

# MASTS Annual Science Meeting 2022

## ***“Supporting Delivery of the Blue Economy Vision”***

Tuesday 8<sup>th</sup> – Thursday 10<sup>th</sup> November 2022

Technology & Innovation Centre, University of Strathclyde, Glasgow

Abstracts for each session are hyperlinked in the session name. [All abstracts that were presented have been combined here.](#)

## **Day 1: Tuesday 8<sup>th</sup> November 2022**

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09.00-09.30 Coffee and Registration ☕

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

09.40-10.40 [MASTS General Science Session 1](#) in the Main Auditorium (Auditoria B/C).  
Chair: Dr Mark James. Talks are 12 minutes each and 3 minutes for questions.

- *Paul Buckley (MCCIP)* UK Marine Climate Change: Taking our community forward
- *Karen Diele (Edinburgh Napier University)* The Importance of Collaborating with Multiple Stakeholders for Translating Science into Policy: A Success Story from Brazil
- *Charlotte Miskin-Hymas (MEDIN)* How MEDIN supports the marine community to address Scotland’s Blue Economy Vision
- *Bee Berx (Marine Scotland Science)* Analysis of greenhouse gas emissions from Scotland’s fisheries by fleet and region

10.40-11.00 Invited speaker: Lewis Coenen-Rowe (Acting culture/SHIFT Manager, Creative Carbon Scotland) **Expanding Your Impact: The Benefit of Art-Science Collaborations**

*Collaborations between marine scientists and the arts can bring wide-ranging benefits for both parties but sometimes it can be difficult to know how to get started. In this session you can hear about the positive impact that recent arts/sciences collaborative projects have had, get advice on how to make cross-sector collaborations work, and hear about the support that is available. This session will be delivered by Creative Carbon Scotland, a charity working on the roles of arts and culture in addressing climate change.*

11.00-11.45 **Coffee break, networking and [E-poster session 1](#)** 

<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	Tully Osmond	Susanna Quer	Zelin Chen	Victoria Gillman	Ana Corrochano-Fraile
11.25-11.40	Ruth Paterson	Danielle Sloan	Mark Hartl	Rachel Shucksmith	Naomi Kennon

- Tully Osmond (Edinburgh Napier University): Effects of Parasites on Food Web Structure and Dynamics: New Ways to Improve Accuracy and Ecological Realism
- Susanna Quer (Marine Scotland Science) Dolphin detections in the waters off Western Scotland and the coast of Northern Island
- Zelin Chen (University of Essex) Generalized impacts of man-made structures on the North Sea benthic communities
- Victoria Gillman (University of Aberdeen) Integrating genomics and modelling to predict climate change response and identify drivers of decline in the endangered freshwater pearl mussel (*Margaritifera margaritifera*)
- Ana Corrochano-Fraile (University of Stirling) Predictive biophysical models of bivalve larvae dispersal in Scotland
- Ruth Paterson (NatureScot) A review of the Scottish marine species and habitats data landscape – improving data availability and accessibility (presenting on behalf of Rona Sinclair)
- Danielle Sloan (University of Aberdeen) Determining the reproductive biology of the flame shell, *Limaria hians*
- Mark Hartl (Heriot Watt University) Deep seabed mining and demersal fish
- Rachel Shucksmith (UHI) Marine spatial planning - moving beyond plan making
- Naomi Kennon (Heriot Watt University) Resilience of European native oyster reefs in habitat restoration

11.45-13.15 **MASTS General Science Session 2** in Auditorium A  
**Special Session on “Artificial Intelligence”** in the Main Auditorium (Auditoria B/C)

11.45-13.15 [MASTS General Science Session 2](#) in Auditorium A. Chair: Dr Elizabeth Mills. Talks are 15 minutes each and 5 minutes for questions.

- *Johanne Vad (University of Edinburgh)* Temporal trends in zooplankton and demersal fish community composition on the Scotian Slope during 1982-2019
- *Matt Wale (Edinburgh Napier University)* Effects of Coasteering on Intertidal Rocky Shore Biodiversity
- *Kate Morris (Heriot-Watt University)* Adapting the Marine Stewardship Council's Risk-Based Framework to assess the impact of towed bottom fishing gear on blue carbon habitats

11.45-13.15 [Special Session on “Artificial Intelligence”](#) in the Main Auditorium (Auditoria B/C).  
 Chair: Dr Ciprian Zavoianu (RGU). Talks are 15 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.

