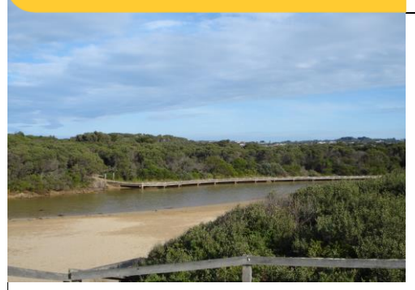
SPRING CREEK ESTUARY 2015

An interpreted summary of data

Date range:
01/01/2015 – 31/12/2015

Summary of data



This brochure summarises 12 months of EstuaryWatch estuary mouth condition and physical and chemical data. Spring Creek EstuaryWatch volunteers monitor one mouth condition site and four physical and chemical sites during each monitoring session. Monitoring was conducted in 8 out

The Spring Creek is an intermittently opening estuary. One permitted artificial opening was recorded for the estuary in 2015, on June 5 (2.0 AHD). The estuary naturally opened and closed throughout the rest of the year consistent with the natural processes in an intermittent riverine estuary of this type. Estuary mouth closures were recorded at many other estuaries in Victoria during 2015.

Over the twelve months salinity levels indicate the estuary waters to be brackish with no stratification evident, the salinity ranged from 15- 34.2 ppt. During February the estuary was open to the sea and salinity levels were similar to that of sea water. The dissolved oxygen levels ranged from 20 – 104 % saturation during the year, the lowest levels were observed during February. The water temperature within the estuary ranged from 10.3 °C in June to 24.8°C in January. The pH levels remained in the healthy range 6.6 – 8.4 pH units.

EstuaryWatch records at Spring Creek estuary extend from 2007 and can be viewed at www.estuarywatch.com.au.

Estuary Fact File

Type of Estuary: Riverine

Location: -38.343164, 144.318641

Nearest town: Torquay

Estuary length: 2.1 km

River length: 27.34 km

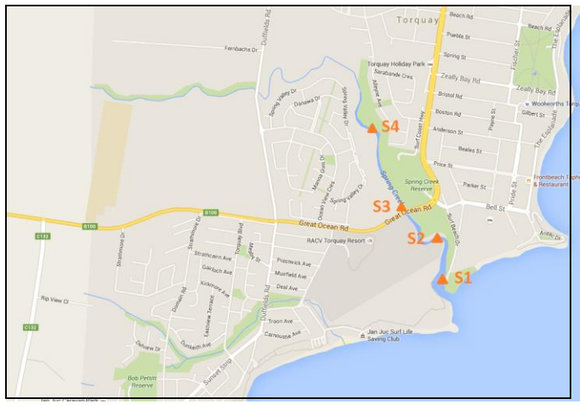
Mouth state: Intermittently Open

Description: The Spring Creek estuary runs through the township of Torquay with both rural and residential properties within its catchment. It flows in a mostly south-east direction before entering Bass Strait adjacent to the Torquay Surf Lifesaving Club.

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

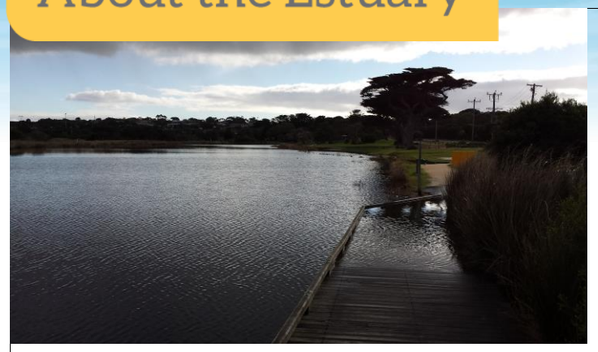
Raise awareness and provide educational opportunities to the community in estuarine environments, and enable communities and stakeholders to better inform decision making on estuarine health.

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 Spring Creek estuary, including the location of EstuaryWatch sites. Sourced from Google Maps.

About the Estuary



The Spring Creek estuary boardwalk partially underwater on June 2 2015 when the estuary mouth was closed, the estuary mouth was artificially opened on June 5.

The Spring Creek estuary is a picturesque riverine estuary which runs through the iconic coastal township of Torquay located at the start of the Great Ocean Road in Victoria. The estuary opens to the sea at the main surf beach in Torquay for the majority of the year, but can close its mouth intermittently.

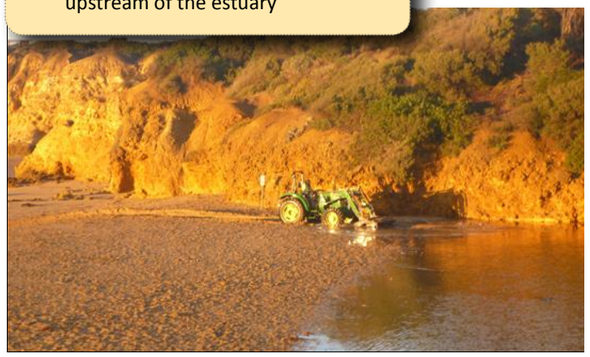
The town of Torquay which is within the estuary's catchment has had a marked change from rural to residential properties within the last decade, however, the estuary has small pockets of remnant native vegetation within its riparian zone with high ecological, social and cultural importance to the local area.

Spring Creek estuary is a popular recreation spot for fishing, canoeing and walking along the boardwalk which traverses the estuary.

Threats to estuary health

Threats to the Spring Creek Estuary

- Degraded estuarine vegetation
- Artificial estuary openings
- Degraded water quality
- Livestock access upstream of the estuary
- Degraded riparian vegetation upstream of the estuary



The front end loader digging out the channel during the permitted artificial estuary mouth opening of the Spring Creek estuary on June 5 2015.

