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ERVO MEETING 17TH

The 17th ERVO (European Research Vessels Operators) Annual Meeting was hosted and organized by the Marine Institute, Galway (Ireland) from Tuesday the 9th to Thursday the 11th of June 2015.

18.00 - Tuesday 9th June 2015

The ad-hoc Working Group met on board R/V CELTIC EXPLORER. Giuseppe Magnifico presented the group a power point presentation about the first results of how ERVO should proceed in the future. After all agreed about the content of the presentation Aodhán FitzGerald gave a quick tour of the vessel.

19.30 - Tuesday 9th June 2015

Icebreaker cocktail on board R/V CELTIC EXPLORER (Galway Docks) where a finger buffet and refreshments were available.

08.30 - Wednesday 10th June 2015

Welcome and practical arrangements: registration – posters installation – coffee breaks, wireless connection in the meeting room by Aodhán FitzGerald (Marine Institute, Ireland).

09.00 - Wednesday 10th June 2015

Opening and practical arrangements of Day 1 by Aodhán FitzGerald

09.15 - Welcome address by Peter Heffernan (CEO MI, Ireland)

Peter Heffernan expressed his satisfaction to host the 17th ERVO meeting and set out the main activities of the Marine Institute, especially the mapping work in the frame of the North Atlantic Alliance.

09.30 - Introduction to the 17th ERVO meeting – hand over of chairmanship - Giuseppe Magnifico (CNR, Italy)

Giuseppe Magnifico thanked Aodhán FitzGerald for the icebreaker party and all 50 members of the meeting for coming. He especially mentioned the representative from the Faroe Islands who participated for the first time in an ERVO meeting. After that he gave a short overview about the currently participating countries with their number of representatives.

Giuseppe then gave the floor to Olivier Quédec – Ifremer, France - who is taking over as Chair of the ERVO group. Olivier then introduced himself shortly.

09. 45 – Approval of 2014 ERVO minutes and new ERVO Vice-Chair election

Olivier Quédec asked for a candidate for the position of new Vice-Chair. Klas Lackschewitz – IFM-GeoMar was candidate because he has participated since several years in the ERVO meetings.

Round table: Each ERVO participant briefly introduced herself or himself.

ERVO minutes 2014: No comment was made and the minutes were approved. They are available on the ERVO website at:
http://www.ervo-group.eu/np4/file/9/ERVO_MEETING_16th_minutes_VF__3_.pdf

10.00 - ERVO Way ahead – Giuseppe Magnifico (CNR, Italy)

Guiseppe Magnifico started his presentation with a short introduction to ERVOs history and past achievements. After that he indicated that ERVO has to decide how its future should be and what role it wants/needs to play in the near future. Therefore, at the 2014 ERVO meeting in Barcelona, it was decided to set up an **“ad hoc” working group (WG)** to initiate a

strategic discussion about ERVO aspirations, goals and opportunities, and to report the first results at this ERVO meeting.

Members of the WG were G. Magnifico (CNR, Italy), O. Quédec (Ifremer, France), A. Fitzgerald (MI, Ireland), P.W. Nieuwejaar (IMR, Norway), E. Koning (NIOZ, The Netherlands), D. Cattrijsse (VLIZ, Belgium), J.J. Danobeitia (CSIC, Spain), and in addition V. Mazauric (EUROFLEETS2 Coordinating team) as an observer.

Seven topics have been proposed and then discussed among WG members:

1. ERVO legal framework/structure,
2. EUROFLEETS1+2 legacy,
3. ERVO/IRSO relationship,
4. Collaboration with EurOcean,
5. ERVO/OFEG relationship,
6. ERVO and European Ocean Observing System (EOOS),
7. Proposal for a new organisation of ERVO.

- The very fundamental question the WG has discussed is what ERVO wants to be in the future. The two main alternatives are:
  - Staying on as it is (not very much influence, impact and visibility), or
  - Move to a more formal organisation (more manpower and some money)
- The WG opinion is that ERVO needs to be more visible, both nationally and on a pan-European level, and to have a "voice" within the European Marine Research community in the same way as other "special interest groups" and projects dealing with particular parts of the marine data collection systems, e.g. EuroGOOS, EMSO, JERICO, etc.
- ERVO should, and to a large extent does, represent the "European view" on research vessels and large exchangeable equipment, and should have a "much stronger say" in questions regarding European policies, plans, technological developments etc.
- The most important role of ERVO in the short term could be to try to convince the EC that it is of significance to the European marine research community that the Trans National Access (TNA) system is kept going after the end of EUROFLEETS2 in some form or shape, and that ERVO is willing to help out in this process to the extent necessary.
- This task must be well coordinated with the EUROFLEETS2 project and there would be a need to develop some kind of project document and information material that EurOcean probably could help ERVO in developing and distributing.
- The WG should develop a 'succession' plan for ERVO to sustain main outputs from EUROFLEETS1+2 including standards, reports and other services and tools that contribute to RV operations in Europe.
- In April 2014 an Agreement for cooperation between ERVO and the EurOcean Foundation was officially signed: the document defines the legal and financial framework for the development and execution of the activities to be performed by EurOcean for ERVO.
- It is very important to have a continuous dialogue between ERVO and EurOcean, not only about the ERVO part of the EurOcean website, but also about the other parts of the EurOcean web portal that covers topics that are of interest to ERVO, e.g. the RV Infobase and the Large Exchangeable Instruments Infobase.

