

MASTS Annual Science Meeting 2023

“Science, Sustainability and Society – valuing and protecting our marine systems”

Tuesday 5th – Thursday 7th December 2023
Technology & Innovation Centre, University of Strathclyde, Glasgow

Day 1: Tuesday 5th December 2023

09.00-09.30 Coffee and Registration ☕

From 09.15 SUT, MASTS and the D’Arcy Thompson Forum present the 11th Salvage, Decommissioning & Wreck Removal Workshop: **The (second) energy upheaval and data** in Auditorium A

From 09.30 **Opening of MASTS ASM, Plenary talk from Dr Michelle Taylor and MASTS General Science Session 1** in the Main Auditorium (Auditoria B/C)

09.30-09.40 **MASTS ASM Opening and welcome by Prof David Paterson** (MASTS Executive Director) in Main Auditorium (Auditoria B/C).

09.40-10.10 Invited speaker: Dr Michelle Taylor (University of Essex and President of the Deep-Sea Biology Society) **“Title”**

10.10-11.00 **MASTS General Science Session 1** in the Main Auditorium (Auditoria B/C).
Chair: TBC. Talks are 10 minutes each. Talks will be followed by a live group Q&A session within which all the speakers will be panel members.

- Sam Collin (HMC) - Applying a five capitals approach to marine management.
- Michelle Frost (Edinburgh Napier University) - The United Nations Ocean Decade 2021-2030.
- Will Ellison (Scottish Government, Marine Directorate) – How much Do People in Scotland Value Characteristics of Marine and Coastal Areas?
- Kathryn Fradera (UHI) - Speaking different languages: How both science and lived experience are valuable to marine decision-making.

09.30-18.00 **SUT, MASTS and the D’Arcy Thompson Forum present the 11th Salvage, Decommissioning & Wreck Removal Workshop: The (second) energy upheaval and data** in Auditorium A.

- Keynote from Maggie Chapman, MSP
- The sessions within the workshop this year are:
 - The transparency of the energy upheaval
 - Circular economy and offshore wind – Starting with the end in mind.
 - Environmental impacts & Emergency response
 - Digital technologies as a way of thinking, every bit as a means of visualisation
 - Quickfire PhD/Researcher updates

11.00-11.45 **Coffee break, networking and Poster session 1** ☕

Time	Screen 1	Screen 2	Screen 3	Screen 4	Screen 5
11.05-11.20	Haleigh Jorgeson	Charis Hanna	Marta Cecchetto	John Halpin	
11.25-11.40		Eunice Pinn	Alysia Smith	Joe Marlow	

Time	Paper Poster	Paper Poster	Paper Poster	Paper Poster
11.15-11.30	Anna McGregor	Hayley McLennan	Martin Wilkinson	

- Haleigh Jorgeson (University of Essex) - Impact of decommissioning on benthic microbial communities in the North Sea
- Charis Hanna (University of St Andrews) - Exploring the utility of deep learning methodologies in the automated surveying of cliff nesting birds.
- Marta Cecchetto (Heriot Watt University) - Deep-Sea Buffet – Scavenger and Predator Diversity in the NORI-D license area in the Clarion-Clipperton Zone.
- John Halpin (SAMS) - Streamlined and efficient artificial-intelligence assisted underwater video analysis (SEA-AI).
- Eunice Pinn (JNCC) - Cetacean bycatch risk: Identifying areas of potential interaction between harbour porpoise and gillnet fishing.
- Alysia Smith (Heriot-Watt University) - Macrofaunal Community Structure of the Abyssal Seafloor Within the NORI-D Licence Area, Eastern Clarion-Clipperton Zone (Northeast Pacific Ocean).
- Joe Marlow (SAMS) - North Sea 3D – Measuring biofouling biomass from industry ROV footage
- Anna McGregor (University of Glasgow) - FindAScienceBerth: Connecting underrepresented groups in marine science with available berths on scientific research vessels.
- Hayley McLennan (University of St Andrews) - Evaluating impacts of possible prey loss due to reduced sea ice on bowhead whales in the Canadian Arctic.
- Martin Wilkinson (Heriot Watt, Emeritus) - A Comparison of Historic and Current Seaweed Presence Data at St Andrews, Fife, Scotland.

