ATLAS Science-Policy meeting

Museum of Natural Sciences, Brussels, 22 May 2019

MEETING SUMMARY REPORT

Background

The third science-policy meeting for the ATLAS project took place in Brussels on Wednesday 22 May 2019. The aim of this meeting, and others in the series through the duration of the project, is to link research and policy, establish an on-going dialogue with stakeholders and potential users of ATLAS results, and to provide policymakers and stakeholders with timely and relevant scientific knowledge in support of policy developments. Invitees to these meetings comprise senior policymakers, stakeholders from industry and NGOs, representatives of international organisations, and leading scientists. The objective is to ensure that ATLAS results are brought promptly to the attention of policy makers and other stakeholders in a forum where they can be discussed with all interested parties, and to keep ATLAS partners up to date with the latest policy issues and questions.

This third event in the series of ATLAS science-policy meetings aimed to bring some of the key project results to date to the attention of various stakeholders and to gather their feedback on where ATLAS results will be of benefit to their organisations or sectors in the future development of management of ecosystems in the Atlantic.

Meeting report

Meeting participants were welcomed by Prof. David Johnson, ATLAS lead for Policy Integration (WP7). Prof. Johnson briefly explained the context of the ATLAS Science-Policy platform and invited Sieglinde Gruber, Head of Marine Resources Unit at the European Commission's Directorate-General for Research and Innovation, to open the meeting.

Ms Gruber opened by noting that the ATLAS project is fully embedded in and an important contributor to the Galway Statement implementation work. Climate change is impacting ecosystems, and it is important that this message continues to be emphasised in policy circles. Ms Gruber recalled that ATLAS held a very successful science-policy meeting in Canada last year. Blue growth is a new topic of discussion amongst colleagues in NOAA and now also DFO, so the outcomes of ATLAS are very important in this respect - not just from an environmental and policy-making point of view, but to help identify where scientific results have potential for social and technological innovation. She noted that finding a way to bring results of research projects to society is always a challenge but it is an important issue, and one that ATLAS needs to address in its final year of work.

Ms Gruber then turned her focus to the future, highlighting that the European elections are imminent and stressing the importance for people to vote to determine the future shape of Europe. A key question is what will Europe need to look like in 5 years time? From the EC's perspective, research and innovation is high on the agenda: Europe must demonstrate that it has a leadership role in R&I, but that research is also a driver for sustainability that includes jobs and growth. Ms Gruber explained that oceans and plastics are a coherent component of the discussions for research funding priorities for the next 5 years, under the framework of the new Horizon Europe programme, which will run from

2021 to 2027 with 100 billion Euros funding proposed. Horizon Europe will include a variety of actions to support a series of clusters or themes, one of which is dedicated to the ocean. New to the programme will be "missions" - portfolios of projects and activities that are cross-sectoral but are not science programmes, which will deliver tangible results for citizens. There are 5 of these missions, one of which will focus on healthy oceans. Horizon Europe will be launched in Brussels on 24-26 September 2019 and supported by a series of R&I days where the Commission will meet with stakeholders.

Ms Gruber emphasised the importance of dissemination in the final year of the ATLAS project and the need to join with other Atlantic projects, particularly those working in the fields of ocean literacy and seabed mapping. Events at which to do this include a major event in Brussels in late January-early February 2020, which will bring together all projects and their achievements in implementing the Galway Statement. Additionally, to help plan for the UN Decade of Ocean Science for Sustainable Development, IOC-UNESCO is launching a series of regional consultation meetings, into which ATLAS should be integrated. Meetings in Brazil (25-27 November 2019) and Canada (hosted by DFO; date TBC) present good opportunities to showcase ATLAS achievements. The AORA team are organising an 'Ocean Ambassador' meeting in Galway on 25-29 August 2019, and more details on this will be available in due course.

Ms Gruber closed by congratulating the ATLAS team on their achievements to date, and wishing them further success in the final year of the project.

Prof. Johnson invited the meeting participants to introduce themselves via a tour de table, then the meeting commenced with a series of presentations by project participants and collaborators, each highlighting results from specific areas of ATLAS work.

