

# MASTS 11th Annual Science Meeting 2021

## **Working to Reverse the Tide on Climate and Global Change**

Tuesday 5<sup>th</sup> – Thursday 7<sup>th</sup> October 2021, Online

	5 <sup>th</sup> October	6 <sup>th</sup> October	7 <sup>th</sup> October
<b>Plenary speakers</b>	<p>Beth Stoker (Head of Marine Monitoring and Evidence, JNCC)</p> <p><b>Marine conservation: Working across boundaries</b></p> <p>Dr Jeff Ardron (Adviser, Ocean Governance, The Commonwealth Secretariat)</p> <p><b>The climate crisis is also an ocean crisis</b></p> <p>Dr Antony Firth, MCI fA (Co-Chair Ocean Decade Heritage Network)</p> <p><b>Cultural Heritage and the UN Ocean Decade: applying human time-depth to Ocean Science, Policy and Sustainable Development</b></p>	<p>Michael Begg (Award winning composer, sound and recording artist)</p> <p><b>Light Water is Black Water: OCEAN ARTic partnership's creative innovation for public engagement in climate science</b></p> <p>Drew Milne (Marine Scotland) &amp; Prof Tavis Potts (University of Aberdeen)</p> <p><b>Tackling climate change with offshore renewables: ambitions in Scotland</b></p> <p>Susan Davies (Member of First Minister's Environmental Council, Scottish Seabird Centre CEO)</p> <p><b>Climate &amp; Nature Crisis: role of effective science communication</b></p>	
<b>Special Sessions</b>	<ul style="list-style-type: none"> <li>• General Science Sessions 1, 2 and 3</li> <li>• Fisheries Science</li> <li>• Multiple Marine Stressors</li> <li>• Human dimensions of ocean climate and biodiversity challenges</li> </ul>	<ul style="list-style-type: none"> <li>• General Science Sessions 4 and 5</li> <li>• Countdown to COP 26: Aquaculture as a critical pathway to Net Zero food production in Scotland (2 Sessions)</li> <li>• Seagrass Special (2 Sessions)</li> </ul>	
<b>ePosters</b>	Accessible throughout the event. <a href="#">See who's presenting here</a>		
<b>All day, open to all Workshops</b>			<p><b>Sea Lice dispersal modelling and sea lice population assessment – Where are the gaps in the current research and monitoring?</b> (via Zoom)</p> <p><b>Decommissioning, Spatial Custodianship and Climate Emergency – How do we achieve joined up policies?</b> (via HopIn)</p>

We have not noted specific break times within the programme, so feel free to grab a cuppa or comfort break between sessions. Everyone is welcome to attend all the plenary talks, special sessions, ePosters, exhibitors and workshops.

# Day 1: Tuesday 5<sup>th</sup> October 2021

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09.40-09.50 **Opening and welcome by Prof David Paterson** (MASTS Executive Director) on **STAGE**.

09.50-10.10 Plenary talk from Beth Stoker (Head of Marine Monitoring and Evidence, JNCC) “**Marine conservation: Working across boundaries**” and moderated by Prof David Paterson.

10.10-10.30 Plenary talk from Dr Jeff Ardron (Adviser, Ocean Governance, The Commonwealth Secretariat) “**The climate crisis is also an ocean crisis**” and moderated by Prof David Paterson.

10.30-10.50 Plenary talk from Dr Antony Firth, MCIfA (Co-Chair Ocean Decade Heritage Network) “**Cultural Heritage and the UN Ocean Decade: applying human time-depth to Ocean Science, Policy and Sustainable Development**” and moderated by Dr Mark James.

11.00-12.00 **MASTS General Science Session 1** in **SESSION** and moderated by Prof David Paterson.

