1st RethinkBlue Conference

Organized by COST Action CA22122

RethinkBlue

RETHINKING THE BLUE ECONOMY: SOCIO-ECOLOGICAL IMPACTS AND OPPORTUNITIES

University of Zadar

Zadar, Croatia, 23-25 April 2024

Sveučilište u Zadru
Universitas Studiorum Jadertina | 1396 | 2002 |
HRZZ Croatian Science Foundation
cost EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY
Funded by the European Union

1st RethinkBlue Conference

In just over a decade since its introduction at the Rio+20 conference in 2012, the Blue Economy has become a popular policy paradigm in Europe and beyond. However, the frequent use of the concept and its adoption in different contexts (national and international politics, private sector, academic community) has led to diverse and often competing discourses and frameworks. In its most general and value-neutral form, Blue Economy refers to all economic activities related to the oceans. However, conceptually and empirically, Blue Economy can be engaged in more complex ways. In this way, it becomes a platform to explore multiple societal, environmental and economic aspects of the uses of the sea, from benefits to conflicts/challenges. Blue Economy can also become a way to critically review the impacts of ocean exploitation and resource extraction on local communities in line with the concept of Blue Justice.

In line with the focus of the "RethinkBlue" COST Action CA22122, the goal of the conference is to create a forum for scholars who are seeking to rethink what Blue Economy stands for today, from a social perspective. Contributions at the conference explore, theoretically or empirically, the following topics, which correspond with the five Action Working Groups:

- Maritime occupations
- Food security & sustainable blue consumption
- Port cities & coastal communities
- Fisheries governance & emergent activities
- Climate change & natural hazards

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Paper abstracts

SESSION 1: MARITIME OCCUPATIONS

Why seafarers choose (to stay in) their career: Case of Croatia

Marko Galić, Tommy Ltd

Ana Slišković, Department of Psychology, University of Zadar

Considering that the motivation of seafarers is largely determined by the socio-economic context and given the general lack of previous studies focusing on the motivation for entering and staying in the maritime sector in Croatia, this paper aims to gain a deeper and more comprehensive insight into the factors that determine the motivation of seafarers in the Republic of Croatia. The paper is based on a mixed-methods approach and presents data on motivation from two studies.

The first study was based on a qualitative design (open-ended survey) and aimed to investigate the reasons for enrolling in secondary and undergraduate studies related to two maritime degree programs (nautical navigation and marine engineering) in Croatia. The sample consisted of 664 students (61% from secondary schools). The qualitative data analysis showed that the choice of maritime education was dominated by the motivation for choosing the maritime profession. The reasons identified were categorised according to the degree of autonomous regulation.

The second study was quantitatively designed and used the Self-Determination Theory (SDT) as the theoretical background. The main objective was to investigate six different motivational aspects of SDT and their relationship to job and life satisfaction. The sample included 286 Croatian seafarers and the survey consisted of the Work Extrinsic and Intrinsic Motivation Scale, Job Satisfaction Scale and Satisfaction with Life Scale. The results indicated the highest level of external regulation followed by three types of self-determined motivation. Furthermore, the results emphasised the positive role of self-determined motivation in the explanation of job and life satisfaction, while external regulation was an additional predictor of life satisfaction.

In general, the results showed the importance of developing and promoting autonomy for the work motivation of maritime students and seafarers, but also the specifics of work motivation related to the socio-economic context of the maritime profession in Croatia.

A Theoretical Framework for Mapping and Matching Newly Emerging Skills and Maritime Occupations: Just Transition Context

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Representatives of academics, businesses, civil society, governments, and partners operating on environmental issues are focused on seeking to respond to the question: Who is a quality maritime employee today, and what skills and competencies do they need to have in the time of transition from a traditional to a modern digital business environment?

Previous research has shown a need to improve existing knowledge and skills, as well as the education and training system, aiming to meet the labour market's modern demands.

In order to define the essential skills necessary for modern maritime occupations in the era of economic, social, and green transition, this paper, at the first level of research, uses the systematic literature review method to define four groups of skills: classical engineering and technical skills, digital skills, maritime business skills, and green skills.

At the second level of research, the paper reveals how these skill groups are connected and matched with the examples of maritime occupations, thus indicating the development of future human resources towards specific occupations in the era of global transition of the maritime world.

The paper holds value in providing a very clear and illustrative depiction of the transition process towards the new required skills, which benefits all interested stakeholders, primarily representatives of education and training in maritime domain.

Navigating the blue seas: The role of seafarers' skills in sustainable shipping

Amit Sharma, Department of Psychosocial Sciences, University of Bergen

The concept of blue economy refers to the sustainable utilisation of ocean resources with conservation of environment as the foremost priority. Recent conceptualizations also refer to the use of technology in minimising the adverse impact of operations, improving working conditions of maritime occupations and promoting safety at sea. The trends of decarbonization and digitalization are proposed as having significant impact to the maritime stakeholders in the coming years. While there are different dimensions of blue economy which together contribute to achieving sustainable operations, the role of human element, their skills, competence, and professional qualifications is vital in achieving the end results. The present paper discusses the role of seafarer's skills in achieving the sustainable development goals as envisioned for global shipping industry and some of the challenges and opportunities identified in recent literature. Properly trained workforce at sea can not only accelerate the transition of shipping to the blue economy, but it can also play a vital role in safe outcomes of such transition. The education and training of future seafarers should adequately address these anticipated developments. Regulatory reforms are simultaneously needed for the shipping industry to keep pace with these developments. Addressing the human resource needs of the blue economy would therefore require a multi-faceted approach from various actors in the shipping industry. The lack of prerequisite skills and shortage of properly trained crew has been a contentious issue in the recent years for maritime domain and the issue can only exacerbate with disruptive technological changes. Drawing parallels from other high-risk domains and transportation sectors, the paper highlights some key takeaways for the maritime occupations in the context of blue economy.

Ungraying of the Norwegian fishing fleet: more and younger

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Jahn Petter Johnsen, Norwegian College of Fishery Science, University of Tromsø

Jostein Vik, Norwegian University of Science and Technology

It is often pointed to the fact that the age of the fisher is increasing and that this leads to the phenomenon known as "graying of the fleet,". However, what the cause and effect of the graying of the fleet is, is not entirely clear. There may be several reasons for the graying of the fleet. This article shows quantitatively that the Norwegian fleet is ungraying, as there are an increasing number of young fishers entering the fisheries. However, the question is whether the ungraying is a general pattern across the entire fleet or

whether it is prominent in specific fleet segments. This study presents results from a survey of 921 active fishers and boat owners conducted in 2023, with a focus on the recruitment and retention of fishers. In addition, the article draws on results from similar surveys from 2007 and 2015. The results show that no fishing fleet segment experiences major recruitment problems. Moreover, the results show that there has been an increase in the number of young fishers in recent years and that young fishers are optimistic about the future of the fishing fleet.

Polish seafarers' female partners opinion on their life experiences – lifeworlds and microworlds of seafarers' female partners

Colette Szczepaniak, University of Szczecin

In coastal communities there is a significant number of people working offshore, but the coastal communities are also women waiting onshore. They are in a very special life situation, which has not been studied in social sciences in Poland so far. The empirical study of 25 narratives of seafarer's partners show that they find themselves in a certain boundary situation and exist both in the world of everyday life (lifeworld) and various types of microworlds (Schutz). The ancient Greeks used to say that people are divided into the living, the dead, and seafarers, because seafarers lead a life at the junction of the sea and the land, they are as if between the worlds of the living and the dead. Who then are these women waiting for them on land? They are certainly in a precarious situation where they have to cope with family, work and home responsibilities at the same time.

Based on own empirical study of 25 qualitative interviews with polish seafarer's partners I would like to show that seafarer's partners are very important part of coastal communities whose needs and issues should be contained in the considerations of theoretical frame of "Blue Economy". My presentation aims to start a scientific debate on the situation of seafarers' women who, in addition to their role as wives or partners, also perform other social roles such as ex. mothers, carers of people with disabilities or elderly parents.

"Today beggar, tomorrow king" - Self-Identity of Fishers in Germany

Tobias Lasner, Thünen Institute for Sea Fisheries

Fanny Barz, Thünen Institute of Baltic Sea Fisheries

Martin Döring, University of Hamburg

Kira Gee, Helmholtz-Zentrum Hereon

Andreas Kannen, Helmholtz-Zentrum Hereon

Jürgen Schaper, Helmholtz-Zentrum Hereon

Fishing as a commercial profession still has the nimbus of being one of the last traditional interactions with marine wilderness takes place. At the same time, fishers and in particular coastal fisheries in the North and Baltic Seas currently face many changes and challenges: Climate change, degrading fish stocks, fishing bans in marine protected areas, Brexit, bureaucracy, an overaged fleet, a lack of successors, Covid-19, and increasing spatial competition, e.g. with offshore wind farms, all jeopardise their long-term social and economic viability. While research often focuses on technical and economic dimensions, little is known about the coping capacity of fishers based on their social capital. Using an analytical approach based on the Grounded Theory of Glaser & Strauss (2008) first and Pierre

Bourdieu's Habitus (Bourdieu, 1970) theory abductively, we re-construct the perspectives of fishers on their positioning as members of society. Our analysis is based on 68 interviews conducted between 2017 and 2023 on the German North Sea and Baltic Sea coast with self-employed fishers, vessel owners, CEOs of fishing enterprises, employed fishers, and trainee fishers. We formulate empirically grounded hypotheses about fishers' self-perception and identity, forms of knowledge adoption, and fishers' social adaptive capacity during times of (fundamental) structural change. Our results indicate that the fishers' Habitus as internalised values, and a socialised way of thinking is fundamental for their adaptive capacity. Fishers differentiate between work and leisure time only slightly. Fishers' willingness to exit the sector is low even in the face of an economic crisis. Freedom remains a core concept as part of the fishers' nimbus, although fishing regulations are strict and the density of marine space utilisation limits fishers' range of operating. Alternative livelihoods are not seriously considered in fishers' biographical decision-making. Among other factors, the habitus of fishers makes them extremely vulnerable to social change.

Rethinking Danish small-scale fisheries and their management: Safeguarding the segment, diversifying the income streams, and strengthening smaller coastal communities

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Kristen M. Ounanian, Centre for Blue Governance, Aalborg University

Despite targeted, supportive design features developed over the period from 2005 to 2019 in favour of small-scale fisheries (SSF) under the Danish ITQ management system, the Danish fleet has continued to consolidate into larger and fewer vessels, increasingly landing in larger ports. This has had severe implications for smaller communities along the coast, which have historically benefitted from active fishing vessels operating from and landing there. Over time the balance between gears - from passive gears towards bottom trawls - has also shifted, which raises concern as bottom trawls are increasingly viewed upon with scepsis and may be excluded from windfarm areas and marine protected areas; both 'priority sectors', expected to take up significantly more space at sea in coming years. There is, consequently, a need to rethink Danish SSF and their management considering their current state, the challenges they face, and the feasible management pathways within the Danish ITQ system, which seems likely to continue. This article describes the multifaceted causes behind the development in recent decades, ranging from environmental shifts to economic pressures and regulatory shortcomings; the status of the management framework pertaining to SSF; as well as the status of the small-scale fleet and the current challenges faced by the fleet and the smaller fisheries-dependent communities. Subsequently - and in light of the diagnosis presented and ongoing initiatives in the SSF sector - the article discusses the main recommendations pertaining to SSF and their management from the recent report of the Danish Fisheries Commission, an expert commission (in which one of the authors was part) set up by the Danish Parliament to advice on the future of Danish fisheries and fisheries management. The article calls for further debate and action towards a sustainable future for SSF in Denmark by means of innovative management strategies and community-centred initiatives.

Reclaiming the past: Port cities, ship buildings and trade unions

Senija Čaušević, SOAS University of London

Any attempt to distil 'heritage' from written documented history and the legacies of the past is a matter of ideologically informed choices on how to present the past. This ethnographic research reflects on

how maritime cultural heritage is remembered, forgotten, edited, regenerated, and repurposed. The preliminary study follows three maritime ports, Belfast and Rijeka (Croatia) and the stories of their maritime heritage, some silenced and some loud. In Belfast, class struggle, the expulsion of mainly Irish workers from the shipbuilding sites, and the establishment of trade unions as a response to economic violence have been silenced in the context of the Titanic Museum. Instead, maritime heritage in Belfast is seen as an agent of gentrification (Hodson, 2018) and the erasure of the working class. Titanic Museum focuses on glorifying the legacy of British imperialism and colonialism, linking it to constructing the post-Brexit meaning of being British. Nevertheless, the history and success of the British Trade Union movements in fighting for workers' dignity were remembered in the presentation of industrial heritage in Rijeka, a 2020 European capital of culture. In the Rijeka City Museum, a part of a permanent exhibition presents a narrative of the British trade unions. For instance, British engineers pioneered workers' rights in the Rijeka shipbuilding industry (Anicic, 2016), the legacy presented in the Rijeka City Museum. Research thus addresses social sustainability issues within the local communities and the context of remembering. Mark Fisher uses Derrida's (1994) concept of hauntology to describe a sense in which contemporary culture is preoccupied with the lost hopes of modernity cancelled out by post-modernity, haunted by the promised future that never existed, i.e., the nostalgia for the future. However, hauntological culture maintains the hope for fulfilment through the creative industries and tourism, such as remembering the shipbuilding and fighting to recognise workers' rights. This is important in the context of social sustainability as preliminary findings showed that negligent policies that marginalise a part of the community, in this case, the workers, may cause the proliferation of right-wing populism (Castelli & Froio, 2021). This research is thus set to further elaborate the link between social sustainability and community wellbeing in the context of maritime heritage in the port cities.

