rubbish skip, and works by attracting and trapping native fish before lifting them up and over the wall. It will be the largest such lift in NSW and second in size to the lift on the Paradise Dam near Bundaberg, pictured right. Source: <http://illawarra.yourguide.com.au/news/local/general/shoalhaven-river-lift-to-help-fish/1210374.html>.

To see how the Paradise Dam lift works, go to [http://www.sunwater.com.au/burnettwater\\_fish\\_passage.htm](http://www.sunwater.com.au/burnettwater_fish_passage.htm).

### **MDBC purchases water for Narran Lakes**

In March, the Murray-Darling Basin Commission (MDBC) purchased 11,000 ML of water from private irrigation storages on the Narran River in Queensland to re-establish flows and enhance breeding success of at least 30,000 pairs of Straw-necked ibis in the first significant breeding event in the Narran Lakes Nature Reserve since 1999/2000. For most individual ibis and egrets it was the first opportunity to reproduce in their lifetimes and, due to their age, it may be the only time they breed. The birds that fledge this year will have to reproduce successfully at least twice in their own lifetimes over the next decade if the alarming declining trend in waterbird numbers is to be reversed. The picture on the right shows spoonbills feeding on fish at a weir upstream of the lakes. For more information about this event, [http://www.mdbc.gov.au/data/page/29/Narran\\_Lakes\\_watering\\_results\\_in\\_huge\\_environmental\\_benefit.pdf](http://www.mdbc.gov.au/data/page/29/Narran_Lakes_watering_results_in_huge_environmental_benefit.pdf).



Photo: Sunwater



Photo: Kate Brandis UNSW

### **Clarence River water quality improves**

Eleven years of water quality improvements on the NSW Clarence River floodplain are paying off. Yamba oyster growers have recently grown an oyster crop from spat in the river for the first time in 30 years. Farmers, fishers, environmentalists and government officers have worked together since 1997 to improve water quality in the lower Clarence through better land and water management. Since the project began in 1997 more than 200 km of waterways have been opened up and restored. Some 250 landowners have been actively involved in the management of creeks and drains, and more than 60 drain and watercourse management plans have been put in operation. Find out more at <http://www.clarence.nsw.gov.au/cmst/cvc009/lp.asp?cat=211>.

### **Blackwater management tips**

Heavy rain on the north coast of NSW this year has led to several 'black water' events leading to fish kills. The black colour is produced by a combination of rotted organic vegetation, tannins from vegetation, and dark organic and iron rich sediments found in many floodplain water systems. Aquatic deaths occur because rotting plants take all the available oxygen from the water, or because the iron rich sediments are stirred up and absorb oxygen from the water. Fish kills can be reduced in the short term by opening floodgates to allow fish to escape de-oxygenated water, and in the long term by letting more water on to swamp areas so that dry pasture plants are replaced by wet pastures that are less likely to rot when submerged by floodwaters. Read the full article in Clarence Floodplain Project's newsletter at [http://www.clarence.nsw.gov.au/content/uploads/1-CFP\\_Newsletter\\_March\\_2008com.pdf](http://www.clarence.nsw.gov.au/content/uploads/1-CFP_Newsletter_March_2008com.pdf).

### **Jervis Bay and Solitary Islands Marine Parks review**

The Marine Parks Authority is calling for comments on Jervis Bay and Solitary Islands Marine Parks for its review of the park's zoning. The review will determine whether the current zoning plans for Jervis Bay and Solitary Islands Marine Parks achieve the Marine Parks Act aims of conserving marine biodiversity and habitats and providing ecologically sustainable use, public appreciation and enjoyment. Comments on current zone plans close on 2 June 2008. More information at [www.mpa.nsw.gov.au](http://www.mpa.nsw.gov.au).

## **AUSTRALIAN NEWS**

### **Native fish may have high resistance to blackwater events**

New Victorian research suggests that native species may have a high resistance to 'blackwater events' caused by leaching of dissolved organic carbon (DOC) from terrestrial leaf litter. Scientists looked at fish isolated in pools during drought in south-east Australia. Despite low dissolved oxygen and high DOC concentrations, the native fish appeared unaffected. Laboratory research found, however, that that fish were affected by very high DOC levels. Read the Marine & Freshwater Research abstract by McMaster and Bond at <http://www.publish.csiro.au/nid/126/paper/MF07140.htm>.