- Aisling Lannin (Marine Management Organisation) - *Science for marine management: Evidence and the Marine Management Organisation*
- Madlaina Michelotti & Owen McGrath (NatureScot) - *Community-led Marine Biodiversity Monitoring Project Scotland*
- Chloe King (University of Edinburgh) - *Beyond Sustainability: A Global Study of Nature-based Solutions in Regenerative Tourism*
- James Thorburn (University of St Andrews) - *A multidisciplinary approach to identifying the footprint of an MPA for a migratory benthic species*
- Charlotte Miskin-Hymas (Marine Environmental Data and Information Network) - *A UK study of value chains in public marine data*
- Rona Sinclair (NatureScot) - *Harnessing the value of Scottish marine biodiversity data to benefit nature: streamlining data flows and unlocking marine data sources*

11.00-12.00 Special Session on **Fisheries Science** in **SESSION** and moderated by Dr Mark James.

- Felicity Spoors (University of St. Andrews) - *Assessing bait use by static gear fishers of the Scottish Inshore fisheries: A preliminary study*
- Rufus Danby (University of Aberdeen) - *Estimating absolute abundance of anglerfish from multiple trawl surveys*
- Tania Mendo (University of St Andrews) - *Impacts of COVID-19 on the value chain of the hake small scale fishery in Peru*
- Theoni Photopoulou (University of St Andrews) - *Sex and size influence the spatiotemporal distribution of white sharks, with implications for interactions with fisheries and spatial management in the southwest Indian Ocean*
- Anneli Lofstedt (University of Aberdeen) - *Establishing the relationship between fish size and nutritional composition in catch seasons of Atlantic mackerel (*Scomber scombrus*) and its implications*
- Mark James (University of St Andrews) - *Western Isles Early Adopters Trial (WIEAT) – Tracking Inshore Fishing Vessels and Creel Limitation*

- 12.00-12.30 [Networking](#), E-posters & Exhibition booths
- 13.00-14.30 Challenger Society EDIA panel discussion event in **ZOOM**. A panel discussion about experiences in marine science. Chair: Kate Hendry (University of Bristol). Speakers include Madeline Anderson (UKPN), Huw Griffiths (BAS), Donna Frater (NERC), & Renuka Badhe (Women in Polar Science). [Sign up link here](#)
- 14.30-15.30 Special Session on “[Marine Stressors](#)” in **SESSION**. Hosted by the MASTS Marine Stressors Forum and moderated by Prof Karen Diele (Edinburgh Napier University) & Dr Mark Hartl (Heriot Watt University).
- Emily Hague (Heriot Watt University) – *‘Many a mickle makes a muckle’: considering cumulative stressors on marine mammals*
  - Eilisha Hayes (University of St Andrews) – *The Effects of Phosphate and Ocean Acidification on Coral Calcification*
  - James Rimmer (University of St Andrews) – *A question of realism: stressor impacts on biofilm in the lab and field*
  - Padalingam Balavignesh (Kumaraguru College of Technology) - *Review on Effect of Noise pollution in Ocean Environment*
  - Zoe Hutchison (University of St Andrews) - *Taking a fish-eye view – how do marine species encounter anthropogenic electromagnetic fields (EMFs)?*
- 14.30-15.15 [MASTS General Science Session 2](#) in **SESSION** and moderated by Dr Bee Berx (MASTS Marine Climate Change Forum Convenor and Marine Scotland Science).
- Martin Hurst (University of Glasgow) - *Dynamic Coast 2: Anticipating coastal change in Scotland as sea levels rise*
  - Daniel Johnston (British Trust for Ornithology Scotland) - *A review of the mechanisms by which climate change affects seabirds within the North-East Atlantic*
  - Alison M. Brown (Centre for Ecology and Hydrology) - *Anthropogenic-estuarine interactions cause disproportionate greenhouse gas production: A review of the evidence base*
  - Gail Sant (University of Edinburgh) - *Understanding the United Nations Framework Convention on Climate Change’s role in managing and mitigating the climate change-induced existential threats faced by Small Island Developing States*
  - David Vale (BMT UK Ltd) - *A tool for predicting sea temperature rise to aid in site selection and development planning for Scottish salmon farming*
- 15.45-16.30 [MASTS General Science Session 3](#) in **SESSION** and moderated by Prof Teresa Fernandes (MASTS Theme Leader for Marine Biodiversity, Function & Services, and Heriot Watt University).
- Ricardo González-Gil (University of Strathclyde) - *The onset of the spring phytoplankton bloom in the Scottish coastal North Sea supports the Disturbance Recovery Hypothesis*
  - Madjid Hadjal (University of Strathclyde) - *Application of Neural Networks for Chlorophyll a retrieval from ocean colour satellites*

