

Newstreams

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

Welcome to Newstreams #68. Newstreams is brought to you in partnership by the [Fish Habitat Network](#), with funds from the [NSW Recreational Fishing Trust](#). As well as [Newstreams](#), the recreational fishers of NSW also support fish habitat action on the ground through the [Habitat Action Grants](#), [website](#) and [Facebook](#). I hope these stories from Australia and around the world provide inspiration and ideas for all of you who get your hands dirty and your feet muddy for fish!

Liz Baker, [Editor](#)

AUSTRALIAN NEWS

Get involved in fish habitat!

The current round of **NSW Habitat Action Grants** is now open. These grants are funded from the NSW Recreational Fishing Trusts which direct a proportion of the funding generated by the NSW Recreational Fishing Fee towards on-ground actions to improve fish habitat and recreational fishing in NSW. Angling clubs, individuals, community groups, local councils and natural resource managers interested in rehabilitating fish habitats in freshwater and saltwater areas throughout NSW can apply for small grants of **\$2,000** or large grants of up to **\$40,000**. Habitat rehabilitation projects that may be funded include:

- removal or modification of barriers to fish passage
- rehabilitation of riparian lands
- re-snagging waterways with timber structures
- removal of exotic vegetation from riverbanks and replace with native species
- bank stabilisation works
- reinstatement of natural flow regimes.

For more information: <http://www.dpi.nsw.gov.au/hag>.

Fish Habitat Network website

The new Fish Habitat Network website is up and running with further information about protecting and improving habitat that fish need to survive and thrive: www.fishhabitatnetwork.com.au and make sure to like the Facebook page: <https://www.facebook.com/fishhabitatnetwork>.



Many different groups of people get their hands dirty for fish by getting involved in NSW Habitat Action Grant funded projects. Photo: NSW DPI.

Great recovery for One Tree Island coral reef

One Tree Island, near Gladstone, Queensland, was lashed by Cyclone Hamish in 2009 and much of the island's coral was destroyed. In the five years following the cyclone, researchers monitoring the reef found a 75 percent decline in the calcification of the coral. However, there was a dramatic change for the better between 2014 and 2017. The coral calcification was found to have increased four-fold and there was a visible increase in the amount of coral as well, with coral cover increasing by 30 to 40 per cent. This coral ecosystem has completely recovered from the cyclone event, unlike similar reefs in the northern areas of the Great Barrier Reef which have also experienced significant bleaching events. Read a summary: <https://www.abc.net.au/news/2019-07-02/new-hope-for-great-barrier-reef-with-remarkable-coral-growth/11268014> or the research by Davis and others in *Frontiers in Marine Science*: <https://doi.org/10.3389/fmars.2019.00282> [Open access].



The recovery of a cyclone-damaged reef. Photo: Kay Davis.

Getting fish around the Bend

Horseshoe Bend, near Walhalla on the Thomson River, Victoria, had a significant fish passage problem. In the early 1900s a tunnel was built to drain water from the river, allowing alluvial mining of the 'horseshoe bend' area of the riverbed. The resulting tunnel and area around the bend are heritage-listed. Water flow and fish passage around Horseshoe Bend are now restored, ensuring uninterrupted connectivity for fish from the alpine region to the sea. It also opens up more than 85kms of new habitat for migratory fish species, including the Australian Grayling. Revegetation of the area is also underway. Read more: <https://www.water.vic.gov.au/media-releases/2019/horseshoe-bend-and-thomson-river-projects-completed>.

Fish get the Landcare treatment

The banks of the Peel River, Tamworth, central NSW, have been relatively bare for some time but now some life is appearing thanks to the combined efforts of Landcare and local fishers. A mix of more than 200 locally germinated shrubs and trees, including lomandra, river reds, kurrajongs and acacias, were planted with the aim of bringing the river back to life. Read more: <https://www.northerndailyleader.com.au/story/6296581/national-tree-day-landcare-love-works-a-treat-along-riverbanks>.



The natural partnership of Landcare and recreational fishers is good news for fish. Photo: Peter Hardin.

Fish in Dubbo's Macquarie River are the first to see the riparian revegetation efforts of a new partnership that has fish habitat improvement throughout NSW in its sights. Read more: <https://www.dailyliberal.com.au/story/6306109/ozfish-landcare-nsw-partner-up-to-fight-for-aquatic-ecosystems/>.

