

# Newstreams

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

## AUSTRALIAN NEWS

### Fishers hooked on habitat

More than 60 recreational fishers met with landholders, scientists and natural resource managers to talk about all things related to fish habitat at the 3<sup>rd</sup> successful Fishers for Fish Habitat Forum 2011, held in Tamworth. The Forum provided an unparalleled opportunity for fishers to learn more about the latest research into fish habitat and to share their stories about efforts to rehabilitate habitat and make more fish. A highlight of the Forum was Dr Martin O'Grady's presentations on issues affecting fish habitat in Ireland and how these were being addressed. As well as being a mad keen fisher himself, Dr O'Grady challenged fishers to seriously look at habitat repair as a cost-effective way of improving fish numbers. For more information about the Forums, which are funded by the NSW Recreational Fishing Trust, contact Charlotte Jenkins on 02 6626 1107 or visit:

[www.dpi.nsw.gov.au/fisheries/habitat/rehabilitating/fishers/2011-forum](http://www.dpi.nsw.gov.au/fisheries/habitat/rehabilitating/fishers/2011-forum)



**Forum participants had the opportunity to put belief in the importance of fish habitat rehabilitation into practice.** Photo: Craig Copeland

### Fishers tracking fish migration

Anglers are making a great contribution to the success of a study of the migration patterns of fish along the Murray River system by reporting tagged fish. Reports of tagged fish provide vital information on both native fish and introduced species, such as carp. The tagging of fish began in 2001 and more than 20,000 fish have been tagged and released into the main channel of the Murray and Murrumbidgee Rivers. A further 3500 fish have been tagged in the Shoalhaven and Nepean catchments. Initial results showed that some fish have moved more than 500 kilometres along the Murray River in as little as three months and as far as 1700 kilometres during a two-year period. Fish showed an amazing movement response to the recent floods with thousands of fish recorded migrating upstream in response to the increasing flows. In addition, fish are also moving between different river systems, and have even ventured up the Darling and Murrumbidgee Rivers. NSW anglers who catch a tagged fish are asked to freecall 1800 185 027 to report the date of the catch, tag number, place of catch, length and species of fish, or report online at [www.dpi.nsw.gov.au/fisheries/forms/fw-fish-tagging](http://www.dpi.nsw.gov.au/fisheries/forms/fw-fish-tagging). For more information about the fish tagging program, contact Lee Baumgartner (NSW DPI) on 02 6958 8200.



**A tagged golden perch. Anyone who catches a tagged fish are asked to freecall 1800 185 027 or use the online report.** Photo: NSW DPI

## Fishers working for fish habitat

Bass Sydney Fishing Club has started work on regenerating a large section of the Nepean River riparian zone at Emu Plains, having successfully gained approval from Penrith City Council. The 5-10 year plan includes removal of many species of invasive weeds, including balloon vine, privet & lantana, then replanting with native vegetation. The club, with assistance from Penrith Council and McCarthy Catholic College, will also be collecting native plant seeds from the site which will eventually be used to propagate plants for replanting. Anyone wishing to lend a hand would be most welcome. Contact can be made through the club's website: [www.basssydney.com](http://www.basssydney.com).



Members of Bass Sydney clearing lantana at one of their earlier fish habitat rehabilitation projects. Photo: Alan Izzard

## Fishers finding small natives

Volunteers from the NSW division of the Australia and New Guinea Fishes Association have been searching for some of the smallest and most threatened native fish in southern inland NSW. Smaller native fish like olive perchlet and purple spotted gudgeon are important part of rivers and are great indicators of river health. However, the task of finding the fish is harder when the fish you're looking for is a rarely seen, small-bodied species that struggles to reach 10 cm in length. The information collected by the ANGFA NSW volunteers will be used to monitor the status of the small native fish, as well as guide habitat rehabilitation activities aimed at protecting threatened populations. This is a community partnership between ANGFA NSW, NSW DPI and the MDBA's Native Fish Strategy. To report a sighting of a threatened species call 02 4916 3877 or go to [www.dpi.nsw.gov.au/fisheries/species-protection/report-it](http://www.dpi.nsw.gov.au/fisheries/species-protection/report-it). For more information, contact Charlie Carruthers, NSW DPI Native Fish Strategy Coordinator for Southern NSW and the ACT, on 02 6298 0802.



