

Marine Facilities Advisory Board 1 October 2019

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Professor Mike Elliott, University of Hull (ME)
Dr Maaten Furlong, National Oceanography Centre (MF)
Professor Angela Hatton, National Oceanography Centre (AH)
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Dr Clara Manno, British Antarctic Survey (CM)
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Professor C Mark Moore, University of Southampton (MM)
Helen Oldridge, National Oceanography Centre (HO)
Dr Matthew Palmer, National Oceanography Centre (MP)
Jackie Pearson, National Oceanography Centre (Secretary) (JP)
Dr Alex Phillips, National Oceanography Centre (AP)
Dr Natalie Powney, Natural Environment Research Council (NP)
Leigh Storey, National Oceanography Centre (LS)
Professor Carol Robinson, University of East Anglia (Chair) (CR)
Dr Daniel Roper, National Oceanography Centre (DR)
Dr Tim Smyth, Plymouth Marine Laboratory (TS)
Professor Nick Wright, University of Newcastle (NW)

Apologies

Dr Jörg Bialas, GEOMAR Helmholtz Centre for Ocean Research Kiel (JB)
Dr Kate Hendry, University of Bristol (KRH)
Dr Joanne Hopkins, National Oceanography Centre (JH)
Dr Kerry Howell, University of Plymouth (KH)
Mrs Julie Pringle-Stewart, National Oceanography Centre (JPS)

Welcome

CR welcomed the group and thanked NOC IT for arranging the video-conference and the science members of the Board for a 'step change' in engaging the community for feedback on the NMF Technology Road Map (TRM). LS also thanked the Board for the feedback on the TRM. CR outlined that a major aim of the meeting was to discuss the feedback from the community, which NMF can then take into consideration while drafting the 2020 version of the TRM, which will be presented and discussed at the March 2020 MFAB. Once agreed, the revised TRM will go on-line, and feedback requested for the 2021 version.

1. Technology Road Map

1.1 Marine Biogeochemistry – lead scientists MM, KRH & CM

1.1.1 MM thanked KRH for much of the work on this section. Opinion had been sought via a special interest group of the Challenger Society and an on-line feedback form. At the Town Hall meeting there were ~ 80 attendees but only

four had heard of MFAB and two of those were KRH and MM. There is a need to raise the profile of the MFAB and the TRM.

- 1.1.2 Are figures available on equipment usage, perhaps captured via grant awards that could help with prioritisation?
- 1.1.3 The community are still not fully aware of what equipment is held in the NMEP.
- 1.1.4 It is important to use plastic free or low plastic containing equipment as much as possible as it can cause contamination to micro- and nano-plastic debris studies.
- 1.1.5 More temperature controlled laboratory containers are required for biological studies MM has a controlled temperature container but should this be an item in the community pool?
- 1.1.6 It was not known if the RRS *Sir David Attenborough* (SDA) has temperature controlled containers. LS agreed to provide a list of the equipment on the SDA. Some is ship-fitted capability, i.e. items that can only be deployed from the SDA, although some containers may be transferrable. Equipment that BAS looks after can be tied up for long periods of time although it may be more available in the future. **Action: LS**
- 1.1.7 What is the definition of 'user supplied' and 'pool supplied'? LS explained that NERC commissioned Large Research Infrastructure (LRI) in 2018 and this defined what NMF is required to deliver for a ten year period. CR asked if it is possible to prioritise equipment through the annual equipment bid? Should MFAB also put in a prioritised list? The equipment held is based on changing priorities. Something purchased by a P.I. out of a grant may be transferred into the MEP. If equipment has not been used for at least five years and the view from MFAB is that the usage is likely to continue to be low, then NMF will discuss with NERC about removing the item and replace it.
- 1.1.8 There had been a capital call from NERC for up to £300K. This was a missed opportunity as we don't have a list of equipment that we can provide bids for. Would it be possible for NERC to contact MFAB when it plans to release a capital bid? There is a difference between an individual applying and the community applying. **Action NMF (HO and MF) to develop and hold a priority list of equipment as agreed with MFAB.**
- 1.1.9 NMEP equipment must have community value and a range of capabilities. NMF will dispose of equipment that is no longer of use/beyond repair. If that disposal removes a capability from the NMEP it will be discussed with the MFAB beforehand. The sequence of engaging with MFAB, reviewing the TRM and discussing with NERC has proved useful.
- 1.1.9.1 Some sections of the TRM are labelled science drivers (SD) when they are technical drivers (TD). We should go through the document and define what

we mean by SD and TDs. Should each section have these in them? Suggest SDs and TDs to be looked at before the next meeting. **Action: All**

