MASTS 8th Annual Science Meeting 2018

Wednesday 31st October – Friday 2nd November 2018
Technology & Innovation Centre
University of Strathclyde, Glasgow

CHALLENGES AND INNOVATIVE SOLUTIONS FOR SUSTAINABLE SEAS
DAY 1
Wednesday 31st October

08.45-09.15 Coffee and registration

09.15-09.30 Opening and welcome by Prof David Paterson (MASTS Executive Director) Main Auditorium

09.30-10.00 Invited speaker: Prof Christine Maggs, Chief Scientist at JNCC “Innovation for Conservation”

10.00-10.30 MASTS General Science Session 1 in Main Auditorium
  - David Bailey (Glasgow): Sustainable use of marine resources: what does this mean?

10.30-10.45 Coffee break, networking and E-poster session 1

10.45-11.05
- Solene Giraudeau-Potel
- Mike Spain
- Daniella Hodgson
- Fiona Manson
- Marie Russell (1)
- Heather Runnacles Goodridge

11.05-11.20
- Katherine Jones
- Mira Latva
- Zoe Lawrence
- Nik Robinson
- Marie Russell (2)
- Morgan Hartley

11.20-11.35
- Helen Smith
- Tony Gutierrez
- Sarah Reed
- Jennifer Cocking
- Jason McNeill

11.35-11.50
- Solene Giraudeau-Potel (SAMS): Microplastics in Scottish coastal waters – A quantitative analysis
- Mike Spain (NLB): Northern Lighthouse Board support capabilities for Marine Science in Scotland
- Daniella Hodgson (RHUL): Ingestion and fragmentation of plastic carrier-bags by the amphipod Orchestia gammarellus: are there fitness impacts?
- Fiona Manson (SNH): View from the bridge: Citizen science going places aboard Scottish ferries
- Marie Russell 1 (Marine Scotland): Descriptive Statistics for Marine Litter around Scotland
- Heather Runnacles Goodridge (SOTEAG): The day-to-day life of a SOTEAG seabird monitor and engaging new audiences

11.50-12.05
- Katherine Jones (Heriot Watt): Microplastic accumulation in a Zostera marina bed in Deerness Sound, Orkney: a pilot study
- Mira Latva (Warwick): Isolation of Plastisphere phototrophs and a look at the early stage plastic colonisation in the Mediterranean Sea
- Zoe Lawrence (Heriot Watt): Spatial variation of microplastics in Mussel beds and a preliminary look at depuration times
- Nik Robinson (EOSCA): Review of microplastics used and discharged in the oil and gas exploration and production industry in 2016
- Marie Russell 2 (Marine Scotland): Monitoring of Microplastics in Scotland’s Seas
- Morgan Hartley (St Andrews): Impact of infaunal bioturbators on epipelagic diatom biofilm communities in estuarine sediments

12.05-12.20
- Helen Smith (Marine Scotland): Identifying discrete nutrient events within long-term hydrological records in Scottish coastal waters
- Tony Gutierrez (Heriot Watt): Behaviour and Fate of Nano-plastics in the Marine Environment
- Sarah Reed (SAMS): Microplastics in marine sediments near Rothera Research Station, Antarctica
- Jennifer Cocking (SAMS): Aerial detection of plastic pollution in the marine environment using a novel, hyperspectral infrared camera on a UAV
- Jason McNeill (UWS): The trophic transfer of microplastics in freshwater invertebrates

12.20-12.35
- Benjamin Williamson (UHI): Multi-platform studies of the MeyGen tidal energy site – using UAVs to measure animal distributions and hydrodynamic features
- Kevin Scott (St Abbs Marine Station): Understanding the effects of electromagnetic field (EMF) emissions from offshore windfarms on commercially important crustaceans
- Roland Proud (St Andrews): Using active-acoustic data in ecosystem model assessment
- Charlotte Findlay (SAMS): Mapping and modelling widespread underwater noise pollution from acoustic deterrent devices
- Camille Le Guen (St Andrews): Deep Scattering Layers, the feeding ground of Antarctic deep-diving predators
- Daniel Johnstone (UHI): Individual foraging niches of black guillemots in relation to tidal stream turbines
- Ross Culloch (Marine Scotland): Broad-Scale Acoustic Monitoring For Cetaceans And Underwater Noise In Relation To Offshore Wind Farm Construction in Scotland
- Andrew Wont (Heriot Watt): BioFREE: an international study of biofouling impacts on the marine renewable energy industry

