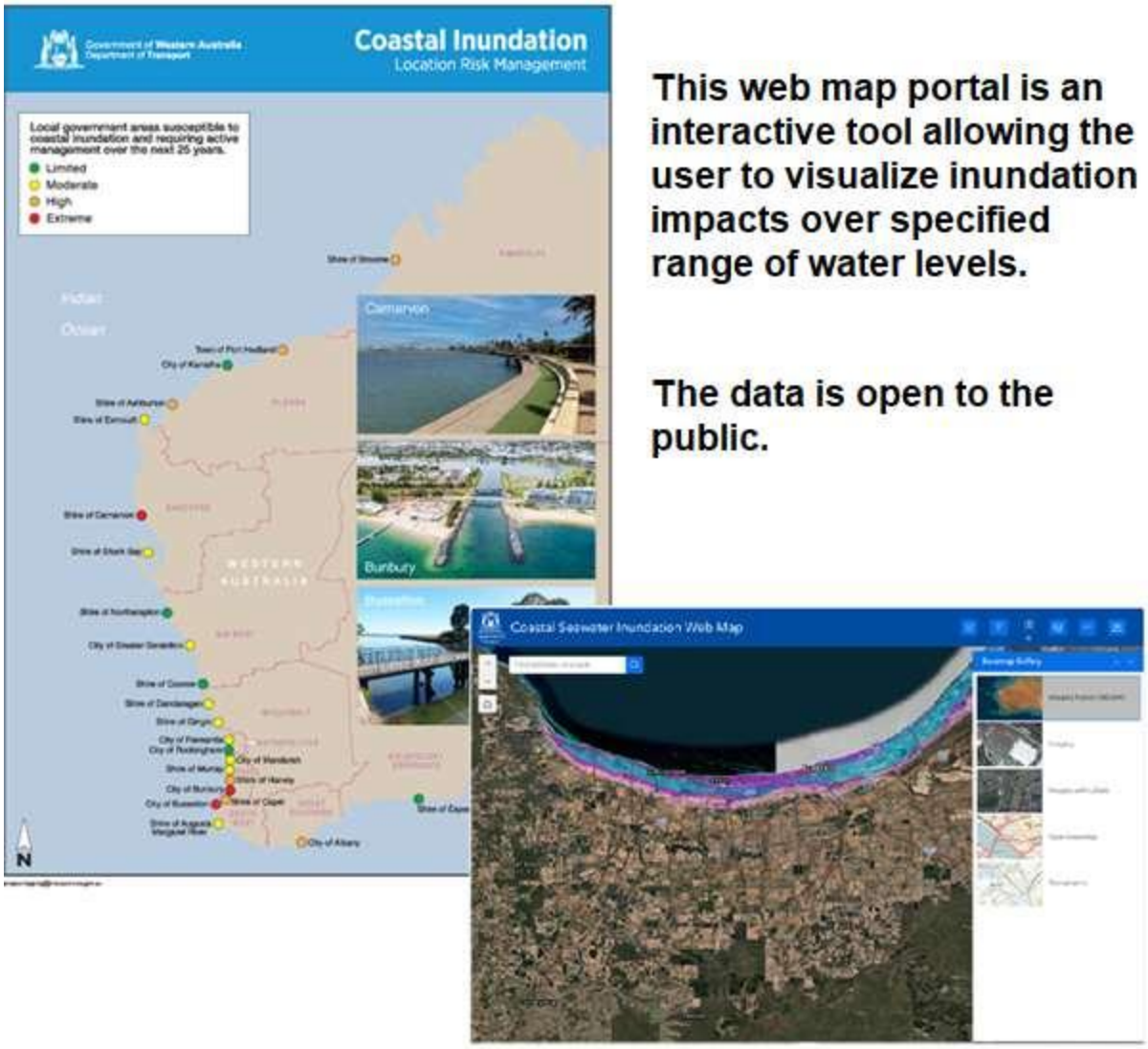
Government of **Western Australia**
Department of **Transport**

Coastal Seawater Inundation Web Map User-Guide

by DoT Maritime GIS team



This web map portal is an interactive tool allowing the user to visualize inundation impacts over specified range of water levels.

The data is open to the public.

Australia's coastal inundation risk is growing with rising sea levels, changes to climate and weather patterns and increasing coastal development. In WA nearly 20 per cent of our homes and 30 per cent of commercial buildings are located within one kilometre of the coast.

