

Newstreams

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

Welcome to Newstreams #69, the last for 2019. It's been a hard year for fish and fish habitat with drought and fires in Australia, fires and storms in the USA, and heatwaves and floods in Europe and Britain. Our very best seasonal wishes to you all, with a safe, happy and fish-friendly 2020 topping the list.

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](#). Liz Baker, [Editor](#)

AUSTRALIAN NEWS

New web portal for the NSW Native Fish Drought Response

NSW DPI Fisheries have launched the 2019/20 NSW Native Fish Drought Response Webpage which will be a key resource to update communities over the coming summer. The page features updates on valleys within the Murray-Darling Basin and what is being done to support native fish as the current low flows persist. More: <https://www.dpi.nsw.gov.au/fishing/habitat/threats/nsw-native-fish-drought-response-2019-2020>.

The Mary River starts the long journey back

The Mary River in south-east Queensland was once a shaded meandering river but now is ranked 4th out of 35 catchments contributing to high flows of sediment into the Great Barrier Reef. Tree clearing, sand and gravel mining, and some past farming practices have resulted in an estimated 600,000 tonnes of land being washed away. Repair works have started, and a 2km stretch that was rehabilitated in 2015 has since held through multiple floods and a couple of cyclones. Recent works on what was a straight drop of 10m have included re-shaping and driving rows of six-metre long timber poles four metres into the ground to slow down floodwater. Nine thousand natives were also planted on this site. More: <https://www.abc.net.au/news/rural/2019-11-05/mary-river-erosion-repaired-community-restoration-revegetation/11668226>.



Over the long term, the badly eroded banks (left), now re-shaped and revegetated (right), will be covered with overhanging vegetation, helping cool the water where endangered Mary River Cod are currently spawning. Photo: Left, Mary River Catchment Coordinating Committee; Right: ABC Rural Jennifer Nichols.

Operation Fish Rescue

With no end in sight to the drought affecting most of NSW, native fish are being rescued from as many drying waterholes as possible and being relocated. One effort in the Macquarie River, near Warren, north-west NSW, relocated more than 20 mature Murray Cod and 60 Golden Perch to hatcheries. Other species, including hundreds of freshwater mussels, were relocated to upstream sections of the river that offer longer-term water security. More: <https://www.dpi.nsw.gov.au/about-us/media-centre/releases/2019/hundreds-of-fish-saved-in-macquarie-river-rescue>. Volunteers racked up a combined 12,462 kilometres and 1,090 volunteer hours in making the rescue happen.

Murray Cod, Golden Perch and Silver Perch were also among the 1,100 native fish rescued from the Lower Darling River. An aerator is also being installed here to help keep the water oxygenated.

More: <https://www.dpi.nsw.gov.au/about-us/media-centre/releases/2019/more-than-one-thousand-native-fish-rescued-in-lower-darling-operation>.

Local fishing club volunteers also assisted with the relocation of fish from the Gwydir and Horton Rivers, in the State's north, to a volunteer-run hatchery. More: https://www.dpi.nsw.gov.au/_data/assets/pdf_file/0018/1176021/fish-rescue-operation-starts-in-bingara.pdf. The rescue and relocation operation is complemented by a native fish breeding program, enabling re-stocking of rivers when conditions improve. Already, adult Murray Cod rescued from Menindee at the start of the year have bred 100,000 juveniles. More: <https://www.dpi.nsw.gov.au/about-us/media-centre/releases/2019/largest-ever-native-fish-breeding-program-to-create-modern-day-noahs-ark>.

Seagrass gets the Landcare treatment

Broadleaf seagrass, decimated by native urchins in and around Port Franklin in Victoria's south-east, are being replanted in an effort to revive this important habitat, home to King George Whiting, Rock Flathead and Garfish. Landcare, local commercial fishers and scientists have joined forces to rehabilitate 200 hectares of seagrass, complementing the work within the catchment to improve the quality of water flowing into the estuary. This has helped reduce the inflow of sediment, which was also affecting the seagrass. More: <https://www.abc.net.au/news/2019-11-01/fighting-urchin-induced-seagrass-devastation/11658504>.