ANGFA NSW worked closely with NSW DPI to obtain the specialist scientific research permits needed to do the sampling in NSW waterways. The sampling will complement work being done by NSW DPI researchers and will hopefully identify previously unknown populations of threatened native fish. Photo: C. Carruthers

## Fish happenings at Lake Cargelligo

2000 captive bred olive perchlet have been released into the Lachlan River above Lake Cargelligo Weir in an effort to re-establish a population of this endangered species. These small fish were once widespread in the lower Murrumbidgee, Lachlan and lower Murray rivers and throughout the Darling drainage systems in NSW. Their serious decline is thought to be the result of predation by introduced fish, habitat degradation and rapid fluctuations in water levels. They had not been seen for more than 40 years until spotted during sampling in the Lachlan River in 2007. As the drought worsened in 2009, plans to save critical water supplies in the Lachlan valley included drying out Mountain Creek, the last population of olive perchlets in the entire southern Murray-Darling Basin. A handful of these fish were collected by NSW DPI staff and placed in a pond on-site at the Narrandera Fisheries Centre as a safe-guard. During the next 18 months a successful breeding program increased olive perchlet numbers from 250 to 3500. When recent surveys confirmed that the olive perchlets at Mountain Creek had, surprisingly, survived the drought, it was decided to stock 2000 captive-bred perchlets into the Lachlan River above Lake Cargelligo Weir. The perchlet numbers will be monitored during the next 12 months. For more information, contact Martin Asmus, NSW DPI, on 02 6958 8204.



The olive perchlet, or glass perchlet, (*Ambassis agassizii*) is a small native fish, four to six centimetres long. Photo: Gunther Schmid

## Fish happenings at Brewarrina

After many years in the planning the construction of a rock-ramp fishway at the Brewarrina weir is finally underway. The new fishway will have a positive impact on native fish populations in the Barwon-Darling River, including Murray cod and golden perch which don't benefit from the current, poorly designed fishway. The design and construction of the fishway involved significant consultation with the Brewarrina community and local Indigenous people are employed on various aspects of the project. It is jointly funded by the Western Catchment Management Authority, NSW Environmental Trust, Murray Darling Basin Authority, NSW Recreational Fishing Trusts and State Water Corporation, as part of the Brewarrina to Bourke Demonstration Reach Project. For more information contact David Cordina, NSW DPI, on 02 6881 1277 or visit:

[www.dpi.nsw.gov.au/aboutus/news/recent-news/fishing-and-aquaculture/brewarrina-weir-fishway](http://www.dpi.nsw.gov.au/aboutus/news/recent-news/fishing-and-aquaculture/brewarrina-weir-fishway)



The Brewarrina weir. The existing fishway is inadequate and work is now underway to improve passage for native fish. Photo: David Cordina

## Separating out the carp

A carp separation cage has been installed at Bumboggan Creek, south east of Condobolin, in an effort to fight an explosion of carp in the Lachlan River. This is the second cage to be put in the Lachlan River catchment, the other being on Island Creek near Condobolin. The cages are positioned on the exit gates of a fishway and exploit the fact that carp jump when faced with a barrier. The carp jump into a holding cage, where they stay trapped until they are removed. Native fish are not caught in these traps. The installation of the carp cages is part of a collaborative effort involving NSW DPI, Lachlan Catchment Management Authority, South Australian Research and Development Institute, Department of Sustainability and Environment (Vic), State Water Corporation, Kingfisher Research Pty Ltd, the Victorian Department of Primary Industries and the commercial carp fishers K & C Fisheries Global Pty Ltd. For more information contact Martin Asmus (Narrandera Fisheries Centre) on 02 6958 8204 or see:

[www.dpi.nsw.gov.au/aboutus/news/recent-news/fishing-and-aquaculture/hi-tech-cage-in-the-lachlan](http://www.dpi.nsw.gov.au/aboutus/news/recent-news/fishing-and-aquaculture/hi-tech-cage-in-the-lachlan)



The Bumboggan Creek carp cage.  
Photo: NSW DPI

Carp cages are also part of the Carp Tracking & Trapping Project underway in the Macquarie Marshes. Contractors are laying the foundations to support the carp cage at one key site on Bulgeraga Creek. The carp cage will improve conditions for native fish by removing a large proportion of adult carp from the system. The site is a major migration pathway for fish and, as well the construction of the carp cage, the existing barrier will be remediated by installing fish friendly box culverts. A carp cage is usually an expensive option as each cage must be designed to suit the structure it is being attached to. Very rarely are two exactly the same. Luckily for this project the Lachlan CMA has carp cage designs for Booligal Weir fishway, which is similar to the Bulgeraga Creek structure. Lachlan CMA was more than happy to share the designs with NSW DPI and the money saved will be put into the habitat rehabilitation component of the project, including the identification and control of willow in core wetland areas of the Macquarie Marshes. For any enquiries contact [Rodney Price](#), NSW DPI, on (02) 6881 1216.



The current structure viewed from upstream. The structure was partially remediated by taking out the drop boards and removing a sill that created a 20cm drop (native fish are hindered by a drop of as little as 10cm). Further remediation is now being undertaken to reduce the velocity of flow, which has also been identified as hindering the passage of native fish at this site. Photo: Rodney Price.

## Habitat destruction doesn't pay

A landowner from the far north coast of NSW has been fined \$3000 plus court costs for building a rock and earthen road through a tidal wetland on Crown land adjacent to his family property. The landowner has also had to spend almost \$20,000 restoring the environmental damage caused by the construction of the roadway. The material used to construct the road has been removed, the area has been planted with native wetland plants and mangroves and the offender is paying for professional weed and bush regeneration services in the area for the next five years. Anyone looking to undertake work through or near a waterway must speak to their local council and gain the relevant approvals before starting any work. For further information about working near waterways and permits call the Aquatic Habitat Protection Unit on (02) 6626 1200 or review the Council and Developer Toolkit on the NSW DPI website:

[www.dpi.nsw.gov.au/fisheries/habitat/protecting-habitats/toolkit](http://www.dpi.nsw.gov.au/fisheries/habitat/protecting-habitats/toolkit)



The illegal works that were successfully prosecuted by NSW DPI Fisheries. Photo: Brad Harrison

## The lure of threatened species conservation

Fishers are being encouraged to purchase a specially designed lure to help protect threatened species, with the profits flowing back into fisheries conservation. The lures include: trout cod, a large aggressive species which almost became extinct until a breeding program started in the late 1970s; Macquarie perch, a species whose survival depends on perfecting captive breeding techniques; purple spotted gudgeon, a colourful and aggressive little fish which were once widespread and are now in serious decline; and southern pygmy perch, a little fish which are important for controlling mosquitoes and have now almost disappeared from the Murray-Darling Basin. The lures are available from all good tackle stores or online from [www.bobsfishingtackle.com.au](http://www.bobsfishingtackle.com.au) and can be viewed on the Oar-Gee website [www.oargeelures.com.au](http://www.oargeelures.com.au).



