

MARE Conference

People and the Sea IX

Dealing with Maritime Mobilities

July 5th – July 7th 2017



CONFERENCE THEMES:

Dealing with Maritime Mobilities | Maritime Governance | Social Relations and Culture
Fisheries Management | Knowledge Production | Coastal Threats and Vulnerability

Location: University of Amsterdam, Roeterseiland Campus

For more info or to register, visit: www.marecentre.nl



INNOVATIVE FISHERIES MANAGEMENT
-an Aalborg University Research Centre



UNIVERSITY OF AMSTERDAM

Centre for Maritime Research



Contents

Word of Welcome	3
General Information about MARE	5
Centre for Maritime Research.....	5
MARE Publication Series.....	5
Maritime Studies.....	6
General Information about the conference	7
Conference Committee.....	7
Sponsors.....	8
Information and Services.....	9
Internet Information.....	9
Venues and Maps.....	10
Introducing the Centre for SDS.....	13
Music.....	14
MARE/ Douglas Clyde Kongshøj Wilson Best Student Paper Award 2017..	17
Cultural programme.....	18
Amsterdam.....	18
General Information about the Programme	20
Content of the Programme	22
General Overview programme.....	22
Overview Panels.....	23
Keynote Speakers.....	28
Parallel Sessions and Paper Abstracts.....	32
Panel Series 1.....	32
Panel Series 2.....	48
Panel Series 3.....	60
Panel Series 4.....	78
Panel Series 5.....	96
Panel Series 6.....	119
Panel Series 7.....	136
Panel Series 8.....	147
Panel Series 9.....	160
Panel Series 10.....	169

Word of Welcome

Dear participant,

On behalf of the Centre for Maritime Research (MARE) and the organizing committee I am pleased to welcome you to the 9th People and the Sea conference in Amsterdam. The theme of this year's conference is 'Dealing with Maritime Mobilities'. Fishing, shipping, and cruise tourism - are characterised by movement and flows. Such mobility includes people and ships, not to forget the fluid ocean itself. Other examples of dealing with mobilities are environmental flows, such as plastic in the oceans, and information flows needed to certify fish or to decide and plan conflicting claims in marine spatial planning processes. Mobilities take place within but also across and beyond national boundaries, defying existing governance arrangements or pressing the need to develop new ones. This 9th People and the Sea conference will explore the nature of maritime mobilities and the ways climate and environmental change, economic development and maritime activities are affecting their direction and volume. The theme of mobilities will be elaborated in the two key note addresses.

On Wednesday, the Rector Magnificus of Wageningen University & Research Professor Arthur Mol will open the conference and will introduce the theme of maritime mobilities, followed by the key-note address of Professor Edward Allison (University of Washington, Seattle, USA) about maritime mobilities in the time of capitalism. On Friday, Dr. Christina Stringer (Associate professor at the University of Auckland, New Zealand) will focus on another aspect of mobilities; modern day 'seafood slavery' in New Zealand's deep sea fishing industry.

The opening ceremony will take place in the Singel Church with musical accompaniment by David Cohen (Countertenor) and Tom Jansen (piano) who will perform *Au bord de l'eau* (Opus 8, No 1) and *Au cimetièrre* (Opus 51, No 2) of Gabriel Fauré. After the opening ceremony we will be transported by boat to the conference venue at Roeterseiland to start the formal proceedings of the conference. A reception marks the end of opening day. On Thursday the conference dinner (open to all!) will take place in the monumental venue, the Dominicus Church.

Besides the topic of dealing with maritime mobilities this years' conference is divided into five other streams: maritime governance, social relations and culture, fisheries management, knowledge production, and coastal threats and vulnerability. More than 250 papers have been submitted to these streams and are organised in more

than 50 panels. In addition, there will be poster sessions, photo and film exhibitions and book presentations.

I wish you a very inspiring conference and a pleasant stay in Amsterdam.

Jan P.M. van Tatenhove

Chair of the organizing committee

General Information about MARE

Centre for Maritime Research

The Centre for Maritime Research (MARE) is an interdisciplinary social-science network organization devoted to expanding knowledge about the human dimensions of coastal and marine life, including their governance. Its objective is to provide a stimulating intellectual climate for academics and policymakers in Europe as well as in the South. Although MARE limits its action radius to the social sciences, it seeks active collaboration with other disciplines. It strives to maintain a balanced mix of academic and policy-oriented research. MARE takes a global perspective, emphasizing the coastal zones of Europe, Asia, and Africa. It covers a broad spectrum of topics, drawing on expertise from fields such as law, history, economics, political science, public administration, anthropology, and geography.



MARE was established by the University of Amsterdam and Wageningen University in 2000. Since 2015, it has been joined by the University of Tromsø (Fisheries College) and Aalborg University (Innovative Fisheries Management, IFM).

MARE engages in three platform activities:

- The organization of biennial People and the Sea conferences, always in Amsterdam; of which this is the ninth conference in the series
- The publication, in association with Springer, of the open access journal Maritime Studies (MAST); and
- The publication, in association with Springer, of the MARE Publication Series.

In addition to the above, MARE undertakes research and educational activities on an incidental basis. For more information, see www.marecentre.nl



<https://www.facebook.com/MARECentre/>
<https://twitter.com/MAREcentre>

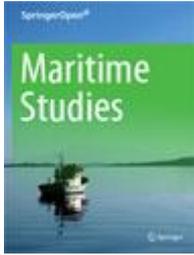
MARE Publication Series

The MARE Publication Series - which is a peer-reviewed, academic product - commenced in 2004 under the auspices of Amsterdam University Press. It realized six volumes on coastal and marine topics with the publisher. In 2012 the series shifted to Springer, and has since had twelve new volumes leave the press.

The editors (Svein Jentoft and Maarten Bavinck) strive to compose a series that addresses topics of contemporary relevance in the wide field of people and the sea. The objective is to reflect critically on a variety of social-science topics, and to explore new avenues of thought. The editors would be pleased to receive new proposals for monographs and edited volumes. More information on the series can be found at:

<http://www.springer.com/series/10413>, or obtained directly from the editors.

Maritime Studies



 **Maritime Studies**
a SpringerOpen Journal



Did you know that *Maritime Studies* is now an OpenAccess journal published by SpringerOpen? Take a look at www.maritimestudiesjournal.com.

We are proud to say that just after one year of this new partnership the journal is in better shape than ever. Nothing has changed in terms of the core goal of the journal. We are still committed to publishing high quality peer-reviewed research on the social dimensions of coastal and marine issues in the field of anthropology, sociology, geography, history and political science. *The only difference is that all the papers we publish are freely available to ensure the wide distribution and high scientific impact.*

The People and the Sea Conference remains a centre piece of the MARE network and the community of researchers contributing to *Maritime Studies*. To ensure the success of the journal we invite you to support the journal by submitting a manuscript, joining our list of reviewers, or by promoting the journal in your professional network.

So why publish with Maritime Studies?

- Fast review and publication process
- Online submission and tracking of manuscripts
- Strong Editorial Board directly assisting in reviewing manuscripts
- All articles included in main bibliographic databases so that your work can be found easily and cited by researchers and practitioners in our field
- Publishing online means unlimited space for figures, extensive data and video footage
- Article Processing fee waivers for [SpringerOpen Members](#) and [low income countries](#).

Please note that back issues of the journal (volumes 1 to 10) will remain freely available on the Centre of Maritime Studies website <http://www.marecentre.nl/mast/backissues.html>.

We look forward to your support in what is an exciting new era for *Maritime Studies*. For updates on publications, news and events follow the journal on Facebook and Twitter.

Kind regards,

Svein Jentoft
Editor-in-Chief



www.facebook.com/MaritimeStudies

www.twitter.com/MaritimeStudies

General Information about the conference

Conference Committee

- Chair committee:** **Jan van Tatenhove**
Wageningen University & Research
Environmental Policy Group
- Conference organizer:** **Linde Van Bets**
Wageningen University & Research
Environmental Policy Group
- Liesbeth Robinson-Hasewinkel**
University of Amsterdam
Educational Events & Conferences
- Committee:** **Joeri Scholtens**
University of Amsterdam
Department of Geography, Planning and International
Development Studies
- Alyne Delaney**
Aalborg University
Innovative Fisheries Management
- Peter Arbo**
University of Tromsø
Norwegian College of Fishery Science
- Simon Bush**
Wageningen University & Research
Environmental Policy Group
- Best Student Paper:** **Sarah Coulthard**
University of Northumberland
Department of Social Sciences and Languages
- Iris Monnereau**
Food and Agriculture Organisation
Climate Change Adaptation of the Eastern Caribbean
Fisheries Sector Project

Sponsors



INNOVATIVE FISHERIES MANAGEMENT
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WAGENINGEN UNIVERSITY
WAGENINGEN UR



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UNIVERSITETET I TROMSØ UIT



Gemeente Amsterdam

Information and Services

Registration

On Wednesday July 5th you can register after the morning programme, between 12.30 and 13.30 a.m. at the B/C building at Roeterseiland. On Thursday 6th and Friday 7th you can register and pick up your badge, preferably between 8.00 and 9.00 am or during the coffee break at 10.00 – 10.15 am, at the information desk located at the entrance of the B/C building.

Information desk

An information desk will be open at the entrance of the B/C building. This desk will be available, throughout the conference, for any questions or information. MARE volunteers will also be available to answer your questions and are recognizable by their blue MARE t-shirt.

Money withdrawal

There is a cash dispenser in the Albert Heijn grocery store, around the corner from the B/C building on the Sarphatistraat.

Lunch

Due to the number of participants and the maximum capacity in the building we have decided to have 2 different places where the lunches will be served: hallway of REC E (exit building B/C, cross the water and enter the next building) or 'De Brug' in B/C building on the 4th floor. Please follow directions from the signs and/or our volunteers.

Tea breaks

Our tea breaks will be located near the coffee counter in the B/C building near room C1.03 and also in the rooms of the panel sessions.

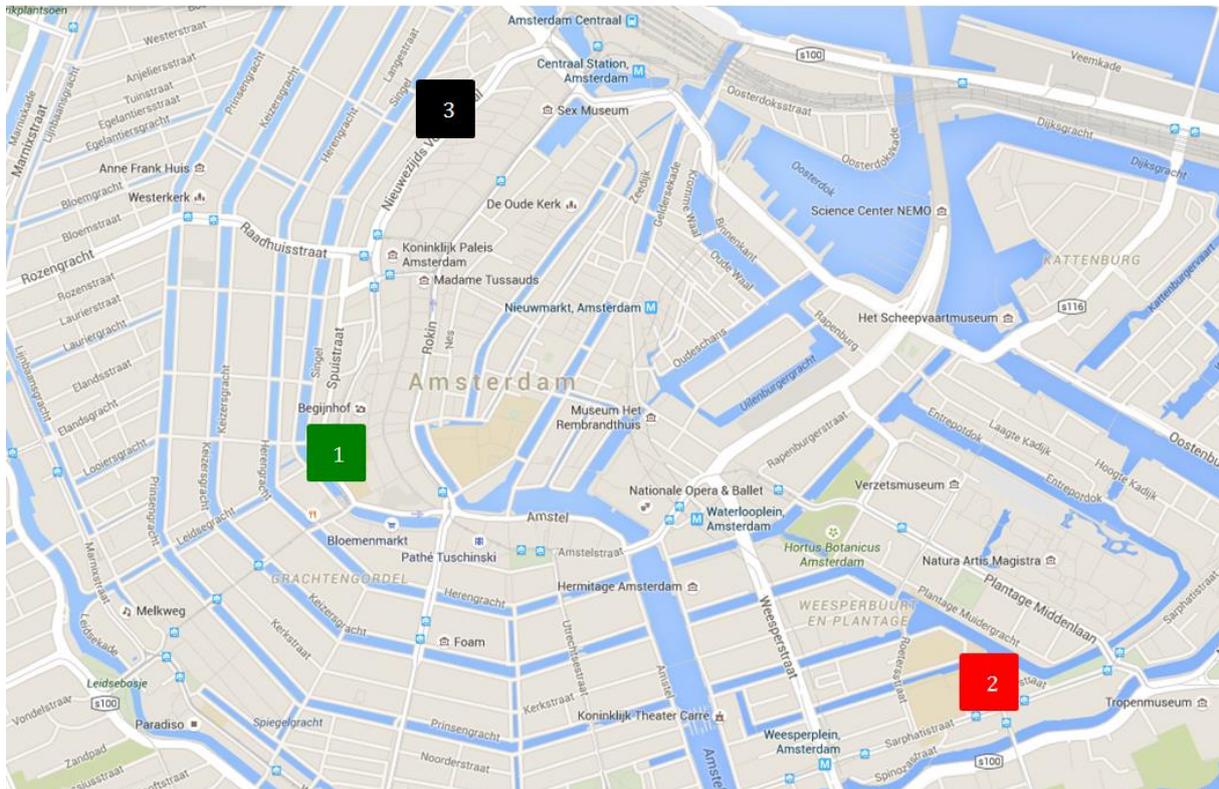
Internet Information

For Wireless Internet you can make use of Eduroam or UvA Open Wifi. For questions or problems, please ask one of the volunteers at the information desk during the conference.

Venues and Maps

This year's conference will be held in the University of Amsterdam's Roeterseiland Campus. Located in the east of the city, near Artis Zoo, it is easily accessible by tram (7, 9, 10 and 14) and metro (metrostation Weesperplein) from the city centre.

Overview of conference venue and locations:



1 Opening of the conference and First Keynote on Wednesday. Singelkerk: **Singel 452**.

2
Panel sessions and keynotes:

B/C Building, Nieuwe Achtergracht 166, 1018 WV Amsterdam (See next page for map)

Lunch:

'De Brug' and hall of REC E

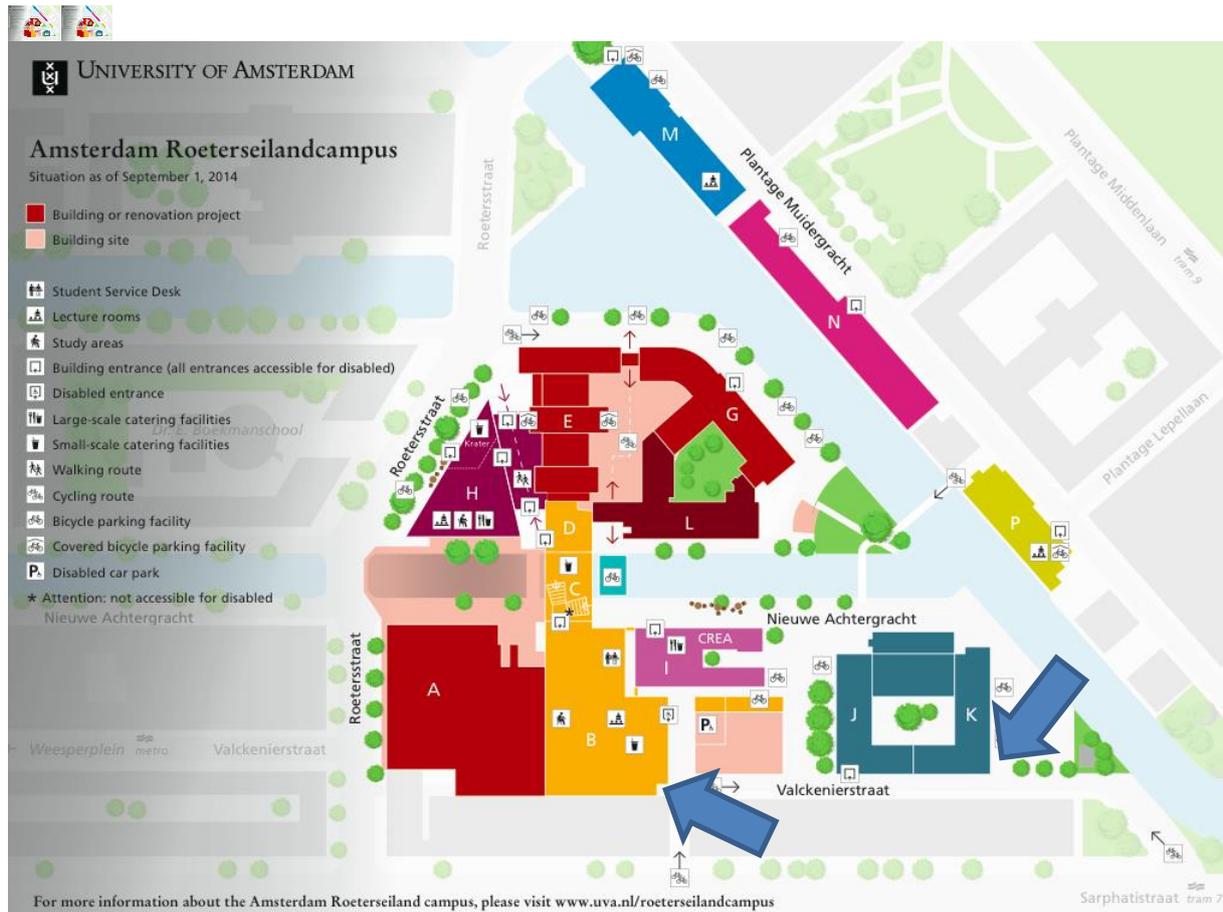
Tea-breaks:

Coffee counter near room C1.03 and in the rooms where the panel sessions will take place

3 Conference dinner is on Thursday, beginning at 7pm at the **Dominicus Church, Spuistraat 12**. From the UvA you can take tram 9 from Artis stop on Plantage Middenlaan, direction to "Central Station." The church is a 7 minute walk from the 'Dam Square' stop. You can also take tram 7 to Leidseplein and transfer to tram 1, 2, 5 or 17, direction to "Central Station" and exit at Nieuwezijds Kolk. Another option is



University of Amsterdam Roeterseiland Campus



The blue arrow refers to the entrance of the B/C building. The opening with the keynotes on Thursday and Friday will be located in this building. From this entrance, please follow directions to room C1.03.

Centre for Sustainable Development Studies (Centre for SDS)

MARE is associated with the Centre for Sustainable Development Studies (CSDS) of the University of Amsterdam. The purpose of CSDS is to:

- Enhance the scholarly exchange of knowledge on sustainable development issues among social scientists and to enhance collaboration with the natural sciences;
- Promote joint research work on sustainable development issues, including those related to oceans and coasts.

In June 2016, CSDS organized a conference at the University of Amsterdam on all seventeen Sustainable Development Goals (SDG), as formulated by the United Nations in 2015. The current MARE conference and the policy day link to SDG 14 (theme: life below water) and SDG 16 (theme: peace, justice and strong institutions). CSDS plans to organize a next conference on SDG 6 (theme: water and sanitation) in 2018. Affiliates of CSDS will join the opening sessions of the People and the Sea IX Conference and the lunch on Day 1.

More information on CSDS can be found at: csds.uva.nl

Music

During the conference opening on Wednesday, 5th of July

Music (see text on page 15-16)

- Au bord de l'eau [Opus 8, No 1, Gabriel Fauré (1845-1924)]
- Au cimetière [Opus 51, No 2, Gabriel Fauré (1845-1924)]

Performers:

- Countertenor: David Cohen
- Piano: Tom Jansen

David Cohen received his conservatory degree in 2009. He was coached by Carolyn Watkinson, Pierre Mak, Brian Asawa and currently by Maria Coolen. He often performs as a soloist in repertoire by Bach, Handel and other composers.

Thom Jansen is an accomplished concert pianist/organist and composer, also attached to the Dominicus Church in Amsterdam. He has performed for the MARE conference a number of times in the past already.

Au bord de l'eau [Opus 8, No 1, Gabriel Fauré (1845-1924)]

Au bord de l'eau

S'asseoir tous deux au bord d'un flot qui
 passe, Le voir passer ;
 Tous deux, s'il glisse un nuage en l'espace,
 Le voir glisser ;
 À l'horizon, s'il fume un toit de chaume,
 Le voir fumer ;
 Aux alentours si quelque fleur embaume,
 S'en embaumer ;

Entendre au pied du saule où l'eau
 murmure
 L'eau murmurer ;
 Ne pas sentir, tant que ce rêve dure,
 Le temps durer ;
 Mais n'apportant de passion profonde
 Qu'à s'adorer,
 Sans nul souci des querelles du monde,
 Les ignorer ;
 Et seuls, heureux devant tout ce qui lasse,
 Sans se lasser,
 Sentir l'amour, devant tout ce qui passe,
 Ne point passer!

At the water's edge

To sit together beside the passing stream
 and watch it pass;
 if a cloud glides by in the sky,
 together to watch it glide;
 if a thatched house sends up smoke on the
 horizon, to watch it smoke;
 if a flower spreads fragrance nearby,
 to take on its fragrance;

under the willow where the water
 murmurs,
 to listen to it murmuring;
 for the time that this dream endures,
 not to feel its duration;
 but, having no deep passion
 except adoration for one another,
 without concern for the world's quarrels,
 to ignore them;
 and alone together, in the face of all
 wearying things, unwearyingly,
 to feel love (unlike all things that pass
 away)
 not passing away!

Au cimetière [Opus 51, No 2, Gabriel Fauré (1845-1924)]

Au cimetière

Heureux qui meurt ici,
Ainsi que les oiseaux des champs!
Son corps, près des amis,
Est mis dans l'herbe et dans les chants.
Il dort d'un bon sommeil vermeil,
Sous le ciel radieux.
Tous ceux qu'il a connus, venus,
Lui font de longs adieux.

À sa croix les parents pleurants,
Restent à genouillés,
Et ses os, sous les fleurs, de pleurs
Sont doucement mouillés
Chacun sur le bois noir,
Peut voir s'il était jeune ou non,
Et peut, avec de vrais regrets.
L'appeler par son nom,

Combien plus malchanceux
Sont ceux qui meurent à la mé,
Et sous le flot profond
S'en vont loin du pays aimé!
Ah! pauvres! qui pour seul linceuls
Ont les goëmons verts,
Où l'on roule inconnu, tout nu,
Et les yeux grands ouverts!

Heureux qui meurt ici,
Ainsi que les oiseaux des champs!
Son corps, près des amis,
Est mis dans l'herbe et dans les chants.
Il dort d'un bon sommeil vermeil,
Sous le ciel radieux.
Tous ceux qu'il a connus, venus,
Lui font de longs adieux.

At the cemetery

Happy who dies here.
Like the birds of the field!
His body, near his friends,
Is laid in the earth, and among the songs.
He sleeps a good vermilion slumber
Under the radiant sky.
All those he had known, are come
To bid him a long farewell.

At his cross his parents weep,
Resting on their knees,
And his bones, underneath the flowers
Are gently bathed in tears
Each one on the black wood,
Can see whether he was young or not,
and can, with sincere regrets
call him by his name.

How many unlucky ones are there
who die at sea,
And lie under the deep waves
a long way from their beloved country!
Ah! poor souls! who for their shrouds
have green seaweeds,
Where they roll unknown, quite naked,
and their eyes wide open!

Happy who dies here.
Like the birds of the field!
His body, near his friends,
Is laid in the earth, and among the songs.
He sleeps a good vermilion slumber
Under the radiant sky.
All those he had known, are come
To bid him a long farewell.

MARE/ Douglas Clyde Kongshøj Wilson Best Student Paper Award 2017

This year we are offering the MARE / Doug Wilson Best Student Paper prize. The winner will be announced at the conference dinner, and will receive an award, free registration to the MARE People and the Sea X Conference in 2019, special support to publish their paper in the journal *Maritime Studies* (MAST), and a €1000 book voucher, sponsored by Springer Publishers. The selected winner will have demonstrated an original insight or approach to Maritime Studies, involving methodological rigour, and with timely relevance. The winner of this prize in 2015 was Madeleine Gustavsson from the University of Exeter.

The award is being given in honour of Douglas Clyde Kongshøj Wilson. Doug was a prominent fisheries sociologist, affiliated with the University of Aalborg and an important member of the MARE team. Doug sadly passed away prematurely in 2013.

See the following website for an In Memoriam:
<http://www.ices.dk/news-and-events/news-archive/news/Pages/In-memoriam---Doug-Wilson.aspx>



Cultural programme

On Wednesday we will be travelling by boat through the canals from the Singelkerk to the University campus. This trip is offered to us by the City Council and Mayor of Amsterdam as a warm welcome to all of you. Exploring Amsterdam by canal boat is an enjoyable



and convenient way to see the city's sights whilst getting a real insight into Dutch history, life and culture. Several boats by Rederij P. Kooij will be waiting for us after the opening ceremony at 11.45 am at the Rokin. The MARE volunteers will accompany you to the dock.

Amsterdam

Amsterdam draws in a large tourist crowd and is well known for its 17th century canal belt, which is now a UNESCO world heritage site. It is worthwhile just to take a stroll through the old inner city or along the canals and adjacent streets. Amsterdam also has a wide range of interesting museums, historical monuments and art galleries. For those of you who don't mind a bit of crazy traffic, explore the city by bicycle or, if you rather like sitting down while taking in the scenery, take a boat tour across the old city.

Museums

With over 40 museums, Amsterdam has a wide variety to choose from. Here is a selection of the best Amsterdam has to offer:

The Amsterdam (history) Museum: A museum that highlights the Amsterdam of the past as well as of today. It has a rich collection of art, objects and archaeological finds that offer a tangible link to the past. Besides the permanent exhibition 'the story of Amsterdam', the museum also organizes temporary exhibitions, like the project 'Buurtwinkels': the past and present of Amsterdam's local shops. Open daily 10.00-17.00. Address: Nieuwezijds Voorburgwal 357/ Kalverstraat 92.

Van Gogh Museum: The museum contains the largest collection of paintings by Vincent van Gogh in the World. Open daily 09:00-18:00 (Friday till 22.00) Address: Museumplein 6.

Het Rijksmuseum: The Museum just reopened recently and contains many masterpieces. Open daily 9:00-17:00 Address: Museumstraat 1.

Het Stedelijk Museum: The Museum for modern art focuses on the renowned collection of modern and contemporary art and design. Open daily 10:00-18:00 (Friday till 22.00) Address: Museumplein 10.

Anne Frank Huis: The house where Anne Frank went into hiding and wrote her world famous diary. Open daily 9:00-22:00 Address: Prinsengracht 263-267.

Joods Historisch museum: History and culture of Jews in the Netherlands. Open daily 11:00-17:00 Address: Nieuwe Amstelstraat 1.

Public transport

It is convenient to travel within Amsterdam using the public transport system. The tram, busses or the metro can take you pretty much everywhere in the city. All public transportation uses the OV-chipkaart, an electronic travel card with a chip. You can buy the card from GVB info desks or machines at most train stations, and you can then charge the card with credit. If you only go with public transport once or twice, it is cheaper to buy a disposable chip card (valid for one hour) from the tram or bus conductor. The public transport company also offers 1-7 days unlimited travel through Amsterdam. For a comprehensive list of OV-chipcards and prices, check <https://en.gvb.nl/>. For a up to the minute trip planner on all Dutch public transportation, please visit <https://9292.nl/en>

Bicycle rental

On a warm summer day there is nothing like cycling through the city, taking in the scenery and the summer breeze. Here are some options for bike rentals:

Macbike: Central Station, Leidseplein, Waterlooplein.

Starbike rental: Behind Central station, on the right-hand side.

Rent a bike: Damstraat 20-22.

Taxis

Taxicentrale Amsterdam (TCA) is the largest taxi company and a reliable one. TCA can be reached 24 hrs a day, telephone number 020-7777777 (that's 7x7). Taxi rates start at €7.50 and include up to two km at this price.

Events in Amsterdam

If you are interested in what else is going on in Amsterdam, you will find a list of festivals, theater, music, exhibitions on the Amsterdam website: <http://www.iamsterdam.com/en/>

General Information about the Programme

Dealing with Maritime Mobilities

Maritime activities – such as fishing, navigation, and cruise tourism – are characterised by movement and flow. Such mobility includes people and ships, but also things such as capital and information, not to forget the fluid ocean itself. It takes place within but also across and beyond national boundaries, often defying the orderly governance arrangements we have put in place. The 9th People and the Sea conference will explore the nature of maritime mobilities and the ways climate and environmental change, economic development and maritime activities are affecting their direction and volume. Topics to be addressed are: How are maritime mobilities linked and regulated? What are the distributional effects for different maritime activities, and coastal and port communities? How to design innovative governance arrangements that can foster sustainable maritime mobilities?

In addition to the conference theme “dealing with mobilities”, the conference is open to those with other thematic interests relating to people and the sea. These interests are included in the other five streams, but do not hesitate to apply, even if your topic does not fit neatly into one of them.

Conference Streams:

Stream 1: Dealing with maritime mobilities

This stream explores the nature and dynamics of maritime mobilities and the ways that climate and environmental change, economic development, and shifting geo-political constellations shape the direction and volume of movements and flows. Papers in this stream could address: the characteristics of maritime mobilities; precarious labour at sea; territorial conflicts and boundary-making; issues of equity between maritime activities; distributional effects for maritime communities; and the design of innovative governance arrangements to regulate different kinds of maritime mobilities.

Stream 2: Maritime governance

This stream focuses on new developments in sectoral and integrated maritime governance, giving particular attention to aspects of power, consensus building, and legitimacy in sectoral policies (such as shipping, offshore renewable and non-renewable energy, development of ports, cruise tourism) and integrated maritime policies (such as Marine Spatial Planning (MSP) and Integrated Coastal Zone Management (ICZM)). We are interested in how different policies for regional seas and coastal zones are developed and whose voices are being heard; papers could also deal with aspects of power, procedural justice, examples of good and bad practice, and the consequences of policy contestation. Comparison between seas, policies,

activities, and governance regimes is an explicit purpose. This stream provides also space for those enquiring into the implementation of Sustainable Development Goal 14 ('Conserve and sustainably use the oceans, seas and marine resources for sustainable development'), which is also the topic of the MARE Policy Day that precedes the conference.

Stream 3: Social Relations and Culture

This stream continues the long-standing attention of the MARE conferences to maritime anthropology and the cultural meanings that people associate with the sea and the coastal zone. Papers in this theme may relate to occupational specializations, such as fishing, coastal tourism, aquaculture, or oil rig work. They may also branch into cultural or political ecology, history, film or literary analysis.

Stream 4: Fisheries management

Fisheries management (or governance) is a long-time favorite in the MARE conferences, bringing together scholars and policy-makers from natural and social sciences. As capture fisheries is still in trouble (because of environmental degradation and overfishing), but continues to provide livelihood support and food security for a very large number of people, management is a very important concern. But what works where? And how do we deal with wicked problems? How can we improve the governability of capture fisheries so that it reaches its potential?

Stream 5: Knowledge production

This stream brings together the different approaches and tools that are currently used in coastal and marine resource management that develop (or block) the creation of an integrated knowledge base for management. It seeks to contrast and compare their use across different contexts and disciplinary perspectives and to illuminate the roles of knowledge negotiation and the creation of science-policy boundary objects. Research and critical thinking on the role of social scientists and social science in the production of a management knowledge base would also be very welcome.

Stream 6: Coastal threats and vulnerability

This stream focuses on the reactions of coastal and maritime systems to shocks and how science, policy and coastal communities deal with such sudden change. As change may have natural (tsunamis, climate change, etc.) or social (policy, demographic developments, etc.) origins, contributors might address topics such as oil spills, fishing bans, resource collapse, the global recession or natural disasters affecting the coastal zone. Enquiries might highlight policy processes, law, power equations, the role of government, or of civil society.