Fisheries beyond scale: tackling the small-scale -large scale fisheries cleavage

Marta Ballesteros, Spanish Institute of Oceanography

Marloes Kraan, Wageningen University

Concurring acceleration waves in marine waters prompted fisheries to lose locus and focus. The race among diverse claims for using marine resources and space, the superposition of policy frameworks (fisheries, environmental and spatial) and the new policy priorities linked to global changes have translated into a fisheries displacement from the science and policy agendas next to displacement (and reduced fishing effort) at sea.

Finding modus to redefine and regain fisheries' place calls for concerted action across highly heterogeneous and dynamic activities. However, a pervasive cleavage between small-scale and large-scale fisheries is hampering our capability for understanding and action.

The debate is often framed around opposition attributes of good and bad, perceived importance and presence, low and high impact, or contributions to food security, economic development or well-being. The evidence is also split between the predominantly quantitative analysis of LSF and the qualitative analysis of SSF.

We argue that this frame opposing SSF and LSF in a binary way first of all is false and secondly deflects attention from what is important. Both share common attributes and also are interlinked in many ways (for instance in maintaining infrastructure on land). It deflects attention for more information on the social, cultural and economic contribution of fisheries to communities and society which generally is lacking.

Our contribution is a proof of concept of how "artefacts" or boundary objects can be used to overcome

conventional views. We use a mental map combined with storytelling to launch a cross-pollination of ideas across communities of practice regarding fisheries attributes. The design aims to address convergence between SSF-LSF, identifying coincident boundaries.

The artefact is functional to systematically explore theoretical constructs, structure dialogue and challenge assumptions. The findings are relevant to advancing knowledge and redefining marine fisheries discourses based on sustainability, societal contribution and viability beyond scale.

"I Can't live the Sea but I Cannot live without it" - Sea/Land Exchanges and Social Transformations among the Moken and the Urak Lawoi of the Andaman Sea

Emilio Cocco, University of Teramo

Emanuela Diodati, Roma Tre University

Federico Montanari, University of Modena and Reggio Emilia

The idea of the "free sea" shaped the mindset and actions of nations in the centuries of "modernity", leading to an unregulated exploitation of the environment (Zacharias, 2019). In other words, the ideological distinction between a "free" sea and "sovereign" (disposable) land allowed for colonial exploitation of natural resources and progressive removal of local people from the sea. However, besides the formal distinction between sea and land, and the process of territorialization of adjacent waters, a more complex social process of sea/land exchanges and conversions takes place. This process leads to semantic shifts and material and immaterial transformations that primarily involve the local maritime communities, which are removed from the waters and set ashore. In this context, the investigation of changing lifestyle of indigenous peoples inhabiting the Arctic regions of Greenland, Canada and Alaska (Hastrup, 2019; Nuttall, 2019) or Southeast Asia (Stacey, 2007) is extremely interesting as it cast a light on the effect of social construction of the sea/land distinction as a strong pattern of the development of the capitalist world-system. Particularly, anthropological accounts from the oceanic societies speak of "autoch-thalassic" people besides autochthonous ones. To those "people of the sea", such as the South Eastern Asian Moken or the Orang Laut (Sopher 1977; Belwood, Fox, Tryon 2006; Ivanoff, Lejard, Gansser 2012) the land was only the border of their fundamentally marine social existence. Accordingly, my contribution discusses ethnographic notes and qualitative data collected in a recent fieldwork investigation (January-February 2024) of collective representations of the relation with the sea among the Moken (Surin Islands) and the Urak Lawoi (Ko Lipe) of the Andaman Sea. The case studies show the process of social change "between land and sea" in a context where the "sea people" are entangled in complex dynamics involving natural parks, industrial fisheries and profit-oriented tourism entrepreneurship.

Transnational Intersectionality at Sea: Gender, Ethnicity, Age and Marine Knowledge Production

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Anna-Katharina Hornidge, German Institute of Development and Sustainability; University of Bonn

Knowledge production is inherently social, as humans interpret their environment. Scientific knowledge production differ from non-scientific ones in their systematic data collection for validation, yet both involve a social element shaping our understanding of the world.

The here proposed paper studies social contestation processes as part of knowledge producing processes on two German research vessels and in German and Brazilian marine science institutes with a particular focus on the social identity markers of gender, ethnicity and age and how they affect the team-based sense-making processes. Methodologically, our research draws on participant observation of following marine scientists in their daily working routines and semi-structured interviews on the German research vessels Merian in 2018 and Meteor in 2021, as well as in marine science institutes from 2022 to 2024. Conceptually, the research follows approaches of the Sociology of Knowledge (Keller et al., 2018) and intersectional approaches (Grabe, 2012; Patil, 2013) that integrate transnational experiences across national borders and other (physical) boundaries.

Based on the empirical research, we assess transnational and intersectional sense-making practices at sea in (marine) climate change sciences – following postcolonial and traditional gender norms. These shape the social organisation of interdisciplinary teams of research, and in their contestation contribute to structural change with regard to interdisciplinary and transnational team organisation, the shaping of communicative spaces, and the social organisation of work. Open remains the question whether these changes to the social organisation of doing research at sea actually also changes what is being researched in the future, and how it is being made sense off. It moreover shows the need for increased female and non-binary participation in marine sciences and in the blue economy, e.g. as crewmembers on research vessels, an essential step towards (gender) equality, intersectional representation and thus blue justice.

SESSION 2: FOOD SECURITY & SUSTAINABLE BLUE CONSUMPTION

Security Issues of Maritime Logistics of Illicit Trade in the Black and Azov Seas during the War

Ilona Dumanska, Khmelnytskyi National University

The military blockade of the Black and Azov Seas during the Russian aggression made maritime logistics impossible. The key challenge at the beginning of the war was the sale of agricultural products with grain reserves of more than 20 million tons and the prospects of a new harvest in view of the loss of the pre-war capacity of sea ports, the sale of which accounted for 70% of all export cargo worth 47 billion dollars.

From the standpoint of global food security and the SDGs, the significance of access to the sea and its own seaports for the economy of Ukraine and countries dependent on the export of its agricultural products is substantiated. A retrospective analysis of events since the beginning of hostilities with a projection onto the picture of maritime logistics through the Black Sea under the Istanbul Initiative on the safe transportation of grain and food products from Ukrainian ports and the crisis of overland transportation through the «Solidarity Lanes» by transit to the Baltic Sea has been conducted. Emphasis is placed on the role of research on the status of the Azov Sea and the illicit monopoly gained by Russia in the use of its natural resources and logistics routes of sea spaces and ports.

The policy of internal protectionism has been identified as a justification for the creation of illicit sales channels through maritime logistics based on ignoring customs transit control tools. Such uncontrolled points of maritime logistics as corridors of “gray” zones of military conflicts and transshipment logistics

bridgeheads of intermediary countries at sea have been analysed, the expediency of deepening the coordination of efforts to fight against illicit trade by counteracting the distortion of information about the country of origin of goods was determined.

Traceability in small-scale fisheries for inclusive market access

Gisela Costa, Centre for Environmental and Marine Studies, University of Aveiro

The globalisation and industrialization of seafood production and markets have increased the complexity of seafood supply chains and the availability and variety of products. Nowadays, consumers have access to products from a variety of different origins of which they know very little about and express an interest in having more information on the origin of seafood. Retailers (with their control and influence over the information consumers have access to), companies and brands increasingly aim to provide products deemed as more socially and environmentally responsible, putting pressure on seafood producers to meet these requirements. In this context, traceability of products is becoming increasingly demanded. Inclusively, recently published regulation by the European Union (Regulation (EU) No 2023/2842 of 22 November 2023) sets a framework for developing a traceability system and traceability requirements to come into force by 2029. However, the implementation of traceability methods and technologies face challenges which small-scale producers might have trouble overcoming. We will present the results of a systematic review of the literature on the challenges and opportunities faced by small-scale fisheries (SSF) with regards to traceability, and present some examples of SSF initiatives which implemented traceability. We also seek further SSF initiatives with traceability solutions, to map, investigate and describe challenges and successful methods and ways of operating. Increasing the knowledge of issues around the traceability of SSF products is essential for the promotion of inclusive and feasible traceability options for the sector and to pave the way for inclusive models that empower SSF to compete in the traceability race and promote more equitable seafood value-chains.

On the tail of Portuguese Atlantic bluefin tuna: how far does it travel?

Priscila Silva, Marine and Environmental Sciences Centre, University of Lisbon

Célia Teixeira, Marine and Environmental Sciences Centre, University of Lisbon

Cristina Pita, Centre for Environmental and Marine Studies, University of Aveiro

Despite the impact that demand has on fishing, the value chains and consumption patterns are insufficiently known and described. Also, fishery related modelling research has historically focused on population dynamics and ecological modelling, neglecting seafood supply chains and their socio-economic aspects.

Atlantic bluefin tuna was once a species which had a comparative low value, being a food source that was consumed and preserved for rich and poor consumers alike. Historically the lucrative sushi/sashimi market was associated to Japan, which remains as the largest market in the world, but other countries are increasing their consumption as Japanese restaurants and consumption of fresh tuna products have become more popular around the globe becoming what industry insiders call “red gold”. After the onset of the lucrative sushi/sashimi market, Atlantic bluefin tuna experienced a market transformation into the most valuable fish in the world.

Atlantic Bluefin tuna has been under a recovery plan for several years but since 2019 a management plan has been adopted. Nowadays, Portugal is one of the eight counties from the European Union

with quota for Atlantic bluefin tuna. For the first time, we will present, through value chain mapping, the destinations of the Atlantic Bluefin tuna captured in Portugal, analysing national management and problems related. These are simple value chains with a low number of players. In 2022, of the 500,5 tonnes attributed to Portugal, only 69,6 tonnes stayed in the Portuguese market. When high quality requirements are met, Asian markets are the goal, receiving half of the Portuguese quota. The future interest would be to replicate this methodology in other EU countries with a quota for Atlantic bluefin tuna, and map and analyse its destination.

Tracking, Tracing, Trading: How can fishers use digital data to their advantage?

Alexander Ford, Fisheye Consulting

The European Union's Marine Spatial Planning Directive (MSPD) seeks to use a Marine Spatial Planning approach as a tool to implement the bloc's Blue Economy Strategy, launched in 2012.

To date however, MSP processes across the EU remain at very strategic and high government levels. Subsequently, the dialogue between the different marine sectors and their respective stakeholders remains suboptimal.

The integration of small-scale fisheries into MSP is no exception and the EU has faced criticism for marginalising this sector in favour of more economically prosperous sectors. Criticism includes the limited participation in MSP decision-making processes; lack of flexibility in MSP regulations and zoning schemes; and the limited consideration of social and cultural aspects.

As of January 2024, new EU legislation on the Fisheries Control System has come into play with a key policy relating to small-scale European vessels being that by 31st December 2029 all <12m vessels must be equipped with tracking devices.

Using qualitative methods this research proposes developing informed guidance to supports small-scale fishing communities prepare and adapt for the new rules as well as demonstrate the advantages to be gained by installing trackers on board. This would entail:

1) Drawing on the experiences of fishers in Europe that have already begun using trackers to combat MSP pressures.

2) Developing practical guidance that can be used by fishers to ensure their data is formally used and recognised in future MSP processes.

3) Amplify the discourse around small-scale fishing in the context of the Blue Economy, as well as contribute to Ocean Literacy efforts on the topic.

This research primarily relates to Fisheries Governance, but can be adapted to consider themes relating to "Food security and sustainable blue consumption" through its relation to traceability and transparency in the context of SSF Market Access.

