



# MASTS

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



### SEA CHANGE – CHANGING SEAS, CHANGING TIMES

**Wednesday 4th – Friday 6th October 2017**

The Technology & Innovation Centre,  
University of Strathclyde, Glasgow

All images courtesy of Scottish Natural Heritage

[www.masts.ac.uk/annual-science-meeting](http://www.masts.ac.uk/annual-science-meeting)

# DAY 1

Wednesday 4<sup>th</sup> October 2017

08.40 – 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 Kerry Howell, Plymouth University.  
"Challenges in conservation of the deep-sea: maps, modelling and management"

09.55 – 10.40

## MASTS Women in Scottish Marine Science Session

in Main Auditorium (Auditoria B/C) (Chair: Dr Bee Berx).

The gender imbalance across academia and research in science subjects is an established concept, and a number of initiatives, such as Athena Swan, are working to quantify and redress the balance. This session aims to take a positive view on the situation and shine a spotlight on female scientists in marine science across Scotland.

Talks are 12 minutes each plus 3 minutes for questions.

- **Catherine Booth** (previously of the National Library Scotland)  
Pioneer women in marine science in Scotland
- **Raeanne Miller** (SAMS)  
Beyond the stats – Women in STEM, leadership, and lessons from Antarctica
- **Meriwether Wilson** (Edinburgh University)  
Insights from working for international organisations

# DAY 1

10.40 – 11.20

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

10.45 – 11.00

- **Pablo Reche** (screen 1)  
An approach to farming spatial arrangement based on salmon diseases connectivity – a Chilean case
- **Cindy Chen** (screen 2)  
Hindered erosion: The biological mediation of non-cohesive sediment behaviour
- **Abdallah Abdallah** (screen 3)  
Machine learning with lobsters
- **Naif Ashri** (screen 4)  
Ecotoxicology of sediment-associated single and multi-walled carbon nanotubes in marine sediment dwelling cockles
- **Matt Wale** (screen 5)  
Behavioural responses of the European lobster *Homarus gammarus* to acute anthropogenic noise playbacks
- **Sophie Smout** (screen 6)  
Changing Arctic Ocean – implications for marine biology and biogeochemistry

11.00 – 11.15

- **Edward Bolger** (screen 1)  
Ship noise playbacks cause developmental delays in Norwegian lobster *Nephrops norvegicus* (L.) larvae
- **Viviana Brambilla** (screen 2)  
Measuring flow at relevant biological scales: a flow sensing network for coral reefs
- **Emma Dolmaire** (screen 3)  
Population dynamics of blue whiting in the North-East Atlantic
- **Heather Runnacles-Goodridge** (screen 4)  
Independent environmental monitoring and advice for the Sullom Voe Terminal in Shetland
- **Johanne Vad** (screen 5)  
Shallow water sponges associated with kelp forests and coralline algae beds, offshore Nuuk, southwest Greenland
- **Natalie Ward** (screen 6)  
Marine mammals in Scottish Waters

# DAY 1

11.20 – 13.20 **MASTS General Science Session 1**  
in the Main Auditorium (Auditoria B/C) and a **Special Session** on  
“Maximising capabilities of volunteer observing systems” in Auditorium A.

11.20 – 13.20 **MASTS General Science Session 1**  
in the Main Auditorium (Auditoria B/C) (Chair: Dr Steven Benjamins).  
Talks are 12 minutes each plus 3 minutes for questions.

- **Agnes Olin** (Strathclyde)  
Spatial variability in kittiwake colony dynamics
- **Kaitlin Palmer** (St Andrews)  
Diurnal trends in bottlenose dolphin echolocation click detections
- **Clair Evers** (St Andrews)  
Using DTAGS to investigate the stereotyped structure of long-finned pilot whale vocalizations
- **Giuseppe Calise** (Naples University)  
Design of a low drag universal frame for subsea data acquisition in high energy tidal sites
- **Robert Wilson** (Strathclyde)  
Changing tides: predicting the impact of Scottish tidal energy on sediment levels in British waters
- **Laura Williamson** (Aberdeen)  
Trends in the distribution and foraging detections of harbour porpoise
- **Bernie McConnell** (St Andrews)  
A harbour seal individual based model: a useful management tool?

