

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

AUSTRALIAN NEWS

Recreational & commercial fishers back their fishery with muscle and money

A tremendous initiative by a dedicated group of fishers to give back and help sustain the fishery they enjoy and rely on has led to an upgrade of the damaged fishway on Jabour Weir at Casino, north-east NSW. The upgraded fishway restores fish migration into almost 1000 km of good fish habitat upstream – great news for the Australian Bass now making their way upstream after their spawning migration. Recreational fishers from the Kyogle Fishing Club, who have lobbied hard for improvements to the fishway, donated the labour of three builders for the week and the Ballina commercial fishers who haul mullet from the Richmond River contributed \$4000 from their Fish Habitat Fund towards the work. The fishers teamed up with Richmond Valley Council and NSW Department of Primary Industries. More info:

<http://www.dpi.nsw.gov.au/aboutus/news/all/2013/fishers-repair-fishway>

<http://www.northernstar.com.au/news/weir-repair-helps-fish-migration/2018787/>



Big smiles all round from the commercial and recreational fishers who fish the Richmond River in northern NSW.

Keeping big fish moving in the Little River

Native fish in the Little River, Central West NSW, now have free access to more than 46 kilometres of prime habitat thanks to work by Yeoval Fishing Club. Yeoval Fishing Club member Matthew Phillipson said “the project is providing better fishing for our kids and we are seeing that now in our creeks and rivers”. Only one barrier remains before access is restored all the way through to the Macquarie River. The work was completed in partnership with the NSW Department of Primary Industries, Central West Catchment Management Authority and Cabonne Shire Council, with funds from a NSW Recreational Fishing Trust Fish Habitat Action Grant.

<http://www.dpi.nsw.gov.au/aboutus/news/all/2013/fish-free-to-swim-to-more-areas-in-central-west>

Saving soil, hydrating the farm and improving habitat for fish

Edgar Downs, a 3rd generation farmer, is determined to maintain and improve his property for future generations. He is working with the Hawkesbury Nepean Catchment Management Authority to restore an eroding waterway, stop nutrients from reaching the Hawkesbury Nepean River system and provide habitat for fish. The results: clean water, a higher aquifer level, fish access to habitat and good water availability for his crops. Hear more about his whole farm vision and see the works involved:

<http://www.hn.cma.nsw.gov.au/multiattachments/6674.html>

New digs for native fish in the Talbragar River

The Dunedoo Coolah Landcare Group Homes have been busy rebuilding homes for native fish in the Talbragar River, Central West NSW. An excavator with a log grab was used to carefully position 26 trees and 15 stumps to make five snag complexes. The project will not only improve habitat for local fish, it has also engaged the community and increased their awareness about the health of the river and the sorts of activities that can be done to improve it. The potential for natural recruitment of snags was improved through a field day for school children where they were encouraged to make more future woody habitat for fish by planting longstem red gum tube stock on the river banks. More information:

<http://www.dpi.nsw.gov.au/aboutus/news/all/2013/fish-habitat-talbragar-river>



'Many of our large native fish are predatory and will prey on young carp. By installing snags back into the river, we are improving the habitat available to our native species, hopefully swinging the balance back towards our native fish.' (Dunedoo Coolah Landcare Coordinator, Simon Ferguson. Photo: NSW DPI).

Even a little riparian reveg makes a difference

Replanting relatively small areas of riparian vegetation (hundred/s of metres), even if not connected to other vegetated areas, has been found to have a positive impact on stream ecosystem processes. Researchers found that the effects of replanting on stream ecosystem processes are detectable even when the spatial scale of restoration is relatively small in a whole-of-catchment context. Their results show there is a benefit from landholder-scale restoration of riparian vegetation. For more on this research by Gilings and others in *Freshwater Biology*:

<http://dx.doi.org/10.1111/fwb.12236>

Good news and bad news about carp in the MDB

The good news is that research into how carp populations grow and respond to environmental conditions seems to indicate that floodplain inundation does not correlate with increased spawning of this pest fish species. The growth of the population of Boolara strain of common carp through the Murray-Darling Basin was due to high initial population growth rates unrelated to flood events. The bad news is that these fish can live to 29 years old, maintaining a pool of reproductive adults that spawn when conditions are suitable. The researchers estimate that current carp control techniques and budgets will not remove enough of the population annually to eradicate common carp from the rivers of the Murray- Darling Basin. For more on this research by [Dave Forsyth](#) and others in *Biological Invasions*:

<http://dx.doi.org/10.1007/s10530-012-0290-1>



Photo: Milly Hobson.

