

WATERWATCH & ESTUARYWATCH

ANNUAL ACHIEVEMENTS REPORT 2015-16



Environment,
Land, Water
and Planning





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EstuaryWatch Victoria and Waterwatch Victoria are supported by the State Government of Victoria.

> West Gippsland CMA staff and EstuaryWatchers recording observations at the mouth of the Powlett River estuary.

INTRODUCTION

Citizen scientists across Victoria are helping to meet state government policy directions on active community involvement.

Active community participation in waterway management programs is a policy direction outlined in the Victorian Government's *Water for Victoria* water plan.

Community-based volunteers in the EstuaryWatch and Waterwatch programs collecting monitoring data are helping to meet this policy goal, and their activities are captured in this report.

The *Annual Achievements Report* is an update on what's been happening with the Victorian EstuaryWatch and Waterwatch programs during 2015-16.

The first section of each program report provides statistics on community engagement and the economic value of volunteer monitoring. The next section of each report takes a regional perspective, capturing the outputs and stories from participating regions, demonstrating the outcomes of active and engaged communities.

The programs' state coordinators based at the Corangamite Catchment Management Authority organise skills development and training opportunities for the region's Waterwatch and

EstuaryWatch coordinators and facilitators. These new skills increase the range of monitoring parameters useful in evaluating waterway restoration and protection programs, and the opportunities for community member involvement.

Funding for these community programs is part of the \$222 million the Victorian Government is investing in improving the health of waterways and catchments in regional Victoria.

The report shows how these community monitoring programs assist waterway managers to meet improved management outcomes.



VOLUNTEER MONITORING SITES



There is a large amount of citizen science data being collected on Victoria's waterways.

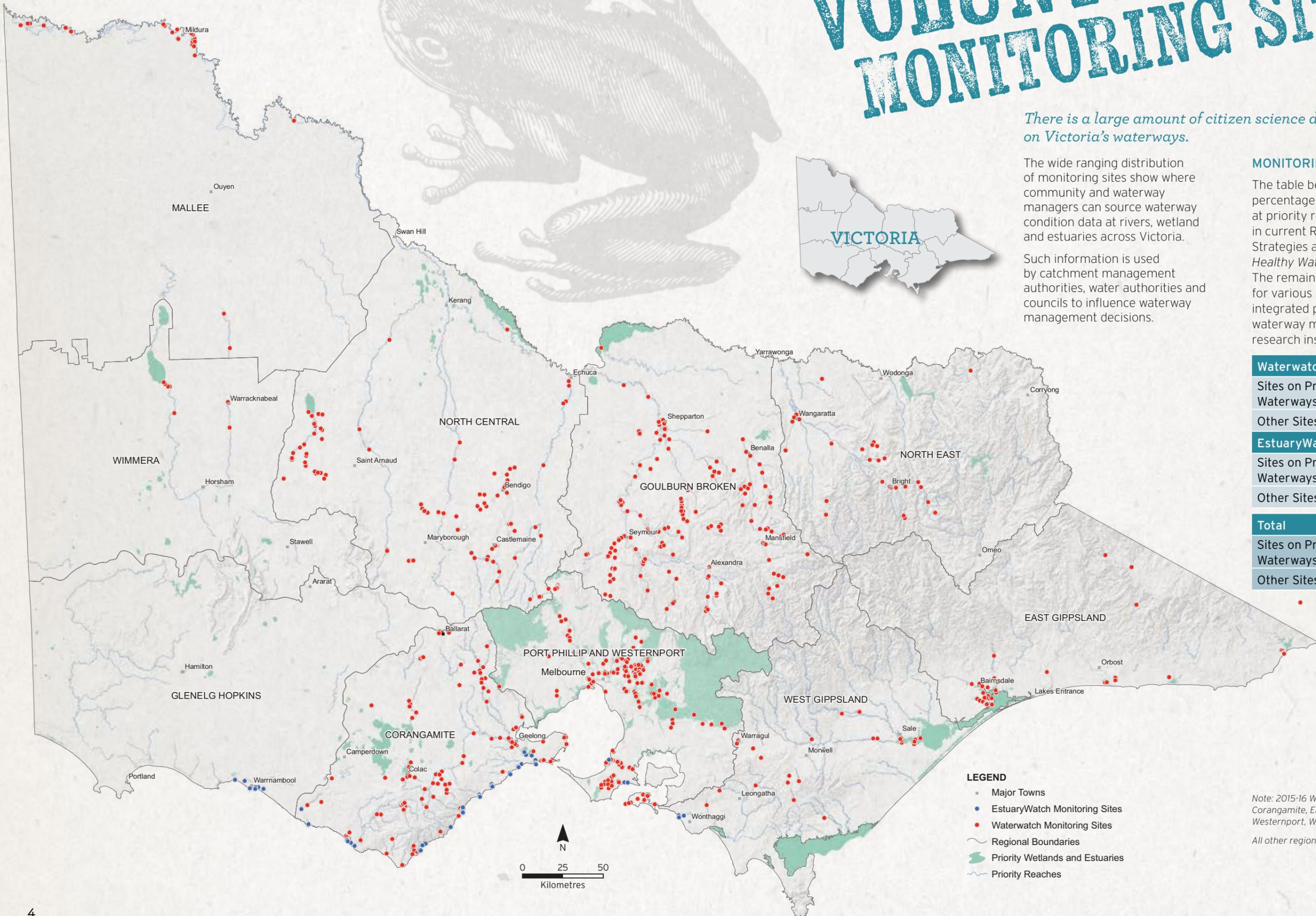
The wide ranging distribution of monitoring sites show where community and waterway managers can source waterway condition data at rivers, wetland and estuaries across Victoria.

Such information is used by catchment management authorities, water authorities and councils to influence waterway management decisions.

MONITORING SITES SUMMARY

The table below shows the percentage of monitoring occurring at priority reaches identified in current Regional Waterway Strategies and Melbourne Water's Healthy Waterway Priority Areas. The remaining sites are monitored for various purposes including integrated programs with land and waterway managers, councils and research institutions.

Waterwatch	
Sites on Priority Waterways	376 (49%)
Other Sites	398 (51%)
EstuaryWatch	
Sites on Priority Waterways	89 (84%)
Other Sites	17 (16%)
Total	
Sites on Priority Waterways	465 (53%)
Other Sites	415 (47%)



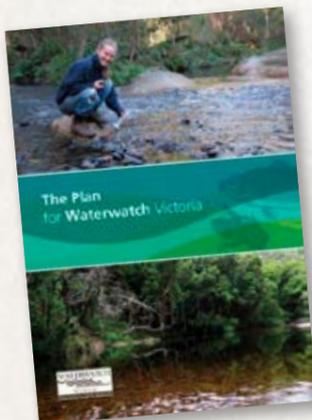
- LEGEND**
- Major Towns
 - EstuaryWatch Monitoring Sites
 - Waterwatch Monitoring Sites
 - Regional Boundaries
 - Priority Wetlands and Estuaries
 - Priority Reaches

Note: 2015-16 Waterwatch data only for Corangamite, East Gippsland, Port Phillip & Westernport, West Gippsland and Wimmera. All other regions reporting with 2014-15 data.

WATERWATCH VICTORIA



Hon Lisa Neville MP and Clifton Springs Primary School pupils taking part in activities at the launch of the Plan for Waterwatch.



WHAT HAVE WE LEARNT:

- Ministerial launch of the Plan for Waterwatch 2015 <http://www.vic.waterwatch.org.au/resources/15%200417%20The%20Plan%20for%20WW%20Victoria.pdf>
- Ministerial launch of the Plan for EstuaryWatch 2015 <http://www.estuarywatch.org.au/resources/The%20Plan%20for%20EstuaryWatch%20Victoria%20-%202015%20-%20Web.pdf>

THE WATERWATCH PROGRAM

Waterwatch Victoria has successfully engaged people with their local waterway since 1993, raising awareness about river health and waterway management.

In 2015-16, the staff delivering the Waterwatch program engaged with 21,712 people at presentations, field days, meetings, conferences, workshops and training events.

ABOUT THE WATERWATCH COORDINATORS

Seventeen staff (11.45 FTE) coordinate and facilitate the Waterwatch program across nine Victorian CMA regions. They are employed in CMAs, water authorities and councils.

The Victorian Waterwatch Program Coordinator (0.4 FTE) for the regional Waterwatch coordinators and facilitators:

- organised training days and meetings
- coordinated quality assurance activities
- managed Waterwatch website
- developed online resources
- advocated for regions at a state level.

ABOUT THE VOLUNTEER WATERWATCH MONITORS

The following numbers demonstrate the monetary value of Waterwatch volunteers' annual contribution. 952 volunteer monitors conducted 816 water quality tests.

The frequency of monitoring varied from monthly, quarterly and seasonal surveys, to event-based monitoring.

These volunteers contributed 9,792 hours to care for waterways. At a rate of \$33.61 per hour¹, the economic value of the year's Waterwatch volunteer effort in 2015-16 is \$329,109.

ABOUT THE PLACES MONITORED

49% of Waterwatch monitoring takes place in identified priority reaches (refer to map on pages 4 & 5). The remaining sites are monitored for other purposes, including natural resource management activities integrated with university, council and catchment projects.



*Volunteers contributed 9,792 hours to care for waterways...
...the economic value of the year's Waterwatch volunteer effort in 2015-16 is \$329,109*

ABOUT THE DATA GATHERED

Waterwatch monitors provide highly credible data to waterway managers at standard three or above i.e. high quality data. In 2015-16, 85 per cent of water quality data collected and recorded in the Waterwatch Victoria database was standard three and four. To illustrate why data confidence is important, only standard three and four data generated by Waterwatch monitors was used to evaluate waterway condition in the Third Index of Stream Condition Report (ISC3), published in 2013.



