

# Theme session M

Putting more science in:  
stakeholder engagement in marine  
research and policy processes



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H.C. Andersens Boulevard 44-46  
DK-1553 Copenhagen V  
Denmark  
Telephone (+45) 33 38 67 00  
Telefax (+45) 33 93 42 15  
[www.ices.dk](http://www.ices.dk)  
[info@ices.dk](mailto:info@ices.dk)

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## Theme session Report

### Putting more science in: stakeholder engagement in marine research and policy processes

Conveners: Marta Ballesteros (Spain), Vera Köpsel (Germany), Steve Mackinson (UK)

Stakeholder engagement has become mainstream in participatory research and policy processes in the marine realm. This has been driven by the paradigm of governance and the advances towards new modes of producing science.

Nowadays, we have a myriad of guides, best practices, lessons learned and recommendations for a successful implementation of participatory processes. These build on empirical findings and comparative analyses across fields, sectors and geographical levels. Nonetheless, engagement with stakeholders remains a multi-layered and challenging component of the scientific process.

The evidence available has prompted new scientific questions that call for collective thinking – questions that are well-placed also in the ICES realm where engagement is practiced in increasingly many forms. The findings are particularly relevant for implementing the ICES Stakeholder Engagement Strategy, integrating knowledge systems in the provision of science and advice and as a countervailing power to the increased discredit in science.

#### Content

The conventional dichotomy between stakeholder participation as a means (to achieve a given result) and participation as an end in itself (as a valuable process regardless of the achievements) has been reformulated in terms of **alignment** and **systematization approaches**. The first combines and aligns participants' perspectives, aiming to achieve a common consensus-based understanding. The second one searches for creating new knowledge by accepting diverging perspectives and systematizing them, aiming to deliver transformation.

Who participates is shaped by how participants are defined. Hence, the assumptions behind those definitions need to be unfolded. What is a fisher or resource user, what is a fishing or other type of community (communities of interest, of practice, of place, at sea), how do double-affinities affect identity and what role do research methods play (e.g., snowball sampling on the field, self-identification, misrepresentation by often working with the ones you know)? How can we unfold the idea of “general society” (differences in age, ethnicity, gender)?

Many research and policy frameworks require partnership and cooperation (e.g., EC Responsible Research and Innovation, Post-Normal Science and the Sustainable Development Goals). However, scientists' capability to develop meaningful participatory processes should not be taken for granted. In the implementation phase, the role of a facilitator has proven useful, but specialist knowledge of the specific issues at hand as well as the context and the behaviors that frame them can be critical to understanding what is happening and addressing the power dynamics that inherently affect any interaction.

Ethics, equity and fairness are at the core of participatory research and policy processes. Reflections are needed on whose values are, and should be considered (universal, communities), how they affect power balance (e.g., the link between participation and endorsement), how tokenistic research and fatigue impact fishers/resource users' life, etc.

In coping with stakeholder fatigue, the issue of paying for participation or relying on voluntary engagement brought up a lively discussion. Arguments against and for both left many open questions. No single recipe is applicable, and the ramifications are multiple. **Compensation** is about ethics, equity, and the value we give to the time of others, and not just money. Suggestions were made to distinguish between where participation is required and where it is desirable for science or the participants' benefit. The "what is in it for me" is central but it can be complicated to establish and is context, case and even individually dependent. The question of "whose voices are missing" if relying on voluntary participation is often left unspoken.

Evidence on how the processes' design can benefit from multiple resources and methods was provided:

- **knowledge brochure agreements** to provide certainty in how what has been generated is going to be used and by whom,
- **arts** to facilitate understanding and capture the changes of behavior,
- **citizen science** to cope with data gaps,
- **technology** to ease and support participation,
- design of **boundary objects** to facilitate understanding,
- **capacity building** as a driver of internal change to foster normative changes,
- use of **real-world labs** to explore what-if scenarios,
- **fishers liaisons** to cope with power dynamics, etc.

## Conclusions

Stakeholder engagement has become mainstream, while core challenges remain:

1. Participatory research requires a **balanced combination of processes** that align different perspectives along a principal axis or consensus and processes that combine and systematize different perspectives in ways that can lead to emergent properties. Current unbalance towards the first, driven by the need to communicate a clear idea that can be used in science and advice, generates limited understanding, hampers knowledge advancement and delivers an unrealistic picture to support decision-making and management.
2. Aiming to deliver results, both participatory research and policy processes might have fallen for **shortsighted methodological approaches**. Such myopia is aggravated by the efforts to "have everyone on board" and the tensions to formalize well-functioning informal processes. Whether participation is represented as a ladder, a pyramid or a matrix, more attention is needed on the "**tripping points**" that can make a process fall apart.
3. Research should address **critical questions**: Can we all get involved and remain unbiased? Can we wear different hats and remain credible? Are there safeguards that can be implemented to mitigate power imbalances? To what extent can opaqueness be removed, and how? What are the implications and feasible alternatives for compensated/volunteer participation?
4. **Tailored training** on stakeholder engagement in participatory research and policy process is a shared need that ICES can address.

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## **CM 33: Research fatigue as a barrier to fishers' participation in fisheries research and management**

Morgan Casal-Ribeiro<sup>1,2</sup>, Ualerson Iran Peixoto, Wendell Medeiros-Leal, Régis Santos

Fishers' knowledge research is increasingly used in fisheries to fill ecological and biological information gaps, thereby contributing towards improved resource management. Integrating fishers' knowledge in research and management requires some form of fisher participation in scientific processes, which frequently resembles some form of fisher consultation through interviews or questionnaires. However, over relying on consultation and lower levels of participation (in inappropriate contexts or when not carefully planned) may backfire and lead to fishers' research fatigue: a state of exhaustion that causes fishers to refuse engaging further with scientific endeavours. The purpose of this study is to examine how research fatigue may be arising in fisheries, particularly small-scale fisheries, and consequently disrupting fishers' willingness to participate in research and management. This examination was achieved by reviewing transdisciplinary participation literature and exploring a case study of research fatigue in Azorean small-scale fisheries. The Azores exemplify how fisher communities may become frustrated with fishers' knowledge research, and how small-scale fishers seem to be more vulnerable to experiencing research fatigue. Drivers of fatigue found in the Azores include the lack of dialogue and distrust between stakeholders, the opacity of science, tiredness from consultation and fisher associations' inability to handle participation requests. Addressing these issues involves avoiding over-researching fisher communities, designing less burdensome participation, and ensuring fishers perceive participation as useful and in alignment with their own interests. Ultimately, fisheries researchers that employ methods typical of consultation studies should understand how fishers' participation contributes to research fatigue and should collaborate with practitioners from across disciplines to minimise those impacts, or risk nonparticipation from their fisher communities.

**Keywords:** fishers' knowledge research, knowledge integration, non-engagement, over-researched communities, public participation, stakeholder involvement

**Affiliation:** <sup>1</sup>Okeanos-UAc Instituto de Investigação em Ciências do Mar, Universidade dos Açores, Rua Prof. Dr. Frederico Machado, 4, 9901-862 Horta, Portugal

**Contact Info:** morgan.rd.ribeiro@uac.pt

## **CM 53: Integrating Science and Local Knowledge towards Advancing Co-existence in the Northeast (USA): A Participatory Process**

Jennifer McCann

**Research Question:** By integrating both science and local knowledge in ocean planning, trust, commitment, and capacity can be achieved to advance co-existence between offshore wind and fisheries.

With the accelerated growth of offshore wind energy in the Northeast (USA), resource users, government, social justice advocates, and researchers have united to identify and implement ocean multi-use solutions, primarily between offshore wind energy, recreational and commercial fishing, research and conservation. Specifically, through the Belmont Forum MULTIFRAME initiative and with leadership from the University of Rhode Island, this diverse community is advancing multi use strategies to *Nurture a vibrant, multi-use framework that strives towards creating and implementing no-harm/net-positive opportunity and productivity resulting from recreational fishing and offshore wind energy activities within a single arena*; and *Create a responsive and inclusive research, regulatory and social environment where opportunities for the commercial fishing industry to diversify business and fishing practices can be explored equitably and sustainably*. This effort builds upon the momentum and trust established during the Rhode Island Ocean Special Area Management Plan (Ocean SAMP) - the science-based and participatory marine spatial planning regulatory process that led to the siting of the Block Island Wind Farm (USA). This presentation will share results, including successes and challenges towards advancing sustainable ocean planning.

