Crowdsourced bathymetry on the Great Barrier Reef, Australia

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Crowdsourced bathymetry (CSB)

- Collection of depth measurements from vessels using standard navigation instruments

- Detailed knowledge of depth critical for understanding GBR ecosystems, flood modelling, COT starfish control

- ~40% of GBR shelf mapped with in situ depth soundings, with a need to preserve, share and fill data gaps
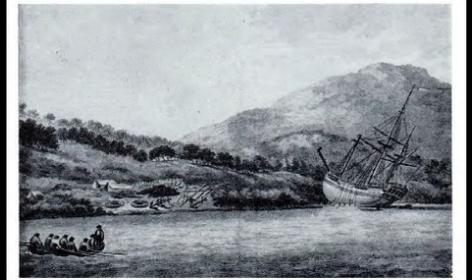
James Cook's 'The Labyrinth'

Chart of Part of the Coast of New
South Wales (1770)

gbr30 grid (2018)

The "Endeavour" Ashore for Repair

The *Endeavour* undergoing repair at the mouth of the Endeavour River after running aground on the Great Barrier Reef. [From an engraving in John Hawkesworth's account of Captain Cook's voyage to Australia, which was prepared from Cook's journal and Banks' papers and published in London in 1773.]
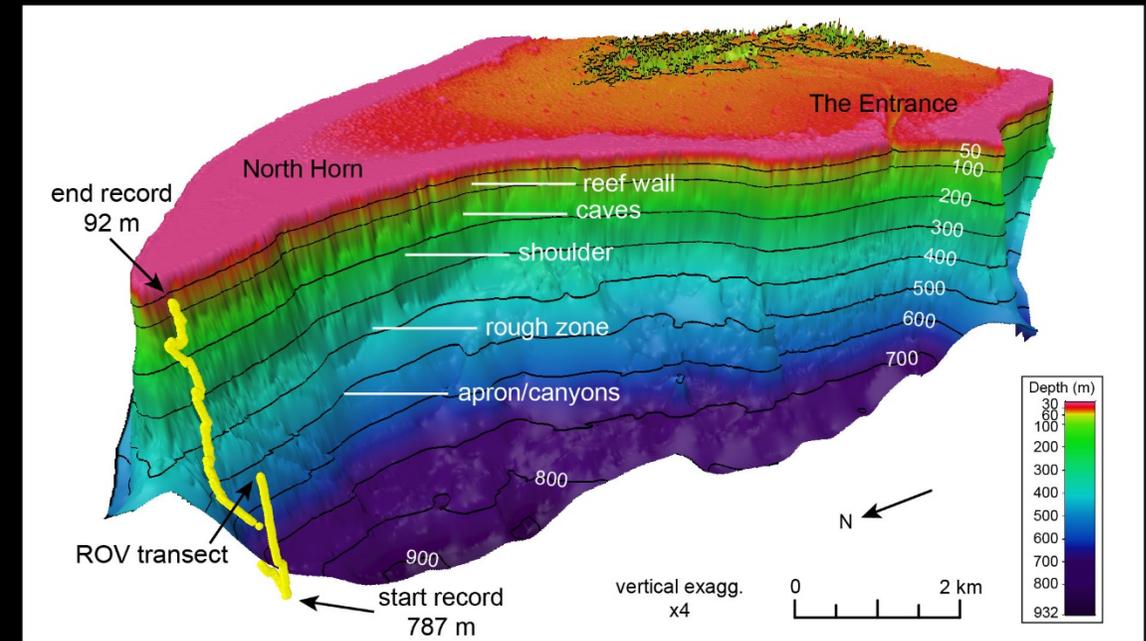

Endeavour Reef

30 km

Osprey Reef example
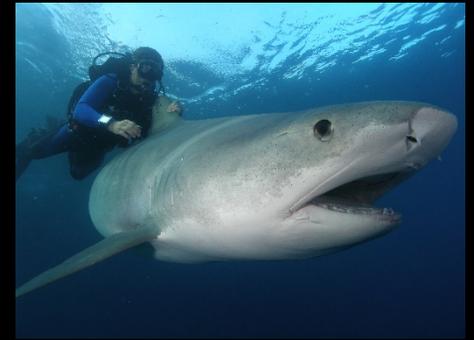
MV Undersea Explorer (2006)

Benthic assemblages to 900m

TeamSurv data logger

MV Argo (2018)