Herring Dilemma: Germany's Appetite and Supply Chain Challenges

Simone Brüning, Thünen Institute of Sea Fisheries

Johna Barrelet, Thünen Institute of Sea Fisheries

Sarah Simons, Thünen Institute of Sea Fisheries

Herring has played a pivotal role in Germany's fisheries economy and culinary landscape, historically driving prosperity in numerous regions through fishing and related industries. However, the German herring industry has seen a dramatic decline, from annual catches exceeding 200,000 tonnes in the mid-20th-century to roughly 50,000 tonnes in recent years. Concurrently, the self-sufficiency rate has declined to 27% by 2020, underlining the significant change in the dynamics of the industry. This reduction in catch volumes has not only affected the fishing sector, but has also led to important parts of processing being increasingly outsourced abroad. Despite a consistent domestic demand for herring and its products, Germany is now increasingly reliant on imports to satisfy its appetite for both raw and processed herring products. This study offers an in-depth exploration of the multifaceted reasons behind Germany's reduced herring self-sufficiency and its strategies to fulfil national demand. It scrutinises the fishing and processing sectors' operational challenges, including the impact of altered catch quotas and political developments like Brexit on supply chain and national self-sufficiency. Through a comprehensive analysis, this research provides critical insights for stakeholders striving to adapt to the evolving marketplace, highlighting the necessity for strategic adjustments in the face of industry-wide challenges.

Degrowth and seafood systems: a necessary debate in the context of the transition to lowcarbon blue economies

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Joan Moranta, Spanish Institute of Oceanography, Balearic Oceanographic Centre; Marine Ecosystems and Fisheries Group of Alimentta

Marta Albo, Spanish Institute of Ocenography, Balearic Oceanographic Centre; Marine Ecosystems and Fisheries Group of Alimentta

The supply of healthy and sustainable food is a major concern for the future in view of population growth, with the world's population expected to exceed 9 billion by 2050. Current food systems are among the main causes of biodiversity loss, greenhouse gas emissions and social inequalities. While policies are focused on potential poverty reduction and food security, they rarely look at nutrition. In this context, seafood has begun to attract the attention of experts as its benefits are linked in part to its high concentration of minerals, vitamins, essential fatty acids, and protein. On the other hand, seafood it is though that can be a sourced with greater efficiency and reduced carbon footprint compared to other animal production systems, depending on the fishing method used. Seafood production has represented the largest growth in the food industry in the last 50 years and is expected to continue growing. It is one of the most traded food commodities for consumption with significant global greenhouse gas emissions. Seafood consumption in high and middle-income countries, especially in Europe, have a low local production capacity. Therefore, they largely depend on aquaculture and imports coming from low-income countries (Global South) where market strategies are oriented towards the Global North. This situation means that seafood is no longer affordable and accessible in low-income countries, where the nutritional need is greatest. At the same time, the carbon footprint is not reduced, and security and quality are not meet. Our presentation aims to initiate a discussion on the relationship between Degrowth and Seafood Systems in the transition to mitigate climate change. It rises questions such as whether or not less fish should be consumed, which species should be consumed, how to ensure fair access and distribution of the catch, how to avoid seafood waste, and how to ensure seafood security and quality in a framework of degrowth.

Conscious Consumption and Consumer Education: Encouraging Sustainable Seafood Consumption

Zayde Ayvaz, Department of Fisheries Industry Engineering, Canakkale Onsekiz Mart University

Hasan Hüseyin Atar, Department of Fisheries and Aquaculture, Ankara University

Seafood plays a crucial role in global diets, offering essential protein. Yet, unsustainable exploitation of marine resources damages ecosystems, underlining the need for conscious consumption and consumer education in promoting sustainable seafood. Conscious consumption means making informed choices about seafood's origins, production methods, and environmental impacts, emphasising products from sustainable fisheries. These practices ensure marine conservation, prevent overfishing and minimise fishing's environmental footprint.

Consumer education is vital, teaching how to identify sustainable seafood, understand labelling, and recognize environmentally responsible products. This education can be delivered through various media, campaigns, and non-profit organisations. Certification systems and eco-labels guide consumers towards sustainable options. This approach benefits marine conservation by motivating consumers to choose sustainable products, prompting fishermen and producers to adopt eco-friendly practices. This, in turn, protects marine biodiversity and ecosystem health.

Furthermore, raising consumer awareness about sustainable seafood supports global marine resource management, encouraging stricter conservation policies and international cooperation. In essence, informed consumer choices can drive significant environmental policy changes. This study aims to underscore sustainable seafood's significance and examine how conscious consumption and consumer education can shape consumer preferences and conservation efforts.

Poaching or equitable access to local fishery products in Northern Tenerife? A Blue Justice case?

Jaime Ramón Bruquetas, Institute of Social Research and Tourism, University of La Laguna

Illegal, unreported, and unregulated (IUU) fishing poses a fundamental challenge in the management of marine resources. Its negative consequences for marine ecosystems, as well as its impacts on the value chain of fishery products and social fabric, are indeed significant. Poaching triggers informal mechanisms of resource appropriation, influencing access and utilisation, thereby generating conflicts among different groups exploiting the resource to avoid exclusion.

In the Canary Islands, regulatory frameworks and market dynamics have contributed to a scarcity of local demersal products along the coastline, complicating the supply through regular channels. This market niche is being occupied by professional fishers engaging in irregular commercialization or by poachers, both scenarios fostering an underground market.

Within the fishing communities along the northern coast of Tenerife, artisanal fishers and local inhabitants exhibit a degree of acceptance toward a specific category of poacher exploiting this vacant niche. Could we be witnessing a form of Blue Justice administered by the coastal community to ensure fair and equitable access to local fishery products and to safeguard the most vulnerable members?

Despite the decline in the number of professional fishers in numerous communities, if the informal sector is also considered, it could be concluded that the actual engagement of the population in fishing may not have diminished from the 1980s. Likewise, artisanal fishing may not have decreased but rather experienced marginalisation. Understanding why fishing activities have shifted informally in recent

decades is crucial, with indications suggesting a mismatch between regulations and the territorial reality and traditions of the fishing communities.

Fisheries and Aquaculture Coexistence: Complex Interactions in the Liminal Zone

Kilian Toledo-Guedes, Department of Marine Sciences and Applied Biology, University of Alicante

Fisheries and aquaculture share both space and target species, which leads to a series of complex socio-environmental interactions. The latter arise in the liminal zone, that is, in the spatial and product interphase between marine aquaculture and fisheries. An overview of these interactions and research focusing on them, together with prospects in the matter is presented. Some case studies and results from past and ongoing projects will serve as examples that could be scaled-up to Mediterranean level. Moreover, the social dimension of these interactions, and how they can damage the perception of fishing and aquaculture activities is addressed. From site selection, that must take into consideration the existence of fishing areas, to traceability of escaped fish, which may entail a food safety issue, the dialogue and collaboration between fisheries and marine aquaculture, and the involvement of stakeholders, is crucial to promote a sustainable coexistence of both activities.

Aquaculture and local communities: contradictions, conflicts and synergies in the Croatian Adriatic Sea

Mislav Škacan, Department of Sociology, University of Zadar

Aquaculture and its development significantly impact the lives of the coastal communities in Croatian Adriatic Sea. Aquaculture research, in the Croatian Adriatic Sea context, is primarily based within natural, technical and economic sciences and there is an evident lack of research dealing directly with the social dimension of aquaculture development. This paper, based on the sociological social acceptability perspective, aims to investigate how local communities accept and deal with the development as well as presence of aquaculture in their vicinity. The aim of this approach is to explore how people on the coast frame the problems which they connect with aquaculture but also to capture the perspective from those in aquaculture sector (aquaculture managers/consultants). By relying on sociological approach, this research explores the network of relationships in aquaculture, involvement of local community in the aquaculture development, availability of key information, costs/benefits distributions, trust, the traditional rights and access to the sea and the connection of local people and sea. With this approach, an attempt is made to explore how the development of aquaculture produces contradictions, conflicts but also synergies with communities within local context.

Preliminary findings will be presented with the aim of improvement of future data analysis, framing of research problems and understanding of phenomena. The research is part of the project "Sustainable fishing: social relations, identity and co-management of Adriatic fishery resources", funded by the Croatian Science Foundation, as well as author's PhD thesis.

Spatial planning for urban biodiversity: barriers, challenges and (counter) narratives from the case of Rijeka

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Lidija Runko Luttenberger, School of Polytechnics, University of Rijeka

This contribution examines the contribution of spatial plans in preserving, restoring, and strengthening urban biodiversity in coastal settlements. It approaches this topic through an in-depth investigation of a case study, the city of Rijeka, located along the Northern Adriatic coast in Croatia. The objective is to analyse what interpretations of urban biodiversity, both in terrestrial and marine environments, emerge from the spatial plans at municipal and county levels, and what barriers and challenges characterise the integration of urban biodiversity in spatial planning.

Concerning the methodology, the research has employed a documentary analysis of plans and planning strategies, and several semi-structured interviews addressed to local planning officers and civil society representatives to collect qualitative data that have been analysed through a discourse analysis. These have been complemented by field surveys and sessions of participant observation carried out in the case study.

Results show a limited acknowledgment of urban biodiversity in spatial plans and planning processes. This is partly related to a "traditional" understanding of biodiversity as a "non-urban dynamic" that should be preserved and supported merely in natural or semi-natural environments. This overlooks the opportunity to consider the multiple benefits provided by biodiversity and nature ecosystems to the well-being of residents in cities. Research has also highlighted the strong pressures from the real estate sector to strengthen the attractiveness of coastal localities for the tourism economy, which result in deteriorating highly biodiverse areas, placing nature conservation in a marginal role on the urban agenda, and overlooking its value within a vision of sustainable blue economy. Nevertheless, the research has underlined the emergence of some grassroots initiatives working in the field of nature preservation and stewardship in the city which are developing an alternative interpretation of urban biodiversity. These initiatives contribute to affirming a "counter-narrative" of urban biodiversity that has the potential to introduce spaces of innovations in plans and policies towards a better acknowledgment of human-nature and land-sea interactions in spatial planning.

Recipes and traditions of the sea: a gastronomic culture with agency

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Raquel de la Cruz Modino, University of La Laguna

Andrea García Rodríguez, University of La Laguna

The Canary Islands have a traditional cuisine closely linked to maritime heritage. A cultural manifestation that generates stories with its agency on diversity, tradition, and sustainable resources. From the oral memory of the bearers of this knowledge, and understanding that it is part of the social capital of their community, we propose that gastronomy and its ingredients have functioned as a cohesive element of identity in the islands. The proposals of this line of research seek to understand the particularities of each island and to analyze the links between this heritage and tourism, fishing, ecology, and identity. All this is vital to explore multiple social, environmental, and economic aspects of the uses of the sea, today not exempt from conflicts, synergies, and challenges that make us rethink the Blue Economy from a social perspective. A fundamental objective is to delve into the traditional culinary knowledge linked to seafood products, present in the traditional cuisine of the populations of these islands and to identify which are considered by the population as part of the social capital of their community. For this purpose, three representative communities of the islands (Tenerife, El Hierro, and La Gomera) have been selected and a qualitative methodology has been developed based on participant observation, in-depth interviews, the implementation of questionnaires, and a photographic record of dishes and

recipes. The proposal understands the importance of promoting the consumption of fishery products linked to food sovereignty. It suggests that traditional recipes can be a tool to strengthen consumption, sales, and conservation channels among the local population and in tourist destinations. It is committed to promoting the conservation and heritage of the culinary tradition, to encourage the use of local products. It also warns of the importance of the availability of resources for consumption and the possible transformations inserted in this context.

SESSION 3: PORT CITIES & COASTAL COMMUNITIES

Revealing the Blue Economy Through Urban Performance: A Case Study of Szczecin

Robert Bartłomiejski, Institute of Sociology, University of Szczecin

This presentation explores the notion of the city as an experiential realm (Znaniecki, 1938), being-in-the-city (Wasiak, 2009), or lived spaces (Lefebvre, 1991), which are imbued with cultural, mental, and emotional experiences (Dziuban, 2014). From this viewpoint, urban space is seen both as a venue for performance and as a formative element (stock of frames); thus, it is a social construct of experience and imagination. In this context, existing in a port city inevitably involves continuous, multi-layered negotiations with the environment (World Ocean impact) and technology (ports, maritime industry) at every level, from micro to macro.

The port city, as a lived experience, does not harmonise with definitions that identify it merely as a city hosting a port. With the port often segregated on the city's margins, it remains inaccessible to most city dwellers in their daily lives. To comprehend the port city, performers are essential in revealing the port city's character to the audience (city users) through performative spaces and actions. The same situation applies to the Blue Economy. The presentation will highlight the cultural stock of frames and performances for utilising the port city framework, illustrated through a case study of Szczecin. I would like this to be a starting point to consider how all ocean-related activities under the aegis of the Blue Economy can be shown to stakeholders. Frames are structures for organising and interpreting reality, enabling urban space users to discern 'what is happening' (Goffman, 1974). Framing allows for aligning snippets of experience and actions into performances, facilitating the analysis of "how what is happening is presented." What we need to achieve in the project is to establish a formal resource for the frame performance of the Blue Economy. We need to identify what actions are promising to demonstrate (perform) positive or negative Blue Economy developments on human well-being, social equity, and the economic and environmental sustainability of coastal societies.

