

The logo consists of a square with a black border. The top half of the square is white, and the bottom half is a solid blue color. The text "National Oceanography Centre" is written in black, sans-serif font in the blue section.

National  
Oceanography  
Centre

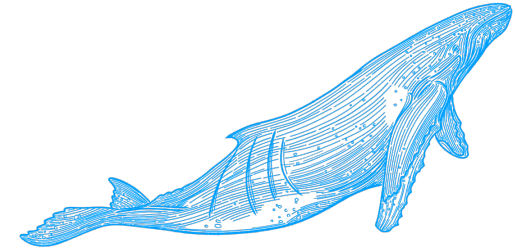
**SHIP OPERATIONS**

**NATIONAL OCEANOGRAPHY CENTRE**



# WHAT'S NEW ?

- **New Branding and Logo.** Designed to show 30% of world is land and 70% made up of seas and oceans. 'Go Deeper – Our Purpose and our Vision'
- Plan to trial HVO (Hydrotreated Vegetable Oil) as a drop in fuel on board James Cook as part of NZOC (Net Zero Oceanographic Capability) process to reduce carbon emissions from our Research Vessels.
- New Shiprepair contract Babcock Rosyth Scotland at least three years for RRSs Discovery, James Cook and Sir David Attenborough



# SOME HIGHLIGHTS SINCE WE LAST MET –UNPLANNED OVERHAUL PORT PROPULSION MOTOR RRS JAMES COOK

- James Cook –insulation readings on Port Electric Drive Motor fell to 0.3 ohms
- An in situ clean of the motor was carried out in planned drydocking July\August 2021 but unsuccessful so only action was removal
- With such a large motor the only way out was through the side of the ship
- Insulation restored 2Gohms
- Maintenance and removal Stbd motor scheduled July 23



- **Vaccinations**

- Fundamental to NOC Approach
- 2+1 Dose (UK) or 'fully vaccinated' status (Non-UK vaccination programme)
- No exceptions

- **Covid-19 management onboard**

- All to LFT test within 24hrs of joining if sailing
- Positives to self-isolate in cabin until 2 x negative LFTs or disembark
- We will / do sail with Covid onboard

- **Impact of Pandemic**

- A lot of re-programming (a lot!)
- Focused on UK to UK expeditions in 2020-2021
- 2 cruises lost (Galapagos and UKOT in Atlantic)