Content of the Programme

General Overview

Wednesday 5th of July

Chair: Dr Luc van Hoof

- 09.00-09.30: Registration, Coffee and Tea (Singelkerk)
- 09.30-11.30: Conference Opening by Prof. Dr Arthur Mol, Rector Magnificus, Wageningen University & Research and Keynote by Prof. Eddie Allison (Singelkerk)
- 11.30-13.30: Boat ride to Roeterseiland Campus and Lunch (Bridge/hall REC E)
- 12.30-13.30: Film/exhibition (room C1.03/hall REC E)
- 13.30-15.00: Panel Session 1 (B/C Building)
- 15.00-15.30: Coffee and Tea Break (in front of C1.03)
- 15.30-17.00: Panel Session 2 (B/C Building)
- 17.00-18.30: Welcome Reception (Bridge)

Thursday 6th of July

- 08.30-10.00: Panel Session 3 (B/C Building)
- 10.00-10.30: Coffee and Tea Break (in front of C1.03)
- 10.30-12.00: Panel Session 4 (B/C Building)
- 12.00-13.00: Lunch (Bridge/hall REC E)
- 12.00-13.00: Film/exhibition (room C1.03/hall REC E)
- 13.00-14.30: Panel Session 5 (B/C Building)
- 14.30-16.00: Panel Session 6 (B/C Building)
- 16.00-16.30: Coffee and Tea Break (Bridge/hall REC E)
- 16.30-18.00: Panel Session 7 (in front of C1.03)
- 19.00-22.30: Conference Dinner (Location: Dominicuskerk)

Friday 7th of July

Chair: Associate Prof. Alyne Delaney

- 09.00-10.00: Keynote: Associate Professor Christina Stringer (C1.03)
- 10.00-10.30: Coffee and Tea Break (in front of C1.03)
- 10.30-12.00: Panel Session 8 (B/C Building)
- 12.00-13.00: Lunch (room C1.03/hall REC E)
- 12.00-13.00: Film/exhibition
- 13.00-14.30: Panel Session 9 (B/C Building)
- 14.30-15.00: Coffee and Tea Break (in front of C1.03)
- 15.00-16.30: Panel Session 10 (B/C Building)



Wednesday, July 5th

- 09.30-11.30: Conference Opening and Keynote by Prof. Eddie Allison (Singelkerk)
- 11.30-13.30: Boat ride to Roeterseiland Campus, Lunch and Film/exhibition (Bridge/hall REC E)
- 13.30-15.00: Panel Session 1 (B/C Building)
- 15.00-15.30: Coffee and Tea Break (in front of C1.03)
- 15.30-17.00: Panel Session 2 (B/C Building)
- 17.00-18.30: Welcome Reception (Bridge)

Panel 1, Wednesday July 5th, 13.30-15.00	Stream 1 Dealing with maritime mobilities	Stream 2 Maritime governance	Stream 6 Coastal threats and vulnerability Dealing with maritime mobilities	Stream 4 Fisheries management	Stream 5 Knowledge production	Stream 4 Fisheries management	Stream 5 Knowledge production	Stream 1 Dealing with maritime mobilities
Panel title	1.1.1. Roundtable Combatting IUU-Fishing and the plight of Small-Scale Fisheries: Blessing or Threat?	1.2.1. Performing Community and Environment in Marine Spatial Planning: Exploring the U.S. Approach	1.6.1. Health and Hidden Vulnerability in Fishing Communities	1.4.1. Markets and market opportunities for small-scale fishery products I	1.5.1. Social sciences and the Azores Islands: Forgotten in the middle of the ocean?	1.4.2. The Social Dimensions of Ecosystem Based Fisheries Management	1.5.2. Understanding Challenges to Sustainable Coastal Livelihoods: insights from the Arafura and Timor Seas Region I	1.1.2. Resource mobility: the case of fisheries
Panel members	- Andrew Song - Simon Bush - Kate Barclay - Joeri Scholtens - Milton Haugton	- Sarah Wise - Noëlle Boucquey - Kevin St. Martin	- Rachel Turner - Tanya King - Kirsten Abernethy Easkey - Britton	- Cristina Pita - José Pascual-Fernández - Zafer Kizilkaya - Lorena Andrade	- Rita São Marcos - Ana Rita Jordão Fraga - Alison Nielson	- Paulina Ramirez-Monsalve - Milena A. Schreiber - Sebastian Linke	- Simon Foale - James Prescott - David J. Mills	- Nataša Rogelja/ - Alenka Janko Spreizer - Sophia Kochalski - Sarah Bess Jones Zigler (Bradford Dubik)
Room/ chair	B2.06 Scholtens	B2.02 Boucquey	B2.08 Turner	B2.04 Pita	B2.05 Nielson	B2.01 Schreiber	B2.07 Steenbergen	B2.03 Rogelja
Panel 2, Wednesday July 5th, 15.30-17.00	Stream 2 Maritime governance	Stream 2 Maritime governance		Stream 4 Fisheries management	Stream 5 Knowledge production	Stream 4 Fisheries management	Stream 5 Knowledge production	Stream 1 Dealing with maritime mobilities
Panel title	1.2.2. Roundtable interactive governance	1.2.3. Supporting Maritime Spatial Planning with playing games		1.4.3. Markets and market opportunities for small-scale fishery products II	1.5.3. Transdisciplinary Research to assess marine socio-ecological systems	1.4.4. Implications of the new discard policy in European fisheries	1.5.4. Understanding Challenges to Sustainable Coastal Livelihoods: insights from the Arafura and Timor Seas Region II	1.1.3. Governing mobility
Panel members	- Walter Kickert - Bernard Glaeser - Svein Jentoft - Ratana Chuenpagdee - Andrew Song - Maarten Bavinck	- Xander Keijser - Malena Ripken - Igor Mayer		- Patrice Guillotreau (Gervaise Debucquet) - Sophie Girard - Hoyt Peckham - Jorge Gonçalves - Viswanathan Gopakumar	- Mette Mauritzen - Christine Röckmann - Alida Bundy - Keith Criddle	- Mike Fitzpatrick - Katia Frangouides - David Reid - Laurence Fauconnet	- Dirk Steenbergen - Pia Harkness - Vanessa Jaiteh	- Raphaëlle Dancette - Julia Colwell - Peter Arbo - José Barrena-Ruiz
Room/ chair	B2.06 Bavinck	E0.22 Keijser		B2.04 Pascual-Fernández	B2.05 Schmidt et al	B2.01 Fitzpatrick	B2.07 Steenbergen	B2.03 Arbo

Thursday, July 6th

- 08.30-10.00: Panel Session 3 (B/C Building)
 10.00-10.30: Coffee and Tea Break (in front of C1.03)
 10.30-12.00: Panel Session 4 (B/C Building)
 12.00-13.00: Lunch (Bridge/hall REC E)
 12.00-13.00: Film/exhibition (B/C Building)
 13.00-14.30: Panel Session 5 (B/C Building)
 14.30-16.00: Panel Session 6 (B/C Building)
 16.00-16.30: Coffee and Tea Break (in front of C1.03)
 16.30-18.00: Panel Session 7 (B/C Building)
 19.00-22.30: Conference Dinner (Location: Dominicuskerk)

Panel 3, Thursday July 6th, 8.30-10.00	Stream 1 Dealing with maritime mobilities	Stream 2 Maritime governance	Stream 3 Social relations and culture	Stream 4 Fisheries management	Stream 5 Knowledge production	Stream 6 Coastal threats and vulnerability	Stream 2 Maritime Governance	Stream 4 Fisheries Management
Panel title	2.1.4. Transboundary Fisheries Management in Changing North Atlantic and Pacific Oceans: Taking Stock, Future Scenarios	2.2.4. Ecosystem services in coastal zone planning I	2.3.1. Social capital in fisheries communities	2.4.5. Human rights in small-scale fisheries governance and development	2.5.5. Knowledge production and exchange	2.6.2. Adaptation to climate change	2.2.5. The role of scale in governance	2.4.6. Gender/Women Relations within Coastal and Fisheries Communities: From Past to Present I
Panel members	- Phillip Saunders - David vander Zwaag - William Cheung - Rashid Sumaila	- Luis Outeiro - Bente Sundsvold - Pamela Bachmann-Vargas - Ingrid Kvalvik	- Anuradhi Jayasinghe - Sugimoto Aoi - Grant Murray	- Svein Jentoft - Eddie Allison - Anthony Charles - Sisay Yeshanew	- Johan Bolmsten - Judith Floor - Hillary Smith - Sebastian Linke (Petter Holm)	- Madhanagopal Devendraraj - Katherine Maltby - Michael Ogwezy - Merle Sowman	- Håkan Torleif Sandersen - Tiffany Morrison - Gunnar Sander - Sarah Twomey	- Alexandra Yingst - Froukje Kruijssen - Siri Gerrard - Alyne Delaney
Room / Chair	B2.06 Sumaila	B2.02 Kvalvik	B2.08 Rice	B2.04 Franz	B2.05 Linke	B2.01 Sowman	B2.07 Morrison	B2.03 Frangoudes
Panel 4, Thursday July 6th, 10.30-12.00	Stream 1 Dealing with maritime mobilities	Stream 2 Maritime governance	Stream 3 Social relations and culture	Stream 4 Fisheries management	Stream 5 Knowledge production	Stream 6 Coastal threats and vulnerability	Stream 6 Coastal threats and vulnerability	Stream 4 Fisheries Management
Panel title	2.1.5. Moving Forward: African Port Authorities in Marine Environmental Governance	2.2.6. Ecosystem services in coastal zone planning II	2.3.2. Regional diversity in social relations	2.4.7. From crisis to recovery – how can research support recovery of fisheries resources and livelihoods? Exploring the case of Senegal	2.5.6. A new era of knowledge production: traceability and transparency	2.6.3. Regional-global responses to marine system changes	2.6.4. Coastal Communities, Environmental Conservation & Sustainable Livelihoods	2.4.8. Gender/Women Relations within Coastal and Fisheries Communities: From Past to Present II
Panel members	- Harry Barnes-Dabban - Eric Tamatey Lawer - Arno Kangeri	- Jahn Petter Johnsen - Mariska Bottema - Jacqueline Tweddle - Emma McKinley	- Ratna Patriana - Ana Isabel Márquez Pérez - Agung Budiono - Emilio Cocco	- Cornelia E. Nauen - Dyhia Belhabib - Aliou Sall - Hannah Russell	- Maaïke Knol - Mandy Doddema - Maïken Bjørkan - Marta Skorek	- Annisa Triyanti - Clare Shelton - Chris Smith - Patrice Guillotreau	- Wayne Rice - Phillie Mbatha - Prateep Kumar Nayak	- Lisa K. Soares - Carmen Pedroza-Gutiérrez - Kumi Soejima - Maricela de la Torre-Castro
Room / Chair	B2.06 Barnes	B2.02 Solás	B2.08 Cocco	B2.04 Nauen	B2.05 Knol	B2.01 Smith	B2.06 Charles	B2.03 Gerrard



Panel 5, Thursday July 6th, 13.00-14.30	Stream 1 Dealing with maritime mobilities	Stream 2 Maritime governance	Stream 3 Social relations and culture	Stream 4 Fisheries management	Stream 5 Knowledge production	Stream 1 Dealing with maritime mobilities	Stream 2 Maritime Governance	Stream 4 Fisheries Management
Panel title	2.1.6. International Cruise Tourism: Exploring Opportunities and Challenges Facing Destinations from a Critical Perspective I	2.2.7. World cafe Phronetic Marine Spatial Planning Research: How did we get here and where should we be going?	2.3.3. A future for fishing? Intergenerational perspectives on social (im)mobilities and fishing identities	2.4.9. Small-scale fisher economies, small-scale fisher values I	2.5.7. Epistemes and knowledge production	2.1.7. Mobilities of fisheries	2.2.8. Integrating Ecosystem Service Assessments and Fisheries Management – How to modify current fisheries advice taking ecosystem services into account I	2.4.10. Gender/Women Relations within Coastal and Fisheries Communities: From Past to Present III
Panel members	<ul style="list-style-type: none"> - Jonathan Tardif - Luc Renaud - Clare Weeden - Linde Van Bets 	<ul style="list-style-type: none"> - Brice Trouillet - Betty Queffelec (Marie Bonnin) - Jan van Tatenhove - Kevin St. Martin - Hilde Toonen - Aria Ritz Finkelstein - Stephen Jay - Wesley Flannery - Riku Varjopuro - Hamish Rennie 	<ul style="list-style-type: none"> - Paul Foley (Nicole Power) - Signe A. Sonvisen - Madeleine Gustavsson - Matthias Kokorsch - Carole White 	<ul style="list-style-type: none"> - Derek Johnson - Mirella de Oliveira Leis - Alicia Said - Pekka Salmi 	<ul style="list-style-type: none"> - Anna-Katharina Hornidge - Rapti Siriwardane - de Zoysa - Lina M. Saavedra-Díaz - Ida Wingren 	<ul style="list-style-type: none"> - Ragnhild Overå - Sofie Joosse - Carrie Pomeroy - Katherine Seto 	<ul style="list-style-type: none"> - Evangelia Drakou - Mark Dickey-Collas - David Reid - Christine Rockmann 	<ul style="list-style-type: none"> - Sebastian Villasante - P.F.M. Lopes - Yasmin Khan - Conclusion of the sessions and future plans
Room / Chair	B2.06 Tardif	B2.02 Flannery	B2.08 White	B2.04 Johnson	B2.05 Hornidge	B2.01 Overå	B2.07 Drakou	B2.03 Kleiber
Panel 6, Thursday July 6th, 14.30-16.00	Stream 1 Dealing with maritime mobilities	Stream 2 Maritime governance	Stream 3 Social relations and culture	Stream 4 Fisheries management	Stream 4 Fisheries management	Stream 3 Social relations and culture	Stream 2 Maritime Governance	Stream 4 Fisheries Management
Panel title	2.1.8. International Cruise Tourism: Exploring Opportunities and Challenges Facing Destinations from a Critical Perspective II	2.2.9. Regional approaches to maritime spatial planning	2.3.4. Unpacking labour and other social criteria I	2.4.11. Small-scale fisher economies, small-scale fisher values II	2.4.12. Fish tools and instruments I	2.3.5. The cultural heritage of fisheries	2.2.10. Integrating Ecosystem Service Assessments and Fisheries Management – How to modify current fisheries advice taking ecosystem services into account II	2.4.13. Gendered vulnerabilities
Panel members	<ul style="list-style-type: none"> - Jim F. Petrick - Judith Römhild-Raviart - Jennifer Holland 	<ul style="list-style-type: none"> - Glen Smith - Malena Ripken - Romain Legé - Áslaug Ásgeirsdóttir 	<ul style="list-style-type: none"> - Paul Foley - Christine Knott - Melissa Marschke - Peter vander Geest 	<ul style="list-style-type: none"> - Tim Acott - Sahir Advani - Yinji Li - Kate Barclay 	<ul style="list-style-type: none"> - Al Arif Abdullah - Lynna Cortes Rueda - Maarten Bavinck - Lynna Cortes Rueda - Arne Kinds 	<ul style="list-style-type: none"> - Suresh Nidheesh - Jennifer Pickett - Carol Stephenson S. Peramunagama 	<ul style="list-style-type: none"> - Alexander Ziemba - Denis Bailly - Sebastian Villasante 	<ul style="list-style-type: none"> - G.S. Sneha - Nitya Rao - Maria Benosa
Room / Chair	B2.06 Renaud	B2.02 Smith	B2.08 Vander Geest	B2.04 Olsen	B2.05 Bavinck	B2.01 Carol Stephenson	B2.07 Schmidt	B2.03 Rao

Panel 7, Thursday July 6th, 16.30-18.00	Stream 1 Dealing with maritime mobilities	Stream 2 Maritime governance	Stream 3 Social relations and culture	Stream 4 Fisheries management	Stream 4 Fisheries management	Stream 4 Fisheries management
Panel title	2.1.9. Fish on the move	2.2.11. Fisheries governance	2.3.6. Unpacking labour and other social criteria II	2.4.14. Small-scale fisher economies, small-scale fisher values III	2.4.15. Fish tools and instruments II	2.4.16. Stakeholder involvement in fisheries governance
Panel members	- Nataša Rogelja - Alenka Janko	- Andrew Song - Janne Rohe - Jeremy Phillipson - Kate Barclay - Anna S. Antonova	- Olivia Tran - Emilie Normand - Katie Longo - Hilde Toonen	- C.J. Idrobo - Mimi Lam	- Katell Hamon - Scott Crosson - Ishmael B.M. Kosamu - Evelyn Pinkerton - Søren Qvist Eliasen	- Mbachi Ruth Msomphora - Harald Sakarias Brøvig Hansen
Room / Chair	B2.06 Selwyn	B2.02 Song	B2.08 Marschke	B2.04 Derek Johnson	B2.05 Crosson	B2.07 Ruth Msomphora

Friday, July 7th

09.00-10.00: Keynote: Associate Prof. Christina Stringer (C1.03)

10.00-10.30: Coffee and Tea Break (in front of C1.03)

10.30-12.00: Panel Session 8 (B/C Building)

12.00-13.00: Lunch (Bridge/hall REC E)

12.00-13.00: Film/exhibition (room tbc)

13.00-14.30: Panel Session 9 (B/C Building)

14.30-15.00: Coffee and Tea Break (in front of C1.03)

15.00-16.30: Panel Session 10 (B/C Building)

Panel 8, Friday June 7th, 10.30-12.00	Stream 1 Dealing with maritime mobilities	Stream 2 Maritime governance	Stream 2 Maritime governance	Stream 4 Fisheries management	Stream 4 Fisheries management	Stream 1 Dealing with maritime mobilities
Panel title	3.1.10. Social-ecological change and livelihood mobility across the land-sea interface I	3.2.12. Exploring the Human Dimensions of Large Marine Protected Areas I	3.2.13. Politics in marine governance	3.4.17. The Small-scale fisheries guidelines: global implementation I	3.4.18. Fisheries assessments	3.1.11. Maritime materiality, mobility and everyday life I
Panel members	- Ratana Chuenpagdee - Derek Johnson - Yinji Li	- Lisa Campbell - Sarah Bess Jones Zigler - Lillian Mitchell - Katie Wilson	- Alejandro García Lozano - Ann-Magnhild Solås - Ingrid Bay-Larsen	- Svein Jentoft - Maricela de la Torre-Castro (Lasse Lindstrøm) - Milena Schreiber	- Nick McClean - Philip A. Loring - Atikah Nurhayati	- Johanna Markkula - Anna S. Antonova - Kristen Ounanian - Roger Norum - Anna Karlsdóttir
Room / Chair	B2.06 Kumar Nayak	B2.02 Gray	B2.08 Bay-Larsen	B2.04 Barragan-Paladines	B2.05 Loring	B2.07 Antonova/Norum

Panel 9, Friday July 7th, 13.00-14.30	Stream 1 Dealing with maritime mobilities	Stream 2 Maritime governance	Stream 2 Maritime governance	Stream 4 Fisheries management	Stream 4 Fisheries management
Panel title	3.1.12. Social-ecological change and livelihood mobility across the land-sea interface II	3.2.14. Exploring the Human Dimensions of Large Marine Protected Areas II	3.2.15. Innovative approaches to maritime governance	3.4.19. The Small-scale fisheries guidelines: global implementation II	3.4.20. Agency, equity and interdisciplinarity in fisheries communities
Panel members	- Iftekharul Haque - Kelly Johnson	- Evan Artis - Rebecca Gruby - Noëlla Gray - Beatriz Mesquita Ferreira	- Madhuri - Ramesh - Rachel Kelly - Judith van Leeuwen	- Prateep Kumar Nayak - Alicia Said - James Prescott - Maria José Espinosa-Romero - Nicole Franz	- Elodie Fache - Georgina Gurney - Charles Mather - David J. Mills (Philippa Cohen)
Room / Chair	B2.06 Pittman	B2.02 tbc	B2.08 Van Leeuwen	B2.04 Franz	B2.05 Gurney
Panel 10, Friday July 7th, 15.00-16.30	Stream 1 Dealing with maritime mobilities	Stream 2 Maritime governance	Stream 2 Maritime governance	Stream 4 Fisheries management	Stream 4 Fisheries management
Panel title	3.1.13. Coastal commons from a social-ecological systems perspective	3.2.16. The impact of Marine spatial planning and marine protected areas on social relationships	3.2.17. Adaptive capacity and maritime governance	3.4.21. The Small-scale fisheries guidelines: global implementation III	3.4.22. Innovative approaches to fisheries management
Panel members	- Abdul Halik - Achim Schlüter - María Amalia Mellado - Stefan Partelow	- Brice Trouillet - Cheryl Chan	- Rachel Tiller - Raquel De la Cruz Modino - Rebecca Singleton - Steven Adolf - Vilde Steiro Amundsen	- Patrick McConney - Lina Maria Saavedra-Díaz Maria - Jose Barragan-Paladines	- Anastasia Quintana - Alicia Said - Marloes Kraan - Robert Stephenson
Room / Chair	B2.06 Schlüter	B2.02 Trouillet	B2.08 Tiller	B2.04 Jentoft	B2.05 Robert Stephenson

Opening and keynote speakers

Professor Arthur Mol

Rector Magnificus, Wageningen University & Research,

Biography

Prof. dr. Arthur P.J. Mol obtained his master in environmental sciences (1985, Wageningen University) and his PhD in environmental politics/sociology (1995, University of Amsterdam). He has been professor in Environmental Policy at Wageningen University since 2000, and was also professor at Remin University (China), Tsinghua University (China), the National University of Malaysia and Chiba University (Japan). Currently, he is rector magnificus and vice-president of Wageningen University & Research, the Netherlands. He has worked and published extensively on environmental and agrofood governance, international sustainability politics, sustainable production and consumption, circular economy, globalization and sustainability, and marine governance. He was editor of *Environmental Politics* till 2016, and is still on the editorial board of 9 international peer reviewed journals. He is currently also board member of, among others, The Sustainability Consortium TSC; the international Water Technology Institute Wetsus; the National Environmental Assessment Agency, the Netherlands; the Euroleague of Life Sciences Universities ELLS; the Association of European Life Sciences Universities ICA; and the AgroFood Capital foundation.



Associate Professor Christina Stringer

*Department of Management and International Business,
University of Auckland Business School
New Zealand*

Turbulent waters: slavery in the fishing industry

While the most recent and widely reported cases of slavery in the fishing industry have occurred in Thailand, the use of slave labour is not restricted to that one national context. Slavery in the industrial fishing sector, is a complex and widespread issue which has also occurred, for example, in Europe, Africa, and New Zealand. What explains the prevalence of slave labour in the industrial fishing industry? The issue is, in part, the governance of labour relations.

Fishers, most whom are migrants, are employed in precarious and highly exploitative conditions, where they are treated as a mere factor of production or just another commodity. In such a precarious environment, they lack the necessary agency to change their circumstances. Slavery is a mode of governance, and is increasingly contractual in nature thus giving it a semblance of legitimacy. When viewing slavery as a violation of human rights, the governance issue is the eradication of slavery as a socio-economic institution. This implicates a variety of governmental and non-governmental actors. In this keynote, using New Zealand as a case study, I examine how governmental and non-governmental actors reacted to the identification (and acknowledgement) of slavery in New Zealand's deep sea fishing industry. In 2011, a number of Indonesian crew, on board South Korean vessels fishing on behalf of New Zealand companies and quota holders, walked off their vessels citing labour and human rights abuses. The action by these fishers created the imperative for the government to bring about institutional change in order to eradicate slave like practices. Returning to the global industry, I conclude by reflecting on the governance of labour relations within supply chains and the importance of multi-stakeholder initiatives in addressing slavery.

Biography

Dr Christina Stringer, is an Associate Professor in the Department of Management and International Business, at the University of Auckland Business School, New Zealand. In 2008, Christina undertook a project for New Zealand's Ministry of Fisheries (now Ministry of Primary Industries) which looked at the extent that fish caught in New Zealand's waters was being processed in China and exported to key markets. During the course of this research, Christina and her colleagues identified a business model based on slavery. Subsequently, in 2011, they began researching labour abuses on board foreign charter vessels fishing in New Zealand's waters. This research contributed to a Ministerial Inquiry, a major shift in government policy, and the enactment of a law requiring all foreign charter vessels to be reflagged as New Zealand vessels by 1 May 2016. Christina and her colleagues have published a number of articles on slavery in the fishing industry, including in *Environment and Planning A*, *Global Networks*, *Journal of Economic Geography*, and *Marine Policy*, among others.

Professor Edward H Allison

School of Marine and Environmental Affairs, University of Washington, Seattle

The fluid and the fixed: maritime mobilities in the time of capitalism

At sea, there is much that is fluid (or motile) and little above the seabed that is fixed (or immobile). The sea's fluidity has aided humanity's mobility – we have used winds, currents and tides to move, colonize and escape. Until recently, the sea's fluidity confounded our attempts to govern it with the fixed barriers with which we have long governed much of the land. In the centuries-old law of the sea debates between *mare clausum* and *mare liberum*, *mare privatum* was never been widely considered and yet the institutions of privatization have long encroached into the ocean commons – from the 'privateers' acting as security for trading companies, to the private ownership of coastal and sub-tidal land. In the era of neoliberal capitalism, however, this encroachment of private property is set to transform the governance of the sea as the oceans have come to be regarded as a natural resource frontier. The sea has been recast as the arena for 'blue growth'. For the 'blue economy' to flourish, it is thought necessary to create the kind of stable private property rights that can secure a return on capital by private investors. I consider how this narrative and action on privatization and 'territorialization' fits with and interacts with the dynamic nature of coasts, seas and oceans, and is changing the way we think about the sea. The movement of, fish, sea-ice, ships, mines, oil wells, capital, fisherfolk, traders, refugees and migrant workers are interdependent and affected by this emergent view of ocean space. I pose this question to scholars of the sea and ocean advocates and actors: what alternative visions of the future ocean are possible, and how can such visions be contested and shaped in the present?

**Biography**

Eddie Allison's research centers on the human connection to natural resources. His primary areas of focus are 1) the contribution of fisheries and aquaculture to food and nutrition security and coastal livelihoods, 2) governance of small-scale fisheries and aquaculture production and the human rights of fisherfolk, and 3) the vulnerability and adaptation to climate change of people dependent on marine and freshwater resources. His work spans the globe, holding past positions in the field of fisheries and aquaculture management and development in sub-Saharan Africa,

Asia, Oceania, Latin America and Europe, as researcher or technical and policy advisor for various international organizations. He has held faculty appointments at the University of East Anglia, and was the director of Policy, Economics, and Social Science at the WorldFish Center in Malaysia prior to coming to the School of Marine and Environmental Affairs. Dr. Allison received his Ph.D. in Fisheries Science from the University of Liverpool, England.

Parallel Sessions and Paper Abstracts

* Indicates presenting author and affiliation

Panel sessions	Series 1	Wednesday, 5th of July 13:30 – 15:00
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1.1.1. Roundtable: Combatting IUU-Fishing and the plight of Small-Scale Fisheries: Blessing or Threat?	B2.06
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Chair: Joeri Scholtens

Panel Organizers:

Joeri Scholtens (University of Amsterdam)

Andrew Song (James Cook University)

Simon Bush (Wageningen University & Research)

Panel Description: In this TBTI affiliated roundtable we aim to initiate a critical discussion with scholars and practitioners on the consequences for small-scale fisheries of the increased policy attention to combat IUU fishing. IUU fishing is an increasingly popular umbrella term used for everything that is considered wrong with global fisheries. Poor boat- and catch registrations, use of Flags-of-Convenience, lack of monitoring and control, poor data recording, use of banned fishing gears, non-compliance with RFMOs, transshipments, piracy fishing, slavery, human rights violations etc. It was recently estimated that ‘losses’ from illegal and unreported fishing worldwide represent 15 to 30% of global marine catches (Agnew et al. 2009). In 2001 the Food and Agriculture Organization of the United Nations (FAO) drafted an International Plan of Action, with a set of principles guiding member states in their national level effort to prevent, deter, and eliminate IUU fishing (FAO 2001). In 2010 the EU has taken a leadership position in combatting IUU fishing by adopting a comprehensive regulation, amongst others by making access to its market conditional upon exporting countries’ efforts to prevent, deter and eliminate so-called IUU fishing. These recent policies adopted to combat IUU fishing have been widely endorsed and celebrated, both from an environmental and a social justice perspective. As a result, they have secured enthusiastic support from a broad alliance of environmental movements, environmental justice movements, marine conservationists, NGOs, international governmental organizations, anti-piracy lobbies as well as EU bureaucrats. However, we contend that the very definition of IUU fishing, the wide variety of fishing activities that it lumps together, the actual implementation practices of counter-IUU policies, and specifically what all this implies for the plight small-scale fisheries, requires much closer scrutiny. Note that we are both interested in the ‘trade’-related impact of IUU fishing policies on SSF (e.g. export ban, trade regulation, report cards etc.) and the ‘fishing’ or ‘governance’ impact (e.g. livelihoods, slavery, compliance, national government response etc.).

Possible questions may include, but are not restricted to:

- What exactly is illegal (whose law?), what is unregulated (does self regulation count?) and what counts as unreported (many SSF in the world do not ‘report’ their landings to a government official). To what extent have anti-IUU policies been sensitive to the particular circumstances of SSF?
- What do we know so far of the consequences of anti-IUU fishing policies, both positive and negative, on small-scale fishers?

- Is there a possibility that the IUU concept, while initiated to curb large-scale illegal fishing practices, may work as a new governmentality biased against SSF?
- How have small-scale fishers (organizations) reacted in various places to the anti-IUU fishing policies?

In this roundtable we hope to facilitate a critical discussion on the implications of anti-IUU fishing policies for safeguarding small-scale fisheries. For the roundtable format, we suggest to have 6 short (5 minute) contributions, followed by a one-hour open discussion with all participants.

The roundtable will have contributions from Andrew Song (James Cook University), Joeri Scholtens (University of Amsterdam), Simon Bush (Wageningen University), Kate Barclay (University of Technology Sydney) and Milton Haugton (Caribbean Regional Fisheries Mechanism).

1.2.1. Performing Community and Environment in Marine Spatial Planning: Exploring the U.S. Approach	B2.02
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Chair: Noëlle Boucquey

Panel Organizers:

Luke Fairbanks (Colorado State University)

Noëlle Boucquey (Eckerd College)

Panel Description: This panel presents the work of a multiyear study (2012-2017) on the development, implications, and human dimensions of marine spatial planning (MSP) in the Northeast and Mid-Atlantic regions of the United States. Driven by federal policy, partnerships of state, federal, scientific, and other actors have recently completed ocean plans and ocean data portals for both regions. This involved extensive stakeholder engagement, geographic data synthesis and use, and government and public coordination for U.S. oceans governance and decision-making. The process has raised many questions about oceans governance and its relationships with human communities, oceans spaces, and marine environments in the U.S. The project and the papers presented in this panel critically examine these issues and are united by two overarching research questions: (1) How are communities and environmental actors constituted by MSP practices? (2) What are the roles of community and environmental actors in the constitution of MSP itself? Informed by ideas and theory drawn from geography, political ecology, anthropology, and studies of environmental governance, the project explores several aspects of the Northeast and Mid-Atlantic U.S. MSP programs, ranging from how communities are enrolled and engaged in the planning process, to how new (and existing) geographic data projects, products, and portals influence and inform planning and human-oceans relationships more broadly. The panel is designed to generate discussion about critical analyses of MSP and marine governance, the possibilities and pitfalls MSP might offer, and MSP as a process of science, policy, and social engagement. The panel is organized as follows: (1) An introduction of the Community and Environment in MSP project; (2) A series of three brief (15 min) paper presentations on different facets of the project; and (3) A concluding discussion (30 min).

Introduction to the Community and Environment in MSP Project (Project Team)

Beyond the Map: The Process of Marine Spatial Planning and the Work it Does

Sarah Wise (Rutgers University)

This paper looks at the social and policy work performed by the marine spatial planning process. Marine (or maritime) spatial planning continues to develop as a dominant management framework for marine resources and uses internationally. The stated purposes of MSP are many: to allocate space, time and resources, to balance competing human activities and values, and to quell controversy in the

case of conflicts. However, the work done is beyond that of delineating borders for energy capture and labeling shipping lanes. Marine spatial planning is a social process that performs work, such as: creating linkages among people, agencies, and data points; simplifying and solidifying concepts; and defining meaning and value. As a *process*—of engagement, representation, and evaluation—it is hoped that MSP will reduce strife among competing actors and address rights of access for stakeholders and communities who rely on the sea for marine space and resources. The MSP process, as a form of ocean governance, also serves as a salve of sorts, to sooth, to assuage fears, and provide a platform for richer debate and negotiation. Through a specific set of practices—those of collecting, identifying, aggregating, and formatting data—certain ideas are made “real” by becoming meaningful and enduring. Based on ethnographic research on two MSP regional bodies in the U.S., this paper examines the performative character of MSP processes by focusing on the conceptualization of community as it emerges, begins to take shape, and evolves through the regional planning practice.