Community engagement in PPGIS mapping of coastal and marine recreation and experienced problems in the Oslo Fjord, Norway

Berit Charlotte Kaae, University of Copenhagen

Anton S. Olafsson, University of Copenhagen

The Oslo Fjord in Norway covering 26 municipalities has 1.7 mill. inhabitants living in many coastal communities. The narrow fjord system serves a range of functions such as ferry traffic, cruises, fishing and is a key recreational area for local residents. The fjord suffers environmental degradation, increasing urbanisation, accessibility problems, and user conflicts and the Norwegian Ministry of Environment is preparing a comprehensive plan for the fjord.

This paper presents the methodology and results of a PPGIS mapping of the coastal and marine recreation and experienced problems in the Oslo Fjord conducted by the University of Copenhagen.

A PPGIS-mapping approach was used with monthly distribution of a survey to a citizen panel to include seasonal variations. Also, non-participants in outdoor recreation answered questions about barriers to participation. The 12.445 responses are representative on age and gender.

Results show that the Oslo Fjord is a very popular recreation area as the majority of the population (71 %) had participated in fjord-oriented recreation activities within the past year. Land-based activities are most popular and less seasonal than water-oriented activities. GIS-analysis show that participation is higher among the residents living close to the fjord (500 m) compared to living further inland. Socio-demographic analyses show that participation is not even among residents and affected by factors such as income, ethnicity, age, family life cycle, etc. The recreation mapping shows a broad use of the fjord but also hotspots around urbanised areas. The novel problem mapping shows that residents experience problems related to accessibility, environment, and other users. This is very useful for planning and management as it provides very detailed and localised information on specific problems and also user-generated suggestions on possible solutions.

Community-based PPGIS mapping is highly relevant to coastal communities and can be applied to different coastal and marine problems.

Reharbourisation. The case of a smaller Polish port town on the Vistula Lagoon

Włodzimierz Karol Pessel, University of Warsaw

The reflection on port cities focuses on centres where ports are prospering or experiencing difficulties, in any case existing ports, operating in evidently port-like cities. Under the term 'reharbourisation', which the author would like to propose, there is a situation of a different kind, namely that in a city that once had a maritime tradition in the past, the port has been decommissioned. After a hiatus, its restoration is taking place. A case that the term 'reharbouristation' describes is the Polish city of Elbląg. The suspension of port activities there was influenced by a change in the political situation after the Second World War. After a hiatus of several decades and another major political and economic change in 1989, local activists began to recreate this port with small steps. However, this faced two obstacles. Firstly, the port had no free access to the Baltic Sea; the only possible exit to the open sea was controlled by Russia. Only the new water infrastructure under construction in the form of a new canal and a deepened fairway lifts this obstacle. Secondly, the sea has been eradicated from Elbląg's urban identity. The planned presentation is situated on the borderline between cultural studies (cultural histories), maritime sociology and urban studies.

Capital Zagreb versus coastal Split: Enduring tensions between capital cities and port second cities

Godfrey Baldacchino, University of Malta

Tomislav Oroz, Department of Ethnology and Anthropology, University of Zadar

Anica Čuka, Department of Geography, University of Zadar

Being, as they are, on the edge of space and politics, coastal cities (sometimes accompanied by islands) traditionally play second fiddle to larger, urban capital cities, located more centrally in their respective

countries' interiors. This paper aims to explore the opportunities and threats facing coastal cities and their neighbouring islands while rethinking them through the concept of Second city. Today, the status of second(ary) cities is usually constituted in terms of their size, resources, economic, and political power. In the context of maritime second (and secondary) cities, these criteria are further complicated by the fact of their peripheral status and 'marginal' role. However, this generic understanding of second(ary) cities is being challenged nowadays, thereby enabling much more complex definitions and a multidisciplinary approach. In this presentation, we wish to rethink our understanding of the second city by analysing the multi-layered relations and ambivalences that emerge from the entanglement of historical, cultural, social and economic processes that define coastal cities as Second cities. After a short overview of First/Second city cases and the problems associated with them, our study will focus on the coastal city of Split as the Croatian Second city. Our aim is to understand what constitutes Split as second city, and how the coastal experience of Split triggers social and cultural processes in which secondness is being questioned by the cosmopolitan vibe of the Mediterranean city. How does the changing (in)visibility of Split's urban seascape challenge and override its stigma as Croatia's second-best urban settlement? The manner in which antagonisms on the national level, stirred by First/Second city logic, are experienced and perpetuated on the local level affirm and reinforce existing hierarchical optics (first, second, third, etc., towns).

Thinking of coastal cities: a sociological outlook to social and symbolic space

Tadas Šarūnas, Vilnius University

Recently sociologists working in realm of urban studies have received strong arguments to reapproach sociology of P. Bourdieu (L.Wacquant, 2023). Those following this are suggested to engage in application of his concepts – such as social space and symbolic space – for analysis of urban phenomena. They also have to find ways how to link them with analysis of physical space of the studied cities. In this paper I will apply this methodological outlook for a reflection on specificities of the coastal cities. How these cases differ from the remaining urban areas? What are the benefits to the general knowledge of approaching cases of coastal cities? And what are the limitations of this sociological outlook in understanding such cases? I will suggest three contemplations on these questions.

The first is related to the social space of the coastal cities. These areas represent very diverse fractions of social space in respective countries. They are however marked by prevalence of specific professions and also the specific wounds of economic restructuring. In this regard a particular attention should be given to port economy securing blue collar jobs, but also to tourism economy, setting specific pressures on local housing market. The symbolic space of coastal cities is structured by such usual urban objects as sights of memory and cultural significance, but also by the shore itself. We have some inspiring research examples from coastal cities showing how these symbolic markers have historically structured the layout of social space within physical space of the city. However, the wider sociological outlook on physical urban space remains vague. We can benefit from insights from actor-network theory. But to show all the epistemic beauty of the coastal cities as a research case, we should consider working in interdisciplinary teams with scholars from humanities and natural sciences.

Green Port Strategies and Environmental Sustainability: The Port of Gdansk and the Port of Split

Małgorzata Bielenia, Faculty of Economics, University of Gdansk

Eli Marušić, Faculty of Maritime Studies, University of Split

Ports play a crucial role in the transport chain, shaping transportation systems' social and environmental performance globally. They significantly influence stakeholders at various scales, from local to global and from local communities and businesses to government. Ports have the potential to address social and environmental externalities, going beyond compliance with existing regulations. They contribute to global greenhouse gas emissions and local air pollution and impact human health in coastal areas worldwide. Ports can incentivize greener practices by implementing voluntary schemes, such as clean ship indices and discounts on port dues for carriers meeting specific criteria. The concept of green ports dominantly refers only to some environmental or ecological sustainability aspects. Those concepts are often used interchangeably in the literature, resulting in an unclear understanding of the problem. Therefore, this research paper addresses the challenges in port operations and strategies considering green, environmental, or ecological issues. The paper determines the differences and similarities between green and environmentally or ecologically sustainable ports. Therefore, the paper proposes a framework to assess green and environmental indicators in ports' operations and strategies. The manuscript performed qualitative research by interviewing managerial and administrative staff in two seaports in Baltic and Adriatic.

Societal, environmental, economic and political implications of the coastal developments on the example of the Vistula Spit Canal and the Port of Elbląg

Anna Brzezińska-Rawa, Nicolaus Copernicus University in Toruń

Justyna Goździewicz-Biechońska, Adam Mickiewicz University in Poznań

Coastal development projects typically involve intricate social, political, economic and environmental interactions. Among these projects, coastal infrastructure projects are among the most complex. The main problems for environmental management and decision-making are the complexity of socioenvironmental systems and the impossibility of formulating “societal objectives” since society consists of individuals with highly diverse perspectives, opinions, and interests, often conflicting and difficult to formulate. Taking into account environmental concerns that have the special potential for politicisation, particularly because of their dual character (being both highly local and transferable to other scales), the social group narratives overlap with politicisation and power issues. Economic aspects may prevail but they can also be set aside in favour of other factors. The intersection of conflicting interests and values might not ensure a proper and fair final decision.

The study aims to examine whether the complexity issue is captured by the environmental decision-making process regarding coastal infrastructural development projects on the example of the navigable Vistula Spit Canal and the nearby Port of Elbląg, both located in the Vistula Lagoon. The Canal was constructed a few years ago and opened a waterway connecting the Vistula Lagoon with the Gulf of Gdansk. The project was argued as required due to the state security's significant interest. The waterway resulted in the creation of an island, leaving inhabitants with more difficult access to the mainland. The Canal and the accompanying projects (like the expansion of the Port in Elbląg) were supposed to enable the economic development of the region, but it looks like the economic, societal and environmental costs will not overcome the predicted benefits.

Commemoration and traumatic pasts: between memory and consumerism: understanding dissonant heritage in Istria and Friuli

Senija Čaušević, SOAS University of London

Metod Šuligoj, University of Primorska

Nation as a cultural work of art is maintained through a wide variety of discursive practices, including those of tourism. The touristic presentation of recent history can be politically sensitive, with particular events being air-brushed out of touristic historical narratives. At the same time, in other cases, political discourse may be developed as the focal point of interest. Moreover, dissonance within the heritage memory becomes an interactive feature of the touristic experience. The history of the Upper Adriatic XX century has left traces on the local communities of Italians, Slovenians, Croats and the recent migrant communities. The WWI, fascism, WWII, period of socialism and dissolution of socialist Yugoslavia in the 1990s offer sites that provide significant potential for tourism development in the region. Yet, viewing the past with a perspective limited to present-day attitudes and beliefs, such as the valorisation of cultural heritage, must be distinguished from comprehensive written history, from which it draws selectively (Bryce et al., 2017). Against this backdrop, research is set to understand the dynamics of the presentation of the past in the context of fake news and the proliferation of right-wing populism, both locally and in the global context and the reaction. We want to focus our research on commemorating WWI and WWII events in maritime heritage interpretation of the Upper Adriatic and how they are commodified in the context of past, contemporary events and future. The study raises awareness and revalorises the heritage by outlining the importance of and capitalising on the shared heritage discourse through tourism and regional economic development.

Who Has the Power to Define 'Maritime' in the Discourse of City Identity?

Liutauras Kraniauskas, Center for Studies of Social Change, Klaipeda University

In my presentation, I would like to discuss the issue of discursive transformations of port city identity over the last two decades in the post-Soviet context. Taking the case of Klaipeda, a port city in Lithuania, I am particularly interested in how the social meaning of the reference "maritime" has been changing over time, which social groups promote the idea of "maritime city" in the current discourse of city identity, and why?

The presentation is based on the assumption that the discourse of city identity is a field of clashing images and representations, in which different social groups provide their own narratives about the city while also claiming the right to define language and categories for city development policies. The definition of "maritime" is a dynamic field of struggle for symbolic power to define the identity of the city. In many cases, it is the appropriation of categories, symbols, languages, and names that, as linguistic resources, originally belonged to other groups. It functions on an ideological level, where symbolic power is distributed among social groups. Therefore, idea of COST action of "rethinking blue" is a strong claim to enter the field of ideology, language, and power.

Currently, "maritime city" as a category has a completely different symbolic meaning, function, and social background than it had during the late Soviet period. For the Soviet regime, it was critical to construct an ideologically solid image of a city, representing the symbolic power of a particular section of the working class. So the reference to the maritime industry defined the exceptional status and involvement of fishers, sailors, and marines in social life, policy, and the construction of the symbolic identity of the city.

Following the collapse of the Soviet Union and its centralised economy, references to the marine economy were soon replaced by new city identities such as liberal, European, multicultural, tourism, creative, healthy, and sustainable. Each of them indicated newly emerging symbolic economies and major shifts in power relations within the city. The image of "maritime city", for two decades dismissed

from the official discourse of Klaipeda, has been recently returned by new social agents—tourism industries, creative industries, and academia. Each of these agents has its own reasons to promote a particular version of "maritime city," but all references to "maritime" are mainly imaginary and ideological constructions without referents.

The presentation is based on empirical research on discourse, media, and in-depth interviews with sailors, politicians, and other social groups.