1.1.9.2 The SD that NMF is generally asked for by scientists is to reduce cost, however, a SD should really mean '*what science is needed from the equipment*'. This may have been mislabelled in the TRM. We need to be clearer about what each section means. It would be good to share the TRM so that all can readily edit it. Share TRM so next draft is available by mid-February 2020. **Action: JFP**

1.2 Benthic and pelagic biology – lead scientists ME & KH

1.2.1 ME apologised that the document was late. KH had not had a chance to comment. Feedback had been received from James Strong (NOC), Keith Cooper (Cefas) and Abi McQuatters-Gallop (Plymouth University) and colleagues at SAHFOS/MBA.

1.2.2 The report captured what equipment is needed and makes reference to upcoming events. e.g. United Nations Decade of Ocean Science for Sustainable Development which has an agreement to map the whole seabed. There is overlap between the science and equipment needs for the benthic and pelagic systems. We need to move to a combined field, laboratory and experimental approach. There should be a link between the TRM and other community documents e.g. Foresight Future of the Sea Report. ME agreed to take the document out to the wider community.
Action: ME

1.2.3 LS noted the comments from ME about coastal, shallow water work and deployment of equipment from small ships but a line needs to be drawn in terms of what the NMF should be responsible for. In 2015, NMF supported the shelf seas biogeochemistry research which is as shallow as we can go, by ship. Autonomous vehicles can enable work in shallower environments.

1.2.4 There needs to be clarity on what sits in the NMEP and what is user supplied.

1.2.5 The RV *Prince Madoc* is available for science but how much is it used? What equipment is out there that is also available to our community? There are many coastal vessels that may be available. Are we providing contacts?

1.2.6 A lot of equipment is needed for shallow water exploration and there is a growing need for coastal ocean applications. This is reflected in strategic funding rounds of recent years. We need to look at coastal equipment and this isn't in the capability of one institute at the moment.

1.2.7 NERC needs to think about this. The equipment that is actually available is probably more than is currently known. It is important not to duplicate equipment. The community already benefits from equipment that used to be held by the Proudman Oceanographic Laboratory. This situation probably sits above MFAB in terms of looking at investment. AH returned to the point

that there needs to be an awareness of what is already available and reminded the group about the [UK Marine Science and Technology Compendium](#). JP offered to send the link round the Board. **Action: JP**

1.3 Physical Oceanography - JH

- 1.3.1 JH had mentioned a disconnect between NMF supplying new commercially available equipment that is ready to be turned on/deployed and instruments that are proven to provide useable scientific data but are not 'ready to go'. LS responded that NMF hopes to put a two week period into the annual ship programme to focus on trialling new equipment or testing equipment that has been malfunctioning. NMF would like to invite scientists to attend to confirm that the data provided is useful. We might invite manufacturers. This is also a good opportunity to train technicians.
- 1.3.2 The community can struggle to find a suitable vessel and it was queried whether NMF has a catalogue of available vessels. There is a sub-group of the Marine Science Coordination Committee, the Research Vessel Working Group, which aims to better coordinate the research vessels operated in the UK. This information could be channelled from NMF to be distributed via MFAB or perhaps should be made available via the MSCC. MP noted that the Research Vessel WG is limited to vessels of 50m plus. ME added that the Inshore Fisheries and Conservation Authority vessels have their underway sensors running all the time. ME agreed to check this with the MSCC and he would contact Mike Kaiser (Chair of the MSCC Research Vessels WG) on this issue and see if he has made further progress with the vessels. **Action: ME**

[Post meeting note from the secretary: UK vessels available for marine research are listed on the [UK Marine Science and Technology Compendium](#). We are now developing a searchable option for business equipment.]

