## 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** | | | | Salvage, Decommissioning & Wreck Removal. Influence, educate and unlock opportunities: Informing global sustainability challenges |
| **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 | 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) |
FULL PROGRAM

Day 1: Monday 5th October 2020

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

10.30-11.30 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
- Mariel ten Doeschate (SRUC) - SCANS of the beach; Spatiotemporal variation in mortality and demographic trends of Harbour porpoise in the North sea
- 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

12.20-13.00 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)
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

Day 2: Tuesday 6th October 2020

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

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?

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) - *Snot and steroids: exploring steroid hormones in whale blow via UAV collection for physiological monitoring*

• Theoni Photopoulou (University of St Andrews) - *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.

10.30-11.30 **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*

10.00-12.00  WORKSHOP - Environmental interactions of floating offshore wind

12.00-12.30  Epertes 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 macroalga*

12.20-1300  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*
- Eilidh 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). “Title TBC” 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**

09.00-12.45 **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)