The threat of sea level rise impacting large areas of our coastline is a significant issue. To investigate this threat the Department of Transport commissioned Seashore Engineering Pty Ltd to undertake a state-wide assessment of the scale and extent of WA coastal inundation. To better inform and support local communities, the portal allows the user to map the potential localised inundation extent and examine the inundation pathways to manage the threat.

Contents

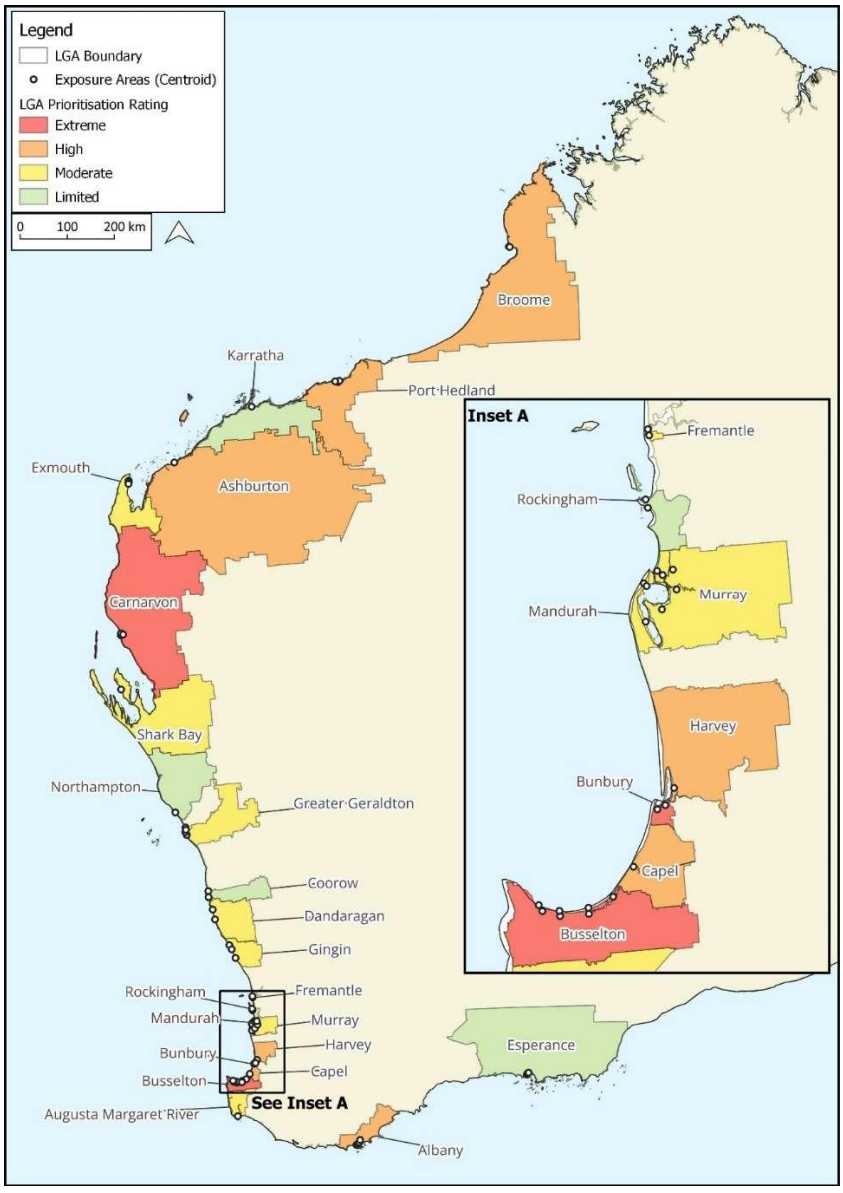


Figure: Inundation data available on the following LGAs:
Broome
Port Hedland
Karratha
Ashburton
Exmouth
Carnarvon
Shark Bay
Geraldton
Coorow
Dandaragan
Gingin
Fremantle
Rockingham
Mandurah
Murray
Harvey
Bunbury
Capel
Busselton
Augusta-Margaret River,
Albany
Esperance

1. Mapping Method

The technique uses a "percolation method" which maps pathways of seawater intrusion over land using contours derived from LiDAR capture. The percolation tool uses the LiDAR generated digital elevation model (DTM) of the selected LGA area.

To ascertain the "age" of the inundation prediction, the tool identifies, for each LGA location, the date of the LiDAR capture.

