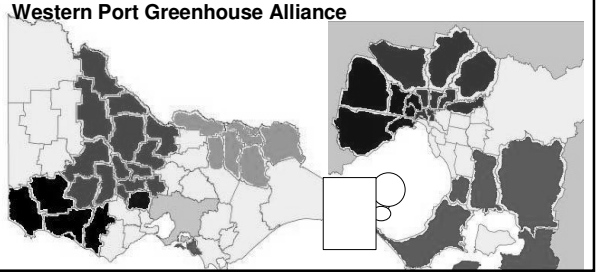
People, property and places - impacts for the Western Port region

Greg Hunt
Executive Officer
Western Port Greenhouse Alliance

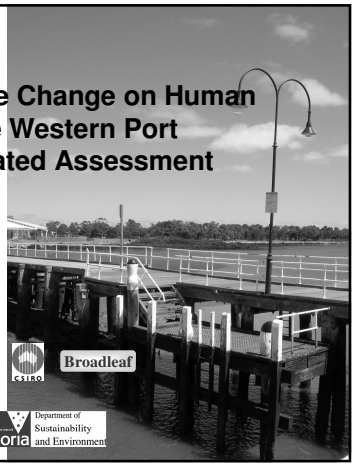
Victoria's greenhouse alliances

Central Victorian Greenhouse Alliance
North East Green House Alliance
Northern Alliance for Greenhouse Action
South West Sustainability Partnership
Western Alliance for Greenhouse Action
Western Port Greenhouse Alliance



WPGA conducts projects responding to climate change

Impacts of Climate Change on Human Settlements in the Western Port Region: an Integrated Assessment



Marsden Jacob Associates
CSIRO
Broadleaf
Australian Government Department of Climate Change
Victoria Department of Sustainability and Environment

Project Stages

CSIRO Biophysical assessment
Infrastructure and socio-economic impacts
Risk Assessment
Adaptation workshops
– planning, emergency management, community
Evaluation and lessons learnt
Release to community

Temperature

	2030	2070
Average annual temperature	↑ 0.5-1.3°C	↑ 1-3.5°C
Days per yr > 30 °C (16 current)	↑ 1 - 5	↑ 4 - 16
Days per yr > 40 °C (0 current)	↑ 1	↑ 2
Runs of 3 - 5 days > 30 °C (3 current)	↑ 1 - 2	↑ 2 - 4

Temperature

70,600 elderly
38,700 infants / young
Residents in low quality homes
Residents with low incomes
Impacts on infrastructure

Average rainfall

	2030	2070
Average annual	↓ 0 - 8 %	↓ 0 - 23 %
Catchment stream flows (worst case)	↓ 25 %	↓ >50 %
Droughts	↑ frequency & severity	

Average Rainfall

Impact on playing fields, parks and gardens
Properties with no access to mains supply
Increased water prices
Impact on water dependent businesses
Impact on infrastructure / maintenance costs

Extreme rainfall

	2030	2070
2 hour	↑ 15 - 25 %	↑ 20 - 70 %
12 hour	↑ 3 - 22 %	↑ 17 - 61 %
24 hour	↓ 2 - ↑ 17 %	↑ 16 - 50 %
Maximum flood heights	↑	↑
Flooding frequency	↓	↓

Extreme Rainfall

Increased flood damage to infrastructure
Residences with limited freeboard
Estimated 39,480 people, 13,390 properties,
2,050 commercial / industrial properties,
1,412 km roads, 26 bridges
580 km² land