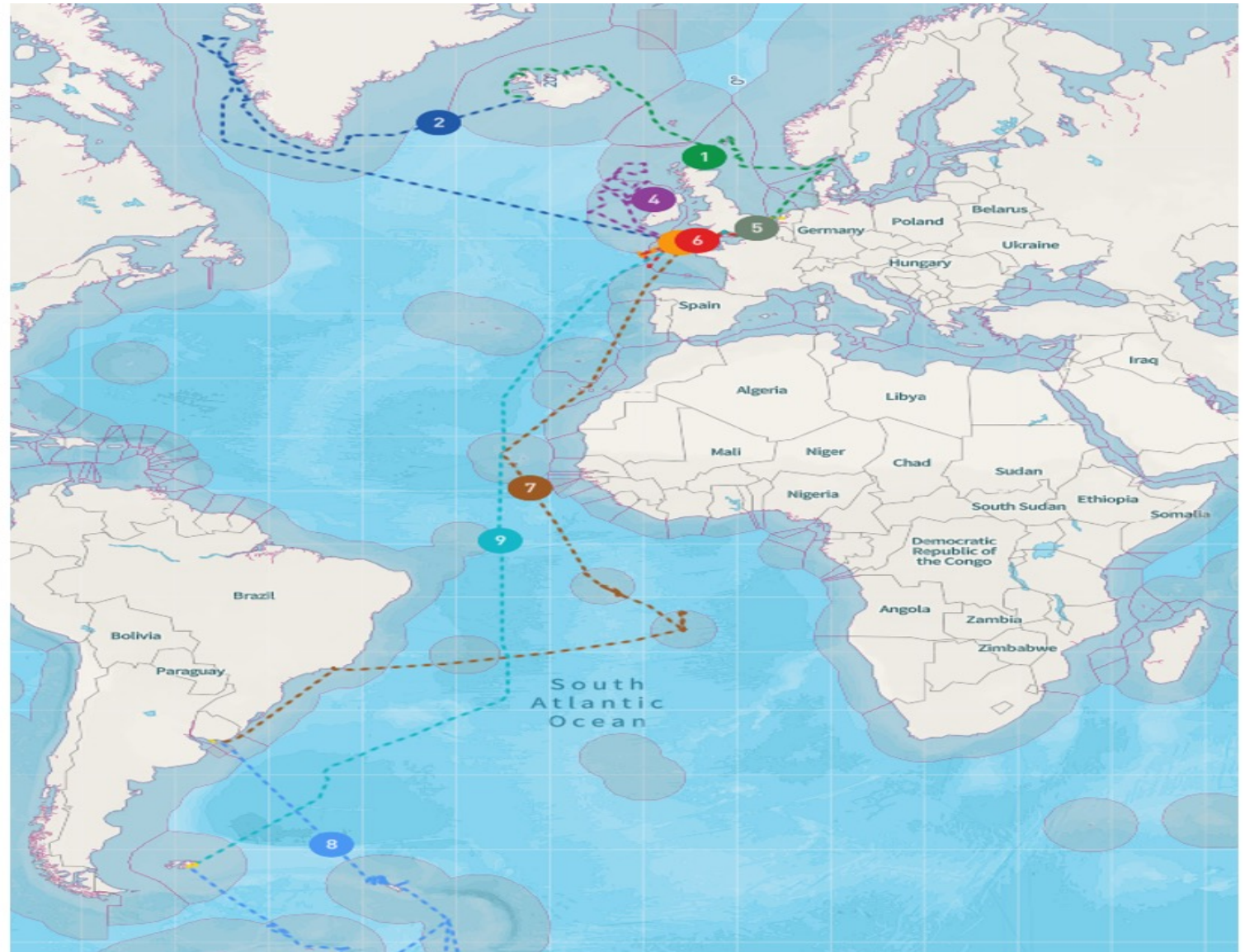
# **SCIENCE PROGRAMME**

**01 APR 22 – 31 MAR 23**

# RRS DISCOVERY EXPEDITIONS –2022 / 2023

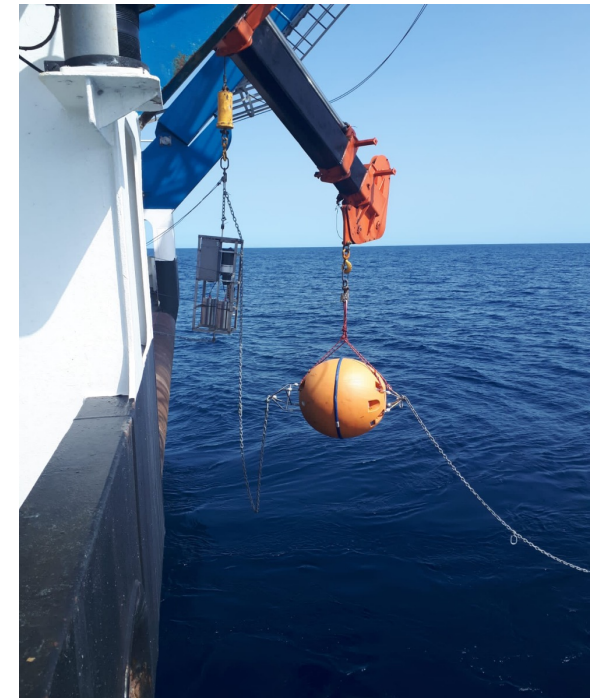
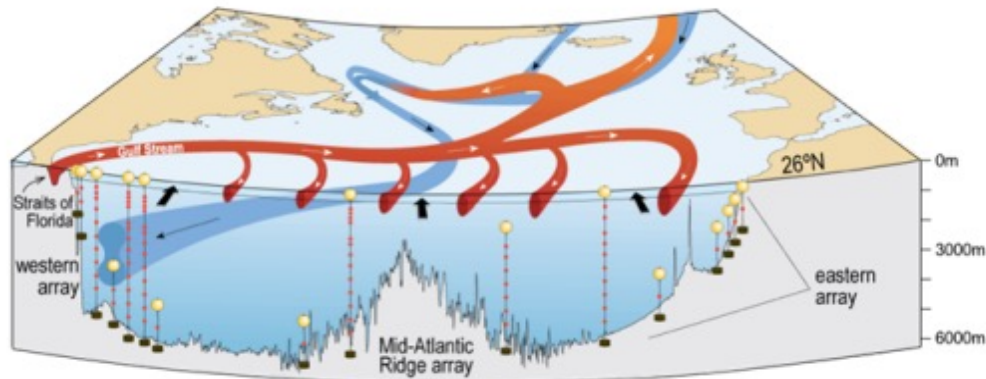
Cruise	GB EEZ	Foreign EEZ	EU EEZ	International waters	Total days
Discovery					
1 DY150	11.8	13.2	3.3	0.1	25.2
2 DY151	1.4	30.9	29.9	4.2	37.0
3 DY152	12.7	0.3	0.3	0.0	13.3
4 DY153	7.1	29.4	29.4	0.0	37.2
5 DY154	0.3	0.8	0.8	0.0	1.4
6 DY156	9.7	2.0	2.0	0.0	11.8
7 DY159	21.4	16.8	6.9	12.1	52.2
8 DY158	18.7	7.5	0.0	11.5	37.9
9 DY157	2.0	3.4	0.7	31.9	39.1

<b>Days at sea:</b>	<b>247.8</b>
GB EEZ:	85.8
Foreign EEZ :	104.3
International waters:	57.8
<b>Docked :</b>	<b>114.2</b>
GB ports :	56.0
International ports :	58.2



# RRS DISCOVERY – THE RAPID ARRAY

- Started the Year by Servicing Eastern Boundary RAPID Array
- A series of oceanic moorings maintained in collaboration with University Miami and NOAA
- At 26N they extend from Morocco to Florida
- Recover, service, replace moorings by day and up to ten CTD casts each night





# RRS DISCOVERY - STUDY OF ATMOSPHERIC EMISSIONS FROM SHIPS

- Mobilised in Reykjavik for SEANA (Shipping Emissions in the Arctic and North Atlantic)
- General location Baffin Bay/Labrador Sea/Eastern entrance to North-West Passage