SmartLog NMEA data logger + USB


TeamSurv at: https://www.teamsurv.com/
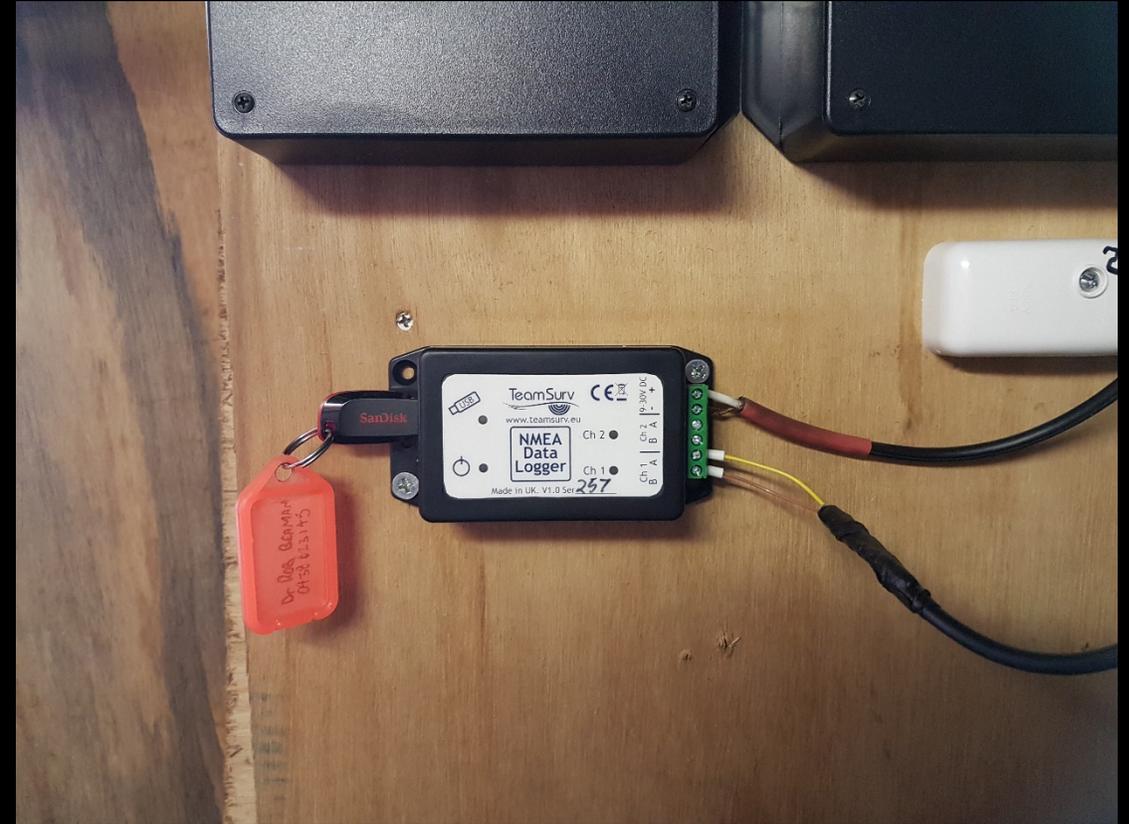
CSB processing

raw NMEA ⟶ python filtered ⟶ Caris HIPS ⟶ gbr100/30

$ECGGA,222112.41,1648.086,S,14543.029,E,1,11,1.0,12.80,M,0.0,M,0.00,*48
$ECGLL,1648.086,S,14543.029,E,222112.41,A,A*69
$ECRMC,222112.41,A,1648.086,S,14543.029,E,0.0,007.3,280618,007.3,E,A*30
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$ECZDA,222112.41,28,06,2018,,*75
$SDDBT,9.4,f,2.8,M,1.6,F*06
$SDDPT,2.8,0.0*5D
$VWMTW,261.0,C*27
$VWVLW,0.0,N,0.00,N*7C