Victoria's native fish report card

The 2019 results of native fish monitoring across Victoria are now available. Some of the good news includes the ongoing recovery of Murray Cod in the Lindsay Mullaroo system from the 2016 blackwater event. Multiple size classes of Trout Cod have been found in the Goulburn and Ovens Rivers, suggesting these rivers are supporting this species throughout its lifecycle. Sightings after long absences include Cox's Gudgeon in the Mitchell River, the first confirmed in this catchment in 32 years, and Australian Grayling in the Glenelg River, only the second confirmed record of this species from this river and the first in 122 years. More: <https://www.nativefishreportcard.org.au/>.



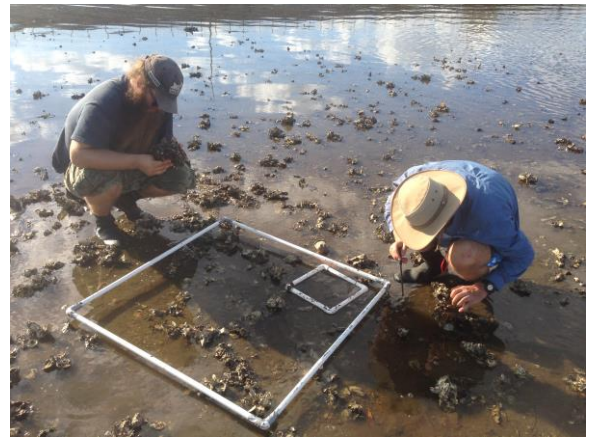
Volunteers worked with DPI Fisheries staff to relocate more than 220 large-bodied native fish from the Macquarie River. Photo: OzFish.



Australian Grayling were found in Victoria's Glenelg River for the first time in 122 years this year. Photo: Arthur Rylah Institute.

Oyster reefs worth restoring

Research has found that remnant Sydney Rock Oyster reefs had a 5-fold higher density of larger macroinvertebrates and 5-fold higher biomass than that of adjacent bare sediments. Sydney Rock Oyster reefs were once a common habitat type in Australia but have largely been replaced by bare sediments. The macroinvertebrates, including small crustaceans, found on the oyster reefs are important sources of food for fish and the research found the small crustaceans were 14-fold more numerous on oyster habitat than in adjacent bare sediment. Read more of this research by McLeod and others in *Marine and Freshwater Research*: <https://doi.org/10.1071/MF18197>.



Sampling undertaken on the oyster bank at North Creek, Ballina, northern NSW. Photo: Ian McLeod.

And reef restoration is working

The reef restoration project in Victoria's Port Phillip Bay is only 2 years old but already monitoring is showing that fish are using the site. Created from seafood shells collected from restaurants, an empty, sandy seabed is now a thriving habitat and home to Crabs, Oysters, Starfish, Octopus, Squid, and Snapper. This site is one of 10 pilot sites in four Australian states rebuilding the enormous chain of reefs that once stretched along the coast from Noosa to Perth. More: <https://www.abc.net.au/news/2019-11-09/project-brings-near-dead-reefs-back-to-life-across-australia/11681904>.



Leatherjacket on the 2 year-old restored shellfish reef. Photo: The Nature Conservancy.

Select Kelp used for habitat re-build

Giant Kelp is a cold-water species that forms underwater forests of habitat for fish. In Tasmania, 95 percent of the Giant Kelp forests have been destroyed by rising sea temperatures. Scientists have begun replanting Kelp using the remaining 5 percent of stock as it appears these plants are more tolerant of warmer water. Spores are collected and grown in controlled conditions prior to replanting. This approach helps the scientists select plants that are better suited to warmer water. More: <https://www.abc.net.au/news/rural/2019-11-11/seaweed-scientists-replanting-giant-kelp-forests/11680194>.

Improved flow into the Darling (when it rains)

Flows down Queensland's Warrego River and into the Darling River will be improved now that Peebles Dam in the Toorale National Park has been removed. Phase Two works includes the modification of the remaining structures on Toorale to further increase flows passing down the Warrego and improve the ability for fish to pass by the structures still in place up and down the river. More: <https://www.environment.nsw.gov.au/news/toorale-peebles-dam-work-stage-1-complete>.