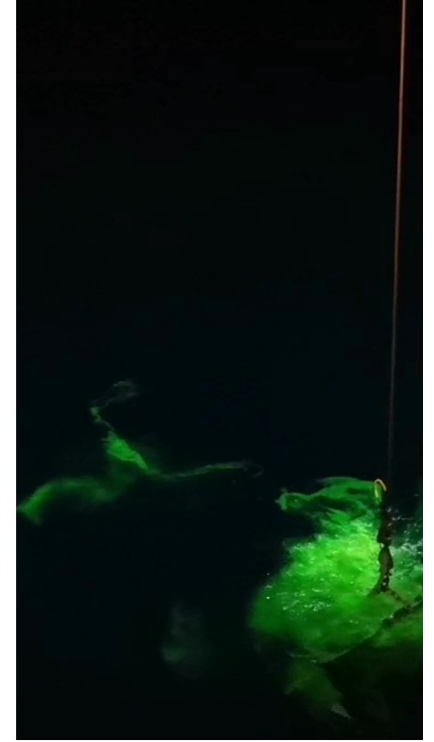
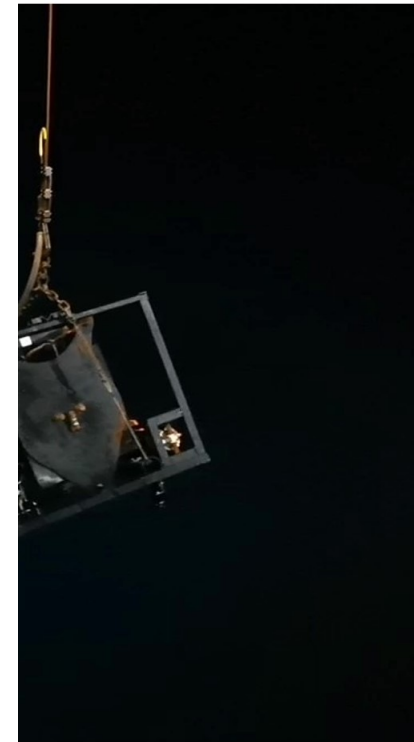
## SEANA - Shipping Emissions in the Arctic and North Atlantic

Global shipping is undergoing significant changes. In January 2020 the maximum sulphur emission by ships in international waters will reduce from 3.5% to 0.5% by mass, as a result of new International Maritime Organisation ([IMO](#)) regulations. Superimposed on that, changes in Arctic sea ice are opening up new seaways enabling shorter sea passages between key markets.. There exists a short window of opportunity to define current atmospheric conditions, against which the impact of these changes must be determined.

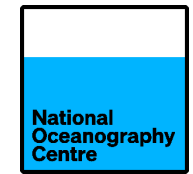


# DISCOVERY- BLT (BOTTOM BOUNDARY TURBULANCE SERIES)

- Mobilising in Southampton with science undertaken in the Rockall Trough including a mid-expedition port call in to Killybegs, Eire. Part of a NSF / NERC Funded project that involved Scripps and WHOI.
- US Moorings recovery and deployment of OTIS (Ocean Tracer Injection System) close to the ocean floor
- Deploy ADCP measuring currents and up to 100 CTD



# RRS DISCOVERY - CEFAS BLUE BELT BIG OCEAN SURVEY



SOUTHAMPTON~ASCENSION~SAINT HELENA~MONTEVIDEO

## RRS *Discovery* 159

RRS *Discovery* 159 is a Blue Belt Programme funded marine survey of the seas around Ascension Island and St Helena in the South Atlantic. A range of research activities will be undertaken onboard to progress scientific understanding and inform future management and protection measures.



Ascension Island

### Passive acoustic deployment

Passive acoustic receivers will be deployed around St Helena to collect information on the activity of inshore vessels as part of a trial.



### Deployment of BRUVs

Deployed Baited Remote Underwater Video Systems will collect data on the condition of key marine ecosystems.



### Fisheries acoustic data

Fisheries acoustic instruments will be used to conduct a biomass assessment of key species, helping to inform management.



RRS *Discovery* 159



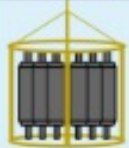
### Deep seabed habitats

DY159 will aim to conduct biological surveys on previously unexplored deep seabed habitats (around 4 kilometres below the surface!) and hydrothermal vents.



St Helena

### Oceanographic sampling



Water samples from different depths will be taken and analysed for environmental parameters and DNA.

### Training and engagement

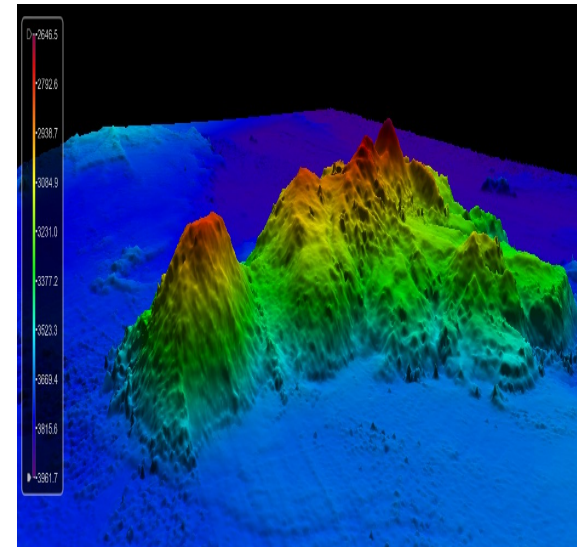
DY159 is an important opportunity to provide learning opportunities with colleagues from Ascension and St Helena, helping to build on-island capacity.



