

fishing lines

Representing
Victorian
Recreational
Fishers



In this issue...

HABITAT & WATER

Spring rain welcomed
at Toolondo

Trout Habitat

Carpageddon

State of the Bays

Environmental Water

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Recreational Fishing Code of Conduct

Representing
Victorian
Recreational
Fishers



VRFish has developed this Code of Conduct for recreational boat, shore, river, stream and jetty fishers in Victoria.

Recreational fishers have a responsibility to look after fisheries resources for the benefit of the environment and future generations of fishers. Recreational fishers should also show respect for other users of the aquatic environment. This Code of Conduct provides guidelines to minimise conflicts on the water, and should be adopted by all recreational fishers.



Awareness of and compliance with fishing regulations



Always seek permission when entering private property



Respect the rights of other anglers and users



Use established access roads and tracks



Protect the environment



Attend to your fishing gear and value your catch



Carefully return undersized, protected or unwanted catch back to the water



Education - pass on your knowledge



Fish species and other organisms must not be relocated/ transferred into other water bodies



Respect indigenous sites and values

For a full version of the Code of Conduct, please go to:
www.vrfish.com.au/Corporate_Documents
Savages Wharf PO Box 538 Williamstown VIC 3016

T 03 9397 6318

E info@vrfish.com.au

W www.vrfish.com.au

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CONTENTS



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VRFISH

Savages Wharf
PO Box 538 Williamstown VIC 3016
Ph: 03 9397 6318
Email: info@vrfish.com.au
Web: www.vrfish.com.au

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Published by VRFish
Victorian Recreational Fishing Peak Body
Chair: Rob Loats
General Manager: Dallas D'Silva
Communications & Marketing Officer:
Katherine O'Shea-Korbut

Fishing Lines Editors:
Katherine O'Shea-Korbut & Franz Grasser

ADVERTISING

Ph: 03 9397 6318
Email: info@vrfish.com.au
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Message from the Chair	4
Message from the General Manager	5
HABITAT & WATER FEATURE	
Springing to life!	6
VRFish applauds the Andrews Government for further action on Lake Toolondo	8
Trout habitat	10
Re-snagging Box-Pyramid Creek	12
Mapping ocean wealth	14
Strategic Plan 2016 – 2021	16
Hasta la vista Carpy...	18
OzFish	21
Rev's Reef at Torquay a lasting legacy recognising the late Trevor Buck	22
Why environmental water matters	24
The importance of swampy wetlands to our fisheries	26
Future Leaders in recreational fishing	28
Fishing in Victoria – VRFish Member Directory	30

Message from the Chair

Welcome to our **habitat and water** edition of *Fishing Lines*.

There is no doubt that in recent years, recreational fishers have expanded their thinking and what they believe is vital for sustaining future fisheries. Habitat, is now seen as one of the most important components in ensuring viable fishing opportunities for the future.

Whether it is freshwater or saltwater, habitat is seen as a fundamental contributor to how successful one actually is in catching a fish. Gone are the days of misinformation, where tearing down woody habitats or rocks in waterways were thought to induce better flows. It is now scientifically proven that instream woody habitats and large rocks create necessary turbulence and water flow regimes. These water flows go on to prevent silting of fish refuge locations that are vital for their survival during the hot summer months.

In the marine environment, the sea grass, reefs and mangroves on tidal flats need to be managed to prevent degradation. This valuable habitat provides a necessary food chain, as well as protection for a vast number of marine fish species.

The leading example demonstrating the significance of habitat is the restoration of shellfish reefs in Port Phillip Bay, which has been undertaken by the AAAlbert Park Yachting and Angling Club, the Nature Conservancy, Fisheries Victoria and other associated agencies. A successful outcome with this project will not only benefit the marine habitat but will also provide all the bay's fishers with better fishing outcomes for the future. VRFish applauds the clubs and associations involved for all of their hard work.

Victoria's Catchment Management Authorities are now reversing many of previous poor decisions by re-introducing large woody habitats and restoring riparian zones across Victoria. The current Government's excellent funding regime for the riparian action plan is a huge step forward in improving enhanced river health.

Victoria's Catchment Management Authorities are now reversing many of previous poor decisions by re-introducing large woody habitats and restoring riparian zones across Victoria. The current Government's excellent funding regime for the riparian action plan is a huge step forward in improving enhanced river health. Coupled with Fisheries Victoria's installation of artificial reefs in the marine environment this will provide lasting benefits for fish and fauna species. The current restoration processes can be very costly with on-going funding being the major obstacle in restoring the past degradation. As everyone can imagine, it is an extremely costly process to re-snag a river system that is home to the iconic Murray cod and other valuable inland fish species.



Recent years of dry, variable climatic conditions in the inland environment has identified the values of environmental water allocations and the potential benefits this water can provide for rivers, wetlands, estuarine systems and marine fish species. The Victorian Environmental Water Holder (VEWH) currently manages the State's environmental water allocations. Potential plans for the delivery of this water is available to the public in a comprehensive document. VRFish welcomes the current collaboration that exists with the VEWH and we look forward to providing input into future environmental water delivery plans.

In closing, it is becoming very clear that our State Council members and young future leaders are fully supportive of repairing fish habitats and in doing so, promoting positive environmental outcomes.

Please enjoy this edition of *Fishing Lines*.

**Rob Loats
Chair
VRFish**

Message from the General Manager

Welcome to the new edition of *Fishing Lines*.

It has been an exciting few months since the last edition.

Winter is well behind us now and the warmer weather means a whole new array of species to enjoy.

This edition is about telling the story of fish habitat improvement and management in Victoria. We know that whenever we survey anglers that restoring fish habitat always comes out in the top two or three priorities. Anglers know that if you look after the habitat and water then the fish populations will be healthy.

I might be biased but after reading this edition you will surely agree that Victoria is leading the way when it comes to fish habitat. This edition of *Fishing Lines* provides a great chance to present some of the brilliant work that is being done in Victoria. We need to recognise these achievements and look for new opportunities against the ever present challenge of water security and a changing climate.

I would like to take this opportunity to thank the Board for their efforts and guidance, not to mention our State Council members for their tireless volunteering to improve recreational fishing and represent grass roots anglers and divers.

Improving fish habitat can come in many different forms. Artificial reefs such as the ones deployed in the Bay back in 2009 and at Torquay in 2015 are multi-million dollar investments. The woody fish havens in Lake Boga in 2014 are another example of habitat improvement for inland waters. They have been proven to do wonderful things for silver perch populations and this is a real added value.

The signature fish habitat project for us in marine waters is the Port Phillip Bay shellfish restoration work that was pioneered by the Albert Park Yachting and Angling Club. The project received important funding from the previous Government and has since received \$150,000 from the Nature Conservancy. In August this year, the Minister for fisheries, the Hon. Jaala Pulford announced

another top up of vital funding to help expand the project. This top up was for \$147,000 and is sourced from our licence fees.

We hope similar initiatives can be delivered at Gunbower Creek through the *Native Fish Recovery Plan*. This project has huge potential to boost native fish stocks and is all about using water for multiple benefits – fishing, environmental and agriculture. The benefits to the broader community are incredible. The Plan addresses three key factors on the decline of native fish populations and species: loss of connectivity for fish movement and migration, alteration of natural flows regimes and loss of habitat.

We are fortunate to have champions for better fish habitat in Fisheries Victoria and at the Athur Rylah Institute. Dedicated staff such as Anthony Forster, Taylor Hunt, Jarod Lyon and Renae Ayres have helped forge strong relationships with catchment managers and fishers. Our own chairman, Rob 'Woody' Loats has championed this cause locally and nationally for as long as anyone can recall.

I would like to take this opportunity to thank the Board for their efforts and guidance, not to mention our State Council members for their tireless volunteering to improve recreational fishing and represent grass roots anglers and divers.

I would like to thank Katherine O'Shea-Korbut for her efforts in coordinating this edition. Likewise, thank you to Alison Wheeler for the great job she does to assist in our financial management.

Finally, I would like to acknowledge OZFish Unlimited as a new initiative on the national fish habitat scene. Be sure to check out what they are aiming to achieve and how they would like to add value to the well-established networks we have in place in Victoria.

Until next time, we hope you enjoy this edition. Please be sure to stay safe on or near the water.

Dallas D'Silva
General Manager
VRFish





Springing to life!

BY TREVOR HOLMES

Once again the Wimmera is back off the canvas after being given a count of 9 and struggling to its feet after recent rains. Most of us thought that so many fantastic lakes would be lost following a disappointing winter/spring in 2015. Predicted rains didn't arrive and the prospects weren't good. The winter/spring of 2016 was tipped by many to be wet and they weren't wrong!

Rainfall and runoff has seen many lakes transformed back to the glory days of full to overflowing. Visitors and fisherman are once again flocking back to the region to not only enjoy the spoils of these great rain events but to marvel at the volumes of water flowing through what would be normally parched and drying paddocks at this time of year.

In some places rainfall has been up to 300mm above average which is testament to the change from the previously crippling El Niño (drought) to the La Niña scenario which has triggered these rain events. Many have spoken at length about the unusual season and how wet it is. Reality is that this is only a slightly above average event for this region. Similar to what we would have experienced some 20-25 years ago. Yes there is merit and speculation of climate change but in my eyes it is only climate shift....it's now shifted back to where it once was and the wheel has turned.

With so many lakes and streams coming "back online" the fishing and health of the waterways at this stage has a medium to long term future with storages throughout the Wimmera sitting at a healthy 65% (bulk volume). Some lakes are full to overflowing and we still have the prospects of more valuable spring rains to come which are critical to farmers and anglers alike. Although the farmers have had enough they say they're only a few warmer days away from having bumper crops/harvest but for some there unfortunately has been crop damage.

Stocking of fish this season has been a well-managed and thought out process with the guys from Fisheries doing a real juggling act, trying to spread their production far and wide given there are some fifteen odd waterways now back in the system which over the last few years weren't a viable proposition. After careful consultation and gathering wise heads together of experienced anglers to decipher the lakes for stock plus the prospects of either browns or rainbows I believe that in this region a great balance and variation has been achieved.

Whilst I may have a biased opinion of Lake Toolondo, being a resident here, it was more than pleasing to have the current Labor Government announce on the 5th of October, a lifesaving allocation of 10GL of water to the lake. This announcement couldn't have been better timed as I firmly believed that by Xmas we would have seen many fish deaths and the demise of the premier trout fishery in Victoria. Steered by the Executive Director of Fisheries Victoria, Travis Dowling and his management team, an event attended by Lisa Neville MP and Jaala Pullford MP also saw the release of 7000 fingerling brown and rainbow trout as part of the rejuvenation. With follow up stock arriving within weeks, the next 2-3 years at Toolondo are going to be very exciting times.

With so many lakes and streams coming “back online” the fishing and health of the waterways at this stage has a medium to long term future with storages throughout the Wimmera sitting at a healthy 65% (bulk volume).

