Newstreams

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

No 14. June 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

Fish Friendly Farms – Finalist in the 2008 Banksia Awards

A NSW DPI initiative has been short-listed for the prestigious Banksia Environmental Awards. The *Fish Friendly Farms* project's achievements and contribution to environmental outcomes has led to the selection as a finalist in the Education Category. This is a significant result in itself and considering the number of entries received this year. The winners in each category and overall will be announced on July 18 by the patron of the Banksia Awards, Prime Minister Kevin Rudd. The Fish Friendly Farms initiative has been strongly supported by partners including the Council of freshwater Anglers, the Murray Darling basin Commission, the Natural Resources Advisory Council and a host of dedicated and committed farmers!

Resnagging starts, Bourke to Brewarrina reach, Barwon-Darling River

The resnagging component of DPI / Western CMA Bourke to Brewarrina Demonstration Reach project has been launched at one of the target sites. Decades of snag removal to improve navigation and floodplain clearing have greatly reduced the quantity of woody debris within many NSW rivers, leading to current efforts to "re-snag" waterways. Snags play a critical role in healthy riverine ecosystems, from shelter and refuge for large fish right down to surfaces for algae and bacteria which are the basis of the river's food chain. The landowner, also an avid angler, is looking forward to helping improve fish habitat and populations adjacent to their property. For more information, contact David.Cordina@dpi.nsw.gov.au or Maree Barnes, Western CMA, on mobile 0427 256 814. To watch a short video featuring the first resnagging site, http://www.western.cma.nsw.gov.au/Pages/Riversandgroundwater_Resnaggingvideo.html

Good news for the Southern Pygmy Perch in Coppabella Creek

A threatened fish species, the Southern Pygmy Perch, has been given a helping hand, with the rehabilitation of Coppabella Creek east of Holbrook, in the Upper Murray catchment. In January 2007 a population of Southern Pygmy Perch was discovered in the then drying up creek. 100 fish were rescued from a remnant pool and kept at Narrandera Fisheries Centre. The creek is now flowing again and the fish were returned to the creek in February. The works undertaken by the Murray Catchment Management Authority (CMA), NSW DPI and Coppabella Creek landholders to rehabilitate the creek have improved the survival chances of this Southern Pygmy Perch population.

Native Fish Awareness Week goes swimmingly

Native Fish Awareness Week ran from the 19-23 May. There were over 20 different events, all with a strong focus on fish habitat. The MDBC's Native Fish Strategy team toured through parts of the Murrumbidgee, Lachlan, Central–West and Namoi Catchments. During the week, farmers who had undertaken waterway rehabilitation works on their properties were publicly congratulated for their efforts. Other events included visits to native fish hatcheries, electrofishing demonstrations, and town meetings where issues affecting native fish were debated. The Native Fish Strategy has an optimistic aim to increase native fish populations by 60% over 50 years.

Endangered species use reinstated aquatic habitat

Native fish species, including the endangered trout cod, have been found to be using resnagged areas in the Murray River between Hume Dam and Yarrawonga. The project funded by the Murray Darling Basin Commission's (MDBC) Living Murray Initiative commenced in 2006 and has seen more than 4000 snags reinstated in the river channel to assist the recovery of native fish. Recent scientific surveys have indicated an increased number of native fish in the resnagged reaches.

One of the tagged trout cod found using the reinstated snags.
Photo courtesy of Jarod Lyon (Arthur Rylah Institute).

Fish passage restored in the Billabong Creek

The Aquatic Habitat Rehabilitation Unit has worked in partnership with the Murray Catchment Management Authority (CMA), landholders and the community to modify a road crossing on the Billabong Creek, 20km west of Jerilderie. The original structure consisted of concrete pipe culverts and was identified as a barrier to fish passage. The CMA provided funding to remediate the impacts of fish passage that involved removing the concrete pipes and replaced them with a multi celled box culvert crossing. These works have allowed native fish access to 25km of unimpeded aquatic habitat.

Reducing subdivision impact on Macquarie perch

The Aquatic Habitat Protection Unit was successful in getting Palerang Council to adopt modifications to a subdivision fronting the Mongarlowe River catchment in the upper Shoalhaven River near Braidwood. The modifications were needed to reduce the subdivision's potential impact on habitat of the threatened Macquarie perch. The adopted recommendations included reducing the subdivision from 14 to 9 lots and having 100m riparian buffers in line with the DPI's *Policy and Guidelines for Aquatic Habitat Management and Fish Conservation* (1999).

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: 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.

NSW NEWS

Boorolong Creek fish passage

The Border Rivers/Gwydir Catchment Management Authority (CMA) worked with DPI's Aquatic Habitat Protection and Rehabilitation Units and Uralla Shire Council to remove an obsolete 61m long x 5m wide x 1.2m high road crossing on Boorolong Creek, just upstream of its junction with the Gwydir River. The CMA both managed and funded the project, and with the structure gone approximately 20 km of the creek is opened up to fish passage.