# RRS DISCOVERY - CEFAS BLUE BELT BIG OCEAN SURVEY

## SOUTHAMPTON~ASCENSION~SAINT HELENA~MONTEVIDEO

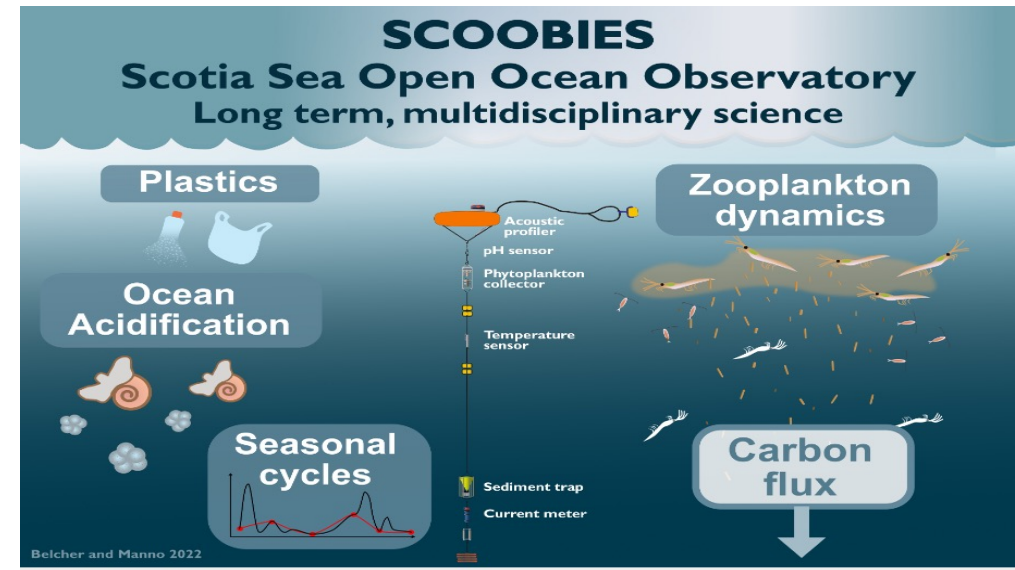
- During recovery of a lander in St Helena waters we also recovered an early 19th Century anchor at the same time
- The St Helena Archaeological society estimated the anchor to be 200 years old.
- On the advice of the St Helena Authorities, the anchor was returned to the sea and the UK Hydrographic Office Notified
- New Seamount Discovered within Ascension MPA
- BRUVS-Baited Remote Underwater Video System Deployed



# DISCOVERY - POLAR OCEAN

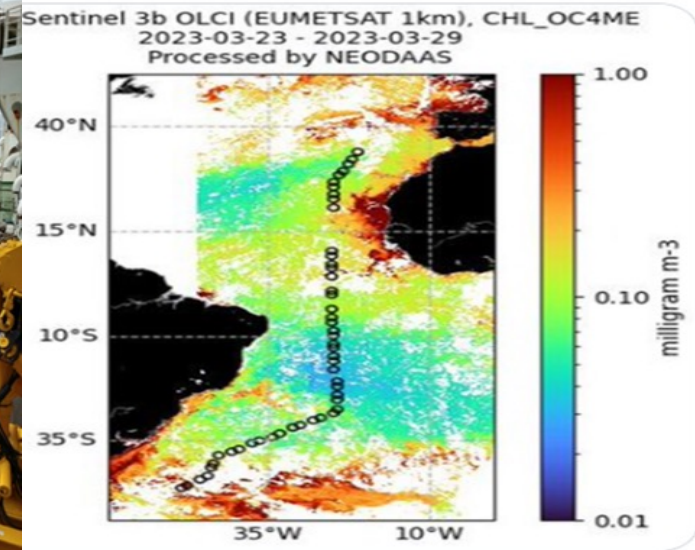
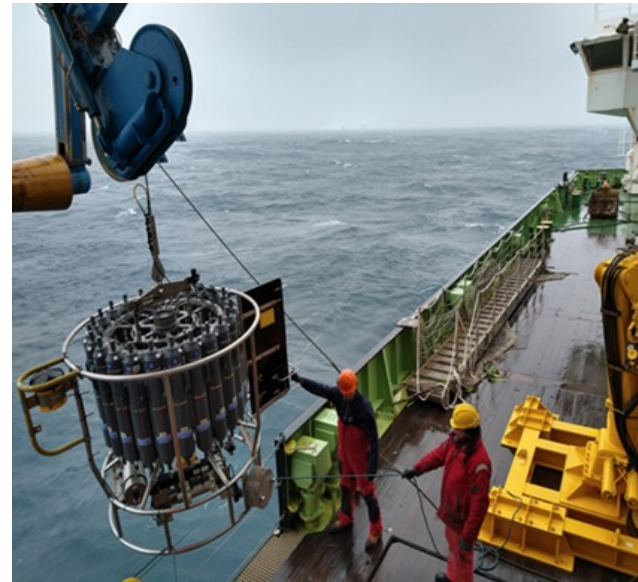
## SOUTH GEORGIA, SCOTIA SEA, THE FALKLAND ISLANDS

- Uruguay to South Georgia and Polar Antarctic to Falklands
- Plastics, Moorings and CTD and Zooplanton studies on behalf of BAS
- Opportunity Science – Iceberg A76a