LS agreed to forward the recent EMB report on European research ships. **Action: LS**

- 1.3.3 Be mindful of what is meant by 'coast'. Does this mean the UK coast or the coast of Greenland? AH reminded the group that if we want to add capacity, this will need funding. MP has an action as part of UKIMON to understand what vessels are available. He agreed to take this forward and link to MFAB. **Action: MP**

1.4 Geophysics - CMc

- 1.4.1 CMc had had difficulty contacting the community because of the restrictions of data protection (GDPR). He received eight responses out of a 1,000 contacts so it is possible these replies may be quite specific. There was a focus around seismics and a comment on the need for functioning capacity in the pool before updates are made. Issues were mentioned around QA and QC and problems with legacy equipment. Responders raised good science questions and it was noted to make the best use of existing equipment

before looking at new items to acquire. There were some requirements relating to platforms and references to gravity meters, magnetometers and legacy components. It would have been better to have received broader input from the community.

CR added that MFAB had organised a seismics working group last October and there is a time lag between the working group making recommendations and NERC approving those recommendations.

- 1.4.2. Seismics is an example of the challenge that NMF faces in maintaining difficult, expensive equipment which requires particular skills and yet faces potentially low usage. We can't always train our staff on this equipment. Part of the remit of that WG was to consider how best to go forward, ensuring that we have capability available, that it is fit for purpose and operational within the current funding restraints.
- 1.4.3 CR asked whether the report from that WG is available to the community? Dr Robert Larter and Professor Christine Peirce were on the WG and they had consulted colleagues to get a rounded view. CMc commented on the needs for the technical expertise to be able to deal with QA and QC in real time - to be more nimble with the science.
- 1.4.4 NMF is working to include trial periods to maintain capabilities. NERC is investing in upgrading capability and NMF continues to work with the community on QA/QC. We need to tackle some of the more difficult QA/QC programmes. NP advised that the seismic equipment request from the WG is listed as an investment idea on the NERC capital plan. This equipment is on the plan so is visible to Professor Duncan Wingham, but does not provide any guarantee of funding. This information must be kept up to date and be presented in a modular fashion.
- 1.4.5 AB noted he had received similar comments on seismics. There was a comment about obtaining more multi-beam swath data from vessels. Can these be switched on and left running the whole time? LS confirmed that this has been identified as a need. Dr Graham Allen is Acting Director of Seabed 2030 and is aware of this. German vessels are doing this now and LS agreed that the NERC ships should be capturing data all the time. CMc added that the community would like to have more capacity to use vessels.
- 1.4.6 ME advised that the Inshore Fisheries Conservation Authorities (IFCA) boats leave their underway CTDs going continuously and they are also collecting multibeam data whilst the vessels are underway. It would be interesting to know what happens with their data.
- 1.4.7 AB asked about the storage of marine geoscience data. BODC doesn't accept marine geoscience data - is this issue in hand?

1.5 Air/Sea Exchange - TS

- 1.5.1 TS advised that the impression from the community is that the TRM is good in terms of marine autonomy but less so in terms of older style equipment with which the wider community is more familiar and has far more use e.g. CTDs, for which there are no updates or aspirations in the TRM, so this needs to be addressed.
- 1.5.2. New sensors should be permanently attached on CTDs as standard instruments. The community needs to know usage statistics for each element of the TRM. For example, number of expeditions when equipment has been used, and the number of deployments etc.
- 1.5.3 In terms of the Long Range Unmanned vehicles, referenced on page 19, it appears that NMF has favoured the Wave Glider over Autonaut. MF explained that NMF uses a CaPASOS sensor which must be supported on a 5m vehicle. Autonaut is a 3.5m vehicle so is unable to support CaPASOS. This is the reason for focusing on the Wave Glider.
- 1.5.4 To note, pCO₂ is not gas exchange so this needs to be corrected. **Action HO**
- 1.5.5 CR referred to Professor Richard Sanders (Bjerknes Centre, Norway and NOC) paper on pCO₂. There is a lot of discussion on this at the moment and an increased request for continual pCO₂ measurements. Prof Sanders' paper makes the case to NMF to run pCO₂ instruments. MFAB agreed that the UK should be able to collect underway pCO₂ data and this should be undertaken as standard.
- 1.5.6 It is not clear that MFAB should cover these discussions, however, it is important for the MFAB to be involved. LS agreed to take advice on what the priority is. It would be possible to approach NERC with CR and see if these measurements should be taken on a continuous basis. The onus is on NMF to take these comments and work out how to make it work. NMF will come back to the MFAB Chair and we will work with NERC on this. This should be a discussion point at the March 2020 MFAB. **Action: LS/JP**

1.6 Marine Engineering - NW

- 1.6.1 NW received 25 responses from universities and research groups. He had asked what engineering support was needed for their science. Most responses were about platforms. There was a request for longer deployments of kit, and for deployments to be achieved more quickly. Lots of people are using UK ships but also ships from other countries. There was uncertainty how this links together. An interest was expressed in finding new ways of deploying equipment. Also, is it possible to add instruments to Wave Gliders? Will there be smaller, cheaper AUVs? There were also comments about more sharing of information and designs that might help early career researchers. For example, a benthic lander - how do people learn about this? Information needs to be shared more widely on design.

