

Newstreams

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

AUSTRALIAN NEWS

Fish hotels for Lake Bonney

The fish in Lake Bonney, near Barmera, South Australia, have a small band of dedicated fishers to thank for their new accommodation. Using funds from a carp fishing competition, the group have successfully installed more than 20 structures along the Lake foreshore. A call out over ABC local radio secured a donation of 20 fallen red gums, which are local to this area. This timber was used to construct the hotels. For more information, contact the fishers involved [here](#) or view:

<http://www.murraypioneer.com.au/fish-hotels-drop-into-bonney/>
<https://www.youtube.com/watch?v=LDYKF6F3B38>



A fish hotel, ready for Lake Bonney's fish. Image source: Kym Manning.

Same again please in Victoria

Fish in Pyramid Creek, Kangaroo Lake and Lake Boga in northern Victoria aren't missing out either. Over 100 snags and fish hotels are being installed in these waterways, which will benefit Murray Cod and Golden Perch. More information:

http://www.peterwalsh.org.au/_blog/Media_Releases/post/coalition-funds-fish-motels-at-boga-and-kangaroo-lakes/
<http://www.thenortherntimes.com.au/story/2439773/snagging-a-haven-for-native-fish/>

Macquarie River set to sizzle with some summer lovin'

After the equivalent of a cold shower lasting more than 40 years, native fish are about to set the Macquarie sizzling. Construction of a world-first temperature control curtain at Burrendong Dam, central New South Wales, has been completed. Instead of cold water from the bottom of the dam, the \$4 million curtain enables warmer surface water to be released downstream. Good news for native fish as cold water pollution affects survival and spawning triggers and success. The curtain is a flexible, cylindrical structure installed around the intake tower where it captures and releases warm surface water. It can be moved up and down depending on the water level of the dam and downstream requirements. More information:

<http://www.statewater.com.au/About%20us/News%20and%20events/Media-releases-2014/AustralianfirstCurtainProjectcompletedontime>



Just the thing to improve spawning opportunities for Murray Cod, Golden Perch and Eel-tailed Catfish in the Macquarie River. Image source: https://www.youtube.com/watch?v=ZK_8i3lArtQ.

After the flood, fish follow habitat

After devastating floods in 1993, rehabilitation of Hollands Creek, near Tatong, Victoria, has brought Blackfish and Macquarie Perch back tenfold. Since 2007, the 50 members of the local Tatong Angling Club have reinstated rocks and snags, installed fencing to control stock access to the creek, removed willows, and planted 3200 native shrubs on the banks. More:

<http://www.bordermail.com.au/story/2500019/fish-numbers-return-after-flood/?cs=11>

Snags on the move and fishers get excited

A cheer went up as the last of these large snags were installed in the Macquarie River, near Dubbo, central NSW, and participants at the 2014 Fishers for Fish Habitat Forum watched on. The resnagging was not the only aspect of the Forum exciting fishers. The hands-on activities, including willow control and tree planting - part of the ongoing fish habitat improvement along the Macquarie - followed presentations that challenged some assumptions about what fish need to survive and thrive and the most cost effective ways of making more fish. For more information about the Macquarie resnagging, contact [Sam Davis](#), Fisheries NSW. For a report on the Forum: <http://www.dpi.nsw.gov.au/fisheries/habitat/rehabilitating/fishers/fishers-for-fish-habitat-2014>



Snags headed to where they're needed. Photo: Rod Price.

Cod like carp trapping trial

In a great sign for the carp trapping program at Scottsdale Reserve, on the upper Murrumbidgee River, large Murray Cod are back. Trout Cod also turned up in the latest monitoring. The Scottsdale Reserve trapping trial is the first time such a trial has been undertaken in an Australian upland stream. The trial is using Andrew Norris's (Queensland Department of Agriculture, Fisheries & Forestry) expertise and the latest version of their highly efficient carp trap and feeder system. Earlier prototypes of these traps have been highly efficient in terms of catch and proven safe for native fish, turtles and platypus.