# RRS DISCOVERY - AMT NORTH (MID-ATLANTIC TRANSECT SOUTH TO NORTH

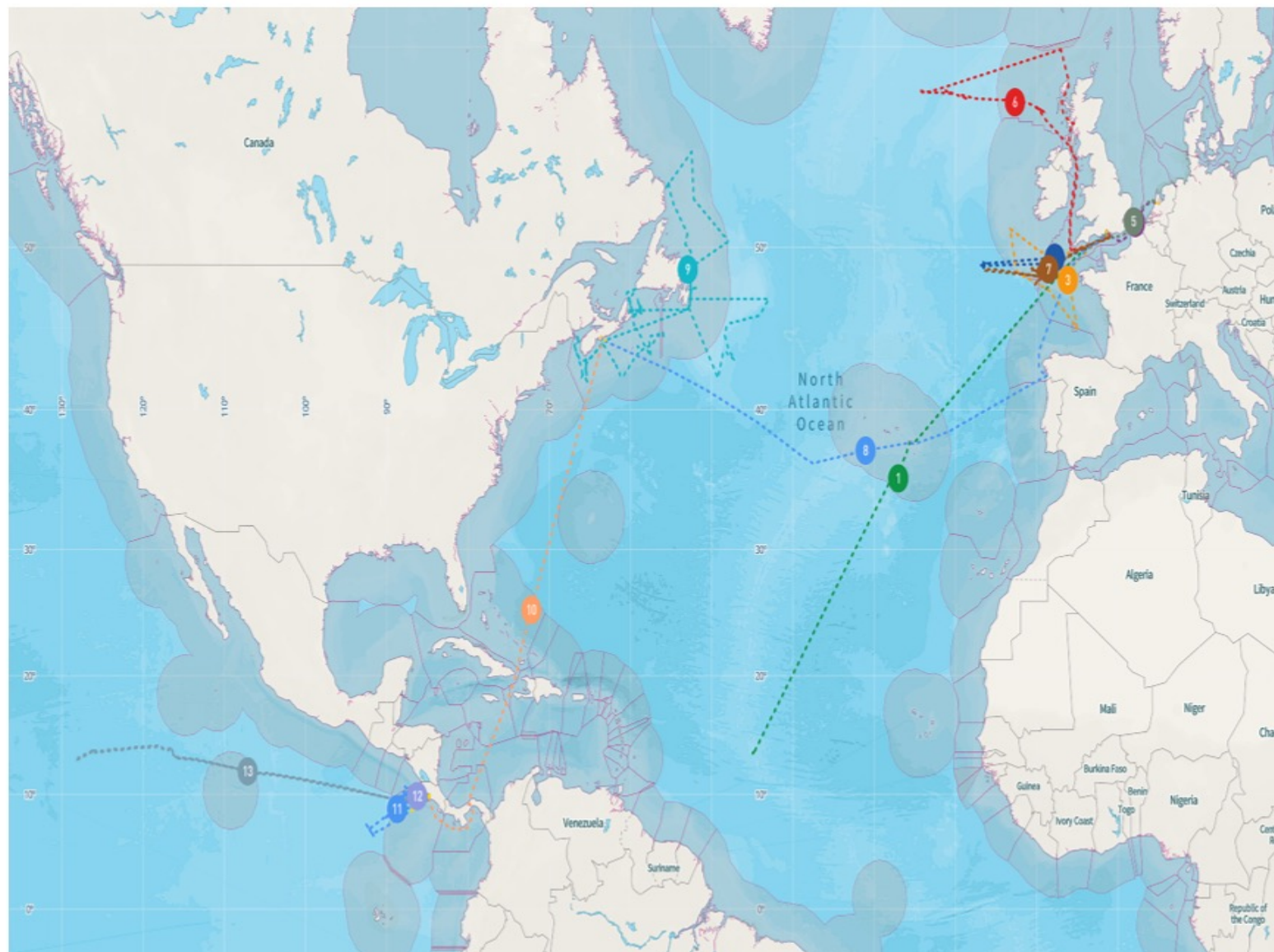
- The Atlantic Meridional Transect (AMT) multidisciplinary programme, which undertakes biological, chemical and physical oceanographic research during an annual voyage between the UK and destinations in the South Atlantic. This year it was run in reverse Falklands to Southampton, a distance of approx. 7000nm.
- Deployments carried out were: CTDs Daily Launch, Zooplankton Net, Atmospheric for CO<sub>2</sub>, Moorings.



# RRS JAMES COOK EXPEDITIONS –2022 / 2023

Cruise	GB EEZ	Foreign EEZ	EU EEZ	International waters	Total days
James Cook					
1 JC224	1.3	2.6	2.6	15.4	19.6
2 JC231	4.4	0.0	0.0	13.5	18.2
3 JC232	2.2	5.8	5.8	0.0	8.1
4 JC233	0.4	1.0	1.0	0.0	2.3
5 JC235	0.8	0.6	0.6	0.0	1.5
6 JC238	12.7	0.5	0.5	6.0	19.3
7 JC237	10.4	13.2	13.2	5.6	29.3
8 JC242	0.6	5.6	4.3	6.4	14.9
9 JC243	0.0	31.2	0.2	6.0	40.2
10 JC239	0.0	10.2	0.0	3.7	15.9
11 JC228	0.0	20.9	0.0	10.6	31.5
12 JC228A	0.0	9.0	0.0	0.0	9.2
13 JC241	0.0	3.3	2.3	45.2	54.1

**Days at sea:** 247.3  
**GB EEZ:** 31.7  
**Foreign EEZ :** 104.5  
**International waters:** 111.1  
**Docked :** 112.0  
**GB ports :** 42.7  
**International ports :** 69.3



# RRS JAMES COOK - PORCUPINE ABYSSAL PLAIN (PAP) AND ICELAND BASIN

- PAP - sustained observatory dating back to 1985 located South-West Approaches
- Type of work carried out: Net sampling, Sediment traps, Box and Gravity coring
- Maintenance of Met Office ODAS Buoys, including removal of Marine growth.
- Iceland Basin - OSNAP (Overturning in the Sub-Polar N. Atlantic Programme)