- *Prof. Jinchang Ren and Dr Yijun Yan (National Subsea Centre)* “Multimodal Image Analysis for Condition Monitoring of the Ocean: from Remote Sensing to Onsite Inspection”
- *Bingzhang Chen (University of Strathclyde)* Bipolar contrast in phytoplankton size structure revealed from deep learning
- *Chloe Game (University of East Anglia)* Simple and accessible machine learning for automatic classification of broad-benthic habitats
- *Thomas Wilding (SAMS)* From data to decisions: innovations to support the Blue Economy Vision
- *Dewei Yi (University of Aberdeen)* Smartrawl “Eye”: a vision-based technique for fish detection and species identification

12.45-14.00 **Lunch** and networking. 🍽️

14.00-16.00 **Special Session on “Marine policy and management- linking current and future research to policy and impact”** in the Main Auditorium (Auditoria B/C)  
**MASTS General Science Session 3** in Auditorium A

14.00-16.00 **Special Session on “[Marine policy and management- linking current and future research to policy and impact](#)”** in the Main Auditorium (Auditoria B/C).  
 Chair: Rachel Shucksmith. The speed talks will be followed by a Q&A session between the presenters, decision makers and academics, providing the audience and presenters with the opportunity to discuss strategies and opportunities to make research policy relevant.

5-minute speed presentations from:

- *Magnus Janson (Edinburgh Napier University)* Assessing faunal diversity and status of European flat oyster beds through analysis of soundscapes, eDNA and visual surveys
- *Morgane Declerck (University of Aberdeen)* Cumulative Effects of Offshore Renewables: from pragmatic policies to holistic marine spatial planning tools
- *Michael Thompson (Mott MacDonalds Ltd)* Nuances of Nature Based Development
- *Emily Hague (Heriot-Watt University)* Improving understanding of vessel activity in Scotland’s coastal waterways: implications for wildlife and policy

14.00-16.00 **[MASTS General Science Session 3](#)** in Auditorium A. Chair: Dr Douglas Speirs. Talks are 12 minutes each and 3 minutes for questions.

- *Meadhbh Moriarty (Marine Scotland Science)* Salmon Parasite Interactions in Linnhe, Lorn, and Shuna: Sea lice dispersal model evaluation using an ensemble approach
- *Alejandra Cabanillas (University of Strathclyde)* Modelling brown algae individual growth using dynamic energy budget theory under various climate change scenarios
- *Soizic Garnier (Marine Scotland Science)* Consequence of small-scale sea lice movements on their dispersion: A sensitivity study in Lower Loch Linnhe, Scotland
- *Manel Grifoll (Universitat Politècnica de Catalunya)* Numerical modelling of exchange flows through sea straits and across submerged sills

16.00-16.45 **Coffee break, networking and [E-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	Ellie Takhar	John Halpin	Md Junayed Hasan	Alex Houston	
16.25-16.40	Leander Harlow	Kelly Macleod	Emmy Cooper-Young	Inne Withoutck	Rhys Hague

- Ellie Takhar (University of St Andrews) Quantifying the habitat complexity of the priority marine feature “maerl” using two-dimensional imagery
- John Halpin (SAMS) North Sea 3D – Image analysis for measuring biofouling biomass from industry ROV footage
- Md Junayed Hasan (Robert Gordon University) Digital Condition Monitoring for Wider Blue Economy
- Alex Houston (University of St Andrews) Sources, Sinks and Subsidies of Carbon in Coastal Saltmarsh Habitats
- Leander Harlow (University of St Andrews) Using Machine Learning to identify *Pecten maximus* (King Scallop) and *Aequipecten opercularis* (Queen Scallop) in their natural habitat
- Kelly Macleod (HiDef Surveying) Application of Deep Learning technology to satellite monitoring of whales
- Emmy Cooper-Young (Heriot Watt University) Site Selection and Validation for Native Oyster Restoration in the Firth of Forth
- Inne Withoutck (Flanders Marine Institute) Incorporating differences in socio-economic values between Scottish marine regions for strategic-level suitability mapping
- Rhys Hague (University of St Andrews) The effects of 660nm line laser exposure on the eye of white legged prawn (*Litopenaeus vannamei*)

16.45-18.15 **MASTS General Science Session 4** in the Main Auditorium (Auditoria B/C); and a “**DEI workshop**” in Auditorium A

16.45-18.15 **[MASTS General Science Session 4](#)** in the Main Auditorium (Auditoria B/C). Chair Dr Chevonne Angus. Talks are 12 minutes each and 3 minutes for questions.