**Keywords:** multiple use, co-existence, Local Knowledge, science-based, participatory, trust

**Contact Info:** [jmccann@uri.edu](mailto:jmccann@uri.edu)

## **CM 56: Stakeholder engagement consistent with the impartiality, independence, and integrity of ICES**

Mark Dickey-Collas

Now ICES can celebrate that it has a ground-breaking Stakeholder Engagement Strategy and is developing an implementation plan. It has a definition of a stakeholder and identified four roles for external-stakeholders in the activities and outputs of the network. However, one area of ICES activities has been ringfenced to secure that advice remains independent and free from political influence. Experts engaged in working groups that were directly managed by ACOM in 2018 must be nominated by their national delegates. The rationale will be described for the ongoing implementation of rule. The talk will then explore and describe potential consequences of:

- the nature of an expert in ICES,
- the roles and responsibilities of stakeholders and non-state actors when participating in ICES,
- the requirements of the 2013 observer policy for organisations to support, and for individuals to endorse, the objectives of ICES, and
- the consequences of advice principle 10 not to lobby a requester or any other party to implement ICES advice.

As ICES looks towards increasing participatory knowledge creation, and its responsibilities to broader societal objectives, what are the next steps for the engagement of experts in the provision of advice?

**Keywords:** stakeholder, expert, observer

**Affiliation:** ICES

**Contact Info:** mark.dickey-collas@ices.dk



## **CM 95: Framing the Regime Shift Concept. An Epistemological Analysis of a Central Biological Notion in the Context of the North Sea Cod Crisis**

Alexandra M. Blöcker<sup>1</sup>, Heike Schwermer<sup>2</sup>, Christian Möllmann<sup>1</sup>, Martin Döring<sup>3</sup>

The regime shift concept represents a widely-used theoretical approach in the scientific world. It provides the tool-kit for analyzing sudden transformations in systems, including changes in the structure and functioning of a system. The North Sea and the North Sea cod (*Gadus morhua*) represent a paradigmatic example for such a change as they experienced a regime shift towards a collapse in the 1990s due to the interaction of fishing within unsustainable levels and current climate-change induced increases in water temperatures. Despite its extensive scientific application in the marine realm, a commonly shared understanding of the regime shift concept – including its neighboring notions of abrupt changes and tipping points – appears to be scarce. We, hence, conducted qualitative semi-structured stakeholder interviews (representatives of German fisheries and environmental NGOs, managers and politicians, and scientists) with the aim to analyze the conceptual framing of the regime shift concept within the North Sea and Atlantic cod context. Our analysis revealed structural con- and divergences of the regime shift notions used. Individual framings differ i) in the details of theoretical knowledge, ii) the temporalities and concepts of time, iii) in the scientific methodological use, and iv) in the content-related structuration of paradigmatic examples for regime shifts, such as the depletion of Atlantic cod. With our study we aim at exploring a way towards a more common understanding of the scientific concept 'regime shift' by showing that an apparently and agreed-upon scientific concept is framed quite differently among stakeholders. As a result, the paper aims at unravelling the conceptual structuration of the regime shift concept and by doing so pledges for a clearer definition so important for sustainable ecosystem-based fisheries management.

**Keywords:** abrupt changes, tipping points, conceptual framing, qualitative semi-structured interviews

**Affiliation:** <sup>1</sup>Center for Earth System Research and Sustainability (CEN), Institute of Marine Ecosystem and Fishery Science, University of Hamburg, 22767 Hamburg, Germany, <sup>2</sup>Center for Ocean and Society, Christian-Albrechts-University Kiel, 24118 Kiel, Germany, <sup>3</sup>Institute of Geography, University of Hamburg, 20146 Hamburg, Germany

**Contact Info:** alexandra.bloecker@uni-hamburg.de

## **CM 105: Putting “community” into science: a perspective from the UK**

Paula Schiefer, Chloe Lucas

It is long established that fishers hold knowledge that is of importance and interest to scientists in the UK. Participatory science in fisheries involves fishers and scientists working together in the planning and development of fisheries research and governance. Whilst participatory fisheries management is now essential in the UK and embedded into Governmental frameworks (See Fisheries Act 2020); there remains several practical and theoretical challenges.

To address current research gaps, this paper explores how and when communities are defined as stakeholders in UK participatory fisheries science and research processes. Stakeholders can be defined as *“individuals, organizations or communities that have a direct interest in the process and outcomes of a project, research or policy endeavour”* (Deverka et al, 2012). The authors, based at Cefas England, will explore the role of (fishing) communities in Cefas research projects located at different locations around the English coastline.

Using interview and observation data, we note that fishing communities in the UK are often reduced to single individuals and fishers working in collaboration with the scientists. In our work it became apparent that stakeholder fatigue can become a barrier to engagement. Fatigue was created through too many scientists approaching, and relying on, the same individual fishers. Consequently, the community level is so far underrepresented in the ongoing selection of participants. This may lead to missed opportunities and neglects to look at a wider perspective. We therefore explore how communities can be defined and stakeholder inclusion expanded in participatory fisheries management. Better understanding of what constitutes a stakeholder and how to identify and engage are wider array of participants would help to address this issue. We hope to create a meaningful exchange with other scientists and practitioners to discuss how the recruitment of participants can benefit from a better working definition of community as stakeholder.

Reference: Deverka PA, Lavalley DC, Desai PJ, Esmail LC, Ramsey SD, Veenstra DL, et al. Stakeholder participation in comparative effectiveness research: defining a framework for effective engagement. J Comp Eff Res. 2012;1(2):181–94.

**Keywords:** engagement, stakeholders, community

**Contact Info:** paula.schiefer@cefas.gov.uk | chloe.lucas@cefas.gov.uk

## **CM 191: Are scientists ready for participatory processes in the provision of fisheries advice?**

M.A. Gamaza-Márquez<sup>1</sup>, M. Ballesteros, F. Ramos, M.J. Zúñiga, A. Jiménez, M.M. Rincón

The importance of participatory processes and the integration of all actors involved in fisheries management has been highlighted by numerous authors (i.e., Sampedro et al., 2017; Calderwood J. et al., 2023) and stakeholder engagement has become mainstream and even mandatory in large funding programs (Steins et al., 2022). The scientific community's response ranges between those accepting participatory processes as a formal requirement and those embracing participation to navigate and address complex social-ecological issues. To what extent academic background, expertise, and experience shape how scientists understand and engage with stakeholders needs to be better documented.

The definition of sustainable management scenarios for anchovy in the Gulf of Cadiz fishery is in current development through a Management Strategy Evaluation (MSE) process. The scientific team includes natural scientists (mathematicians, stock assessment experts, fish ecologists) and social scientists (political scientists and economists). The research plan is driven by the need to improve the stock assessment models that support fisheries advice. During the research design, scientists' understanding and perceptions of the who, how and what for should be engaged, arose. Here we present the initial findings of the participatory processes developed, including scientists, fishers' representatives and policymakers. While the MSE process entails stakeholder participation, our results aim to provide insights into the willingness and readiness of the scientific community to engage and its impact on the quality of engagement and research outcomes.

Preliminary findings show that readiness to engage is conditioned by: i) an individual attitudinal component based on the value of engagement and the role of science in society; ii) the research methods they use; iii) the research goal (scientific understanding vs. advisory support) and iv) the previous exposure to interaction with stakeholders. Within the same team, stakeholders are seen as a means to increase research impact or as an actor able to impact the research. We explore the roots of those differences, the implications for the implementation of MSE processes and provide some ideas for breaking down barriers for effective engagement.

