

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

AUSTRALIAN NEWS

Fixing floodgates works wonders for fish

Estuarine wetlands are important nurseries for fish however flood mitigation structures, including floodgates, fragment wetland habitats, reduce fish passage and affect biodiversity. Research into the effects of floodgate remediation has confirmed what was suspected – that the movement of fish and crustaceans was enhanced and that this had a significant impact on biodiversity. This is particularly the case in tidally restricted wetlands in which the aquatic biodiversity had been reduced. During the research, the study sites experienced major floods, hypoxic conditions and associated fish kills. The key finding was that the positive responses to floodgate remediation can withstand such disturbances. For more about this research by Boys and others in *Journal of Applied Ecology*:

<http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2664.2011.02101.x/abstract>

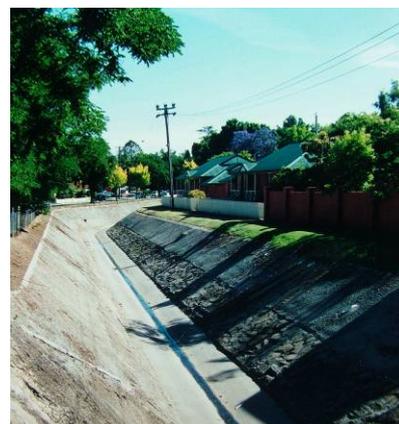


One of the study sites at Yarrahapinni, NSW, that confirmed that remediating floodgates benefits fish passage and aquatic biodiversity. Photo: Simon Walsh

Urban stream syndrome

Ian Wright, from the University of Western Sydney, has reviewed what is known about why urban streams and rivers are getting sick. The problem is not just stormwater, it is also the concrete pipes and infrastructure carrying the water. Concrete surfaces that come into contact with runoff are slowly dissolving and changing the quality of stormwater by releasing minerals, particularly calcium and bicarbonate. He reports that the pH of rainwater flowing through a concrete pipe for less than 2 hours jumped from an acidic 4.7 to a strongly alkaline 7.9. The salinity of the water also doubled. Research in the Georges River catchment, south-west of Sydney, reveals alkalinity levels in the most highly urbanised catchment streams are more than 40 times higher than the levels typically recorded in Georges River's bushland catchment waterways. For more about this research:

www.ecosmagazine.com/?paper=EC12187



Channelised creeks are not the only problem associated with concrete. The addition of alkanising minerals to stormwater flowing through concrete pipes is contributing to sick waterways in urban areas. Photo: Alan Lugg.

Hawkesbury gets a 'Waterkeeper'

Alan Midgely is the first 'waterkeeper' for the Hawkesbury River. Waterkeepers are volunteers who act as advocates for their river, are a contact point for the community to highlight concerns and issues impacting on river health and help the community learn more about their river. Alan will work between the Grose River and Wisemans Ferry, NSW as part of a partnership between the Hawkesbury Environment Network, University of Western Sydney and TAFE. To contact [Alan Midgely](#) call 0439 698 683, or for more information about waterkeepers in Australia, visit:

<http://waterkeeper.org/ht/d/sp/1/238/pid/238/display/ContentDetails/1/1276/pid/238>

Mangroves decimated by floods

The January 2011 Brisbane River floods stressed mangroves through increased sedimentation, prolonged inundation, and bank scouring and slumping. The extent of the impact on mangroves has become clear after the Queensland Herbarium and Fisheries Queensland conducted surveys in February and June 2011. Prior to the flood mangroves were present along both banks and on over 82.3 km of the 113.4km of total bank distance. By June, 76 km of mangroves along the Brisbane River were dead, destroyed or suffered partial destruction. This loss represents 92 per cent of the mangroves present prior to the floods. Further losses are expected, especially of grey mangrove, and it is possible that the January 2011 flood will eventually result in a loss of about 95 per cent of the mangroves along the river. To access the survey reports, go to:

www.derm.qld.gov.au/wildlife-ecosystems/plants/queensland_herbarium/publications/pdf/brisbane_river_flood_2011_report.pdf



Physical destruction of mangroves, as well as sedimentation and bank slumping, have resulted in the loss of about 95% of the mangroves along the banks of the Brisbane River. Photo: Fisheries Queensland.