-16.8014333,145.7171500,20180628,222114.45,0.0,007.3,3.0
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vessel configuration
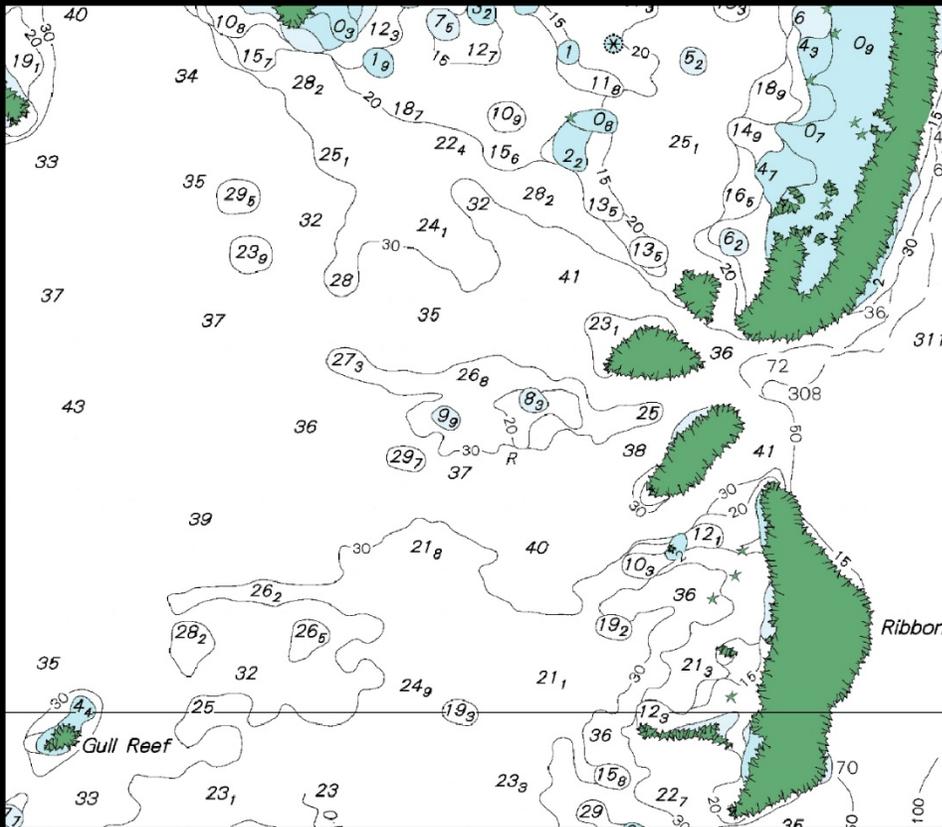sound velocity for area
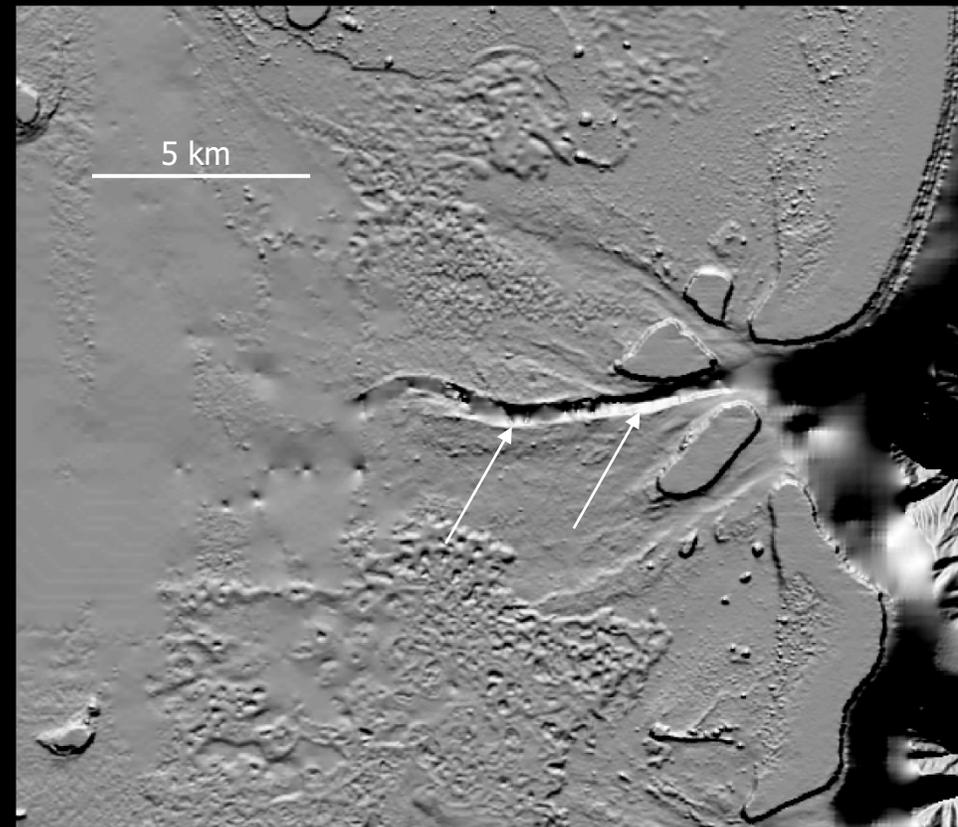tidal adjustment
point cloud editing
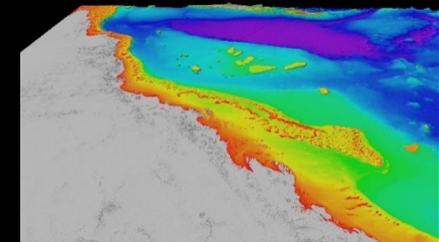
datum adjustment