- 11.45-13.15 **Special Session on “Deep Sea”** in Level 1 Auditorium; and a **Special Session on “Artificial Intelligence”** in the Main Auditorium (Auditoria B/C)
- 11.45-13.15 **Special Session on “Deep Sea”** in Level 1 Auditorium A. Chair: Dr Johanne Vad. Talks are 12 minutes each. Talks will be followed by a live group Q&A session within which all the speakers will be panel members.
- Mauvis Gore (Heriot-Watt University) - Characterisation and Mapping of Cayman Islands Deep Reef Invertebrate and Fish Communities
 - Danielle de Jonge (SAMS) - How Shifts in Pelagic Food Falls May Directly Impact Abyssal Scavenging Dynamics
 - Mark Hartl (Heriot-Watt University) - Deep-sea ecotoxicology. Baseline biomarker data for deep-sea fish
 - Andrew Sweetman (SAMS) - Unprecedented oxygen production at the manganese nodule-covered aphotic abyssal seafloor
 - Georgy Lyapunov (University of Aberdeen) - Extending stand-off distance for Underwater LIBS
 - Kelsey Archer Barnhil (University of Edinburgh) - Ship-to-shore training for active deep-sea capacity development
- 11.45-13.15 **Special Session on “Artificial Intelligence”** in the Main Auditorium (Auditoria B/C). Chair: Dr Ciprian Zavoianu (RGU). Talks are 12 minutes each and there will be a joint Q&A session at the end which will include the opportunity to discuss how AI in MASTS should be developed into the future.
- Joan Alza (Net Zero Operations, National Subsea Centre) - Estimating Interactions between Fishing and Energy Sectors in the North Sea.
 - Poppy Clark (University of Aberdeen) – Image analysis made easy: new machine learning tool for automatic species surface area measurement.
 - Amber Cowans (University of St Andrews) - Remote sensing and machine learning helps quantify spatial variation in bird communities in response to human recreation.
 - Emma Curtis (University of Southampton) - Cold-water coral cover in the Darwin Mounds Special Area of Conservation, the impact of image annotator bias in machine learning.
 - Mark James (University of St Andrews) - Optimising drone image acquisition for AI species identification and counting of cliff nesting seabirds.
 - Tristan Kleyn (University of St. Andrews) - Identifying delphinid species by their whistles and clicks: A new acoustic classifier for the British Isles.

13.00-14.00 **Lunch** and networking. 

13.20-13.50 **“Meet the Deep Sea Forum”** lunch session in Foyer area outside the Level 1 Auditorium.

Do you work on, or are you interested in working in the Deep Sea? Then join us at lunchtime for an informal networking event with others working in the sector. The [MASTS Deep Sea Forum](#) aims to develop a connected and successfully interacting community capable of delivering scientifically excellent and internationally leading research. To do this, we aim to bring together and support those working in the deep sea, including academic, statutory and industry partners. This networking event presents an opportunity to meet colleagues working in the deep sea, to chat about current work, and to share any ideas you may have for how the MASTS Forum can continue to support the Deep-Sea community. All backgrounds and career stages are welcome.

13.20-13.50 **“Meet the Renewable Energy Forum”** lunch session in Level 3 Foyer area. TBC

Do you work on, or are you interested in working in, marine renewable energy? Then join us at lunchtime for an informal networking event with others working in the sector. The [MASTS Renewable Energy Forum](#) aims to develop a connected and successfully interacting community capable of delivering scientifically excellent and internationally leading research to inform the sustainable growth of energy developments in the marine sector. To do this, we aim to bring together and support those working in marine renewable energy across the sector, including academic, statutory and industry partners. This networking event presents an opportunity to meet colleagues working in renewable energy, to chat about current work in renewables, and to share any ideas you may have for how the MASTS Renewable Energy Forum can continue to support this growing community going forward. All backgrounds and career stages are welcome. We look forward to meeting you there!

14.00-16.00 **Special Session on “Experimental Modelling”** in Level 1 Auditorium and a **MASTS General Science Session 2** in the Main Auditorium (Auditoria B/C)

14.00-16.00 **Special Session on “Experimental Modelling”** in Level 1 Auditorium. Chairs: Dr Dominic Van der A and Dr Alan Cuthbertson.

- 14:00 – 14:05 Brief welcome and introduction by session convenors - **Dominic van der A & Alan Cuthbertson**
- 14:05 – 14:20 Recent experimental hydrodynamics & environmental fluid mechanics at Dundee (and beyond) – **Alan Cuthbertson (University of Dundee)**
- 14:20 – 14:35 Modelling rock dumping operations in a Norwegian Fjord – **Otto Neshamar (University of Aberdeen/Dundee)**
- 14:35 – 14:50 Recent hydrodynamic tank testing activities at Kelvin Hydrodynamics laboratory – **Saishuai (David) Dai (Strathclyde University)**

- 14:50 – 15:05 Coastal and (some) fluvial environmental hydrodynamics at Aberdeen – **Dominic van der A (University of Aberdeen)**
- 15:05 – 15:20 Wave overtopping of coastal defences (Title TBC) – **Tom Bruce (University of Edinburgh)**
- 15:20 – 15:35 Characterisation of drag on fish-shaped bodies – **Miriam Castagna (University of Aberdeen)**
- 15:35 – 15:50 Recent experiments on the effects of biofilms on microplastic transport (Title TBC) – **Julie Hope (University of St Andrews)**
- 15:50 – 16:00 General discussion on opportunities for experimental hydrodynamic modelling

14.00-16.00 **MASTS General Science Session 2** in the Main Auditorium (Auditoria B/C). Chair: TBC. Talks are 10 minutes each. 4 talks will be followed by a live group Q&A session within which all the speakers will be panel members. Then the final four talks will be given, and another Q&A panel session convened.

