

Abstract ID : 18

The European Atlas of the Seas: Addressing Environmental Matters, Human Activities and Policies for Coastal and Marine Management

Content :

The European Atlas of the Seas is a web-based information system aimed at the general public, but capable of supporting non-specialist professionals in addressing environmental matters, human activities and policies related to the sea. It is based on a combination of data, originating primarily from the European Commission and its Agencies, which present a snapshot of both natural and socio-economic elements of coastal and marine regions in the European Union. Further, it provides a suite of basic instruments for map analysis and space/time correlation, to derive ad hoc indicators on a wide range of maritime issues. The Atlas consist of "background layers" (i.e. World Terrain Base, World Imagery, Ocean Base Map), designed to provide basic information and to be displayed as map backdrop, and a number of "thematic layers", classified under eight main categories (i.e. geography, nature, tourism, security and safety, people and employment, transport and energy, governance and European policies, fisheries and aquaculture). In 2014, the European Atlas of the Seas received 6000 to 8000 visits per month, with an average of 228 per day. It is envisioned that the Atlas will become a major asset for the Maritime Spatial Planning community, in Europe and beyond, substituting a scientific approach to the mere political point of view that today commonly guides management of sea space.

Primary authors : Dr. BARALE, Vittorio (European Commission, Joint Research Centre)

Co-authors :

Presenter : Dr. BARALE, Vittorio (European Commission, Joint Research Centre)

Track classification :

Contribution type : Poster

Submitted by : Dr. BARALE, Vittorio

Submitted on Tuesday 13 January 2015

Last modified on : Tuesday 13 January 2015

Comments :

Status : ACCEPTED

Track judgments :

Abstract ID : 24

Tiny organism- big question: How do foraminifera calcify

Content :

Foraminifera are a group of marine calcifiers that is widely used to reconstruct past climate. For instance, past temperature and CO₂ can be reconstructed from foraminifera that are embedded in ocean sediments. This is possible since the composition of the shell varies slightly with the environmental conditions at the time of its formation. For instance temperature can be reconstructed by measuring the Mg to Ca ratio of the shell. While many researchers are using these so-called proxy relationships to estimate past climate, we still need to fully understand how these relationships work on a cellular level. This is crucial to be able to fully rely on foraminiferal proxies and to get the most accurate climate estimation possible. I am presenting an overview of foraminiferal biomineralization along with the newest insights.

Primary authors : Mrs. KEUL, Nina (IfG, CAU Kiel)

Co-authors :

Presenter : Mrs. KEUL, Nina (IfG, CAU Kiel)

Track classification :

Contribution type : Poster

Submitted by : Ms. KEUL, Nina

Submitted on Wednesday 28 January 2015

Last modified on : Wednesday 28 January 2015

Comments :

Status : ACCEPTED

Track judgments :

Abstract ID : 25

Intra Urban Inequalities and Vulnerability Profiles: an example for a Brazilian coastal city

Content :

Home of 433,153 residents (2013), the city of Santos is a dynamic urban Brazilian centre: its GDP per capita is the third largest of Brazil and by the Port of Santos, the largest of the country, passes around a quarter of the value of products traded in Brazil in the international market. Surrounded by rich ecosystems, including the Tropical Atlantic Rainforest, the area is, notwithstanding, a portrait of the huge social asymmetry of the country, and human-induced processes (deforestation, the fast urban expansion rate, the occupation of locals next to rivers or steeply slopes) associated with the intense precipitation, have speed up landslides, mudslides and floods. In addition, global warming would contribute to sea level rise and the increase of floods and mass movements, exposing more people to the risk of death and injury. In this study, vulnerability profiles were built for different incoming neighbourhoods, evaluating the social, economic and demographic characteristics of the population and resources that can be mobilized in dangerous situations. Profiles were generated through the Grade of Membership approach, which considered the intrinsic qualities of the persons and established the degrees to which each person belongs to each category. The risks that might be posed by climate change were also considered. Three main profiles were identified, highlighting the importance of some parameters in the face of common dangers (such as floods), among them: the educational level, the characteristics of housings and the presence or absence of suitable infra-structure. Despite the differences among the areas, all social groupings present difficulties in mobilising resources to confront the threats, situation that can be worsened by climate change.

Primary authors : Prof. NUNES, Lucí Hidalgo (lhn) (UNICAMP, Brazil)

Co-authors : Dr. SILVA, Robson Bonifácio Da (r.b. Da S.) (EPCAR, Brazil)

Presenter : Prof. NUNES, Lucí Hidalgo (lhn) (UNICAMP, Brazil)

Track classification : Preparing for coastal change (Workshop III)

Contribution type : Poster

Submitted by : Prof. NUNES, Lucí Hidalgo

Submitted on Wednesday 28 January 2015

Last modified on : Wednesday 28 January 2015

Comments :

Status : ACCEPTED

Track judgments :

Track : Preparing for coastal change (Workshop III)

Judgment :

Abstract ID : 26

Towards a sustainable Romanian Black Sea Coast. Pressures, conflicts and adaptation measures

Content :

Accelerated sea-level rise due to ongoing climate change will lead to increased coastal erosion and frequency and intensity of extreme events like storms in the future. Therefore, decision makers are required to define conservation effective coastal and marine conservation programmes. Because all levels of government must be involved in Marine Spatial Planning (MSP) and Integrated Coastal Zone Management (ICZM) along with development interests and resource users, the task of coordination with the variety of "stakeholders" is complex and important. The decision-making and implementation processes must be shared among these interests, requiring efficient communication and effective dialogue. Stakeholder engagement represents an important component in integrated coastal zone management implementation. A proper evaluation and understanding of stakeholder interests lead to consensus and resource conflict decrease. We investigated stakeholders' perceptions to assess the implementation stages of the European Directives on marine-related issues. Interviews were made with authorities and economic sectors representatives: tourism, fisheries, industry, agriculture. Results indicate a large number of factors perceived as affecting the current issues of the Romanian Black Sea Coast. Stakeholders expressed complex opinions, expectations and management objectives including a mixture of both satisfaction and dissatisfaction with current implementation of coastal management. It is also highlighted that little attention is given to the connectivity of land-sea environments. There are still no clear regulations on community participation and on the rights of people to voice their concerns. This top-down approach to resource governance causes delays and conflicts, and means that the flexibility required to respond to problems at the local level is lacking. This is the first study in Romania to investigate stakeholders' participation in coastal zone management. The results shall serve as strategic planning tool and improve the management of coastal zones.