### **Fish diets vary with flows**

Queensland research into the diets of two fish species in the Moonie River in south west Queensland has found they eat differently in high and low flows. Bony bream (*Nematalosa erebi*) feeds on non-filamentous algae in high flows, and filamentous algae and detritus in low flows. Golden perch (*Macquaria ambigua*) eats aquatic insects in all flows, concentrating on crustaceans in more productive periods and terrestrial insects in less productive periods. The ability of both species of fish to switch from high to low concentrations of food quality under a variable environmental background allows them to persist through changing environmental conditions. Read the abstract by Sternberg et al in Marine & Freshwater Research at <http://www.publish.csiro.au/nid/126/paper/MF07125.htm>.

### **Wetland inundation and fish breeding**

Murray Darling Freshwater Research Centre is leading a project to improve understanding of the relationships between wetland inundation and native fish productivity. Floodplain-river ecosystems play an important role in the spawning, growth and survival of native fish, and current wetting protocols that maximise forest regeneration and water bird breeding events may not necessarily be appropriate for native fish. The project will develop strategies for water managers to manage both connectivity and habitats to maximise benefits to native fish populations. Details at <http://www.mdfrc.org.au/projects/flow/EnvironmentalWaterforFish.htm>.

### **Coastal river floods reduce aquatic habitat**

Research on the Mulgrave river in north-east Queensland has found that instream habitat and fish populations behave differently in small coastal rivers compared with large rivers with large floodplains.

These small coastal systems typically feature steep upland streams with short, deeply incised lowland channels and poorly connected floodplains. High wet-season flows, constrained by the deep channel, act as disturbances rather than gentle flood-pulses. In particular, mobilisation of bed sediments leads to scouring of aquatic vegetation and a dramatic reduction in habitat diversity. Seasonal movements of fish also mean significant changes in species in wet and dry seasons. Read the abstract by Rayner et al in *Marine & Freshwater Research* at <http://www.publish.csiro.au/nid/126/paper/MF07129.htm>.

### ***Katfish Reach implementation plan***

The Katfish Reach is calling for comments on its draft implementation plan for a demonstration reach in the SA Murray Riverlands south-west of Berri. You can access the draft at <http://www.katfish.org.au/>.

## **INTERNATIONAL HABITAT NEWS**

### ***Fish spread forest seeds***

Brazilian researchers have found that fish help disperse tree seeds in the country's Pantanal, the largest freshwater wetlands in the world. Palms and legumes tend to release their fruits during a time of year when massive flooding is common. The fruits fall into water and the pacu (*Piaractus mesopotamicus*), one of the most common fish in the Pantanal, migrate deep inland during such floods and munch on the fruit; local fishermen often catch them by putting fruit on their lures. Researchers believe the tucum palm relies almost entirely on pacu services for seed dispersal. Read the *Biotropica* paper by Galetti et al at <http://www.blackwell-synergy.com/doi/pdf/10.1111/j.1744-7429.2007.00378.x>.

### ***Synthetic oestrogen reduces fish populations***

Canadian biologists found that miniscule amounts of synthetic oestrogen present in municipal wastewater discharges can decimate wild fish populations living downstream, but the effect is quickly reversed if oestrogens are removed before water is discharged. Generally, the smaller the fish, the more vulnerable they are to oestrogen, because smaller fish have a shorter lifespan and will often die after reproducing only once. [http://www.nserc.gc.ca/news/aaas/2008/2008\\_02\\_15-4\\_e.asp](http://www.nserc.gc.ca/news/aaas/2008/2008_02_15-4_e.asp)

### ***Economic growth a factor in exotic fish invasions***

Researchers have found that invasions of exotic fish species in rivers and lakes is related closely to high economic growth, higher human population density and nearby urbanised land. This raises serious concerns for the future of many aquatic ecosystems as the rate of global economic expansion continues to rise, predicting an increase in invasive species and, with it, an increase in the extinction of native animals. Read the paper by Leprieur et al at <http://biology.plosjournals.org/perlserv/?request=get-document&doi=10.1371/journal.pbio.0060028&ct=1>.