<http://blog.bushheritage.org.au/blog/article/it-was-truely-this-big-at-scottsdale-reserve>



The carp trap being used in this trial is fitted with 'push entrances' which discourage native fish from entering the trap. Image source: bushheritage.org.au

Gudgeons are (not quite) go

Culverts can be barriers to upstream and downstream fish migration but researchers have found that they might be more of a concern than thought for small-bodied native fish. Researchers looked at the swimming ability of both Empire Gudgeon and juvenile Australian Bass. They found that Australian Bass are good swimmers and are able to get through culverts where the water velocity is at the currently recommended maximum. Empire Gudgeon, however, were found to need much slower water. The research also found that a 10 degree drop in water temperature significantly impaired how fast both species could swim. This is a temperature drop that is common with cold-water releases from water storages. For more on this work by Rodgers and others in *Marine and Freshwater Research*:

<http://dx.doi.org/10.1071/MF13170>



Empire Gudgeons do not cope with culverts with water flows of more than 0.10m per second, which is less than the current recommended maximum flow. Photo: Gunther Schmida.

Giving 'the little guys' a helping hand

Coppabella Creek, an upland tributary of the Murray River, NSW, is one of the few places the threatened Southern Pygmy Perch call home. However, this 'home' was severely depleted during the Millennium drought, then catastrophic floods in 2010 damaged the creek, depositing silt and debris, and helped spread weeds, all of which almost wiped out the fish population. The local community have got behind blackberry and willow control and the revegetation of the creek banks with native plants. The result is a recovery of aquatic vegetation that is the primary habitat of Southern Pygmy Perch. Juvenile Southern Pygmy Perch captured on a recent inspection of the creek are the first indication of recovery of these fish since the 2010 floods. More information:

<http://murray.ils.nsw.gov.au/resource-hub/media-releases/2014/fish-and-frogs-return-to-coppabella-creek>

Shellfish reef restoration under way

In an Australian first, a shellfish reef restoration project in Port Phillip Bay, Melbourne, Victoria, is underway. Members of the Albert Park Yachting and Angling Club had identified the loss of productive snapper habitat in and around Hobsons Bay through club fishing records and this was one piece of the story that, when linked up with monitoring and research, led to support for the project. The project is also a new collaboration between Fisheries Victoria, The Nature Conservancy and the Albert Park Yachting and Angling Club. Shellfish beds were once important fish habitat features of Port Phillip Bay. More on this story:

<http://www.smh.com.au/environment/animals/shellfish-reefs-to-be-restored-in-port-phillip-bay-20140731-zv9cr.html>



Pike River fish soon to go with the flow

On-ground works now underway near Renmark, South Australia, are replacing a 70 year old regulator which has fallen into disrepair, removing another structure and some man-made embankments altogether and installing a vertical slot fishway: all of which means that fish will have improved access to habitat in the Pike anabranch system. In addition, the improved flows and more natural flow regime mean better habitat too. More information:

http://www.environment.sa.gov.au/Home/Full_newsevents_listing/News_Events_Listing/140811-pike-anabranch-water-flows

And so too in the Manning and Macleay

Native fish in the Macleay and Manning River catchments have access to 20km more habitat following the removal of the redundant weirs near Port Macquarie and Taree, central coast New South Wales. As well as being barriers to fish such as Australian Bass, the weirs no longer served their original purpose, were safety risks and had ongoing maintenance costs. More information:

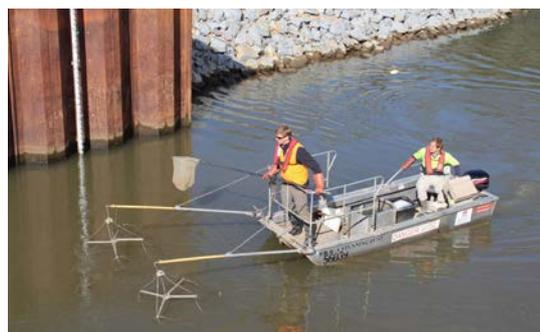
<http://www.statewater.com.au/About%20us/News%20and%20events/Media-releases-2014/Weir%20removals%20improve%20native%20fish%20access>

And the 'Bidgee as well

A \$7.5 million upgrade to the Beavers Creek weir included a fishway, making it an investment in the natural infrastructure of the Murrumbidgee River, southern New South Wales.