1.7 Geology - AB

- 1.7.1 There is no rock store for marine hard rock samples. Does BGS store these? This needs to be checked. BGS don't cover all of this so hard rock marine samples are not being stored or managed in a consistent way. **Action: AB**
- 1.7.2 It is important to maintain access to the Integrated Ocean Drilling Programme (IODP). The only way of getting geotechnical information is to hire equipment from Fugro so it would be good to have this equipment in the MEP.
- 1.7.2 In terms of research topics – carbon capture and storage, fluid flow, marine minerals, long term sustained observations, methane hydrates etc.
- 1.7.3 LS said that NMF need to discuss the feedback from the community over the next five months, revisit the SDs and TDs and update all of this into the TRM prior to the March 2020 MFAB meeting.
- 1.7.4 AK noted that NMF is looking at a water column holding station vehicle for the next round of AUV developments. We need to know how long the community would like it deployed and what sensors are needed. NW advised that feedback concerned a buoy or small platform that could be deployed from a ship and then maintain its position, with its own thrusters. Equipment that once deployed, can still hold station. AB asked why a buoy couldn't be used to do this? An autonomous vehicle would be more costly. NW meant when conditions are too difficult for a buoy. MF said that instruments can just be added to a Wave Glider. NW suggested that it may be that the information needs to be made clearer. At this point MP mentioned the Marine Autonomy & Technology Showcase (MATS) conference at NOCS in November 2019. It would be good to know why wave gliders are not meeting community requirements.

[Post meeting note: the MATS conference has been advertised via the NOC Association and MFAB listing]

- 1.7.5 ME suggested contacting Chris Vivian for feedback on marine geochemistry as Chris used to be at Cefas and could comment on the techniques they use. ME agreed to send the NMF Technology Roadmap to Chris Vivian for further input. **Action: ME**

Summary discussion points on the TRM

1. Updates to the TRM, after review at the MFAB March 2020 are to go on-line a.s.a.p afterwards.
2. Members to develop the TRM Science Drivers. These should not be too detailed. NOC will reformat the document and maintain consistency. NMF will take on board the SDs and check what else is needed. NMF to report back at the March 2020 meeting, highlighting what will need more time.

3. All raw data should go to BODC. Does the responsibility for marine geology data fall outside BODC? This needs to be checked. If BODC does not cover this, who should? GA answered that there are two components around data. NERC data policy requires that any NERC data collected should be deposited in a data centre. Then there is the management of that data onboard the ship. We struggle with marine geophysics data and this is why we created the data management WG.
4. ME talked about the many marine reports currently in circulation. If these all give different messages, this will cause confusion. We have to be careful that MFAB doesn't repeat or contradict these. We also need to be mindful about the remit of the TRM in terms of delving into the science questions and drivers. SDs should be short and direct people towards the science policy reports. This will then lead into the technologies required.
5. We should be careful to not be too specific about SDs – these aren't calls for research funding but should be broad scientific requirements. MF said that the question is how does the community want us to spend our time and funding? What technologies are needed to achieve the science goals? Although the SDs will be written by scientists, the Board's input into the Technology Drivers would also be welcome. CR asked the group to have the high level science questions ready in one month. These should be sent to CR (copy to jfpea@noc.ac.uk) The next step will be to review the TDs.
Action all: due date 31 October 2019
6. NMF will edit the TDs and SDs and facilitate this via Google Docs so that anyone can edit them.
7. The TRM needs to reflect the discussions on requirements for coastal work.
8. How can we access the geophysics/geology communities? Do we need more expertise on this Board? One way to interact with the marine geology community is via the Geological Society. There may be an issue about how people perceive MFAB, MEP? Can we raise the profile overall?
9. CR suggested she writes a piece on the role and current discussions within MFAB for the newsletters of the Challenger Society and the Geological Society inviting feedback in the future, and that we advertise MFAB at any relevant meetings e.g. MATS at NOC in November. **Action: CR, All**
10. CR was advised to contact Professor Christine Pearce (Durham) and Dr Jenny Collier (Imperial College) re: engaging the marine geological community. **Action: CR**
11. CMc had received a document from Professor Tim Minshull, a geophysicist at the University of Southampton, that had 25 signatures. This group should be contacted by CMc and AB in future geological and geophysics discussions. MM to feedback to Professor Minshull on MFAB discussions.
Action: CMc, AB, MM