# DAY 1

11.20 – 13.20 **MASTS Special Session on “Maximising capabilities of volunteer observing systems”**  
in Auditorium A (Chair: Prof Willie Wilson).  
Talks are 12 minutes each plus 3 minutes for questions.

- **Claire Durkin** (Head of Global Science, Innovation and Knowledge Economy, BEIS)  
Bridging international political and scientific ambition: A UK government perspective
- **Willie Wilson** (Director, SAHFOS)  
Maximising future capability of the SAHFOS Continuous Plankton Recorder Survey
- **Lance Gregory** (Operations Manager, SAHFOS)  
Our navy of volunteers – exploring the role of the international shipping community in a global marine survey
- **Richard Heard** (INSITE Programme Director)  
The INSITE Programme: The role of data in a successful industry-science partnership
- **Eileen Bresnan** (Marine Scotland Science)  
The Scottish Coastal Observatory
- **Karen Diele** (Edinburgh Napier)  
From science to policy: Improving fisheries management of Brazilian mangrove crabs and using mobile app technology to support citizen science

Discussion to end

13.20 – 14.00  
13.30 – 13.50

**Lunch** and networking  
**Introductory session** from Dr Lois Calder (Dean of the MASTS Graduate School) on the Postgraduate Certificate in Postgraduate Certificate in Researcher Professional Development for Marine Science and Technology (MASTS PG Cert) in Conference Room 2

14.00 – 16.00 **SNH Session “Safeguarding Scotland’s coasts and seas... perspectives and visions”**  
in the Main Auditorium (Auditoria B/C) and a  
**Special Session** on “Deep Sea” in Auditorium A.

14.00 – 16.00 **SNH Session “Safeguarding Scotland’s coasts and seas... perspectives and visions”**  
in the Main Auditorium (Auditoria B/C) (Chair: Dr David Donnan).  
Talks are 12 minutes each plus 3 minutes for questions.

- **David Donnan** (SNH)  
25 years of SNH challenges and achievements
- **Bernie McConnell** (St Andrews)  
Advances and benefits in tagging technologies



# DAY 1

- **Joanne Porter** (Heriot Watt)  
Advances and benefits in survey methodologies
- **John Baxter** (SNH)  
Taking account of climate change
- **Les Noble** (Aberdeen)  
Genetics and eDNA
- **William Sanderson** (Heriot Watt)  
Balancing ecosystem services and conservation efforts

The last part of the session will be devoted to a discussion on the future direction of nature conservation for Scotland's coasts and seas and this will be led by Prof Bob Furness.

14.00 – 16.00

## MASTS Special Session on "Deep Sea"

in Auditorium A (Chair: Dr Heather Stewart).

Talks are 12 minutes each plus 3 minutes for questions.

- **Heather Stewart** (BGS)  
Introduction to the Deep Sea Forum and this ASM session
- **Clayton Magill** (Heriot Watt)  
Molecular and isotopic analyses of down-core sedimentary proxies reveal hydrodynamic influences on organic matter accumulation in deep-sea environments
- **Heather Ritchie** (Aberdeen)  
Ecological genetics of hadal amphipods
- **Berta Ramiro** (Edinburgh)  
Biogeographical patterns in the deep-ocean: environmental, biological, and historical drivers in the North Atlantic
- **Dorrik Stow** (Heriot Watt)  
Contourites: New insights into process sedimentology and the facies model
- **Zeinab Smillie** (Heriot Watt)  
Contourites and climate: New evidence from the Gulf of Cadiz, IODP Expedition 339
- **Jiřina Stehlíková** (SAMS)  
Hadal trenches: evidence for particulate-matter dynamics on short time scales
- **Robert Turnewitsch** (SAMS)  
New insights into abyssal-hill biogeochemistry