Primary authors : Dr. VAIDIANU, Natasa (University of Bucharest)

Co-authors : Dr. IANOS, Ioan (University of Bucharest) ; Dr. ALEXANDROV, Laura (National Institute for Marine Research and Development "Grigore Antipa" Constanta)

Presenter : Dr. VAIDIANU, Natasa (University of Bucharest)

Track classification : Plenaries on Ocean Sustainability ; Preparing for coastal change (Workshop III) ; Social Sciences :: Marine Science (Friday, 6 March 2015, 10:30-16:30h)

Contribution type : Poster

Submitted by : Dr. VAIDIANU, Maria Natasa

Submitted on Wednesday 28 January 2015

Last modified on : Wednesday 28 January 2015

Comments :

Status : ACCEPTED

Track judgments :

Track : Plenaries on Ocean Sustainability

Judgment :

Track : Preparing for coastal change (Workshop III)

Judgment :

Track : Social Sciences :: Marine Science (Friday, 6 March 2015, 10:30-16:30h)

Judgment :

Abstract ID : 42

Using comics to present exploratory scenarios of coastal development: the Lesina Lagoon experience.

Content :

Scenarios represent plausible and often simplified descriptions of how the future may develop based on a coherent and internally consistent set of assumptions about key driving forces and relationships. They are used to: a) raise awareness of uncertainties and test the robustness of different policy strategies; b) communicate the range of perceptions and challenge prevailing mind sets; c) decide which economic and ecologic risks are acceptable. Within the context of the ARCH project (Architecture and roadmap to manage multiple pressures on lagoons), scenarios were used in a series of workshops, as a tool to facilitate the development of participative methodologies for managing the multiple problems affecting European lagoons. This process also involved policy makers, local authorities and stakeholders. In particular, we focused on Lesina lagoon, which is situated on the Italian southern Adriatic coast and has a surface of 50 km² and a mean depth of only 0.70 m. The problems affecting this coastal lagoon were identified by both collecting and processing the existing data and by interviewing the stakeholders (semi-structured interviews).

In order to explore several plausible future pathways, which present "what could happen if" the main issues will be or not faced, six initial qualitative scenarios were developed, considering as driving forces the level of management and the citizens' involvement. In a next step the stakeholders were asked to complete an online questionnaire, with the aim to further refine the scenarios and reduce their number. This led to the development of four short narrative stories that were translated in the form of comics, and presented as posters during the Workshop: "Envisioning the Future". The aim of the workshop was to imagine the future of the lagoon area within the timeframe of one generation (2040) and explore, in co-operation with the participants, the consensus on the desired future of the lagoon, in order to identify the necessary actions required to achieve it. During the meeting, the stakeholders were asked to read the comics and answer questions written on a board next to each scenario.

Their responses were jointly analyzed and discussed. The evaluation questionnaire filled by the participants at the end of the meeting indicated that the method used was considered appropriate, as the comics facilitated the understanding of the cause - effect chain of different choices and provided space for everyone to present their own point of view.

Primary authors : Dr. BALLARINI, Elisabetta (Christian Albrecht University of Kiel, Department of Geography, Ludewieg-Meyn Str. 14, 24098 Kiel)

Co-authors : Dr. D'ADAMO, Raffaele (National Research Council, Institute of Marine Science, UOS of Lesina (FG), Via Pola, 4, 71010 Lesina, FG, Italy) ; Dr. PAZIENZA, Gianfranco (National Research Council, Institute of Marine Science, UOS of Lesina (FG), Via Pola, 4, 71010 Lesina, FG, Italy) ; Prof. VAFEIDIS, Athanasios (Christian Albrecht University of Kiel, Department of Geography, Ludewieg-Meyn Str. 14, 24098 Kiel)

Presenter : Dr. BALLARINI, Elisabetta (Christian Albrecht University of Kiel, Department of Geography, Ludewieg-Meyn Str. 14, 24098 Kiel)

Track classification : Games and Comics for Ocean Sustainability (Workshop IV)

Contribution type : Poster

Submitted by : Dr. BALLARINI, Elisabetta

Submitted on Friday 30 January 2015

Last modified on : Friday 30 January 2015

Comments :

Status : ACCEPTED

Track judgments :

Track : Games and Comics for Ocean Sustainability (Workshop IV)

Judgment :

Abstract ID : 43

Life Cycle Sustainability Assessment of Seafood Production

Content :

Seafood production includes both production from fisheries and aquaculture, which are highly inter-dependent with respect to their growth and potential impacts on the environment. Recent studies on impact assessment of seafood production have utilized life cycle assessment (LCA) method. The LCA method represents a holistic approach with advanced methodological framework used for the quantitative assessment of materials used, energy flows and environmental impacts of products. The usually chosen seafood impact categories in LCA (global warming, eutrophication, acidification and ozone depletion) have been adopted from the manufacturing industry that lacked some of the vital specific impacts associated with seafood production. The major specific environmental concerns in fishery are overfishing and the destruction and/or disturbance of natural habitats, namely discards, by-catch, undersize catch, idle and ghost fishing gear, marine pollution and seafloor disturbance impacts. On the other hand, impacts specific to aquaculture include spread of disease, overexploitation of wild fish, escapees and use of aquatic medicines. These traditionally recognized impacts of fisheries and aquaculture have not yet been characterized and included in LCAs, and hence incorporate limitations that impair their use in decision-making. The proposed study aims at developing a new set of LCA impact categories distinctive to fisheries and aquaculture production. Accordingly, this study will develop selected impact categories for LCA of aquaculture and fisheries, particularly aquatic medicine use (AMDU), escapees (ESCA), seafloor use (SFLU) and biotic resource use/overfishing (BOVF). In addition, the study will investigate and compare the environmental impacts of fisheries and aquaculture and develops new insights into modeling and assessment of alternative processes at different production stages for sustainable development. Consequently, the influence of individual processes in manufacturing, consumption and waste disposal of different production systems on material and energy demand as well as the release of emission and finally on possible environmental improvements is targeted.

The results of this study may also be relevant for consulting and supporting of development policy frameworks. In addition, the database developed in this project will provide a set of background data for LCA of seafood products used and/or produced in Germany. The input/output based background data can be used to fill gaps in environmental LCAs, where specific process data are missing, and at the same time provide a basis for prioritizing future data collection. This will provide the basis for greater consistency and quality of life cycle data and LCA methods.