## **FISH HABITAT RESOURCES**

### ***Future proofing MDB water***

'A future-proofed Basin: A new water management regime for the Murray-Darling Basin', by Mike Young, University of Adelaide, and Jim McColl, CSIRO Land and Water, proposes a new water management regime for the Murray-Darling Basin, and calls for 'a revolution in environmental management that gives environmental water the same degree of security given to all other water-users'. The report recommends that the majority of shared water entitlements assigned to the environment should be placed in regional environmental trusts and a small proportion held centrally in a system wide trust. Read the report at [http://www.myoung.net.au/water/droplets/A\\_future-proofed\\_Basin.pdf](http://www.myoung.net.au/water/droplets/A_future-proofed_Basin.pdf).

### ***Losing Eden—The decline of the Macquarie Marshes 1996–2007***

Losing Eden is a photographic exhibition by Greville Turner of the impact of drought and reduced flows on the Macquarie Marshes. The exhibition has been organised by the NSW Ramsar Managers' Network (RMN)—a group of private and government wetland managers and is available to tour to appropriate educational sites. For more information, contact the NSW Ramsar Managers' Network chair Mike Schultz on mobile: 0427 535 914 or at [trust@fivebough.org.au](mailto:trust@fivebough.org.au), or Greville Turner on mobile: 0407 207 228.

### ***Catchment to Reef publications***

Queensland's Catchment to Reef program has produced a range of publications to help people understand the impacts of land-based activities on water quality and habitat. These include

- Water quality bioindicator report
- Catchment to Reef poster and booklet on processes linking land and water
- Nutrients, catchment and reef booklet: a guide to nutrients in the landscape

All are available online at <http://www.catchmentoreef.com.au/Products.html>.

### ***Burdekin dry tropics fish passage study***

This study, published in November 2007, lists 1047 potential barriers to fish passage and recommends a list of priority barriers for remediation. Other recommendations include improving knowledge of fish species distribution throughout the region, and integrating fish barrier assessments and remediation as part of holistic river management planning in selected catchments. Download the study at <http://www.bdnrm.org.au/projects/fishpassage.html>

### ***Freshwater fish habitat rehabilitation in the Mackay Whitsunday region***

This 2006 QDPI report outlines fish habitat priorities in some of the most intensive utilised river systems along the east coast of Australia. Download it at <http://www.mwnrm.org.au/downloads/MW-Fish-habitat-rehabilitation-Report.pdf>.

### ***NT fish kills***

Every year Territorians are astounded by the number of dead fish that appear in billabongs during the build-up to the wet season. Theories as to what causes these fish deaths range from man-made dams to poison leaking out of the soil. However in almost every case, fish kills within the Mary River wetlands have been natural occurrences. Download the information leaflet at <http://www.nt.gov.au/dpifm/Fisheries/index.cfm?newscat1=&newscat2=&header=Fish%20Kills>.

### ***Bushfires and aquatic habitat***

The eWater CRC website has a section covering the impacts of bushfires on catchments, including aquatic habitat impacts. Download factsheets, reports and scientific papers at [http://www.ewatercrc.com.au/bushfire/background\\_burning.shtml](http://www.ewatercrc.com.au/bushfire/background_burning.shtml).

### ***Wetlands Australia 2008***

Wetlands Australia is an annual publication bringing together information and resources from across Australia relating to wetlands conservation, management and education. Download the 2008 edition at <http://www.environment.gov.au/water/publications/environmental/wetlands/wa16.html>.

### ***Online wetland art exhibition***

The online exhibition of winning and selected donated works from the WetlandCare National Art Competition 2008 is now up and running online at [http://www.wetlandcare.com.au/Content/templates/news\\_detail.asp?articleid=656&zoneid=1](http://www.wetlandcare.com.au/Content/templates/news_detail.asp?articleid=656&zoneid=1).