Part 1

- Katherine Whyte (BIOSS) - Understanding predator-prey interactions from seabird movements.
- Susanna Quer (SEDD Portfolio, Scottish Government) - 10 years of Passive Acoustic Monitoring in Scotland.
- Nicholas Petzinna (ERI, UHI) - Insights into underwater animal movement from low-resolution multibeam data collected at a wave energy test-site.
- Esther Jones (BIOSS) - Predator-prey dynamics in a changing marine environment

Part 2

- Helen Hiley (SAMS) - Long term monitoring across a large spatial scale reveals spatiotemporal variation in detections of a marine top predator: the harbour porpoise (*Phocoena phocoena*).
- Tim Awbery (SAMS) - Dynamic Habitat Suitability Models of Minke Whales on the West Coast of Scotland.
- Rebecca von Hellfield (University of Aberdeen) - Stranded sentinels: Diverse contaminant distribution in marine mammal tissues.
- Shaun Fraser (UHI Shetland) - Flapper skate (*Dipturus intermedius*) in Shetland: a first look at distribution, behaviour, and critical habitats.

15.30-15.50 **Coffee break for Auditorium A only**

16.00-16.45 **Coffee break, networking and Poster session 2** ☕

<u>Time</u>	<u>Screen 1</u>	<u>Screen 2</u>	<u>Screen 3</u>	<u>Screen 4</u>	<u>Screen 5</u>
16.05-16.20	Valeria Ferrari	Anna McGregor	Yuchen Wang	Emily Martin	Jessica Montabaranom
16.25-16.40	Rosie Ashworth	Jennifer Scott	Emma O'Halloran	Julia Steel	Rory O'Hara Murray

<u>Time</u>	<u>Paper Poster</u>	<u>Paper Poster</u>	<u>Paper Poster</u>	<u>Paper Poster</u>
16.15-16.30	Grant Ellis	Mia McAllister	Katherine Cully	

- Valeria Ferrari (Heriot-Watt University) - Cetacean presence and distribution in the waters off British Columbia: exploring the use of opportunistic aerial surveys.
- Anna McGregor (University of Glasgow) - Capturing the past exploitation of native oysters through interdisciplinary methods to inform future restoration work.
- Yuchen Wang (University of Glasgow) - Examining an overlooked type of beach: Characterisation of an urban anthropogenic beach in Granton, Edinburgh.
- Emily Martin (JNCC) - Impact of climate change on marine mammals around the UK (MCCIP Review 2023)
- Jessica Montabaranom (University of St Andrews) - Seals on sonar: tracking fine scale movements of seals around a tidal turbine in the Pentland Firth using active acoustics.
- Rosie Ashworth (University of Edinburgh) - Insights into the coastal habitat of the critically endangered flapper skate *Dipturus intermedius* in the Orkney Islands revealed by a low- cost BRUVS.
- Jennifer Scott (Heriot-Watt University) - Plastic degradation by marine microbes: a systematic review.
- Emma O'Halloran (University West of Scotland) - 'Complex Gill Disease': Isolation and characterisation of Neoparamoeba species with live bacterial cargo from the gills of Atlantic salmon farmed in Scottish aquaculture sites.
- Julia Steel (Heriot Watt University) - Turning the Tide: Investigating Barriers to Women's Inclusion in Scottish Aquaculture.
- Rory O Hara Murray (NEHM Forum Convenor) - Modelling of Scottish Coastal Waters: an online community resource
- Grant Ellis (University of St Andrews) - Towards improved conservation of the east coast of Scotland bottlenose dolphin population: quantifying and understanding a major range expansion into northeast England.
- Mia McAllister (UHI Shetland) - Population ecology and juvenile density hotspots of thornback ray (*Raja clavata*) around the Shetland Islands.
- Katherine Cully (University of Edinburgh) - Loving Puffins to Death? The Effects of Scottish Seabird Tourism and Its Potential as a Conservation Tool.

16.45-18.15 **MASTS General Science Session 3** in the Main Auditorium (Auditoria B/C); and a **MASTS General Science Session 4** in Level 1 Auditorium

16.45-18.15 **MASTS General Science Session 3** in the Main Auditorium (Auditoria B/C). Chair: TBC. Talks are 10 minutes each. Three talks will be followed by a live group Q&A session within which all the speakers will be panel members. Then the final four talks will be given, and another Q&A panel session convened.

Part 1

- Aislinn Borland (University of Strathclyde) - Modelling Atlantic salmon post-smolt migration: interannual variation in relation to environmental conditions.
- Emma Tyldesley (University of Strathclyde) - Declining zooplankton prey energy for forage fish larvae in the Northeast Atlantic: an indicator for Atlantic salmon marine survival
- Martin Jaffa (Callander McDowell) - A reassessment of the impacts of sea lice on wild salmonid fish

Part 2

- Naomi Kennon (Heriot-Watt University) - Oyster reef biodiversity enhancement: an ecosystem engineering perspective
- Blair Easton (Heriot-Watt University) - Environmental Assessment of Scallop Innovation Gear (EASIG).
- Chloe Blackman (SAMS) - Organism impacts of electrofishing for razor clams in Scottish shallow coastal habitats.
- Emmy Cooper-Young (Heriot-Watt University) - Site selection for native oyster (*Ostrea edulis*) reintroduction in an extinct oyster bed using multicriteria analysis and reference oyster bed.

