



## RV Investigator Voyage Plan

VOYAGE #:		IN2025_T01
Version Number:	FINAL	
Voyage title:	Transit / Underwater Cultural Heritage Voyage	
Onboarding:	1400: Brisbane International Cruise Terminal Wednesday 19 November 2025	
Depart:	~0800: Brisbane International Cruise Terminal Thursday 20 November 2025	
Return:	~0800: CSIRO PW4 Wharf, Hobart, Thursday 27 November 2025	
Demobilisation:	CSIRO PW4 Wharf, Hobart, Friday 28 November 2025	
Voyage Delivery Coordinator:	Max McGuire	
Voyage Manager:	Max McGuire	
Co-Chief Scientist:	Dr Ania Kotarba	
Project name:	Submerged Indigenous Palaeolandscapes and Palaeoenvironmental Reconstruction - Coastal NSW, South West Rocks/Stuart Point area	
Affiliation:	University of Adelaide	
Co-Chief Scientist:	Dr Andrew Viduka	
Project name:	Australian Underwater Cultural Heritage	
Affiliation:	DCCEEW - Underwater Cultural Heritage	

## Voyage objectives

This transit voyage has several key activities and objectives:

- Co-develop and apply specific submerged landscape investigation methodologies.
- Co-develop and apply specific Underwater Cultural Heritage (UCH) investigation methodologies and specific high priority and / or know targets.
- Deliver high priority bathymetric mapping along the transit route.
- Media engagement opportunity in UCH engagement.
- Safe and timely arrival in Hobart as scheduled.
- State and Commonwealth UCH Practitioner alignment on RVI capabilities and survey methodology delivery.
- Input into draft Cultural Safety Plan.
- Draft guidance on submerged landscapes investigation methodology and reporting.
- Mapping products for AusSeabed 2030.

### **1. Submerged Indigenous Palaeolandscapes and Palaeoenvironmental Reconstruction, Coastal NSW, South West Rocks/Stuart Point Research Plan**

**Allocated time:** ~24 hrs

**Study Area:** Coastal shelf from Arakoon to Grassy Head, encompassing South West Rocks and Stuarts Point, NSW

**Traditional Custodians:** Dungutti and aa Peoples (attending)

This part of the research voyage aims to map submerged palaeolandscapes and palaeochannels of the ancient Macleay River system, identify areas of past human occupation, now submerged, and potentially collect marine sediment core/-s to reconstruct past environments and climate. This research builds on a rich archaeological and cultural record along the NSW mid-north coast, where the Macleay River delta and the adjacent Clybucca shell middens form part of a broader cultural landscape of the Dungutti and Ngambaa peoples. The Clybucca middens (dated to between 2,500–6,000 BP) are the largest Aboriginal midden site by an estuary in the southern hemisphere and are key archives of past coastal lifeways, environmental shifts, and the long-term relationship between people and Sea Country.

By mapping submerged palaeolandscapes and palaeochannels of the ancestral Macleay River system, this project will connect offshore palaeofloors with onshore sites like the Clybucca middens, building a more holistic understanding of coastal change, sea-level rise, and Indigenous occupation spanning the late Pleistocene to Holocene. The findings will support both archaeological research and Traditional Owner aspirations for protecting, interpreting, and managing Sea Country heritage. Results will also provide critical data for assessing the impacts of climate change and coastal erosion on cultural and natural heritage.

#### **Research Focus**

- Coastal mapping of submerged palaeolandscapes.
- Identification and correlation of palaeosurfaces and palaeochannels of the ancient Macleay River.



### Research objectives

- Map submerged palaeolandscapes and palaeochannels (Macleay River system) across the shallow coastal shelf.
- Correlate submerged palaeofloors with Indigenous palaeoenvironmental data and archaeological records from adjacent coastal areas.
- Link offshore palaeolandscape mapping with terrestrial archaeological features such as the Clybucca shell middens to build a connected story of coastal occupation, palaeoenvironmental change, and sea country heritage.
- Establish chronological frameworks for landscape inundation and sea-level rise.