The depths of visibility? Choices, constraints, and consequences in the performance of ocean data portals

Noëlle Boucquey (Eckerd College)

This paper explores two ocean data portals recently created to support MSP in the United States, and the role of these portals in shaping ideas about what is or is not possible in particular ocean spaces. We examine how the data portals are constructed in order to link their organization and imaging practices with the ideological and ontological work these images do. We analyze the portals as important mediators between scientists, governing bodies, and the public. In doing so, we employ the critical cartography and ontological politics literatures to consider: (1) how the portals draw together disparate sources of social, political, and ecological data, and with what effects they display these data; (2) the social and technical struggles that underlie the portals’ visual outputs; and (3) the ways portal products are beginning to affect ongoing ocean governance efforts. Our analysis highlights that, contrary to what a casual visit to an ocean data portal website might suggest, the portal maps are products of active and ongoing negotiations by portal practitioners and interest groups. We examine how particular human communities and environments are made more or less visible in these portal products and ask how such (in)visibilities persist.

Metrological Struggles: How an Algorithm Constitutes Community in Marine Spatial Planning

Kevin St. Martin (Rutgers University)

Marine Spatial Planning is emerging as a process which coordinates a wide range of marine interests, quells conflicts and controversies, and fixes marine space and use rights. The techniques by which MSP will achieve its goals include the development of geo-coded data, modeling approaches decision making, as well as the coordination of planning bodies, state and federal agencies, and local stakeholders. The political struggles which animate MSP and determine its trajectory are not, however, limited to those sites where representatives or appointees make decisions. We focus on an algorithm which produces a metric of fishing communities and their territories. The “communities at sea” algorithm is associated with an increasing number of MSP projects where it informs, for example, impact analyses of wind energy development. We trace how this algorithm performs an ontological politics where “community” is recognized and its capacities enhanced. We suggest that it might also provide a space where community knowledge, community-based resource management, and community economies can be actualized. Intervening in MSP to produce more just outcomes for communities will require being attentive to not only sites of traditional politics but also those sites where the ontological struggles manifest in algorithms, data, and modeling unfold.

1.6.1. Health and hidden vulnerability in fishing communities**B2.08**

Chair: Rachel Turner

Panel organiser: *Rachel Turner (University of Exeter, UK)*

Panel description: Multiple environmental, socio-economic and political changes have implications for the wellbeing of fishing-dependent coastal communities. Health is a critical, yet overlooked, component of wellbeing in fishing communities. Health may be a key indicator of social vulnerability, as well as a barrier to productivity. Fishers often display risk-taking behaviour and are subject to high stress, but are less likely to access health services. Health and wellbeing outreach initiatives must be strategically targeted to enhance access opportunities, and appropriately designed to be acceptable to target groups. This panel draws on case studies from England, Ireland and Australia, where fishing communities have been identified as vulnerable to poor physical and mental health. In each case, both research and applied initiatives are underway to promote the social viability of coastal communities by supporting improved health and wellbeing outcomes among both fishers and fishing families. Through an interactive format, we present findings from research exploring the nature of health challenges and health requirements of fishing families, and barriers to fishers' accessing healthcare. We also invite discussion around key questions, including: How important is health as a component of social vulnerability in coastal communities? How can collaborative partnerships between researchers and practitioners support improved physical and mental health outcomes? What is the role of women in fishing communities in supporting good health?

Health and healthcare in Cornish fishing communities

Rachel Turner (University of Exeter, UK)

Fishing remains the most dangerous peacetime occupation in the UK. In addition to the inherent physical risks, the mentally challenging nature of this occupation is exacerbated by environmental change (e.g. fish stock decline, climate change), policy change (e.g. spatial management, catch restrictions) and socio-economic shifts in coastal communities. Such changes have had implications for the health (mental and physical) and wellbeing of individual fishers, their families, and fishing-dependent communities in Cornwall, one of the economically most deprived areas in the UK. Anecdotal information suggests that fishers are less likely than other groups to access healthcare services, but the reasons for this are not well understood. We present the findings of a recent survey conducted with skippers and crew in Cornwall (n=121) to identify existing health issues and barriers to fishers' access to healthcare services. Our findings improve the evidence base to support appropriate policy and management intervention.

Australian fisher health and wellbeing in an era of politicised management

Tanya King (Deakin University, Australia)

The health and wellbeing of Australian fishers is poorly understood. Coroner data tells us that the rate of accidental death in the industry is far higher than in the average population. Population health studies indicate that poor health and wellbeing is more likely for fishers, because they tend to be male and to live or work in isolated regions. Anecdotally, there is a growing body of research that suggests fishers are particularly prone to poor mental health outcomes, in part due to the perpetual insecurity of their resource-access. We present findings of a recent survey conducted with the Australian fishing industry, which complements and extends that conducted in Cornwall (see Turner's presentation, this panel). The survey benchmarks the status of Australian fisher health and wellbeing, and identifies both barriers to, and opportunities for, the uptake of health services. The data can be used for direct

comparison with other Australian populations (particularly farmers), international fisher cohorts (particularly Cornish), and for the design of fisheries policy and management intervention that better protects the industry's most valuable asset: the people.

Sustainable Fishing Families

Kirsten Abernethy (Deakin University/Seafood Industry Victoria, Australia)

The Sustainable Fishing Families project is based on the premise that without a healthy workforce, the value - both economic and social - of the industry will flounder. Investing in the health of fishing families is an investment in the long-term viability of the fishing industry's most valuable asset: the people. The project has been developing and piloting a practical program with fishing families in Victoria, Australia, to address the specific health and wellbeing requirements of fishers and their families. It is modelled on the successful Sustainable Farm Families™ program which has been shown to deliver lasting health benefits to Australian farming families and the wider community. The families participating in the project are involved in inshore fishing small businesses, which have been subject to poor policy decision-making, and politicised fishery closures, despite high sustainability credentials. Insecurity of access has resulted in mental health concerns which have knock-on effects for physical health. Yet fishing families are self-reliant and resilient. We present insights from the participating fishing families themselves, on the Sustainable Fishing Families project, which helps to inform health and wellbeing outreach strategies and initiatives for fishing communities.

'Hear 4 U': Creating space for health and wellbeing in an Irish fishing community

Easkey Britton (NUI, Galway) & NC Britton (Donegal Women's Centre)

Fishing communities in Ireland are experiencing an accelerated rate of change – social, environmental and economic. These communities typically have a strong sense of place and identity with associated cultural values, which are being eroded resulting in a loss of connection and way of life. Lack of voice, especially for women and children, a sense of disempowerment, a culture of silence and social normalisation of violence are just some of the social issues facing these communities. The isolated and tight-knit nature of these communities can make acceptance and communication of needs difficult. Findings from a previous 3-year academic study in the North and North-West of Ireland (Britton 2012) informed the design and delivery of a community-based health and wellbeing programme in Ireland's largest fishing port, Killybegs. We investigate how this on-going, long-term (5 year), collaborative partnership between researcher, practitioners and local community members might support improved mental health and social wellbeing outcomes. The findings highlight key factors impacting wellbeing and the importance, as well as challenges, of creating space for communication and trust-building in socially isolated, coastal, fishing communities.

1.4.1. Markets and market opportunities for small-scale fishery products I**B2.04**

Chair: Cristina Pita

Panel Organizers:

Cristina Pita (University of Aveiro, Portugal)

Jose Pascual (University de La Laguna, Spain)

Panel Description: Fisheries, and mostly small-scale fisheries, make an important contribution to nutrition, food security, sustainable livelihoods and poverty alleviation. Several factors affect the capacity of small-scale fishers to sell their fish, receive fair prices, and to add value to their catches. For instance, existing national and regional regulations, globalized marketing schemes, and other trade barriers may restrict market access. We are interested in the supply chain from catch to markets in general, how local small-scale fishery catches interact with those from large scale fleets, how world markets impact on local fishing strategies, which “new” strategies exist for adding-value to small-scale fishery catches (e.g. certification, eco-labelling, direct selling, alternative food networks). The role of middlemen in marketing cannot be ignored, and special focus must be placed on how small-scale fishing organizations enter into this arena. Furthermore, local fresh fish obtained with sustainable gears frequently is not adequately differentiated from the catches of industrial fleets or from the fish coming refrigerated or frozen into the market. This panel aims to examine and discuss the factors which affect fish products’ entering markets, specially products from small-scale fishery catch, analyse shortcomings of current marketing schemes, explore new market opportunities and alternative marketing options. As well as examine the role of fisher organization in marketing.

Note: The panel is connected to the TBTI cluster market opportunities.

Market diversification for fishery products in Portugal

Cristina Pita (University of Aveiro, Portugal)

The Portuguese are the largest consumers of fish products in the European Union (56.7kg/inhabitant/year against 23.1kg/inhabitant/year) and one of the most important consuming markets (per capita) in the world. Most of the fresh fish products consumed in the country are provided by the small-scale fishing activity. Small-scale fisheries (SSF) are a major component of Portuguese fisheries, responsible for 48% of the quantity and 71% of the value landed in Portugal. The sector employs 69% of all fishers and accounts for 90% of all vessels in number. Still, Portuguese SSFs struggle with insufficient profitability. Over the last couple of years several strategies have been put in place to increase the visibility of SSF products in the markets and thus increase their profitability. This paper describes and discusses several market initiatives already implemented to increase the profitability of SSF products, such as: Community-supported fisheries (CSF), short-chain marketing initiatives that can help provide a market opportunity for undervalued commercial species; Campaigns to increase the presence of SSF products in local markets, both to promote the consumption of low valued species with a high discard rate (mackerel) and species of high economic importance for SSF (octopus); and, a new marketing strategy to convert a traditional fishery product (dry mackerel from Nazaré) into a gourmet product with a certification of origin. We concluded that initiatives to differentiate and add-value to SSF products have the potential to contribute to increase the use of traditional catch by local markets (e.g. restaurants, hotels), increase the market value of the product, increase the profitability and economic viability of the multi-species SSF sector, as well as to improve governance and sustainability by increasing stewardship and reducing discards, a flagship initiative of the recently reformed Common Fisheries Policy.

Market challenges for small-scale fisher organizations: a governance perspective

José J. Pascual-Fernández and Raquel De la Cruz Modino (Universidad de La Laguna, Instituto Universitario de Ciencias Políticas y Sociales)

Fisher organizations may assume a diversity of tasks related to fisheries management. For instance, in Spain Fisher guilds or “cofradías” may take a role to register fish catches, assume the paperwork related to the fishing enterprises, and in most of the country take a decisive role to manage the first selling of the fish through auctions. Not all the fish enter the auctions, neither Cofradías are the only organizations taking a role in this arena. Producer organizations also have a role that may be crucial with some species. However, in some areas the role of fisher organizations in fish marketing is nil, and this debilitates the fisheries sector in the area. In general, for the viability of small-scale fisheries, adequately marketing the catches is as relevant as arriving with good catches to the harbour. However, it is not always easy that fisher organization develop these roles adequately. In this presentation we are going to analyse a diversity of situations in the Canary Islands, and the governance challenges that have facilitated that in some islands strong organizations capable of selling the fish successfully develops, while in other cases this has not been possible. We take into account in order to explain these differences a diversity of factors, related, for instance, to the specific characteristics of the market in each island, but also to other elements like leadership or previous successful experiences of collective action. Finally, we will discuss lessons learned from these cases and the possibilities of improvement for small-scale fisheries marketing in other scenarios.

Supporting small-scale fishers by increasing the market values of Lessepsian invasive species: A case of Gökova Bay Fishery, Turkey

Zafer Kızılkaya¹, İnci Tüney Kızılkaya², Vahdet Ünal²

¹Mediterranean Conservation Society, Urla, Izmir, Turkey

²Ege University, Faculty of Science, 35100, Bornova, Izmir, Turkey

Fishing is one of the major livelihoods in Gökova Bay MPA, Eastern Mediterranean, Turkey. The fishery in the bay is very dynamic in terms of many factors including Lessepsian migrants. Four Lessepsian invasive species Randall’s threadfin bream (*Nemipterus randalli*), Brushtooth lizardfish (*Saurida undosquamis*), Marbled spinefoot (*Siganus rivulatus*), Goldband goatfish (*Upeneus moluccensis*) held important percentage among the catches of the fishing community. As the public did not know the species well enough there was very limited demand on those species resulting low rates, loss of potential income, in certain times cooperative even treats them as discard when there is no demand at all. Mediterranean Conservation Society implemented a project in 2015 to promote those species and increase the demand on them. Overall objective of the project was to increase the fishing income of the fishery cooperative. Recipes were prepared by a chef, the recipe cards have been published and are available in the Akyaka Fishery Cooperative; a fish tasting festival with invasive species was organized for over 400 people. A minute long promotional film was prepared and displayed on a screen on the wall of the cooperative during the day and night. The results of this activity are remarkable: demand for invasive species has increased by 400% according to the landing data; the price of invasive species has increased by at least 20%; fishermen’s incomes of the cooperative increased to TL 250-300 / day per boat (€ 75- 90) particularly through the invasive species; while there were many days invasive species remained unsold in the previous year, in 2015 and 2016 all the catch is sold within same day, caterers and consumers know best culinary interest of these species; following the increasing demand of invasive species, more and more fishermen have changed their gears to target those species. In conclusion, considering factors affect the capacity of small-scale fishers to sell their fish, receive fair prices, and to add value to their catches, we believe that there is still something to do in small scale fisheries. The presented study showed us that activities related to promotion and advertisements not only have a great impact on fish price and consumer preferences but also behavior of fishers.

Small catches, huge invisible gains: economic and social benefits of the artisanal fishing of *Octopus insularis* in the Northeast of Brazil

Lorena C. A. Andrade¹, Priscila F. M. Lopes^{2*}, Tatiana S. Leite², Adriana R. Carvalho²

¹ *Faculdades Integradas Aparício de Carvalho – Rondônia, Brazil*

² *Universidade Federal do Rio Grande do Norte – Natal, Brazil*

The actual contribution of small-scale fisheries (SSF) is not well known, although it is speculated to generate significant revenues and to contribute to poverty reduction and food security. Part of the difficulties in estimating the contributions of SSF is due to its informality. We took the *Octopus insularis* artisanal fishery in Northeastern Brazil (Rio do Fogo, Rio Grande do Norte State) and analyzed how its economic and social benefits are distributed throughout its value chain (from extraction to the final consumer). We monitored the landings of octopus fishing along 6 months (279 landings) and registered the catches (Kg), revenues and costs in all segments of the value chain (production, services, transformation, distribution and consumption). We estimated the annual capital flow of this fishery and the number of workers and their dependents for each segment of the value chain. The economic benefit (individual revenue/income) did not vary among the production, services and distribution sector of the chain, although fishmongers obtained higher income, whereas ice distributors incurred in higher costs. Octopus fishery generated USD 47.756,87 monthly, for a total population of 10,059 people (1,285 directly or indirectly dependent on this chain, corresponding to 34.4% of the urban population) and whose official annual GDP is only USD 43.021,36. The high, but invisible (not taxed), flow of capital from this fishery, affecting more than a third of the local population, shows the relevance of small-scale fisheries to the local economic and social stability.

1.5.1. Social sciences and the Azores Islands: Forgotten in the middle of the ocean?	B2.05
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Chair: Alison Neilson

Panel Organizer: *Alison Neilson (Centre for Social Studies, CES, University of Coimbra, Portugal)*

Panel Description: This interactive panel which highlights research and community work in the Azores Islands, Portugal will deal with issues through theoretical analysis, case study, and discussion of how the knowledge regimes impact the fisher on the island and illuminate the roles of knowledge negotiation and the creation of science-policy boundary objects. The four topics will be presented in an integrated fashion and include audience discussion and participation.

“Winds from the South”: Relational ontologies and hybridity in marine resource management

Rita São Marcos (Centre for Social Studies, CES, University of Coimbra)

Drawing upon debates carried out amongst contemporary critical scholars and activists from an environmental sociology and political ecology perspective this presentation aims to reflect upon the great challenges posed to the ‘northern’ social sciences and its role in addressing environmental issues.

Graciosa Island, a small island within a small archipelago

Ana Rita Jordão Fraga (Faculdade de Ciências Sociais e Humanas, Universidade Nova de Lisboa, FCSH/UNL)

Case study of a small island which belongs to a UNESCO Biosphere Reserve and the fishers who are trying to survive while balancing the fishing resources of the surrounding coastal zone.

Transcending knowledge regimes and imagining wicked ways in fisheries

Alison Neilson (CES, University of Coimbra)

Interactive discussion of how image-based narratives could be brought into the process of fisheries governance and policy making. How do policy makers read images? How can they be transcribed into policy?

A recipe for “a fine kettle of fish”: Governance without social science

Alison Neilson, Rita São Marcos and Ana Rita Jordão Fraga

An exploration of the challenges and opportunities for creating a group of social science researchers to contribute to a critical management of the sector based also on the participation of local actors. A facilitated discussion will also engage with the unique challenges posed by life on these islands which have some autonomy related to fisheries, while being governed by the Common Fisheries Policy which engages national governments.

1.4.2. The Social Dimensions of Ecosystem Based Fisheries Management	B2.01
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Chair: Milena Arias Schreiber

Panel organizers:

Milena Arias Schreiber (Swedish Institute for the Marine Environment, University of Gothenburg)

Paulina Ramirez-Monsalve (Centre for Innovative Fisheries Management, Aalborg University)

Sebastian Linke (School of Global Studies, University of Gothenburg)

Panel description: Ecosystem-based fisheries management (EBFM) is the ubiquitously decided new framework for governing the living resources of our oceans. In the context of EBFM, scientific attention has primarily been directed to researching and modelling the ecological linkages of fish and fisheries in aquatic ecosystems, in some cases incorporating related social and economic drivers. There is now however a growing recognition that studying the social and societal (including political and legal) aspects of EBFM is also crucially important to enable an implementation of the key working principles of an ecosystem approach to support sustainable fisheries development. The EBFM requires considering an entirely new complexity context including not only those relating to the ecological system but also complexities inserted from economic and social perspectives of management. This challenges a linear framing of science and policy and respective delegations of tasks and responsibilities, thus generating a need for new framings of science-policy-stakeholder relations that enable more inclusive or ‘recursive’ modes of governance under engagement of a broader range of societal actors. These new dynamics between different actors, including related challenges and opportunities, will be addressed in this panel with examples from the Common Fisheries Policy, EU Advisory Councils, Swedish Fisheries Management, with analytical focuses on the governance of stakeholder interactions, participation, knowledge inclusion, science-policy interactions and advisory procedures.

Challenges to the implementation of an EAFM: focus on the non-biology-associated aspects

Paulina Ramirez-Monsalve (Innovative Fisheries Management, Aalborg University, Denmark)

With the goal of establishing healthy and productive seas and oceans, the European Union (EU) aims to apply an Ecosystem Approach (EA) to the management of all human activities in the marine environment, including fisheries. However, achieving the desired ecological, social and economic objectives is something that will require time, considerable resources and extensive co-operation. Challenges and barriers -from the scientific knowledge base and from the institutional framework related to the implementation of EAFM in the EU have been analyzed. Nevertheless, further attention needs to be given to the non-biological aspects (social, cultural, economic, legal) if there is really the intention of managing EU fisheries resources under the principles of an EA. Building up on previous work, the current paper aims to go into additional depth on the current status of those non-biological challenges at EU level. It classifies the challenges into four categories: a) challenges for which there is uncertainty on how they are being addressed; b) challenges which are being addressed (in theory) but there is still room for improvement; c) challenges “to be coped with” in the best possible way and without getting too confused; and d) challenges to be addressed using the “one step at the time” approach.

Implementing Ecosystem-based Fisheries Management in Sweden: what are the social and political and implications?

Milena Arias Schreiber (Swedish Institute for the Marine Environment, University of Gothenburg)

Sebastian Linke (School of Global Studies, University of Gothenburg)

The Ecosystem Approach (EA) has been adopted over the last decades as a new course of action for governing the use of marine and coastal environments and their resources. Sweden has recognized the importance of applying an Ecosystem-Based approach to Fisheries Management (EBFM) and is committed to its implementation. In 2016, the Swedish government commissioned the Swedish Agency for Marine and Water Management (SwAM) to develop a strategy that guides the development of an EBFM. In response, SwAM and the Swedish Institute for the Marine Environment (SIME) developed a short-term project aiming to collect and synthesise the knowledge base to facilitate future dialogue with stakeholders in order to develop an EBFM implementation strategy in 2017. The project’s objective was to analyse social, political and legal challenges and opportunities for EBFM implementation within current governance structures and processes. Our paper first reviews and reconsiders the social and societal challenges faced by an EBFM approach. It then presents the process of its implementation in Sweden and concludes upon the results of the SwAM/SIME project. Our case shows that Swedish fisheries managers face an “institutional trap” that challenges their intentions to implement the ecosystem approach, where researchers are being gradually enervated by permanent discussions and plans on classic EBFM issues that do not generate concrete new outcomes. Managers and scientists are missing a collective interdisciplinary vision of the governance implications for an EBFM that include social and political effects. We conclude that despite governmental efforts, managers’ and scientist’s various (mis)interpretations and subsequent mistreatment of the social dimensions of the Ecosystem Approach are critically hindering the implementation of the EBFM in Sweden.

Science for an ecosystem approach to fisheries: dilemmas in advisory processes

Sebastian Linke (School of Global Studies, University of Gothenburg)

Kåre N. Nielsen (Norwegian College of Fishery Science, University of Tromsø)

Petter Holm (Norwegian College of Fishery Science, University of Tromsø)

Science serves as a key actor in environmental governance – fisheries management being a significant example. However, exactly how scientific knowledge and advice should be developed and applied in such science-policy interactions is still debated. Some scholars argue in favour of relying on expert ingenuity and academic self-regulation, while others assert a need for adapting policy relevant science to changing societal needs and priorities by increasing public participation in science and policy-making. Current processes to develop and give scientific advice that enables an *ecosystem approach to management* (EAM) challenge traditional arrangements of science and policy enabling a clear delegation of tasks and responsibilities between the two domains. The EAM requires actors to consider a new complexity context, including not only those relating to the ecological system but also additional complexities inserted from economic and social perspectives of management. What role can social science theory play in contributing to a better understanding of this mayor challenge in fisheries management? In this paper we explore the shifting role of science and scientific advise in changing policy frameworks from a linear system ('TAC machine') towards *Long Term Management Plans* and *Integrated Ecosystem Assessments*. Our question is how scientific advisory work can address emerging EAM complexities under requirements to simultaneously ensure epistemic and democratic legitimacy of expert knowledge. Using theoretical perspectives from science-policy and science and technology studies (STS), we investigate how issues of expert credibility and democratic legitimacy are addressed under changing science-policy-society relations emerging with an EAM framework and new governance requirements.

What role for the stakeholders in the implementation of an Ecosystem Approach to Fisheries Management?

Marta A. Ballesteros (Fisheries Socioeconomic Department, Centro Tecnológico del Mar. Fundacion CETMAR, Vigo, Spain)

Kåre N. Nielsen (The Arctic University of Norway, Tromsø, Norway)

Jose L. Santiago (Fisheries Socioeconomic Department, Centro Tecnológico del Mar. Fundacion CETMAR, Vigo, Spain)

Ditte Degnbol (Innovative Fisheries Management (IFM) – An Aalborg University Research Center, Aalborg, Denmark)

Paulina Ramírez-Monsalve (Innovative Fisheries Management (IFM) – An Aalborg University Research Center, Aalborg, Denmark)

Jesper Raakjaer (Innovative Fisheries Management (IFM) – An Aalborg University Research Center, Aalborg, Denmark)

Rannvá Danielsen (Syntesa, Gøta, Faroe Islands)

Poul Degnbol (Innovative Fisheries Management (IFM) – An Aalborg University Research Center, Aalborg, Denmark)

Alexandre Rodriguez (Long-distance Advisory Council, Madrid, Spain)

Verena Ohms (Pelagic Advisory Council, The Hague, Netherlands)

Mika Rahikainen (University of Helsinki, Finland)

Rosa Chapela (Fisheries Socioeconomic Department, Centro Tecnológico del Mar. Fundacion CETMAR, Vigo, Spain)

Stakeholder involvement is an essential feature of the Ecosystem Approach to Fisheries Management (EAFM) where successful implementation requires a progressive and effective engagement of society actors with legitimate interests in fisheries and the marine environment. However, stakeholder involvement rather than straightforward is particularly challenging in the multifaceted and contested

policy arena of marine resource governance. The Common Fisheries Policy has taken a pragmatic and incremental approach of considering EAFM as an *evolution* character rather than a *revolutionary* one. In this sense, progress towards the implementation of an EAFM will rely less on establishing new decision-making processes and more on innovations to the existing framework. In this case, innovations with regards to the engagement of stakeholders within the existing structures. Despite the advances made by the EU regarding the enhancement of stakeholder involvement in policy processes, evidences show a shallow engagement: mandatory for information supply and consultation, but active involvement is only formally encouraged. Building on research developed with the EU 7FP MareFrame project, the current paper addresses how do European stakeholders understand the EAFM and what enabling settings for participation could be embedded in the current policy context.

1.5.2. Understanding Challenges to Sustainable Coastal Livelihoods: insights from the Arafura and Timor Seas Region I	B2.07
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Chair: Dirk Steenbergen (Charles Darwin University)

Panel organizers:

Dirk Steenbergen (Charles Darwin University)

Natasha Stacey (Charles Darwin University)

Panel description: The livelihoods of marine resource-dependent coastal communities are highly vulnerable due to their exposure to various pressures resulting from socio-political change (e.g. globalization), economic transformation (e.g. market expansion), ecological shifts (e.g. climate change) and natural hazards (Allison and Horemans 2006, Stanford et al. 2014). Developing stable and dependable sources of income for such communities, through sustainable resource use practices, is an increasingly prominent objective in conservation and development practice (Cruz-Trinidad et al. 2014), as it is in the Arafura and Timor Seas (ATS) maritime region. These warm, tropical waters are adjacent to the Coral Triangle - recognized as one of the most marine biodiverse regions in the world. Marine resources, both small and large scale fisheries and associated habitats in the ATS region provide food, income, employment and cultural value for its coastal residents. Livelihood diversification or enhancement is often implemented through programs of external agents aimed primarily to relieve pressure on coastal or marine resources (Wright et al. 2015). Programs like these in the ATS region have a major focus on improving livelihood outcomes, like income, food security and wellbeing, in these vulnerable contexts through ‘alternative livelihoods’ and ‘livelihood diversification’ (Foale et al. 2013). These approaches have become strong narratives in setting local development agendas and directing poverty alleviation strategies throughout the region (Brugère et al. 2008, CGIAR 2012). Although there is considerable attention in the research and development/conservation sector to improving local livelihoods, a range of challenges remain to develop such approaches to be effective in spatially and temporally dynamic environments. The six presentations of this panel highlight identified shortcomings in contemporary approaches and potential ways to address these. The presentations are based on articles that will appear in a forthcoming special feature of Marine Policy and discuss some of the main contemporary environmental, social-economic, and governance threats to coastal livelihoods, especially in the context of regional sustainable coastal resource management and small scale fisheries concerns in the Arafura and Timor Seas (ATS) maritime region.

Three main questions are addressed by the case studies:

- What conservation discourses and development policy contexts direct/determine the design and implementation of livelihood interventions, and what influences these processes?

- How do contemporary livelihood improvement interventions frame coastal livelihoods and to what extent does this duly reflect ground level dynamism and complexity?
- How are dynamic livelihood systems of coastal people affected by markets, environmental change and/or political shifts?

The Coral Triangle Initiative through the lens of political ecology: lessons for democratising coastal fishery management and food security research in the Asia-Pacific region

Julian Clifton & Simon Foale (College of Arts, Society and Education, James Cook University, Australia)*

We present three related arguments for the greater democratisation of research and aid interventions to improve coastal fishery management, livelihoods and food security in the Asia-Pacific region. Firstly we review evidence that the Coral Triangle Initiative, by framing the key drivers of food insecurity as local economic deficiencies, and ignoring larger-scale drivers of poverty, legitimises both its own authority to intervene, and its mandate to administer a 'blueprint' policy of strengthened marine resource regulation which ignores the conditions, needs and expectations of local fishers. Secondly we argue that the neoliberal logics applied to alternative livelihood developments (seaweed farming) associated with conservation-driven fishery closures fail to deal with a range of social and political complexities among fishing communities in north-eastern Sulawesi, thus limiting the impact of the intervention, and exacerbating existing inequalities and the economic precarity of some fishers. Finally we use national-scale fisheries data reported by the Philippines government to show that, in striking contrast to the claims made about the food security importance of coral reef fish by the CTI, around 80% of fisheries production in Philippines comes from aquaculture and pelagic fisheries. The fish species reported as most important in diet surveys are also aquaculture and pelagic species. Despite these facts, scientific interest in fisheries in the region, as measured by a number of key word searches in Web of Science, is heavily biased towards coral reefs. There is relatively little published science focused on the fish species that are most important for food security. All of these arguments demonstrate a pressing need for research and aid-funded interventions on fishery management, livelihoods and food security to better reflect the needs of coastal people in the Asia-Pacific region, rather than the values of Western scientists and conservationists.

The money side of livelihoods: Economics of an unregulated small-scale Indonesian sea cucumber fishery in the Timor Sea

James Prescott, James Riwu, Andhika P. Prasetyo & Natasha Stacey (*former MoU box manager at Australian Fisheries Management Authority, Darwin, Australia)*

Fishers from several ethnic groups on small islands in eastern Indonesia seasonally fish for sea cucumbers at Scott Reef in Australia's Exclusive Economic Zone in the Timor Sea. Despite evidence suggesting that the sea cucumbers are severely over-exploited fishers continue to voyage to the reef. How the traditional fishery operates under this condition and more broadly what economic drivers cause fishers to make the long and arduous voyage is vital to understanding this small-scale fishery and developing appropriate strategies for management. This study is the first to investigate these dynamic livelihood aspects using semi-structured interviews and fishers' voluntarily recorded data on their catches, costs of fishing and the sales of those catches and income received over a 6 year period. The study demonstrated that costs, borrowings, and revenues differed between crews, leading to widely varying profits. Nevertheless, every crew that recorded the sale of their catches made a profit. Rapidly appreciating prices for their sea cucumber harvest, predominantly comprising low value species, was critical to maintaining the fishery's profitability. The income earned by some crews and boat owners were far greater than those potentially available to them through other livelihood strategies such as agriculture, coastal fisheries or trade opportunities. This study also suggests the depletion of high value sea cucumber species is ongoing. This Indonesian sea cucumber fishery at Scott Reef illustrates the linkages between stock sustainability, fishers' livelihood outcomes, and the

burgeoning Asian demand for sea cucumbers and the findings can inform the current management discourse on this small-scale trans-boundary fishery.

Livelihood diversity and dynamism in Timor-Leste; insights for coastal resource governance and livelihood development

David J. Mills; Alexander Tilley; Mario Pereira; Denis Hellebrandt; Avelino Fernandes; & Philippa J. Cohen (*WorldFish, Timor-Leste)*

Coastal communities, particularly those within small island developing states, are typically highly dependent on fisheries and other natural-resource based livelihoods. Specialization as a ‘fisher’ is however relatively rare, and individuals typically hold diverse livelihood portfolios that can be adapted (within limits) as opportunities and challenges emerge. This diverse and dynamic “livelihood landscape” is an important consideration for guiding efforts that seek to improve governance and livelihood opportunities associated with natural resources. Livelihoods, the benefits they provide to human wellbeing, as well as the vulnerabilities they face, are highly context specific. Using data from 495 household surveys conducted within 15 communities on the island of Atauro, Timor-Leste, we evaluate the importance of fisheries within a suite of livelihoods, the correlation of different livelihoods with indicators of human wellbeing (assets, food security and income) and the spatial and temporal variation of those livelihoods. Activities linked to primary productivity were nominated by 67% households as their primary livelihood. Forty-one percent of households participated in fishing, and of those 54% considered fishing to be their principle livelihood. Almost all households (95%) own livestock, and even respondents who considered themselves as ‘fishers’ ranked livestock disease, rather than a fisheries related concern, as the most important livelihood challenge they face. Engagement in fishing varied by geographic location and throughout the year, seemingly influenced largely by weather systems. Communities situated in more protected locales had relatively consistent levels of fishing throughout the year; a feature that correlated with lower livelihood diversity. Our paper highlights that even if governance and livelihood interventions are focused on fisheries, interactions with other livelihoods must be considered. For example, if interventions were to work with self-identified ‘fishers’ they would only be focused on a fraction of the population that derive benefit from fisheries resources, they would overlook the most prevalent challenges fishers (and coastal communities more broadly) face, and would be focused on those with relatively high food security and income. We found that measures of wellbeing were better explained by geography and socio-cultural settings, rather than being attributable to dominant income sources. Our results emphasize the value of cross-sector development interventions informed by contextualized analysis of livelihoods and wellbeing outcomes.