Some of the other potentially brilliant lakes in the region are already bearing the fruits of the Government's work with Lakes Fyans and Wartook both becoming good performers. Rocklands Reservoir also firing up and producing some terrific fish. Taylor's Lake just outside Horsham is also back firmly on the radar as a prolific native fishery as is the nearby Wimmera River. The Wimmera is still running a banker now and flowing strongly out to the North West into the previously dry Lake Hindmarsh near Jeparit. Green Lake on the Western Highway is another lake to benefit greatly from the rain event and has already experienced a flurry of activity with several anglers doing very well with redfin and also some terrific feeds of yabbies coming out. Greenhill Lake in Ararat, Lake Lonsdale near Stawell, Lake Bellfield at Halls Gap, Lake Wallace in Edenhope....the list goes on and to see these lakes full again has delighted many.

On the wider scale of things there are many lakes now full and overflowing, being stocked with fish and seeing a resurgence. Yabbies are abundant in all the lakes and swamps giving many hours of enjoyment and a great feed to all that chase them. I've only covered a few of the options here and with careful planning and management we look forward to years of enjoyable fishing and water activities throughout the Wimmera/Mallee region. Thanks must go to the Labor Government, Fisheries Vic, GWM Water, VRFISH, Wimmera CMA and all others who have contributed to restoring the Wimmera to its former glory!



Above left, and right top and middle: Lake Toolondo.

Bottom right: Lake Fyans.

STOP THE PRESS!

VRFish applauds the Andrews Government for further action on Lake Toolondo

BY ROB LOATS

VRFish has welcomed moves by the Andrews Government to once again 'summer proof' the recreational fishery at Lake Toolondo.

VRFish knows how important this fishery is to Victorian fishers. That is why we pushed hard to find a solution to help prolong the boom fishery for as long possible. With brown trout up to 5kg lurking in the shallows ready to hit a fly, lure or mud eye, it is clear this is a special and unique place. The Lake also has good populations of redfin or 'Wimmera whiting'.

We congratulate the Government on taking swift action to secure the short term future of the lake and protect the interests of recreational fishers at Lake Toolondo. It is great to see the Government moving forward with the delivery of 10,000 mega litres of vital water.

Lake Toolondo is recognised by many as Victoria's premier trout fishery. The fishery provides an important source of income to local economies and is a tourism draw card for anglers from South Australia to New South Wales. The lake is a unique ecosystem and is home to a diverse population of fauna and flora.

Following a dry 2015, the excellent spring rain this year has meant that the trigger for Rocklands Reservoir has now been reached and this is exciting news for Lake Toolondo, with additional water being released into the Lake on 5 October.

VRFish was thrilled to be on the banks of this majestic lake with Minister Pulford and Minister Neville as the additional water and a new batch of trout were released. This is a huge boost for the local economy and it will deliver great financial return to dependent businesses such as hotels, restaurants, tackle shops and petrol stations.

Since 2013, VRFish has worked closely with Grampians Wimmera Mallee Water, recreational fishers, Fisheries Victoria and DELWAP to explore all actions that could be taken to safeguard the fishery and prolong the boom for as long as possible.

In January 2015, VRFish played a key role in negotiating and holding the 5,000 ML water entitlement that was released into the Lake. We commend the Government for once again ensuring the interests of recreational fishing are at the forefront of all

considerations on water usage as it affects Lake Toolondo.

To have the Premier, Water Minister and Fisheries Minister attend the release of 5000 mega litres into the Lake back in January 2015 was a highlight. Never before have we had the Premier of Victoria make a special trip to the north west of the State for a recreational fishing event. I recall the moment that his car arrived on the site near the edge of the Lake. He opened the door and was greeted by a huge applause from the hundreds of fishers and members of the community.

During 2015 we attended all of the advisory group meetings in 2015 and it is fair to say we have a better understanding of the complexities of water allocation, triggers and trading in Victoria. Toolondo relies on certain water levels being reached in Rocklands Reservoir. The dry and wet cycles are part of the reason Toolondo has such phenomenal growth rates. The scientists call it a trophic upsurge or boom and the data shows that no other lake has the same rapid growth rates.

The other benefit to come from the advisory group meetings is that catchment and water managers have a greater understanding of the significance of the trout fishery at Toolondo. Indeed many of the staff that work at Grampians Wimmera Mallee Water love to fish the Lake. These staff have to work within the operating rules and regulations and have been very helpful in working with fishers to make sure all options are considered. I would like to thank them for their professionalism and efforts to work with recreational fishers.

I would also like to acknowledge the efforts of local champions Trevor Holmes, Geoff Stock, Charlie Officer, along with Chris Spence for all of the hard work that has been done over the years.

In August this year, Trevor Holmes and his colleagues set up a crowd funding campaign. It is a watershed achievement, pardon the pun and shows how recreational fishers are digging to help support future works at the Lake. VRFish has also jumped in to give this cause some assistance. We have sent the details of the crowd fund out to the 60,000 fishers on our database and encouraged them to consider donating. The fishery has received great media support from angling icons such as Rex Hunt and this has been most welcome.

We will continue to explore all potential options to help secure the trout fishery at Lake Toolondo.



The Glenelg

BY SHANE LOWERY

The presence of Australian Bass in good numbers and great condition is an untapped opportunity for the region.

The Glenelg river in Victoria's far southwest is a fishing paradise with a range of species available to target as well as stunning scenery and a diversity of habitat that supports both key angling species, smaller fish and a wide variety of wildlife.

Starting at Rocklands wall just above the township of Balmoral and stretching approximately 330km downstream to Nelson, the Glenelg River turns into a salt wedge estuary before finally emptying into the southern ocean.

Recently I was asked to take part in some fish survey work and angler engagement days conducted by the Glenelg Hopkins Catchment Management Authority with funding provided by the Victorian Environmental Water Holder. Both groups were on hand with representatives in attendance to discuss and receive any and all feedback from the general public.

The angler engagement days were held over several weekends involving Angling Clubs, Community members and stakeholders of the river. The communities of Balmoral, Harrow, Casterton and Dartmoor all attended in fantastic numbers with the focus of these events being to engage directly with the management groups tasked with making decisions concerning the health of the river. In particular, the benefits of well-planned environmental flows and habitat improvement were key topics.

Although the Lower Glenelg National Park section of the river tends to remain in great condition all year round, the upper reaches of the river have suffered greatly over many years. Low flows have created a situation where the river becomes a series of individual pools with very little interconnectivity greatly deteriorating the health of the river in the warmer months.

The practices of environmental watering and habitat improvement in both the river and bankside riparian zones has become a very important ingredient in managing the river to ensure the best possible outcomes for not only the wildlife but also everyone who uses the Glenelg River, and it was extremely encouraging to see the willingness by all parties involved in the program to enter into a face to face dialogue.

The fish survey work involved the use of both electro fishing

and the setting of fyke nets (eel

nets) to demonstrate these techniques to the general public but also to continue the ongoing work of surveying native species in the river and implementing control measures for non-native and invasive species such as European Carp and Gambusia (mosquito fish). The electro fishing yielded great results on both fronts and it was amazing to find Estuary Perch in excess of 40cm just below Balmoral a distance of approx 320km from the estuary. This is one of the longest recorded migrations of this species on record and simply would not be possible without the reconnection of the river brought about by environmental watering.

We also encountered Australian Bass in these upper reaches and although they are a non-endemic species to the Glenelg they were in good numbers and in very healthy condition with Bass in excess of 3kg captured and released. In my opinion, this represents an exciting and as yet untapped recreational fishing opportunity for the townships along the upper reaches of the river.

Measures are also being taken to control the population of European Carp in the river. Fish exclusion screening pools at Rocklands Reservoir are ensuring there is no migration of Carp. The 'Judas Carp' program which involves acoustic tagging and tracking of individual fish has also been a very strategic move that exploits the natural behaviour of Carp to congregate. Coupled with the use of side imaging sonar, great success is being achieved in directly targeting large aggregations of Carp that can then be electro fished and removed from the system. This technique is providing excellent data on size, weight and numbers of fish revealing that one main cohort of Carp exists in the river, further indicating that conditions and habitat are not ideal for them to breed successfully.

What we are now seeing on the Glenelg river is not only a focus by managers to improve overall river health but real recognition of the importance and value that all users can bring when engaged. We are in the midst of a generational change where stakeholders, in particular, recreational anglers are asking the "whys" and "how's" and those involved in the management are more than willing to take onboard the opinions and answer the questions. This is a massive positive and means the Glenelg River has a bright and secure future.



Trout habitat

BY TERRY GEORGE

President Australian Trout Foundation Mer

Just like humans, fish need shelter and

Bygone days...streams denuded of snags

I can recall about 50 years ago, a mate of mine was working for the Ovens River Trust. Most of his time was spent along the Ovens River, as part of a crew that was dragging out all of the trees and logs that had fallen in the river. At the time, most people (including the Trustees of the River Trust) thought they were doing a great job of cleaning out the river. Just how WRONG we were!!

Let us now look at some current policies on the most important habitat issues.

Habitat 2016

How things change! This day and age habitat is preached as, and quite rightly so, the most important item in protecting and sustaining our fisheries, whether it be a freshwater, estuarine or saltwater.

At the Fisheries Talk Wild Trout Conference in November 2015, the messages from the keynote speaker, Dr Dan Dauwalter, Fisheries Managers and Arthur Rylah Institute Scientists, evolved around the important issues of providing good in-stream habitat and appropriate riparian planting. Dr Dauwalter's clear principle was that if we "take care of the fish, the fishing will take care of itself".

The Australian Trout Foundation (ATF) Executive Committee is in full agreement with the findings of the Talk Wild Trout Conference. Habitat restoration, together with riparian zone and riverbank management, is the best course of action to restore, enhance and sustain our recreational trout fishery.

The ATF's Mission is: to protect, build and promote Australia's trout fishery to ensure that all Australians can enjoy trout fishing now, and for future generations to come.

Relevant goals are:

- To ensure the sustainability of Australia's trout fishery, and
- To identify and undertake specific environmental projects to enhance or repair recreational trout fisheries, in particular habitat and riparian zone projects.

Ovens River Example

The bushfire of Jan/Feb 2013 burnt large areas of forest from downstream Harrietville up and across the Great Divide into the Gippsland catchments. This was followed in Feb/Mar 2013 by a series of extreme rain events centred particularly over the East branch of the Ovens over a landscape almost denuded of vegetation by the fires.

This resulted in Harrietville flooding as whole hillsides (trees, rocks, silt, ash and rubble) were washed down the river. The silt and ash loads were far greater than any locals had seen before and resulted in loss of all trout in the area immediately above and below Harrietville.

An electro survey commissioned by Fisheries Victoria and carried out by ARI Officers, around October 2013, found no trout in the main stream above Bright.

The ATF, together with their local ATF delegate, Brian Eddy, prepared and submitted a detailed proposal for a recovery stocking of the Upper Ovens. The proposal was well supported by angling associations, local council, tourism, business organisations and members of parliament. The application was lodged at the Fisheries 2014 stocking meeting and ultimately resulted in the release of 2,500 advanced yearling brown trout between Porepunkah and Harrietville in spring 2014.



