

## About the Estuary



The Hopkins River estuary looking upstream from the river mouth.

The Hopkins River estuary enters the sea at Warrnambool in south west Victoria. Warrnambool is a growing regional centre 12km from the western end of the Great Ocean Road.

The estuary is used for swimming, water skiing, fishing and rowing. The estuary is known to provide habitat for 39 species of fish. One of the most important habitat functions that estuaries provide is to act as nursery areas for juvenile fish. The Hopkins River estuary provides the ideal habitat for breeding Black Bream, Estuary Perch and anchovy. The estuary is recognised under the Go Fishing in Victoria Program as a premier fishing reach.

The Hooded Plover, *Thinornis rubricollis*, a beach nesting bird listed as threatened under the Flora and Fauna Guarantee Act 1988 is known to inhabit stretches of beach adjacent to the Hopkins River estuary.

## Threats to estuary health

Threats to the Hopkins River Estuary

- Poor water quality
- Inappropriate artificial estuary openings
- Invasive Flora and Fauna
- Altered water regimes
- Urban sprawl/residential development and subsequent increases in stormwater



An unexpected visitor on the Mahoney's Rd jetty wasn't feeling too well, so the EstuaryWatch team hooked the little fella up with the local wildlife carer. (Wildlife Victoria hotline 13 000 94535)

## What can you do?



The Hopkins River EstuaryWatch team testing the water quality of the estuary.

- Join the Hopkins River EstuaryWatch group contact: [ghcma@ghcma.vic.gov.au](mailto:ghcma@ghcma.vic.gov.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 Warrnambool Coastcare Landcare or Fishcare to find out about working bees and information sessions. [www.coastcare.com.au](http://www.coastcare.com.au) [www.fishcare.org.au](http://www.fishcare.org.au)
- Share what you have learnt from this annual summary with a friend or family member.

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# HOPKINS RIVER 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. Hopkins River EstuaryWatch volunteers monitor four physical and chemical sites at each monitoring session. In 2015, volunteers conducted monitoring sessions in 11 of the 12 months.

In 2015 there were five artificial estuary mouth openings for the Hopkins River estuary on March 11 (1.53m, AHD), April 30 (1.54m, AHD), May 25 (1.72m, AHD) June 11 (1.7m, AHD) and July 3 (1.54m, AHD). Four natural openings were recorded on July 23 and 28 and September 1 and 11.

Over the 12 months salinity within the estuary was mostly brackish ranging from 2 – 27.7ppt. The lowest salinity levels were recorded from May to September corresponding with increased river flows. During this time the estuary waters were mildly stratified. Note: The salinity of influent river water recorded at Hopkins Falls is often greater than 3ppt. The dissolved oxygen levels within the estuary were maintained in the relatively healthy range (All sites and depths, median 86% saturation), the lowest levels were recorded in the bottom waters during times of mild stratification. Water temperature ranged from 9 - 23°C. The highest temperature was recorded in the surface waters at site H4. The pH levels were also maintained in the healthy range (pH: 7.4 - 8.5 pH units).

EstuaryWatch records at Hopkins River Estuary extend from 2010 and can be viewed at [www.estuarywatch.com.au](http://www.estuarywatch.com.au)

## Estuary Fact File

**Type of Estuary:**  
Wave dominated

**Location:** -38.399989,  
142.511018

**Nearest town:**  
Warrnambool

**Estuary length:**  
9.5km

**River length:** 295km

**Mouth state:**  
Intermittently open

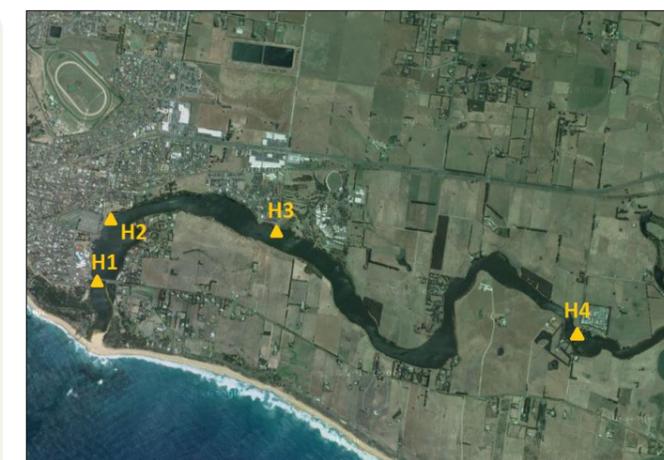
**Description:** The Hopkins River rises near Ararat and flows south to Warrnambool where it enters the sea.