1.1.2. Resource mobility: the case of fisheries	B2.03
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Chair: Nataša Rogelja

Culture, Capture and Disease: Small-Scale Shrimp Production in the Age of Industrial Aquaculture

Bradford Dubik and Sarah Bess Jones Zigler (Duke University Marine Lab)*

This paper focuses on the historical co-production of industrial shrimp aquaculture and viral shrimp diseases, with an emphasis on the impacts of these processes on contemporary small-scale producers. Shrimp aquaculture is concentrated in developing tropical economies, with the vast majority of shrimp exported to consumers in the Global North. The rise of industrial shrimp aquaculture has been accompanied by the development of new technologies, institutions, and practices, designed to facilitate and govern the growth of the industry. While successful in making aquaculture the single largest production method for shrimp, these innovations also created ideal environments for the emergence of previously unknown shrimp diseases, which have caused global production losses of up

to 40% in a single year. Such massive supply fluctuations lead to increased volatility and risk in the global marketplace, while also necessitating further technological modernization and development interventions to curb disease outbreaks. This research uses a mixed methods approach, combining qualitative interviews, policy analysis, and time series analysis of shrimp trade price and quantity to explore the relationship between development practice, policy, and shrimp disease. It is argued that shrimp diseases take on a causal role in shaping constructed and material commodity relationships, affecting development decisions and patterns of trade and material flow. The effects on supply and price transmit the impact of disease across geographic space to impact wild capture production shrimp in the United States and elsewhere. This work aims to add empirical robustness to theoretical conceptions of how non-human agents can shape social and ecological outcomes.

The story of four fish in the NE Adriatic

Nataša Rogelja (Research Centre of the Slovenian Academy of Sciences and Arts, Slovenian Migration Institute)

Alenka Janko Spreizer (University of Primorska, Faculty of Humanities, Institute for intercultural studies)

In the paper we will present the story of four fish swimming along and across borders in the NE Adriatic that have important economic and symbolic role in this area. The first one is a Piran's mullet, a migratory fish belonging to the *Mugilidae* family, a fish that is strongly linked with local fishing tradition but is otherwise a common species of fish spread worldwide and enjoying no special attention from the side of scientists or environmentalists. We will also present its rival, a "sedentarized" pray fish, Piran's seabass and its symbolic and its related economic value. Mullet's image was selected for the Slovene animal postage stamp in 2013, and the fish often finds its way also into Slovene newspapers, most frequently in the winter period or in connection with the disputed maritime border which they obliviously cross. Piran's seabass swimming in fish farms in the Bay of Piran/Pirano, on the other hand, is a novelty. It is a fish "without history", a fish for which the doors of Piran's municipality and museum are closed, a fish that doesn't cross the contested border and sit comfortably within sustainable development and projects. There are two other fish, important for this region and linked with other specific discourses, historical periods or fishing technologies – the sardines and tunas. The sardines are small pelagic fish important for ex-Yugoslav fishing and canning company Delamaris but also a common meal served at fish picnic taking place on Slovene fishing boats that are nowadays transformed in the summer period into tourist boats. As some of the fishermen said, sardines are supposedly healthier and taste like real fish, unlike "the rich people's white fish" (e.g. Piran's seabass). Like other three fish tuna has its own story – it is contextualised with the narration on the traditional Slovene tuna fishing along the coast between the Trieste/Trst and Sistiana/Sesljan (on the nowadays Italian coast where Slovene speaking inhabitant live) but it is also part of the EU fishing quota story. As Slovenia did not get any tuna quotas (no catches were recorded at the time when quotas were fixed) the Slovene fishermen are nowadays catching "forbidden tunas". The sudden appearance of tuna fish in the last two years along with the appearance of curious "Croatian" tuna on the Slovene fish market once again proved how processes in nature and society are unpredictable, complicated and dynamic.

Sustainable fisheries management: What is the role of resource mobility and resource user's mobility?

Sophia Kochalski¹, Hannah L. Harrison², Øystein Aas^{2,3}, Robert Arlinghaus^{1,4}

¹*Leibniz-Institute of Freshwater Ecology and Inland Fisheries, Berlin, Germany*

²*Norwegian University of Life Sciences, Ås, Norway*

³*Norwegian Institute for Nature Research, Lillehammer, Norway*

⁴*Humboldt-Universität zu Berlin, Germany*

Natural resource management must constantly cope with social and environmental change. In Europe, it is possible to find examples of management systems that have been able to successfully deal with environmental and social change while many others have failed. The mobility of many fish species and parts of the fishery sector is a particular challenge for fisheries management: mobile species cross political and ecological boundaries, and occupationally and geographically mobile fishermen compete with resident resource users. Previous studies in fisheries science have found that mobility of resources and resource users increases allocation conflicts and jeopardizes the sustainability of the fishery. This research addressed the question how sustainable fisheries management can succeed despite mobile resources or mobile resource users. Drawing on sociological conflict theories and two in-depth case studies, we illuminate the relationship between mobility, fisheries conflict and sustainability. The first case study applied Ostrom's social-ecological systems framework to a recreational salmon fishery in Norway with mainly resident users but a highly mobile resource base. The second case was a qualitative study of a commercial English inshore fishery with locally bound resources but an influx of mobile fishermen. Findings for the two fisheries are discussed in the context of strategies for sustainable fisheries management and eco-certification of small-scale fisheries.

Navigating transformation in small-scale fisheries: Roles of technology creep in marine and ocean sustainability

Miguel Lorenzi (Memorial University of Newfoundland – Geography Department; Too Big to Ignore Project)

Fisheries have been evolving as harvesting activity since its beginning. Although, from the last half of the twentieth century to the current day, changes in fisheries are the most radical in humankind's fishing history due to technological advances. Currently, the 4.6 million vessels that comprise the global fishing fleet have a tremendous range of sizes, types, and designs, varying from traditional canoes still powered by muscle and the wind to large high-tech factory-like ships. Fishers and fisheries are constantly introducing technological improvements in order to increase revenues by catching more and better quality fish, to reduce operation costs and to enhance comfort and safety on board fishing vessels. This technical creeping has changed the face of fishing harvesting activities. Thus, such changes have direct impacts on the flow of fish consumption, the well-being of fishing communities and can also be a challenge for fisheries governance. The impact of technological developments on fishing boats also leads to substantial changes, albeit unevenly, in more traditional small-scale fishing boats. The consequence is the arising of small, yet somehow industrialized, fishing boats. However, even with the diffusion of more advanced propulsion, navigational and mechanical systems, the general perception about small-scale fisheries hasn't changed. The term small-scale still connotes a likely poor efficient fishery with low levels of mechanization. A better understanding of the changes in harvesting technologies on the small-scale fishing boat will allow us to have deeper insights into the resilience of fishing communities to climate change effects and a more comprehensive assessment of the fishing capacity of the small-scale fleets. This research explores not only the changes in fishing fleets and gears, but also will establish how technology has facilitated the flows of fish products, capital and fishing people.

Panel sessions	Series 2	Wednesday, 5th of July 15:30-17:00
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1.2.2. Roundtable: Interactive governance theory in capture fisheries and aquaculture (in memory of Jan Kooiman, 1930-2016)	B2.06
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Chair: Maarten Bavinck

Panel members: *Walter Kickert (Erasmus University), Bernard Glaeser (Deutschen Gesellschaft für Humanökologie), Svein Jentoft (University of Tromsø), Ratana Chuenpagdee (Memorial University), Andrew Song (req. James Cook University) and Maarten Bavinck (University of Amsterdam)*

Panel Description: Interactive Governance theory, which was coined by Jan Kooiman in the 1990s, has inspired two generations of social scientists in the realm of fisheries and aquaculture, providing them with a unique conceptual framework and a vocabulary to investigate a range of contemporary issues. The effort made to apply and extend Interactive Governance theory in this field has resulted in a large number of publications and PhD theses. After twenty years of work, it is now time to establish the contribution that has been made not only to fisheries science, but also to the discipline of governance studies. The round table will debate the innovations realized, as well as the gaps and challenges that remain.

- How was Jan Kooiman as a mentor and as a friend?
- How did we benefit personally from our engagement with Interactive Governance?
- Where has IG made a unique contribution to social science?
- What are the challenges in further developing and applying Interactive Governance theory?
- How can we carry on with his legacy?

1.2.3. Supporting Maritime Spatial Planning with playing games	E0.22
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Chair: Xander Keijser

Panel organizers: *Xander Keijser¹, Malena Ripken², Harald Warmelink³, Lodewijk Abspoel⁴, Igor Mayer³*

^{1.} *Rijkswaterstaat, the Netherlands.*

^{2.} *University of Oldenburg, Germany*

^{3.} *NHTV Breda, University of Applied Sciences, the Netherlands*

^{4.} *Ministry of Infrastructure and the Environment, the Netherlands*

Panel description: The North Sea is a highly complex, open marine ecosystem. The increasing use intensity and establishment of relatively new uses, such as offshore wind energy, will increase the pressure on coastal and marine ecosystems. Furthermore, competing spatial claims and conflicts between maritime economic activities and the marine ecosystem continue to challenge governments across Europe. The 2014 EU directive on Maritime Spatial Planning (MSP) depends on the development of 'new tools' and 'best-practices' for MSP. Playing games can support the development of Maritime Spatial Planning, in particular with respect to stakeholder engagement and collaborative planning. The developers have gained a lot of experience with the 'MSP Challenge' games for professional education and actual planning processes.



The MSP Challenge 2050 is a computer supported, simulation game that gives maritime spatial planners insight into the diverse challenges of sustainably planning human activities in the marine and coastal ecosystem. A shorter board game version – a ‘table top strategy game’ – was played with success at a high-level meeting of the 2016 Netherlands EU presidency, at the Scottish Coastal Forum and other international conferences. This panel session will focus on the board game edition of the MSP Challenge. Session participants will get the chance to lively interact and play the game during the entire session, while also being able to reflect on decisions and cooperation. This board game offers a playful learning experience designed for MSP practioners in the area of ecosystem based Maritime Spatial Planning and the development of sustainable Blue Growth. The goal of the game is to show some of the dynamic and complex interactions between Blue Growth Development, Land-Sea Interactions, Short Sea Shipping and Maritime Spatial Planning (MSP), with the strategic objectives of the Blue Economy and Clean & Healthy Seas. During the session, interactions and discussions will become visible to the participants of various backgrounds. The overall goal of the session is to show dynamic and lively interactions between different marine activities and marine planning, while experiencing MSP through the lens of a game.

Further information: <http://www.mspchallenge.info/>

1.4.3. Markets and market opportunities for small-scale fishery products II**B2.04**

Chair: José Pascual Fernández

Panel Organizers:

Cristina Pita (University of Aveiro, Portugal)

José Pascual Fernández (University de La Laguna, Spain)

Panel Description

See 1.4.1.

Fish eaters or alternative consumers? The multiple ways of joining Community-Supported Fishery schemes

Gervaise Debucquet¹, Patrice Guillotreau^{2}, Gilles Lazuech³, Frédéric Salladarré⁴*

¹*Audencia Recherche, France*

²*LEMNA, University of Nantes, France*

³*CENS, University of Nantes, France*

⁴*Université-IUT de Rennes 1, CREM CNRS, LEMNA*

This communication looks at the social and economic factors inducing fish consumers to join a Community Supported Fishery (CSF) scheme created by small-scale fishers on a French small island. An original in-depth survey of 556 consumers representing approximately one third of the CSF membership has been recently undertaken. A factor analysis of the data set reveals the existence of two structuring pillars: the first one relates to the fish product and fishing characteristics, and the second one refers to the consumption experiment and social interactions. In our model specification, we include social characteristics (age, gender, family size...) and behavioral variables (single buyer or shared box, purchase from other marketing channels, etc.) to disentangle the underpinning motivations of CSF seafood consumers. In particular, we show that CSF is the unique supply source of consumers who prioritize relational experiments, whereas those who first consider product and process characteristics may use diversified sources such as multiple grocers, fishmongers or street markets. Lessons can be drawn out of the results to better understand the consumers' incentives to join CSF and see whether this type of consumption can be extended or not by small-scale fishers.

Labelling approaches set up by the French mussel farmers: governance and market issues

Sophie Girard (Ifremer, Univ Brest, France)

This work is undertaken as part of the European SUCCESS project funded by the H2020 programme. The issue of competitiveness and sustainability of the EU fisheries and aquaculture sectors, at the core of the project, is addressed here from the French Mussel case-study and a focus on labelling approaches. Firstly, some background information on the regulation systems in force for mussel farming and on the French mussel value-chain is provided for considering the main issues at stake in labelling. Secondly, an overview of the different labels obtained by the French mussel farmers is presented, starting with the TSG (Traditional Speciality Guaranty) which protects the "bouchot" cultivation technique and the PDO (Protected designation of origin) label for bouchot mussels from the Mont-Saint Michel Bay. The PDO was delivered in 2011 after a long labelling process which involved most of the producers of the bay and resulted in adopting more sustainable farming practices, so that the designation of origin is combined with higher quality standards for bouchot mussels. This was followed by the development of other labelling approaches by producers excluded from the TSG or the PDO (i.e. Label Rouge, organic label). Then, the different labels for farmed mussel

are compared with respect to their quality and environmental attributes and further assessment is proposed, based on estimated benefits for the producers (individual or collective), potential market outlets and perceptions of actors along the Mussel value chain. As the multiplication of producer labels could be competing with the marketing strategies of large retailers, the capacity of labelling approaches in improving the co-management of the mussel farming sector and increasing the bargaining power of producers has also to be questioned. Finally, we will discuss how mussel labelling schemes should evolve to meet consumer expectations and seize market opportunities in terms of environmental certification.

Bridging the gap between responsible SSF and preferential markets: lessons from improvement, differentiation and disintermediation by Mexican fishing cooperatives.

Hoyt Peckham^{1,2}, María Luisa Luque³, Cecilia Blasco², Alejandro Rodríguez²

¹SmartFish AC, La Paz, Baja California Sur, México

²Center for Ocean Solutions, Stanford University, Pacific Grove CA USA

³NUUP AC, Ciudad de México, México

Factors including geographic isolation, relatively low volume, quality, and consistency of production, and lack of capital, capacity and infrastructure represent barriers to market access for many small-scale fisheries. Improvement (of social, environmental, and/or enterprise performance), differentiation and disintermediation have been widely recommended for improving market opportunities for small-scale fisheries. Here we present and compare the results of varying efforts to improve, differentiate, and disintermediate the production of three seafood products (lobster, yellowtail, and cabrilla) by fishing cooperatives of Mexico's Baja California and Yucatan peninsulas in terms of the triple impact of each fishery. Outcomes ranged from cooperatives that improved, certified, consolidated and disintermediated their lobster production to achieve high profitability in a preferential export market to associations of coops that improved and differentiated but were unable to consolidate or maintain access to domestic preferential markets for their finfish production. Among other results, our findings suggest that without certain enabling conditions, undertaking improvement, differentiation and/or disintermediation and doing so out of order are likely to fail and can result in major organizational setbacks. We discuss these results in the context of small-scale fisheries from other regions as well as similar segments of the small-scale agriculture sector. We conclude with recommendations for fisher groups and facilitating practitioners to help maximize effectiveness and triple impact when working to gain access to preferential markets by small-scale fisheries.

Adding value to an abundant but underused fisheries resource: the Atlantic Chub Mackerel in Portugal

Jorge M.S. Gonçalves*, M.Rangel, L. Bentes, P. Monteiro, F. Oliveira, C. Afonso, K. Erzini (Centre of Marine Sciences CCMAR, University of the Algarve, Portugal)

The Atlantic chub mackerel (*Scomber colias*), locally known as Cavala, is currently the most abundant fish resource in Portugal. Nevertheless, until a decade ago, Cavala was one of the most discarded fisheries resources, being used essentially as bait. The human consumption of this species is low, occurring mainly in the summer as fresh fish and all year round in tins or frozen. In order to promote a sustainable increase in the human consumption of Cavala, CCMAR launched a program with two main lines: 1) a scientific line where nutritional profile, evolution of fat contents and biological traits were analysed, with the aim of increasing the basic knowledge about the species, and 2) an outreach line with the goal of upgrading the socio-economic value of this biological resource. From the biological studies we found that Cavala is one of the richest marine species in essential fatty acids, giving excellent results for the valorisation of this species. On the dissemination side we have involved well known Chefs who were challenged to do cooking workshops in which they had to develop gourmet versions of recipes made using Cavala. Furthermore, "Cavala weeks" were

organized in association with dozens of restaurants from the Algarve to promote innovative Cavala recipes. After more than 20 cooking shows, with 44 original recipes and more than 3000 plates served, and two special “Cavala weeks”, several publications and a strong presence on social media, we have captivated the attention of the major TV national channels and therefore of the general public. It is too soon to evaluate the real impact of this project on society, but from our own perception Cavala gained a new and better image and an increase in the consumption of this local and healthy product is expected.

1.5.3. Transdisciplinary Research to assess marine socio-ecological systems	B2.05
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Chairs: Jörn Schmidt

Panel organizers:

Jörn Schmidt¹, Christine Röckmann², Olivier Thebaud³, Jan Jaap Poos²

¹Kiel Marine Science and Cluster of Excellence, Future Ocean, Kiel University, Environmental, Resource and Ecological Economics, Germany,

²Institute for Marine Resources & Ecosystem Studies (IMARES), Wageningen UR, The Netherlands,

³Ifremer, Unité d’Economie Maritime, Plouzané Cedex, France,

Panel description: Holistic understanding of complex marine socio-ecological systems is a challenging new area of research that combines multidisciplinary, interdisciplinary and transdisciplinary components. Understanding is necessary to allow the development of integrated assessments to derive a robust understanding of trade---offs between different ecological, economic, social, cultural and institutional objectives. The focus of this session is on the methodological and empirical challenges involved in including human dimensions in integrated ecosystem assessments. These challenges also involve the development of research projects (co-esign) and carrying them out (co-production). Exploring tools and how to develop them to specifically evaluate coupled socio-ecological systems is sorely needed, is timely, and has not systematically been done yet.

This session consists of a set of impulse presentations (max. 30 minutes including interactive discussion during the presentation), highlighting different aspects of integrated ecosystem assessments, transdisciplinary research and the development of tools. We specifically invite the presentation of case studies on posters with a poster elevator pitch (max. 2 minutes) in the session. The outcome should be a short and concise session report with best practices and case studies, which will be specifically distributed in the MSEAS* network.

Proposed participants:

- ICES Steering Group on Integrated Assessments (Mette Mauritzen)
- ICES WGMARS (David Goldsborough, Christine Röckmann)
- ICES Strategic Initiative on the Human Dimension in Integrated Ecosystem Assessments
- IMBER Human Dimensions Working Group (Alida Bundy)
- PICES section Human Dimensions of Marine Systems (Keith Criddle, Mitsutaku Makino)

* MSEAS 2016 Understanding marine socio-ecological systems: including the human dimension in Integrated Ecosystem Assessments; <http://www.ices.dk/news---and-events/symposia/MSEAS/Pages/MSEAS.aspx>

1.4.4. Implications of the new discard policy in European fisheries	B2.01
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Chair: Mike Fitzpatrick

Panel organizer: *Mike Fitzpatrick (Marine Natural Resource Governance, Ireland)*

Panel description: The introduction of a Landing Obligation (or Discard Ban) in the Common Fisheries Policy marked a radical change in EU fisheries management and a number of research projects, including DiscardLess and Minouw, are examining issues with implementation of the policy. While much of the emphasis within these projects is on technical issues, such as improvements to fishing gear, the human implications of such a significant policy change are also being explored. Within this panel session we will present a number of papers which describe how those involved in fishing are dealing with the new discard policy. We will present early results from surveys and interviews with fishers, industry representatives, NGO's and policy makers on:

- Attitudes to discards in fisheries and the Landing Obligation specifically,
- Social and economic implications and concerns about the implementation of the discard policy,
- Implications for the relationship between fishers and scientists,
- Emerging issues in governance of fisheries which are being brought into sharp focus by implementation challenges and the top-down origin of the Landing Obligation.
- Opportunities for new approaches created by the policy change.

Implementation and Governance Challenges with the Landing Obligation of the Common Fisheries Policy.

Mike Fitzpatrick (Marine Natural Resource Governance, Cork, Ireland)

Kåre Nolde Nielsen (UiT, Tromsø, Norway)

The Landing Obligation (LO) in the recently reformed Common Fisheries Policy (CFP) represents a radical change in EU fisheries management and also, in the manner of its introduction, a return to a top-down governance mode. Discard bans in Iceland and Norway, which have been in place for decades, took a long time to produce significant reductions in discard rates and to become fully supported by fishers. In contrast, we discuss how the ambitious EU implementation timescale, of only four years at most, creates uncertainty and potentially additional resistance to the policy across multiple stakeholder groups. The new regionalisation arrangements in the CFP have resulted in the creation of a new level in EU fisheries governance, namely the high level groups of Member State administrations. The role of these groups in developing discard plans is specified in EU regulations but our research reveals distinctly different regional interpretations and approaches. We describe how communication and interaction between these groups and the Advisory Councils is, and will remain, a critical factor for the implementation of the LO. Institutional responsiveness and flexibility are required in a changing policy landscape, and we contemplate alternative governance systems that may satisfy these demands.

Stakeholders' opinion about the Landing Obligation and transformations of Social, Economic and Ecological systems of EU fisheries.

Frangoudes Katia¹, Lisa Borges²,

¹ Univ Brest, Ifremer, France

² FishFix, Brussels, Belgium, www.fishfix.eu

The Landing Obligation is one of the conservation objectives introduced by the last revision of the Common Fisheries Policy (CFP) (EC Reg. 1380/ 2013). According to article 15, all species subject to catch limits and minimum landing size, for the Mediterranean, caught during fishing activities in EU waters should be retained on board the fishing vessels, recorded, landed and counted against the quota where applicable. Adaptation to this objective requires a shift of the current social ecological system of European fisheries. For example, it will require adaptation or mitigation of social and economic system due to changes of current practices, natural system will also be changed, and the interactions between these two systems will also modify the governance system; introducing new management rules and new principles of allocation of quotas, as well as changing values and the identity of fishers and fishing dependent communities. The current presentation uses qualitative data, gathered through semi-structure interviews with the main groups of stakeholders (fishers, administrators, representatives of EnvNGOs auction and processing industry, etc) from different member-states and Regional Seas (carried for the H2020 funded Discardless Project), to identify and discuss the main social transformations they foresee will happen with the landings obligation. It will also discuss how fishers' values prompt them to accept or not the landings obligation rule, how ENV-NGO and others stakeholders perceived and anticipated changes and the main changes which will occur on the EU governance system.

Tactical and technical adaptations by fishers to reduce discards in response to the EU Landing Obligation.

Dave Reid (Marine Institute, Galway, Ireland)

The Landing Obligation (LO) in the recently reformed Common Fisheries Policy (CFP) presents a challenge to fishermen in how to work within it. One approach would be to develop fishing strategies that can reduce the catch of the unwanted fish and hence any need to discard them. This can be, at least partially, achieved using changes in fishing tactics and/or gear technology. I will illustrate some of these approaches in terms of possible changes in the behaviour of the fishermen and modifications to the gear used. A suite of possible tactics could be adopted to avoid juvenile (nurse) areas, or hotspots of particular "choke" species. Many gear changes have been introduced as Technical Conservation Measures (TCM) over the years, but these can also be used, voluntarily, to reduce unwanted catches, e.g. of "choke" species, or of undersized fish. These will be illustrated from a number of examples using information from fishermen themselves, and from analyses carried out by scientists using survey and on-board observer data.

An outermost insight on the Landing Obligation and discard avoidance practises in the Azores hook-and-line deep-sea fisheries

Laurence Fauconnet¹, Telmo Morato¹, Pedro Afonso¹, Katia Frangoudes², Cristina Pita³

¹ Departamento de Oceanografia e Pescas - IMAR Institute of Marine Research – University of Azores, Portugal

² Université de Brest, France

³ Department of Environment and Planning & Centre for Environmental and Marine Studies (CESAM) - University of Aveiro, Portugal

The Azores deep-sea bottom hook-and-line fishing might be strongly impacted by the upcoming European Landing Obligation (LO), although having low discards of about 10% of the catch. In this study, fishers were interviewed to assess their perceptions about the LO, and existing and new discard avoidance practices. The LO is perceived as inappropriate to Azorean fisheries given the high

selectivity of the fishing gears already used, the small-scale nature of the fisheries, the insularity and geographic dispersion of this outermost region, which greatly increase the complexity and subsequent costs of collecting and processing the unwanted catch, especially as it cannot be used for direct human consumption. The LO is considered artificial and fishers do not believe it would bring any benefit for them or for the resources. The region has already implemented a great number and diversity of management tools that are considered more appropriate, efficient, and adapted to the reality and specificities of the local fisheries, and with which most fishers agree. Several fishers reported changing from longline to handline gears which showed reduced unwanted catch, higher discard avoidance, and higher survival of unwanted individuals. Large hooks were reported to reduce the catch of undersize fish (<MLS). Spatial measures appeared difficult to adopt because the resources are mixed and their distribution is variable. However, most fishers reported changing areas when catching large amounts of undersize individuals. High survival was reported for several species and most fishers return alive unwanted individuals to the water. Unwanted catch is also commonly used for bait or for crew consumption; therefore maximizing catch utilization. Our study showed fishers' options to further reduce unwanted catches are limited.

1.5.4. Understanding Challenges to Sustainable Coastal Livelihoods: insights from the Arafura and Timor Seas Region II	B2.07
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Chair: Dirk Steenbergen (Charles Darwin University)

Panel organizers:

Dirk Steenbergen and Natasha Stacey (Charles Darwin University)

Panel description:

See 1.5.3.

Rapid Livelihood Transitions: Impacts of a Rise in Seaweed Farming on Island-livelihoods in Remote Eastern Indonesia

Dirk J. Steenbergen; Cliff Marlessy and Elisabeth Holle (*Research Institute for Environment and Livelihoods, Charles Darwin University, Australia)*

In recent decades, seaweed cultivation has expanded exponentially in coastal communities across the Asia-Pacific. In some cases demand-driven market growth accounts for this expansion, while in others it is promoted in community development initiatives to meet sustainability objectives for improving environmental quality and rural livelihoods. A case study is presented of a remote small-island community in eastern Indonesia where over the last decade a dramatic shift in livelihood focus has occurred. Previous dependence on diverse low-productivity livelihood activities transitioned to a predominant focus on seaweed farming. This research examines the development and impact of this transition on households and reflect on how it fits within historic trends of livelihood change for people living in highly variable and vulnerable environments. It also discusses the implications of such dynamism for contemporary policy and management. The case shows how social, economic and cultural environments co-develop as people move out of conditions of shared poverty and into more nuclear household-oriented livelihood activities. Specific attention is given to the influence on a marine resource co-management program operating on the island to illustrate how local livelihood dynamics relate to broader paradigm-driven conservation and rural development initiatives. While dominant strategies towards 'alternative' or 'diversified' livelihoods seek to relieve pressure on resource stocks and provide opportunities for coastal people, this case study provides important and timely insights into the kinds of unintended effects, trends and impacts that are associated with rapid change in the way people make a living. This study argues that understanding changes in livelihood

focus requires detailed consideration of its drivers and place within historic trends of local practice, and of broader impacts for the future of small-island communities.

The Timor Sea Montara oil spill: Livelihood impacts on Savu-Raijua District from a transboundary disaster

Pia Harkness, Natasha Stacey & Dirk J. Steenbergen (*Research Institute for Environment and Livelihoods, Charles Darwin University, Australia)*

In 2009 an oil leak occurred from the Thai operated Montara oil and gas platform, operating under licence in Australian waters in the Timor Sea. The spill is reported to have heavily impacted seaweed farms across East Nusa Tenggara (NTT) province in Indonesia, where seaweed cultivation is an important income generating livelihood activity for many coastal households. Recognition of the impacts and the response by government has been criticised as inadequate and slow, leading to the launch in 2016 of a class action on behalf of over 13,000 NTT seaweed farmers seeking compensation. The affected areas include Savu and Raijua, two of the most remote inhabited islands in NTT. Prior to the adoption of seaweed cultivation, traditional livelihood systems on these islands revolved around the lontar palm, whose sugar saw the population through the long dry seasons, supplemented by seasonal dryland farming, livestock, fishing and gleaning. In this presentation, we investigate the multiple impacts of the oil spill on Savu and Raijuan communities, within the context of local livelihood systems. We present an overview of the Montara oil spill, including government and private sector responses. Drawing on the results of field research in 2015-16, we find that the spill destroyed cultivated seaweed and many households returned to traditional livelihood activities, with greatly reduced earning capacity. The significant economic impact had ramifications for nutrition, health, education, culture and sense of self-worth. Our findings show that people's resilience against shocks affecting new livelihood activities is bolstered by the ability to return to previous livelihood activities. However, other driving forces such as climate change are eroding that resilience. Recent dry years have caused crop failures, the drying up of water supplies and shortened lontar harvest seasons. These findings are likely applicable to many of the seaweed farming families represented in the class action, and highlight the multi-scaled risks associated with transboundary disasters, particularly on often less visible local rural livelihoods.

The money side of livelihoods: Economics of an unregulated small-scale Indonesian sea cucumber fishery in the Timor Sea

Vanessa F. Jaiteh, Neil R. Loneragan, Carol Warren (*PhD candidate at Murdoch University, Perth Australia)*

For several decades, fishing sharks for their fins has provided important livelihoods for eastern Indonesian coastal communities that fish the Halmahera, Arafura and Timor Seas. Fishery and interview data collected in 2012-13 from three case studies on Seram, Aru and Rote islands were used to examine changes in shark fishers' livelihoods over the preceding 20 years. While recent declines in catches and shark fin prices have had a substantial impact on fishers' livelihoods, the fishery's low visibility in some areas of its geographic range and its political complexity in general have meant that government and international development agencies have largely been unaware of this impact. Many respondents remembered the Asian Financial Crisis in 1997-98 and the turn of the millennium as a time when sharks were still abundant and shark fin prices high, but were concerned about the ongoing fall of shark fin prices since March 2012. High-value species such as guitarfish, hammerhead and sandbar sharks were particularly affected, losing up to 40% of their pre-2012 value. These changes, combined with the loss of fishing grounds, few attractive options for alternative income and restrictive debt relationships with shark fin bosses, have led some fishers to resort to high-risk activities such as blast fishing, illegal transboundary fishing, and even people smuggling. This paper examines the multi-layered causes and consequences of fishers' decision-making in response to

adverse changes in their fishery, and explores options and obstacles to pursuing livelihoods that carry lower environmental, financial and personal risks.

1.1.3. Governing maritime mobilities	B2.03
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Chair: Peter Arbo

Cape Verde's maritime mobilities: whose interests are at stake?

Raphaëlle Dancette (UNESCO Chair in Integrated analysis of marine systems)

The Atlantic Ocean is a central component of Cape Verdean's identity. It is a source of food and drinkable water, but it also feeds dreams, hopes and fears. As such, it is a predominant factor in Cape Verdeans' culture. In a declining and increasingly pressured marine environment, foreign fisheries continue their extraction in Cape Verdeans' waters while local communities pursue their exodus towards Europe and United States (Cape Verdean's diaspora is estimated to be twice the country's population). Subsistence fishing decreases while local communities growingly rely on imports for their daily survival, in the form of food (even fish!), fuel (which is used for water desalination among other things) and machinery. In brief: international products and money (from diaspora, development help and exports such as fishing agreements) go in; fish and people go out. In this context, Cape Verde aims to become a more competitive exploiter of its own marine "resources", and to sell its beautiful landscapes and cultural specificities through "sustainable" tourism in an attempt to develop its third sector's economy. What do those political choices indicate about the country's governance? Which interests are put forward? What changes these migrations and trades can bring in Cape Verde, and what changes are expected in host and trade countries? What can we expect from the effect of subsidies on local population and economy?