Not so good news for Narran Lakes

The CSIRO MDB Sustainable Yields Project has published the Condamine-Balonne Report. Two of the key findings were that the period 1997 to 2006 was similar to the long-term climate average and that the climate models suggest best scenario to 2030 is an 8% reduction in surface water availability. At Narran Lakes, the number of years in which Back and Clear Lakes provide optimal waterbird breeding habitat has been reduced by 60% and optimal waterbird feeding habitat has been reduced by over 50%. Other reports released recently include the one for Barwon-Darling. All can be found at www.csiro.au/partnerships/MDBSYReports.html

Research on the effectiveness of low gradient vertical slot fishway

Fishways are commonly used to restore native fish movements in regulated rivers. The first of the 14 fishways to be built by 2011 is a vertical-slot design with low water velocities and turbulence. This design was selected to provide passage for individuals between 20 and 1000 mm long. Monitoring found that fish between 31 and 1030 mm successfully ascended the fishway. However, significantly smaller (<31 mm) fish and small-bodied (<50 mm) carp gudgeons were sampled downstream from the entrance of the fishway. For the abstract of Stuart *et al*'s paper: http://www.publish.csiro.au/nid/126/paper/MF07141.htm

In related research, Stuart *et al* looked at a modified 'lock' mode of operation improve passage of small-bodied (<60 mm long) native fishes using the vertical-slot fishway. Significantly greater numbers of three small-bodied native fish and two crustacean species ascended the fishway during lock operation than during standard operation. *Fisheries Management and Ecology* **15(3):**241-248 or see http://www.blackwell-synergy.com/doi/abs/10.1111/j.1365-2400.2008.00605.x

AUSTRALIAN NEWS

Banrock Station wetland re-flooded

The Ramsar listed wetland on Couth Australia's Banrock Station is being partially refilled to prevent potentially irreversible damage from salinity. The wetland has been completely dry since March 2007 and the surrounding vegetation has not been inundated since late 2005. The water is being supplied by both the MDBC and Banrock Station.

Launch of the SEQ Healthy Waterways Strategy 2007 – 2012

A strategy to improve and maintain the health of waterways in South East Queensland has been launched by the Queensland Government. The $20 million over four years includes:

- $8 million for waterway restoration projects in high-risk catchments and to helping landowners adopt sustainable land use practices
- $4 million to reduce sediment and nutrient loads
- $1.6 million to better manage and prevent coastal algal bloom hazards
- $6.3 million for targeted communication and education programs and investments in the science required to monitor progress.

For more information: http://www.healthywaterways.org/strategy_pdfs.html

Chocolate cod anyone?

Haigh's Chocolates has partnered with SA Water and the not-for-profit Waterfind Environment Fund to make a 20cm long solid chocolate Murray cod. Part proceeds from sales will go to Waterfind Environment Fund for river health projects. http://haighschocolates.com.au/news/news_story_1.html

Golden galaxias gets a look-in

Tasmania's golden galaxias was a deciding factor in the decision not to release 3,300 million litres of water from Lake Crescent for downstream irrigation. The fish is only found in Lake Crescent and the connected Lake Sorrell and there were concerns that the release of water would have impacted its spawning. The area is part of the Interlaken Lakeside Reserve Ramsar site.

Murray fishways set world ecosystem restoration standard

The MDBC released the report of the quantitative assessment of fishway performance and associated longer term benefits from improved fish passage. The Fish Passage Task Force studied 242,500 fish at the tidal Barrages, Locks 1 to 3 and Locks 7 to 10. The Murray River fishways are uniquely designed to restore passage for the majority of the migratory fish community, and the fully integrated and automated transponder system is the first in the world to be installed in a single river and will provide important information of the life history of native fish. The new fishways are passing more than 1,000 fish a day, with a high diversity of about 13 species and a wide size-range of between 31 mm to 1040 mm long. A copy of the *Sea to Hume Dam: Restoring Fish Passage in the Murray River* report is available at www.mdbc.gov.au/NFS/nfs_publications

Review of the impacts of invasive fish species open for comment

The Department of the Environment, Water, Heritage and the Arts has released a draft of *Review of the impacts of gambusia, redfin perch, tench, roach, yellowfin goby and streaked goby in Australia* for comment. This report brings together all the information relevant to the impacts of the six individual species and to identify gaps in knowledge. The Department is looking for submissions on the draft report, particularly ones that provide additional scientifically robust data or information which would improve it. Submissions are due by 18 July 2008. More information, contact details and the PDF are available by following the link at: http://www.environment.gov.au/biodiversity/invasive/

Reef Ocean Observing System established

The Australian Institute of Marine Science (AIMS) has established a new Great Barrier Reef Ocean Observing System, which will produce the highest resolution pictures ever produced of the region. Pictures ranging from kilometre to millimetre scale will be able to be taken, which will be able to be integrated for the first time. The Observing System will apply a 'digital skin' of sensors, which will provide real-time data on current conditions throughout the Reef. The project is led by AIMS on behalf of a consortium of agencies including AIMS, James Cook University, Great Barrier Reef Island Research Stations, University of Melbourne and CSIRO. The Great Barrier Reef marine tourism industry is participating in the Observing System by including ship board sensors on some of their vessels.

