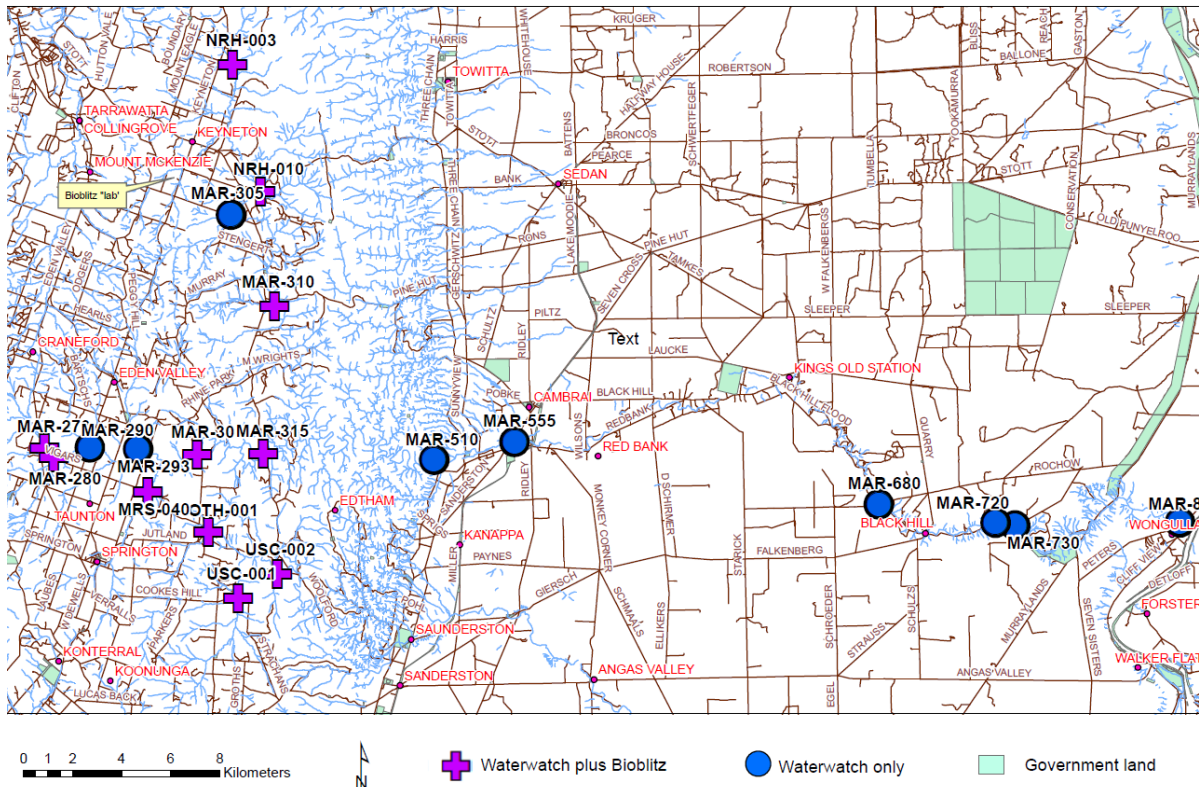


# Waterwatch Marne and Saunders

## A year in review- 2023

Waterwatch has been active in the Marne and Saunders catchment since 1999, and this year community efforts have added an impressive 109 new Waterwatch records! This is a fantastic addition to the 22 records from last year. It is great to see it being reinvigorated again. Waterwatch sites in the lower section of the Marne River are particularly important as very little other data is available for this part of the river system.

### Marne Saunders Waterwatch and Waterbug Bioblitz sites



These are the sites that are regularly monitored in 2023.



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## Water Flow

There have been a few sites which have stayed dry for most of the year such as MAR-680 which has been dry all year and MAR-555 at Meldanda which was only recorded to have water in March 2023. Recording how often sites are dry is really helpful in understanding the flow (or lack of) for the whole catchment.