12. One way to increase engagement with the community is via Principal Scientists. Is there an easy way to know who has been a P.S. on a research expedition in recent years? We had previously suggested giving a presentation at the NERC Principal Scientists workshop every year.
13. Compared to four years ago, the response of the community has been great. We should continue to raise the profile of MFAB at whatever meetings we attend and should share discussion on SDs for the TRM. It is important to maintain the impetus of this enthusiasm, so MFAB should release a communication about the TRM to the community again in six months (March 2020). Seeking community feedback on improvements to the TRM should be an annual process. **Action: All**
14. It would be helpful to communicate to the community how NERC is governed. AH agreed to contact NERC about providing some slides with organograms about NERC governance. **Action: AH**
15. Although community information is channelled through the MSCC and NOC Association, unfortunately, in some instances, members on the NOC Association have not been communicating outcomes from the general meetings to colleagues.

[Post meeting note – the Secretary will add wording to communications to the NOC Association membership to ask members to pass on news items/outcomes from the AGMs]

16. AB asked if people want to use a piece of the NMEP equipment, and can't find it on the [Marine Facilities Planning website](#), what can they do? Should there be a box on this page for people to add items that they would be interested to use? AH advised that this information should be produced via a post expedition feedback report. MF added that there is a list of equipment with contact details of the manager responsible that scientists could contact.
17. What happens if people want a particular item? NMF needs to know if it will be useful to the community as a whole. MFAB needs to know this information – should there be something about this on the MFAB website? A feedback form? We need to think about this. **Action: LS**

1 Update on working groups

2.1 ROV Working Group (WG)

- 2.1.1 The ROV WG has met three times and the final paper is pending. Once finalised, NMF will present it to the 2020 MFAB and then to the subsequent meeting of the CPEB. The WG considered there is a need for a deep-water ROV. There is scope for having equipment with less capability which is easier to be deployed and requires fewer technicians. There is scope to invest in upgrading capabilities but not a complete overhaul. This WG paper will be circulated prior to 2020 MFAB.

2.2 Data Working Group (WG)

- 2.2.1 The Data WG was formed in March to discuss issues and identify what MFAB had considered to be the most important tasks to tackle.
- 2.2.2 Topic one was easy onboard access to the science data. Current thinking was that it involves too much scientist time to continually rewrite codes. The WG proposes three phases for a solution, and will discuss these with the user members of the WG, before tabling a paper to the March 2020 MFAB.
- 2.2.3 NMF have been working on a paper to look at data acquisition and this will be rolled into the scope of topic one. We will report progress in March. CR thanked the two Working Groups for their progress.

3 Report to CPEB

- 3.1 CR tabled the report she had sent to the CPEB and invited comments. CR has been asked to report progress on the WGs so will disseminate the comments from today's meeting.
- 3.2 LS explained the background of the importance of the Cruise Programme Executive Board (CPEB). In 2013 the funding model for NC LRI was changed by NERC so we initiated a group to consider how this could be implemented and this led to the formation of the CPEB. Funding allocated to the LRI would be held at a set level. The CPEB can advise on the issue of flat funding – e.g. when/if capability should be cut or whether other funding should be sought. For the last few years at the CPEB, LS has presented a growing deficit and detailed how this will be managed. NMF is managing by controlling costs and has been growing income from other areas. The CPEB has the final say as to whether NMF will receive additional funding and the Chair of MFAB and of the Cruise Programme Review Group sit on the CPEB. NP corrected that the CPEB don't have authority to increase budget, rather this issue would be flagged to the NERC Management Board. For the British Antarctic Survey (BAS), the LRI funding model is completely different in that BAS receives ring-fenced money from BEIS.