- Jennifer Scott (Marine Scotland Science) - *Environmental monitoring in Loch Ewe with the COMPASS metocean buoy*
- Peter Liss (University of East Anglia) – *Microplastics: All up in the air?*

15.45-16.45 [Human dimensions of ocean climate and biodiversity challenges](#) in **SESSION** and moderated by Dr Chris Leakey (University of St Andrews & NatureScot) & Dr Emma McKinley (Cardiff University).

- Nathan Bennet (Keynote and Independent Consultant) – *Marine social science: A tool to understand the human dimensions of marine policy and ocean sustainability*
- Rebecca Shellock (Australian National University) – *The wellbeing and human health benefits of exposure to marine and coastal environments in the UK*
- Eleanor Ford (SAMS) - *Searching for a bridge over troubled waters’: An exploratory analysis of trust in United Kingdom fisheries management*
- Ellie MacLennan (St Andrews University) - A multidisciplinary approach to tackling entanglement
- Tavis Potts (University of Aberdeen) - *Positionality as a (marine) social scientist researching Just Transitions: Notes from the Field.*

## Day 2: Wednesday 6<sup>th</sup> October 2021

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09.00-10.00 **Countdown to COP26: Aquaculture as a critical pathway to Net Zero food production in Scotland. Panel Session on “Net Zero and Food Production”** in **SESSION**. Hosted by the MASTS Sustainable Aquaculture Forum and moderated by Dr Ingrid Kelling (MASTS Sustainable Aquaculture Forum Convenor and Heriot Watt University).

Jill Barber (Head of Aquaculture Development, Scottish Government) will provide a short plenary to start off discussions. Panel members include: Malcolm Beveridge (WorldFish); Georgina Robinson (SAMS); William Clark (Zero Waste Scotland); Lindsay Pollock (SSPO) & Andrew Davie (AquaScot)

10.15-11.30 **Countdown to COP26: Aquaculture as a critical pathway to Net Zero food production in Scotland. Special Session on “Industry Innovations for Net Zero production”** in **SESSION**. Hosted by the MASTS Sustainable Aquaculture Forum and moderated by Sarah Riddle (SAIC). This session will cover General Innovation and Specific Technologies.

Topics and Speakers:

- Renewable Energy - Torstein Nygård, Fjord Maritime
- Precision Aquaculture – Sven Kolsto, Optoscale
- Waste Water Management – Tom Scrope, NovaQ
- Cleanerfish - Alastair Barge, Otterferry
- Feed – Craig Woods, Deep Branch
- Feed – Will Bisset, Entocycle

10.30-11.15 [MASTS General Science Session 4](#) in **SESSION** and moderated by Prof William Austin (MASTS Coastal Forum Convenor, Chair of the Scottish Blue Carbon Forum and St Andrews University).

- Caitlin Cunningham (NatureScot) - *Future research needs for Scottish blue carbon*
- Hannah Lee (Heriot-Watt University) - *Balancing the equation: 'Blue carbon' and the native European oyster (*Ostrea edulis*)*
- Hannah Fougner (University of Edinburgh) - *Is Sustainable Blue Finance Suitable for Mobilising Investment for Scottish Bivalve Aquaculture?*
- Flora Kent (NatureScot) - *Marine habitat enhancement in Scotland*

11.45-12.45 [Seagrass Special Session 1: Experiences & Adaptations](#) in **SESSION**. Hosted by Benjamin Jones (Project seagrass)

- Mark Parry (Ocean Conservation Trust) – *LIFE Recreation ReMEDIES – Restoring and reducing recreational impacts on sensitive habitats*
- Tadhg O Corcora (GEOMAR / SeaStore) – *SeaStore - Diversity Enhancement Through Seagrass Restoration*
- Max Gräfnings (University of Groningen) – *Developing intertidal seagrass restoration in the Dutch Wadden Sea*
- Daniel Renton (Seawilding) – *Community-led Seagrass and Native Oyster Restoration, Loch Craignish, Scotland*
- James Wood (Yorkshire Wildlife Trusts) – *Restoring the Humber - approaches to *Zostera noltii* protection and broadscale restoration*
- Per Moksnes (University of Gothenburg) - *Eelgrass restoration in NW Sweden: Lessons learned*

