

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

## AUSTRALIAN NEWS

### Heavy traffic on fish highways

Thinking like a fish appears to have been a key factor in the success of three fishways near Yeppoon, on Queensland's central coast. Queensland Fisheries staff recorded over 2000 fish successfully moving through one of the fishways in just eight hours. Several different species were recorded during the sampling period including rainbow fish, empire gudgeons, bullrouts and eels. The most surprising thing was the appearance of freshwater mullet, a fish that had not previously been seen north of the Burnett Region. Juvenile freshwater mullet are one of the species that migrate from marine environments into freshwater habitats to grow and feed, before migrating back to the sea to breed. Fishways play a critical role in facilitating this process. Construction of the fishways and the subsequent monitoring is a joint venture between Fisheries Queensland and the Fitzroy Basin Association. For more information: [www.dpi.qld.gov.au/30\\_21451.htm](http://www.dpi.qld.gov.au/30_21451.htm)



Freshwater mullet (pictured) are one of the fish species benefiting from the new fishways near Yeppoon. Photo: NSW DPI.

In related news, fishers are seeing a lot more Australian Bass upstream of fishways on both the Wollie Creek Weir, an inner Sydney tributary of the Cooks River, and the Nepean River, on the southern side of Sydney. The Wollie Creek fishway was constructed in 2009, ending decades of isolation from habitat upstream. A video of fish using the fishway was produced soon after completion. To view: [www.youtube.com/watch?v=Lq-wzocd0B0&lr=1&user=possm1](http://www.youtube.com/watch?v=Lq-wzocd0B0&lr=1&user=possm1)

### Harming habitat hits the hip pocket

Several recent prosecutions have highlighted the impact of unauthorised works on fish habitat - and on perpetrators' bank balance. Landholders at Wisemans Ferry, on the Hawkesbury River, NSW, were ordered to carry out hundreds of thousands of dollars worth of remedial work to rectify damage caused by an unauthorised retaining wall. A Georges River landholder has also been ordered to replant mangrove trees following the construction of an unauthorised retaining wall. Three NSW north coast riverfront residents were fined for allegedly building illegal boat ramps on the foreshore outside their homes. As well as foreshore habitat, illegal dredging has also been an issue for coastal lagoons. In one instance, several would-be surfers dredged an opening to Willinga Lake, on the NSW south coast, to create a short-term standing wave. While the waves created by the opening channels and lakes only lasts a short time, the consequences for the fish and the fish habitat can be severe and long lasting, and in this case contributed to a fish kill. A major fish kill was the result of what was described as 'the most serious water contamination event in Queensland's history'. The uncontrolled release of highly toxic water from mine stormwater ponds to surrounding creeks during the 2009 wet season affected 52km of waterway. The former owners of Lady Annie Mine, north-west of Mt Isa in central Queensland, were fined \$500,000 in addition to the estimated \$11 million they had had to spend to clean up and rehabilitate the site. For more about these stories: [www.dpi.nsw.gov.au/aboutus/news/recent-news/fishing-and-aquaculture/unauthorised-works-prove-costly](http://www.dpi.nsw.gov.au/aboutus/news/recent-news/fishing-and-aquaculture/unauthorised-works-prove-costly), [www.dpi.nsw.gov.au/aboutus/news/recent-news/fishing-and-aquaculture/\\$1000-for-illegal-boat-ramps](http://www.dpi.nsw.gov.au/aboutus/news/recent-news/fishing-and-aquaculture/$1000-for-illegal-boat-ramps), [www.dpi.nsw.gov.au/aboutus/news/recent-news/fishing-and-aquaculture/illegal-lake-openings](http://www.dpi.nsw.gov.au/aboutus/news/recent-news/fishing-and-aquaculture/illegal-lake-openings), [www.derm.qld.gov.au/media-room/2012/03/lady-annie-mine.html](http://www.derm.qld.gov.au/media-room/2012/03/lady-annie-mine.html)

## Kids teaching kids the ‘Envirobeat’

Over 200 students from Years 5 and 6 gathered in Narrabri to learn about and celebrate the local environment at the inaugural Namoi EnviroBeat Youth Conference. The Conference, funded by the Namoi CMA, took kids out of the classroom and allowed them to get a hands-on sense of issues affecting the health of local waterways and bush areas. They also had the opportunity to learn from each other through developing and presenting an environmental project of their choice to their peers. Topics included fish passage and the impacts of carp. For more information about this conference, contact [Anthony Townsend](#), Fisheries NSW, on 02 6763 1440.



