

Eurofleets+ Research Infrastructure (RI) management workshop

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Cruise Planning, Part 1

Per W. Nieuwejaar

29 November 2022

Tallin, Estonia



Preparations

- Cruise applications and Cruise programming
- Cruise leader instructions
- Cruise manning
- Equipment planning and request
- Diplomatic clearance for access to other countries EEZ
- Safety instructions
- Risk management
- Course and station net
- Medical certificate and Safety training
- Logistics, transportation, intermediate storage etc
- Chemicals
- Cruise plan
- Instrument technicians
- Data collection and handling



Cruise applications and cruise programming

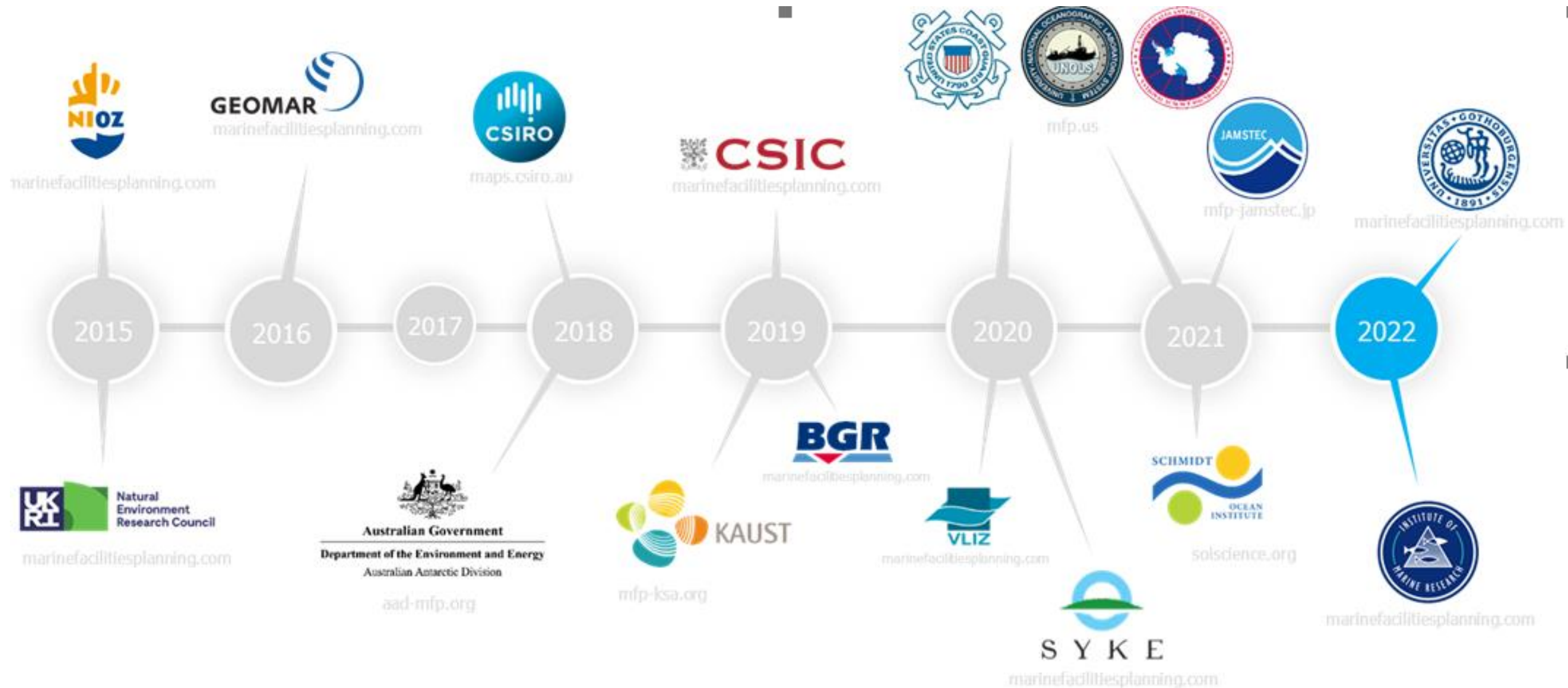
- Most RV operators makes annual cruise programs for their vessel or fleet of vessels, including Large Exchangeable Equipment (LEXI) based on formatted cruise applications. Normally a web-based cruise application/cruise planning system is used.
- Applications must then be delivered several months before the start of the actual calendar year or cruise program period, and in some cases the “waiting time” to get allocated cruise time can be two years or more.
- In most cases the application deadline is during the previous calendar year or even a few weeks/months in the same calendar year, mostly depending on the vessel size and operation areas.
- There are no “standard” web-based cruise planning system in use, but the one with the most users today is the Marine Facilities Planning (MFP).