Primary authors : Dr. SAMUEL-FITWI, Biniam (CAU, GMA, SF)

Co-authors :

Presenter : Dr. SAMUEL-FITWI, Biniam (CAU, GMA, SF)

Track classification : Ocean Planning and Indicators (Workshop II) ; Preparing for coastal change (Workshop III)

Contribution type : Poster

Submitted by : SAMUEL-FITWI, Biniam

Submitted on Friday 30 January 2015

Last modified on : Friday 30 January 2015

Comments :

Status : ACCEPTED

Track judgments :

Track : Ocean Planning and Indicators (Workshop II)

Judgment :

Track : Preparing for coastal change (Workshop III)

Judgment :

Abstract ID : 44

Orchestrating solution-oriented agendas to emerging ocean challenges in Brazil

Content :

We report on a recent progress in establishing a Brazilian Future Ocean Panel (PainelMar) as an intended orchestrator of Ocean knowledge networks. This new organization emerges as a response to the increasing awareness of the wave of change critically affecting Ocean ecosystems. The "Anthropocene" (Crutzen and Stoermer, 2000) poses key challenges to Ocean Governance (Zondervan et al., 2013), where no longer is the human species a spectator that merely need to adapt to the natural environment - humanity itself becomes a powerful agent of earth system evolution (Biermann, 2012).

In Brazil, these challenges are evident, the country urgently needs to address risks associated to deep-sea oil exploration, development of coastal areas (infrastructure, urban growth, tourism and aquaculture), pollution, fisheries stock's depletion and habitat/biodiversity loss. These are complex issues requiring governance processes at various scales and levels and timely engagement of the best available knowledge.

In this context, PainelMar has emerged to empower and connect individuals and institutions seeking legitimacy and representation in the science and policy interface. The coalescing of PainelMar constituencies has been ongoing since the preparatory phase leading to various Rio+20 (2012) high-level and civil society events on Ocean (e.g., Planet Under Pressure conference - London; Rio Dialogues on Ocean and the Ombudsperson of the Sea - Rio de Janeiro) (Gerhardinger et al., 2014; Rodrigues et al., in press). Eversince, we note in Brazil a rapid emergence of novel ocean-related communities of practice, such as the creation of a 'National Network in Support of Artisanal Fisheries' (Gerhardinger et al., 2014) and calls for continued cross-disciplinary 'Future Ocean Dialogue' (Muller et al., 2014). This is just a small sample of the enormous potential still latent for better coordinating societal knowledge to improve Ocean Governance. These events are repeatedly signaling the need for novel actor arrangements and sociopolitical structures better able to tackle longstanding gaps in science-policy interface and thus shift the focus to the future.

A group of 31 national and international co-authors (from scientific, advocacy and governmental organizations) - with the institutional support of the Brazilian office of the International Union for Conservation of Nature (IUCN - Brazil) - are co-designing PainelMar as an intended orchestrator (sensu Abbott and Bernstein, 2014) of coastal-marine transformative knowledge networks towards sustainability. PainelMar is therefore pursuing legitimacy as a focal organization to operate through identification, engagement or creation/development of capabilities amongst its intermediary organizations, facilitating their relationships to promote coherence and coordination in addressing relevant policy targets. All those challenges require rapid transdisciplinary diagnostics of emerging issues - with subsequent efforts aiming at the mobilization of those holding particular issue-specific knowledge to inform most adequate remedies and/or preventive prescriptions. A huge amount of data is available in private and public domains (e.g., internet) and thus opportunities are for interactive information graphics technologies to inspire visualization, learning and decision-making.

In a nutshell, PainelMar is expected to drive science-policy agendas while providing the required material and ideational support to interactive cross-disciplinary processes.

The initial step in designing this novel organization is currently in place through co-production of a Zero Draft containing basic principles and structures, as well as provisions and expected products needed for orchestration. This document will be scrutinized and debated in the occasion of a first inaugural workshop to be held in 2015.

Furthermore, an initial strategic focus have been posed in the orchestration, maritime technology transfer and development needed to accelerate the advancement of area-based governance systems.

Ultimately, this process aims to co-design and submit, fundraise and implement an Application for Transfer of Marine Technology (ToMT) to the Intergovernmental Oceanographic Commission (IOC-UNESCO). This is a clearing-house mechanism for cross-sectorial and multi-lateral cooperation amongst United Nations Member States, and has been recommended by "The Future We Want" Rio+20 outcome document as a strategic way forward for international interaction towards technology transfer and development.

Our panel will describe this in further detail and explore existing avenues of cooperation with the international Ocean science community.

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Muller, M.N.; Gerhardinger, L.C.; de Lamboy, C.; Ummus, R. 2014. A call for a continued Future Ocean Dialogue - From Science to Society. Workshop white-paper, Oceanographic Institute – University of São Paulo (November/2014).

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Gerhardinger, L.C; Gonçalves, L.; Motta, F.S.; Schneider, S.; Carvalho, F.G.; Vila-Nova, D. 2014. Setting and Implementing a Programmatic Agenda for Coastal- Marine Networks in Brazil. In:(Eds: McConney, P., Medeiros, R.P., Pena, M. 2014) *Enhancing Stewardship in Small-Scale Fisheries: Practices and Perspectives*. CERMES Technical Report No. 73 Special Edition.

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Zondervan, R.; Gerhardinger, L.C.; Noronha, I.T.; Spalding, M.; Young, O. 2013. Ocean Governance in the Anthropocene. *Global Change*, v. October, p. 24

Summary :

The poster reports on recent progress in establishing a Brazilian Future Ocean Panel (PainelMar) as a novel organization co-designed as an orchestrator of Ocean knowledge networks.