The 'trout cod' lure. The lures help educate people about what the species looks like and how much trouble they are actually in. In addition, the manufacturer's profits from the sale of the lures come back to NSW DPI to be used for threatened species projects and management. Photo: Liz Baker

## How fast does your little fish grow?

Recent research has looked at how the growth rate of fish is related to river flows. Researchers looked at the growth of the common, and short-lived Australian smelt in a non-flow-altered, temperate Australian floodplain river. Over a five-year period, they found that the condition of larval and juvenile fish was positively related to annual discharge, but timing, river height, the duration of in-channel flow events and later flood events were all significant factors influencing the fishes' early growth. Australian smelt, at least, are flexible in how they respond to these factors, which appears to be an effective early life history strategy for a short-lived species occupying a highly variable environment. The research also suggested that not one of the existing models used to describe fish productivity in temperate Australian floodplain rivers was adequate: instead, aspects of each model are likely to be relevant under different flow conditions. Read more of this research by Zeb Tonkin and others in *Freshwater Biology*:

<http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2427.2011.02612.x/abstract>



Australian smelt are able to change their growth patterns in response to the highly variable conditions experienced in Australian temperate rivers. Photo: Gunther Schmida

## Inundated Murray River wetlands teeming with fish

Recent monitoring within the Katfish Reach of the Murray River National Park has found inundated wetlands and floodplains to be teeming with native fish species. Nine native fish species, including freshwater catfish, dwarf-flatheaded gudgeon, unspecked hardyhead and Murray-Darling rainbowfish, have been captured during the recent flood event. Katfish Reach, located south-west of Berri, South Australia, is a demonstration site under the Murray-Darling Basin Native Fish Strategy. Removal of barriers to fish movement, increasing spring flows and promoting environmental flows to improve floodplain health are some of the initiatives within this reach. And the native fish are loving it. For more information visit:

[www.katfish.org.au/](http://www.katfish.org.au/)

## Southern purple spotted gudgeon goes to school

The southern purple-spotted gudgeon was in danger of disappearing permanently from the Coorong, Lower Lakes and Murray Mouth region when populations plunged at the height of the drought across the Murray-Darling Basin. The situation became so critical that in 2007 the last known population of the fish in the Lower Murray were rescued so that it could be maintained in captivity. This is where the Alberton Primary School comes in. They have been involved in a breeding program developed by the SA Department of Environment and Natural Resources (DENR) and Native Fish Australia and now have fish ready for release. This is where Warradale Primary School comes in. The students have built a wetland at the school – which is now a surrogate home to 80 of the fish bred at Alberton Primary School. The urban camp located at the Warradale Primary School means the wetland and the southern purple-spotted gudgeon can be a focus for learning about native fish species and the threats they face. For more information:

[www.environment.sa.gov.au/Home/Full\\_newsevents\\_listing/News\\_Events\\_Listing/110606-schoolsnativefishrecovery](http://www.environment.sa.gov.au/Home/Full_newsevents_listing/News_Events_Listing/110606-schoolsnativefishrecovery)

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## INTERNATIONAL NEWS

### What to do with one million pounds of old fishing gear

Fishing for Energy is a free service that recycles and recovers energy from old fishing gear. It recently celebrated the collection of one million pounds of old fishing gear and marine debris since it started in 2008. Fishing for Energy is a partnership among Covanta Energy Corporation, the US National Fish and Wildlife Foundation, the National Oceanic and Atmospheric Administration Marine Debris Program and Schnitzer Steel Industries, Inc. that works with more than 20 commercial fishing port authorities across the USA. Established collections points enable commercial fishers to routinely dispose of retired fishing gear and retrieved marine debris. In addition, Fishing for Energy makes productive use of the collected gear and marine debris. One million tons of gear have been stripped of metals for recycling with and processed into clean, renewable energy at a Covanta Energy-from-Waste facility. Each ton of gear processed at a Covanta facility produces enough electricity to power one home for 25-days. For more information, visit:

[www.nfwf.org/fishingforenergy](http://www.nfwf.org/fishingforenergy)