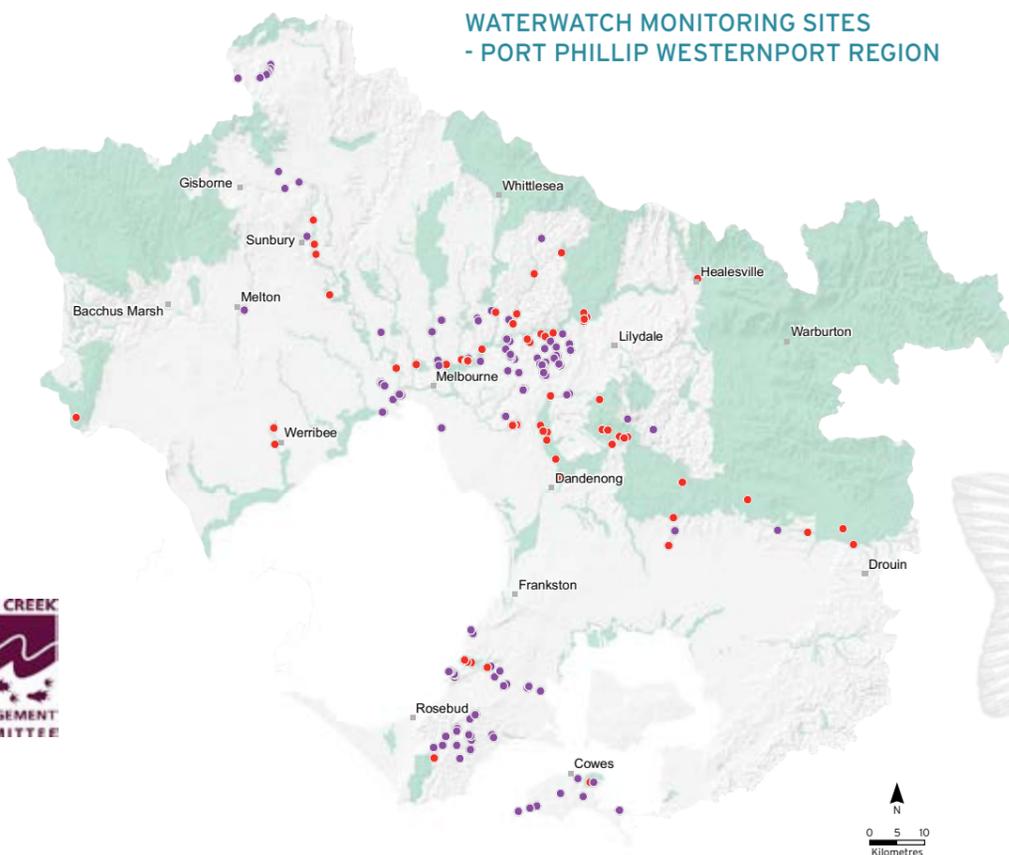
Agreed Level Taxonomy training provides coordinators with improved skills and knowledge.



¹ Government of Victoria, The Economic Value of Volunteering in Victoria, 2012 www.volunteeringvictoria.org.au/wp-content/uploads/2012/02/The-Economic-Value-of-Volunteering-in-Victoria.pdf

MELBOURNE WATERWATCH

WATERWATCH MONITORING SITES - PORT PHILLIP WESTERNPORT REGION



ABOUT THE MELBOURNE WATERWATCH PROGRAM

Active Groups	71
Active Sites	272
Active Volunteers	665

Event participation	People
Training	118
Presentation	1,018
Field day	6,140
Work shop	80
Conference	205
Meeting	105
Total	7,676

Melbourne Waterwatch has six (5.3 FTE) coordinators delivering the program.

WHAT HAVE WE LEARNT:

Waterbug census, launched in 2015-16, engages the community in measuring the health of local waterways by identifying the abundance and diversity of macroinvertebrates in local rivers and creeks. There are online tools and resources available here <https://www.melbournewater.com.au/getinvolved/protecttheenvironment/Pages/Waterbug-Census.asp>

Resources can be viewed at www.melbournewater.com.au

LEGEND

- Sites on Priority Waterways
- Other Sites
- Melbourne Water Priority Areas
- Major Towns

PLATYPUS CENSUS 2015-16

Untangling the platypus in Diamond Creek.

Diamond Creek has been the focus of our platypus program in Melbourne during 2015-16, as it is a hotspot for platypus becoming entangled in litter (approximately one out of two is found with litter entanglement).

Our program worked with local government and VCAL students to raise awareness of this issue and develop a large mural along the creek.

An education program was also run with a number of local primary schools. The results from recent platypus surveys have been encouraging, but more work needs to be done to reach our goal of a healthy platypus population that is free of litter entanglements.

1 out of 2 Platypus are found entangled in Diamond Creek's litter, threatening the health of our 'aquatic friends'



CASE STUDY

CITY OF DAREBIN WATERWATCH MONITORING GROUPS

Towards the end of 2015-16, in partnership with the City of Darebin, an intensive monitor recruitment program resulted in 7 new monitors.

After two successful monitoring training days, with 17 enthusiastic participants, three new sites have been added to the City of Darebin Waterwatch monitoring portfolio.

Two of the new sites are monitoring a large stormwater drain into the Darebin Creek at Preston, which has a history of degraded water quality including large amounts of surfactants (detergents) and pesticides frequently being present (refer to Heidelberg Leader newspaper 29/06/16 & Preston Leader newspaper 10/04/2012).

This has resulted in dying eels and fish (mainly European Carp, the dominant fish species) because surfactants, in particular, limit aquatic species' ability to thrive.

Darebin Council were very keen to have these sites monitored to be able to keep an eye on these chemicals as well as other stormwater pollution.

Two new monitoring groups, the Reservoir Frogs and the Darebin Creek at Preston Waterwatch have begun monitoring and they will keep local waterway managers updated on current water quality results.



City of Darebin Waterwatch monitors.

MALLEE WATERWATCH



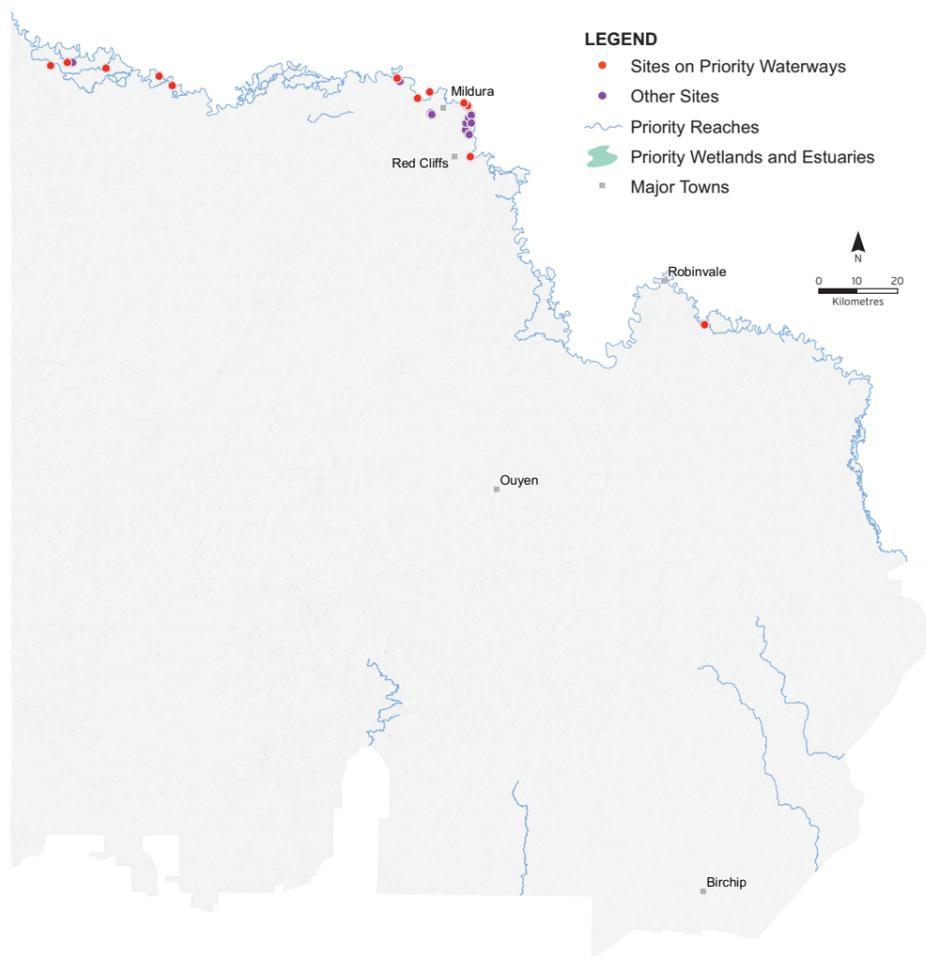
Mallee Waterwatch has one (0.5 FTE) coordinator deliver the program.

ABOUT THE MALLEE WATERWATCH PROGRAM

Active Groups	1
Active Sites	10
Active Volunteers	42

Event participation	People
Training	15
Presentation	28
Field day	105
Work shop	56
Conference	86
Meeting	12
Total	302

WATERWATCH MONITORING SITES - MALLEE REGION



WHAT HAVE WE LEARNT:

Communities are interested in understanding and learning about the health of their wetlands.

The best way we can do this is by providing hands on activities in which community members have the opportunity to 'experience' their wetland.

Resources can be viewed at www.malleecma.vic.gov.au



MALLEE WATERWATCH COMMUNITY ENGAGEMENT

Mallee Waterwatch had an exciting year with plenty of community events and water monitoring activities to help people better understand the health of local wetlands.

These activities have helped foster a strong sense of pride and ownership among Mallee Waterwatch volunteers, with the following highlights for the year:

- The Woomelang Primary School was keen to monitor its much loved local wetland; Cronomby Tanks. Mallee CMA organised for the students to sample the water and work with the Citizen Science project officer to identify the macroinvertebrates living in the wetland.

Ten taxonomic groups were identified at the wetland, the majority of which were classed within the sensitive to tolerant groups. Mayflies and Stoneflies were sampled, which is an exciting find as they are rare species to find in Mallee wetlands.

The students also counted a high number of macroinvertebrates, indicating a wetland with healthy habitat. The monitoring program allowed the students to investigate their question - *Was the rehabilitation work undertaken by the community having an impact on the wetland?* The answer is: Yes! This is a wetland that has been classified as being in very good condition.

- The Mallee CMA's Bug Blitz program was also very popular across the region, with more than 100 students participating in the program during 2015-16. The students used magnifying glasses to explore and discover the macroinvertebrates living in their local wetlands.

In-depth discussions were held with the students on the role macroinvertebrates play in the ecosystem and the link between them and water quality.