ATF's Terry George and Brian Eddy releasing brown trout as part of Fisheries Victoria's recovery stocking for the Upper Ovens Rv - Oct 2104.

Brian Eddy, aware that habitat had been destroyed in the floods, felt that we needed to improve conditions in the hope that the released trout could spawn over future seasons. At the same time, the North East Catchment Management Authority (NECMA) and a local community group were completing an extensive streamside riparian revegetation project below Harrietville at "Frosty Corner".

Brian took the opportunity to initiate an in-stream habitat restoration project which would complement the riparian work already in progress at that site.

He secured involvement with the Harrietville community forum and met with the NECMA catchment project manager, Andrew Briggs to discuss the proposed project and together they plotted how it could be done and costings were calculated. Funding was sought via the recreational fishing grants program (see Fisheries website) that was ultimately approved and a contractor was engaged to carry out the work.

... I was pleased to hear that since the bushfire and flood, platypus, native water rats, blackfish, and trout have been sighted in the river ... This project is a shining example of what can be achieved by members of the community ...

I am delighted to report that the project was duly completed and it has made a significant difference to an approx. 1.5km stretch of the river.

Representing the ATF as an invited speaker, I attended the opening of this Ovens River Fish Habitat Restoration Project on 10th September. Upon asking the many attendees, I was pleased to hear that since the bushfire and flood, platypus, native water rats, blackfish, and trout have been sighted in the river.

This project is a shining example of what can be achieved by members of the community and congratulations are due to Brian, Harrietville community forum and Andrew Briggs of NECMA, for initiating and completing the successful project. Further thanks must also be extended to Fisheries Victoria, Harrietville Anglers Club, the Upper Ovens Land Care Group and the Australian Trout Foundation for giving their support.

places to hunt, gather and breed.

There are many other similar projects on the drawing board, currently underway or completed involving angling clubs, catchment management authorities, Arthur Rylah Institute (ARI), Fisheries Victoria, VRFish, Native Fish Australia (NFA), ATF, and local land care groups.

Some project examples:

- **Kiewa River** – habitat and riparian projects, involving NECMA, Kiewa Valley Angling Club and the local Green Army made up of just about every club in the region.
- **Ovens River** native fish section – multiple river rehabilitation actions – 305 ‘snags’ and 25 ‘fish hotels’ installed, willow control (18km), fencing (5.5km), fishway reconstruction, 200 carp removed, extensive community engagement. ARI, NECMA, MDBA & Wangaratta Sustainability Network.
- **Little Snowy River** – habitat and riparian projects, involving NECMA and Greenwells Fly Fishing Club.
- **Mitta Mitta River** – similar projects involving NECMA and local anglers.
- **Broken Creek and Lower Goulburn River** – native fish habitat. Introduction of large woody debris (snags) and fish motels planned for December 2016 by Goulburn Broken CMA.
- **Hughes Creek** – native fish habitat. Introduction of large woody debris to complete in 2015/2016. More riparian and in-stream projects planned over the next four years. Macquarie perch habitat. GBCMA and Native Fish Australia (NFA).
- **Delatite River** – habitat enhancement, riparian fencing and revegetation (around 1,140 trees, shrubs and grasses along 870m of stream) GBCMA with assistance from Mansfield & District Flyfishers Club and the ATF in June 2016.
- **Gellibrand River** – in-stream woody habitat installation, successfully completed by Arthur Rylah Institute (ARI) assisted by Corangamite CMA, Purrumbete & Colac Angling Clubs, Princeton Landcare, Estuary Watch & Waterwatch, Land and Water Resources, Otway Catchment Landcare, VRFish and the ATF.
- **Tarwin River** – habitat enhancement and relocation of blackfish; ARI and West Gippsland CMA.



The bed and banks of the Upper Ovens River have been destabilised by extensive gold dredging over a century ago, followed by years of floods and fires. This results in an ever widening shallow bed which exposes the water to high summer temperatures. The lack of deeper runs, pools and shade provides no fish habitat and no protection from predators.



Suitable on site fallen trees and logs were also used to create habitat.



Over 250 tonnes of large granite boulders were brought to the site to start the Habitat Restoration Project – June 2015.



Boulders were placed in-stream according to a plan developed with North East CMA – June/Dec 2015.



Suitable on site fallen trees and logs were also used to create habitat.



Unleashing the potential of irrigation delivery streams for native fish:

Re-snagging

The North Central CMA's *Native Fish Recovery Plan* is a large-scale and long-term plan that aims to create a world class fishery in the Gunbower and lower Loddon region. Ten years of fish ecology research on the Murray River has revealed irrigation delivery streams and associated habitats have a huge potential to support thriving populations of native fish with the ability to become a functional part of the Murray River ecosystem.

BY PETER ROSE

North Central Catchment Management Authority (CMA)

The Gunbower and lower Loddon region has the foundations for excellent recreational fishing, but key elements of flow, connectivity and habitat need to be improved for the system to reach its full potential.

Box-Pyramid Creek is a critical conduit in the system, providing the longest unfragmented section between the Murray, Little Murray and Loddon Rivers and nursery areas such as Kow swamp. In the late 1960s, Box-Pyramid Creek was dredged and de-snagged, and recent habitat mapping has confirmed it has extremely low instream woody habitat (IWH). Despite this, irrigation flows provide a strong attraction for large bodied fish such as golden and silver perch to move into the system.

A recent fish survey of the creek found that it supported large and healthy native fish populations and almost all of the fish identified were concentrated amongst the little remaining woody habitat. In fact, perhaps surprisingly given the poor habitat, the 'catch per unit effort' of golden perch in Pyramid Creek was found to be almost twice that of both the Loddon and Campaspe Rivers and the creek supported significantly more silver perch. This reinforces the view that irrigation delivery streams, which have often been overlooked for habitat rehabilitation in the past, can be very significant for native fish populations.

Instream woody habitat (IWH; aka snags) is critical for

60km of stream with improved woody habitat connecting a 530km stretch of open Murray River with Kow Swamp.

supporting large bodied recreational fish species such as golden perch and Murray cod. IWH creates geomorphic diversity (e.g. localised scour pools and bars), provides resting habitat for migrating fish, cover from predators, and is a source of food production. IWH is also important spawning habitat for some fish species such as Murray cod and river blackfish, which require a hard attachment site to lay their adhesive eggs. Work undertaken by ecologists at Arthur Rylah Institute has shown that reinstated IWH not only aggregates fish, but when applied on a large-scale, increases the carrying capacity of entire river reaches. For example, large-scale IWH reinstatement of the Murray River between Lake Hume and Lake Mulwala resulted in a three-fold increase in the Murray cod population over a seven year period.

There are many factors that dictate the success of a re-snagging program including the type and complexity of timber used, where it is located in the stream, and how it is orientated. Timber that contains hollows, root balls and complex overlapping structures extending into different depths of the stream profile can support a greater abundance of different species of fish than a simple straight log. For example, a study by Kohen & Nicol (2014) found that trout cod used large woody habitat further from the bank than Murray cod and golden perch which preferred wood higher in the water column.

North Central CMA recently installed six IWH complexes in Box Creek funded through a recreational fishing grant. Preliminary surveys indicate they are being used by native fish. A further 34

whether stream reaches are connected to allow fish movement past barriers such as weirs. The *Native Fish Recovery Plan* addresses flows through Environmental Water Management Plans which provide flows to stimulate spawning movements and improve over-winter habitat to increase recruitment. Because Pyramid Creek is an anabranch system, these environmental flows can be delivered to improve river health and fisheries productivity *en route* and then returned to the Murray River downstream for consumptive use. This is a win-win situation for irrigators and recreational anglers.

A fishway constructed at Kerang weir in 2008 opened up fish passage between the lower Loddon River and Pyramid Creek. Construction of a fish lock at the Box Creek regulator and two vertical slot fishways on the Little Murray River are almost complete. The fishways and fish locks, combined with the delivery of fish friendly flows, will see a total of 60km of stream with improved woody habitat connecting a 530km stretch of open Murray River with Kow Swamp. North Central CMA is also delivering a riparian rehabilitation project that is providing fencing to exclude live stock from waterways and provision for off stream watering points and revegetation of creek frontage. Keeping stock out of the creek will improve instream habitat, stabilise banks and allow trees that have been planted along stream banks to mature. Mature trees will later provide natural recruitment of IWH into the stream and provide fish habitat.

By implementing the *Native Fish Recovery Plan*, we believe a world class native fishery in the Gunbower and lower Loddon region is within reach in the coming years.

Box-Pyramid Creek

IWH complexes are planned to be installed in the creek between Hird Swamp and the Kerang Weir pool in the coming year. These IWH complexes consist of 5-10 overlapping logs and/or root balls that mimic the complexity of a fallen tree. Hydraulic modelling is undertaken to ensure there is no increased risk of flooding or a reduction in irrigation water delivery efficiency due to the installation of the IWH structures.

Work undertaken ... has shown that reinstated IWH not only aggregates fish, but when applied on a large-scale, increases the carrying capacity of entire river reaches.

Furthermore; logs are secured to the stream bed to prevent downstream movement of timber in high flows. North Central CMA is also working with the community to construct 'fish havens' to be installed in the Loddon River downstream of Kerang Weir (see photo top left). In support, Goulburn Murray Water is also undertaking a resnagging program in the Little Murray River as part of the GMW connections project.

Decades of ecological research has shown that the 'field of dreams' approach to habitat restoration (build it and they will come) is not always successful. In the context of recovering native fish, the success of habitat reinstatement also depends on other factors, such as whether the right flows are being provided for fish movement, spawning and recruitment and

More information about the *Native Fish Recovery Plan* can be found at: http://www.nccma.vic.gov.au/Biodiversity/Conservation_and_Habitat/Native_Fish_Recovery_Plan/index.aspx



A fine Murray cod sampled from under one of the snags

Mapping ocean wealth: valuing the economic, social and environmental benefits of Victoria's most important marine habitats

BY SIMON REEVES

The Nature Conservancy



Nature's wealth

Nature provides many benefits for communities and people. These benefits include producing clean water to drink and fresh air to breathe, healthy soils for crops, forests to grow timber and marine habitats that produce fish to catch and eat. These benefits are vital not only for our health and wellbeing, but are also critical for the long-term resilience and survival of our natural ecosystems. Yet managers, planners and economists have often struggled to include the social, cultural and economic value derived from nature into economic decision-making, and hence, the true value of nature's enormous wealth is often left unaccounted or undervalued, why is that?

The economic language of 'dollars and jobs' provides a common language and currency that we can all comprehend. In the past, the benefit of protecting or restoring nature has been communicated in a language of 'biodiversity' and 'species', a language which many find difficult to understand or value in normal economic metrics. As a result of this language barrier, nature often comes off second best, despite the wealth of economic, social and cultural benefits it provides.

By translating nature's benefits into a common language that engineers, policy makers and managers can understand we can transform the way we think about and value nature.