### Gravel not enough in hot rivers

Human activities, such as dams, logging and wastewater treatment, can cause thermal pollution in rivers. In US rivers thermal pollution generally relates to high water temperatures which stress ecosystems, kill fish and promote disease and parasites. As dam operators, timber companies and municipalities are held responsible for thermal loading caused by their operations they are looking for ways to mitigate it. One suggestion was to add gravel into the channel to replace lost sediment and hopefully bring maximum summer water temperatures within regulatory limits. Recent research has not been promising. The research showed that although water emerging from gravel bars tends to be cooler than the main channel, gravel augmentation alone is unlikely to cool the whole river. It could still provide positive benefits, however, by increasing the number of cool spots for fish to hide during the hottest part of the day. For more information about this research by Gordon Grant and Barbara Burkholder:

[www.fs.fed.us/pnw/sciencef/scifi133.pdf](http://www.fs.fed.us/pnw/sciencef/scifi133.pdf)

## Marsches need room to move uphill

Marsches are fairly resilient to change: they deal with a changing environment day to day because of tides, and additional changes with each season. However, scientists are concerned that this resilience is being pushed to the limit with rises in sea level. Nathaniel Weston, and his team from Villanova University, are investigating how salt water intrusion impacts freshwater marshes and how sea level rise impacts both tidal freshwater and salt marshes. Using funding sourced through the American Recovery and Reinvestment Act (ARRA), Weston is using super-accurate tools to monitor very small changes in the elevation of the marshes every three months. These measurements will provide insight into how a marsh is growing vertically to keep up with sea level rise. For more information:

[www.redorbit.com/news/science/2059391/how\\_climate\\_change\\_is\\_impacting\\_marshes/index.html](http://www.redorbit.com/news/science/2059391/how_climate_change_is_impacting_marshes/index.html)



Tidal marshes, such as these in the Manning River, will need to be able to colonise areas of higher elevation in response to sea level rises. Photo: Scott Machar

## Fishers & Farmers Partnership

Fishers & Farmers Partnership for the Upper Mississippi River Basin is a group of nongovernmental agricultural, conservation and tribal organizations and state and federal agencies supporting local projects that add value to farms while restoring aquatic habitat and native fish populations. Feedback on these projects is very positive, for example, one landowner says:

*I grew up fishing. I was in one of those families that had seven kids and my mother would say, ‘... go down and catch half a dozen [fish] out of the creek.’ And we would do that. And you can’t do that any more. That is a bothersome thing. We installed buffer strips along creeks, eliminated creek watering with fencing and enhanced water systems. ... There’s been some loss of production land, but that’s balanced by real benefits. Fencing off creeks has made it a lot easier to manage cattle. Turbidity is significantly reduced in the creeks—you could see the difference after just one year. And our cattle are healthier ... .*

Fishers & Farmers is a partnership of the National Fish Habitat Action Plan. For more information, visit:

<http://fishersandfarmers.org>

## Mississippi floods will leave fish gasping

The Gulf of Mexico’s hypoxic zone is predicted to be larger than average this year due to the extreme floods in the Mississippi River. Hypoxia is caused by excessive nutrient pollution, often from human activities such as agriculture, resulting in too little oxygen to support most marine life in bottom and near-bottom water. The hypoxic zone off the coast of Louisiana and Texas forms each summer and threatens valuable Gulf fisheries. The largest hypoxic zone measured to date occurred in 2002 and was more than 8,400 square miles – the upcoming event is predicted to be between 8,500 and 9,400 square miles. This is much larger than the 1,900 square miles which is the target goal set by the Gulf of Mexico/Mississippi River Watershed Nutrient Task Force. During May 2011 flooding of the Mississippi and Atchafalaya Rivers significantly increased the amount of nitrogen transported by the rivers into the Gulf. It is estimated that 164,000 metric tons of nitrogen entered the northern Gulf, an amount 35 percent higher than average May nitrogen loads in the last 32 years. For more information:

[www.noaanews.noaa.gov/stories2011/20110614\\_deadzone.html](http://www.noaanews.noaa.gov/stories2011/20110614_deadzone.html)



The May 2011 flooding of the Mississippi River led to twice the average water flow in the river. Image source: wallpaperwars.blogspot.com/2011/05/mississippi

