

## About the Estuary



The picturesque Curdies River estuary.

The Curdies River begins its journey south of Camperdown at Lake Purrumbete and enters the sea at Peterborough. Peterborough is a seaside village on the Great Ocean Road. Adjacent to the estuary mouth is the Port Campbell National Park and the Bay of Islands Coastal Park, famous for its ocean views, sheer cliffs and rock stacks.

The Curdies River has high environmental and social value. The estuary is a haven for birds such as the threatened Hooded Plover and a variety of rare wader birds.

Peterborough is a popular holiday destination for anglers. The estuary is regarded as a good Black Bream fishery but also contains other estuary species such as estuary perch, Australian salmon, luderick, flounder and small trevally.

## Threats to estuary health

Threats to the Curdies River estuary

- Degraded estuarine vegetation
- Degraded water quality
- Disturbance of acid sulphate soils
- Artificial estuary openings
- Invasive animals
- Livestock access



The excavator digging a channel for the artificial estuary mouth opening of the Curdies River on June 30 2016.

## What can you do?



Curdies River EstuaryWatchers collecting water quality measurements.

- Join the Curdies River EstuaryWatch group.  
[www.estuarywatch.org.au](http://www.estuarywatch.org.au)
- Register the estuary as a clean-up site for Clean Up Australia Day.  
[www.cleanupaustralia.org.au](http://www.cleanupaustralia.org.au)
- Join a local environment group such as Friends of the Bay of Islands Coastal Park or the Curdies Valley Landcare Group to find out about working bees and information sessions.  
<http://parkweb.vic.gov.au/get-involved/friends-groups/friends-groups-a-z-listing/friends-of-bay-of-islands-coastal-park>  
[www.heytesburylandcare.org.au](http://www.heytesburylandcare.org.au)
- Share what you have learnt from this annual summary with a friend or family member and enjoy your next visit to the Curdies River estuary.

# CURDIES RIVER ESTUARY 2016

## An interpreted summary of data

Date range:  
01/01/2016 – 31/12/2016

## Summary of data



This brochure summarises twelve months of EstuaryWatch estuary mouth condition and physical and chemical data. The Curdies River EstuaryWatch volunteers monitor two physical and chemical sites. In 2016, volunteers conducted monitoring sessions in all 12 of the 12 months.

The Curdies River estuary is an intermittently open estuary. In 2016 there was one permitted artificial estuary openings recorded on June 30. The water level at the permanent monitoring station was recorded as 1.4m AHD. After the successful opening, the estuary mouth remained open to the sea for the remainder of 2016. Estuary mouth closures were recorded at many other estuaries in Victoria during 2016. Prior to the opening of the estuary mouth the salinity levels indicate the estuary waters to be mostly brackish with no stratification evident. Following the opening all salt water was flushed from the estuary in September. During 2016 the salinity ranged from 0.3 – 30.8 ppt. The dissolved oxygen levels ranged from 49 – 118 % saturation (median, 84% saturation) and the pH levels remained in the relatively healthy range 6.1 – 8.8 pH units. The lowest water temperature recorded in 2016 was 8.4 °C on June 14 and the highest temperature recorded was 23.8 °C on February 6. Winter and spring rainfalls resulted in increased turbidity levels within the estuary, the highest level was recorded on September 14 (95 NTU). **EstuaryWatch records at the Curdies River extend from 2013 and can be viewed at [www.estuarywatch.org.au](http://www.estuarywatch.org.au).**

## Estuary Fact File

**Type of Estuary:**  
Wave dominated lagoon

**Location:** -38.603427,  
142.885039

**Nearest town:**  
Peterborough

**Estuary length:**  
16 km

**River length:** 55km

**Mouth state:**  
Intermittently open

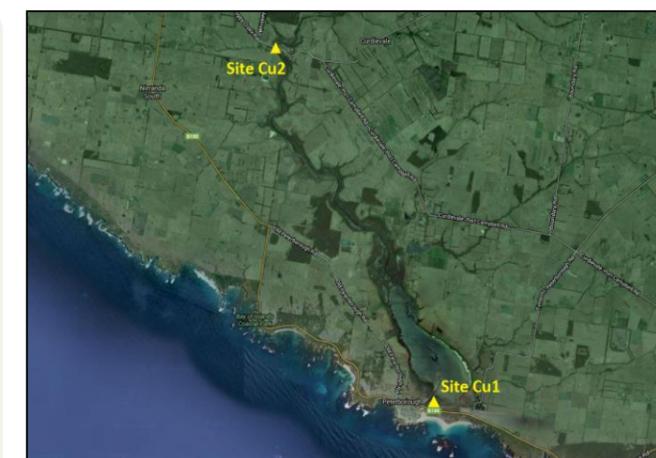
**Description:** The Curdies River runs through the Heytesbury farming district. Its head waters are located south of Camperdown at Lake Purrumbete and it joins the coast at Peterborough.