Fly fishers getting on with the trees

500 native trees and shrubs were planted at the junction of the Macalister River and Stony Creek near Licola, Victoria, as part of an on-going program to improve river health and fish habitat. The carefully selected species of native trees planted will provide important shade, stability and habitat and food for fish. Shade helps cool the temperature of the water, an important habitat feature for many fish. Read more: <https://www.wgcm.vic.gov.au/news/latest-news/helping-fish-with-trees>.

Australia's coastal fish habitat already affected by extreme weather

A study has found that 45 percent of Australia's coastline marine habitat has been affected by extreme climate events between 2011 and 2017. Recovery across these impacted habitats has begun but modelling suggests that even in places where recovery starts, the average time for full recovery could be approximately 15 years. Damage from extreme events occurs on top of more gradual changes driven by increases in average temperature, such as loss of kelp forests on the southeast coasts of Australia. Read a summary: <https://www.sciencealert.com/climate-change-had-already-damaged-45-percent-of-australia-s-coastal-habitat> or the research by Babcock and others in *Frontiers in Marine Science*: <https://doi.org/10.3389/fmars.2019.00411> [Open access].



The extreme marine heatwave off the west coast of Australia in 2011 resulted in the loss of kelp forest along hundreds of kilometres. Photo: Russ Babcock.

A lovely old lady of the river moved to safety

The Murray Crayfish conservation translocation program found a 1.5kg female Crayfish, aged about 25 years, in the latest round of translocations. The team captured a range of sizes and ages as part of this year's surveys, including some recaptures of translocated crayfish from previous years at the release site. Crayfish have very low dispersal abilities and occupy small home-ranges, which means they struggle to recolonise areas where their population has declined. Read more: <https://www.dpi.nsw.gov.au/about-us/media-centre/releases/2019/murray-crayfish-population-clawing-back>.



One of the large Murray Crayfish found in the Murray River. Photo: NSW DPI.

Incidentally, Nick Whiterod is currently undertaking a Churchill Fellowship to study world's best practice for the translocation of small fishes and freshwater crayfish. Follow his journey: <http://natureglenelg.org.au/nicks-churchill-fellowship-begins/>.

Snagging the Snowy

Twenty-five large wooden structures have been installed as habitat for fish in the Snowy River in East Gippsland, Victoria. The structures are created from tethering logs with root balls to a pile driven into the bed of the river from a barge and provide much needed shelter and resting spots for fish species such as Australian Bass, Bream, Luderick and Estuary Perch. Many of the logs are being sourced from roadworks. Read more: <https://blog.egcma.com.au/2019/06/24/snowy-shelter/>.



Future fish habitat. Photo: EGCMA.

Lampreys on the move

Water released for the environment into Victoria's Gippsland river systems is enabling the Lamprey to migrate up to 900km upstream in these rivers. These ancient fish have no jaws, instead they use a toothed, sucking mouth and live as a parasite on other fish. The Lamprey migrate from the sea and travel upriver to spawn. Read more: <https://www.wgcm.vic.gov.au/news/latest-news/shining-a-light-on-the-lamprey>.



A Shortheaded Lamprey. Photo: Michael Hammer.

The water for the environment releases are also assisting Eels in their migrations from the Gippsland Lakes to the sea: <https://www.wgcm.vic.gov.au/news/latest-news/helping-eels-flourish-in-gippsland>.

Fish get some drought relief

Water has been delivered from Wyangala Dam through Booberoi Creek and into Cumbung Swamp at the lower end of the Lachlan River in central NSW as part of a managed release aimed at replenishing fish habitat during the drought. These flows are giving young fish, spawned in spring and summer, access to food and shelter during their first winter. Read more: <https://www.environment.nsw.gov.au/news/water-boost-to-help-native-fish-survive-the-drought>.

There was also some drought relief for fish in Ewenmar Creek, a tributary of the Macquarie River, Central NSW. The water delivery reconnected four isolated pools over a 15 km reach of the creek allowing the fish to move between the refuge pools, improving habitat and replenishing the food supply. Read more: <https://www.environment.nsw.gov.au/news/topping-up-time-for-our-native-fish-in-ewenmar-creek>.

Oysters vs snotweed

The oysters being established in Pumicestone Passage in Moreton Bay, Queensland have another job: to improve water quality so that neighbouring seagrass beds can overcome snotweed infestation. Snotweed is an algae that feeds off a build-up of excess nutrients found in runoff. It binds and smothers the seagrass destroying the habitat for prawns and fish. Oysters filter large volumes of water every day and 16 experimental reefs have been created in Pumicestone Passage using recycled oyster shells seeded with a variety of young shellfish, including baby oysters. The fledgling reefs are already providing much needed fish habitat. A study found that at one of the best sites fish species richness had increased by up to 82 per cent and the total fish abundance was 268 per cent higher, compared to control sites. Read more: <https://www.abc.net.au/news/rural/2019-07-19/snotweed-algae-oyster-reef-restoration/11324388>.



