

## About the Estuary



The beautiful Painkalac Creek estuary.

The Painkalac Creek estuary is a beautiful coastal lagoon system located in south-west Victoria along the Great Ocean Road at the township of Aireys Inlet. The estuary opens intermittently but the majority of the time is closed to the sea. Discharges from the Painkalac Reservoir largely control river flow to the estuary. The Painkalac Creek passes through the reservoir site approximately 7km upstream from the estuary mouth.

Painkalac Creek has high environmental, social and economic value. The river is registered as an Important Bird Area (IBA). IBAs are sites of international importance for bird conservation. The estuary is a popular spot for swimming, canoeing, sightseeing and walking. Recreational fishing is also popular in the estuary with catches of Estuary Perch, Black Bream, Mullet, Flounder and Luderick.

## Threats to estuary health

### Threats to the Painkalac Creek

- Degraded estuarine vegetation
- Disturbance of acid sulphate soils
- Artificial estuary openings
- Flow Deviation
- Stock access
- Bed instability



The breaching of the beach berm enabling sea water to enter the Painkalac Creek estuary on the 9<sup>th</sup> May 2015.

## What can you do?



Migaloo the white whale observed frolicking in the Painkalac Creek Estuary on the 19<sup>th</sup> August 2015.

- Join the Painkalac Creek EstuaryWatch group  
[www.estuarywatch.com.au](http://www.estuarywatch.com.au)
- Register the estuary as a clean-up site for Clean Up Australian Day  
[www.cleanupaustraliaday.org.au](http://www.cleanupaustraliaday.org.au)
- Join a local environment group such as ANGAIR to find out about walks, working bees and workshops that might be happening in Aireys Inlet.  
[www.angair.org.au](http://www.angair.org.au)
- Share what you have learnt from this annual summary with a friend or family member.

# PAINKALAC CREEK ESTUARY 2015

## An interpreted summary of data

Date range:  
01/01/2015 – 31/12/2015

## Summary of data



This brochure summarises twelve months of EstuaryWatch estuary mouth condition and physical and chemical data. Painkalac Creek EstuaryWatch volunteers monitor four physical and chemical sites during each monitoring session. In 2015, volunteers conducted monitoring sessions each month.

The Painkalac Creek estuary is an intermittently open estuary. In 2015 there were no estuary openings recorded. The estuary mouth remained closed for the entire year isolating the estuary from the sea. On one occasion (9/05/2015) sea water was observed overtopping the beach berm and entering the estuary. Estuary mouth closures were recorded at many other estuaries in Victoria during 2015. This was most likely due to lower than average rainfall, resulting in very low river inflows. Over the twelve months salinity levels indicate the estuary waters to be brackish with no stratification evident, the salinity ranged from 15.9 - 27.4 ppt. The dissolved oxygen levels ranged from 37 – 143 % saturation during the year, the high levels (above 100% saturation) were observed from February to April and during November and may be due to the growth of algae in the water column. The lowest levels were recorded from 115 Bimbadeen Drive (P5), the most upstream site. The pH levels remained in the healthy range 6.7 – 8.1 pH units. **EstuaryWatch records at Painkalac Creek estuary extend from 2007 and can be viewed at [www.estuarywatch.com.au](http://www.estuarywatch.com.au).**

## Estuary Fact File

**Type of Estuary:**  
Riverine

**Location:** -38.467631,  
144.100414

**Nearest town:** Aireys Inlet

**Estuary length:**  
3.6km

**River length:** 20.3km

**Mouth state:**  
Intermittently open

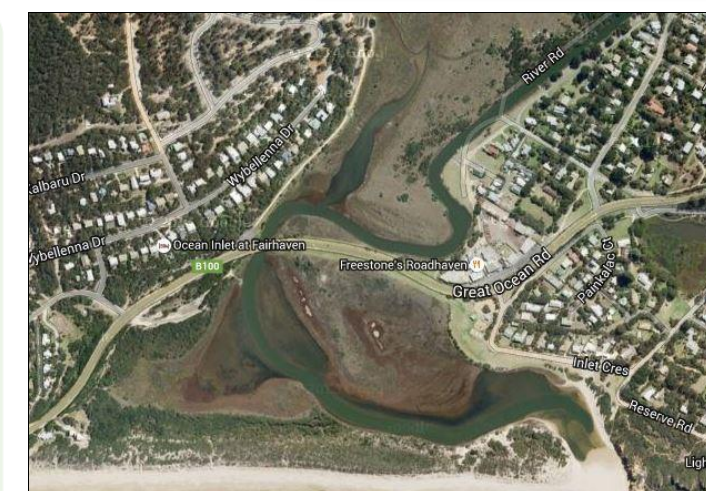
**Description:** The Painkalac Creek begins in the north-eastern end of the Otway Ranges at an elevation of 430m in the deeply dissected rolling hills. It flows in a mostly easterly direction for 20.3km and enters Bass Strait on the south-west side of Aireys Inlet.