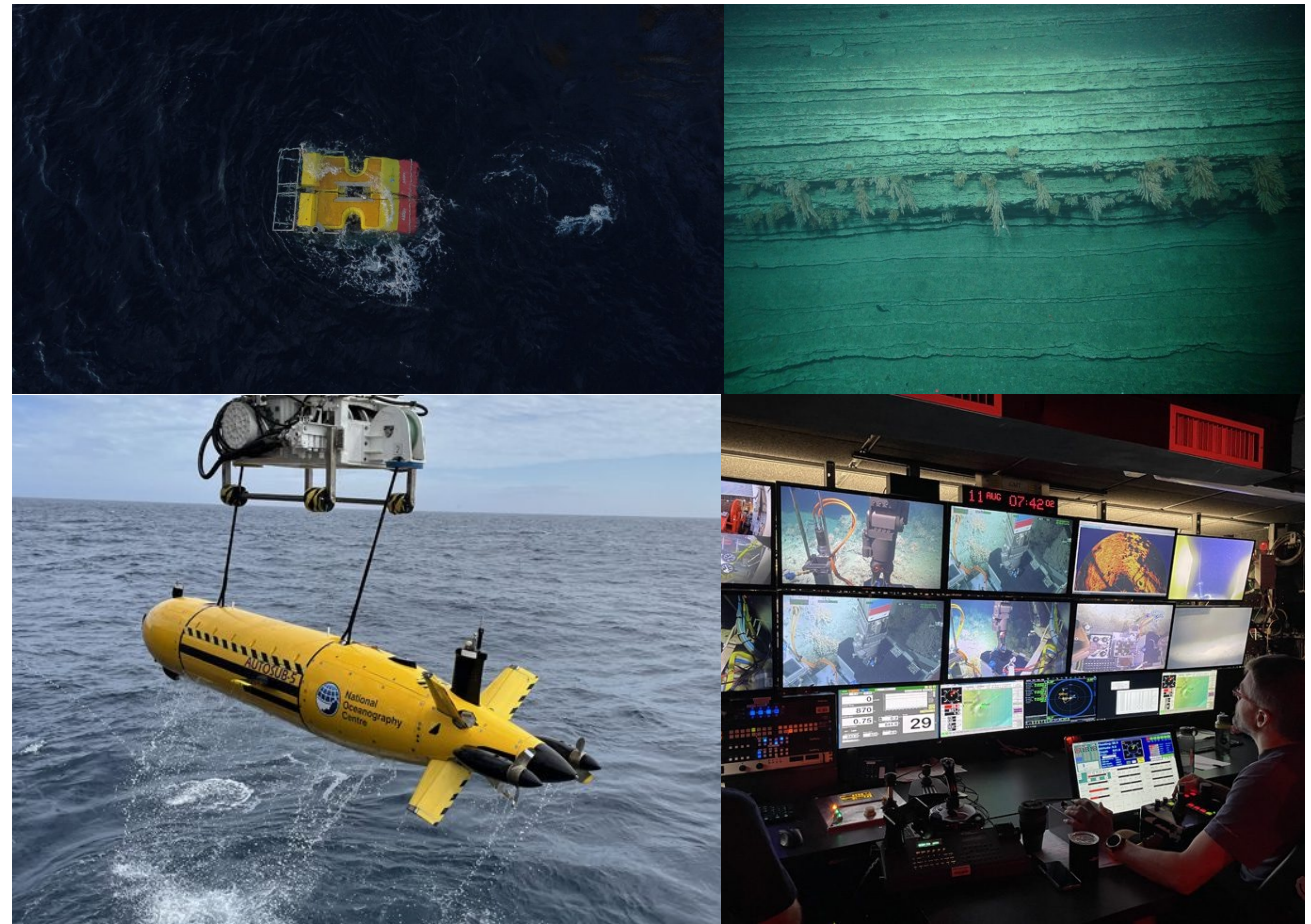




# RRS JAMES COOK - WHITTARD CANYON

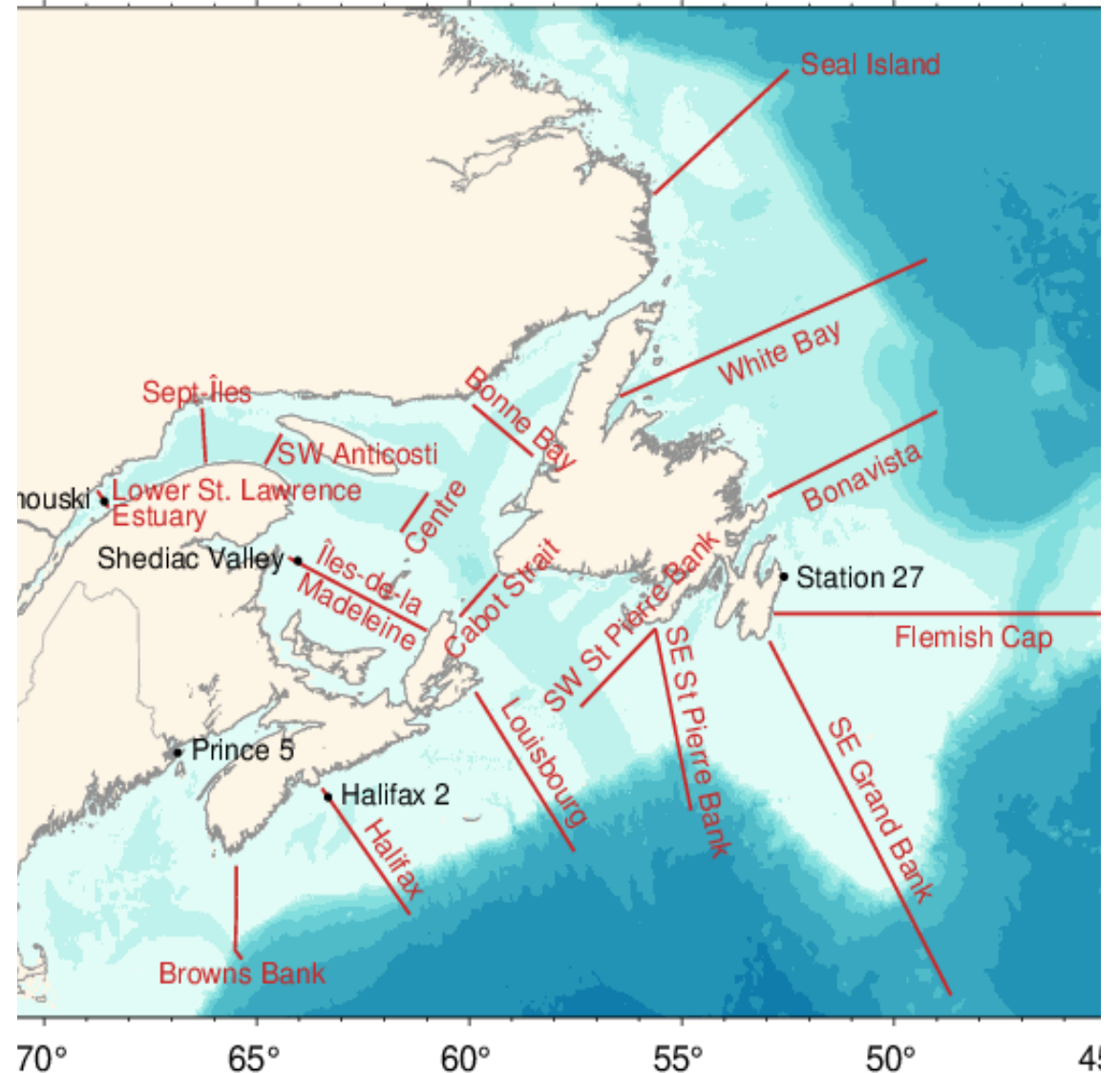
## SOUTH-WEST APPROACHES UK'S ONLY SUBMARINE CANYON

- Multi disciplined cruise - Biologists, Scientists, Geologists
- Deployments of Auto-Sub similar to "Boaty" and the NOC ROV for sampling and Imagery
- ROV also deployed at PAP site



## ATLANTIC ZONAL MONITORING PROGRAMME

- September 2022 saw JC leave the UK for six months