16.45-18.20 **MASTS General Science Session 4** in Level 1 Auditorium. Chair: TBC. Talks are 10 minutes each. Four talks will be followed by a live group Q&A session within which all the speakers will be panel members. Then the final four talks will be given, and another Q&A panel session convened.

Part 1

- Michael Heath (University of Strathclyde) - Low-carbon sampling of high-carbon plankton across the Atlantic Ocean.
- Shravan Raghu (University of Edinburgh) - Exploring the variation in thermal acclimation time across coastal diatom species.
- Greg Macmillan (University of Strathclyde) - Plankton community size structure varies across UK coastal regions.
- Alex Poulton (Heriot-Watt University) - Recognizing Biology in the Ocean's Carbonate Pump: Diverse Roles for Pelagic Calcifiers in Production & Export.

Part 2

- Charlotte Miskin-Hymas (MEDIN) - Sharing UK marine data and free data management services.
- Gurjameer Ramday (Heriot-Watt University) - From Sea to (Data)Table: Trials & Tribulations of Monitoring Data Collection
- Rachael Hall (Heriot-Watt University) - Impacts of mangrove selective logging on trophodynamics in estuarine fish communities along the coast of Ghana.
- Karen Diele (Edinburgh Napier University) - Mangrove restoration practices set different trajectories for the (re)establishment of benthic diversity and ecosystem functionality.

18.20-19.30 **Wine reception and Poster session 3** 🍷

<u>Time</u>	<u>Screen 1</u>	<u>Screen 2</u>	<u>Screen 3</u>	<u>Screen 4</u>	<u>Screen 5</u>
18.20-18.35	Victoria Ashley-Wheeler	Adam Francis	Alex Robertson-Jones	Isabel Key	
18.40-18.55	Lauren Hartny-Mills	Josie Greenston	Sohini Dudhat	Magnus Janson	

<u>Time</u>	<u>Paper Poster</u>	<u>Paper Poster</u>	<u>Paper Poster</u>	<u>Paper Poster</u>
18.30-18.45	Boontharee Chomhom	Kirsty MacArthur	Kyla Cook	Cait McCarry

- Victoria Ashley-Wheeler (SAMS) - Effect of time and temperature on bacterial eDNA in sediment samples
- Adam Francis (University of Edinburgh) - The influence of nitrogen fixation on Mediterranean intermediate and deep water nitrogen dynamics – insights from stable isotopes
- Alexander Roberston-Jones (Heriot Watt University) - Oyster feeding and stress in response to wastewater.
- Isabel Key (University of Edinburgh) - Passive acoustic monitoring to assess faunal biodiversity in seagrass meadows.
- Lauren Hartny-Mills (Hebridean Whale and Dolphin Trust) - 30 years of minke whale photo-identification research off the West Coast of Scotland
- Josie Greenston (University of Edinburgh) - Investigating Whale Watching Vessel Behaviour using GPS data to Inform Marine Spatial Planning.
- Sohini Dudhat (University of St Andrews) - What are strandings on Masirah telling us?
- Magnus Janson (Edinburgh Napier University) - Assessing species richness and status of European flat oyster beds through analysis of soundscapes, eDNA and visual surveys: Preliminary results.
- Boontharee Chomhom (University of St. Andrews) - How biomolecules (amino acids) influence the structure and dissolution of aragonite.
- Kirsty MacArthur (Edinburgh Napier University) - SUDS ponds environmental conditions impact amphibian presence.

- Kyla Cook (The University of Edinburgh) - Critical analysis of Fiji's tourism coral restoration efforts in alignment with environmental policy objectives.
- Cait McCarry (University of Strathclyde) - A per-pixel approach to atmospheric correction of ocean colour data

Day 2: Wednesday 6th December 2023

08.30-09.00 Registration and tea/coffee ☕

09.00-11.00 **Special Session on "Blue Carbon"** in the Main Auditorium (Auditoria B/C); and **Special Session on Multiple Aquatic Stressors** in Auditorium A

09.00-11.00 **Special Session on "Blue Carbon"** in the Main Auditorium (Auditoria B/C). Chairs: William Austin (USTAN), Hilary Kennedy (UK Blue Carbon forum) and Graham Underwood (UK Blue Carbon Evidence Partnership). Each talk will be 15 minutes followed by 5 minutes for questions.

- 09:10 – 09:30 Alex Houston (University of St Andrews) - Blue Carbon Additionality: New Insights from the Radiocarbon Content of Saltmarsh Soils and their Respired CO₂.
- 09:30 – 09:50 Celeste Kellock (University of Stirling) - The Role of Iron in Long Term Carbon Storage in a Mid-latitude Fjord.
- 09:50 – 10:10 Alice Malcolm-McKay (University of Essex) - Intertidal seagrass as a nature-based solution: a case study of *Zostera noltei* in the south-east UK.
- 09:30 – 09:50 Claire Powell (CEFAS) - Blue carbon in shelf sediments: a case study in the North Sea.
- 09:30 – 09:50 Craig Smeaton (University of St Andrews) - Carbon Connections: understanding the carbon interactions between adjacent marine sedimentary environments.