- Since a number of ERVO members are also EurOcean delegates, maybe one should be appointed as the ERVO liaison to the EurOcean Steering Committee and be responsible for reporting to ERVO about EurOcean issues/policies/plans etc. seen from an ERVO point of view.
- Ocean Fleet Exchange Group (OFEG) is a restricted cooperation between a few countries with very specific needs and interests that are beyond the scope of most of the ERVO members.
- OFEG members are also members of ERVO so there will always be connections and sharing of ideas, information and lessons learned between the two groups.
- OFEG should be seen as an example of how such a system works, with the idea that it may be an option to try and establish a similar structure for regional areas.
- The WG believes that there is no need to set up a proper strategy in relation to OFEG although OFEG is of particular interest to ERVO.
- ERVO's possible role in the development of the European Ocean Observing System – EOOS (space crafts, research vessels, vessels of opportunity, landers, observatories, buoys, moorings, HF-radars, tide gauges, gliders, drifting buoys, AUVs etc.).
- A European OOS will not necessarily compete with research vessels, but rather being complementary with regards to data collection, and it is therefore vitally important that politicians, decision makers, funding agencies and even scientists understand this properly.
- ERVO could establish a kind of formal or informal link to the ESF Marine Board and EOOS, either through ERVO members who belongs to institutions that are represented in both ERVO and ESF/MB and/or EOOS, or the ERVO chair could be the link between the three groups.
- Actions proposed:
    - *ERVO Executive Committee (ERVO ExCom) replace the ERVO WG.*
    - *ERVO General Assembly (ERVO GA) meet before the annual ERVO meeting.*
    - *Regional focus to foster more regional cooperation among ERVO members.*
    - *More visibility should result from closer contacts with other marine initiatives.*
    - *ERVO membership fee should establish to maintain its website etc.*

All members agreed an immediate change from the ad hoc WG to an ERVO Executive Committee.

For more details, see the presentation at:
http://www.ervo-group.eu/np4/file/22/ERVO_way_ahead_WG_first_results.pdf

10.30 – Coffee break and national update posters

The following posters were presented during the meeting:

- German Research Vessels – Tina Rabenseifner, Klas Lackschewitz
- RV BELGICA Activity 2014 – Lieven Naudts
- Oceanographic and Fisheries Vessel 'Árni Fridriksson', Iceland – Sólmundur Már Jónsson
- Italian Update 2015 – Operative Programming Support Office - CNR
- Cefas Endeavour, UK – David Limpenny
- Romania National Update – Stefan Florescu
- French Oceanographic Fleet activity report 2014

- Norway National Update – IMR
- The new route of communication programming – Explorer's society
- RV SIMON STEVIN multidisciplinary coastal research vessel, Belgium – André Cattrijsse
- Irish Research Fleet National update

For more information, see the posters at http://www.ervo-group.eu/np4/22.html

11.00: Implementation of EurOcean vessel database – Valerie Mazauric (Ifremer, France)

In 2006 a database providing characteristics of a list of European Research Vessels and owner/operator contact details was launched and since maintained by EurOcean (http://www.rvinfobase.eurocean.org). In 2014, a number of proposals were made by the EUROFLEETS2 Fleet Evolution Group (FEG) to upgrade the database and implement new filters enabling benchmarking with international research fleets, and to better identify "real" Research Vessels etc.. Since 2014, a supplementing Infobase is available dealing with RVs: the Marine Research Infrastructure Database (RID). This RID was developed by EurOcean (http://rid.eurocean.org/) with the support of FP7 SEAS-ERA and JPI Oceans/CSA-Oceans, and aiming to map all types of Marine Research Infrastructures including the Research Vessels.
A first draft document on the technical and operational convergence of the InfoBases will be produced taking into consideration the identified needs. The draft will be sent to an Expert Group (6-8 persons max.) for advise on the common descriptors and a number of improvements in one or both InfoBases. EurOcean will estimate the implementation needs and associated cost. A presentation of the final proposal is planned at the next meeting of the EurOcean Steering Committee (November 2015), for decision.

For more details, see the presentation at:
http://www.ervo-group.eu/np4/file/22/ERVO2015_Towards_new_developments_of_the.pdf

11.15: EurOcean/ERVO cooperation – Cristina Costa (EurOcean, Portugal)

Christina Costa presented a summary of the formal agreement between ERVO and EurOcean which regulates the activities of cooperation since 1st of January 2014. EurOcean is hosting and maintaining the ERVO website for an annual fee of 3.000€/year paid by ERVO members. In addition, EurOcean has made a great effort on the update of the contact list and to develop an ERVO logo (for additional 922€). EurOcean has also developed two proposals for a new ERVO website design. The ERVO group has voted for the second proposal indicating a dynamic homepage with a vertical menu.
Giuseppe Magnifico asked Christina Costa if EurOcean can be the treasurer for the ERVO fees. Christina agreed that EurOcean can act as treasurer for ERVO.