- A 'Catch a carp' fishing day was held at Sandilong creek, located within the Riverside Golf course, on the outskirts of Mildura. The day attracted many families and presented an excellent opportunity to talk with people about the harmful impact carp have on water quality. The day included presentations from scientists, who helped reinforce the key messages around carp and deterioration of water quality.



The monitoring program investigated what impact the communities' rehabilitation work had on the wetland



School and community groups at work.



NORTH CENTRAL WATERWATCH



ROB'S A MAN FOR ALL SEASONS

When the fish stop biting, Rob knew something was wrong in the lower Avon-Richardson River.

Twenty years ago, keen Donald fisherman Rob Loats was frustrated the fish were not biting at the angling club's long-term favourite spot in the lower Avon-Richardson River. Locals kept telling him the water looked fine, so all must be good. He wasn't so sure.

"The fishing had dropped off below Donald. The water was always clear but we weren't catching any fish like we did years before," he said.

So Rob decided to take a couple of samples of the water along to the Wimmera Mallee Field Days and have it tested at the Waterwatch tent. It was the highest salinity levels they had seen for the entire field days. Rob said "It was a bit of a shock to see the levels so high."

The Waterwatch coordinator, Jeanie Clark, asked Rob to become a regular monitor. "I have been doing it every month since. I don't think I've missed one. It's been a long and interesting time. Many thanks to the North Central Catchment Management Authority's Waterwatch staff," Rob said.

"The sad fact is the river hasn't improved. The salinity levels in the river at the moment are comparable to the Pacific Ocean. It has been higher, and in places like Little Lake Buloke it is often higher again."

Salinity levels are recorded by measuring electricity conductivity, in micro Siemens per centimetre, or $\mu\text{s}/\text{cm}$. Healthy levels of salinity are less than $500 \mu\text{s}/\text{cm}$ for freshwater ecosystems.

Rob's latest results included Richardson's River readings at Guthrie's Bridge of $70,200 \mu\text{s}/\text{cm}$, $50,200 \mu\text{s}/\text{cm}$ at Bullock's Head and $49,300 \mu\text{s}/\text{cm}$ at the Donald Apex Park.

"Low flows combined with groundwater coming up and getting into the river are what causes the high salinity levels. We are going to have to live with it. It's across the entire lower catchment.

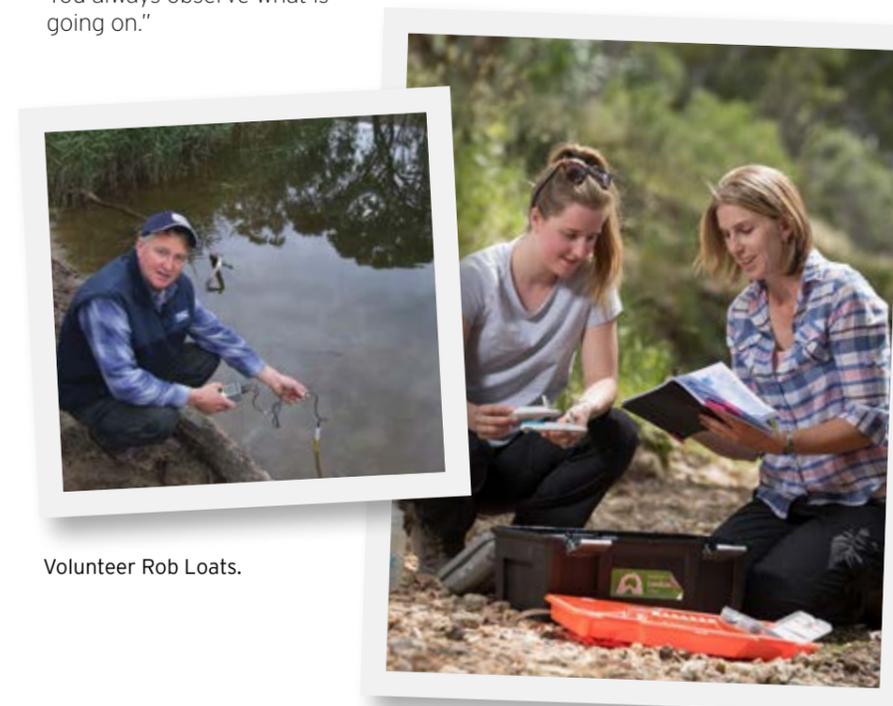
"When the river floods, salinity levels drop dramatically. Once the river flows subside, salinity begins to increase at all the sites below the weir. If follow-up flows are not forthcoming, pools develop, water evaporates and hyper salinity levels are not uncommon.

"However it is important to continue monitoring. It's always interesting and gets you out in the environment. You always observe what is going on."



20 years ago, keen Donald fisherman Rob Loats was frustrated the fish were not biting at the angling club's long-term favourite spot

Rob's commitment to Waterwatch and the local community was recognised with a special presentation by Cass Davis and Jeanie Clark at Donald's Family Fishing Day on January 29.



Volunteer Rob Loats.

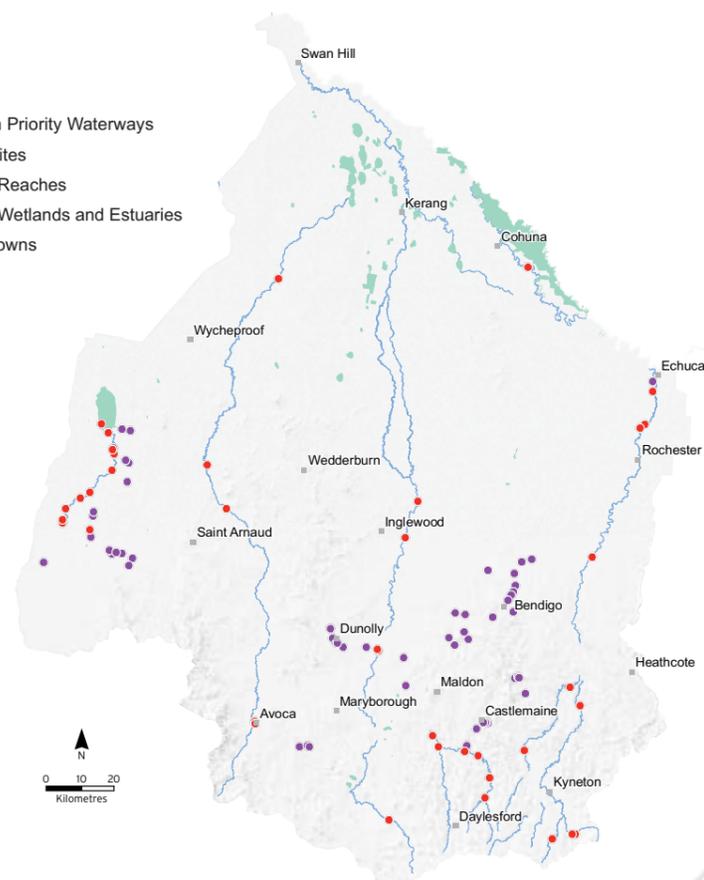
Water quality testing with volunteers.

WATERWATCH MONITORING SITES - NORTH CENTRAL REGION



North Central Waterwatch has one (1 FTE) coordinator deliver the program.

- LEGEND**
- Sites on Priority Waterways
 - Other Sites
 - ~ Priority Reaches
 - Priority Wetlands and Estuaries
 - Major Towns



ABOUT THE NORTH CENTRAL WATERWATCH PROGRAM

Active Groups	1
Active Sites	117
Active Volunteers	52

Event participation	People
Training	137
Presentation	3,372
Field day	600
Work shop	-
Conference	-
Meeting	-
Total	4,109

WHAT HAVE WE LEARNT:

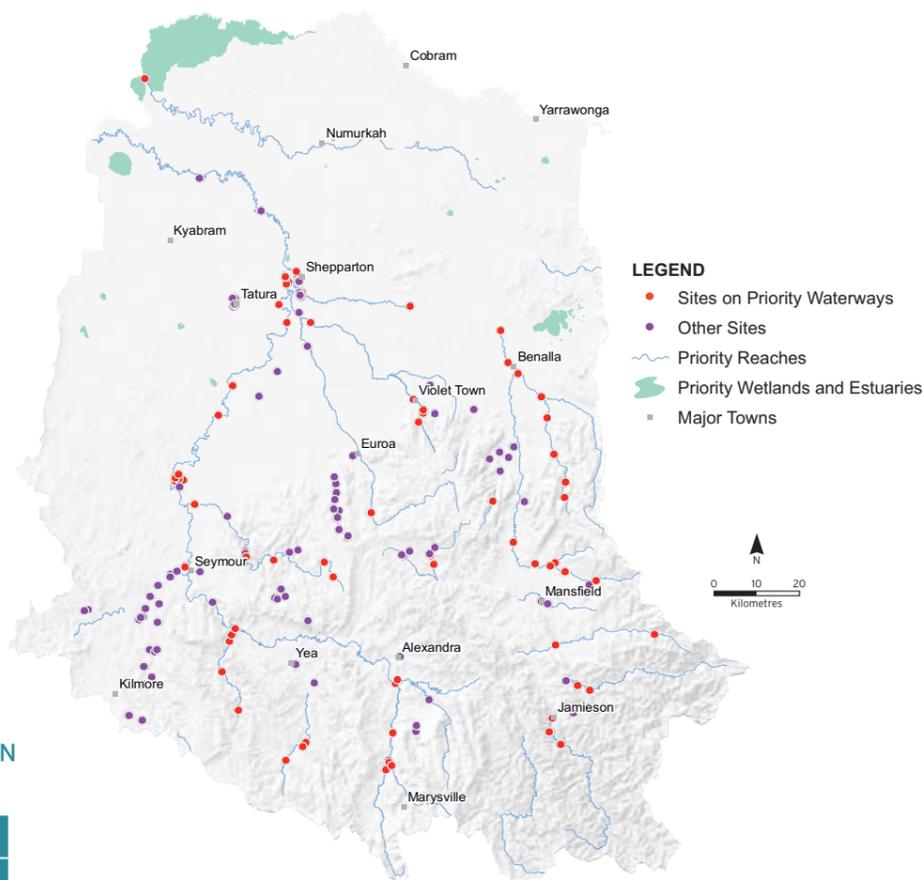
The Natureblitz app is used to record fish, mammals, waterbirds and frogs in the North Central region and was launched at the Annual Water Science Forum.

www.nccma.vic.gov.au



GOULBURN BROKEN WATERWATCH

WATERWATCH MONITORING SITES - GOULBURN BROKEN REGION



ABOUT THE GOULBURN BROKEN WATERWATCH PROGRAM

Active Groups	1
Active Sites	185
Active Volunteers	43

Event participation	People
Training	27
Presentation	3,670
Field day	550
Work shop	-
Conference	-
Meeting	-
Total	4,247

Goulburn Broken Waterwatch has four coordinators deliver the program.

