

Newstreams

News, research, on-ground works, innovation and events with a focus on improving fish habitat

AUSTRALIAN NEWS

Fish habitat sleek geeks

Six young habitat rehabilitators from Wilsons Creek Public School have gained national attention for the fish habitat message by coming second in the University of Sydney Sleek Geeks Science Eureka School Prizes, part of the Australian Museum Eureka Prizes. This prize asks students to get a scientific message out to a broad audience in a way that helps people 'learn something without even noticing'. Bodhi Genis, Jules Tait, Emile Scheffers, Yanik Scheffers, Jack Allen and Acacia Smith did this admirably, then went on to donate 70% of their \$1000 prize money to a fund to actually fix the Coopers Creek road crossing. While they and other supporters chase funds, the children continue to build their skills and knowledge of aquatic habitat through participating in Waterwatch monitoring of Wilsons Creek. Watch their video here:

www.abc.net.au/science/sleekgeeks/eureka/2011/ and scroll down to the 'Why the fish could not cross the road' link



Well done fish habitat 'Sleek Geeks'!

Photo: Liz Baker

Sunshine Coast Rivers Initiative wins the National Riverprize

The Sunshine Coast Rivers Initiative has taken out one of the 2011 Australian National Riverprize award. The Initiative is a group of over 30 community groups and government agencies, headed by Sunshine Coast Council, working together through a program of management actions and incentives that protect and improve the region's six river catchments. The \$195 000 prize money will be used to fund waterway management and improvement projects across the Sunshine Coast, Queensland. For more information:

www.sunshinecoast.qld.gov.au/sitePage.cfm?code=rivers-initiative



Well done Sunshine Coast Rivers Initiative partners! Photo: Sunshine Coast Council.

Ocean Shores Public School wins with Wetland Discovery Project

Ocean Shores Public School's school-community partnership 'Wetland Discovery Project' has won the NAB Schools First Impact Award. The project is a partnership with WetlandCare Australia, Byron Shire Council and other environmental organisations to restore and develop a significant wetland area on the school grounds. The school and partners worked together to control weeds control, replant and restore trails. Students were trained as wetland guides to take community groups and visitors on educational tours. NAB Schools First is a partnership between NAB, the Foundation for Young Australians and Australian Council for Educational Research that rewards outstanding school-community partnerships leading to improved student outcomes. The positive outcomes for aquatic habitat are also good. For more:

www.wetlandcare.com.au/index.php/our-work/current-projects/ocean-shores-public-school/

Oceans of value

Stocking Up: Securing our marine economy is a report on the wide range of values provided by Australia's oceans. These values are worth over \$69 billion per year, but the traditional economic accounts recognise only \$44 billion. Ecosystem services are worth at least a further \$25 billion per year. Ecosystem services are the non-market benefits we derive from nature. The value of 'lifecycle maintenance', specifically nurseries for juveniles, is estimated to be A\$6.1 billion per year. These ecosystem services are vital supports not only for biological productivity, like making more fish, but also for local economies. Read the report by Eadie and Hoisington from the Centre for Policy Development:

http://cpd.org.au/wp-content/uploads/2011/09/stocking-up_final_for-web.pdf



The value of ecosystem services provided by the marine environment is estimated at \$25 billion per year. Photo: NSW DPI

Carping on

Recent research has shown that carp can take advantage of works to regulate flows. During the last drought, an earthen levee was constructed on the lower Murray River at Goolwa in an attempt to prevent water acidification. The abundance of common carp in the weir pool at Goolwa was between 1000 and 250 times greater than abundance in Lake Alexandrina, which was used as a reference site. This was as a result of recruitment of young-of-year fish. No native freshwater species were significantly more abundant in the weir pool. It appears that the isolation of a river reach and a managed rise in water level facilitated carp spawning and recruitment. Read more of this research by Christopher Bice and Brenton Zampatti in

Ecological Engineering:

<http://dx.doi.org/10.1016/j.ecoleng.2011.06.046>

More on seagrass friendly moorings

The results of a two year trial assessing the effectiveness of three different types of environmentally friendly mooring designs were presented at a public forum as part of SEQ Catchment's Environmentally Friendly Mooring (EFM) Project. As part of the trial of the different moorings, the project worked with boat owners and there was a lot of community interest to participate in the trial. The assessment found that EFMs were better for seagrass than traditional mooring designs. The installation and operation of the designs assessed were flexible enough to allow for minor modifications to suit local conditions and owner concerns. Boat owners identified that the cost of the new types of moorings was identified as a key issue in their widespread uptake. For detailed information or to get a copy of the report, contact [Sean Galvin](#), SEQ Catchments, on (07) 3284 7070. For general information about the trial:

www.seqcatchments.com.au/media/environmentally-friendly-moorings-key-for-protecting-local-marine-habitat



The damage to seagrass from poorly moored boats. Photo: SEQ Catchments

Fish flow freely through James Cook Uni

The completion of a better fishway on the creek that runs through James Cook University in Townsville, Queensland, means that this wet season will see thousands of native fish move freely for the first time in thirty years. A road built across the creek thirty years ago formed a barrier to upstream migration, and as a result there was a big drop in the number and distribution of native fish species. A trial fishway, built six years ago, was successful enough to demonstrate the need for something better and permanent. The new fishway was a joint effort between NQ Dry Tropics, James Cook University and construction companies Abigroup and Seymour Whyte. For more information about fish habitat friendly projects in North Queensland:

www.nqdrytropics.com.au/boosting-fish-numbers

E-surveillance

The completion of the Tarabah fishway at Leeton in the Riverina has opened up more than 160km of additional habitat in Yanco Creek. The new fishway is a vertical slot design consisting of a series of interconnecting pools at a gradually increased height to allow native fish species to travel past the weir. The fishway also features electronic tag readers on the entry and exit points which mean the movement of native fish past the weir can be tracked. A selection of fish of various species and sizes are caught, tagged and released, then their movements through the fishway are recorded by the E-tag readers. This will help evaluate the effectiveness of the fishway. For more information contact [Matthew Gordos](#), NSW DPI, on 02 6626 1395 or visit:

www.statewater.com.au/About+Us/News+and+Events/Media+releases+2011/E-tag+freeway+for+fish+in+Riverina

Electronic tagging has also enabled researchers to better understand how fish move between different habitat areas. Researchers tagged Mulloway in south-west Victoria and identified the fish equivalent of a marathon swimming champion. One fish travelled from the Glenelg River estuary in Victoria to the Murray Mouth in South Australia and back again – an oceanic swim of around 800 kilometres. Other fish just made a one-way trip and stayed around the Murray Mouth. One tagged fish left the Glenelg River estuary and entered the Southern Ocean. The mouth of estuary was then blocked with sand. The fish then returned to the estuary three weeks later when the mouth re-opened. For more information:

www.dse.vic.gov.au/about-dse/media-releases/fish-discovers-interstate-travel



Mulloway – making use of estuarine habitats sometimes hundreds of kilometres apart.

Photo: James Sakker

Observed climate change in Australian marine and freshwater environments

In an overview of scientific observations, Janice Lough and Alistair Hobday outline the evidence of the effects of increasing concentrations of atmospheric greenhouse gases on Australian waterways. There are some clear changes, such as the change in the East Australian Current which, over the period 1944–2002, has increased its southward penetration by approximately 350 km, bringing warmer and saltier waters further south. To read more:

www.publish.csiro.au/view/journals/dsp_journal_fulltext.cfm?nid=126&f=MF10272 [Open access]