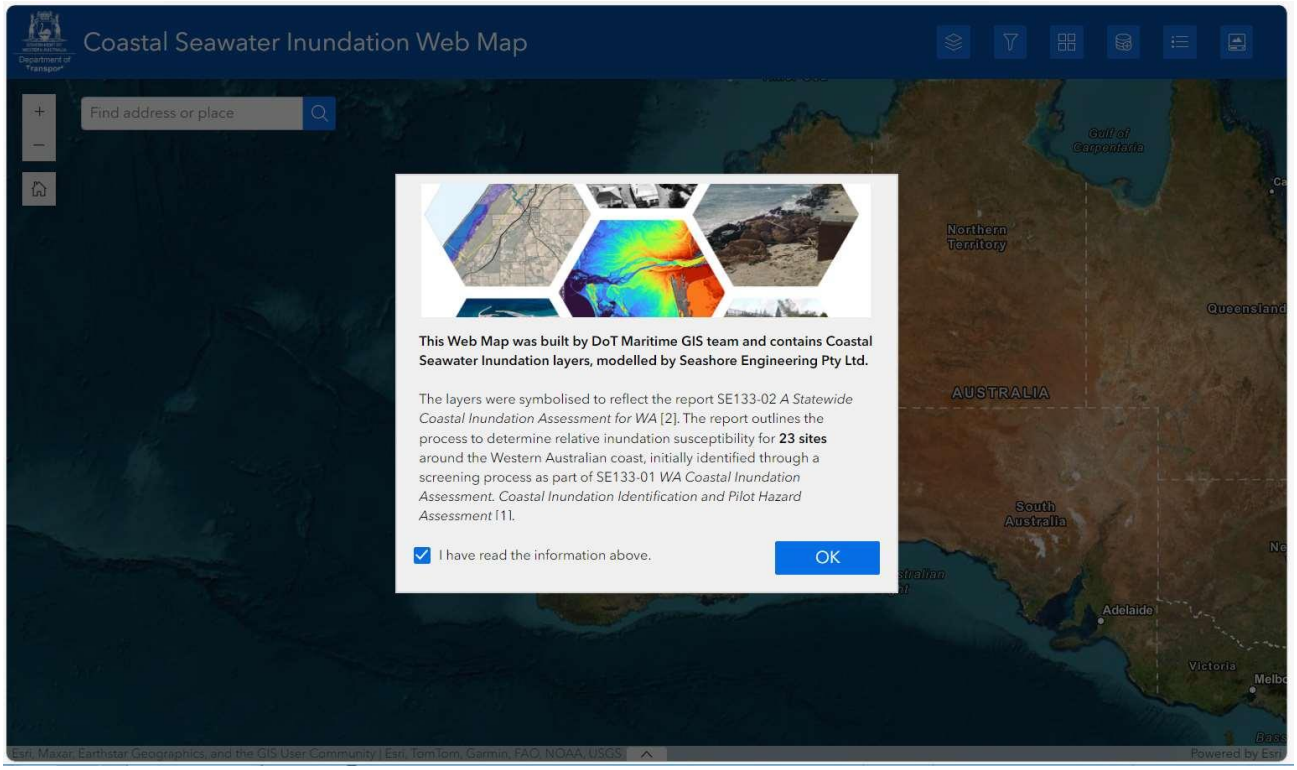
The aim is to continually improve the tool i.e., as the LiDAR capture for an area is updated, an updated DEM will be generated and can be selected.

The use of the word "percolation" simply describes the movement of seawater over land. The user selects a seawater height from a pull-down menu and the inundation extent is mapped with the condition that there is a direct pathway/connection for seawater to move/percolate over land while always maintaining that direct contact with the sea. The seawater will move over land until the height of the land contour exceeds the selected water level.

2. Splash Screen

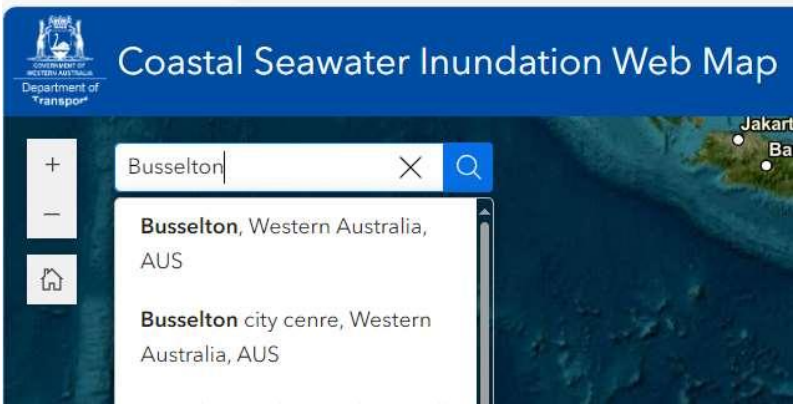
The splash screen opens by default and bring some information about the inundation modelling.