# DAY 1

16.00 – 16.45

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

16.15 – 16.30

- **Tavis Potts** (screen 1)  
Understanding ecosystem service flows from Scottish MPAs – A new agenda for conservation?
- **Ina Lefering** (screen 2)  
New, exciting and unexpected ways to measure light absorption in the ocean
- **Mairi MacArthur** (screen 3)  
Ecological enhancement of coastal infrastructure
- **Tania Mendo** (screen 4)  
Identifying fishing behaviours of inshore fishing vessels targeting crabs and lobsters around Scotland
- **Adam Wyness** (screen 5)  
Variation in selection pressures induced by complementary and conflicting benthic ecosystem engineers
- **Lina María Barrios Gardelis** (screen 6)  
Characterization of 32 microsatellite loci for the sea urchin *Psammechinus miliaris* (Echinodermata: Echinoidea: Parechinidae) using illumina paired-end sequencing
- **Steven Benjamins** (screen 7)  
Baited camera lander attracts flapper skates (*Dipturus cf. intermedia*) for photo-identification

16.45 – 18.15

## MASTS General Science Session 2

in the Main Auditorium (Auditoria B/C) and the Special Session on "Deep Sea" continued in Auditorium A.

16.45 – 18.15

## MASTS General Science Session 2

in the Main Auditorium (Auditoria B/C) (Chair: Dr Sophie Smout).  
Talks are 12 minutes each plus 3 minutes for questions.

- **Neil Banas** (Strathclyde)  
Are Arctic productivity hotspots sources or sinks?  
Mapping food-web energy transfer along advective corridors
- **Trevor Slougher** (Strathclyde)  
Integrating seasonality into models of Arctic phytoplankton

# DAY 1

- **Laura Duran** (Heriot Watt)  
Role of EPS, dispersant and nutrients in marine oil snow formation in surface waters of the Faroe-Shetland Channel and the associated microbial response
- **Alethea Madgett** (RGU)  
Bioaccumulation of persistent organic pollutants and trace metals in Scottish marine food webs and their relationship with trophic level and fatty acid signatures
- **Josh Lawrence** (Aberdeen)  
Interannual variability at three trophic levels in a recovering marine environment
- **Laura Hobbs** (Strathclyde)  
Interannual variation in the seasonal strategies of zooplankton in a high Arctic fjord

16.45 – 17.45

## MASTS Special Session on "Deep Sea"

in Auditorium A (Chair: Dr Heather Stewart).

Talks are 12 minutes each plus 3 minutes for questions

- **John Cohen** (Delaware University)  
Photic ecology in the epipelagic high Arctic polar night: A deep sea analogue?
- **Winnie Courtene-Jones** (SAMS)  
Microplastic pollution identified in deep-sea water and ingested by benthic invertebrates in the Rockall Trough, North Atlantic Ocean
- **Johanne Vad** (Heriot Watt)  
Environmental assessment of deep-water sponge grounds in relation to oil and gas activities: a Faroe-Shetland case study

An open discussion at the end will focus on where as a community we see deep water research moving to in the future, and will be used to identify a strategic research agenda, knowledge gaps and possible funding sources.

19.00 – late

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

# DAY 2

Thursday 5<sup>th</sup> October 2017

08.30 – 09.00

Registration and **tea/coffee**

09.00 – 10.30

## MCCIP Science Session

### "Marine climate change impacts: 10 years of science-policy reporting, lessons learnt and future directions"

in Main Auditorium (Auditoria B/C) (Chair: Prof Colin Moffat).