<http://www.statewater.com.au/About%20us/News%20and%20events/Media-releases-2014/Beavers%20Creek%20weir%20upgrade%20complete>

The Beavers Creek Weir fishway - 8 Golden Perch and 2 Murray Cod were caught and released in an hour of electrofishing below the regulator. Image source: StateWater



Riparian vegetation helps tropical lagoon fish

Not a great deal is known about fish in tropical floodplain wetlands. Recent research into floodplain lagoons in Far North Queensland found three species of fish not typically found in main river channels or tributaries, and six that require access to saline areas for spawning or larval development. Eight species favoured lagoons during their early life history, highlighting the vital role of these water bodies in providing nursery habitat. Distance from the coast and connectivity affected how many species were present. The researchers also found that healthy riparian vegetation and the flushing effects of high flows contributed to fish diversity. More on this research by Arthington and others in *Aquatic Conservation: Marine and Freshwater Ecosystems*:

<http://dx.doi.org/10.1002/aqc.2489>

Top of the catchment getting attention ... for good reasons

Farmers in the Byron Bay hinterland have been restoring riparian vegetation along Byron Creek since 2012. Recent revegetation efforts have added an additional 1 kilometre, using over 3,000 native riparian species, to the previous restoration works. There is now over 8.5 hectares of continuous native vegetation along the creek lines at the property. More about this project:

<http://www.wetlandcare.com.au/index.php/news/news-archive/byron-creek-headwater-restoration/>

... and not so good

A Landcare group in the Upper Deua River catchment is being paid to stabilise channels, manage weeds and plant fish-friendly native plants by the operator of the Dargues Reef gold mine at Majors Creek, on the NSW south coast. The works are part of the fine imposed by the Land and Environment Court for not preventing erosion and sediment flowing into two creeks on three occasions. There were practical measures that could have been taken to minimise the pollution from the mine site and minimised the impact of heavy rains. More on this story:

<http://www.batemansbaypost.com.au/story/2533576/hefty-pollution-bill-sends-message-watchdog/?cs=229>

It's all in the timing

Environmental water is being used to restore wetlands but the timing, duration and intervals of watering might not benefit fish. Researchers looked at the ways in which the timing and duration of water delivery into Murray River wetlands affected both recruitment and abundance of fish. They found that both recruitment and abundance were highest when the water came from the main river channel rather than from irrigation channel. The researchers were not surprised to find that water delivered during the spawning period of the target species was also beneficial. Less predictable was the finding that the key reasons why floodplain wetlands are productive nurseries for fish, namely high primary productivity and low predation pressure, were less important in shaping wetland fish abundance than the timing, duration and intervals of watering. More on this research by Beesley and others in *Freshwater Biology*:

<http://dx.doi.org/10.1111/fwb.12404>

Great Barrier Reef – health fact check

The Great Barrier Reef, off the coast of Queensland, is the world's largest coral reef ecosystem. It covers almost 350,000 square kilometres and is home to 1 500 species of fish. A review of various assessments and reports on the health of the GBR and progress to meet health targets shows that there are positive outcomes for water quality from improvements in agricultural land management practices and reductions in pollutants entering the reef. However, these improvements have not been enough to meet the targets set in 2009. Other indicators, like biodiversity, are in decline and likely to get worse. The review concludes that without addressing problems, including climate change, species and habitat health, reef quality is unlikely to improve. For the full review:

<http://www.abc.net.au/news/2014-09-03/how-healthy-is-the-great-barrier-reef-fact-file/5649810>

Carp = turbidity = carp

European Carp is now the dominant fish in the Murray-Darling Basin so researchers looked at what happens in a lower-system wetland when Carp are introduced or excluded. The researchers found that carp led to an increase in turbidity, which was paralleled by an increase in carp biomass, and a loss in the numbers and diversity of aquatic insects. The wetland shifted from being relatively clear and dominated by macrophytes to being turbid, with significantly fewer macrophytes. It also appears that there is overlap between the habitat and food that Carp need and that of Bony Herring in these wetlands. For more about this research by Vilizzi and others in *Marine and Freshwater Research*:

<http://dx.doi.org/10.1071/MF13163>

These little fish can climb!