Marine Facilities Planning (MFP)



MFP users



MFP Modules

Scientist Information

Funding Information

Cruise Dates

Ship Selection

Cruise Manning

Cruise Location

Cruise Location Analysis

Ship Fitted Equipment

Marine Pool Equipment

User Supplied Equipment

Dataset Description

Data Plan

Sample Plan

Environmental Impact

Costings

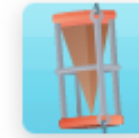
Summary



Programme



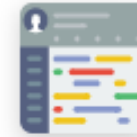
Inventory
Management



Mooring
Application



Personnel
Capabilities



Personnel
Planning



Programme
Construction



Project
Management



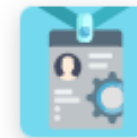
Reporting



Research
Planning



Scientist
Portal



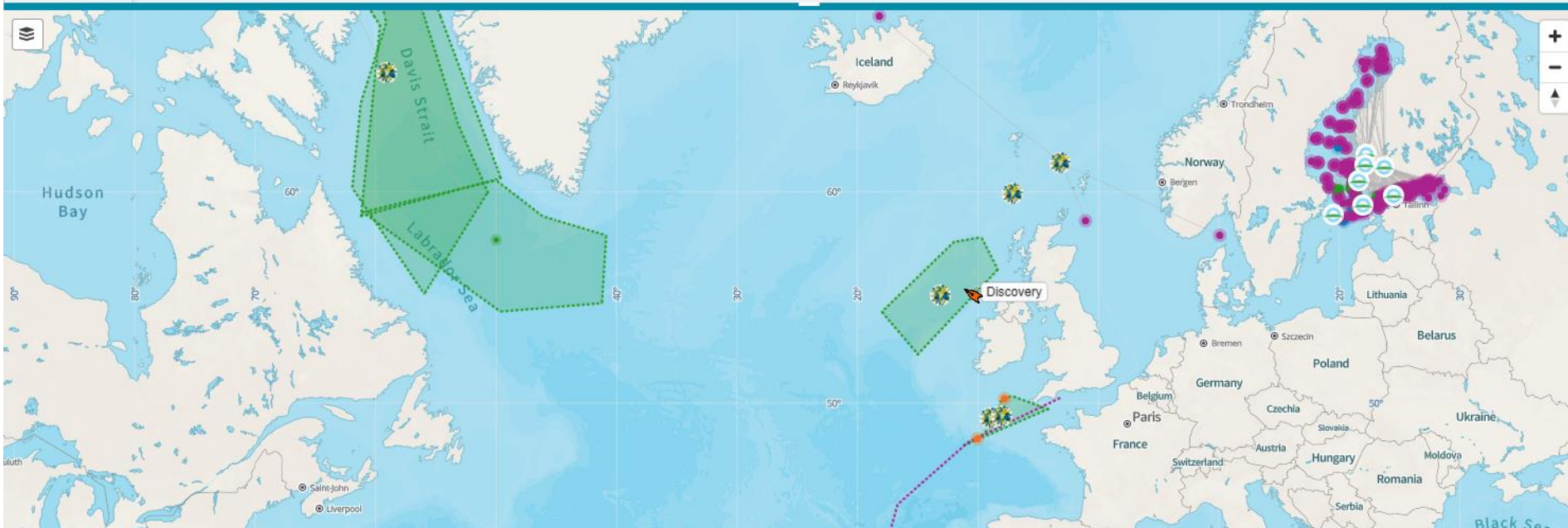
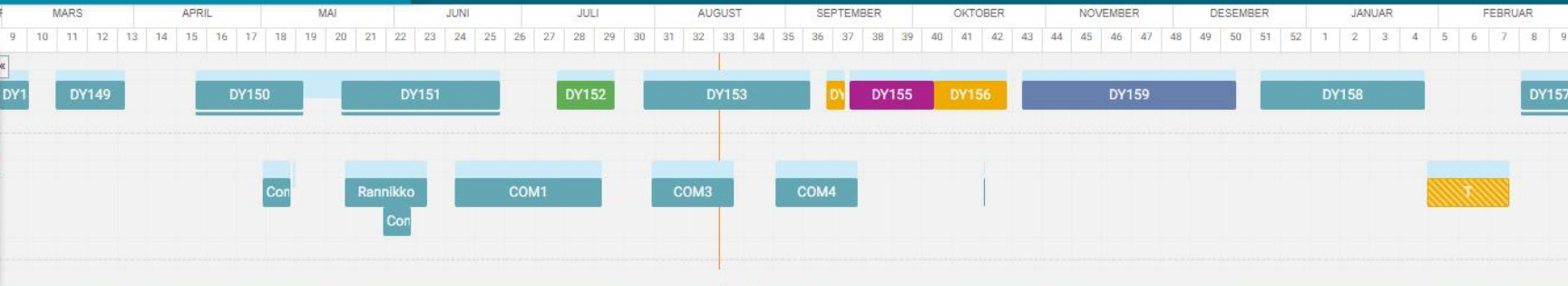
User
Management