This article is one in a special edition of *Marine and Freshwater Research* on ‘Climate Change and Australian Aquatic Environments, Fish and Fisheries’:

www.publish.csiro.au/nid/126/issue/5635.htm

An estuary means multiple habitats for Estuary Perch and Australian Bass

Researchers have been looking at how Estuary Perch and Australian Bass use their estuarine habitats. By monitoring these fish in the Shoalhaven River, NSW, researchers found that significant differences in seasonal and size-related habitat use. During the Spring to Autumn months, Estuary Perch lived predominantly in water more than 5m deep in the middle reaches of the estuary. In winter, they made frequent downstream migrations, often to localised areas, within the lower estuary. Bass lived in the upper estuary where water was less than 2m deep, as well as in fresh water, throughout the year. Both species made extensive downstream and upstream migrations, often associated with reproductive needs, water temperature and increased freshwater inflows. Read more of this research by Walsh and others in *Ecology of Freshwater Fish*:

<http://dx.doi.org/10.1111/j.1600-0633.2011.00534.x>



Estuary Perch. Photo: Dylan Van Der Meulen

Local heroes caught on film

Some of the inspirational efforts Hawkesbury-Nepean locals are making to care for their rivers, bush and farmland have been captured in a series of documentaries released by the Hawkesbury-Nepean Catchment Management Authority (HNCMA). The stories include work to save the Macquarie Perch in a western Sydney creek where the fish has been isolated for the past 6000 years and a look at how critical seagrass is to estuaries and efforts to protect it with seagrass-friendly moorings. To view the documentaries:

www.hn.cma.nsw.gov.au/news/6146.html

Native Fish Awareness Day – the movie

The children of Calrossy Anglican School ventured out of the classroom to experience first-hand the impacts that are affecting waterways and actions that will help bring back native fish. Not only that, they made a video explaining the what, why and how of native fish rehabilitation. With funding from the Recreational Fishing Trust, months of work by the Principal, Laurence Tockuss, NSW DPI staff, the regional Native Fish Strategy coordinator, Tony Townsend, and others, the activities and the children's enthusiastic participation were recorded.

To watch the video:

www.youtube.com/user/NSWAgiculture?feature=mhee#p/u/0/RP0Zgcp33YM



Native Fish Strategy coordinator, Tony Townsend, aka a male Murray Cod, trying to defend his eggs from marauding Gambusia, aka Calrossy students.

Photo: Calrossy

Anglican School.

More of the Macquarie River available for native fish

The installation of open culverts on a crossing of Bulgeraga Creek has improved fish access to Macquarie River habitat close to the Macquarie Marshes. The provision of fish passage past the crossing will enable native fish species such as Murray Cod and Golden Perch to migrate to feed, spawn and seek refuge. The State Water project involved several local businesses based in Dubbo, as well as staff from NSW DPI, and was funded by the NSW and Australian governments through the Rivers Environmental Restoration Program. For more information:

www.statewater.com.au/About+Us/News+and+Events/Media+releases+2011/Bulgeraga-fishpassage

Hawkesbury-Nepean rivers get a helping hand

In the past 12 months, 82 kilometres of riverbanks and waterways in the Goulburn and Southern Highlands region have been restored as more than 24 landholders have fenced off waterways and installed alternative stock watering systems, removed weeds and replanted native trees. Local Landcare groups are helping with follow-up work. For more information:

www.hn.cma.nsw.gov.au/news/6125.html

Australian rivers lose a champion

Emeritus Professor Richard H Norris died on 19 September 2011. Professor Norris was well known as a champion of river health and freshwater science. His work in biological assessment for freshwater ecosystems was recognised through the US Environmental Protection Agency's Scientific and Technological Achievement Award and the Australian Society for Limnology 2010 Medal for outstanding contribution to Australian limnology. Read more of Professor Norris's contribution to science, science education and improving freshwater habitat:

<http://appliedecology.edu.au/news/vale-richard-norris.php>



Emeritus Professor Richard H Norris (January 1951 -September 2011).

Photo: University of Canberra

INTERNATIONAL NEWS

Charles River wins 2011 Thies International Riverprize

The Charles River is the 2011 winner of the International Riverprize, recognising 46 years of dedicated work by the Charles River Watershed Association. The International River Foundation's Thies International Riverprize is awarded for visionary and sustainable excellence in river management. In the 1950s, sewage and paint were discharged into the Charles River, which flows through Massachusetts to the Boston Harbour. Now the river has been transformed into one of the cleanest urban rivers in the United States.

