

Cruise Programme Review Group Terms of Reference

1. The NERC Cruise Programme Review Group

The NERC Cruise Programme Review Group will report to the NERC Director of Science & Innovation (the ‘customer’ for NERC science programmes) and the Directors of NOC (for Sea Systems) and BAS, as the ‘providers’ of the facilities that deliver the NERC Marine Facilities Programme comprised of:

- a. Science cruises onboard the NERC research ships operated by the National Oceanography Centre (NOC) and the British Antarctic Survey, Cambridge (BAS);
- b. Technical seagoing support provided by National Marine Facilities Sea Systems (hereafter referred to as Sea Systems) and BAS; and
- c. Marine facilities that are provided through NERC’s barter arrangements with other operators.

2. Remit

The NERC Cruise Programme Review Group exists to provide objective advice to NERC on all delivery aspects of the operations that make up the NERC Marine Facilities Programme and monitor outputs from these marine services & facilities (eg. Post Cruise Assessment forms).

NERC Directors will in turn provide advice to the NERC Science Board and the NERC Executive Board, as appropriate.

3. Terms of Reference

The terms of reference of the NERC Cruise Programme Review Group are to:

- a. Conduct an annual review of the operations carried out as part of the NERC Marine Facilities Programme, and to provide a report on this to NERC.
- b. Examine issues associated with all aspects of the operations carried out within the NERC Marine Facilities Programme, and to provide advice on these issues to NERC as and when appropriate.
- c. Monitor the level of performance of the services and facilities that are provided via the NERC Marine Facilities Programme, through user satisfaction and other measures, including relevant Benefits Realisation Plans:
 - *RRS James Cook* (Annex 1);
 - *RRS Discovery* (Annex 1);
 - Marine Autonomous Systems (Annex 2 – Sections A4, A5, B1, B2, B3).
- d. Receive and discuss annual reports from the Head of Sea Systems, BAS Ship Programme and Operations Manager and the NERC Marine Planning Officer in order to provide advice and guidance on these reports to NERC.
- e. Give advice to the Head of Sea Systems and BAS Ship Programme and Operations Manager on the Sea Systems and BAS service functions (both ships and technical support).
- f. Monitor the procedures and processes used by Sea Systems, BAS and NERC Marine Planning in the provision of ships and facilities, to provide assurance to NERC that an effective, efficient and coordinated service is being provided to the marine science community.

- g. Advise NERC on resource requirements for provision of NERC Marine Facilities, and especially highlighting issues of critical shortfall.

The NERC Cruise Programme Review Group will maintain processes to ensure it meets these terms of reference.

4. Membership

- a. *Full* membership of the NERC Cruise Programme Review Group will include a Chairman and a minimum of four persons drawn from the marine science community. The membership must include:
 - i. at least one representative from a UK higher education institution;
 - ii. at least one representative from a NERC research and collaborative centre; and
 - iii. at least two representatives with appropriate operational expertise (e.g. NERC's barter partners);
 - iv. the Chair must have been a member before being invited as Chair, and after serving as Chair cannot revert to being an ordinary member.
- b. *Full* members will be invited by NERC to serve for a term of up to three years with a maximum extension of a further two years. The Chairman will serve for a maximum of three years.
- c. *Ex officio* members will represent different levels of NERC as follows:
 - i. Directorate:
 - NOC Head of Sea Systems
 - BAS Head of Operations and Logistics
 - NERC Science and Innovation Manager for Marine Science
 - ii. Operational:
 - NOC Sea Systems Programme Manager
 - BAS Ship Programme and Operations Manager
 - NERC Marine Planning Officer
- d. Specialist officers from NERC, Sea Systems and BAS may be invited to attend meetings for particular agenda items.
- e. The Cruise Programme Review Group Secretariat will be provided by NERC Swindon Office.

5. Mode of operation of meetings

The Group will meet annually for a two-day annual review meeting. This will normally take place in Southampton and will focus primarily on reviewing the previous year's Marine Facilities Programme. Typically, the format will be:

- i. Minutes and matters arising;
- ii. Annual review reports and presentations;
- iii. Post cruise assessment forms;
- iv. Future programme;
- v. Specific issues;
- vi. Finalise content of the group's annual report (*ex officio* members only as required).