09.00-11.00 **Special Session on "Multiple Aquatic Stressors"** in Auditorium A. Chairs: Dr Mark Hartl and Prof Karen Diele. Talks are 15 minutes each (12 min talk and 3 mins for questions). There will also be an open discussion at the end of the session.

- Kristina Beck (University of Edinburgh) - Physiological response and skeletal dissolution of the cold-water coral *Desmophyllum pertusum* to multiple environmental stressors
- James Rimmer (University of St Andrews) - Investigating cumulative stressor impacts: challenges and approaches in the context of estuarine biofilms.

- Ibrahim Lawan (Heriot-Watt University) - Combined Effects of Polycyclic Aromatic Hydrocarbons and Microplastics on a Model Marine Amphipod, *Parhyale hawaiiensis*.
- Rachel Lennon (University of Glasgow) - Developing a Health Indices for Cetaceans as a Tool for Measuring the Impacts of Multiple Stressors.
- Jake Smallbone (University of Essex) - Let there be Light: Marine Oil Snow formation and its associated Bacterial Communities.
- Emily Moore (Apem Ltd) - Stressor Identity versus Stressor Burden as Drivers of Observed Effects on Life History Traits in *Lymnaea stagnalis* (Gastropoda).
- Sinéad Collins (University of Edinburgh) - What makes polar diatoms polar?

11.00-11.45 Coffee break, networking and Poster session 4

<u>Time</u>	<u>Screen 1</u>	<u>Screen 2</u>	<u>Screen 3</u>	<u>Screen 4</u>	<u>Screen 5</u>
11.05-11.20	Xuesong Hu	Erin Sherratt	Jessica Arnull	Rodney Forster	Hugo Woodward-Rowe
11.25-11.40	Ellie Burrell	Ruth Parker	Jessica Green	Hannah Muir	Charlotte Trotman

<u>Time</u>	<u>Paper Poster</u>	<u>Paper Poster</u>	<u>Paper Poster</u>	<u>Paper Poster</u>	<u>Paper Poster</u>
11.10-11.25	Dominique Anderson	Celeste Kellock	Beth Langley	Angus Taylor	Connor Wood

- Xuesong Hu (University of St Andrews) - Methodology for *in situ* exploration of the response of marine diatoms to multiple stressors.
- Erin Sherratt (JNCC) - Working with multiple aquatic stressors: JNCC's advice role.
- Jessica Arnull (University of Edinburgh) - Seagrass in the Maldives, respond favourably to nitrogen enrichment.
- Rodney Forster (University of Hull) - Seasonal dynamics in carbon fixation and growth of the dwarf seagrass *Zostera noltii* in the Humber estuary.
- Charlotte Trotman (University of Hull) - Maximising Estuarine Blue Carbon through Managed Realignment as Long-Term Carbon Sinks in the Humber Estuary.
- Hugo Woodward-Rowe (University of Essex) - Sedimentary blue carbon around decommissioned oil and gas platforms in the North Sea.
- Ellie Burrell (University of Hull) - Temporal and spatial variation of organic carbon in a managed realigned saltmarsh – Paull Holme Strays (Humber Estuary).
- Ruth Parker (CEFAS) - Blue carbon assessments of subtidal sediments - Methodology standardisation activity.
- Jessica Green (SAMS) - Pop Goes the Plankton: Investigating the soundscape of copepods using active and passive acoustics.
- Hannah Muir (Swansea University) - Investigating Organic Carbon in Trawled Shelf Sea Sediments off the Isle of Man

- Dominique Anderson (Heriot-Watt University) - Dinner is served: Investigating the potential ecotoxicological risks of deep-sea mining through the effects of dissolved metals (Cd, Cu, Ni, and Zn) and their mixtures on food location in surrogate amphipod *Parhyale Hawaiiensis*.
- Celeste Kellock (University of Stirling) - Source to Sea - enabling coherent, efficient and synergistic outcomes.
- Beth Langley (University of Glasgow) - Arctic and sub-Arctic marine sediment carbon storage; a meta-analysis.
- Angus Taylor (SAMS) - Multi-stressor impacts of ocean acidification and warming on regeneration and biomineralisation in a coastal sea urchin.
- Connor Wood (University of the West of Scotland) - Comparative Analysis of Heavy Metal Accumulation in Native and Invasive Gammaridae Species.