- **Colin Moffat** (Marine Scotland Science)  
Introduction to the session (5 mins)
- **Invited speaker: Dr Matthew Frost**  
(Deputy Director (Policy and Knowledge Exchange at The Marine Biological Association))  
Reporting marine climate change impacts: lessons from the science-policy interface (30 mins)
- **Mike Burrows** (SAMS) & **Eileen Bresnan** (Marine Scotland)  
Perspectives from report card authors (10 mins)
- **Various** (voxpops from various Scottish; UK and international stakeholders)  
Value to end-user (10 mins)

The talks in this session will be followed by a 30 minute Q&A hosted by Prof Colin Moffat.

10.30 – 11.15

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

10.40 – 10.55

- **Kim Last** (screen 1)  
Sink or swim: drivers of copepod migration behaviour
- **Corinne Baulcomb** (screen 2)  
Climate change, fisheries policy & behaviour:  
What are the distributional and resilience effects in the North Sea?
- **Sheila Fraser** (screen 3)  
Are flagellated cells of Phaeocystis present when it blooms?
- **Aidan Hunter** (screen 4)  
Fitting the StrathE2E marine ecosystem model using Bayesian methods
- **Hoa Nguyen** (screen 5)  
Long-term Puget Sound plankton dynamics:  
A comprehensive parameter – space exploration in a new model
- **Anna Gebruk** (screen 6)  
Assessing the foraging resources of the Atlantic walrus in the Pechora Sea

# DAY 2

11.00 – 11.15

- **Tom Adams** (screen 1)  
From quadrats to coastlines: “scaling up” estimates of ecosystem function in the coastal margin
- **Alice Tagliati** (screen 2)  
Toxicity of titanium dioxide nanoparticle sunscreen formulations and simultaneous warming on corals’ symbiotic algae, *Symbiodinium* spp.
- **Daniel Johnston** (screen 3)  
The foraging ecology of black guillemots in relation to marine renewable energy devices
- **Emma Mackenzie** (screen 4)  
The use of coloured LED lights to stimulate an escape response in haddock (*Melanogrammus aeglefinus* L.)
- **Ria Devereux** (screen 5)  
Microplastics in marine biota in the Northern Isles

11.15 – 13.15

## MASTS General Science Session 3

in the Main Auditorium (Auditoria B/C) and a **Special Session** on “Circulation, dispersion and connectivity in Scottish Waters” in Conference Room 3.

11.15 – 13.15

## MASTS General Science Session 3

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

- **Katie Beckett** (BEIS)  
The Nagoya Protocol on Access and Benefit-sharing: How does it apply to research and development of marine natural resources? (30 min slot)
- **Fiona Murray** (Edinburgh)  
Decommissioning the North Sea: Data challenges and opportunities to support blue growth
- **Daryl Burdon** (Hull)  
Assessing decommissioning options for oil and gas infrastructure and their potential impacts on the integrity of Marine Protected Areas and the provision of ecosystem services

# DAY 2

- **Hamish Mair** (Heriot Watt)  
MASTS research projects and further potential for international collaborations in Colombia
- **Zoe Hutchison** (Cranfield)  
Electromagnetic fields from a buried DC cable and the influence on migratory and electro-sensitive species
- **Marius Dewar** (Heriot Watt)  
STEMM-CCS: Project overview
- **Mike Elliot** (Hull)  
‘The Dissemination Diamond’ and paradoxes of science-to-science and science-to-policy communication: lessons from large marine research programmes

11.15 – 13.30

## MASTS Special Session on “Circulation, dispersion and connectivity in Scottish Waters”

in Conference Room 3 (Chair: Dr David Woolf).

Talks are 12 mins plus 3 minutes for questions, with a general discussion session at the end.

