Aims:

To determine if environmental factors such as temperature, wave intensity and depth have an effect on the morphology of shallow water sporophytes of Ecklonia maxima.

To quantify the effects of temperature, wave action and depth on kelp morphology.

Objectives:

* To determine whether kelp morphology is different between sites.
* To determine whether temperature differs between sites.
* To determine the differences in wave action between sites.
* To quantify the influence of depth on kelp morphology.

Proposed methods:

* Site

Sites were selected according to the geographic distribution of *E. maxima* along the south west coast. The chosen sites were also a combination of exposed and sheltered sites, along the West Coast and False Bay region respectively.

a summary of the site list and region are depicted in table 1.

* Morphology (past tense)

Thirteen *Ecklonia maxima* individuals will be collected by snorkel in an area of kelp bed ~1m deep. After collection of kelp has been completed, various morphological and biomass measurements will be recorded. Measuring tape will be used to measure the various morphological features, and biomass will be measured by cutting the kelp into sections and placing the material in a net bag which will be weighed using scientific scales.

The morphological factors going to be measured are: primary blade length, primary blade width, frond length, stipe length, stipe circumference, number of tufts and epiphyte length. The biomass will be divided into frond mass and stipe mass.

* Temperature

The daily temperature data was obtained from the South African Coastal Temperature Network (SACTN), using in situ data and underwater temperature recorders (UTRs). The data was tested for normality and then standardised.

Summary stats – non parametric techniques not normally distributed

* Wave parameters

All wave data was obtained by the South African Weather Service (SAWS). The data was tested for normality and then standardised.

A redundancy analysis was performed to describe the morphological variables in relation to the various wave parameters.

Statistical methods:

All statistical analyses were conducted through The R-Project for Statistical Computing.

The raw data was recorded in an excel spreadsheet.

* RDA