Multi-thematical Coastal Monitoring for Municipal Planning and Management: Socio-ecological System Based Citizen Science Application

Ieva Pommere, University of Latvia

Janis Kaulins, Institute of Astronomy, University of Latvia

Anita Lontone-Ievina, Environmental Science Department, University of Latvia

Raimonds Ernsteins, Environmental Science Department, University of Latvia

This paper contains a pilot study on coastal values and potential means of determining and characterising them in the terms of coastal planning and management. The research case study took place in the coastal region of North East Latvia – in the municipality of Salacgriva. The municipality coast is very diverse: coastal access, landscape and the whole biogeography is changing very much along the whole 54 km, being also rich in various natural and cultural heritage assets. Such great coastal variety in the limits of one administrative territory does require very selective governance approaches and dynamic management to be realised by local administration, which has very limited necessary capacities of all type, alike other rural coastal municipalities in Latvia. Also, there is very limited coastal information as well as assessment/interpretation capacities. All this requires mandatory development of municipal coastal monitoring and information/science-policy interface, to be based on general System Analysis Framework (SAF) application, first, on social-ecological system approach, and, second, including necessary developments of stakeholder participation and bottom-up governance approaches and, at the first, developing of the public monitoring (citizen science approach, e.g., Eco schools alike public representatives, etc.) capacities and methodologies. There has been developed an initial proposal for a new and multi-thematic coastal core area monitoring and governance tool. Coastal resources were assessed using a coastal value-based prioritisation tool, which generates knowledge of the mutual connection among various social-ecological resources/assets along the shore. During the study, data was collected along the municipal coastline taking into account the elements characterising the beach and shoreline landscape, as well as the distribution of invasive plant species, algae and plants washed up by the sea, as well as waste created by people along the coast. This data was subsequently collated, described, and combined with separate conclusions made based on beach visitors' interviews that were conducted along the entire Latvian coast as well as interviews of the Salacgriva municipality's main stakeholder groups. Information was also obtained from the analysis of documents seeking to facilitate development of a multi-thematic coastal value prioritisation tool and to distinguish coastal management priorities that can be set as proposals to coastal governments for developing a sustainable and more integrated coastal management background.

Sustainable island futures amidst an industrialised North Sea

Irit Ittner, German Institute of Development and Sustainability

Borkum is a Frisian Island municipality in the German North Sea located within the Lower Saxony Wadden Sea National Park and the UNESCO Biosphere Reserve. The tourist-dependent nature destination has highly fluctuating seasonal population. While the municipality works towards sustainability including nature protection, implementing the local energy transition, and upholding attractiveness for guest, residents and seasonal workers, industrial projects near the island negatively affect the island and challenge the city administration. In 15 km distance, the Dutch coast around Delfzijl and the port of Eemshaven evolved into a heavy industrial zone since 2008. Borkum integrated the offshore wind sector in the urban development strategy, whereas a planned offshore gas extraction project 10 km off Borkum provoked litigation. Borkum residents also voted against the UNESCO Biosphere development zone indicating tension between the goal of nature protection and local interest. The ethnographic study asks how resident and city administration navigate this environment characterised by sustainability and marine protection on the one side and industrialisation on the other side. The data derives from the analysis of secondary data, observation, informal talks and semi-structured interviews.

SESSION 4: FISHERIES GOVERNANCE

Blue Justice: Fisher Movements as Actors of Socio-Ecological Transformative Change

Irmak Ertör, Ataturk Institute for Modern Turkish History, Boğaziçi University

Throughout history, small-scale fisher (SSF) people and their communities have been significant social actors in seafood production. Globally, they still produce more than half of the catches destined for direct human consumption (FAO, 2015). Even though in the last decades, the small-scale fishing sector in Europe has been shrinking compared to industrial fishers, they still maintain their social and ecological importance for many communities. Not only industrial fishing activities but also several industrial projects such as intensive aquaculture, energy projects like thermal power plants placed at coastlines or mining activities including deep sea mining led to socio-environmental conflicts with SSF people and their organisations demanding Blue Justice. In light of the ongoing expansion of industrial activities and Blue Economy approaches prioritising growth and capital accumulation, the Blue Justice framework will help to understand the social and ecological justice dimensions of these attempts and explore the role of fisher movements and organisations claiming environmental and fishers' justice. This research is based on the socioenvironmental conflicts recorded and mapped in the Environmental Justice Atlas (EJAtlas) database and previously conducted research focusing on global fisher conflicts and fisher social movements. In previous research, I defined Blue Justice under three dimensions: (i) material and biophysical dimension, (ii) spatial justice, and (iii) autonomy and sovereignty (Ertor, 2023). Building on the same theoretical lenses, this research will focus on European conflicts documented in the EJAtlas, where fisher people have been identified among the mobilised groups. The study will also incorporate the links of these conflicts with other geographies and explore both European fisher organisations and their justice demands as well as their connections with global fisher movements. In this way, the study will uncover the struggles of fisher organisations and movements as actors of Blue Justice and socioecological transformative change.

Ontological assumptions as a mechanism of dispossession in small-scale fishing

Ruth Brennan, Trinity College Dublin

In Ireland, the State has a critical policy objective to manage quota-controlled stocks as a public resource in order to ensure that fishing opportunities are not concentrated into the hands of large fishing operators and to maintain a strong link between fishing vessels and communities. The reality is quite different for small-scale fishers in many of Ireland's inhabited offshore islands. Two islander-led governance initiatives for the management of island fisheries on a collective, seasonal basis continue to face obstacles. The islanders are caught in the cogs of a regulatory regime that is focussed more on individual economic profit and the growth of the Blue Economy than the socio-ecological and social justice complexities of issues that reach beyond a fisheries governance context. An examination of the ontological assumptions underlying Irish fisheries governance approaches reveals that access to valuable quota-controlled stocks is shaped by historical assumptions that reinforce the ontological 'realities' of larger vessels, while different requirements combine to frustrate the attempts of small-scale vessels to assert a reality that is designed around their differences. Despite the State's intention to manage fishing opportunities as a public resource, the ontological assumptions underpinning State approaches to fisheries governance operate to limit or prevent access to these quota-controlled stocks for small-scale fishers. By failing to accommodate diverse ontologies, the State is locked into (re) producing a fisheries seascape that is stifling the exploration of alternative governance possibilities, while privileging institutional arrangements, approaches and practices that do not challenge the ontological status quo.

Rethinking the role of small-scale fisheries in the era of crises - from Blue Frustration to Blue Hope?

Pekka Salmi, Natural Resources Institute Finland

This paper focuses on the role of small-scale fisheries in the era of societal crises. The climate change, Covid-19 pandemic and Russian invasion of Ukraine have increased fisheries' vulnerability, but crises may also trigger new consideration of the value of small-scale fisheries. Thus, the main research questions are twofold: 1) How do the recent crises directly affect small-scale fisheries? and 2) What are the opportunities for reinventing the societal and environmental benefits of small-scale fisheries – and this way making a turn from fishers' frustrating situation towards hope? These questions are discussed in the context of Finnish small-scale fisheries, based on a selection of interviews, email inquiry, research articles and reports. The results show that climate change, Covid-19 pandemic and Russian invasion of Ukraine have challenged the resilience of Finnish small-scale fishing livelihood, albeit moderately. Prospects for new policies triggered by these crises stem from acknowledgement of small-scale fisheries' contribution to food security, environmental friendliness, and short supply chains. The best way to secure fish-based food security and sustainability during severe crises, is to keep the fishing sector and distribution chains vital and working in the long run. Maintaining the production capacity and fishing culture has become challenging. Lately for instance, the Finnish coastal fishing community has become deeply frustrated due to uncertainties caused by unprecedented EU-steered quota policy that has threatened to close major part of Baltic herring and salmon fisheries. The paper concludes that in a society like Finland the rediscovery of small-scale fisheries would necessitate wide societal and political discussion about the pros and cons of the livelihood, together with inclusive governance that gives hope for the future by recognizing the multifunctional roles of small-scale fisheries.

Interactions between marine mammals and (small scale) fisheries: social cost or positive externality

Bertrand Le Gallic, University of Brest

As well defined in Jog et al (2022), two types of interactions exist between marine mammals and fisheries: direct interactions, which involve bycatch and depredations; and indirect interactions, which occur due to trophic competition. Whereas this work mostly focusses on depredation, it can be expended to bycatch issues, which can result in the closing of (mostly small-scale) fisheries due to unintended entanglement of marine mammals for instance. Depredation is likely to occur in all RethinkBlue areas, and involve, for instance: depredation of Cod and Salmon by seals in the Baltic seas; Coastal fish eaten on nets by Dolphin in the Mediterranean Sea; Monkfish eaten on nets by Grey Seals in North-Brittany; Carps eaten by Cormorans in German and Polish ponds; Tunas eaten by Sharks in Portugal or by Killer Whales in the Gibraltar Straight. While being a global phenomenon, depredation is still rather unknown. For the time being, most of the research activities address biological aspects, mostly to understand the interactions between protected / vulnerable populations and human activities. This works focusses of the costs incurred for the society in case of interactions (losses in revenues; higher fishing costs; changes in ecosystems' dynamic), but also underlines the (potential) positive aspects of the phenomenon (feeding the vulnerable populations). As a result, the work suggests that in some instances, these interactions are at the crossroad of two policy areas: the development of fishing and aquaculture activities under the Blue Economy Agenda and the projection of vulnerable population (especially cetaceans) under environmental regulations. It also ambitions to serve as a starting point for the conduct of a review of the phenomenon in the various RethinkBlue regions.

Sociotechnical imaginaries in a sustainability transition: the case of Swedish fisheries

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Ocean governance requires the collaboration of multiple actors to guide and achieve sustainable goals. Conflicts among scientists, policymakers, resource managers, commercial actors, and citizens impede collaboration and progress toward set goals. Such conflicts often relate to opposing values, understandings, and expectations for marine activities, yet opportunities for exploring and explicitly articulate the different imaginaries for a sustainable ocean rarely arise in fisheries management. In this paper we investigate fishers' and fisheries managers' sociotechnical imaginaries for what needs to change or be supported to achieve a sustainable future for fisheries in Sweden. Our empirical data consists of 21 semi-structured interviews with coastal fishers conducted 2020-2021, participant observation during the development of a new Swedish Fishing Strategy and Implementation Plan (Nov 2020 - Jun 2021), and content analysis of the final documents. Our results reveal that fishers and managers have conflicting imaginaries about changes needed in the marine environment, with fishers demanding reductions in the population of fish competitors (seals and cormorants) and managers' working to reduce fishing effort and establish marine protected areas. Fishers' goals for social innovation include fisheries co-management and policies to address social sustainability, while managers' ambitions are for consultation and fishers who shift occupation to join the maritime tourism sector. Fishers would like to contribute to food provision while managers depict aquaculture and recreational fisheries as the future providers of marine ecosystems services. Finally, fishers stressed

the need for authorities to work actively to improve the public damaged image of the commercial fishing profession, while managers show limited interest in this kind of activities. Mapping these imaginaries, we argue, is a necessary step for understanding the speed towards the sustainable transition of the fisheries sector in Sweden.

Allocating fishing opportunities in the context of climate change induced species distribution shifts

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The allocation process within environmental markets is frequently a source of contention, marked by a lack of transparency. Historically, allocation of fishing opportunities has been primarily rooted in past catches, a practice increasingly scrutinised due to its potential implications for future generations and other societal concerns. Climate change and related shifts in fish distribution, but also stock recoveries, now occurring after decades of overfishing, have brought attention to this issue, potentially opening avenues for policy experimentation. Cases of conflict arising from shifting distributions underscore the urgency of addressing allocation challenges. Despite prevailing challenges, there exist policy examples that provide models for more transparent and equitable methods of allocating fishing opportunities, signalling options for improved practices. For instance, auctions may be used for at least a partial allocation, as they could substantially increase the redistribution of resource rent to society and are very flexible with regards to species shifts. Other policies could be implemented to protect small-scale fishing with low environmental impact.

Probing alternative pathways to sustainability: How to involve coastal communities and bottom-up approaches in sustainable fisheries and marine governance?

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Transformative change seems needed to address existing sustainability challenges related to the policies of Blue Growth and Blue Economy. Current approaches to fisheries and marine environmental governance are often described as either structurally “flawed” (Stafford 2019) or unjust, creating “lose-lose situations” for all stakeholders and their dependent coastal communities (Evans et al. 2023).

This presentation examines how to facilitate the potential of coastal communities and other bottom-up approaches to govern transitions to sustainability (T2S) for fisheries and marine environments. It proposes a research agenda that focuses on the role of local and regional actors for addressing existing problems relating to unsustainable ocean exploitation and resource use problems in fisheries and other maritime sectors. This research agenda seeks to explore alternative pathways to sustainability to those currently existing. A two-step process is suggested to follow this approach: In a first step, a review will be conducted drawing on literature and experiences from different countries and sectors to uncover underlying structural challenges with unsustainable resource use and unjust practices of fisheries,

marine and coastal governance. A second step will draw lessons from these insights and experiences to show "emergent activities" that can provide opportunities for T2S in this domain. This will include exploring the agency of different governance actors at different levels, including the institutional and organisational capacities of small-scale fishers and coastal communities to contribute to transformative change of marine and fisheries governance. This search for alternative pathways to sustainability also includes a focus on governance challenges related to collective action of local and regional actors, external vs. self-governance mechanisms, community- and/or co-management practices, and other bottom-up approaches highlighting the potentials of local participation and community involvement in fisheries and coastal governance.