Juvenile Trout Minnow have been observed 'climbing' a one-meter vertical weir wall. Researchers in the field in south-west Western Australia happened across the juvenile fish making their unusual way over the weir wall. First, the fish used a modified swimming technique to 'climb' the wet concrete surface, then they rested, fully exposed to air. Once at the top of the weir wall, an adaptation of a swimming burst of speed got the fish through the air and into the upstream weir pool. This ability of trout minnow contrasts with most other Australian native species who have very limited capacity to negotiating even much smaller obstacles. For more on this work by Close and others in *Australian Journal of Zoology*: <http://dx.doi.org/10.1071/ZO14004>



Juvenile trout minnow scaling a weir wall. Photo: Dr Paul Close

INTERNATIONAL NEWS

Watching the rebirth of a river, one trout mouthful at a time

While picking through the natural debris on the bottom of a tiny stream feeding the upper Boardman River, Michigan, USA, two scientists found food and got very excited. Until recently, this stream was filled with mud and the scientists were now looking at fresh, clean gravel beds – perfect habitat for caddis fly larvae, a favourite food for trout. As well as gravel beds, the restored flows have created pockets of still water and deeper pools. These improvements in fish habitat have resulted from a multi-million dollar project involving removing three dams and modifying a fourth. The first dam went in 2013 and already there are positive changes in the habitat trout need. More:

http://www.mlive.com/outdoors/index.ssf/2014/06/a_story_of_recovery_boardman_r.html



The return of habitat means the insects re-establish and the presence of food heralds the return of fish. Image source: [Howard Meyerson, The Grand Rapids Press](#).

Locals take advantage of new habitat

Restoring fish passage and providing access to habitat is one of the mainstays of bringing back Salmon populations. Researchers used genetic markers to find out where the fish came from that were recolonising reconnected habitat in the rivers of the Adour Basin, Quebec, Canada. They found that most originated from local reaches immediately downstream of the barriers. The level of genetic diversity among the Salmon sampled upstream of the dams was the same as the population sampled downstream. This means that the fishways are not inadvertently causing a genetic bottleneck. The best zones for Salmon production are found in cold and fast-running waters located upstream in the rivers, so recolonisation of these zones by genetically viable stock will enable long-term restoration of Salmon populations. For more on this work by Perrier and others in *Conservation Genetics*:

<http://www.sciencedaily.com/releases/2014/08/140827091952.htm>

117 million lakes and counting

The world's lakes have finally been counted. Lakes cover almost four per cent of the world's surface, not counting the glaciers on Greenland and Antarctica, and the location, shape and size of them down to a fifth of a hectare in size is now known for all 117 million of them. Read more at:

<http://phys.org/news/2014-09-world-lakes.html#jCp>

Fish that bump and crunch

The Bumphead parrot fish are noisy eaters. The fish gouge out chunks of reef and snap thumb-sized coral branches, but what makes the most noise are the parrot fish's large, down-deep throat teeth milling the coral chunks. These are the world's largest parrot fish, growing to the size of a young teenager, and a single fish will grind enough coral that more than four tons of coral sediment are excreted on the reef in a year. While they chew rock, what they eat are the fleshy polyps and other tiny organisms hiding inside. Bumpheads can help corals, for example, by mowing down smothering algae, but in crowds over decades they may reduce the diversity of coral species, literally eating away their own habitat. For a summary:

<https://www.sciencenews.org/article/bumphead-parrot-fish-declare-their-arrival-crunch>



improves our understanding of their use and need for reef habitat. Image source: www.sciencenews.org

Where the wild Salmon aren't

The latest report card on wild Salmon in English and Welsh rivers has anglers reeling. The number of salmon estimated to be returning to England and Wales in the last two years was amongst the lowest on record. Since the 1970s there has been a 40 percent decline overall in the number of salmon returning each year, despite the return of salmon to some previously polluted rivers. Angling groups are calling for more action to restore fish habitat, saying "Environmental factors are a key reason why salmon stocks are not recovering on many of our rivers, and action to address these, within the wider framework of policies to conserve the environment, is essential" (Atlantic Salmon Trust's Director (England & Wales)). More:

<http://www.anglingtrust.net/news.asp?section=29§ionTitle=Angling+Trust+News&from=2014/7/01&to=2014/08/01&itemid=2247>

"Tha she blows" or "steady as she goes"?