Primary authors : Dr. GERHARDINGER, Leopoldo Cavaleri (Coletivo Memórias do Mar; Regional Research Fellow Coordinator for Latin America (focus in Brazil) for the Earth System Governance (ESG) project)

Co-authors : Dr. GONÇALVES, Leandra (PhD candidate at Universidade de São Paulo, Brazil and Fulbright Visiting Researcher at University of Massachusetts (Amherst); Earth System Governance Research Fellow) ; Dr. VILA-NOVA, Daniele (Postdoctoral researcher at Universidade Federal de Goiás)

Presenter : Dr. GERHARDINGER, Leopoldo Cavaleri (Coletivo Memórias do Mar; Regional Research Fellow Coordinator for L

Track classification : Ocean Planning and Indicators (Workshop II)

Contribution type : Poster

Submitted by : Dr. GERHARDINGER, Leopoldo

Submitted on Saturday 31 January 2015

Last modified on : Saturday 31 January 2015

Comments :

First author is an invited guest by Dr. Visbeck and a collaborator during the Brazilian exhibition of the Future Ocean Dialogue (2014)

Status : WITHDRAWN

Track judgments :

Track : Ocean Planning and Indicators (Workshop II)

Judgment :

Abstract ID : 46

A call for a continued Future Ocean Dialogue - From Science to Society

Content :

On 15th October 2014 the Oceanographic Institute at the University of São Paulo, the Future Ocean Excellence Cluster Germany and the Sea Memories Collective hosted a one-day workshop to discuss scientific topics and the public awareness of emerging threats for our future oceans due to human exploitation and climate change. Under the umbrella of the Future Ocean Dialogue Exhibition (www.futureocean.org), marine scientist and non-governmental organizations engaged in a discussion on how to improve the knowledge transfer from marine science to the greater Brazilian audience that ultimately can result in social and political change. From impulse lectures and vivid discussions emerged the need of an organizational body which can support, improve and handle cross-disciplinary and multi-level communication to strengthen the interface of science and society.

Summary :

Outcomes of the science-policy Future Ocean Dialogue workshop held at the Oceanographic Institute of São Paulo (September 2014, São Paulo, Brazil)

Primary authors : Dr. MULLER, Marius, N. (OCEANOGRAPHIC INSTITUTE - UNIVERSITY OF SÃO PAULO)

Co-authors : Dr. GERHARDINGER, Leopoldo (Sea Memories Collective; Regional Research Fellow Coordinator for Latin America (focus in Brazil) for the Earth System Governance (ESG) project.) ; Dr. DE LAMBOY, Christian (FUTURE OCEAN CLUSTER OF EXCELLENCE) ; Dr. UMMUS, Rafael (UNIVERSITY OF CAMPINAS)

Presenter : Dr. GERHARDINGER, Leopoldo (Sea Memories Collective; Regional Research Fellow Coordinator for Latin America)

Track classification : Plenaries on Ocean Sustainability ; Ocean Planning and Indicators (Workshop II) ; Preparing for coastal change (Workshop III) ; Social Sciences :: Marine Science (Friday, 6 March 2015, 10:30-16:30h)

Contribution type : Poster

Submitted by : Dr. GERHARDINGER, Leopoldo

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Last modified on : Saturday 31 January 2015

Comments :

Second author is an invited guest by Dr. Visbeck and a collaborator during the Brazilian exhibition of the Future Ocean Dialogue (2014)

Status : ACCEPTED

Track judgments :

Track : Plenaries on Ocean Sustainability

Judgment :

Track : Ocean Planning and Indicators (Workshop II)

Judgment :

Track : Preparing for coastal change (Workshop III)

Judgment :

Track : Social Sciences :: Marine Science (Friday, 6 March 2015, 10:30-16:30h)

Judgment :

Abstract ID : 47

Southern Ocean sustainability under overlapping regimes: The case of Marine Protected Areas

Content :

The Southern Ocean surrounding the Antarctic continent is governed by a set of instruments derived from the 1959 Antarctic Treaty composing what is known as the Antarctic Treaty System. The area South of 60 degrees south, or Antarctic Treaty Area, is ruled by the Antarctic Treaty itself and a number of other instruments including the 1991 Protocol of Environmental Protection to the Antarctic Treaty. This area, and areas extending further north covering approximately the boundaries of the Antarctic convergence (reaching a latitude of 45-55 degrees south in parts of the Atlantic and Indian Oceans) are also governed by the 1980 Convention for the Conservation of Marine Living Resources. Two different bodies govern this area, the Antarctic Treaty Consultative Meeting and the Convention for the Conservation of Antarctic Living Resources, both of which make decisions by consensus. Ocean sustainability in the Southern Ocean, which is largely uninhabited, is predicated primarily on environmental and economic considerations, notwithstanding substantial public interest emerging from global society. The Environmental Protocol declares this area as a "natural reserve, devoted to peace and science", where the CAMLR Convention's objective is the "conservation of marine living resources", in which "conservation includes rational use" subject to a number of conservation principles that include the ecosystem based approach and the precautionary principle. While both the Protocol and the CAMLR Convention aim to the protection and conservation of the environment, in practice economic considerations influence whether or not consensus on the adoption of conservation measures is reached. This is best exemplified on discussions on the adoption of Marine Protected Areas ongoing since 2002, which have resulted in some conceptual and practical progress but have failed so far to adopt concrete MPA proposals for East Antarctica and the Ross Sea. The poster describes the "erosion by negotiation" that has occurred so far in each of these proposals, which are still being discussed.

Primary authors : Dr. ROURA, Ricardo (Antarctic and Southern Ocean Coalition (ASOC))

Co-authors :

Presenter : Dr. ROURA, Ricardo (Antarctic and Southern Ocean Coalition (ASOC))

Track classification : Ocean Planning and Indicators (Workshop II)

Contribution type : Poster

Submitted by : Dr. ROURA, Ricardo

Submitted on Saturday 31 January 2015

Last modified on : Saturday 31 January 2015

Comments :

Status : ACCEPTED

Track judgments :

Track : Ocean Planning and Indicators (Workshop II)

Judgment :

Abstract ID : 55

Coastal Growth - A global Assessment of Coastal Population Change

Content :

Coastal zones are attractive environments for humans, for various reasons: Because of their resources, for logistics and trade, or to pursue recreation or culture, or just because of their special sense of place. The development and utilization of coastal areas has greatly increased during the recent decades and coasts are undergoing tremendous socio-economic and environmental changes. Population growth and urbanization rates, along with the economic development, are significantly higher in coastal areas than in the non-coastal hinterland - a trend which is expected to continue in future. At the same time, coastal zones are exposed to a range of coastal hazards including sea-level rise (SLR) and its related effects. We present new baseline estimates of people living in the low-elevation coastal zone (LECZ) for a baseline year (2000). The LECZ which is a common metric in coastal vulnerability studies and frequently employed for assessing exposure to coastal hazards. We constructed plausible futures of coastal population for the years 2030 and 2060 through combining global spatial data with UN statistical demographic data to estimate the LECZ population for a baseline year (2000) and for developing per-country projections of the urban and non-urban coastal population for 2030 and 2060. For the projections, we employed four different socio-economic scenarios and combined them with scenario-specific coastal correction factors. The correction factors allowed us to account for coastal migration, and to differentiate coastal from inland growth and urban from non-urban growth. They were developed from the scenario narratives and based on three basic assumptions: (i) coastal migration leads to higher relative growth of coastal areas as compared to the landlocked hinterland, (ii) urban and non-urban populations in the coastal zone develop differently and (iii) coastal urban growth is expansive, i.e. urban areas are expanding into previous non-urban space.