This endeavour aims to gather experiences and ideas that can spark interest for developing joint research applications and/or publications.

Are we talking about the same sea? The role of perceptions in fisheries advice and management

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Marta Ballesteros, Spanish Institute of Ocenography

Andrea Jiménez

María José Zuñiga

Margarita María Rincón

Case study: the anchovy (Engraulis encrasicolus) fishery in the Gulf of Cádiz (South Spain)

Context: Issues arise as fishers encounter an abundance of anchovy yet face limited quotas, a scarcity of sardines possibly due to migration, and poorly allocated unused quotas. At the moment, this stock is mostly managed based on biotic and abiotic processes linked to the fishery but does not incorporate the socioeconomic dynamics of the fleet.

Our approach: the Math4fish project (https://math4fish.ieo.csic.es/) has worked on improving the stock assessment models used for this stock, including first steps to create a network of scientists, representatives of the fishing industry and managers to collaboratively define sustainable management scenarios for the anchovy fishery in the GoC. Due to the successful interactions, ideas exchanged, trust building and networking achieved during this project, as well as requests from the industry to cover an existing gap and incorporate socio-economic variables in the models used for stock assessment, a new project, BioEcon4Fish, has been granted. This project aims to generate relevant scientific knowledge in a co-creation process between scientists, representatives of the fishing communities and competent authorities. A knowledge that responds to the needs in the decision-making framework at the regional, national and European level, improving collaboration between the different agents that participate in the fishery to develop effective solutions. An interdisciplinary approach combines co-creation processes, exploratory scenarios, mathematical models to understand the likely consequences of alternative strategies and the capability to incorporate perceptions supported by data, information and knowledge to generate evidence about them.

Adapting to changing markets to survive: struggles of small-scale fisheries in the Canary Islands

Jose J. Pascual-Fernández, University of La Laguna

Marketing their catch at reasonable prices is crucial for small-scale fishers. Generally, such catches are of higher quality, but this does not always translate into better prices or higher demand. A critical factor in this scenario is the transformation of consumption habits, a process in which industrial fleets and freezing have been instrumental. This paper focuses on the experiences and strategies adopted in the Canary Islands by artisanal fishers' organisations, in partnership with researchers, to improve the market penetration of their catches. Implementing these strategies has not been easy due to the complexity of the sustainability, labour, fiscal and health requirements intrinsic to the new forms of product circulation in developed countries. Collective action is increasingly necessary for the success of these innovative strategies in small-scale fisheries, to meet the new challenges posed by regulations and markets. These partnerships have influenced the development or planning of new processing rooms that will facilitate accessing new markets segments and better use the fishing opportunities available for small-scale vessels.

More research is needed to understand, document, support and catalyse innovative initiatives in this context. In this paper, we will analyse the partnerships established by transdisciplinary researchers with fisher organisations to cope with the challenges of the new market demands and how they have helped create new value chains for the local product, utilising an interactive governance perspective to understand the process.

Allocation of fishing subsidies and the state of fishery resources in Eastern Mediterranean

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Over the past two decades, environmentally harmful fishing subsidies, particularly those capacity-enhancing, have posed significant threats to marine fish stocks worldwide, including in the Eastern Mediterranean. Despite the global attention to fishing subsidies, studies focusing on their impacts in specific locales, especially the Eastern Mediterranean fisheries sector, remain limited. This study addresses this gap by examining the relationship between the allocation of fishing subsidies and the state of fishery resources in the Eastern Mediterranean as the case study of Türkiye since the 2000s. Our analysis reveals that a considerable portion of these subsidies, such as fuel tax concessions and infrastructure support, primarily benefit the industrial fishing sector, leading to fleet expansion and overfishing. This trend has resulted in increased fishing effort without corresponding increases in catch rates, suggesting potential over-exploitation of fish stocks. Hence, realising the full potential of the blue economy in Türkiye and the broader Mediterranean region requires concerted efforts, such as strictly reducing harmful fishing subsidies and redirecting support towards sustainable practices, investing in green technologies, safe-guarding fishers well-being. The complex socio-economic landscape and management challenges in the Mediterranean Sea further highlight the urgency of reforming management strategies and adhering to scientific advice for sustainable fisheries management.

Coastal Fisheries 2045 – A Utopia from Germany

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Tobias Lasner, Thünen Institute of Sea Fisheries

Climate Change, degrading fish stocks, fishing bans, BREXIT, an overaged fleet, a lack of successors, Covid-19 and increasing spatial competition: Nowadays, coastal fisheries in the German North and Baltic Sea face many challenges. In a future workshop, a group of 14 opinion leaders from municipal politics, nature conservation, tourism, seafood trade, marine spatial planning, science, commercial and recreational fisheries developed a shared vision for German fisheries. Shared visions of the future are forward-looking target pictures that are specific enough to guide decision-making in marine management. At the same time the, we set the time frame up to 2045, allowing participants to conceptualise solution-orientated thinking and scenarios without feeling completely constrained by present events. In this presentation target pictures of future marine economics for Germany with a particular focus on coastal fisheries will be presented. The target pictures draft marine space as a bustling area, where many different stakeholders will operate and exploit marine resources and fisheries will be permitted in most marine areas as parallel users. Fishing companies would have to diversify their business strategies to ensure profitability. Aquaculture, processing and marketing would become part of an enhanced regional future seafood value chain. Future fisheries' organisations would further offer diverse marine services as part of their tomorrow business portfolio. The target pictures illustrate a demanding transformation process for the sector, which will enable an economical feasible, commercial small-scale fishery. At this stage of research, the concrete implementation of the target pictures is still unclear, but the pictures already provide a valuable contribution towards the ongoing political discourse about the future of coastal fisheries in Germany.

Family recipe books: educating on healthy consumption habits and marketing strategies for seafood products

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Jaime Ramón Bruguetas, University of La Laguna

Research conducted within the framework of various projects highlights the necessity to restructure the marketing system for local fish products, which is currently inefficient. Additionally, the per capita consumption of fresh fish in the Canary Islands stands at half the average consumption in Spain, while the child obesity rate is among the highest in the country. In this context, Canarian school canteens, although part of various nutritional plans, do not include fish products. Recognizing their potential impact on children's diets, school canteens have become a target for implementing a pilot project. The primary objective of this project is to promote fish products in students' diets through innovative marketing strategies. An initial analysis revealed that school canteens were relying on frozen fish products imported from other regions, often at uncompetitive prices. Consequently, the proposal emphasizes the importance of offering local products to schools—products that are not only more affordable but also processed for easy consumption and cooking. The Ecotunidos pilot project seeks to establish an effective connection between local producers and school canteens. By doing so, it aims to encourage the consumption of these fish products among both children and families within the educational community. The project aims to create a sustainable market niche for local fishers while promoting healthier dietary choices. To this end, educational materials, training sessions, and

awareness-raising activities were developed. These were requested during the evaluation process and designed to be adaptable to different schooling levels. Collaborating with school teaching teams, these actions aimed to promote knowledge about the islands' tuna species and encourage the consumption of traditional recipes among the youngest students. The goal was to foster healthy and responsible consumption habits while also contributing to the fight against pollution and environmental degradation. By emphasizing local consumption and preserving cultural practices and traditional livelihoods, aligns with sustainable practices.

SESSION 5: MARINE TOURISM AND EMERGENT ACTIVITIES

Tourism and Urban Development: The case of a coastal village in a small island state

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Michael Briguglio, University of Malta

This paper discusses how Marsascala, a coastal town in Malta, has changed over the years, with particular attention to the development of the tourist industry. In this regard, Bruce Young's (1983) "general model of the process of 'touristization' and landscape change" is engaged with. This model, which has global implications, was applied to the locality in question, 40 years after the same author used this coastal locality as a case study. For this purpose, an interpretative qualitative research method was applied, in order to define the main socio-economic characteristics of current day Marsascala. This paper contributes to the following sustainable development goals respectively, 3 (Good Health and Wellbeing); 8 (Decent Work and Economic Growth); 11 (Sustainable Cities and Communities); 14 (Life Below Water); and 15 (Life on Land), in particular with respect to quality of life, urbanisation and respective social, environmental, and economic impacts, and through respective recommendations for a sustainable tourism in Marsascala and similar localities.

Digitalization in tourism industry as part of smart cities – an opportunity for local development in port cities

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Klodiana Gorica, University of Tirana

The smart cities concept is developed with the aim to engage governments, citizens, visitors, and businesses in a future intelligent, connected ecosystem. The aim is to develop the welfare of the communities through better city services (Kapiki 2021).

Since ICTs have had an important impact on the relationship between businesses, destinations and tourists (Femenia-Serra et al., 2019), digitalization in tourism industry and smart destinations need to be in focus, to evaluate the smart city development. The question rises if it is digitalization in tourism that may affect the development of smart cities, or vice versa the development of smart cities will impact the need for digitalization in tourism industry as part of the smart city concept. Both sides are identified by authors, so the authors are bringing a pilot study in a port area in Albania to identify the nature of this relationship.

According to Barranova and Vorrobey (2020), in a strategy of a smart city development, the need for

developing tourist complex and transport systems is identified. By developing digital tourism industry through technologies such as AI, IoT, smart applications, GPS networks, Big data analytics, simulations etc., both visitors and city government and communities can benefit.

The aim of this paper is to evaluate the role of digitalization in tourism in the implementation of smart city concept in port cities and to identify the digital applications that could be applied for this purpose. The case of Vlore, as an important port and tourist city in Albania, is analysed to show the community perspective for a smart tourism and a smart city development as a pilot study.

Methodology of the study includes an empirical case study research, where exploratory research identifies the state of digital tourism development on one hand and the opportunities to impact the smart city and community welfare.

The study develops the arguments to support a relationship between the use of digital technologies in tourism industry in a port city and the smart city development, which in turn supports sustainable development and especially sustainable tourism. The community is embracing the digital applications not only to improve operations in tourism accommodation businesses but is requiring more digitalization of public services to attract and sustain tourism demand in the long run. Anyhow, there is still a gap to be studied in relation to the capacities of using digital technologies to develop smart cities, which remains a challenge related to industries such as tourism, transport, food chain industry, etc.

Residents' attitudes towards tourism development in Kotor (Montenegro): examining the role of place attachment and quality of life

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Tourism can bring both positive and negative changes to local communities. When a place becomes a tourist destination, the daily lives of its residents may be interrupted and transformed by the presence of tourists and tourist-oriented activities, which brings the majority of cultural, social and economic changes, depending on the stage of tourism development. Thus, a balance between the benefits that the community receives and all the negative consequences of tourism is essential for sustainable tourism development supported by local residents. This is why exploring the residents' attitudes towards tourism development is an important step in all sustainable tourism development strategies. This study focuses on the port city of Kotor (Montenegro) which is at the same time a very famous tourist destination for visitors around the world. Due to the high influx of tourists, particularly during the high summer season, it is essential to explore the residents' attitudes towards tourism development. For this purpose, we have conducted a survey among 120 residents of Kotor. The study brings some new insights by exploring the role of residents' quality of life and their perception of place attachment in their attitudes toward tourism development. The results show the overall positive attitudes of local residents, with some negative attitudes particularly related to the Perception of Crowding, Economic costs, and Negative interference in Daily life. Additionally, the study has confirmed the positive impacts of residents' quality of life and their perception of place attachment on their attitudes towards tourism development. Theoretical and practical implications are discussed in the paper.

Opportunities and challenges associated with the offshore renewable energy sources in Croatia

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Since the 1990s, when construction of offshore wind farms began, exploitation of wind energy at sea has become a widespread and highly developed technology enabling an increased production of electricity. EU policies for reduction of carbon emissions and achievement of climate neutrality have become a Pan-European priority with an emphasised regional dimension. As such, they create a specific framework and incentive for sustainable and joint growth of blue and green economies. While becoming an EU member only in 2013 and proclaiming its exclusive economic zone only in 2021, the Republic of Croatia had normatively recognized the potential of renewable energy at sea as early as 1994, in its first Maritime Code. However, the concrete intentions became visible only when the Action Plan for the Uptake of Offshore Renewable Energy Sources in Croatia had been published in 2023. The analysis of the Plan confirms that there is an understanding of the broad complexity of projects in question. The need for a multidisciplinary approach is clearly visible, including the need for expertise from various fields such as ecology, traffic, ichthyology, hydrography, defence, etc. A particular everlasting challenge has been recognized regarding the coexistence of necessary facilities at sea, natural environment, and some traditional economic activities, including fishery. Harmonisation of state interests with the interests and needs of local communities and associations, including on distant islands, deserves particular attention, too. While collecting and comparing experiences of other states can facilitate avoidance of partial or obsolete normative, social, economic, or technological solutions, there must be awareness that nowadays certain projects have not been sustainable even in states with extensive experience, due to increase of expenditures, bureaucracy, structural failures, unavailability of raw materials, etc. Various consequences of such subsequent challenges should be timely anticipated and associated risks appropriately mitigated.