**MAR-555- Meldanda in November 2023 – Dry again**



**NRH-010- Graetztown Bridge in August 2023**

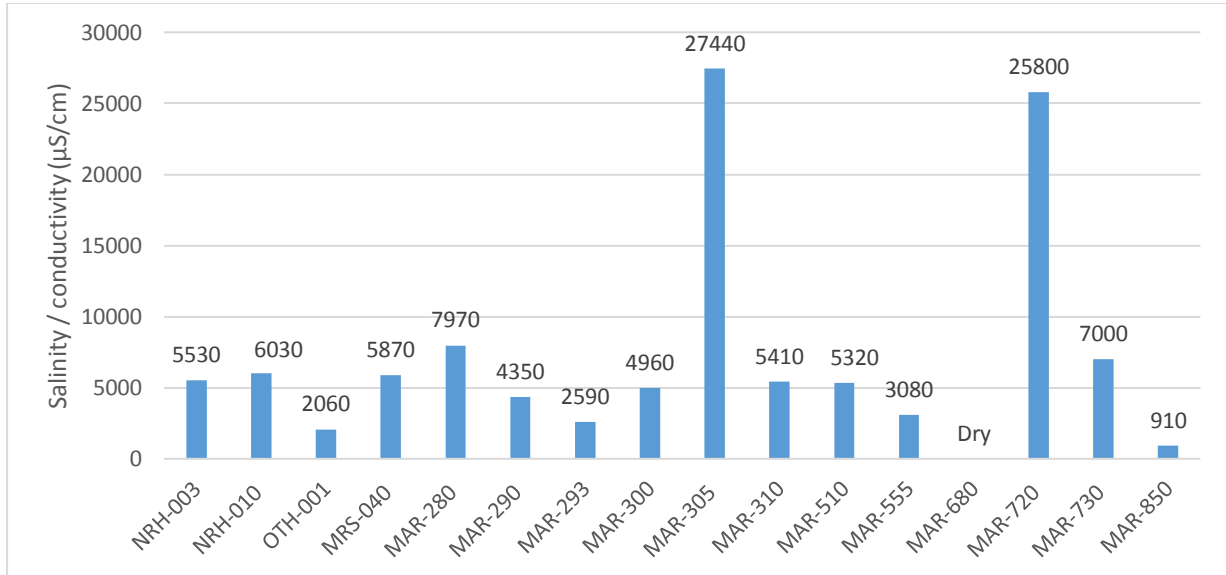
**NRH-010- Graetztown Bridge in November 2023**



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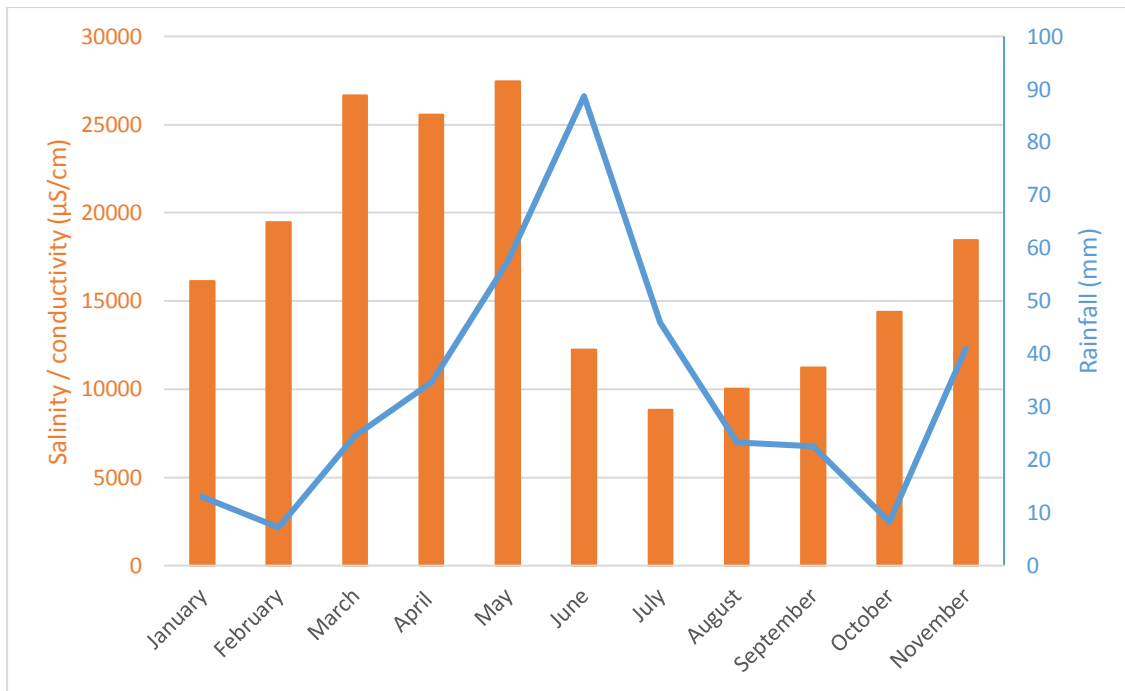
## Salinity