For more:

www.crwa.org/

Largest US dam removal project on the Elwha River

The simultaneous removal of both the Elwha and the Glines Canyon dams on the Elwha River has begun. The Elwha River, in Washington State, was one of the US Pacific Northwest's most productive salmon rivers. The three-year process will restore a free-flowing river and reopen more than 70 miles of pristine fish habitat in the Elwha River and its tributaries. Salmon populations are predicted to swell from 3 000 to nearly 400 000. The return of salmon is expected to return marine-derived nutrients to the watershed, restoring a vital food source for aquatic life. For the Lower Elwha Klallam Tribe, the salmon's return after a century's absence, and the restoration of flooded sacred sites, means a process of cultural, spiritual and economic healing can begin. For more information, a blog and webcams:

www.nps.gov/olym/naturescience/elwha-ecosystem-restoration.htm



The beginning of the end for Glines Canyon Dam: progress as at 10 October, 2011. Photo: US National Parks Service

10 most improved rivers in the UK

The UK's Environment Agency released its list of the 10 most improved rivers – the waterways that have shrugged off their industrial past to become havens for wildlife, walkers and anglers once again. Rivers that once ran black with coal, were described as 'an affront to a civilised society' or were officially declared sewers in the 1960s are now home to salmon and other wildlife and are productive and popular fisheries. The transformation of these rivers has been achieved thanks to thousands of habitat improvement projects, tighter regulation of polluting industries and work with farmers, businesses and water companies to reduce pollution and improve water quality. To read more about these rivers:

www.environment-agency.gov.uk/news/132754.aspx

Thames River salmon not from stocked stock

Following major improvements in water quality in England's Thames River in the 1970s, a multi-million pound restocking effort was undertaken to restore the Atlantic salmon population. After initial peaks, the number of returning salmon declined dramatically. No salmon were recorded returning up the river in 2005, so the fish that were captured in later years were examined to determine where they originated from.

Researchers mapped the genes from salmon originating across Europe, as well as the hatchery stock. It appears that the salmon now found in the Thames are not related to the stocked fish. Instead, it's likely they have strayed into the Thames from other nearby rivers. Researchers suggest that while stocking may have a role to play in short term repopulation, ultimately improvements in river quality and habitat that will enable the natural recolonisation by fish from nearby rivers. This, they say, may represent the dominant processes in salmon population recoveries. Read more of this work by Griffiths and others in *Biological Conservation*:

<http://dx.doi.org/10.1016/j.biocon.2011.07.017>



Atlantic salmon are a highly prized fish for anglers. Photo: NSW DPI

Wider riparian buffers better

Danish researchers have studied the flow of non-point source pesticide pollution into streams and the impact on aquatic macroinvertebrates. Non-point source pollution from agricultural pesticides is one of the most important human caused stressors in streams. Under the European Water Framework Directive, member states must ensure that all surface water bodies achieve at least good ecological status and this means managing the flow of pollutants into waterways. The researchers found that total pesticide concentrations and toxic potential were highest during storm flow events, however it was the minimum buffer strip width in the near upstream area that was the most important factor governing the potential toxicity of the contamination. The results suggest that the minimum buffer strip width currently required under legislation is insufficient to achieve or maintain good ecological status. Read more of this work by Rasmussen and others in *Ecological Engineering*:

<http://dx.doi.org/10.1016/j.ecoleng.2011.08.016>

Conservation practices a good thing for the Great lakes

The Great Lakes Conservation Effects Assessment Project study has confirmed that farmers using combinations of erosion-control and nutrient-management practices are reducing the movement of sediment, nitrogen and phosphorous from farm fields into the Great Lakes and their associated waterways. It is estimated that conservation practices, including conservation tillage, has resulted in a 50 percent decline in sediment entering the waterways. The study area was nearly 174 000 square miles. The Great Lakes are the largest group of freshwater lakes on Earth, holding 95 percent of the United States' surface fresh water. For more information about the study:

www.nrcs.usda.gov/wps/portal/nrcs/detailfull/?ss=16&navtype=SUBNAVIGATION&cid=stelprdb1045403&navid=120110110130000&pnavid=120000000000000&position=Not%20Yet%20Determined.html&type=detailfull&pname=Great%20Lakes%20Region%20%20NRCS