Besides producing new baseline data, our assessment revealed interesting facts about coastal growth trends at continental level, but also showed important regional differences in terms of coastal population development, for example in Asia and Africa. Our results suggest significant potential increases in people living in the LECZ; that Asia is the continent with the largest number of total population in the LECZ in the year 2000 and will continue to do so in the future; and that the less developed countries are far more exposed than more developed regions. The five Asian countries China, India, Bangladesh, Indonesia and Viet Nam accounted for more than half of the global LECZ population in the year 2000 and will continue to do so under future scenarios, despite the rapid coastal growth of several African coastal nations.

Primary authors : NEUMANN, Barbara (Institute of Geography, Kiel University, Kiel, Germany)

Co-authors : VAFEIDIS, Athanasios (Institute of Geography, Kiel University, Kiel, Germany) ;
ZIMMERMANN, Juliane (Institute of Geography, Kiel University, Kiel, Germany) ;
NICHOLLS, Robert J. (Faculty of Engineering and the Environment and Tyndall Centre for
Climate Change Research, University of Southampton, Southampton, United Kingdom)

Presenter : NEUMANN, Barbara (Institute of Geography, Kiel University, Kiel, Germany)

Track classification :

Contribution type : Poster

Submitted by : Ms. KEISER, Sigrid

Submitted on Friday 06 February 2015

Last modified on : Friday 20 February 2015

Comments :

Status : ACCEPTED

Track judgments :

Abstract ID : 62

Innovative best practice examples to combat marine litter (CleanSea)

Content :

The poster provides first results of a social science task. CleanSea covers other social science aspects like economic and legal analysis as well. The task "Best practice management measures and strategies" aims to answer the following research questions:

- What are current best practices for tackling the marine litter problem, taking into account its sources and other characteristics, and what are the main gaps?
- How can we evaluate them in terms of long-term durability and impact?

The task targets practices along all stages of the life cycle paying particular attention to upstream initiatives where most information is lacking. Second, it represents the first systematic effort not only to catalogue but also to evaluate the potential impact of these practices and understand the determinants of such impact in a comparative fashion in the four European regional seas. After presenting the general approach, the poster will show first results of two case studies, one of the Baltic and one of the Mediterranean Sea region.

Summary :

The aim of this CleanSea task is to analyse stakeholder behavior, attitudes and waste management approaches using a multi-level participatory and product life cycle approach. Understanding stakeholder behavior and attitudes is a critical step towards the ultimate reduction and prevention of marine litter. Best practices both within and outside Europe, ranging from voluntary to mandatory initiatives, have been and will be identified.

Selected case studies focus on best practice measures addressing the major sources of marine litter identified in the nature science part of CleanSea. The case studies cover the four regional seas as well as different stages of the product life cycle. Additional criteria for case study selection include different time frames, interesting outlier characteristics, and the availability of local knowledge to the researchers. Different locations of marine litter - beach litter, water column and surface floating litter, litter on the sea floor - are covered.

Complementing the case studies, stakeholders are closely involved in the identification of best practice management practices and measures.

The main outcome of the task will be a technical report (due to spring 2015) integrating regional results on best practices and future management measures in the four regions.

Primary authors : Ms. ALTVATER, Susanne (Ecologic Institute)

Co-authors : Ms. SCHMIDT, Stefanie (Ecologic Insitute) ; Ms. KRÜGER, Ina (Ecologic Institute)

Presenter : Ms. ALTVATER, Susanne (Ecologic Institute) ; Ms. SCHMIDT, Stefanie (Ecologic Insitute)

Track classification : Plenaries on Ocean Sustainability

Contribution type : Poster

Submitted by : Ms. ALTVATER, Susanne

Submitted on Sunday 15 February 2015

Last modified on : Sunday 15 February 2015

Comments :

Status : ACCEPTED

Track judgments :

Track : Plenaries on Ocean Sustainability

Judgment :

Abstract ID : 72

(Indicators for) Measuring success of Ocean governance in Portugal

Content :

To achieve sustainable management of the Ocean it is important to devise and secure an adequate ocean governance framework, i.e., as defined by Cicin-Sain & Knecht in 2000, a regime (and its architecture and makeup) used to “govern behavior, public and private, relative to an ocean area and the resources and activities contained therein”. This allows for integrated sustainable management of human actions as sustainability does not depend on the Ocean but on how we are able (or not) to manage human activities.

Evaluation is a key element of the governance cycle, as it provides an opportunity for learning, improvement, and adaptation. Evaluation can occur at many stages and with different objectives: prior to or during the planning stage, during the implementation or the post-implementation stage, and it can pertain to policy or plan contents, to process inputs or outputs or outcomes. Ultimately, the timing of the evaluation determines its object, i.e., what can be evaluated.

With the publication, in 2014, of a revised National Ocean Strategy (NOS 2013-2020), of a national Law establishing the Basis of the Policy for Marine Spatial Planning and Management (MSPM) of the National Maritime Space (NMS), and the recent approval of a decree detailing aspects of the MSPM law, Portugal is on the verge of completing its political and legal governance framework for its Ocean space. Portugal’s maritime area (0-200 nm) totals c. 1,700,000 km² already the 2nd biggest EEZ in the territory of the European Union. With the potential to expand its jurisdiction to the limits of the extended continental shelf (another 2,100,000 km²), Portugal may become one of the world’s largest maritime nations. At the current stage of the policy cycle in Portugal, what indicators are most suited to evaluate progress towards sustainable ocean governance and can they be beneficially used in other contexts? Finding answers to these questions is the purpose of this research.