- *Paul Fernandes (Heriot-Watt University)* Smartrawl: a system to eliminate discards and bycatch in fisheries

- *Ana Adao (University of Strathclyde)* Current status of whitefish stocks in the Firth of Clyde (West coast of Scotland)
- *Mark James (University of St Andrews)* Outer Hebrides Early Adopters and Creel Limitation Pilot Trials – A case study in inshore fisheries co-management
- *Michelle Frost & Karen Diele (Edinburgh Napier University)* Essential spawning grounds of Scottish herring: current knowledge, challenges and ongoing research
- *Ieuan Jones (University of Aberdeen)* Biomass and the Large Fish Indicator in a changing North Sea Ecosystem
- *Anna Mujal-Collies (University of St Andrews)* Integrated system to improve inference of fishing activity from geospatial data

16.45-18.15 **DEI workshop** in Auditorium A – **Inclusion and Belonging** (*all welcome and no pre-registration required - We wish to invite postgraduates and supervisors interested in enhancing the culture of inclusion and belonging to attend this facilitated discussion*).  
Chair: Dr Lois Calder (Dean of Grad School)

We want all our postgraduate researchers to thrive and to make our community welcoming and supportive for people from diverse backgrounds. We wish to invite postgraduates and supervisors interested in enhancing the culture of inclusion and belonging to attend this facilitated discussion. This will be the first in a series of workshops around this topic for PGRs and supervisory staff, and our aims are to raise awareness and foster collective understanding, to establish a set of guiding principles to support diversity, equality and inclusion in our postgraduate research community, and to design some key interventions to deliver continuous development of an inclusive culture. We want to give a voice to all our community in cultivating and embedding a diverse and inclusive culture and hope that you will join us to share your opinions, ideas and experiences.

18.15-19.30 **Wine reception and [E-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	Rebecca Giesler	Alex Robertson-Jones	Hugo Woodward-Rowe	Livia Dias Fernandes de Oliveira	John Howieson
18.40-18.55	Georgia Waldram	Michela Iodio	Laura Kamp		Corentine Rochas

- Rebecca Giesler (UHI) Citizen-science monitoring of harbour porpoises in Shetland
- Alex Robertson-Jones (Heriot Watt University) Native oysters: The balance between stress and benefit of wastewater when restoring oysters in the Anthropocene.
- Hugo Woodward-Rowe (University of Essex) Man-made structures in the North Sea: potential blue carbon sites

- Livia Dias Fernandes de Oliveira (University of Strathclyde) Bidirectional interaction between phytoplankton diversity and biomass in the San Francisco Bay estuary, USA
- John Howieson (University West of Scotland) The resilience of wild UK amphibians to freshwater salinisation
- Georgia Waldram (Heriot Watt University) Identifying the Chemical Triggers for Marine Snow and Oil Snow Formation
- Michela Iodio (Heriot Watt University) Exploring the community structure of seaweeds attached to oyster reefs and how these two biogenic habitats interact with each other in terms of biodiversity
- Laura Kamp (University of St Andrews): Exploring environmental chemical exposure in seabird chicks at two European breeding sites using a non-targeted analytical approach
- Corentine Rochas (St Abbs Marine Station) ElasmPower: Investigating the effects of EMF on elasmobranchs

## Day 2: Wednesday 9<sup>th</sup> November 2022

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08.30-09.00 Registration and tea/coffee ☕

09.00-09.20 Invited speaker: Mairi Gougeon, Cabinet Secretary for Rural Affairs and Islands “**A Blue Economy Vision for Scotland**”

09.20-09.50 Invited speaker: Professor Dickon Howell (Director, Howell Marine Consulting & Visiting Professor of Practice, Newcastle University) – “**INSITE and ECOWind – creating impact in marine policy**”

09.50-10.50 A **panel session on enabling the energy transition within the Blue Economy**. Led by the MASTS Renewable Energy Forum in the Main Auditorium (Auditoria B/C)

Join the MASTS Renewable Energy Forum at this panel session looking at the opportunities and challenges for the marine space presented by Scotland and the UK’s plans transition to Net Zero.