Towards a just and equitable energy transition. Socio-cultural justice implications of offshore wind farms

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We aim to contribute in assessing the socio-cultural impacts on coastal and fishing communities of climate change policy mitigation projects (offshore wind farms). As climate action becomes more urgent, the ocean takes centre stage as a potential part of the solution. The potential of marine resources is at the centre of the now almost ubiquitous discourse of the "blue economy," terms that entered the international agenda in the last decade (Silver et al. 2015; Barbesgaard 2018; Winder and Le Heron 2017). The Blue Economy strategy refers to the seas and oceans as drivers of a low-carbon economy, to provide “sustainable use of ocean resources for economic growth, improved livelihoods and jobs, while preserving the health of ocean ecosystem”. Nevertheless, blue economy has focused on technological innovation, multipurpose marine platforms, and new harvesting and farming strategies at sea that are being promoted at an accelerated rate (Jauffrey et al., 2020). Many of these initiatives are challenging due to uncertainties around governance, potential ecological impacts, and impacts on the human populations and livelihoods. The advantages and disadvantages of these measures are often evaluated along with the cost-effectiveness of ocean-based solutions without considering whether they are equitable, ethical, fair and/or sustainable for society, other livelihoods, and marine ecosystems. In this context, one of the main concerns that are affecting global policy agendas is the

transition to renewable energy, with a focus on the potential of offshore wind energy. Although the benefits of offshore wind farms in terms of reducing greenhouse gas emissions are quantifiable and potentially beneficial for combating the climate emergency, the risks of implementing these wind farms in a sea such as in Marine Protected Areas, ecologically fragile, diverse, and subject to multiple human pressures, have not yet been well assessed. How can equitable and just ocean solutions be ensured for humans and nature? This proposal wants to contribute to the conceptual rethinking of ocean-based solutions and their dimensions, on rights, justice, and equity in the use of the commons as possible blue solutions to mitigate climate change.

Environmental and social impacts of Offshore Wind Energy development in Outermost Regions, exemplified by the Canary Islands: A systematic review

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Jorge Luis Bermúdez Pérez, University of La Laguna

As the global demand for renewable and clean energy experiences consistent growth, conflicts arise, primarily manifested in land-use disputes. In response, offshore locations are being considered for the deployment of renewable energy sources. In the specific context of the Canary Islands, where the main objective of the energy policy is to establish an environmentally sustainable energy system, the challenge is to increase the integration of renewable energies while simultaneously reducing reliance on fossil fuels. Within this framework, the strategic significance of offshore wind energy development in the Canary Islands has intensified. Despite its potential to substantially contribute to renewable energy production, the region faces knowledge gap regarding the potential environmental and social impacts of offshore wind farms (OWF). This study conducts a comprehensive review of international scientific evidence surrounding the impacts of OWF, aiming to provide comprehensive insights to guide analysis within the unique context of the Canary Islands. The review results underline that the benefits derived from the implementation of OWF are closely linked to local/regional economic development and potential employment generation. Conversely, negative impacts include a decline in coastal activities, especially affecting artisanal fishing, and causing detriment to the tourism sector due to visual disturbances in the landscape. Furthermore, various problems associated with the ecosystem and populations of marine organisms in the vicinity of offshore wind farms are identified, such as collisions with marine birds, habitat modification, and potential impacts on cetaceans, among others. This analysis highlights the necessity for targeted studies that holistically address the potential environmental and social impacts of OWF in the Canary Islands. This need is based on the fact that most of the available scientific evidence comes from distant ecosystems and, consequently, may not comprehensively reflect the unique conditions present in the Canarian environment.

Blue Degrowth Making Waves: From Critique to Articulating a Sustainable and Just Blue Economy

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During the last decade, key actors in the international development and sustainability spheres have

increasingly framed the economic potential of the sea as a key asset in resolving humanity's most pressing social and environmental problems. The imperative for the sustainable development of the Ocean, articulated under the concepts of a Blue Economy or Blue Growth, has become a central stage in mainstream environmental governance. As a marine actualization of the sustainable development paradigm, mainstream Blue Economy discourses position the Ocean as a new global economic frontier, where scientific innovation and market incentives are supposed to allow for the harmonious expansion of economic activity and environmental conservation. In response, some researchers and activists have begun to use the term Blue Degrowth in recent years as a radical critique and alternative proposal to the hegemony of the oceanic sustainable development paradigm. In this presentation, we trace the evolution of such debates and highlight the potential of Blue Degrowth to articulate just and sustainable ocean futures. We also discuss existing and potential actors that can advance a Blue Degrowth-oriented movement towards achieving emancipatory forms of marine sustainability and ocean protection. We empirically ground our discussion on research around different case studies on maritime economic activities in the Mediterranean, such as fishing, shipping and aquaculture. As the concept of degrowth gains further traction in scientific and policy arenas, as well as in social and environmental struggles, we conclude by briefly considering the hurdles, risks, and opportunities to advance a Blue Degrowth counter paradigm in transforming society's approach to the Ocean.

Minimizing Environmental Impacts and Optimizing Cost and Socio-Economic Implications in Offshore Wind Energy Development: A Methodological Suggestion

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Offshore wind energy represents a promising avenue for sustainable electricity generation, but its development must be approached with a comprehensive understanding of its environmental, economic, and social implications. This paper proposes a novel analytical framework, the SWOT-PESTLE Model, designed to systematically assess the strengths, weaknesses, opportunities, and threats (SWOT) alongside political, economic, social, technological, legal, and environmental (PESTLE) factors inherent in offshore wind energy projects.

The SWOT-PESTLE Model facilitates the identification of strategies to minimize environmental impacts while simultaneously optimizing cost-efficiency and socio-economic benefits, especially in emerging offshore wind energy markets. By integrating insights from stakeholders, policymakers, and experts, the proposed model enables a holistic evaluation of offshore wind energy projects, thereby enhancing decision-making processes and promoting sustainable development practices.

This paper showcases the application of the SWOT-PESTLE Model in the context of offshore wind energy development, particularly highlighting its relevance and efficacy in emerging markets. By identifying key considerations, mitigating risks, and capitalizing on opportunities, this research contributes to advancing the understanding of offshore wind energy development strategies, fostering a more sustainable and resilient energy future globally.

Towards Sustainable Governance: Evolution in Sustainability Impact Assessment for Territorial Development

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The main objective of this study is the development of a systematic method of assessing the contribution and impact of strategies/policies with the integration of the spatial dimension, based on the Sustainability Impact Assessment (SIA) method and its evolution into Sustainable Development Impact Assessment with Territorial Approach (SDIATA). The SDIATA method combines the use of secondary data with indicators related to social cohesion and sustainable development. The integrated method incorporates citizens' attitudes and perceptions of the sectors and activities of the Blue Economy, as well as an assessment of the degree of their social acceptance, which is a novelty of the research. This method supports decision-making and strengthens the involvement of local communities in the implementation of the Sustainable Blue Economy strategy, a condition that has been identified as essential for the effectiveness of the strategy in the context of governance, but which, however, has not yet been achieved. In this context, an assessment of the European Union Blue Economy strategy on social cohesion and sustainable development of a Greek island region was carried out. The North Aegean Region was selected as a case study due to its underperformance in social and economic indicators such as unemployment, GDP and people at risk of poverty or social exclusion, at both national and European levels. An additional reason was that the islands have a rich but fragile natural environment. In this light, a survey was conducted using a special questionnaire among the stakeholders. The results obtained were prioritized and dimensioned by a team of experts through a questionnaire and consultation, so that they could serve as a decision support tool based on parameters related to sustainable development, social cohesion and social acceptance.

"Sea gentrification" is exacerbating blue injustice in Mediterranean MPAs

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Recently, at the same time that coastal development is facing increasing ecological threats due to climate change, there has been an increase in human population and maritime activities in coastal areas. Due to global warming and the consequent rising of summer temperatures in the Mediterranean, the deseasonalization of tourism, especially since the COVID-19 pandemic is driving the increasing over-frequentation of year-round maritime activities (e.g. recreational boating, jet skis, and recreational fishing). Celebrated as the blue economy development of local communities its growth exacerbates intensified competition and conflict with the small-scale fisher, who is being displaced as a result of a privatization of the sea by new recreational elites and climate change policies. Overtourism and its seasonal variations hit fishing activity and environmental sustainability generating issues such as marine pollution, seabed degradation (seagrass meadows, coralligenous habitats, and maërl beds), the unprecedented rise in sea temperature, expansion of invasive species, and the scarcity of aquatic living resources along with the potential environmental impacts cause by climate change policy mitigation projects (offshore wind farms). While co-management is difficult to legally fit into the regulatory and policy frameworks of Mediterranean MPAs, it is being implemented through specific fisheries committees, producing a perception of over-regulation of the fishing activity and exacerbating the feeling of blue injustice and defenceless to protect their cultural rights and livelihoods. We identify this phenomenon as "gentrification of the sea", a growing phenomenon in Mediterranean MPAs that should call for rethinking the blue economy by assessing power asymmetries, resource appropriation, and preservation through the lens of environmental ethics to highlight stewardship values aligned with

environmental protection and conservation from the intrinsically relational and deontological point of view.

All chickens come home to roost: three issues emerging by the expansion and evolution of Blue Economy policies

Marcello Graziano, Ruralis; Connecticut Center for Economic Analysis, University of Connecticut

The Blue Economy (BE) has been a dominating regional development paradigm for a decade. Like other transformative paradigms (e.g. Green Transition), it was conceived around principle and objectives to be then operationalized within existing policy and relational regional contexts. After a decade, these operationalizations have varied, and several 'chicken', i.e. major framing issues are becoming more evident. In this work, focus on three of them. These issues: (i) the lack of operational definitions of the BE; (ii) the prevalence of a bottom-up-vs-top-down dichotomy in operationalizing BE plans; (iii) the lack emergence of scale and typological issues in understanding BE processes across European countries and seas. To do so, I draw from the results of six published works: Gallaher et al. (2023) on offshore wind regimes, Graziano et al. (2022) and Garland et al. (2019) on the definitional issues of BE, Graziano et al. (2021) on the role of regional typologies; O'Higgins et al. (2019) and Alexander and Graziano (2017) on scale mismatches in the governance of BE industries. Through the analysis of these 3 issues, my work draws up a research agenda to be tackled at a rapid pace to achieve the principles of the BE while delivering its promises, centring on a new concept of 'regionalism', the connection between BE and existing democratic institutions, and need for implementing new scales of governance and analysis across the European Union. This work directly impacts the way in which maritime occupations are thought of, estimated, and accounted for, and how port cities and coastal communities govern and are impacted by BE paradigms.

SESSION 6: CLIMATE CHANGE & NATURAL HAZARDS

The impact of climate change on the tourist potential of lagoon ecosystems along the Adriatic coast

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The coastline of the Adriatic is home to a varied and diverse lagoon system with excellent tourism potential. These wetlands can be used as a basis for sustainable economic development in the region. However, the area is in critical condition and vulnerable to climate change. Our study seeks to identify the values of the wetland complex and highlight the need for measures to protect the area. Creative and ecological tourism are potential avenues for development in the region. Unfortunately, chaotic urbanization has led to significant environmental, social, and demographic problems. Our research is based on several years of work. It aims to showcase the biodiversity values of the region, as well as the necessary measures that should be taken to develop the tourism sector sustainably.