**Keywords:** stakeholder engagement, management, anchovy, fisheries, MSE

**Affiliation:** 1 - Instituto Español de Oceanografía (IEO, CSIC). Centro Oceanográfico de Cádiz. Puerto pesquero, Muelle de Levante, s/n, 11006, Cádiz, Spain

**Contact Info:** mari.gamaza@ieo.csic.es

## **CM 253: Using Stakeholder Analysis to assess best-practice of Marine Protected Area (MPA) as a fishery management tool: An Irish perspective**

Aylis Emerit<sup>1</sup>, Oliver Tully, David Reid

Marine Protected Areas (MPAs) are important tools for the conservation of marine and coastal biodiversity. The term itself embraces a diversity of definitions depending on national jurisdictions and legislations. To date, Ireland's MPAs mainly consist of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), for particular habitats or species listed in the Annexes of the Habitats and Birds Directives, and where specific conservation objectives to conserve status, range, structure and function of the feature are specified. Once these are designated, Member States are requested to establish conservation objectives for each site, with management plans, although the latter is non-compulsory as long as established number of approaches can be taken in applying conservation measures ensuring that the necessary conservation objectives are achieved and the integrity of the site is protected. Ireland has established conservation objectives for all current MPAs, however no conservation management plans have been developed. Conservation measures are integrated into sectoral plans and in particular into fishery plans (in Ireland called Fishery Natura Plans) to ensure fisheries operations are compatible with the conservation objectives for the site. These plans prioritise the conservation of species and habitats for which the site is designated and set the boundaries for fishing operations that are consistent with that objective. The purpose of this study was to assess how stakeholder analysis could be integrated in the MPA decision-making process for their designation and management. Four stakeholder groups were used for the analysis: national administrations, marine agencies, eNGOs and fishermen. Interviews, focus groups and surveys were conducted to describe and understand stakeholder's perceptions of MPAs as a fishery management tool. Results have demonstrated the need to involve stakeholders across all groups in the decision-making processes of MPAs as they are key players, actors and bystanders of what makes an MPA successful, with respect to the conservation of habitats and species and the identification of fishing activities that are compatible with this.

**Keywords:** Marine Protected Areas, Stakeholder Analysis, fishery management tool, Stakeholder Engagement, Ireland

**Affiliation:** 1 - Marine Institute

**Contact Info:** aylis.emerit@marine.ie

## **CM 330: The importance of fishers knowledge to ocean sustainability: an ethnography in Setúbal, Portugal**

Joana Sá Couto

This paper stems from a book chapter published earlier this year, but also seeks to discuss further the issue of participation and fisheries management. Focusing on an ethnographic empirical fieldwork approach within a small-scale Portuguese fishing community this paper argues the importance of engagement methodologies in sustainability-related studies. When it comes to the study of Human-Nature relationships, the small-scale fishing context is very rich as it allows the researcher to uncover rich local knowledge about nature, specifically the ocean-atmosphere nexus which plays a crucial role in the climatic system. In parallel, increasing attention has been brought forth the urgency to conserve marine ecosystems, so this paper will discuss the need for transdisciplinary knowledge about the oceans, but also the need to rethink the sustainability of the oceans, combining scientific and local knowledge.

Starting from a practical example, we will begin to uncover the deep knowledge these fishers have with their surroundings, although not scientific or using the same language. It is a complex relationship with the environment that takes time to understand for the researcher and it takes decades of socialization and experience for the individuals. The fishing community of Setubal is located in an area extremely rich in biodiversity, with protected marine areas and an estuary. This is also a city where the economic activity of fishing is decaying while simultaneously competing with tourism, urban pressures, and maritime commerce. Considering all these pressures, it is common to hear pessimistic narratives coming from the fishers themselves regarding the future of the small-scale community in this urban context, and a long historical lack of political participation. In this paper, the aim is to discuss the need for a different fisheries management system but also how to engage participation.

**Keywords:** fisheries; knowledge; sustainability; ethnography

**Affiliation:** Joana Sá Couto, Institute of Social Sciences of University of Lisbon

**Contact Info:** joana.sacouto@ics.ulisboa.pt

## **CM 335: Using discrete choice experiments for fisheries management: understanding fishers' preferences in a climate change context**

Silvia Fernández-Reguero, Jose L. Oviedo

Fluctuations in stocks and their habitats have important implications for fisheries and the associated uncertainties are expected to increase in the current climate change context. Economic, social, technical and biological considerations must be taken into account in the implementation of management strategies within an interaction framework between stakeholders and based on available scientific knowledge. This paper proposes and explores the use of discrete choice experiments to analyse the preferences of the fishing sector for different management alternatives given possible stock changes as a climate change consequence. This methodology is based on the design of hypothetical alternatives, which are defined by a set of attributes and presented in a survey of the fishing sector in order to elicit their preferences for these alternatives. The application of this method allows obtaining quantitative information on stakeholders' behaviour and potential reactions to alternative management strategies.

We present this approach for the case study of the purse seine fishery in the Gulf of Cadiz (ICES Division IXa), with anchovy (*Engraulis encrasicolus*) as the main species. In order to design a survey consistent with the sector's reality and consider the most relevant alternatives and attributes, we have carried out interviews, focus groups and a pre-test survey as a pilot phase in the methodology development. Between December 2022 and March 2023, we conducted six focus groups with 20 participants with experience in marine biology, coastal management, public administration and fishing sector interviews and surveys. Preliminary results of this pilot phase show that the most relevant attributes of the hypothetical fisheries management alternatives are: (i) the engagement of the fishing sector through local agreements; (ii) the possibility of biological closures; (iii) the level of management administration (local, regional or state); and (iv) possible economic compensations associated to different alternatives. An additional conclusion is that the survey should reflect the current state of both the sector and the stock and avoid attributes that involve long-term effects due to the associated uncertainties.

**Keywords:** climate change, discrete choice models, fisheries management, fishing sector, focus groups

**Affiliation:** Institute of Marine Sciences of Andalusia (ICMAN), Spanish National Research Council (CSIC)

**Contact Info:** [silvia.fernandez.dr@csic.es](mailto:silvia.fernandez.dr@csic.es)

## **CM 337: The potential for, and challenges of, transdisciplinary research & real-world laboratories for building towards ocean sustainability**

A. Franke<sup>1</sup>, K. Peters, J. Hinkel, A.-K. Hornidge, A. Schlüter, O. Zielinski, K.H. Wiltshire, U. Jacob, G. Krause, H. Hillebrand

Due to the strong interconnectedness between the ocean and our societies, improved ocean governance is essential for sustainable development, in the context of the UN Ocean Decade and beyond. However, a multitude of different perspectives – ecological, societal, political, economic – have to be taken into consideration to foster transformative pathways towards marine sustainability. A core challenge that we are facing is that the ‘right’ response to complex societal issues cannot be known beforehand as abilities to predict complex systems are limited. Consequently, societal transformation is necessarily a journey towards the unknown and therefore requires approaches that must enable the involvement of all relevant stakeholders including practitioners and policymakers. A promising and inclusive method to do so are real-world laboratories (RwLs). RwLs are a specific transdisciplinary research approach which can serve as an operational framework to facilitate knowledge exchange at the interface of science and society. The core element of real-world labs is ‘transdisciplinary experimentation’ to jointly develop potential strategies leading to targeted real-world interventions. RwLs can be specifically advantageous when having to deal with multiple, overlapping challenges in the context of ocean governance, the blue economy and marine spatial planning. However, thus far RwLs are still under-explored in the marine context but are a tangible way for addressing the societal challenges of working towards sustainability transformations.

**Keywords:** blue economy, living labs, marine conservation and biodiversity, marine socio-ecological systems, ocean governance, ocean sustainability, SDG 14, societal challenges

**Affiliation:** 1 - Helmholtz Institute for Functional Marine Biodiversity at the University of Oldenburg (HIFMB)

**Contact Info:** andrea.franke@hifmb.de

## **CM 347: Sustainable harvesting of commercial species in the Belize Exclusive Economic Zone**

Silvana N. R. Birchenough<sup>1</sup>, Andria Rosado, and Arlene Young.