WHAT HAVE WE LEARNT:

Waterwatch community monitors provide important feedback on the condition of water quality along waterways Goulburn Broken.

Reports can be found at www.gbwaterwatch.org.au

MACQUARIE PERCH HABITAT RESTORATION IN HUGHES CREEK



In 2014 Goulburn Broken Waterwatch became involved in a project with Goulburn Broken Catchment Management Authority (GBCMA) to improve stream health and habitat for the nationally endangered Macquarie Perch in Hughes Creek near Avenel.



Habitat improvement works, including re-snagging the creek, can increase the number, length and quality of both pools and gravel riffles

This once widespread species has declined dramatically since the 1920s. The population in Hughes Creek is one of only 11 remaining.

Macquarie Perch reside in deep pools, and spawn in fast shallow water that passes over riffles.

The GBCMA is working to improve the length, number and condition of riffles and pools within Hughes Creek with a long-term aim of reconnecting this population to the Goulburn River, and other isolated populations in King Parrot Creek and Yea River.

Habitat improvement works, including re-snagging the creek, can increase the number, length and quality of both pools and gravel riffles. Improvement of riparian vegetation, encouraging colonisation of macrophytes such as reeds and rushes, will also stabilise the sand within the channel.

Goulburn Broken Waterwatch conducted autumn and spring macro-invertebrate surveys at six sites, while Arthur Rylah Institute conducted fish surveys.

These will be used to monitor changes in the diversity since the habitat improvement works have been undertaken.

Unfortunately flooding in January of 2016 saw several of the habitat structures washed away, and further work to restore these was undertaken.

This meant interference between the spring and autumn macro-invertebrate surveys and a requirement for additional surveys to complete a proper assessment.

Data analysis is currently underway, and it is hoped that this will show an improvement in the macro-invertebrate communities that are present post the habitat restoration.



Sampling Hughes Creek at Booroola-Avenel Spring.



Time-lapse camera monitoring flows and change.

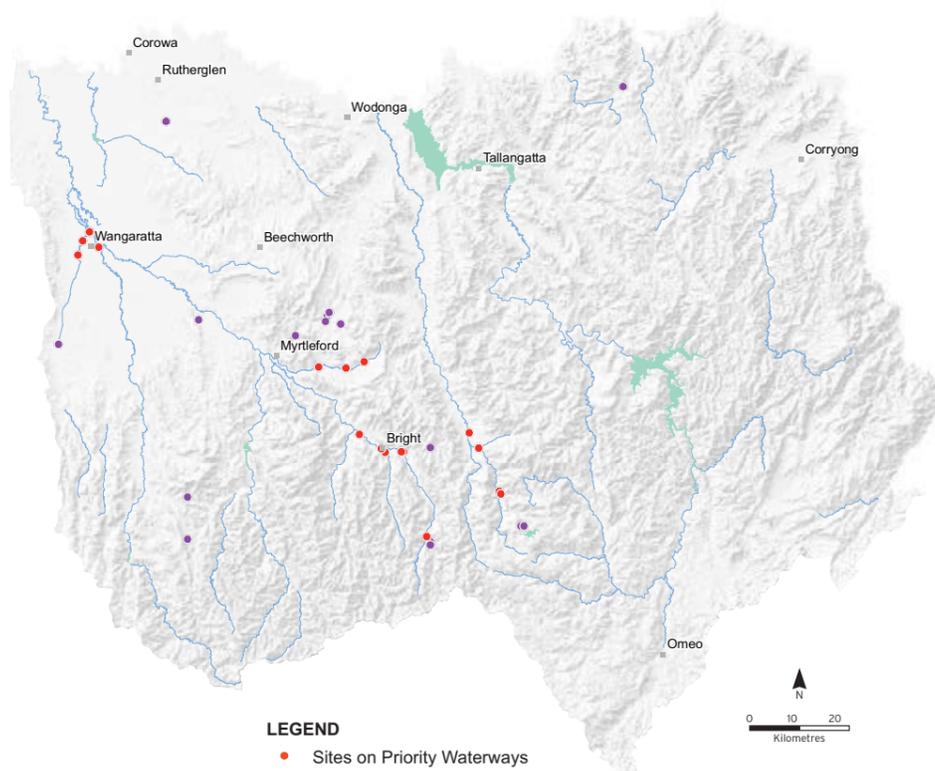
NORTH EAST WATERWATCH

WATERWATCH MONITORING SITES - NORTH EAST REGION

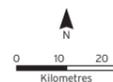


NORTH EAST CATCHMENT MANAGEMENT AUTHORITY

North East Waterwatch has one (0.2 FTE) coordinators deliver the program.



- LEGEND**
- Sites on Priority Waterways
 - Other Sites
 - Priority Reaches
 - Priority Wetlands and Estuaries
 - Major Towns



ABOUT THE NORTH EAST WATERWATCH PROGRAM

Active Groups	12
Active Sites	36
Active Volunteers	37

Event participation	People
Training	44
Presentation	595
Field day	75
Work shop	30
Conference	-
Meeting	-
Total	774

WHAT HAVE WE LEARNT:

Waterwatch staff produce an annual report on the data collected by Waterwatch monitors with at least 11 points of data are collected for the 12-month period. This data is compared to the State Environmental Protection Policy Guidelines for Waters of Victoria.

2015-16 Annual Waterwatch Data Report <http://www.necma.vic.gov.au/Portals/0/files/Pdf/Waterwatch/Waterwatch%20data%20report%202015-2016a.pdf?ver=2016-08-04-103638-137>

Reports can be found at www.necma.vic.gov.au

CELEBRATING WATERWATCH MONITORS IN NORTH EAST VICTORIA



The work of dedicated volunteer monitors adds up! A cumulative total of 270 years of water quality monitoring has been achieved by 50 Waterwatch volunteer monitors in the North East Catchment Management Authority since 1999.

At a celebratory dinner to recognise the wonderful work of Waterwatch and Landcare volunteers in North East Victoria, North East CMA CEO Mr Neil McCarthy recognised a cumulative total of over 2,200 years of voluntary service by Waterwatch, Landcare and related community groups.

Waterwatch volunteers are passionate about the environment and have become guardians of and advocates for their local waterways.

The 39 Waterwatch volunteers regularly monitoring water quality at 41 sites North East Waterwatch program have provided the North East CMA with quality data on the condition, and changes, of waterways in the region, thereby helping to monitor and report on the state of the environment.

Mr McCarthy presented Waterwatch volunteers with Certificates of Recognition for their dedicated service to the North East Waterwatch program. Some Waterwatch volunteers have been monitoring their sites for up to ten years, an outstanding contribution.

The contribution of volunteers to Landcare and other community groups was also recognised at the event, celebrating 30 years of Landcare in Victoria.

To continue this recognition, Mr McCarthy launched the call for the 2016 North East Natural Resource Management (NRM) Awards, to celebrate the work of people in the community who make a difference to the region's natural environment.



A cumulative total of 270 years of water quality monitoring has been achieved by 50 Waterwatch volunteer monitors since 1999



Coordinator training in Agreed Level Taxonomy provides improved skills and knowledge in aquatic invertebrate surveys.

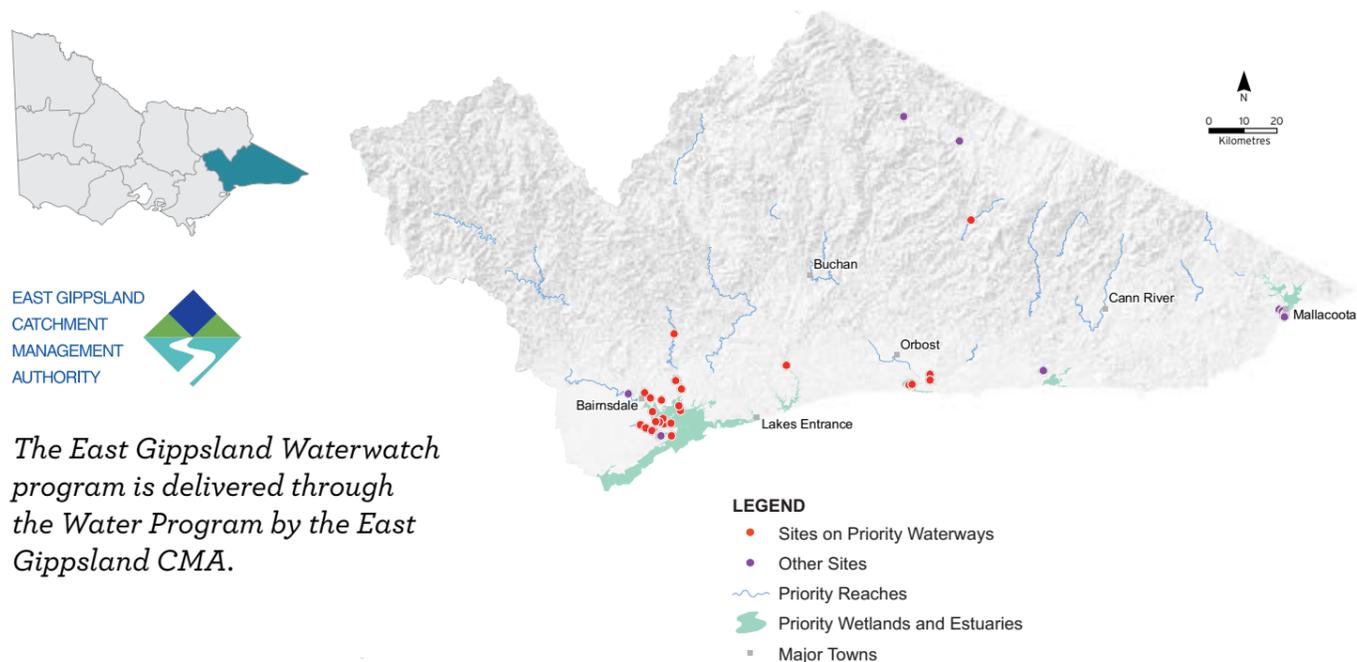


Mr Neil McCarthy and Waterwatch, Landcare and related community groups at a celebratory dinner.