2022

Discovery

Aranda



Bottom Boundary Layer Turbulence and Abyssal Recipes (BLT Recipes)

DY153 Discovery 40 Days 17/648

Southampton - United Kingdom → Southampton - United Kingdom

Mob (start): 26.07.2022 Dock: 07.09.2022
Sail: 30.07.2022 Demob (end): 10.09.2022

No agent specified Wainwright Bros & Co Ltd

PI Alberto Garabato

Chief Scientist Marie-Jose Messias

Project Manager Jez Evans

Application Form Final Supply Agreement

Form Equipment

Download

Project Title Bottom Boundary Layer Turbulence and Abyssal Recipes (BLT Recipes)

Identifier 17/648

Last modified 31.07.2022 Mr Jez Evans

Submitted 09.05.2022 Mr Jez Evans

Accepted 31.07.2022 Mr Jez Evans

PRINCIPAL INVESTIGATOR

Full name Prof Alberto Garabato

Organization



Project Roles

PI

Bjorn Krafft

N.A.

Cruise Owner

N.A.

Master

N.A.

Cruise Coordinator

N.A.

Project economists

N.A.

Expand

Alternate ID

2023200002

Proposal ID

2023-CDCF-538

Priority

1 Long term monitoring

Project Dates

Ship

TBD

planned mobilisation date

N.A.

planned sail date

20.01.2023

planned docking date

20.02.2023

planned demobilisation date

N.A.

Attachments

Archive workflow

TABLE	GANTT	APP. FORMS	TASKS	PROJECT STRUCTURE		
Name	Responsibility	Status	Deadline	Completed	Action	
1. APPLICATION STAGE						
Complete cruise application form	Bjorn Krafft	Complete		10.11.2022	View	
Review and Approve Cruise application		Complete		10.11.2022	View	
2. PROGRAMME CONSTRUCTION						
Add application to programme	Henrik Berg	Complete		11.11.2022	View	
IMR Cruise Manning Request		Complete		16.11.2022	View	
IMR Cruise Manning Completed		Active			Open	
IMR Cruise Cost Estimate		Pending				
3. CRUISE PLANNING						
Apply for diplomatic clearance(s)	Bjorn Krafft	Active	21.11.2022		Open	
Select chemical responsible person	Bjorn Krafft	Active			Open	
Select HSE representative for the science party	Bjorn Krafft	Active			Open	
Update Cruise Plan	Bjorn Krafft	Complete		16.11.2022	View	
Review and Approve Cruise plan		Active			Open	
Cruise end		Pending				
4. POST CRUISE						
Complete Post Cruise Assessment	Bjorn Krafft	Pending				
Update Cruise plan iaw actual cruise execution	Bjorn Krafft	Pending				
Cruise Summary Report completed	Bjorn Krafft	Pending				
IMR Cruise allowance form delivered	Bjorn Krafft	Pending				
IMR Scientific cruise report completed	Bjorn Krafft	Pending				
Instrument technical report completed		Pending				
Review Post Cruise Assessment	Henrik Berg	Pending				
Technical Cruise leader report completed	Bjorn Krafft	Pending				
Trawl Journal completed	Bjorn Krafft	Pending				

