



BUSINESS AREA: SPATIAL SERVICES

Case Study

Coastal Climate Change Impact Assessment

Spatial Vision, in partnership with the Victorian Department of Environment, Land, Water and Planning, undertook an assessment of the likely impacts of anticipated climate change on the Victorian coastline to inform the prioritisation of the Victorian Coastal Monitoring Program.

This project was required to build on earlier risk assessment work carried out by DELWP that identified priority assets, as well as be consistent with the CoastAdapt risk assessment approach. The assessment involved undertaking an extensive state-wide spatially based impact assessment that considered all coastal assets. This included the use of currently available coastal biophysical data, asset information and research findings.

This approach was unique, as no equivalent analysis and coastal asset assessment had been done before for Victoria.

The project aims to inform communities on anticipated climate change and the likely impacts associated with this change to facilitate evidence-based decision making.

“This study was ground breaking in that it provided for the first time, a state-wide review of predicted climate change impacts of erosion and inundation along the entire Victoria coastline on selected assets which gave us a clear rationale for where to invest our monitoring program efforts.”

Lawrance Ferns
Victorian Coastal Monitoring Program, DELWP

Customer Profile

www.delwp.vic.gov.au

Company

Department of Environment, Land, Water and Planning – Biodiversity Division

Location

Victoria

Industry

Government

Products

Data Analysis and Data Layers

Solution

Using a state-wide approach, coastal erosion vulnerability to climate change was modelled using attributes relating to exposure, sensitivity and adaptive capacity of the coast. This information, together with coastal inundation impacts relating to anticipated sea level rise and storm surge, was used to assign individual impact profiles to priority assets.

Benefits

- Approach provides a standard approach to assess likely impact of anticipated climate change on the Victorian coast and associated assets
- Process supports targeted monitoring programs and areas to undertake more detailed local coastal hazard assessments

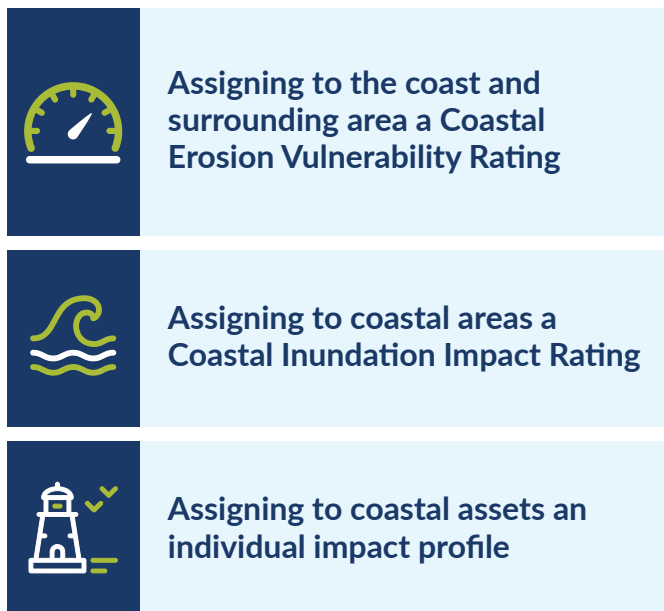
The Issue

The primary objective was to identify areas along the coast of Victoria that will be most impacted by climate change in addition to areas where these impacts will significantly affect important coastal assets as identified by DELWP.

A key requirement was to determine the likely vulnerabilities over time to particular coastal hazards, including significant storm events and sea level rise. Coastal erosion and inundation are the key hazards to which the Victorian coast and associated assets are exposed. Both these factors are seen as natural processes, but when driven by direct and indirect climate change stressors, including increased wave activity and storm events, these factors will have significantly greater impacts on the coastline.

The Solution

Our approach involved three distinct stages:



The first stage involved assessing the erosion vulnerability of the coast by adopting a suitable Climate Change Vulnerability Impact Framework.

The approach evaluated the exposure to anticipated change, sensitivity of the coast to these exposures and the adaptive capacity of the coast based on engineered and natural features that mitigate potential impacts.

This involved dividing the coast up into 50m segments and assigning relevant attribute values to these segments.

We also had to consider the elevation, distance and land cover surrounding the coast and assigning a coastal erosion vulnerability rating to this surrounding area.

Stage two involved the application of modelling datasets in relation to anticipated coastal inundation.

This involved applying modelling outcomes for sea level rise levels of 20cm, 47cm and 82cm, with storm surge forcing on top of these projected rises, 1 in 100 year flood event scenarios, and the known distribution and activation of coastal acid sulphate soils across the study area.

The final stage used the outputs of the first two stages and applied these results to establish individual coastal asset profiles. This process focused on priority assets previously identified by DELWP risk assessment studies, and generated findings on the basis of secondary level coastal sediment compartments.

The Benefits

- ✓ The outputs of this work were able to provide a spatial representation of the Victorian coast and associated coastal assets determined to be at risk from climate change. Areas of higher potential impact from coastal erosion vulnerability and inundation factors were able to be highlighted in order to support the assignment of vulnerability and risk ratings to coastal assets
- ✓ These results in turn are aimed at supporting planning and implementation of adaptation and mitigation activities, establishing targeted monitoring programs and identifying regions to undertake more detailed and focused local coastal hazard assessments

We specialise in giving organisations and government departments the information they need to make big decisions.

If you'd like to know more, [please get in touch.](#)

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