### Methodological Approach - TBC

#### 1. Seabed Mapping

- Deploy gondola mounted MBES (EM124) in tandem with drop keel systems to survey shelf areas from ~10 m depth to ~50 m (or the shelf edge). Employ tight parallel lines (max. ~200 m spacing) to resolve palaeochannels.
- Collect continuous sub-bottom profiler records along transects to identify buried palaeochannels and palaeosurfaces that MBES alone cannot detect – TBC with geomorphologist Jamie Schuilmeister.

## 2. Integration with Indigenous Traditional Knowledge

- Data integration with existing archaeological records and oral histories and dreaming stories from Traditional Owners (Dungutti Nation).
- Collaborate with Indigenous Traditional Owners and knowledge holders for co-interpretation of palaeolandscape data.
- Identify potential submerged cultural heritage sites for future protection and management.

### Expected Outcomes

- High-resolution bathymetric and acoustic maps delineating submerged palaeochannels and landscapes.
- Integrated palaeoenvironmental and archaeological datasets to enhance understanding of Indigenous land use and environmental adaptation during periods of significant climatic and sea-level change.

### Indigenous Cultural Engagement and Ethics

- The project is co-designed with **Dungutti and Ngambaa Traditional Custodians (and with Prof. Michael Westaway from University of Queensland who has been collaborating with Dungutti nation for over three decades)**, recognising their role as the primary knowledge holders and caretakers of this cultural landscape.
- We will connect results of offshore palaeolandscape data collection with **onshore heritage records** (e.g., Clybucca shell middens) through collaborative interpretation during 2026 Stuarts Point Archaeological Fieldschool, respecting cultural values and heritage protocols.
- Community workshops and data-sharing sessions will be held post-voyage to return findings in culturally appropriate ways.
- We will adhere to principles of **Free, Prior, and Informed Consent (FPIC)**, and all data concerning cultural heritage will be handled in accordance with **Indigenous Data Sovereignty** frameworks.

### Benefits to Dungutti and Ngambaa Communities

This research is designed to generate lasting benefits for Dungutti and Ngambaa communities, including:

- Enhanced understanding of submerged cultural landscapes and how past climate and sea-level changes have shaped Country and lifeways.
- New digital maps and palaeogeographic reconstructions of Sea Country that can support cultural revitalisation, storytelling, and heritage protection.
- Opportunities for involvement and leadership in marine survey, data interpretation, and future heritage monitoring.
- Return of knowledge and results through community visits, educational resources, and capacity-building workshops during and outside of field school.
- Support for heritage management and climate adaptation strategies that reflect community values and priorities.
- Collaborative interdisciplinary ARC Linkage research grant application.

## 2. Underwater Cultural Heritage

**Allocated time: ~24 hrs**

**Priorities (All locations cited in WGS 84 Datum)**

### Tier 1 (north to south)

HMAS *Australia I* - off Sydney, NSW

SS *Nord* - off Tasman Peninsula, Tasmania

SS *Tasman* - off Tasman Peninsula, Tasmania

### Tier 2 (north to south)

SS *Wollongbar* - off Crescent Head, NSW.