The Nature Conservancy's Mapping Ocean Wealth project is taking a fresh look at the way we value and communicate Victoria's economically, socially and environmentally important marine habitats. Mapping Ocean Wealth brings together some of Victoria's best marine researchers from Deakin University together with the Victorian Government, recreational fishers and conservation groups to quantify and communicate the benefits provided by important marine habitats such as saltmarshes, mangroves and seagrasses. The Project is funded and supported by The Nature Conservancy, The Thomas Foundation, HSBC Australia, Deakin University, Ian Potter Foundation, Government of Victoria, NSW Government and an ARC Linkage Project from the Australian Research Council.

Valuing the marine habitats of Port Phillip Bay and Western Port

Within Port Phillip Bay and Western Port lies an intermingling network of saltmarsh, mangroves and seagrass habitats. These habitats are extreme ecosystems: living at the interface of land and sea and salt and freshwater environments yet are critical to the health and wellbeing of our bays. They provide a range of benefits for people and communities which can now be culturally, socially and economically valued in the same way that a new park or community center could be developed. These include:

Coastal Protection

Mangroves and saltmarsh habitats fringe our coastlines and are important for coastal protection. Work undertaken by The Nature Conservancy globally has shown that saltmarshes and mangroves can reduce the impact of ocean swell, wind, and storm surge by up to 66% across 100m and their structure can stabilize shorelines, helping to prevent erosion (Spalding et al. 2014).

Carbon Storage

Lying across the land and marine interface mangroves, saltmarshes and seagrasses are able to trap organic matter and capture carbon at rates up to 50 times faster compared to terrestrial forests. The term 'blue carbon' differentiates these areas from carbon stored by terrestrial forests by referring to the direct influence of the ocean and marine nature of these carbon storing habitats. Saltmarshes, mangroves and seagrasses also have the additional benefit of storing carbon for millennia unlike terrestrial habitats which can only store carbon for decades or centuries (McLeod et al. 2011).

To examine the carbon storage potential of Port Phillip Bay and Western Port, researchers from Deakin University took sediment cores in saltmarshes, mangroves and seagrasses to obtain organic carbon stocks (Corg), and then converted these to carbon dioxide equivalents (using the 2014 carbon price) to calculate a dollar value per hectare across blue carbon habitats. These results were then interpolated across the extent of the blue carbon habitats across Port Phillip Bay and Western Port (Figure 1).

The Nature Conservancy's Mapping Ocean Wealth project is taking a fresh look at the way we value and communicate Victoria's economically, socially and environmentally important marine habitats.

The map shows Western Port as an important area for sequestering some of Melbourne's carbon emissions although Port Phillip Bay also provides significant carbon storage. Corio Bay and Swan Bay have particularly high carbon values, and interestingly, even heavily urbanized environments such as Altona and Spotswood (which lie adjacent to the West Gate Bridge) are able to store significant amounts of blue carbon.

Collectively, these marine habitats can store the equivalent of 5% of Melbourne's annual carbon emissions, which has an estimated offset value of \$88 million.

Fish Production

The physical characteristics of saltmarsh, seagrass and mangroves provide protection, refuge and food for many commercially and recreationally important fish species such as King George whiting, garfish, shellfish and crabs. These areas can be considered fish nursery grounds, helping to maintain healthy fish populations in Port Phillip Bay and Western Port.

To examine the fisheries productivity benefits of seagrasses, The Mapping Ocean Wealth team used published fish biomass values of commercially important fish species in seagrass areas compared to similar un-vegetated habitats to calculate annual production value (Blandon and zu Emergassen 2014). We then mapped these values across known seagrass extent in Port Phillip Bay and Western Port (Figure 2).

**Port Phillip Bay
storing the equivalent of
5% of Melbourne's annual
carbon emissions –
offset value of \$88 million.**

Figure 2 shows that fisheries production is much more variable in Port Phillip Bay compared to Western Port. Similar to carbon storage, the western side of Port Phillip Bay provides a significant proportion of the Bay's fisheries production, reflecting higher areas of seagrass in Corio Bay and Swan Bay regions. Critically, there are however, small areas of productive seagrass fringing the northern shoreline of Port Phillip Bay.

Towards the social, cultural and economic valuation of Victoria's important marine habitats

This is only the beginning of The Nature Conservancy's Mapping Ocean Wealth initiative. Further work will begin to develop new detailed valuations of the cultural, social and economic benefits provided by Victoria's most important marine habitats. This includes teasing out the complex relationships between habitat condition and ecosystem services benefits, focusing on the recreational value of marine habitats and increasing the temporal and spatial coverage of information to help refine models and improve the accuracy of valuations. New maps, valuations, videos, infographics, reports and other communication tools will be created to provide all Victorians with a clearer understanding of the wealth provided by Victoria's most important marine habitats.

To stay up to date with the Mapping Ocean Wealth project visit:
<http://www.natureaustralia.org.au/our-impact/water/new-ocean-maps/> <http://oceanwealth.org/>

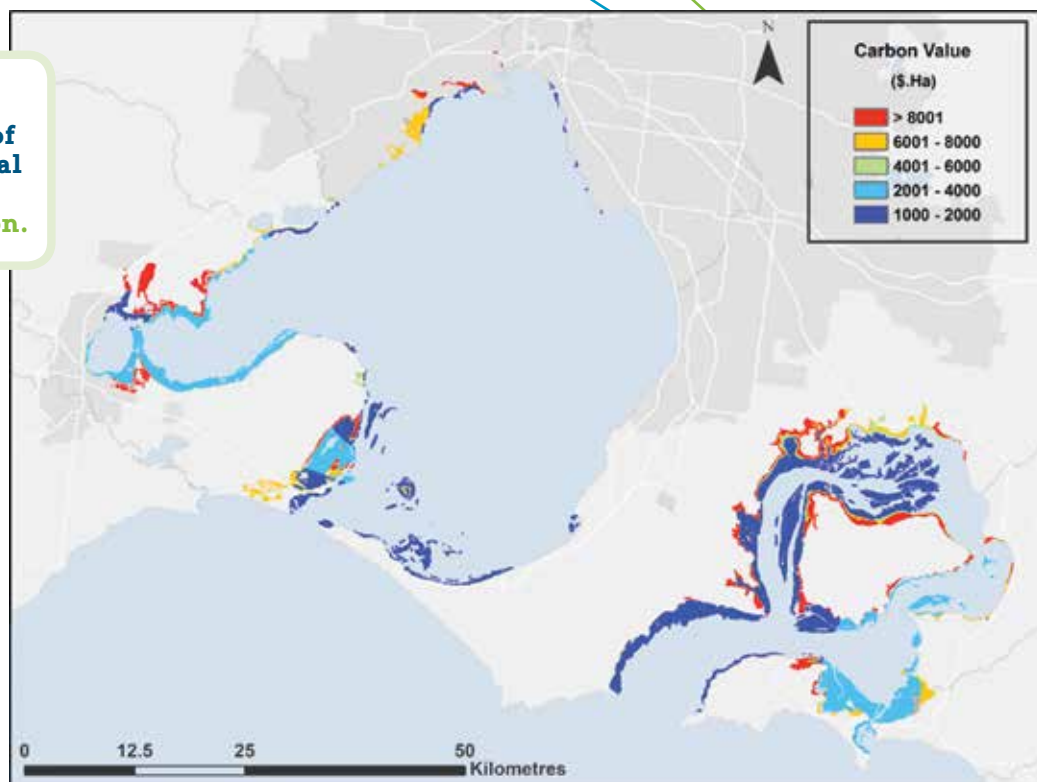


Figure 1. Blue carbon service map for Port Phillip Bay and Western Port. Blue carbon service is shown mapped over three blue carbon habitats, saltmarsh, seagrass and mangroves, as carbon value in dollars AUD per hectare (\$/Ha). Cool and warm colours denote low and high carbon values respectively, spanning a range from 1000 to >8001 \$/Ha

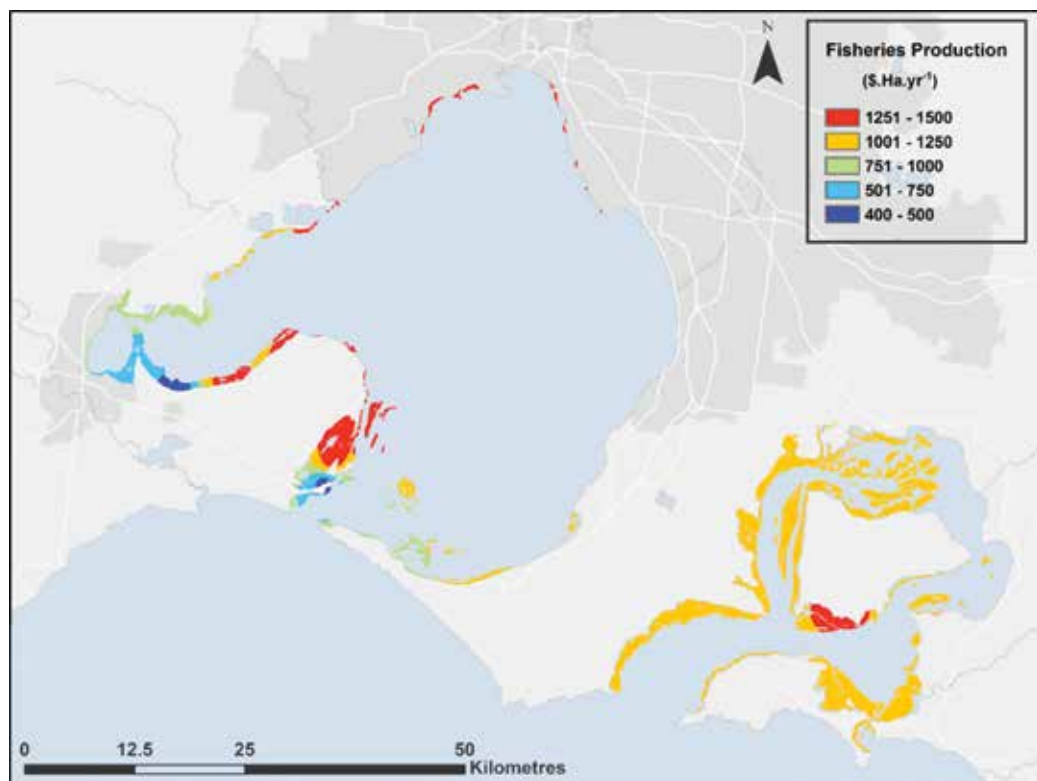


Figure 2. Fisheries production service map for Port Phillip Bay and Western Port. Fisheries production service is shown mapped for seagrass habitat as fisheries production in dollars AUD per hectare per year (\$/Ha.yr-1). Cool and warm colours denote low and high fisheries production values respectively, spanning a range from 400 to 1500 \$/Ha.yr-1



OUR 5-YEAR VISION >

Enjoyable, responsible recreational fishing from
abundant fish populations and safe, ongoing access

OUR PRIORITIES >

IMPROVE FISH HABITAT

- > Habitat protection, restoration and enhancement
- > Co-management of natural resources
- > Secure water allocations for recreational fishing
- > Shared benefits for recreational fishing from environmental flows

SAFE, EASY & ONGOING ACCESS

- > Maintain and extend access to fisheries
- > Improved pier and land-based fishing opportunities
- > Better boating infrastructure, governance and investment
- > Safer harbours for ocean fishing



Strategic plan 2016 – 2021

A healthy habitat supporting
access to fishing grounds.

