



# MASTS

## 6<sup>th</sup> Annual Science Meeting



## OUR MARINE ENVIRONMENT – A SHARED RESOURCE

**Wednesday 19th – Friday 21st October 2016**

The Technology & Innovation Centre,  
University of Strathclyde, Glasgow

**Register now: <https://www.eventsforce.net/standrews/52/home>**

# DAY 1

Wednesday 19<sup>th</sup> October 2016

08.30 – 09.10

**Coffee** and Registration

09.10 – 09.25

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

09.25 – 09.55

**Invited speaker:** Dr Rod Wilson, Exeter University.  
“The surprising role of marine fish in global ocean biogeochemistry”

09.55 – 10.40

## MASTS General Science Session 1

in Main Auditorium (Auditoria B/C) (Chair: Prof. David Paterson).  
Talks are 12 minutes each plus 3 minutes for questions.

- **Martyn Cox** (Marine Scotland)  
NMPi and future Scotland's Seas assessments
- **Mark Hartl** (Heriot Watt)  
First assessment of microplastic contamination in intertidal sediments of Orkney
- **Marie-Lise Schläppy** (UHI-ERI)  
Spatially and temporally variable oxygen conditions as determinant of microbial processes in and around Irish sponges

# DAY 1

10.40 – 11.20

## Coffee break, networking and E-poster Session 1

- **Trevor Slougher** (screen 1)  
Seasonal Variations in Photosynthetic Efficiency of Polar Phytoplankton
- **Jenny McLeish** (screen 2)  
Molecular and Morphological Identification of Invasive Bullhead in Scotland
- **Jennifer Skinner** (screen 3)  
The Continuous Plankton Recorder (CPR) Survey:  
Indicators of change in Scottish waters
- **Ewan Edwards** (screen 4)  
The ECOMMAS project: using passive acoustic monitoring to  
assess the distribution of harbour porpoises around eastern Scotland
- **Matthew Wale** (screen 5)  
New Accessible Devices for Aquatic Particle Motion Measurements in  
Bioacoustic Studies
- **Suzannah-Lynn Billing** (screen 6)  
The people who want to facilitate new marine industries;  
Agents for Change and the development of wave energy in Scotland.
- **Andrew Sweetman** (screen 7)  
The Lyell Centre – a new research centre for earth and marine science and technology

# DAY 1

11.20 – 12.50

## MASTS General Science Session 2

in the Main Auditorium (Auditoria B/C) and a  
**Special Session on "Marine Biogeochemistry"** in Auditorium A.

11.20 – 12.50

**MASTS General Science Session 2** in the Main Auditorium (Auditoria B/C)  
(Chair: Dr Douglas Speirs). Talks are 12 minutes each plus 3 minutes for questions.

- **Melinda Choua** (Strathclyde)  
Modelling plastic and evolutionary responses for marine viruses
- **Robert Wilson** (Strathclyde)  
Projecting the impact of climate change on *Calanus finmarchicus*:  
there is no future, only possible futures
- **Laura Williamson** (Aberdeen)  
Management implications of using different modelling strategies (GAM and INLA) to  
assess the distribution of harbour porpoise
- **Neil Banas** (Strathclyde)  
Copepod populations and communities in changing oceans:  
Testing a new model across latitude, time, and the size spectrum
- **Sofia Ferreira** (Strathclyde)  
Connecting the Northeast Pacific coastal productivity through satellite ocean colour
- **Laura Hobbs** (Strathclyde)  
Winter vertical migration of Arctic zooplankton

# DAY 1

11.20 – 12.50

**Special Session on “Marine Biogeochemistry”** in Auditorium A

(Chair: Dr Nick Kamenos). Talks are 12 minutes each plus 3 minutes for questions.

- **Andrew Mogg** (SAMS)  
Quantifying biologically-driven coral reef carbonate production via high-resolution stereophotogrammetry
- **Carlos Cáceres** (Strathclyde)  
Acclimation responses to phosphorous availability in *Phaeodactylum tricornutum*.
- **Jinhua Mao** (Glasgow)  
Contemporary and historic carbon burial by coralline algal beds.
- **Pablo León** (Marine Scotland)  
Analysis of the potential impact of ocean acidification on the pelagic gastropod community in the North East of Scotland.
- **Stacey Felgate** (SAMS)  
Assessing the Resilience of a Blue Carbon Store: Characterizing the Lateral Flux of DIC from an East Coast U.S. Saltmarsh using  $\Delta^{14}\text{C}$  and  $\delta^{13}\text{C}$ .
- **Kathy Dunlop** (Heriot Watt)  
Scavenging Processes at Jelly-Falls.