For more details, see the presentation at:
http://www.ervo-group.eu/np4/file/22/5_EurOcean_ERVO_2015_030615.pdf

11.30: ICELAND Marine Research Institute – activities and facilities – Sólmundur Már Jónsson (MRI, Iceland)

Sólmundur Már presented an update about the activities and facilities of Iceland Marine Research Institute. The main problem of the last years was the financial cutbacks. The institute consists of 140 people with a budget of 18 M€/year. The main activity is the fisheries research and stock assessment. Fisheries are still the backbone of the economy with about 50% of the entire export value for Iceland. The annual advice and fish stock assessments are based on various data from catches and series of systematic resource surveys on board their research vessels and on board fishing vessels that provide independent measure of the situation. Another important partner for their fish stock assessements is the Icelandic Coast Guard.

For more details, see the presentation at:
http://www.ervo-group.eu/np4/file/22/MRI_ICELAND_Ervo_2015.pdf

11.45: FAROE Marine Research Institute – activities and facilities – Leon Smith (FAMRI, Faroe Islands)

Leon Smith (Head of Technical Department) introduced the Faroe Marine Research Institute HAVSTOVAN, including the research vessel MAGNUS HEINASON, to the ERVO community. The Faroe Islands are a self governing province with their own fishstocks. This requires a major effort for monitoring local and stradding stocks in their exlusive economic zone (EEZ). For this task, the research vessel MAGNUS HEINASON (45,5m long) is used since 1978. The planning of a new vessel started already in 2008, however, changing political conditions have stopped the project several times. Unfortunately, HAVSTOVAN is still waiting for a decission to go ahead with the construction of a new vessel.

Peer Nieuwejaar mentioned that Norway has a large fleet of modern fishing vessels available for fish monitoring and data collection because most of the time the vessels are lying in port. It might a possibility that these vessels can help Iceland and the Faroe Islands in their data collection.

See the presentation at:
http://www.ervo-group.eu/np4/file/22/FAROE_Marine_Research_Institute__activit.pdf

12.00 – Better days for RV Aranda: International/national cooperation & major refit – Juha Flinkman (FEI, Finland)

Juha Flinkmann presented us the new life of the Finnish research vessel ARANDA as a multi-diciplinary and multi-national research vessel.
ARANDA's days at sea declined to 100-120 days/year until 2013. The result was that their further existence and continuation became questionable. National and international cooperation led to an increase in the days at sea up to approximately 200 days/year. However, there is still spare capacity for other users in the Baltic and Eastern Arctic. The vessel is characterized by a full serviceability and modern instrumentation. A new contract for crewing

and maintenance has been signed for 5 years. An amount of 11.5 M€ was granted for a major overhaul in the period 2016-2019. This refit will ensure an operational capacity beyond 2030.

See the presentation at http://www.ervo-group.eu/np4/file/22/Aranda_ERVO_15.pdf

12.15 – Possible new vessel designs at Marine Institute – Aodhán FitzGerald (CEO MI, Ireland)

Aodhán FitzGerald started his talk with the question:
"Which vessel design do we need for the replacement of the existing CELTIC VOYAGER?"
The multipurpose research vessel CELTIC VOYAGER came into service in 1997 and was refitted in 2006. It has accommodation for up to 8 scientists and an endurance of 10-14 days. The vessel is equipped with a full hydrographic suite and a permanent hullmounted USBL system. The present CELTIC VOYAGER's focus is centered on oceanography, fisheries surveys, academic training, buoy service and academic research. However, the vessel has several limitations in number of berths, lab spaces, endurance, sea-keeping, weather downtime, deck space, no dynamic positioning, linited lifting and deployment capacity etc.
Three options remain available for the future :

Option 1: Continue with current vessel.
Fleet becomes more limited as Celtic Explorer demand increases with new fisheries programs, Celtic Voyager becomes less fit for purpose over time, capacity to complete marine Science research diminishes.
Option 2: Refit and extend existing vessel
Expensive option, vessel's small size and design make this option not feasible, many limitations remains and sea keeping may in fact disimprove
Option 3: Build replacement vessel of c. 46-50m with similar draft as Voyager vessel available to complete existing role, but far more suited to work offshore on existing and new projects and acting as a viable back up to the Celtic Explorer

A potential design of a new vessel is indicated with a length of 45-50m, a beam of 10.5-12m and a draft of 4m. It should have 11-13 berths for scientists and an endurance of 25 days with a service speed of 10 knots. Station keeping will be ensured by DP1.

See the presentation at:
http://www.ervo-group.eu/np4/file/22/Possible_new_vessel_designs_at_Marine_In.pdf

12.30 – Lunch at MI

13.30 – RV Urania and RV Minerva UNO improvement and strengthening: updates, state of work and results – Andrea Grazzini (So.Pro.Mar. SpA, Italy)

Andrea Grazzini presented a video about the difficulity to cut and extend the RV URANIA by SO.PRO.MAR Spa at the shipyard in Fiumicino/Italy. Another video showed the operation with different scientific devices during an expedition onboard the RV URANIA.