## Dam database

Dams have important benefits for human communities however an assessment of critical fish and other environmental and social tradeoffs has been impossible because the data describing the location, size and purpose of dams have been incomplete and inadequate. Now, however, a collaboration by a team of scientists from around the globe, has culminated in the Global Reservoir and Dam database (GRanD), a geographically explicit, high-resolution global database of large dams and reservoirs. GRanD currently contains information regarding 6,862 dams. The team also found that worldwide nearly 50 per cent of large rivers (an average flow of more than 1000m<sup>3</sup> per second) are affected by large dams and reservoirs. GRanD data includes the dam and reservoir names, spatial co-ordinates, construction year, surface area, storage capacity, dam height, main purpose and elevation. GRanD is freely available for non-commercial use at:

[www.gwsp.org/85.html](http://www.gwsp.org/85.html)

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## ENGAGEMENT AND FUNDING OPPORTUNITIES

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### Caring for our Country Community Action Grants 2011-12

The Community Action Grants 2011-12 are open to applications until 5pm (EST) on Monday **1 August** 2011. For more information and application forms, see:

<http://nrm.gov.au/cag/index.html>

### Grey Nurse Shark - consultation paper

A discussion paper on the future of grey nurse shark protection arrangements in NSW is available for comment. The paper reviews the conservation history and status of grey nurse sharks and sets out some of the current issues related to their protection and conservation in NSW. Submission from the public are invited. The public consultation period will close on Friday 26 August.

[www.dpi.nsw.gov.au/fisheries/species-protection/conservation/what-current/critically/grey-nurse-shark/gns-review](http://www.dpi.nsw.gov.au/fisheries/species-protection/conservation/what-current/critically/grey-nurse-shark/gns-review)

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## HABITAT RESOURCES

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### Podcasts to celebrate 140 years of service to fisheries

To celebrate the 140th Anniversary of the U.S. Fish and Wildlife Service's Fisheries Program is providing podcasts (1 per week) about some of its activities. The first story talks about the importance of fish passage projects to connect vital habitat for the endangered Atlantic salmon in Maine.

[www.fws.gov/home/feature/2008/podcast/podcastcentral.html](http://www.fws.gov/home/feature/2008/podcast/podcastcentral.html)

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## HABITAT DATES

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5 July	<b>Recognising Water Weeds Workshop, Bourke.</b> Free. Limited numbers. Vocational education accreditation an option. Contact <a href="#">Don Mackenzie</a> on (02) 6830 8000
20 - 21 July	<b>Water Australia Summit, Sydney, NSW</b> <a href="http://www.halledit.com.au/water2011">www.halledit.com.au/water2011</a>
20 – 22 July	<b>Australian Society for Fish Biology Conference and 5<sup>th</sup> Australian Technical Workshop on Fishways, Townsville, QLD</b> <a href="http://www.jcu.edu.au/asfb/index.htm">www.jcu.edu.au/asfb/index.htm</a>
1 – 4 August	<b>6th World Recreational Fishing Conference, Berlin</b> <a href="http://www.worldrecfish.org">www.worldrecfish.org</a>
23 - 25 October	<b>2011 International Kids Teaching Kids River Conference, Adelaide, SA</b> <a href="http://www.kidsteachingkids.com.au/conferences/2011-int-kids-teaching-kids-river/">www.kidsteachingkids.com.au/conferences/2011-int-kids-teaching-kids-river/</a>

## ABOUT NSW DPI AND FISH HABITAT

NSW Department of Primary Industries (DPI) 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

Sydney (Cronulla) - 02 9527 8411  
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](http://www.dpi.nsw.gov.au/fisheries/habitat)

## About Newstreams

*Newstreams* is an email newsletter to keep people up to date about fish habitat activities and important aquatic habitat developments. It is published electronically every two months by NSW DPI.

## Subscribe to Newstreams

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[newstreams@industry.nsw.gov.au](mailto:newstreams@industry.nsw.gov.au)

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