11.45-12.15 **Invited speaker: Professor Graham Underwood** (Chair of the UK Blue Carbon Evidence Partnership and Professor of Marine & Freshwater Biology at the University of Essex) in the Main Auditorium (Auditoria B/C). **“Blue carbon habitats and their role in restoring resilient and productive coastal ecosystems for the 21st century”**

The role played by “Blue Carbon habitats” in the ecology of U.K. coastal seas is currently of high scientific and policy interest. Habitat losses, over-exploitation, and poor water quality limits the ability of these habitats to provide valuable ecosystem services. “Blue carbon” concepts are also being increasingly applied to other, non-vegetated, intertidal, subtidal and sublittoral habitats. We know that inter-connected mosaics of habitats (a “seascape”) can promote resistance and resilience to environmental pressures. A healthy seascape should provide better carbon storage, sea defence, fisheries and water quality for human society to enjoy. Actions to protect, restore, and recreate blue carbon habitats will help shape our future coastlines. The UK Blue Carbon Evidence Partnership (UKBCEP) was established after COP26 to bring together representatives of the U. K. Government and the three devolved administrations to support the implementation of better policy and actions to protect UK blue carbon habitats and enhance future ecosystem functioning under the pressures of climate change. In this talk, the key scientific challenges relating to the UKBCEP Evidence Needs Statement, published in June 2023, will be discussed, and some of the ongoing work supported by the UKBCEP and the UK Blue Carbon forum and Scottish Blue Carbon Forum to address these needs outlined.

12.15-12.35 **Invited speaker: Dr Cristina Vina-Herbon** (FLS Joint Head of Marine Ecosystems JNCC and one of the main authors of the OSPAR benthic thematic assessments and indicator lead) in the Main Auditorium (Auditoria B/C). **“OSPAR’s Quality Status Report: Delivering Your Science to Policy Makers”**

This presentation will highlight the results of the OSPAR Commission’s 2023 Quality Status Report, which is the most authoritative assessment of the health of the marine environment of the North-East Atlantic and showcase the role of experts and scientists and how their work is used to support policy. The Quality Status Report (QSR) 2023 is a once-in-a-decade assessment that reflects the collective work of the 16 Contracting Parties to the OSPAR Convention, scientists, experts, and their institutions, and the OSPAR Secretariat. It assesses the status of various components of the North-East Atlantic and examines how conditions have changed since the last QSR in 2010. The OSPAR Contracting Parties have progressively invested in more sophisticated monitoring and analysis of changes to the North-East Atlantic, both to support science-based decision making and to move towards a better

understanding of the effectiveness of management and policy responses. The resulting QSR 2023 is a holistic assessment of the marine environment of the North-East Atlantic produced in collaboration with over 400 scientists and policy experts from across the region, providing a foundation for effective science-based policy.

12.35-13.15 **MASTS General Science Session 5** in the Main Auditorium (Auditoria B/C). Chair: Prof David Paterson. Talks are 10 minutes each. Talks will be followed by a live group Q&A session within which all the speakers will be panel members.

- Alison Brown (UK Centre for Ecology & Hydrology) - The impact of salinity and hypoxia on estuarine Greenhouse gases: A study of the stratified Clyde estuary
- Adam Wyness (SAMS) - Environmental DNA (eDNA)-based environmental monitoring around marine aquaculture sites.
- Stacey Connan-McGinty (University of Strathclyde) – Midnight Sun to Polar Night: Modelling seasonal light in the Barents Sea.

13.15-14.00 **Lunch** and networking opportunities 🍽️

13.30-13.50 Gathering of the “Marine Biogeochemistry” community with Alex Poulton and Robyn Tuerena in Auditorium A.

Do you work on, or are you interested in working in, marine biogeochemistry? We are looking to gauge the size of the wider interest and the possible aspects of marine biogeochemistry of interest. At this time, we will have a brief discussion about the appetite for revitalising the MASTS Marine Biogeochemistry Forum, and whether there is enough interest in the community to start a more formal network, have a separate marine biogeochemistry workshop in early 2024 and ultimately aim to bring the UK Challenger AMBIO meeting to Edinburgh in 2025 via a joint meeting between the MASTS Forum and the AMBIO special interest group. Please join us if you would like to be involved. All welcome.

14.00-16.00 **MASTS General Science Session 6** in Auditorium A; and a **Special Session on “Climate Change”** in the Main Auditorium (Auditoria B/C)

14.00-16.00 **MASTS General Science Session 6** in Auditorium A. Chair: Dr Mark James. Talks are a maximum of 10 minutes each. 5 talks will be followed by a live group Q&A session within which all the speakers will be panel members. There will be two panel sessions.

Part 1

- Michael Heath (University of Strathclyde) - Modelling the ecosystem and economic consequences of fisheries displacement in the North Sea
- Laura Thomson (University of Strathclyde) - Developing operational spatial models for Scottish Fisheries
- Emma Dolmaire (University of Strathclyde) - Studying the effects of fishing and climate on blue whiting with a new mechanistic population model.
- Silvia Malagoli (University of Strathclyde) - Survey-Landings Model (SLAM): a new length-based Bayesian method for stock-assessment.
- Matthew Hatton (University of Strathclyde) - Assessing the Coupled Effects of Fishing Pressure and Climate Change on West Greenland's Ecosystem using an End-To-End Ecosystem Model.