For more information, see the videos at
http://www.ervo-group.eu/np4/file/22/PROMO_URANIA_HD.mov and
http://www.ervo-group.eu/np4/file/22/PROMO_THE_SCIENTISTS_HD.mov

13.45 – The Parfamar Project – Lorenza Evangelista (IAMC-CNR, Italy)

Lorenza Evangelista presented the PARFAMAR project. The constellation, strengthening of research and training on the marine environment in Southern Italy, groups together 6 projects funded under the Italian Operational Programme "Research and Competitiveness" 2007-2013 with 67 M€. SO.PRO.MAR Spa and CNR-IAMC (Institute for Coastal Marine Environment) are responsible for the first two projects (PITAM and STIGEAC). They have developed a new technological platform and a fast cargo vessel. The technological platform is characterised by a modular system of containers and legs. It has capabilities for 12 scientific and technical operators and an endurance of 7 days. The containers contain a geophysical lab, a geochemical lab and a geotechnical lab. The fast cargo vessel has a length of 28.45m and a width of 7.0m. It is characterised by a 5t A-frame and a moon pool. In addition, the IAMC has developed unmanned semi-autonomous systems.

For more information, see the presentation at:
http://www.ervo-group.eu/np4/file/22/Evangelista_ERVO2015_Galway_1.pdf

14.00 – New main propulsion system of the Norwegian RV Gunnerus - Per Nieuwejaar (IMR, Norway)

Per Nieuwejaar presented a new permanent magnet (PM) technology for thrusters developed by Rolls-Royce starting in 1998. This PM technology is characterised by high efficiency, robustness and compactness. At the beginning of 2015 two PMazimuth 1900 (propeller diameter 1,9m) were installed in the R/V Gunnerus. The vessel is owned by the Norwegian University of Science and Technology and the project was funded by Rolls-Royce and the Norwegian Research Council. Even though the PM thrusters only have been in operation for some weeks, the system has already proven effective regarding vibration, noise and manoeuvrability.

For more information, please see the presentations at:
http://www.ervo-group.eu/np4/file/22/Gunnerrus_PM_system.pdf and
http://www.ervo-group.eu/np4/file/22/20150607__Ocean_research_PMazm_V3.pdf

14.15 – Cefas/IMARES/RWS – Joint delivery of Dutch IBTS survey 2015 – David Limpenny (Cefas, UK)

On the 13th of February 2015 the RV CEFAS ENDEAVOUR has completed an 17 day charter to the Government of the Netherlands organisations Rijkswaterstaat (RWS) and the Institute for Marine Resources & Ecosystem Studies (IMARES). The 74m multi-disciplinary research vessel has participated in the International Bottom Trawl Survey (IBTS) operations in the North Sea. The objective of the survey was to collect data for the assessment of fish stocks and to investigate changes in the ecosystem. Because the regular vessel TRIDENS was not available due to a major refit, RWS decided to use the RV CEFAS ENDEAVOUR as an

alternative platform to meet the research needs. The CEFAS ENDEAVOUR is ideally suited for this type of survey as she can deliver many scientific activities during the same cruise. She is able to deploy a variety of commercial fishing gears in tandem with water column and seabed acoustic data acquisition. The center for Environment, Fisheries and Aquaculture Science (Cefas) is now looking forward to working in partnership with the Government of the Netherlands and hope that this first international charter could lead to further collaborations of this kind.

For more information, see the presentation at:
http://www.ervo-group.eu/np4/file/22/IMARES_RWS_Survey.pdf

14.30 – Nordic steel on southern waves – Juha Flinkmann (FEI, Finland)

The Government of Namibia procured a marine research vessel from Finland through a concessional credit support in 2011-2012. During the process it became apparent that transfer of knowledge and exchange of experience between marine research experts of the two countries would provide a major opportunity to gain added value for the investment of the Namibian Government. Therefore, an Institutional Cooperation Instrument (ICI) project was prepared and commenced to transfer knowledge and experience about a modern research vessel to the users of the new vessel. In this Project, scientific staff of SYKE's Marine Research Center assists the scientific staff of the National Marine Information and Research Center (NatMIRC) under the Ministry of Fisheries and Marine Resources of Namibia (MFMR) to utilise the research methods offered by the new vessel. The Project started in June 2012 by training of the vessel crew during the transit of the vessel from Finland to Namibia by the permanent crew. The scientific training started in October 2012 with a monitoring cruise during which the scientific instruments were tested on-board.

For more information, see the presentation at:
http://www.ervo-group.eu/np4/file/22/Mirabilis_ERVO_15.pdf

14.45 – EMSO – European multipliscinary seafloor & water column observatory: a new challenge for Research vessels? - Juanjo Dañobeitia (CSIC, Spain)

EMSO is a large-scale European Research Infrastructure in the field of environmental sciences. EMSO is based on a European-scale distributed research infrastructure of seafloor observations with the basic scientific objective of long-term monitoring, mainly in real-time, of environmental processes related to the interaction between the geosphere, biosphere, and hydrosphere, including natural hazards. It is composed of several deep-seafloor observatories, which will be deployed on specific sites in European waters, reaching from the Arctic to the Black Sea passing through the Mediterranean Sea, thus forming a widely distributed pan-European infrastructure. The Preparatory Phase of EMSO was funded by the European Seventh Framework Programme (FP7) involving 13 countries of the European area (Italy, France, Germany, Ireland, Spain, Sweden, Greece, UK, Norway, Portugal, Turkey, the Netherlands and Romania). The Preparatory Phase prepared the foundation for the adoption of the ERIC (European Research Infrastructure Consortium) that will be the legal entity in charge of coordinating and facilitating access to these nodes of open ocean fixed point observatory distributed infrastructure. The total implementation costs estimate is 300 M€.

