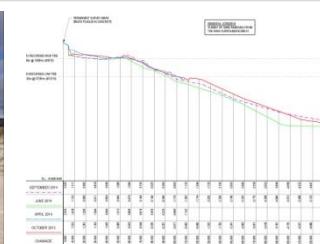
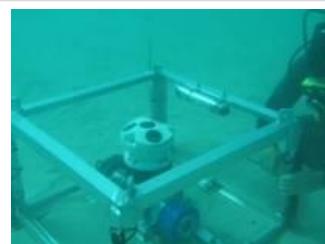




## Coastal Hazard Risk Management and Adaptation Plan (CHRMAP)

The City of Albany has received funding from the Western Australian Planning Commission to complete a CHRMAP for the project area. This process will take 2 years to complete. The purpose of this work is to consider a full range of planning instruments in order to plan for the short and long term management of the coast. It will be done in six stages and will involve extensive community engagement.

1. Establish the Context
2. Identify Risks
3. Risk Assessment
4. Identification of Adaptation Options
5. Assessment of Adaptation Options
6. Implementation Plan



### 1 AWAC

**Start: December 2013**  
Since December 2013 Acoustic Water and Current Devices (AWAC) have been deployed to collect wave and current data. This data was used for recent modelling work for the Coastal Vulnerability and Hazard Mapping study. A data gap identified by this modelling means that an AWAC will soon be deployed off Emu Point to capture data on wind driven currents.

### 2 Trial Groynes

**Start: April 2014 - ongoing**  
In autumn 2014 two trial sand bag groynes were constructed at the western end of the revetment and nourished with 10,000m<sup>3</sup> of sand. Results show that local erosion in this area has stabilised. In autumn 2016 and 2017 a small addition of sand bags were added to the groynes to maintain their structural integrity. Sand nourishment will be carried out to this area as required.

### 3 Anemometer

**Start: January 2014-ongoing**  
In early 2014 an Anemometer was installed atop the **Albany Port Authorities'** navigation beacon at Emu Beach. This instrument measures wind speed, direction and gusts and provides localised data. Live wind data is available for viewing on the **City of Albany** website. This is managed by **Ecotech Pty Ltd.**

### 4 Tide Gauge

**Start: Sept 2014-ongoing**  
In September 2014 a tide gauge was installed by **DoT** at the Emu Point Boat Pens. The aim of recording water levels in Oyster Harbour is to establish the effect of the narrow entrance on the water levels in Oyster Harbour during normal tidal conditions and in storm events. This instrument is supplied and managed by **DoT.**

### 5 Fixed Camera

**Start: Oct 2014 - ongoing**  
In October 2014 a fixed time lapse camera was installed at the western end of the rock revetment. This camera takes an image every two hours and these images are compiled into a time series video. This is managed by **BMT Oceanica.**

### Photo Monitoring

**Start: July 2013 - Ongoing**  
In July 2013 a photo monitoring program commenced that covered the area from Ellen Cove to the Emu Point Boat Pens. Photo monitoring is inexpensive and identifies trends in beach change, beach management issues and assists in developing strategic directions for coastal planning. It is carried out monthly year round by **City of Albany** staff and **Community volunteers.**

### Beach Profiles

**Start: October 2013 - ongoing**  
In October 2013, permanent survey markers were installed to enable beach transects to be conducted from Ellen Cove to Emu Point Boat Pens, from the secondary dunes to 250m offshore. This is carried out every 3 months, at the beginning of each season. In 2016/17 the area east of the channel at the base of Mt Martin will also be surveyed. **DoT** will also carry out annual bathymetry surveys.

### Structure Condition Assessment

**Start: October 2013**  
A Structure Condition Survey was conducted of all rock structures at Emu Point by coastal engineers in April 2012, October 2013 and November 2014. Photos with GPS coordinates have been recorded to allow for accurate comparison. This is undertaken annually.