EstuaryWatch is a community based estuarine monitoring program, aiming to:

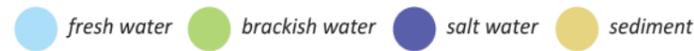
Raise awareness and provide educational opportunities to the community in estuarine environments, and enable communities and stakeholders to better inform decision making on estuarine health.

EstuaryWatch volunteers are supported by EstuaryWatch coordinators. Volunteers meet with their coordinator every six months to conduct Quality Assurance/Quality Control (QA/QC) refresher training. These sessions ensure that EstuaryWatch monitoring methods are consistent across the state and data collected by volunteers is credible.

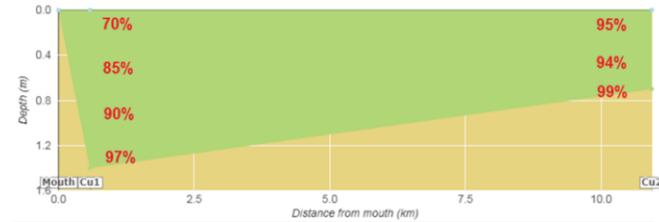


Map of the Curdies River estuary including the EstuaryWatch site locations. Google Maps satellite image.

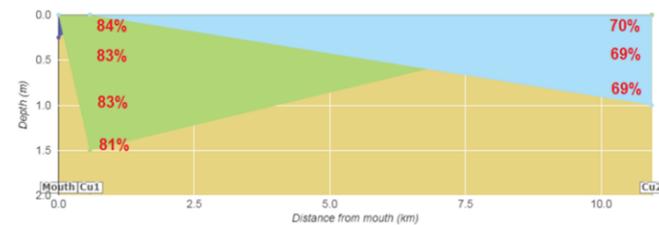
For all four monitoring sessions chosen for the Estuary snapshots, photo point photos and a longitudinal profile of the estuary from site Cu1 (Dorey Street floating pontoon) to Cu2 (Boggy Creek fishing jetty) is displayed. The longitudinal profile shows the depth, salinity and percent saturation of dissolved oxygen (DO) at each monitoring site from the surface of the water column to the bottom.



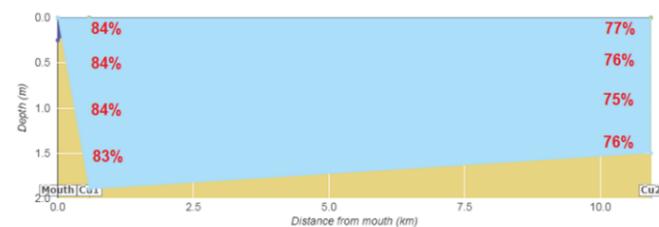
Date: 6/02/2016 Estuary mouth state: CLOSED