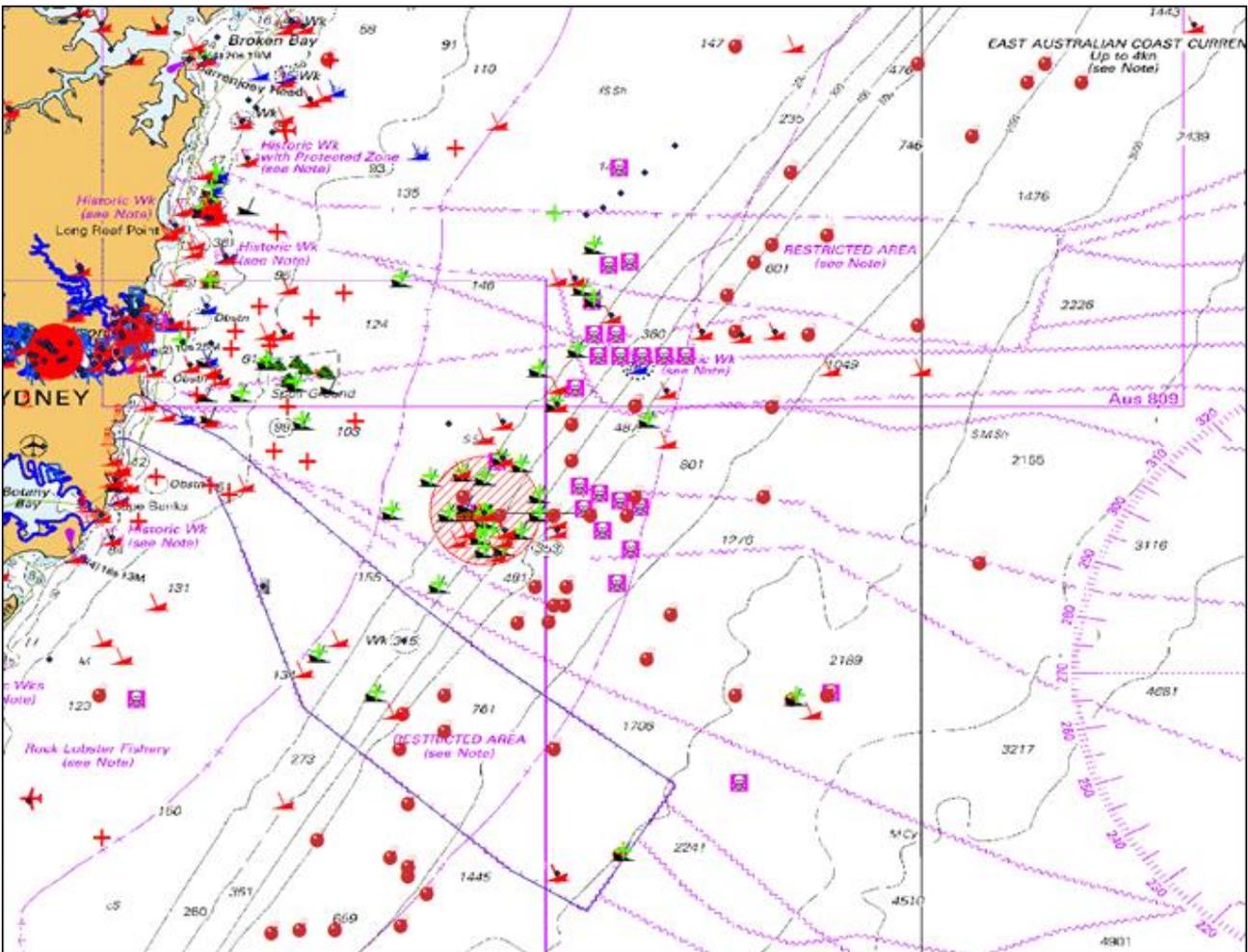
I 178 Japanese Submarine – off South West Rocks, NSW.