Any Other Business

- 1. The Board discussed a paper provided by Professor Martin Solan, University of Southampton, who had raised an interesting idea about how to strategically plan UK science. CR suggested linking with the Royal Society Global Environmental Research Committee (GERC) and the Challenger Society to arrange a town meeting to discuss future marine science strategy linked to future equipment needs. Martin also suggested linking with NERC and corporations such as Google.
- 2. ME commented that there are many initiatives to look at marine science strategies. AH added that there has been discussion about having a better coordinated approach between the NOC Association and the Challenger

Society. CR has talked to the President of the Challenger Society about a town meeting. CR agreed to report back on this. **Action: CR**

3. Noted that the groups that MFAB interact with should be broader than the Challenger Society as, for example, the geology and coastal community are not well represented on the Challenger Society. MFAB needs to show the breadth and scope of those whom we have approached for feedback.
4. Can National Marine Facilities provide a one-page infographic on NMF investment/budget and the size of our user groups? It would be good to know who is interested in the NMEP and how much resource is available. This infographic could go at the front of the TRM. MM cautioned that although this would be useful, care is needed as it is not always possible to put a number on something. This may not be an easy task although information could be harvested from grant reports compiled at the end of expeditions. NMF could put together some pie charts for discussion at MFAB. **Action: LS**
5. It would also be good to know how many times people have requested each item through the MEP and whether all requests have been able to be met.
6. AB commented that this should be limited to requests from grants that have been funded, however, CMC said that requests from unfunded proposals could also be interesting to know.
7. LS explained that NMF reports equipment usage to the CPRG which looks at historic events whereas MFAB is forward-focussed. LS agreed to see if NMF can look at previous Ship-time & Marine Equipment (SMEs) forms and Autonomous Deployment Forms (ADFs) to see if it is possible to show that, for example, CTDs are still high in terms of requests. TS added that unfunded items can miss funding by small margins which is why this information might also be useful. LS said that it may be possible to run reports off the marine facilities website in the future.
8. AH recommended that MFAB looks at big, international roadmaps to see how this might be reflected in the UK's strategy for marine equipment.
9. CR closed the meeting by thanking everyone for their input to the day.

Action list

Item number	Action	Responsible
1.1.6	Provide list of equipment available on the SDA	LS
1.1.8	Develop a priority list of equipment	HO/MF
1.1.9.1	Review the SDs and TDs in the TRM before the next meeting.	All
1.1.9.2	Share the TRM with the group so that next draft is available by mid-February 2020	JFP

1.2.2	Take the document out to the wider community.	ME
1.2.7	Send link on UK Marine Science and Technology Compendium . round the Board.	JP
1.3.2	Check information available on research vessels via the MSCC and Mike Kaiser.	ME
	Forward EMB report on European research ships.	LS
1.3.3	MP has an action as part of UKIMON to understand what vessels are available. He agreed to take this forward and this will link with MFAB.	MP
1.5.4	pCO ₂ is not gas exchange so this needs to be corrected in the TRM.	HO
1.5.6	Take advice on continuous measurements and add this as an agenda item to the March 2020 MFAB.	LS/JP
1.7.1	Check if BGS stores marine hard rock samples.	AB
1.7.5	Contact Chris Vivian for marine geochemistry as Chris used to be at Cefas and could comment on the techniques they use.	ME
Discussion point 5	Science drivers...Board to have the high level science questions ready by 31 October . Please email to Carol and copy to ifpea@noc.ac.uk	All
Discussion point 9	Write piece / create MFAB flier / poster on the TRM for the Challenger Society and the Geological Society newsletters and the MATS conference 12-14 th November 2019 at NOCS, inviting feedback.	CR/JP
Discussion point 11	Contact Professor Christine Pearce (Durham) and Dr Jenny Collier (Imperial College) as colleagues in the marine geology community.	CR
Discussion point 12	Is it possible to provide MFAB with a list of principal scientists with a view to highlighting the TRM? There is also the suggestion to give presentation about TRM at the NERC Principal Scientists workshop every year.	LS
Discussion point 13	Seek community feedback on the TRM on a rolling process.	All
Discussion point 14	Contact NERC about providing slides about NERC governance.	AH
Discussion point 17	How can people checking the NMF pages let us know if there is a particular item of equipment they would like considered for the NMEP.	LS
AOB, point 2	Report back on possible Town Meeting	CR
AOB, point 4	NMF to provide one-page infographic on NMF investment/budget and the size of our user groups.	LS
AOB, point 7	NMF to look at previous Ship-time & Marine Equipment (SMEs) forms and Autonomous Deployment Forms (ADFs) to see if it is possible to show that, for example, CTDs are still high in terms of requests.	LS