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.



Aerial photo of the Hopkins River estuary including the location of the active EstuaryWatch sites. Source: Google Maps satellite image.

For all four monitoring sessions chosen for the EstuaryWatch Snapshots, photo point photos and a longitudinal profile of the estuary from site H1 (Hopkins River Bridge) to H4 (Jubilee Park) is displayed. The longitudinal profile shows the depth, salinity and percentage saturation of dissolved oxygen (DO) at each monitoring site from the surface of the water column to the bottom.

● fresh water ● brackish water ● salt water ● sediment

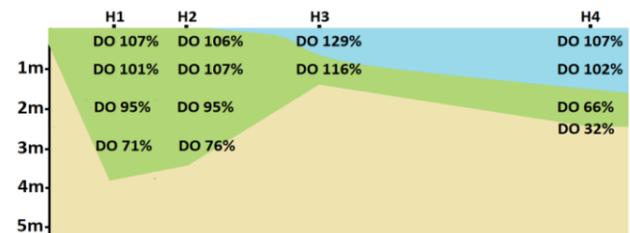
Date: 13/02/2015 Estuary mouth state: CLOSED



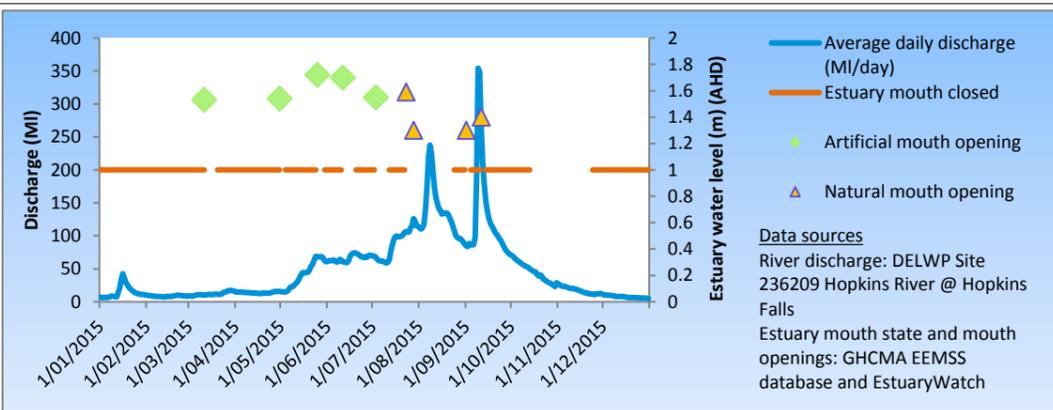
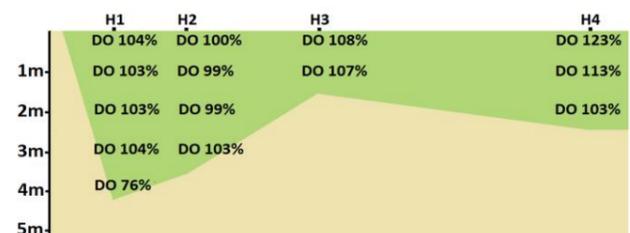
Date: 11/04/2015 Estuary mouth state: CLOSED



Date: 08/08/2015 Estuary mouth state: OPEN



Date: 09/10/2015 Estuary mouth state: CLOSED



Average daily freshwater discharge (MI) recorded at Hopkins Falls upstream of the Hopkins River estuary. Also displayed are the times the estuary mouth was recorded as closed and the artificial and natural estuary mouth opening that occurred during 2015.

## 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 mouth of the Hopkins River estuary two days after it was artificially opened to the sea in March.

In 2015 most of the Glenelg Hopkins region experienced severe rainfall deficiencies. Low rainfall and soil moisture patterns resulted in below average river flows entering our estuaries during 2015. Consequently, the bulk of these systems have displayed intermittent opening and closing cycles, several months ahead of typical seasonal trends.

It was also very interesting to note that the standard summer wind patterns (afternoon south-easterly winds) were apparent through much of October. Such wind patterns result in the natural deposition of beach blown sand into our estuary mouths, and when combined with low stream-flows, have a strong influence on estuary mouth closing cycles.



## 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 ©