

Newstreams

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

No 4. September 2006

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 now working actively to restore fish habitat.

News

Murray re-snagging project launched

The first stage of a Murray River re-snagging project was launched on 19 August when MDBC chief executive Wendy Craik released a Murray cod into a re-snagged area near Corowa where DPI staff had placed 40 snags. The project will re-nag three sections of the river with 4000 snags to create 100km of connected habitat for fish to swim and breed between Lake Mulwala and Howlong. When finished, it will be the biggest re-snagging venture in Australia. Project funding has been provided by the Australian, NSW, Victorian, and South Australian governments through The Living Murray program. Project partners are North East CMA, NSW DNR, NSW DPI, DSE Victoria and MDBC. For more information contact Jenny Fredrickson at Jenny.Fredrickson@dpi.nsw.gov.au, 02 6042 4208.

Lock 10 fishway opens on the Murray

Four fishways are now completed at Locks 7, 8, 9, and 10 between the SA border and Mildura, with Lock 10 fishway opening this month. The fishways are a series of interconnected pools that allow fish to move upstream. When Lock 10 opens, the Murray will be open to fish movement between Lock 6 at Murtho and 11 at Mildura, a distance of 242 kilometres. Work on fishways at locks 1-6 in SA and Lock 11 at Mildura is planned for the coming years. For more information contact Cam Lay at cameron.lay@dpi.nsw.gov.au.

Murray water level trial

River Murray Water is lowering the water level at Lock 8 Weir pool as part of a series of trials to gain a better understanding of the wide range of interests associated with manipulating weir pools along the Lower Murray. Increased water level variability is expected to improve river ecology to help fish, and minimise undercutting of the river banks along the weir pool. For more information contact Tony Morse on (02) 6279 0100.

Murray River flows at record low

The water level in the Murray River is at its lowest since records began more than 100 years ago. In July the basin received its lowest inflow ever - 130 gigalitres of water. Professor Peter Cullen, a water researcher and member of the Wentworth Group of Scientists, says the low flows will lead to inevitable tension between environmental and production demands on the Murray River. Source: <http://www.abc.net.au/news/newsitems/200608/s1717177.htm>.

Bourke to Brewarrina demonstration reach update

Fieldwork for the Bourke to Brewarrina demonstration reach begins this month. NSW DPI staff will survey the river (instream habitat) and river banks (riparian habitat) to determine which areas are in good condition and which areas are poor in health. This information will decide the project management strategy and priority areas for on ground works. Western CMA has funded the demonstration reach as part of its \$2.59m project to protect and rehabilitate fish habitat in the Barwon River over the next three years. To find out more, contact David Cordina, NSW DPI Bourke 02 6872 2077.

Lachlan snag mapping

The NSW DPI has mapped snags in the Lachlan River channel near Hillston as part of a Lachlan CMA project addressing concerns of erosion and water loss due to excessive amounts of in-stream woody debris. The project will identify problem areas and develop management plans, and also identify sustainable levels of snags to ensure fish can still use them as spawning and feeding sites. Source: <http://www.dpi.nsw.gov.au/aboutus/news/recent-news/fishing-and-aquaculture/lower-lachlan-snags>.

Namoi CMA tackles aquatic habitats

Namoi CMA will spend \$600,000 over the next two years to rehabilitate aquatic habitat across the Catchment. Nathan Penny, Riparian Catchment Officer will coordinate this project to improve the prevalence and abundance of aquatic species with an associated reduction in pest species. For more information contact Anne Ferguson anne.ferguson@cma.nsw.gov.au.

Invitation to Castlereagh River fish friendly field day

Want to see how you can make your property fish friendly? Inspect recent on-ground works funded by the Central West CMA at 'Toorawandi', Merryula Road, 10km south of Coonabarabran on the Castlereagh River. Works include engineered log jams, re-establishment of deep historic holes, willow and exotic tree control, replanting of native riverside vegetation, off river stock watering points and fencing for river protection and stock exclusion. The field day, starting at 10.30am, and BBQ lunch are open to everyone interested in fish and aquatic habitat rehabilitation. To register your interest and find out more, contact Shaun Morris, NSW DPI Dubbo, 02 6881 1283 or 0403 862 167. Please RSVP by 11th October for catering.

Recently spotted!