Newcastle shipwreck graveyard

Sydney shipwreck graveyard

### **Anticipated fieldwork methodology and outcomes**

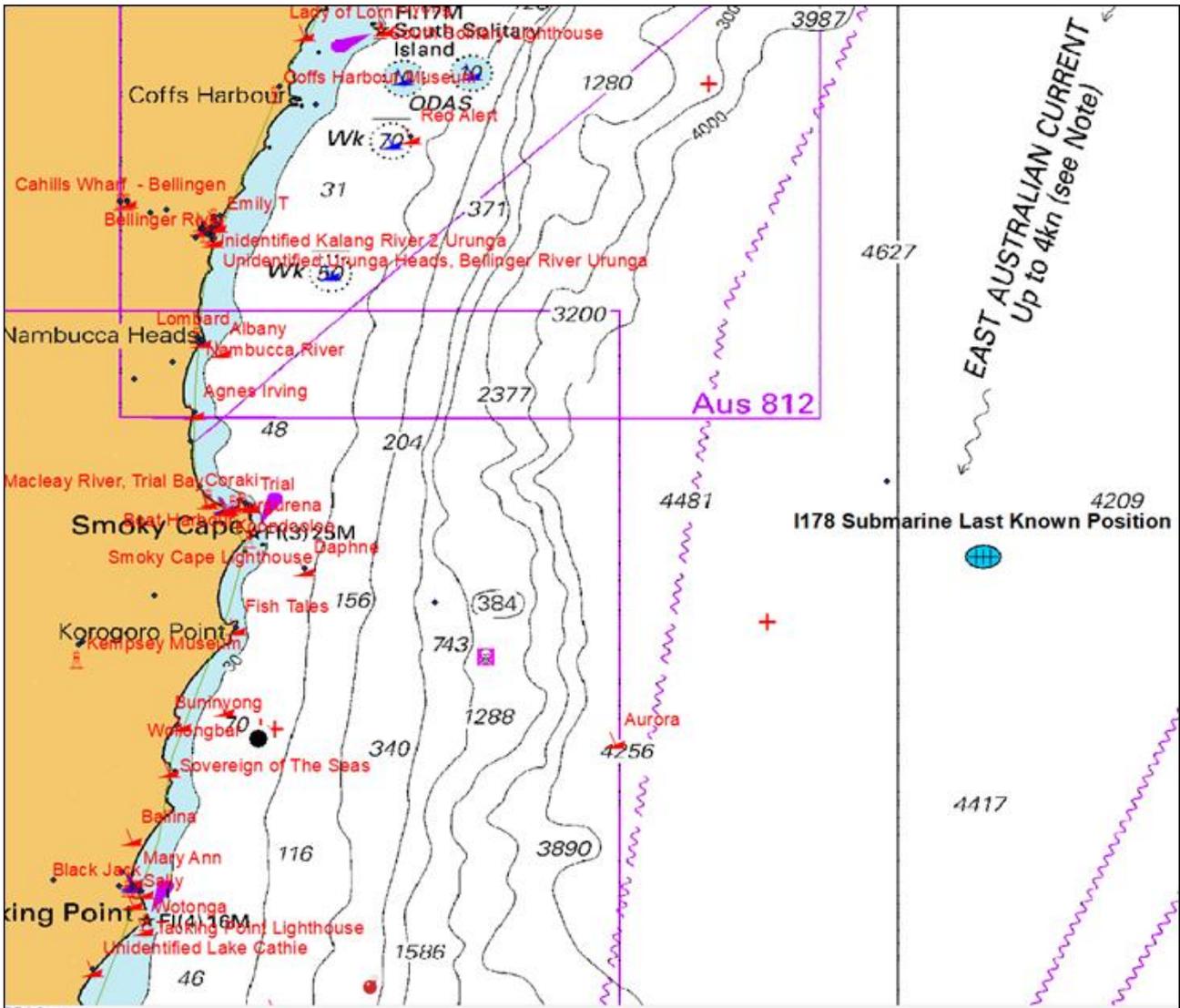
- HMAS *Australia I*
  - Multibeam search lanes to interrogate the actual extent of the wreck and at least two associated debris fields (indicated during the 2013 SS 2013\_t04) to the south and NW of the main wreck site - ~370m deep almost directly east of Sydney.
  - DTC / Drop camera recording of the entire extent of the main wreck site with a view to photogrammetric recording and possible production of 3D model
    - Investigating availability of Curtin University's deepwater high-definition cameras and whether these can be fitted to the Drop Camera Frame - **TBC**.
  - DTC / Drop Camera recording of both debris' fields (time dependent)
    - Focus on recording larger debris field items and possible gun turrets (time dependent).
  - Deploy biomass sonars to determine if fish species can indicate the presence of the wreck and debris fields.
  - Deploy Sub-bottom profiler
  - HMAS *Australia* location: -33.866151, 151.740592



HMAS *Australia* is marked under the skulls and crosses in blue (where it says *historic wreck* – see note) to NE of the main Sydney ships graveyard (shown in red circle).