MV Argo data

Aus chart
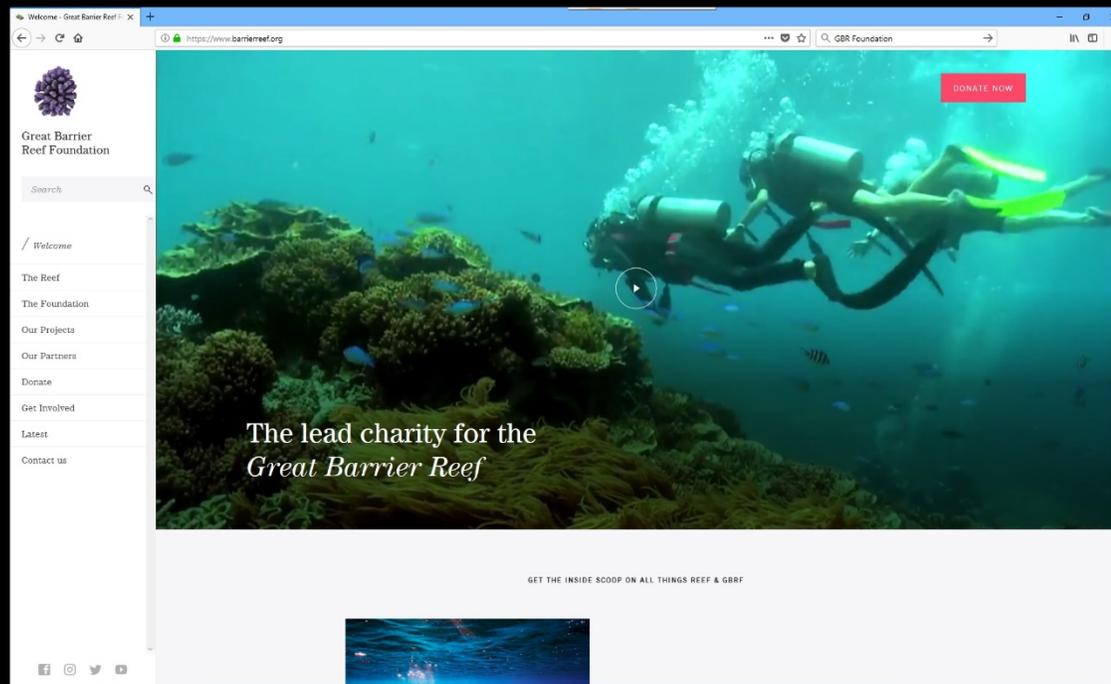

palaeo-channel

5 km

CSB funding and support

Great Barrier Reef Foundation

Citizens of the Great Barrier Reef

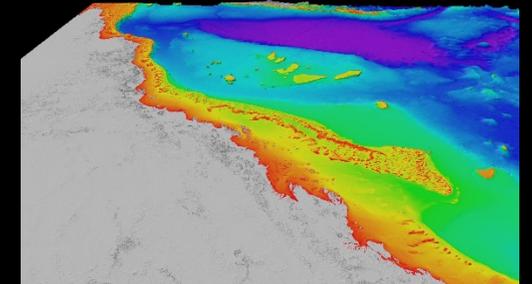GBR Foundation at: https://www.barrierreef.org/   Citizens of the GBR at: https://citizensgbr.org/

