#30, Feb 2011

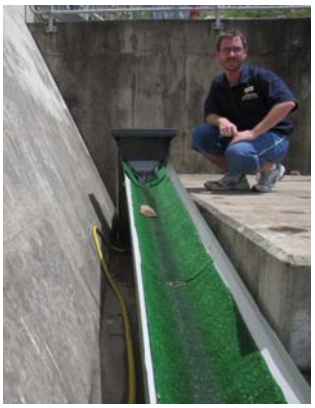
Newstreams

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

AUSTRALIAN NEWS

Eels on Astroturf

An unlikely contraption made from vertically hanging netting, Astroturf and a wheely-bin is helping eels negotiate that otherwise impassable Ross River Dam in the dry tropics of north Queensland. With a little help from Paul Duncanson of NQ Dry Tropics and the eel passage device, known as 'the Green Mile', juvenile eels ('elvers') are able to get upstream of the dam to complete their migration. The elvers will find suitable habitat upstream to mature and eventually go back out to sea to breed. The fishway is simple and effective and is expected to enable safe passage for thousands of elvers. NQ Dry Tropics are the first group in Australia to be using this eel trap and transfer device, which is based on a more complex version installed at hydro electric dams across New Zealand. For more information call NQ Dry Tropics on 07 4724 3544. To see video footage: www.abc.net.au/local/videos/2010/12/21/3098637.htm



The migration of elvers in the Ross River is now interrupted only so that they can weighed (as a means of estimating numbers) rather than by impassable concrete barrier. Photo: NQ Dry Tropics

Reinforcements for the Williams River

Work to combat riverbank erosion on the Williams River near Seaham in the Hunter River catchment has recently been completed with the installation of rock fillets (or groynes), at strategic locations. These structures will reduce erosion and facilitate the natural recovery of phragmites, mangroves and casuarinas. Follow up work will include fencing and replanting. Previously this site was subject to severe bank slumping, contributing large amounts of sediment to the river. In recent years Port Stephens Council has collected data from 14 survey points along the Williams River both in areas where wake boarding occurs and in exclusion zones. Results to date clearly indicate rapidly changing bank profiles in the wake board areas. These bank surveys will continue following completion of the rock fillet works to detect any improvements to bank stabilisation. Funding for this project has been sourced from the NSW Environmental Trust and Australian Government's Caring for our Country program. There has also been a large in-kind contribution from the landholder, without which these works would not have been able to proceed. For more information, contact Jenny Fredrickson (I&I NSW) on 02 4916 3834 or Trevor Cameron (HRCMA) on 02 4930 1030.

The Williams River bank stabilisation project is a partnership between the Hunter-Central Rivers CMA, Port Stephens Council, Industry and Investment NSW, and the landholder. Photo: Trevor Cameron

Gorgeous George

Months of above average rainfall have transformed Lake George, north of Canberra, into a waterbody. After 10 years of drought, the area has had its fourth highest rainfall since 1890 and is currently 1.5 metres deep. In November 2010 it reached 2 metres for the first time in decades. It is Australia's second largest natural freshwater lake when full and is currently at a third of capacity. Fish are known to have once lived in the lake and the arrival of small numbers of pelicans, swans and ducks suggests some aquatic life is re-establishing itself.

Fish habitat rehabilitation in the Maroochy River, Sunshine Coast

Fish habitat is being restored to a degraded estuarine reach of the Maroochy River. Rehabilitation works in the $250,000 Coolum Creek Confluence Fish Habitat Rehabilitation Project have included the reinstatement of mangroves, the reintroduction of large wood structures and the establishment of a 25-30m riparian buffer in selected areas along the reach. Two types of log structures including log walls and large woody debris have been constructed. Hundreds of grey mangroves have been propagated and planted in the intertidal areas with the help of the Bunya Bunya Country Aboriginal Corporation and community volunteers. Approximately 5000 native plants have been planted on the high bank. This land was acquired through the Environment Levy and will help to stabilise the river bank. For more information, contact David Moore on 07-5441 8646 or visit:

www.sunshinecoast.qld.gov.au/sitePage.cfm?code=maroochy-river-recovery

The results of early plantings on the bank of the Maroochy River, with mangrove recruitment happening naturally now the bank has stabilised. Photo: Sunshine Coast Council