12.50 – 13.45

**Lunch** and networking

12.55 – 13.25

“How to get your paper published in Nature” – Interactive session in Conference Room 1 with journal editor Dr Heidi Burdett. Open to all – first time and seasoned authors.

**Grab your lunch beforehand and bring it with you!**

# DAY 1

13.30/13.45 – 15.30

## MASTS – European Marine Board Science Session

in the Main Auditorium (Auditoria B/C) and a **Special Session** on **“Numerical Hydrodynamic Modelling”** in Conference Room 4/5.

13.45 – 15.30

Joint **MASTS – European Marine Board Science Session** in the Main Auditorium (Auditoria B/C) (Chair: Jan Mees, EMB Chair)

- **Dr Mark James** (MASTS Operations Director)  
Marine Science – A Tartan Perspective! – An overview of marine science in Scotland and future challenges. 20 minutes + 5 for questions.
- **Prof Murray Roberts** (Edinburgh)  
2020 and Beyond: Can Europe sustain marine ecosystems and drive Blue Growth at a North Atlantic scale? 20 minutes + 5 for questions
- **Dr Beth Scott** (Aberdeen)  
Marine Renewables and optimal ecologically sustainable planning for our oceans. 20 minutes + 5 for questions
- **Jan de Leeuw** (NIOZ)  
Decommissioning of offshore structures. 15 minutes + 5 for questions

13.30 – 15.30

## MASTS Special Session on “Numerical Hydrodynamic Modelling”

in Conference Room 4/5 (Chair: Philip Gillibrand).

Talks are 12 minutes each. Questions will be at the end of all talks.

- **Philip Gillibrand** (ERI-UHI)  
Numerical Simulations of the Effects of a Tidal Turbine Array on Local Bed Shear Stress.
- **Ted Schlicke** (SEPA)  
Numerical Hydrodynamic Modelling of the Clyde Estuary
- **Susana Baston** (Heriot Watt)  
Three-dimensional characteristics of the tidal currents at the Pentland Firth
- **Dmitry Aleynik** (SAMS)  
West Scottish Coastal Ocean Modelling System and Environment Impact Studies
- **Jean Reinaud** (St Andrews)  
Interaction between surface buoyancy filament and a deep vortex



# DAY 1

- **Simon Waldman** (Heriot Watt)  
Numerical investigation of the effects of tidal energy extraction in the Goto Islands, Japan
- **Andrew Berkeley** (SEPA)  
Modelling for regulation in aquaculture

## **Flash talks** (4 mins only + 1 min for questions)

- **James Ounsley** (St Andrews)  
Modelling Atlantic salmon (*Salmo salar*) post-smolt dispersal from Scottish shores
- **Soizic Garnier** (Strathclyde)  
Optimal-detail circulation models for fjords and sea lochs
- **Hoa Nguyen** (Strathclyde)  
Biophysical modelling of fjords and sea lochs

15.30 – 16.15

## **Coffee break**, networking and **E-poster Session 2**

- **Daniel Johnston** (screen 1)  
Investigating the ecology of black guillemots in relation to marine renewable energy and marine protected areas
- **Ana Rodriguez** (screen 2)  
Investigating the larval behaviour of *Ostrea edulis*
- **Philippe Gleizon** (screen 3)  
Sensitivity of wave models to boundary conditions
- **Louise Campbell** (screen 4)  
The Scottish Shelf Model – future developments and directions
- **Naif Ashri** (screen 5)  
Ecotoxicology of Sediment-associated Carbon Nanotubes
- **Katherine Whyte** (screen 6)  
The biodiversity of saline lagoons in Scotland
- **Heather Runnacles Goodridge** (screen 7)  
Independent environmental monitoring and advice for the Sullom Voe Terminal in Shetland

# DAY 1

16.15 – 17.45

## Joint MASTS – European Marine Board Science Session

in the Main Auditorium (Auditoria B/C) (Chair: Jan Mees, EMB Chair)