- **Tom Adams** (SAMS)  
Management defined by hydrodynamics – insights for spatial organization of aquaculture
- **Anton Edwards** (UHI)  
Dispersion in Scottish coastal waters
- **Matteo Marasco** (ERI, UHI)  
Tidal variability in the Fair Isle Gap using high frequency radar and current meter measurements
- **Hannah Millar** (ICIT, Heriot Watt)  
Predicting changes to Scottish Nature Conservation MPA connectivity due to tidal energy device arrays and climate change
- **Alexander Murray** (Marine Scotland Science)  
Standardizing biological modelling of sea lice dispersal
- **Peter Sheehan** (UEA)  
High-resolution glider observations of tidal flows and frontal dynamics in the northwestern North Sea
- **Ted Schlicke** (SEPA)  
Dispersion and connectivity – a regulatory perspective
- **Phil Gillibrand** (Marine Harvest)  
Observations and modelling of dispersion in Scottish coastal waters in relation to aquaculture



# DAY 2

13.15 – 14.00

**Lunch and networking opportunities**

13.30 – 13.50

**Introductory session** from Dr Lois Calder (Dean of the MASTS Graduate School) on the Postgraduate Certificate in Postgraduate Certificate in Researcher Professional Development for Marine Science and Technology (MASTS PG Cert) in Conference Room 2

13.30 – 17.30

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

14.00 – 16.00

**MASTS General Science Session 4**

in the Main Auditorium (Auditoria B/C) and a **Special Session** on "Marine Biogeochemistry" in Conference Room 3.

14.00 – 16.15

**MASTS General Science Session 4**

in the Main Auditorium (Auditoria B/C) (Chair: Prof Jimmy Turnbull).

Talks are 12 minutes each and 3 minutes for questions.

- **Nabeil Salama** (Marine Scotland)  
The developing wrasse fishery of Scotland
- **Soizic Garnier** (Strathclyde)  
Tidally averaged mixing parametrization for optimal-detail circulation models of fjords and sea lochs
- **Armin Sturm** (Stirling)  
Insights into the genetic basis of drug resistance of the salmon louse (*Lepeophtheirus salmonis*)
- **Simone Martino** (SAMS)  
A time series simultaneous equation model for salmon demand and supply: welfare implications of expanding production
- **Ana Rodriguez** (Heriot Watt)  
An inexpensive method for larval visualisation
- **Caroline Coccoli** (AZTI)  
Additional insight on potential reallocation scenarios for artisanal fisheries from a spatial Bayesian belief network
- **Marzena Dziedzicka** (Aberdeen)  
Further advances in using broadband sonars for sizing fish with and without swimbladders and the detection and survey of demersal fish

14.00 – 16.00

**MASTS Special Session on "Marine Biogeochemistry"**

in Conference Room 3 (Chairs: Dr Nick Kamenos & Dr Heidi Burdett).

Talks are 12 mins and 3 minutes for questions. This session will also be live streamed so if you are unable to attend the event, please register here:

<https://attendee.gotowebinar.com/register/40024807058508545>

- **Elena Lo Giudice Cappelli** (St Andrews)  
Peat erosion in west Shetland voes: a substantial store of blue carbon in the coastal ocean or a stressor for benthic communities?
- **Danai Patsiou** (Heriot Watt)  
Establishing standard toxicity testing for engineered nanomaterials (NPs) in the aqueous phase
- **Laura Hepburn** (Stirling)  
Mineralogy of reactive iron species: Combining sequential extractions and Mössbauer spectroscopy
- **Babette Hoogakker** (Heriot Watt)  
New methods to assess ocean oxygenation in the past; examples from the Atlantic and Southern oceans
- **Bonnie Lewis** (Glasgow)  
Effects of biogeochemical change on Arctic primary productivity
- **Rebecca MacPhearson** (Heriot Watt)  
New Marine Protected Area is a 'stone-age' blue carbon 'hotspot'
- **Ben Taylor** (St Andrews)  
Carbon storage of the Eden estuary: What are the benefits of restoration?
- **Deborah Wood** (Stirling)  
Iron-bearing colloids and nanoparticles: riverine delivery to Scotland's coastal waters