INTERNATIONAL NEWS

High levels of acidified ocean water within 20 miles of the US west coast

An international team surveying the waters of the continental shelf also discovered that the corrosive, acidified water that is being upwelled is probably 50 years old, suggesting still higher levels of acidification in the future. The 50-year old water had CO_2 levels of 900 to 1000 ppm, a level one researcher notes as 'right on the edge of solubility' for some species.
http://oregonstate.edu/dept/ncs/newsarch/2008/May08/acid.html

Rivers or ponds – which are more important for aquatic biodiversity?

This research asks whether aquatic biodiversity is concentrated exclusively in larger rivers and lakes or whether it is distributed throughout the landscape. At the individual site level, rivers were found to be the most species-rich waterbodies; however, at the regional level, ponds were the most species-rich aquatic habitat for both wetland plants and macroinvertebrates. Read the paper by Davies et al *Agriculture, Ecosystems & Environment* **125 (1-4)**: 1-8.
http://www.sciencedirect.com/science?_ob=PublicationURL&_tockey=%23TOC%234959%232008%23998749998%23683278%23FLA%23&_cdi=4959&_pubType=J&_auth=y&_acct=C000058612&_version=1&_urlVersion=0&_userid=2721585&md5=25d7afe069fe711e249beabc93c1e1f2

Seagrass ecosystem retains its nitrogen

The nitrogen cycle plays a major role in seagrass fields. A Dutch PhD student has found that the interaction between seagrasses, animals and microorganisms results in an efficient nitrogen cycle, with the result that nitrogen lost by the seagrasses is retained within the ecosystem. http://www.nwo.nl/nwohome.nsf/pages/NWOA_7EGBY2_Eng

Introduction of non-native freshwater fish: is it all bad?

Rodolphe Elie Gozlan, of the School of Conservation Sciences, Bournemouth University, is asking whether the introduction of non-native fish is a case of small risks being over assessed. He argues this is the case with, on the global scale, the majority of freshwater fish introductions not identified as having an ecological impact while having great societal benefits. *Fish and Fisheries* **9(1)**:106-115 http://www.blackwell-synergy.com/doi/abs/10.1111/j.1467-2979.2007.00267.x.

FISH HABITAT RESOURCES

Caring for Country Community Coastcare Grants

Community Coastcare is part of the Federal Governments Caring for our Country package of grants. Applications are being sought now for funding in 2008-2009. Community Coastcare will provide two levels of funding: small grants up to $50,000 and grants for larger-scale activities in high priority areas up to $250,000. State agencies are eligible to apply for large scale projects. Applications must be received by 5.00 pm Friday 25 July 2008. For forms and more information, go to www.nrm.gov.au/funding/coastcare.html

Mapping of human impacts on oceans

A groundbreaking new map of the state of the world's oceans has been released, and its message is that human activity has left a mark on nearly every square kilometre of sea, severely compromising ecosystems in more than 40% of waters. To view the map: http://www.nceas.ucsb.edu/GlobalMarine The article in *Science*: http://www.sciencemag.org/cgi/content/abstract/319/5865/948?ijkey=.QBRU7cadgPCc&keytype=ref&siteid=sci .

Global map of freshwater ecosystems

Freshwater Ecoregions of the World (FEOW) divides the world's freshwater systems into 426 distinct conservation units. Almost 18,000 species, including 13,400 fish species, were included in the mapping. The project was a collaboration between WWF and The Nature Conservancy. http://www.feow.org/.

Performance of commercially available PIT tag systems

Given the high cost of PIT tag systems and the adverse management implications of using incompatible equipment, the authors evaluated the performance of 20 transponder models and 11 transceiver models currently used in the United States. See Fuller *et al*, *North American Journal of Fisheries Management*, **28(2)** at http://afs.allenpress.com/perlserv/?request=get-abstract&doi=10.1577%2FM06-019.1

HABITAT DATES

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

NSW Coastal Conference, Wollongong

November 4 – 7, 2008 http://www.coastalconference.com/

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 stream banks 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 (Flemington)	02 9764 3229
Sydney (Cronulla)	02 9527 8411
Batemans Bay	02 4478 9103
Huskisson	02 4441 8969
Port Stephens	02 4982 1232
Wollongbar	02 6626 1200
Calala	02 6763 1255
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

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.

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