The Caribbean region is widely recognised to be a hot spot for marine biodiversity. The area hosts a wide range of habitats and species of conservation and fisheries importance. The main and most economically important fisheries in the area concentrates on spiny lobster (*Panulirus argus*) and queen conch (*Strombus gigas*). These species are key to sustain sources of protein intake, livelihoods, and economic trade for local Caribbean communities. These two species have fluctuated throughout the years and their distribution has remained in similar quantities in landings since 2005. The queen conch peaked in 2012 following high sample density and increasing shell length, whilst the spiny lobster has generally remained stable in terms of landings, however there are limited data sets across some years, which have created gaps in the current assessments. The general concept of effort was described by the number of fishing days, which has generally increased from 1990 to 2011. The rate of change in effort from 2006 to 2011 was mirrored by that in queen conch landings, but these values were inverse when compared to the spiny lobster landings, due to limited distribution of conch due to overexploitation. The country's new government and new ministries have enacted new legislation and new opportunities to continue to explore and protect queen conch and spiny lobster, whether by a remit for Marine Protected Areas (MPA) or under dedicated Nature-based Solutions (NBS) approaches. The need to acquire data and fast evidence has called for an informed and participative compilation of a stakeholder-supported strategy. The recent management plan has been developed and implemented to support management, conservation in the face of climate change. This presentation showcases options to support management and conservation decision over a robust stakeholder participation with active and transparent set of discussions, workshops and activities.

**Keywords:** Caribbean, management, conservation, commercial species, participation

**Affiliation:** 1 - Cefas

**Contact Info:** [Silvana.birchenough@cefas.gov.uk](mailto:Silvana.birchenough@cefas.gov.uk)



## **CM 352: Joining up the dots: Assessing capabilities and gaps in UK marine climate science to meet stakeholder needs**

Richard Renshaw<sup>1</sup>, Sarah Wakelin, Richard Wood, Jason Holt

Research question: “How to determine requirements for marine climate science that can best answer stakeholder needs” Planning and policy making for climate adaptation and mitigation need quantitative assessments of the future effects of climate change. This is particularly challenging for the marine sector. Changes in ocean physics and biogeochemistry are subjects of active research. Translating these changes into impacts on the environment and society is difficult, and there are many sources of uncertainty. The task as a whole depends on joined-up research across a broad range of specialisms. NPOP (National Partnership for Ocean Prediction) has begun an initiative that aims to address this challenge within the UK. Our definition of stakeholders is broad. It includes policy makers and end users. It also includes the scientists who must interact and collaborate in this multi-disciplinary work. We describe here our plans and progress so far. We plan to consult widely to understand the capabilities of UK science in modelling climate impacts in the seas around the UK (North West European Shelf and the North East Atlantic). We aim to identify existing data, models and approaches, and look for gaps and priority areas for further work and collaboration. The resulting roadmap will guide UK scientists and research funders to develop the knowledge that stakeholders of all kinds need to respond to the challenges of climate change.

**Keywords:** climate, policy

**Affiliation:** 1 - Met Office

**Contact Info:** richard.renshaw@metoffice.gov.uk

## **CM 366: Exchange of knowledge between marine stakeholders: citizen science as an useful tool**

Karolina Jonko-Sobuś<sup>1</sup>, Lena Szymanek<sup>2</sup>, Paweł Szura<sup>3</sup>

Integrated initiatives are one of the most challenging projects to be taken. When referred to the marine environment, the subject becomes even more complex: covering a large area of interest not only by the size of the territory or amount of factors, but also by the number of stakeholders (including coastal inhabitants, local authorities, and scientific organizations). As such, marine science projects should be rather inclusive than exclusive and addressed only to the scientific community. This is a basic conception of citizen science: involving people with no academic education in gathering environmental observations and allowing society to access information about the state of the environment. To increase public participation, awareness-raising programs, educational training, and informational campaigns. Also, well-defined data collection methods along with clear definitions as well as transparent language are essential.

Experience in working as one of the 7 partners in the e-CUDO (Oceanographic Data and Information System) project revealed the potential of open access data but also various obstacles and difficulties when working with large archive data resources. Nevertheless, database integration followed by sharing of results and materials leads to a more successful implementation of participatory processes.

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**Keywords:** citizen science, open data, environmental assessment, stakeholder

**Affiliation:** 1 Department of Food and Environmental Chemistry, National Marine Fisheries Research Institute, ul. Kołłątaja 1, 81-332 Gdynia, Poland, 2 Department of Fisheries Oceanography and Marine Ecology, National Marine Fisheries Research Institute, ul. Kołłątaja 1, 81-332 Gdynia, Poland, 3 Department of Logistics and Monitoring, National Marine Fisheries Research Institute, ul. Kołłątaja 1, 81-332 Gdynia, Poland

**Contact Info:** [kjonko-sobus@mir.gdynia.pl](mailto:kjonko-sobus@mir.gdynia.pl)

## **CM 381: Science-industry co-sampling: assessing the benefits and impacts of introducing a new data collection programme**

J. Craig<sup>1\*</sup>, E.D. Clarke<sup>1</sup>, C. Angus<sup>2</sup>, K.E. Brigden<sup>2</sup>, S. Mackinson<sup>3</sup>, C.C. Pert<sup>1</sup>

Over recent years there has been an increase in the number of fisheries sampling programmes in which scientists and fishers collaborate to collect data for use in stock assessments. Involvement of multiple stakeholders in the stock assessment process aims to improve quality and strengthen trust in the ensuing fisheries management measures. However, introducing alternative data streams into existing time-series and processes requires consideration and the development of appropriate analyses to assess potential impacts. The Scottish Pelagic Industry-Science Data Collection Programme is a collaboration between industry, government and academia which has been developed over five years and now constitutes a “co-sampling” approach, in which fishers collect samples for biological sampling by scientists. This programme now replaces a previous on-shore sampling scheme to provide sample data for estimation of population structure of pelagic catch. To ensure the quality of the data collected, a number of steps have been taken. To minimise potential sources of bias, the sampling design uses random sampling of (almost) the full fleet. Comparative analyses have been carried out to quantify differences between the new co-sampling and previous on-shore derived data, both collected in 2021. These analyses include comparisons of length frequency distributions, as well as comparisons of length-weight relationship parameters calculated from the datasets. Differences in collecting biological measurements from fresh, frozen and defrosted samples were also experimentally assessed. Generating estimates of age population structure using the contemporaneously sampled datasets enabled assessment of the impact of using an alternative collection method. Optimisation of sample size was also considered. As new data collection schemes emerge, frameworks will be required to demonstrate the legitimacy of the data collected. The analyses carried out on the Scottish pelagic co-sampling programme can contribute towards the development of a standardised framework to assess the potential impacts of changes in data collection programmes.

**Keywords:** Environmental change; mobility regimes; marine environment; borders; Ghana

**Affiliation:** 1 - Marine Scotland Science (MSS), Aberdeen, Scotland, 2 - Shetland UHI (SUHI), academic partner of the University of the Highlands and Islands (UHI), Scalloway, Shetland, 3 - Scottish Pelagic Fishermen’s Association (SPFA), Fraserburgh, Scotland

**Contact Info:** [jessica.craig@gov.scot](mailto:jessica.craig@gov.scot)

## **CM 405: Technological Impacts on Stakeholder Engagement Processes**

T. ten Brink

Stakeholder engagement in marine research and policy processes is changing with a changing world. Due to specific regulations, such as the Paperwork Reduction Act (PRA) in the United States, policymakers are constrained in reaching out for stakeholder engagement. Formal mechanisms, such as advisory boards with nominated members of the public, public meetings, and regulatory comment periods, are established forms of stakeholder engagement for policymakers in the US. However, new forms of communication with stakeholders, such as social media and interactive communication products, provide opportunities for communication with stakeholders for both policymakers and researchers. For example, stakeholder engagement in terms of geospatial data is a valuable resource for policymakers and researchers to reach stakeholders in a specific impact area. This paper will discuss the structure and applicability of spatial applications in communicating with stakeholders, especially in the context of conservation of protected marine species. It will then advance conceptual questions about the degree to which technology can be used to connect with stakeholders, assess stakeholder engagement, and assist policymakers in preparing for the future. It will also discuss inherent power asymmetries within and arising from technological products in the context of a stakeholder analysis framework.