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

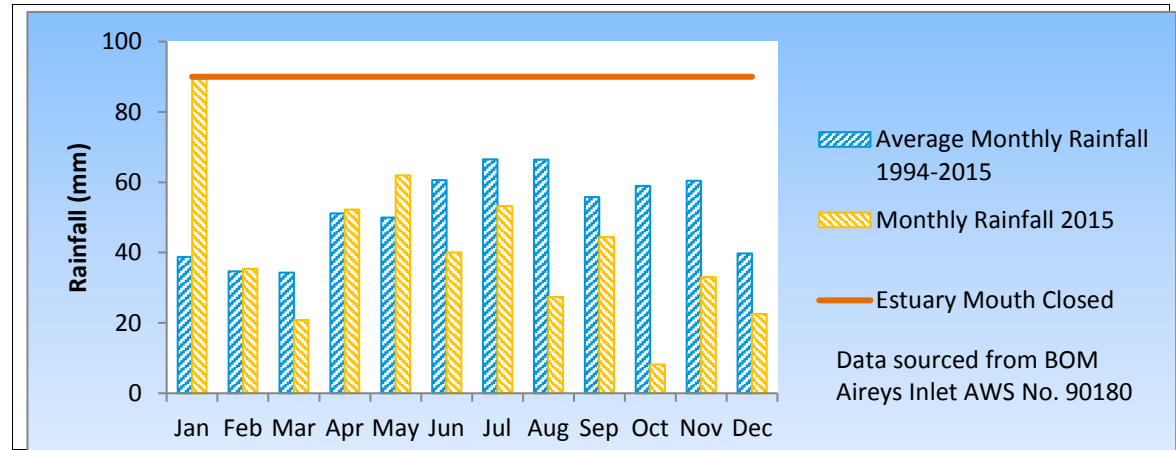
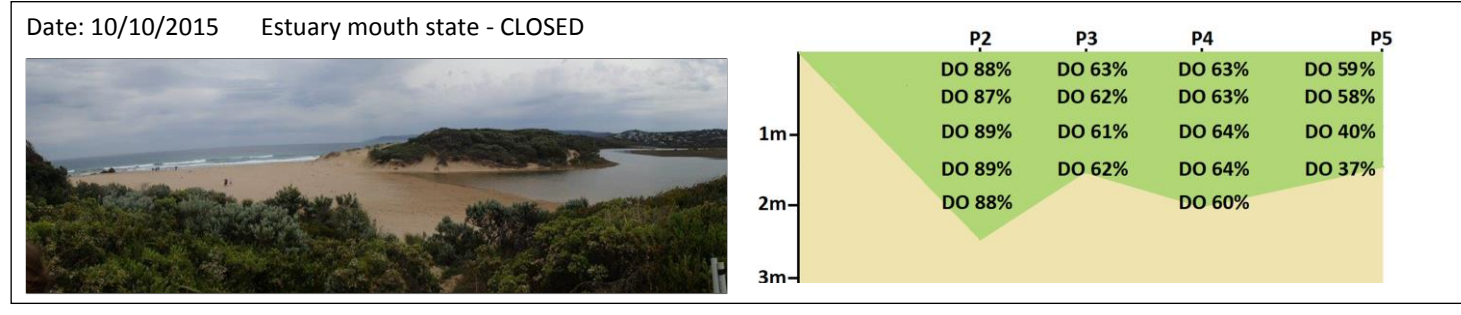
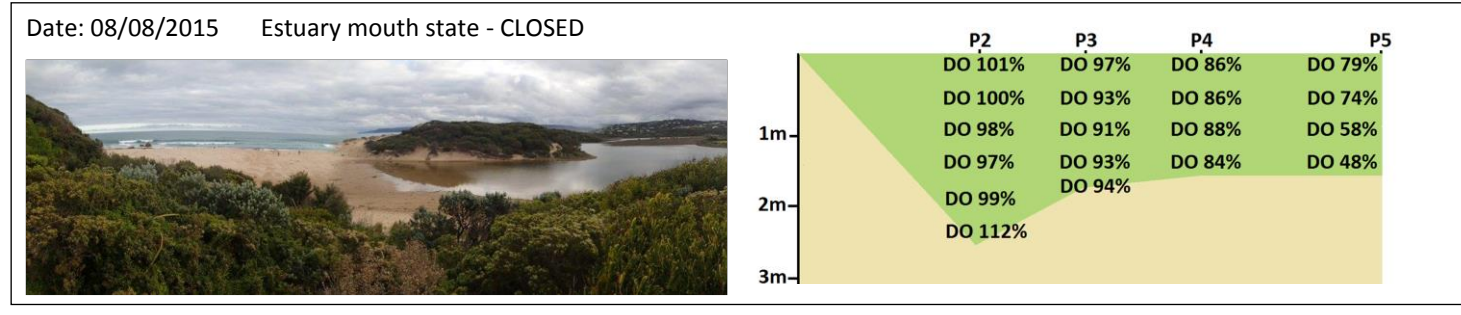
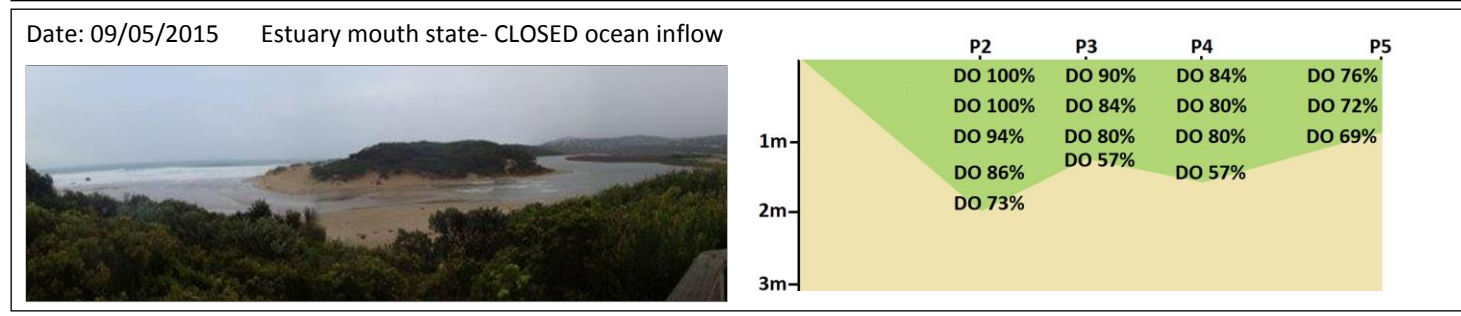
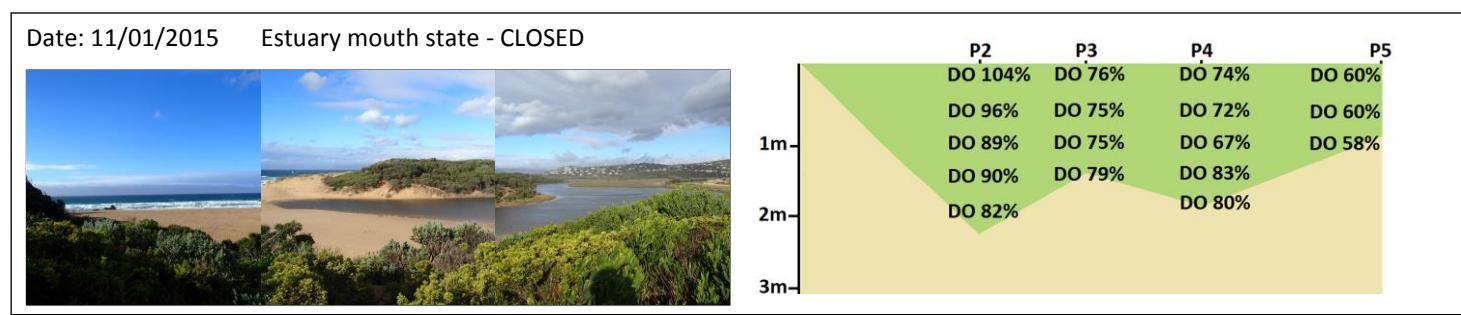
*Raise awareness and provide educational opportunities to the community in estuarine environments, and enable communities and stakeholders to better inform decision making on estuarine health.*