- **Marco Weydert** (Marine Resources Unit, DG Research & innovation)  
H2020 and other activities 15 minutes + 5 for questions.
- **Iain Shepherd** (DG MARE)  
Blue Growth & Ocean Observation 15 minutes + 5 for questions.
- **David Mills** (Bangor)  
The SEACAMS Initiative 15 minutes + 5 for questions
- **Alan Evans** (IOC-UNESCO)  
Update on UN PrepComm. 15 minutes + 5 for questions
- **OPEN DISCUSSION**

17.45 – 18.45

## EMB Wine reception (invitation only)

### Student Flash talks at EMB reception

- **Matthew Wale** (Edinburgh Napier)  
Anthropogenic Noise
- **Kate Wade** (St Andrews)  
Biodiversity, Ecosystem Functioning and Value of Restored Saltmarshes
- **Lucy Greenhill** (SAMS)  
Marine Spatial Planning and Innovations in Governance

19.30 – late

## ASM Conference Dinner and Ceilidh at the Millennium Hotel (ticketed event)



# DAY 2

Thursday 20<sup>th</sup> October 2016

08.10 – 08.30

Registration and **tea/coffee**

08.30 – 10.30

**MASTS General Science Session 3**

in Auditorium A and a **Special Session** on  
**"Science in the Clyde"** in the Main Auditorium (Auditoria B/C).

08.30 – 10.30

**MASTS General Science Session 3** in Auditorium A

(Chair: Dr Sebastian Hennige). Talks are 12 minutes each plus 3 minutes for questions.

- **Matthew Wale** (Edinburgh Napier)  
The Effects of Anthropogenic Noise Playbacks on the Blue Mussel *Mytilus edulis*
- **Simon Little** (Heriot Watt)  
The toxicity of differently coated copper oxide nanoparticles towards the marine blue mussel, *Mytilus edulis*
- **Jacopo Aggiate** (Strathclyde)  
Optical closure between PSDs and IOPs in natural waters:  
a Mie-based flow cytometric method
- **Fiona Murray** (Heriot Watt)  
Cold-water-corals in a high CO<sub>2</sub> ocean: behaviour, physiology and growth in *Desmophyllum dianthus*.
- **Marwa Al-Ghanem** (Heriot Watt) Investigation of the biodiversity and ecology of encrusting epifauna associated with horse mussel *Modiolus modiolus* in the North-East Atlantic
- **Mona Connolly** (Heriot Watt)  
The potential impact of engineered nanomaterials (ENMs) on marine ecosystems: investigations using the marine mussel bivalve invertebrate *Mytilus edulis*
- **Michaela Roberts** (St Andrews)  
How do SCUBA divers value coral reef protection?
- **Alan Fox** (Heriot Watt)  
The sensitivity of modelled *Lophelia pertusa* larval dispersal and population connectivity to climate variability

# DAY 2

08.30 – 10.30

**Special Session on “Science in the Clyde”** in Main Auditorium (Auditoria B/C)  
(Chair: Prof Mike Heath). Talks are 12 minutes each plus 3 minutes for questions.

- **Neil Burns** (Glasgow)  
Distribution and connectivity in Firth of Clyde whiting
- **Aidan Hunter** (Strathclyde)  
Stock assessment of Firth of Clyde whiting using a length-based Bayesian model
- **Douglas Speirs** (Strathclyde)  
Modelling the exploitation of whitefish and herring in the Firth of Clyde during the nineteenth century
- **Mark Williams** (SEPA)  
Data Analysis to understand Conditions leading to Fish Kill Events in the Clyde Estuary
- **Jacob Ainscough** (Edinburgh)  
Valuing future changes in ecosystem service delivery resulting from South Arran MPA
- **Bryce Stewart** (York University)  
Greater lobster densities affect other commercially important crustaceans in a community-led temperate marine reserve.
- **Hazel Smith** (Strathclyde)  
The Transport of *Nephrops norvegicus* Larvae in the Firth of Clyde
- **Sophie Elliot** (Glasgow)  
Juvenile gadoid habitat and growth related changes using underwater stereo-video surveys

