

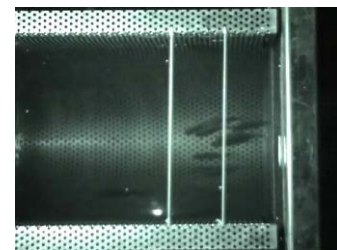
News, research, on-ground works, innovation and events with a focus on improving fish habitat

AUSTRALIAN NEWS

Screen tests stop fish getting pumped

Irrigation pumps and regulators throughout the Murray-Darling Basin extract significant numbers of fish from rivers. The numbers lost range from hundreds to millions. As fish screens are used effectively elsewhere in the world, researchers are studying how our native fish might respond when screens are in place. The juveniles of both Silver Perch and Golden Perch are known to be affected by pumping and the research has shown that fish screens have great potential to reduce the extraction of these fish at irrigation intakes. Researchers found that the presence of a screen had a significant effect, in some cases reducing mortality from over 90 % (unscreened) to less than 2 % (when screened). For more about this research by Boys, Baumgartner and Lowry in Fisheries Management and Ecology:

<http://dx.doi.org/10.1111/fme.12026>



A diagram of the testing screens. Juveniles approaching the screens at speeds up to 40cm per second suffered very little injury. Images: Craig Boys

Illegal crossing comes at a cost

A private landholder has been ordered to pay \$11,000 after pleading guilty of illegally constructing a crossing over the Kalang River, on the NSW north coast. The landholder had been advised by both NSW Department of Primary Industries and the local Council that approvals would be required to replace a crossing that had washed away in a flood. The man subsequently constructed the crossing without approval using logs placed across the river and backfilled with rock and gravel, including 19 tonnes of rock bought from a local quarry. The Magistrate found that the works caused an obstruction to fish passage and that there was demonstrable harm to fish due to the obstruction and loss of fish habitat. For more about this story:

<http://www.dpi.nsw.gov.au/aboutus/news/all/2012/illegal-waterway-crossing>

For information about what's required when doing works around riverbanks:

<http://www.dpi.nsw.gov.au/fisheries/habitat/rehabilitating/living-and-working-on-a-riverbank>

At last! The Brewarrina fishway is open

A new \$1.6 million fishway at Brewarrina allows native fish to move freely along the Barwon River, providing uninterrupted access to more than 1,000km of the river system. This fishway is different from most others in that it sits upstream of the weir and was designed to blend with the heritage-listed stone fish traps downstream of the weir. The Brewarrina fishway, a part of the Bourke to Brewarrina Demonstration Reach Project, has taken over 10 years to bring to fruition and was funded by the NSW Department of Primary Industries, Western CMA, NSW Environmental Trust, Murray Darling Basin Authority, NSW Recreational Fishing Trusts and State Water Corporation.

http://www.dpi.nsw.gov.au/_data/assets/pdf_file/0007/458953/20130227-BREWARRINA-FISHWAY-COMPLETE.pdf



The completed fishway on the Brewarrina weir. Photo: David Cordina

Fish of the Goulburn River

A nine year study of fish populations in the lower Goulburn River, Victoria, has found significant populations of native fish occur in the lower reaches. There are breeding populations of Freshwater Catfish, Trout Cod and Silver Perch, although adults of these species are very rare compared to their pre-1960s abundances. Murray Cod and Golden Perch appear to be on the increase and there is evidence of a decline in introduced Redfin Perch in recent years compared to the 1980s. The lower Goulburn River is a spawning ground for Golden Perch and the researchers found that spawning activity was markedly higher during high flow conditions. Less welcome is the finding that Macquarie Perch now appear to be locally extinct in the main channel of the lower Goulburn River despite being abundant up until the 1970s. To read the report by the Arthur Rylah Institute:

<http://www.gbcma.vic.gov.au/images/assessment%20of%20the%20status%20of%20fish%20stocks%20in%20the%20lower%20goulburn%20river%20december%202012.pdf>

More about what Golden Perch need

Researchers studying Golden Perch in Queensland's Fitzroy River have found out more about what these fish need to survive and thrive. They found important links between river flow, water temperature and spawning and recruitment, including a need for in-channel flows that are seasonal yet variable and as well as flows in early Spring that improved connectivity between waterways. Read more about this research by Cockayne and others in Marine and Freshwater Research:

<http://www.publish.csiro.au/?paper=MF12047>

Little River - less weeds, more habitat, more fish

Emerging weed threats in the Little River, Central West NSW were mapped by Fisheries NSW with funding from Wellington Shire Council and the NSW Environmental Trust. This enabled Wellington Shire Council to control the pest plants in the riparian zone along a 15 km reach of the Little River. The result will be an improvement to the aquatic and riverine habitat along the river and more fish. For more information, contact Andrew Crosier, Wellington Shire Council Weeds Coordinator, on 02 6840 1723.