Developing a cruise plan and cruise preparations

- When the cruise programme for a vessel or a fleet of vessels has been developed and approved it is time for each Principal Investigator or Cruise Leader to develop the detailed plan for his/her cruise.
- This can involve activities such as:
 - Cruise party composition and agreements with individuals involved
 - Agreements with LEXI owners/operators to join the cruise
 - Apply for Diplomatic Clearance if necessary
 - Make a detailed course and station net to be agreed with the RV Master
- This will be discussed in more detail in the next slides.



Cruise leader instructions

- Many RV operators have a set of «standing orders» and instructions to cruise leaders to be followed in the preparation, execution and post-cruise phase of a cruise.
- Such instructions can simplify the planning and execution of the cruise and ensure that all cruises follows the same «textbook».
- This is often very much appreciated by both the RV operator staff, the crew and the science party since it ensure a standardized process and execution of many tasks.



Cruise Leader instructions – Example of contents

- Planning and preparations
- Cooperation
- Safety
- Risk assessment
- Scientific tasks
- Chemicals
- Certification of equipment
- Work and rest regulations
- Diplomatic clearance
- Safety training
- Health certificate
- Passport and visa
- Next of Kin
- HSE committee
- Spare cruise time
- Information to media



Cruise manning

- The scientific party manning for the cruises can either be done by the cruise leader, or it is done centrally by the line managers in the institution responsible for the cruise.
- What system to be used for manning of cruises often depends on the number of vessels in the fleet, number of cruises, number of persons, number of person-days and cruise party skills required for the different cruises.
- For example, Institute of Marine Research (IMR) must use a centralized cruise manning system since it runs more than 200 cruises pr year on 9 own RVs and several chartered vessels, including more than 12000 scientific person-days pr year.
- The important thing is that the science party members have the right certificates to be allowed on a cruise, and the right skills to fill their position in the science team.



Diplomatic clearance

- If the cruise includes data collection and/or sampling in other countries exclusive economical zone (EEZ), permission must be sought through diplomatic channels, ref UNCLOS (United Nations Convention of the Laws Of the Seas) Part XIII Marine Scientific Research
- It is usually the Cruise leader's responsibility to develop the application and the RV operator who sends the application via the national embassy in the foreign country where the cruise will take place. The embassy will then distribute the application to relevant institutions in the host country who will handle it and respond.
- Normal processing time is at least 3 months, but for some countries, e.g UK, Ireland and Russia it is at least 6 months.
- If the application needs to be translated, make sure to include time for it!
- It is the responsibility of the Cruise leader to follow the conditions given in the diplomatic clearance!



For information about EEZs around the world, check:

<https://www.marineregions.org/eezmapper.php>



Applications to national authorities for sampling and/or data collection in national EEZ or territorial waters

- In can be national rules and regulations that require permits to perform different types of data collection and/or sampling within own EEZ or territorial waters. This can be:
 - Geological and geophysical data collection and/or sampling seafloor or below the seafloor on own continental shelf using equipment such as seismic systems, sub-bottom profiler, corer, grab, multi beam echosounder etc.
 - Trawling inside territorial waters (<12 nautical miles from baseline), permission to throw catch overboard in national waters and to have catch quotas.
 - High resolution collection of bathymetric data in territorial waters.
 - Other?



