

About the Estuary



The picturesque Hopkins River estuary.

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



The Hopkins River EstuaryWatch volunteers conducting water quality monitoring.

What can you do?



The Hopkins River EstuaryWatch team.

- Join the Hopkins River EstuaryWatch group contact: ghcma@ghcma.vic.gov.au
- Register the estuary as a clean-up site for Clean Up Australia Day. 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. <https://www.coastsandmarine.vic.gov.au/coastal-programs/coastcare> 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 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. Hopkins River EstuaryWatch volunteers monitor four physical and chemical sites at each monitoring session. In 2016, volunteers conducted monitoring sessions in 12 of the 12 months.

In 2016 there were two permitted artificial river mouth openings for the Hopkins River, May 20 (1.65m, AHD) and April 11 (1.55m AHD). There was also two natural river mouth openings in 2016, June 14 (1.5m AHD) and June 26 (1.9m AHD).

Over the year salinity within the estuary was mostly brackish ranging from 0.4 – 34.4ppt. The lowest salinity levels were recorded in October corresponding with increased river flows. The dissolved oxygen levels within the estuary were maintained in the relatively healthy range (All sites and depths, median 89% saturation). The lowest levels (1.1% saturation) were recorded on August 13 in the saline bottom waters at the most upstream site (H4) during a time of mild stratification. The highest levels (141% saturation) were recorded on November 11, likely due to algal growth in the water column. Water temperature ranged from 9 - 25°C. The highest temperature was recorded on February 12. The pH levels were also maintained in the healthy range (pH: 7.2 - 8.5 pH units).

EstuaryWatch records at Hopkins River Estuary extend from 2010 and can be viewed at www.estuarywatch.org.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:

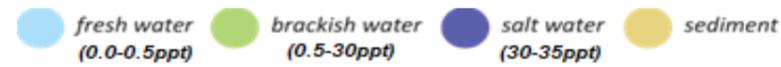
Raise awareness and provide educational opportunities to the community in estuarine environments, and enable communities and stakeholders to better inform decision making on estuarine health.

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.

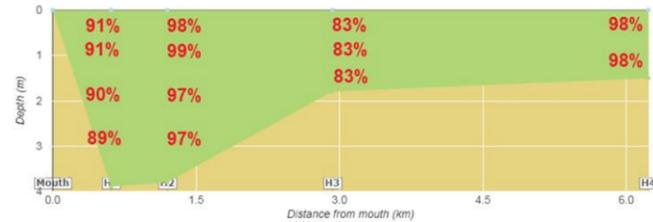


Aerial photo of the Hopkins River estuary including the location of the active EstuaryWatch sites. Source: Google Maps satellite image.

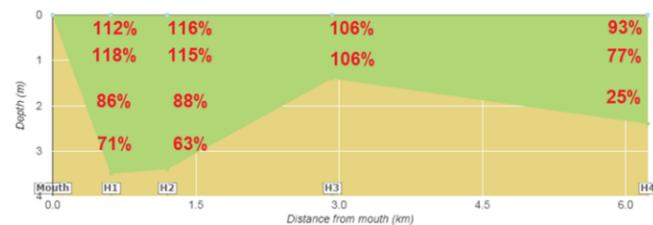
For all four monitoring sessions chosen for the EstuaryWatch Snapshots, photo point photos and a longitudinal profile of the estuary from site H1 (Hopkins River Bridge) to H4 (Jubilee Park) is displayed. The longitudinal profile shows the depth, salinity and percentage saturation of dissolved oxygen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



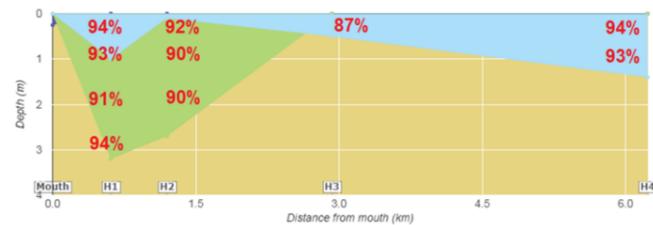
Date: 12/02/2016 Estuary mouth state: CLOSED



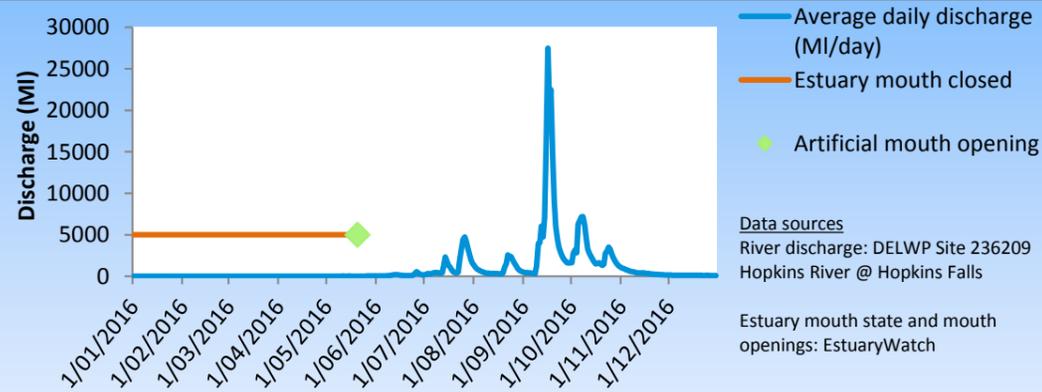
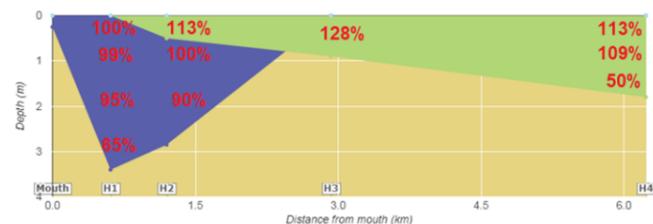
Date: 18/06/2016 Estuary mouth state: OPEN



Date: 14/10/2015 Estuary mouth state: OPEN



Date: 09/12/2016 Estuary mouth state: OPEN



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 estuary mouth opening that occurred during 2016.

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 in October 2016.

On May 20 2016, a permitted artificial estuary mouth opening was undertaken due to rising water levels. Water levels in the estuary gradually increased from summer into autumn. During this period the estuary was mostly brackish. In early May there is evidence waves were breaching the beach berm and entering the estuary creating stratified conditions in the very bottom waters near the mouth of the estuary. Following the opening tidal influence was observed with sea water moving into the estuary.

High rainfall in the catchment in September resulted in increased river flows entering the estuary flushing most salt water from the estuary in October. As river flows declined in November sea water returned to the estuary with the salt wedge moving up the estuary creating stratified conditions.



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