Screen topics:

1. Solene Giraudeau-Potel (SAMS): Microplastics in Scottish coastal waters – A quantitative analysis
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Poster topics:

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11.15-13.15 MASTS General Science Session 2 in Main Auditorium. Special Session on “Marine Microplastics & Marine Litter” (Auditorium A)

11.15-13.15 MASTS General Science Session 2 in Main Auditorium (Chair: Dr Beth Scott)
  - Benjamin Williamson (UHI): Multi-platform studies of the MeyGen tidal energy site – using UAVs to measure animal distributions and hydrodynamic features
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#MASTSASM18
11.15-13.15  MASTS Special Session: "Marine Microplastics & Marine Litter" in Auditorium A
(Chair: Winnie Courtene-Jones)
- Angela Copper (Heriot Watt) Microplastic Monitoring in the Orkney Islands, Scotland
- Lala Paradinas (SAMS) Distribution of microplastics along the Scottish coastline using standardized sampling and extraction methods
- Lonneke Godijn-Murphy (UHI) Spectral remote sensing of marine plastic litter
- Sophie Green (Scrapbook) Scottish Coastal Rubbish Aerial Photography (SCRAPbook): setting baselines for monitoring coastal rubbish
- Alexandra McGoran (RHUL) Ingestion of plastic by fish: a comparison of Thames Estuary and Firth of Clyde populations
- Sarah Neilms (Exeter) Microplastics in marine mammals
- Mark Shields (BEIS) Plastic substances contained in offshore chemicals used and discharged during offshore oil and gas operations
- Bill Turrell (Marine Scotland) Litter Dynamics on a Mid-Latitude, Macro-Tidal Beach

13.15-14.00 Lunch and networking

13.20-14.00 Induction session in Main Auditorium from Dr Lois Calder (Dean of the MASTS Graduate School) on the Postgraduate Certificate in Researcher Professional Development for Marine Science and Technology (MASTS PG Cert)

14.00-16.00 MASTS General Science Session 3, Main Auditorium
Special Session on "Multiple Stressors", Auditorium A

14.00-16.00 MASTS General Science Session 3 in Main Auditorium (Chair: Dr Douglas Spears)
- James Thorburn (St Andrews) Investigations into the Seasonal movements of a UK Shark species
- Emma Dolmaire (Strathclyde) Modelling Blue whiting adults migrations influenced by their biophysical environment
- Julia Wouters (Aberdeen) Towards a more sustainable fishery management – could Remote Electronic Monitoring be the key?
- Matthew Pace (Glasgow) Variation in sediment nutrient content and benthic community traits across gradients of natural and fishing disturbance
- Lucy Mead (Edinburgh) Spatio-temporal distribution of blue sharks (Prionace glauca) in the North Atlantic Ocean: an analysis of population structure, habitat preference and fishing pressure vulnerability
- Rannva Danielson (Icealand) Fisheries policy in the Faroe Islands: Managing for failure?
- Claire Hill (SAMS) Investigating impacts of the EU CFP landing obligation on the fishers of Shetland
- Agnes Olin (Strathclyde) Using a sandeel growth model to investigate climate-driven bottom-up effects on sandeels and seabirds

14.00-16.00 MASTS Special Session on "Multiple Stressors in Auditorium A (Chair: Dr Mark Hart)
- Alice Togglatt (Heriot Watt) The use of sunscreens in a changing world: combined impacts of nano-enabled sunscreens and thermal stress on coral reef systems
- Kimberley Bennett (Abertay) Impacts of natural and anthropogenic stressors on fat tissue function in marine mammals: effects of feeding, fasting and contaminant exposure
- Hazel Smith (SNH intern) Modelling Cetacean Populations to Assess Cumulative Impacts from Offshore Wind Farms
- Andrew Brownlow (SAC) Sum use of dying; What can pathological investigations into marine strandings tell us about cumulative impacts?
- Ellen Last (JNCC) Assessing the sensitivity of deep-sea communities to multiple marine pressures
- Karen Diele (JNCC) Effects of acute anthropogenic noise exposure and elevated temperature on the sea urchin Echinus esculentus