Unintended consequences of a seasonal fishing ban on fishing effort in Tamil Nadu, India

Julia M. Novak Colwell¹, Mark Axelrod^{2,3}

¹*Pennoni Honors College, Drexel University, USA*

²*Department of Fisheries & Wildlife, Michigan State University, USA*

³*James Madison College, Michigan State University, USA*

Fishers' mobility enables various adaptations to fisheries regulations. We examine the case of a 45 day closed mechanized fishing season in Tamil Nadu, India to understand how fishers adapt to the regulation and whether they shift effort to other resources. Literature suggests that fishers adapt spatially to regulations, a phenomenon known as roving bandits. However, we expect that fishers adapt to restrictions both temporally and through gear shifts. Using a longitudinal study design over the course of three seasons: before, during and after the 2015 seasonal fishing ban, we employ seasonal activities calendars and semi structured interviews to randomly selected participants ($n=171$) within two fishing villages in Tamil Nadu and Puducherry, India. We find that fishers do not shift their effort spatially in response to the ban period, as shifting effort to other geographic locations is risky and may not have the necessary payoff to warrant the effort. We do find that many fishers shift their fishing effort to unrestricted gears during the ban and that post-ban race for fish is exemplified by all gear types, though an illegal, unregulated gear type, locally termed *surukku valai* exhibits the largest increase in effort. This quantification of *surukku valai* effort, to our knowledge, is the first data set produced showing the usage and effects of this gear. Using data on average landings for each gear type (mechanized, motorized and *surukku valai*) we go on to project the impact to fish (kg caught) populations of the post-ban race for fish.

An industry on the move

Peter Arbo (University of Tromsø – The Arctic University of Norway)

Offshore oil and gas production is a key component of the world's energy supply. There are currently 17,000 platforms in operation, and offshore oil and gas accounts for about 30% of global production. The oil industry went offshore 70 years ago. Since then, the industry has moved to ever-greater depths and to more remote and challenging parts of the globe. At each location the stages of production are more or less the same. After obtaining a license the companies start with exploration and drilling. If commercially viable discoveries are made they proceed with development and exploitation. Each field requires billions of dollars in investment.

This paper looks at how the offshore oil and gas industry handles the challenges associated with moving into new and uncharted waters. More specifically, it analyzes the increasing activity in the Barents Sea, which is characterized by huge distances, harsh climate conditions, lack of infrastructure, and high expectations regarding regional spinoff effects. The paper outlines the movement northwards of the petroleum industry on the Norwegian Continental Shelf, the regulatory framework, and the companies involved. Moreover, it highlights the challenges the companies are facing and how they go about in order to scale up their operations. This involves decision dilemmas at both company level and political level.

Nature conservation and mobile actors in the marine and coastal spaces of the Chilean Southern Patagonia

José Barrena Ruiz^{1,2}

¹*Environmental Policy Group, Wageningen University, the Netherlands*

²*Research Center Dynamics of High Latitude Marine Ecosystems (IDEAL), Chile*

The research examines the implications of bounded nature conservation projects for the emergence of spatial claims and the configuration of marine and coastal spaces of Chilean Southern Patagonia. Public conservation areas, such as for instance terrestrial and marine state parks, have been established during the last five decades, while private conservation areas have emerged strongly in the last twenty years in Patagonia. Although these conservation projects have contributed to avoiding ecological degradation, the establishment of bounded conservation spaces is bringing social implications for the sovereignty and equity in accessing and using natural resources. At the same time, mobile actors and activities associated with conservation and resource use, transcend these fixed boundaries. This in turn has raised questions over the effective of area-based approaches to conservation. Both public and private conservation areas have created territorial claims, as well as new dynamics of movement. Using theoretical and methodological insights from the mobilities paradigm, we analyse the ways in which conservation enclosures have shaped the movement and flows of people and capital, as well as the claims and conflicts associated with their creation and management. We will also explore the type of rules, authority, legitimacy and finance exert by public and private conservation initiatives, and their impacts in the configuration of marine and coastal spaces. We adopt a mixed-method approach including historical review as well as mobile ethnography. We develop fieldwork in two biosphere reserves (Cabo de Hornos and Torres del Paine), two public parks (Bernardo O'Higgins, Alberto de Agostini) and two private reserve (Omora, Karukinka) of the Chilean Southern Patagonia and their surrounding communities. Research findings reveal the complex social implications of nature conservation projects, bringing insights to address terrestrial and marine conservation governance in the highly mobile marine and coastal spaces.

Panel sessions	Series 3	Thursday, 6th of July 8:30 – 10:00
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2.1.4. Transboundary Fisheries Management in Changing North Atlantic and Pacific Oceans: Taking Stock, Future Scenarios	B2.06
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Chair: Rashid Sumaila

Panel organizers:

Professor Rashid Sumaila (Institute for the Oceans and Fisheries, University of British Columbia)

Professor David L. VanderZwaag (Marine & Environmental Law Institute, Dalhousie University)

Panel description: This panel session, through a four-part format, will highlight the changing distributions and abundances of transboundary fish stocks in the North Atlantic and Pacific and explore how selected bilateral and regional fisheries management arrangements are faring in addressing the changing maritime conditions and mobilities. First, an overview of the *international law and policy seascape* for managing shifting species and ecosystems will be provided. Second, how *transboundary fisheries management arrangements* in the North Atlantic and Pacific are assessing and addressing ecosystem changes will be described. North Atlantic arrangements include the Northwest Atlantic Fisheries Organization (NAFO), the North Atlantic Salmon Conservation Organization (NASCO), the International Commission for the Conservation of Atlantic Tunas (ICCAT) and Canada-U.S. bilateral cooperation in managing shared groundfish on Georges Bank. Pacific arrangements include the Pacific Salmon Commission, the Western and Central Pacific Fisheries Commission, the North Pacific Fisheries Commission and the Pacific Halibut Commission. Third, the *current state and future scenarios* for *biological and economic changes in transboundary fish stocks* will be projected for the two marine regions with a particular focus on which countries are likely to be future “winners or losers.” Fourth, a broad discussion with academic participants will be encouraged regarding the key constraints in transboundary governance arrangements and possible innovative ways forward.

Are Transboundary Fisheries Management Arrangements in the North Atlantic and Pacific Seaworthy in Changing Oceans?

Professor David VanderZwaag and Olga Koubrak (Phd candidate) (Marine & Environmental Law Institute, Dalhousie University)

This presentation will assess how key transboundary fisheries management arrangements in the North Atlantic and North Pacific are addressing shifting species and ecosystems in the face of climate change. North Atlantic arrangements to be critiqued include the Northwest Atlantic Fisheries Organization (NAFO), the North Atlantic Salmon Conservation Organization (NASCO), the International Commission for the Conservation of Atlantic Tunas (ICCAT) and Canada-U.S. bilateral cooperation in managing shared groundfish on Georges Bank. The recent more northerly migrations of Atlantic bluefin tuna and their catches off Eastern Greenland will be especially highlighted along with the new governance challenges since Greenland is not a Party to ICCAT. Four Pacific arrangements for managing transboundary fisheries will then be reviewed regarding their capabilities to understand and respond to shifting marine ecosystems. Canada-U.S. management approaches in two bilateral arrangements, the Pacific Salmon Commission and the International Pacific Halibut Commission will be described, followed by a summary of how two regional fisheries management organizations, the North Pacific Fisheries Commission (NPFC) and the Western and Central Pacific Fisheries Commission (WCPFC), have fared in implementing the ecosystem approach. The presentation will conclude by comparing Atlantic and Pacific experiences in transboundary fisheries governance and suggesting possible ways to make future management more dynamic and adaptable.

The International Law and Policy Seascope for Managing Shifting Species and Ecosystems

Professor Phillip Saunders and Cecilia Engler (Phd candidate) (Marine & Environmental Law Institute, Dalhousie University)

The impacts of climate change and ocean acidification on major transboundary fishery resources are projected to be significant, including, for example: redistribution of species, spread of invasive species and alteration in disease vectors, changes in fishery productivity, expansion of oxygen-minimum and anoxic dead zones, and acidification impacts on local habitats and species. Redistribution of species and other factors will challenge the effectiveness and relevance of current Regional Fishery Management Organization (RFMO) boundaries. In addition, the current international and legal structures governing transboundary fisheries, as set out in the 1982 UN Convention on the Law of the Sea and the 1995 Fish Stocks Agreement, are rooted in the application of outdated “predictive” management approaches based on Total Allowable Catch and Maximum Sustainable Yield, with little support for the introduction of more adaptive principles such as the precautionary and ecosystem approaches. The example of the ecosystem approach and the extent of its adoption in international legal instruments, including the Law of the Sea Convention and the Fish Stocks Agreement, is considered and assessed in more detail. To date, implementation of the ecosystem approach has been limited in scope and the conceptual development has been focused on fishery-related and anthropocentric objectives. Significant conceptual and implementation challenges remain, including limited normative content of the approach as found in legal instruments, uncertainty about the minimum content of an ecosystem approach to transboundary fisheries, and difficulties in translating ecosystem indicators into practical management advice.

Current State and Future Scenarios for Transboundary Fisheries Management in Changing Oceans: Gauging the Biological Tides

Juliano Palacios-Abrantes and William W. L. Cheung (Institute for the Oceans and Fisheries, The University of British Columbia)*

Climate change is driving shifts in distribution of fish stocks towards areas with cooler environments, generally in higher latitude or deeper water. Particularly, distribution shifts in fish stocks that straddle national jurisdictions or Exclusive Economic Zones are challenging transboundary fisheries management. Canada and USA share numerous economically and culturally important fish stocks in both the Pacific and Atlantic coasts, with some of them managed by Regional Fisheries Management Organizations (RFMOs). In this paper, we examine the past and projected future sharing of catches of transboundary fish stocks between the EEZs of Canada and USA. We hypothesize that ocean warming has been altering the sharing of fish stocks between the two countries, and that such changes will intensify under the ‘business-as-usual’ carbon emission scenario. Firstly, we examine historical fisheries catches of fish stocks that straddle Canadian and USA EEZs from 1950 to 2010. Catches are divided by five sub-regions: Canada (Pacific), Canada (Atlantic), USA (Oregon/California), USA (Alaska) and USA (Atlantic). We then calculate the ratio of sub-regional catches (hereafter called stock-share ratio) between Canada and USA on the Pacific and Atlantic coasts and show that the stock-share ratio of some fish stocks such as Pacific salmon are changing in the direction as expected from the effects of ocean warming. Secondly, we analyze projections of changes in potential catch of these fish stocks under climate change from multiple earth system and species distribution models by the mid- to end of the 21st century. We calculate the projected stock-share ratio between Canada and USA under high and low greenhouse gas emission scenarios. These results highlight fish stocks, sub-regions and RFMOs that are most exposed to climate change impacts caused by shifting fish distributions and, consequently, the disturbance to transboundary fisheries management.

Changing Oceans and the Economics of Transboundary Fisheries Management of Major Fisheries of Canada and the United States

U. Rashid Sumaila (Institute for the Oceans and Fisheries, The University of British Columbia & the Liu Institute for Global Studies)

Building on the findings reported by Palacios-Abrantes and Cheung above, we explore the economics of changing stock-share ratio between Canada and the United States, including ratios for Pacific salmon, Atlantic cod and halibut. What are the current economic benefits to Canada and the United States from transboundary fisheries? How are these benefits likely to change as the oceans warm and other stressors such as ocean acidification take hold? How are these projected changes likely to affect current transboundary management arrangements between the two neighboring countries for these species? I will present the results of this timely analysis, and discuss their implications for the effects of changing oceans on the well-being of Canadian and American fishers and fishing communities, ocean health, and current transboundary management arrangements for the fisheries to be explored.

2.2.4. Ecosystem services in coastal zone planning I	B2.02
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Chair: Ingrid Kvalvik

Panel organizers:

Ingrid Kvalvik and Ann-Magnhild Solås (Nofima – Norwegian Institute of Food, Fisheries and Aquaculture Research)

Bente Sundsvold (the Arctic University of Norway)

Panel description: The ecosystem services (ES) concept has become increasingly significant for multidisciplinary research in the field of ecological change and environmental governance. ES describe the benefits humans derive from ecosystems, as well as the capacity of ecosystems to produce such benefits. The panel invites to a discussion of whether and how an ES approach to valuing and weighing the various interests in the coastal zone can answer to challenges related to coastal governance. In particular, the panel question the applicability of ES based governance in local settings where knowledge is contested and interests are conflicting. Relevant questions involve the integration of local and scientific knowledge in valuation and decision-making, approaches to identifying and valuing ecosystem services, and ethical considerations in relation to applying an ES approach to nature and coastal governance.

Using ecosystem services mapping for marine spatial planning in southern Chile under scenario assessment

Luis Outeiro, Vreni Häussermann, Francisco Viddi, Rodrigo Hucke-Gaete, Günter Försterra et.al. (Universidade de Santiago de Compostela, Spain and Universidad de Los Lagos, Chile)

In 2009 under the legal umbrella of ILO 169 Agreement, Chile recognizes the right to aboriginal people to claim, among others, for territorial rights regarding management of natural resources and environmental defence. The development of this Law by Chilean government had encountered many difficulties and conflicts among aboriginal and "other stakeholders" who had previously used these territories and natural resources. One example of this conflict is found in the marine realm with Lafkenche-Williche people from Southern Chile with the development of Lafkenche Law. A joint effort from regional authorities, NGO's, research centres, aboriginal representatives and universities had come to develop a framework to operationalise the new agreements based on MES (Marine Ecosystem Services) to further progress with Marine Spatial Planning in southern Chile under different scenarios. Thus, abstract aims to: (a) assess the overlapping incompatibilities within each

zoning area, (b) calculate the importance score of the three key ES selected, (c) assess the importance scores of the ES and develop plausible future scenarios for marine zoning. Here, we use InVEST marine models to spatially map the distribution of marine ES (ecotourism and recreation, wildlife endangered species, and habitat-forming species). Taking the current proposal of the MSP as a baseline scenario, two plausible hypothetical future scenarios were also developed based on policies and decision-making trends, and the results of the ES importance score values within each zoning area. The results of this paper indicate that the environmental conservation-aboriginal development scenario would be considered as the more appropriate future projection in terms of securing the three key ES analysed in the region. However, due to changes in the economic development paradigm for the Inner Sea of Chiloe, decision makers, the scientific community and industry representatives are facing a major challenge in allocating appropriate areas to secure ES which requires a holistic perspective.

Cultural ecosystem services and municipal coastal zone planning

Bente Sundsvold (Arctic University of Norway)

Cultural Ecosystem Services (CES) hold an ambiguous position within different ecosystem services (ES) approaches. Culture and local knowledge systems tend to fall out with the monetarization of nature, as well as with the rigorous classification systems and the ideal of avoiding double accounting in ES. At the same time, there is a growing concern about how to extend CES from more easily “accounted services” as tourism, recreation and cultural heritage. Within the ES classification systems, standardization and scaling play significant parts. The paper will address a case on inter-municipal coastal planning process in Northern Norway, where stakeholders from the fisheries and aquaculture join forces against a traditional practice of eider down harvesting. A decade ago, eider down harvesting became the figurehead for inscribing the archipelago as a cultural landscape on the World Heritage List. In the planning process, an impact assessment was made on the visual impact of aquaculture in the WH site, causing local conflict. The paper will explore this situation through a CES framework, addressing a hypothesis that the scaling of cultural aspects through cultural heritage industries (World Heritage inscription) interrupt and transform local knowledge and traditional practices and increase conflict in the planning processes. This case may illuminate some of the challenges and possible advantages of CES assessments.

Ecosystem services assessment based on ecosystems regulated by the Fishing and Aquaculture General Act, Northern Patagonia (Chile)

Pamela Bachmann-Vargas (Wageningen University and Universidad de Chile)

Northern Patagonia (Chile) is part of one of the largest fjord regions in the world, composed of several islands, peninsulas, fjords and channels; and at the same time is the least populated area in Chile. Several ecosystem services are perceived by a variety of users and activities, where aquaculture (salmon farming), tourism and artisanal fisheries are usually confronted in the absence of integrated coastal zone management strategies. This research aimed to assess the ecosystem services associated to ecosystems regulated by the Fishing and Aquaculture General Act (i.e. coastal zone, continental waters, sea beaches, inner sea and territorial sea). The research was conducted in 3 phases. The first stage was the ecosystem services analysis, where the most relevant ecosystem services were identified and prioritized in a participatory way. The second stage was the economic analysis and afterwards ecosystem services mapping was conducted. Six ecosystem services were prioritized by decision-makers, which were subsequently monetized. This research is the first attempt addressing the marine and coastal ecosystem services in Patagonia, Chile.

Governing coastal space: The applicability of an ecosystem service approach in municipal coastal zone planning in Norway

Ingrid Kvalvik, Ann-Magnhild Solås, Patrick Berg Sordahl (Nofima – Norwegian Institute of Food, Fisheries and Aquaculture Research)

Planning for the use of the coastal zone is becoming increasingly complex. The pressures on coastal zone and its resources are increasing, with corresponding conflicts of interest. Identification and valuation of ecosystem services (ES) have gained popularity as a way to describe the benefits humans derive from ecosystems. This includes both direct commercial value and indirect value through the capacity of the ecosystem to produce such benefits. The approach is frequently used as a tool to contribute to an increased awareness of ecological values, and as input to environmental governance. In this study we will discuss the applicability of ES based governance in coastal zone planning, i.e. whether an ES approach in municipal coastal zone planning in Norway can contribute to better planning. We assume that there might be limitations to applying the ES approach in the coastal zone, in particular related to the valuation of different ecosystem services. The question raised is whether applying an ES approach will provide a useful method for identifying, valuing and prioritizing between different interests in the coastal zone, i.e. whether integrating the notion of ecosystem services (ES) and their value into marine spatial planning will improve some aspects of the planning process. The analysis is based on a case study of a coastal zone planning process in Norway, involving conflicting interests and contested knowledge.

2.3.1. Social capital in fisheries communities	B2.08
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Chair: Grant Murray

The role of Social Capital in improving the adaptive capacity and wellbeing of fishing communities at the face of fishing-related shocks; evidence from southern Sri Lanka

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Due to highly fluctuating fish catches, vagaries of climate and the hazardous nature of the sea environment, small scale fishers confront an array of shocks which threaten their livelihoods. Fishers' need to cope with these shocks and build up resilience against them if they are to continue fishing. This paper shows that, fisheries cooperatives and other forms of social networks provide fishers with the necessary leverage to cope with various kinds of shocks by increasing their adaptive capacity. The content of this paper is based on a study carried out in the year 2013, with the objective of understanding the risks and uncertainties (shocks) confronted by small scale fishers and their response to them. The study was conducted in four countries; Sri Lanka, Vietnam, Fiji, Ghana. The Sri Lankan study was conducted in two villages employing a mixed methodology of structured questionnaires and focus group discussions. The results of the study revealed that fishers confront a number of shocks; individual and collective. The major shocks included; Hurricanes, Rapid increase in input prices, among others. Fishers have mainly sought assistance from various forms of social networks, such as friends, relations and fisheries cooperatives, to effectively cope with shocks. Social capital has been strengthened by building and maintaining strong relationships among members of the community. Results of wellbeing analyses showed that relational wellbeing aspirations of the fishing communities took priority over material dimensions of wellbeing. Apart from coping with fishing related shocks, social capital, such as cooperatives have also contributed significantly towards providing its membership with livelihood capitals and meeting a diversity of social and cultural

aspirations of the community. Our study shows that, strong relationships embedded in social networks perform a very important function in providing fishers with shock insurance and improving their wellbeing.

Community attachment, Individuality, and Cooperative behavior: Empirical study to explore the factors affecting cooperative behavior among coastal community people

Aoi Sugimoto^{1}, Hiroaki Sugino², and Nobuyuki Yagi¹*

¹ *Department of Global Agricultural Sciences, Graduate School of Agricultural and Life Sciences, The University of Tokyo*

² *Ocean Alliance, The University of Tokyo*

[Objective & Method] It is indicated that migrant fishers who have integrated into communities do not differ behaviorally from members of the host community (e.g., Cassels et al. 2005). However, previous works dealt with the 'integration' of migrants in simplified ways. This work, therefore, aims at exploring the relation between coastal community and the residents including migrants in detail, and discussing how that relation could affect the cooperative behavior among community people. Data was collected by structured interview for the respondents (n=46) selected by quota sampling in Shiraho village, Okinawa from 12th to 24th February, 2016. Questionnaire included 24 items about the relation between people and community and 11 about the tendency of cooperative behavior. Data was analyzed by principle component analysis, regression analysis and cluster analysis. [Results & Discussion] For the relation between people and community, we extracted 2 principal components (PCs): community attachment and autonomy (the degree of stress and self-controllability). For the tendency of cooperative behavior, we extracted 3PCs: pro-community behavior, collectivistic behavior and pro-others behavior. Among the 5PCs, community attachment was found to be correlated to pro-community behavior (adj. $R^2 = 0.456$). Utilizing cluster analysis based on the scores of each PC, the respondents were divided into 4 clusters. When each PC scores of the clusters were examined, the score for community attachment was the most influential for explaining the degree of pro-community behavior. In addition, the score for autonomy which represents the independence as individual, was also implicated as important component for shaping the pro-community behavior complementary. [Conclusion] The results of this research call for both community attachment and individual autonomy to be sustained, in order to enhance the cooperative behavior among coastal community people.

Religion, education, and the potential for community-based conservation: insights from Ghana, West Africa

Grant Murray (Duke University Marine Lab)

Andrew Agyare (Ghana Wildlife Division, Forestry Commission)

Meaningfully engaging local communities in coastal and marine protected area governance regimes and/or delivering a range of socio-economic outcomes in addition to core biodiversity goals demands a nuanced understanding of local context, and an understanding of how that context shapes the objectives that individuals have with respect to protected areas, and how they evaluate the way those areas are governed. Recent scholarship in West Africa, and Ghana in particular, has highlighted the role of religion in conservation. This article contributes to that discussion by presenting results from a mixed methods study that focused on a set of key respondent characteristics - religion, education, and 'nativity' - and their relationship to individual perceptions of the objectives and perceived performance of several Community Resource Management Areas (CREMAs), a devolved form of Ghanaian protected area that emphasizes community level participation and a mix of socio-economic and ecological objectives. Survey results show that all three of these characteristics were associated with consistent and systematic differences in how important key CREMA outcomes were seen to be, and how well CREMAs were seen to be performing in producing those outcomes. Focus

group results that centered on a coastal CREMA with fishing-based livelihoods suggest that these characteristics are linked and that the survey patterns can be explained by the relationship between these characteristics and openness to outside ideas, relative dependence on natural resources, and resistance to or faith in Traditional religious beliefs and practices. The article concludes with a discussion of management implications in Ghana and beyond.

2.4.5. Human rights in small-scale fisheries governance and development	B2.04
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Chair: Nicole Franz

Panel Organizers:

Eddie Allison (University of Washington, Seattle, USA)

Nicole Franz (Fisheries and Aquaculture Department, Food and Agriculture Organization of the United Nations (FAO), Rome, Italy)

Sisay Yeshanew (Legal Office of FAO, Rome, Italy)

Panel description: Fisheries governance and development have evolved from focusing solely on the conservation of resources and the environment to a more people-centered approach, which recognizes that fisheries are also sources of livelihoods, sites of expression of cultural values and identities, and a buffer against shocks for fisheries-dependent communities. This recognition is built into the Voluntary Guidelines for Securing Sustainable Small-scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guidelines), which were adopted in June 2014 by the FAO Committee on Fisheries. Accordingly, the Guidelines promote a human rights-based approach (HRBA) that seeks to ensure the non-discriminatory empowerment of small-scale fishing communities to participate in decision-making processes and to assume responsibilities for sustainable use of fisheries resources, by placing emphasis on the benefits of vulnerable and marginalized groups. Drawing on an evolving international legal and institutional human rights framework, HRBA has been increasingly recognized as a programming principle within the UN system in general and FAO in particular. However, there is limited experience in its practical application in the context of small-scale fisheries. The amenability of human rights to articulate communal interests and the difficulty in ensuring accountability in some contexts pose critical challenges, but HRBA can be used to ensure that human development concerns are not forgotten in fishery management systems that typically emphasize ecological and economic target reference points. This panel seeks to investigate and discuss the meaning and application of HRBA in small-scale fisheries, focusing on three thematic areas of the SSF Guidelines - governance of tenure and management of resources, social development and decent work, and disaster risk and climate change. The panel will take the format of moderated, short presentations of peer-reviewed papers and open discussion.

Reconciling different rights, regimes and interests in the governance and management of small-scale fisheries

Svein Jentoft (Norwegian College of Fishery Science, Arctic University of Norway, Tromsø, Norway)

Maarten Bavinck (University of Amsterdam, The Netherlands)

The Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries (SSF Guidelines) introduce a human rights framework for fisheries management and development, requiring an inclusive approach to fisheries governance that embraces a range of different rights, regimes and interests. These reflect diverse systems of law, values and norms and straddle both customary and statutory systems of governance. The interfacing of different legal systems poses questions about different perspectives on rights and whether or not they are reconcilable within a human rights based approach. The concept of rights-based tenure is not new to fisheries – in fact for decades now ‘rights-based tenure regimes’ have

been perceived as the key, indeed the only solution to the problems of overfishing, technological and economic inefficiencies and market failures in the fishing industry globally. However, critics have argued that the rights-based paradigm that is currently introduced, as in the form of individual transferable quotas and catch shares, fails to accommodate regimes that are based on common property and alternative concepts of rights. This paper discusses to how the human rights-based and the rights-based approaches relate to situations of customary law and legal pluralism. The argument here is that a human rights-based approach must accommodate a diverse set of legal norms within an interactive governance regime that allows customary tenure rights to prevail.

Committing to Socially Responsible Seafood

Eddie Allison (University of Washington, Seattle, USA)

Fisheries and aquaculture employ millions and are the primary source of animal protein for three out of every seven people globally. Recent media revelations about slavery and labour rights abuses in the seafood sector have sparked public outrage, placing social issues at the forefront of a sector that has spent decades working to improve environmental sustainability. The presentation will introduce a social responsibility framework that draws on FAO's Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries and a substantive body of empirical evidence in the fields of human rights, natural resource management and international development. The framework is comprised of three components: (1) Protecting human rights, dignity and respecting access to resources; (2) Ensuring equality and equitable opportunities to benefit; and (3) Improving food and livelihood security. These components are supported by a strong legal and policy basis for implementation, and are supported by more than 20 organizations and thought leaders brought together in a key dialogue, demonstrating significant alignment among key social and environmental NGO organizations. The presentation will further reflect on next steps, including in securing the commitment of the various actors, developing an assessment protocol and performance standard for social responsibility, working with ratings and certification groups, and establishing best practices for businesses to incorporate social responsibility in sourcing policy, commitments and business practices.

Responding to problems of decent work and labour rights in small-scale fisheries

Sisay Yeshanew (FAO Legal Office)

Fishing is one of the most dangerous occupations. In recent times, problems of employment and labor conditions in the sector have come under the spotlight due to revelations of child labour, human trafficking, undocumented work and slavery-like practices on board fishing vessels of varying sizes in different parts of the world. Part of the cause for these problems is the absence of effective labor regulation and inspection regimes in the sector. Countries such as Indonesia and the Philippines have adopted specific laws that lay down detailed labor and human rights standards and implementation mechanisms including inter-institutional collaboration and joint inspection regimes (fisheries and labor) that could also apply to small-scale fisheries. Other countries have taken important steps to overcome labor-related enforcement challenges through multi-disciplinary inspections. Labor issues are also featuring within social responsibility schemes in the seafood supply chains. The paper analyses normative, institutional and operational responses to problems of decent work in small-scale fisheries, and provides recommendations for the protection of decent work in small-scale fisheries.

Addressing human rights in disaster risk and climate change adaptation responses for small-scale fisheries and coastal communities

Anthony Charles (School of the Environment and School of Business, Saint Mary's University, Halifax, Canada)

Climate change is affecting small-scale fisheries and fishing communities around the world, both in the long-term (e.g., through sea level rise and ocean acidification) and in the short-term (e.g., from more frequent extreme weather events). These impacts are often not evenly distributed among the participants in a given fishery or the residents in a fishing community. Those most marginalized, or facing food insecurity and poverty, may well be disproportionately impacted. Compounding this differential impact is the reality that how fisheries, communities and governmental officials respond to the climate impacts, through adaptation measures, may also be unevenly distributed across and within fisheries and communities. In other words, there is a risk that the most marginalized may be both most impacted and least benefiting from adaptation responses. To address this dilemma, applying a human rights-based approach in dealing with climate change and small-scale fisheries, desirable measures include: (1) Assessing the fishery holistically, including impacts on those within the fishery, related economic sectors, the community and society (e.g., health and infrastructure) and the environment; (2) Examining distribution, equity, fairness including fair distribution of the costs of climate change; (3) Ensuring good governance practices such as participatory and cooperative management; (4) Adjusting fishery policy to avoid exacerbating climate impacts and disadvantaging small-scale fisheries, and to support place-based fishing rights and other solutions at the community level, and (5) Using systematic monitoring and assessment frameworks to keep track of climate impacts and corresponding adaptation responses.

2.5.5. Knowledge production and exchange	B2.05
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Chair: Sebastian Linke

Organization-mediated learning and knowledge management in risk societies: An analysis through the lens of the maritime industry.

Michael Ekow Manuel and Johan Bolmsten (PhD candidates at World Maritime University, Malmö, Sweden)*

The operations of ships in an international context is rife with micro and macro social issues which impact on the safe, secure and sustainable use of the oceans. One such critical area is related to the social systems, contexts and dynamics that support the generation, transfer, storage and access to knowledge using optimized knowledge management models. Drawing from elements of recent research, this paper addresses issues related to Stream 5 of the MARE Conference. The paper starts on the premise that 21st century solutions to the challenges facing humanity in relation to the marine and maritime domains, require optimized organizational responses. Arguably, almost all contemporary human activity is mediated by organizations and it is within that context that a significant number of issues regarding knowledge must be interrogated. The nature of organizations, the learning that happens in, through and by them is discussed in the paper. The paper proceeds to further elaborate on a framework of knowledge acquisition, transfer, storage and access based on the theories of Anthony Giddens (structuration), David Kolb (experiential learning) and Nancy Dixon, George Huber, Chris Argyris (organizational learning) among others. It discusses the place of knowledge management systems in high risk industries/settings, using cases from the maritime industry. With reference to the theoretical framework indicated, the paper also gives suggestions/recommendations on strategies and applications that can be used to optimize the transfer and management of knowledge from individual to organization (and vice versa), within clusters (and communities of practice) and from sector to sector. The suggested framework takes into account constructs related to social learning theory, social

cognition, the social amplification of risk and social dynamics in teams and organizations, and between organizations.

(De)politicisation of mussels in the Dutch Wadden Sea – dealing with knowledge uncertainties

Judith R. Floor, C.S.A. (Kris) van Koppen, Jan P.M. van Tatenhove (Environmental Policy Group, Wageningen University)

Policy-makers and scientist often expect that research will provide certainty to end public debates. At the same time, experts and their knowledge have become part of political contestation. This paper aims to explain the persistency in high expectations of research for decision-making in a contested knowledge context and draws lessons for the science-policy interface. To this end, the role of knowledge and research in the regulation and knowledge debates on mussel fishery in the Dutch Wadden Sea (1990-2016) are investigated. These debates are approached as controversies between two discourse coalitions with different interpretations of the ecological knowledge. Our results show that mussel fishery regulation decisions were mostly based on government authority, with knowledge as requirement for future decisions. However, these technocratic expectations were hampered by knowledge ambiguity. In 2008, a covenant between the conflicting parties pacified the controversy. Instead of the expected depoliticising effect of research, the pacification of the regulation debate closed the knowledge debate. To explain the persistent high expectations of knowledge several factors are distinguished: the prominent position of science-based knowledge for stakeholders, the strategic role of knowledge, the dominant perception of uncertainty as incomplete knowledge, high believe in objective science and the future orientation of research. This case study concludes that when effects are contested this can results in an increase of research on impacts, whereas for sustainable innovation of human activities in nature areas also other types of knowledge needs to be created and mobilised.