All agenda items are required to be supported by written papers submitted in sufficient time for them to be distributed two weeks prior to the meeting. The following procedure will be used to elicit specific input from the user community:

- a. A calling notice will be circulated two months in advance of each meeting asking for any additional agenda items regarding specific user issues.
- b. These must be supported by a written paper that has been submitted to the NERC Cruise Programme Review Group Secretariat in sufficient time for the Chair and Secretariat to review and agree which will be included in the agenda and distributed in the Group's papers.
- c. Where necessary the Chair and Secretariat will invite authors as visitors to speak on their paper(s) at the meeting.
- d. The Group's papers will be circulated by the Secretariat to arrive with members at least two weeks before meetings.

Should there be a business requirement to do so the Group may, on exception, hold a second meeting in December of any year.

Annex 1. From *RRS Discovery and James Cook* Benefits Realisation Plans.

	Benefit	Action	Measure(s)	Timeline/data collection	Information Source	Reported via	Responsibility
1.	UK excellence & international competitiveness in marine and earth science;	Facilitate development of high quality marine research proposals within the context of the NERC strategy Fund NERC marine research programmes, which utilises special capabilities of ships and underpins key national capability in marine science. Operate “free at point of use” funding model for ship infrastructure	a) Peer review grading of proposals receiving ship time; b) Quality of proposals receiving ship time (peer review grades)	JC annually from 2007 D annually from 2013 Further analyses may be undertaken as part of wider NERC evaluation processes	Research Fish data base	Marine Planning Report to CFRG	NERC Evaluation
2.	Strength of UK marine & earth science groups using the ship, including training;	Support NMEP to keep a broad science base able to use ships Support key “national capability” in Marine Research and Collaborative Centres to underpin health of the marine science base. Support competitive access to “research programme” funding within NERC Strategy to encourage quality proposals and develop collaborations	a) Discipline coverage of cruise proposals supported; b) PhD students participating in cruises;	JC annually from 2008 D annually from 2013	Post embarkation questionnaire for Principal Scientist	NMF Sea Systems Annual Report	NMF Sea Systems
3.	Fit to national strategy & impact on international collaborations	Support participation in international research programmes within the context of the NERC strategy Continue and develop participation in international ship barter arrangements.	a) Strategic programmes linked to national science priorities and stakeholder needs (Oceans 2025) b) Contributions linked to international Science and Sustained Observing Programmes (e.g. IODP, CLIVAR, IPY, EU Framework, GOOS, ARGO); c) International participants on cruises;	JC annually from 2008 D annually from 2013	Post embarkation questionnaire for Principal Scientist	NMF Sea Systems Annual Report	NMF Sea Systems
4.	Technical		a) Use of manoeuvrability (dynamic	JC annually from	NMF Sea	NMF Sea	NMF Sea

	Benefit	Action	Measure(s)	Timeline/data collection	Information Source	Reported via	Responsibility
	performance of ship in relation to science demand	Optimise ship programme to maximise fit of science need to the best suited ship platform (including making use of barter arrangements)	a) positioning capability) – e.g. ROV cruises; b) Number of scientific berths occupied per cruise leg c) Metrics of complexity and diversity of equipment handled; d) Reconfiguration of spaces between cruises; e) Year round operating capability (cruise programme);	2008 D annually from 2013	Systems operating information	Systems Annual Report to CPRG	Systems
5.	Operating costs	Put in place transparent financial accounting to identify budget lines separately for each ship. Put in place operating procedures for fuel efficiency in relation to science need.	a) Unit cost of science per day or per scientist (benchmarked against international comparators); b) Fuel usage; c) Cost of planned maintenance programme compared to overall cost of the ship programme; d) Financial control systems;	JC annually from 2008 D annually from 2013		NMF Sea Systems Annual Report	NMF Sea Systems and NOCS Finance Team
6.	Leverage of investment and delivery of wider national European needs	Continue and develop international ship barter arrangements. Within the context of the NERC Strategy, encourage leverage of science funding that is aligned to NERC strategic priorities (e.g. EC Framework programmes) Investigate opportunities for the ships to be used for wider UK added value benefits during port calls.	a) Ship barter (levering global access, quantify cost equivalents and savings);		Barter Database	Marine Planning Report to CPRG	Marine Planning
			b) Leverage of EU programme funds on sea-going projects;	JC annually from 2008 D annually from 2013	Post embarkation questionnaire for Principal Scientist	NMF Sea Systems Annual Report	NMF Sea Systems
7.	Operational management	Develop existing processes for continual improvement of operational service delivery.	a) Effectiveness of the cruise planning/delivery process (customer feedback, cruise questionnaires)	JC annually from 2007	Post cruise questionnaire , cruise	NMF Sea Systems Annual Report	NMF Sea Systems