- After a Port call in Vigo to collect seismic equipment for future use in the Pacific the ship sailed to Halifax, NS.
- From October to mid-November 2022 the ship undertook deployment and recovery of moorings, ADCP work, XBT deployments and extensive CTD work in between Port calls to Halifax, Sydney and St John's (NFL)



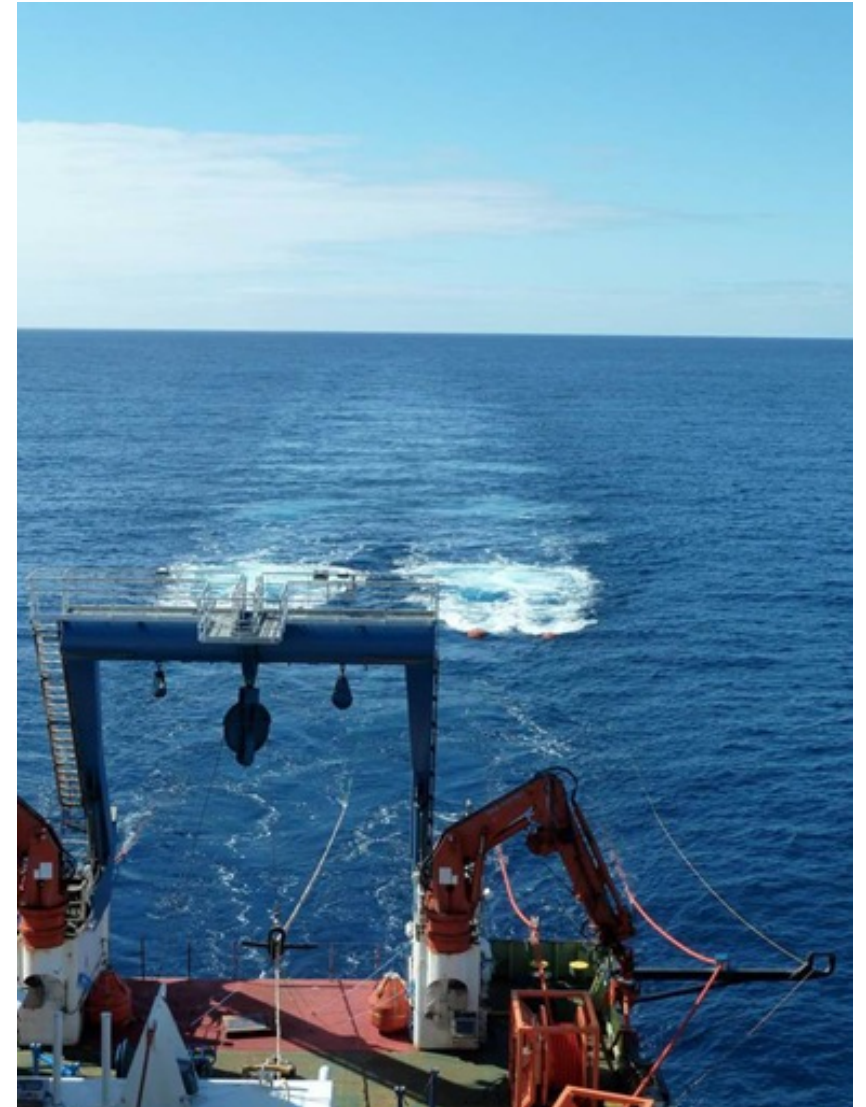
# RRS JAMES COOK - PASSAGE TO PACIFIC (VIA PANAMA CANAL)

