# MASTS ONLINE Annual Science Meeting 2020

**Monday 5th – Friday 9th October 2020**

**“MASTS – A decade of innovation”**

## SNAPSHOT PROGRAM

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| **Plenary speakers** | Welcome from David Paterson  
MASTS executive Director | Matthew Dawkins  
Senior R&D Engineer, Kitware, USA | Peter Macreadie  
Deakin University, Australia | Gideon Henderson  
Chief Scientific Advisor, DEFRA, UK  
Kerstin Forsburg  
Founder & Director of Planeta Oceano, Peru |                                                                       |
| **Special Sessions** | • General Science session  
• Governing Scottish Seas: theory, practice and future horizons | • General Science session  
• Multiple Marine Stressors  
• Aquaculture  
• Technologies & Methodologies | • General Science session  
• Coastal ecosystem-based solutions: Climate-change adaptation and mitigation  
• Marine Climate Change | • General Science session  
• General Science session  
• Structures in the Marine Environment  
• Aquaculture |                                                                       |
| **ePosters** | See new ePosters everyday with live presenters! | | | | |
| **Special Workshop** | | | | | |
| **Training* or invite only Workshops**  
*requires registration | | | | | |
| | Sign up for Habits of a productive researcher  
(training for MASTS, SUPER & ARCH-UK PhD students and ECRs) | Invite Only Environmental interactions of floating offshore wind | Invite Only Environmental interactions of floating offshore wind | Salvage, Decommissioning & Wreck Removal. Influence, educate and unlock opportunities: Informing global sustainability challenges | Sign up for Plastics in the Ocean  
Sign up for Fast track your research impact (training for MASTS, SUPER & ARCH-UK PhD students and ECRs) |

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  - General Science session
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FULL PROGRAM

Day 1: Monday 5th October 2020

10.00-10.20  **Opening and welcome by Prof David Paterson** (MASTS Executive Director) on STAGE.

10.30-11.20  **MASTS General Science Session 1** in SESSION and moderated by Dr Carol Sparling (Director of the Sea Mammal Research Unit, St Andrews University).

- Matt Carter (University of St Andrews) - *Habitat-based predictions of at-sea distribution for grey and harbour seals in the British Isles*
- Alyssa Stoller (University of Edinburgh) - *Assessing the feasibility of citizen science to monitor change and cetacean distribution in Iceland*
- Texa Sim (SAMS) - *The occurrence of harbour porpoises around salmon farms in Scotland*
- Izzy Langley (University of St Andrews) - *Interspecific Interactions: Investigating the role of grey seals in the harbour seal decline*
- Joe Onoufriou (SAMS) - *Harbour seals avoid tidal turbine arrays during operations*

12.00-12.30  **Eposters Session 1** in the EXPO AREA.

- Terence Dawson (King's College London) - *Climate impacts on the coral reefs of the Pitcairn Islands Marine Reserve in 2016*
- James Chapman (University of Aberdeen) - *Habitat to population level impact assessment for top predator-marine renewable interactions*
- Blair Easton (St Abbs Marine Station) - *Population dynamics, catch composition and CPUE of the edible crab, Cancer pagurus, and European lobster, Homarus gammarus, in a Voluntary Marine Reserve*
- Corallie Hunt (University of St Andrews) - *Regional Scale Mapping of Sedimentary Carbon Using Multibeam Data*
- Texa Sim (SAMS) - *Acoustic localisation reveals fine-scale movements of harbour porpoises around salmon farms in Scotland*
- Constance Schéré (King's College London) - *To what extent are marine protected areas in the Irish Sea equitably governed and managed? A case study approach*
- James Kairo (Kenya Marine and Fisheries Research Institute) - *From Science to Policy: Mainstreaming mangrove ecosystem into national development and climate change agenda in Kenya*

12.20-1300  **Networking**

12.30-14.30  Exhibition booths in the EXPO AREA

13.15-16.30  **WORKSHOP - Habits of a productive researcher** (training for MASTS, SUPER & ARCH-UK PhD students and ECRs)
14.00-15.00  **Special Session on “Governing Scottish Seas: theory, practice and future horizons” in SESSION.** Hosted by the MASTS Marine Planning & Governance Forum and moderated by Dr Tim Stojanovic (University of St Andrews) & Dr Tavis Potts (University of Aberdeen).