13.00-13.30 E-posters & Exhibition booths

1300-1430 Challenger Society EDIA event in **ZOOM**. Chaired by Ellen Johannesen from the International Council for the Exploration of the Sea (ICES), this session will feature short talks about individual researchers' case studies and best practice. [Sign up link here](#)

14.45-15.45 [Seagrass Special Session 2: Innovation & Ambition](#) in **SESSION**. Hosted by Benjamin Jones (Project Seagrass)

- Eduardo Infantes (University of Gothenburg) - *Sand capping to promote eelgrass restoration*
- Niall McGrath (RoboOcean) - *Robocean: Ecosystem Engineering*
- Richard Unsworth (Project Seagrass) – *Opportunities for scaling seagrass restoration in the UK context*
- Katharyn Boyer (San Francisco State University) - *San Francisco Bay Eelgrass Restoration: Progress and Possibilities*
- Bob Orth (The Virginia Institute of Marine Science) - *How our understanding of seagrass biology, ecology and restoration changed over 50 years*

14.45-15.45 [MASTS General Science Session 5](#) in **SESSION** and moderated by Prof Beth Scott (University of Aberdeen).

- Christian Armstrong (SAMS) - *Sediment pathways and bedform mobility: considerations for offshore construction from the Pentland Firth, northeast UK*
- Peter Munro (University of Hull) - *How might very large-scale offshore wind deployment in the North Sea look?*
- Elias Greenbaum (R&D Prototype Engineering, GTA, Inc.) - *An Integrated Subsea Electrolytic Hydrogen Production, Storage, and Transmission System Powered by Floating Offshore Wind and Ocean Energy*
- Shaun Fraser (UHI) - *Practical approaches for characterising prey assemblages and predator behaviour in tidal channel environments*
- Raeanne Miller (Aquatera Ltd) - *Cross-sectoral perspectives on improving data tools and knowledge resources for marine renewable energy consenting*
- Magnus Davidson (ERI) – *Just Transition*

16.00-16.30 Plenary talk from Drew Milne (Marine Scotland) & Prof Tavis Potts (University of Aberdeen) **“Tackling climate change with offshore renewables: ambitions in Scotland”** on **STAGE** and moderated by Dr Raeanne Miller (Aquatera)

16.30-16.50 Plenary talk from Michael Begg (Award winning composer, sound and recording artist) **“Light Water is Black Water: OCEAN ARTic partnership's creative innovation for public engagement in climate science”** moderated by Dr Chris Leakey

16.50-17.10 Invited Speaker – Susan Davies (CEO, Scottish Seabird Centre). **“Climate & Nature Crisis: role of effective science communication”** and moderated by Prof David Paterson.

17.10-17.25 **Conference Closing Remarks & Prize Giving** (Prof David Paterson)

17.30-18.00 [Networking](#) with a glass of something – BYOB!

## E-posters (available to view at any time during the ASM)

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- Shakeel Akthar (Kumaraguru College of Technology, Tamilnadu) - The Impact of Wave Energy Generator in Ocean Environment
- Blair Easton (St Abbs Marine Station) - Size at sexual maturity of the edible crab (*Cancer pagurus*) in Berwickshire and Northumberland – A cross border study
- Greig Govenlock (University of St Andrews) - Emerging Marine Biosensors
- Heather Runnacles Goodridge (SOTEAG) - Public engagement during a pandemic: bringing decades of SOTEAG's environmental monitoring and research to a wider audience
- Le Huang (University of Edinburgh) - Subtidal Seagrass Bed Habitat Suitability in Scotland
- Ellie MacLennan (University of St Andrews) - A multidisciplinary approach to tackling entanglement
- Anna Mujal-Colilles (University of St Andrews) - Predicting small scale fisheries behaviour in Scotland
- Larissa Naylor (University of Glasgow) - Dynamic Coast 2: How can we become sea level wise?
- Nicholas Petzinna (Environmental Research Institute, North Highland College) - Using multibeam sonar to monitor animal behaviour and environmental interactions at marine renewable energy sites
- Alfie Piper (St Abbs Marine Station) - Mapping the historic herring spawning grounds of the Berwickshire Marine Reserve
- P. Punya (Indian Institute of Space science and Technology) - Influence of the North Atlantic Oscillation and the El Niño-Southern Oscillations on phytoplankton production over the Bay of Bengal
- Kyle Richford (University of Glasgow) - Development of sustainable pathways to integrate offshore wind with emerging and existing offshore technologies and infrastructure in the UK
- Corentine Rochas (St Abbs Marine Station) - Effect of electromagnetic fields from renewable energy subsea power cables on post disturbance recovery of coastal invertebrates