ENGAGEMENT AND FUNDING OPPORTUNITIES

2012 Science & Innovation Awards for Young People (18 – 35)

Grants of up to \$22 000 to fund projects on an innovative or emerging scientific issue to benefit Australia's primary industries, including fisheries. Applications close 5pm AEDT Friday 18 November 2011. For more information and application documents:

www.abares.gov.au/conferences-events/scienceawards

WetlandCare Australia National art and photography competition

To celebrate World Wetlands Day 2012 on February 2, WetlandCare Australia is hosting their 5th annual Australia-wide art and photography competition. The competition closes on 2 December 2011. For more information:

www.wetlandcare.com.au/index.php/news/news-archive/wetlandcare-australia-national-art-and-photography-competition/

HABITAT DATES

- | | |
|---------------------|--|
| 23 - 25 October | 2011 International Kids Teaching Kids River Conference, Adelaide, SA
www.kidsteachingkids.com.au/conferences/2011-int-kids-teaching-kids-river/ |
| 5 - 12 November | Native Fish Awareness Week, Native Fish Strategy, Murray-Darling Basin Authority.
Events and activities are being held throughout the Basin and include the launch of the <i>Talking Fish</i> oral history booklets.
www.mdba.gov.au/programs/nativefishstrategy |
| 2 February 2012 | World Wetlands Day |
| 6 – 8 February 2012 | 'Managing for Extremes': 6th Australian Stream Management Conference, Canberra.
www.asm6.org.au/ |

HABITAT RESOURCES

ABC river stories collection

For the 2011 World Rivers Day, the ABC put together a collection of stories about various people's relationships with rivers and fish. These stories include coastal and inland rivers, fishers and non-fishers, farmers and landholders.

www.abc.net.au/rural/content/2011/s3317870.htm?site=newengland&ref=fb-top3-newengland-regional-landing

Baseline pollutant loads to the Great Barrier Reef

The Reef Water Quality Protection Plan aims to reverse the decline in water quality entering the Great Barrier Reef lagoon. Water quality improvement targets are set for 2013 and 2020 but need to be measured against baseline levels. Research estimates of current, pre-European and anthropogenic river loads for suspended solids, nutrients and herbicides are now available.

www.csiro.au/files/files/pzee.pdf

Environmental water info

Catchment based information including where water has been used and the outcomes as well as information on how much water is available.

www.environment.gov.au/ewater/

PIC FOR OCTOBER



Students from Wilsons Creek Public School engaged in monitoring the health of their local creek. As part of regular Waterwatch activities, the students sample and identify aquatic invertebrates – and fish, if they can! They also measure pH and turbidity. Photo: Liz Baker.

ABOUT NSW DPI AND FISH HABITAT

NSW Department of Primary Industries (DPI) is responsible for management of, and research into, fish habitat in NSW.

On-ground activities

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

Research activities

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

Policy and planning activities

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

Aquatic habitat staff

Sydney (Cronulla) - 02 9527 8411
Batemans Bay - 02 4478 9103
Huskisson - 02 4428 3401
Port Stephens - 02 4982 1232
Wollongbar - 02 6626 1200
Armidale - 02 6738 8520
Tamworth - 02 6763 1100
Dubbo - 02 6881 1270
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Research staff

Port Stephens - 02 4982 1232
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Website

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

About Newstreams

Newstreams is an email newsletter to keep people up to date about fish habitat activities and important aquatic habitat developments. It is published electronically every two months by NSW DPI.

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newstreams@industry.nsw.gov.au

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