The deployment of the EMSO distributed observatory nodes allows researchers to get useful data in order to understand the behaviour of the oceans and their impact on human society. In particular EMSO collects data concerning the following main scientific fields :

- *Geosciences*: gas hydrate stability, seabed fluid flows, sub-marine landslides, geo-hazard early warning, mid-ocean ridge volcanism.
- *Physical Oceanography*: ocean warming, deep-ocean circulation, benthic and water-column interactions.
- *Biogeochemistry*: ocean acidification and the solubility pump, the biological pump, hypoxia, continental shelf exchange, deep-ocean biogeochemical fluxes.
- *Marine Ecology*: climate forcing of ecosystems, molecules to microbes, fisheries, marine noise, deep biosphere, chemosynthetic ecology.

ERVO has a unique opportunity to anticipate events and prepare our RV´s in an efficient and collaborative way to address the challenge of early implementation of these deep sea observatories.

For more information, see the presentation at:
http://www.ervo-group.eu/np4/file/22/ERVO_2015_GALWAY_JUANJO_v3.pdf

15.00 - Coffee break & national update posters

See the list of posters on page 4 of these minutes.

15.30 – EUROFLEETS 2 project: Ongoing activities – Valerie Mazauric (Ifremer, France) and Software and tools – Jordi Sorribas (CSIC, Spain)

The EUROFLEETS2 project groups 31 beneficiaries working together in three structuring activities: Trans National Access (TNA), Joint Research Activities (JRA) and Networking Activities (NA). The project makes available shiptime on 22 modern research vessels, including the use of large equipment such as ROVs and submersibles. The application procedure for 2013 and 2014 has already involved five calls for proposals. During the last "Regional 3" call 26 new proposals are under evaluation for funding in 2016, and during the embarked-equipment call two new proposals are under evaluation for funding in 2016. For the five calls, 50 proposals were submitted (mostly targeted on geographical areas), mobilizing 346 potential partners from more than 180 institutions, mainly from Europe. The project is also contributing to the practical on-board training of young marine scientists. These onboard practical activities are always a great success and welcomed by European students/young scientists. The applicants and participants are fairly well distributed among European nations.
In addition, the Eurofleets2 project is developing guidelines and generic designs for regional resaerch vessels. Three design key points are :

- *Noise and vibration reduction (*Deliverable available on the EF2 website):
  Need and benefits of reducing Underwater Radiated Noise (URN) for research vessels, methods for reducing URN, URN requirement standards and different methods to verify a vessel's URN.
- *Work deck installations* (Deliverable to be completed by August 2015) :

Description of deck operations and deck gears, types of equipment depending on RV missions and resulting deck space contraints.

- *Bubble sweep down avoidance* (Deliverable to be completed by February 2016) :
  Preliminary CFD analysis based on an existing RV (*Urania*) to look for alternative designs for mitigating bubble sweep-down reduction in hydroacoustic equipment performance.

Other networking activities are:

- *Fleet Evolution Group to foster a shared strategic vision, including Polar research fleets :*
  Report on the status and foreseeable evolution of the European and International Polar Research Fleets.
  Report on the feasibility of year round, regular research operations in ice-covered areas.
- *Actions towards more transnational cooperation at regional level:*
  Regional Virtual Fleet concept.
  Two pioneer groups (focused on Med. Sea and Atlantic) to launch in 2015.
- *Cruise planning system under development*
- *Upgrade of the EVIOR portal*

For more information, see the presentation at:
http://www.ervo-group.eu/np4/file/22/ERVO2015_EUROFLEETS2_10062015_Final2.pdf

16.00 – Fostering European coordination activity on a regional basis: some concrete examples in the Celtic Sea Region and suggestions for future further coordination – Aodhán FitzGerald (MI, Ireland)

The European Atlantic Sea Basin contains a range of diverse habitats from semi-enclosed seas (North Sea and Irish Sea), exposed bay (Bay of Biscay) to the open Atlantic Ocean. The eastern European Atlantic Sea Basin includes the sea surface, the water column and seabed off the eastern European Atlantic coastline (including North Sea and the Irish Sea). The area is richly endowed with Centres of Excellence in science, technology and innovation. Together this represents an unique opportunity to collaborate together on a regional vessel level. Some of the regional vessels are ageing and becoming outdated in the near future. This provide some obvious possibilities for collaboration/pooling of resources when replacing vessels. Aodhan has present two possible models of collaboration :

1. A vessel has multiple owners which need to designate a country of registration for flag state purposes and to appoint an operator whose costs can be shared between the owners. This kind of collaboration needs a long term strategy for use between the partners on how to manage acess levels based on financial inputs.
2. A vessel has a single owner, but with agreed access at daily rate for second user. This system allows more flexibility for access level changes.