This session will end with a general discussion on knowledge gaps and future research directions

16.00-16.45 Coffee break, networking and E-poster session 2

Poster topics: (screen/order)
1.1. Louisa Jones (JNCC): Producing Conservation Advice for offshore Marine Protected Areas
2.1. Sarah Cryer (St Andrews): The combined effects of ocean acidification and copper on the physiological responses of the tropical coral Stylophora sp
3.1. Katie Cubbon (Heriot Watt): Does the use of the Therapeutic Chemical Emamectin Benzoate in the Cultivation of Atlantic Salmon Salmo salar in the Orkney Islands Impact Commercially Important Crab Species?
5.1. Louisa Barros (Marine Scotland): Phototactic response in fish to the use of coloured LED lights

1.2. Craig Stenton (ENU): The effects of pile-driving noise and cadmium co-exposure on the early-life-stage development of the Norway Lobster, Nephrops norvegicus
2.2. Glenn Jessen (Heriot Watt): Climate change and ecotoxicology: re-assessing biomarker baselines in light of a changing environment
3.2. Magda Chudzinska (St Andrews): Movement of Harbour seals: an individual-based modelling framework as a reliable management tool to study multiple stressors
4.2. Ewan Edwards 2 (Marine Scotland): Using habitat preference modelling to predict the distribution of harbour porpoise Phocoena phocoena around eastern Scotland
5.2. Chris McCabe (JNCC): Monitoring Guidance for Marine Benthic Habitats and R-Markdown Integration
6.2. Natalia Serpetti (SAMS): Exploring impacts of noise from shipping and acoustic deterrent devices on cetaceans on the West coast of Scotland using an ecosystem modelling approach

2.3. Kieran Tulbure (Heriot Watt): The need for a greater understanding of life-style characteristics of Limaria hians and the mechanisms behind Flame shell bed formation
3.3. Pablo Chevallard (Marine Scotland) Kinematic and acoustic analysis of herring-eating killer whale feeding behaviour during different prey life-stages
4.3. Douglas Spears (Stratclyde) Modelling the spatial dynamics of the marine copepod Calanus finmarchicus under climate change
4.4. Ross Gardiner (Marine Scotland): A needle in the haystack? Seeking salmon smolt migration routes off the Scottish east coast using surface trawling and genetic assignment
16.45-18.15 MASTS General Science Session 4, Main Auditorium
"Science-Policy workshop", Auditorium A

16.45-18.15 MASTS General Science Session 4, Main Auditorium (Chair: TBC)
- Stefano Marris (INCC) Marine habitats assessment methods: application of OSPAR indicators of condition and function of benthic communities. Preliminary results from UK waters
- Ricardo Gonzalez-Gil (Strathclyde) Intertidal variations in the spring phytoplankton bloom in the Scottish North Sea
- Lewis Drysdale (Marine Scotland) Quality assurance of physical, chemical, and biological measurements from seawater samples collected on Marine Scotland cruises 1960-2018
- Matteo Marasco (UHI) Estimate of residual transport in the Fair Isle Gap
- Dafne Eerkes-Medrano (Marine Scotland) Using time series to understand trophic interactions and food web dynamics in local pelagic ecosystems
- Sonja Rueckert (ENU) Gregarines apicomplexan parasites of 'deep-sea' invertebrates

19.00-late ASM Conference Dinner and Ceilidh at the Millennium Hotel (ticketed event)

DAY 2
Thursday 1st November

08.30-09.00 Registration and tea/coffee

09.00-09.30 Invited speaker: Prof Colin Moffat, Chief Scientific Advisor Marine, Scottish Government “A decade of opportunity for marine science – time to be transformational”

09.30-10.30 MASTS General Science Session 5 in the Main Auditorium (Chair: Dr Mark James)
- Karen Diele (ENU & St Abb's Marine Station) Coastal Squeeze? Seabird nesting success and loafing behaviour in response to cliff-top and water-based visitors at St Abb’s Head, Berwickshire
- Katharina Lefering (Strathclyde) Absorption coefficients derived from in situ radiometry using Gershun’s law
- Kirsty Wright (Marine Scotland) Interconnecting the North Sea: Transnational Maritime Spatial Planning and cross-border energy exchange: Findings from the NorthSEE project
- Soizic Garnier (Strathclyde) Optimal-detail circulation models for fjords and sea lochs: an application to the Puget Sound