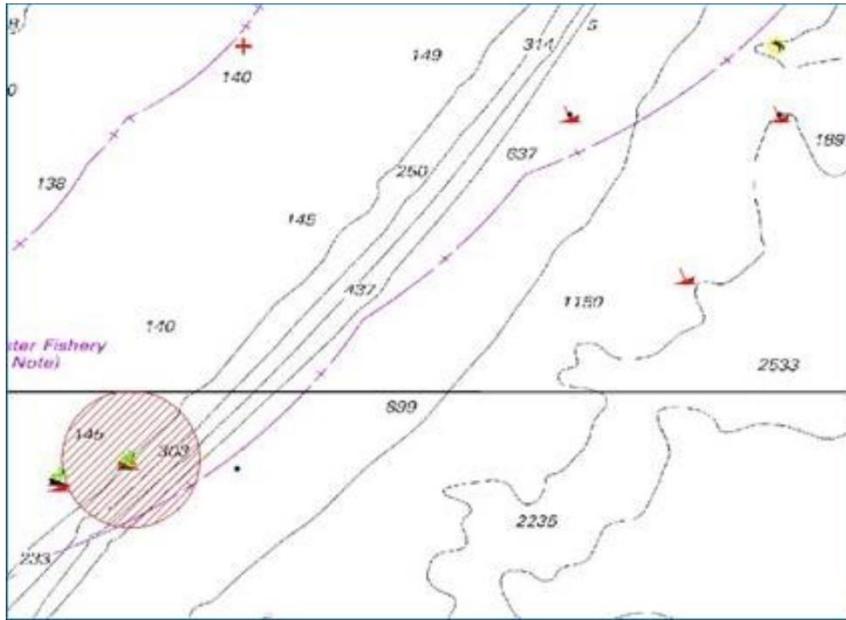
- SS Wollongbar II (92m)/SS Nord (42m)/ SS Tasman (72m)
  - Multibeam search lanes to interrogate the actual extent of the wreck/ any debris fields.
  - DTC / Drop camera recording of the entire extent of the main wreck site with a view to photogrammetric recording and possible production of 3D model.
  - Deployment of Sub-bottom profiler / biomass sonars if available (time dependent).
  - *Wollongbar* location: -31 ° 12.5665', 153 ° 06
- Nord Location 43° 12' 29.5"S 147° 59' 19.9"E
- Tasman location TBC - west of the Hippolyte Rocks, Fortescue Bay, Tasman Peninsula in 70 metres of water. Wreck site broken up.
- 1178 Submarine
  - Opportunistic multibeam search lane over known historic location of the wreck.
  - If discovered, multibeam search to interrogate the actual extent of the wreck/ any debris fields:
    - Anticipated water depth 4000-4500 m

- Historical location: c. -30.954701, 154.122213 - ~50nm off SW Rocks
- DTC / Drop camera (time dependent).
- Deployment of Sub-bottom profiler / biomass sonars if available (time dependent).