Scientific Narratives of Small-Scale Fisheries Governance; Shifting Constructions of Problems, Goals and Solutions

Hillary Smith, Alejandro Garcia, Lisa Campbell, Xavier Basurto (Duke University)

Relative to literature on industrial fisheries, small-scale fisheries received little attention within the scientific community until the 1990s. With rising concern over the incipient “crisis” of fisheries management in the 1990s, a concurrent explosion of coverage of small-scale fisheries appears in the 2000s with specific attention to governance. Scientific literature is an important site of knowledge production and communication; telling authoritative stories about small-scale fisheries, why they should be governed, how, and to what ends. Through our analysis, we reveal distinct narratives about the problem, the goals, and the supposed solutions to small-scale fisheries governance. Within each of these themes, distinct story lines are revealed, reflecting different normative conceptions of small-scale fisheries. This study analyzes the emergence and persistence of several “governance narratives” within the scientific literature on small-scale fisheries published over the last 65 years. Drawing on a database of over 2,600 peer-reviewed articles, we employ a mixed methods analysis; quantifying general trends in the scientific literature on small-scale fisheries complemented with in-depth qualitative analysis of governance narratives. The evocations of governance, while diverse, exhibit organization once the common elements are clustered. While governance appears increasingly integral to discussions of small-scale fisheries, scientific treatment of governance as a concept is not singular. The literature contains distinct governance narratives about small-scale fisheries that bolster certain policy interventions; we highlight the dominant stories and several emergent counter-narratives about small-scale fisheries governance and their potential effects.

Participatory knowledge production for fisheries governance: From linear to recursive management systems

*Sebastian Linke** (School of Global Studies, University of Gothenburg)

Maria Hadjimichael (Department of Social and Political Sciences, University of Cyprus)

Petter Holm (Norwegian College of Fishery Science, University of Tromsø)

This paper describes historical shifts in fisheries management leading to new forms of collaborations for producing knowledge for decision-making. When investigating management systems transforming from top-down towards more collaborative approaches, the inputs stakeholders bring to the process is their own expertise in form of data, information and local knowledge as well as their accompanying value perspectives. Our paper first outlines key changes in reforming fisheries governance from top-down approaches towards more participatory, decentred and recursive forms of interaction between the relevant actors that include new modes of collaborative knowledge production. Using an analytical framework relating to the interplay between *credibility*, *legitimacy* and *saliency* of knowledge and interactions of respective actors (i.e. scientists, stakeholders, decision-makers), we then explore conditions of participatory knowledge production procedures in case studies conducted under the GAP 2 project (<http://gap2.eu/>). Our analysis examines how the knowledge credentials of credibility and vs. legitimacy are addressed in participatory research practices and how this in turn impacts on the saliency (usefulness) of the resulting knowledge for management and decision-making. From this analysis we draw some preliminary synthesising lessons about the concrete circumstances whether, when and how collaborative knowledge production can make a difference for the knowledge outcomes and their use(fullness) in fisheries governance.

2.6.2. Adaptation to climate change	B2.01
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Chair: Merle Sowman

Perceptions and activities of local governance actors to face the broad impacts of climate change: Some narratives and discussions from selected coastal villages of Tamil Nadu, India.

Devendraraj M (Indian Institute of Technology -Bombay,Mumbai, India)

Mounting evidences have strongly acknowledged that the impacts of climate change associated with climate variability, erratic changes in the weather patterns and its resulting climate events could have various direct and indirect effects on marine fisheries. In the context of India, the field studies that intend to understand the perceptions of marine fisherfolk on the broad impacts of climate change are relatively less than the studies that approach the issues of fisheries in scientific methods. Various scientific studies have alarmed that southeastern coastal areas of Tamil Nadu are highly prone to the broad impacts of climate change. In the case of Tamil Nadu state, local institutions (informal) are more influential than the formal local institutions. There have been only limited studies that specially explore the perceptions and activities of various local governance actors to face the broad impacts of climate change. The present study presents the selected findings of the ongoing PhD research of the author that has been conducted in two tsunami-affected small coastal fishing villages in Tamil Nadu, India. These two study villages are single-caste fishing villages and are strongly governed by the fishermen panchayats/Oor panchayats; but still, some other formal and informal local institutions actively take part in the livelihood activities of the fisherfolk. The present article mainly addresses the following research questions. i) Do the local governance actors are aware of the broad impacts of climate change on the livelihoods of coastal fisherfolk? ii) The broad impacts of climate change really matter in the views of the key actors of the local institutions? iii) What are the activities of local governance actors to face the broad impacts of climate change. Finally, this paper makes brief

discussions on the positive aspects and limitations of the fisheries institutions in facing the broad challenges of climate change.

Risk perceptions and climate change: insights from a UK fishing community

Katherine Maltby (University of Exeter);

Rachel Turner (University of Exeter);

Steve Simpson (University of Exeter);

Martin Genner (University of Bristol);

Simon Jennings (Cefas(Centre for Environment, Fisheries and Aquaculture Science) & ICES (International Council for Exploration of the Seas))

UK seas have warmed significantly over the last few decades due to climate change, impacting both fish stocks and the wider marine environment. Increasingly, people who rely on these fish stocks for their livelihoods are also being affected through changes in the availability, productivity and catchability of these marine resources. Despite recognition of the potential socio-economic impacts climate change could pose, relatively little is known about how fishers may react to such changes in these fishery resources. Knowledge of how fishers may respond and how they perceive the threats posed by climate change is important to help mitigate future impacts. Focusing on Brixham in the south west UK, this work used semi-structured interviews to gain insights from fishers into how they perceive climate change, their understanding of how it could impact local fisheries, and whether it is considered a risk to fisheries into the future. Findings suggest that for many members of the fishing community, climate change is not perceived as a risk to the future of south west UK fisheries, with more immediate and tangible threats being highlighted instead. These findings explore whether low risk perceptions of climate change are due to a high level of climate change scepticism, limited understanding and/or access to information regarding potential climate change fishery impacts. Such insights provide a useful basis for understanding how fishers may respond to future environmental change and for developing strategies for how best to support fishing communities faced with potential climate change impacts.

Participatory Vulnerability Assessment in Coastal Communities in the Benguela region, Southern Africa

Merle Sowman and Serge Raemaekers (Department of Environmental and Geographical Science, University of Cape Town)

Climate change poses a key threat to marine ecosystems and fisheries resources as well as communities that depend on these systems for food and livelihoods. Understanding the vulnerability of these socio-ecological systems to climate change, and identifying appropriate adaptation strategies have become a key focus of many research projects and fisheries management agencies in recent years. This paper reports on a rapid and participatory vulnerability assessment methodology developed for application in small-scale fishing communities in the Benguela Current Large Marine Ecosystem region. This participatory methodology takes place in a workshop setting and draws on the observations, perceptions and local knowledge of fishers to better understand the extent to which their livelihoods are susceptible to various socio-ecological changes and their ability to respond to these changes. Findings suggest that key stressors across all countries are associated with socio-economic and governance changes while climate-related changes were seen to exacerbate vulnerability. Knowledge generated by fishers on environmental variability and climate change resonated with available science and helped fill certain gaps, highlighting the value of both knowledge sources for planning and decision-making. By following the exercises required in this methodology, fishers were able to identify a number of adaptation strategies to enhance resilience but stressed the need for support from government and other stakeholders. Participation in the

vulnerability assessment enhances understanding, builds capacity, generates knowledge for management, and allows communities to identify locally appropriate adaptation strategies.

Institutional and Legal Frameworks for Protection of Coastal and Marine Environment from Threats and Vulnerability of Oil Pollution in Nigeria

Dr. Ogwezzy Michael. C (Department of Jurisprudence and International Law, Faculty of Law, Adekunle Ajasin University, Nigeria)

In Nigeria like most countries of the world, coastal and marine environments are posed to threats, and are vulnerable to oil pollution resulting from spills from marine vessels and ships. Nigeria as a nation has since colonial times, enacted several laws to deal with oil pollution of coastal and marine environment. Oil spillage on the ocean has distributional effects on the environment, economic development and sea activities such as fishing as aquatic life are affected by oil spills. There are several institutions established and legislation enacted to address oil pollution by Ships in Nigeria. These institutions and laws include: the National Oil Spill Detection and Response Agency, National Environmental Standards and Regulation Enforcement Agency, the Nigerian Maritime Administrative and Safety Agency, Nigerian National Petroleum Corporation, Nigerian Ports Authority, and the Federal Ministry of Transport. Apart from the enabling legislations establishing these agencies, other legislations germane to protecting coastal and marine environments from threats and vulnerability of oil spillage by Ships operating in the oil and gas sector include: the Petroleum Act, Oil Pipelines Act, Minerals and Mining Act, Oil in Navigable Waters Act, Merchant Shipping Act, Nigerian Metrological (Establishment, etc) Act and the Constitution of the Federal Republic of Nigeria 1999. The damages caused to marine environment by oil pollution are incalculable. Within marine environment, oil pollution destroys both the mangrove and the lives dependent on it. Apart from spillages by Ships conveying oil products, some of the problems associated with oil pollution resulting from off-shore oil exploration and production activities in Nigeria involve the release of poisonous materials into the environment. This paper, therefore will examine the role of these institutions and how these laws have offered protection to coastal and marine environment from threats and vulnerability of oil spills in Nigeria.

2.2.5. The role of scale in governance	B2.07
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Chair: Tiffany Morrison

Spatial upscaling in ICZM - Experiences from aquaculture management in Norway and New Zealand

Håkan T. Sandersen¹, Arild Buanes², Eirik Mikkelsen²

¹Nord University, Bodø, Norway

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The marine spatial planning (MSP) concept and debate has partly overshadowed and replaced the previous strong tradition of integrated coastal zone management (ICZM), particularly so in the EU area. MSP can generally be understood as more comprehensive and with a larger geographical/spatial scope than ICZM, but the relations between MSP and ICZM have yet not been thoroughly debated. In this paper we try to contribute to this debate and to the understanding of consequences of upscaling of the coastal zone planning areas. We use the aquaculture industry as an analytical prism for studying spatial upscaling of ICZM in the coastal zone management regime in Norway, and also compare with the situation in New Zealand. In Norway upscaling is on the agenda through mergers of coastal municipalities and programs for intermunicipal coastal zone planning. In New Zealand coastal zone planning is already assigned to the regional level, which typically are for larger areas than the

Norwegian municipalities. By comparing the two, some interesting differences and similarities can be revealed about the significance of scale of planning. We consider the change of planning scale from local to regional as three simultaneous and interacting "shifts"; an "ecosystem shift" (including larger marine areas), a "governance shift" (introducing a new political dynamic between cooperating municipalities) and a "society shift" (expanding on the number and types of actors/stakeholders that become relevant to municipalities participating in a joint planning effort). Together with core theoretical concepts from Environmental Policy Integration these shifts constitute the paper's analytical framework.

The evolving multiscale governance of the Great Barrier Reef

T.H.Morrison (ARC Centre of Excellence for Coral Reef Studies, James Cook University, Townsville, Australia)

A growing field of maritime research examines how marine environments are transformed through multiscale governance. However, many studies are only snapshot analyses of the initial design, or emergent structure, of multiscale regimes. There is less systematic analysis of the longitudinal robustness of multiscale regimes. The problem of robustness is approached by focusing not just on the changing structure of a regime, but also on the changing context and effectiveness of a regime. These dimensions are examined through a longitudinal analysis of the Great Barrier Reef (GBR) governance regime, drawing on in-depth interview, demographic, economic, and employment data, as well as organisational records and participant observation. Between 1975 and 2011, the GBR regime evolved into a robust multiscale structure. This is evident in an established set of multi-actor, multi-level arrangements addressing marine, terrestrial, and global threats. However, from 2005 onwards, multi-scale drivers precipitated at least ten types of regime change, ranging from contextual change that encouraged regime drift, to deliberate changes that threatened regime conversion. More recently, regime realignment has also occurred, in response to steering by international organisations and shocks such as the 2016 mass coral-bleaching event. The results show that outward perceptions of structural stability in a governance regime can coexist with major changes in that regime's context and effectiveness. Clear analysis of the vulnerability of multiscale governance to both diminishing effectiveness and the masking effects of increasing structure provides maritime science and governance actors with a strengthened basis to understand and respond to regime change.

Against all odds? Implementing ecosystem-based ocean management in the Barents Sea

Gunnar Sander (Norwegian College of Fishery Science, University of Tromsø – Norway's Arctic University)

The literature on ecosystem-based ocean management has a bias towards understanding the ecosystems, at the sacrifice of understanding the planning practices and political processes that may lead to effective measures for integrated management of human activities. This is the starting point for a PhD-project addressing how policies are formulated, implemented and evaluated. The paper will give an overview of the project, and present a study applying implementation theory to see what has been the output of the Norwegian management plan for the Barents Sea. The Norwegian government has presented three white papers to the parliament on the plan (2006, 2011, 2015). These contain a policy with management objectives and a list of 157 measures. A fundamental measure is the establishment of a cross-sectoral system for assessments, monitoring and knowledge production. In addition, there are measures addressing pollution, safety of navigation, oil spill preparedness, fisheries and petroleum activities. The measures were formulated in internal negotiations in the government apparatus without much advice on policy instrumentation. The extent of conflict between ministries and the parties in the coalition government were decisive factors. Major conflicts arose over the environmental impacts of fisheries, and on the framework for petroleum activities. These were solved at the highest level in the Cabinet with direct involvement from the prime minister and party leaders. A review of the measures show that most of them have been implemented. This may seem surprising based on key findings from implementation theory (vague objectives, no allocation of

funds and no system for overseeing implementation). It is suggested that the explanation can be found in factors mainly related to the context and policy formulation process: the Norwegian political system, the strong political backing, the role of knowledge, the new arenas created for handling conflicts and the collaborative mechanisms in use.

Optimising stakeholder participation in transboundary marine governance: Lessons emerging from Europe, Africa and Asia.

Twomey, S. and Cummins, V. (Centre for Marine and Renewable Energy Ireland (MaREI), University College Cork, Ireland)

Regional seas and shared marine waters present significant challenges in terms of governance. Typically these environments are often bordered by numerous maritime jurisdictions, accommodate multiple uses and multi-sector activities, and are subject to differing governance arrangements. Stakeholders have a pivotal role in various approaches to transboundary marine governance as they represent the user and interest groups active and operating in the shared marine space from statutory, regulatory, commercial and civil society perspectives. This research adopts a case study approach across three continents to identify how best to conduct transboundary stakeholder participation to prevent or resolve conflict linked to marine environmental degradation or sustainable economic development. Multi-disciplinary lessons are drawn from a range of bottom-up civil society-led cross-border governance initiatives from diverse geographical locations ranging from the European Atlantic sea basin, the Benguela Current Large Marine Ecosystem in the Southern Atlantic and the Bay of Bengal in the Indian Ocean. Based on a mixed method qualitative framework including semi-structured interviews and workshops, preliminary findings indicate that when stakeholders feel excluded from decision-making procedures they tend to organise through collective action. These decision-making processes, procedures and policy outcomes are derived from culturally specific ways of life across all three case studies. Approaches to stakeholder participation in a transboundary context need to be framed in a geopolitically and culturally sensitive manner. However, in order to be effective, bottom-up processes require political buy-in and effective coordination at local, national and international scales. Scale is thus a critical parameter when applying participatory approaches to transboundary issues and conflicts.

2.4.6. Gender/Women Relations within Coastal and Fisheries Communities: From Past to Present I	B2.03
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Chair: Katia Frangoudes

Panel organizers:

Katia Frangoudes (University of Bretagne Occidentale, France)

Siri Gerrard (Arctic University of Norway, Norway)

Danika Kleiber (Pacific Island Fisheries Science Centre, Joint USA)

Cristina Pita (University of Aveiro, Portugal)

Panel description: Coastal areas and communities have experienced major changes over recent decades. Some are under pressure by the rapid development, for example by urbanisation, industrialisation, climate change, mass tourism, etc and others have suffered economic depression as the activities that traditionally sustained coastal communities become increasingly unsustainable. These changes had economic impacts on the fishing, aquaculture and others related activities and modified the social role within coastal societies, with new social and cultural processes emerging in coastal areas. Change has impacted men and women differently; the construction of gender and gender relations has consequences on the division of labour in fisheries, in coastal communities and

also in the relationships in the community or vice versa. Despite this, research on gender and gender relations, as well as on women, in fisheries and aquaculture and their role in communities is scarce.

The interconnection between gender relations, work and community can include many topics and can vary from place to place dependent on the history, “materialities”, social and cultural conditions. Gender relations and communities can therefore be studied in many ways. The propose panel aims to bring together scientists and practitioners from different sectors working on different themes. Examples can be as follow: gender migration/immigration, changes in job conditions and opportunities (eg. paid and unpaid contribution of women in fisheries and aquaculture), women’s organisations and participation in the public fishery sphere like public jobs, political positions and media, property rights in fisheries and aquaculture, gender and climate changes, women’s capacity building, etc. Presentations focusing on conceptual and methodological contributions relevant for women and gender in coastal areas and in fisheries and aquaculture are also of great interest.

Note: The panel is organizing by the TBTI cluster women/gender in fisheries and aquaculture and the Working Group Gendered of the Ocean Past Platform (OPP) Cost Action.

Women Involved with Fisheries and Aquaculture in Isafjordur, Iceland: Roles, Perceptions, and Hopes

Alexandra Yingst (University Centre of the Westfjords)

Data on women involved in fisheries and aquaculture is lacking across the world. In Iceland, women have played a significant role in fisheries throughout the centuries, but their presence in the industry today is underlooked. They have different roles and experiences than men do in the sector, and paying attention to these differences could improve management that could benefit both the company they work for and the workers themselves. Changes in technology, the environment, and increased mobility have altered the ways in which women are involved in these sectors, and today, the majority of women in fisheries and aquaculture in the Westfjords are involved in fish processing. Additionally, there has been a switch from Icelandic women to immigrant women working in fish processing. This research examines the similarities and differences between the lives of Icelandic and immigrant women who are involved in fisheries and aquaculture in the Westfjords of Iceland, as well as the perceptions, goals, and hopes that these women have. In addition, using interviews and surveys, I assess the wellbeing of both population groups, based on both their experiences at work and in the community. This information will lead to recommendations on how the town and companies could improve conditions for these workers. I will also be doing an extensive literature review of women involved in fishing communities across the Arctic to look at how changes in fisheries have affected their lives and wellbeing. The case study that I am conducting will hopefully be something that can be done in communities throughout the eight Arctic Nations. Information gained from studies like this can contribute necessary and important local knowledge about how women are involved in their communities, as well as their quality of life.

Gender and aquaculture value chains: A review of key issues and implications for research

Froukje Kruijssen^a, Cynthia McDougall^b, Imke van Asseldonk^c

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Although aquaculture is the fastest growing food producing sector in the world and generates significant employment opportunities at multiple scales, men and women are not necessarily able to participate in aquaculture value chains in the same way, and benefits may not be evenly distributed between them. This paper aims to elucidate current knowledge of gendered engagement in and returns from aquaculture value chains. It does so by presenting a review of existing evidence on

gender issues in aquaculture value chains along five key dimensions: gender division of labor, distribution of benefits, access and control over assets and resources, gender and social norms, power relations and governance, and the results for value chain performance and potential upgrading pathways. The review shows that there is limited high quality sex-disaggregated data regarding aquaculture value chains, in particular related to the distribution of benefits in the chain. It also shows that evidence is limited regarding other aspects of the quality of women's participation in and returns from these chains. Existing evidence, however, indicates gendered imbalances in all five dimensions assessed, with formal and informal barriers, including gender norms, limiting women's equal engagement and returns. The specifics were found to vary by context and to be shaped in relation to factors such as class, needs, and social and religious norms. The impact of gender inequity on value chain performance was also found to be an area of literature for which evidence is still limited. While the upgrading pathways categories as described in the literature may result in economic upgrading, they may have limited effect on improving inequity or social conditions in the chain, if they do not take underlying inequities in institutions into account. Together the evidence indicates the need for research to elucidate practical ways to increase women's engagement in and returns from aquaculture value chains through addressing formal and informal barriers to women's control over assets, including shifting underlying gender norms and relations towards gender equality.

Children's work on gender across time and place in a fishing village in Northern Norway

Siri Gerrard (Professor, Centre for Women and Gender Research The Arctic University of Norway, Tromsø, Norway)

This paper is about boys and girls between 8 and 10 years of age, living in a fishing village of Finnmark, Norway's High North in 2004 and what they do today, 12-13 years after. The village represent a context, based on natural resources, global markets and varied weather conditions. The social life is coloured by a strong gender division of labour, mobile work (fishing), inhabitants leaving and migrants coming and since the 1980s a steadily shrinking population and few specific formal institutions for children except a school. However, the natural environment with mountains, lakes, sea and shores create an enormous natural playground summer and winter. I focus on the girls' and boys' own, written and small reports and drawings of their outdoor life that consists of traditional children's outdoor plays and activities in combination with my own observations and the childrens' oral narratives. The children also gave written contributions about their future: where to live and what to do. By analyzing these sets of data, I try to focus on the interconnections between boys' and girls' activities, their thoughts about their future lives and what they do today. In this way. I hope to achieve a better understanding of how young boys and girls are participants in creating place and especially gendered places, but also how specific places and sites in a fishing village are elements in constructing gender. The data are collected in 2004 by means of participate observation, the children's drawings and their small essays about what they will do and where they will live as adults. I bring in some data about what they do today. I will also relate to literature about children, place- and community- and gender perspectives.

Sustaining Livelihoods and Preserving Cultural Ways of Life: Women's Roles in Innovation and Adaptation in Japanese Small-scale coastal fisheries

Alyne Elizabeth Delaney (Aalborg University)

Japanese coastal residents and fishing families have long relied upon marine resources for their livelihoods and way of life. Fishing families have a long history of using extended family members in related businesses such as fish market stalls, running family inns serving seafood products, producing value-added products, etc. These families are characterized by the frequent uptake of new technologies, independence and personal autonomy. Consequently, processing and selling value-added products in addition to harvesting, is natural. It is also natural for woman to play important

roles in driving such innovations in work and workways. Based on empirical, ethnographic fieldwork undertaken in 2015-16, this paper presents women's activities in two coastal communities in Miyagi, Japan, comparing women's activities and roles in both the pre- and post-tsunami periods. For enterprise householders, women are the key who "enable it to happen" and without their labour fishing and seaweed cultivation could not continue. In some areas, especially with value-added and entrepreneurial activities in the post-tsunami period, many fishermen point out that things can only be done with the "strength and motivation of women". The research highlights the importance of social and cultural contexts for better responding to fishing family needs when making proposals for increasing human capacity with the goal of strengthening fishing families' adaptation to external pressures and challenges in this uncertain climate.

Panel sessions	Series 4	Thursday, 6th of July 10:30 – 12:00
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2.1.5. Moving Forward: African Port Authorities in Marine Environmental Governance	B2.06
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Chair: Harry Barnes Dabban

Panel organizer: *Harry Barnes-Dabban (Environmental Policy Group, Wageningen University)*

Panel description: Efficient ports are crucial for African economies as more than 90% of their foreign trade are sea bound. Institutional reform of the continent's ports since the 2000s has seen most of them showing growth in productivity with increasing shipping traffic. Increasing shipping implies potential risks for the marine environment. African ports however suffer from weak environmental governance and a lack of harmonised environmental vision. The primary characterisation of the continent's ports has been that of competition to acquire and retain shipping traffic with an inclination to treat ship safety and environmental standards for shipping in the same competitive mode. Such competition leave the ports not adopting policies and practices that will be unfavourable to shipping traffic with the reasoning that stringent environmental requirements and safety standards could make the ports less competitive. Furthermore, the ports fall under diverse national arrangements linked to distinct political systems and for far too long, governments and state institutions have dominated environmental policy-making and negotiations at national, regional and international levels. In spite of a variety of regional agreements, there is disharmony between regional and national environmental policies for the ports. While the maritime domain, with ports inclusive, has generally not been explicitly highlighted on the policy agenda of Africa's continental body, the African Union, and other Regional Economic Communities (RECs), the 2014 adoption of the 2050 Africa's Integrated Maritime Strategy (2050 AIM Strategy) signals the maritime domain gaining prominence. The 2050 AIM Strategy offers a comprehensive and coherent policy approach that seeks to strengthen collaboration between the African Union, Regional Economic Communities, member states and international partners. But with port reforms that has transformed most African ports from predominantly state-owned towards a public-private character with increased private sector participation, there is the need for more than simple state-led maritime collaboration. African port authorities need to find a collective way to harmonise their economic demands with their environmental challenges towards sustainable African ports. They need an approach that will mobilize international and best practices that will support initiatives for good marine environmental governance.

This panel will focus on:

- challenges of port authorities in a politically diverse region and ideas for addressing such challenges;
- contemporary trends in environmental governance of ports sharing common seas;
- prioritising common environmental issues for African ports and outlining approaches to tackling them in line with multilateral environmental conventions;
- promise and ways for African port authorities involving and influencing national and environmental negotiations and policy-making at national, regional and international levels;

Networking for Environmental Governance among West African ports: Challenges and Prospects

Eric Tamatey Lawer (Sustainability Research Center (artec), University of Bremen, Germany)

Whilst ports remain a backbone to West African economies, port expansion and operations are said to impact the environment and contribute to climate change. Consequently, ports face pressure from the public as well as from the international arena to demonstrate a higher environmental performance. Given the heterogeneous nature of actors operating within the port sector (port authorities, terminal operators etc.), it is argued the scale of port environmental and social impacts cuts across sectors and thereby requires a coalition of actors to confront the expected environmental impacts. Proponents argue that when transnational actors collaborate then they will not only create the needed awareness for each actor to be more responsive to the environment and the local community, but also develop an effective environmental management system, learn best practices and develop the best standards to improve on their environmental performance. Consequently, some transnational alliances and initiatives have emerged recently to help pioneer a green drive across port operations in the West African region seen as nodes in the global transport chain. Examples of such transnational networks include, the African Port Environment Initiative (APEI), the Go-Green Marine Terminal Network, the Port Management Association of West and Central Africa, HSE Committee Network Nigeria, and the newly emerging 'Green ports Africa Network'. This emerging constellation of transnational actors and networks for port environmental governance means that port environmental issues must be analyzed in a transnational perspective. Network approaches can be used to analyze such constellations but preliminary results from my research indicates that transnational networks are simply talk shops with limited capacity to ensure the implementation of environmental programs. Respondents argued that little or no exchange at all takes place in these networks and often they are just avenues for some actors to market products or technology with tendencies of influencing other actors. In a region with weak and many institutions, often with contradictory roles, it seems what is rather needed for a successful "greening" of ports is a paradigm shift in policy, including a readjustment of priorities in coastal development.

Regional convergence in policy arrangements: a transformation toward regional environmental governance for West and Central Africa ports?

Harry Barnes-Dabban (Environmental Policy Group, Wageningen University)

Environmental policy-making in West and Central Africa, with implications for the region's ports, is usually dominated by state actors that also represent the nation-states at regional inter-governmental co-operation. The ports share common transboundary environmental problems but fall under diverse political and decentralisation systems. And also, in spite of regional inter-governmental co-operation there is disharmony between regional environmental policies and those for the ports at sub-national level. The port authorities are largely absent in environmental negotiations with outcomes ignoring their contributions. However, institutional reform of the ports from 2000 onwards has seen the port authorities gaining greater autonomy as public non-state actors and beginning to involve in environmental policy-making. This paper therefore seeks to understand how environmental policy-making and governance is transforming in West and Central Africa ports. We do this by embedding the policy arrangement approach, our main analytical tool, with regional convergence concept to study interaction processes and outcome among key actors involved in environmental policy-making in West and Central Africa and its ports. The study finds an emergent innovative joint environmental policy-making arrangement in which West and Central Africa port authorities, from sub-national level, are engaging directly with regional inter-governmental and ENGO actors. The emergent innovative joint environmental policy-making by-passes state actors with the potential for transforming environmental governance of West and Central Africa ports. It is concluded that non-state actors, when given flexible manoeuvring, can be innovative in overcoming statist political dynamics in dealing coherently with transboundary environmental issues within a territorial region.

However, state actors remain key as linking pins in transboundary environmental policy and governance.

Integrated design of sustainable ports in Africa

Arno Kangeri (Postdoc: Sustainable Ports in Africa Consortium Wageningen Marine Research)

Activities associated with port development, such as land reclamation and implementation of infrastructure sometimes have a negative impact on socio-economic functioning and ecosystems. Recent initiatives such as the Sustainable Ports Guidance of PIANC (World Association for Waterborne Transport Infrastructure) and IAPH (International Association of Ports and Harbors) suggest a move away from the traditional approach and instead adopt interventions as an opportunity to create added value. Such interventions require a successful balance between morphological, economic, ecological and social processes. Currently, a majority of stakeholders are developing strategies under the XPort scientific research project. Tapping into the knowledge being gathered, and applying and developing them for ports in Africa is the principal goal behind the Sustainable Ports in Africa initiative. The aim is developing integrated and sustainable plans and designs for African ports. The project approach is interdisciplinary. In co-creation with (local) stakeholders a bottom-up, stepwise approach is adopted involving an economic study, an ecological study, geo-morphological study, an assessment of governance structure and an assessment of port operations. The end goal is to build from practical cases and develop a series of tools and develop a generic design framework for African port development. Such a framework can facilitate a stakeholder-inclusive decision making and design process that makes sustainable harbor design more accessible to port developers and stakeholders. Insight will be given into the development of this framework utilizing the expanding port of Tema in Ghana as a case study. A key component of this approach is the development of a clear system understanding from the perspectives of the various disciplines. Some of these steps are highlighted and given context in the framework still being developed.

2.2.6. Ecosystem services in coastal zone planning II	B2.02
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Chair: Ann-Magnhild Solås

Panel organizers:

Ingrid Kvalvik and Ann-Magnhild Solås (Nofima – Norwegian Institute of Food, Fisheries and Aquaculture Research)

Bente Sundsvold (the Arctic University of Norway)

Panel description:

See 2.2.4.

Two approaches to complexity and ecosystem management: Marine governance in Norway and Queensland, Australia

Jahn Petter Johnsen (Norwegian College of Fishery Science, University of Tromsø, Norway)

Nadine Marshall (CSIRO Land and Water, Australia)

Tiffany Morrison (ARC Centre of Excellence for Coral Reef Studies, James Cook University, Australia)

Governing complexity on the large scale is challenging, but not impossible. Australia and Norway are agenda setting countries in terms of being models for how to do it. In this article, we study how Ecosystems and ecosystem services are governed in Norway and Queensland in the Commonwealth of Australia and how the governance regimes handle complexity and relate to Ecosystem Based

Management. Our two cases illustrate two different approaches to complexity and EBM that reflect the relevance of ecosystem differences, social context and governing traditions. In Norway, the vision of sustainable exploitation of marine resources is a fundamental objective for how resource governance is organised. The Norwegian approach has developed from a sector-oriented fisheries policy and single fish stock management perspective, into a broader concern for ecosystems and services. Marine governance in the broad sense is still mainly about fisheries management in Norway. In Queensland, fisheries in the Great Barrier Reef (GBR) are managed both by the State as well as federally, the latter which frames and affects other sector management. Protecting and conserving the GBR and its biodiversity, as defined by the Commonwealth and also partly by UNESCO, represents the normative and cognitive pillars for governing marine resources in parts of the region, where human well-being in the short term is secondary to biodiversity protection and ecosystem health. In this paper, we explore similarities and differences in the overall governance regimes in Norway and Queensland. In terms of “How to do Ecosystem Based Management?” there are lessons to be learned from both approaches.

Moving beyond the aquaculture farm: territories of shared risk?

Mariska J.M. Bottema, Simon Bush and Peter Oosterveer (Environmental Policy Group, Wageningen University and Research)

Area management is based on the premise that an activity such as aquaculture does not take place in isolation but in landscapes composed of diverse bio-physical conditions and socio-economic actors. Production practices impact the environment, but at the same time producers experience risks due to their physical location in a landscape, suggesting a false dichotomy between production and the environment. While area management is emerging as a key policy approach in aquaculture, it is unclear how area management addresses the sharing of environmental risks and the integration of aquaculture with other activities in a landscape. This research studies how individual shrimp farmers in two accounts of emerging area management manage environmental risks, and how these producers operate beyond the boundaries of their farm. Kung Kraben Bay in Chantaburi province in Thailand, an area with typically closed semi-intensive production systems, will be compared with shrimp farmers in Ngoc Hien district in Ca Mau province, Vietnam, an area with integrated mangrove-shrimp farms, typically open extensive production systems. Due to the nature of their production systems, these cases represent two dissimilar situations in terms of risks resulting from the physical linkages between farms and their environment. Participatory rural appraisal methods are combined with traditional interviews in order to comprehend and illustrate the spatial configuration of environmental risk and risk management strategies, from the perspective of individual farmers. In taking this bottom-up approach, preconceived ideas about how and where areas are formed and where boundaries exist are challenged. Using risk as a driving concept existing boundaries are deconstructed and then reconstructed according to the environmental rationalities of individual aquaculture producers.