Winning wetlands

Three Australian wetlands have won 'Wetland Globe' Awards for the Oceania region at the International Convention on Biological Diversity. The non-financial awards were developed by the World Wetland Network to encourage best practice in wetland management and given to the wetland itself. The Panboola Wetlands won the Blue Globe Award, which recognises best practice in wetland management. Panboola is a community owned and managed wetland complex including freshwater and saltwater wetlands on the south coast of New South Wales. The Forrestdale and Thompson Lakes, a Ramsar wetland in south-west Western Australia, won the Green Globe Award, which recognises the highly successful restoration of this wetland by the Friends of Forrestdale community group. The Merri River Wetlands, in the south west of Victoria, won the Grey Globe Award, which is to draw attention to wetlands that are being actively degraded, neglected or are under threat, in this case from industrial and development pressures. For more information, go to:

www.wetlandcare.com.au/Content/templates/news_detail.asp?articleid=830&zoneid=1

Opening the floodgates on Hexham prawns

The reintroduction of tidal flows to Hexham Swamp has led to more prawns in the Hunter estuary than have been seen in more than 40 years. The Hexham Swamp Rehabilitation Project, managed by the Hunter-Central Rivers CMA, has focussed on rehabilitating the swamp as a nursery for fish, prawns and other marine life. Three of eight floodgates have been opened at Ironbark Creek to allow in saltwater. This is leading to a transformation from an expansive freshwater reedland created by the floodgates back to more naturally diverse estuarine wetland. For more information, visit:

www.hcr.cma.nsw.gov.au/articles/news.asp?news_id=196&section_id=0

Rehabilitation of saltmarsh near Hexham. Photo: Liz Baker

Algal bloom most likely cause of NSW South Coast fish deaths

A bloom of microalgae in the Carama Creek area is the most likely cause of death for thousands of fish which washed up in northern Jervis Bay in early January. A large range of fish species were affected, including flathead, whiting, mullet, luderick and catfish. While the specific species involved in the bloom is yet to be identified, testing has confirmed that levels of nutrients and heavy metals in the water and sediment samples were normal and that there were no pesticides or ecotoxins in the water samples. Harmful algae species do occur naturally in estuarine and marine environments and can bloom if environmental conditions are right. More information:

www.dpi.nsw.gov.au/aboutus/news/recent-news/fishing-and-aquaculture/algal-bloom-fish-deaths

Noxious fish on notice

New rules for ornamental fish owners mean that from 1 July 2011 an additional sixty-seven fish species will be banned. These species have been added to the NSW Noxious Fish List because they have high-risk pest potential across Australia. New species on the list include the Mekong giant catfish, the Amur sturgeon and redfin perch. Redfin perch is a known carrier of Epizootic Haematopoietic Necrosis Virus (EHNV) and poses a significant threat to native fish. Compliance with the new NSW Noxious Fish List is mandatory by law, with penalties up to $55,000 in fines for an individual or $110,000 for a corporation. The six month advisory period, which commenced on 1 January 2011, provides time for ornamental fish owners to comply with the new listings. Please refer to the website for more information:

www.dpi.nsw.gov.au/fisheries/pests-diseases/freshwater-pests/ornamental-fish

A flood of juvenile redfin

Floods throughout the central west catchments of New South Wales have brought an unwelcome flush of juvenile redfin, thought to have largely originated from Burrendong Dam. Local reports of tens of thousands of 35 – 50mm redfin in the creeks and rivers are a major concern given the voracious appetite these fish have for juvenile native fish. Redfin are limited in range by temperature (preferring a cooler climate) and it is hoped that warmer conditions may reduce numbers over summer. The upper reaches of sub-catchments may provide suitable conditions and may extend the range of this noxious fish. Some adult redfin are evidently managing to over-summer in the river, as several were found in one town's public swimming pool after the floodwaters had receded! Contact the I&I NSW Dubbo Office on 02-6881 1270 for more information.