To close it click on the message 'I have read the information above' and click OK.



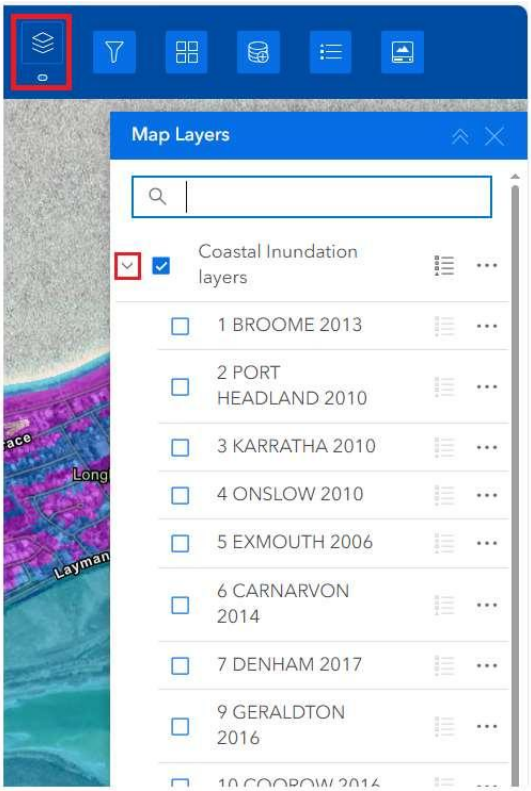
3. Search tool

Type on the Search box and insert a LGA location from the list provided, it will prompt the full location name to be selected. Click on the prompt to zoom in to the location selected.



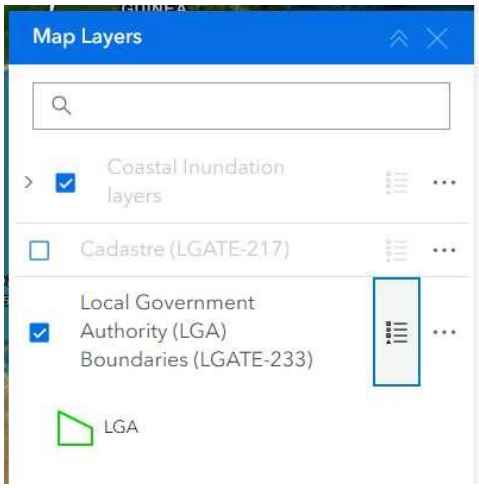
4. Map Layers widget

Click on the Map Layer widget, located on the right top corner of the web map, to open the tool itself. Expand the group layer, click on the arrow next to name, to see sub-layers and tick them on to make them visible.

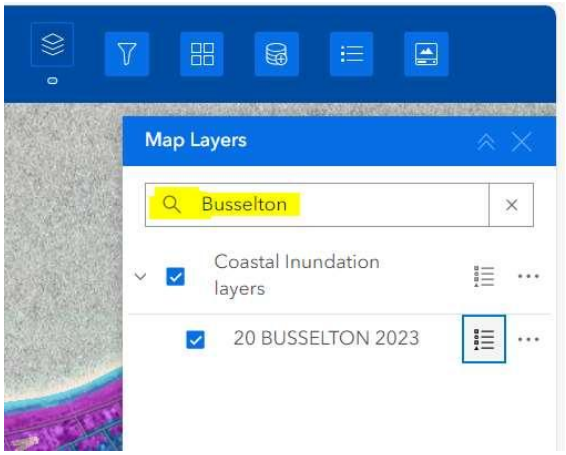


Layer names will be greyed out if scale dependency applies. Zoom in the map to make them visible.

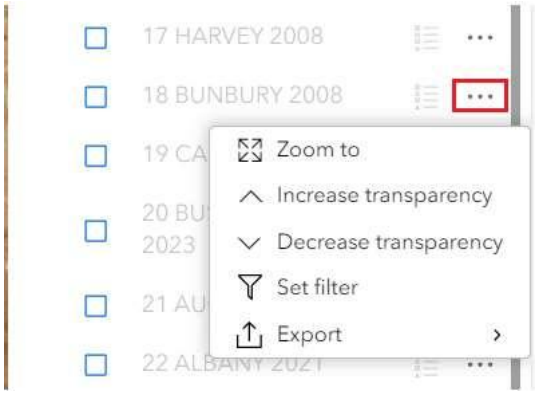
Click on the legend function, on the right of layer name, to see symbology.



