Title	Shellharbour seabed landforms derived from multibeam echosounder data 2022

Abstract

Mulitbeam echosounder (MBES) bathymetry data were collected offshore of Shellharbour, NSW in 2017. Bathymetry data coverage extends from Port Kembla to Bass Point, and ranges from 10 to 64 m water depth. This dataset represents a classification of seabed landforms derived from this MBES, which delineates the prominent seabed features observed. This classification defines areas of reefs, peaks, plains, scarps, depressions and channels. Features were classified using the Seabed Landforms Classification Toolset developed for ArcGIS by the Coastal and Marine Unit, DPE (Linklater et al. 2023) which are publicly available on SEED (https://datasets.seed.nsw.gov.au/dataset/seabed-landforms-classification-toolset) and GitHub (https://github.com/LinklaterM/Seabed-Landforms-Classification-Toolset/).

A preliminary classification of this Shellharbour survey was presented in Kinsela et al. (2020), and this classification represents the final interpreted product for this survey. This dataset contributes toward an understanding of the distribution of submerged reefs along the NSW coast, which provides fundamental baseline information for managers, users and custodians of the marine environment.

The source MBES dataset for this classification is available on the Australian Ocean Data Network portal: https://portal.aodn.org.au/

Linklater, M., Morris, B.D. and Hanslow, D.J. (2023), Classification of seabed landforms on continental and island shelves. Frontiers in Marine Science, 10, https://www.frontiersin.org/articles/10.3389/fmars.2023.1258556/full.

Kinsela, M.A., Hanslow, D.J., Carvalho, R.C., Linklater, M., Ingleton, T.C., Morris, B.D., Allen, K.M., Sutherland, M.D. Woodroffe, C.D., 2022. Mapping the shoreface of coastal sediment compartments to improve shoreline change forecasts in New South Wales, Australia. Estuaries and Coasts, pp.1-27.

Resource locator

Show on SEED Web Map	Name: Show on SEED Web Map Protocol: WWW:DOWNLOAD-1.0-http--download Description: Display dataset on SEED's map Function: download
Data Quality Statement	Name: Data Quality Statement Protocol: WWW:DOWNLOAD-1.0-http--download Description: Data quality statement for NSW seabed landforms derived from marine lidar data 2021 Function: download
Download Package	Name: Download Package Protocol: WWW:DOWNLOAD-1.0-http--download Description: Data (Shapefile) Function: download
REST Service	Name: REST Service Protocol: WWW:DOWNLOAD-1.0-http--download Description: Shellharbour seabed landforms derived from multibeam echosounder data 2022 - REST Function: download

Unique resource identifier

Code	b32b4201-0277-4adf-a98f-10b1d37c0e4f

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/b32b4201-0277-4adf-a98f-10b1d37c0e4f
Purpose	To support coastal and marine research, planning and management
Status	Completed

Spatial representation

Type	vector

Spatial reference system

Code identifying the spatial reference system	4283
Spatial resolution	5 m

Topic category

Keyword set

keyword value	MARINE-Coasts
	MARINE
	MARINE-Reefs
	PHOTOGRAPHY-AND-IMAGERY-Remote-Sensing
	GEOSCIENCES-Geomorphology
	WATER
	ECOLOGY-Habitat
	ECOLOGY-Landscape

Originating controlled vocabulary

Title	ANZLIC Search Words
Reference date	2008-05-16

Geographic location

West bounding longitude	150.87
East bounding longitude	151

North bounding latitude	-34.6
South bounding latitude	-34.5
NSW Place Name	Shellharbour

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	2017-05-01
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
Telephone number	131555
Email address	data.broker@environment.nsw.gov.au
Web address	https://www.nsw.gov.au/departments-and-agencies/dcceew
Responsible party role	pointOfContact

Lineage

Multibeam echosounder data was collected offshore of Shellharbour, NSW in 2017, covering an area of 45 km2 in 10 to 64 m water depth. This dataset represents a classification of seabed landforms derived from this MBES data, which delineates the prominent seabed features observed. This classification defines areas of reefs, peaks (uppermost part of the reef surface), plains, depressions and channels (within the reef surface), and scarps (areas greater than 10 degrees slope). The dataset is provided as an ArcGIS shapefile. Features were classified using the Seabed Landforms Classification Toolset (ArcGIS), developed by DPE (Linklater & Morris, 2022) which applies the methodological framework presented in Linklater et al. (2019). In this classification approach, ruggedness (VRM, Walbridge et al. 2018), slope, finescale and broadscale Bathymetric Position Index (Slope Position, Evans et al. 2014) variables were derived from the MBES dataset and used to characterise prominent features within the seascape. Procedures were implemented to reduce potential noise within the dataset and identify the full extent of reef outcrops. Manual editing was performed to separate inferred reef outcrops from soft sediment bedforms, with the resulting classification focussed on identifying the presence, extent and character of submerged reef outcrops within the MBES dataset. The classification output was reviewed and edited by the data creator to capture observed and interpreted seabed features. The resulting layer was externally reviewed to ensure scientific rigour and data integrity.

Shellharbour multibeam echosounder data will be made available for download on AODN: https://portal.aodn.org.au

Linklater, M. and Morris, B., 2022, Classification of seabed landforms on continental and island shelves. Manuscript in preparation.

Kinsela, M.A., Hanslow, D.J., Carvalho, R.C., Linklater, M., Ingleton, T.C., Morris, B.D., Allen, K.M., Sutherland, M.D. Woodroffe, C.D., 2020. Mapping the shoreface of coastal sediment compartments to improve shoreline change forecasts in New South Wales, Australia. Estuaries and Coasts, pp.1-27.

Linklater, M., Ingleton, T. C., Kinsela, M. A., Morris, B. D., Allen, K. M., Sutherland, M. D., Hanslow, D. J., 2019. Techniques for classifying seabed morphology and composition on a subtropical-temperate continental shelf. Geosciences, 9(3), 141.

Walbridge, S., Slocum, N., Pobuda, M., Wright, D.J., 2018., Unified geomorphological analysis workflows with Benthic Terrain Modeler. Geosciences, 8(3), 94.

Evans, J., Oakleaf, J., Cushman, S., 2014., An ArcGIS Toolbox for Surface Gradient and Geomorphometric Modeling, Version 2.0-0. Available online: https://github.com/jeffreyevans/GradientMetrics.

Limitations on public access

Scope	dataset

DQ Topological Consistency

Explanation	ArcInfo was used to do a topological consistency check to detect flaws in the spatial data structure. No polygon overlaps were detected.

DQ Absolute External Positional Accuracy

Explanation	This dataset represents seabed features classified from 5 m cell size input bathymetry data, with no ground-truthing undertaken. Polygons smaller than 100 m2 were eliminated. Due to the variability in sediment movement, precise feature boundaries can be variable over time.

Responsible party

Contact position	Data Broker
Organisation name	NSW Department of Climate Change, Energy, the Environment and Water
Telephone number	131555
Email address	data.broker@environment.nsw.gov.au
Web address	https://www.nsw.gov.au/departments-and-agencies/dcceew
Responsible party role	pointOfContact

Metadata point of contact

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Responsible party role	pointOfContact

Metadata date

2024-02-26T13:30:28.886096

Metadata language