***Planning Workshop for an Int. Research Program on the coupled North Atlantic-Arctic System***

***14 April 2014***

Summary of Breakout 1

***Overarching interdisciplinary science question (original proposed draft):***

d. : How will marine ecosystem changes impact the health and well being of human population,

… and

what scientific information is most critical for developing sustainable management practices that will help human population adapt to changes in the coupled North Atlantic-Arctic system?

1. C sequestration, quotas, credits
2. Harmful algal blooms (HAB`s)
3. Marine Pollution
4. Sustainable fisheries
5. Marine Spatial Planning & MPA`s
6. Shipping in an ice-free Arctic
7. Mineral / Energy expoitation
8. Coastal flooding/development/resilience

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***Revised text for the Overarching Question (following breakout & plenary):***

d. : What are the **interactions between humans and a changing N. Atlantic-Arctic marine ~~ECO~~systems** considering perspectives of human health and well-being,

… and

informing sustainable management practices.

1. C sequestration, quotas, credits (blue carbon?)
2. Harmful blooms (HAB`s)
3. Marine Pollution
4. Sustainable fisheries
5. Marine Spatial Planning & MPA`s
6. Shipping in an ice-free Arctic
7. Mineral / Energy expoitation
8. ~~Coastal development~~
9. Mitigiating impacts on coastal communities and infrastructure  
   (under a changing environment i.e. sea level & flood risks), resilience

***Other concerns regarding the complimentarity of the question to the other basic research oriented questions:***

* Overarching question reworded to consider the two-way interactions between human pressure and the N.Atlantic-Arctic coupled marine system services feeding back to human well-being, in the context of management of a natural resource;
* “Ecosystem” replaced with “system” to be inclusive of Galway Statement[[1]](#footnote-0) stated risks, and also cover coastal issues linked to the physical marine environment, more than the biological environment;
* Balance of coastal vs open ocean in context of Galway Statement;
* ***KEY CONCERN***: there is a serious disconnect between Q4 (societal need research) and Q1-3 (basic research-driven questions)! Key contributing experts from the Q1-3 communities need to be proactive in formulating Q4 so that there is a buy-in from and relevance for, the basic research communities e.g. Q4 needs to state parameters of system state of relevance to management that Q1-3 groups can relate to, and Q1-3 quesitons need to be formulated with clear relevance and connection to Q4 priorities.
* ***“SPIN” basic research as food security / environmental risk issue***:   
  using IPCC[[2]](#footnote-1) as an example, to motivate cross interaction between Q1-3 and Q4 orientated communities within the Science Plan
* ***SCIENCE PLAN PURPOSE***: the right balance between societal challenge-driven and basic research-driven science is seen as a key issue for the success and community support for the Science Plan draft. Linking the Q1-3 and Q4 overarching questions by consistently and clearly referring to each other horizontally would produce a more referred to and implementable document, on a individual proposal scale. The concern is that the final product is ***a “Science Plan that is not just a Science Plan”  
  i.e. science-driven communities can relate to the societal challenge-driven research stated in Q4, and orientate their science question to support the societally-driven questions in more concrete ways.***
* ***TRAINING (just to be controversial!):*** in a research funding climate evolving towards innovation, should the future generation of marine scientist be trained so that they are driven by research excellence, as well as the ultimate societal relevance of their discovery-driven work?
* ***OCEAN LITERACY relevance***: Ocean Literacy[[3]](#footnote-2) is a US/Canada initiated effort to deliver marine science to society and incorporate in science school curricula. Ocean Literacy is also now the focus of an EU Call[[4]](#footnote-3), focusing broadly on delivering marine research to policy, preparing acceptance for policies on Ocean Health[[5]](#footnote-4) and Ocean Management, as well as to society via schools, education, outreach and citizen science engagement.  
    
  Q4 lends itself well to:

1. Communicate basic research to policy makers and general public in societal challenge context;
2. capitalize on existing US/Canada/EU marine educators networks that already have inertia on translating marine research to policy, as well as engaging society at large.

Inventory (not exhaustive!) of existing US/Canada/EU networks active on Ocean Literacy:

***EU:***EMSEA European Marine Science Educators Association, [www.emsea.org](http://www.emsea.org)

UK Marine Biological Association, http://www.mba.ac.uk/

***US:***NMEA National Marine Educators Association, <http://www.marine-ed.org/>

College of Exploration, <http://www.coexploration.org/>

NOAA Educational Programs, Paula Keener

SeaGrant

NSF does fund projects along those lines

Consortium for Ocean Leadership <http://oceanleadership.org/>

Ocean Conservancy <http://www.oceanconservancy.org/who-we-are/>

Etc.

***Canada:***CANOE, Canadian Network for Ocean Education <http://cwf-fcf.org/canoe/en/>

1. <https://www.marine.ie/home/aboutus/newsroom/pressreleases/EUUSCanadalaunchAtlanticOceanresearchallianceinGalway.htm> [↑](#footnote-ref-0)
2. <http://www.theguardian.com/environment/2014/apr/01/climate-change-food-issue-ipcc-report> [↑](#footnote-ref-1)
3. Ocean Literacy <http://oceanliteracy.wp2.coexploration.org/> [↑](#footnote-ref-2)
4. EC BG-13 Ocean Literacy Call text <http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2456-bg-13-2014.html> [↑](#footnote-ref-3)
5. Marine Strategy Framework Directive, Good Environmental Status (GES) Indicators <http://ec.europa.eu/environment/water/marine/ges.htm> [↑](#footnote-ref-4)