Prof. Murray Roberts, ATLAS Coordinator, provided an overview of the project and highlighted some of the project's key results and achievements to date. Of particular note is the number of project publications already in print and in preparation, and the project's extensive media and public engagement reach. Prof. Roberts drew attention to scientific results that indicate a weakening of the Atlantic Meridional Overturning Current and the relevance of this for the functioning of Atlantic ecosystems, in particular ecosystem connectivity and the dispersal of larvae from species such as cold-water corals. An accurate understanding of changing ocean circulation and its impact on habitat suitability is key for effective ocean management and marine spatial planning, and ATLAS results are now feeding into projections of climate-induced changes that will affect commercially-important fish species in the North Atlantic. Prof. Roberts concluded his presentation with an overview of the other policy-directed events that ATLAS has contributed to, and a forward look to a new H2020 project - iAtlantic - that will build on the ATLAS legacy by extending research into ecosystem status and change into the South Atlantic.

Comments from meeting participants following Prof. Murray's presentation touched upon the need for non-scientific organisations to be able to access publications and project data (for which there is an open-access Zenodo archive available), and the potential for ATLAS to collaborate with the EU TransAtlantic MPA Managers Network[1] on capacity-building activities, particularly on impacts of climate change in coastal MPAs.

[1] http://transatlanticmpanetwork.eu

Dr Carlos Dominguez-Carrio (IMAR / University of Azores) then presented work on how ATLAS has advanced our understanding of biodiversity in the deep North Atlantic, drawing on the research results of selected ATLAS case studies and examining the new species being described as well as the variety of benthic habitats that have been identified. Using examples from the West of Shetland, Mingulay Reef and the Bay of Biscay, he demonstrated the variations in cold-water coral and sponge occurrence as a function of physical environmental factors and ecosystem dynamics. Investigations of the mud volcanoes and seamounts in the far western Mediterranean region, around the Azores and at the Tropic Seamount have revealed an array of benthic habitats and communities, including a previously undiscovered hydrothermal vent field, and the discovery of a number of new species. Comparisons of vent vs non-vent communities are the focus of ATLAS research on the Reykjanes Ridge near Iceland, and further work on coral communities along the far western margin of the North Atlantic (Davies Strait, Flemish Cap, mid-Atlantic canyons) has revealed new species and benthic communities. In summing up, Dr Dominguez-Carrio highlighted that ATLAS has not only contributed to the identification and description of new species and habitats, but has continued to provide data to better map the distribution of already known species and habitats, demonstrating that the deep-sea ecosystems of the North Atlantic are very diverse, with a large number of new benthic communities that fit the FAO definition of vulnerable marine ecosystems (VMEs).

Following Dr Dominguez-Carrio's presentation, it was commented that ATLAS results (and marine biodiversity information in general) must be brought to relevant CBD meetings and intergovernmental policy meetings, where focus tends to be on terrestrial issues and marine biodiversity is generally poorly represented. Prof. Johnson noted that many of the ATLAS case study sites are located in territorial waters, so it is within the individual countries' purview to bring these data to the table, but ATLAS can provide that information to the countries if appropriate.

Dr Cova Orejas (Spanish Institute of Oceanology) gave an overview of work she is leading to address the challenges and opportunities to define Good Environmental Status (GES) in the deep sea, considering progress with indicator development, focusing on four MSFD descriptors (1 - biological diversity; 3 - populations of commercial fish/shellfish; 6 - seafloor Integrity; 10 - marine litter). In it, she highlighted the fundamental importance of deep-sea knowledge to undertake a GES assessment of the oceans. Using the Nested Environmental Status Tool (NEAT) devised by the DEVOTES Project (www.devotes-project.eu/neat) in selected ATLAS case study areas, the GES indicators were applied against the four MSFD Descriptors to assess their appropriateness and suitability for use in the deep-sea. The outcomes of the GES assessment were presented to the case study leaders for further discussion, and to see if the outcome was aligned with scientists' perception of the status of their area. Results were variable; issues encountered in the process include scientists' disagreement with the NEAT analysis outcome, lack of confidence on setting boundary values, and limitations on the exercise due to data availability or data quality. From these issues, a set of challenges was identified alongside a corresponding set of opportunities where new activities or engagements could help address the shortcomings. Dr Orejas rounded up her presentation with two key messages: i) due to the data limited situation and challenging monitoring, it may be the case that GES in the deep sea will have to be assessed at habitat/ecosystem level and at large spatial and temporal scale, and ii) The type of indicators to be used may have to be simplified and likely be based on high-level analyses related to traits, pressures/risks, and habitat /ecosystem resilience.