Sky-high snaps into new snag maps

Researchers from the Department of Sustainability and Environment's (DSE) Arthur Rylah Institute (ARI) are using high definition aerial photography to assess instream habitat, such as snags, across Victorian rivers and streams. The photographs, coupled with ground-truthing using high resolution GPS and sonar, are providing a detailed picture of how much instream woody habitat is available for native fish, such as Murray Cod and Trout Cod. The maps will show the current condition of instream habitat, which is vital information for future protection and restoration activities. The researchers are also looking at what fish are in the rivers and using snags. For more information:

www.dse.vic.gov.au/about-dse/media-releases/cod-squad-turns-sky-high-snaps-into-new-snag-maps

500 truckloads of willow

Phase One of the ACT Government's Waterways Restoration Program saw the removal of about 500 truckloads of bank debris deposited along the Queanbeyan and Molonglo Rivers by the December 2010 floods. Phase Two, now underway, involves removing the established willows, blackberries and other woody weeds growing along the banks of these rivers. After the willows have been removed, the area will be revegetated using local species. For more information:

www.tams.act.gov.au/data/assets/pdf_file/0008/240839/MR53_0112_Willow_removal_along_the_Queanbeyan_and_Molonglo_Rivers.pdf

Habitat for fish in Pine River Bay

25,500 hectares of fish habitat near Weipa on the western side of the Gulf of Carpentaria has been declared a Fish Habitat Area (FHA), a major achievement for the two community groups who nominated the area. The declaration will protect the area's mangrove-lined creeks, sandy foreshores, sand bars and seagrass meadows from direct physical disturbance and coastal development. Declared FHAs are multiple-use areas where community use, such as legal fishing and boating activities, are allowed and encouraged. For more information:

www.dpi.qld.gov.au/30_21224.htm



Albatross Bay, an area now recognised as prime fish habitat. Photo: QLD DPI.

Grayling migration demystified

Arthur Rylah Institute researchers have provided an insight into the migration and breeding habits of the threatened Australian grayling. They found that in autumn Australian grayling undertook rapid long distance downstream migrations to spawn in response to increased stream flows. Some fish travelled distances up to 40 kilometres within a few days to the lower reaches of the river. If flows decreased, the fish stop their downstream migration, recommencing when the flows resumed. The study has also identified specific breeding grounds, in fresh water just upstream of the estuary. For more information: www.dse.vic.gov.au/about-dse/media-releases/not-such-a-gray-area-new-research-solves-a-fishy-migration-mystery



New research has confirmed the Australian Grayling's susceptibility to loss of natural stream flows and barriers to movement. Photo: Tarmo Raadik

Flood damaged fishway rebuilt

The ACT Government has rebuilt a rock ramp fishway at Vanity's Crossing on the lower Cotter River. The original fishway was severely damaged during floods in 2010 and native fish, including the threatened Macquarie Perch, were unable to navigate the barrier under most flow conditions. The new fishway is one of several actions helping the catchment recover from the 2003 bushfires, including recreational vehicle access management and activities that are improving water quality and riparian condition for native fish.

Celebrating World Wetlands Day

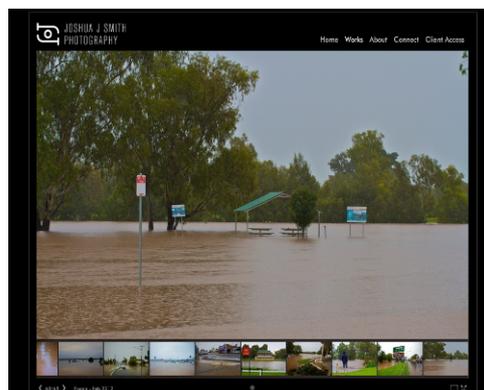
The Ballina community celebrated World Wetlands Day by planting over 700 trees at an important wetland bordering North Creek, in northern New South Wales. Everyone pitched in including members of the local Lions club and neighbouring golf club as well as EnviTE and NewTrain volunteers. In the Hunter region, Conservation Volunteers Australia planted trees along the river despite the rain. For more information: www.wetlandcare.com.au/index.php/news/news-archive



Volunteers getting dirty and wet for habitat on World Wetlands Day 2012 at North Creek (left) and in the Hunter (right). Photos: WetlandCare Australia.

