Bynoe Harbour Habitat Mapping Bathymetry Survey

Bynoe Harbour Habitat Mapping Bathymetry Survey (SOL6432/GA4452)

Version
1.0.0

Program
Marine

Resource type
Baseline

Published Date
27/01/2021

View the original metadata page for the most up-to-date information on this product.

Basics

Background

This resource contains multibeam bathymetry data collected as part of the Darwin and Bynoe Harbour Habitat Mapping Project undertaken by Geoscience Australia (GA), the Australian Institute of Marine Science (AIMS) and the Northern Territory Government (Department of Environment and Natural Resources). The data were acquired during the period from 3 to 27 May 2016 on the RV Solander (survey SOL6432/GA04452).

This project was made possible through offset funds provided by INPEX-led Ichthys LNG Project to Northern Territory Government Department of Environment and Natural Resources, and co-investment from Geoscience Australia and Australian Institute of Marine Science.

The intent of this four year (2014-2018) project is to improve knowledge of the marine environments in the Darwin and Bynoe Harbour regions by collating and collecting baseline data that enable the creation of thematic habitat maps that underpin marine resource management decisions.

What this product offers

The specific objectives of the survey were to:

- Obtain high-resolution geophysical (multibeam bathymetry) data for Bynoe Harbour;

- Characterise seabed substrates (multibeam acoustic backscatter properties, seabed sediment grainsize, sediment chemistry) for Bynoe Harbour; and
- Collect tidal data for the survey area.

Data acquired during the survey included: multibeam sonar bathymetry and acoustic backscatter; physical samples of seabed sediments, seabed still images and video footage of grab sample locations, and oceanographic information including tidal data and water column sound velocity profiles.

Related products

- Bynoe Harbour Habitat Mapping Survey 2016: Chlorins and porosity data for seabed sediments
- Bynoe Harbour Habitat Mapping Survey 2016: Grain size data for seabed sediments
- Bynoe Harbour Habitat Mapping Survey 2016: High resolution backscatter grid
- Bynoe Harbour Habitat Mapping Survey 2016: High resolution bathymetry grid

Publications

A detailed account of the survey is provided in:

Siwabessy, P.J.W., Smit, N., Atkinson, I., Dando, N., Harries, S., Howard, F.J.F., Li, J., Nicholas W.A., Picard, K., Radke, L.C., Tran, M., Williams, D. and Whiteway, T. 2016. Bynoe Harbour Marine Survey 2016: GA4452/SOL6432 – Post-survey report. Record 2017/04. Geoscience Australia, Canberra. http://dx.doi.org/10.11636/Record.2017.004.

Access

Data access

Link to data	Download the data via eCat
Dataset technical metadata	
eCat record	100945
CMI RESTful node ID	615
Access constraints	Creative Commons Attribution (CC-BY) 4.0 International Licence
Use constraints	Creative Commons Attribution (CC-BY) 4.0 International Licence
Security classification	Unclassified
Update frequency	asNeeded

Details

Technical information

The multibeam bathymetry was acquired by the following survey:
- Survey Name: Bynoe Harbour Habitat Mapping Bathymetry survey(SOL6432/GA4452)
- Vessel Name: RV Solander
- Institutions: Geoscience Australia, AIMS, NTGov
- Country: Australia
- Operator: AIMS
- Multibeam system: Kongsberg EM2040C (dual)
- Year of installation: 2014
- Nominal sonar frequency: 300 kHz
- Number of heads: 1
- Number of beams/head: 800 beams
- Beamwidth along track: 1.3 degrees
- Beamwidth across track: 1.3 degrees
- Pulse length: variable
- Selectable depth range: 5 m - 60 m
- Vessel speed: 7 - 10 knots
- Start Date: 03/05/2016
- End Date: 27/05/2016
- Start Port: Darwin
- End Port: Darwin
- Grid resolution: 2 m
- Number of grids: 2
- Vertical Datum: MSL and Ellipsoid
- Horizontal Datum: WGS84 (epsg-4326)
- Use Limitation: This dataset is not to be used for navigational purposes.
- This dataset is published with the permission of the CEO, Geoscience Australia

Processing methodology:
This dataset was produced using CARIS HIPS/SIPS v.11.3.7

- A vessel configuration file was created where the co-ordinates of the motion sensor, DGPS antenna and patch test offsets were recorded..
- A new project was created and the vessel configuration file attached to the project file.
- The raw swath sonar data files, in raw.all format, for each line was imported into the project and the vessel information assigned to the data.
  Ellipsoid vertical reference system is our first preference and when not available or possible to do so, a tidal zone data is the next preference to be applied to the data
- The motion sensor, DGPS and heading data were cleaned using a filter that averaged adjacent data to remove artefacts.
- Sound velocity profiles data for each block of the data were attached to the corresponding raw swath sonar data files.

- A new blank fieldsheet area was defined that specified the geographic area of study and the co-ordinate system used.
- The data was cleaned by applying several filters that removed any spikes in the data using user defined threshold values.
- Data were inspected visually for each line where artifacts and noisy data had not removed by the filtering process.
- Remaining spikes were removed manually using the swath and subset editor modules.
- All the data, i.e. bathymetric sounding and ancillary data, were merged to produce the final processed data file
- A weighted grid of the processed data was then created.
- Independent velocity corrections were performed where velocity artefacts were observed.
- The final processed grid was exported as two 32 bit Geotif format at 64 m resolution referenced to ellipsoid and to mean sea level.

Processing

Schema / spatial extent

Bynoe Harbour Habitat Mapping Survey

Update frequency	asNeeded
Temporal extent	2016-05-03 06:16:04 – 2016-05-17 23:16:04
Coordinate reference system	

Media

Credits

Owner

Commonwealth of Australia (Geoscience Australia)

License

Rights statement

Acknowledgments

This project was made possible through offset funds provided by INPEX-led Ichthys LNG Project to Northern Territory Government Department of Environment and Natural Resources, and co-investment from Geoscience Australia and Australian Institute of Marine Science (AIMS).