Attention then turned to more societal issues, with Dr Claire Armstrong (University of Tromsø) presenting her research on people's willingness to pay for cold-water coral protection. Focused on cold-water corals in Norwegian waters, Dr Armstrong gave a brief overview of the history of cold-water coral management in Norway and the relevance of the fishing industry, and introduced the concepts of use and non-use values in establishing a total economic value of a resource such as cold-water corals. The question she wanted to address was whether the general public are willing to pay to protect more cold-water coral resources and, if so, what is it about cold-water corals that people care about? A carefully-designed public "cold water coral choice experiment" carried out in Norway indicated that there is an average willingness to pay to protect more cold-water coral, but that protection of the wider cold-water coral habitat (and hence the whole ecosystem) was the principal factor that candidates identified as a motivation for paying. Concern over impacts to income from commercial activities such as oil and gas was surprisingly low, but the size of protection areas (larger = better) was important.

Following the morning's presentations, Prof. Johnson opened the floor for general comments, questions and discussion. Issues raised covered the following topics:

- Whether the newly-discovered hydrothermal vent in the Azores is more biodiverse due to its location in a protected area which was established in the 1980s, or whether impacts from activities such as longline fishing are less pronounced for these systems. Longline fishing would most severely impact larger, older species/specimens and structures, rather like removing large trees in a forest. It as also noted that many of the ATLAS case study areas have been impacted by fishing activity for decades, so the ecosystems and habitats are already in an altered state.

- What positive actions can be taken to improve/restore GES in the deep sea? Part of the problem is the type of data available to carry out GES assessment, and thresholds are an issue - it is challenging to define what is good and what is bad, particularly for benthic species. GES analyses will always be biased by the type and quality of information available. However, in terms of fish species, protection measures have resulted in improved GES. Restoration of habitat is a possibility but it is challenging in the deep sea and takes a long time; the H2020 MERCES project is investigating this. Artificial reefs (and hydrocarbon platform decommissioning) are topics of much conversation in many fora - is there a case for changing legislation in this respect, and could/should ATLAS more actively input to this debate?

- Claire Armstrong's presentation on willingness to pay prompted some discussion on whether societal values in northern Europe on this issue can realistically be assumed to be the same across Europe. It was noted that other surveys have shown that people don't have to have a local connection to ecosystems to value them.

- How can ATLAS results inform future EU policy? It was noted that translation of project results can (and are) take place at a range of levels: global (BBNJ process), regional (EU, OSPAR, NEAFC) and at national levels. This latter avenue is harder to exploit but the involvement of country representatives at meetings like this is an important step. A major challenge is that the majority of project results come at the end of the project, when there is limited time left to disseminate them, so ATLAS has invested a lot of effort in raising awareness of its activities in the relevant fora so that when the results come they can be shared effectively.

Following a lunch break in which a range of ATLAS outreach materials and activities were available for meeting participants to interact with, Dr Hermione Cockburn from Dynamic Earth in Edinburgh gave a

virtual tour of the public engagement activities that ATLAS has undertaken to date. Whilst the importance of exposing young audiences to (marine) science is widely recognised, finding effective means to weave it into schools curricula and teaching portfolios continues to be a challenge. To help overcome this, ATLAS has produced a range of activity sheets and explanatory packs focusing on key ATLAS themes, as well as a short film, a range of drop-in educational modules, and other engagement products such as a ROV simulator, reef survey mat, 360º videos and viewers and 3D augmented reality colouring sheets. These resources are available online, and also support a dedicated deep-sea exhibition at the Dynamic Earth premises in Edinburgh.

Effective knowledge sharing in ATLAS takes place at a range of levels, including sharing project data and outputs with the wider academic community and other sectors. Dr Kate Larkin from Seascape Belgium presented on-going work that will allow users to visualise project data using the European Marine Observation Data Network (EMODnet), making it available for a wide range of end users and applications. Dr Larkin gave a comprehensive overview of the EMODnet platform, explaining its thematic structure, central portal access, extensive data products and use cases. EMODnet is in the process of developing an "Atlantic community page" via its central portal that will feature project-specific areas, including a dedicated, open-access space for the ATLAS project and its outputs. An embedded GIS platform, created using GeoNode, will enable users to search and visualise ATLAS data, and will link through to source data (held in Pangaea). This is an important tool in making ATLAS data widely available to support policy development and ocean management.

Dr Larkin's talk sparked a discussion on whether a 'data gaps' map would be a useful tool, particularly in light of the UN Ocean Decade.