- Paul Fernandes (University of Aberdeen) - *Changing fish distributions challenge quota allocations: a solution based on zonal attachment*
- Peter Hume (University of Edinburgh) - *Stakeholder Capacity for Ecosystem Based Management in the Loch Sunart to Sound of Jura Marine Protected Area*
- Fanny Royanez (French Biodiversity Agency) - *A grounded theory approach to explore industry views on an adaptive co-management framework for whale-watching tourism in Scotland*
- Daryl Burdon (Marine Research, Teaching and Consultancy) - *Evolution in Ocean Literacy – A Mechanism for Behaviour Change?*
- Morgane Declerck (University of Aberdeen) - *A new strategic tool to structure Cumulative Impact Assessment (CIA)*
- Deborah Shinoda (Heriot-Watt University) - *Integration analysis over the management of transboundary marine resources*
- Colin Moffat (Marine Scotland) - *Governing Scottish Seas: theory, practice and future horizons*

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**Day 2: Tuesday 6th October 2020**

09.45-10.45  **MASTS General Science Session 2 in SESSION** and moderated by Hannah Lee (Heriot Watt University).

- Edward Bolger (Edinburgh Napier University) - *Accepting limitations and embracing benefits: why we need both laboratory and field-based studies in aquatic sound research*
- Laurence De Clippele (University of Edinburgh) - *Mapping cold-water coral biomass: an approach to derive ecosystem functions*
- Susan Fitzer (University of Stirling) - *Effects of extra feeding combined with ocean acidification and increased temperature on the isotopic signature of the mussel shell*
- Caitlin Orr (Edinburgh Napier University) - *Startle response and habituation of the blue mussel, Mytilus edulis, to shipping continuous noise playbacks*
- Stephanie Lapidge (Heriot-Watt University) - *Global biogenic reef restoration and project design: Lessons for emerging oyster restoration in Europe?*
- Naomi Kennon (Heriot-Watt University) - *European oyster reef restoration and recovery: oyster shell density predicts biodiversity*
- William Sanderson (Heriot-Watt University) - *Re-finding the missing jigsaw piece: Selecting sites for the restoration of the native European oyster*

11.15-12.15  **Special Session on “Multiple 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).

- Craig Stenton (Edinburgh Napier University) - *The ups and downs of stressor interactions: how response directionality can impact reported results*
• James Rimmer (University of St Andrews) - Evaluating cumulative stressor impacts on depositional estuarine habitats
• Magda Chidzinska (University of St Andrews) - Tools to investigate the effect of multiple stressors on marine top predators
• Cormac Booth (SMRU Consulting) - Food for thought: The importance of prey in assessments of stressors impacts on harbour porpoise
• Glenn Jessen (Heriot-Watt University) - Probing The Future: Use Of Biomarkers In A Marine Environment Subject To Multiple Climatic Stressors
• Eleni Christoforou (University of Glasgow) - Mussel activity response to Artificial Light at Night

10.00-12.00 WORKSHOP - Environmental interactions of floating offshore wind (invite only)

12.30-13.00 Eposters session 2 in the EXPO AREA.
• Heather Runnacles Goodridge (University of St Andrews) - Bringing decades of environmental monitoring and research to a wider audience: innovative public engagement strategies
• Nahaa Alotaibi (Swansea University) - Linking plant demography, ecological dynamics and population genetics across space and time
• Steven Benjamins (SAMS) - Marine mammals that fly: Observations of bats in coastal habitats of western Scotland
• Nezha Mejjad (University of Casablanca) - Moroccan lagoons: Current environmental issues and Environmental Conservation Measures of marine resources
• Georgina Robinson (SAMS) - Harnessing Reactive Nitrogen (Nr) in Integrated Food Production, Bioremediation and Energy Generation Systems
• Rajashree Naik (Central University of Rajasthan) - Pre and Post COVID-19 Lockdown effect on saltpan encroachment of a Ramsar Site: Sambhar Salt Lake, India
• Erica Chapman (St Abbs Marine Station) - Temporal and spatial variability in native European oyster larvae: are key patterns transferable for restoration projects?
• Charlotte Miskin-Hymas (MEDIN) - Marine Environmental Data and Information Network