2022 has felt eventful in the context of achieving Net Zero. The Scottish Government convened its second Just Transition Commission to advise on and provide scrutiny for the Government’s ongoing Just Transition planning. Meanwhile, the outcomes of the ScotWind offshore wind leasing round were also announced this year, delivering the UK’s largest expansion in offshore renewable energy in the last decade. Tidal stream energy projects were also successful in 2022 as part of the UK Government’s Contracts for Difference scheme, with proposals to generate a further 40 MW of electricity. Undoubtedly these developments will have consequences (positive and negative) for the marine environment, and also for other users of the marine space, for communities, for supply chains, and for society. This year’s developments in offshore renewable energy are also set against other national and global events, including the war in Ukraine and the energy crisis, that have impacted energy prices, widening inequality. Similarly, the UK’s current financial situation is putting pressure on public sector budgets, including research. This panel will discuss the part that the research community can play in the transition to net zero, how the dual challenges of the biodiversity

crisis and the climate crisis are considered, and the roles for climate adaptation, ecological enhancement, and technology innovation.

Panel Chair: Prof. Ben Wilson: Associate Director for Science & Research, SAMS-UHI

Panellists: Dr. Janelle Braithwaite (Senior Policy Officer - Marine Planning at Marine Scotland); Prof. Dickon Howell (Director and founder of Howell Marine Consulting and visiting Professor of Practice at Newcastle University); Prof. Tavis Potts (Personal Chair, Dean for Environmental Sustainability, University of Aberdeen; and Andrew Macdonald (Director of Offshore Wind Development and Operations, Offshore Renewable Energy Catapult).

### 10.50-11.30 **Coffee break, networking and [E-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>
10.55-11.10	Graeme Cullen	Erica Chapman	Susan Bevans	Nicholas Petzinna	Christopher Pollock
11.15-11.30	Shravan Ram Raghu	Tamara Trefzer	Sarah Kane	Anamika Poyil	Valentina Ventimiglia

- Graeme Cullen (University of Stirling) Understanding Near Field Evasion Behavior as a Component of Collision Risk with Tidal Turbines Through the Analysis of Video Footage
- Erica Chapman (St Abbs Marine Station): Do electromagnetic fields from renewable energy subsea power cables affect the righting reflex or physiological responses of coastal invertebrates?
- Susan Bevans (University of Edinburgh) Potential auditory impacts from piling on cetacean species on the east coast of Scotland, and how mitigation can reduce the effects of impulsive noise
- Nicholas Petzinna (UHI) Monitoring animal behaviour around marine renewable energy sites
- Christopher Pollock (BTO) Do avoidance/attraction responses of kittiwakes from the same colony vary between different offshore wind farms?
- Shravan Ram Raghu (University of Edinburgh) Exploring the effects of electromagnetic fields on diatoms in multi-stressor environments
- Tamara Trefzer (University of Edinburgh) Assessing health change over time of a cold-water coral reef by examining the relationship between live and dead components of coral colonies and biodiversity
- Sarah Kane (University of Edinburgh) Listening Lines: Assessing the Feasibility of Deploying HydroMoths on Static Fishing Gear to Monitor Cetaceans
- Anamika Poyil (University of Edinburgh) Analyzing the Spatial Overlap of Potential Oil Spills in the Faroe-Shetland Channel and Predicted Deep-sea Sponge Grounds in the Northeast Atlantic and Subarctic Regions: Consequences and Ramifications for Conservation
- Valentina Ventimiglia (University of Edinburgh) Investigating physiological and behavioural changes in commercially important Velvet Swimming Crab, *Necora puber* (L.), following exposure to Electromagnetic Fields (EMFs)

11:30-13:00 **Special Session on “The influence of large scale offshore renewable developments on bottom-up ecosystem processes”** in the Main Auditorium (Auditoria B/C); and **MASTS General Science Session 5** in Auditorium A

11:30-13:00 [Special Session on “The influence of large scale offshore renewable developments on bottom-up ecosystem processes”](#) in the Main Auditorium (Auditoria B/C). Chair: Dr Rory Murray. Talks are 15 minutes each and after them there will be a panel Q&A session, plus an informal discussion on key knowledge gaps in both research and application of new evidence. The information in this session will help explore future research needs under Scottish Government’s ScotMER programme.

- *Thomas Regnier (Marine Scotland Science)* Scene setting: the importance of whole ecosystem, bottom up processes, and interaction with higher trophic levels (an introduction to PrePARED)
- *Beth Scott (University of Aberdeen)* PELAgIO: Physics-to-Ecosystem Level Assessment of Impacts of Offshore Wind Farms
- *Natalie Isaksson (UHI)* PREDICT: Predicting locations and seasons of top predator interactions with offshore wind farms
- *Ana Couto (University of Aberdeen)* Hydrodynamic drivers fish school behavior in high energy tidal sites
- *Arianna Zampollo (University of Aberdeen)* The potential of wind farms to affect primary production

11:30-13:00 [MASTS General Science Session 5](#) in Auditorium A. Chair Dr Bee Berx. Talks are 15 minutes each and 5 minutes for questions.

