Title	Projected distribution of mangrove and saltmarsh in NSW estuaries under sea level rise
Abstract	The projected distributions of mangrove and saltmarsh in this dataset were developed using the method described in Hughes et al (2022) which can be downloaded from <u>https://www.frontiersin.org/articles/10.3389/fenvs.2022.749950/full</u>
	The method involved the use of machine learning techniques to develop a statistical classification model for predicting the position of mangrove and saltmarsh in the present-day landscape in terms of topographic, hydrological and sedimentological predictor variables. That model was then used to identify and map positions in the future landscape displaying similar attributes. Three future landscapes were modelled based on the three SLR scenarios +0.5 m, +1.0 m and +1.5m. To bracket the potential outcomes three sets of projections were prepared. One where there was no restriction on future wetland locations in the landscape other than exclusion from urban areas, and two where future wetlands were restricted to specific natural and semi-natural land covers.
	While the topographic, hydrological and sedimentological factors associated with the present-day distribution of mangrove and saltmarsh can provide a guide to where they might occur in future landscapes associated with SLR, numerous other factors not considered here will also have an influence (e.g. changes in catchment inflows, estuary entrance conditions and sediment supply; climate impacts on species present; existing tidal exclusion infrastructure; present and future management actions etc.).
Resource locator	
Data Quality	Name: Data Quality Statement
<u>Statement</u>	Protocol: WWW:DOWNLOAD-1.0-httpdownload
	Description:
	Data quality statement for Projected distribution of mangrove and saltmarsh in NSW estuaries under sea level rise
	Function: download
Hughes_etal_2022	Name: Hughes_etal_2022
	Protocol: WWW:DOWNLOAD-1.0-httpdownload
	Description:
	Frontiers in Environmental Science paper describing methods used to create map data set.
	Function: download
Table 1	Name: Table 1
	Protocol: WWW:DOWNLOAD-1.0-httpdownload
	Description:
	Table of Matthews Correlation Coefficients used to indicate level of confidence in the mangrove and saltmarsh projections for each estuary
	Function: download
Download	Name: Download Package
<u>Package</u>	Protocol: WWW:DOWNLOAD-1.0-httpdownload
	Description:
	Data (Esri Raster Geodatabase)
	Function: download
<u>Download</u> <u>Package</u>	Name: Download Package
	Protocol: WWW:DOWNLOAD-1.0-httpdownload
	Description:
	Data (Raster - TIFF format)

	Function: download	
Unique resource identifier		
Code	266cdf74-2da9-48cb-8ba1-acdce66928b7	
Presentation form	Map digital	
Edition	1	
Dataset language	English	
Metadata standard		
Name	ISO 19115	
Edition	2016	
Dataset URI	https://datasets.seed.nsw.gov.au/dataset/266cdf74-2da9-48cb-8ba1-acdce66928b7	
Purpose	This data set is one of the outputs from a state-wide, first-pass vulnerability assessment of mangrove and saltmarsh to SLR prepared under the Marine Estate Management Strategy Initiative 3. The purpose of the assessment was to identify estuaries where mangrove and saltmarsh have an apparently high or low vulnerability to SLR, so that further detailed research could be targeted to fill knowledge gaps. This data set can inform coastal planning at the estuary scale, but it does not replace the need for more detailed local scale assessment of management planning and actions for both existing and potential future wetland areas.	
Status	Completed	
Spatial representation type	grid	
Spatial reference	e system	
Code identifying the spatial reference system	4283	
Spatial resolution	5 m	
Additional	DATA STRUCTURE	
information source	The maps of projected mangrove and saltmarsh distribution in 110 estuaries are available in a GeoDatabase titled Wetland_Projections_SLR. The 110 estuaries investigated are listed in table 1.	
	The GeoDatabase contains four sets of maps, one for each sea level scenario: S0 - projections for present-day sea level; S1 - projections for +0.5m sea level rise; S2 - projections for +1.0m sea level rise; S3 - projections for +1.5m sea level rise.	
	Each set S0-S3 contains a spatial layer showing the projected distribution of mangrove and saltmarsh with no land use constraints other than exclusion from urban areas, and two projections constrained to specific land cover types. The naming convention is: SX; SX_nat_re; SX_nat_plus where SX designates the sea level scenario, i.e. present-day sea level (S0) or a projected future sea level (S1, S2, or S3).	
	SX is the projected habitat distribution for the specified sea level scenario with no land use constraints other than exclusion from urban areas.	
	SX nat re is the projected habitat distribution for the specified sea level scenario	