12.30-14.30 Exhibition booths in the EXPO AREA

14.00-15.00 Special Session on “Aquaculture” in SESSION and moderated by Dr Andrew Davie (University of Stirling & MASTS Sustainable Aquaculture Forum Convenor).
• Max Holloway (SAMS) - Modelling of aquaculture impacts: what scales do we need to resolve?
• Annette Boerlage (SRUC) - Using remotely-sensed oceanographic products to enhance epidemiological models for Atlantic salmon aquaculture in Scotland
• Philip Gillibrand (Mowi) - The role of Stokes Drift in shoreline accumulations of infective sea lice larvae
• Alan MacDonald (SAMS) - It's all FYNE: How a novel management tool for the salmon aquaculture industry brings together nutrition and environment
• Stuart McMillan (University of Stirling) - Optimizing nutritional programming stimulus duration in Atlantic salmon for more efficient utilization of vegetable based feeds
• Tim Regan (University of Edinburgh) - Profiling microbial communities for healthier oyster hatcheries
• Susanne Vogeler (University of Gothenburg) - Neuroendocrine regulation of bivalve metamorphosis: applications for shellfish aquaculture industry

15.30-16.30 Special Session on “Technologies & Methodologies” in SESSION and moderated by Oliver Peppe (British Geological Survey).

• Phil Anderson (SAMS) - Exploring the white ribbon with impeller-driven kayaks
• Rufus Danby (University of Aberdeen) - Estimating and accounting for fish losses under the footrope of a survey trawl: the case of northern shelf anglerfish
• Owen Exeter (University of Exeter) - Autonomous underwater videography and tracking of basking sharks
• Thomas Grove (University of Edinburgh) - Sex-specific variation in the use of vertical habitat by a resident Antarctic top predator
• Fahid Tahir (University of Strathclyde) - Automatically identifying salmon farm characteristics using machine learning based classification of satellite images
• Emma Whettall (SAMS) - Low-cost resource assessment for community scale tidal stream power generation

17.00-17.30 Invited Speaker – Matthew Dawkins (Senior R&D Engineer, Kitware, Inc). “Video and Image Analytics for Marine Environments (VIAME), an Open-Source Do-it-yourself AI Toolkit” on STAGE and moderated by Dr Mark James.

17.30-18.10 Networking with a glass of something – BYOB!

Day 3: Wednesday 7th October 2020

09.50-10.20 Invited speaker – Dr Peter Macreadie (Deakin University) “Blue carbon and coastal environments”. On the STAGE and moderated by Prof William Austin.

10.00-12.00 WORKSHOP - Environmental interactions of floating offshore wind
10.30-11.30 Special Session on “Coastal ecosystem-based solutions: Climate-change adaptation and mitigation” in SESSION. Hosted by the MASTS Coastal Forum and moderated by Dr Thorsten Balke (University of Glasgow).

- Mark Huxham (Edinburgh Napier University) - Integrating blue: Challenges and solutions in including blue carbon into Nationally Determined Contributions
- Celeste Kellock (University of Stirling) - Source to Sea: Organic carbon transport from forested environments to coastal waters
- Cai Ladd (University of Glasgow) - Historical patterns of saltmarsh extent change reveal the long-term value of coastal habitats
- Emma Martin (University of Edinburgh) - Scaling Seagrass Restoration in Scotland: Coastal Hubs for Community-Driven Restoration Success
- Jack Sheehy (Heriot-Watt University) - Blue carbon: policy context and ecological economics
- Alejandra Vovides (University of Glasgow) - Understanding establishment thresholds of mangrove pioneer species in North Sumatra: implications for restoration

12.00-12.30 Eposters Session 3 in the EXPO AREA

- Hanna Ewen (University of St Andrews) - Exploring options for further inclusion of blue carbon in climate change policy within the framework of the IPCC
- Ieuan Jones (University of Aberdeen) - Spatio-temporal trends in different components of demersal fish biodiversity in the North Sea
- Fengjia Liu (SAMS) - Detection of DNA damage in sea urchin coelomocytes with fast micromethod
- Jack Sheehy (Heriot-Watt University) - A multivariate approach to determining factors of natural and artificial reef assemblages: Implications for biodiversity and marine renewable energy
- Gracie Wilson (University of St Andrews) - Potential impact of combined climate driven stressors on a UK dominant intertidal macroalgae

12.20-13.00 Networking

12.30-14.30 Exhibition booths EXPO

14.00-15.00 Special Session on “Marine Climate Change” in SESSION. Hosted by the MASTS Marine Climate Change Forum and Moderated by Dr Bee Berx (Marine Scotland Science).

