

Title	NSW Environment Multi Beam Echo Sounder Gridded Data
Alternative title(s)	Seabed NSW state-wide mapping program
Abstract	Gridded multi-beam echosounder (MBES) bathymetry and backscatter data acquired using NSW government's (NSW Department of Climate Change Energy Environment and Water) multi-beam echosounder (MBES) systems aboard RV's Bombora, Seascan and Glaucus. Fieldwork surveys were completed as part of the SeabedNSW program funded by NSW government under State-wide Science (2022-30), Coastal Reforms (2015-2022), HabMap Program (2005-2015) or under collaboration with partner agencies or institutions (DPI, Parks Australia, NESP). Surveys are predominantly on the open coast and within NSW state waters (2017) with Applanix Wavemaster POSMV (>2011) providing positioning, height (RTK) and 3D motion solution; or Edgetech swath system w sidescan (>2021). MBES was collected in GS+ (GeoAcoustics) or Hypack with attitude and positional data acquired in POSView and post processed using POSPac either Single-Base or Precise-Point-Positioning modules for improved vessel Smoothed Best Estimate of Trajectory. Data were cube modeled in Fledermaus/Qimera software (>2010) to IHO 1B standard and cleaned-soundings exported before being gridded using bin-weighted averaging (generally 5 m grid cell size) relative to Australian Height Datum and issued in grid coordinates (UTM WGS84 Zone55 or 56; GDA2020 Zone 55 or 56). General details on vessel setup, mobilisation and processing are provided at https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Research/Our-science-and-research/seabed-nsw-standard-operating-procedures-multibeam-surveying-190101.pdf with survey specific details in the Survey Report and survey Rigor Statement (provided upon request). Data packages provided via the Australian Oceanographic Data Network (https://portal.aodn.org.au/) include bathymetry and backscatter in multiple formats; while those provided on AusSeabed (https://portal.ga.gov.au/persona/marine) are gridded bathymetry and backscatter data as geotif only. Data are not to be used for navigation purposes.
Resource locator	
Data Quality Statement	Name: Data Quality Statement Protocol: WWW:DOWNLOAD-1.0-http--download Description: Data quality statement for NSW Environment Multi Beam Echo Sounder Surveys Function: download
AODN	Name: AODN Protocol: WWW:DOWNLOAD-1.0-http--download Description: Data available from AODN Function: download
Unique resource identifier	
Code	923bf691-f0aa-4c49-879d-4bb632d29e68
Presentation form	Table digital
Edition	1
Dataset language	English
Metadata standard	
Name	ISO 19115

Edition	2016
Dataset URI	https://www.planningportal.nsw.gov.au/opendata/dataset/923bf691-f0aa-4c49-879d-4bb632d29e68
Purpose	foundational data collection; baseline for monitoring
Status	On going
Spatial representation type	grid
Spatial reference system	
Code identifying the spatial reference system	4283
Spatial resolution	5 m
Additional information source	Data within the broader collection were acquired from 2005 on-wards during various major internal programs.
Topic category	imageryBaseMapsEarthCover

Keyword set	
keyword value	MARINE-Biology MARINE-Coasts MARINE-Reefs MARINE-Geology-and-Geophysics ECOLOGY-Habitat GEOSCIENCES-Geomorphology
Originating controlled vocabulary	
Title	ANZLIC Search Words
Reference date	2008-05-16
Geographic location	
NSW Place Name	New South Wales Marine Estate
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	2005-01-01
End position	N/A
Dataset reference date	
Resource maintenance	
Maintenance and update frequency	Unknown
Contact info	
Contact position	Data Broker
Organisation name	NSW Department of Climate Change, Energy, the Environment and Water
Full postal address	NSW Australia data.broker@environment.nsw.gov.au
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	Surveys were undertaken based on the Australian Multibeam Guideline (Lucieer et al, 2018) and more recently updated in 'Field Manuals for Marine Sampling to Monitor Australian Waters' (https://www.nespmarine.edu.au/field-manuals-marine-sampling-monitor-australian-waters, v.2020). Details of the NSW DPIE systems, equipment and processing are detailed in 'SeaBed NSW: Standard Operating Procedures of multibeam surveying' (https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Research/Our-science-and-research/seabed-nsw-standard-operating-procedures-multibeam-surveying-190101.pdf). XYZ positional accuracy of the bathymetry (>2011 w POS system setup) is generally better than XY (0.1 m) and Z (2017) to provide an improved best estimate of vessel trajectory. Geoswath processing: >2011 SBET was applied in GS+ with Sound Velocity Sensor (SVS - surface) and SV profiles (SVP - water column) corrections for stage 1 filtering to GSF file format and then stage 2 cube filtering in Fledermaus/Qimera (IHO1B). R2Sonic and Edgetech system: raw files imported to Qimera with SBET and SVP corrections (including TU Delft speed of sound inversion) applied to built qpd files. Cloud data is filtered using shallow-bias and a cube surface created at 2m grid cell size and highlighting soundings greater than 2 standard deviations from the predicted mean. Note: SV corrects for ray-bending arising from changes in water column density over a survey area at the surface and with depth. Generally, cleaned-soundings are then exported and/or gridded at 5 x 5m in grid coordinates WGS84Z56 and at Australian Height Datum. A signed NSW DPE Rigor Statement is provided with our AODN data package (or upon request) with QC assessments, projection, datum and processing information (similar to AusSeabed survey report) and 3rd party cross-checked by either our hydrographer or mapping scientists. Data packages provide gridded data sets in multiple formats (gif, xyz, SD (Fledermaus), KMZ, ESRI Arc Ascii) are named as per the convention prefix NSWENV_yyyymmdd_LocationSite_MB (additional details are provided within the rigor statement and the Standard Operating Procedure).
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Constraint set

Use constraints	This data is provided under a Creative Commons Attribution 4.0 licence http://creativecommons.org/licenses/by/4.0. Attribute 'NSW Department of Climate Change, Energy, the Environment and Water' in publications using this data.
Limitations on public access	

Scope	dataset
DQ Completeness Commission	
Effective date	2021-10-05
Explanation	Gridded data predominantly lies within NSW state coastal waters with some smaller subsets >3NM over the NSW inner shelf or within Victorian state waters (Cape Howe).
DQ Completeness Omission	
Effective date	2021-10-05
Explanation	Grids (XYZ, TIF, SD) of bathymetry are bin-weighted averages of cleaned soundings as determined from the Cube modelling and filtering; sounding point-cloud data will be provided a later stage or upon request
DQ Conceptual Consistency	
Effective date	2021-10-05
Explanation	Generally, spatial positioning of MB points is better than 0.1 m (XYZ) at nadir (vessel centre line from POS MV data) with positioning of features mapped by outer beams (distant from vessel; relies on precise lever arm measures and calculations of patch test offsets) better than 0.25m (XYZ) - see Total Propagated Uncertainty in Survey Report and/or rigor statement.
DQ Absolute External Positional Accuracy	
Effective date	2021-10-05
Explanation	Generally, external positional accuracy is XYZ better than 0.2 m (2011-2017; Geoswath surveys using POS DGPS and PPP post processing for improved SBET in POSpac) and better than 0.1 m (2017-present; R2Sonic surveys using POS G2 in real-time and SBS post processing for SBET).
DQ Non Quantitative Attribute Correctness	
Effective date	2020-07-16
Explanation	
Responsible party	
Contact position	Data Broker
Organisation name	NSW Department of Climate Change, Energy, the Environment and Water
Full postal address	NSW Australia data.broker@environment.nsw.gov.au
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	2024-02-26T13:48:49.721036
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Metadata language