The EnviroBeat Youth Conference provided students with an opportunity to learn more about the health of the local Namoi River and native fish. Photo: Tony Townsend.

## Community catchment crawl

Community Natural Resource Management groups from the Gold Coast, Queensland, recently showed off the results of their local restoration work. One group is restoring Mudgeeraba Creek. Over the last six years, they have transformed a 3km stretch of the creek from a ‘weed invested’ mess to a well-managed stretch of creek that the whole community can enjoy. At Nerang, a group has been revegetating what was once a bare stretch of Crane Creek which backs onto a suburban area. After only two years’ work they are seeing improved water quality and more wildlife. For more, see:

[www.seqcatchments.com.au/news/community-natural-resource-management-groups-praised-for-their-work-at-community-catchment-crawl](http://www.seqcatchments.com.au/news/community-natural-resource-management-groups-praised-for-their-work-at-community-catchment-crawl)



Mark Tierney from Nerang River Keepers at Crane Creek. Photo: SEQCatchments.

## Watching the (sea)grass grow

Researchers looking at the resilience of seagrass found in Port Phillip Bay, Victoria, have observed one of the largest seagrass flowering events seen for some time. The seagrass meadows cover nearly 64 km<sup>2</sup>, making this one of the largest areas of seagrass habitat in Victoria. By studying fifteen locations, from Blairgowrie to Swan Bay, collecting seed and tracking bits of broken seagrass, the researchers hope to better understand how seagrass recovers from disturbance and the role that different regions play in maintaining the larger bay-wide population. For more about this project:

[www.dse.vic.gov.au/about-dse/media-releases/helmeted-honeyeaters-sweet-release-to-save-species2](http://www.dse.vic.gov.au/about-dse/media-releases/helmeted-honeyeaters-sweet-release-to-save-species2)

For a short video of Port Phillip seagrass life:

<http://portphillipmarinelife.net.au/habitat/6>



Seagrass in Port Phillip Bay makes up some of the largest areas of this type of habitat in Victoria. Photo: Mary Malloy.

## Fish in art

*Fish in Australian Art* is an exhibition at the Australian National Maritime Museum, running from 5 April - 1 October. For more information:

[www.anmm.gov.au/site/page.cfm?u=2027](http://www.anmm.gov.au/site/page.cfm?u=2027)

The pictures included in the exhibition, including ‘The Fish Tank’ by John Brack (pictured), range from Aboriginal, colonial and contemporary representations of fishing, fish and fish habitats in Australia. Image obtained from [www.smh.com.au](http://www.smh.com.au)



## 'Endangered Ecological Community' status for the Snowy River

The aquatic ecological community in the catchment of the Snowy River in NSW has been listed as an Endangered Ecological Community by the Fisheries Scientific Committee. This means all native fish in the rivers, creeks, streams and lakes of the Snowy River catchment within NSW are protected, with the exception of Lakes Eucumbene, Jindabyne, Island Bend and Guthega. Trout fishing is not affected as the listing only protects native fish. Recreational fishers can continue to fish in the area as normal while an assessment of the impact of recreational fishing in the catchment is underway. The community will have a chance to comment on the recommendations arising from the assessment.

For more information:

[www.dpi.nsw.gov.au/\\_data/assets/pdf\\_file/0005/426308/Snowy-River-EEC-Final-Determination.pdf](http://www.dpi.nsw.gov.au/_data/assets/pdf_file/0005/426308/Snowy-River-EEC-Final-Determination.pdf)



The upper reaches of the Snowy River. The aquatic community found in these waters is now listed as an 'Endangered Ecological Community'. Photo: Allan Lugg.