Seagrass and prawns getting over Cyclone Vance

In 1999 a stock assessment of tiger prawns in Exmouth Gulf, northern Western Australia, was interrupted by Cyclone Vance. Tiger prawns are highly dependent on beds of seagrass and algae as juveniles so a 40 per cent loss of mangroves and virtually no seagrass or algae present in the relatively shallow waters where the juvenile stages are usually found were major concerns. Prawn landings and recruitment to the fishery were low in the two years immediately afterwards. Seagrass can take a long time to recover, but within three years it increased from around two per cent immediately after Cyclone Vance to 30 – 40 per cent and tiger prawn recruitment rates also began rising. In contrast, the catch of tiger prawns was not affected in Shark Bay, a similar area 500 km south of Exmouth Gulf that was not affected by the cyclone. For more information about this research by Loneragan and others in *Estuarine, Coastal and Shelf Science*:

<http://www.sciencedirect.com/science/article/pii/S0272771413001522> (OPEN ACCESS)

Or read a plain English summary at:

<http://www.sciencewa.net.au/topics/fisheries-a-water/item/2344-fishery-bounce-back-informs-on-seagrass-importance.html>

Bags rehabilitating seagrass

Seagrass is notoriously hard to rehabilitate and various methods have produced inconsistent results. A study into using hessian bags, made from biodegradable jute, has found that these can be an effective, relatively simple, cost effective option to stabilise the substrate seagrass can be planted into. Bags with a coarse weave were better at getting seagrass seedlings to recruit and establish but what the bags were filled with did not make a noticeable difference. For more on this study by Irving and others in *Restoration Ecology*:

<http://onlinelibrary.wiley.com/doi/10.1111/rec.12036/abstract> [OPEN ACCESS]

Hawkesbury clean-up wins Landcare Award

One of the winners of the 2013 NSW Landcare Awards was the Macmasters Beach Surf Lifesaving Club for their work with the students of Brisbane Waters Secondary College cleaning up rubbish from the beaches, rocky ledges and mangroves of the Hawkesbury River. Their fortnightly trips are removing tonnes of rubbish and contributing to creating cleaner, healthier habitat for fish. A short video is available at:

<http://www.youtube.com/watch?v=TGxsY8VLI7k>

How well do you know your Rock Cod?

Once a popular target for spear fishers, the Eastern Rock Cod, is now protected. This shy but spectacular species relies on rocky ledges and caves as adults and shore rock pool habitat as juveniles. Researchers have now filmed juveniles in the rock pools and found that they are also territorial, staying in the same pool if they find one that ticks all the habitat boxes. To watch the video of both adults and juveniles in their favoured habitat:

https://www.youtube.com/watch?v=OR95c1uC4_o



Black Cod up to 400lb were once caught off Coffs Harbour, NSW. It's thought that the male fish change sex, becoming female when 1 metre long – making the need to ensure large fish are protected even more important. Image source:

https://www.youtube.com/watch?v=OR95c1uC4_o

Community values Hollands Creek

The Hollands Creek Demonstration Reach, in northern Victoria, was one of the sites supported by the Murray-Darling Basin Authority's Native Fish Strategy. A survey of the general community in the area has found that despite there being a variety of ways in which people use and value Hollands Creek there was support for ongoing involvement in its rehabilitation and management. It was evident that the creek is important, if not central, to people's lives and many ideas were put forward for improving the overall management of the creek. This community support will be invaluable for securing any ongoing funding. For more information:

http://www.gbcma.vic.gov.au/default.asp?ID=news_events&post=399&tpl=news_full

Pike River gets more plants

A three-week planting project along the Pike River, South Australia, has added 6,000 native trees and understorey species at three locations totally 25ha. A different technique was used to improve germination and seedling survival in this low rainfall area with seedlings being planted at regular intervals along a furrow, each with a basin to capture rainfall and reduce seed movement and potential erosion. The Aboriginal Learning on Country team also completed 40 kilometres of direct seeding in the weeks before the planting. Government staff, volunteers from Renmark High School, the Renmark to Border Local Action Plan Group and members of the community joined in at various times. More:

<http://www.naturalresources.sa.gov.au/samurraydarlingbasin/news/130812-revegetation-along-pike>