When it comes to dam removal it appears that both methods can bring rapid benefits, both for fish and for the habitat on which they depend. The slow and cautious method was used to remediate Trout Creek, Washington, USA. The reservoir behind the 75 year old dam had filled with silt which was not what juvenile Steelhead Salmon needed to come flooding down the creek. The solution was to divert the river into a big pipe and then use trucks to carry away the exposed sediment. In the process, the creek's original channel was rediscovered and its banks were reinforced with logs to stop them from eroding. All those efforts seem to have worked. Just seven hours after first flowing back through the old reservoir bottom, the creek water was clear and the first Steelhead were venturing into the new channel above the old dam site. Since then, the number of steelhead in the river and its tributaries has more than doubled. This approach is in stark contrast to that used elsewhere in the US Pacific Northwest. More



extreme measures, known as 'blow and go', have been used to remove structures too tall or with too much sediment. At one site, the sediment contained an equal mixture of sand and gravel and it eroded out relatively quickly but sedately. The first curious salmon poked its nose back towards the former dam site within a day. More information about these different approaches:

Choosing to demolish a dam wall in one go or take a slow and steady approach depends on the structure and the amount and type of sediment behind it. Either way fish benefit. Image source: <http://www.nature.com/>.

http://www.nature.com/news/dam-removals-rivers-on-the-run-1.15636?WT.ec_id=NEWS-20140805

Healthy habitat = more fish = better business

A poll released by the American Sustainable Business Council shows what most anglers who got fishing gear for Father's Day already know: clean water is good for business. The poll showed that 71% of small business owners agreed with the statement 'clean water is necessary for jobs and a healthy economy'. More than 80 percent of small business owners favoured government protection of upstream headwaters and wetlands. In the USA, 33 million anglers spend more than US\$48 billion directly on trips and equipment, and support more than 800,000 jobs. More on this poll: <http://asbcouncil.org/news/press-release/new-poll-small-business-owners-want-strong-clean-water-rules#.VafzzGOLVn6>

1791 – 2014: a long time between swims

A new fishway means Salmon will be able to migrate up more than 16 kilometres of the Lower Clydach River, near Swansea, Wales, for the first time since 1791. The weir once served as a source of water to power a mill and an ironworks. The river is also an important tributary for other migratory fish, such as sea trout and eels. The fishway is part of the 'Salmon for Tomorrow' project which is aiming to open up another 1,500km Welsh waterways for spawning.

<http://www.bbc.com/news/uk-wales-south-west-wales-28990407>



The fish, at least, will be happy: 223 years after its construction, this weir is no longer a barrier for Salmon migrating to spawning grounds. Image source: <http://www.bbc.com/>.

Shellfish reefs: going, going ...

Shellfish have been historically managed only for harvesting. As a result, shellfish reefs worldwide have declined dramatically. Globally, 85 percent of oyster reefs have been lost and in most bays around the world, shellfish reefs are at less than 10 percent of their original abundance. Habitat loss from coastal development and dredging of shipping channels; and declines in water quality are two of the major contributing factors. Read more of the report:

<http://www.nature.org/ourinitiatives/habitats/oceanscoasts/explore/shellfish-reefs-at-risk.xml>

Weevils eat for fish

4,000 weevils have been given a new home in Huddersfield Broad Canal, Yorkshire, UK, to help tackle the invading Water Fern (*Azolla* species). *Azolla* grows vigorously and, if left unchecked, can cover the water surface with a thick mat of vegetation. This reduces light and oxygen levels in the water and causes problems for fish. The weevils breed quickly and can eat their way through a very large mass of the water fern in just a few weeks. They feed exclusively on *Azolla*. More on this story:

<https://canalrivertrust.org.uk/news-and-views/news/weevil-attack-on-the-huddersfield-broad-canal>



Weevils have also been released into other canals where the threat of *Azolla* is serious. Image source: <http://www.canalrivertrust.org.uk>.

