

# Newstreams

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

**No 5. November 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 working actively to restore fish habitat.

## **NSW NEWS**

### **Barwon-Darling snag mapping**

Staff from NSW DPI's aquatic habitat rehabilitation unit have mapped 4085 snags along 175km of the 200km of Barwon-Darling River between Bourke and Brewarrina weirs. The team also assessed the condition of trees, shrubs, grasses, reeds, water plants and groundcover along parts of the river bank as part of a three year project funded by the Western CMA to develop a demonstration reach to show what native fish need to maintain and increase their numbers in freshwater rivers.

Information collected from the mapping will be used to select the best sites for management options such as strategic resnagging, remediation of deep holes, protection and restoration of river bank vegetation, weed removal, carp control, fencing and alternative stock watering. Landholders, fishers and members of the community who would like to be involved with the project can contact David Cordina, conservation manager, NSW DPI Bourke, 02 6872 2077, [david.cordina@dpi.nsw.gov.au](mailto:david.cordina@dpi.nsw.gov.au).

### **Bringing back the fish**

Bringing Back the Fish is a new project that aims to reconnect streams and rehabilitate habitat by upgrading instream structures in NSW's five coastal CMA areas. Steering committees in each CMA area are providing local information on priority structures for the project.

Approximately 70 per cent of coastal freshwater fish species in south-eastern Australia migrate between saltwater and freshwater habitats and between river basins as part of their lifecycles. These migrations are crucial for maintaining fish populations and biodiversity. Instream barriers such as weirs and road crossings can disrupt this process and lead to the decline of native fish populations and biodiversity. Tidal barriers and floodgates also affect fish communities through reduced water quality (eg acid sulfate soils and black water) and loss of primary habitat (eg wetlands and floodplain access).

For more information on the project or to notify key structures you would like addressed, contact Matthew Gordos (Northern Rivers & Hunter/Central Rivers CMAs) on 6626 1395, or Scott Nichols (Southern Rivers, Hawkesbury-Nepean, and Sydney Metropolitan CMAs) on 9764 3067.

### **Murray resnagging project update**

Resnagging in the Murray River between Hume Dam and Yarrawonga is progressing well, with more than 300 snags placed in the river since July to assist the recovery of native fish species including Murray cod and the endangered trout cod. The MDBC-funded project aims to reinstate around 4000 snags during the next three years and reverse the impact of desnagging works that saw almost 25,000 snags removed between 1976 and 1986. In spring 2006, snags were placed sites in the Murray River near Boiling Down Creek downstream of Corowa, and Police Paddocks, between Howlong and Corowa. For more information, contact Jenny Fredrickson, NSW DPI Albury, [jenny.fredrickson@dpi.nsw.gov.au](mailto:jenny.fredrickson@dpi.nsw.gov.au).

### **Fish friendly farms update**

NSW DPI and Greater Taree City Council held a Fish Friendly Farms (FFF) field day in the lower Manning catchment on 21 November. The field day highlighted mangrove rehabilitation projects undertaken in the Manning, and explained the importance of riparian zones and how to develop a fish friendly farm. The field day is one of several that have been organised since the project was launched

in August. FFF has featured at the Lachlan CMA NRM expo, the Orange National Field Days, NSW DPI's demonstration reach workshop near Coonabarabran, and the Macleay catchment's floodplain grazing workshops. The FFF concept has caught the interest of CMAs and local government throughout the state, and in Queensland the Condamine Alliance hopes to adapt the FFF brochure 'Seven key tips for fish friendly farms'. If you'd like to know more about FFF information sessions in your region, contact Charlie Grove at [charlotte.grove@dpi.nsw.gov.au](mailto:charlotte.grove@dpi.nsw.gov.au) or 02 6626 1107.

### ***Castlereagh demonstration reach field day***

Over 25 landholders and natural resource managers met on the banks of the Castlereagh River near Coonabarabran in October to see the development of NSW DPI's demonstration reach project funded by the Central West CMA. So far rehabilitation has included willow removal, log-jam construction, fencing, off-stream watering and revegetation. The benefits of having a fish friendly farm were outlined, and the landholder explained how the works have benefited his property and stock management. For further details contact Shaun Morris on 6881 1283.

### ***Living Murray fishways update***

Newly constructed fishways and navigable passes at Murray Locks 9 & 10 opened in October, complementing fishways completed at Locks 7, 8, 15 and the barrages near the Murray Mouth. The vertical slot design allows fish to negotiate a number of pools at a small gradient. In 116 sampling days, almost 40,000 fish migrated through the fishways at an average of 338 fish per day, rising to 2000 per day during peak migration. Individuals as small as 20mm and Murray cod as large as 1100mm use the fishways. Microchips implanted into fish revealed that some golden perch move up to 700km within a few months, while other species stay close to home. The next fishway will be built at Lock 1 near Blanchetown, South Australia. Source: [http://www.mdbc.gov.au/communications/subscribe/eLetter\\_menu/e-letter\\_november\\_2006](http://www.mdbc.gov.au/communications/subscribe/eLetter_menu/e-letter_november_2006).