EAST GIPPSLAND WATERWATCH

WATERWATCH MONITORING SITES - EAST GIPPSLAND REGION



The East Gippsland Waterwatch program is delivered through the Water Program by the East Gippsland CMA.

ABOUT THE EAST GIPPSLAND WATERWATCH PROGRAM

Active Groups	1
Active Sites	16
Active Volunteers	3
Event participation	People
Training	-
Presentation	-
Field day	-
Work shop	-
Conference	-
Meeting	-
Total	-

WHAT HAVE WE LEARNT:

Waterwatch community monitors provide important feedback on the condition of water quality along waterways in East Gippsland.

Resources can be viewed at www.egcma.com.au



BEC HEMMING - LEADING BY EXAMPLE

Developing healthy rivers in East Gippsland.



Bec Hemming, Program Manager with the East Gippsland Catchment Management Authority (CMA) was recognised for her leading role in developing healthy rivers in East Gippsland by co-authoring the key note presentation at the International River Symposium in Brisbane.

The presentation by Professor Jane Doolan from the Institute of Applied Technology at the University of Canberra, outlined a framework piloted by East Gippsland to explain the stages of helping shape healthy rivers through long-term strategic planning, monitoring and effective communication with governments and the community.

Chair of the East Gippsland CMA, Dr Peter Venkeer said: "It is significant that Bec's hard work and the framework developed from experience in our region is being highlighted on the international stage."

"It's fantastic recognition for East Gippsland, the work of the CMA and Bec's contribution to this field."

Recently, the work undertaken on the Buchan River Rehabilitation Project by the CMA was also acknowledged as an outstanding waterway project at the River Basin Management Society (RBMS) awards event held in Melbourne.

The RBMS is a representative body for professionals working with land, water and natural resource management in Australia and the aim of the continuing project is to improve the stability of the bed and banks of this heritage listed river, working in conjunction with landowners of the Buchan Valley.



It is significant that Bec's hard work and the framework developed from experience in our region is being highlighted on the international stage



Buchan River, East Gippsland.



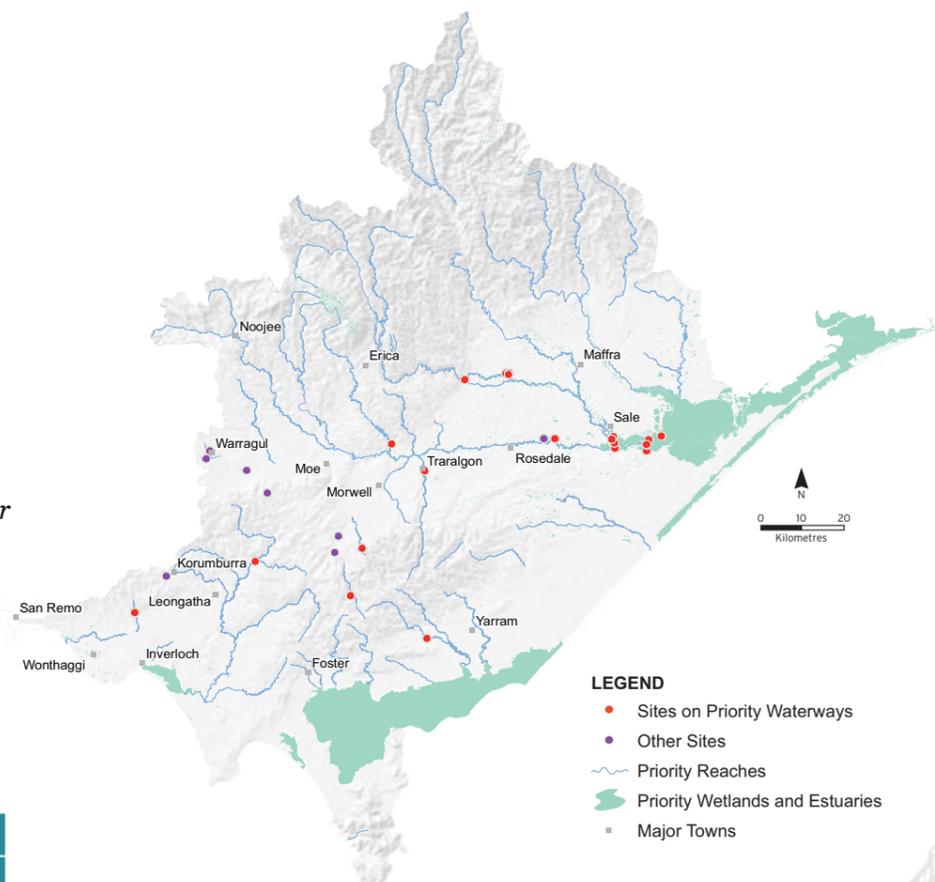
Bec Hemming and Professor Jane Doolan at the International River Symposium.

WEST GIPPSLAND WATERWATCH

WATERWATCH MONITORING SITES - WEST GIPPSLAND REGION



West Gippsland Waterwatch has one (0.1 FTE) coordinator deliver the program.



- LEGEND**
- Sites on Priority Waterways
 - Other Sites
 - Priority Reaches
 - Priority Wetlands and Estuaries
 - Major Towns

ABOUT THE WEST GIPPSLAND WATERWATCH PROGRAM

Active Groups	4
Active Sites	31
Active Volunteers	21

Event participation	People
Training	19
Presentation	-
Field day	252
Work shop	-
Conference	-
Meeting	-
Total	271

WHAT HAVE WE LEARNT:

Quality Assurance Quality Control (QAQC) events are a great opportunity to learn about monitoring from CMA staff and from other citizen scientists.

Resources can be viewed at www.wgcma.vic.gov.au



WATERWATCH MONITORS LOWER LATROBE WETLANDS

Long-term monitoring identifies when watering activities take place.

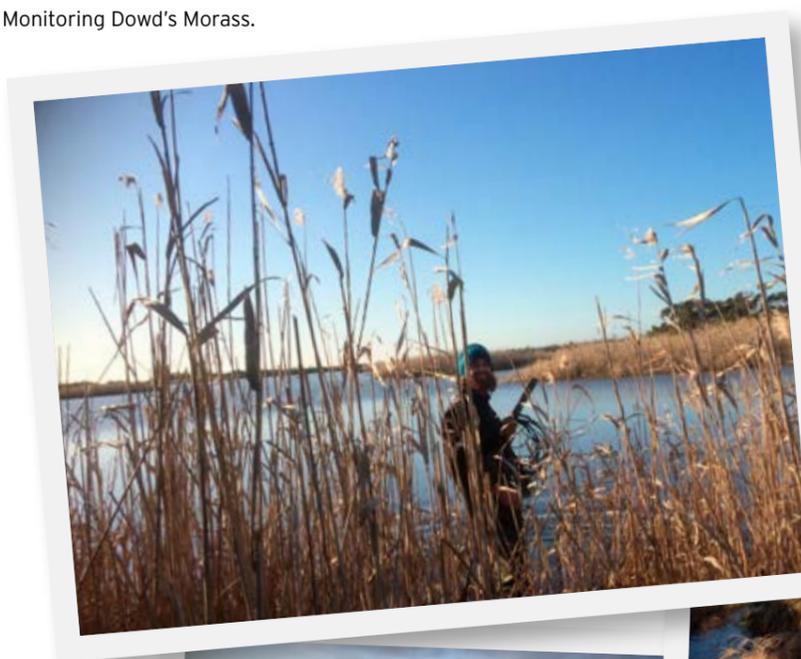
Since the mid 1990s Waterwatch volunteers and staff have been actively monitoring the Lower Latrobe Wetlands (i.e. part of the Gippsland Lakes RAMSAR site), in an effort to ensure quality data is available to inform the environmental watering activities required to maintain the integrity of the wetlands, and the flora and fauna which they support.

Specifically, this data is used; to assess the effects of differing flow regimes and quantities on wetland water quality and level; to detect long-term water quality trends and patterns, to identify potential risks associated with watering or not watering on wetland flora and fauna; and to assist in deciding on the timing of watering activities.



Data is used to assess the effects of differing flow regimes and quantities on wetland water quality and levels

Monitoring Dowd's Morass.



River Redgums at Dowd's Morass.



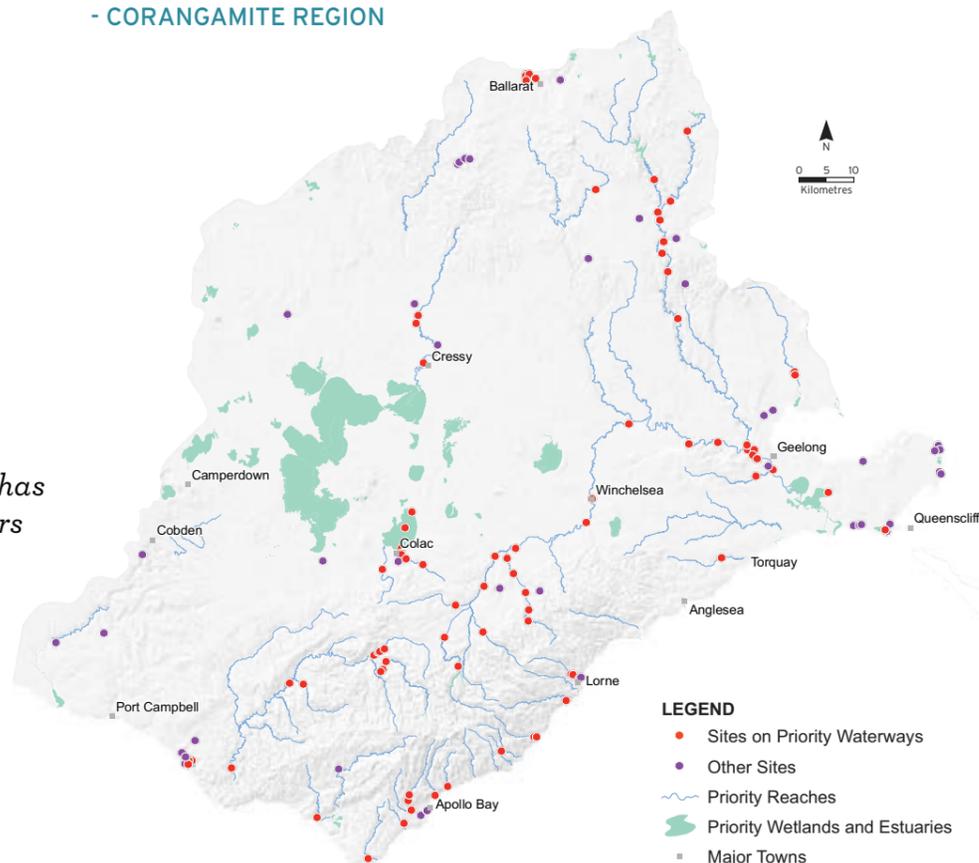
Sale Common.