# DAY 2

10.30 – 11.15

## Coffee break, networking and E-poster Session 3

- **Loïc Houpert** (screen 1)  
Circulation and Transport associated to a Branch of the North Atlantic Current in the eastern part of the Subpolar Gyre
- **Alethea Madgett** (screen 2)  
Bioaccumulation of Persistent Organic Pollutants and Trace Metals in Scottish Marine Food Webs and their Relationship with Trophic Level and Fatty Acid Signatures.
- **Alice Tagliati** (screen 3)  
Ecotoxicology of sunscreen on tropical corals in a changing ocean.
- **Charlie Cameron & Ellen Harrison** (screen 4)  
The Feeding Ecology of Grey Gurnard, *Eutrigla gurnardus*, off the coast of Scotland
- **Joanne Clarke** (screen 5)  
Identifying the effect of trawl intensity on mobile megafauna associated with Burrowed Mud
- **Thodoros Kampouris** (screen 6)  
Habitat selection of the spiny lobster *Palinurus elephas*: preliminary results
- **Diego del Villar-Guerra** (screen 7)  
Potential interactions between migratory fish and marine renewables in Scotland

11.15 – 11.45

**Invited speaker:** Prof Michael Meredith, BAS and SAMS.

"The role of the ocean in variability and change at the Western Antarctic Peninsula, or: What's up at the WAP?"

# DAY 2

11.45 – 13.00

## MASTS Physical Oceanography Session

in the Main Auditorium (Auditoria B/C)

(Chair: Dr Bee Berx). Talks are 12 mins plus 3 minutes for questions.

- **Anton Edwards** (UHI)  
The balance of tidal and wind-driven currents in west Scottish coastal waters
- **Peter Sheehan** (UEA)  
Forcing and variability of western inflow routes of Atlantic water into the northern North Sea
- **David Woolf** (Heriot Watt)  
Whither the 60 Gigawatt Wave?
- **Michela De Dominicis** (NOC)  
What are the potential consequences of very large-scale tidal arrays on physical processes?
- **Jenny Hindson** (Marine Scotland Science)  
Freshwater around the Scottish coast: temporal and spatial variability, with a sea loch case study

13.00 – 13.45

**Lunch** and networking opportunities.

13.30 – 17.30

**Decommissioning and Wreck Removal Workshop** in Auditorium A

13.45 – 15.45

**MASTS General Science Session 4** in the Main Auditorium (Auditoria B/C) and **MASTS General Science Session 5** in Conference Rooms 4/5.

13.45 – 15.45

**MASTS General Science Session 4** in the Main Auditorium (Auditoria B/C)

(Chair: Dr Karen Diele). Talks are 12 minutes each and 3 minutes for questions.

- **Tanja Miethe** (Marine Laboratory)  
Application of harvest control rules (HCR) using length-based indicators for shellfish stocks and fisheries
- **Liz Clarke** (Marine Scotland Science)  
Evaluating regional designs for the on-shore sampling of North Sea demersal fisheries

- **Mark Hamilton** (UHI)  
Environmental drivers of landings variability in Shetland creel fisheries
- **Alan MacDonald** (Strathclyde)  
Climate change and sandeels: can we ignore the direct effects of temperature?
- **Kirsty Lees** (Newcastle)  
Fine-scale movements, activity patterns, and catchability of European lobsters within a north-east fishery
- **Tania Mendo Aguliar** (St Andrews)  
Development of a platform for fine scale spatial assessment of fishing activities around Scotland
- **Mailys Billet** (Aberdeen)  
Using high-resolution vessel movement data to improve accuracy of locations of commercial fisheries for Marine Spatial Planning
- **David Donnan** (SNH)  
Acoustic tracking of common skate and spurdog in and around the Loch Sunart to the Sound of Jura MPA

13.45 – 15.45

**MASTS General Science Session 5** in Conference Rooms 4/5

(Chair: Dr Alistair Rennie). Talks are 12 minutes each and 3 minutes for questions.

- **Alistair Rennie** (Scottish Natural Heritage)  
Scotland's Dynamic Coast – The National Coastal Change Assessment
- **Mairi MacArthur** (Glasgow)  
Ecological Enhancement of Coastal Infrastructure
- **Thorsten Balke** (Glasgow)  
Tipping points in salt marsh and mangrove vegetation dynamics
- **Ben Taylor** (St Andrews)  
Saltmarsh restoration in the Eden Estuary: sediment dynamics and carbon storage potential
- **Martin Hurst** (Glasgow)  
Dating shore platforms and measuring long-term rates of coastal erosion on rocky coasts
- **Simone Martino** (SAMS)  
How does economics fit into social-ecological aspects of marine and coastal ecosystems management?
- **Cati Torres** (University of the Balearic Islands)  
Communicating research on economic valuation of coastal and marine ecosystem services
- **Lynette Loke** (MASTS Visiting Fellow, Singapore University)  
Enhancing biodiversity on artificial coastal defences