Streams need trees

By comparing how sites with differing levels of vegetation responded to Victoria's 1997 – 2009 drought, researchers found that streams with extensive surrounding vegetation, whether natural or re-planted, were healthier both in terms of water quality and biodiversity. Reduced river flows impact water quality, aquatic habitat health and the ability of fish to move around. This study shows that replanting vegetation around streams absorbs carbon from the atmosphere, provides cool refuges and protects habitat in warming landscapes. Read more about this research by Thompson and others:

<http://phys.org/news/2012-02-streams-trees-climate.html#iCp>



Researchers used electrofishing to sample adult fish in the Goulburn River. This Golden Perch was one of their catches, then released. Images: Arthur Rylah Institute



A Wellington Council Weeds Officer controlling the Devils rope cactus using new injection technology. Photo: Andrew Cosier

Carp in Macquarie Marshes stopped in their tracks

Life just got a lot harder for Carp migrating through the Macquarie Marshes, in Central West NSW. A Carp Separation Cage has been strategically placed to reduce carp finding breeding grounds in the Marsh and competing with native fish larvae for food and resources. If early catches are an indicator of things to come, the carp population is in for a hammering too: in its first two days of full operation the cage successfully removed 180 Carp attempting to migrate upstream in Bulgeraga Creek. The project was funded by the Central West CMA. For more information, contact [Sam Davis](#) (Fisheries NSW) on 02 6881 1284.



Matt Lane from the Central West CMA with the newly installed Carp Separation Cage. Photo: Rod Price

Untangling the fishing line problem

Recreational anglers have taken a proactive step in addressing the problems of discarded fishing line and end tackle. Oceanwatch's 'TAngler Bin' project has been running in NSW and has collected more than 10 tonnes of discarded fishing line. Around a dozen of these bins will be placed in locations around coastal Queensland's Moreton Bay Regional Council area in conjunction with a local awareness campaign. These bins minimise the problem of discarded line in domestic plastic bags coming loose at landfill or transfer stations and getting tangled up in birds, machinery and such like. For more information about this initiative in Queensland, contact Judy Lynne at Sunfish or visit Oceanwatch:

<http://www.oceanwatch.org.au/our-work/tangler-bin>



The TAngler Bin promotional brochure and the bin close up. Free bins are available to local Councils in Queensland. Image: Oceanwatch

Keeping an eye on Hexham fish habitat changes

Aerial photography of Hexham Swamp, near Newcastle on the NSW central coast, is being used to monitor the extent of inundation and changes in vegetation patterns associated with this staged rehabilitation project. This approach has seen a gradual transition of freshwater dominated vegetation to a more diverse assemblage of estuarine habitats including mangroves, saltmarsh, mud flats and areas of open water. The transition to date has been a gradual process however stands of Casuarina trees and pasture grasses are dying back due to saltwater inundation. With ongoing opening of floodgates, the area of tidal inundation is expected to reach about 700 ha.

http://www.hcr.cma.nsw.gov.au/articles/news.asp?news_id=510&eid=3075#!prettyPhoto



Part of Hexham Swamp now inundated with tidal water. Image source: www.hcr.cma.nsw.gov.au

Fish Friendly Marinas

NSW Department of Primary Industries, in collaboration with the Marina Industries Association and the NSW Boating Industry Association, have developed a Fish Friendly Marinas accreditation program to link with the existing Clean Marinas program. The program includes ten tips for making marinas fish friendly: for example, ensuring infrastructure, such as sea walls, is fish friendly; keeping pest plants out; managing waste and stormwater; looking after local habitat areas, such as seagrass; and providing marina customers and visitors with information about fish and fish habitat. For more information or to download the booklet, brochure or poster:

<http://www.dpi.nsw.gov.au/fisheries/habitat/rehabilitating/fish-friendly-marinas>

Macquarie River fish snag a new home

The Dubbo Macquarie River Bushcare Group's resnagging has gone ahead at Pilchers Reserve, Dubbo, in Central West NSW. A skilled excavator driver made the placement of the snags look easy and the result is effectively a new apartment block for local fish in the Macquarie River. The trees were sourced from the Alkane Resources Ltd's gold mine site at Tomingley. Alkane provided the trees, and funded specialist contractors, plant and equipment to harvest, trim and load the trees. For more information about this project contact Sam Davis (Fisheries NSW) or visit:

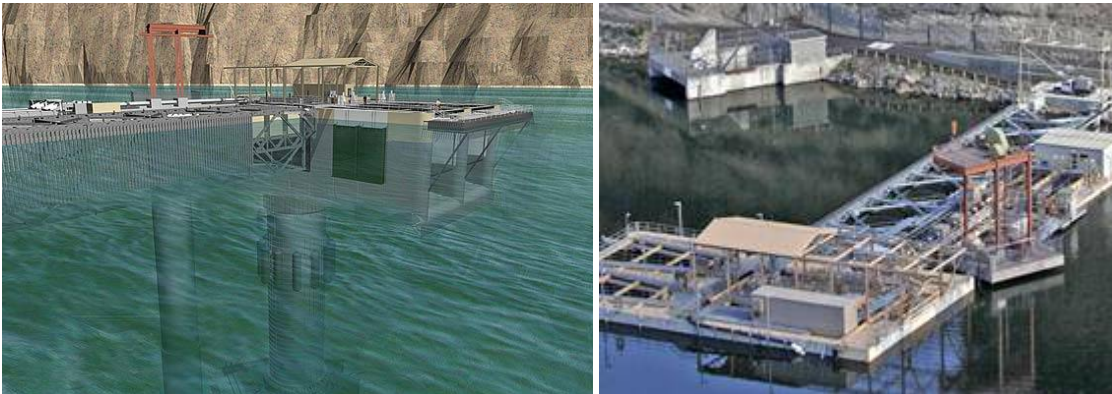
<http://www.dpi.nsw.gov.au/aboutus/news/all/2013/fish-to-snag-a-new-home>

INTERNATIONAL NEWS

Fish free to move thanks to a 273 foot underwater tower and more

Fish can now able to get past three major dams in central Oregon, USA, and complete their migratory life cycles. In the Round Butte Dam a unique 273-foot underwater tower and fish collection station allows fish to migrate to and from the Pacific Ocean. Monitoring has detected nearly 400,000 fish that have migrated downstream since the beginning of 2010 and the capture of the first returning adult upper basin fish signals that a fish marked and released in the Upper Deschutes Basin has completed the migratory cycle, journeying to the Pacific Ocean and returning as an adult. For more information:

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



The 273 foot underwater tower combines fish collection and water flows for power generation. For more information about how the tower works, go to <http://www.deschutespassage.com/deschutes-passage-tower.html>

Good habitat helps downstream rehabilitation

Good quality habitat upstream of rehabilitation sites improves the benefits for fish, researchers in Germany have found. The response of fish, benthic invertebrates and macrophytes to rehabilitation efforts were influenced differently depending on upstream land use effects and river habitat quality. Good habitat quality up to 5 km upstream was beneficial overall, but good habitat up to 10 km upstream helped fish recolonise the rehabilitated area. A high percentage of natural woody vegetation in riparian buffers

upstream also enhanced the success of rehabilitation, especially in terms of fish numbers. To read more of this research by Lorenz and Feld in *Hydrobiologia*:

<http://dx.doi.org/10.1007/s10750-012-1326-3>

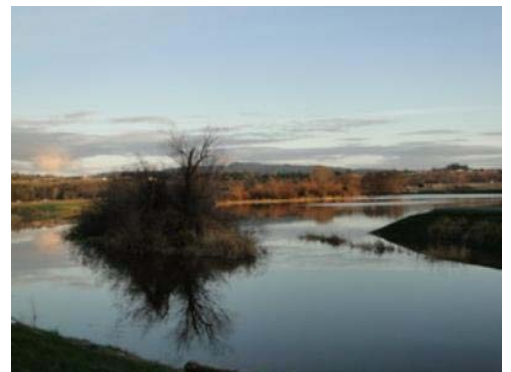
Similar results were found in related research using a data set from 18 river restoration projects in the lower mountain ranges of Germany and 5462 river reaches. Species richness in restored reaches was correlated with the species richness within a 5-km range. However, the diversity of fish was still greatly reduced on what it would be expected to be. The limited success in establishing natural fish assemblages in restored reaches was attributed to habitat fragmentation and loss of connectivity and impoverished regional species pools from which restored reaches recruit. For more on this research by Stoll and others in *Freshwater Biology*:

<http://dx.doi.org/10.1111/fwb.12068>

Rehabilitation – a sound investment for fish and the economy

The Fisher Slough Marsh restoration project in Washington State, USA, improved fish passage to 15 miles of stream and restored 60 acres of freshwater marsh habitat. This had immediate benefits for fish by opening up spawning and feeding areas that had been disconnected from the river system for over a century. It is estimated that this rehabilitation project will support an additional 16,000 young Chinook salmon. The habitat improvements also had the immediate benefit of supporting 23 jobs and increasing flood protection for local farmers and their neighbours. It is estimated that the US\$7.7 million invested in the project may provide US\$8-\$21 million in benefits to the community over the next several decades. For more information:

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



Fisher Slough Marsh is now contributing to both local fish populations and the local economy. Image source: NOAA

Dredging lowers habitat values

Dredging affects fish habitat in several ways, including making it more uniform by replacing shallow riffle/deep pool runs with continuous pools, facilitating the accumulation of sediment, disrupting nutrient flows and destroying specialist habitat areas. Researchers in the USA monitored what happened after dredging occurred and found a decrease in fish abundance and diversity. Fish that use specific types of river bed, such as gravel, for reproduction were at particular risk. In addition, altered nutrient flows affected food webs, which in turn had implications for fish. To read more of this research by Freedman and others in *Freshwater Biology*:

<http://dx.doi.org/10.1111/fwb.12056>

Rivers Week focuses volunteer efforts

In this now annual event, UK Environment Agency staff join the Wild Trout Trust and other willing volunteers for some hard graft to improve the ecology and habitats in the River Whitewater, Hampshire, UK. Rivers Week aims to attract those with a shared interest in the good health of their local rivers to spend a day helping to improving habitats, including creating and maintaining fish spawning grounds, installing woody debris to change river morphology and encourage pools and removing the overhead tree canopy to allow sunlight into the channel to encourage native water plants. For more information:

<http://fightingforfishing.anglingtrust.net/2013/03/20/its-the-habitat-stupid/>



A group of happy volunteers who've done their bit for fish during in River Week. Photo source: Martin Salter

Fish on drugs become bolder

Drugs to treat anxiety in people may alter the behaviour of fish when the chemicals are flushed into rivers. Swedish researchers screened rivers for pharmaceuticals and found Oxazepam, a drug for treating anxiety, was accumulating in fish. They found that when normally shy and schooling European perch were exposed to tiny concentrations of this drug they became less sociable, ate more and became more adventurous. The effect of the drug on fish was similar to its effect on people: it reduces fear. For more information by Brodin and others:

<http://www.guardian.co.uk/science/2013/feb/14/anxiety-drug-rivers-changes-fish-behaviour>

Invasive water weeds not for sale

The sale of five invasive non-native aquatic plant species is to be banned in the UK to protect the aquatic environment. Water Fern, Parrot's Feather, Floating Pennywort, Australian Swamp Stone-crop and Water Primrose are commonly sold in garden centres and are escapees from garden ponds. They cause huge damage to fisheries in rivers, canals and lakes, covering the water surface which prevents light getting into the water. When they die, rotting depletes oxygen from the water which can lead to fish kills and a die-off in the invertebrates species fish eat. Managing the rapid spread of these weeds costs billions of pounds each year - money which organisations, such as the UK Angling Trust and the Wildfowl and Wetlands Trust, say would be better spent tackling pollution, over-abstraction and barriers to fish migration. For more information:

<http://www.anglingtrust.net/news.asp?section=29§ionTitle=News&from=2013/01/01&to=2014/01/01&page=6&itemid=1482>

HABITAT RESOURCES

Riverprize

The Thies International Riverprize, Australian Riverprize and IRF European Riverprize are awarded for excellence in river management. Stage 1 of the application process is due by 29 March 2013. For more information and the online application forms:

http://www.riverfoundation.org.au/riverprize_entering.php

New Coastal Saltmarsh Primefact (NSW)

Coastal saltmarsh is a key fish habitat which is protected on public land under the NSW Fisheries Management Act 1994. The Primefact provides information about the importance of saltmarsh as a habitat for fish, includes a useful table and photos to help identify 10 different saltmarsh plants, outlines key threats and ways people can protect this species. Copies can be obtained by calling (02) 6626 1269 or on the website at:

<http://www.dpi.nsw.gov.au/fisheries/habitat/publications/protection/coastal-saltmarsh>

New Primefacts for threatened species

Two Primefacts are now available for the Grey Nurse Shark and the Purple Spotted Gudgeon, providing up-to-date information on the status of these species, their location, key threats, legislative implications of being listed as threatened and ways people can help their recovery:

<http://www.dpi.nsw.gov.au/aboutus/resources/factsheets/fisheries> and look under 'Species protection'

Thoughts on the Native Fish Strategy?

The Murray-Darling Basin Authority is reviewing the success of Native Fish Strategy (NFS) and would like your comments and feedback in terms of contribution of the NFS to the science and to the management of native fish in the Basin. A short survey that will take 10-15 minutes to complete is available at:

<https://www.surveymonkey.com/s/FQRY39F>

Is habitat a fishery-related issue for you?

If you live in NSW or the ACT you might get a call about your fishing and the things you think are important. The NSW State-wide Recreational Fishing Survey 2013-14 will measure the number of NSW and ACT residents who go recreational fishing, where and how often they fish, what they catch, other recreational fishing-related data (e.g. boat ownership, fishing club membership) and fishers' awareness and opinions on various fisheries-related issues. The data will be collected using a short telephone survey and an angler diary for 12 months. For more information:

<http://www.dpi.nsw.gov.au/fisheries/recreational/info/survey-2013-14>

Living on the Lower Namoi

Living on the Lower Namoi is a collection of oral histories produced by NSW DPI and Namoi CMA in association with the local community of Walgett. The booklet couples personal recollections with current information about the status of the region. Some of the locals recall the river looking much different when they were kids, noting that it has changed significantly over time; there aren't as many native fish and the water is no longer clear. The stories have been given willingly by the local Aboriginal and fishing communities, and they give us an insight into the history of the river, the fish and the people at Walgett. For more information contact Milly Hobson on 02 6763 1206 or go to:

<http://www.dpi.nsw.gov.au/fisheries/habitat/your-catchment/namoi/living-on-the-lower-namoi>



Fishing in the Lower Namoi. Photo: Milly Hobson

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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Newstreams is published electronically 4 times a year by the Conservation Action Unit within Fisheries NSW on behalf of the Fish Habitat Network, a partnership of organisations working on fish habitat and a network of fishers engaged in fish habitat issues.

FHN Partners

- Amateur Fishing Association of the Northern Territory (AFANT) <http://afant.com.au/>
- Australian Fishing Trades Association <http://afta.net.au>
- Australian National Sportfishing Association (NSW) www.ansansw.com.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) <http://www.ffa.com.au/>
- NSW Fishing Clubs Association www.nswfca.com.au
- NSW Council of Freshwater Anglers www.freshwateranglers.com.au
- PIRSA Fisheries and Aquaculture www.pir.sa.gov.au/fisheries
- Recfish Australia <http://recfishaustralia.org.au/>
- RecfishSA <http://www.recfishsa.com.au/public/>
- RecfishWest <http://www.recfishwest.org.au/>
- Recreational Fishing Alliance of NSW www.rfansw.com.au
- SUNFISH www.sunfishqld.com.au
- Victorian Department of Sustainability and Environment www.dse.gov.au
- VRFish www.vrfish.com.au

Website www.fishhabitatnetwork.com.au



Department of
Primary Industries