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 Painkalac Creek estuary.

For all four monitoring sessions chosen for the EstuaryWatch Snapshots, photo point photos and a longitudinal profile of the estuary from site P2 (Great Ocean Road Bridge) to P5 (115 Bimbadeen Drive) 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. The estuary was closed to the sea for the whole year.



A comparison of 2015 monthly total rainfall and the average monthly total rainfall (1994-2015).

The average annual rainfall (1994-2015) was 625mm, the 2015 total rainfall was 489mm. The highest total rainfall was recorded in January (89mm). Data sourced from the BOM.

## 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



Barbara and Dennis Leavesly proudly receiving their commemorative award at the Aireys Inlet Pub.

For many years Barbara and Dennis Leavesly have been the Team Leaders for the Painkalac Creek EstuaryWatch group. Each month they rally the troops for EstuaryWatch monitoring and keep tabs on the EstuaryWatch monitoring equipment.

After over eight years of service to EstuaryWatch, Barbara and Dennis decided to retire from the program.

On November 21, 2015, Painkalac Creek EstuaryWatchers celebrated with Barbara and Dennis at the Aireys Inlet Pub. Barbara and Dennis were presented with a Wathaurong Glass plate for their valuable contribution to EstuaryWatch. The EstuaryWatch program will miss their eye for detail and passion for monitoring their local environment.



## Get to know your local estuary species

### Common Galaxia, *Galaxias maculatus*

The Common Galaxias adults live in calm waters of low-elevation streams, during autumn they migrate downstream to spawn. Thousands of small eggs are laid in vegetation on the margins of estuaries at spring tides, and often spend up to two weeks out of water until the next spring tide. The larvae then leave the estuary and spend 5 to 6 months at sea as juveniles before returning to the estuary as whitebait moving upstream to the freshwater to mature.

See more at: <http://australianmuseum.net.au/common-galaxias-galaxias-maculatus#sthash.tCABw6N7.dpuf>

Photo: Whitebait stage Common Galaxias. Photographer: Rudie Kuitert ©