A small colony of endangered purple-spotted gudgeon has been found near Wellington. The property owner, who is also a keen recreational angler contacted NSW DPI after he observed some small fish in a spring-fed creek on his property. The gudgeons were found in shallow pools amongst cumbungi, a reed species which is often regarded as a nuisance plant and targeted for heavy grazing or removal. Several healthy adults and juveniles were sampled and returned to the creek which is free of exotic species such as carp, redfin and mosquito fish. To protect the remnant population, NSW DPI is helping the landholder find funds for on-ground works to protect the creek which is a tributary of the Macquarie River.

Fish Friendly Farms

Fish Friendly Farms is a new NSW DPI program to encourage farmers to protect fish habitat on their properties. More than 90% of all NSW waterways run through farmland, so landholders are at the forefront of efforts to improve native fish numbers in our rivers and estuaries. The program, funded by the MDBC's Native Fish Strategy, provides educational field days, workshops and publications on fish friendly land management, fish habitat, fish species and funding opportunities. The next workshops will be hosted by Hawkesbury Nepean CMA at St Albans on Saturday 9 September and by Lachlan CMA at Young on Friday 15 September. To find out more contact Charlie Grove on 02 66261107 or charlotte.grove@dpi.nsw.gov.au.

Detailed weir review

DPI has finalised its detailed review of 109 NSW weir structures, selected from an initial weir review in 2002. The new review, funded by the NSW Environmental Trust, outlines the impacts of the weirs on fish and water quality, and the options available for improving fish passage and waterway health at these weirs. The review is a huge document that will be sent to all relevant CMAs and councils to help them prioritise their own works programs. Because of its size the review will not be available for general distribution, but copies will be placed in each DPI library. The aquatic habitat rehabilitation unit plans to put the individual weir reports on its internet site. For more information, please contact Cam Lay at cameron.lay@dpi.nsw.gov.au.

Work on Audley Weir fishway to begin

A 45 m long fishway made of sandstone boulders and stone cobbles will be built upstream from Audley Weir in the Royal National Park this year. A series of pools in the fishway will allow fish to move between freshwater and estuarine sections of the Hacking River. The National Parks and Wildlife Service has relocated its visitors' centre near the fishway which will be a focal point for NPWS educational programs. The \$400,000 fishway is funded by the NSW government through the National Parks and Wildlife Service (NPWS), NSW DPI and Sydney Metropolitan CMA. Source: www.freshwateranglers.com.au/Adobe%20Files/audleyfishwayjul26.doc.

New reports on impact of NSW road crossings on fish

DPI has produced 4 catchment reports and CDs on the impacts on fish of waterway crossings in NSW's coastal catchments. The reports, also funded by the NSW Environmental Trust, have identified more than 1400 crossings that are barriers to fish passage (eg causeways, pipe culverts, box culverts):

- Hunter Central Rivers: >2100 crossings, 427 (70% causeways) obstructing fish passage.
- Northern Rivers: >2500 crossings, 524 (51% pipe culverts) obstructing fish passage.
- Hawkesbury Nepean: 480 crossings, 99 (59% causeways) obstructing fish passage.
- Southern Rivers: 1673 crossings (578 (34% pipe culverts, 34% causeways) obstructing fish passage.

Recommended remediation activities include:

- basic management (removal of sediment and debris blocking inlets)
- modification (retrofitting low flow channels, installing fishways, sealing road approaches)
- replacement (eg causeways replaced with bridges or culverts)
- permanent removal (redundant or disused structures).

The reports/CDs will be distributed to the coastal CMAs and councils within each CMA region to assist with future works planning. Copies will also be available in DPI libraries and, in time, on the DPI website. For more information please contact Scott Nichols at scott.nichols@dpi.nsw.gov.au.

Landholder fined for boardwalk in SEPP 14 mangroves

A north coast landholder who built a private boardwalk from his property into mangroves to access a nearby creek was convicted and fined \$2000 and ordered to pay \$350 in costs. The mangroves were in SEPP 14 coastal wetlands. The Lismore Local Court heard that the man did not have any relevant consent or approval to construct a 120 metre long boardwalk through the mangroves. Source:

http://www3.environment.nsw.gov.au/npws.nsf/Content/dec_media_060809_01.

Nine icon rivers in national river recovery program

The Australian Government is working in partnership with Greening Australia, corporate sponsors and catchment management authorities to rehabilitate nine of Australia's icon rivers over the next 10-years. The icon rivers are Hawkesbury/Nepean and Boorowa (NSW), Yarra (Vic), Derwent (Tas), Lower Murray (SA), Burdekin (Qld), Hutt (WA), and Coliban & Katherine (NT). Source:

<http://www.deh.gov.au/minister/env/2006/mr09aug06.html>.