Prof. Johnson invited meeting participants to comment on what elements of the meeting had been particularly useful for them, where the challenges lie in the final year of ATLAS and what opportunities could be created for widening uptake of ATLAS results. Comments included the following:

- Elena Riley (BP) commented that ATLAS results are very relevant for BP, and the project will deliver multiple benefits to many stakeholders. Policy development is very important, especially in light of the interest in biodiversity and build up to CBD COP15. Expectations on industry are very high in terms of how they will respond to climate change impacts related to commercial activity. However, marine operators need to know as far in advance as possible when protected areas will be established, where, how big, and what activities will come under restriction. Public perception of the impact of the hydrocarbon industry continues to be a challenge, but the impact of other offshore renewable installations (wind, solar, tidal) etc is less prominent. A new coalition - Business for Nature Coalition - is being formed that will involve multiple stakeholders (including CBD) to focus on how to move forward on new biodiversity targets.
- Margaret Rae (AORA) suggested that wider public engagement activities would benefit from a pooling of Atlantic information as an outreach tool. Opportunities to spread the ATLAS message include the Ocean Ambassadors meeting in Galway in early February 2020, which is expected to attract 500+ people; World Ocean Day on 8 June 2020 which will include a “Lighting up in blue” event for all Atlantic stakeholders.
- Phenia Marras (French Biodiversity Agency) explained that France published its National Biodiversity Plan in July 2018 and aims to take a strong leadership role in biodiversity diplomacy. The French maritime cluster is following the BBNJ process closely, and may be interested in attending the ATLAS final meeting. The IUCN World Conservation Congress will take place in Marseille end of June 2020, but note that the deadline for IUCN WCC session proposals is 17 July 2019.
- Frederico Cardigos (Govt. of Azores) commented that ATLAS is generating important messages that should be heard by politicians. The big challenge is getting communication to the right people,

particularly those in national governments. Jorge Blanco (Oceana) echoed this and suggested that disseminating results to the right places was one of the biggest challenges, whilst Victoria Beaz (EASME) requested that more project information should be fed into EU policy development and at DG level, as well as at international fora.

- A number of ATLAS project representatives agreed that having input from industry and policy circles was a very constructive input to their work and gave a useful context for tailoring their outputs to be more relevant for end users.

Prof. David Johnson rounded off the meeting with a short presentation on ATLAS engagement with Blue Growth industry sectors and emerging policy messages, based on the results of a recent study carried out with industry representatives. He stressed the interaction between science (environmental baselines and impacts, regional assessments, environmental predictions), industry (current and future business needs, regulatory requirements) and policy (regulations, guidelines, standards and national, regional, global processes). ATLAS has sought to gauge industry reactions to a changing Atlantic covering ten Blue Growth sectors. This has included structured interviews considering the implications of expanded activities, potential for collaboration, main business drivers, spatial implications of new technologies, scientific information expectations and likely technological developments. A forthcoming ATLAS deliverable will summarise these results and their relevance to MSP. Specific policy inputs have included written responses to two on-going processes. First, ATLAS has contributed to the UK Government Environmental Audit Committee Sustainable Seas Inquiry in April 2018. The ATLAS submission was cited eight times in the resulting Committee Report. Second, ATLAS has responded to a consultation on ISA Draft Regulations for Exploitation. The ATLAS submission was one of only three academic/scientific responses out of a total of 42. Prof. Johnson concluded by reminding the Panel that the timing of ATLAS is during a period of unprecedented political interest in the oceans. ATLAS will feed into the forthcoming North East Atlantic CBD EBSA Workshop; the post 2020 Biodiversity Framework; planning for the UN Ocean Science Decade; and the next UN Ocean Conference related to sustainable development goals and Agenda 2030.

Prof. Johnson closed the meeting by thanking all participants for their time, and noted that the slides from the day's presentations would be made available in due course, along with a summary report of the meeting.

ANNEX I

22 March 2019

Invitation to attend the ATLAS Science-Policy meeting, 22 May 2019

Dear colleague,

We are writing to invite you to attend the third Science-Policy meeting for the ATLAS project (Understanding Deep Atlantic Ecosystems; www.eu-atlas.org), a major international research project funded by the European Commission's Horizon 2020 programme. The meeting will take place from 10.15 to 16.00 on 22 May 2019 at the Museum of Natural Sciences, Rue Vautier 29, Brussels.