### ***Bass Sydney honoured for habitat work***

NSW Council of Freshwater Anglers has awarded Bass Sydney for its habitat restoration in the Sydney region. Bass Sydney has helped restore South Creek, a once important Australian bass stream, with the planting of 1600 trees, shrubs and grasses; established fish passage in four weirs and barriers on the Parramatta River; supported construction of a fishway on the Lane Cove River; provided labour for construction of a rock ramp fishway on the upper Georges River; and worked towards a fishway on the Audley Weir in Royal National Park. (Source: <http://www.freshwateranglers.com.au/Adobe%20Files/Email%20N-letter%2018.pdf>.)

### ***Restoring Blaxland's Creek on the north coast***

On the NSW north coast, Clarence Valley Council Floodplain Services has upgraded Blaxland's Creek, improving aquatic habitat in the process. Floodplain Services constructed rock ramps, constriction structures, rock and log revetments and timber groynes to raise the bed of the creek, create scour pools and aquatic habitat and stabilise creek banks. The constriction structures reduced the channel width by two thirds. As a result the water pools upstream, encouraging deposition and formation of sand and gravel bars. On the downstream side, scour pools and eddying currents provide habitat variability for fish, particularly formation of deep pools in times of low flow. Read more at <http://www.crc.nsw.gov.au/content/uploads/CFP%20Newsletter%20Sept%2006small.pdf>.

### ***Landholders ask for wetlands to be de-listed***

Two landholders whose wetlands are Ramsar-listed want their site de-listed. The Gwydir wetlands cattle graziers say their land has received little water in 10 years despite government promises to provide water to retain the site's value. Neighbours can battle the dry by moving to cultivated crops, but those on the Ramsar-listed site would be prosecuted if the ecological character of the land changed due to clearing or farming. WWF will raise the issue at the Standing Committee of the Ramsar Convention in February next year. Read the Australian article at <http://www.theaustralian.news.com.au/story/0,20867,20691958-2702,00.html>.

### ***Investigation into Port Stephens acid water***

A task force comprising five government agencies and Port Stephens Council are investigating an acid outflow from Wallis Creek and Fenninghams Island Creek near Port Stephens after heavy rain in June. Numerous dead eel-tailed catfish were observed and oysters turned to a rusty red colour from large amounts of iron floc. At this stage it has not been determined whether the acid event was caused by climatic factors or disturbance of acid sulfate soils in the catchment or both. For further information contact Scott Carter NSW DPI 4982 1232.

### ***Fish find room to move in Tweed Shire***

Water flow and fish passage have been improved by Tweed Shire Council following removal of a concrete causeway over Rowlands Creek and a log sill on the Rous River, opening up 11 kilometres of upstream habitat for native fish. At certain times of year waterfalls created by the structures blocked fish from migrating upstream. For more information contact Charlie Grove, NSW DPI on 6626 1107.

## **AUSTRALIAN NEWS**

### ***Fish at risk as rivers run dry***

Some of Australia's native freshwater fish, including Murray cod and Macquarie perch, are at risk of disappearing. Water levels on the Murray River are at a record low and increased sedimentation is seeing stocks diminish. Total flows across the Murray Darling Basin are expected to fall by as much as 23 per cent in the next two decades. CSIRO says that combined with an increase in temperatures by up to 5°C could see some species wiped out. Source:

<http://www.abc.net.au/news/newsitems/200609/s1734845.htm>.

### ***4.2 million to improve WA water quality***

WA will spend \$4.2 million to improve water quality in the Swan-Canning Estuary, Geographe Bay and the Ramsar-listed Vasse-Wonnerup wetlands to prevent algal blooms that are killing fish. The blooms are caused mostly by nutrient runoff from contaminated urban and agricultural land in the catchments. Read more at <http://www.deh.gov.au/minister/env/2006/mr13oct06.html>.

### ***Habitat restoration can be more cost-effective than restocking***

Habitat rehabilitation can be more cost-effective than restocking according to a paper published in the proceedings of a national fish stock workshop in Brisbane earlier this year. Examples of cost-effective rehabilitation include reinstatement of fish passage, flow and thermal regimes, management of aquatic weeds, restoration of instream habitat (eg snags), riparian and wetland restoration, and improved management of catchment hydrology, sediment and nutrient loads. Read the paper 'Habitat restoration: Beyond the easy fix for fish stocks?' by Jim Tait on page 101 of the proceedings at <http://www.recfish.com.au/reports/pdf/Workshop%20report%20final.pdf>.