An analysis of the international experience and guidance for best practices in ocean governance in general and MSP in particular (including the EU documents providing guidelines on this theme, such as the MSP Roadmap and Directive), highlights cross-cutting themes and concerns that can be used to define a core set of indicators to assist in such an evaluation: stakeholder participation; funding; legal authority, mandates; transparency; drivers; goals and objectives; data availability; communication; and how specific topics are dealt with, such as Strategic Environmental Assessment; identification of risks and uncertainties, conflicts, land-sea interactions, and future trends (prospective). Each of these themes can be developed in a set of questions/indicators which can be adapted to the particular context being evaluated. The poster presents proposals for indicators to some of the above mentioned themes.

Primary authors : FERREIRA, Maria Adelaide (FCSH-UNL) ; JOHNSON, David (GOBI) ; PEREIRA DA SILVA, Carlos (FCSH-UNL)

Co-authors :

Presenter : FERREIRA, Maria Adelaide (FCSH-UNL)

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Portuguese MSP in the EU's context: what is the right level for SEA?

Content :

Portugal is one of the EU's largest nations: its maritime dimension, covering 1,700,000 km² may expand to c. 3,800,000 km², pending UNCLCS' acceptance of Portugal's submission to extend its continental shelf.

In February 2014, Portugal approved a National Ocean Strategy (NOS 2013-2020), which adopted the EU's "Blue Growth" development model. In April 2014, Portugal approved a Maritime Spatial Planning (MSP) and Management law, and is now in the process of detailing its legal aspects and transposing the EU's MSP Directive. The main instrument for MSP in Portugal will be the "Situation Plan" (SP). It encompasses the entire Portuguese maritime space and "represents and identifies the spatial and temporal distribution of existing and potential uses and activities" (including, aquaculture, marine biotechnology, marine mineral resources, energy resources and renewable energies), and "identifies natural and cultural values of strategic relevance for environmental sustainability and intergenerational solidarity".

One of the legal aspects under discussion is the possibility of exempting the Situation Plan from Strategic Environmental Assessment (SEA). The EU's 2001 SEA Directive intends "to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development, by ensuring that (...) an environmental assessment is carried out of certain plans and programmes which are likely to have significant effects on the environment". Where plans/programmes are part of a hierarchy, the Directive advocates avoiding duplication of assessments.

Considering the geographic scope of the Situation Plan, the maritime activities it encompasses, and its stated role in the promotion of sustainable development, it will certainly have significant environmental effects – therefore, requiring SEA. Conversely, can an instrument representing the distribution of activities and existing values be considered a Plan or merely a reference situation? Where are prospective and strategic considerations – the Planning component? Because a "portrait" is unlikely to bear significant environmental impacts, it should not require SEA.

The relevant question then becomes: What is the right level to conduct SEA of our approach to maritime affairs/maritime space? Taking the Portuguese case as an example, and moving up along the national and European hierarchy of instruments, is it:

- The future Portuguese Situation Plan?
- The Portuguese NOS2013-2020 and its associated action Plan (Plan Mar-Portugal), which constitutes the strategic framework for MSPM in Portugal?
- EU's Blue Growth development model, which framed the Portuguese NOS2013-2020?
- Europa 2020 Strategy, of which Blue Growth is the maritime dimension?

None of these levels in the hierarchy, despite their potentially significant environmental effects, were subjected to SEA (while the SEA Directive is strictly for Plans/Projects, the SEA Protocol adopted by the EU in 2008 also targets policies and instruments aiming to promote sustainable development). At what level should a strategic assessment be made of our claims of a sustainable approach to the Ocean? This urgent discussion is the core of this contribution.

Primary authors : FERREIRA, Maria Adelaide (FCSH-UNL) ; ANDRADE, Francisco (FCSH-UNL) ; JOHNSON, David (GOBI) ; PEREIRA DA SILVA, Carlos (FCSH-UNL)

Co-authors :

Presenter : FERREIRA, Maria Adelaide (FCSH-UNL)

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User interaction to foster spreading of coastal information

Content :

The Coastal Observing System for Northern and Arctic Seas (COSYNA) has been established in the German North Sea and off Spitsbergen to describe, analyse and predict the environmental status of coastal waters. Combining observations, numerical modelling, data management, and outreach activities COSYNA aims to provide data and knowledge tools to help science, authorities, industry, and the public to make informed decisions. COSYNA products and infrastructure are developed to foster scientific knowledge for sustainable development of coastal ecosystems worldwide.

Here we demonstrate, based on two examples, the technical and communication challenges in conveying COSYNA's scientific data and knowledge to stakeholders and to the public: (1) Improvement of COSYNA products through stepwise interaction with (potential) users. These efforts serve to ensure COSYNA products are useful and applicable. (2) Development and design of a COSYNA-app directly aiming at reaching an interested audience in the public. The app condenses the contents and realisation of COSYNA to a user-friendly level and provides access to near-real time data.

Primary authors : Dr. ESCHENBACH, Christiane (Institute of Coastal Research, Helmholtz-Zentrum Geesthacht)

Co-authors :

Presenter : Dr. ESCHENBACH, Christiane (Institute of Coastal Research, Helmholtz-Zentrum Geesthacht)

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Vertical marine farming: Exploring climate change solutions with economic and ecologic significance

Content :

Vertical marine farming is an innovative way of mussel farming, which expands the possibilities for ecologic and economic benefits and can be applied at open sea up to a depth of 50 m. Vertical marine farm (VMF) is essentially a welded polymer grid cylinder, with a diameter of 3 meters and height of 10 meters. It is rigid allowing for more stable and even attachment of mollusks. The densely folded framework increases the effectiveness of the structure as a reef. Another crucial characteristic of the design is that it covers multiple horizons of the sea. The entire structure is submerged and anchored to the bottom at depth larger than 12 m, so its top is located at least 2-3 m below the surface.

The aim of this paper is to summarize and review the progress and results from the feasibility study currently underway – REEFS, a joint cross-border project between all the Black Sea countries – and to highlight the potential benefits of this technology for mussel farming. Essentially, the feasibility study applies our technology for vertical mussel farming, with the aim to evaluate the extent of its effectiveness at different locations within the Black Sea basin.