International relations of a fish habitat kind

As the recipient of a Churchill Fellowship, Craig Copeland, Fisheries NSW, wanted nothing more or less than to listen to as many fishers as he could in the USA, UK and Ireland talk fish habitat rehabilitation. And talk to him they did. With many more fishers involved in habitat work and wanting to share their stories than there was time available, there were still opportunities to visit some inspiring examples of bringing the fish back. Martin Salter, who worked on the *Keep Australia Fishing* document, was one of the passionate fishers determined to show Craig as much as possible about the work he and his fishing mates are doing. Read Martin's account here:

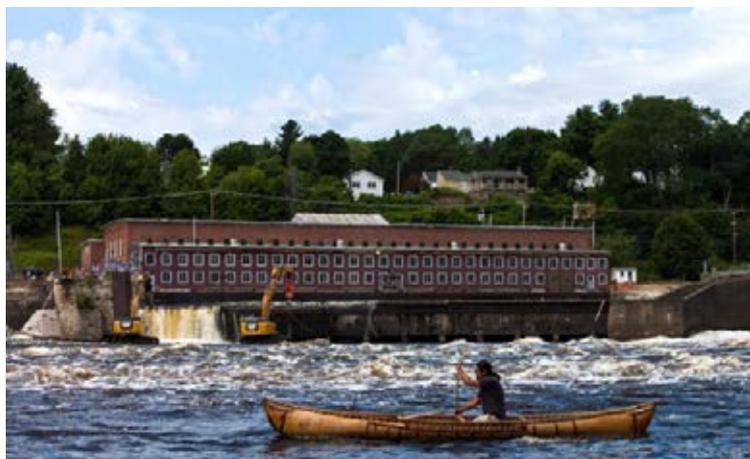
<http://www.fishingworld.com.au/news/aussie-tourist-s-england-triumph>

INTERNATIONAL NEWS

1,000 miles of home for the first time in 200 years

Millions of fish used to make a strenuous journey up the Penobscot River to spawn before returning to the sea. Dams and pollution changed that. The number of river herring running up the river dropped from as many as 20 million to an all-time low of 54 individual fish in 2012. A decade-long and US\$60million effort now means fish have better access to 1,000 miles of spawning habitat in the Penobscot River for the first time in two centuries. The latest dam removal was led by the Penobscot River Restoration Trust working with private, state and federal partners. The river herring were a primary target of the effort. They are small and oily fish, rarely eaten by humans but critical as an ecological building block because they are consumed by birds, mammals and fish such as cod. More:

http://www.nytimes.com/2013/07/26/us/hopes-for-a-fish-revival-as-a-dam-is-demolished.html?_r=0



The dismantling of the Veazie Dam will help give 11 species of fish better access to 1,000 miles of spawning habitat. As John K. Bullard, the regional director for NOAA who manages the ailing commercial fisheries says: "This is how we make fish." Image source: http://www.nytimes.com/2013/07/26/us/hopes-for-a-fish-revival-as-a-dam-is-demolished.html?_r=0

Trout need shade too

In the USA, summer stream temperatures limit the distribution of Brook Trout. Researchers looked at the influence of riparian vegetation on temperature and temperature variation. They found that reaches with treed riparian areas had a significantly lower average change in stream temperature per kilometre of stream compared with reaches where the riparian zone was dominantly grass. Temperatures where the stream was 75% shaded were between 18.8–23.5°C, while the range where there was 0% shading was 23.2°C to 28.3°C. For more on this research by Cross and others in the *North American Journal of Fisheries Management*:

<http://dx.doi.org/10.1080/02755947.2013.785989>

Fish rescue!

Environment Agency teams across the UK have been rescuing thousands of fish in distress as a result of the recent weather. Hot weather combined with low rainfall can make fatal conditions for fish, while heavy intense rain also leads to an increase in diffuse pollution as result of a sharp increase in pollutants washed off roads and agricultural land and from sewerage systems. Rapid changes in water conditions mean that there is little time for fish to acclimatise. Many thousands of fish have been saved thanks to the swift action taken by Environment Agency teams and partners. More:

<http://www.environment-agency.gov.uk/news/149181.aspx>



Environment Agency teams rescue thousands of fish distressed by the heatwave

Coral gardening

Coral reefs worldwide are facing continued decline leading more reefs to become algal-dominated systems. Several approaches to rehabilitate reefs and their ecosystem function have been suggested. Researchers investigated the effect of coral transplantation in response to a massive coral bleaching incident which caused widespread coral death with no sign of natural recovery in Tanzanian reefs. The results varied between the different reefs and were hampered by an outbreak of Crown of Thorns Starfish. The researchers did observe a significant difference in fish abundance in some areas, suggesting that the primary reasons for the gradual variability in fish community composition between reefs and over time were the improved live coral cover and habitat structure caused by the transplantation. For more on this research by Mbije and others in *Estuarine, Coastal and Shelf Science*:

<http://dx.doi.org/10.1016/j.ecss.2013.04.021>

Bottom trawling – ploughing the deep sea bed habitat away

Bottom trawling involves pulling heavy nets along the sea floor to haul up fish species that feed near there. It has been found that intensive bottom trawling changes the physical properties of the ocean floor on the continental slopes, the gradients that connect the shoreline with the ocean floor. Previous complex habitat is being simplified, in ways similar to intensive agricultural ploughing of the land. The surface is smoothed, changing the natural contours – the undersea hills and gullies – that, in turn, changes how water and sediment flow. In addition, significant amounts of sediment are displaced. In 136 days of monitoring in the north-western Mediterranean Sea, the researchers found that bottom trawling displaced 5,400 tonnes of sediment. For more on this study by Puig and others in *Nature*:

<http://dx.doi.org/10.1038/nature11410>

Or read a plain English summary at: <http://phys.org/news/2012-09-trawling-seafloor-habitats.html>

Blue crabs like it dense

Blue crabs prefer vegetated habitats, particularly marsh and seagrass, as nursery habitat. A new study has shown that it's not just the presence of a seagrass bed that matters to young crabs, but also its quality. Denser beds hold exponentially more crabs per square meter than more open beds where plants are separated by small patches of mud or sand. Researchers from Virginia, USA, found there were 14 to 30 per cent more crabs for every 10 per cent increase in the density of seagrass cover within a bed. Given that each adult female spawns an average of three million new crabs each brood and releases about three broods per year, improving the area and density of seagrass is going to support more juveniles reaching maturity. For more on this research by Ralph and others in *Marine Ecology Progress Series*:

<http://dx.doi.org/10.3354/meps10417> [Open access]



Seagrasses, such as the Eelgrass pictured, provide critical habitat for a wide range of aquatic life, including fish and crabs. Image source: NOAA.

Chalk streams sold down the river

The Charter for Chalk Streams is the result of an alliance between the UK's Angling Trust and local river restoration groups and makes the case for change in the way water resources are managed and valued to enable England's endangered chalk streams to return to good health. This message got out into the mainstream when a BBC Radio Four flagship programme devoted a whole episode to a special 'Sold Down the River' which focused on the price rivers are paying for the provision of cheap water. The programme heard how water consumption per person has doubled in the UK since the 1960s and compared the condition of a legendary and now chronically over-abstracted River Beane with nearby fast flowing River Mimram that has recently had its flows restored. Angling Trust Chief Executive Mark Lloyd noted that 'the challenge remains to get [the government] to do more than acknowledge the need to give our rivers proper protection but actually to do something about it.'

'Sold Down the River' can be accessed here for the next year: <http://www.bbc.co.uk/programmes/b037j7m4>

Or read Martin Salter's account: <http://fightingforfishing.anglingtrust.net/2013/07/29/chalk-stream-plight-featured-on-bbc-radio-4-flagship-programme/>

Giving elver a helping bristle

Once a common sight in Britain's rivers, the European eel the population has plummeted by 90 per cent in the past 30 years and the species is now on the critically endangered list. One of the reasons for their decline are obstructions in rivers, like weirs, which prevents young eels (elver) migrating upstream. A nation-wide effort to make at least some of these barriers more eel-friendly is documented by the BBC: <http://www.bbc.co.uk/news/science-environment-23636074>



The bristled 'eel-way' being attached to weirs to enable elver to make their way upstream into the lakes where they can spend 20 years before migrating back to the sea to spawn.

Whitewater rapids - a rush for tourists and a boost for fish

A restoration project in Georgia, USA, created whitewater rapids on the Chattahoochee River after two 175-year-old dams had blocked the natural rapids from flowing. Upstream of the dams, important spawning habitat for Alabama shad and striped bass had been inundated and the dams also prevented these fish from reaching habitat upstream. The river is now flowing naturally again, with 2.5 miles of river now ideal for both whitewater rafting and fish. Already increased numbers of fish are being seen as they swim past the site of the old dams. Local communities are embracing the new riverfront, ushering in a river-based economic revitalisation. Whitewater Columbus, which is now the longest whitewater rafting course in the United States, is expected to bring in US\$42 million, and thousands of tourists, each year. More:

<http://www.habitat.noaa.gov/highlights/restorewhitewaterfish.html>



A project that started as a way to return a river to a more natural state has yielded immediate benefits for fish, the local community and the local economy.