- *Ivan Cautain (SAMS)* Supply of sympagic organic material to the Barents Sea benthos strongly linked to sea ice seasonality
- *Jennifer Scott (Marine Scotland Science)* Oceanographic conditions and variability in Loch Ewe based on sustained observations at different spatial and temporal scales
- *Alison Brown (Centre for Ecology and Hydrology)* Greenhouse gases in the urban Clyde estuary: Physical estuarine processes and nutrient loading impact greenhouse gas generation
- *Thorsten Balke (University of Glasgow)* Hydrological requirements for salt marsh habitat in Scotland

12.45-14.00 **Lunch** and networking opportunities 🍽️

13.10-13.50 **“Meet the Renewable Energy Forum”** lunch session in Conference Rooms 6/7.

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!

13.30-16.50 **SUT, MASTS and the D'Arcy Thompson Forum present the first Sustainable Responsible Impact+ Investment+ (SRII++) Workshop** in Auditorium A.

Custodianship of Marine Life: Ecosystems Impact of Anthropogenic Activity in the 'Blue Space'. What does 'Good' look like and how do we explain it to others? Topics covered in this workshop include Environmental Social Governance, Data as a Currency, and The Energy Transition – Are we really transitioning? [Agenda and speaker bios here](#)

14.00-16.00 **MASTS General Science Session 6** in the Main Auditorium (Auditoria B/C); and a **Special Session on "Multiple Aquatic Stressors"** in Conference Rooms 6/7.

14.00-16.00 [MASTS General Science Session 6](#) in the Main Auditorium (Auditoria B/C). Chair: Dr Lois Calder. Talks are 12 minutes each and 3 minutes for questions

- *Texa Sim (SAMS)* Industrial soundscapes: evaluation of operational sounds from Scottish salmon farms
- *Tristan Kleyn (University of St Andrews)* What's in a whistle? Towards accurate species classification of UK delphinid whistles
- *Thomas Grove (University of Edinburgh)* Reconstructing abundance trends of humpback whales at an oceanic migratory stopover
- *Janneke Ransijn (University of St Andrews)* Predator-prey interactions: modelling the multi-species functional response of grey and harbour seals in the North Sea
- *Nicole Allison (SAMS)* Simulating the distribution of beached litter on the northwest coast of Scotland
- *Lydia McGill (UHI)* Genomic analysis of Flame Shells (*Limaria hians*) to inform nature conservation
- *Cornelia Simon-Nutbrown (Heriot-Watt University)* Population genetics of Scottish maerl beds informing the need for targeted conservation management

14.00-16.00 [Special Session on "Multiple Aquatic Stressors"](#) in Conference Rooms 6/7. Chairs: Dr Mark Hartl and Prof Karen Diele. Talks are 15 minutes each and 5 minutes for

questions. There will also be a 30min discussion session after the coffee break (1645-1715).

- *Frances Orton (UWS)* The effects of stressor dominance at environmentally relevant levels on the freshwater gastropod, *Lymnaea stagnalis*
- *Andrew Rawlins (Fugro)* Occurrence of alkylphenols and alkylphenol ethoxylates in North Sea sediment samples collected across oil and gas fields
- *Sinéad Collins (University of Edinburgh)* Effects of concurrent temperature and nitrate gradients on diatom multitrait phenotypes over two timescales
- *Ibrahim Lawan (Heriot Watt University)* Aqueous Exposure to Benzo[a]Pyrene (BaP) Induced Behavioural Ecotoxicity in a Model Marine Amphipod, *Parhyale hawaiiensis*
- *Hannah Wyles (University of St Andrews)* Predicting changes in the spatial distribution of UK grey and harbour seals using a random forest algorithm and climate model projections

16.00-16.45 **Coffee break**, networking and [E-poster session 5](#) ☕

<u>Time</u>	<u>Screen 1</u>	<u>Screen 2</u>	<u>Screen 3</u>	<u>Screen 5</u>
16.05-16.20	Steven Benjamins	Georgia Waldram	Soizic Garnier	Rebecca Giesler