# DAY 2

15.45 – 16.30

## Coffee break, networking and E-poster Session 4

- **Charlotte Francoz** (screen 1)  
Luminescence dating of sedimentation regimes in Scottish saltmarshes: can they keep pace with sea level rise?
- **Fiona Cunningham** (screen 2)  
Adaptation to the Impacts of Climate Change in Scottish Island Communities
- **Emily Gal** (screen 3)  
Interweaving narratives: reconstructing chronologies and impacts of windblown sand in prehistoric landscapes
- **John Preston** (screen 4)  
Modelling changes in the coastal geomorphology of Unst, Shetland and the implications for understanding Norse/Medieval harbour changes in the Scandinavian North Atlantic
- **Deborah Wood** (screen 5)  
Investigating the speciation and mineralogy of iron in colloids and nanoparticles of Scotland's coastal waters: method development
- **Kate Wade** (screen 6)  
Biodiversity, Ecosystem Functioning and Value of Restored Saltmarshes in the Eden Estuary, Fife
- **Hannah Fennell** (screen 7)  
Mapping the Marine Planning Science Network in Scotland

16.30 – 17.30

## MASTS General Science Session 6 in the Main Auditorium (Auditoria B/C)

(Chair: Prof David Paterson). Talks are 12 minutes each and 3 minutes for questions.

- **Franziska Broell** (MASTS Visiting Fellow, Dalhousie University)  
Characterizing and quantifying activity patterns of fish with accelerometer archival tags
- **Sebastian Hennige** (Edinburgh)  
How corals apply the Goldilocks Principle to habitat engineering
- **Jacqueline Tweddle** (Aberdeen)  
Phytoplankton: helping support the environment and society
- **Andrew Sweetman** (Heriot Watt)  
Bacteria, not macrofauna, are key players in the short-term degradation of phytodetritus in abyssal CCZ sediments.

17.30 – 17.45

## Conference Closing Remarks & Prize Giving (Prof David Paterson)



# DAY 3

## Friday 21<sup>st</sup> October 2016

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

Find out more from <http://www.masts.ac.uk/annual-science-meeting/2015-workshops/>

Friday breaks are: **10.30 – 11.00** for **morning coffee**, **lunch** is at **12.30 – 13.30** and **afternoon coffee break** is **15.00 – 15.30**.

### Confirmed Workshops

#### Two day workshop

- **Auditorium A** – Decommissioning and Wreck Removal (13.30 – 17.30 on Thursday 20th October and 08.45 – 12.45 on Friday 21st October). If this workshop is the only part of the ASM that you will be attending, please contact [masts@st-andrews.ac.uk](mailto:masts@st-andrews.ac.uk) for a registration discount code.

#### Morning workshops

- **Conference room 1** (09.30 – 12.30) – Where are we? Exploring the National Marine Plan review process in Scotland.
- **Conference room 2** (09.30 – 12.30) – Modelling your data: a hands-on introduction to dynamical systems
- **Conference room 3** (12.00 – 13.00) – Marine environmental science priorities for Scottish aquaculture innovation
- **Conference room 4** (10.00 – 12.00) – Shellfish Aquaculture Research in Scotland
- **Conference room 5** (09.30 – 12.30) – Scottish Microplastic Research Group Meeting
- **Conference room 8** (09.15 – 13.15) – Choice Modelling for Ocean & Coastal Management

#### Afternoon workshops

- **Conference room 2** (13.30 – 16.30) – Modelling your data: a hands-on introduction to Bayesian Statistics
- **Conference room 3** (13.30 – 15.30) – Native Oyster regeneration – sharing best practice

### Confirmed Exhibitors

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

MASTS is delighted to host the following exhibitors:

- Marine Scotland Science
- Shetland Oil Terminal Environmental Advisory Group (SOTEAG)
- The Sir Alister Hardy Foundation for Ocean Science (SAHFOS)
- SAMS
- Various exhibits from the MASTS Technology Platforms & Sensors Forum including the UAV/UAS Centre for Environmental Monitoring and Mapping
- RS Aqua Ltd
- Energy Transfer Partnership (ETP)
- Scottish Aquaculture Innovation Centre (SAIC)
- Jen Loxton – Marine renewable energy educational board game
- Centre for Marine Biodiversity & Biotechnology
- St Abbs Marine Station





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