Planting couch for fish

Over 7,500 couch seedlings are the start of riparian revegetation efforts at Tonbridge Creek in NSW's Georges River catchment. Sand Couch, Salt Couch and Saltwater Couch meadows are a key source of habitat and food for fish, supporting a wide range of different food species, such as algae, snails and crabs. This habitat was once abundant in the Georges River area, however plant numbers have declined significantly due to the impacts of urbanisation. More: <https://www.theleader.com.au/story/6432229/planting-a-seed-to-feed-the-fish>.

Mulloway tagging getting results

The Mulloway Tagging Project is improving understanding of the broad-scale movement patterns of Mulloway between south-west Victoria and South Australia. Recent DNA results have shown the Mulloway in Victoria's Glenelg estuary are part of the same sub-population as those in the Coorong, South Australia. A Mulloway has been recorded undergoing a 'round trip' providing evidence of Mulloway leaving the Glenelg, presumably to breed out at sea during the summer months, then returning to the Glenelg in autumn. The fish was tagged in the Glenelg in December 2017 at 62cm, then recaptured over a year later at Browns Bay when it measured 79cm. Then in May this year, the fish was recaptured again in the Glenelg River at 80 cm. For the latest newsletter: <http://natureglenelg.org.au/wp-content/uploads/2019/10/Newsletter-No.4-Final-1.pdf>.



One of the largest of the Mulloway tagged as part of the project. Photo: Nature Glenelg Trust.

Black Bream habitat boost

Recreational fishers and their families planted more than 1,500 trees and shrubs along the Nicholson River, in East Gippsland Victoria, to help restore fish habitat for Black Bream. The plants were grown from local shrubs to ensure they are best suited to the local conditions. Black Bream complete their whole lifecycle within a river and while they can cope with salinity and temperature changes, healthy rivers with lots of cover are ideal. More: <http://www.fishingworld.com.au/news/tree-planting-restores-fish-habitat-along-nicholson-river>.



These planting are aimed at improving habitat for Black Bream. Photo: OzFish East Gippsland.

From zero fish to hundreds – the Small Creek story

Hundreds of native fish have been recorded in Small Creek, Ipswich in South East Queensland, for the first time since work began to return it to a naturalised creek from a concrete drain. 874 mostly small fish were found, including six native species and two pests. Native species recorded included Carp Gudgeon, Fly-Specked Hardyhead and Longfin Eel. A year ago, there were no fish at all in the creek which was in the early stages of rehabilitation. Planning is underway to continue the transformation of the creek. More:



<https://www.ipswichfirst.com.au/how-you-can-help-shape-next-part-of-small-creek/>.

Small Creek had been converted into a concrete channel (left) but is now being restored (right), and the fish are making their way upstream from the Bremer River. Photos: Ipswich City Council.

INTERNATIONAL NEWS

Elkhorn corals on the mend

In 2016, Hurricane Matthew buffeted coral reefs on its path through the south Atlantic and Caribbean Sea. Off the coast of Puerto Rico the waves damaged many of the corals, breaking them into thousands of pieces. Restoration work included collecting 8,500 coral fragments which were then lodged into crevices or cemented to the hard bottom of the reef at 10 different sites. Three years later, monitoring of the restored reef has revealed healthy, thriving corals with survival rates at more than 90 percent. Fish and other underwater animals have also returned to the reef. More:

<https://www.fisheries.noaa.gov/feature-story/restored-corals-are-thriving-three-years-after-hurricane-matthew>.



In a technique known as "clipping and gardening" small fragments are cut off the corals and replanted. The donor corals quickly heal their cuts and start growing again. Photo: NOAA.

Salmon nests for the first time in 50 years

For the first time in nearly 50 years, hundreds of Chinook Salmon nests have been spotted in the Lower South Fork McKenzie River in the Blue River in Oregon, USA. After two years of restoration Chinook Salmon, among other wildlife, are returning to the area in big numbers. 241 Salmon egg nests, known as 'redds', should result in juvenile fish in the next few months. The restoration project focussed on restoring the habitat lost after the construction of Cougar Dam in the 1960s, which deepened the river and removed small rocks and wood. The reintroduction of small rocks, along with widened channels and wood, has created the perfect habitat for spawning. More: <https://nbc16.com/news/local/salmon-return-to-northwest-river-after-restoration-project>.