**Keywords:** stakeholder; engagement; technology; spatial; conservation

**Affiliation:** NOAA Fisheries

**Contact Info:** [talya.tenbrink@noaa.gov](mailto:talya.tenbrink@noaa.gov)

## **CM 410: ParticiPESCA: co-management of the Algarve trap and pot octopus' fishery**

Mafalda Rangel<sup>1</sup>, David Piló<sup>2,1</sup>, Sofia Alexandre<sup>1</sup>, João Pontes<sup>1</sup>, Luís Bentes<sup>1</sup>, Lídia Nicolau<sup>1,2</sup>, Juan Capaz<sup>1</sup>, Rita Sá<sup>3</sup>, Nuno Barros<sup>3</sup>, Gisela Costa<sup>3,4</sup>, Carlito Turner<sup>5</sup>, Pamela Ruiter<sup>5</sup>, Tereza Fonseca<sup>5,4</sup>, Rod Fujita<sup>5</sup>, Ana Moreno<sup>6</sup>, Miguel B Gaspar<sup>2,1</sup>, Jorge M.S. Gonçalves<sup>1</sup>

The common octopus (*Octopus vulgaris*) trap and pot fishery of the Algarve (south Portugal) is the most important small-scale fishery of the region, encompassing significant biological and socioeconomic implications. Octopus fisheries are not managed under the Common Fisheries Policy (CFP), and each Member State is responsible for its own management. In Portugal this fishery is managed by a top-down approach, leading to low satisfaction and lack of compliance. The ParticiPESCA project aimed at developing a co-management strategy for this fishery using a participatory process involving and actively engaging all stakeholders in an integrative network of collaborative knowledge based on several complementary actions: implementation and management of a co-management committee; resource and fishery monitoring; fishers' empowerment and capacitation; resource valuing; strengthening surveillance and monitoring; fishing innovation; networking, communication, and dissemination. The stakeholders (fishing organizations, authorities, research institutions, Non-Governmental Organizations - NGOs, etc) to be involved in the co-creation of this bottom-up fishery management system were identified first. Then a Science Advisory Group (SAG) with national and international experts from different fields of research was convened to advise the stakeholders. Innovative and relevant information on the resource and the fleet activity was collected using an onboard sampling and monitoring campaign and real-time tracking information, gathered from a group of 60 volunteer vessels. The information obtained allowed characterizing and mapping, for the first time, this fishing activity. The FISHE (Framework for Integrated Stock and Habitat Evaluation) tool was used by an extended working group for advice on the development of the management plan, setting the basis for the definition of the formal co-management committee. At the end of 2022 a set of recommendations for the definition of the future co-management committee and a proposal for the management plan of the Algarve octopus' fishery were delivered to the Portuguese government, to enable the development of a law decree to formally create the co-management committee. The final goal of the ParticiPESCA project is to contribute to the sustainability of the octopus' fishery in the Algarve, promoting a paradigm shift in Portuguese fisheries management schemes. Furthermore, we hope to demonstrate that co-management can result in good social, economic and ecological outcomes in similar fisheries.

**Keywords:** ParticiPESCA, co-management, participatory process, octopus, small-scale fishery

**Affiliation:** (1) CCMAR - Centre of Marine Sciences, University of Algarve, Campus de Gambelas, FCT Ed 7, 8005-139, Faro, Portugal; (2) IPMA - Portuguese Institute for the Sea and Atmosphere, Av. 5 de Outubro, 8700-305, Olhão; (3) ANP|WWF - Associação Natureza Portugal in association with WWF. AUDAX - Labs ISCTE-IUL - Rua Adriano Correia de Oliveira, 4 A – Lab H3, 1600 – 312 Lisboa; (4) CESAM - Centre for Environmental Studies and Marine Studies, University of Aveiro, Campus de Santiago, 3810-193 Aveiro, Portugal; (5) EDF - Environmental Defense Fund, 123 Mission Street, 28th Floor, San Francisco, California 94105, USA; (6) IPMA - Portuguese Institute for the Sea and Atmosphere, Av. Brasília, 1449-006, Lisbon, Portugal

**Contact Info:** mrangel@ualg.pt | mafalda.rangel@gmail.com

## **CM 416: Towards a rubric for defining ‘groundfish fishing communities’: lessons from stakeholders and community members on the meanings of community**

Karma Norman

As part of an effort to develop a socially and biologically integrated approach to understanding climate-generated shifts within the groundfish fishery of the U.S. West Coast, we surveyed the literature and past work on qualitative and quantitative approaches to identifying and defining "fishing communities" and "fishing dependent" communities more generally. Conceptions of "fishing community" could then be adapted to the groundfish fishery and the U.S. West Coast more specifically, noting the distinctions between communities of place, communities of interest, and communities of practice. Each of these conceptions offers analytical utility in the consideration of various climate impact scenarios, suggesting implications for adaptive capacity and vulnerability. These differing community conceptions additionally benefit from the inclusion of stakeholder perspectives and input from community members on their *etic* validity. In this work, we both present the groundfish community conceptions considered in our climate impacts and species distributions framework, and describe challenges in identifying appropriate groundfish fishery stakeholders. We note obstacles to surveying stakeholders in ways that would ultimately support and ground truth these conceptions of community, while also describing available structures for obtaining stakeholder and key informant input.

**Keywords:** communities, stakeholder engagement, groundfish fishery

**Affiliation:** NOAA Fisheries Northwest Fisheries Science Center

**Contact Info:** karma.norman@noaa.gov

## **CM 436: Looking through different lenses: an eight minutes allegory on participatory science**

Marie-Julie Roux

There was a scientific discipline progressing in isolation that struggled to initiate the changes needed to ensure long-term sustainable and equitable uses of Nature. A quest to remedy this situation confirmed that the image formed by a single lens has innate imperfections known as aberrations. Aberrations arise because each lens causes light to spread in its own way. Most aberrations can be solved by combining several lenses into a single mount to focus small patches of light from each lens into a single, perfect image. Alternatively, single-lens aberrations can be brought together in a mosaic of imperfect light patches to create a broader, yet coherent image. The former focuses on correcting imperfections in individual lenses by aligning their centres of curvatures on a single, principal axis. The latter focuses on assembling and configuring imperfections from multiple lenses in a way that enables the emergence of something new. As the scientific discipline recognised the importance of looking through different lenses, two complementary approaches emerged: one that could generate a single sharp image of limited scope by rectifying the signature of each lens, and another that could broaden the scope of the subject by preserving the signature of each lens. The scientific discipline considered this in light of its own signature aberrations, its principal axis of investigation, the signature aberrations and principle axes of interests of other scientific and non-scientific disciplines and practices, and the increasing relevance of emergent properties in socio-ecological systems.

**Keywords:** perspectives, collective thinking, stakeholder engagement, conceptual approach, socio-ecological systems

**Affiliation:** Fisheries and Oceans Canada, Maurice-Lamontagne Institute, 850 Route de la Mer, Mont-Joli, QC, Canada, G5H 3Z4

**Contact Info:** Marie-Julie.Roux@dfo-mpo.gc.ca

## **CM 478: Communities of practice for stakeholder engagement in Marine Spatial Planning? Innovation or old wine in a new bottle?**

Andrea Morf<sup>1</sup>, Lodewijk Abspoel<sup>2</sup>, José Andringa<sup>3</sup>, Elin Cedergren<sup>1</sup>, Alex Cuadrado<sup>1</sup>, Kira Gee<sup>4</sup>, Magdalena Matczak<sup>5</sup>, John Moodie<sup>1</sup>, Jan Peter Oelen<sup>3</sup>, Riku Variopuro<sup>6</sup>, Jacek Zaucha<sup>5</sup>

Marine spatial planning (MSP) is a spatial approach to develop forward-looking solutions to complex issues such as promoting ecosystem health and addressing climate change while also catering for a variety of human needs. Given the many uncertainties and institutional complexities MSP has to contend with, finding mechanisms for engaging stakeholders, citizens, scientists and policy-makers in a continuous, equal and open participation process is emerging as a key challenge. European Union (EU) member states are currently focusing on capacity development, implementation of MSP plans and preparing for the next round of planning, generating a window in time for learning from the past and sharing lessons. This is focus of the EU-financed cross border project *Emerging ecosystem-based Maritime Spatial Planning topics in North and Baltic Sea Regions* eMSP\_NBSR which brings together partners from 10 countries and regions around the Baltic and North Sea. Inspired by the Dutch North Sea CoP for marine multi-use, the aim is to develop and test a reflective communities of practice (CoP) based approach that enables adaptive and collaborative learning. Practitioners and researchers collaborate in five thematic learning strands (data and knowledge, ecosystem-based approach, monitoring and evaluation, ocean governance and sustainable blue economy). Each learning strand consists of a core group composed of project representatives and interested people from practice and research, and each group is choosing its own path to co-designing their thematic learning journey. Mentoring sessions provide method related capacity development, thematic input and possibilities for reflection. A scientific advisory board gives scientific back-up, facilitates reflection across the five learning strands and observes the learning process. This paper shares critical insights from the eMSP\_NBSR approach, asking whether communities of practice in MSP are truly innovative or more of a buzzword. It asks if and how the approach differs from other forms of stakeholder engagement, what learning impacts it has had to date, and what specific challenges and opportunities a CoP-based approach brings. We conclude with lessons for fruitful interactive learning design in projects and marine management practice so as to avoid the usual participation pitfalls.