### ***Virus may control Australia's 'river rabbit'***

CSIRO scientists are investigating whether *Koi herpes* virus could control carp in Australian waters. The virus first emerged in Israel in 1998 and has caused mass mortalities in carp in the US, the UK, Israel, the Netherlands, Japan and Indonesia. Read the CSIRO release at <http://www.csiro.au/csiro/content/standard/ps27o,,.html>.

### ***Aquatic life returning to East Trinity***

Lime-assisted tidal flushing to rehabilitate degraded acid sulfate soils at East Trinity near Cairns is improving water quality and aquatic habitat dramatically. Mangroves are recolonising former melaleuca forests, and mangrove ferns are forming dense ground cover and rapidly colonising bare areas. A recent survey found 38 species of estuarine and marine fish, including barramundi and mangrove jack, and healthy stocks of juvenile mud crabs in previously barren creeks. Source: [http://www.epa.qld.gov.au/publications/p01939aa.pdf/East\\_Trinity\\_Newsletter\\_Edition\\_4\\_June\\_2006.pdf](http://www.epa.qld.gov.au/publications/p01939aa.pdf/East_Trinity_Newsletter_Edition_4_June_2006.pdf)

### ***Sustainable fisheries need to incorporate habitat knowledge***

Understanding fish habitats and the impacts of fishing on habitat is required before any fishery can be classified as ecologically sustainable, according to Laurie Laurenson of Deakin University. Read his paper in the Spring 2006 edition of *Waves*, the national newsletter of the Marine and Coastal Community Network, at [http://www.mccn.org.au/content/1286/Waves%20Vol%2012\(1\).pdf](http://www.mccn.org.au/content/1286/Waves%20Vol%2012(1).pdf).

## **INTERNATIONAL NEWS**

### ***Study predicts collapse of marine ecosystems***

A new study predicts the global collapse of all currently fished seafoods before 2050. The international group of ecologists and economists show that the loss of biodiversity is profoundly reducing the ocean's ability to produce seafood, resist diseases, filter pollutants, and rebound from stresses such as over-fishing and climate change. The study, published in the November 3 issue of *Science*, reveals that every species lost causes a faster unravelling of the overall ecosystem. Conversely every species

recovered adds significantly to overall productivity and stability of the ecosystem and its ability to withstand stresses. Read more at <http://www.dal.ca/news/2006/11/03/oceanstudy.html>. Read the abstract at <http://www.sciencemag.org/cgi/content/abstract/314/5800/787>.

### ***Urea use linked to algal blooms***

Escalating global use of urea is contributing to coastal algal blooms, according to new research. Worldwide use of urea has increased more than 100-fold in the past four decades and now constitutes more than half of nitrogen fertilisers used in agriculture, animal feeds and manufacturing. Research has found significant overland transport of urea to sensitive coastal waters where it is taken up by phytoplankton and increasingly linked with harmful algal bloom (HAB) species. Documented incidences of paralytic shellfish poisoning caused by several HAB species between 1970 and 2000 is similar to the global increase in urea use over the same period. Read the Biogeochemistry paper, at [http://www.vancouver.wsu.edu/fac/harrisoj/Publications/Glibert\\_et\\_al2006.pdf](http://www.vancouver.wsu.edu/fac/harrisoj/Publications/Glibert_et_al2006.pdf).

### ***Acid oceans threaten fish***

The rising level of carbon dioxide in the atmosphere is making the world's oceans more acidic, which could be catastrophic for marine creatures. The acidified waters eat away at the carbonate skeletons that protect many marine organisms. By some estimates, calcification rates will decrease by up to 60% by the end of this century, so carbon dioxide in the ocean could represent a chemical threat to the biosphere as severe as atmospheric carbon dioxide. Read the Nature magazine (31 August 2006) article at <http://www.nature.com/nature/journal/v442/n7106/full/442978a.html>.

### ***Human impact on coasts and estuaries***

Estuarine and coastal transformation has dramatically accelerated over the past 150 to 300 years. Human impacts have depleted more than 90% of formerly important species, destroyed more than 65% of seagrass and wetland habitat, degraded water quality, and accelerated species invasions. Twentieth-century conservation efforts have so far failed to restore former ecosystem structure and function. Read the paper 'Depletion, degradation, and recovery potential of estuaries and coastal seas at <http://www.sciencemag.org/cgi/reprint/312/5781/1806.pdf>.

### ***Farm salmon sea-lice killing wild salmon***

Research published in Proceedings of the National Academy of Sciences has found that salmon farms are killing off wild salmon. The farms are massive breeding grounds for sea lice which concentrate in rivers and streams and kill young salmon without protective scales. The study, which confirms previous findings, is the most comprehensive to date. Read the abstract at <http://www.pnas.org/cgi/content/short/103/42/15506>.