Wildfire benefits for fish

Native fish have evolved in ecosystems where wildfires are a natural and necessary part of keeping things healthy and productive. This overview discusses the ways in which normal process of fires can provide benefits for fish at different stages of their life cycles in the Pacific North-west USA: <https://www.youtube.com/watch?v=omUN7VsKxBo>.

The Missing Salmon Project

The Missing Salmon Project is the largest acoustic tracking project for Salmon in Europe and was launched in the Moray Firth in Scotland - the route taken by 20 percent of all Salmon that leave the UK. Scientists are using the "Likely Suspects Framework", an approach used with success to help reverse the decline of Cod stocks in the Irish Sea. The migration of wild Salmon has been broken down into domains and the first step is to identify how many fish are dying within each domain, then figure out the causes of mortality within each domain. Tagging and tracking has commenced in seven rivers: the Rivers Spey, Shin, Oykel, Ness, Findhorn, Deveron and Conon. More: <https://atlanticsalmontrust.org/wp-content/uploads/2018/04/MSP-Jan-19-SP.pdf>.



2018 was the worst year known for Salmon returning to the UK. For every 100 salmon that leave UK rivers for the sea, less than five return – a decline of nearly 70percent in the last 25 years. Photo: The Atlantic Salmon Trust.

What swims beneath

Underwater footage of the fish in the streams, lakes and wetlands of Hampshire and Isle of Wight, UK: <https://www.youtube.com/watch?v=bqJ0E9QJZec>.

Habitat for non-native fish helping native fish

The Laramie River in Wyoming, USA, has had habitat improvement works to support the introduced Brown Trout fishery, and researchers have found that this has also helped native fish species as well. As well as Brown Trout, introduced as a sport fish for anglers, the Laramie River also has nine species of native fish, including the Creek Chub, Common Shiner, Longnose Sucker and White Sucker. In some waterways, the introduction of Brown Trout, which prey on other fish, has harmed the populations of small, native fish species, however, the added wood, exposed roots, submerged branches and log jams provide spaces for the smaller fish to hide from the predators. Read more of the research by Dugan and others in *North American Journal of Fisheries Management*: <https://doi.org/10.1002/nafm.10332> or a summary: <https://phys.org/news/2019-10-trout-habitat-benefit-nongame-native.html>.

Larval fish have stomachs full of plastic

Larval fish congregating in marine nurseries off the coast of Hawaii have been found to be mistaking micro-plastics for food. In addition, the larval fish, made up of species from coral reefs, the open ocean and the deep sea, including Swordfish and Mahi Mahi, are outnumbered by microscopic plastics seven to one. Researchers were studying how the larval fish used the meandering ribbons of smooth water on the ocean surface called 'slicks', which collect an abundance of the tiny food particles fish larvae need to survive. However, drags of a super-fine mesh through the slicks yielded concentrations of plastic 126 times higher than the surrounding waters. Dissections of hundreds of the tiny fish found their stomachs full of plastics. The slicks covered 8.3 percent of ocean surface habitat but contained 42.3 percent of all larval fish and 91.8 percent of all floating plastics. Read more of the work by Gove and others in the Proceedings of the National Academy of Sciences: <https://www.nist.gov/publications/prey-size-plastics-are-invading-larval-fish-nurseries> [Open Access], or a summary: <https://thehill.com/changing-america/sustainability/conservation/470718-baby-fish-are-filling-their-tiny-bellies-with>.



Larval flying fish (top) and triggerfish (bottom) with ingested plastics zoomed in. Dime shown for scale. Photo: Jonathon L. Whitney.

UK's largest rock ramp fishway

The UK's largest rock ramp has been built on the River Almond at Howden Bridge Weir in Livingston, Scotland. More than 2,500 tonnes of rock have been used to build the ramp between existing islands, enabling fish can reach upstream spawning grounds. It is made up of pools, runs and easy leaps to help fish over the weir and complemented by restoration works on the riverbank. More: <https://www.river-life.org.uk/official-west-lothian-opening-of-howden-rock-ramp/>.