Option to search for the layer name. Type the layer name on the layer search box to filter and display only one layer. This action will Zoom to the layer extension.



Click on the 3 dots next to the layer name to access more options (Zoom to layer extension, transparency adjusting, filters and export data as a shapefile.

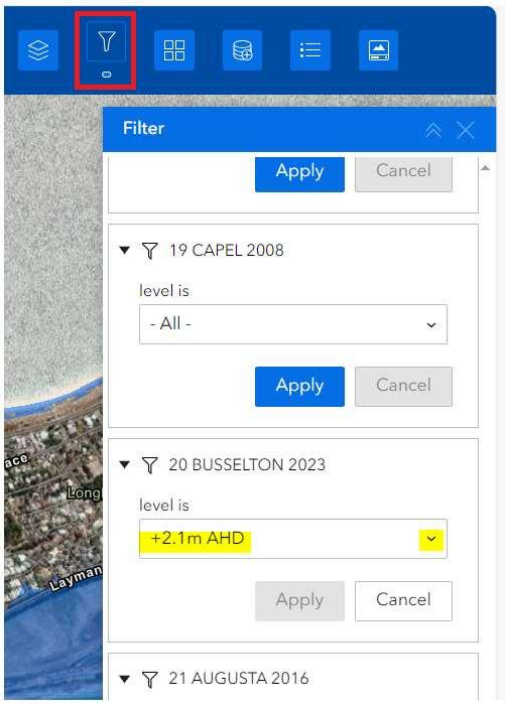


5. Filter widget

Click on the Filter widget to expand. This tool will filter inundation levels.

Select the layer from the drop-down menu and click Apply to see results The inundation area displayed is for all areas up to the selected water level will be displayed.

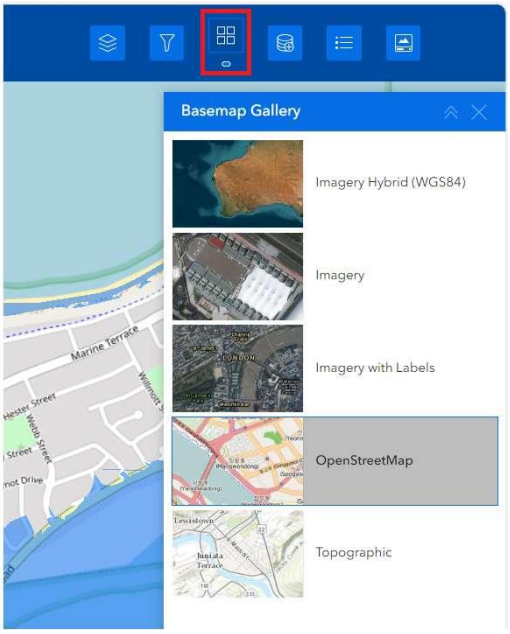
Click Cancel to return.



6. Basemap widget

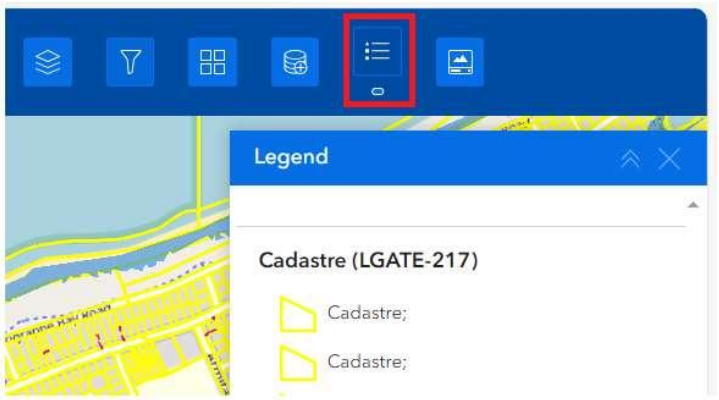
Click on the Basemap widget to expand the Basemap options.

Select a basemap simply clicking on it.



7. Legend widget

Click on the Legend widget to expand the symbology of the layers that are turned on in Map Layers widget.



8. User Guide widget

Click to access the User Guide.