## Effects of environmental flows

Studies of environmental flows in different river systems in Australia have found that there is still a lot to understand about the impacts of such water releases on aquatic animals, including fish. One study compared regulated (with water supply dams) and unregulated (without dams) rivers during drought conditions. Researchers found that despite environmental flow releases the regulated river consistently had less water travelling at a slower rate and fewer macro-invertebrates than the unregulated river. Another study looked at differences in fish diet between a regulated river with environmental flows and an unregulated river within the NSW Hunter River catchment. It found little difference, suggesting indicators such as fish diet and food chain relationships are not sufficiently sensitive to pick up impacts of short-term events, like an environmental flow release. It appears that environmental flows may contribute to the long-term resilience of regulated rivers but the short-term effects on the aquatic community remain less well understood. For more about these studies:

The coastal study by Robert Rolls and others, in *Hydrobiologia*: <http://dx.doi.org/10.1007/s10750-012-1012-5>

The drought rivers study by Hayley White and others, in *Freshwater Biology*: <http://dx.doi.org/10.1111/j.1365-2427.2011.02732.x> (Open access)

Research is also underway in South Australia to see what the impacts are of releasing water from reservoirs in the Torrens, South Para and Onkaparinga Rivers. These rivers have experienced significant urban development and there are several fish species under threat or locally extinct. The study includes providing daily flow and fish monitoring reports. These, and background reports, are available on the website. For more information, contact Steven Gatti, Manager Projects and Investigations, on 08-8273 9129 or visit: [www.amlnrm.sa.gov.au/Water/Surfacewater/Environmentalflows.aspx](http://www.amlnrm.sa.gov.au/Water/Surfacewater/Environmentalflows.aspx)

The April issue of *Wetlands* includes several articles about research into various techniques to model and measure the ecological effects of water flows in the Murray-Darling Basin. These include work using the 'Eco-Evidence' model, the use of remote sensing and the use of representative species. To look at the Table of Contents:

<http://www.springerlink.com/content/0277-5212/32/2/>

Environmental flows also featured in the draft Murray Darling Basin Plan, which was intended to be the driving force for improving river health in the Basin. Given the importance of river health for native fish and recreational fishing, a Murray Darling Basin Recreational Fishing Council was formed to represent the views of over 900,000 recreational fishers. The Council provided a detailed submission to the Plan, which included a summary of desirable outcomes. These documents can be obtained from:

[www.fishhabitatnetwork.com.au/links/](http://www.fishhabitatnetwork.com.au/links/)

## Awaiting an aquatic feast

Spider webs covered the shoreline recently at Lake Brewster between Hillston and Lake Cargelligo. They had made their way up the embankment to escape the rising water. The heavy rain meant the spiders had had to move out of their holes and the rising lake level forced them to move further up the bank. They had spun large areas web in anticipation of prey emerging from the water. The spiders were lining up to catch the many different water insects spurred on by the flooding, including mosquitoes and midges. This explosion of aquatic insect life was likely to also be great news for the local fish. For more images, see:

[www.abc.net.au/local/photos/2012/03/07/3447819.htm?site=centralwest](http://www.abc.net.au/local/photos/2012/03/07/3447819.htm?site=centralwest)



The six kilometre embankment, constructed to improve the water quality coming into the lake and wetlands, was white with spider webs. Photo: State Water

## Social and environmental history of Ash Island

Once a collection of 21 islands and mudflats, land on the Hunter River estuary was much sought after by European settlers in the early 1800s. By the late 1800s, there were 55 families lived on Ash Island, most of them involved with the running of 17 dairy farms. By the 1980s the site was becoming severely degraded. The restoration of fish habitats on Ash Island for the Kooragang Wetland Rehabilitation Project began in 1993. Recently, some of the project volunteers set out to find the sites shown in old photographs and re-photograph them, including some that have been targeted by restoration efforts. Some of what they found can be viewed at:

<http://open.abc.net.au/openregions/nsw-hunter-70MU6Ji/posts/ash-island-now-and-then-31mx3dc>

## Murray, Murrumbidgee and Lower Darling Rivers black water event: FAQs

Black water is currently affecting sections of the Murray River (particularly downstream of the Barmah-Millewa and Koondrook-Perricoota Forests), Edward and Wakool river systems, Billabong Creek, Lower Darling and Murrumbidgee Rivers. It's expected that this event will continue for several months. For more information, visit:

[www.dpi.nsw.gov.au/fisheries/habitat/threats/fish-kills/black-water-events-causing-fish-kills-in-the-murray,-murrumbidgee-and-lower-darling-river-catchments-march-2012](http://www.dpi.nsw.gov.au/fisheries/habitat/threats/fish-kills/black-water-events-causing-fish-kills-in-the-murray,-murrumbidgee-and-lower-darling-river-catchments-march-2012)

## The little fish that digs in for summer

Researchers are looking at exactly what the Black Stripe Minnow does when it aestivates (hibernates) during the hot West Australian summer. These small fish live in wetlands, including the study site at Kemerton Wetlands, which is relatively pristine but dry for 6 months of the year. Black Stripe Minnow are locally abundant, but not widely distributed on the Swan Coastal Plain where housing and agriculture have destroyed habitat. Born in late winter with a life cycle only about a year long, Black Stripe Minnow grow sufficiently to enable them to aestivate around January. Where and how they do this remains a mystery. The research found that these fish are happy to be in any sort of water, being found in wetlands that have either high and low levels of nutrients and in some with relatively high levels of iron and zinc, types of metals that usually affect fish. It appears aestivation is the key to their distribution. For more about this research:

[www.abc.net.au/local/stories/2012/02/03/3422745.htm](http://www.abc.net.au/local/stories/2012/02/03/3422745.htm)



Dave Galeotti has already found out that the minnows are not using old yabby burrows when they aestivate over the summer, as was previously thought. Photo: Edith Cowan University.

## Ever wondered about the *Native Fish Strategy*?

You might have heard of the Murray-Darling Basin Authority's 'Native Fish Strategy' (NFS). John Koehn and Mark Lintermans have provided an overview of the need, context and history of this Basin-wide program which coordinates the rehabilitation of the Basin's severely degraded native fish populations. A key component of the NFS is the engagement of communities and stakeholders. Regionally-based coordinators are the primary means of doing this, using 'demonstration reaches' where local communities are actively involved in a variety of rehabilitation activities. The authors explore the potential of the NFS approach as a model for whole-of-Basin, whole-of-fish-community rehabilitation in other parts of the world. To read more of this review by Koehn and Lintermans in *Endangered Species Research*: <http://dx.doi.org/10.3354/esr00398> (Open access)



**Native Fish Strategy coordinator (NSW North), Tony Townsend, demonstrating the active role taken to engage the community.**  
Photo: Calrossy Anglican School.

## Habitat impacts affecting Black Cod

The Black cod has been protected in NSW since 1983 and is listed as a vulnerable species under the *NSW Fisheries Management Act*. It has now been listed as 'Vulnerable' under the Commonwealth *Environmental Protection and Biodiversity Conservation Act*. Black cod are found along the NSW coast, inhabiting near-shore rocky and offshore coral reefs. Adults are territorial and can occupy one specific cave for most of their adult life. After a drifting larval stage, juveniles use coastal rock pools, while slightly older juveniles use estuaries for shelter and feeding. The degradation and modification of estuarine habitats is thought to be one of the factors contributing to the species' decline. For more information:

[www.environment.gov.au/biodiversity/threatened/species/pubs/68449-conservation-advice.pdf](http://www.environment.gov.au/biodiversity/threatened/species/pubs/68449-conservation-advice.pdf)



**A Black Cod (*Epinephelus daemeli*), also known as Black Rockcod and Saddled Rockcod.**  
Photo: Dave Harasti.

## New control options for Cambomba

The herbicide 'Shark' (carfentrazone-ethyl) has recently been registered for use on the water weed Cabomba. Cabomba is a submerged aquatic weed that can invade freshwater lakes, dams and slow moving waterways. Management of Cabomba, which is found along the eastern seaboard, had been limited to mechanical removal or using techniques such as shading. 'Shark' can only be applied to 50% of the water body at one time and there must be a 3 month gap between repeat treatments. It can't be used in flowing water or water to be used for human consumption and there is a 3 month withholding period for treated water being used for irrigation. It is moderately toxic to fish and the restriction on applying to 50% of a water body at a time reduces the risk of fish death from low oxygen levels caused by the decomposition of rotting Cabomba. For more information and advice, contact [Charles Mifsud](mailto:Charles.Mifsud@dpi.nsw.gov.au), NSW DPI, on 02 6640 1662.