CORANGAMITE WATERWATCH

WATERWATCH MONITORING SITES - CORANGAMITE REGION



Corangamite Waterwatch has three (2.4 FTE) coordinators deliver the program.



LEGEND

- Sites on Priority Waterways
- Other Sites
- ~ Priority Reaches
- ~ Priority Wetlands and Estuaries
- Major Towns

ABOUT THE CORANGAMITE WATERWATCH PROGRAM

Active Groups	24
Active Sites	127
Active Volunteers	74

Event participation	People
Training	787
Presentation	1,361
Field day	2,016
Work shop	-
Conference	-
Meeting	-
Total	4,164

WHAT HAVE WE LEARNT:

Documents published include:

- We have produced the Watchout! quarterly newsletter to provide information to volunteers, monitors, stakeholders and the online community. Click here to see the most current Watchout! newsletter and past issues <http://www.ccma.vic.gov.au/News-Events/Newsletters.aspx>
- The EPA's Report Card was developed in 2013 as part of the Yarra & Bay Plan to report on the health of Port Phillip Bay and its associated catchments using water quality indicators. They provide examples of some actions undertaken by government and community that have resulted in a positive impact on water quality. The Report Card can be viewed at <http://yarraandbay.vic.gov.au/report-card>

Resources can be viewed at www.ccma.vic.gov.au

CORANGAMITE WATERWATCHERS IMPACTED BY BUSHFIRE

Over the hot summer days leading up to the end of 2015, many people in the Corangamite region were impacted directly by bushfire.



Water quality is impacted by ash, sediment and increased organic debris after fires, particularly after rainfall events

The Scotsburn fires and the Lorne fires (Wye River - Separation Creek) burnt the properties of Waterwatch community monitors, but thankfully families were safe.

The fire damaged the homes, feed and stock on many properties.

Many people who volunteer for Waterwatch are also volunteer CFA members.

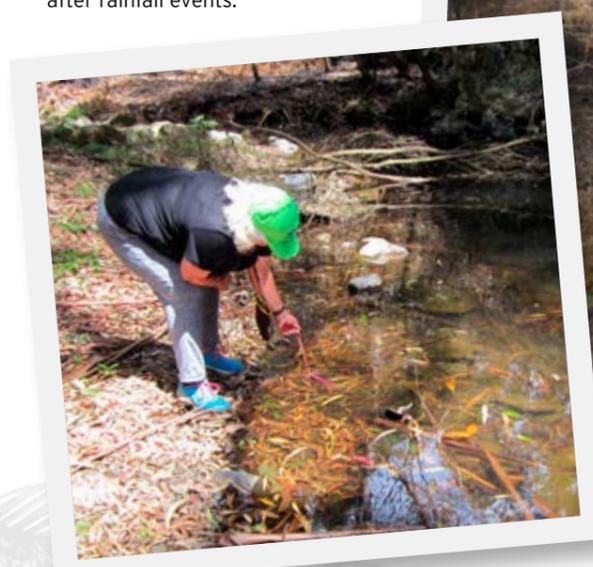
We extend our thanks and support to these people who do so much for not only our environment, but also our community.

At Wye River, the existing Waterwatch sites provided the Victorian Environment Protection Authority (EPA) with important baseline condition on water quality.

The EPA did regular water quality monitoring and liaised with the community recognising the value of having skilled water testers ready to mobilise in the event of high rainfall and river flow.

The baseline data from community monitors was invaluable in determining if the waterway has been impacted and how quickly it recovered.

The community monitors from Wye River conduct their first water quality monitoring activities since the fires on Christmas day 2015. Water quality will be impacted by ash, sediment and increased organic debris particularly after rainfall events.



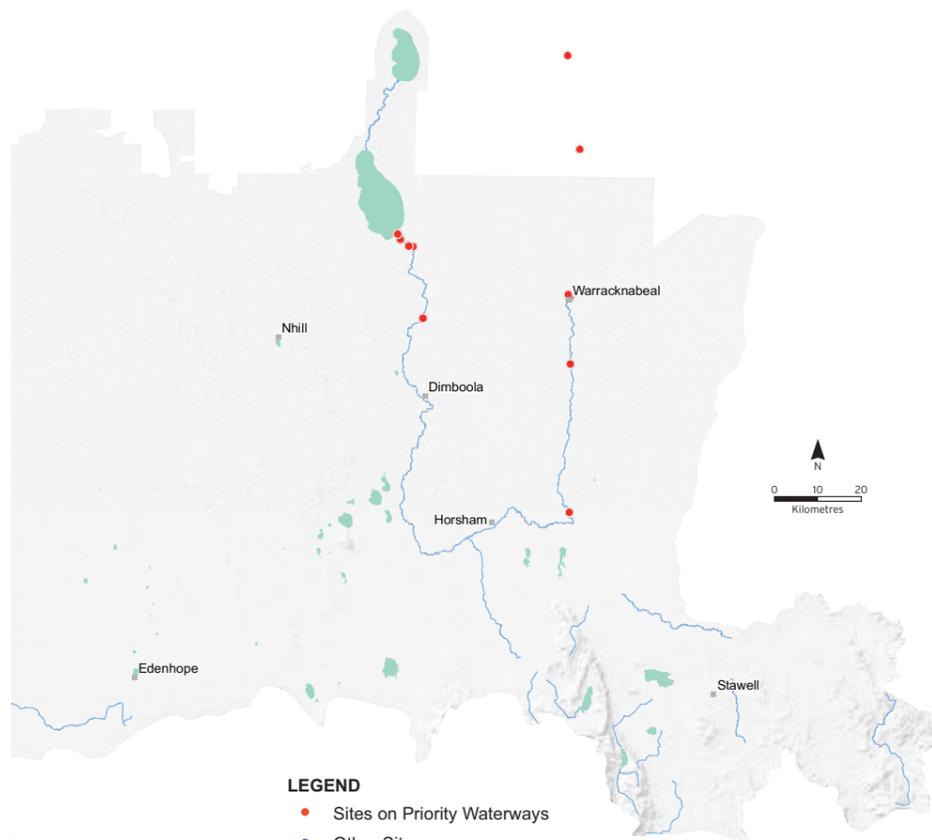
Russell and Marie Ford inspect their Waterwatch site (monitored since 1995) on Williamson Creek after the Scotsburn fires in December 2015.

WIMMERA WATERWATCH

WATERWATCH MONITORING SITES - WIMMERA REGION



The Wimmera Waterwatch program does not have dedicated coordinators or facilitators.



- LEGEND**
- Sites on Priority Waterways
 - Other Sites
 - Priority Reaches
 - Priority Wetlands and Estuaries
 - Major Towns

ABOUT THE WIMMERA WATERWATCH PROGRAM

Active Groups	1
Active Sites	22
Active Volunteers	15

Event participation	People
Training	48
Presentation	143
Field day	-
Work shop	-
Conference	-
Meeting	8
Total	199

WHAT HAVE WE LEARNT:

Waterwatch community monitors provide important feedback on the condition of water quality along the Wimmera River.

Resources can be viewed at www.wcma.vic.gov.au



21 YEARS OF MONITORING

What changes have you noticed in our Wimmera's waters in the last year and in the last 21 years?

Jeparit Waterwatch (JWW) has just clocked up 21 years of monthly monitoring of over half a dozen sites along the Wimmera River and Lake Hindmarsh.

Aged from 20 to over 80, the JWW volunteers meet monthly at the Jeparit Museum to test water quality and note changes in the River environment and its wildlife.

"Visitors and new members are welcome to join us, and share in the activities and chat" said Frank, JWW monitor.

What changes has JWW noticed in the last year? Water quality, weir pool level, birdlife and fish life, weed trees, receding back waters.

"In reviewing our data, in May 2016, five years on from the flood of Jan 2011, all signs of that flow have gone" Jeanie, JWW monitor reported.

"Until the last six months, the river had mostly been under "saline" water level - and that is better than for much of the last 21 years at Jeparit."

However, in the last year, the river salinities along the winding river at Jeparit have been going up monthly, over the "saline" water level in January and reaching a peak in April.

Recent rain since then brought them down a little in May - a bit of a good news for the JWW 21st birthday! Going out from the town area, there is no water in the River bed leading into Jeparit and nor at Lake Hindmarsh, which has been dry since February 2014.



For 21 years the Jeparit Waterwatch team have met monthly to test the water quality and note changes in the Wimmera River and its wildlife

Like the farming community, JWW is also hoping for good rains in the coming months. "The River needs a good flush at Jeparit.

"We hope it will come and we'll record this, rather than a continuing rise in salinity like it did in the first decade of this century" JWW monitor Martin said.



Wimmera River salinities data May 1995 - May 2016.

Jeparit Waterwatch Hall of Fame volunteers.

ESTUARYWATCH VICTORIA

THE ESTUARYWATCH PROGRAM

EstuaryWatch Victoria has successfully engaged people with their local estuary since 2006, raising awareness about estuary health and estuary management.

Waterway managers across Victoria have used EstuaryWatch data to inform artificial estuary openings, algal bloom management, flow assessments, acid sulphate soil impacts on estuary condition, works on waterways and flood studies.

ABOUT THE ESTUARYWATCH COORDINATORS

There are six coordinators in four CMA regions across Victoria supporting EstuaryWatch monitors.

The Victorian EstuaryWatch Program Coordinator (0.4 FTE) is responsible for:

- organising coordinator training days and meetings
- coordinating quality assurance activities
- managing the EstuaryWatch website
- developing online resources
- advocating for regions at a state level.

