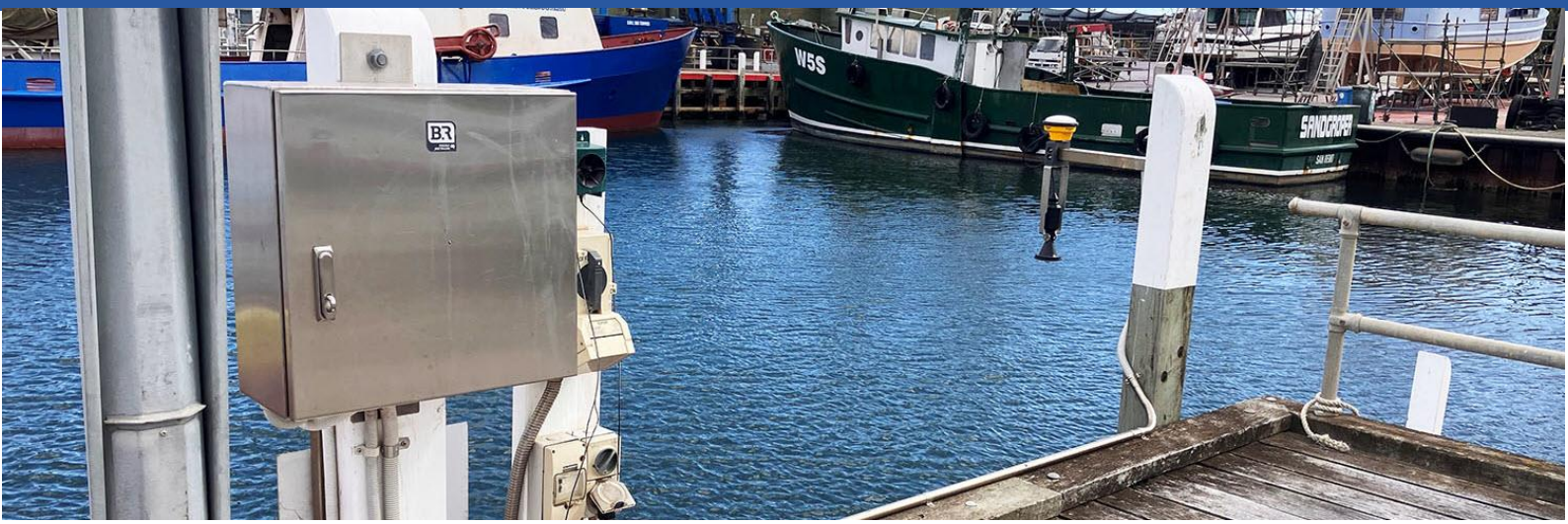
CEE HydroSystems™

# CASE HISTORY




## CEETIDE MAX™ Provides Uninterrupted Tide Monitoring for Gippsland Ports

*High reliability and low maintenance requirements are key elements of a tide gauge water level installation. In Victoria, Australia Gippsland Ports' multiple tide gauge installations have proven to be a great investment from a data, reliability and usability standpoint. Advanced features such as a built-in precise Trimble GNSS system to monitor exact sensor location and subsidence and an online web server for public access contributed to a great project outcome after two years of steady monitoring.*

In 2022, Gippsland Ports in Victoria, Australia, purchased four CEE HydroSystems CEETIDE MAX™ Precision Tide Gauge systems. The tide gauges were installed at Lakes Entrance – Bullock Island (tide monitoring), Lakes Entrance – Entrance Channel (tide and wave monitoring), and Port Welshpool (tide monitoring). The fourth CEETIDE MAX™ was designated as a portable system.

This project aimed to replace three existing acoustic tide gauges that had reached the end of their operational life. After conducting market research, Gippsland Ports selected the CEETIDE MAX™ because it met and exceeded their requirements for a precision tide gauge. While the CEETIDE MAX™ is capable of operating on a combination of battery and solar power, the existing infrastructure at the sites allowed Gippsland Ports to connect the CEETIDE MAX™ directly to mains power.


*CEETIDE MAX installed at Bullock Island.*

Gippsland Ports housed the CEETIDE MAX™ units in BnR stainless-steel cabinets for security and protection from the elements with the VEGA radar probes and Trimble GNSS antennas mounted in close proximity to the CEETIDE MAX™ unit.

The supplied VEGA radar sensor has a 0.5 - 15m tide measurement range. An optional radar sensor with an extended tide measurement range of 0.5 – 30m is also available.

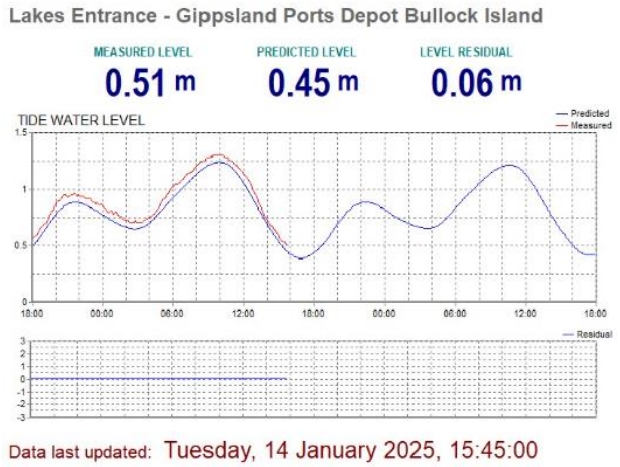
*VEGA Probe and Trimble Antenna Installation at Bullock Island.*

The CEETIDE MAX™ may be specified with an integrated basic GNSS receiver for time synchronisation or an optional precise Trimble GNSS receiver for raw binary position data for geodetic reference checking, long-term sensor movement and subsidence monitoring.

*VEGA Probe at Lakes Entrance measuring wave data*

Gippsland Ports selected the internal Trimble GNSS receiver, as it provides the ability to tie the local tide gauge datum directly to the GNSS ellipsoid height and eliminates the need to complete a level run to a separate GNSS base station. Following the initial installation and settling-in period, the GNSS binary position data is logged & checked monthly.

Gippsland Ports Tide installation sites have LAN access through an ethernet connection. This allows reception of live data in 6-minute intervals from the CEETIDE MAX™ unit to an Ocean Sense server. These data are then streamed on their website for public use, and also made available to universities and other public institutions.




*Gippsland Ports Website Tide Data Lakes Entrance.*

The direct LAN connection further allows Gippsland Ports to access the web server to remotely configure and monitor the CEETIDE MAX™ units and download logged data as required.

The CEETIDE MAX™ can stream real-time tide data via UHF or an external cellular modem if no local network connection is available. Secure, remote web server access can be achieved via a cellular router with point-to-point VPN connectivity. The system will also log internally, where data can be downloaded on-site via the USB port and or remotely via the web server.

Over the last two years CEETIDE MAX™ has demonstrated itself to be a reliable and precise tide gauge station that will supply the Gippsland Ports and the public with accurate and consistent tide data for many years to come.