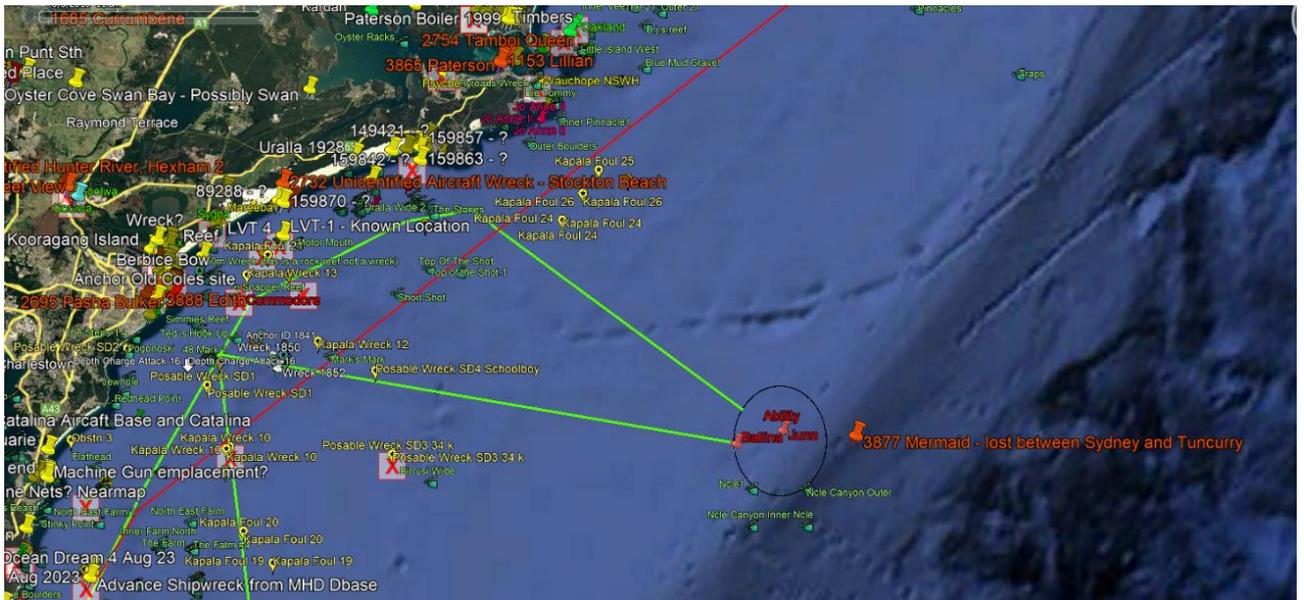


- Newcastle / Sydney Dumping Grounds (Ships Graveyards).
  - Opportunistic multibeam search lane over known historic location of the graveyard wrecks.
  - If discovered, multibeam search to interrogate the actual extent of the wreck/ any debris fields.
  - Anticipated water depth 145 - 200m (Sydney).
  - 2-5 wrecks in this location.
  - Location centred around:
    - **Centre:** -32.824750,152.838594
    - **NE extremity** -33.055289, 152.428037
  - Width graveyard up to 5km in places

- DTC / Drop camera (time dependent).
- Deployment of Sub-bottom profiler / biomass sonars if available (time dependent).



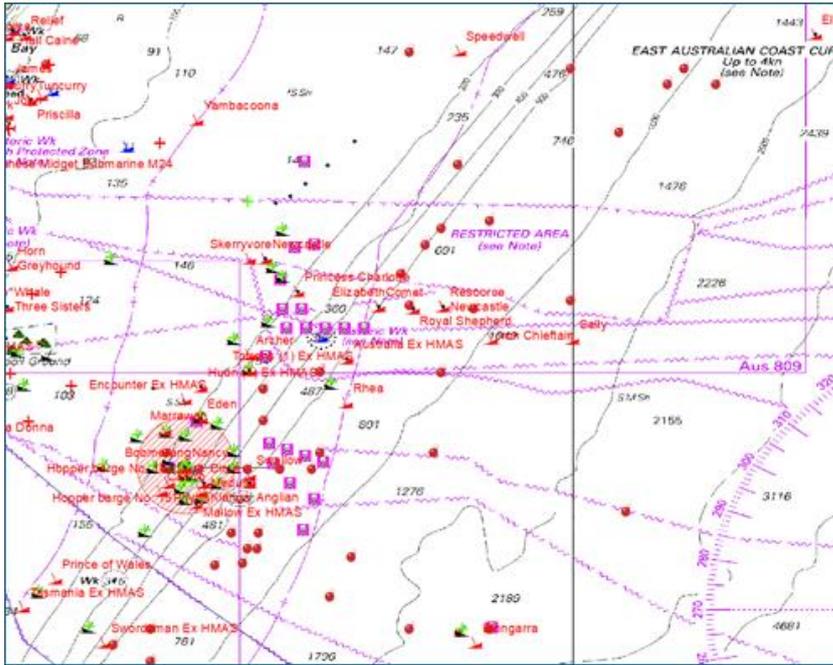
Main Newcastle graveyard shown on AUS Chart 489 (circled) – NE extremity wrecks show in red in top right.