**A Cambomba infestation and leaf detail (inset).**  
Photos: NSW DPI

## Australian First Peoples' National Water Summit

The First Peoples' Water Engagement Council (FPWEC) is a new group which will provide advice to the National Water Commission on national water issues for indigenous communities. More than seventy community representatives met recently to discuss water allocation and issues of respect and recognition for cultural values and aspirations, economic development and cultural needs, participation in decision making and partnerships in water planning and management. For more information:

<http://nwc.gov.au/planning/fpwec>

**Erratum:** The link to the *Report on the effects of the January 2011 flood on the mangrove communities along the Brisbane River* provided in the February issue did not work on a CTRL-click. Please use [http://www.derm.qld.gov.au/wildlife-ecosystems/plants/queensland\\_herbarium/publications/pdf/brisbane\\_river\\_flood\\_2011\\_report.pdf](http://www.derm.qld.gov.au/wildlife-ecosystems/plants/queensland_herbarium/publications/pdf/brisbane_river_flood_2011_report.pdf) to access this report (4.4Mb).

---

## INTERNATIONAL NEWS

---

### Fish rescue

The current drought in the United Kingdom has led to the driest Spring in 100 years in some areas. Rescue parties have been created to save fish from rapidly disappearing rivers. Both the Environment Agency and local communities are particularly concerned about local wild populations, especially of brown trout, in waterways that are not stocked. The rescuers are using electrofishing techniques, scooping the fish out and into tanks to be transported to nearby areas where there is still flowing water. For more on this story:

<http://www.guardian.co.uk/environment/2012/apr/03/rescue-squads-save-fish-drought?INTCMP=SRCH>



This fish rescue squad included members of the Ryedale anglers' club. The drying river is normally a healthy one, with lots of habitat supporting wild populations of brown trout. Photo: [www.guardian.co.uk](http://www.guardian.co.uk)

### It's not as simple as 'Just add wood'

Adding large or complex woody debris (snags) to waterways is one tool used to restore fish habitat. However, when researchers in southern England looked at how different species of fish respond to woody debris at different stages of their life cycles they found that the story is not a simple one. They found complex and seasonally variable relationships between the number and species of fish, life cycle stage and the habitat features, such as riffles, pools and woody debris, in the waterway. The results emphasise the need to understand not only what species of fish are present, but also how they use different sorts of habitat at different life stages. The researchers also argue that it is necessary to look at the range of habitats available in small localised areas as well as reaches or longer, more connected lengths of waterway. For more on this research by Langford and other in *Freshwater Biology*:

<http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2427.2012.02766.x/abstract>

Researchers in the USA also found there was not a simple story of improved fish habitat when complex woody debris was re-introduced. They found that, at least in the short term, just adding woody debris to lakes where development had led to its removal did not remediate the negative impact on fish. However, the addition of woody debris did appear to increase both prey diversity and availability, and the foraging efficiency of the fish. Habitat use by fish was clearly linked to the spatial distribution, abundance and branching complexity of woody debris available. For more about this research by Sass and others in *Aquatic Sciences*:

[www.springerlink.com/content/f695132615107921/?MUD=MP](http://www.springerlink.com/content/f695132615107921/?MUD=MP)

### Scale important when excluding stock from waterways

Researchers looked at the impact of excluding livestock from arid, montane streams in the interior western region of the United States. These streams support diverse and productive habitats while the adjacent grasslands have long been used for rangeland grazing. The study looked at what happened to in-stream communities and riparian areas when stock were excluded over time and for different stream lengths. There were no in-stream improvements when the exclusions were small-scale, although there were moderate benefits for riparian vegetation. The researchers suggest that removing stock short-term but over a large area is more effective than long-term, but small-scale, local riparian area fencing in these arid regions. Read more of this research by Herbst and others in *Freshwater Biology*:

<http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2427.2011.02706.x/full>

## Some fishways are better than others

Researchers in the US have been studying the effectiveness of fishways. They reviewed the research into the types and numbers of fish using various types of fishways and found that fish passage was improved, especially for pool and weir type structures. Salmon were better at using fishways than other types of fish. For more from this review by Noonan and others in *Fish and Fisheries*:  
<http://dx.doi.org/10.1111/j.1467-2979.2011.00445.x> (Open access)