10.30-11.15 Coffee break, networking and E-poster session 3

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<td>10.35-10.45</td>
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<td>Michael Redford</td>
<td>Texa Sim</td>
<td>Beth Scott</td>
<td>Laura Palmer</td>
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<td>10.55-11.05</td>
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Poster topics: (screen/order)

1.1. Cemlyn Barlow (St Andrews): Ecosystem functioning of epifaunal communities associated with natural and man-made hard substrates in the North Sea

2.2. Kirsty Crocket (Edinburgh) Do peat organics facilitate estuarine dissolved Fe transport? A case study from Loch Etive

3.1. Elise Depauw (SAMS): Optimising the decommissioning of concrete mattresses and subsea protection structures in the North Sea

4.1. Robert Jefferies (SAMS): Epifaunal colonisation and the potential benefits of a ‘rigs-to-reef’ programme in the Gulf of Thailand

5.1. Jenny Kuru (St Andrews): Epifaunal secondary productivity associated with North Sea oil and gas platforms: consequences of decommissioning

6.1. Hannah Ladd-Jones (St Andrews): Using mobile phone technology to capture small-scale fisheries data – is this the future?

1.2. Michael Redford (SAMS): Artificial reef creation using decommissioned pipeline protections – environmental performance and fisheries enhancement potential in the North Sea

2.2. Texa Sim (SAMS): The occurrence and behaviour of harbour porpoises (Phocoena phocoena) around fish farms on the west coast of Scotland

3.2. Beth Scott (Aberdeen): How to assess the ecological cost/benefit of future climate vs large scale anthropogenic changes using joint modelling of mobile marine predators and their prey at different spatial scales

4.2. Laura Palmer (St Andrews): Passive acoustic monitoring of cetacean movements around operational tidal turbines


6.2. Hazel Smith (Strathclyde): Modelling the Population Dynamics of Nephrops norvegicus and Hematodinium in the Firth of Clyde

1.3. Stuart Simms (SAMS): Marine bacteria as a source of renewable biopolymers

1.4. Jenny Hindson (Marine Scotland): The relationship between inshore and offshore physical conditions on the East coast of Scotland

11.15-13.15 Special Session on “Understanding the Influence of Man-made Structures in the Ecosystem – Progressing the Science”, Main Auditorium

MASTS General Science Session 6, Conference Room 6/7

11.15 -13.00 Special Session on “Understanding the Influence of Man-made Structures in the Ecosystem – Progressing the Science” in Main Auditorium (Chair: Richard Heard)
- Gordon Hastie (St Andrews) Tracking marine mammals around anthropogenic structures: development and application of a passive- and active-acoustic sensor platform
- Ana Couto (Aberdeen) Changes in species behaviour predicted around tidal turbines from before/after array information
- Sally Rouse (SAMS) 3D imaging of marine epifauna: towards an ecosystem understanding of artificial reefs
- Michael Redford (SAMS) Artificial reef creation using decommissioned pipeline protections – analysing industry ROV footage to quantify benthic and fish assemblages
- Clement Garcia (CEFAS) Evaluating the effects of man-made structures on the functioning of the benthic system in the North Sea
- Todd Bond (UWA) The influence of oil and gas infrastructure in Australian marine ecosystems: informing decommissioning decisions
- Lea-Anne Henry (Edinburgh) Does oil and gas infrastructure create ecologically coherent networks of iconic British species? The ANChor project and beyond
11.15-13.15 MASTS General Science Session 6 in Conference Room 6/7 (Chair: Dr William Sanderson)