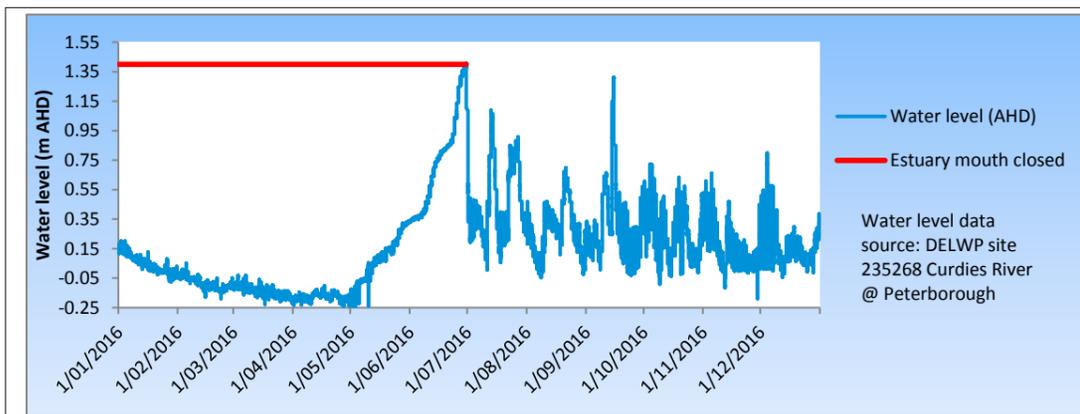
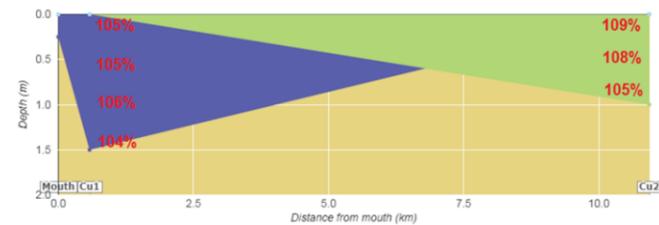
Date: 4/08/2016 Estuary mouth state: OPEN



Date: 14/09/2016 Estuary mouth state: OPEN



Date: 12/12/2016 Estuary mouth state: OPEN



Water levels in the Curdies River estuary for 2016, including times when the estuary mouth was closed to the sea.

The average annual rainfall (1984-2016) was 837.3mm, the 2016 total rainfall was 954.8mm. The highest total rainfall was recorded in May (148.2mm).

## Water quality guidelines for riverine estuaries

In 2011 the Environmental Protection Authority (EPA) established a framework for assessing the environmental condition of riverine estuaries. These guidelines can be used to assist management decisions to protect or improve the health of estuaries.

A broad range of estuary types were used to develop the guidelines.

Keep in mind that not all Victorian estuaries have been sampled and measurements have not been collected under all environmental conditions — for example, following flooding bushfires or storm surges.

Below is a table to assist you to interpret the EstuaryWatch data discussed in this summary. The guidelines detail what you would expect from a single monitoring session on an estuary in Victoria.

INDICATOR	SINGLE SAMPLE	
	surface	bottom
Dissolved Oxygen (DO) % saturation	70–110%	15–110%
Turbidity (NTU)	18	26
pH (pH units)	6.9–8.3	6.8–8.2

EstuaryWatch volunteers also measure the salinity (ppt) throughout the water column. A rough guide for salinity in estuaries is 0ppt (freshwater) to 35ppt (seawater).

To find out more about the parameters EstuaryWatch volunteers use to measure estuary condition, *Interpreting Estuary Health Data*, EstuaryWatch Victoria is a fantastic resource.

## Estuary Events



The flooding of the Curdies River estuary prior to the permitted artificial opening of the estuary mouth on June 30 2016.

On June 30 2016 the CCMA permitted the artificial opening of the estuary mouth, at this time the water level was 1.44m AHD.

The estuary had been closed to the sea from October 2015, during this period the water level within the estuary reduced to -0.24m AHD on April 27. Increased rainfall in the catchment from April 30 and throughout May (May 2016 rainfall was 148mm, almost twice the long term average of 81mm) resulted in improved river flows to the estuary. From May 10 to June 30 the water level rose to 1.4m AHD resulting in the inundation of the estuary floodplain at which time application was made to artificially open the estuary mouth. Following the artificial opening, the estuary remained open to the sea for the remainder of 2016.



## Get to know your local estuary species

### Southern Shortfin Eel, *Anguilla australis*

Southern Shortfin Eels pass through estuaries during several phases of their lifecycle. The adult eels spend up to 20 years in freshwater rivers, lakes and dams, before migrating to the sea to breed in the Coral Sea of north-east Australia. Following successful breeding the transparent leaf-like larvae are transported southwards via the East Australian Current, and grow into glass eels before migrating to estuaries in south-eastern Australia. Glass eels are often observed entering Victorian estuaries during their migration to freshwater, the young eels are able to climb barriers such as waterfalls and dam walls.

See more at: <https://australianmuseum.net.au/southern-shortfin-eel-anguilla-australis>

Photo: A Southern Shortfin Eel, *Anguilla australis*, in the Morwell National Park, Victoria, 25 Oct 2015. Source: Matt Campbell / Bowerbird. License: CC BY Attribution