OUR GOAL >

Recreational fishing, for everyone,
...forever!

INCREASE PARTICIPATION & RECOGNITION OF BENEFITS

- > Promote and grow participation amongst non-fishers, especially youth
- > Affordable fishing opportunities
- > Quality fishing experiences and catch rates
- > Improved recognition of social and economic benefits
- > Stronger fishing clubs and associations

BEST PRACTICE FISHERIES MANAGEMENT & INFORMED FISHERS

- > Adoption of responsible fishing practices and behaviours
- > Prioritised fish stocking
- > Science-based and responsible fisheries regulation
- > Greater investment into research, development and extension
- > Legislative recognition of recreational fishing
- > Improved aquatic pest management

ORGANISATIONAL EXCELLENCE, ADVOCACY & PARTNERSHIPS

- > Quality governance and organisational processes
- > Greater accountability to stakeholders
- > Improved recognition and support from recreational fishers
- > Strategic and effective communications and engagement
- > Strong and constructive relationships with Government and stakeholders
- > Well tested and credible policy positions reflecting diverse membership

Hasta la vista Carpy...

Carp can make up more than 80% of the fish biomass in some of the Murray-Darling, and up to 93% in some places. In their recent budget the Federal government announced that \$15 million dollars would be allocated towards planning to enable carp impacts to be reduced through biological control using a species-specific virus. Senior Fisheries Manager with NSW Department of Primary Industries, **Matt Barwick** gives us an update on the viral biocontrol agent, and what it means for the control of this incredible ecosystem engineer...

Like many Australians, fishing was a big part of my childhood and I have two vivid memories from my first fishing trip to the Murray river at about five years of age. I remember I was so excited at the possibility that I might catch a Murray cod... I was blown away by the reported size and power of this giant enigmatic native, and wanted in! My first memory from that first fishing trip on the Murray was of sitting on a bank of this wide, lazy river under a big old redgum, and wondering why the water was so muddy... There had been no rain in recent times? I assumed that maybe our big rivers in Australia had always been muddy, for reasons I didn't understand.

My second memory from that trip was later that afternoon. I clearly remember that after a long wait my rod buckled and I felt the weight and tail beat of a big fish. Excitedly I shouted "It's a cod!! I've got a cod!!", and my family came down from the campsite to witness the tussle. After some time the big fish came to the surface and rolled in the muddy water, flashing golden in the sunlight. I remember my stomach lurching and a feeling of disgust and embarrassment washing over me. It wasn't a Cod at all... It was a stinking carp.

I've reflected back on that day many times since. Partly because of the strong response I felt on seeing that fish... it's almost as if I was hardwired to dislike that whiskered, mud-sucking invader. But I also reflect on my assumption on that day that the Murray was probably always muddy, because of course I now know that our big rivers aren't naturally highly turbid systems... They used to flow deep and clear. Older farmers have since shared stories with me of being able to walk the river bank and spot Cod sitting on snags in 6 feet of water, and being able to spearfish for Crayfish, such was the water clarity. Like many, I believe our big rivers can be clear again, but for this to happen we must fix a few things, including the impacts of carp.

It turns out that I'm not alone when it comes to a sense of disdain for this piscatorial pest, in fact, according to a recent survey it's a bit of a national hobby. The Australian community reported that they rank carp among the top four most disliked and significant invasive species in Australia, along with cane toads, rabbits and feral pigs. So why the national repulsion?

There are probably a few reasons. Firstly, there are just so many of them! A single female carp can carry over one million eggs, and so under the right conditions a small number of fish can quickly result in a dense infestation. Unfortunately that's exactly what you can see today throughout much of our largest river system – the Murray-Darling Basin. Carp currently make up more than 80% of the fish biomass throughout much of the Murray-Darling, and up to 93% in some places. Carp impact on the health of our waterways too; they can shape their surrounding ecosystem through their bottom feeding behavior, taking big mouthfuls of mud, eating the invertebrates hiding in amongst it, and then spit the mud back out. In this way, they contribute to the muddy condition of our rivers which, in turn, degrades the health of aquatic vegetation by reducing the light penetrating down to the riverbed. This then influences the types and abundance of invertebrates that are present.



Estimated economic cost

\$500
million per year



Carp currently make up over

80%

of the biomass of much of the Murray-Darling

The ecological impacts of carp translate into social and economic impacts too. One report estimated that the economic cost of having carp in our waterways at around \$500 million per year. Much of this impact was due to the fact that carp reduce the quality of recreational fishing opportunities, which is a huge economic driver for rural and regional communities in the Murray-Darling Basin. In fact, there are places where recreational fishers rarely go any more because all they are likely to catch is carp.

Though biocontrol gives new hope to those wishing to see carp numbers dramatically reduced in our waterway ... it is important to recognise that there is much yet to do.

Fortunately, the CSIRO have been researching a potential tool for the biological control of carp over the last eight years, with funding through the Invasive Animals Cooperative Research Centre, and the results are promising. Their research shows that a naturally occurring virus called Cyprinid herpesvirus 3 (more commonly known as the carp herpesvirus) has the key characteristics of a good biological control agent: it's extremely effective in killing the target species (carp), and it doesn't affect other species. Most importantly, international experience has demonstrated that it's safe for humans too.

The level of public interest on this issue became apparent in January 2016, when over 250 media outlets as far afield as the USA

and China ran stories on the exciting potential to improve the health of waterways and fish stocks in Australia through carp biocontrol. The media storm that ensued resulted in over six million tweets on this topic over a two week period. It seems the collective imagination of the Australian public has been activated by the potential to address issues caused by the worst freshwater pest species our nation has seen.

Though biocontrol gives new hope to those wishing to see carp numbers dramatically reduced in our waterways, and the recent federal announcement of investment will provide significant assistance at the perfect time, it is important to recognise that there is much yet to do.

First, there is a need to complete a detailed and lengthy legislative approval process, which will take up to two years. There is also a need to complete a thorough risk assessment process and undertake public consultation on this issue to ensure that the views of the Australian community are well understood. There is a need to undertake monitoring activities before and after release of the virus, so that we can document how our aquatic ecosystems and fisheries respond to carp reduction and, of course, there is a need to implement an effective clean up program to remove dead carp from our waterways and ensure that native species and water quality is protected.

If you would also like to keep up to date on progress with this exciting initiative, 'like' the *Clearer Waters* facebook page, visit agriculture.gov.au/carp-plan, or keep up to date on the Invasive Animals CRC's Pestsmart website at <http://www.pestsmart.org.au/pest-animal-species/european-carp>.

Continued...

Hasta la vista Carpy...

FREQUENTLY ASKED QUESTIONS

How can we be sure that the virus will only affect common carp?

Over the last eight years Dr Ken McColl from CSIRO and his colleagues have been tirelessly testing the carp herpesvirus on a suite of fish species, as well as example bird, mammal, reptile, amphibian and crustacea species. This research has demonstrated that the virus only replicates in Common carp. This is perhaps not too surprising, as herpesviruses are generally specific to a single host species, but it's reassuring to see the research confirm this.

Importantly, the work by Ken and his colleagues has also shown that Carp present in Australian waterways are extremely susceptible to the virus, and international case studies have demonstrated that under the right conditions, the virus will kill 70-100% of carp in a population that has not been exposed to the virus before.

Will the carp herpesvirus eradicate carp from Australian waters?

It is important that we have a clear shared idea of what success looks like in terms of carp control in Australia. Total eradication of carp is unlikely. Once a pest species is introduced, it is extremely difficult to remove that last one. It is entirely possible, however, to significantly reduce the impacts of a species by dramatically reducing their numbers – and this has always been the objective of Australia's carp biocontrol program.

Once a pest species is introduced, it is extremely difficult to remove that last one.

It is entirely possible, however, to significantly reduce the impacts of a species by dramatically reducing their numbers ...

For this, it will be important to combine implementation of the carp herpesvirus with the strategic application of a range of measures to control carp and promote recovery of native fish communities.

How do we know that carp won't just become immune and repopulate our rivers again?

To overcome the possibility of carp slowly repopulating after the virus is released, it will be important to have secondary measures ready to go after release of the virus, to prevent their recovery. Work to investigate a more virulent strain of the virus will help to overcome any future immunity. Technology such as 'daughterless carp' can help to skew the sex ratio of the remaining carp population so that almost all of the carp remaining are a single sex, thereby limiting the reproductive potential of the population. And simultaneous efforts to restore native fish habitats, improve water quality and restore migratory pathways for native fish, can also help ensure that carp numbers don't recover.

Can't we just keep using the control methods that we have been using to control Carp?

Over the last two decades there has been millions of dollars and many hours invested exploring an exhaustive list of measures to try and control carp in Australia. These include: commercially fishing for carp, installing screens to exclude them from areas containing their



The virus will kill

70 - 100%
of a population not
previously exposed

preferred types of habitat, trapping them, using sex pheromones to improve the effectiveness of traps, targeting our control efforts on carp 'hotspots' and fitting individual fish with radio transmitters so they can lead us back to their school, enabling us to efficiently target aggregations.

Large accumulations of carp in dense aggregations in deeper holes have been targeted, and technology such as the Daughterless Carp genetic construct is being trialed which would shift the sex ratio of carp populations by reducing the number of females present in the population.

Despite significant investment in these control measures carp persist as a dominant force in the aquatic landscape. The carp herpesvirus offers the most promising option at this time for the control of carp due to the fact that it is highly effective in killing carp, and is safe for non-target species, including humans.

If the virus is released it will kill a lot of carp. Won't that impact on water quality, and so risk our native fish species?

It is vitally important to ensure that we protect water quality so as to prevent negative impacts on our native species and to ensure ongoing access to clean water for human use. This will be managed by resourcing the job sufficiently and by using appropriate methods to effectively remove dead carp from the waterways.

Detailed research and modelling is currently being undertaken in collaboration with researchers from Water NSW to inform planning for the clean-up strategy. This work will identify carp biomass thresholds that impact on water quality, which can then be used to work out how much carp needs to be removed from the system to prevent negative impacts.

International case studies from places like Japan and North America where large-scale clean-up efforts have been successfully employed have also been investigated to help with formulating our approach.

For more information:

Matt Barwick, Senior Fisheries Manager, NSW Department of Primary Industries

E: matt.barwick@dpi.nsw.gov.au

OzFish

A newly formed fish habitat conservation organisation is partnering with VRFish to help fight one of the biggest threats to recreational fishing – the decline of fish habitat.

OzFish Unlimited Director Bonita Brown said the relationship will boost the not-for-profit organisation's message and help celebrate the passion Victorian fishers have towards restoring and protecting fish habitat.