Salinity is an important water quality indicator to measure. When the level of salt in the water is too high it can have negative effects on the health of the freshwater plants and animals, as well as being too salty for irrigation and livestock drinking water.



### Max salinity in different sites over the year.

There is a lot of variation in the Marne and Saunders Rivers throughout the catchment. Some sites have naturally high salinity levels due to the influence of saline groundwater. The graph above shows maximum salinity levels throughout the year from the top to the bottom (left to right) of the river system measured in micro Siemens. MAR-850 recorded the lowest salinity level which is expected as it is where the Marne meets the Murray River. To convert the graph to parts per million (ppm), multiply EC (µS/cm) by 0.55 to get an approximate ppm equivalent.



### MAR-305 Salinity and monthly rainfall 2023

MAR-305- Penny's Road near NRH-010 had the highest salinity reading of the year with 27440 µS/cm recorded in May 2023. This site has a lot of variation in its salinity levels through the year. It receives saline groundwater and, in months that are drier, water evaporates from the pool which increases the salinity even more. Salinity levels are highest in the autumn months and when rain enters the system, the salinity declines again. It's a common trend in the Marne.

### Turbidity

Turbidity is quite low across most sites in the catchment meaning there aren't many suspended solids in the water. While it may increase in the short term after heavy rainfall events, generally turbidity levels remain low throughout the year and allow light to filter through the water which is necessary for healthy aquatic plants and animals.



**MAR-305 in March with a tiny pool of water**

## Acidity (pH)

Normal pH levels for fresh water generally occur throughout the catchment however there are a couple of sites that are a little more alkaline or acidic. OTH-001 at One Tree Hill creek had a recording of 5.5 which is slightly acidic, suggesting it had recently filled with rain water. Rain water generally has a pH of 5-6.5. On the higher (basic) side, there is a once off reading of 9.7 at MAR-720 at Black Hill which is a groundwater fed pool. Most biodiversity prefers a pH of around 7, so this is something to keep an eye on.