- Steven Benjamins (SAMS): Observations on the ectoparasite community of an endangered elasmobranch, the flapper skate (*Dipturus intermedius*)
- Georgia Waldram (Heriot Watt University) Microbial degradation of polystyrene microplastics in seawater analysed by stable isotope tracing techniques (presenting on behalf of Sophie Holland)
- Soizic Garnier (Marine Scotland Science) Modelling salmon lice infection pressure from fish farms Expert opinion on knowledge gaps (presenting on behalf of Joanne Murphy)
- Rebecca Giesler (UHI) A decade of monitoring marine non-native species in Shetland

16.45-17.15 **Discussion session for Stressors Forum** (Conference Room 6/7)

16.45-17.30 [MASTS General Science Session 7](#) the Main Auditorium (Auditoria B/C). Chair: Prof David Paterson. Talks are 12 minutes each and 3 minutes for questions.

- *William Austin (University of St Andrews)* A brief history of Scottish blue carbon science and the Scottish Blue Carbon Forum: Where next?
- *Michelle Elliott (Natural Power Consultants)* Trial to Validate Environmental DNA (eDNA) as a Survey Method for Fish Ecology Assessment around Offshore Wind Farms
- *Eileen Bresnan (Marine Scotland Science)* Scotland's changing coastal environment: how time series support the Blue Economy Vision

## E-posters

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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. The majority of e-poster authors will also be present at their posters during a designated coffee break (names and linked abstracts above).

## Exhibitors

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MASTS is delighted to host the following exhibitors:

- **Marine Environmental and Data Information Network** (MEDIN) is the hub for UK marine data and have been working with UK organisations since 2008 to promote good data management practices. Providing marine data guidelines, tools and an online portal, MEDIN aims to make UK marine data Findable, Accessible, Interoperable and Re-usable (FAIR). [www.medin.org.uk](http://www.medin.org.uk) and Twitter: @MEDIN\_marine
- **RS Aqua** is one of the biggest ocean technology providers in the UK and is dedicated to supporting the world of ocean science and exploration. Working with many best-in-class technology partners allows us to support our customers with powerful technologies and unparalleled expertise. [www.rsaqua.co.uk](http://www.rsaqua.co.uk) and Twitter: @RS\_Aqua
- **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](http://www.soteag.org.uk) and twitter @SOTEAG1
- **Scottish Environment LINK** is the forum for Scotland's voluntary environment community. Its member bodies represent a wide community of environmental interest, sharing the common goal of contributing to a more sustainable society. The LINK Marine Group vision is of healthy, well-managed seas, where wildlife and coastal communities flourish and ecosystems are protected, connected and thriving. <https://www.scotlink.org/> and <https://www.scotlink.org/link-campaigns/save-scottish-seas/> Twitter handles: @Scotlink and @SaveScotsSeas (Marine Group campaign page)
- **Estuarine & Coastal Sciences Association** (ECSA) is an international membership organisation 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. We organize local Focus meetings in UK and international meetings worldwide. Grants are available for students and early career workers. <https://ecsa.international> and Twitter @ECSAssociation
- **SAMS Enterprise** provides specialist marine consultancy and survey services, underpinned by cutting-edge science. We enable our clients to understand and mitigate the risks involved in industry interaction with

the marine environment; to maximise productivity and sustainability. SAMS Enterprise is the wholly owned trading subsidiary of the Scottish Association for Marine Science (SAMS). We provide a bespoke service, based on a synergistic approach to complex projects. We project manage intellectual expertise, laboratory work and survey schedules to ensure delivery to time and budget of clients. [www.sams-enterprise.com](http://www.sams-enterprise.com) and Twitter: @SAMSoceannews

- **APEM Group** is a world class environmental and geospatial consultancy. Specialising in marine, freshwater, terrestrial ecology and geospatial data. [www.apemltd.com](http://www.apemltd.com) and Twitter: @APEM\_ltd
- **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](http://www.darcythompson.net)

Please contact [masts@st-andrews.ac.uk](mailto:masts@st-andrews.ac.uk) if you are interested in exhibiting.

## Day 3: Thursday 10<sup>th</sup> November 2022

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

☕ **Friday breaks are: 10.00-11.30 for morning coffee, lunch is at 12.00-13.30 and afternoon coffee break is 15.00-15.45.**

### Afternoon workshops (8th Nov):

- Auditorium A (16.45-18.15) – **Grad School DEI workshop “Inclusion and Belonging”**; no pre-registration required.