	Benefit	Action	Measure(s)	Timeline/data collection	Information Source	Reported via	Responsibility
				D annually from 2013	reports, cruise wash-up meeting minutes		
8.	Data management	Strengthen the links between NMF Sea Systems and BODC to ensure timely archive of key data sets in appropriate data centres, and consistent with NERC data policy.	<p>a) Speed of data delivery to British Oceanographic Data Centre from ship (with data embargoes where needed) in line with NERC data policy</p> <p>b) Data sets placed with BODC and other data centres flagged as <i>RRS James Cook</i> or <i>RRS Discovery</i> cruises;</p> <p>c) Sediment cores archived with British Ocean Sediment Core Research Facility (BOSCORF)</p>	<p>JC annually from 2008</p> <p>D annually from 2013</p> <p>Data delivered to BODC within 6 months of completed cruise</p>	BODC and BOSCORF	NMF Sea Systems Annual Report	BODC BOSCORF
9.	Benefits to industry and Knowledge Transfer	Ensure all science proposals have a KT plan with additional KT funding support for proposals with particularly strong KT plans.	<p>a) Use of the ships in support of wider UK needs (e.g. wreck or crash site investigation);</p> <p>b) Contribution to UK international diplomacy (e.g. utilisation of port visits);</p> <p>c) Case studies may be developed as appropriate within NERC's wider evaluation processes.</p>	<p>JC annually from 2008</p> <p>D annually from 2013</p>	Post embarkation questionnaire for Principal Scientist	NMF Sea Systems Annual Report	NMF Sea Systems
10.	Knowledge Exchange Including science into policy and science in society	Pro-actively explore ways to maximise the opportunities to use the ships and ship-borne science as a means for engaging science in society.	<p>a) Cruise “blogs” (e.g. “classroom@sea”)</p> <p>b) Port call and other “events”</p>		Post embarkation questionnaire for Principal Scientist	NMF Sea Systems Annual Report	NMF Sea Systems
			c) Metrics of press coverage naming the ships;	JC annually from 2008	Research Fish Data	Marine Planning	NERC Evaluation

	Benefit	Action	Measure(s)	Timeline/data collection	Information Source	Reported via	Responsibility
				D annually from 2013	base	Report to CPRG	Information source: Reported via:
11.	Environmental impact	Monitor environmental impact of the ships and develop systems for continual improvement of performance.	a) Environmental footprint (CO2, NOX.)	JC annually from 2007 D annually from 2013	NERC Environmental Accounts	Marine Planning Report to MFRG	NERC Director Finance

Annex 2. From Eight Great Technologies investment in Marine Autonomous Systems (MAS) – Benefits Realisation Plan.