"VRFish is an amazing example of how it has encouraged and enabled grassroots fishers to help improve fish habitat. It's clear from their level of commitment to their pastime or sport, they are proud of their role as environmental stewards and we want to help build on that momentum, right across the country," Ms Brown said.

General Manager for VRFish Dallas D'Silva said Victoria is recognised as a national leader in fish habitat improvement by working in partnership with fisheries managers, catchment managers, non-government organisations such as The Nature Conservancy and with scientists at The Arthur Rylah Institute.

VRFish is an amazing example of how it has encouraged and enabled grassroots fishers to help improve fish habitat. ... we want to help build on that momentum, right across the country.

"We look forward to OzFish Unlimited supporting and working within existing processes and structures that are well established in Victoria which includes government agencies, angling clubs, fishing organisations and VRFish," he said.

OzFish Unlimited has habitat projects already underway across Australia after receiving support from corporate organisations along with industry and government agencies. The Fisheries Research and Development Corporation provided a major grant for 'Fish for Fish Habitat' seminars to be held nationally, which gives fishers the opportunity to learn or build on their knowledge of how habitat helps fish stocks and improves angling opportunities.

The organisation's call to arms to restore and protect fish habitat has also captured the attention of Australia's highest profile anglers including fishing writer and presenter Steve "Starlo" Starling, *Fish 'n' With Mates* presenter Al McGlashan and *Reel Action TV*'s Michael "Guesty" Guest.

According to OzFish Unlimited Ambassador Steve Starling, Australian anglers have the collective power to create a secure and productive future for the sport, but the reality of that vision is unlikely unless fish habitat is nurtured.

"The simple truth is that without healthy, balanced aquatic ecosystems, recreational fishing has no long term future. Because without sound habitat there will be no fish."

To find out more about 'Australia's New Way to Fish' head to www.ozfish.org.au or <https://www.facebook.com/OzFishUnlimited/>



Rev's Reef at Torquay a lasting legacy recognising the late Trevor Buck

BY JOHN "BEAR" WILLIS

In June 2015, Victoria's largest ever artificial reef was created when 25 concrete modules were deployed to improve offshore recreational fishing opportunities.

The purpose-built reef modules or underwater trees are situated approximately 3 kilometres offshore, in 25 metres of water, between Breamlea and Torquay.

Each concrete module measures more than four metres high, weighs up to 20 tonnes and has been designed to create variable water currents and upwellings that will attract baitfish and predators such as kingfish.

The reef has been colonised rapidly by aquatic plants and animals and recreational fish species are expected to follow.

The project was funded by \$1,090,000 from recreational fishing licence fees and \$410,000 from State Government Initiative funds in one of the biggest fish habitat enhancement projects in Victoria's history.

Fisheries Victoria will undertake frequent underwater monitoring of the reef over coming years to evaluate its effectiveness and identify the fish it attracts. The reef complements others in Victoria including three for snapper anglers on the eastern side of Port Phillip Bay, near-shore reefs for land-based fishers at Frankston, Altona and Portarlington, and shallow-water reefs in several East Gippsland estuaries.

In March this year, we were saddened by the loss of Trevor Buck. He was a strong advocate for recreational fishers over many years and was passionate about the environment and fish habitat.

As a close friend of Trevor, he would be proud that this huge investment in fish habitat carries name 'Rev's Reef'. I would like to thank Fisheries Victoria for their help to recognise this contribution.



Trevor Buck, VRFish Board member.



A special plaque has been attached to reef in honour of Trevor.

Port Phillip Bay Shellfish Restoration Project

BY SIMON BRANIGAN

Marine Restoration Coordinator
The Nature Conservancy
Email: simon.branigan@tnc.org

The Port Phillip Bay Shellfish Restoration Project continues to go from strength to strength with planning well advanced for the restoration of bigger shellfish reefs in Hobsons and Corio Bay's this year and next. This latest work has been made largely possible by recreational fishing license fees funding provided to our project partners, Albert Park Yachting and Angling Club (APYAC). This is an exciting precedent for restoring fish habitat and will go a long way towards creating cleaner water and more fish in Port Phillip Bay into the future. The ongoing support of VRFish and recreational fishers has been integral to helping scale-up the project beyond the initial pilot reef phase.

This year, the project delivery team The Nature Conservancy (TNC), APYAC and Fisheries Victoria have been busy laying the foundation for restoring reef at scale learning new skills and techniques from overseas projects and working to tailor them to local conditions. Some of the lessons learnt from the first year of restoration work include understanding that elevation is crucial for both the survival and growth of the oysters and mussels. The size and depth of the substrate footprint is also likely to improve restoration success. The most abundant predator to date in the restored mussel beds has been the native eleven-arm seastar

(*Coscinasterias muricata*) demonstrating that the shellfish reefs are already providing habitat and supporting the local food web. There were strong differences in how the test reefs performed at different sites suggesting a number of restoration approaches will be necessary in the future.

It's a massive job to restore the lost shellfish reefs of the bay and will require the strong community support involving multiple organisations from different sectors including recreational fishers. That's why we have formed The Restore Bay Network to help coordinate community volunteer and support activities, with numerous volunteer days already held in Corio Bay. Stay tuned for my updates and please contact me if you would like any further information.



Recent deployment of 6t of mussels at Carrum on the artificial reef balls.

Lake Boga fish havens

BY ROB LOATS



VRFish representatives, the Mid-Northern Association of Angling Clubs, instigated a project to place an artificial habitat in Lake Boga. If successful, this habitat would provide a haven for native fish as the lake was void of any woody habitat.

At the time the lake was dry. This meant that when a possible source of artificial habitat became available, it wasn't seen as a high priority. However, after eventually receiving an allocation of water, VRFish representatives and local anglers pressed the need to implement a habitat enhancement project in the Kerang Lakes at a North West Regional Fisheries Forum. Credit must be extended to Fisheries Victoria staff for progressing the request and applying for a RFL grant for habitat enhancement in selected Kerang Lakes.

The grant was successful and several community meetings were held to ensure all lake stakeholders were supportive and comfortable with the process. These investigations identified support to implement habitat structures known as 'fish motels' in both Lake Boga and Kangaroo Lake.

Fisheries Victoria staff must be commended for all of their excellent work and most importantly, for securing additional funding to ensure a reasonable number of habitat structures were made available.

This project was a first in trialling the placement of woody habitat structures in a Lake in Victoria. If successful, the outcomes would provide valuable insights into similar future projects.

Following the completion of the project, fish were stocked directly into the new habitat. The aim was to ensure an enhanced

survival outcome. Researchers from the Arthur Rylah Research Institute conducted a fish survey around the new woody habitat structures in Lake Boga and the results were extremely positive.

A large number of good sized silver perch were identified to be utilising the new structure as their preferred habitat. It was also noted that fish abundance away from the structures was very low.

The grant was successful and several community meetings were held to ensure all lake stakeholders were supportive and comfortable with the process. These investigations identified support to implement habitat structures known as 'fish motels' in both Lake Boga and Kangaroo Lake.

The results from this research have provided insight into the ongoing values of expanding this project. By implementing a way forward, we can promote and potentially provide habitat havens in several other Victorian Lakes. Furthermore, by building partnerships with the Men's Shed network, cost effective fish havens were able to be built. The saved funds were utilised to promote more habitat havens for the protection of the iconic Murray cod, other valuable native fish species and their associated food chain.

Many thanks to Fisheries Victoria staff for their excellent management of the project and the researchers from ARI for their assistance in identifying the value of habitat havens in our lakes. We can now all move forward with confidence that similar fish habitat projects are underway.

Why environmental water matters



BY EMMA COATS

Victorian Environmental Water Holder

In August 2016 after good winter rains, we picked up six of these bizarre-looking tadpole shrimp (above left) in the shallow pools near the river.

A 75cm Murray Cod about to head back to the water. This was the second 75cm fish of the day. These days Murray cod and other large-bodied natives are a regular catch on our Wakool river block near the Victorian/NSW border town of Koondrook.



I reeled in the fish, while Dad got the measuring mat ready. With my trusty yellow gloves on, I placed it carefully on the mat. It was the fifth Murray cod we had caught over the weekend, and our second around 75cm long. After we took the photo and put it back in, Dad said: “There are many more Murray cod in these rivers than there were in the 1970s. Someone’s doing something right.”

Many people are doing many things right. Though native fish in the Murray-Darling Basin have declined by up to 90% since Europeans arrived, river goers have been working hard over the last 50 years to bring them back. Since the 1970s, proactive communities and governments have stocked our rivers with native fish, improved fish habitat by revegetating river banks and putting snags back into the river, attempted to manage carp, installed fishways on dams and weirs to allow fish to move up and down stream, and delivered environmental water.

So, what are the key ingredients that fish need to survive and thrive? “Flow, habitat and connectivity” write fish biologists Brendan Zampatti and Martin Mallen-Cooper in the latest edition of *RipRap*. “These are the three key elements.”

Different flows make fish go (and grow)

As anglers know, native fish have different flow preferences. Murray cod like many different flows, but when breeding they like snags in flowing water so they can use them to lay their sticky eggs while gobbling food from the water that flows past. The silver

perch is consistently reported to enjoy faster flows. The now rare freshwater catfish generally prefers slow-moving water. Golden perch like flowing water with occasional flow pulses (preferably in winter-spring) to trigger spawning and dispersal of their eggs.

All the little critters and bugs that large-bodied native fish eat also have different flow preferences. Tadpole shrimp (*above left*) tend to live in still, shallow pools, often off the main stem of the river. Simuliid larvae (very small, pear-shaped fly larvae) attach themselves to rocks in fast-flowing water. Glass shrimp and water boatman (swimming beetles) prefer slow-moving water amongst vegetation on the side of the river channel. Yabbies tend to live away from the main flow, on the bottom and sides of the river.

The different flow preferences of native fish – and the critters, bugs and vegetation that support native fish – have developed over thousands of years in rivers and wetlands in which flow varied a lot. This is why people talk about Australian ecosystems being ‘boom and bust’ – and everything in between. This high and natural flow variability created diverse river and wetland ecosystems characterised by complex habitats and food chains.

Since we started building dams and weirs on a large scale to supply water to towns, industry and agriculture, river flows have changed. Flows are more controlled, and consistent. Once-connected rivers that used to be full of hundreds of riffle and pool habitats are now made up of disconnected lake-like habitats punctuated by dams and weirs. Many native plant and animal species, including native fish, no longer get the flows they require to feed, mature, migrate and spawn.

These changes have contributed to the large-scale decline in native fish.

Putting back some of the natural flow

Environmental watering re-introduces some of the river flows – and foods and habitats – that our native fish depend on.

Environmental watering means flows released from dams and controlled through weirs, channels and pumps to put back some of the natural flow variability in rivers and wetlands. Though environmental water can mean any water in a river or wetland that benefits the environment, here we are referring to water that’s set aside in dams and reservoirs, or pumped from a river to a wetland, and intentionally delivered for plants and animals, including native fish.