### **MASTS Oil and Gas Environmental Research Forum - E-poster session for early to mid-stage researchers**

- Christina Nikolova (Heriot Watt university) - Response and oil degradation activities of a northeast Atlantic bacterial community to biogenic and synthetic surfactants
- Jessica Gomez-Banderas (National Decommissioning Centre) – Development of a biofilm growth inhibition assay to aid the discovery of natural product antifouling compounds
- Dan Stewart (Marine Scotland Science) – Long term seabed recovery from drilling discharges
- Joshua Lawrence (University of Aberdeen) - Using an Uncrewed Surface Vessel to measure fish distributions around offshore man-made structures
- Joe Marlow (SAMS) - North Sea 3D: using photogrammetry and machine learning to increase accuracy in marine growth assessments

# Day 3: Thursday 7<sup>th</sup> October 2021

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The annual Society for Underwater Technology's workshop – **Decommissioning, Spatial Custodianship and Climate Emergency – How do we achieve joined-up policies?** An open to all workshop with live Q&A with speakers, 09:30 – 16:00, Hopin.

Programme includes:

- **Session 1: Charting our route for Sustainable Decom: Offshore infrastructure - The Reuse & Emissions challenge**  
Ian Fozdar, Infrastructure Re-purposing Manager UK, Oil & Gas Authority (OGA) Decommissioning Strategy update and Repurposing of Offshore Infrastructure  
Charlotte Stamper, Sector Manager – Energy Infrastructure, Zero Waste Scotland (ZWS) We need to talk about steel: The true carbon cost of decommissioning  
Abigail Davies, PhD Student, National Decommissioning Centre/University of Aberdeen  
Decommissioning Emissions from Reuse Options
- **Session 2: Impact of Decommissioning: Checking the scientific evidence and reporting on progress**  
Alireza Maheri, Reader in Mechanical Engineering, University of Aberdeen A Decision Support System for Decommissioning of Offshore Windfarms  
Joshua Lawrence, Research Fellow, University of Aberdeen Using an un-crewed surface vessel to survey fish around man-made structures  
Dickon Howell, Director, Howell Marine Consultants INSITE Synthesis update: Independent scientific consensus on the ecological role(s) of installing, operating and removing man-made structures in the sea
- **Session 3: Paradigm shifts with State-of-the-Art Technology**  
Moya Crawford, Managing Director, D'Arcy Thompson Simulator Centre (DTSC)  
Mark Lawrence, Lead Digital Services, Waves Group Seeing is believing - Making the paradigm shift from 2D to 4D, using Simulation and Virtual Reality  
Alan Thompson, Government Affairs, Skyrora Environmentally Responsible Launch  
Daniel Jones, Associate Head Ocean BioGeosciences, National Oceanography Centre (NOC)  
Autonomous Techniques for anthropogenic Structure Ecological Assessment
- **Session 4: The Big Bang Theory - Are negative perceptions of the use of explosives correct?**  
Alison Brand, Chair XCOM (Explosives Committee)/Managing Director, Manta Environmental  
Mike Elliot, Chair in Estuarine & Coastal Sciences, University of Hull

[View the full workshop programme here](#)

**Sea lice dispersal modelling and population assessment.** Topic: Where are the gaps in the current research and monitoring? 09:30 – 17:00, Zoom. [More info and sign up here](#)