The ATLAS project is providing essential new knowledge of deep ocean ecosystems in the North Atlantic. This ambitious project is exploring the world of deep-sea habitats (200-2000m water depth) where the greatest gaps in our understanding lie and certain populations and ecosystems are under pressure. Key objectives of the project are to i) advance our understanding of deep Atlantic marine ecosystems and populations; ii) improve our capacity to monitor, model and predict shifts in deep-water ecosystems and populations; iii) transform new data, tools and understanding into effective ocean governance, and iv) scenario-test and develop science-led, cost-effective adaptive management strategies that stimulate Blue Growth. Now in its fourth and final year, the ATLAS project is producing results that have relevance for all sectors involved in the sustainable use of the marine environment and its resources.

As part of our efforts to link research and policy and to provide policymakers and stakeholders with good and relevant scientific knowledge in support of policy developments, ATLAS convenes an annual Science-Policy meeting comprising senior policymakers, stakeholders from industry and NGOs, representatives of international organisations, and leading scientists. The objective is to ensure that project results are brought promptly to the attention of policy makers in a forum where then can be discussed with all interested parties.

It would assist us greatly with our planning if you could RSVP before **Friday 10 May 2019** to Dr Vikki Gunn (vikki.gunn@seascapeconsultants.co.uk). In the meantime, please do not hesitate to contact us should you need further information on this invitation or about the ATLAS project.

With best regards,

Prof. Murray Roberts
ATLAS Project Coordinator
University of Edinburgh

Prof. David Johnson
ATLAS lead on Policy Integration
Seascape Consultants Ltd

ANNEX II

ATLAS Science-Policy meeting

Museum of Natural Sciences, 29 Rue Vautier, Brussels

10.30 - 16.00, 22 May 2019

MEETING PROGRAMME

10:15	Arrival, coffee
10:30	Welcome and opening remarks *Sieglinde Gruber, Head of Marine Resources Unit, DG Research*
10:40	Aim of the meeting and introductions *David Johnson, Seascape Consultants Ltd*
10:50	Overview of the ATLAS project and scientific advances *Prof. Murray Roberts, University of Edinburgh, UK (ATLAS Coordinator)*
11:20	Advancing our understanding of biodiversity in the deep North Atlantic *Carlos Dominguez-Carrio, University of Azores*
11:40	Challenges and opportunities in assessing Good Environmental Status in the deep sea: Lessons learned from ATLAS *Cova Orejas, Spanish Institute of Oceanography*
12:00	Willingness to pay for cold water coral protection - the value of deep-sea ecosystems *Claire Armstrong, University of Tromsø*
12:20	Questions and discussion
13:00	Light lunch (and an opportunity to enjoy some of the ATLAS outreach products)
14:00	Bringing the deep sea to the public: ATLAS outreach activities *Hermione Cockburn, Dynamic Earth*
14:20	Using EMODnet and related GIS platforms to visualise marine data for policy and industry applications: An ATLAS case study *Kate Larkin, Seascape Belgium*
14:40	Discussion of emerging issues from a range of perspectives - tour de table
15:15	Engagement with blue growth industry and emerging policy messages *David Johnson, Seascape Consultants*
15:45	Closing remarks
16:00	Meeting close

ANNEX III

ATLAS Science-Policy meeting

Museum of Natural Sciences, 29 Rue Vautier, Brussels

10.30 - 16.00, 22 May 2019

MEETING PARTICIPANTS

Name	**Affiliation**
Murray Roberts*	University of Edinburgh
Vikki Gunn	Seascape Consultants
David Johnson*	Seascape Consultants
Cova Orejas*	Spanish Institute of Oceanography
Carlos Dominguez-Carrio*	IMAR / University of Azores
Kate Larkin*	Seascape Belgium
Claire Armstrong*	University of Tromsø
Hermione Cockburn*	Dynamic Earth
Nathalie Walls	Dynamic Earth
Ana Teresa Caetano	EC DG Research & Innovation
Sieglinde Gruber	EC DG Research & Innovation
Victoria Beaz-Hidalgo	EC DG Research & Innovation
Elena Riley	BP
Frederico Cardigos	Government of the Azores
Margaret Rae	AORA / Marine Institute Ireland
Orestis Kargotis	European Bureau For Conservation & Development
Phenia Marras-Ait Razouk	Agence Francaise pour la Biodiversité
Jorge Blanco	Oceana