- Cristina Castillo Alvarez (University of St Andrews) - Experimental investigation of the roles of HCO3- and CO32- in aragonite precipitation
- Connie Simon-Nutbrown (Heriot-Watt University) - Predicting Scottish maerl bed distribution under climate change
- Andrew Twelves (University of Edinburgh) - Interactions between ice shelves and phytoplankton blooms in the Amundsen Sea, West Antarctica
- Alan Baudron (University of Aberdeen) - Changing fish distributions challenge the effective management of European fisheries
Edward Lavender (University of St Andrews) - Modelling the impacts of climate change on the abundance of shallow-water marine fish at a global scale
Tara Marshall (University of Aberdeen) - Climate change impacts recruitment rates of North Sea and Irish Sea cod by widening the phenological mismatch
Jacob Davies (BTO Scotland) - Predicting seabird abundance responses to both marine and terrestrial climate change

15.30-16.30 MASTS General Science Session 3 in SESSION and moderated by Prof Paul Fernandes (University of Aberdeen & MASTS Fisheries Science Forum Convenor).

- Edward Lavender (University of St Andrews) - Opportunistic investigation of the impacts of recreational catch-and-release on the post-release behaviour of a Critically Endangered elasmobranch
- Agnes Olin (University of Strathclyde) - Generating planktivore prey fields from continuous plankton recorder data
- Anneli Lofstedt (University of Aberdeen) - Effect of season on nutritional composition in Atlantic mackerel (Scomber scombrus)
- Iosu Paradinas (University of St Andrews) - Modelling extreme fish catch observations
- Steven Benjamins (SAMS) - Integrating wind turbines and fish farms: an evaluation of potential risks to marine and coastal bird species
- Julie Miller (University of Glasgow) - Estimating connectivity and vulnerability in a seabird metapopulation
- Lillian Lieber (University of Belfast) - Seabird foraging associations with localised coherent surface flow structures

Day 4: Thursday 8th October 2020

10.00-10.30 Invited speaker – Prof Gideon Henderson (Chief Scientific Advisor at the Department of Environment, Food and Rural Affairs) “Title TBC”. On the STAGE and moderated by Prof David Paterson (MASTS Executive Director).

11.00-12.00 Special Session on “Structures in the Marine Environment” in SESSION. Hosted by the INSITE programme, the MASTS Marine Renewable Energy Forum, and the MASTS Oil & Gas Environmental Research Forum. Moderated by Dr Richard Heard (INSITE), Dr Raeanne Miller (SAMS) & Dr Sally Rouse (Marine Scotland Science).

- Joanne Porter (Heriot-Watt University Orkney Campus) - Connectivity of Hard Substrate Assemblages in the North Sea
- Elizabeth Mills (University of Dundee) - An Interdisciplinary Approach to Tackling Invasive Species Settlement on Concrete Surfaces in Harbours
- Michael Redford (SAMS) - Artificial reef creation using decommissioned subsea pipeline protections - investigating scale dependent habitat complexity using 3D Photogrammetry
• V Todd (Ocean Science Consulting Ltd) - *Use of ROV data to assess marine fauna associated with offshore anthropogenic structures*

• Elizabeth Masden (University of Highlands & Islands) - *When speed matters: the importance of flight speed in avian collision risk models*

11.00-12.00 **MASTS General Science Session 4** in **SESSION** and moderated by Prof Teresa Fernandes (Heriot Watt University and MASTS Theme Leader for Marine Biodiversity, Function & Services).

• Arianna Zampollo (University of Aberdeen) - *Can satellite surface data predict subsurface primary production?*

• Anai Aude Valdivia (University of Strathclyde) - *Modelling seaweed invasion: a theoretical approach for Sargassum muticum*

• Thorsten Balke (University of Glasgow) - *Restoration of tropical mangroves: Can we avoid repeating past mistakes?*

• Sofie Voerman (Lyell Centre for Earth and Marine Science) - *Photo-adaptation of the deepest living macroalga at the limit of the photic zone*

• Jenni Kakkonen (Orkney Islands Council, Marine Services) - *Establishing intertidal benthic macroinvertebrate baselines for 13 sandy shores in Orkney (1974-2016)*

• Alejandra Cabanillas (University of Strathclyde) - *Self-regulation processes in kelp forest*

• Juliet Rounce (Plymouth University) - *Investigating sediment stability in intertidal habitats: A CBESS case study on mudflats and saltmarsh habitats*

11.00-12.00 **Special Session on “Aquaculture”** in **SESSION** and moderated by Dr Andrew Davie (University of Stirling & MASTS Sustainable Aquaculture Forum Convenor).