ABOUT THE VOLUNTEER ESTUARYWATCH MONITORS

EstuaryWatch monitors meet monthly and work in groups conducting monitoring of 17 of Victoria's estuaries. A total of 119 people conducted monitoring at 108 sites providing 817 assessments of estuary condition.

During the 2015-2016 financial year EstuaryWatchers volunteered 2,793 hours. At a rate of \$33.61 per hour¹, the economic value of EstuaryWatch volunteer effort is \$93,872.73

ABOUT THE PLACES MONITORED

89% of EstuaryWatch monitoring takes place in waterways identified as priority reaches in regional waterway strategies for Corangamite CMA, Glenelg Hopkins CMA, West Gippsland CMA and Melbourne Water (refer to map on pages 4 & 5).



A total of 119 people conducted monitoring at 108 sites providing 817 assessments of estuary condition

ABOUT THE DATA GATHERED

EstuaryWatch monitors attend Quality Assurance and Quality Control (QA/QC) events every six months. At these events monitors calibrate their monitoring equipment and test three mystery samples.

EstuaryWatchers also complete an open book knowledge quiz. The quiz sparks discussion and helps participants increase their understanding of estuary processes and management.



EstuaryWatch Victoria display at Australian Marine Sciences Association Conference.



EstuaryWatch Coordinator working with volunteer monitor.



EstuaryWatch Victoria meeting in Barwon Heads.

WHAT HAVE WE LEARNT:

Documents published include:

- Plan for EstuaryWatch Victoria http://www.estuarywatch.org.au/cb_pages/estuarywatch_publications.php?category_id=3114
- EstuaryWatch Victoria Estuary Condition Reports http://www.estuarywatch.org.au/cb_pages/estuarywatch_publications.php?category_id=3113
- Exploring Estuaries, A teacher's guide to estuaries in Victoria http://www.estuarywatch.org.au/resources/CCMA_EW_Exploring_Estuaries_Teachers_Guide_2016_ED2_Final.pdf

The EstuaryWatch Victoria data portal can be viewed at www.estuarywatch.org.au

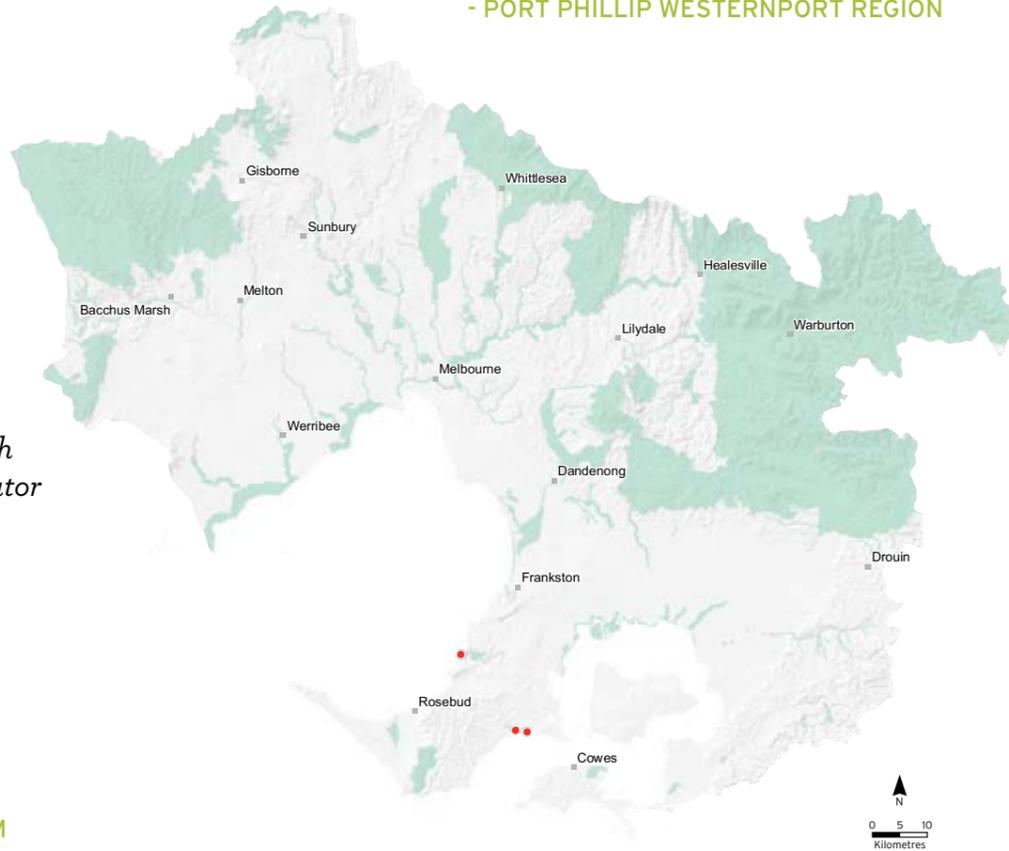
¹ Government of Victoria, The Economic Value of Volunteering in Victoria, 2012 <http://www.volunteeringaustralia.org/wp-content/uploads/The-Economic-Value-of-Volunteering-in-Victoria.pdf>

MELBOURNE ESTUARYWATCH

ESTUARYWATCH MONITORING SITES - PORT PHILLIP WESTERNPORT REGION



Melbourne EstuaryWatch has one (1 FTE) coordinator deliver the program.



LEGEND

- Sites on Priority Waterways
- Melbourne Water Priority Areas
- Major Towns

ABOUT THE MELBOURNE ESTUARYWATCH PROGRAM

Active Groups	2
Active Sites	9
Active Volunteers	8

Event participation	People
Training	-
Presentation	-
Field day	550
Work shop	15
Conference	-
Meeting	-
Total	565

WHAT HAVE WE LEARNT:

Documents published include:

- Waterways Local Update 2015-2016 <https://www.melbournewater.com.au/aboutus/reportsandpublications/Waterways-Local-Updates/Documents/Shire-of-MorningtonPeninsula-2015-2016.pdf>

Resources can be viewed at www.melbournewater.com.au

BERG ESTUARY FAMILY DAY

In February 2016 the Balcombe Estuary Reserves Group hosted their annual family day. The group reported the day was highly successful, with attendance double that of 2014 (550 people).

Numerous local families attended to learn about environmental values of the local estuary, with the BERG group signing up 19 new family members.

More info on the day can be found here <http://www.berg.org.au/wp-content/uploads/Creek-20.2-April-2016.pdf>

In 2016 BERG and Merricks Creek EstuaryWatch volunteers attended a data interpretation workshop with aquatic ecologist Steve Harfield and Melbourne Water to further build the capacity of their groups.

Advice provided at this workshop encouraged BERG to expand the scope of their EstuaryWatch monitoring and add two sites to their monitoring.



The Balcombe Estuary Reserves Group signed up 19 new family members on its annual family day in 2016



EstuaryWatch monitoring of Merricks Creek.



BERG Estuary Melbourne Water family day.

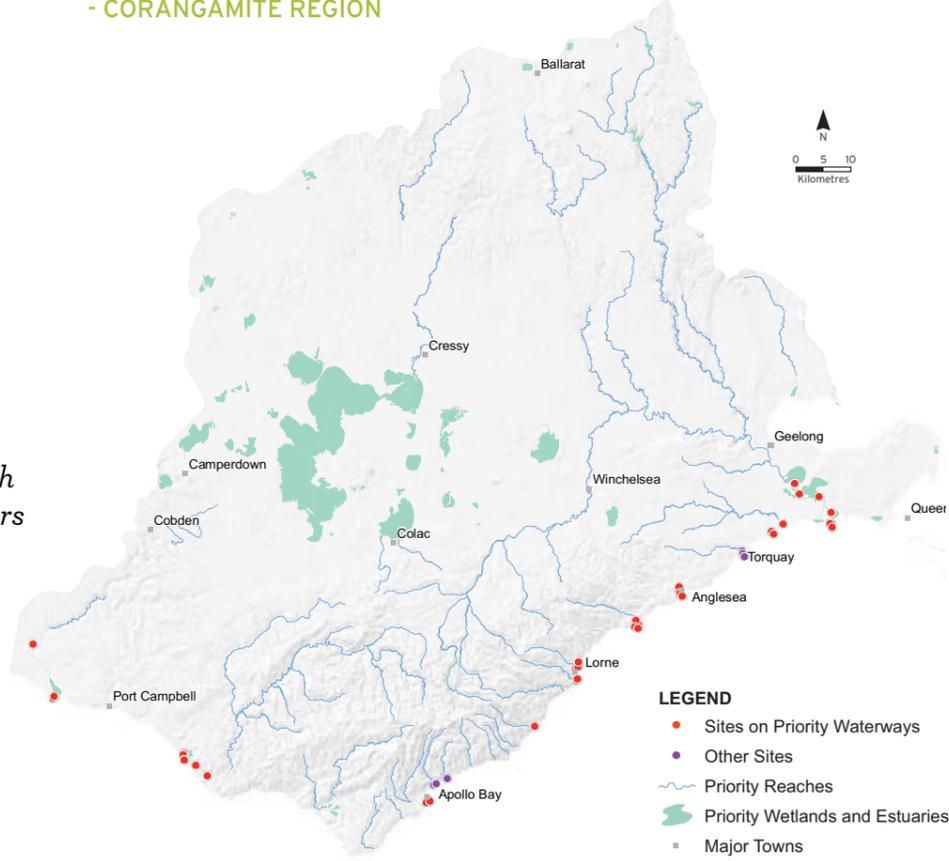


CORANGAMITE ESTUARYWATCH

ESTUARYWATCH MONITORING SITES - CORANGAMITE REGION



Corangamite EstuaryWatch has two (1 FTE) coordinators deliver the program.



- LEGEND**
- Sites on Priority Waterways
 - Other Sites
 - Priority Reaches
 - Priority Wetlands and Estuaries
 - Major Towns

ABOUT THE CORANGAMITE ESTUARYWATCH PROGRAM

Active Groups	12
Active Sites	80
Active Volunteers	83
Event participation	People
Training	267
Presentation	146
Field day	673
Work shop	-
Conference	-
Meeting	-
Total	1,086

WHAT HAVE WE LEARNT:

Documents published include:

- Anglesea River Estuary Flow Assessment http://delwp.vic.gov.au/__data/assets/pdf_file/0007/323269/Anglesea-River-Estuary-Flow-Assessment_Final-Approved-Report.pdf

Resources can be viewed at www.ccma.vic.gov.au

ESTUARYWATCH DATA INFORMS ANGLESEA FUTURES

Anglesea Futures Community Conversations is a forum for community discussion and feedback after the closure of the ALCOA power station and coal mine in August 2015.