**Keywords:** stakeholder engagement, marine spatial planning, collaborative learning, communities of practice, Baltic Sea, North Sea

**Affiliation:** 1 NORDREGIO, Sweden; 2 Ministry of Infrastructure and Water Management, The Netherlands; 3 Netherlands Enterprise Agency, 4 HEREON, Germany; 5 Maritime Institute Gdynia, Poland; 6 Finnish Environment Institute (SYKE), Finland

**Contact Info:** andrea.morf@nordregio.org



## **CM 491: Don't ask don't tell: when science answers unwelcome questions**

D. J. Nachón<sup>1</sup>, M. G. Pennino, M. Cousido-Rocha, A. Paz, M. Ballesteros, M. M. Rincón, S. Cerviño

Management strategy evaluation (MSE) generally involves defining a decision problem, specifying objectives, and simulating the managed system to help evaluate uncertainties, risks, and trade-offs of management alternatives. Stakeholders' involvement is a core component of MSE to design pragmatic and applicable management strategies that are robust to uncertainty and balance ecological, economic and social objectives.

Knowledge advances and computational capabilities allow fisheries scientists to generate evidence practically and transparently. Transparency is a cornerstone fisheries management principle with inherent paradoxes (Wilson, 2009). For instance, assessment models can be used to build political options into the models as alternatives. Hence, scientists can deliver advice that makes explicit the trade-offs and consequences of policy objectives. Under this perspective, the Math4Fish project involves natural and social scientists, managers (Spanish General Secretariat for Fisheries) and representatives of the fishing sector to jointly define management strategies to be simulated in MSE environments for the European hake, *Merluccius merluccius* (Linnaeus, 1758), southern stock in the Iberian Peninsula (International Council for the Exploration of the Sea divisions 8c9a). Workshops were held to introduce the fishing sector and managers mathematical modelling tools to evaluate management strategies for hake, as well as to propose information to explore/simulate different scenarios. During our experience, the allocation of quotas based on selectivity criteria between fishing gears has emerged as a scenario worth exploring. The redistribution of resources between the different fleet segments is a sensitive issue that causes tensions. Scientifically, quota redistribution simulations can be carried out, and the results analysed and compared with the current situation, highlighting the scope and limitations of the analysis. This would benefit a structured dialogue on policy options and reinforce transparency. However, spotlighting trade-offs is not always well received by policy makers and the fishing sector. Efforts to engage the public and lessons learned will be discussed and detailed.

**Keywords:** management strategy evaluation (MSE), stakeholders, sustainable management, fisheries assessment

**Affiliation:** 1 - Instituto Español de Oceanografía (IEO, CSIC). Centro Oceanográfico de Vigo. Subida a Radio Faro, 50-52, 36390, Vigo, Pontevedra, Spain

**Contact Info:** david.nachon@ieo.csic.es.

### **CM 494: Lessons learned while co-designing an MPA**

Barbara Horta e Costa<sup>1</sup>, M. Helena Guimarães<sup>2</sup>, Mafalda Rangel<sup>1</sup>, Adriana Ressurreição<sup>1</sup>, Pedro Monteiro<sup>1</sup>, Frederico Oliveira<sup>1</sup>, Luís Bentes<sup>1</sup>, Nuno Sales Henriques<sup>1</sup>, Inês Sousa<sup>1</sup>, Sofia Alexandre<sup>1</sup>, João Pontes<sup>1</sup>, Carlos M.L. Afonso<sup>1</sup>, Adela Belackova<sup>1</sup>, Ana Marçalo<sup>1</sup>, Mariana Cardoso-Andrade<sup>1</sup>, António José Correia<sup>3</sup>, Vanda Lobo<sup>3</sup>, Emanuel J. Gonçalves<sup>3,4</sup>, Tiago Pitta e Cunha<sup>3</sup>, Jorge M.S. Gonçalves<sup>1</sup>

Marine Protected Areas (MPAs) are one of the main ocean conservation strategies, yet their effectiveness depends on how well they are integrated in the existing socio-economic context. Stakeholder engagement is increasingly recognised as a pre-requisite for MPA acceptance, compliance and, thus, success. This engagement is also viewed as critical to achieve a sound planning that considers local ecological and traditional knowledge, in parallel with the science-based ecological approaches. Despite this, participatory planning and co-designing of MPAs are still underrepresented in scientific literature. This results in poorly systematized lessons and reduced transfer capacity, necessary while interacting with different interests and contexts. Our study focuses on the participatory process to co-design an MPA located in southern Portugal, in a hotspot for biodiversity and human activities. This is the first example in mainland Portugal of an MPA co-designed from the beginning, and involving researchers, public administration, tourism and fisheries associations, the private sector and non-governmental organizations. This study highlights the critical steps of such a process, as well as the major compromises to reach a zoning proposal supported by the majority. A set of milestones and key lessons are synthesised to enable their use elsewhere as well as to balance stakeholder engagement and science-based ecological approaches in zoning exercises. The process described here is replicable and can guide future MPA implementation or rezoning of existing ones. Transdisciplinary and participatory processes can be time and resource consuming but are key for ensuring MPA effectiveness.

**Keywords:** Marine protected areas, stakeholder engagement, participatory process, lessons learned

**Affiliation:** 1 CCMAR – Centre of Marine Sciences, University of Algarve, Campus Gambelas, 8005-139 Faro, Portugal, 2 MED - Mediterranean Institute for Agriculture, Environment and Development & CHANGE – Global Change and Sustainability Institute, Institute for Advanced Studies and Research, Universidade de Évora, Évora, Portugal, 3 Oceano Azul Foundation, Oceanário de Lisboa, Esplanada D. Carlos I, 1990-005 Lisbon, Portugal, 4 MARE – Marine and Environmental Sciences Centre, ISPA – Instituto Universitário, 1149-041 Lisbon, Portugal

**Contact Info:** Ana Marçalo, amarcalo@ualg.pt

## **CM 512: Using a science and industry collaborative framework to identify oceanographic indicators of *Illex illecebrosus*: Origination of the Squid Squad**

Kimberly J. W. Hyde<sup>1</sup>, Sarah L. Salois, Anna Mercer

Researching and assessing the population dynamics of highly variable and data limited species such as the northern shortfin squid, *Illex illecebrosus*, has many practical and analytical challenges. Reliable biological information and abundance estimates of *Illex* are not obtainable from fishery-independent surveys due to mismatches between survey scope and species distribution, phenology, and life history characteristics. Thus, assessment and management of *Illex* relies heavily on fishery-dependent data collected by industry partners. Science and industry collaboration is critical to ensure that these data are used correctly and accurately interpreted. Furthermore, incorporation of fishers' ecological knowledge (FEK) of the distribution, life history, and oceanographic drivers of *Illex* is an important component in the development of fine-scale oceanographic indicators of *Illex* availability.