## Funding for habitat

US\$41.6 million from the US Land and Water Conservation Fund has been allocated to a wide range of land purchases designed to help improve habitat. Projects include US\$1 million for habitat of the threatened steelhead and bull trout, and portions of the Nez Perce National Historic Trail in the Clearwater National Forest, Idaho. The Nez Perce Tribe gave \$7 million for fish habitat restoration in the Upper Lochsa drainage area and plans to continue giving \$1 million per year. The protection of fish and wildlife habitat along 30 miles of Deer Creek, a dam-free stream that is one of the top salmon producers in the Sacramento Basin, California, has been extended by a grant of US\$1.5 million. For a list of grant allocations:  
[www.cbsnews.com/8301-501363\\_162-57410336/a-look-at-forest-lands-bought-with-drilling-fees/](http://www.cbsnews.com/8301-501363_162-57410336/a-look-at-forest-lands-bought-with-drilling-fees/)

## 'Love your river'

A 'Love Your River' campaign has been launched in the UK, supported by a variety of organisations. The campaign is seen as timely given the drought currently affecting the UK and the consequent increased vulnerability of the country's rivers. The launch highlighted the Catchment Sensitive Farming Project, a £21 million program helping farmers and land managers take practical actions to reduce diffuse pollution from their farms entering waterways. Broadly, the 'Love Your River' campaign is focussed on raising general community awareness about the issues affecting rivers. For more information:  
[www.defra.gov.uk/loveyourriver](http://www.defra.gov.uk/loveyourriver)

---

## HABITAT DATES

---

June 3 – 8	<b>9th Annual International Association for Ecology's International Wetlands Conference, Orlando, Florida, USA</b> <a href="http://www.conference.ifas.ufl.edu/intecol/">www.conference.ifas.ufl.edu/intecol/</a>
August 17 - 19	<b>National Recreational Fishing Conference, Gold Coast</b> <a href="http://www.recfishing2012.com.au">www.recfishing2012.com.au</a>
October 8-11	<b>15th International Riversymposium, Melbourne</b> <a href="http://www.riverfoundation.org.au/index.php">www.riverfoundation.org.au/index.php</a>
October 16-17	<b>Native Fish Forum, Dubbo</b> For information, contact <a href="mailto:Tony.Townsend@nsw.gov.au">Tony Townsend</a> on 02 6763 1440
October 19 – 26	<b>Native Fish Awareness Week, Murray-Darling Basin Authority</b> Basin-wide activities celebrating native fish and fish habitat rehabilitation.
October 20	<b>Narrandera Fish Festival</b> Free event, with a focus on native fish. The event also celebrates the 50th Anniversary of the Narrandera Fisheries Centre. <a href="http://www.trade.nsw.gov.au/events/fisheries/fish-festival">www.trade.nsw.gov.au/events/fisheries/fish-festival</a>
October 20-24	<b>6th National Conference on Coastal and Estuarine Habitat Restoration, Tampa, Florida, USA</b> <a href="http://www.estuaries.org/conference/">www.estuaries.org/conference/</a>
November 28 – 30	<b>The inaugural conference of the Society for Ecological Restoration Australasia, Perth</b> <a href="http://www.seraustralasia.com/pages/conference.html">www.seraustralasia.com/pages/conference.html</a>

---

## ENGAGEMENT AND FUNDING OPPORTUNITIES

---

### Funding opportunities in NSW

The Catchment Management Authorities in NSW are currently seeking submissions for funding under their 2012 – 2013 Catchment Action Plans. Closing dates vary. To find your regional CMA go to:

[www.cma.nsw.gov.au/](http://www.cma.nsw.gov.au/)

### Revegetation funding for Coorong, Lower Lakes and Murray Mouth landholders

Expressions of Interest are being sought from Coorong, Lower Lakes and Murray Mouth landholders who are interested in revegetation, fencing, and pest and weed control opportunities for their properties.

Expressions of Interest submissions close at 5pm on **4 May 2012**.