constrained to (i) natural land cover and (ii) low intensity land use based on NSW Land Use 2017 (https://datasets.seed.nsw.gov.au/dataset/nsw-landuse-2017-v1p2-<u>f0ed</u>). SX nat plus is the projected habitat distribution for the specified sea level scenario constrained to (i) natural land cover, (ii) low intensity land use and (iii) agriculture and horticulture based on NSW Land Use 2017. For example, the projected mangrove and saltmarsh distribution for the +0.5 m SLR scenario and no restrictions on future wetland location except exclusion from existing urban areas is S1. Similarly, the projected distribution under a +1.5 m SLR scenario with restrictions on location to natural land covers and low intensity land use is S3 nat re. In each layer mangrove is designated by the value 2 and saltmarsh by the value 3. There are a small number of estuaries that include mangrove and/or saltmarsh in the present-day projections (S0), which have a NULL raster in the projections for higher sea level (S1-S3). This indicates that at the higher sea level scenario they are projected to have no mangrove or saltmarsh. This applies to the following estuaries at each sea level scenario: • S1: meringo creek S1 • S2: back lagoon S2, berrara_creek_S2, elliott_lake_S2, meringo_creek_S2, nadgee_river_S2, woolgoolga_lake_S2 • S3: back_lagoon_S3, berrara_creek_S3, congo_creek_S3, conjola lake S3, corunna lake S3, curalo lagoon S3, elliott lake S3, lake brou S3, lake brunderee S3, little lake wallaga S3, meringo creek S3, nadgee river S3, station creek S3, woolgoolga lake S3 MAP ACCURACY The map accuracy of the predicted present-day distribution of mangrove and saltmarsh can be assessed using the Matthews Correlation Coefficient (MCC), which is provided for each estuary in Table 1. The following qualitative descriptors apply: 0.0-0.19 zero to negligible correlation, 0.2-0.39 weak correlation, 0.4-0.59 moderate correlation, 0.6-0.79 strong correlation, 0.8-1.0 very strong correlation. An MCC value is provided for total wetland area, and mangrove and saltmarsh areas separately in each estuary. High MCC values indicate high confidence in the predictive model for that estuary when applied to the present-day sea level and suggests a cautious level of confidence in the projections for future sea level scenarios, but there is no means to test the accuracy of future projections. It is recommended that results for estuaries where the MCC is between 0.4 and 0.6 are used with additional caution, and

estuaries where MCC<0.4 the projections should not be used (see Hughes et al.

Topic category

2022).

Keyword set	
keyword value	WATER-Wetlands
	MARINE-Estuaries
	ECOLOGY-Habitat
Originating controlled vocabulary	
Title	ANZLIC Search Words
Reference date	2008-05-16
Geographic location	
West bounding longitude	149.9
East bounding longitude	154
North bounding latitude	-37.7
South bounding latitude	-28
Vertical extent information	
Minimum value	-100
Maximum value	2228
Coordinate reference system	
Authority code	urn:ogc:def:cs:EPSG::
Code identifying the coordinate reference system	5711
Temporal extent	
Begin position	2000-01-01
End position	N/A
Dataset reference date	
Resource maintenance	
Maintenance and update frequency	Not planned
Contact info	
Contact position	Data Broker
Organisation name	NSW Department of Climate Change, Energy, the Environment and Water
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Email address	data.broker@environment.nsw.gov.au
Web address	https://www.nsw.gov.au/departments-and-agencies/dcceew
Responsible party role	pointOfContact

Macroph Geology datasets	The foundational spatial data layers upon which this dataset relies are the: • Estuarine Macrophytes of NSW (2005) • Coastal LiDAR-derived 5 m DEM (2016) • Coastal Quaternary Geology Data Package (2016) • NSW Land Use (2017) • NSW Estuary Tidal Planes These datasets have strong institutional pedigree, and their corresponding data quality statements should be consulted.		
Limitations on public access			
Responsible party			
Contact position	Data Broker		
Organisation name	NSW Department of Climate Change, Energy, the Environment and Water		
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Responsible party role	pointOfContact		
Metadata point of contact			
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Responsible party role	pointOfContact		
Metadata date	2024-02-26T13:50:46.033150		
Metadata language			