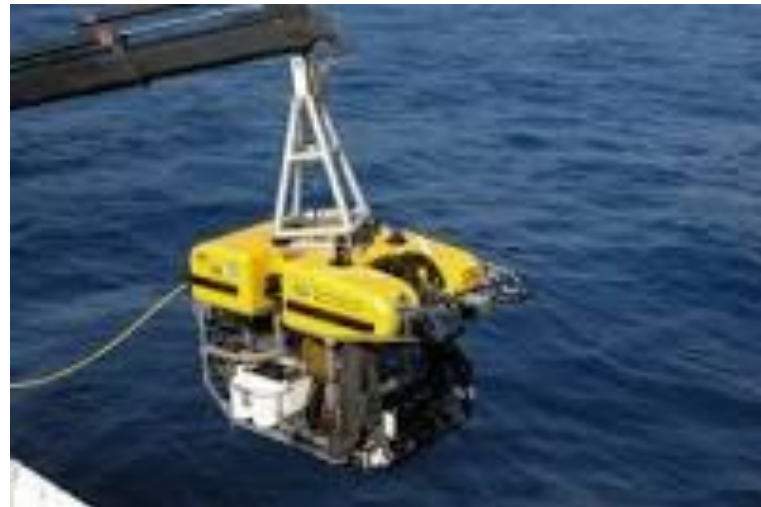
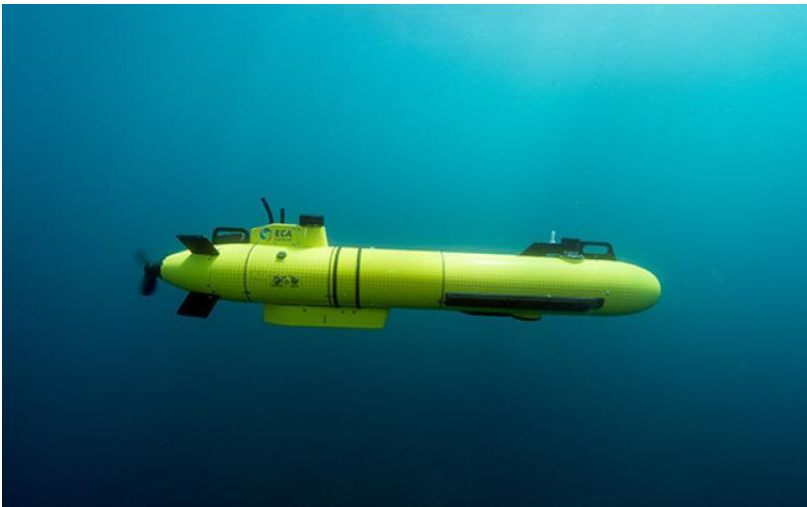
RV capabilities and technical status

- Important to make information available to cruise applicants about the technical and scientific capabilities of the vessel(s) so that they can select the most suitable vessel(s) for their cruise applications and/or to tailor their cruise plan to the vessel the cruise eventually is scheduled on.
- Make sure that the cruise applicants are informed about what kind of Large EXchangeable Equipment (LEXI) the vessel(s) can handle, any need for extra crew and/or instrument technicians, extra costs to be covered by the cruise project (e.g. rental of mobile crane in port) so that no surprises occurs just before, during or after the cruise!
- Keep the cruise leaders informed and updated as early as possible on any long-term deficiencies or current technical problems that may have an impact on the cruise execution.



Scientific equipment and instruments

- Request for mobile scientific equipment and instruments, in particular LEXIs, to be listed in the cruise application and later in the cruise plan.
- Establish communication as early as possible with the RV and/or LEXI operator to check availability of mobile equipment, including necessary modifications/adjustments, preparation, calibration, transportation, loading on board etc if to be used on your cruise.
- Note that many types of scientific equipment require dedicated instrument technicians!



Risk assessment and certification of equipment

- Risk management is necessary in order to ensure the safety of personnel, equipment and the environment.
- For non-routine operations a risk assessment shall be done on board before cruise commencement, and identified risk mitigation measures implemented before start of operations.
- All equipment which will be lifted, towed, handled by cranes and/or winches must have certified lifting points, lifting wires, towing wire etc.
- Self insurance principle.
In some countries it is not allowed to pay for insurance of government owned equipment. That means that if equipment is lost during research operations, the equipment owner is responsible if gross negligence from the vessel crew can not be proved or substantiated.