Workshop on river floodplain research, Canberra 21 September

A workshop on floodplain river research and management will be held at the University of Canberra on Thursday 21 September. The workshop will provide a synthesis of current knowledge of river floodplain ecosystems and identify the potential areas for research and development. For more information go to

http://www.lwa.gov.au/News/News_Stories/Learn_from_international_floodplain_experts/indexdl_3449.aspx.

Australian Stream Management conference

Charles Sturt University's Institute for Land, Water and Society will host the 5th Australian Stream Management Conference in Albury in May 2007. The theme is 'Australian rivers: making a difference', and organisers are calling for papers that reflect on how research and management practices have made a difference to river management. Find out more at

<http://www.csu.edu.au/research/ilws/news/conference.html>.

Water photography competition

Land & Water Australia is offering \$15,000 in prizes in its national photography competition 'Water in the landscape'. Categories are landscape, lifestyle and livelihood. Entries close Friday, 27 October 2006. Read more at [Land & Water Australia photo competition entry form \(PDF - 384KB\)](#).

Australian habitat research

Mangrove influence on seagrass fish

Sampling of small fish in 13 seagrass beds near Brisbane Water mangrove forests found that seagrass beds less than 14m from mangroves had different fish assemblages than those 100m or more from mangroves. Subsequent research found that the influence of mangroves on the fish

assemblages reduces when beds are more than 90m away. For more information contact Jane Jelbart at the Department of Environment and Conservation, jane.jelbart@environment.nsw.gov.au.

Fresh water changes to estuarine ecology

A NZ study of sediment cores has found that fresh water inflow into estuaries can affect ecological communities independently of nutrients, contaminants, or suspended sediments. The cores showed the great changes in salinity coinciding with early European clearance of the forest in the mid 19th century, and with urbanization of the 1960s-70s. Read the abstract by Hayward et al in *Estuaries and Coasts* 29(2) at <http://erf.org/cesn/vol29n2a1.html>.

International fish habitat management

Role of recreational fishers in conservation and management

The Society for Conservation Biology's June 2006 conference in California featured a symposium on the role of freshwater recreational fishers in conservation and management. Read the symposium abstracts at http://www.conbio.org/Activities/Meetings/2006/Symposia/Symposium_fishing.cfm.

Canadian fishers help restore stream flows

Canadian fishers are helping landholders restore stream flows by installing rock vortexes, removing cross-stream fences, stabilising riverbanks, and planting trees. View their stories and photos at <http://www.canadianangling.com/page.php?17>.

Canadians fined for destroying fish habitat

Landholders, churches and forestry companies are among the groups fined by Canada's Fisheries and Oceans Dept for destroying fish habitat. Offences include placing sand and dirt along shorelines, diverting water flow, placing roadwork waste in wetlands, and driving heavy equipment through streams. Read more at http://www.dfo-mpo.gc.ca/regions/CENTRAL/media/news-presse/index_e.htm.

Eastern brook trout joint venture

The Eastern brook trout joint venture is the first pilot project in the new US National Fish Habitat Initiative. It aims to restore aquatic habitat throughout the range of the Eastern brook trout. The project is modelled on the joint ventures of the North American waterfowl management plan implemented in the 1980s to restore wetland breeding areas for waterfowl. Read more at <http://www.fishhabitat.org/action.htm>.

River Stour restoration

Dredging and removal of gravels in a reach of the UK's River Stour altered the pool - riffle habitats that attracted fish to the reach. Dorset fishers helped the government create a 40m gravel riffle to benefit gravel-spawning species such as chub and dace. In addition two fry refuge areas and a large online pond were built to improve juvenile coarse fish retention within the reach. Fish fry rapidly colonised these areas after completion. To view photos go to http://www.environment-agency.gov.uk/subjects/fish/fishnews/?lang=_e and scroll down to River Stour item.

The coastal realm's environmental debt

The following extract is from the editorial in the January 2006 issue of the journal *Aquatic Conservation: Marine and Freshwater Ecosystems*.