What can you do?

Spring Creek EstuaryWatch volunteers monitoring the water quality of the estuary.

- Join the Spring Creek EstuaryWatch Group
  www.estuarywatch.com.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 the Torquay Landcare Group or the Jan Juc and Torquay Coast Action Groups

http://corangamite.landcarevic.net.au/torquay-landcare

http://corangamite.landcarevic.net.au/jan-juc-cag

- Share what you have learnt from this annual summary with a friend or family member.

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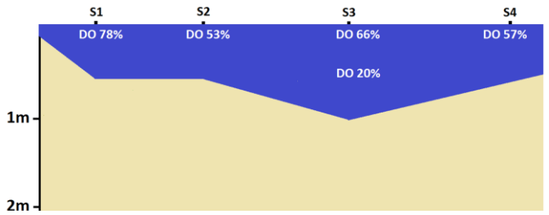
(T) 03 5232 9100 (F) 03 5232 2759
(E) info@ccma.vic.gov.au
www.ccma.vic.gov.au

Estuary Snapshots

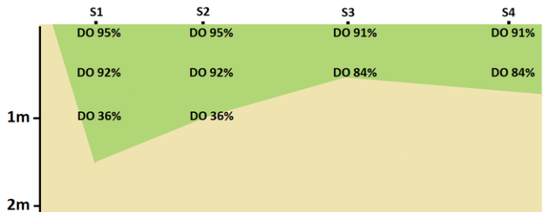
For all four monitoring sessions chosen for the EstuaryWatch Snapshots, photo point photos and a longitudinal profile of the estuary from Site S1 (boardwalk near the estuary mouth) to S4 (Aurora Crescent fishing platform) are displayed. The profiles show the depth, salinity and percent saturation of dissolved oxygen 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: OPEN
Photos: 08/02/2015

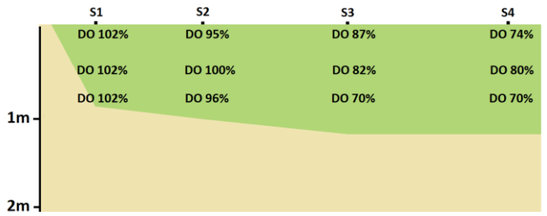


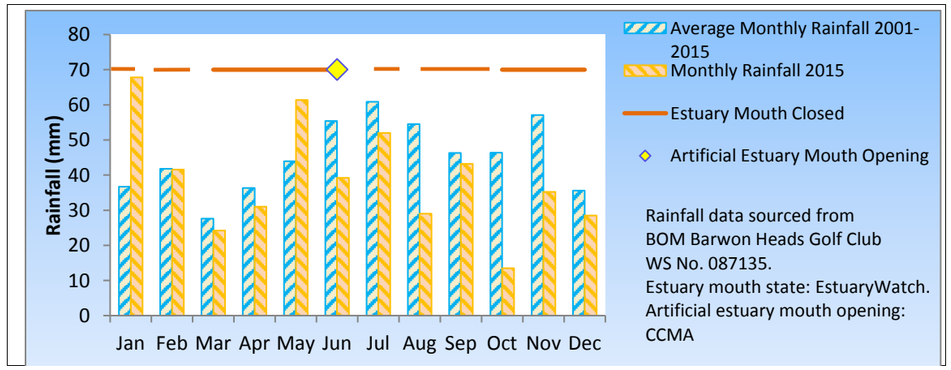
Date: 26/04/2015 Estuary mouth state: CLOSED



Date: 05/07/2015 Estuary mouth state: CLOSED

Date: 12/12/2015 Estuary mouth state: CLOSED





A comparison of 2015 monthly total rainfall and the average monthly total rainfall (2001-2015), including when the estuary mouth was closed and the artificial estuary mouth opening.

The average annual rainfall (2001-2015) was 543mm, the 2015 total rainfall was 466mm. The highest total rainfall was recorded in January (68mm).

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.

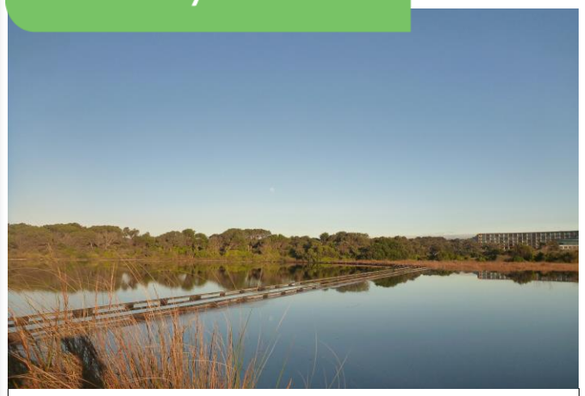
Below is a table to assist you to interpret the EstuaryWatch data discussed in this summary. The guidelines detail what you would expect from a single monitoring session on an estuary in Victoria.

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



Reflections on the flooded Spring Creek estuary on June 5, prior to the opening of the estuary mouth.

The Spring Creek Estuary was one of the first estuaries to be monitored through the EstuaryWatch program. Local volunteers have been gathering mouth condition and water quality monitoring data on the estuary since 2007. In 2015, the largest amount of data for any year to date was collected by both dedicated EstuaryWatch local community members and students from The Gordon, who undertake EstuaryWatch training as a part of their Conservation and Land Management studies.

The monitoring data collected was used to assist with with management decisions when the estuary needed to be artificially opened in June 2015 due to high water levels inundating infrastructure surrounding the estuary. The estuary mouth was successfully opened with no detrimental impact on the ecology of the Spring Creek.

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 Kuiter ©