Flying drones

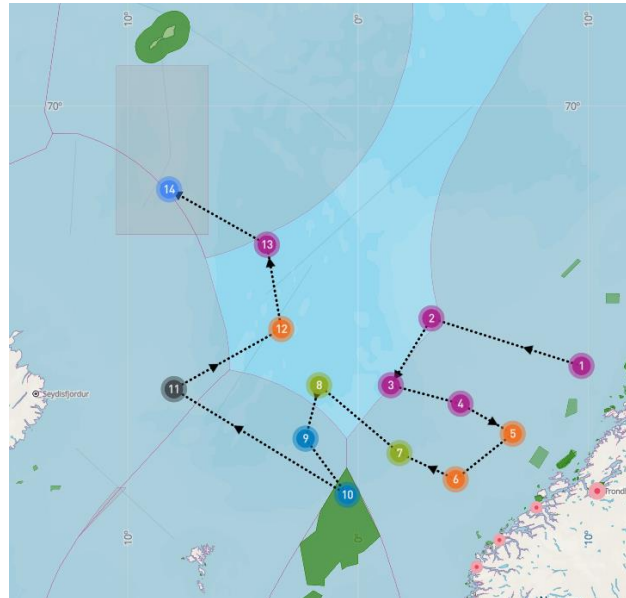


- Permission to operate drones in controlled airspace must be obtained in beforehand!
- Valid permits must be delivered to the RV captain before starting flying drones from the vessel.



Course and station net

- It is very useful for the Captain to receive early indications on the planned course and station net in order to check if there are potential conflicts with wrecks or other obstacles on the seafloor.
- If the cruise is planned to include sampling inside marine protected areas, the necessary permits must be obtained and presented to the Captain.
- Inform the crew about planned port visits during the cruise.
- Plan with economical speed and bad weather!



Polar code and limitations in geography, temperature and ice conditions

- Vessels operating in polar regions must be certified iaw the IMO Polar Code (PC).
- Research vessels have different polar capabilities and it therefore varies in which polar areas they can operate at different times of the year, ice conditions and minimum allowed air temperature.
- This capabilities and limitations must be taken in to account when developing cruise applications and cruise plans in order to execute the cruises within the PC framework for each individual vessel.



Cruise leader requirements

- Different nations and different RV operators have different requirements with regards to certified training for Cruise Leaders/ Principal Investigators (PIs)

In addition to the requirements for all cruise participants, see next slides, the Cruise leader/PI may be obliged to attend a RV operator Cruise leader training course and a national certified Health, Safety and Environment (HSE) training course.



Cruise personnel requirements - Maritime Health certificate

In many European countries it is required to have a valid Maritime health certificate issued by a nationally approved seafarer's doctor. Persons working on board ships shall have a medical certificate in accordance with Flag state health Regulations. This may imply the following alternatives:

1. The cruise participant may have a medical certificate issued by a seafarer's doctor approved by own national authorities.
2. Alternatively the cruise participant have a medical certificate issued in his/her home country or most recent country of residence provided that this country is an EEA (EU + EFTA) country.
3. Or the cruise participant have a medical certificate issued by flag states approved by the RV Flag state's Maritime Authority.

Exemptions from these rules may apply for students on short cruises close to shore and other personnel that are not directly involved in the vessel operation or cruise activities, e.g journalist, office staff, guests etc who are signed on as passengers.



Cruise personnel requirements- Passport and visa

- Passport

For vessels crossing a territorial border (12 nm) on its way to a port, the Captain usually must provide personal data for all persons on board (crew and cruise party) to the Immigration Authorities. This is often done electronically on board, and passport # (EU and EEA citizens) or visa # (3. country citizens) to be filled in to identify all individuals on board.