Improving water quality using shellfish reefs is one way make conditions less favourable for snotweed infestation. Photo: Jennifer Nichols.

Tidal estuary log jams

150 tonnes of salvaged hardwood have been installed as 'log jam' structures in the Clyde Creek estuary, Gladstone, Queensland. Usually associated with freshwater rehabilitation works, these structures also have a dual purpose in this tidal estuary: to control bank erosion and provide habitat for fish, including Barramundi and Mangrove Jack. The log jams will also give marine plants such as mangroves a chance to recruit and re-establish. These latest additions follow from five of the structures – each made up of 17 hardwood logs and weighing 25 to 30 tonnes – that were lowered into Clyde Creek 10 months ago. Read more: <https://catchmentsolutions.com.au/10-tonnes-of-hardwood-set-to-stop-river-erosion-in-gladstone/>.

Minimising the impact of urbanisation on seagrass in Oyster Harbour

Over one hectare of Yakamia Creek, within Albany's Centennial Park precinct, Western Australia, is now a new wetland. This wetland system uses native sedges, low shrubs and trees to naturally filter the water and remove nutrients and sediment to improve the quality of water that flows from the urban area into Oyster Harbour. Poor water quality saw a dramatic seagrass decline in Oyster Harbour. It is hoped that improved water quality will support the gradual improvement in the condition of the seagrass beds, which have been supplemented with re-plantings. Read more: <https://thewest.com.au/news/albany-advertiser/wetland-breathes-life-into-yakamia-creek-ng-b881209081z>.

These fishing pirates treasure rubbish

The Jolly Rogers Fishing Club has hauled in more than four tonnes of plastic from the banks of the Fitzroy River, Rockhampton, Queensland, in addition to shopping trolleys, street signs, wheelbarrows and bikes. What started out with one fisher's response to ill-health has turned into an 80-strong effort. Read more: <https://www.abc.net.au/news/2019-06-21/jolly-rogers-fishing-club-cleaning-up-qld-waterways/11216748>.



Members of the Jolly Rogers Fishing Club take their tinnies out once a week to collect rubbish. Photo: The Jolly Rogers Fishing Club.

More on Mudfish

Recent surveys in South Australia's south-east have confirmed the presence of Australian Mudfish. The rediscovered population represents a significant extension to the known range of the species, with the nearest population located 350 km away near Cape Otway in Victoria. The high abundance of Mudfish in Lake Hawdon South and persistence in restored aquatic habitat on nearby private property highlights the species' preference for open, seasonally inundated wetland habitat. As well as Mudfish, the latest surveys found high numbers of Little Galaxias, Southern Pygmy Perch and Common Galaxias. Very large numbers of Congolli were also found and most individuals were in breeding condition, so are thought to be migrating downstream to spawn in the estuary. Read more: <http://natureqlenelg.org.au/wetland-restoration-and-an-elusive-little-fish/>.

Erratum

Our story, **Fish thriving despite low flows**, in the June 2019 issue (#67) should have read: "Fish in Victoria's *Broken River* appear to be in good condition ..." not "*Goulburn River*". This has been corrected for the [archives](#).

INTERNATIONAL NEWS

70 species of fish in the 'burning river'

In 1969, the Cuyahoga River, Cleveland, USA, caught on fire. At that time, there was no visible signs of life in the river and a dredging operation found an estimated 17,600 tons of oil and grease in the 660,000 tons of dry solids removed. The river had been on fire half a dozen times, and in the largest fire, in 1952, a two-inch thick oil slick burned on the river. Now, pollution prevention and control and habitat rehabilitation have led to an ecological revival and there are 70 species of fish, including many pollution-sensitive species like Smallmouth Bass, found in the river. Read more: <https://www.greatlakesnow.org/2019/07/a-great-lakes-moment-from-john-hartig-13/>.



From a river that burned to one that supports a recreational fishery. Photo: extracted from Great Lakes Now video.

Trout food stocks responding the restoration

Researchers in England found that insects and other invertebrates that underpin the diet of many fish, including Trout, responded to stream restoration. One reason appears to be that the removal of a weir at one site and the revegetation of the riparian zone at another both increased the availability of organic matter, providing more food for invertebrates. Read more: <https://www.wildtrout.org/wttblog/can-stable-isotopes-reveal-an-impact-of-small-scale-river-restorations>.