Image source:

<http://www.gpb.org/news/2013/05/17/whitewater-columbus-to-open-may-25>

RESOURCES

Healthy fish, healthy streams, healthy farms

Stories about on-ground works and partnerships with benefits for fish, farms and communities from the Fishers and Farmers Partnership for the Upper Mississippi River Basin:

<http://www.fishersandfarmers.org/connect/index.html>

Marine education resources

Marine WATERS is a suite of resources developed by Fisheries Western Australia providing both field-based and classroom teaching-learning programs. The lesson plans and resources, linked to the WA curriculum, are suitable for students from Kindergarten to Year 12. More:

<http://marinewaters.fish.wa.gov.au/habitat/>

FROM THE ARCHIVES

'The Australian Basse and Its Allies' (J. Douglas Ogilby, The Queenslander, November 7, 1903)

Indeed the **devotee of the rod** in this sunny land cannot do-better than seek his finny spoils amidst the exquisite scenery of their native streams, It is in such scenes that the **heart of the true angler rejoice**. Here, if he is fortunate or sufficiently skilful in the use of a light rod and fine tackle, he may chance to land some half dozen of these bright-scaled beauties in the course of an afternoon, and assuredly will not then go home complaining of lack of sport, for he will have found it necessary to bring into play his **utmost cunning and strategy** in order to effect the capture of this **noble game fish**; which will on its part **fight to the bitter end for life and liberty** and employ every piscine art in the endeavour to prolong or terminate the struggle. Most of the ... upland streams of New South Wales are well stocked with this species... . I have seen them on a calm evening breaking the still reaches of the Nepean River at Camden Park in every direction as they **greedily sucked** down the flies and locusts, white ants, and whatnot, which were **dropping in bounteous abundance from the overhanging leafage**.



Photo source: Kevin Clark.

Not all leaf litter is good tucker

Camphor laurel (*Cinnamomum camphora*) is known for taking over riparian zones. Researchers looked at the impact on leaf shredders, such as the caddis fly larvae, which provide an essential ecosystem service by breaking down organic matter and are also a food source for some fish species. They found significantly lower densities of caddis fly in streams where camphor laurel constituted more than 0.38 per cent of the leaf litter in the stream. In streams lined with native vegetation, shredder densities did not differ when there were different types of leaf-litter present. The researchers also found that growth of the larvae was retarded when they were fed only camphor laurel compared to those feeding on native leaf litter. The significant reduction in abundance of the shredders could have severe implications for fish in areas where riparian zones are being invaded by camphor laurel. This research by Davies and Boulton was published in the *Journal of the North American Benthological Society*, Volume 28(2) in 2009.

ABOUT NEWSTREAMS

Newstreams is an email newsletter to keep people up to date about fish habitat activities and important developments in fish ecology and habitat. 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

Amateur Fishing Association of the Northern Territory (AFANT) [http://afant.com.au/](http://afant.com.au)

Australian Fishing Trades Association <http://afta.net.au>

Australian National Sportfishing Association - NSW www.ansansw.com.au

Capital Region Fishing Alliance <http://crfa.org.au/>

Ecofishers www.ecofishers.com

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

Fisheries Victoria www.dpi.vic.gov.au/fisheries

Freshwater Fishing & Stocking Association of Queensland (FFSAQ) www.ffa.org.au

NSW Council of Freshwater Anglers www.freshwateranglers.com.au

NSW Fishing Clubs Association www.nswfca.com.au

PIRSA Fisheries and Aquaculture www.pir.sa.gov.au/fisheries

Recfish Australia <http://recfishaustralia.org.au/>

RecfishSA www.recfishsa.com.au

RecfishWest www.recfishwest.org.au

Recreational Fishing Alliance of NSW www.rfansw.com.au

SUNFISH www.sunfishqld.com.au

Victorian Department of Environment and Primary Industries www.depi.vic.gov.au

VRFish www.vrfish.com.au

Website www.fishhabitatnetwork.com.au

Facebook www.facebook.com/fishhabitatnetwork