*Illex* is a short-lived, migratory species whose availability to the fishery on the Northeast U.S. continental shelf is largely influenced by climate-driven variations in regional oceanography. The U.S. portion of the fishery has high spatial and interannual variability, posing a particular set of challenges to the management and assessment of the species. Thus in 2019, an *Illex* stakeholder summit was held to initiate partnerships and identify research products that could be developed to reduce scientific uncertainties in the stock status. Multiple research initiatives resulted from this summit, including efforts to identify important oceanographic indicators of *Illex* availability. We assembled a highly interdisciplinary team of federal and academic researchers, industry members, and fisheries managers to cooperatively investigate the complex interplay between regional oceanography and the *Illex* fishery. Our collaborative team, affectionately referred to as the "Squid Squad", developed organically as we sought to gather both scientific expertise and incorporate fishers' ecological knowledge of both the *Illex* fishery and regional oceanography. For more than two years we have shared knowledge and observations, while working together to improve data collection and visualization tools, analyze biological and oceanographic data, develop conceptual and statistical models, create platforms for tracking oceanographic conditions, and coordinate field sampling efforts between commercial fishing and research vessels. Recent successes include development of a collaborative framework for the identification of fine-scale oceanographic indicators for *Illex*, which can also be applied to other commercially important species. The Squid Squad serves as an example of how interdisciplinary partnerships among scientists and industry stakeholders can improve the insights and understanding of a data limited stock, and what is achievable through open collaboration and cooperative research.

**Keywords:** stakeholder engagement, cooperative framework, interdisciplinary science, squid, data-limited fisheries, oceanography

**Affiliation:** 1 - Northeast Fisheries Science Center, Narragansett Laboratory, 28 Tarzwell Dr., Narragansett, RI 02882, U.S.A.

**Contact Info:** kimberly.hyde@noaa.gov

## **CM 552: Progress in fishermen-supported oceanographic monitoring in the Northeastern United States and Eastern Canada**

Anna J. Mercer<sup>1</sup>, George Maynard

In-situ environmental data are critical for ensuring the accuracy of predictive oceanographic models and supporting ecosystem-based fisheries science and management. Monitoring the physical dynamics of the sub-surface ocean at time and space scales relevant to marine species and fisheries, however, remains a technical challenge. The Environmental Monitors on Lobster Traps and Large Trawlers (eMOLT) program is a collaborative effort between the National Oceanic and Atmospheric Administration's Northeast Fisheries Science Center, commercial fishers, the technology industry, and regional non-profit organizations that leverages cross-sector partnerships and lightweight ocean observing technology to address oceanographic data needs in the northwest Atlantic. Fishers who participate in the program use a range of sensors attached to their gear to collect environmental observations during the course of their normal fishing operations. These observations include bottom temperature, water column temperature profiles, dissolved oxygen, and depth. The measurements are immediately visible to the captains on a computer in their wheelhouse and are wirelessly transmitted back to a server via satellite or cellular network in near real time. From there, the real time observations are used to fine tune ocean forecast models and the historic data are put to use in a range of data products at the Northeast Fisheries Science Center. The eMOLT program currently has nearly 100 participating vessels on the east coast of North America between New Jersey and New Brunswick and over 12 million individual data points collected between 1996 and the present. In this presentation, we will describe the evolution of the eMOLT program over time, including key factors in building and maintaining industry participation, advances in oceanographic instrumentation for deployment on commercial fishing platforms, efforts to make the data available to the broader scientific community, and plans for the future of the program.

**Keywords:** oceanographic monitoring, bottom water temperature, science and industry research collaboration, northwest Atlantic

**Affiliation:** 1 - Northeast Fisheries Science Center, Narragansett Laboratory, 28 Tarzwell Dr.

**Contact Info:** [anna.mercer@noaa.gov](mailto:anna.mercer@noaa.gov)

## **CM 560: Small-scale fishery mobilities across the West African borderlands in a changing climate**

Kai de Graaf<sup>1</sup>, Heike Schwermer<sup>1</sup>, Christian Wagner-Ahlfs<sup>1</sup>, Marie-Catherine Riekhof<sup>1</sup>

Complex challenges, like the ecological situation of the oceans as a result of anthropogenic influences, need new solutions. Not least, this is due to the manifold complex socio-economic structures we are confronted with.

The living lab method is one possible solution, being a participatory method that strongly focuses on the involvement of various stakeholders. In living labs, stakeholders and scientists conduct research and experiments on problems at equal level, such as how future sustainable small-scale fisheries could look like and how it should be implemented in practice. In the collaboration and during the experimentation, knowledge transfer takes place between the participants, bringing together diverse knowledge and practical experience.

This transdisciplinary collaboration is key to sustainable developments as they are jointly developed, tested and evaluated by various stakeholders in society. Ideally, this leads to a transformation towards the implementation of ecologically and socio-economically meaningful and locally adapted sustainability goals.

In this talk, methods and results from two living labs focussing on the small-scale fishery in the Western Baltic Sea will be shared. Options for its set-up in the marine context will be discussed including the following topics:

- First steps to build a real laboratory in marine contexts
- Establishing a dialogue with stakeholders and building good relationships
- Building sustainable trust between small-scale fishery and research for constructive collaboration

Presenting methods for collaboration between fisheries and research

**Keywords:** transdisciplinary, living labs, sustainability, small-scale fishery, collaboration, stakeholder

**Affiliation:** <sup>1</sup>Center for Ocean and Society (CeOS) at Kiel University, Kiel, Germany

**Contact Info:** [degraaf@ceos.uni-kiel.de](mailto:degraaf@ceos.uni-kiel.de)

## **CM 572: Learnings on stakeholder engagement during management procedure development for internationally managed fish stocks**

Ashley Wilson<sup>1</sup>, Grantly Galland, Shana Miller

The effective management of internationally managed fish stocks requires successful collaboration between diverse groups of scientists, managers, and stakeholders. One promising framework for fisheries management is the use of a management procedure (MP) approach that harnesses the scientific tool of management strategy evaluation (MSE). An added benefit of this approach is that it can enhance engagement between these groups.

We will share case studies from a few regional fisheries bodies (e.g., RFMOs) where scientists, managers and stakeholders are contributing to the development of MPs for several stocks. Using these examples, we will illustrate the different engagement approaches used and the extent of stakeholder involvement. These will be used to share with the audience some key learnings and best practices.

The chosen case studies will demonstrate varying degrees of stakeholder engagement and communication among the different regional fisheries bodies. They also highlight differing structures and processes for open and transparent stakeholder engagement in MSE and MP development. One notable difference between the stronger and weaker examples is the presence or absence of formalized structures and processes for inclusive and open stakeholder engagement, such as science-management dialogue (SMD) groups, where there are key roles for stakeholder inputs and feedback during the key stages of MSE and MP development.

We will make the case that formalized structures and processes, such as SMD groups, are an important factor in determining the overall success of stakeholder engagement and are critical to the development, adoption, and successful implementation of MPs for internationally managed fish stocks. More broadly we will highlight the benefits of engaging stakeholders from the outset of the MP development process. Moreover, stakeholder involvement can lead to more inclusive and transparent decision-making, a better understanding of the concerns and perspectives of all stakeholders, and ultimately, improved conservation outcomes.

We will conclude with some recommendations for the audience to consider on how to apply best practices for stakeholder engagement to harness its ability to make fisheries management more inclusive, effective, and transparent.

**Keywords:** stakeholder engagement, science-management dialogue, management procedure, management strategy evaluation, Regional Fisheries Management Organisations

**Affiliation:** 1 - Pew Charitable Trusts

**Contact Info:** [awilson@pewtrusts.org](mailto:awilson@pewtrusts.org)

## **CM 573: Are artists a hindrance, a facilitator, or a binding agent in participatory approaches in fisheries science? A French art-science-society experience.**

Stéphanie Mahévas, Sophie Pardo, Sigrid Lehuta, Vincent Badts, Youen Vermard,  
Morgane Travers-Trolet

The choice of regulations in fisheries management partly relies on scientific knowledge produced using models and scenarios for the evolution of socio-ecosystems. The black box view of these models and the uncertain nature of scenarios do not facilitate the acceptance of this knowledge and, consequently, the chosen regulations. To improve this acceptance and facilitate the sharing of knowledge about the functioning of marine ecosystems, we have developed a participatory art-science-society approach that aimed to produce a common language and share representations of marine socio-ecosystems integrating the notions of imagination and uncertainty.