- Tania Mendo (St Andrews) Tracking fishing activities in small scale fisheries
- Thomas Régnier (Marine Scotland) Use of otolith chemistry to understand the scaling of population processes
- Helen Cross (Herriot Watt) Clustering “port production footprints” to inform fisheries management: A case-study of the UK shellfish sector
- Matthew Coleman (Herriot Watt) Modelling changes in Functional Maturity of Scottish European Lobsters (Homarus gammarus L) stocks from 20 years of commercial catch data
- Edward Bolger (ENU) Ship Noise Playbacks Impact Norway Lobster Development
- Ana Rodrigues (Herriot Watt) Restoration of a keystone species: Understanding the settlement behaviour of the European oyster Ostrea edulis
- Georgios Kazanidis (Edinburgh) Distribution, density and size of deep-sea sponge morphotypes in the Faroe-Shetland Channel (FSC) Sponge Belt Nature Conservation Marine Protected Area (NCMPA)
- Emma Novak (JNCC) The UK MPa network: a check on progress and priorities moving forward

13.00-14.00 Lunch and networking opportunities

13.30-17.30 Decommissioning and Wreck Removal Workshop, Auditorium A

14.00-16.00 MASTS Special Session on “Sustainable Aquaculture”, Main Auditorium

- Special Session on “The Changing Arctic Ocean: Identifying and quantifying the Arctic response to climate change”, Conference Rooms 6/7

14.00-16.00 MASTS Special Session on “Sustainable Aquaculture” in Main Auditorium (Chair: Dr Adam Hughes)

- Tom Wilding (SAMS) Metabarcoding to assess changes in benthos occurring around fish-farms
- Anna Harte (Aberdeen) The development of clinical diets to treat farmed fish gill diseases
- Shankar Mandal (Stirling) Antiviral response of rainbow trout gill epithelial cell line RTgill-W1
- Josip Barisic (UWS) Cumulative effects of deltamethrin treatment on health status in cultured rainbow trout (Oncorhynchus mykiss)
- Stuart McMillan (Stirling) Microbiome diversity in blue mussel (Mytilus edulis L.) larvae relates more to time than diet
- Alessandro Laudicella (SAMS) Effect of temperature during broodstock conditioning in the Blue mussel (Mytilus edulis)
- Bernat Morro (Stirling) Plasma and liver proteome of an unwanted phenotype of seawater-transferred rainbow trout
- Maurizio Collu (Strathclyde) Integrating aquaculture and marine renewable energy generation into a single platform: the INNO-MPP project

14.00-16.00 Special Session on “The Changing Arctic Ocean: Identifying and quantifying the Arctic response to climate change” in Conference Rooms 6/7 (Chair: James Grecian & Katharina Lefering)

- James Grecian (St Andrews) Commuting to the Arctic Restaurant: analysis of Harp seal movement data using hidden state models
- Antonio Doncolo (Edinburgh) Nutrient cycling in the Central Arctic Ocean: insights from stable isotopes of nitrate
- Mike Heath (Strathclyde) Modelling the effects of changes in sea-ice extent on Arctic marine food webs
- Laura Hobbs (SAMS) Small changes in winter prey availability cause Calanoid copepods to adopt a variety of over-wintering strategies in the high Arctic
- Anni Makela (Aberdeen) Responses and resilience of Arctic bentic communities to climate change modified alterations in food supply
- Robert Wilson (Strathclyde) Do uncertainties in satellite chlorophyll data matter when modelling the geographic distribution of Arctic zooplankton?
- Sarah Reed (SAMS) Investigating respiration rates and lipid sac composition in Calanus copepods to develop understanding of the changing Arctic Ocean
- David McKeef (Strathclyde) Zooplankton super-swarms detected from space

16.00-16.45 Coffee break, networking and E-poster session 4

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Poster topics: (screen/order)