### Afternoon workshops (9th Nov):

- Auditorium A (13.30-16.50) - **SUT, MASTS and the D’Arcy Thomson Forum present the first Sustainable Responsible Impact+ Investment+ (SRII++) Workshop.** [Agenda and speaker bios here](#)

### One-day workshops (10th Nov):

- Auditorium A (09.00-16.30) - **SUT, MASTS and the D’Arcy Thomson Forum present the 10th Anniversary Special of the Salvage, Decommissioning & Wreck Removal Workshop** - Navigating the Blue Economy through the Climate Emergency: How do we achieve joined up thinking and improved decision making? [Agenda and speaker bios here](#)
- Conference Room 2 (10.30-16.30) - **Science to Inform Action on Blue Carbon**

### Morning workshops (10th Nov):

- Exec Room A/B on level 9 of the TIC (09.00-13.00) - **Scottish Marine Assessment – A Call to Action**. Organised by Prof Colin Moffat & Prof John Baxter
- Conference room 6/7 (09.15-12.30) – **Getting that dream Job**: The (not so subtle) art of selling yourself (for PGRs). Organised by Drs Frances Orton & Lois Calder.
- Conference room 4/5 (09.30-13.00) - **Scottish marine invasive non-native species workshop**. Organised by Jenni Kakkonen & Bernadette Moloughney
- Conference room 1 (09.30-12.30) - **Diversity & Inclusivity in Aquaculture**. Organised by Ingrid Kelling and WiSA. Guest Speakers: Iona Campbell (Aquaculture Stakeholder Engagement Policy Manager, Marine Scotland) and Teresa Garzon (Women in Scottish Aquaculture).

#### Afternoon workshops (10<sup>th</sup> Nov):

- Conference room 6/7 (13.30-16.30) – **The creative process: Translating your ideas into fundable grant applications** (for PGRs). Organised by Drs Frances Orton & Lois Calder.

### Workshop information

**Scottish Marine Assessment - call to action**, 09:00 - 13:00. Organised by Colin Moffatt and John Baxter about SMA2020.

In 2020, the [Scottish Marine Assessment](#) (SMA2020) provided a clear set of conclusions, recommendations and suggested action. SMA2020 highlighted the challenges for the Scottish marine community to:

- Improve the predications of climate change impacts
- Assess cumulative pressures
- Improve the understanding of natural capital and ecosystem services
- Ensure that account if taken of the bigger marine environmental picture
- Improve the availability of data
- Undertake sustained monitoring and investigative research to explain change
- Maximise the benefit of our scientific monitoring.

#### **Objective of the workshop**

Having presented the evidence and developed a set of next steps based on that evidence, there is a need to energise the process to ensure that evidence-based decisions on how to manage human activities impacting on the seas around Scotland are made. SMA2020 also provided the evidence to 'update' Scotland's National Marine Plan.

In this context, it is intended that there is a short document prepared based on the discussions which MASTS can then take to e.g. Scottish Ministers. The document will be based around the answers to the six workshop questions and will represent the views of the MASTS community as to what action should be taken.

**Scottish Marine Invasive Non-Native Species, 09:30 - 13:00.** Organised by Jenni Kakkonen & Bernadette Moloughney.

Understanding vectors and pathways for introduction and spread of invasive non-native species (INNS), and improved biosecurity and routine monitoring is essential for safeguarding of marine environmental habitats in Scotland. The extent of coastline and range of varying activities relying on the marine environment in Scotland is large and without collaboration, effective monitoring, reporting, data and knowledge sharing it would remain challenging. This workshop is aiming to enhance our understanding of marine INNS monitoring activities across Scotland and promote collaboration which would lead to improved biosecurity for invasive non-native species in Scotland. The workshop will also identify monitoring and data gaps and how best to address these by bringing together scientist, stakeholders and government. Expected Outcomes/Outputs:

- Improved understanding of marine INNS monitoring activities across Scotland, identification of available data sets and ensuring monitoring is covering all known INNS vectors and pathways.
- To provide a platform for bringing people together and promoting good biosecurity and INNS reporting.
- Raising awareness between different stakeholder groups of pathways by which INNS can spread and how to mitigate these risks.
- Based on identified knowledge or monitoring gaps, develop a series of future pathway focused workshops.

**Improving Diversity & Inclusivity in Aquaculture, 09:30 - 12:30.** Organised by Ingrid Kelling (Heriot Watt University) and Women in Scottish Aquaculture.