One of the thousands of juvenile redfin that have flushed into central west waterways with the floods. Photo: Rodney Price

Blackwater blues

Black water is currently affecting sections of the Murray River (particularly large wetland areas such as the Barmah-Millewa and Koondrook-Pericoota Forests), Edward and Wakool river systems, Lower Darling and Murrumbidgee Rivers. There are dead fish reported as far as the South Australian border. Water of poor quality from the Loddon and Avoca floodplains is yet to drain into the Murray. The lower Darling is also showing a decreasing dissolved oxygen trend. It is unknown how long this event will last and it is not possible to dilute the areas affected by black water without causing more flooding as most river systems are currently operating at full channel capacity. For more information, go to:

www.dpi.nsw.gov.au/fisheries/habitat/threats/fish-kills/black-water-events-causing-fish-kills-in-the-murray-and-murrumbidgee-river-catchments

A map showing the current blackwater status can be accessed at:
www.mdba.gov.au/files/Blackwater-Status-map-18%20_28%20jan%202011.pdf

Rehabilitation + floods = nesting catfish

Recent work by Cabonne Shire Council to rehabilitate Molong Creek is creating ideal habitat for catfish wanting to nest. Removing willows and resnagging has meant that recent floods have created scour pools, flushed sediment and cleared gravel beds – just what the catfish need for feeding and spawning habitat. For more information about the Molong Creek Rehabilitation Project contact Warwick Doulman at Cabonne Shire Council on 02 6392 3247 or view the project summary:

www.cabonne.nsw.gov.au/files/6335/File/Molongcreek.doc (Note: large file)

Clean gravel beds are ideal nesting habitat for catfish. Photo: I&I NSW

The good and the not-so-good of flood mud

MANGROVES may be the beneficiaries from the flooding in Queensland, with nutrient-rich sediment washed into these tidal forests. Researchers from the University of Queensland measured how mangroves in Exmouth Gulf, Western Australia, responded to artificial phosphorus and nitrogen fertilisation after major cyclonic activity in 2008. They found that normal growth of mangrove stems was less than 25 centimetres per year. After the cyclone, however, some stems shot up by 65 centimetres per year. However, while mangroves in Moreton Bay are likely to experience a growth spurt, coastal water habitats are less likely to benefit. Other research suggests that the sediment may stimulate algal growth that could lead to oxygen-starved dead zones. Researchers from Griffith University are noting faster than usual algal growth after the recent floods. For more information about flood-based nutrient and mangroves:

http://dx.doi.org/10.1071/MF10013

Increased nutrient rich sediment from recent floods might be good news for mangroves but the increased growth of algae might not be as welcome. Photo: David Harasti

Protecting aquatic habitat in South Australia

The South Australian Government increased the Piccaninnie Ponds Conservation Park, in the State's south east, by 58 per cent with the addition of 315 hectares of previously unprotected high value wetland. The expansion features the only pristine spring pool feature in the region and will allow the reestablishment of a large area of coastal wetland and improve the connection to the nearby Discovery Bay Coastal Park and the Lower Glenelg National Park in Victoria. More information:

www.premier.sa.gov.au/images/stories/mediareleasesJAN11/piccaninnie%20ponds.pdf

Climate change vulnerability assessment for the Hawkesbury Nepean Catchment

An assessment of the vulnerability of nine key natural resources to climate change has recently been completed for the Hawkesbury-Nepean catchment. Two of the resources assessed were coastal saltmarsh and the Macquarie perch population in Wheeney Creek. The assessments were based on the best available information from the literature and experts from government agencies, research institutions and the HNCMA. The assessment confirms that continuing to manage current threats to increase the resilience of these resources is essential. To read the report:

www.hn.cma.nsw.gov.au/news/5893.html

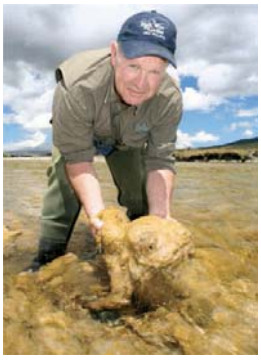
Bird's eye view of mid-Lachlan barriers to fish passage

The benefits of an aerial survey quickly became apparent to I&I NSW staff surveying barriers to fish passage in the mid-Lachlan catchment. They identified 42 barriers in 390km of anabranches and distributary creeks of the Lachlan River, far more than was expected. Ground-truthing found that many of the barriers were old, unused or unlicensed structures. This was the first time the combination of aerial and on-ground surveys had been used in the area. For more information contact Rodney Price, I&I NSW, on 02-6881 1216.