Flood photos

Professional photographs of the 2012 floods around Narrabri and Wee Waa in central-western New South Wales show clearly the dynamic nature of rivers - and what can happen to habitat restoration sites and signage. <http://www.joshuajs.com/#/works/floods-feb-2012> [you might need to cut and paste address]



One of the Namoi Aquatic Habitat Initiative rehabilitation sites. Photo: Number 68, <http://www.joshuajs.com/#/works/floods-feb-2012>

INTERNATIONAL NEWS

Muddying the waters on water quality data

Progress has been made in the longstanding attempt by anglers in the United Kingdom to require water companies to provide information on sewage discharges and clean-up operations throughout England and Wales. Following a 3 year battle and various attempts by water companies to prevent an appeal, the Angling Trust's legal arm, Fish Legal, has had the case referred to the Court of Justice of the European Union (CJEU). Formal legal questions can now be put to the CJEU to help decide whether water companies are 'public authorities' under European legislation and therefore subject to public scrutiny. The Angling Trust argues that data on water quality and quantity is vital information not just for anglers, but for everyone who cares about the state of rivers and coasts. For more information;

www.anglingtrust.net/news.asp?section=29§ionTitle=News&page=2&itemid=1049

Calm waters bringing fish back

Over 60 years ago side channels on the Willamette River in Eugene, Oregon, USA, were mined for gravel and disconnected from the river. Fish lost access to the slow, calm waters they used to rest, feed and grow. These side channels have now been reconnected to the river and restored to a more natural state. Fish are already returning, including the threatened Chinook salmon. The restoration work included creating more naturally sloped riparian areas and seeding them with native plants, removing weeds and using heavy machinery to dig out seven channels to link the ponds back to the river. For more information:

www.habitat.noaa.gov/restoredhabitatoregon.html

Fish habitats available after a long wait

A fish passage barrier that has limited fish migration for hundreds of years and another affecting the beleaguered European eel are no longer significant barriers for fish. The UK's Environment Agency has installed an 'eel pass' on Woolston Weir, Warrington, in north-west England, to help young eels ('elvers') get up- and downstream, improving their breeding prospects and so give a boost to their numbers. The number of elvers migrating into European rivers has fallen to less than 5% of 1980s levels. For more information:

www.environment-agency.gov.uk/news/136278.aspx?page=5&month=1&year=2012

An old mill has been the issue for fish migration in the River Cherwell at Kidlington, near Oxford, England. The new 'fish pass' will allow fish populations access to new spawning grounds upstream of the mill for the first time in hundreds of years. The new fish pass is part of a series of habitat enhancements that have been carried out over the last few months on the lower Cherwell to help provide vital habitat for juvenile fish. Other schemes have included the creation of backwaters, which used to be a common feature on many of the region's lowland rivers, but have been lost due to historical dredging. Spawning gravels have also been added to the river bed of the Cherwell. Much of the work has been undertaken in conjunction with the local angling club and the Kidlington Angling Society, with funds from the Water Framework Directive, European legislation designed to improve and protect all waters, both on the surface and underground. For more information:

www.environment-agency.gov.uk/news/136242.aspx?page=6&month=1&year=2012



The picturesque 16th century Kidlington mill (left) has not been attractive from a fish perspective. The mill pond (middle) had been a barrier for fish migration for hundreds of years before remediation (right). Photos: Left - <http://viewfinder.english-heritage.org.uk>; middle and right - <http://rivertac.org/>

More salmon habitat more cheaply

The population of coho salmon in California's North Coast is less than 1 percent of what it was. One reason for the decline is insufficient wood in the streams. Healthy salmon habitat includes abundant fallen trees and logs that create cold pools for young fish, places to hide from high winter flows and protection from predators. While snagging has been identified as a top priority the standard methods used are expensive. In the Garcia River watershed, California, the Nature Conservancy and partners have found a way to create salmon habitat in a faster, more cost-efficient manner by releasing logs into the river and streams at strategic locations, letting winter rains and high stream flows create log jams naturally. This approach has produced results within 12 months at a tenth to a third of the cost of traditional methods. For more information visit: www.nature.org/ourinitiatives/regions/northamerica/unitedstates/california/explore/garcia-salmon.xml To watch a video: www.youtube.com/watch?v=pyxD57BqQZs&feature=youtu.be

Habitat variability returns to the River Wensum

Major restoration works on the River Wensum, near Norwich, north-east of London, have led to significant improvements in biodiversity and fish numbers. A meander loop at Great Ryburgh Common had been bypassed and left high and dry by engineering works in the 1950s. The bypass has been closed off and the old channel de-silted, allowing the river to flow again along its original winding course. Electrofishing surveys in the meander loop channel have captured 384 fish of 11 species. The previous year's results from the old straightened channel yielded only 31 fish representing 8 species. The gravel bed of the river was also restored, having been largely removed by past dredging. Wildlife in the gravel now includes species typical of natural, free flowing gravel bed sections, including mayflies, caddisflies and stoneflies, indicating a healthy invertebrate community, good water quality and, importantly, good habitat variability as a result of the restoration works. For more information:

<http://rivertac.org/2012/02/river-wensum-restoration-scheme-chalks-up-success/>

The good and the bad of Taiwan's water quality improvement plan

The report on the 2008 - 2011 phase of Taiwan's 'Rivers and Oceans Water Quality Improvement Plan' indicates that while the overall water quality of rivers nationwide has improved, conditions in 11 of the 50 main rivers have deteriorated. This phase of the plan had focused on urban river restoration, on-site treatment, integrated watershed treatment and community participation in river patrols. The urban river restoration projects, completed along five rivers in western Taiwan, focussed on cleaning and minimising the impact of domestic wastewater. The impact has in some cases been dramatic. For example, the percentage of the Erjen River which was highly polluted dropped from 100 per cent in 2003 to 28.2 per cent in 2011. For more information:

www.taipeitimes.com/News/taiwan/archives/2012/02/01/2003524398?utm



Typical riparian area of the Erjen River, one of the priority sites for the Water Quality Improvement Plan. Photo: Chen Chen-Chang, Taipei Times.

A Trojan horse to kill invasive mussels

The freshwater zebra mussel is an invasive species, more often than not removed by sending down divers to hack them off by hand. This costly exercise is necessary because it is very difficult to get rid of zebra mussels using poisons - they can sense them in the water and simply close their shells for up to three weeks until the threat has dissipated. A Cambridge company has successfully trialled 'biobullets', tiny particles of toxin coated in a vegetable fat which tricks the mussels into ingesting them. The zebra mussels then build up a concentration of the toxin until it kills them. The toxin used is potassium chloride, which is considered safe to use in the water supply system as anything that is not eaten by the zebra mussels degrades in less than three hours. For more information: <http://www.bbc.co.uk/news/business-16788183>

Restored wetlands not making the grade

Researchers from the University of California have looked at 621 wetland sites globally to evaluate how effective wetland restoration efforts have been in terms of biological structure (driven mostly by plant communities) and biogeochemical functioning (driven primarily by the storage of carbon in wetland soils). The results suggest that these parameters remained on average 26% and 23% (respectively) lower in restored or created wetlands than in undisturbed wetlands. It appears that both ecosystem size and the environmental setting affect the rate of recovery significantly. Recovery may be more likely if the site consists of more than 100 contiguous hectares, is located in warm climates or is linked to riverine or tidal flows. The study found that, in general, disturbed wetlands either recover very slowly or move towards alternative states that differ from original conditions. Read more about this work by Moreno-Mateos and others in *PLoS Biology*:

www.plosbiology.org/article/info%3Adoi%2F10.1371%2Fjournal.pbio.1001247 (OPEN ACCESS)



Restoring wetlands might be more successful if linked with riverine or tidal flows. Photo: A natural wetland in the Hunter region of NSW; Charlie Carruthers.

Individual seagrass feeding fish for 10 000 years

Seagrasses support marine ecosystems that rank among the most valuable on earth in terms of biodiversity and productivity, but are experiencing a worldwide decline. These plants reproduce both sexually and asexually (through cloning) and are known to be long-lived. Researchers looking at the endemic Mediterranean seagrass, *Posidonia oceanica*, one of the slowest-growing and longest-lived plants in existence, found extremely large meadows of a single clone (up to 15 km) that were thousands to tens of thousands of years old. The finding indicates that while some meadows have been able to adapt to ecological change over long time scales, this species may not have the capacity to adapt given the current rapid and acute impacts caused directly or indirectly by human pressure. The ancient meadows of *P. oceanica* are declining at a rate several hundred-fold faster than the rate over which they spread when forming. Read more about this research by Arnaud-Haond and others in *PLoS ONE*:

www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0030454 (OPEN ACCESS)



Posidonia australis, vital fish habitat that despite using cloning as a reproductive strategy can adapt to change over long time frames. Photo: NSW DPI.

