

Western Port Local Coastal Hazard Assessment

Fact Sheet

Our climate is changing as a result of global warming. These changes will exacerbate existing coastal hazards such as rising sea levels, storm surges and coastal erosion.

Informed and proactive planning can help minimise exposure to coastal hazards and help us adapt to long-term climate change.

Western Port is one of four priority locations (the others being, Port Fairy, Bellarine Peninsula and Gippsland Lakes) within Victoria where Local Coastal Hazard Assessments (LCHA) are being undertaken as part of a wider State Government funded program. Western Port was chosen to be part of this initial program due to significant social, economic, built and natural values that have been identified to be at risk from the impacts of sea level rise and storm surge.

Project Overview

The Western Port LCHA aims to provide information on the extent of coastal hazards and their physical impacts for the Western Port coastal environment.

The study area includes all shorelines of Western Port and French Island, as well as the northern shorelines of Phillip Island from Newhaven to Seal Rocks. The Southern side of Phillip Island was excluded from the study as changes along this coastline are driven by different coastal processes that would require modelling a vast portion of open coast.

The study is in two parts:

- Part A – a broad scale Western Port wide coastal hazard assessment, and
- Part B – more detailed local scale assessment at four representative locations.

Information has been collected on inundation hazards (storm surge and catchment inflows) using modelling for different sea level rise scenarios. Erosion hazards

for different shorelines were grouped by landform (geomorphic) categories with similar susceptibility to a range of sea level rise scenarios. Ocean storm and catchment flooding conditions have also been identified.

The Victorian Coastal Strategy 2014 requires planning for sea level rise of not less than 0.2m by 2040 for urban infill areas and 0.8m by 2100. This is reflected in the three sea level rise scenarios used in the study of 0.2m (2040), 0.5m (2070) and 0.8m (2100).

More detailed analysis was undertaken at the following sites:

- Balnarring to Somers
- Tooradin and coastal villages
- Lang Lang (main drain to Jam Jerrup) and
- Rhyll Inlet and Silverleaves.

For each of these locations the detailed assessment of coastal hazards has produced a refined estimate of the hazard extent.



Findings

The diversity of the Western Port coastline means that appropriate response actions to these findings will vary with each location.

Coastal inundation

A number of townships located adjacent to the shorelines of Western Port, particularly upstream of Sawtells inlet at Tooradin and around Lang Lang, Pioneer Bay and Queensferry, lie at relatively low elevations and are therefore vulnerable to inundation associated with rising sea levels. At present the low lying plains are protected by a series of ad-hoc levees constructed by land owners. A breach of these levees could see the sea encroach inland if further adaptive responses are not undertaken.

Coastal erosion

There are a number of beaches which are currently experiencing shoreline erosion including: Balnarring-Somers, Lang Lang, Rhyl inlet and Silverleaves. Erosion is also likely to reduce coastal wetland around Tooradin and cause further cliff recession at Lang Lang. Erosion is likely to increase with rising sea levels and increased storm surge.

Other impacts

Western Port's coastal aquifers are likely to experience increased saltwater intrusion due to sea level rise, particularly across the Koo Wee Rup area.

Project reports

Final reports are available online from the South East Councils Climate Change Alliance (SECCCA) website:

<http://www.seccca.org.au/projects/western-port-local-coastal-hazards-assessment>



How the information can be used

The information that has been gained from the project will assist in planning for and managing coastal hazards. It will allow management agencies and other key stakeholders to identify triggers for short, medium and long term management responses.

The type of response in each local area will vary with community expectations and may include: strategic and statutory planning, infrastructure maintenance and replacement schedules, natural asset management, business planning, and budget allocation.

Who has been involved

The project has come about through a partnership between the Department of Environment, Land, Water, Planning and Local Government (DELWP), Melbourne Water, South East Councils Climate Change Alliance, Bass Coast Shire Council, Cardinia Shire Council, the City of Casey and the Mornington Peninsula Shire Council.

Next steps

Information from the LCHA will help identify how, when and where the Victorian Government, Western Port Councils, the community and industry can work together to respond to impacts of climate change on the coast.