The backstory to the big picture for the Klamath River

The Klamath Basin, which runs from southern Oregon to the northern California coast, USA, has been the site of restoration efforts for years to improve water quality and fish habitat. The restoration works include improving and protecting riparian and aquatic habitat, restoring riparian and lake-fringe wetlands, improving instream flows and keeping water temperatures cool, and restoring the geomorphic function of the streams. The next step is the removal of the last four hydro-dams by 2021, opening the Basin once again to the natural migration of Salmon and Steelhead. This long-term restoration of a major system has required multiple partnerships, layered projects and lots of negotiations. Read about this approach: <https://www.newsdeeply.com/water/community/2018/08/09/after-dam-removal-what-the-klamath-basin-needs-next>.

A notch, lots of limestone and a human chain gang

The restoration of the stretch of the little River Brue at Bruton, Somerset, England, is now several steps closer. One problem was a weir which couldn't be removed so one volunteer waded into the river with a pneumatic drill and chipped out a notch, creating a nice plume of flow for fish to run up and through – and several little Bullheads did just that, even before the work was finished. Next, a human chain carefully moved 30 tonnes of limestone boulders and cobbles from where they had been dumped into the channel and created new berms. These will silt up and vegetate – with some extra help if needed. Read more: <https://www.wildtrout.org/wttblog/trout-in-the-town-weir-notching-and-rock-berms-in-bruton>.



Creating the notch that juvenile fish immediately started to investigate. Photo: Wild Trout Trust.

Defunct mine clean-up for fish

Mining is an important part of the history of the USA, but with around 500,000 abandoned mines across the country it also left a legacy of damage to many headwater streams and rivers that were once important Trout habitat. In Montana's Ninemile Valley, a river network degraded by dredge mining had its six different tributaries reconnected, restoring mainstem habitat for native and wild trout and resulting in water savings of more than one acre-foot per day per restored mile of stream. This water is now stored in the newly reconstructed floodplain during high flows and released back to the stream when base flows decline during the dry season, which increases both flood and drought resiliency for the watershed and downstream communities. Read more: <https://www.tu.org/conservation/conservation-areas/watershed-restoration/abandoned-mine-reclamation/>.



Old mines present potential threats to Trout habitat. Photo: Trout Unlimited.

Signs of recovery for some European seagrass

In some places in Europe, seagrass meadows appear to be recovering as a result of improved water quality. A third of European seagrass was lost to disease, declining water quality and coastal development. The decline was marked during the 1970s and 1980s but has been slowing gradually since the late 20th century. The North German Wadden Sea has seen the highest levels of recovery within Europe. This is the result of a different, faster growing species of seagrass than that found in areas, such as the Netherlands, that has seen the greatest decline. Read a summary: <https://phys.org/news/2019-07-years-decline-european-seagrass-meadows.html> or the research by de los Santos and others in *Nature Communications*: <https://doi.org/10.1038/s41467-019-11340-4>.

At 1,100 fish it's now the USA's largest run of Atlantic Salmon

The Penobscot River, Maine, USA, once saw 75,000 to 100,000 Atlantic Salmon per year return to spawn. The latest count is about 1,100, which is the highest since almost 3,000 returns were counted in 2011 and is the largest run of Atlantic Salmon left in the United States. Since 2010, the plan to undo two centuries of damage to habitat for sea-run fish has involved removing 15 dams in the Penobscot River watershed and making fish passage improvements at another 13 dams. This has improved access to more than 2,000 miles of river and stream habitat for fish. Read more: <https://www.fisheries.noaa.gov/feature-story/penobscot-river-salmon-run-highest-2011>.



Hopefully a sign of better times ahead for Atlantic Salmon. Photo: NOAA.

Fish habitat work on the Penobscot River has also led to a resurgence in River Herring: from a few thousand before dam removal to well over two million fish after. People can now see a glimpse of the pioneers and First Nations' peoples described as: "the fish were so thick you could walk across the stream without getting your feet wet." Read more: <https://www.forbes.com/sites/jeffopperman/2019/07/16/remove-a-dam-and-bend-the-curve-for-fish/#61d44be4b683>.



Photo: Margaret Pizer.

The whole watershed's important for Salmon

Researchers have found that juvenile Sockeye and Chinook Salmon born in the Nushagak River and its tributaries in Alaska, USA, use the whole basin in their search for the best places to find prey, shelter and safety from predators. From birth until the fish migrate to the ocean a year later is a critical period for young salmon to eat and grow. It was also found that the different parts of the watershed that are favourable for salmon production and growth change from year to year. Habitat conditions are not static and the best places for the shift around within large areas of the watershed. Read a summary: <https://www.sciencedaily.com/releases/2019/05/190523142203.htm> or the research by Brennan and others in *Science*: <https://doi.org/10.1126/science.aav4313>.