For the feasibility study we have thus far installed 5 VMFs of the 45 envisioned. According to our field tests one VMF may yield ~4 tons of mussels after a growth period of 2 years. As a consequence of the design and the harvest technique the yield shows little variation in size due to the fact that all the mussels are of the same age. The similarity in size is an important factor in processing, preparation and marketing of the product, as it can lead to multiple benefits. The design of the structure offers large attachment area (15,425 m²) for the mussel larvae, whilst covering 6 m² of the sea bed. In comparison to traditional methods of mussel farming, VMF's durable material requires very low maintenance and allows for some repairs to take place while submerged.

VMF's reef effect is independent of the presence of mollusks to the extent at which we have observed small/juvenile fish seeking shelter and security as early as 11 days after installation. The VMF can boost the local ecosystem, according to our field tests prior to REEFS – structures installed more than 1 year ago show a wide variety and high density of species inhabiting or chasing prey in the reef. So far there are numerous indicators of this effect of the structures and the step following the completion of the feasibility study in the Black Sea would be up-scaling the project to other environments and broader more comprehensive implementations and usage.

Primary authors : Ms. DIMITROVA, Kornelia (University of Eindhoven)

Co-authors :

Presenter : Ms. DIMITROVA, Kornelia (University of Eindhoven)

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Marine Spatial Planning - Ocean Governance In Areas Beyond National Jurisdiction

Content :

Even if it is a rather recent form of ocean management, marine spatial planning is already used by more than 60 States worldwide in the waters under their jurisdiction. The organisation of activities at sea according to geographical zones, ideally with a view to ecosystem-based management, enables States to reconcile different uses at sea in a transparent and generally understandable way. Still, marine spatial planning initiatives by States face many challenges, such as the establishment of governance structures in which different uses and different interests are impartially weighed against each other, the collection of data that will allow a scientific assessment of the sustainability of ocean use, and the regular review and adaptation of plans. Despite these difficulties, it is by now accepted that marine spatial planning can be a successful way of improving ocean governance in waters under national jurisdiction. Within Europe, the Marine Spatial Planning Directive of July 2014 now recognises the importance of planning initiatives and encourages EU Member States to start the planning process or to continue their efforts.

At the same time, with a view to the growing interest to take human activities further out to sea, and with the increasing concern for the marine environment as a whole, governance mechanisms for waters beyond national jurisdiction are becoming more important. The aim of this post-doc project is to inquire into the risks and opportunities of using mechanisms comparable to marine spatial planning for ocean management in the high seas, in order to use and distribute space and resources in waters beyond national jurisdiction in a more sustainable way. Starting from the rules of the law of the sea, generally favouring the far-reaching freedom of the high seas for all States, the study will try to suggest ways for a different ocean management, also giving regard to the currently still fragmented attempts to establish rules for a better and fairer global ocean use.

Primary authors : Dr. GAHLEN, Sarah Fiona (Walther Schücking Institute of International Law Kiel University)

Co-authors :

Presenter : Dr. GAHLEN, Sarah Fiona (Walther Schücking Institute of International Law Kiel University)

Track classification :

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Abstract ID : 81

Maritime Sociology in Kiel: A Restart

Content :

Marine and coastal areas are experiencing significant changes today. The demands of a growing world population and a rapid economic growth of maritime industry have put strong pressure on marine ecosystems that are increasingly threatened by climate change, ocean acidification, unsustainable fishing practices, pollution and a loss of biodiversity. Apart from these ecologic pressures the last decades have exposed maritime spaces to challenges emerging from increased competition and from the dynamics of rapid technical developments in various branches of the maritime economy, especially sea traffic, wind offshore energy and mariculture. Other maritime sectors that are in need to cope with the new conditions include the tourism and fishery industries that both have to adapt to new demands of customers and to an increasingly globalizing competition on the world market. To face these challenges maritime spaces have to adapt and modernize the maritime economy and to find new business and job opportunities, which meet the changed requirements within intensely competitive marine and coastal regions.

As a consequence, marine and coastal areas are undergoing far-reaching transformation processes as traditional professions have become less important while new ones have emerged or former fishing villages have been converted into modern tourist centers. All these processes are deeply social.

Maritime sociology that can be understood as a specific sociological sub-discipline addresses different communities, institutions and social processes related to all human activity at maritime spaces. This research field examines the 'human factor' and analyses the present major changes in marine and coastal areas from a sociological perspective thus complementing research on maritime issues that so far is dominated by natural science disciplines.

The poster gives an overview of former and present efforts to institutionalize maritime sociology in Kiel. In order to create the financing conditions for a scientist position a first project proposal was submitted to the German Research Foundation in December 2014.

Primary authors : Dr. KRONFELD-GOHARANI, Ulrike (Kiel University)

Co-authors :

Presenter : Dr. KRONFELD-GOHARANI, Ulrike (Kiel University)

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The Balance of Economy and Environment for Existence

Content :

In the past, the weight of the Environment was heavier than that of Economy in the planet.

At present, the weight of the Economy is heavier than that of Environment.

The Future we need, is a balance of Economy and the Environment for Existence.

The poster will reflect Triple"E" (Economy, Environment and Existence) for Triple "T" (Time in the past, Time at present and Time in future)

Primary authors : Mr. ISLAM, Syed (World Maritime University)

Co-authors :

Presenter : Mr. ISLAM, Syed (World Maritime University)

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GARBAGE IN OCEAN

Content :

The world's oceans, covering 70 percent of the world's surface, are in declining health. The deteriorating situation has become direr with each passing year and international law is not necessarily keeping up to speed with the rate of decay. With the United Nations' Law of the Sea, and the Rio+20 conference, there is significant opportunity to effectively protect the seas.

There are multiple factors for the oceans' decline including pollution, overfishing, and acidification. These are serious issues destroying the worlds' seas.

Pollution is a considerable problem. In particular, plastic pollution is an extensive issue in the world's oceans, with negative consequences not yet fully understood. In fact, all of the oceans' large systems of rotating ocean currents, known as gyres, are suffering from serious plastic pollution, resulting in enormous garbage patches. The Great Pacific Garbage Patch, in the North Pacific Ocean, is the most well known patch. The Patch is approximately the size of Texas.

Plastic pollution is contributing to the fast decline of the health of the ocean, by creating whole entire areas where plastic particles are dispersed through the water column. "Oceanic animals feed on these particles and in many instances, like the Laysan albatross, tragically die with stomachs full of plastic, unable to drink or eat. But scientists are beginning to study the long term impacts of ingested plastic not only on fish tissues, but how it transfers into the food chain."