HABITAT DATES

- | | |
|----------------|--|
| March 3-4 | 5th Annual Namoi Carp Muster, Narrabri www.dpi.nsw.gov.au/aboutus/news/recent-news/fishing-and-aquaculture/come-muster-a-carp |
| March 12 - 14 | Communicating Water Science and Technology Course, Brisbane www.smartwaterresearchcentre.com/education-and-training#Communicating Water |
| March 31 | Sydney Metropolitan Catchment Management Authority Annual Community Forum, Sydney Open to environmental volunteers who are working in the Sydney region. To register: https://nicoladixon.wufoo.eu/forms/community-forum-2012-registration/ |
| August 17 – 19 | National Recreational Fishing Conference, Gold Coast www.recfishing2012.com.au |
| October 8-11 | 15th International Riversymposium, Melbourne www.riverfoundation.org.au/index.php |
| October 20-24 | 6th National Conference on Coastal and Estuarine Habitat Restoration, Tampa, Florida, USA http://www.estuaries.org/conference/ |

ENGAGEMENT AND FUNDING OPPORTUNITIES

Draft Murray-Darling Basin Plan

The formal consultation period ends on 16 April 2012. Community meetings are being held in various locations – see: www.mdba.gov.au/have-your-say/updates-and-events. For more information and documents, go to: www.mdba.gov.au/draft-basin-plan

2012 Thies International Riverprize

In 2012, the application process has two stages. Stage one is the initial application submitted electronically by **16 March 2012**. Applicants who have reached stage two of the application process will be notified in early April. For application details: www.riverfoundation.org.au/riverprize_entering.php

Sustainable Farm Practices – Bellinger River and Nambucca River Floodplains, NSW

The project focuses on landholder engagement in sustainable farm management. On-ground activities include fencing to control stock access to wetland areas, revegetation and control of emerging weeds, installing infrastructure including off-stream watering points and upgrading stock crossings. For further information, contact [Kirralee Donovan](mailto:Kirralee.Donovan@wetlandcare.com.au) (WetlandCare Australia) on (02) 6652 5589.

Hunter Wetlands National Park - Plan of Management

The National Parks and Wildlife Service is preparing a plan of management for Hunter Wetlands National Park. The website will provide information about the development of the plan and online forums: <http://hunterwetlandsnationalpark.com.au>

HABITAT RESOURCES

Indigenous land and sea management in remote Australia

An OPEN ACCESS special issue of *Ecological Management & Restoration*, available at: <http://onlinelibrary.wiley.com/doi/10.1111/emr.2012.13.issue-1/issuetoc?utml>

Natural Resource Management Website

The Australian Government has launched a new natural resource management website to provide information about funding opportunities and outcomes relating to the Caring for our Communities initiative: www.nrm.gov.au/index.html

Coastal research projects website

This is a free resource, enabling access to current and previous research projects and related publications, and to links to a range of available data and metadata: <http://coastalresearch.csiro.au/>

Healthy waterways – brochure

A brochure aimed at raising awareness amongst coastal boaters and fishers on ways to minimise their impact on the environment and to get involved in improving their aquatic environment. Available from: www.sydney.cma.nsw.gov.au/index.php?option=com_remository&Itemid=158&func=startdown&id=548

Aquatic Biodiversity in Northern Australia: patterns, threats and future

Edited by Brad Pusey. More than one million gigalitres of rain falls over northern Australia every year in a seasonal cycle of short intense humid wet seasons followed by long extended dry seasons. This book discusses the implications of these profound seasonal changes and how the region's aquatic biodiversity deals with the highly variable habitats. For more information: http://cdupress.cdu.edu.au/orders/cdu_press.find?book=aquatic-biodiversity

Finding the River: An Environmental History of the Elwha

This book by Jeff Crane presents an environmental and human history of the river as well as the ecological and sociological aspects of its reconstruction. <http://osupress.oregonstate.edu/book/finding-river>

ABOUT NEWSTREAMS

Newstreams is an email newsletter to keep people up to date about fish habitat activities and important aquatic habitat developments. It is free by email subscription. To **subscribe** or send in your habitat news, email the editor, Liz Baker (newstreams@industry.nsw.gov.au). Back issues can be accessed from www.dpi.nsw.gov.au/aboutus/resources/periodicals/newsletters/newstreams.

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FHN Partners

- Fisheries NSW www.dpi.nsw.gov.au/fisheries/habitat
- NSW Council of Freshwater Anglers www.freshwateranglers.com.au
- Recreational Fishing Alliance of NSW www.rfansw.com.au
- Australian National Sportfishing Association www.ansansw.com.au
- ECOfishers www.ecofishers.com
- NSW Fishing Clubs Association www.nswfca.com.au
- SUNFISH www.sunfishqld.com.au
- VRFish www.vrfish.com.au
- Fisheries Victoria www.dpi.vic.gov.au/fisheries
- VIC Department of Sustainability and Environment www.dse.gov.au

Website www.fishhabitatnetwork.com.au



Department of
Primary Industries