16.00 – 16.45

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

16.00 – 16.30

- **Morag Clinton** (screen 1)  
Investigating the adherent bacterial community of Cnidarian zooplankton; Jellyfish as vectors of potential pathogens of the aquaculture industry
- **Paul Dees** (screen 2)  
Structure of the water column in St Magnus Bay, Shetland, and how this may contribute to the advection of harmful algae

# DAY 2

- **Laura Duran** (screen 3)  
Effect of two chemical dispersants on the microbial community response and MOS formation to crude oil spillage in the Faroe-Shetland Channel
- **Afiq Fahmi** (screen 4)  
Response to oil pollution by *Emiliana huxleyi* and its associated bacterial community under projected atmospheric CO<sub>2</sub> conditions
- **Karina Salek** (screen 5)  
Correlations between petroleum hydrocarbon biodegradation and cell surface properties for bacteria from marine and terrestrial origin
- **Laura Antao** (screen 6)  
bioTIME – a time-series database for the Anthropocene
- **Andronikos Kafas** (screen 7)  
Multiple maritime uses in European seas: Findings from the MUSES project

16.45 – 17.45

## MASTS General Science Session 5

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

- **Paul Haddon** (Marine Scotland)  
SIMCelt – supporting maritime spatial planning in the Celtic Seas
- **Jacqueline Tweddle** (Aberdeen)  
From marine science to marine management and policy, and back again
- **Kirsty Wright** (Marine Scotland)  
Offshore energy planning provisions and transnational maritime spatial planning in the North Sea region: Findings from the NorthSEE project
- **Colin Moffat** (Marine Scotland)  
Are our indicators indicating progress in delivery of our visions?

17.45 – 18.00

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

18.30 – 19.30

Civic reception at Glasgow City Chambers (all welcome to this free event)

# DAY 3

## Friday 6<sup>th</sup> October 2017

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/2017-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 – 15.45**.

### Confirmed Workshops

#### Two day workshop

- **Auditorium A** – Decommissioning and Wreck Removal (13.30 – 17.30 on Thursday 6<sup>th</sup> October and 08.45 – 12.45 on Friday 7<sup>th</sup> 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.

#### One day workshop

- **Level One Auditorium** (09.15 – 15.30) – Cumulative effects of multiple stressors

#### Morning workshops

- **Conference Room 1** (09.30 – 13.00) – EcoWatt 2050
- **Conference Room 2** (09.30 – 12.30) – Scottish Microplastic Research Group Meeting
- **Conference Room 4/5** (09.00 – 12.30) – Sustainable Aquaculture
- **Conference Room 8** (09.15 – 12.15) – BioTIME – how to interact with a biodiversity time series database

#### Afternoon workshop

- **Conference Room 4/5** (13.00 – 16.00) – MAREMAP: A Marine Environmental Mapping Network for the UK

### E-posters

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 (see details above). There will also be a small number of e-posters where the author is unable to attend the ASM and these are listed below.

- **Laurie Smeaton**: Scotland's Fish Stocks Compendium: compiling the story of Scotland's key fish stocks into a key policy tool

### 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) • Scottish Universities Life Sciences Alliance (SULSA)  
Northern Lighthouse Board (NLB) • MASTS Technology, Platforms & Sensors Forum  
Scottish Inshore Fisheries Integrated Data System (SIFIDS) Project • The Higgs Centre  
The Lyell Centre for Earth and Marine Science and Technology  
SEFARI – Scottish Environment, Food & Agriculture Research Institutes  
Energy Technology Partnership (ETP) • JNCC  
Field Studies Council Millport: Research and Educational Opportunities and Facilities.





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# SAVE THE DATE

## **MASTS 8<sup>th</sup> Annual Science Meeting**

**Wednesday 31st October –  
Friday 2nd November 2018**

The Technology & Innovation Centre,  
University of Strathclyde, Glasgow