### ***Wetland Info***

Wetland Info is a comprehensive, easy-to-use website for anyone interested in managing, protecting, conserving, learning about or studying wetlands in Queensland. Find out more at <http://www.epa.qld.gov.au/wetlandinfo/site/index.html>.

### ***Wetlands, biodiversity and salt***

This Victorian project aimed to better understand the impacts of secondary salinisation of non-riverine wetland biodiversity and to identify salinity thresholds and possible indicator species. A CD of outputs from this project is available from Michael Smith at [Michael.smith@dse.vic.gov.au](mailto:Michael.smith@dse.vic.gov.au).

### ***Online invertebrate identification***

Have a look at the latest draft of the online guide to identification of freshwater invertebrates developed by the Murray Darling Freshwater Research Centre. Find it at <http://www.mdfrc.org.au/bugguide/index.htm>.

### ***Global map of human impact on oceans***

The first global map of human influences on marine ecosystems suggests that about 41 percent of oceans bear a serious human 'footprint' and that few blue spots on our planet are pristine. The map shows that coral reefs are in trouble, as are seagrass beds, mangrove forests in estuaries, seamounts, rocky reefs and continental shelves. More details at <http://www.sciencemag.org/cgi/content/full/319/5865/948>

### ***Mangroves as fish habitat***

The May 2007 edition of the Bulletin of Marine Science is the proceedings of the first international symposium on mangroves as fish habitat. Read the list of contents at <http://www.ingentaconnect.com/content/umrsmas/bullmar/2007/00000080/00000003>.

### ***Water and wine habitat program***

Water and Wine is a US partnership between Trout Unlimited and grape growers and wine makers to undertake stream restoration projects, develop water supply solutions to improve stream flows and meet irrigation needs, and promote public awareness of good practices. Download the program booklet at [http://www.steelheadwine.com/download/other/Water\\_and\\_Wine.pdf](http://www.steelheadwine.com/download/other/Water_and_Wine.pdf).

### ***Virginia fish passage***

US state of Virginia has a comprehensive fish passage improvement program. Have a look at their activities and photos at <http://www.dgif.state.va.us/fishing/fish-passage/>.

## **HABITAT DATES**

### ***Native Fish Awareness Week***

May 19-23 2008

### ***Effects of climate change on the world's oceans, Spain***

May 19-23 2008 <http://www.pices.int/>

### ***Coast 2 Coast 2008, Darwin***

August 18– 22 2008 <https://www.coast2coast.org.au/>

### ***11th International Riversymposium, Brisbane***

September 1-4 2008 <http://www.riversymposium.com/>

### ***MDBC NSW youth environment conference, Tamworth***

November 2008 <http://www.onelifeoneworldourfuture.com/index.php?pageid=272>

## **ABOUT NSW DPI AND FISH HABITAT**

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

#### **NSW DPI's on-ground work:**

- 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.

#### **NSW DPI's research work:**

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

#### **NSW DPI's legislative, policy and planning work:**

- 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 6765 4243

Dubbo 02 6881 1270

Tumut 02 6947 4188

Narrandera 02 6959 9021

Albury 02 6042 4200

### **Research staff**

Port Stephens 02 4982 1232,

Narrandera 02 6959 9021

Cronulla 02 9527 8411

### **Website**

[http://www.fisheries.nsw.gov.au/aquatic\\_habitats](http://www.fisheries.nsw.gov.au/aquatic_habitats)

### **Send us your news**

If you have news about fish habitat activities in your area, we'd like to hear from you. Email Rebecca Lines-Kelly at [rebecca.lines-kelly@dpi.nsw.gov.au](mailto:rebecca.lines-kelly@dpi.nsw.gov.au) with your news items and suggestions.

### **Subscribe to Newstreams**

Newstreams is a free newsletter available to anyone interested in fish habitat. To subscribe to Newstreams, email the editor, Rebecca Lines-Kelly, at [rebecca.lines-kelly@dpi.nsw.gov.au](mailto:rebecca.lines-kelly@dpi.nsw.gov.au). If you no longer wish to receive Newstreams, email the editor with 'Unsubscribe Newstreams' in the subject line.

### **Back issues**

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<http://www.dpi.nsw.gov.au/aboutus/news/newsletters/newstreams>