• Eleanor Ford (SAMS) - *Exploring community perceptions of Scottish fin-fish aquaculture*

• Eoin Costelloe (University of Aberdeen) - *Functional studies of mucosal gill health in Atlantic Salmon*

• Samuel Pountney (University of Stirling) - *Egg quality determinants in Lumpfish*

• Alessandro Laudicella (SAMS) - *Lipidomics and broodstock management during mussel hatchery operations: identification of markers of ovary maturation in the blue mussels*

• Joe Penhaul-Smith (SAMS) - *Microalgal mixotrophy as a feed for Mytilus spp larvae*

• Robert Potts (University of Edinburgh) - *Developing Pacific oyster primary cell cultures*

• Maryam MacCorquodale (SAMS) - *Manipulating macronutrient concentration (N, P, Fe) to ensure vegetative cultivation of kelp gametophytes for the aquaculture industry*

12.30-13.00 **Eposters session 4** in the **EXPO AREA**

• Petra Harsanyi (St Abbs Marine Station) - *The effects of Electromagnetic Fields on microbial surface colonization and biofilm development*

• Natalie Isaksson (North Highland College, UHI) - *Assessing the effects of tidal stream marine renewable energy on seabirds: A conceptual framework*

• Euan Mackenzie (SAMS) - *Remote sensing of Loch Carron’s protected Limaria hians beds to monitor and map the recovery of damaged areas*
• Jiawei Pan (Heriot-Watt University) - *The bi-gradational contourite sequence and climatic signals: a geostatistical assessment*
• Yi Xu (University of Glasgow) - *Coastal infrastructure scour hazard assessment and monitoring: insights from lab experiments*
• Alienor Hammer (University of Edinburgh) - *The role of Scottish Salmon aquaculture in climate change*
• Bernadette Butfield (University of Edinburgh) - *Marine renewable energy developments, friend or foe to sharks in Scottish waters?*
• Melissa Costagliola-Ray (University of Highlands & Islands) - *Investigating the use of multiple survey techniques as an integrated approach to seabird monitoring*

12.30-14.30 Exhibition booths EXPO

14.00-17.00 **Salvage, Decommissioning & Wreck Removal. Influence, educate and unlock opportunities: Informing global sustainability challenges** on the STAGE

14.00-15.00 **MASTS General Science Session 5** in SESSION and moderated by Dr Mark James (MASTS Operations Director)

• Kara Layton (University of Aberdeen) - *Exploring Scotland’s marine biodiversity in the genomics era*
• Louise Campbell (Marine Scotland Science) - *The Scottish Shelf Waters Reanalysis Service – a 25 year Scottish Shelf Model hindcast*
• Shaun Fraser (NAFC Marine Centre) - *10 years of the annual Shetland inshore fish survey: trends, insights, and implications for regional management*
• Teale Phelps Bondaroff (OceansAsia) - *Masks on the beach: The impact of COVID-19 on marine plastic pollution*
• Corinna Dietz (University of Edinburgh) - *Towards a holistic marine litter regime: Gaps and challenges in the current political framework*
• Lauren Biermann (Plymouth Marine Laboratory) - *Detecting floating macroplastics in coastal waters using high resolution satellite data*
• Chris Leakey (University of St Andrews) - *People Ocean Planet*

17.15-17.45 **Invited Speaker** – Kerstin Forsburg (Founder & Director of Planeta Oceano, Peru). “Multi-disciplinary and participatory strategies for marine conservation” on the STAGE

17.45-18.00 **Conference Closing Remarks & Prize Giving** (Prof David Paterson) on the STAGE

18.00-18.40 **Networking** with a glass of something – BYOB!
Day 5: Friday 9th October 2020

09.00-10.00  Salvage, Decommissioning & Wreck Removal. Influence, educate and unlock opportunities: Informing global sustainability challenges on the STAGE

10.00-12.00 WORKSHOP - Plastics in the Ocean

09.30-16.30 WORKSHOP - Fast track your research impact (training for MASTS, SUPER & ARCH-UK PhD students and ECRs)