[www.environment.sa.gov.au/Conservation/Rivers\\_wetlands/Coorong\\_Lower\\_Lakes\\_Murray\\_Mouth/The\\_community/Vegetation\\_Program](http://www.environment.sa.gov.au/Conservation/Rivers_wetlands/Coorong_Lower_Lakes_Murray_Mouth/The_community/Vegetation_Program)

### Reef rescue water quality grants

NQ Dry Tropics has \$10million funding available for primary producers. The aim of the funding is to create cleaner waterways, enhance fish populations, improve drinking water and improve the health of the Great Barrier Reef. Applications will be accepted through the end of April 2013 and funding will be distributed on a first come first served basis. For more information, visit [www.nqdrytropics.com.au](http://www.nqdrytropics.com.au) or call 07 4724 3544.

---

## HABITAT RESOURCES

---

### Taxonomic Toolkit for Marine Life of Port Phillip Bay

The Port Phillip Taxonomic Toolkit provides information, data, images and tools to help identify, document and monitor the rich marine animal life of this bay.

<http://portphillipmarinelife.net.au/>

### Groundwater essentials

An entry-level resource providing information about the importance and uses of groundwater, its place in the hydrological cycle, surface/groundwater connectivity and risks to this resource.

[www.nwc.gov.au/publications/topic/groundwater/groundwater-essentials](http://www.nwc.gov.au/publications/topic/groundwater/groundwater-essentials)

### Wetlands Australia: National Wetlands Update 2012

This 20<sup>th</sup> edition brings together information, case studies and experiences from across Australia relating to wetlands conservation, management and education.

[www.environment.gov.au/water/publications/environmental/wetlands/wetlands-australia/wa20/index.html](http://www.environment.gov.au/water/publications/environmental/wetlands/wetlands-australia/wa20/index.html)

### Seagrass-friendly mooring trial report

The two year (2009-2011) Moreton Bay Environmentally-Friendly Mooring Trial assessed the effectiveness of three environmentally-friendly mooring designs in four locations in Moreton Bay.

[www.segcatchments.com.au/case-studies/mooring-trial-to-end-crop-circles-in-moreton-bay](http://www.segcatchments.com.au/case-studies/mooring-trial-to-end-crop-circles-in-moreton-bay)

### Wallum conceptual model

The Wallum Freshwater Biogeographic Province is located on the south-east coast of Queensland.

Information about and conceptual models of the riverine habitats found within Wallum are now available:

<http://wetlandinfo.derm.qld.gov.au/wetlands/ScienceAndResearch/ConceptualModels/Riverine/FBP/wallum.html>

---

## 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](mailto:newstreams@industry.nsw.gov.au)). Back issues can be accessed from [www.dpi.nsw.gov.au/aboutus/resources/periodicals/newsletters/newstreams](http://www.dpi.nsw.gov.au/aboutus/resources/periodicals/newsletters/newstreams).

*Newstreams* is supported by the NSW Recreational Fishing Trust and the Murray Darling Basin Authority's Native Fish Strategy.



*Newstreams* is published electronically every two months by the Conservation Action Unit within NSW DPI (Fisheries) 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

- Fisheries NSW [www.dpi.nsw.gov.au/fisheries/habitat](http://www.dpi.nsw.gov.au/fisheries/habitat)
- NSW Council of Freshwater Anglers [www.freshwateranglers.com.au](http://www.freshwateranglers.com.au)
- Recreational Fishing Alliance of NSW [www.rfansw.com.au](http://www.rfansw.com.au)
- Australian National Sportfishing Association [www.ansansw.com.au](http://www.ansansw.com.au)
- ECOfishers [www.ecofishers.com](http://www.ecofishers.com)
- NSW Fishing Clubs Association [www.nswfca.com.au](http://www.nswfca.com.au)
- SUNFISH [www.sunfishqld.com.au](http://www.sunfishqld.com.au)
- VRFish [www.vrfish.com.au](http://www.vrfish.com.au)
- Fisheries Victoria [www.dpi.vic.gov.au/fisheries](http://www.dpi.vic.gov.au/fisheries)
- VIC Department of Sustainability and Environment [www.dse.gov.au](http://www.dse.gov.au)
- Australian Fishing Trades Association <http://afta.net.au>

Website [www.fishhabitatnetwork.com.au](http://www.fishhabitatnetwork.com.au)



Department of  
Primary Industries