For more information, see the presentation at:
http://www.ervo-group.eu/np4/file/22/regional_co_operations_.pdf

16.15 – Trying to benchmark RV operations & costs – André Cattrijsse (VLIZ, Belgium)

To benchmark RV operations & costs André Cattrijsse has demonstrated the main parameters needed:

1. Operating/Fixed costs
2. Periodic maintenance costs
3. Voyage costs
4. Capital costs
5. Scientific equipment

Other factors are ship characteristics, administration, crew, operations and maintenance.

André Cattrijsse is looking and asking for people willing to offer their costs for smaller vessels (30-40m).

For more information, see the presentation at:
http://www.ervo-group.eu/np4/file/22/ervo_2015_dre.pdf

16.30 – Safety and quality certification – Per Nieuwejaar (IMR, Norway)

The requirements for a safety management system closely match the requirements for a quality management system, albeit with a different focus. The IMR has developed and expanded on an internal non-certified QMS over many years to cover all activities regarding:

- Vessel operations, maintenance, logistics, budget control etc.
- Scientific equipment operations, logistics, storage etc.
- Datahandling, data reduction, data storage and data transfer

In 2014 the IMR RV Department started the formal certification process for ist “Integrated Quality & Safety Management System“ for its entire fleet of RVs by DNV GL. Fort he oceangoing vessels this means an extension to their already ISM certified safety management system with a quality (IS= 9001) and environmental (ISO 14001) management system. Fort he coastal vessels an adapted ISM-certified safety management system in addition to quality and environment management system. The minimum requirements for smaller vessels depends on national rules and regulations, which are based on international conventions, and ”adjusted” to size, trading area and type. The IMR has adapted an existing system of the large vessels to their smaller vessels with the challenge to find the minimum requirements without deluting too much.

For more information, see the presentation at:
http://www.ervo-group.eu/np4/file/22/Integrated_QA_and_SMS.pdf

16.45 – Safety training and medicals for scientists: Essential or just a waste of money? – Erica Koning (NIOZ, Netherland)

Because Erica Koning has cancelled at short notice Beth House presented her talk.

Scientists and technicians from the Netherlands are getting older, which provide an increasing chance of medical problems. If they have to interrupt a cruise because of a medical problem they loose a lot of science days and money. Therefore, the vessel operators are responsible for all people on board, including the science party.
Because many scientists, technians and students rarely go to sea, the ship is often for them an unfamiliar environment. In order not to become a burden for the crew the science party participates in a one day safety training course that gives them some experience of what it is like to put on a survival suit, to jump into the water from height wearing the suit and life vest, and to climb into life rafts.
MLC 2006 gives a set of rules and guidelines for the treatment of ship crews, the interpretation is up to the national interpretation of MLC. The effect of MLC 2006 depends very much on how your organisation sees scientists on board. According to Dutch shipping law, every person on the ship belongs to the crew, unless the ship carries a passenger certificate. The Dutch government does not want to make any exceptions to these rules, meaning that a mechanic sent over by his company to make repairs on the ship would be subject to the same rules for training and medicals as the crew.
We need your help! In many countries it is very difficult for scientists to get access to safety training.

For more information, see the presentation at:
http://www.ervo-group.eu/np4/file/22/safety_training_and_medicals_erica.pdf

17.00 – End of day 1

17.15 – Scenic Tour of Galway/Connemara with guide

20.30 – Dinner at "Renvyle House Hotel + Traditional Irish entertainment

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09.00 - Thursday 12th June 2014 - Opening - Practical arrangements day 2 – Olivier Quedec (Ifremer, France) & Aodhán FitzGerald (MI, Ireland)

09.10 – Marine Institute Underwater TV Survey methods – Imelda Hehir (MI, Ireland)

Imelda Hehir presented the results of the ICES Working Group on *Nephrops* Surveys (WGNEPS) which is the coordination expert group for *Nephrops* UWTV and Trawls surveys within the ICES areas. Since 2012 Ireland has modified sampling intensity and increased survey coverage for the main functional units (FU). The total number of stations

for 2014 remains broadly similar ~330 to previous years. The numbers of stations in FU15, FU17 and FU22 were reduced in 2014. 100% coverage of all the *Nephrops* grounds was achieved in 2014. The UWTV surveys in the Irish Sea (ICES Division VIIa) is carried out jointly by the Agri-Food and Biosciences Institute (AFBI), Northern Ireland (UK), the Marine Institute, Ireland, and the Cefas, UK. The survey covered the Western Irish Sea (FU15) grid and the Eastern Irish Sea (FU14).
One of the main tasks of the WGNEPS was to prepare a series of ICES survey standard protocols (SIPS) across countries. The approach is to improve manual inspections with image enhancement and content summarization, and to perform conent analysis with mosaics to reduce verification to a single image.