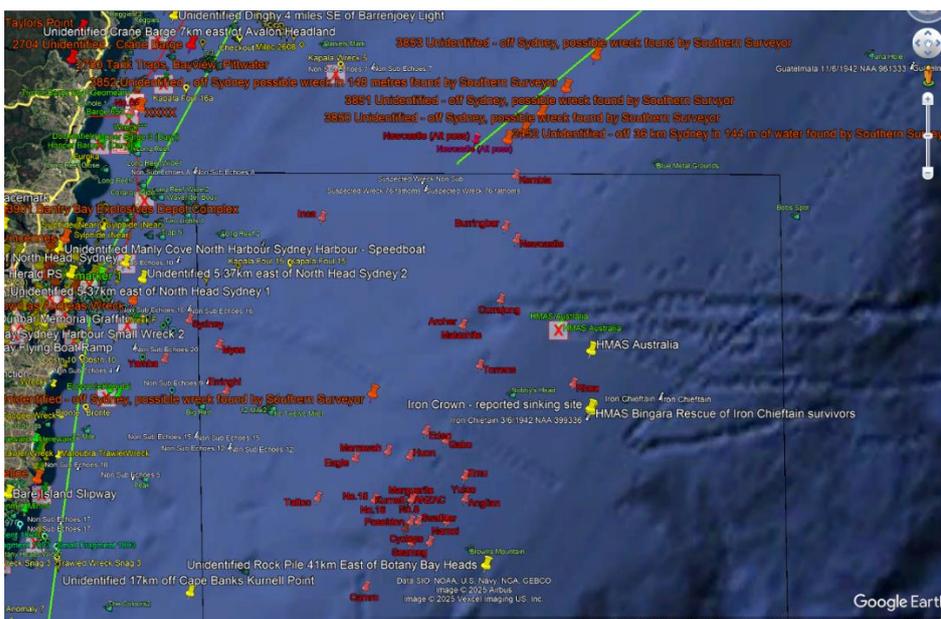
Newcastle Graveyard shown on Google Earth (Circled)

- Sydney Graveyard

- Anticipated water depth 150-400 m (Sydney) -
  - Over 45 known wrecks
  - Location centred around:
    - NE Extremity: -33.824272, 151.843384
    - Centre: -33.998925, 151.602583
    - SW extremity: -34.164059, 151.467430
  - Width graveyard up to 10km in places
  - There are also extensive munitions sea-dumping in these areas



Spread of Sydney Ships Graveyard shown on AUS Charts 808/ 489. There appears to be a rough SW/ NE alignment of sites which the vessel could track along



Location of Sydney Dumping Ground wrecks shown on Google Earth

**Flexibility in tasking statement**

The UCH team understand that all tasking is subject to time and conditions with vessel safety being the priority. Inclement conditions and proximity to the coast may adversely affect the ability of the vessel to undertake any of the requested operations.