The mapping and information generated by the WPLCHA will be used as an engagement and planning tool to better understand community values, issues and priorities for collaborative action on climate change.

Councils will play a key role in working with their communities to understand these values and take action to plan at a local level.

The Victorian Government and the four Western Port councils are continuing to discuss the best ways to integrate the data and information from the LCHA into existing local planning tools.



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Frequently Asked Questions

What is a Local Coastal Hazard Assessment (LCHA)?

It is a study of the existing and projected conditions for coastal environments in relation to erosion, coastal inundation and catchment flooding events and their physical impacts.

What was the scope of the study?

The study collected technical data and provided modelling to improve understanding of coastal processes in Western Port now and in the future. It does not include subsequent risk assessment of the impacts of hazards on built, economic or social infrastructure, assets or values. The study does not include preparation of a climate adaptation plan in response to the hazards.

Why was the Western Port LCHA done?

The Victorian Government and coastal councils are working to build knowledge and understanding of the impacts of climate change on our coast. The Western Port LCHA is one of four pilot local coastal hazard assessments across Victoria which will provide data and information to assist local authorities to plan for and understand the effects of climate change over a 2040, 2070 and 2100 timescale. The data and information will inform development of integrated emergency and hazards management responses, planning, infrastructure upgrades and other work. It can also be used to inform any future climate adaptation plans that may be developed. Western Port is an internationally recognized Ramsar wetland and Biosphere Reserve. The ecosystem is sensitive to changes in seasons, short term climate variability and longer-term climate patterns.

How does the LCHA report fit in with current State policy?

The scenarios used in the assessment are consistent with the current Victorian Planning Benchmarks to plan for sea level rise of not less than 0.2m by 2040 for urban infill areas and 0.8m by 2100. The study considers three sea level rise scenarios of 0.2m (2040), 0.5m (2070) and 0.8m (2100).

How will the information be used?

The LCHA provides local authorities and communities with new data and information based on the best available science. The mapping and information generated by the WPLCHA will be used as an engagement tool to better understand community values, issues and priorities for collaborative action on climate change.

This will help communities to make informed decisions about living in and around a dynamic and changing coastline. It will allow management agencies and other key stakeholders to identify and define triggers as the basis for short, medium and long term management responses.

How reliable /accurate is this modelling?

The technical reports and data have been rigorously monitored. A Technical Reference Group have overseen the project, independent technical referees reviewed the methodology, report and data content, and independent technical peer reviewers assessed the final reports to verify validity. Where available, the data is also supported by historical observations.

This project is one of four pilot projects across coastal Victoria, which have been delivered by three different consultants using varied approaches, but which have produced broadly consistent results. An additional project is underway to evaluate these four projects together and to review the methodologies used. This will inform future work in this area.

Why were the four representative local sites chosen as part of the WPLCHA?

Due to the scale of the area, detailed investigation around the whole Western Port shoreline is impractical. Consequently, four representative locations were chosen according to their importance in terms of coastal hazard and the extent to which they represent different physical circumstances. The four representative sites and shoreline types are:

- **Balnarring to Somers** - platform beach and bluff, and sandy spit shorelines
- **Tooradin and coastal villages** – coastal wetland fringed shoreline, and estuary shoreline
- **Lang Lang (main drain to Jam Jerrup)** – low earthed cliffed shorelines
- **Rhyll Inlet and Silverleaves** - sandy spit shoreline, and coastal wetland shoreline

Where can I read the reports?

Project reports including detailed mapping will be stored on the South East Councils for Climate Change Action (SECCCA) website, with links from partner council web pages.

<http://www.seccca.org.au/projects/western-port-local-coastal-hazards-assessment/>

Detailed raw project data has been provided to partners in GIS format. Non-project partners will be able to view an accessible version of the raw data once it has been formatted and loaded into the Spatial Datamart. Spatial Datamart is DELWP's freely accessible GIS data storage system and it is envisaged that the data will be available by 1 July 2015. If you require access to the data before this date please contact the DELWP Customer Service Centre on 136 186 and ask to speak to Ben Johnson.

<http://services.land.vic.gov.au/SpatialDatamart/>