### ***Pike move habitat to improve survival***

British research into pike movement suggests habitat selection is more significant in fish population dynamics than was thought. Researchers found that every year, pike in a northern English lake move from habitat with a higher mortality rate to one with lower mortality rate to ensure their chances of survival. The researchers say the message is clear: if you study fish populations, you must include the potential for habitat selection. Read the Nature magazine (12 October 2006) paper at <http://www.nature.com/nature/journal/v443/n7112/full/443645a.html>.

### ***Historical marine ecology***

The emerging field of historical marine ecology is helping researchers uncover the history of aquatic life and habitat. Researchers trawl through shipping records, pirate logs, medieval cookbooks and restaurant menus to track the availability of aquatic life. Through such analysis, researchers have concluded that coral reefs are in severe decline worldwide, largely as a result of human activities such as overfishing. Read the Nature magazine (12 October 2006) article at <http://www.nature.com/nature/journal/v443/n7112/full/443622a.html>.

## **FISH HABITAT RESOURCES**

### ***Oceanwatch CD: Our valuable estuaries***

Ocean Watch has developed an educational CD-Rom 'Our valuable estuaries' about catchment activities that affect coastal estuaries, floodplains and the marine environment. It demonstrates the linkages between healthy catchments, aquatic habitats and water quality for sustainable and productive fisheries. Details at [http://www.oceanwatch.org.au/OW\\_500.asp?intID\\_GD=666](http://www.oceanwatch.org.au/OW_500.asp?intID_GD=666).

### ***Field guide to common saltmarsh plants of Queensland***

Queensland DPIF has produced this 76 page colour guide with photographs, line drawings and detailed descriptions of key plant species in saltmarsh fish habitats. To order copies visit <http://www2.dpi.qld.gov.au/fishweb/18539.html>.

### ***New book: Australia's mangroves***

Australia's mangroves' is the authoritative guidebook to all mangrove species found in Australian coastal waters. The book has over 500 colour photographs, and a waterproof field key. Find out more at <http://www.cms.uq.edu.au/marbot/publications/australiasmangroves.htm>.

### ***Atlas of Australian marine fishing and coastal communities***

This new atlas shows where fish are caught in Australia's oceans, the value of those catches and also provides information on coastal communities that depend on some extent on fishing activity. Access it at [www.brs.gov.au/fishcoast](http://www.brs.gov.au/fishcoast).

### ***Wetland Link***

The latest issue of Wetland Link's quarterly newsletter is available at [http://www.wetlandlink.com.au/newsletter\\_print/WetlandLink\\_issue4.pdf](http://www.wetlandlink.com.au/newsletter_print/WetlandLink_issue4.pdf).

### ***UK fish habitat and restoration projects***

UK's Environment Agency supports a wide range of fish habitat restoration projects. You can find details of the projects at [http://www.environment-agency.gov.uk/subjects/recreation/345720/974815/974854/976985/981425/?lang=\\_e](http://www.environment-agency.gov.uk/subjects/recreation/345720/974815/974854/976985/981425/?lang=_e)

### ***Protection of wild salmon habitat***

The David Suzuki Foundation has published a report on the failure of government policy to protect salmon habitat in British Columbia and offers a suite of creative solutions that will maintain and rebuild Pacific salmon populations. Read the report, 'The will to protect: Preserving BCs wild salmon habitat' at <http://www.davidsuzuki.org/Oceans/Publications.asp>.

## **FISH HABITAT FUNDING**

### ***Habitat grants update***

NSW DPI has received funding applications for 16 freshwater habitat projects in the fifth round of the NSW Recreational Fishing Trust Freshwater habitat grants program, and 22 saltwater projects in the second round of the NSW Recreational Fishing Trust Saltwater habitat grants program. Applications closed on 27 October. Proposals cover a wide range of rehabilitation works including restoration of saltmarsh, river bank stabilisation with riparian revegetation and removal of barriers to fish passage. Applications will be assessed by the Trust committees, and successful projects announced in 2007.

### ***Recreational fishing community grants program***

<http://www.daffa.gov.au/fisheries/recreational/recfishinggrants>.

Round 4 of the recreational fishing community grants program is now open and will close on Thursday 25 January 2007. Many of the Round 3 grants went to projects to improve fish habitat. Find out more about Round 4 applications, and the successful Round 3 grants at the website.

### ***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 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 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***

Sydney (Flemington) 02 9764 3229

Sydney (Cronulla) 02 9527 8411

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Huskisson 02 4441 8969

Port Stephens 02 4982 1232

Wollongbar 02 6626 1200

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### ***Research staff***

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### ***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***

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