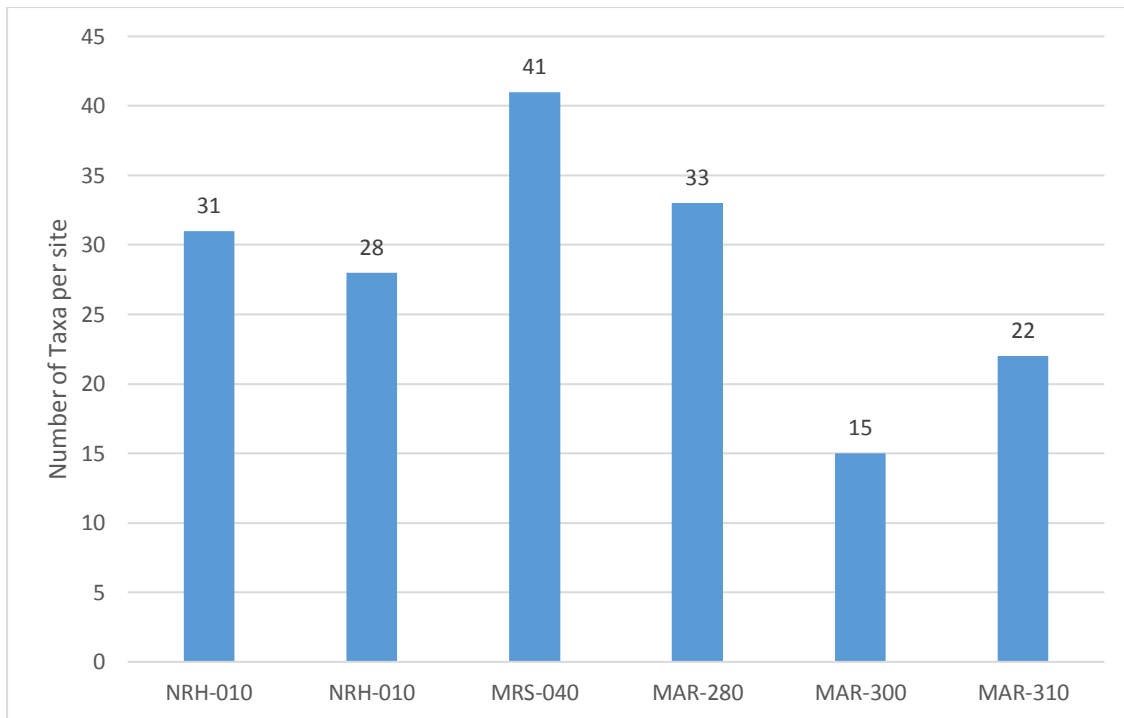
## Waterbugs

Aquatic macroinvertebrates (waterbugs) are sensitive to changes in water quality and habitat conditions. Certain species are very tolerant of pollution and poorer water quality, while others are more sensitive. Some require flowing water while others prefer the still water within pools. By observing their presence and abundance each year, and comparing between years, we form a better understanding of the overall health of the ecosystem.

Once a year Waterbug Bioblitzes are held in the Marne and Saunders catchment. Sixty-eight species of waterbugs were found across 9 Bioblitz sites during the October 2023 survey. Backswimmers (*Anisops* species) were found to be the most common species and were collected at all 9 sites, they are very tolerant of a range of water conditions which explains their presence at every site. Less common species, the caddis fly (*Triplectides ciuskus*) was only found at 2 sites and the mayfly (*Tasmanocoenis tillyardi*) was observed at only 1 site. Both of these species are very sensitive to changes in water quality. One exciting find from the Marne and Saunders Bioblitz were two large water scorpions called needlebugs (*Ranatra* sp), with stick-like bodies and large pincers to ambush their prey. These aquatic insects are uncommonly found during Bioblitzes and were collected from 2 different sites in 2023.



Needlebug in a net



### Waterbug Diversity at each site 2023

The sites in the above graph were included in both Waterwatch and the Bioblitz in 2023. The numbers displayed are waterbug diversity (taxa richness) – how many different types of waterbug were present. MRS-040 had the highest diversity of waterbugs with 41 different types found whereas MAR-300 had only 15. The average number found for these Waterwatch sites was 28. Each of the sites had similar high salinity readings of around 5,000 $\mu$ S/cm at the time so salinity levels do not explain the differences but there are many other factors at play including the amount of water present, the length of time water had been present, and the amount of vegetation within and surrounding the water. NRH-010 was dry by November 2023, not long after the Bioblitz was undertaken.

Full records for each of the 9 Bioblitz sites from 2023 and previous years can be found on [Waterwatch Murraylands and Riverland | Project | BioCollect \(ala.org.au\)](#)



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## What else we have found? What have you seen or heard?

Other biodiversity recordings include the common eastern froglet (*Crinia signifera*) and banjo frogs (*Limnodynastes dumerilii*) which were recorded while out collecting Waterwatch data. There are likely to be other frog species inhabiting the rivers and creeks. If you hear frogs in the Marne and Saunders catchment please record them through [FrogWatch SA](#). The best time to do a recording is just after sunset. The landscape board are also keen to learn more about freshwater turtle populations in the area. If you see a turtle or a nest please record it on [TurtleSAT](#).



## What is all this data collection for?

All of the data collected through Waterwatch and Waterbug Bioblitzes in the Marne and Saunders catchment will feed into the Marne and Saunders Report Card. This is a new project that the Murraylands and Riverland Landscape Board is embarking on in collaboration with the local community. The report will be presented in an easy to read format and display a selection of environmental, social, cultural and economic indicators and stories from the Marne and Saunders catchment that tell us about its 'health'.

## Acknowledgements

We would like to acknowledge the amazing Waterwatch and Waterbug Bioblitz participants, and Peramangk custodian Issy Campbell, the Department for Environment and Water, Flows for the Future, Mid-Murray Landcare, Keyneton Progress Association for the use of the oval for our lab, and our macroinvertebrate experts Chris Madden and Paul McEvoy. We thank landholders for allowing access to privately owned monitoring sites.

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