The garbage in the ocean comes from several sources, a major one being from storm drains that overflow, allowing excess trash into rivers, then into the oceans. Another source is from companies and countries that are dumping their waste into the ocean. Some categories of garbage like plastic does not biodegrade, it can circulate in the ocean for several years, eventually photo degrading. Photo degradation is the process of plastic breaking down into small pieces. These small pieces are small enough that tiny fish are ingesting the broken down plastic as food. The larger fish then eat the smaller fish and the plastic ingestion moves up the food chain to humans, with consequences not yet fully understood.

Therefore, it can easily be concluded that due to uncontrolled garbage dumping it can be said that we the humans are eating our own garbage. Consequently, number of new diseases are generating in humans too fast. Therefore, in order to arrest the situation there is a dire need to develop a comprehensive plan or policy to address the issue on war footing.

Primary authors : Mr. SALAHUDDIN, Ghazi (World Maritime University Malmö, Sweden)

Co-authors :

Presenter : Mr. SALAHUDDIN, Ghazi (World Maritime University Malmö, Sweden)

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Judgment :

Abstract ID : 111

Poster: Globalization and Marine Sustainability under the Primacy of Democratic Statehood

Content :

In 2012, Benjamin Halpern et al. introduced the Ocean Health Index (OHI) to encounter how states ply with their given marine resources. By defining ten goals and sub-goals, Halpern et al. created a way to measure the general condition of a given states coastal zone by expressing it through a numeric index score. Building on the findings gathered by Halpern et al. the aim of my research was to investigate the link between globalization, democratic statehood and OHI scores. Accordingly I made the argument that a certain degree of correlation between globalization and ocean health was to be ascertained as for the proximity that entangles mankind with the oceans by pursuing free trade and economic growth. Furthermore I argued that democratic states encountered a significantly higher incentive to ply with marine resources in a more sustainable fashion than non-democratic states due to the responsive nature of democratic processes. A respective empirical analysis showed that not only a correlation between globalization and ocean health could be ascertained, furthermore democratic regimes indeed performed better in terms of OHI turnout than non-democratic regimes.

Yet, according to the United Nations Convention on the Law of the Sea (UNCLOS), most parts of the oceans remain ungoverned and therefore immune to state intervention targeted at sustainable usage of marine resources. As approximately more than one billion people are living in low-lying coastal regions, healthy and sustainable oceans become essential to political problem solving processes: Migration driven by climate change, the depletion of territories due to rising sea-levels and the very effects of climate change itself will sooner or later impose severe pressure on policy-makers and respective international institutions alike. As for both the Law of the Sea and international environmental law international treaties and conventions remain the most commonly used instruments to govern global commons. Yet, the effectiveness of those instruments remains vague or hardly measureable, especially in densely populated marine coastal zones where the man-made pressure on ecosystems and policymakers alike is at a very high level. The OHI could therefore proof as a useful tool in order to assess the performance of marine global commons governance.

Both the results of the relation between globalization and marine sustainability under the primacy of democratic statehood as the respective prospects of a related PhD project in marine global commons governance are being presented on my poster.

Primary authors : Mr. HUEGELMANN, Bendix (Kiel University)

Co-authors :

Presenter : Mr. HUEGELMANN, Bendix (Kiel University)

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Conserving Coral Reef Ecosystems for the Future: How regional ocean governance initiatives catalyze international partnership, innovation, and advancements in ecosystem based management

Content :

Healthy coral reefs provide ecosystem services critical to society, human health, and well-being: food security, livelihood, culture, storm attenuation, among myriad others. Successfully conserving coral reef ecosystems, and thus ensuring their long-term provision of ecosystem services, requires good governance of the ecosystem holistically, designed to incorporate the place-based context, scale of ecosystem and its dynamics, and the interconnections of ecosystems, institutions, people and economies. Recent upswings in regional ocean governance initiatives in part reflect that ensuring healthy ecosystems in the long-term also requires trans-boundary cooperation, within and among local, sub-national, and multinational scales. For, even the most effective marine management likely will fail in the long-term, if ecosystem management practices stop at jurisdictional boundaries.

In this context, the U.S. National Oceanic and Atmospheric Administration (NOAA) Coral Reef Conservation Program (CRCP), established in 2000 to conserve U.S. coral reef ecosystems, has partnered extensively internationally since its inception. Currently with active partnerships in 42 countries and regions globally, NOAA CRCP focuses on building capacity in ecosystem based management (EBM) of coral reefs by partnering in regional ocean governance initiatives, strengthening EBM capacity in national-scale governance institutions, coordinating learning networks, and supporting place-based learning sites. This paper provides the first comprehensive assessment of the NOAA CRCP international approach and results, looking the NOAA CRCP International efforts in Micronesia, the Coral Triangle, and the Caribbean variously since 2001. Reflecting on advancements in policy and in practice in an array of EBM technical areas, from fisheries management to climate change adaptation in Micronesia and the Coral Triangle, as well as on the growth of scientific and technical (S) partnerships, innovation, and replication of results elsewhere, this paper suggests that regional ocean governance initiatives can catalyze international S partnership, innovation, and advancements in EBM. In doing so, this paper sets the stage for an upcoming formal evaluation and seeking to refine NOAA CRCP's international approach for greater efficiency, innovation and ultimate outcomes to coral reef conservation in the future.

Primary authors : SHACKEROFF THEISEN, Janna M. (U.S. National Oceanic and Atmospheric Administration/Coral Reef Conservation Program, The Baldwin Group)

Co-authors :

Presenter : SHACKEROFF THEISEN, Janna M. (U.S. National Oceanic and Atmospheric Administration/Coral Reef Conservati

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Recreational Fisheries: a funny episode

Content :

Generally, unenforceable measures determine weakness in the management system as well as an exponential increase of personal interpretations. A funny episode on recreational fisheries, highlights as a regulation should be linked with a regular monitoring system in view to determine an easy enforceability. However, when its enforcement and efficacy remain difficult and unknown, respectively, the adoption of the measure might determine genuine disagreements on fishery communication.

Primary authors : VITALE, Sergio (National Research Council - Institute for Marine and Coastal Environment, Mazara del Vallo, Italy)

Co-authors :

Presenter : VITALE, Sergio (National Research Council - Institute for Marine and Coastal Environment, Mazara del Vallo, Italy)

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