For more information, see the presentation at:
http://www.ervo-group.eu/np4/file/22/UWTV_Surveys_RVOPs_meeting.pdf

09.25 – Towards a new Danish research vessel – Dennis Lisbjerg (DTU Aqua, Denmark)

DTU Aqua (National Institute for Aquadic Resources at the Technical University of Denmark) carries out research, provides advice, educates at university level and contributes to innovation in sustainable exploitation and management of aquatic resources. The vision of DTU Aqua is to provide the Danish marine research modern technologies. The RV DANA has contributed significantly to the Danish marine research. DTU plans to retire DANA in 2018. A replacement of DANA should ensure access to a 'state of the art' research vessel for researchers at all Danish institutions. If DTU is the only primary user of the new vessel, it will be built for fisheries research in the Baltic, North Sea and eastern North Atlantic only. However, as a first priority DTU works on a larger version of a new vessel and seeks for partners to realize this. Greenland has expressed interest to join and a combined vessel could then be designed and used for multipurpose research in open ocean/arctic waters. Collaboration would ensure maximum utilization of the vessel, minimizing marginal cost of building and operating a 70m research vessel with a broad range of capabilities in open ocean and for ice-edge research. DTU has contacted two Naval architect companies (Denmark and Germany) to develop a design for a new high ice-classed research vessel for marine biological, climate and environmental, geological and fisheries research. The two companies provided concept designs for a 60-65m vessel delivering the requested fisheries and multipurpose research performance. With a basic budget of 220 MDKr (30 M€), however, considering optional improvements with a max. budget of 330 MDKr for building costs, leaving 20 MDKr for planning and design and 50 MDKr for scientific equipment total of 400 MDKr (53 M€).

For more information, see the presentation at:
http://www.ervo-group.eu/np4/file/22/new_DANA_ERVO_11062015.pdf

09.40 – MADIDA: Acquisition of scientific data with reliable sensors and TINARS quality controls – Remy Balcon & Hubert Lossouarn (Genavir, France)

Genavir has improved their data quality management through data control from creation to archiving by using the software programs ALICE (checklist before starting a cruise), QUATRO (computer aided watch), TINARS (validation software of the measurements) and TRINAV (interactive processing of navigation). At the end all dataflows in MADIDA

(documentation and data base) are available for vessels, on scientific measurements and on sensors.

For more information, see the presentation at:
http://www.ervo-group.eu/np4/file/22/presentation_generale_plan_qualite_Ervo2.pdf

09.55 – Multibeam upgrade Celtic Voyager – Aodhán FitzGerald (MI, Ireland)

RV CELTIC VOYAGER is equipped with the multibeam echosounders EM3002D in bow mount, which is becoming unreliable, and EM1002, which is out of service. Funding of c. 350K€ was awarded in 2013 for upgrade of the vessel‘s multibeam systems. A tender in 2013 was awarded to Kongsberg for a new EM2040/Seapath 330+ and MRU 5. It was decided to locate the EM2040 in the same location as the EM 3002, and move the EM3002 (single head) to the old midships retraction unit. Initial trials were very successful, but processor unit (PU) problems in shallow waters occurred and data drop out when steaming at over 4 knots. PU problem was eventually solved by replacement with new “slim PU’s“. Data dropout problems due to cable connections breaking as cables was not secured correctly with plastic brackets by the manufacturer was occuring. The installation is relatively exposed and leads to higher fuel consumption. In the end a chain of the anchor has damaged the transducers.

For more information, see the presentation at:
http://www.ervo-group.eu/np4/file/22/Multibeam_upgrade_Celtic_Voyager_ERVO.pdf

10.10 – The IEO operations at sea: A dual fleet approach and the new regional vessels experience – Carlos Garcia-Soto (IEO, Spain)

The Spanish Institute of Oceanology (IEO) use the approach of a dual fleet operation. The fleet of the IEO is characterized by 6 regional research vessels. In addition, the institute rent three vessels from the Ministry of Fisheries. Between 2011 and 2013 the IEO has launched two new research vessels, the RAMON MARGALEF and the ANGELES ALVARINO. Both ships, whose total investment is approximately 36M€, represent the largest economical effort to renew the academic national research fleet. The RAMON MARGALEF is one of the most advanced platforms for the assessment of biomass, with its acoustic instrumentation installed in a drop keel. The ship has been designed and built as a silent vessel with very low levels of underwater radiated noise. In addition the vessel has an integrated dynamic positioning system and an underwater positioning system to allow operation with underwater vehicles as the recently acquired ROV LIROPUS 2000 with ability to observe and sample the ecosystems up to 2000m water depth.

For more information, see the presentation at:
http://www.ervo-group.eu/np4/file/22/IEO_ERVO_2015_%5BRepaired%5D.pdf

10.25 - Coffee break

See the list of posters on page 4 of these minutes.