The need to 'get it right' in the coastal realm is becoming ever more apparent, as this realm is a crucial example wherein the bulk of human activities are in direct conflict with environmental health and with society's future well being. Although the coastal realm occupies only 18% of Earth's surface, 8% of ocean surface, and 0.5% of ocean volume, it provides up to 50% of global denitrification, 80% of global organic matter burial, 90% of sedimentary mineralization, 75–90% of the global sink of suspended river load and associated elements and pollutants, in excess of 50% of global carbonate deposition, about a quarter of global primary production, about 14% of global ocean production, and more than 90% of the global fish catch (Holligan and Reiners, 1992; Pernetta and Milliman, 1995). The richness of the coastal realm has attracted humans for millennia; presently, 60% of the human population and two-thirds of all cities of more than 1.6 million people are located within the coastal realm.

Journal subscribers can read the entire editorial at <http://www3.interscience.wiley.com/cgi-bin/fulltext/112221779/PDFSTART>.

International fish habitat research

Mississippi fish response to 500 year flood

Several fish species peaked in catch-per-unit-effort 1–3 years after the 1993 500 year flood event on the Mississippi, suggesting that some species used flooded terrestrial habitat for spawning and feeding. The findings suggest lateral connectivity of the main river channel to less degraded reaches of its floodplain should be a management priority to maintain biodiversity and reduce the impacts of non-native species in large river systems. Published in *Wetlands* 26, March 2006. Read the abstract at [http://www.bioone.org/perlserv/?request=get-abstract&doi=10.1672%2F0277-5212\(2006\)26%5B244%3AROFTFC%5D2.0.CO%3B2](http://www.bioone.org/perlserv/?request=get-abstract&doi=10.1672%2F0277-5212(2006)26%5B244%3AROFTFC%5D2.0.CO%3B2).

Review of river temperatures and impact on aquatic habitat

A new review of river temperatures looks at the impact of natural daily and season temperature changes, and human induced changes due to thermal pollution, deforestation, flow modification and climate change. Read the review by D Cassie in August 2006 edition of *Freshwater Biology* at <http://www.blackwell-synergy.com/doi/abs/10.1111/j.1365-2427.2006.01597.x>.

Climate change is affecting vendace numbers

UK research into the dramatic decline of vendace (*Coregonus albula*) in a Cumbrian lake has found that the fish is unable to move into its deeper, colder habitat over summer because the deeper water is becoming anoxic due to thermal stratification caused by the increasingly warm summers. Source: <http://www.blackwell-synergy.com/doi/abs/10.1111/j.1365-2427.2006.01572.x>.

Mangroves' role in dissolved oxygen

Mangroves account for more than 10% of the terrestrially derived, refractory dissolved organic carbon transported to the ocean, while they cover less than 0.1% of the continents' surface. Read the Global Biogeochemical Cycles abstract at <http://www.agu.org/pubs/crossref/2006/2005GB002570.shtml>.

Climate change threat to Pacific Ocean mangroves

Some Pacific islands could see over half of the mangroves steadily lost by the end of the century, with the worst hit being American Samoa, Fiji, Tuvalu, and the Federated States of Micronesia. Download 'Pacific Island mangroves in a changing climate and rising seas' at <http://www.unep.org/PDF//mangrove-report.pdf#search=%22Pacific%20Island%20mangroves%20%22>.

Climate change impacts on Florida sportfishing

Potential impacts of sea-level rise on the environment and fishing in Florida include smaller beaches, deeper bays, saltier marshes and major disruptions to a food chain that supports about 70 percent of coastal marine life. Read the report 'An unfavourable tide: Global warming, coastal habitats and sportfishing in Florida' at http://www.nwf.org/nwfwebadmin/binaryVault/An_Unfavorable_Tide_Report.pdf.

Climate change and marine ecosystems

A new German report summarises the key linkages between climate change and marine ecosystems through factors such as warming oceans, changing ocean currents, rising sea-levels, carbon uptake and acidification. It also looks at the development of tropical cyclones, the issues surrounding carbon storage in the ocean or under the seabed, and risks associated with methane hydrate deposits in the sea floor. The report, 'The future oceans – Warming up, rising high, turning sour', is at http://www.wbgu.de/wbgu_sn2006_en.pdf.

RESOURCES

Stock and waterways: a manager's guide

<http://www.rivers.gov.au/publicat/stockwaterways.htm>

This new guide from Land & Water Australia is designed to help landholders manage riparian land to benefit waterways. The guide is free and available online or in hard copy.