Using the ecosystem services concept in stakeholder participation to support ecosystems-based management. A case study from the Firth of Forth, Scotland.

Jacqueline F. Tweddle (University of Aberdeen)

Improving decision making and participation in coastal governance is an important goal for policy makers and coastal communities. The concept of ecosystem services provides a potential common language to explore social and ecological trade-offs, connections between ecological and human systems and the variety of benefits that society obtains from healthy functioning systems. While the literature on ecosystem services is expanding, there is limited experience in developing decision support and stakeholder driven approaches for practical implementation. Therefore what is needed is a process that encourages stakeholder perceptions of ecosystem services (ES) and their benefits to be

shared and assist in informing the trade-offs that communities make when engaging in development decisions. The project “Cooperative participatory assessment of the impact of renewable technology on ecosystem services: CORPORATES” brought together natural and social scientists, experts in law and policy, and marine managers, with the aim of promoting more integrated decision making using ES concepts in marine management. CORPORATES developed a process to bring ES concepts into stakeholders’ awareness, using a live issue of the co-location of wind farms, MPAs and fishing in the Firth of Forth Region in Scotland. Here we present a process that successfully built shared understanding between industry and stakeholders of inter-linkages and interactions between ES, benefits, activities, and economic and cultural values. This process provides an ES-based decision-support model for exchanging societal-ecological knowledge and providing stakeholder interaction in marine planning, supporting ecosystem-based management.

Valuing Welsh Salt Marshes: Understanding Ecosystem Services and Coastal Governance

Dr Emma McKinley (School of Earth and Ocean Sciences, Cardiff University)

Coastal areas face increasing pressure from urbanisation, erosion, flooding and climate change, and are experiencing unprecedented levels of change and regime shift. These ongoing pressures are resulting in a range of changing conditions that require an adaptive and flexible governance system in order to future-proof our coastlines. RESILCOAST highlights the role of Welsh salt marshes in supporting coastal resilience, recognising these dynamic and diverse environments areas as regions particularly prone to significant shifts. Salt marshes play a vital role in regulating coastal areas and while there are efforts to protect these valuable ecosystems, it is unclear whether existing policy is adequately positioned to adapt to future change facing salt marshes. RESILCOAST examines the current governance landscape, its consideration of salt marsh ecosystem services (ES) and their value to society, and how these are included within UK and Welsh governance. The research builds on a growing understanding of the factors influencing ES provision in salt marsh systems, including the resilience of these coastal fringe habitats in response to a range of changes. In particular, this component of the project examines public and stakeholder valuation of ES, applying an integrated value approach to develop an understanding of how ES values can support effective and sustainable governance. The results of a national questionnaire have been used to identify governance priorities for stakeholders related to management of salt marshes and their ecosystem services. These findings will support MCA based workshops, including the use of future scenarios to establish potential changes in value. Finally, the work will examine the capacity of existing governance and management instruments to respond to expected future regime shifts and changes to ES provision and resilience, with a view to making recommendations that will support sustainable policy and management.

2.3.2. Regional diversity in social relations	B2.08
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Chair: Emilio Cocco

Challenges and Opportunities in Incorporating Local Ecological Wisdom into Sustainable Coastal Resource Management. Case Study of Sasi in Kaimana, West Papua, Indonesia

Ratna Patriana¹, Arif Satria², Soeryo Adiwibowo², and Rilus A. Kinseng²

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²*Faculty of Human Ecology, Bogor Agricultural University, Indonesia*

The attempt to integrate pre-existing local institutions in managing marine resources into national and regional coastal development agenda today has been more complicated than ever as the world becomes increasingly globalized. The objective of this paper is to explain recent changes of Sasi, a local ecological wisdom in conserving marine ecosystems, due to changes in the globalized world. Understanding these changes will lead to recognizing the aspects that facilitate or prohibit the process of building an effective community-based coastal resource management. The study shows that high market demand on sea cucumbers and Trochus shells has been affecting the orientation of Sasi in Kaimana from an ecological practice to promote the sustainability of communal resource, to an economic practice to maximize the benefit of fisheries. The auction system that is now implemented by local elites shows that there is an inequality of power distribution among locals that facilitate this process. In many cases, the usage of illegal fishing gear is allowed by the traditional elites even though it threatens the sustainability of ecosystems. Women's access to marine resources is declining as the new fishing technology, which is gender biased, is becoming more popular in the area. To implement an effective community based marine management system, partnerships among different stakeholders should be built to address the economic problems in each level of the community. Price control for fishery products should be applied by the government to ensure fishers receive a fair price for commodities. There is also potential for strengthening local livelihoods in the tourism sector. The sea around Kaimana has a rich underwater attraction because it is a migratory area for various marine mammals. By revitalizing Sasi and making Kaimana a cultural-ecotourism site, there will also be more opportunities for women to participate in the economy.

Sea remembrances: the importance of collective memory on the configuration of the ancestral sea territory of the San Andres, Old Providence & Santa Catalina raizal islanders (Colombia)

Ana Isabel Márquez Pérez (Anthropologist, PhD Foundation Sea, Land & Culture Old Providence Initiative, Colombia)

The social appropriation and use of marine spaces and ecosystems by the raizal people, ethnic minority that inhabits the Archipelago of San Andres, Old Providence and Santa Catalina (Colombia), has a very particular history, greatly undocumented and unknown. Fishing, marine and coastal resources gathering and commercial navigation, basic to local livelihoods and economies, resulted in the configuration of a vast maritime territory and a deep environmental knowledge, that is still fundamental to island life. The conformation of this territory need to be understood not only as the result of the contemporary relations that many islanders have with the sea, but also of a strong collective memory that remembers the existence and importance of these sea relations for generations of fishermen, sea captains and sailors, that goes back over 200 years. This is why when the 19th of November 2012, the International Court of Justice at The Hague decided on the Colombia vs. Nicaragua dispute, to move the maritime limit and establish the Quitasueño and Serrana Banks as Colombian enclaves amongst the Nicaraguan sea, not only severed a considerable piece of the

ancestral sea territory of the islands inhabitants, but also ignored their historical, social and cultural rights to it, consolidated through history, memory and daily livelihoods, this way infringing the territorial sovereignty exerted at least since the XVIII century, by raizal fishermen and navigators, dividing a territory historically appropriated through different seafaring activities. This paper looks foreword to present the history of this social appropriation of the sea and its ecosystems, emphasizing the raizal community living memory on the use that they have given to the areas that are now delivered to another country by an international decision that never had in account their existence and longstanding relation with the sea.

Living Space Boundary Making' Challenges in the Urban Small-Scale Fishing Communities in Indonesia

Agung Budiono^{a,b*}, D. Ary A. Samsura^a, Erwin van der Krabben^{ac}

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^b Universitas Gadjah Mada, Faculty of Geography, Department of Development Geography, Yogyakarta, Indonesia

^c School of the Built Environment, University of Ulster, Belfast, Northern Ireland

Small-scale fishing communities who are living in the urban area are facing pressures to their living space and livelihood due to climate change. Problems such as aquatic ecosystem degradation, rising sea level, and marine-use conflict may arise along with the shrinking of their living space caused by urban development and/or coastal erosion. Consequently, their existence is more depending on how they are able to access and protect their living and livelihood territorial boundary which in many cases are not well defined; or only defined on the basis of traditional custom or informal arrangement that exist among the community members. The issue of traditional custom of marine-use is evidently prevalent in many countries and has attracted the attention of scholars and practitioners under the term of Customary Marine Tenure (CMT). Using CMT, the access to marine resources is managed based on pre-existing system of fishery management that stems from the community's traditional roots and linked continuously with their local history. The problem might occur in the context of urban fishing communities especially when—due to urbanization—the community members are coming from different traditional roots and their customs have been amalgamated and also—at the same time in many cases—conflicted with the formal urban governance system. By using literature study, document analysis, and interviews, this paper is focused on providing an understanding of the CMT in an urban fishing community especially in Semarang City, Indonesia. The study also examines potential and existing conflicts between CMT and the formal regulation related to marine spatial planning (MSP) at municipal and national level especially in the case study area. The results of the study can also be used to support the development of Integrated Coastal Zone Management (ICZM) in Indonesia.

Sailing the Adriatic. Leisure Mobilities and the Social Construction of the Adriatic Seascape.

Prof. Dr. Emilio Cocco (The American University of Rome, University of Teramo)

Since the 1990s, the maritime dimension of the Adriatic basin was brought back to the stage to perform the role of a liquid counterpart of an expanding European frontier. That scenario was often filled with ambivalent meanings and expectations, which oscillated between European integration, trans-border co-operation, disguised forms of neo-colonial patronage and newly established civilizational fault lines. Nowadays, the Adriatic region still represents a frontier area and is imagined in different ways, which often reflect more or less explicit political stands. Particularly, contemporary players are quite keen on evoking unitary pictures and cooperative moods while maintaining an interest in economic and political gain at lower national and local scales. However, it does not seem that such a wishful political thinking easily matches its expectations because the Adriatic area is far

from integrated and is still ridden with rivalries and mutual suspicions. In this contribution, I take a different standpoint and try to explore the social construction of the Adriatic from another perspective: the one of the people sailing across the borders of the Adriatic for tourism. My hypothesis is that it is possible to get an alternative and vision of the contemporary “Adriatic Seascape” by understanding behaviours, values and expectations of the people who move across and around the Adriatic basin for leisure purposes. Thus, from this phenomenological standpoint, I confront the nautical tourists representations of the Adriatic with the top-down institutional strategies of the Adriatic regional cooperation (i.e. EU sponsored ones). I base my analysis on two types of data. Firstly, ethnographic work carried out in marinas and yacht clubs in a number of Adriatic locations. Secondly, quantitative data collected among tourists boating across the Adriatic. Finally, another set of quantitative data collected among sailors participating in “Barcolana” regatta 2012, the largest of the Mediterranean.

2.4.7. Workshop: From crisis to recovery – how can research support recovery of fisheries resources and livelihoods? Exploring the case of Senegal	B2.04
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Chair: Cornelia E Nauen

Panel organizers:

Cornelia E Nauen (Mundus maris)

Nicole Franz (FAO)

Panel description: At about half the actual extractions officially unaccounted for, fisheries statistics in Senegal and neighbouring countries are a poor guide to policy and investment decisions. What is visible though is the huge increase in the number of fishing boats and effort over the last decade in the dynamic small-scale sector, frequent incursions of industrial vessels mostly flying different foreign flags into the coastal waters reserved for small-scale fishers and significant disregard by most actors for regulations promulgated by the government with support by international aid projects. The loss of income to public budgets from IUU fishing and the threats to livelihoods and food security, particularly of coastal communities this state of affairs engenders can be considered a major obstacle to the development of the country. The workshop will benefit from three short impulse talks about (a) the potential for improvement in governance identified in a paper about the performance of the World Bank/IDA project intended to strengthen fisheries policy and management in the country, (b) the opportunities afforded by new stock assessment methodologies that work in data-poor conditions, and (c) the opportunities arising from critically engaged research and involvement of e.g. small-scale fishers in research to reduce conflicts among stakeholders and strengthen the governance capabilities. This resonates with the Voluntary guidelines for securing sustainable small-scale fisheries in the context of food security and poverty eradication. The workshop will explore the most promising avenues for research to support recovery of fisheries resources and the communities depending on them. The workshop will be conducted in the format of a world café allowing the great diversity of experiences and knowledge formats to converge towards shared insights which can inform follow-up action.

Do World Bank projects live up to their participatory ambition? An example from Senegal

Dyhia Belhabib (Ecotrust Canada)

Aliou Sall (Mundus maris Senegal)

Cornelia E Nauen (Mundus Maris Europe)

African countries received about US\$2.1 billion aid for the fishing sector. Nevertheless, most African fish stocks are fully or over-exploited, and governance is weak. Senegal takes 8% of the total. Most of this aims at fisheries policy and management (44%), fisheries services (26%) and development (19%), while research accounts for only 10%. US\$28 million is donated by the International Development Association (IDA, World Bank) as part of the West African Regional Fisheries Program (WARFP). Therein 84% of the funding was for policy and management, less than 12% for research disbursed only after project start. We wanted to analyse to which degree the project's objectives have been achieved. Here we propose a fine-scale review of the World Bank project performance. To this effect, we divide the project into the main elements targeting the small-scale sector, namely the fishery policy (Code de pêche) promulgated in 1998 with its new institutional arrangements in the form of Local Artisanal Fisheries Committees (CLPAs), TURFS, vessel registration and fishing permits. We examine three main dimensions which are defined by element indicators to locate project successes and the margin for improvement. This is done by seeking relevant information through semi-structured interviews from local communities in six major fishing communities of Senegal where the project was reported to be successful. We find that even well promoted and conceived components did not meet with expected results, mostly because of weak adaptation to local conditions and insufficient participation. Our results point to good potential for improvement, especially through stronger participatory approaches, particularly during the project's preconception, promotion and successive preparatory phases and building in sufficient time for the cultural changes the project is predicated upon. Research should be carried out during preparation and accompany implementation to achieve better value for money.

Crisis of authority: Causes, processes and implications for artisanal fisheries regulation. A case study from Senegal

Aliou Sall (Mundus maris Senegal)

For decades, public policies are being implemented to alleviate a trend towards overfishing, which does not spare artisanal fisheries. The effectiveness of such policies is increasingly questioned in the light of widespread transgression of measures of the fisheries code, such as open use of prohibited monofilament gears, non-respect of protected areas or minimum size of species or construction of new pirogues without permit. The difficulty of the fisheries administration to enforce the new fisheries legislation, including the obligation to hold a fishing license and register the boats as essential measures for the monitoring and regulation of fishing effort, is apparent. This paper focuses the analysis on the loss of authority of public and traditional bodies in Senegal under conditions of overcapitalisation, globalised markets and erosion of traditional social relationships. After discussing the causes, the processes by which this loss of authority occurs are presented and concrete examples are given that serve to demonstrate how this situation may improve. Finally, locally adapted alternatives are explored to restore sufficient authority and legitimacy among stakeholders for dialogue that can lead to "truly concerted" management in view of guaranteeing the sustainability of resources and thus livelihoods in the artisanal fisheries.

Nutritional Security of Fishery Dependent Communities in Coastal Ghana

Hannah Russell and Edward Hugh Allison (The University of Washington, School of Marine and Environmental Affairs)

Fisheries are increasingly being considered in dialogues about nutritional security, amid concern for stresses on fisheries production. The people of coastal Ghana, whose livelihood and culture are based on fishing, present an important case in point. Are Ghanaians who live in fishery dependent coastal communities obtaining the nutritionally and culturally appropriate allocations of locally caught fish? If not, is this due to decreased landings of the small pelagic stocks the artisanal fishery relies upon, or is it due to other factors, such as changes in post-harvest distribution of fish within the country, or changes in people's dietary preferences? Does fish continue to be a culturally and nutritionally important food source for coastal Ghanaians? To answer these questions, I conducted surveys at five study sites in the Western and Central Regions of Coastal Ghana, from October to December 2016. I surveyed women of three different groups: fish processors, fish sellers, and fish consumers. Further, I conducted key informant interviews with community leaders, fishery NGO members, and government officials. My preliminary data analysis indicates that there may be nutritional insecurity in some of the areas of coastal Ghana, evidenced in the number of respondents who reported they are eating less fish now compared to the past. Further, I can conclude that locally-caught fish continues to be a culturally important food source for coastal Ghanaians, who recognize the role of fish as part of a healthy diet. Decreased landings seem to directly affect the ability of coastal Ghanaians to obtain fish for themselves and for their families, however changes in consumer purchasing power due to rising costs in fish and decreased income security for those in the fishery sector, and potential changes in fish distribution, may also affect availability of food fish.

2.5.6. A new era of knowledge production: traceability and transparency	B2.05
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Chair: Maaike Knol

Weather and sea-ice information systems in support of Arctic marine governance

Maaike Knol (University of Tromsø – the Arctic University of Norway)

Peter Arbo (University of Tromsø – the Arctic University of Norway)

Sebastian Gerland (Norwegian Polar Institute)

Machiel Lamers (Wageningen University & Research)

Hanneke Luijting (Norwegian Meteorological Institute)

Olga Paolova (Norwegian Polar Institute)

Stein Tronstad (Norwegian Polar Institute)

Paula Duske (Wageningen University & Research)

Rapid environmental change is affecting the demand and supply of sea-ice and weather information systems in support of marine activities in the Arctic. Traditionally, information about sea ice, icebergs and weather conditions is provided by the national ice and MET services. More recently, the “ecosystem” of Arctic information providers has become more heterogeneous, due to increased technological possibilities and user demands. This paper approaches Arctic information systems as socio-technical infrastructures. Like infrastructures in the conventional sense, these are large-scale installations that facilitate movement and exchange, enabling other activities or services. They extend across time and space and have a network structure. Arctic information systems are a combination of physical artifacts, organizations, knowledge, legislation, protocols and standard operation procedures. They require system builders, functionality, and acceptance among users, and must be seen as serving societal needs. This paper provides insight into what these socio-technical infrastructures around

Arctic information provisioning look like. It takes the form of a descriptive review, based on document and literature studies, a scrutiny of websites, and several in-depth interviews. A few case studies from Nordic countries are selected to enhance deeper understanding of current developments (e.g. MET Norway, BarentsWatch, EffienSea2, Arctic Web). Aspects included are their organization, funding structures, the geographical scales at which they operate, the types of services and information that are provided, the target groups, the user-producer interaction, the information consistency and standardization, and the accessibility of the services. The paper concludes by discussing how Arctic information systems may affect marine governance in this region.

Handline tuna fishing in practice - traceability interventions and responses

Mandy Doddema^a, Simon Bush^a, Gert Spaargaren^a, Budy Wiryawan^b

^a *Environmental Policy Group, Wageningen University & Research*

^b *Department of Marine Fisheries, Bogor Agricultural University*

The goal of both public and private seafood traceability initiatives is to improve efficiency and transparency of seafood value chains. To understand whether seafood traceability meets its potential there are unresolved questions around coordination in chains and what traceability means for the ability of specific actors operating in seafood value chains to participate and benefit in the transparency efforts. The goal of this paper to explore how traceability interventions are changing the practices of fishers and middlemen on the ground. They are two crucial actors who are relied upon to use novel technologies and to gather information that feeds into seafood traceability systems. Interventions and responses in the Buru Island handline tuna fishery in Indonesia are used to unpack the linkages and variations that exist between fishing & landing practices. We use a theory and methodology that is inspired by practice theorists like Theodore Schatzki and Elizabeth Shove to investigate how the different elements of the fishing and landing practices as well as their interconnections do or do not change as a result of specific traceability interventions. We show this knowledge to be essential for improving seafood traceability in seafood value chains in the future.

Sustainable aquaculture? Uncertainty in knowledge based management

Maiken Bjørkan (Nordland Research Institute)

Kjellrun Hiis Hauge (Høgskolen I Bergen)

For most sectors of Norwegian society, Knowledge-based management is a fundamental principle. According to the Ministry of Climate and Environment] “all nature should be managed based on knowledge” – in order to ensure sustainability. Hence, the governing system depends on knowledge-based management. The question of what the best and most relevant available knowledge is, however, can become the subject of a political discussion in itself and actually create, rather than resolve, conflicts in political affairs with strong conflicts of interest. Thus, aquaculture management is also about uncertainty at different levels. First, there can be uncertainty about the knowledge that advice is based on. In the context of aquaculture, an example is the polarized discussions about who can be trusted as knowledge providers for knowledge based management in aquaculture. Second, regulations are sometimes based on assumptions, which can generate political debate. A key challenge in the aquaculture knowledge context is sea lice. In this paper we discuss the role of uncertainty in the knowledge base for decision-making in connection with lice problems, and discuss these in the current context with conflicts of interest. We collect examples of conflicts of interest from the media that show how these can be linked to uncertainty in knowledge. Furthermore, we review the regulations on sea lice and reflects on how uncertainty in knowledge management can be characterized. We distinguish between uncertainty that is reducible and that is non-reducible, and between uncertainty which is controllable through statistical methods and which are not controllable because of some degree of ignorance. A limited number of semi-structured interviews has been conducted with key actors, and the analysis of these suggests how informants denotes uncertainty and

insecurity role in conflicts. Finally, reflect we over how management bodies can deal with uncertainty in a more transparent way.

Navigating the complexity of marine governance: The capacity of ecolinguistics to facilitate knowledge co-production and public participation

Marta Skorek (PhD candidate) (The Institute of Scandinavian Studies and Applied Linguistics, The Faculty of Languages, the University of Gdansk, Poland)

Public participation, stakeholder consultation, and extended peer community are concepts that appear to pervade marine (environmental) governance discourse. The management of complex socio-ecological systems, such as seas, oceans, and the land-sea interface, entails the participation of, and insights from, relevant stakeholders. According to *the World Social Science Report 2013. Changing Global Environments*, the need to engage with the public reflects the shift from government to governance, and is in line with both the top-down and bottom-up approach to marine governance. Such a transformational change could be facilitated by social scientists looking to design open knowledge systems and participatory governance processes, to deepen our understanding of complex socio-ecological systems, and to recognize the role of NGOs and social movements in marine governance. However, the question remains whether the stakeholders are aware of the fact that our language use does matter in the way we frame, interpret, and discuss environmental governance issues. Not only does our language use reflect but also shapes our relation to life-sustaining ecosystems, and ultimately to the governance of socio-ecological systems, which can be explored through ecolinguistics (ecological analysis of discourse). Such an analysis helps raise critical language awareness, and – when coupled with ecological knowledge – results in ecological (ocean) literacy. The critical literacy skills may in turn encourage public participation, thereby increasing the legitimacy of the governance process. Therefore, the purpose of my presentation will be three-fold: to critically evaluate the contribution to be made by the social sciences in the area of marine (environmental) governance, to stress the role of critical language awareness and ecological literacy in increasing public participation, and to highlight the capacity of ecolinguistics to meet this objective and to broaden the social science perspective on public participation in marine (environmental) governance.

2.6.3. Regional-global responses to marine system changes	B2.01
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Chair: Chris Smith

Coastal disaster risk governance in Indonesia and India: Factors contributing to the successful mangrove ecosystem-based coastal protection

Annisa Triyanti (Governance and Inclusive Development, Department of Human Geography, Planning, and International Development, University of Amsterdam)

Exacerbated by climate change, the threat of coastal disaster risk is increasing rapidly in the world. Coastal area in the world is at the highest risk of various types of disaster, including tsunami, cyclones, and flooding. The latest data shows that Asian region suffers from the highest vulnerability of disaster. A safe and sustainable protection against current and future disasters is urgently required. This research is aimed to analyze factors contributing to the successful coastal protection through governance perspective. This paper compares two projects on mangrove ecosystem-based coastal protection, implemented in Demak, Central Java, Indonesia and Pichavaram, Tamil Nadu, India. The methods include both qualitative and quantitative, incorporating the governability assessments developed by interactive governance scholars. Based on the result, it is proven that combination of 6 thematic factors is crucial in achieving successful coastal protection. It includes, 1) The

implementation of ecosystem-based disaster risk reduction (Eco-DRR); 2) social mobilization; 3) responsiveness and performance of government actors; 4) the role of NGOs; 5) coherence and 6) regional integration. The case study in Indonesia shows strength on social mobilization, the role of NGO, and coherence, and weak in terms of Eco-DRR implementation, responsiveness and performance of government, and integration. Whereas, the case study of India performs its strength in Eco-DRR implementation, the role of NGO, responsiveness, and performance of government, and coherence, and weaknesses regarding social mobilization and integration. This comparative perspective provides lesson learned on identifying important factors to achieve successful coastal protection and to design appropriate policy design and actions.

Historical Trajectories of Change and Disaster Risk Management in Small Island Developing States

Clare Shelton, Jenni Barclay, Johanna Forster, Roger Few, Claire Jowitt, Irene Lorenzoni, Carole White (University of East Anglia)

Small Island Developing States (SIDS) in the coastal tropics exposed to multiple hazards (storm surges, erosion, hurricanes, cyclones, intense rainfall and tectonic hazards) with high population density face extraordinary sustainable development and Disaster Risk Management (DRM) challenges. Island States, often with large oceanic areas and mountainous volcanic landscapes are characterised by limited space on land for settlement resulting in their populations being particularly exposed to multiple hazards. SIDS include two-thirds of the countries that face the highest losses as a consequence of disasters, and the costs are growing. Tropical cyclones alone cause an estimated \$835 million of damage in the Caribbean and \$178 million in the Pacific each year. This study posits that present day DRM has often been influenced by the colonial past on SIDS, which have left persistent legacies following independence. However, little research has considered how historical legacies of tenure and exposure to hazards shape the effectiveness of present-day disaster risk management in these 'hazard hotspots'. Using two SIDS (Vanuatu and Dominica) which passed between French and British colonial powers until their independence, the underlying drivers and interacting factors that influence how multiple risks and shocks are managed are discussed, focusing particularly on how current land and marine use patterns, and the location of infrastructure and DRM policies have been influenced by particular historical events and trajectories. A research approach and methodology was developed to think through historical trajectories of risk and DRM cultures today, drawing expertise from geologists, marine scientists, human geographers and historians. Early findings from this research will be presented and lessons learned so far from using an interdisciplinary approach reflected on.

Human activities and pressures acting on marine habitats in the European Seas; a meta-analysis of map resources for the marine restoration project MERCES

Thanos Dailianis¹, Vasilis Gerovasileiou¹, Nadia Papadopoulou^{1}, Katerina Sevastou¹, Christopher J. Smith¹, Trine Bekkby², Meri Bilan³, Christoffer Boström⁴, Carlo Cerrano⁵, Roberto Danovaro⁵, Dario Fiorentino⁶, Karine Gagnon⁴, Cristina Gambi⁵, Anthony Grehan⁷, Silviija Kipson⁸, Cristina Linares⁹, Telmo Morato³, Henn Ojaveer¹⁰, Helen Orav-Kotta¹⁰, Antonio Sarà¹¹, Rachael Scrimgeour¹²*

¹ Hellenic Centre for Marine Research, Greece; ² Norsk Institutt for vannforskning, Norway; ³ Instituto do Mar Centro da Universidade dos Açores, Portugal; ⁴ Åbo Akademi University, Finland; ⁵ Università Politecnica delle Marche, Italy; ⁶ Alfred Wegener Institute, Germany; ⁷ National University of Ireland Galway, Ireland; ⁸ Faculty of Science - University of Zagreb, Croatia; ⁹ University of Barcelona, Spain; ¹⁰ University of Tartu, Estonia; ¹¹ Studio Associato GAIA, Italy; ¹² United Nations Environment Programme's World Conservation Monitoring

Pressures on marine ecosystems are often derived from human activities, either near the coast or through mobilities and inter-connections to the open ocean. Facilities permanently located on land or fixed platforms are straightforward to map, while mobile activities pose a greater challenge for

researchers and managers. One of the goals of the ongoing Horizon 2020 MERCES project (<http://www.merces-project.eu/>) is to produce a thorough census of available maps for activities and pressures with impacts on marine habitats in the European Seas. To this end, we performed an extensive review and compiled a catalogue with mapping sources for (a) maritime activities, (b) endogenous pressures (i.e. those applying locally, resulting from a specific activity), and (c) exogenous pressures (i.e. those deriving from large-scale phenomena) that could potentially drive key-habitat changes. Currently the inventory includes approximately 300 entries covering several key coastal and deep sea habitats. Sources include published records, web resources, and grey literature. A substantial amount of the records regard maritime mobilities, such as fisheries and transport (included in 52% and 39% of the entries, respectively), as compared to coastal and marine infrastructure which is included in 42% of the entries. A similar trend is apparent in the records mapping pressures to ecosystems, where those linked to mobile maritime activities, such as abrasion of the seafloor, rank high on the list (23%). Whilst marine litter (mixed maritime and urban sources) is well mapped, an array of other pressures linked to mobile activities (e.g. underwater noise) are present but may be underestimated, due to their less frequent assessment. Mapping the location and intensity of maritime mobile activities has been facilitated in the past years, mainly through broad employment of satellite monitoring systems; these data, especially when overlaid on available habitat maps, can produce meaningful information aiding habitat assessments, conservation and restoration efforts.

Analysis of societal responses to global change in marine systems: preliminary results from a typology based on 20 case studies

Patrice Guillotreau¹, Alida Bundy², R. Ian Perry³

¹ LEMNA, University of Nantes, France, France

² Fisheries & Oceans Canada

³ Fisheries & Oceans

Marine systems around the world are increasingly facing multiple natural and anthropogenic stressors associated with global change, which affect their functioning and ability to deliver goods and services to humankind. The resulting changes in marine resources can create hardship for local populations and businesses that depend on them for food, livelihoods and wellbeing. Knowing how to respond to localized global change in a timely and appropriate manner is increasingly occupying the attention of researchers, policy makers, decision makers and practitioners around the world. Building infrastructure and adaptive capacity are usually part of the response program that is developed. However, what is missing is a tool that offers the ability to learn from experiences elsewhere, to enable decision makers, for example, to triage a range of possible responses to global change, based on what has worked, or not worked, elsewhere and ensure a rapid early and informed response to global change. In order to fill this gap, the IMBER (Integrated Marine Biogeochemistry and Ecosystems) Human Dimensions Working Group, has developed a decision support framework I-ADApT (IMBER - Assessment based on Description and responses and Appraisal for a Typology). I-ADApT has been applied to 20 case studies in a forthcoming book, covering a wide range of social ecological systems (SES) around the world that have been challenged by critical global change issues. A typology is proposed to highlight similarities and distinctions between successful, and less successful, responses, and to identify potential solutions for marine SES crises. This communication introduces the background and context for this approach, the case studies to which this approach has been applied, and the preliminary typology results derived from the 20 case studies.

2.6.4. Coastal Communities, Environmental Conservation & Sustainable Livelihoods	B2.06
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Chair: Anthony Charles

Panel organizer:

Dr. Anthony Charles (Director, Community Conservation Research Network, Saint Mary's University Halifax, Nova Scotia, Canada)

Panel description: Around the world, coastal communities are engaging in conservation initiatives, often linked to the goal of sustaining local livelihoods. What are the ingredients of success in these initiatives, and how can these be better supported by high-level policy? The Community Conservation Research Network (www.communityconservation.net) and its network of researchers and practitioners (Indigenous, community, government, NGO, academic) are building a synthesis of experiences from across the globe, to reflect on and promote the role of local communities in conservation and sustainable use of local resources, and to explore linkages with large-scale policy for effective environmental governance. A social-ecological systems lens is helping to identify (a) the wide-ranging meanings of and motivations for conservation, (b) best practices in place-based community conservation, (c) resulting livelihood and stewardship outcomes, and (d) more effective policy and governance arrangements. This session (1) describes a sampling of the network's research, with presentations on examples from South Africa, India and Madagascar, and (2) devotes the second part of the session to inviting members of the audience to share their community-level experiences with conservation-livelihood linkages. A new global crowd-sourcing initiative, Communities in Action, gathering further examples of community engagement in conservation and sustainable livelihoods, will also be described.

The importance of social relations and networks for implementing and governing coastal-marine community-based conservation initiatives: the case of The Bay of Ranobe, south-west Madagascar

Wayne Stanley Rice

Natural resources are under threat in the absence of effective governance institutions at the appropriate scale. Commons research has long advocated, based on historical and contemporary evidence, the ability of local resource users to manage and allocate benefits from natural resources equitably over long periods of time with limited inefficiencies. Furthermore, concerns surrounding national and international conservation agendas' promotion at the expense of local livelihood requirements has generated interest in community-based conservation initiatives, encouraging local community participation and knowledge in natural resource management. Nonetheless, many scholars agree early interest has largely diminished, due to various studies depicting a lack of success in meeting ecological and social goals. However, whilst the implementation of community-based conservation initiatives has yielded mixed results, this may be due in part to conventional scientific approaches not having adequately incorporated complex human dimensions. The failures to devolve decision-making powers to local communities, the difficulty of equitable community representation and distribution of benefits, and weak participation have perhaps equally contributed. Consequently, the importance of social relations and networks is increasingly noted to be influential for implementing and governing more socially just conservation initiatives. Research undertaken in the Bay of Ranobe, south-west Madagascar, appraised social relations and networks present/ absent, and the influence thereof on governing natural resources present. Village presidents and local fisher association community representatives were identified as central actors within the network. However, several concerns were expressed by community members regarding these actors due to limited knowledge diffusion and inequitable benefit distribution. Moreover, mixed community perceptions of coastal-marine community conserved areas were highlighted, citing a lack of community involvement

leading to decreased levels of community buy-in. This research informs and enriches conservation planning and governance approaches, and contributes to the theory and practice of more community-inclusive conservation regionally and globally.

