Title	NESP Biodiversity Hub Hunter Marine Park Multi Beam Echo Sounder Surveys
Alternative title(s)	NESP Biodiversity Hub D3 Project: bathymetry and backscatter of the seabed in the Hunter Marine Park
Abstract	Gridded multi-beam echousounder (MBES) bathymetry data for Hunter Marine Park acquired using NSW Department of Planning Industry and Environment MBES system aboard RV Bombora for the National Environmental Science Program (NESP Biodiversity Hub). Fieldwork was funded, both cash and in-kind, by NSW DPIE and NESP in Year 1 (2015) and 4 (2018) of the D3 Project. Initial surveys (2015) were exploratory as long-lines across the inner Special Purpose Zone (trawl) over the continental shelf with later surveys (2018) focused on 100% coverage over areas previously identified as containing the Key Ecological Feature 'Continental Shelf Reef'. Reports by Davies et al (2016) 'Mapping Shelf Rocky Reef Habitats in the Hunter Commonwealth Marine Reserve', National Environmental Science Program Biodiversity Hub D3 Project –Evaluating and monitoring the status of marine biodiversity assets on the continental shelf; and Williams et al (2020) 'Mapping and characterising reef habitat and fish assemblages of the Hunter Marine Park', Project D3- Preparing for and implementing monitoring of CMR's and the status of marine biodiversity assets on the continental shelf, Milestone Report December 2020; detail these MBES surveys as well as towed underwater video and BRUVs, to characterise seabed habitats, fish and sessile invertebrate assemblages of the Hunter Marine Park. Reports are available at https://www.nespmarine.edu.au/publications. Survey sites for focused mapping in 2018-19 were 1) 3-6 NM east and south-east of Seal Rocks - Sugarloaf Point, 2) Outer Gibber - a feature in 20-60m of water north-east of Broughton Islands and ~3-4 NM from shore and 3) 3-7 NM east to north-east of Broughton Island. MBES data were obtained using either a Geoswath 125 KHZ swath bathymetry system (2015) or a R2Sonic 2022 (2018) with Applanix Wavemaster POSMV with either Single-Base or Precise-Point-Positioning modules in POSView for improved vessel Smoothed Best Estimate of Trajectory. Data were cube modelled in Fledermaus/Qimera software to IHO 1B standard and cleaned-soundings exported before gridding by bin-weighted averaging at 5 m relative to Australian Height Datum and in grid coordinates as UTM WGS84 Zone56. Details on 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. Data packages including bathymetry and backscatter in multiple formats are provided on the Australian Oceanographic Data Network (https://portal.aodn.net.au); Gridded data in geotif format are also provided on AusSeabed https://portal.ga.gov.au/persona/marine. 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 NESP Biodiversity Hub Hunter Marine Park Multi Beam Echo Sounder Surveys Function: download

Unique resource identifier

Code	60383861-7685-4345-b2cc-d3457bf0dec1

Presentation form	Image digital
Edition	1
Dataset language	English

Metadata standard

Name	ISO 19115

Edition	2016
Dataset URI	https://www.planningportal.nsw.gov.au/opendata/dataset/60383861-7685-4345-b2cc-d3457bf0dec1
Purpose	baseline for monitoring
Status	On going
Spatial representation type	grid
Spatial reference system	
Code identifying the spatial reference system	4283
Spatial resolution	1 m
Additional information source	Data were collected on 7-9 separate dates during the time period to acquire imagery once from each for the randomly selected locations identified at the start of the survey.
Topic category	imageryBaseMapsEarthCover

Keyword set

keyword value	MARINE-Biology MARINE-Coasts MARINE-Reefs MARINE-Geology-and-Geophysics
Originating controlled vocabulary	
Title	ANZLIC Search Words
Reference date	2008-05-16

Geographic location

NSW Place Name	Port Stephens Great Lakes Worimi

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	2019-10-20
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
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Responsible party role	pointOfContact

Lineage

Surveying was undertaken based on the Australian Multibeam Guideline (Lucieer et al) 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 is generally better than XY (0.1 m) and Z (<0.5m) with further details on survey QAQC provided in the associated Survey Report (AusSeabed) and in the DPIE rigour statement (AODN data packages). Data were obtained during two periods 23/11/2015 to 16/1/2016 (Geoswath 125 khz swath bathy system) and 2) 21/4/2018 to 28/2/2019 (R2Sonic 2022: 200-400 khz MBES system) aboard RV Bombora with POS MV providing positioning (DGPS 2015-16 survey: G2 2018-19 survey) and 3-D motion (50 hz) post processed using PPP (2015-16) or SBS (2018-19) to provide an improved best estimate of vessel trajectory. Geoswath: SBET is 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 (IHO1B). R2Sonic: raw files imported to Qimera with SBET and SVP corrections applied. nb: SV corrects for ray-bending arising from changes in water column density over a survey area at the surface and with depth. Cleaned-soundings are then gridded at 5 x 5m in grid coordinates WGS84Z56 and at Australian Height Datum. A signed NSW DPIE 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 scientist. Data packages provide gridded data sets in multiple formats (gif, xyz, SD (Fledermaus), KMZ, ESRI Arc Ascii) are named as per the convention prefix NSWDPIE_yyyymmdd_LocationSite_MB (additional details in the rigor statement).

Constraint set

Use constraints

Limitations on public access

Scope	dataset

DQ Completeness Commission

Effective date	2020-10-10
Explanation	A relatively small proportion of the gridded data lies within NSW state coastal waters and within the Port Stephens Great Lakes Marine Park

DQ Completeness Omission

Effective date	2020-10-10
Explanation	Grids 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	2020-05-18
Explanation	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 0.5m (XYZ) - see Total Propagated Uncertainty in Survey Report.

DQ Absolute External Positional Accuracy

Effective date	2020-05-18
Explanation	External positional accuracy is XYZ better than 0.2 m (Geoswath surveys using POS DGPS and PPP post processing for improved SBET in POSPac) and better than 0.1 m (R2Somic 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
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Responsible party role	pointOfContact

Metadata point of contact

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Metadata date

2024-02-26T15:40:22.513447

Metadata language