Speakers: Iona Campbell (Aquaculture Stakeholder Engagement Policy Manager, Marine Scotland) and Teresa Garzon (Women in Scottish Aquaculture).

Workforce diversity recognises and values the differences between people, and research shows that high diversity and good performance are interlinked: improving diversity and inclusion is good for society and the economy. Working to achieve greater equality in the Scottish aquaculture industry will improve sustainability, knowledge and contribute to a more just society. In this workshop we will review the current data in Scottish aquaculture, actively determine the critical elements for improving diversity and inclusion in the sector, hear from those making a difference from industry and policy, and develop credible recommendation for change.

**Science to Inform Action on Blue Carbon, 10:30 -16:30.** Co-hosted by the Scottish Blue Carbon Forum and the UK Blue Carbon Forum the workshop aims to identify and provide evidence-based actions for blue carbon as Nature-based Solutions that go beyond climate mitigation, highlighting benefits for biodiversity, society, as well as climate adaptation and resilience. Taking place during COP27 in Sharm el Sheikh, the workshop falls one year after the 2-day SBCF conference “Blue Carbon: Beyond the Inventory” which brought together international science and policy experts to discuss blue carbon and highlighted the importance of ocean action.

- Hilary Kennedy (UKBCF) and Bill Austin (SBCF) will host the workshop and act as moderators.
- Catherine Lovelock (University of Queensland) on the Australian Blue Carbon Method – an introduction to the Australian Carbon Credit Units for Coastal Wetland Restoration through tidal restoration.
- Richard Lilley (Project Seagrass) on the Restoration of Seagrass Habitats, including community-based project updates.
- Mike Burrows/Alasdair O’Dell (SAMS) on Seaweed Farming and Blue Carbon potential.

Programme details: It will be held in an open format with presentations and discussion between participants facilitated by the co-hosts. Topics for discussion include: Blue Carbon within Highly Protected Marine Areas; Organic and Inorganic Carbon in Blue Carbon Ecosystems; Impacts and Risks to Blue Carbon Ecosystems; International Blue Carbon Policy Challenge Areas. Details of further presentations from NatureScot, Marine Scotland and Finance Earth will shortly be updated.

The workshop will:

- (1) provide a platform to identify and obtain the data and knowledge needed to develop and implement blue carbon Nature-based Solutions for climate, people and biodiversity;
- (2) increase and augment the capacity of ocean scientists who wish to conduct and synthesise research on blue carbon at local and regional scales;
- (3) facilitate just and fair activities for blue carbon, including supporting the co-design of science and actions with communities and stakeholders, particularly where these actions can support protection of the marine environment and a just transition to Net Zero.

**SUT, MASTS and the D’Arcy Thompson Forum: Sustainable Responsible Impact+ Investment+ (SRII++) Workshop**, 13:30 - 16:45 [wednesday 9th]

[Agenda and bios for the day here](#). Custodianship of Marine Life: Ecosystems Impact of Anthropogenic Activity in the ‘Blue Space’. What does ‘Good’ look like and How do we Explain it to Others? Topics covered in this workshop include Environmental Social Governance, Data as a Currency and The Energy Transition – Are we really transitioning? [Check out the flyer for more details here](#)

**SUT, MASTS and the D’Arcy Thomson Forum: Salvage, Decommissioning & Wreck Removal Workshop**, 09:00 - 16:30.

[Agenda and bios for the day here](#). SUT, MASTS and the D’Arcy Thomson Forum present The 10th Anniversary Special of the Salvage, Decommissioning & Wreck Removal Workshop - Navigating the Blue Economy through the Climate Emergency: How do we achieve joined up thinking and improved decision making? [Check out the flyer for more details here](#).

**Getting that dream Job: The (not so subtle) art of selling yourself** - for PGRs, 09:15 - 12:30.

Our first workshop of the day will help you to reflect on your skills, attributes and capabilities, and use this knowledge to sell yourself to different sectors, thinking about interviews, and writing CVs,

cover letters, grants and internship applications. During the morning there will be lots of opportunities to discuss and share ideas and turn these into your own 'personal statement', which is a very important aspect of selling yourself across different platforms, including grant applications

**The creative process: Translating your ideas into fundable grant applications** - for PGRs, 13:30 - 16:30.

Science and research are deeply creative sectors where new knowledge is created through observation and experimental testing. In our second workshop, we will examine idea generation and the creative process, both alone and in collaboration, looking at tools available, what works best for you, and how to translate your thoughts into a grant proposal for research, travel, conferences and more. From dreaming to doing...