Environmental watering means flows released from dams and controlled through weirs, channels and pumps to put back some of the natural flow variability in rivers and wetlands.

Many people believe that just adding water does the trick. However, timing is equally, if not more, critical. Environmental water is delivered at times of year that plants or animals have evolved to prefer. Since the development of dams and weirs to supply water to towns and farms in summer, rivers that were naturally low in summer are now high in summer, and vice versa. Environmental water managers try to ‘correct’ this to some degree and return some of the small- and medium-sized flows back to rivers and wetlands at the right times of year – to mimic in some way what nature would have done.

Does environmental watering help native angling species?

Environmental water can be delivered to twenty eight of the top 50 fishing spots in Victoria.¹ This year, all twenty eight of these

fishing spots will receive water – either natural flows or managed environmental water. Across Victoria, the popular native angling species that environmental water targets each year are black bream, Macquarie perch, estuary perch, silver perch, golden perch, freshwater catfish and Murray cod.

Last year, environmental water helped to connect disconnected parts of the drying Glenelg River, allowing individual estuary perch and tupong to travel 330kms. Environmental water in Gunbower Creek through most of the year resulted in recordings of Murray cod of mixed ages, and facilitated successful cod nesting and breeding. Environmental water has kept the Wimmera River running across successive dry years and has maintained habitat for native plants and animals including one particular fish – a large golden perch affectionately known as ‘Spotted Bess’ (*see below*) – which has been caught many years in a row.

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The research and monitoring that supports environmental watering is world class. There is an increasing body of evidence that what we are doing is working, in combination with the other important ingredients that Brendan and Martin wrote about in the last edition of *RipRap*: improving habitat and connectivity. Each year, we continue to see fantastic outcomes for native fish, plants and animals across Victoria.

These days, Dad and I are catching many more Murray cod on our favourite river bend. Someone’s doing something right.

For more information about environmental watering, please see the VEWB website: www.vewb.vic.gov.au and the VEWB’s recently released publication *Reflections* which showcases the benefits of environmental watering across Victoria over the last 12 months.

¹ Fisheries Victoria’s Improving Inland Recreational Fishing Survey, 2012

28

of Victoria’s top fishing spots¹ will receive environmental water in 2106.

Adam Shields from Horsham caught ‘Spotted Bess’ in the 2015 Horsham Fishing Competition.



The importance

BY ROBBIE ALEXANDER

Photos: Robbie and Laretta Alexander

of swampy wetlands to our fisheries

My name is Robbie Alexander. I am a freelance fishing magazine journalist based in Wangaratta, in North East Victoria. I am also the host of a popular YouTube fishing and outdoors channel called "*Robbiefishing*" and am a keen observer of nature and the environment. I live to fish, but also enjoy photography, hunting, bushwalking and studying wild animals, including snakes.

I was truly delighted when offered the opportunity to write this feature on the importance of wetlands, and the recent flooding rains on our fisheries.

WOW what a wet winter and spring we have experienced here in North East Victoria. Week after week has delivered another cold front, each one seemingly stronger than the last.

Typical of most wet winters it has been quite mild with very few frosts here in the Wangaratta area. Above average rainfall fell for most of winter, and September saw Wangaratta receive over 200% of its average September rainfall, the wettest September since modern records began.

All of this rainfall has been fantastic for just about everything except grain growers and caravan park operators, many of which have either been flooded out or had their crops waterlogged. Local wetlands are once again all full, including the giant Winton Wetlands.

These wetlands are like steroids for our fisheries and ecosystems. Millions and millions of macro-invertebrates have appeared from nowhere. Equally as magical has been the return of so many different varieties of marsupials and birds which feed on these abundant invertebrates, and no doubt, under the water and out of sight there has been plenty of fish movement as food abounds.

Let's look at one of my favourite places for example, the Winton Wetlands. The Winton Wetlands use to be Lake Mokoan, a favourite fishing destination for many of us...myself included.

Sadly, the lake was designed poorly in an era where water usage wasn't as much of a concern as it is today. It was simply just an enormous retaining wall 7.7km long flooding a large flat natural wetland called Winton Swamp, via a channel. Lake Mokoan was an offline storage in which thousands of acres of flat ground were inundated with water, resulting in a vast area of shallow water, which leads to high levels of evaporation.

Sunset at Ashmedes swamp in the Winton Wetlands.

Initially Lake Mokoan was full of quite clear water, and was a redfin fishing bonanza for many anglers. Many fisherman in this area caught their largest ever redfin back in the early days of Lake Mokoan.

During the first ten years as a lake, submerged red gum trees and other vegetation decomposed until eventually the lake was full of standing dead timber. Once the vegetation disappeared, aquatic weed filled the lake and filtered the water, keeping it reasonably clear.

Early in the 1980's, a severe drought resulted in an almost total drawdown of Lake Mokoan, leaving the lake almost empty, and the aquatic weed vulnerable to harsh frost before the lake could be re-filled. Soon the lake refilled during major flooding in the early to mid 1980's, but sadly there was a problem detected with the retaining wall and the lake had to be drawn down once again.

This rapid fluctuation in water levels, combined with the harsh frost led to the demise of the aquatic weed, which was filtering the water. Soon Lake Mokoan water would become permanently dirty and prone to yearly blue green algae blooms.

By the early 2000s the Victorian government was under increased pressure to find water for environmental flows down the Snowy River. Scientists were called in to calculate the amount of water that was being lost through evaporation in Lake Mokoan.

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Given the poor quality of the water in Lake Mokoan, the high rates of evaporation and the fact that the Victorian government needed to find water from somewhere for environmental flows, the decision was made to decommission Lake Mokoan, and restore it to it's former state....which as mentioned, was called Winton Swamp. This upset a lot of farmers and fisherman in the region and led to the closure of a caravan park.

The region was riddled with bitterness at the decommissioning of Lake Mokoan. Through a series of water relocations, the calculated amount of water that was evaporating is now being sent down the Snowy River, helping to create one of the best bass fisheries in the state.

So while we lost a loved fishery here in North East Victoria, Gippsland gained one thanks to the increased water flows. I have only ever caught four bass, and they were all in the Snowy River.

At the moment the Winton Wetlands have completely filled up, and the life that the new water has brought with it is unbelievable. The dragonfly life is amazing, meaning that under the water there are millions and million of mudeyes, many of which are now being washed down into the Broken River system, putting on a smorgasbord for the resident golden perch and Murray cod. Many of these dragonflies will move away and lay eggs in other waterways in the region, ensuring there is plenty of food in them for fish to eat.

It's not just dragonflies; it is mayflies, frogs, tadpoles and all kinds of different insects, moths, butterflies, yabbies etc. The Winton Wetlands have come to life and are absolutely pumping out small "food sources" which are entering other nearby waterways via



With all of the rainfall we have received this year, an abundance of food in the system should result in fat fish such as this redfin caught by Robbie Alexander.

various means such as being washed in, swimming in, flying and being carried by birds. It's kind of like the Winton Wetlands is the kitchen, preparing the meals for the other waterways in the region.

Closer to Wangaratta, Black Swamp is full and the same ecological magic is occurring. Ducks, swans and other waterfowl are breeding, along with the insects and other small critters that can move into nearby areas and replenish stocks, ensuring that there is plenty of food for the fish. Moodie Swamp, Dowdle Swamp, Jones Swamp etc. – the list goes on – they're all full and overflowing. They're all producing food sources for all of the fish species in the region.

The fact that so much rain has fallen and filled these swamps is absolutely fantastic news for fisherman right across the region. These wetlands are absolutely vital in ensuring sustainability of our waterways. They are the heartbeat of the entire ecosystem.

In the mountains where there are not many swamps, all of this rain would have washed worms into the system by the millions, putting on a smorgasbord for the trout and ensuring faster than normal growth rates. Increased flows will have also aided the trout to distribute themselves more easily in the streams, and if the wet weather continues, next autumn should see much more area open to trout migration and spawning, resulting in increased natural recruitment.

Downstream a bit and the flooded swamps will provide breeding grounds for many fish species, particularly the introduced redfin and sadly the European carp. But even then, an abundance of carp in the rivers will ensure faster growth rates for our native fish! There's a positive in every negative! Hopefully one day we will reach a point in time where native Tandanus catfish will be able to swim into these swamps to spawn in these great wet conditions.

So while we are suffering from limited fishing opportunities as I type this, just remember it's only a case of "short term pain for long term gain." Wetlands and swamps are absolute necessities for North East Victorian fisheries.

Future Leaders in recreational



BY KRIS LECKIE

For many years, I've been one of those blokes that has been fortunate enough to jump in the car and drive a short distance to a local stream and chase a variety of freshwater species. Growing up in the Yarra Valley, I was spoilt for choice, and it's a simple pleasure that was easily taken for granted.

Whilst I have always considered myself an outdoorsman and having a deep connection with the environment, I spent many of my early years haphazardly casting lure and fly without much thought about the big picture. You see, us fishos tend to hold our locals close to our hearts, and it's as if looking out for our own backyard, and not worrying about what's going on a bit further downstream is imprinted in our DNA.

I've got plenty of lovely little wild brown trout happily sipping away at a size 14 stimulator down at my local river.....what do I care about old mate down the road that can't catch a flatty in Port Phillip Bay anymore? It's a trap that understandably, many of us fall into. I'm not sure if it was age, or maybe even fatherhood that triggered a change for me, but over time something just clicked. Things started to fall into place and reveal a bigger picture.

Every time I ventured out for a fish I saw problems. The rubbish that was being dumped, the set lines I was finding, and not to mention the numerous environmental issues that severely impact our waterways. And with every swipe I took through virtual fishing land (otherwise known as my Facebook feed) I would hear the dull roar of recreational fisherman from all sectors fed up with this and that, getting little or no support from anyone other than their fellow local or method anglers.

Reality soon set in, and I knew that whilst I couldn't solve every problem out there, I certainly wouldn't solve them sitting around doing nothing. Not to mention my wife was getting fed up with listening to me rave on about issues she had little or no concern for.

So imagine my excitement as I'm scrolling through my Facebook feed and stumble across a post asking for applicants to attend a future young leader's course with VRFish. As I read on, this started to sound right up my alley, and a great way to get involved, give back to recreational fishing, and maybe start solving some of these problems that recreational anglers face. It didn't take long for someone else to ask the same question that I was immediately asking myself, that is - "how old is young?" Thankfully, as a "young" 35 year old I was in contention!

It wasn't until my application had been accepted and Dallas had sent me the course schedule that my excitement really kicked in. The lineup of speakers that were scheduled to attend the course was amazing. Mind you, it also helped I was getting a whole week off work to talk nothing but fishing with like-minded anglers for five days solid! So off I went to Port Fairy, and mate was I excited.

On introduction to the group over a couple of beers that first night (which included anglers from SA, NSW, TAS and VIC), I knew we were in for a great week with a fantastic bunch of people. It was very refreshing to be in the company of fellow anglers that shared the same passion and were ready to listen and learn.