Artificial reef rather than dynamite fishing

The community of Fisherman Island, off Port Moresby, New Guinea, is watching the response to a reef made from special concrete that encourages fish and marine life to develop. The artificial reef project was in return for the community agreeing to stop dynamite fishing. Initially, the installation of the new reef caused upwelling of the current, providing nutrients and a lot of fish came to feed. Read more: <https://www.abc.net.au/radio-australia/programs/pacificbeat/could-artificial-reefs-be-the-key-to-reviving-fish-stocks/11390086>.

Coral day-care

Severe damage to a coral reef, such as a ship grounding, can scatter small fragments of living coral onto the seafloor. By placing these into a coral nursery, the coral fragments can recover and grow until they're large enough for 'outplanting' back into reefs. Fully-formed coral colonies that have become detached from the reef due to storms and other disturbances need a slightly different designed nursery, however the process and the success of this approach are saving corals and reefs that otherwise might not have survived. Read more: <https://www.fisheries.noaa.gov/feature-story/noaa-develops-new-type-coral-nursery>.



A day-care platform for recovering coral. Photo: NOAA.

Large woody debris might not be enough

Researchers studying the impact of adding large woody debris (LWD) to the channelised Missouri river in Missouri, USA, found no clear difference between fish communities in sections of the river that had had LWD installed and those that had not. It is thought the findings means that LWD may not be as important as generally assumed in large rivers that have been altered extensively and for an extended period of time and/or that the fish species that historically relied more heavily on LWD no longer exists in the river. Read more of this research by Archer and others in the *Journal of Freshwater Ecology*: <https://doi.org/10.1080/02705060.2019.1614103> [OPEN ACCESS].

RESOURCES

Habitat conservation infographic (US)

The USA's NOAA Fisheries has produced an infographic relating to the benefits of fish habitat rehabilitation: <https://www.fisheries.noaa.gov/infographic/infographic-habitat-conservation>.

Interview: fish behaviour and intelligence

A conversation with fish behavioural scientist, Dr. Culum Brown of Macquarie University's 'Fish Lab': <https://www.reef2reef.com/ams/a-conversation-with-fish-behavioural-scientist-dr-culum-brown.699/>.

The Seventh Generation River

The Pokagon Band of Potawatomi Indians has begun a major effort to set rivers and streams back on their natural course, and to improve the habitats that surround them. It's a major cultural preservation and environmental restoration effort to pave the way for the next seven generations. The documentary is available for download: <https://www.greatlakesnow.org/the-seven-generation-river/>.

SNAPSHOTS

An unassuming slab of limestone from the Green River Formation in North America became the final resting place of 259 fish of a now extinct fish species. It's thought a sand dune in shallow water could have collapsed right on top of the tiny creatures, leaving a 50-million-year-old picture of shoaling behaviour. More: <https://www.sciencealert.com/this-absolutely-stunning-fossil-shows-an-entire-school-of-fish-from-50-million-years-ago>. (Photo: Mizumoto)



And contemporary expression of the same behaviour: thousands of Salmon smolt start their journey to the sea in the Willamette River in Oregon, USA. This photo is one of the winners in the **NOAA 2019 Habitat Month Photograph contest**. More: <https://www.fisheries.noaa.gov/feature-story/announcing-2019-habitat-month-photo-contest-winners>. (Photo: Laura Tesler.)



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** use the [form](#).

You can send in your habitat news by emailing the [editor](#), Liz Baker.

Back issues can be accessed from <http://www.fishhabitatnetwork.com.au/archive>.

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Website www.fishhabitatnetwork.com.au

Facebook www.facebook.com/fishhabitatnetwork

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

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

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

Freshwater Fishing & Stocking Association of Queensland (FFSAQ) www.ffsaq.com.au

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

NSW Fishing Clubs Association www.nswfca.com.au

OzFish Unlimited <http://www.ozfish.org.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

Sweetwaterfishing <http://www.sweetwaterfishing.com.au>

Victorian Dept of Environment, Land, Water and Planning (DELWP) www.delwp.vic.gov.au

Victorian Fisheries Authority: <https://vfa.vic.gov.au>

VRFish www.vrfish.com.au

Western Australia Department of Fisheries: www.fish.wa.gov.au/Pages/Home.aspx