The rock ramp means fish, including Atlantic Salmon, can access spawning areas upstream. Photo: Forth Rivers Trust.

Thames Trout encouraged to use an easier route

The Abbey stream is an old man-made river channel that leaves the River Thames at Penton Hook in Surrey, England, and re-joins downstream. The weirs and locks on the main river mean that opportunities for flow-loving, gravel spawning fish species, including Brown and Sea Trout are very limited. Now, by increasing flow velocities in the section immediately upstream of the confluence an attractant flow has been created which will encourage any fish on upstream migrations to explore this channel as an easier route upstream. As well as improving access for migration, new and improved spawning opportunities are provided via the introduction of 10 tonnes of hand barrowed gravels. More: <https://www.wildtrout.org/news/new-opportunities-for-the-thames-trout>.

RESOURCES

Webinar: Estimating fish and invertebrate production associated with key coastal habitats (USA)

A webinar outlining scientific work to develop estimates of fish and invertebrate production associated with oyster reefs, seagrass beds, and salt marshes in the U.S. Northeast. <https://www.youtube.com/watch?v=xJFfMiyyyM> [52 minutes]

Lake Protection Workbook: A self-assessment tool for shoreline property owners (Canada)

This guide introduces the function of lakes, and helps property owners in self-assessing lawns, gardens, recreation activities, shorelines, wetlands, wildlife, docks and boathouse, sewage systems, light pollution, and runoff: <https://watersheds.ca/media-release-lake-protection-workbook/>.

Restoration Guidelines for Shellfish Reefs

This guide is for practitioners, managers and community members to provide both guidance in decision-making for establishing shellfish reef restoration projects and examples of different approaches undertaken in a variety of geographic, environmental and social settings. More: <https://www.natureaustralia.org.au/what-we-do/our-insights/scientific-papers/shellfish-reef-restoration-guidelines>.

AND THE AWARD GOES TO ...

The Merri Alliance has been awarded the **Most Outstanding Waterway** by Australia's *River Basin Management Society* for their work restore the Merri River, Warrnambool, Victoria. The project has involved weeding and replanting, installation of in-stream habitat including fish hotels, and large-scale removal of willows. Fish monitoring has shown an improvement in fish numbers, including Black Bream and Estuary Perch. A video about the project: <https://www.youtube.com/watch?v=-pHZwA5wW88>.

The winner of the **Innovation in Waterway Management Award** was *North Central CMA* for the Cohuna Fish Screen project on Gunbower Creek. An explanation of the fish screen project: <http://www.nccma.vic.gov.au/media-events/videos/cohuna-fish-screens>.

Gunning District Landcare won the **BCF Give Back to Fish Habitat Award** at the *NSW Landcare Awards* for their on-ground rehabilitation actions to improve the Southern Pygmy Perch habitats. The group also worked with landholders to identify farm dams suitable for use as breeding refuges: <https://www.yastribune.com.au/story/6455421/gunning-district-landcare-hook-state-award/>.

The UK's *Wild Trout Trust* **Outstanding Contribution to Wild Trout Conservation Award** was awarded to the *Hutton Rudby Fly Fishing Club* for their Leven Wild Fishery Project. The club ceased stocking in 2010, improved fish passage around barriers on the Leven, improved habitat with woody debris, tree management and invasive plant control. Both Brown Trout and Grayling populations have improved: <https://www.wildtrout.org/news/winners-of-the-conservation-awards-2019>.

The winner of the **Outstanding Habitat Improvement Project Award** was the *Environment Agency* for the Test and Itchen River Restoration Strategy. A range of techniques have been used to rehabilitate over 10km of these chalk streams, including barrier removal, channel narrowing and the addition of woody material and gravel. Eight barriers and 1km of steel and wooden sheet piling have been removed, 16800 tonnes of gravel added and 40 hectares of flood storage created: <https://www.wildtrout.org/news/winners-of-the-conservation-awards-2019>.

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>.

Newstreams is supported by funds from the NSW Recreational Fishing Trust, raised from the NSW Recreational Fishing Fee.

Newstreams is published electronically every three months by the **Aquatic Environment Branch** within NSW Department of Primary Industries - 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.



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