RESOURCES

Reaching Beyond Demonstration Reach videos

These six new videos provide an insight into the importance of local community involvement in helping restore native fish numbers. Demonstration Reaches were a key theme of the Murray-Darling Basin Native Fish Strategy: <http://www.youtube.com/playlist?list=PLN2SfgvcOyU18CD1KE9ohhUbBazvcUSVl>

The first complete atlas of marine life in the Southern Ocean

“We were surprised some parts of the Southern Ocean were as diverse in species as the Caribbean; that the oceans around the Antarctic are not barren at all.” To access the atlas: <http://atlas.biodiversity.aq/>
For an overview: <http://www.abc.net.au/radionational/programs/bushtelegraph/marine-atlas/5700826>

FROM THE ARCHIVES – CELEBRATING SMALL

Native small-bodied fish species, including the Empire Gudgeons, Southern Pygmy Perch and Trout Minnows mentioned in stories above, get less attention than the iconic Murray Cod, Golden Perch and Maccas. Small-bodied natives use a wide variety of habitat types and have also experienced population isolation and decline as habitats have been lost or degraded.

In the 1960s and '70s, Phil Sullivan* remembers the Darling River for its abundance of fish. He said: *There was this little fish, a blackfish, it used to be in the bulrushes along beside the river. Phil thinks that the floods in the 1970s – particularly the 1974 flood – completely changed the river: It was after the 1974 flood that the river started to change. When I came back from school, the little black fish was not there anymore. The bulrushes were their habitat. It had gone.*

The Southern Purple Spotted Gudgeon was declared extinct in South Australia in 2000, so when Todd Goodman's family discovered a small population of these fish in a wetland adjacent near a family property they were excited. Todd* said: *Well basically this is it. This is all we've got. These guys used to be so common. They used to be used as cod bait, as live bait. They're part of the food chain. They're genetically distinct from the other populations around the place. Everyone you talk to used to catch them as kids. They used to be all through the irrigation channels. But they're just one of those species that for some reason has just disappeared.*



In other parts of the Murray-Darling Basin, Southern Purple Spotted Gudgeon are known as *Mulgu*. Roy Barker*, a Murrawari - Bogan Wiradjuri man, explained: *'Mulgu', he's a small, spotted native fish, something similar to a cod. He never grew any more than about 10 inches long. He used to always be in the weeds. He'd never venture out into the deep water because other fish would grab him.*

At the other end of the MDB, Henry Jones* explained the extraordinary lengths people were going to keep little fish species alive when the lower system was experiencing unprecedented impacts of drought. He said: *I mean we had scientists going into little pools and taking out the Yarra Pygmy Perch [pictured] and Murray Hardyheads and putting them into aquariums and trying to keep them alive. When the water comes back they can put them back in and the species will not be lost forever. We've got a whole heap of species here that are unique to this area, and unless we can do things like that, or unless we can fix the Murray-Darling Basin and put some water back in the river and make it sustainable, then they will keep on dying unfortunately.*



* Phil Sullivan, in *Upper Darling - Talking Fish: making connections with the rivers of the Murray-Darling Basin*, Todd Goodman in *Katarapko - Talking Fish: making connections with the rivers of the Murray-Darling Basin*, Roy Barker in *Culgoa-Baloone - Talking Fish: making connections with the rivers of the Murray-Darling Basin*, Henry Jones in *Coorong and Lower Lakes - Talking Fish: making connections with the rivers of the Murray-Darling Basin*, MDBC 2010

All of these oral histories are available [here](#)

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 (newstreams@industry.nsw.gov.au). Back issues can be accessed from <http://www.fishhabitatnetwork.com.au/archive>.

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FHN Partners

Amateur Fishing Association of the Northern Territory (AFANT) [http://afant.com.au/](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/>

Ecofishers www.ecofishers.com

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

Fisheries Victoria www.dpi.vic.gov.au/fisheries

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

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

NSW Fishing Clubs Association www.nswfca.com.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 Department of Environment and Primary Industries www.depi.vic.gov.au

VRFish www.vrfish.com.au

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

Website www.fishhabitatnetwork.com.au

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