One of the barriers to fish passage initially identified during the aerial survey. Photo: Rodney Price

INTERNATIONAL NEWS

Unwelcome discovery in Patagonia



Didymo is an unwelcome find in freshwater systems. Photo: NZ Fish and Game

Well established colonies of the very unwelcome Didymo have been discovered in the Patagonia region of South America. Didymo (*Didymosphenia geminate*), known commonly as 'rock snot', is an invasive species of diatom. It affects river and lake ecology, water quality and amenity. It attaches to rocks and submerged plants, multiplying quickly to form blooms up to 20 centimetres thick which can completely smother streambeds or lake edges. It is listed as one of the world's top 100 invasive pests. There were no known cases in Australia as yet, however Didymo was introduced into New Zealand in 2004. It is easily transported on contaminated fishing tackle and other recreational gear. A single water drop is enough to carry the diatom into new territory and it thrives in freshwater environments poor in phosphates, nitrates, and organic matter. In Patagonia, blooms have been found in several river systems and massive public education campaigns are underway to try to minimise its spread. For more information about the Patagonian outbreak:

www.sciencemag.org/content/331/6013/18.full

25 years and 2 million acres of wetlands later …

The US is celebrating 25 years of the Conservation Reserve Program (CRP) which was established with the *Food Security Act 1985*. CRP was introduced at a time when soil erosion exceeded more than 3 billion tons per year, wetlands were being drained, water quality was deteriorating and fish and wildlife populations were under stress due to the loss of habitat. Since then, the CRP has signed up nearly 738,000 contracts with landholders covering 31.3 million acres. This has resulted in the restoration of more than 2 million acres of wetlands and adjacent buffers and the conservation of 170 000 miles of streams. CRP is a voluntary program that encourages agricultural landowners to convert highly erodible cropland or other environmentally sensitive land to vegetative cover. Landowners receive annual rental payments and cost-share assistance to establish long-term conservation practices. The CRP is currently signing up new contracts. For more information:

www.apfo.usda.gov/FSA/webapp?area=home&subject=copr&topic=crp

Increase aquatic productivity? Plant more trees!

Zooplankton are known to be an important food source for fish and other aquatic animals. New research has shown that nearly a third of the diet of lake zooplankton is based on material from the surrounding land. Animals living at the bottom of lakes and streams are known to rely, at least in part, on inputs from the land, but there has been controversy about whether open water animals, such as zooplankton, do also. Researchers from the Cary Institute of Ecosystem Studies have found that organic matter that originated on land made up approximately a third of zooplankton biomass. When edible algae were scarce, zooplankton derived a still higher percentage of their diet from terrestrial material. Read more of this research by Jonathon Cole and others in the *Proceedings of the National Academy of Sciences*:

http://dx.doi.org/10.1073/pnas.1012807108 (OPEN ACCESS)

Fish on Prozac

Around one in four people in Montreal, Canada take some kind of anti-depressant and, according to new research, the drugs are passing into the waterways and affecting fish. The island of Montreal is surrounded by the Saint Lawrence, a major international waterway that connects the Atlantic Ocean to the Great Lakes. The city's sewage treatment system is similar to that in use in other major cities however the chemical structure of anti-depressants makes them extremely difficult to remove from sewage. Researchers from the University of Montreal have found that the drugs accumulate in fish tissues and are affecting the fish's brain activity. Read more about this research by Andre Lajeunesse and others here:

http://dx.doi.org/10.1016/j.chemosphere.2010.12.026

Not all fish affected the same way by low oxygen zones

Recent research on Lake Erie's very large low oxygen zone (an area where the water has less than two parts per million of dissolved oxygen) has found that while these so-called 'dead zones' have an adverse affect on aquatic life, not all species are impacted equally. The researchers from Purdue University found that low oxygen reduced the habitat quality across fish species and life stages, however the impact varied between species. Yellow perch, for example, saw little decrease, while round goby and rainbow smelt were more significantly affected. Read more of this work by Tomas Höök and others in *Freshwater Biology*:

http://dx.doi.org/10.1111/j.1365-2427.2010.02504.x

Carp: sterile and hungry for hydrilla

Water managers in Florida released about 12 000 Asian grass carp into their canal systems as a key part of their annual weed control strategy. The Sunrise region's drainage canals become clogged with the exotic hydrilla, which increases the risks of flooding. The young carp have a voracious appetite for hydrilla, making them an effective and cheaper alternative to chemicals. These farmed carp are specifically bred not to become a pest themselves: they grow from roe exposed to pressure shocks that leave the adult fish unable to reproduce. However, while hydrilla is their primary food, they will also eat other aquatic vegetation. To minimise their potential to affect the native plants that provide food and shelter to indigenous fish, the State bans them from use in the Everglades, the Kissimmee River or other natural areas. Read more:

www.miamiherald.com/2010/12/21/1984127/carp-set-loose-to-attack-canal.html

Felt soles targeted

Several states in the US are considering following Alaska's lead and banning felt sole wading gear. Such gear was banned in New Zealand after the introduction of Didymo. Some recreational fishing organisations, such as Trout Unlimited, support the move because of the increasing introduction and spread of aquatic nuisance species and their affects on the health of waterways and fish habitat. Fishers, and others, like the felt soles because they reduce slipping on wet rocks but they also are very slow to dry and therefore capable of transporting nuisance species' spores, eggs and larval forms. While at least two States have legislation before their Senates, there is a lot of discussion about using this approach to tackle the increasing spread of aquatic pests. For links to these discussions, see:

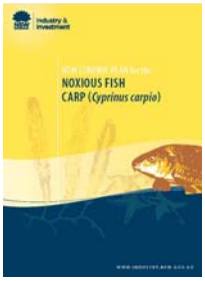
www.cleanangling.org/Newsletter.htm

IMAGE FOR FEBRUARY

Another year … and another fish barrier. This fish barrier was found near Mogo on the NSW south coast. I&I NSW staff had previously been told of a 'weir' on Jeremadra Creek and what they found was a significant fish passage barrier in the Tomaga catchment. I&I NSW are now investigating options for restoring fish passage through the weir. Photo: Trevor Daly

HABITAT RESOURCES

NSW carp control plan released



One of Australia's most prolific pest fish, carp (*Cyprinus carpio*), is the target of a new control plan. Carp are widespread in NSW, particularly in the Murray-Darling Basin and the river systems of the Mid NSW Coast and Tablelands. In many areas carp is the dominant fish species and they can have detrimental effects on the habitats and food sources native fish rely on. The control plan recognises the limitations to effective control and promotes an integrated approach to river rehabilitation to improve fish habitats and support native fish populations. A copy of the Carp Control Plan can be found at:

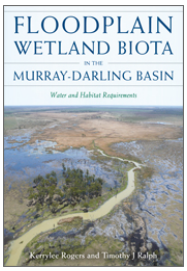
www.dpi.nsw.gov.au/fisheries/pests-diseases/freshwater-pests/species/carp/control-plan

Map of Murray-Darling flows

Water flows in the Murray-Darling Basin can now be viewed on a single map. Information on river flows at different collection spots and housed on several State-based websites are compiled into a single map that shows where rivers are flooding in the Basin at a single point in time. For more information, contact Tony Sharley on 08-8595 8151 or visit:

http://riversmart.net.au/Flowtracker.htm

Floodplain wetland biota in the Murray-Darling Basin



This book synthesises key water and habitat requirements for 35 species of plants, 48 species of waterbirds, 17 native and four introduced species of fish, 15 species of frogs, and 16 species of crustaceans and molluscs found in floodplain wetlands of the Murray-Darling Basin. It is also available as an e-book.

www.publish.csiro.au/nid/18/pid/6464.htm

HABITAT DATES

25 February	**6th Annual Water Symposium, Darling Harbour, Sydney** www.legalwiseseminars.com.au/userfiles/file/LWS_ENVIROInfo.pdf
27 February – 1 March	**NSW Coastal Volunteers Forum** www.hcr.cma.nsw.gov.au/uploads/res/2011CoastalVolunteersForumBrochure.pdf
1 – 7 March	**National Seaweek** www.mesa.edu.au/seaweek2009/default.asp
5 – 6 March	**Carp Muster, Narrabri** www.dpi.nsw.gov.au/aboutus/news/recent-news/fishing-and-aquaculture Contact Milly Hobson on 02-6763 1206 for details
22 March	**World Water Day** www.worldwaterday.org
16 - 21 April	**Rotary Murray-Darling School of Freshwater Research, MDFRC Wodonga and Wonga Wetlands.** Year 11 students only. www.mdfrc.org.au/students/rotary/index.htm
20 - 21 May	**Fishers for Fish Habitat Forum, Tamworth** Contact Charlotte Jenkins on 02-6626 1107 for details

ABOUT I&I NSW AND FISH HABITAT

I&I NSW 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

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Sydney (Wollstonecraft) - 02 8437 4909
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
Albury - 02 6042 4200

Research staff

Port Stephens - 02 4982 1232
Narrandera - 02 6959 9021
Cronulla - 02 9527 8411

Website

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

About Newstreams

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newstreams@industry.nsw.gov.au

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