The Anglesea River EstuaryWatch group's historical water level and water quality data has been incredibly valuable in informing community and waterway managers' part of Anglesea Futures.

Estuary Planning Coordinator at the Corangamite CMA, Tom Scarborough explains that "The research and reports that have been developed through the Anglesea Futures project could not have been done to the level they were without EstuaryWatch and the EstuaryWatch data.

"Having quality data collected informing this research helps provide a high level of confidence in the reports that then guide future management of the estuary."

Dick O'Hanlon of Anglesea River EstuaryWatch has attended a number of the Anglesea Futures Community Conversation meetings.

Dick said "It was great to hear that all the work put in by previous EstuaryWatchers has been proven useful, it is obviously even more important to continue collecting good data now."

The Anglesea River EstuaryWatch group's historical water level and water quality data is incredibly valuable



Anglesea River EstuaryWatcher collecting a surface water sample.



Anglesea EstuaryWatchers celebrate after completing their monitoring for the day.

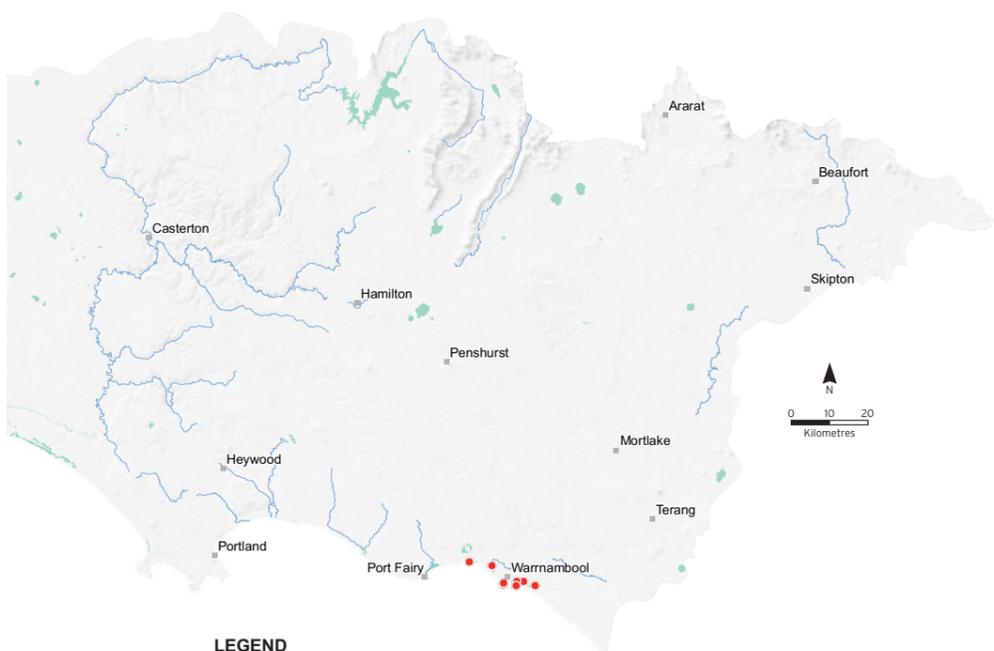
GLENELG HOPKINS ESTUARYWATCH



ESTUARYWATCH MONITORING SITES - GLENELG HOPKINS REGION



Glenelg Hopkins EstuaryWatch has one (0.05 FTE) coordinator deliver the program.



- LEGEND**
- Sites on Priority Waterways
 - ~ Priority Reaches
 - Priority Wetlands and Estuaries
 - Major Towns

ABOUT THE GLENELG HOPKINS ESTUARYWATCH PROGRAM

Active Groups	2
Active Sites	13
Active Volunteers	15
Event participation	People
Training	10
Presentation	51
Field day	15
Work shop	-
Conference	-
Meeting	3
Total	98

WHAT HAVE WE LEARNT:

- Documents published include:
- Hopkins River Estuary 2015, An interpreted summary of data http://www.estuarywatch.org.au/resources/Hopkins_River_2015.pdf
 - Merri River Estuary 2015, An interpreted summary of data http://www.estuarywatch.org.au/resources/Merri_2015.pdf
- Resources can be viewed at www.ghcma.vic.gov.au

A BUSY ESTUARYWATCH YEAR

2015-16 was a busy year for EstuaryWatch in Warrnambool with both groups excited to record the changing nature of the estuaries with a long dry period followed by massive floods.

Both the Hopkins and the Merri River EstuaryWatch groups conducted 12 monitoring events over the 2015-16 period. The closing of the Merri Estuary mouth and subsequent flooding of Lake Pertobe put the Merri River estuary in the headlines. One quality control training session was held for each of the two groups in area.

The new EstuaryWatch web portal was launched and both groups are looking forward to being trained up in its use in the coming months. We held several presentations and field days to try and recruit new members: a Deakin University come and try day (10 people), a presentation to 15 students at Deakin University and presentation to 36 Rotary members.



The new EstuaryWatch web portal was launched and both groups are looking forward to being trained up in its use



Merri River EstuaryWatch meet for their monthly monitoring.



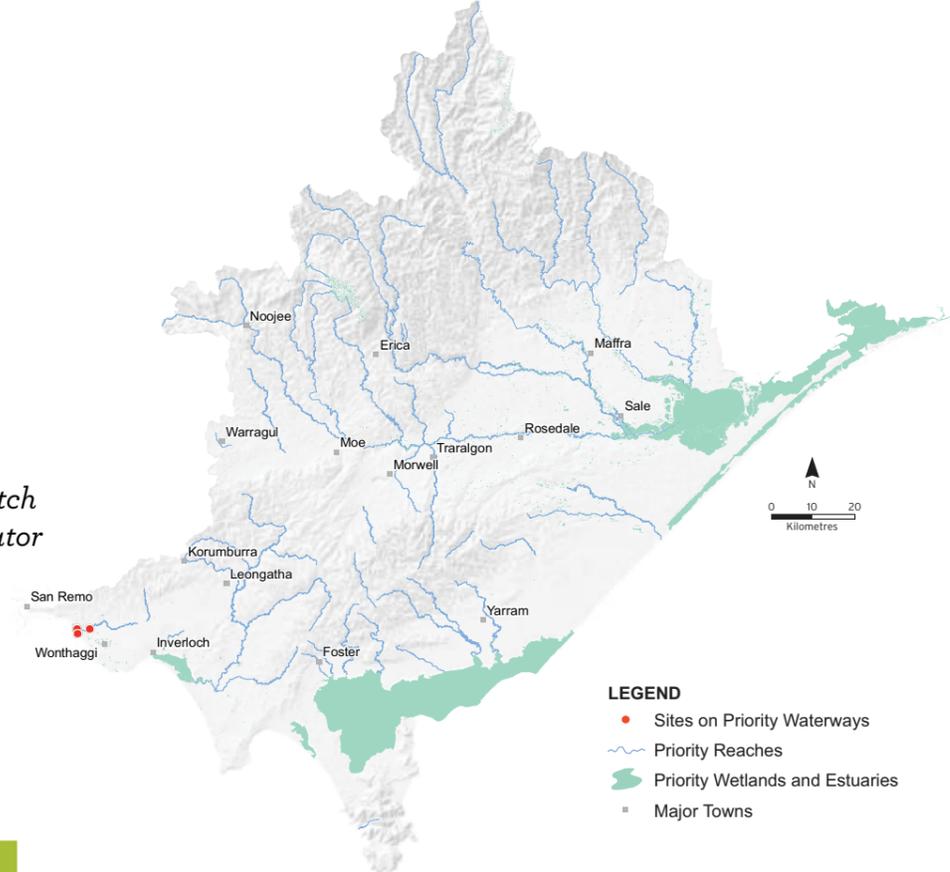
Hopkins River EstuaryWatch recording water quality results from one of four sites on the Hopkins.

WEST GIPPSLAND ESTUARYWATCH

ESTUARYWATCH MONITORING SITES - WEST GIPPSLAND REGION



West Gippsland EstuaryWatch has one (0.05 FTE) coordinator deliver the program.



- LEGEND**
- Sites on Priority Waterways
 - ~ Priority Reaches
 - Priority Wetlands and Estuaries
 - Major Towns

ABOUT THE WEST GIPPSLAND ESTUARYWATCH PROGRAM

Active Groups	1
Active Sites	3
Active Volunteers	6
Event participation	People
Training	11
Presentation	-
Field day	50
Work shop	-
Conference	-
Meeting	-
Total	61

WHAT HAVE WE LEARNT:
 Powlett River Estuary Management Plan
<http://www.estuarywatch.org.au/estuary/wgcma/45>



ESTUARYWATCH, IT'S MORE THAN JUST A MONITORING PROGRAM

EstuaryWatch monitoring began at the Powlett River in March 2010.

During its initiation, EstuaryWatch was thoroughly enjoyed by all. In 2016 this enjoyment has by no means ceased, nor has the local community's involvement and interest in this all-inclusive program. One might even accuse the group's collection of high quality monitoring data a bi product of the group's much loved, highly social monthly monitoring session. Over the past six years, monitoring at the Powlett River estuary has been completed by a core group

of three to four EstuaryWatchers, though others have been involved at different stages along the way. Since March 2010, EstuaryWatchers that have ceased monitoring (for a variety of different personal reasons) have often returned, and/or remained involved in other aspects of the program, or estuary management activities (e.g. the development of the Powlett River Estuary Management Plan). There are currently six members of the group actively monitoring.



Over the past six years, monitoring at the Powlett River estuary has been completed by a core group of three to four EstuaryWatchers



Powlett River EstuaryWatcher.



Powlett River EstuaryWatch volunteers.

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To read more about the achievements of EstuaryWatch and Waterwatch Victoria visit www.vic.waterwatch.org.au or www.estuarywatch.org.au
Or contact the EstuaryWatch Victoria and Waterwatch Victoria coordinators at: Corangamite Catchment Management Authority, 64 Dennis Street, Colac, 3250.
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