## - MOHOLE (SEISMICS)

## - NERC SMARTEX



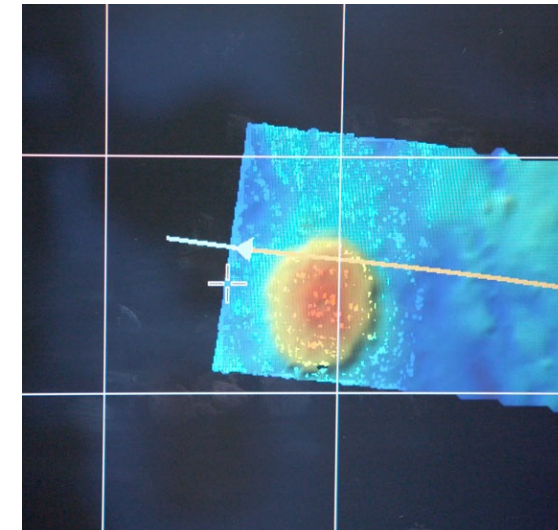
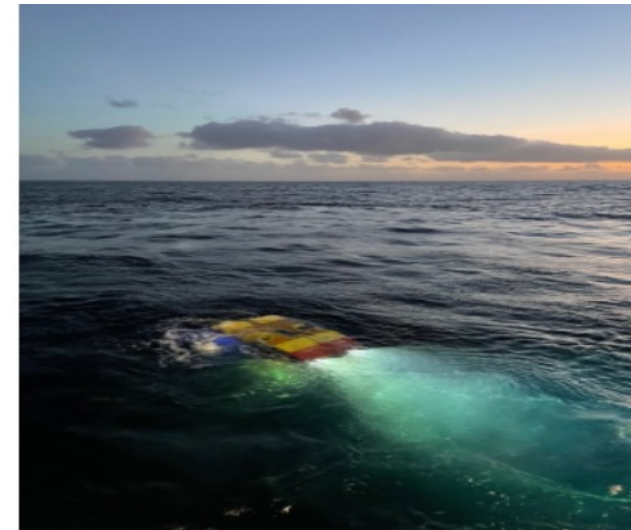
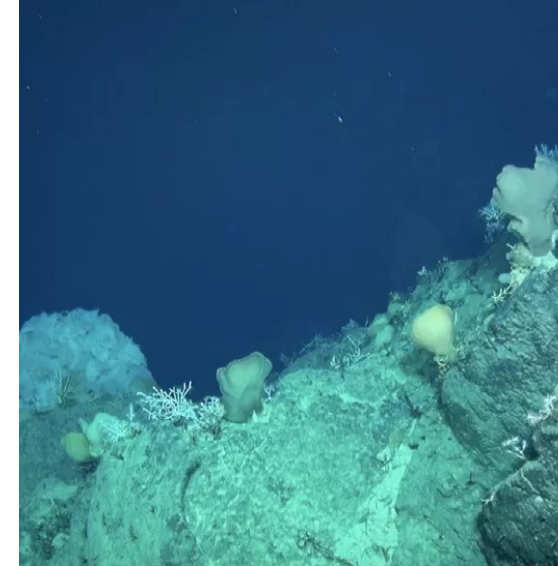
- Mobilising out of Caldera, Costa Rica (Nov 22-Apr 23)
- **JC 228 – MoHOLE to Bending Faults**
  - Seismics geophysical investigation in Guatemala Basin
  - First NOC Seismics Survey in 7 yrs
  - Utilised CSIC(Consejo Superior de Investigaciones Científicas) guns and winches- 6km streamer
  - Ended up rescuing the Guard Boat !
- **JC228A - MoHOLE Part 2**
  - AUV and Coring
  - Central America lends itself to potential sites for a new attempt



# RRS JAMES COOK – NERC SMARTEX ENVIRONMENTAL IMPACT ASSESSMENT OF DEEP SEA MINING CLARION CLIPPERTON ZONE (UK CONCESSION AREAS)



- NERC SMARTEX (Seabed Mining And Resilience To Experimental impact) project aims to provide the scientific evidence base for informed decision making by understanding the long-term environmental impacts of mining and consequences to the ecosystem.
- ROV survey inc. Nodule collection
- Seamount discovery by echo sounder
- Reef ecological studies
- Box Coring
- AUV survey not delivered due to u/s AUV

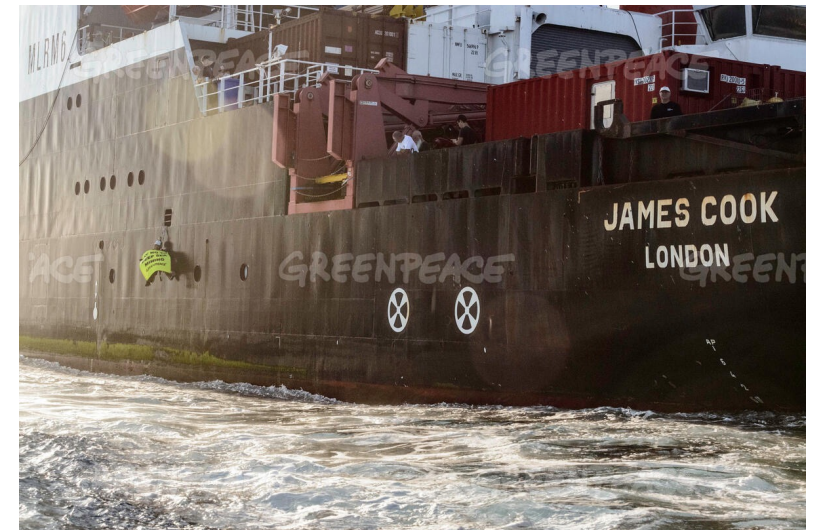


# GREENPEACE INCIDENT - 26 MAR 23 (COSTA RICA EEZ / TW)

- BE AWARE !
- Intercepted by GREENPEACE M/V ARCTIC SUNRISE (Dutch registered) off Costa Rican coast after NERC SMARTEX expedition
- Initial Warning of peaceful protest given to JAMES COOK over VHF but followed by reckless endangerment of protesters lives by Greenpeace
- UK Maritime and Coastguard Agency (MCA) currently discussing follow up action against Master / Ship / Vessel Owners with Dutch Authorities



# GREENPEACE INCIDENT - 26 MAR 23 (COSTA RICA EEZ / TW)



<https://youtu.be/2-OsaptjXAA>

<https://media.greenpeace.org/asset-management/27MZIFJL7ESK>

The logo for the National Oceanography Centre, featuring a white square with a black border. The text "National Oceanography Centre" is written in black, stacked vertically inside the square.

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# Any Questions?

[NOC.AC.UK](http://NOC.AC.UK)