River management for sheep graziers

<http://www.lwa.gov.au/products.asp>

The wool industry has produced several publications to help woolgrowers better manage their streams

and riparian zones. To view them on the web, click on the 'Select program group' box and select 'Land water and wool'.

Ernest Hodgkin's Swanland

http://www.uwapress.uwa.edu.au/titles/index/ernest_hodgkins_swanland.

This book provides a comprehensive guide to southwestern WA estuaries from Murchison to Esperance, all dominated by river flow rather than tides. The book outlines their history and ecology and how these have changed since European settlement with increasing pressures of nutrient enrichment, urban development, fisheries, and the opening of sand bars.

WetlandLink

<http://www.wetlandlink.com.au/>

Wetlandlink provides practical information for landholders rehabilitating wetlands on their properties. It is an initiative of WetlandCare Australia, funded by the Australian Government's Natural Heritage Trust. Editor Liza Schaeper welcomes news about restoration projects, research or funding programs. Contact her on 02 9660 5066 or lizaschaeper@wetlandcare.com.au and look on the website for contributor tips.

Catchments to coast conference abstracts

http://www.amsa.asn.au/conference/conf2006/images/AMSA2006_OralAbstracts-.pdf

In July the Australian Marine Sciences Association and the Society of Wetland Scientists combined to present their 'Catchments to coast' conference in Cairns. The presentations provided a terrific resource about current estuarine habitat research.

SeaWeb

<http://www.seaweb.org/home.php>

SeaWeb is a communications-based nonprofit organization that uses social marketing techniques to advance ocean conservation including a range of free e-newsletters.

US national fish passage program

<http://www.fws.gov/fisheries/FWSMA/FishPassage/>

The US Fish and Wildlife Service initiated the national fish passage program in 1999. The program uses a voluntary, non-regulatory approach to remove bypass barriers.

Washington State aquatic habitat guidelines

<http://wdfw.wa.gov/hab/ahg/>

These guidelines aim to promote, protect, and restore marine, freshwater, and riparian habitat.

US fish friendly stream crossings

<http://www.fws.gov/midwest/Fisheries/StreamCrossings/index.htm>

This website was developed for people involved in planning, designing and constructing stream crossings on small streams less than 20 feet wide.

US fish friendly culverts

<http://clean-water.uwex.edu/pubs/pdf/shore.fishfriendlyculverts.pdf#search=%22fish%20friendly%22>

This 8 page brochure outlines the main issues to consider when installing fish friendly culverts.

Fish friendly homes

<http://www.kitsaphba.com/pdf/BGfactsheet4.pdf#search=%22fish%20friendly%22>

This US brochure has information on lifestyle practices that will reduce your impact on fish.

FUNDING

NSW Recreational Fishing Trusts: fish habitat restoration

<http://www.dpi.nsw.gov.au/aboutus/news/recent-news/fishing-and-aquaculture/funds-to-restore-fish-habitats>

Expressions of interest are sought from individuals, clubs, groups or local councils interested in rehabilitating fish habitats in freshwater and saltwater areas of NSW. A total of \$360,000 is available for the 2006/2007 financial year from NSW Recreational Fishing Trusts, including \$200,000 for freshwater projects and \$160,000 for saltwater. Up to \$30,000 is available for individual projects on a matching dollar-for-dollar basis. Some of the projects that have previously been funded have included the removal of barriers to aid the movement of native fish, the restoration of tidal flows, the re-

establishment of native riparian vegetation, and the re-snagging of rivers. The Habitat Grant Protection Program gives the community direct input into projects that benefit the aquatic environment for native fish and ultimately improve recreational fishing. Groups or individuals may match funds either with in-kind support, cash or a combination of both. Priorities for funding can be found on the DPI website. Assistance with the preparation of applications is also available. Applications close on Friday, 27 October 2006. For more information ring 02 6765-4591.

NSW Recreational Fishing Trusts: small grants program

<http://www.fisheries.nsw.gov.au/rec/coastal/small-grants/home-small-grants.htm>

The small grants program funds proposals up to \$5,000 per project for small, local or regional projects aimed at enhancing recreational fishing. They should be matched by funds from the applicant and / or other sources. Applications can be submitted any time during the financial year. Partnerships are encouraged. For further information contact ring 02 9527 8411.

About NSW DPI and fish habitat

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

The Department'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.

The Department'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.

The Department'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

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Website

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 with your news items and suggestions.

Subscribe to Newstreams

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