Part 2

- Edward Sibley (University of Aberdeen) - The Capacity of Imaging Sonar for Quantifying the Abundance, Diversity, and Size of Reef Fishes
- Kirsty Wright (Marine Directorate, Scottish Government) - SeaShare: Static Fishing Gear Trials in the Hywind Scotland floating offshore wind farm.
- Douglas Speirs (University of Strathclyde) - Is harvesting of mesopelagic fish stocks sustainable?
- Maria Martins (University of St Andrews) - Inferring Fishing Activity from Vessel Monitoring System (VMS) data: a comparison of conventional speed threshold methods with a hidden Markov model (HMM) approach.

14.00-16.00 **Special Session on “Marine Climate Change”** in the Main Auditorium (Auditoria B/C). Chair: Dr Bee Berx. Talks are 12 minutes each, plus 3 for questions.

- Elina Apine (University of St Andrews) - Social acceptability of nature-based solutions for coastal erosion and flood risk management in Scotland
- Robyn Tuerena (SAMS-UHI) - The Gulf Stream control on the North Atlantic carbon sink: an introduction to the C-Streams project.
- Nora von Xylander (University of St Andrews) - A claim for FAME – Fatty acid methyl ester lipid compositions as markers for coral bleaching susceptibility
- Zoë Hutchison (Offshore Wind Directorate, Scottish Government) - An update from the Scottish Marine Energy Research Programme (ScotMER)
- Raeanne Miller (SSE Networks Transmission) - Developing Scotland's offshore electricity transmission network: what we need to know to meet the UK's 2030 net zero targets.

- Henk van Rein (HMC) - Leaps in science-policy integration: ECOWind a year on.
- Simon Waldman (Heriot-Watt University) - Wind turbine locations in the North Sea in 2050 : A new dataset.
- Enora Lecordier (University of Hull) - Sediment Wakes Intensity Within Offshore Wind Farms Using Sentinel-2 and Landsat 8/9.

16.00-16.45 **Coffee break, networking and Poster session 5** ☕

Time	Screen 1	Screen 2	Screen 3	Screen 4	Screen 5
16.05-16.20	Simon Gao	Rebecca Giesler	Ellen Last (1)	Victoria Hope	Zhiyuan Liu
16.25-16.40	Mark James	Joshua Lawrence	Ellen Last (2)	Bhavani Narayanaswamy	

- Simin Gao (University of Edinburgh) - Empirical determination of the interaction landscape for temperature, CO₂ and nitrate for a model diatom.
- Rebecca Giesler (UHI Shetland) - A novel detection of a Southern Ocean ascidian in Shetland – implications for surveillance and eradication.
- Ellen Last (1) (JNCC) - Understanding seabed imagery evidence on marine litter to support its use in monitoring and assessment in UK waters.
- Victoria Hope (JNCC) - UK benthic habitat sensitivity to contaminants.
- Zhiyuan Liu (Hainan University) - Interaction between seaweeds and Microplastics: Farmed seaweeds as potential vectors for the bio-elimination microplastic
- Mark James (University of St Andrews) - Establishing the Small Scale Fisheries DataHub.
- Joshua Lawrence (Heriot-Watt University) - Increased fish densities found within offshore windfarms.
- Ellen Last (2) (JNCC) - Understanding the scale and distribution of the impacts associated with Abandoned, Lost or Discarded Fishing Gear (ALDFG).
- Bhavani Narayanaswamy (SAMS) - Assessing Microplastic Contamination Levels in Ghana's Mangrove Wetlands.

16.45-17.40 **MASTS General Science Session 7** the Main Auditorium (Auditoria B/C). Chair: Prof David Paterson. Talks are 10 minutes each. Talks will be followed by a live group Q&A session within which all the speakers will be panel members.

- Kay Barclay or Kirsten Somerville (Marine Directorate, Scottish Government) - Ocean Literacy in Scotland: Key Findings from Scotland.
- Kay Barclay (Marine Directorate, Scottish Government) - Inequalities in Access to Coastal Blue Space: Findings and policy implications from a Scottish Government study

- Murray Roberts (University of Edinburgh) - Mutiny on the Bounty, 234 years on Preliminary results from the 2023 expedition to the Pitcairn Marine Protected Area.
- Nick Hanley (University of Glasgow) - Significant benefits from international cooperation over reductions in marine plastics pollution

17.40-17.55 **Conference Closing Remarks & Prize Giving** (Prof David Paterson) 🏆

1900 **Evening Ceilidh** – we hope you can join us for a hot buffet, a few drinks, and some ceilidh dancing. This is a ticketed event and tickets can be bought as part of the registration. The venue is [Sloans](#), 108 Argyle St, Glasgow G2 8BG.

Posters

All e-posters will be available to view from any screen at any time during the ASM. Simply navigate to the menu and choose which e-poster you would like to view. Most e-poster authors will be present at their posters during a designated coffee break (names and linked abstracts above).

We also have several paper posters available to view. Paper poster authors will be present at their posters during a designated coffee break (names and linked abstracts above).