This study questions the contribution of the artistic dimension in a project involving scientists, fishery actors, and artists. The exercise was organized over four years around two partnership workshops led by scientists, during which representatives of fishermen and managers constructed graphic representations of marine ecosystems, identified uncertainties in their models, proposed a characterization of uncertainties, and selected graphic representations of uncertainties to choose a fishing regulation in an imaginary fishery inspired by real facts. The observing artists of the scientific approach and partnership workshops at the beginning of the project, became actors of the project by creating links with scientists, representatives of fishermen, and managers. These interactions fueled five artistic performances that were presented to scientists, workshop partners, and the general public. Through this experience, we question the contribution of artists in the participatory approach. What if artists could be a new stakeholder in the production of common knowledge for fisheries management?

**Keywords:** Participatory approach, art, qualitative knowledge, uncertainty, marine ecosystem, fisheries management, complexity, artistic performances

**Contact Info:** [smahevas@ifremer.fr](mailto:smahevas@ifremer.fr)

## **CM 615: “Your livelihood is my case study”: On the practical and ethical challenges of scientists having less of a stake than stakeholders when involving stakeholders in marine research**

Sophia Kochalski

With the effort to involve stakeholders more closely in fisheries science and fisheries management comes the inherent challenge that these people have a "stake" in the process. This means that the issues to be dealt with are often very close to the heart of the people concerned, or directly affect their well-being and livelihood. In contrast, fisheries scientists and fisheries managers can often be more neutral about problems in fisheries. To paraphrase a fisherman, I once interviewed during my field work: "As a scientist, you can make a career out of stocks or populations disappearing. But I'm left with nothing." This seems to be a typical problem for fisheries science, which is often concerned with crises, turning points and challenges. The result is an imbalance between researchers and other stakeholders, leading to ethical challenges and practical problems in implementing participatory science and management. I would like to use the opportunity of Session M to speak out this "uncomfortable truth" and to talk to scientists and other actors by means of an interactive poster. In particular, I would like to discuss what ethical ways there are to recognize this imbalance and to deal with it empathetically without giving up a more neutral scientific position and "taking sides". Do we need at least greater reflectivity about our own positionality in the research process?

**Keywords:** participatory research, ethical theory, research principles, fisheries crisis, fisheries collapse, disaster resilience

**Affiliation:** CRETUS, Universidade de Santiago de Compostela, Spain

**Contact Info:** sophia.kochalski@usc.es



## **CM 624: NGOs' role in co-management: facilitators or stakeholders?**

Almodovar M.<sup>1</sup>, Barros N.<sup>1</sup>, Costa G.<sup>2</sup>, Grilo C.<sup>1</sup>, Nunes C.<sup>1</sup>, Ribeiro J.<sup>1</sup>, Sá R.<sup>1</sup>

Fisheries play a crucial role worldwide for food security, and also because of cultural and economic reasons. Nevertheless, several problems arise from this sector, on an environmental (e.g. overfishing), social and economic level (e.g., fair income and working conditions). It is, therefore, essential to find ways of promoting the equity and sustainability of fisheries. Co-management can be a solution to tackle some of these issues, since it focuses on the sustainable management of both fisheries and resources, with a science-based approach complemented by empirical knowledge. Moreover, it implies collaborative work and the development of collective knowledge, allowing to gather the interests of each sector, and to share power and responsibility over the way fisheries operate. It requires the involvement of a wide range of stakeholders relevant for defining the decision-making process (fishermen, civil society, scientists, authorities, etc.). In 2014/15, the NGO WWF, within the Co-Pesca 1 project, identified two fisheries in Portugal with the potential for implementing co-management: the goose barnacle harvest in the Berlengas Nature Reserve (BNR) and the shellfish harvest in Óbidos Lagoon. The Co-Pesca 1 led to the Co-Pesca<sup>a</sup> which aimed at turning this potential into practice. In recent years, other projects related with co-management in fisheries emerged, namely ParticiPESCA<sup>b</sup> - implementation of co-management for octopus fishery in Algarve and Co-Pesca Lagoa de Óbidos - capacity building for the implementation of co-management in Óbidos Lagoon. In fact, Co-Pesca 2 was a pioneer in the use of co-management and kicked off the beginning of participatory processes for fisheries management in Portugal. In 2020, co-management was enshrined into law in Portugal, the 1st of its kind in Europe, and in 2022, the first Co-management Committee was established for the goose barnacle harvest in BNR. Despite its traditional stakeholder role, throughout these projects and breakthroughs in co-management, WWF, and later Associação Natureza Portugal in association with WWF (ANP|WWF), assumed the role of facilitator. NGOs can be instrumental in these processes, by introducing new management methodologies or by leading the processes forward. However, a question arises: can an NGO be unbiased and manage the conflicting interests while assuming this double role? We believe so, by building trust among all involved. Also, NGOs can play this facilitator role early in the process, to drive it forward, but the natural progression is to later become stakeholders. This is because NGOs have their own agenda and are interested in having an active voice over the content of the decisions made, besides the co-management process itself.

<sup>a</sup>Co-Pesca 2 Project website - Implementation of co-management for goose barnacle harvest in Berlengas Natural Reserve: <https://copesca.pt/>

<sup>b</sup>ParticiPESCA Project website - implementation of co-management for octopus fishery in Algarve: <https://participesca.pt/>

**Keywords:** Co-management, fisheries, management, NGO, facilitator, stakeholder

**Affiliation:** 1 ANP|WWF - Associação Natureza de Portugal (ANP) in association with World Wildlife Fund (WWF), Rua Adriano Correia de Oliveira, 4-A, 1600-312 Lisboa, Portugal, 2 CESAM - Centre for Environmental Studies and Marine Studies, Universidade de Aveiro, Campus Universitário de Santiago, 3810-193, Aveiro, Portugal

**Contact Info:** Matilde Almodovar, [malmodovar@natureza-portugal.org](mailto:malmodovar@natureza-portugal.org)

## **CM 646: Offshore wind power in Gulf of Roses/Cap de Creus area** **(LEBA 1): Stakeholder selection method and positioning**

Laura Amorós<sup>1</sup>, Josep Vila

Faced with the need for a rapid energy transition, political decisions at all governmental scales are committed to trying to replace fossil and nuclear energies with renewable energies. In this context, offshore wind energy is one of the options for making the decarbonisation of the economy and society a reality. In Spain, the Ministry for Ecological Transition and the Demographic Challenge (MITECO) has recently approved Royal Decree 150/2023, 28 February 2023 of the Maritime Space Management Plans (POEM) of the five Spanish marine demarcations. Among them, the Levantine-Balearic demarcation (LEBA), including LEBA 1, located in front of the Gulf of Roses/Cap de Creus, the area of analysis of this study. The main objective of this work is to map the main stakeholders, the relationship between them and their positions in relation to offshore wind farm (OWF) projects in this area. Specifically, (i) different methods of stakeholder identification based on bibliographic analysis have been analyzed, (ii) different reference print media have been selected, at local, regional, national and international level, (iii) the period of analysis has been chosen, from the appearance of the first publications in the press about the first OWF project in the area (January 2021), until one month after the approval of the POEMs, and (iv) an exhaustive reading and analysis of each one of them has been carried out using the MAXQDA qualitative analysis software. With all this information, a map of the main agents in the territory that could be negatively affected, or those who are interested in the construction of an OWF in the LEBA 1 area, considering it a positive opportunity, has been obtained. This information will be very useful for further studies and to be able to continue to deepen and outline their vision, arguments and perception of the impacts and opportunities of offshore wind in the study area. These results, and especially the methodology, can be extrapolated to other similar situations where offshore wind involves social conflicts. This approach can help to facilitate decision making that takes into consideration the diversity of positions and arguments in order to have a higher degree of acceptance of the final decisions and increase the final social consensus.

**Keywords:** POEM, Stakeholders, Cap de Creus/ Golf de Roses, offshore wind farm (OWF), newspaper archive

**Affiliation:** 1 - Edifici Sant Domènec I Pl. Ferrater i Mora, 1 Campus Barri Vell, 17004 Girona, Spain

**Contact Info:** laura.amoros@udg.edu