Analysing water supply challenges of the Danube-Tisza-Danube Hydro-System

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The Danube-Tisza-Danube Hydro-System (DTD HS) in Serbia is a 960 km network linking the Danube and Tisza rivers. It serves multiple purposes including drainage, irrigation, water supply, wastewater management, navigation, forestry, fishing, tourism, and recreation. At the same time, the hydro-system plays a crucial role as a very important regional ecological corridor. The DTD HS significantly influences the local ecological and socio-economic landscape as it passes through 19 municipalities, which are home to nearly 1,000,000 residents. The aim of this study is to analyse the possibility of supplying water to DTD HS in the context of climate change and the blue economy. The blue economy is an economic system that seeks to conserve and use water resources in a sustainable way, while generating economic growth and social benefits. In the past, there have often been instances when the water levels of the Danube and Tisza rivers were low, falling below critical values, thereby making it impossible to supply water to DTD HS and threatening the socio-economic and ecological functions of this hydro-system. This study explores how to enhance the resilience and adaptability of DTD HS to the changing water availability and demand, while promoting the blue economy principles and practices. We analysed the stochastic process of low water levels at one of the main water intake on the Danube from 1945-2022. The threshold was 60 cm, below which DTD HS cannot receive water. The frequency of low water events was modelled using the Poisson distribution, and their maximum durations were analysed using the Generalized Extreme Value distribution. Results show an increasing trend in the duration of low flows. For 2- and 5-year return periods, durations are about 27 and 54 days, respectively, with the most probable number of such events being 2 and 3 in a single year. Given climate change projections, the water supply problem for DTD HS will likely worsen, requiring effective water management plans.

Communication of coastal risk: what do scientists think?

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Storms on coastal areas often result in damages to urban shorelines, placing coastal communities at immediate risk. Furthermore, these risks are expected to increase due to climate change and coastal urban development. Effectively communicating with diverse audiences is thus critical for adapting to and mitigating increased coastal risks.

This study aimed to assess the views and characterize the activities of coastal geoscientists and engineers on risk communication. This was made through an online questionnaire, between September 2022 and March 2023. Experts' names were extracted from the three previous major international conferences.

The analysis of 133 responses (primarily from Europe, North America, and Oceania) revealed that 95% engage in public communication. They prefer direct interaction with audiences, such as lectures (74%), to indirect ways of communication like media and social media. The preferred audiences were the public sector (e.g., municipalities, 55%) and school students (43%).

The majority (82%) engage in coastal risk communication, focusing in the type of coastal hazards (59%), such as severe storms and sea-level rise. The least relevant topic was the methods to determine coastal risks (48%). Notably, 30% consider that individual behaviours to deal with coastal risks are a less relevant topic for communication. Participants think that decision-makers should be more informed about risk location, the frequency of occurrence, and how to engage citizens with risk. However, this does not align with participants' top communication subject to decision-makers, which were the physical processes of coastal risks.

Although the number of participants in this study was lower than desired, the findings suggest that the scientists involved in coastal risk are open and willing to communicate. This is important for a sustainable blue economy, among other reasons because the development of cross-border strategies to support coastal risks actions must take into account the perspectives of the different stakeholders.

Building competences for researchers working towards ocean sustainability

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The challenges of achieving just, equitable and sustainable ocean futures require a new type of transdisciplinary and action-oriented science that integrates across disciplines and knowledge systems. Scientists and researchers in academia, industry or government, who contribute to knowledge creation, innovation, and policy development for the ocean, must be empowered with a fresh set of competences. This paper maps the knowledge, skills, and attitudes required to enable such a shift. The proposed skillset serves as a foundation for the design and operationalisation of modern training for ocean sustainability and is envisaged to be used by researchers both individually and in teams. It also highlights the potential for career diversification beyond the traditional 'blue jobs' legitimated by existing sectors. To ensure the short-term practical implementation of the competence framework, self-awareness and self-reflection are encouraged among learners and teachers, along with pragmatic actions to overcome barriers to transdisciplinarity. For long-term impact, system interventions will be necessary to improve organisations' readiness to absorb and valorise researchers trained in this new framework. This will require re-training the current pedagogical workforce as well as reframing existing knowledge systems and incentives.

Blue Economy in Albania - Challenges and Opportunities

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This paper takes into consideration and analyses the possibility of using marine resources and the potential of the blue economy in Albania. During the last three decades, the economy of Albania has experienced significant structural changes, and in this context, marine and coastal resources, being an added economic value, are an important part of this change. The Adriatic-Ionian coast itself is an essential part of the country's economy, possessing great development and employment potential. The concept of "blue economy" although relatively new in the country, is recently being embraced by policymakers, both as an opportunity for development and part of the country's integration into the European Union, and to prevent environmental degradation and ecological imbalances in the use of marine and coastal resources. Defined as "the sustainable use of marine resources for economic growth, improvement of livelihoods and jobs, and marine ecosystem health" the blue economy offers untapped development opportunities for Albania. These opportunities include the transition to sustainable fisheries and aquaculture, the development of blue and nautical tourism, and the development of new sectors of the blue economy such as blue technologies and offshore wind energy. And it's precisely these challenges and opportunities for the development of the blue economy that are discussed in more detail in this paper, which concludes with some necessary recommendations regarding the reforms and policies to be implemented to make the blue economy an important part of the sustainable development of Albania in the future, as it is in most Mediterranean and European Union countries.

Assessment of Climate Change Impact on the Constructed Wetlands – Nature-Based Solutions for Sustainable Wastewater Management

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Nature-based solutions (NBSs) play a significant role in enhancing environmental health, mitigating and adapting to climate change and global warming, and promoting a sustainable blue economy. NBSs have become essential for ensuring social and natural resilience for the future, providing additional advantages for the ecosystem, climate, and people. As one of the NBSs, constructed wetlands (CWs) serve as multifunctional systems that mimic the functions of natural wetlands, offering a range of benefits: cost-effective wastewater treatment, stormwater management, habitat creation, biodiversity conservation, aesthetic, recreational purposes, land reclamation, community engagement, etc. Numerous examples worldwide demonstrate the use of CWs to enhance both freshwater and oceanic water quality, providing a green wastewater treatment option for municipal, industrial, and agricultural wastewater. In this paper, we analyse future weather projections in the context of climate change and their impact on the operation of CWs in Vojvodina, Serbia. We investigated the change in the number of cold days (Tmax $< 10°C$) and the frequency of intense droughts (SPEI6avg < -1.282) in a future period. The results indicate that the number of cold days per year will be lower in the future (75 days/year in the future, compared to 107 days/year in the past) and that the expected number of intense droughts will be much higher in the future (4 occurred in the 1971- 2000 reference period, and 17 are expected in the 2071-2100 period). In the projected future climate, it is expected that the CWs will perform better in the colder part of the year, but operational difficulties are expected in the warmer part. The study emphasizes the importance of conducting a detailed analysis to adapt constructed wetlands (CWs) to future climate changes. It underscores the necessity for site-specific planning documents

outlining measures for CWs adaptation, with the possibility of applying similar analyses to other regions worldwide.

Smart cities and blue economy: addressing climate change and natural hazards through a strategic interaction of international law with domestic legislation

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Urban areas play a crucial role as essential hubs for human habitation, contributing significantly to the value of systems and the sustenance of life. Urbanization, particularly in coastal cities, actively utilizes urban spaces, giving rise to new public and private areas. The coastal city nexus encompasses settlements, services, and a diverse array of challenges. Moreover, this nexus introduces several concepts, with the most noteworthy being blue economy. It serves as a vital element in empowering coastal economies, promoting sustainable development, and facilitating ecosystem management.

This presentation aims first to describe the main sources of international law where a strategic interaction of smart cities programmes (especially, at the UN level through the New Urban Agenda and the Sendai Framework for Disaster Risk Reduction deriving from the SDGs) with the binding provisions of the United Nations Convention on the Law of the Sea (UNCLOS) of 1982 and the United Nations Framework Convention on Climate Change (UNFCCC) of 1992 is noticeable. Currently, the fragility of existing legal and institutional frameworks is exacerbated by legislative gaps, law enforcement and lack of effective implementation procedures. Establishing and enhancing robust legal, regulatory, and institutional frameworks is essential to structuring the development of the blue economy with a view to combat climate change and reduce natural disasters concerning urban settlements. A comprehensive review of these frameworks is thus necessary to comprehend the institutional landscape of the blue economy, pinpoint existing gaps, and leverage collaborative synergies.

Therefore, the aim of the presentation is to address, from an international legal perspective, the challenges for the strategic integration among programmatic provisions concerning smart cities with blue economy, and the fundamental interplay with domestic legislation. The detection of State practice may be considered as a useful tool to scrutinize whether international law could lay out a remarkable contribution in the implementation of legal instruments, at an international and domestic level, to frame and implement blue economy within the legal sources related to smart cities.

Blue Justice Concept and Romania's marine protected sites

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The search for exploitable natural resources has turned the oceans into new frontiers, giving rise to concepts as Blue Economy and Blue Growth, which often side-line ecological and, particularly, social demands. There is a growing risk that the unchecked adoption of these concepts will accentuate injustices in the way the marine environment is accessed and its benefits are shared. Indeed, even attempts to protect the oceans from uncontrolled economic exploitation through conservation can lead

to ocean grab and the exclusion of users. Blue Justice is then a new movement that seeks to bring less powerful actors, as small-scale fishers, to the forefront of the discussion on ocean uses and rights. Framed in three main questions and using the Romanian Natura 2000 network as a benchmark, this proposal will investigate the effects of coastal and marine conservation on Blue Justice and whether conservation initiatives could lead to Just Transformation. The first question will focus on whether marine protected areas have promoted Recognitional, Procedural and Distributive Justice; the second will investigate whether MPAs can buffer some risks to Blue Justice, and the third will assess, in particular, whether Natura 2000 sites are or could be drivers of just transformation. Through a combination of methods, this proposal intends to advance mid-range theory on Blue Justice and Just Transformation. Although Romania is used as a case study, the findings are likely to reflect how EU's main conservation strategies have or have not overlooked social justice, with consequences that may hinder beneficial socioecological effects.

Integrated Strategies for Coastal Urban Resilience. A Case Study of Volos, Greece

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Rising pressures stemming from climate change effects and frequent natural disasters underscore the necessity for an integrated approach to improve the urban resilience of coastal cities. Since the 1995 amendment of the Integrated Coastal Zone Management (ICZM) Protocol within the Barcelona Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean, there have been numerous endeavours to systematically and sustainably address the coastal zone of Volos. The primary aim has been to manage economic and social processes, reconcile conflicting interests, and coordinate actions across various sectors and stakeholders specific to the needs of the city. This study delves into the risk mitigation and emergency response practices within the urban environment, as outlined in the Xenokratis Plan, the principal emergency framework of the Municipality of Volos, Greece. Specifically, it examines the resilient strategies employed in public waterfront areas, which serve as pivotal zones for multifaceted interactions among human activities, land utilization, and marine resources. The study advocates for a framework to enhance the adaptive capacity of Volos' public spaces, contending that digital inclusion can bolster resilience and augment existing risk mitigation and emergency plans. It posits that Blockchain technology holds promise in fortifying the resilience of Volos' public spaces by enhancing their social, institutional, environmental, and economic capacities. Findings underscore challenges and gaps in spatial adaptability, accessibility, and connectivity of public spaces in Volos, alongside social resilience aspects, including waterfront development complexities, intricacies of local administration and governance, and fragmented decision-making frameworks. Additionally, the study highlights issues pertinent to coastal environment management and protection. In light of these findings, the imperative for an integrated approach to enhancing Volos' urban resilience becomes increasingly evident. It identifies specific areas necessitating heightened policy attention and concerted action to address the multifaceted challenges posed by climate change and natural disasters.

Coastal Vulnerability and Resilience in the Levant

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Coastal areas are highly vulnerable places; humans have been wary of them throughout history. In this era of climate change (CC), they are threatened from both sea and land, have a high population density,

and hold significant natural and economic value. Since the beginning of the 20th century, the Israeli Mediterranean coast has undergone both extreme rates of population growth and intense development. Israel's neighbouring countries also have similar issues to contend with on their shores. There are no national CC coastal scenarios nor vulnerability assessments of Israeli's coastline. This study presents and implements a local Coastal Vulnerability Index (CVI) using a well-known methodology for establishing coastal vulnerability by examining the expected coastal CC trends: mean sea level rise (SLR), extreme sea level events, and coastal flooding from inland rainfall. We develop a new Israeli CVI adapted from a review of six existing CVIs. We apply the developed CVI to a case study along the coastline. The method presented will facilitate vulnerability assessments for coastal professionals and stakeholders, enabling easy evaluation and identification of areas with high current and future risk. Results indicate that Netanya's coast is highly vulnerable, mainly due to a combination of a narrow strip, a tall and steep cliff, and a high percentage of development. It is areas such as these where priorities can be set for nature-based resiliency and integrated coastal planning. The study shows that coastal parameters interact within a complicated matrix and how priorities can be set, within on municipality for nature-based resilience and integrated coastal planning. The study also identified a significant lack of data, especially national scenarios, which are crucial for adaptation efforts and emphases the need to accelerate the search for solutions where defences are failing, and retreat is not an option.

This conference is based upon work from COST Action Rethinking the Blue Economy: Socio-Ecological Impacts and Opportunities (RethinkBlue), CA22122, supported by COST (European Cooperation in Science and Technology).