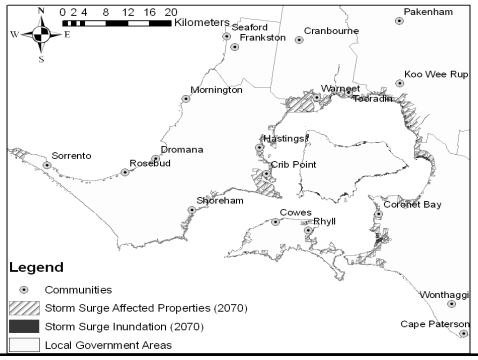
Sea level rise / storm surge

	2030	2070
Sea level rise	**↑ 0.17 m**	**↑ 0.49 m**
Storm tide – max. height, 1:100 year at Cowes now 2.10m	**2.29 m**	**2.74 m**
Storm tide – max. height, 1:100 year at Frankston now 1.16m	**1.37 m**	**1.80 m**
Storm surge change to 1:100 year	**↓ to 1:40 - 1:6**	**↓ to 1:20 - 1:1**
Inundation area Port Phillip 1:100 year storm surge	**1.1 sq km**	**1.6 sq km**
Inundation area Western Port 1:100 year storm surge	**12.6 sq km**	**17.7 sq km**

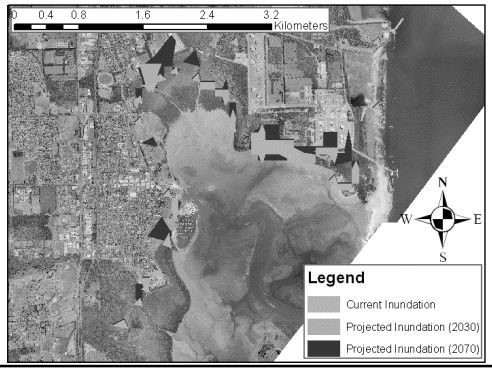
Sea Level Rise / Storm Surge

Low resolution elevation data for Port Phillip
Damage or loss of beach/land
Estimated 2,270 people
Estimated 1,030 residential properties
Estimated 60 commercial / industrial properties

Spatial distribution of 1 in a 100 year storm surge inundation areas for .... region



Spatial distribution of 1 in a 100 year storm surge inundation areas for .... Hastings



Residential areas vulnerable to storm surge and sea level rise

Inverloch

Fire weather

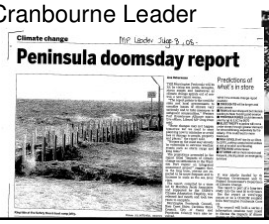
	2030	2050
No. of very high and extreme forest fire risk days (~ 9 – 12 days current)	**↑ 1 - 2**	**↑ 2 - 7**
No. of very high and extreme grass fire risk days (~ 95 days current)	**↑ 7 - 15**	**↑ 9 - 30**

Fire Weather

Up to 73,620 people
28,443 residences
459 commercial / industrial properties
5,301 public buildings, reserves etc
1,621 km roads, 49 km rail
Up to 468 km² land
Stress / social disruption
Cost of insurance

Man the lifeboats

Cranbourne Leader



Peninsula doomsday report

Predictions of what's in store

Hotter and drier future is tipped

The projections illustrate the challenges that climate change will present to Victorians over the 21st century.

WPGA Western Port Greenhouse Alliance

WET, WET, WET: Cranbourne Journal
Rising seas spell doom for coast

Council responses

In consideration
- **Bass Coast**
- **Cardinia**

Established cross-council task force
- **Casey**
- **Frankston**

Conducted climate change conversations
- **MornPen**

MornPen's CC conversations

Legal

Phillips Fox:
Local Government Liability Overview

Liability through breach of duty of care if:
.. council has control ..
.. must have known of risk ..

Wrongs Act (1958)
.. no breach if act or omission is reasonable

Gippsland Coastal Board vs South Gippsland SC

35 The specific consideration of sea level rises, coastal inundation and the effects of climate change are not set out within the Victorian Planning Provisions.

36 In this matter, we have neither the benefit of specific planning provisions or policy relating to coastal recession or sea level rise.

WPGA responses

Heatwave Strategies
Penguin Parade impacts
Emergency Management


Greg Hunt
EQUINOX