The first day commenced with presentations from the representing states peak body managers. And it was soon very apparent to me that whilst the states all faced similar issues, there were some vast differences in how they managed their fisheries. We also heard from a local commercial fisherman who highlighted the constant battles that he faced with not only regulating government departments, but the community in which he lived and worked. To listen to his story and the challenges that he faced was a real insight for all of us. As recreational anglers, it's often easy to look at the negative impacts that commercial fishing can have on our fish stocks, but we also have to understand that these are real people with families and livelihoods that support local communities both financially and socially.

It was also great to hear from the conservation sector, and in this case the current and future projects The Nature Conservancy was involved with. Here is a group that commits real money to real

fishing

projects, that go a long way in both conserving and increasing habitat, and in turn, our fish stocks and recreational fishing opportunities. They do real hands on work, instead of just preaching extremist activism from the sidelines like many other conservation organisations do.

Tuesday saw us hit up some local trout haunts with Scotty Gray, a gun local angler with a vast knowledge of angling and fisheries science, as our guide. Whilst we were all looking forward to taking on some local SBT offshore, the weather was far from ideal with sideways rain and gale force winds. Regardless, we saw some amazing Western Victorian countryside and a couple of the guys even managed a trout or two.

Another big highlight of the course was the chance to spend the morning with the Vic fisheries officers based in Port Fairy. Not only did we get to take a look at their immaculately maintained vessel, but we were lucky enough to go on patrol with them offshore and see first-hand the role they play in protecting our fish stocks. These guys really are doing a great job with the little resources they have.

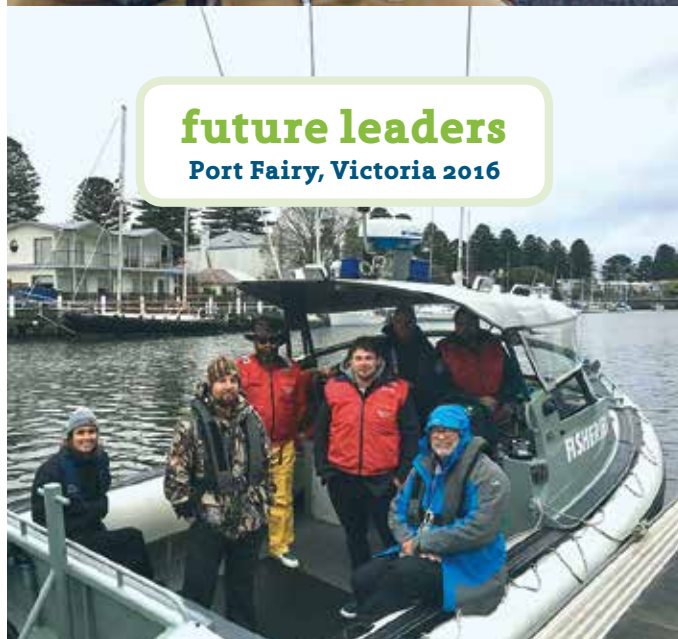
The long list of presenters kept coming. Peter Appleford spoke on what it means to be a leader within the industry, and Matt Barwick from NSW DPI Fisheries delivered an inspiring presentation on 'social license' and developing trust and respect within the community. Steve Potts from BIA highlighted the role that the Boating Industry plays in influencing governments for social outcomes that benefit all recreational fishers and boat users, and the future challenges that we face such as increasing and improving infrastructure. Fisheries Victoria was represented by Travis Dowling, Alyce Parker and Taylor Hunt, who spoke about everything from the use of social media, to Murray Cod scientific research projects. As you can imagine, we all sat and listened in awe as these industry heavyweights shared their wealth of knowledge on fisheries science and management.

The future leader's course really has been just the beginning for me. Not only have I had the chance to network with some amazing people within the fishing industry, but I've become more involved with VRFish, and advocating for all forms of recreational fishing in the future.

One of the main objectives of the week was for all of the future leaders to work together on a selected case study, with an end goal of presenting to the state representative managers. My group was tasked with writing and presenting a submission to the Victorian minister for agriculture on why the recreational fishing industry supported (or didn't support) the release of the Koi Herpes Virus, and what we could bring to the table in support of the program, to deliver environmental, social and economic benefits.

Presenting the case study gave us an in-depth understanding of the numerous stakeholders involved in implementing such a project, and real hands on experience in advocating for recreational fishing. Working with such a passionate and knowledgeable group was a pleasure, and we even came up with some great ideas that may be implemented when the project kicks off.

Kris Leckie.



So where to from here? The future leader's course really has been just the beginning for me. Not only have I had the chance to network with some amazing people within the fishing industry, but I've become more involved with VRFish, and advocating for all forms of recreational fishing in the future. Regardless of the style or method of fishing you partake in, rec fishers must continue to band together to advocate for more and better fishing opportunities. The future leader's course is a great stepping stone for anyone looking to get involved, and I can't recommend this program enough. So if you're a 'young' leader out there looking to do your bit, do yourself a favor and give Dallas and the team at VRFish a call and find out what you can do to help secure recreational fishing for current and future generations.

Fishing in Victoria – something for everyone

Victorian fishers are a blessed lot – the fisheries across the State provide ample opportunities to ply your skill and feed your family.

Over 838,000 Victorians share a passion for recreational fishing, and there are fishing clubs scattered all over the State catering to fishers whether they be hooked on feeding 'old man' cod or like to chase the big reds as they come into our bays to spawn.

There are many reasons a large segment of VRFish members belong to fishing clubs:

- > Fishing clubs give fishers access to a fantastic group of people who love to talk about fishing as much as they do.
- > They give a sense of contributing to the local community.
- > Club membership provides an opportunity to participate in social and competitive events.
- > They give the ability to improve fishing by learning from more experienced fishers or to share your own knowledge.
- > Club membership also provides a means to contribute to the political landscape of fishing, and have your say in issues that affect you and your favourite fisheries.

Contact one of our member clubs below for more information:

Albert Park Yachting & Angling Clubs Association

Contact: Patrick Hutchinson
Phone: 03 9329 8200
Email: info@apyac.org.au
Web: apyac.org.au

Association of Geelong & District Angling Clubs

Contact: John Hotchin
Phone: 03 52486817
Email: jhotchin@bigpond.net.au
Web: fishinggeelong.com

Australian Anglers Association (VIC)

Contact: Tim Hose
Phone: 0428 521 449
Web: aaavic.org

Australian National Sportfishing Association (VIC)

Contact: Darren Wloch
Phone: 0414 383 477
Email: dwloch@borcor.com.au
Web: ansavic.com.au

Ballarat & District Anglers Association

Contact: Geoff Cramer
Phone: 0418 320 139
Email: gcramer@chw.net.au

Beaumaris Motor Yacht Squadron

Contact: Brian Wright
Phone: 0421 764 370
Email: bwgarden@optusnet.com.au
Web: bmys.com.au

Boating Victoria

Contact: Wallace Nicholson
Phone: 03 9585 1330
Email: boating@yachtingvictoria.com.au
Web: boatingvictoria.com.au

Council of Victorian Fly Fishing Clubs

Contact: Doug Braham
Phone: 03 5174 4606
Email: ddbraham@bigpond.com

Fishcare Victoria

Contact: Dave Cleeland
Phone: 0400 882 851
Email: dcleeland@fishcarevictoria.org.au
Web: fishcare.org.au

Game Fishing Association of Victoria

Contact: Geoff Fisher
Phone: 0412 005 850
Email: secretary@gfav.com.au
Web: gfav.com.au

Gippsland Angling Clubs Association

Contact: Robert Caune
Phone: 03 5155 1505
Email: robert@net-tech.com.au

Goulburn Valley Association of Angling Clubs

Contact: Wally Cubbin
Phone: 0428 942 744
Email: wcubbin@bigpond.net.au

Howqua Angling Clubs Fish Protection Association

Contact: Steven Relf
Phone: 0417 553 249
Email: srelf@optusnet.com.au

Metropolitan Anglers Association

Contact: Pat Hutchinson
Phone: 0425 701 385
Email: pjh@donkyatt.com.au

Midland & North Central Angling Association

Contact: Greg Hellsten
Phone: 0401 984 323
Email: gregh.ogp@hotmail.com

Mid Northern Association of Angling Clubs

Contact: Alan Digby
Phone: 03 5492 2822
Email: alasue@hotmail.com

Native Fish Australia

Contact: Tim Curmi
Phone: 0417 419 765
Email: timbo42b@yahoo.com.au
Web: nativefish.asn.au

North East Angling Association

Contact: Stafford Simpson
Phone: 0419 564 319
Email: vk2ast@tpg.com.au

Scuba Divers Federation of Victoria

Contact: Priya Cardinaletti
Phone: 0414 310 727
Email: priya@sdfv.org.au
Web: sdfv.org.au

South Gippsland Angling Clubs Association

Contact: Allister Dowling
Phone: 0429 001 984
Email: Jodie_dowling@bigpond.com

South West District

Association of Angling Clubs
Contact: Gary Cronin
Phone: 0417 125 127
Email: gbear@hotmail.com

Southern Freedivers

Contact: Clint Engel
Phone: 0409 613 804
Email: info@brimbosports.com
Web: southernfreedivers.org.au

Torquay Angling Club

Contact: Paul Rebbechi
Phone: 0423 209 563
Email: prebbech@gmail.com
Web: www.torquayfish.com.au

Victorian Piscatorial Council

Contact: Peter Milley
Phone: 0419 537 082
Email: pmilley@bigpond.net.au

Wimmera Anglers Association

Contact: Barry Williams
Phone: 0402 352 006
Email: barry3422@bigpond.net.au

protecting and growing inland fishing in Victoria

Making your fishing better!

Recent achievements & ongoing projects include:

A review leading to:

**The removal of closed
season on Murray cod
in Lake Eildon**

given the lack of breeding
and reliance on stocking.

✓ **DELIVERED**

**Angler access to be
maintained through
the River Red Gum
Management Plan.**

✓ **WORK IN PROGRESS**

Prolonging the Toolondo
boom trout fishery by:

**Acquiring and holding
5000 megalitres of
water at Lake Toolondo**

held by Iluka Resources.

✓ **DELIVERED**

**The closed season on
south west trout rivers
to be removed**

given lack of breeding trout
and reliance on stocking.

✓ **WORK IN PROGRESS**

**A total ban on opera
house nets in all
Victorian waters**

due to ongoing compliance
issues and impacts on wildlife
such as platypus.

✓ **WORK IN PROGRESS**

**1 million Murray cod
stocked in
Lake Eildon.**

✓ **DELIVERED**



Conducting a broad survey of
fishers to:

**Help establish a
minimum legal size
limit on trout.**

✓ **WORK IN PROGRESS**

A review supporting:

**The reduction of yellow
belly bag limits in lakes
and impoundments.**

✓ **DELIVERED**

**Murray cod and yellow
belly to be stocked into
Rocklands Reservoir.**

✓ **WORK IN PROGRESS**



www.vrfish.com.au



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