**Voyage track example**



## Waypoints and stations from RVI

RouteName:BNE-HBA	LastUpdate:20251029 06:45:19		
WPName:	Latitude:	Longitude	Radius:
GPB	-27.3902	153.1579	0.31
Swingbasin	-27.3846	153.1573	0.5
Luggage Point	-27.3797	153.1608	1
IBB	-27.3524	153.1798	1
Entrance Beacons	-27.3103	153.2092	1
EB Outer	-27.2917	153.2221	1
RRE	-27.2546	153.2622	1
M8	-27.1986	153.2834	1
M9	-27.16	153.3392	1
M7E	-27.1392	153.3533	1
M3	-27.0914	153.3123	1
NW12	-27.0406	153.2556	1
NW4	-26.8587	153.1528	1
NW2	-26.8274	153.147	0.5
NW Fairway Nth	-26.808	153.1781	1
PBG	-26.7168	153.1751	1
Cape Morton	-26.9096	153.5957	1
Point Lookout	-27.3905	153.7177	1
South Strad	-27.9253	153.8048	1
I178 Wreck	-30.9547	154.1222	1
South west rocks	-30.7685	153.0746	0.1
Smoky Cape	-30.9231	153.2182	1
SS Wollongbar cre	-31.2094	153.1	0.1
Diamond Head	-31.807	152.9632	0.1
Sugarloaf Point	-32.4996	152.6215	1
HMAS Aus	-33.8662	151.7406	1
Green Cape	-37.2693	150.2352	2.2814
Maria Island	-42.5294	148.3963	2.2814
Tasman Island	-43.2784	148.044	1
Cape Raoul	-43.2759	147.7941	1
Storm Bay	-43.1003	147.4522	1
Iron Pot	-43.0615	147.3907	1
White Rock	-42.9764	147.375	1
HBA PBG	-42.9235	147.3829	1
Garrow	-42.9145	147.3829	1
Lower BTU	-42.8842	147.348	0.1
Off Knuckle 2-3 K	-42.8824	147.346	0.035
Turn Abeam Tower	-42.8836	147.3373	0.06
Exit 1-1.5 Kts	-42.8855	147.3381	0.06
Heading 115 for 1	-42.8858	147.3391	0.1

## Activities – proposed voyage operations

RVI	TIME/DATE	ACTIVITY
Depart BICT berth - Pilot onboard	~0800 20/11	Pilotage through Moreton Bay to PBG and then proceeding ~271nm southward directly to South West Rocks WPT 30°53'31.84"S 153°10'40.63"E
Arrive at South West Rocks Submerged Landscapes area of operations	~1200 21/11	Begin multibeam operations ( <b>~12hrs</b> )
Depart South West Rocks ops site	~0000 22/11	~20nm to Crescent Head ops site
Arrive Crescent Head Submerged Landscapes & <i>Wollongbar</i> wreck area of operations	~0200 22/11	Begin multibeam operations off Crescent Head ( <b>~12hrs + ~12 hrs</b> )
Depart Crescent Head ops site	~0200 23/11	~175nm to HMAS Australia ops site via Newcastle Ship Gravesites – multibeam operations
Arrive HMAS <i>Australia</i> ops site	~2000 23/11	Begin multibeam & DTC operations ( <b>~12hrs</b> )
Depart HMAS <i>Australia</i> ops site	~1000 24/11	~635nm transit southward to Hobart through Sydney Ship Gravesites & over <i>Tasman</i> & <i>Nord</i> shipwrecks off Tasmania – multibeam operations
Arrive alongside PW4 in Hobart	0800 27/11	Participant disembarkation

## MNF equipment required

- Deep Towed & Drop cameras

## Direct transit time estimates – no science operations

DATE	TIME	ACTIVITY
Brisbane BICT berth to Hobart PW4 berth	5 days 23 hrs	Direct transit @ 8 knots open water average speed over 1149.2nm
Brisbane BICT berth to Hobart PW4 berth	4 days 21 hrs	Direct transit @ 10 knots open water average speed over 1149.2nm

## Permits

### **Permit requirements statement**

No permits are required on this voyage for remote sensing survey and photography of targeted shipwreck sites. However, all operations must be undertaken with the understanding that no impacts of any kind, without permit, should be undertaken to any of the wreck sites.

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