	Benefit		Action		Measure(s)	Timeline/data collection	Reported via	Responsibility
A	Capitalise on the UK's lead in development of MAS and sensor payloads and <i>translate them into wider UK leadership and business growth.</i>	A.1	To increase the level of MARSIC Activity	A.1.1	No of MARSIC partners (occupants)	Annually from 2015	MARSIC Annual Report to Steering Group	MARSIC Manager
				A.1.2	No of MARSIC associates	Annually from 2015	MARSIC Annual Report to Steering Group	MARSIC Manager
				A.1.3	Income won by MARSIC partners	Annually from 2015	MARSIC Annual Report to Steering Group	MARSIC Manager
				A.1.4	Collaborative external income (including royalties) generated by MARS group	Annually from 2015	MARSIC Annual Report to Steering Group	MARSIC Manager
				A.1.5	Products created	Annually from 2015	MARSIC Annual Report to Steering Group	MARSIC Manager
				A.1.6	Patents awarded	Annually from 2015	MARSIC Annual Report to Steering Group	MARSIC Manager
		A.2	To accelerate Vehicle, Sensor and Payload Development	A.2.1	New MAS vehicle capabilities developed in MARSIC	Annually from 2015	MARSIC Annual Report to Steering Group	MARSIC Manager
				A.2.2	New sensors developed in MARSIC	Annually from 2015	MARSIC Annual Report to Steering Group	MARSIC Manager
				A.2.3	New downstream data processing tools/products developed	Annually from 2015	MARSIC Annual Report to Steering Group	MARSIC Manager

		A.3	To support UK Business Leadership and Growth	A.3.1	Activity (FTE) in support of MIA, CMIS, etc.	Annually from 2015	MARSIC Annual Report to Steering Group	MARSIC Manager
				A.3.2	Activity (FTE) in support of other government departments	Annually from 2015	MARSIC Annual Report to Steering Group	MARSIC Manager
				A.3.3	Jobs created in MARSIC and downstream	Annually from 2015	MARSIC Annual Report to Steering Group	MARSIC Manager
				A.3.4	Turnover of MARSIC companies	Annually from 2015	MARSIC Annual Report to Steering Group	MARSIC Manager
		A.4	To improve Scientific Leadership	A.4.1	Peer review grading of proposals using MARS assets	Annually from 2015	Marine Planning Report to CPRG	NERC Marine Planning
				A.4.2	Strategic programmes linked to national science priorities and stakeholder needs	Annually from 2015	Marine Planning Report to CPRG	NERC Marine Planning
				A.4.3	Contributions linked to international Science and Sustained Observing Programmes	Annually from 2015	Marine Planning Report to CPRG	NERC Marine Planning
				A.4.4	Discipline coverage of MARS proposals supported	Annually from 2015	NMF Sea Systems Annual Report	Hd MARS
				A.4.5	International participants on MARS projects	Annually from 2015	NMF Sea Systems Annual Report	Hd MARS
		A.5	To develop Training & Skills	A.5.1	PhD students participating in MARS supported projects;	Annually from 2015	NMF Sea Systems Annual Report	Hd MARS
				A.5.2	External training/consultancy given by MARS staff (ie RN courses, proposed AAIB consultancy)	Annually from 2015	NMF Sea Systems Annual Report	Hd MARS

B	Realising a step change in use of MAS to <i>transform how sustained ocean observations</i> are made.	B.1	To increase the Usage of MARS Assets (including those operated by partners)	B.1.1	Days in use by funding stream (NC-LTS, DS, External)	Annually from 2015	NMF Sea Systems Annual Report	Hd NMFSS
				B.1.2	Number of research institutes/HEIs using MARS assets	Annually from 2015	NMF Sea Systems Annual Report	Hd NMFSS
				B.1.3	Number of external (government [DEFRA/DSTL] and commercial) partners using MARS assets	Annually from 2015	NMF Sea Systems Annual Report	Hd NMFSS
				B.1.4	User satisfaction via post ‘cruise’ assessments	Annually from 2015	NMF Sea Systems Annual Report	Hd NMFSS
		B.2	To improve the Cost Effectiveness of sustained observations	B.2.1	Costs of using MARS assets v ship time	Annually from 2015	NMF Sea Systems Annual Report	Hd NMFSS
				B.2.2	Equivalent ship time	Annually from 2015	NMF Sea Systems Annual Report	Hd NMFSS
				B.2.3	Reliability of MARS assets – downtime as % of planned operational time	Annually from 2015	NMF Sea Systems Annual Report	Hd NMFSS
		B.3	To Increase Observational Capability	B.3.1	Metrics of complexity and diversity of vehicle and sensor deployments for science;	Annually from 2015	NMF Sea Systems Annual Report	MARS Chief Scientist