10.45 – INFOMAR programme, vessels and operations - Thomas Furey/Sean Cullen (MI, Ireland)

The **IN**tegrated Mapping **FO**r the Sustainable Development of Ireland's **MA**rine **R**esource (INFOMAR) programme is a joint venture between the Geological Survey of Ireland and the Marine Institute. The programme is a successor to the Irish National Seabed Survey (INSS) and concentrates on creating a range of integrated mapping products of the physical, chemical and biological features of the seabed in the near-shore area. The INSS mapped to approximately the 200m contour and delivered a national asset that has provided Ireland with a data set to confirm present and future economic, environmental, infrastructural, social and policy issues. However, there remains a crucially important body of work to follow in mapping commercially valuable inshore and other waters outside the scope of that achieved by the INSS. The INFOMAR programme utilises a range of vessels to undertake geophysical surveys. This is primarily governed by the water depth in which the work is to be undertaken. Deeper bays and areas have been predominantly surveyed using the Marine Institute vessels RV CELTIC EXPLORER and RV CELTIC VOYAGER. For shallower areas under 20m, the Geological Survey of Ireland vessel RV KEARY will do the majority of the surveys.

11.00 – MLC and new Polar Code - Miguel A. Ojeda (UTM-CSIC, Spain)

The International Polar Code for ships operating in polar waters was adopted in November 2014 by the IMO Maritime Safety Committee. It applies to ships operating in Arctic and Antarctic waters. The Polar Code adds additional requirements to those already applicable to ships under relevant IMO treaties, in order to address the specific challenges ships face when trading in the harsh conditions of the two poles. This should help to prevent accidents, thereby minimizing any potential pollution damage. The complete Polar Code, encompassing the safety-related and environment-related requirements, is expected to enter into force on 1 January 2017.

The Maritime Labour Convention (MLC) is an International Labour Organization convention established in 2006 as the *fourth pillar* of international maritime law and embodies all up-to-date standards of existing international maritime labour Conventions and Recommendations, as well as the fundamental principles to be found in other international labour Conventions. The other "pillars" are the SOLAS, STCW and MARPOL. As of October 2014, the convention has been ratified by 65 states representing 80 per cent of global shipping.

For more information, see the presentation at:
http://www.ervo-group.eu/np4/file/22/PolarCode_MLC_ERVO2015.pdf

11.20 – OFEG update – Beth House (NERC, UK)

OFEG represents Europe’s leading oceanographic research organisations and provides a forum to consider barter exchange and co-operation opportunities for the Global and Ocean Class research fleet. OFEG members are Ifremer (France), BMBF (Germany), NIOZ (Netherlands), IMR-UoB (Norway), CSIC (Spain), NERC (UK).
The Agreement allows for no-cost exchanges of ship-time and major marine equipment. It promotes the efficient and cost-effective use of each country's resources by giving the

scientific communities access to a wider range of marine facilities and geographical areas. The OFEG group meets twice a year to

- Compare and share schedules
- Discuss barter requests and opportunities
- Provide lists of ship deployment information
- Explore opportunities for working in partnership – interoperability, technician training, harmonizing procedures

The core activities over the last 12 months can be summerized as follows:

- Mission Statement reworded
- Website updates – news stories etc.
- Terms of Reference for group refreshed
- Algorithm developed for assigning barter exchange points to OFEG ships
- Equipment added to the barter agreement

Mission Statement – 2015

OFEG delivers and develops a bottom up approach to marine research facilities coordination and harmonisation for the delivery of multidiscipline, multi role science worldwide. OFEG delivers complex multi national programme planning to efficiently support international marine science activity. The OFEG partnership supports marine science activities that would otherwise be undeliverable. OFEG demonstrates delivery of high level achievements working to improve and enhance capability to the mutual benefit of the international partners.

Requests to join OFEG

Requests to join OFEG should be directed in the first instance to the Chair of OFEG, and the request should be discussed at the next OFEG meeting, or by email amongst members; whichever is most appropriate. Prior to joining OFEG, potential new members should form an official bilateral agreement for barter of ship time with a current OFEG member. Should this agreement prove sufficiently active then access to the OFEG group can be gained through this bilateral in the first instance, and reviewed at regular intervals to agree whether or not the organisation can join as a member of OFEG. A new member organisation will only be accepted if all current members are in agreement.

For more information, see the presentation at:
http://www.ervo-group.eu/np4/file/22/OFEG_presentation_ERVO_2015.pdf

11.35 – IRSO update – Aodhán FitzGerald (MI, Ireland)

The last IRSO meeting, kindly hosted by IFREMER, was held from Monday 8 to Friday 12 September 2014 in Nantes, France. The meeting was attended by 63 delegates from 17 countries. A highlight of the meeting was the excellent tour of the shipyard STX France in Saint-Nazaire.
The next IRSO meeting will be held from October 20th-23th 2015 in La Jolla/California.

For more information, see the webpage at http://www.irso.info/

11.40 – Date & Place ERVO 2016 - Skype with Aris Karageorkis – Guiseppe Magnifico (CNR, Italy) & Olivier Quédec (Ifremer, France)

Giuseppe Magnifico had already contacted our Greek colleague Aris Karageorkis before the meeting and jointly agreed on a Skype connection during the ERVO 2015 meeting. During the skype session A. Karageorkis invited ERVO to come to Rhodes for the next ERVO meeting in 2016. Because of the high temperatures in June he suggested to hold the meeting in May.

11.55 - Closing of ERVO 2016 – Olivier Quédec (Ifremer, France)

Olivier Quédec thanked all meeting participants for the good job done during the meeting and the team of the Marine Institute for the excellent organization.

12.00 - Lunch at Renvyle House Hotel

12.30 – Departure