Exhibitors

MASTS is delighted to host the following exhibitors:

- The **Scottish Wildlife Trust's Living Seas project** works at both local and national levels to promote the sustainable management of our seas. From marine planning to community engagement, the project strives to connect diverse audiences with the marine environment in engaging and impactful ways that effect positive change for Scotland's seas. Find out more [here](#) and on Twitter [@ScotWildlife](#)
- **UHI Energy Innovation** is focused on delivering local, regional, and national benefit to partners across Scotland and internationally. Our researchers and facilities are on the doorstep of Scotland's most impressive energy resources and recent industry developments, complementing our expertise with a commitment to support the energy sector as it delivers for Scotland and the Highlands and Islands region. Website: [Energy Innovation Team - UHI](#) and Twitter: [@UHI_Research](#)
- **Marine Environmental and Data Information Network** (MEDIN) is the hub for UK marine data. MEDIN promotes good data management practices by providing the MEDIN discovery metadata standard, marine data guidelines, tools, and an online portal. MEDIN's aim is to make UK marine data Findable, Accessible, Interoperable and Re-usable (FAIR). www.medin.org.uk and Twitter: [@MEDIN_marine](#)

- **UKSTEM** is a leader in the development, delivery, and evaluation of bespoke industry-education packages. Established in 2015, we are a small, independent company creating opportunities to engage and equip young people with the skills and knowledge to meet the Science, Technology, Engineering and Maths (STEM) challenges of today. We operate at the level of the local community and nationally, and internationally through our charitable arm STEM Without Borders. The UKSTEM Team is motivated by personal experience in the engineering, education, and environmental research sectors. www.ukstem.uk
- **JNCC** are the only statutory nature advisor to the four governments of the UK. We work across land and sea for nature, for people and the planet. Our work is guided by our Strategy – Together for Nature – launched in May 2023, and the priorities of the UK Government and devolved administrations. <https://jncc.gov.uk/> and Twitter: @JNCC_UK
- **Shetland Oil Terminal Environmental Advisory Group (SOTEAG)**: For more than four decades SOTEAG has continued to look after the interests of the environment around Shetland’s Sullom Voe Terminal and Port. It is recognised globally as a pioneering, world-class model of integrated coastal management based on its independent scientific monitoring and expert advice. www.soteag.org.uk and twitter @SOTEAG1
- **The D’Arcy Thompson Simulator Centre and SustainaVerse™**, is a fully integrated, virtual / physical space where minds meet, models can be interfaced, data imported and prototypes tested, for the rapid implementation of innovation and change in balance with NATURE. www.darcythompson.net
- **Estuarine & Coastal Sciences Association (ECSA)** is an international society dedicated to the promotion and advancement of multidisciplinary research into all aspects of estuaries and coasts, and the application of science and technology for their sustainable environmental management. Application of the best science to management problems is one of our aims. <https://ecsa.international> and @ECSAssociation
- **COAST: Community of Arran Seabed Trust** - The Community of Arran Seabed Trust (COAST) is a community-led organisation that has made a huge difference to the conservation and restoration of the seas around Arran and the Clyde for the past 25 years. We stand for a diverse, abundant, and beautiful marine environment for everyone. arrancoast.com / <https://twitter.com/ArranCoast>

Please contact masts@st-andrews.ac.uk if you are interested in exhibiting.

Day 3: Thursday 7th December 2023

This third day of the MASTS ASM is for associated meetings, seminars, training sessions and workshops.

☕ **Friday breaks are: 10.15-11.30 for morning coffee, lunch is at 12.00-13.30 and afternoon coffee break is 15.00-15.45.**

One-day workshops (7th Dec):

- Conference Room 2 (1000-1600) – **Designing multiple driver experiments**. Organised by Prof. Sinéad Collins. NOW FULL – wait list only.

Morning workshops (7th Dec):

- Conference Room 1 (09.30-12.30) – **Marine Planning Role Play Simulation & Board Game.** Organised by Dr Tim Stojanovic and Dr Lois Calder. NOW FULL – wait list only.
- Conference Room Exec A/B on level 9 (10.30-13.00) – **Marine habitats as coastal protection in Scotland: stakeholder engagement workshop.** Organised by Dr Alastair Lyndon.
- Conference Room 4/5 (09.30-11.30) – **Promoting inclusivity in marine science through redefining ways of gaining experience to enter the discipline.** Organised by Dr Anna McGregor

Afternoon workshops (7th Dec):

- Conference room 6/7 (13.00-17.00) – **Image analysis made easy: introduction to a new machine learning software for automatically measuring surface area and species count.** Organised by Dr Laurence de Clippele.
- Conference room 4/5 (13.30-15.30) – **How can research help progress implementation of marine natural capital approaches and the mainstreaming of Scotland's Blue Economy Vision?** Organised by Sinead Sheridan & Dr Rachel Shucksmith.
- Conference Room Exec A/B on level 9 (13.30-16.30) **Impacts of climate change on marine coastal systems in Scotland to inform climate adaptation.** Organised by Dr Bee Berx