CSB data flow

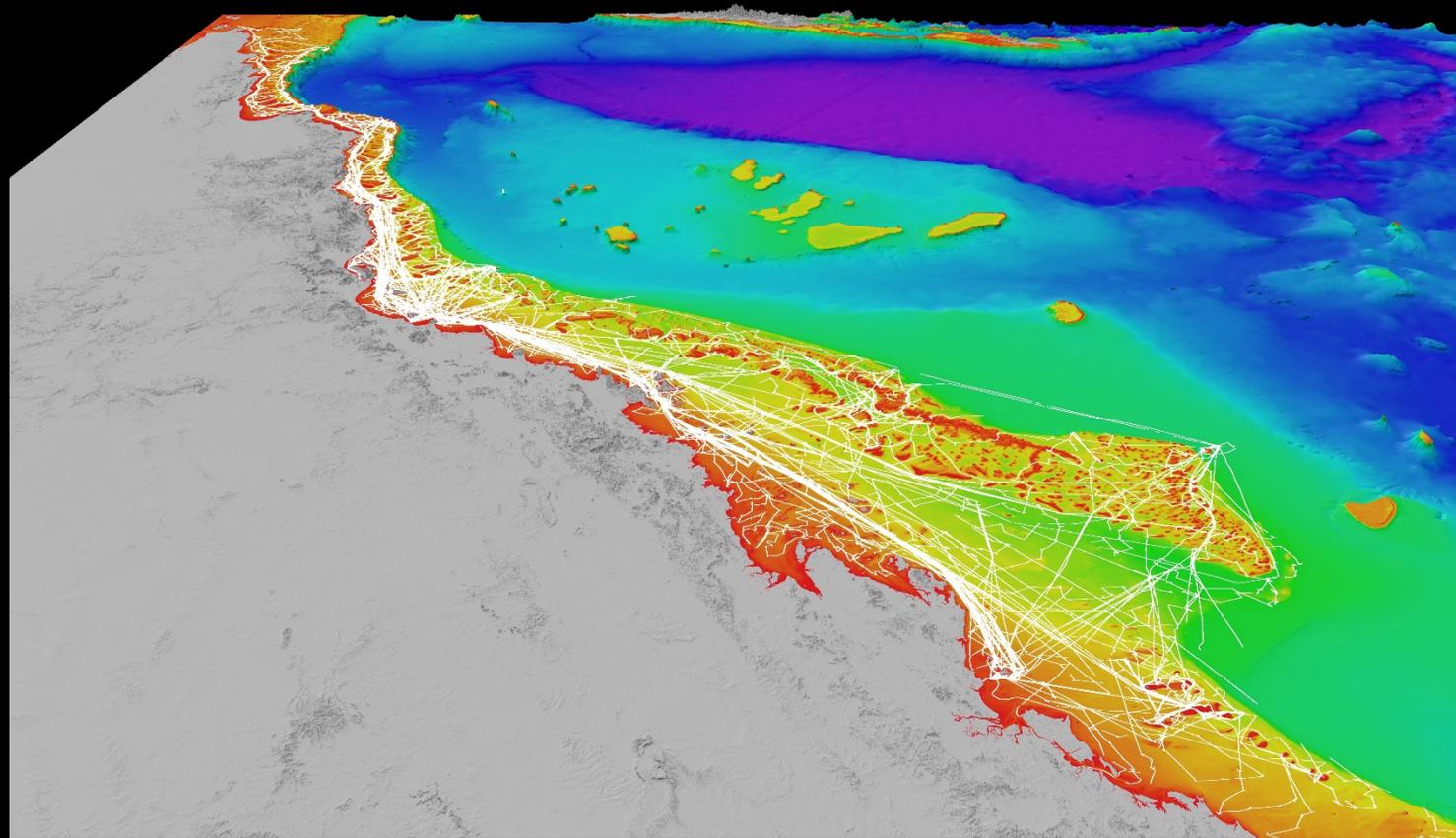gbr100/30

crowdsourced bathymetry

JCU (Trusted Node)

Australian Hydrographic Office

IHO Data Centre for Digital Bathymetry (DCDB)

TeamSurv

CSB data coverage

2.25 million soundings (8 Nov 2018) growing by ~20 thousand soundings per month

GA media release 19 January 2018

gbr30 data available at: http://pid.geoscience.gov.au/dataset/115066