- Visa

If the vessel visits ports within the Schengen area, cruise participants from some countries outside Schengen must have visa, see <https://www.schengenvisainfo.com/> in order to travel to/from the vessel.



Cruise personnel requirements -Safety training

- Cruise personnel must usually have a valid personal safety training certificate.
- The training course may be iaw STCW, national regulations or RV operator internal rules, depending on the status cruise personnel have according to national legislation since in some countries they are defined as seafarers and in others as special purpose personnel.



Cruise personnel requirements - Insurance

- Many publicly owned and operated RVs are self insured since this in many cases is a Government policy. National government employees are therefore usually covered by government insurances such as work injury, disability, death, loss of personal effects etc when on a research cruise.
- External cruise personnel, e.g from private companies or foreign countries, or students not employed by a national university, must usually bring their own insurance coverage for all potential incidents during cruises.
- In those cases that the RV has a Protection and Indemnity insurance (P&I), the responsibility of the insurance company could include medical evacuation (MEDEVAC), hospital treatment and repatriation of external cruise participants (Norad/RV Dr. Fridtjof Nansen) or be limited to for example MEDEVAC to the nearest medical facility only so additional insurance is needed (NIOZ/RV Pelagia).
- It is therefore important to inform all personnel assigned to a cruise about what insurance requirements are mandatory and/or recommended.



Logistics (transportation, intermediate storage)

- Contact RV operator as early as possible about transportation and storage needs!
- Marking of equipment and goods!
- Self-insurance principle usually applies to transportation of equipment on RVs.
- Important to store equipment temporarily ashore instead of on board if possible!
- RV operator may have transport/logistics agreement to be used for transportation with commercial companies.
- For international transportation of supplies, equipment, spare parts etc to/from the RVs it is important to have a local agent in the port of departure or arrival of the goods, and to make sure that all customs related issues are handled correct.



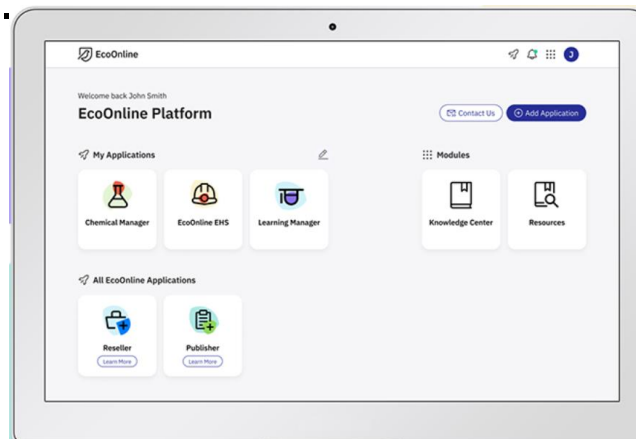
Example of marking



Chemicals

A Chemicals manager should be appointed before cruise commencement. He/she should also be responsible for the preparation of chemicals for the cruise and check all the “local” rules and regulations for storage and use of chemicals and gases on board:

- Check if chemicals already are on board in required quantities is on board already, before bringing more!
- Check if required data sheets already are on board or make sure to bring them.
- Ensure proper marking of chemicals before transportation and loading on board.
- Ensure that proper protective equipment is in place on board, and that necessary training/information regarding handling, storage etc is given.
- Make sure that all “left overs” are properly marked for continued storage on board or to be transported ashore for storage or destruction.
- Some RV operators are using digital chemicals management software and offering training courses in chemicals management.



Instrument technicians' main tasks and responsibilities

- Calibration, operation and maintenance of scientific instruments and equipment on board.
- Operation and maintenance of RV IT networks and communication equipment.
- Assist in maintenance of navigation equipment.
- Ensure that current measurement methods are in use and quality assurance of collected data.



Post cruise tasks

Each RV owner and RV operator have their own set of Post cruise reports, which can look something like this:

- Transfer of data to National Data Center.
- Reporting cruise allowance.
- Report to line managers ashore about the cruise personnel work efforts and results during the cruise.
- Technical cruise leader report
- Instrument technical report
- Cruise Summary Report
- Final Scientific Cruise Report





Questions?