1. Thomas Adams (SAMS): Moving forward with modelling deposition for aquaculture: integration of spatially variable currents
2. Katie Burke (St Andrews): Effect of different wind forcing representations on hydrodynamic fields modelled by the Scottish Shell Model
3. Krista Cawley (St Andrews): Flood protection services of tidal marsh ecosystems: current and historical wave attenuation at Shurger Bank in British Columbia, Canada
5. Anna Gebruk (Edinburgh): First insights on temporal changes of the benthic ecosystem in the Pechora Sea
6. Coralie Hunt (St Andrews): Using Acoustic Backscatter to Improve Spatial Analysis and Quantification of Scotland’s Sedimentary Carbon Resources: A Case-Study of Loch Cерен, Argyll
7. Hannah Lee (Herriot Watt): Blue carbon of shellfish beds – understanding the vaults of biogenic reefs
8. Colin Mettam (St Andrews): Stable Isotope (δ15N and δ13C) analyses of tooth collagen as a methodology for determining trophic level in Harp seals
10. Manoussos Valyrakts (Glasgow): To develop a typology for determining trophic level in Harp seals
11. Rory O Hara Murray (Marine Scotland): New hydrodynamic models of the Clyde Sea and Shetland waters
12. Danielle Whitlock (ENU): Understanding litter decomposition in Scottish seagrass meadows
13. Joey O’Connor (JNCC): Monitoring Scotland’s offshore MPAs
14. Raeanne Miller (SAMS): Pathways to Influence: How formalised groups mediate knowledge exchange and influence across the offshore renewable energy sector
15. Euan McRae (Strathclyde): A zooplankton perspective on high latitude, spring phytoplankton blooms: Insights from the Southern Ocean
16. Kim Last (SAMS): Chronobiology of Changing Arctic Sea Ecosystems
16.45-17.45  MASTS General Science Session 7, Main Auditorium (Chair: Prof David Paterson)
• Frithjof Kuepper (Aberdeen) Exploration of Arctic and Antarctic seaweed biodiversity in the context of polar climate change
• Alex Poulton (Edinburgh) Tales of life and death in the plankton: Diatom dissolution and upper ocean silica-cycling
• Adam Wyness (St Andrews) Impact of infaunal ecosystem engineers on microbial communities
• William Sanderson (Heriot Watt) – Marine Science & Whisky

17.45-18.00  Conference Closing Remarks & Prize Giving (Prof David Paterson)
We are delighted that IMarEST is sponsoring the student prizes for the 2018 ASM. Best Presentation - £200 first prize and a £100 second prize & Best Poster - £130 first prize and a £70 second prize. Winners of the Best Presentation and Poster will be invited to attend the IMarEST Scottish Branch evening lecture to obtain their certificate and prize (travel cost to be reimbursed by IMarEST). You must be a student member of IMarEST to be eligible for these prizes.

DAY 3
Friday 2\textsuperscript{nd} November

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

Friday breaks are: 10.00-11.30 for morning coffee, lunch is at 12.10-13.30 and afternoon coffee break is 15.00-15.45.

Two day workshop (1st/2nd Nov):
• Auditorium A – Decommissioning and Wreck Removal (13.30-17.30 on Thursday 1st Nov and 8.45-12.45 on Friday 2nd November). If this workshop is the only part of the ASM that you will be attending, please contact masts@st-andrews.ac.uk for a registration discount code.

One day workshops (2nd Nov):
• Conference room 2 (09.30-10.30) – The changing coast: sharing knowledge and practice
• Conference room 3 (10.00-12.30 and 13.15-15.45 – attend one of both parts) – A guide to the grant environment and review process for ECRs
• Conference room 4/5 (11.00-16.30) – Conducting fieldwork in tidal stream sites
• Conference room 8 (09.30-16.30) – MEDIN Data Management Standards and Guidelines

Morning workshops (2nd Nov):
• Conference room 1 (09.00-13.00) – Scottish Blue Carbon Forum
• Conference room 6/7 (09.30-12.30) – SIFIDS project (invitation only)
• Exec A (10.00-13.00) – invite only – Flapper skate workshop

Afternoon workshops (2nd Nov):
• Conference room 6/7 (13.30-15.30) – Marine Plastics – A Scottish Evidence Plan

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).

Confirmed exhibitors

MASTS is delighted to host the following exhibitors:
• Marine Scotland Science
• Marine Scotland - Scottish Marine Energy Research programme
• Shetland Oil Terminal Environmental Advisory Group (SOTEAG)
• European Marine Biological Resource Centre (EMBRC)
• Northern Lighthouse Board (NLB)
• Marine Renewable Energy Forum
• Chartered Institute for Ecology and Environmental Management (CIEEM)
• University of the Highlands and Islands
• Unisense
• Scottish Aquaculture Innovation Centre
• NERC Changing Arctic Ocean
• Climate Linked Atlantic Sector Science (CLASS)
• Heriot Watt University
• Sky Hopper Initiative
• IMarEST

Photography by Marine Scotland, MSS, M James, D Paterson
Join us again next year – 2-4 October 2019
#MASTSASM18