Plural governance systems and shifting coastal livelihood strategies in South Africa

Philile Mbatha

A number of rural coastal communities in South Africa have a long history of interacting with coastal environment and utilizing coastal resources for livelihoods. However, due to histories of land dispossession and marginalization in terms of coastal resource access and use over the years, the livelihoods of people in rural communities such as Kosi Bay have shifted as a result of various governance processes introduced in colonial, apartheid, as well as democratic eras in South Africa. Through the lens of the Kosi Bay community; this study 1) explores the livelihood strategies employed by rural coastal communities living in conservation areas, 2) describes the complex governance systems relevant to coastal resource use, 3) seeks to understand how people's livelihood strategies and choices have been influenced by changing plural governance systems and processes, and 4) outlines the different norms, values, principles, images and discourses that inform the governance of coastal resources and resource use sectors in Kosi Bay from the international level, down to the local level. The paper highlights the critical role of governance in assessing people's livelihood strategies and argues for greater attention to governance in livelihood analyses.

Occupational mobility and its implications for human-environment connections and livelihoods in Chilika Lagoon, India

Prateep Kumar Nayak

The presentation focuses on key environmental, political, social and economic factors shaping occupational mobility in Chilika Lagoon, Bay of Bengal, India - including (1) fisher's mobility within and outside the fishery sector as part of their overall livelihood adaptation strategy and (2) geographical spread of fishers' occupational mobility that exposes them to a number of externally imposed challenges. Using impacts from sectoral and geographical mobility by fishers as a measure, the paper reviews the status of their linkages with existing fishery institutions and the Lagoon resources across various levels to assess the extent to which fishers have been disconnected from the ongoing institutional processes and the Lagoon environment. Conclusion point to emerging trends and future scenarios regarding occupational mobility in Chilika.

2.4.8. Gender/Women Relations within Coastal and Fisheries Communities: From Past to Present II	B2.03
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Chair: Siri Gerrard

Panel organizers:

Katia Frangoudes, University of Bretagne Occidentale (France)

Siri Gerrard, Arctic University of Norway (Norway)

Danika Kleiber, Pacific Island Fisheries Science Centre, Joint (USA)

Cristina Pita, University of Aveiro (Portugal)

Panel description:

See 2.4.6.

Engendering awareness in the Caribbean

Lisa K. Soares & Patrick McConney (CERMES Gender In Fisheries Team (GIFT))

Early in 2016 a group of loosely networked gender-interested people from academia, CBOs, IGOs, NGOs and fisherfolk organisations coalesced to form the Gender in Fisheries Team (GIFT). None of us were then, or are now, gender experts. Yet the applied research, gender awareness promotion and development activities that we have done over the past 18 months have re-shaped gender thinking and relations on several fronts and in several networks. Our own perspectives on gender, and hence relations with a diversity of actors in our networks, have also evolved. The influence stretches from policy to practice. We are tackling the Caribbean Community Common Fisheries Policy, a sub-regional fisheries treaty that covers 17 countries, along with related formal instruments and national fisheries management plans. We are also getting a better understanding of how fisherfolk and others consider and address fisheries-related gender relations, power and rights, or simply ignore them. By sharing our findings and experiences we contribute to a wider discourse on how gender relations are influenced and evolve in different parts of the world, in different cultures and contexts, that we can learn from.

Women's entrepreneurship in the fishing industry. The case of fishing-business women in the Mercado del Mar, Mexico

Carmen Pedroza-Gutiérrez (Universidad Nacional Autónoma de México, UNAM)

Women's participation in post-harvest activities in Mexico dates back from prehispanic times when women would be salting, drying and selling fish in rural markets. Currently, women's work in fisheries has been identified all along the value chain, dominating in post-harvest and administrative activities. However, most studies talk about women's work in low payment employments and not influencing positions. Studies about women's participation in the fishing industry as business leaders are not so common in literature. Considering this, the present manuscript aims to explore the diversified role played by women in the Mercado del Mar, the second biggest fishing market in Mexico, mainly taking into account their role as business leaders, but without leaving aside the cleaning, packing or loading fish jobs. The methodological approach used in this paper was essentially based on in-depth interviews to most businesswomen in this fish market. In addition, observation to the daily activities in the market and informal interviews were carried out. Results show two types of business leaders those who started the family business as middle-women, peddling fish in small-scale basis and nowadays they represent an influencing position in the second wholesale fish market in the country. The second case is those women that inherited the business from their parents and learned how to manage it since they were young. Opinions were divided among those who thing that being a

woman represents an extra challenge to be a business leader and those who think that it is only a matter of personality and education, but does not have to do with gender.

Fisheries Women's Group in Japan: role and future perspective from past to present

Kumi Soejima (National Fisheries University, Japan)

In Japan, all fisheries cooperatives within fisheries communities include also women's groups. While male groups are busy to manage fisheries, women's groups are responsible to manage the social life of the communities in a way to avoid social problems. For example, they can clean the beaches, hold fish cooking class, etc. Women group's contribution is voluntary. However many of these women's groups of fishery cooperatives turn aging and some of them shut up or fall into a state of torpidity. Simultaneously, numbers of members are declining too and some members, particular young generation, can't enjoy their activities and they feel even duty against women's groups of fishery cooperatives. In some places fishery cooperatives initiated new business in a way to diversify fisheries activity (processing fish, selling fish, restaurants, etc...) and women are the main labor of that business. In opposition to the cooperatives action towards diversification other women decided to create their own groups having as objective to revitalize coastal communities and give adding value to fishing products. This presentation will share the characteristics and issues turning around fisheries women's groups in Japan and how they intervene for the survival of fishing community.

Addressing gender in coastal settings: Examples from East Africa

Maricela de la Torre-Castro*, Sara Fröcklin¹ and Maria Fredlund*

*Dept. Of Physical Geography, Stockholm University

¹ Swedish Society for Nature Conservation

While gender has been highlighted as a key issue in development, planning, and in the social sciences in general, there is a paucity of knowledge about gender in the coastal zones. This is of paramount importance since both women and men are active resource users and stewards in coastal/marine ecosystems. Lacking knowledge about key actors in the social-ecological system can only lead to partial governance and management solutions. Here, we present two examples addressing gender in coastal areas, placed in the tropical environment of Zanzibar (Unguja), Tanzania. First, a typology comprising gender structure, symbolism and identity; was used to perform a gender analysis in the island's surrounding seascapes. The use of the three dimensions combined with other methods (such as ecosystem mapping, interviews) provided a powerful tool to understand the use of different ecosystems, the valuation in terms of goods and services, gendered income differences and knowledge gaps. We also identified management weaknesses and possible solutions comprising multiple layers of information in which natural, social and spatial aspects are considered. The second example illustrates the complexities of addressing gendered adaptive capacity to climate change. Through interviews with 100 women in different villages around the island we attempt to quantify adaptive capacity. We build an index to illustrate, low, middle and high adaptive capacity and discuss the difficulties of doing so when gender dynamics and real adaptation costs are considered. The two examples together show how gender research can be conducted for governance and management enhancement addressing critical current problems such as coastal degradation and threats from climate change. The presentation highlights the urgent need for gender mainstreaming in coastal/marine governance and management.

Panel sessions	Series 5	Thursday, 6th of July 13:00 – 14:30
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2.1.6. International Cruise Tourism: Exploring Opportunities and Challenges Facing Destinations from a Critical Perspective I	B2.06
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Chair: Jonathan Tardif

Panel organizers:

Jonathan Tardif (York University)

Luc Renaud (Université de Montréal)

Panel Description: The cruise industry is booming all over the world and is now considered the fastest growing segment of the tourism industry. From 3.8 million passengers in 1990, the market grew to more than 22.2 million in 2015. In order to support this growth, cruise companies are constantly looking for new destinations, from the Arctic to Asia, from Latin America to Africa. The cruise tourism industry distinguishes itself from land-based tourism by the mobility of its activities, which gives it a special position when it operates in a given territory. Thus, the industry can more easily adapt its activities according to the economic, geopolitical, social and environmental contexts in order to achieve its commercial objectives. With the massive deployment of cruise tourism and the new commercial strategies of this industry (e.g. building mega-ships or the emergence of its own private destinations), challenges faced by all stakeholders at destination, from host communities to national governments, are manifold. All this requires a rethinking of how destinations can benefit from this form of tourism. Scholarly analysis of the international cruise tourism has tended to focus on certain aspects, notably on working conditions on ships, environmental impacts of the industry or its economic dimension. Less attention has been given so far to the complex dynamics and power struggles at destination, the ability of destinations to benefit from the industry, or factors promoting its sustainable development. These two sessions aim to examine opportunities and challenges facing host destinations in relation to cruise tourism from a critical perspective.

Session 1

From Birds to Boats: The Political Ecology of Cruise Tourism in Mingan Archipelago National Park Reserve in Quebec (Canada)

Jonathan Tardif (York Centre for Asian Research, York University)

Robin Roth (Department of Geography, Guelph University)

Protected areas around the globe are undergoing a rescaling of conservation practice – understood as inclusive of large-scale governance and day-to-day management – towards the increased involvement of multiple actors ranging from national and international non-governmental organizations to local and aboriginal communities and market-based actors. In Canada and elsewhere, deep government funding cuts to park authorities have intensified this rescaling. In this context, several protected areas have engaged in new partnerships with the cruise industry, introducing complex dynamics and power struggles at destination and beyond. However, few studies have addressed these issues so far. Drawing on the global political ecology of conservation literature, this paper examines the evolution of cruise tourism development and governance in and around Mingan Archipelago National Park Reserve, an insular territory of 20-some islands and approximately 1,000 coastal islets located in Eastern Quebec, Canada. To better understand the many challenges facing park authorities and their partners, we employed a slate of qualitative methods, including document analysis, participant

observation, and over 30 semi-structured interviews with park administrators, relevant state agencies, private business interests, and members of local communities, including First Nations. Preliminary results show that although the expectations of regional actors have not been met and the future of cruise tourism in Mingan is uncertain, park authorities continue to invest time and money to engage with the industry and adapt their facilities to this clientele. This raises questions about the real motives of park authorities and the contribution of this form of tourism to the sustainable development of the region.

Cruise Tourism and Territorial Appropriation Dynamics: The Case of a New Port of Call in Belize

Luc Renaud (Department of Geography, Université de Montréal)

The mobility and facility of geographic deployment of cruise tourism activities create a dominant position for cruise companies when negotiating the operating conditions with ports of call. The Caribbean, where cruise tourism has been growing strongly for some decades, has been particularly vulnerable in this context. Given the history of the industry elsewhere in the region, establishing a new destination habitually leads to major challenges in term of territorial control. Looking at the territorial dynamics of the development of this activity in southern Belize, we propose elements of reflection aimed at helping local stakeholders of future destinations to better respond to the imbalance of power caused by the unique nature of cruise tourism. In operation since November 2016, Harvest Caye is a private island a few kilometers offshore of several communities which the closest one already host a low intensity overnight tourism industry. The arrival of thousands of tourists daily is a unique opportunity to understand how the cruise tourism deploys itself, not only in the premises of the port of call but also inland where cruisers will engage in tours. In this paper, we look upon the geographical localization of power held by various stakeholders at different scale to determine how it plays a role in the dynamics of territorial appropriation. Based on semi-structured interviews and field observations done from February to May 2017, we expose how the geographical distribution of power affect the strategies of territorial appropriations in the context of the new port of call located in Harvest Caye, Belize.

Small Ship Tourism in the Myeik Archipelago, Myanmar: An Analysis of Social, Environmental and Economic Impact

Clare Weeden and Nigel Jarvis (School of Sport & Service Management, University of Brighton)

As Myanmar continues to open itself to tourism development it raises many complex tourism issues in all parts of the country. This study aims to analyse the development of small ship tourism in the Myeik Archipelago (MA), Myanmar, with particular focus on the social, economic and environmental impact of cruise excursions from Myeik and Kawthaung. The Myeik Archipelago is attracting increasing interest from national and international resort developers, and accommodation providers, keen to capitalise on the 'unspoilt' nature of the islands and beaches of the MA. The archipelago is a priority area for tourism development as determined in Myanmar's Tourism Master Plan (2013-20). Such development will likely herald a growing demand for small ship cruising in the area, a popular activity that has already seen rapid development since 1997. While some boat operators seem highly responsible in their activities involving the Moken, and other communities in the MA, the challenges faced by these peoples in the medium and long term include the risk of rapid development leading to a 'land grab', and thus displacement, which may lead to further marginalisation. Additional issues associated with cruise tourism include economic leakage outside the region, unequal distribution of tourism income, negative environmental impact, and lack of agency for local communities in terms of planning and decision-making for any future development. This paper reports the findings from a number of semi-structured interviews undertaken in February 2017, with public, private and third sector organisations and community representatives in the region to unpick some of the complex

issues surrounding the development of small ship cruising in this region. As an outcome, and in collaboration with local stakeholders, this project seeks to analyse the potential of small ship tourism to deliver sustainable, inclusive and participatory benefit to the visited communities in the MA, especially the Moken, a key cultural component of this type of tourism.

Governing Through Marine Communities: A Comparative Analysis of Cruise Tourism at Bonaire and Svalbard

Linde K.J. van Bets, Machiel A.J. Lamers and Jan P.M. van Tatenhove (Environmental Policy Group, Wageningen University)

Governing cruise tourism sustainably is particularly challenging, as cruise flows and impacts are difficult to regulate by place-bound and sovereign state authorities, such as ports or environmental agencies. In contrast, this institutional void is increasingly being targeted by intergovernmental policy processes, industry self-regulation, civil society initiatives, and other non-state governance arrangements. As result, governance of cruise tourism has been poorly theorized, particularly its complex transnational and highly mobile character. This presentation presents a new conceptual framework that identifies how a social-scientific marine community consisting of users and policy makers involved in governing cruise tourism is formed and adapted under the influence of both local and transnational cruise networks, based on mobility studies and the sociology of networks and flows. Within this framework collective self-governance by the industry association seems to play a crucial role. Collective self-governance, however, is driven by mixed objectives, ranging from marketing purposes and economic incentives to play divide-and-rule between ports of call between destinations, based on favorable costs, facilities, and regulations among large-scale cruise operators in the Caribbean, to industry responsibility, environmental education, and stewardship to maintain the quality of key attractions and safety within small-scale expedition cruise tourism in the Arctic. In other words, industry associations play a crucial role in the governance of both unsustainable and sustainable forms of tourism development. In this presentation, we will address both types of industry association by comparing cruise tourism on Bonaire and Svalbard. We will specifically look how governing through marine communities, facilitated by network capital and information systems, influences sustainable cruise tourism.

2.2.7. Worldcafe Phronetic Marine Spatial Planning Research: How did we get here and where <i>should</i> we be going?	B2.02
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Chair: Wesley Flannery

Panel organizer:

Wesley Flannery (Queen’s University Belfast)

Panel description: Marine Spatial Planning (MSP) has become one of the most widely endorsed tools for the sustainable management of the marine environment. However, many of the MSP initiatives undertaken across the world do not contain publically available evaluations (Fletcher et al., 2013). While this new system of environmental governance has been subject to some academic scrutiny (e.g. Ritchie and Ellis, 2010; Jay et al., 2012; Flannery and Ó Cinnéide, 2012; Boucquey et al., 2016), there have been calls for a critical turn in how we evaluate MSP. Evaluations of MSP tend to focus on monitoring the performance of the plan, usually against a narrow range of economic and environmental indicators; often ignoring broader socio-political questions. Evaluations must address the socio-political contexts of MSP and focus on, for example, the role of power in MSP processes, the distributional aspects of marine plans and the unintended negative social impacts that may arise from the implementation of plans (Flannery et al., 2016). The adoption of a phronetic approach to the evaluation of MSP is advanced as one way of addressing these questions (Kidd and Ellis 2012). This

session invites contributions that critically interrogate MSP discourses and practices and seek to answer questions such as: 'Where are we going?', 'Who gains and who loses?', 'Is this desirable?' and 'What are we going to do about it?' (Flyvbjerg, 2001). Contributions which provide new, theoretically driven approaches for evaluating MSP are also welcome.

The session will follow the Thresis format, where everyone gets 3 minutes and a max of 3 slides, to present their idea about Phronetic MSP. This will be followed by a Learning Café to foster discussion and debate and to capture interactions around these ideas.

Fisheries in Marine Spatial Planning: between nowhere/everywhere and somewhere.

Brice Trouillet (Enseignant-chercheur à l'Université de Nantes)

In MSP processes mainly led by technical debates, fisheries remain largely restive to mapping because of its complexity (spatial and temporal variability, data-poor, unclear policy, etc.) and the background purpose of such mapping. For these reasons, in recent plans and reflections, fisheries are reduced to 'core fishing grounds' or simply disappear from the maps and plans. Nonetheless, the situation of fisheries seems quite original because it doesn't fit really with spatial plans logic or all the more with zoning. So, the mapping choices are probably much more important that it appears but should also take into account their 'political implications' beyond technical ones. The case of fisheries gives a very interesting angle to light debates with critical approaches. Such an idea will be discuss starting from 3 slides.

Understanding the power dynamics of MSP

Jan P.M. van Tatenhove (Wageningen University, the Netherlands)

The central aim of this paper is to understand the power dynamics of marine spatial planning processes, by raising two central questions: (1) How do power processes influence the setting-up of a MSP project, the selection of and negotiations between stakeholders within a MSP project and the formulation and implementation of a Marine Spatial Plan; (2) To what extent and under what conditions do stakeholders obtain influence in the different stages of MSP projects (the setting-up of the project, the negotiations within the project and the making of a marine spatial plan). To understand the power dynamics of MSP three chronological stages of power within MSP can be distinguished: the power architecture of MSP projects, the power processes within the MSP projects, and the power dynamics to formulate, to decide upon and to implement a Marine Spatial Plan. Firstly, by analysing the power architecture of MSP projects (institutional rules) it is possible to give insight in how this architecture affects both the content of marine spatial planning projects (the way stories and metaphors used define problems and solutions) and structure the negotiations within these projects (who to involve? Who is excluded? Based on what?). Secondly the analysis focuses on the power processes within MSP projects, by analysing the capacity of actors to mobilize resources and to achieve their desired outcomes in negotiations. Thirdly to analyse the power processes involved in the making and implementation of a marine spatial plan.

Improving knowledge in decision-making for better international governance of oceans and seas

Saskia Hommes, Chris Seijger, Gerald Jan Ellen, Rutger van der Brugge, Marcel Taal (Deltares)

The EU, through Commissioner Vella, claimed that the current framework for international governance of oceans and seas is not sufficient to sustain economic growth and protection and conservation of nature and ecosystem services. Arguing that international governance of oceans should improve is one thing, but if one should really make a transition to a new governance framework, first the possible framework options should be explored to get a sense of the 'playing field'. And the pro's and con's of each framework should be determined, before it is decided on which

framework to pursue. To identify these new frameworks we propose a scenario analysis, based on the two main drivers for the problem of malfunctioning ocean governance. These two drivers are stated in the consultation memo as (i) existing governance framework and (ii) lack of knowledge. The scenarios are outlined along the axes of decision-making and knowledge. The axis of decision-making varies from fully consensus-driven to fully authority- and/or conflict based. This will result in four different scenarios, so-called knowledge-governance scenarios. The scenarios cover four types of knowledge-governance settings that jointly span up a whole set of possible frameworks. Depending on its position along this axis the solution can be designed as a top-down, coordinated international body (such as the UN Ocean Council) or as a set of bottom-up regional councils. Likewise, the axis of knowledge is based on what is mostly valued in decision-making. It varies from, scientific (expert) knowledge to stakeholder and bureaucratic knowledge. The knowledge-governance scenarios can be translated into an international governance framework for the oceans and seas.

Lively space, immersed planning

Stephen Jay (University of Liverpool)

The terrestrially-focused notion of soft space draws attention to the emergence of new geographies and institutional arrangements within strategic planning exercises. Interplay of this notion with marine realities suggests the sea, as space-being-planned, can be conceptualised as lively space, and that MSP can be understood as an immersed practice, with the agents and practices of planning taking their place within the wider assemblage of marine actants and relations.

Phronetic planning of the high seas

Aria Ritz Finkelstein (MIT)

Regulation on the high seas can have dramatic redistributive effects, as in UNCLOS's global redistribution of hydrocarbon and living resources in the EEZs. The high seas are a murky regulatory space, and they contain resources that technologically advanced actors will increasingly have the abilities to exploit through deep sea mining, bio-prospecting, renewable energy infrastructure, and even geo-engineering. Some of these uses will likely be an important part of a sustainable future. How are we to balance these uses of the high seas in a just way? Phronetic planning of the high seas encounters challenges that much of planning does not: (1) the impacts of extracting high seas resources are not obviously tied to a particular terrestrial community and might be global in scale (such as the impacts poor nations that mine cobalt will feel if highly industrialized ones introduce new supplies of manganese to the market), and, (2) the identification of a set of stakeholders, and their engagement, is quite a different challenge than in planning sites where the livelihoods of distinct communities depend on marine uses. In high seas planning, those considered stakeholders should not be limited to those with financial interests nor to large environmental conservation institutions. In light of these challenges, what are the prospects for phronetic planning of the high seas? What is the role of the state, institutions, and regulatory bodies in crafting it? Which value-based frameworks can researchers use to evaluate the processes governing high seas uses and their impacts?

Assessing ocean grabbing risk for developing countries: how to integrate indicators in MSP process ?

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Coastal states began extending their jurisdiction at sea to increase their control over marine resources in the middle of the 20th century. Developing countries have played a pro-active role in this process, called creeping jurisdiction. However, the expansion of a state's jurisdiction over marine space, validated by UNCLOS in 1982, failed to resolve the unbalanced power between stakeholders. This distortion is one of the ways which led to ocean grabbing. In parallel, a new concept for sea management, called marine spatial planning (MSP), was developed by and for northern countries. Based on an integrated approach to activities at sea, it should be able to conciliate human uses and conservation. However, transposing it directly to developing and emerging countries is taking the risk of increasing ocean grabbing. This communication aims to find suitable indicators to assess the ocean grabbing risk in MSP during both its elaboration and implementation.

Knowing the consequences of MSP – a theory-based evaluation approach

Riku Varjopuro (Finnish Environment Institute)

Evaluation of impacts – both intended and unintended – of maritime spatial planning is a challenging task. A spatial plan is in most governance systems a rather weak policy instrument making actualization of the effects of plan dependent on willingness of various other actors to follow the plan. Furthermore, many activities that the maritime plan tries to steer are already steered by sector-specific policies and plans – sometime even in explicitly spatial manner. Complexity and unpredictability of the marine environment further complicates the possibility of identifying and isolating the possible effects of a MSP. In spite of the difficulties of knowing the effects of MSP it is essential that societies are aware of intended and unintended impacts of MSP. Allocation of space for limited activities through maritime plans has distributional effects. In other words, MSP tends to produce winners and losers. Also the processes of producing the maritime plans have to be scrutinised from social perspectives to understand who are involved in the processes and who can influence the outputs. A participatory "theory-based evaluation" methodology is suggested as a possible approach for evaluation of MSP. Theory-based policy evaluations ask how an intervention produces intended and unintended effects, for whom and in which contexts as well as what mechanisms are triggered by the intervention and in which contexts. Regarding MSPO this approach would support i) becoming aware of what are the impacts of MSP and ii) designing maritime spatial planning processes in ways that are more sensitive to intended and unintended consequences of the plans and planning processes.

Towards Participatory Phronetic MSP Research

Wesley Flannery (Queen's University Belfast)

The demand for marine space has resulted in conflict and tension amongst various marine groups, including environmental groups, coastal residences, developers and governance agencies. Each group vies with one another within marine spatial planning (MSP) process to advance their objectives for particular marine spaces. Winners in these conflicts are often those that can: a) capture power through their network; b) create the dominate discourse around planning processes; c) advance their 'knowledge' and 'truths' as being legitimate; or d) capture the process through the projection of

particular 'governmentalities', which limit the role or influence of others within the process. Assessing the function of 'power' and 'resistance' within MSP processes is critical to understanding: 'Where are we going?', 'Who gains and who loses?', 'Is this desirable?' and 'What are we going to do about it?' (Flyvbjerg, 2001). However, if Phronetic MSP research is to be transformative, the 'we' in the questions posed above should not solely focus on researchers and must include marine stakeholders. Drawing on the work of John Gaventa (2006) and Roy Bhaskar (1979), this paper will briefly present two frameworks through which participatory Phronetic MSP research may be undertaken.

Global Ambitions: Enhancing Local Capacities and Harnessing the Power of Marine Spatial Planning

Kevin St. Martin (Rutgers, The State University of New Jersey)

While development initiatives designed to maintain small-scale fishing livelihoods are increasingly promoted by international organizations, they appear as discrete projects external to "larger" neoliberalizations which are simultaneously coalescing into a new oceans regime here represented by Marine Spatial Planning (MSP). Can initiatives which foreground the ethical concerns of small-scale fishing confront the globally coordinated neoliberalization of the marine environment? Despite its global reach, MSP, understood as an assemblage of contingent practices rather than a system or structure, is riddled with moments where it veers from its neoliberal trajectory. Being attentive to and, indeed, enrolled in the actual enactment of MSP, we insert into such moments an ethics of community. We amplify and deploy *community* subjects and spaces embodied in individuals, maps, and other devices. For example, one of our projects maps the territories of fishing communities and makes them available through MSP "data portals." Another project supports participants who were part of a community supported fisheries (CSF) initiative to represent community concerns at MSP stakeholder meetings. These are metrological and inter-relational interventions that demonstrate how the devices and ethical performances from "local" sites can travel to other sites and can harness the capacities of powerful assemblages such as MSP.

The Global Fish Watch as magnifying glass: technology, transparency and democratization in marine spatial planning

Hilde Toonen (Wageningen University)

In governing the marine environment, technological tools are indispensable in revealing what is invisible since ecological processes and economic activities –and their interactions– are taking place either far out at sea or deep underneath water surface, or both. Much focus is on technological innovations designed to collect spatially referenced data, for example satellite-related tracking systems for (fishing) vessel activity. While governments and scientists are (still) the main players in informational processes in marine spatial planning (MSP), non-state initiatives become more apparent. These initiatives spring from dominant discourses within MSP which promote transparency and democratization for tackling spatial conflicts at sea. More and more, big data technology platforms led by non-state actors combine information to map out conflicts between the multiple uses of the sea, such as fishing, (renewable) energy generation, shipping, and conservation. Open-access systems, e.g. based on GoogleEarth, are especially celebrated, because freely available data seems to allow anyone to monitor, scrutinize and report on (competing) uses of marine space. This paper questions whether such technologies do empower "anyone". The main argument is that these innovations are not just tools but can be powerful in reinforcing and/or altering processes of inclusion and exclusion in MSP. Case-in-point is the Global Fish Watch, a big data technology platform using satellite data to visualize global fishing practises. Global Fish Watch was founded by three non-state organizations (Oceania, SkyTruth and Google) and gaining much attention and huge support. In the paper, I investigate how, and to what extent, the Global Fish Watch facilitates transparency and democratization in MSP. The

paper will also discuss if technological innovations induced by non-state actors can improve state-based MSP.

Integrating co-existing indigeneity in marine planning and management: wrecking and rolling in New Zealand/Aotearoa

Hamish G. Rennie (Department of Environmental Management, Lincoln University, New Zealand)

M. Jill Thomson (Legal Researcher, Cambridge, New Zealand)

Robert Makgill (Barrister, Auckland, New Zealand)

This paper uses the 2011 grounding of the MV Rena and the subsequent debate over whether to remove or abandon the wreckage on Astrolabe Reef/Otaiti as a departure point to discuss real world implementation of theories of empowerment through process. It has been claimed that the salvage of the Rena has been the second most expensive in the world and whether or not its remains are allowed to be dumped on the reef has significant implications for international maritime insurance. Several tribal groupings of the indigenous Maori have overlapping relationships to the reef and surrounding areas and the reef has nationally outstanding features and significant ecosystems. The focus of the paper is on the practical mechanisms being used in New Zealand/Aotearoa to integrate co-existing and overlapping relationships of indigenous tribes, their rights and culture, and how these are expressed through government planning processes. Drawing on an analysis of Court evidence, indigenous and government planning documents and cultural valuation assessments, we discuss theories of public participation, especially engagement, consultation, and the exercise of indigenous power in the context of the Rena. The analysis highlights that it is not just the values of the colonial hegemony and those of the indigenous people that co-exist and overlap, but also that tribal groupings have overlapping and differentially weighted values. This poses particular challenges for coastal and marine spatial planning. We conclude that the coastal and marine planning processes in New Zealand/Aotearoa offer useful examples of how claims to marine title, overlapping relationships with special places, and co-existing values can be integrated into decision-making.

2.3.3. Social mobilities and fishing identities	B2.08
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Chair: Carole White

Panel organisers:

Carole White (University of East Anglia)

Madeleine Gustavsson (University of Exeter Medical School)

Panel description: In addition to a fisheries crisis, many coastal fishing communities suffer from demographic change including a rise in the ownership of second homes, youth unemployment and migration, posing particular concern for the future of local fishing industries. Once bound by a common interest and reliance on fishing, territorial community ties are being eroded and replaced by a dispersed occupational community. Understanding change in this fragmented context is all the more important for understanding how fishing households are responding to a multitude of other pressures on their livelihoods and its implications for the future development of coastal areas. This session brings together research on young people in fisheries, social (im)mobilities in fishing communities and families, and, intergenerational dynamics of change in fisheries in a variety of geographical contexts and places. This panel session will also reflect on how such themes relate to fisheries policies, and how the future of the fishing industry in the global North might be safeguarded.

They just have better things to do right now”: A spatialized examination of the recruitment of youth into small scale fish harvesting

*Nicole Power , Paul Foley * and Barb Neis (Memorial University)*

There is a growing body of research investigating the impacts of fisheries collapses and restructuring on coastal communities and fisheries workers. Within this scholarship, evidence suggests that among other things the sustainability of small scale fisheries depends on the successful intergenerational recruitment in the harvesting sector. This paper contributes to this body of literature by examining the discursive and material positioning of young people in relation to sustainable fisheries on the east coast of Canada. We draw on data from two projects, the Rural Youth and Recovery component of the Community-University for Recovery Research Alliance (CURRA) and the Fisheries project of the On the Move Partnership grant that is investigating the impact of employment-related geographical mobility (ERGM) on workplaces, workers and their families and home and host communities in Canada. Taking a spatialized approach to understanding youth (Farrugia 2014) that foregrounds the structuring of and relationship between mobilities within and across places, we argue that the dominant discursive positioning of young people as making the “choice” to work in other fields or to move away from fisheries communities ignores changes to the organisation of and access to fisheries work and, equally important, to the meanings of successful transitions from youth to adulthood. Finally, we consider the implications of our argument for policy aimed at recruiting young people into fisheries work.

Historic and Contemporary Migration Patterns in Coastal Communities in Norway

Signe A. Sønvisen (SINTEF Ocean)

Jahn Petter Johnsen (Norwegian College of Fishery Science)

Jostein Vik (Centre of Rural Research)

Norwegian coastal communities have for a long time experienced outmigration. At the same time, organization of households and working life has changed. The introduction of the modern resource management regime in the 1990s, to secure economically and ecologically sustainable fisheries, restructured the fleet and the land industry into fewer and larger units. These developments have been blamed for negatively affecting coastal communities, but coastal communities have been experiencing out-migration since the 1970s. In other words, women and youth were out-migrating long before the introduction of the new resource management regime. In addition, the fishing occupation has always been a male dominated occupation. This gender imbalance followed through into the new resource management system, but has recently been subject to change. Consequently, even if the management system played a role, other factors may also have contributed to the observed changes in coastal communities. Thus, this paper discusses the historic and contemporary role of women and youth in the fishing fleet and examines the contributions of these groups to fisheries and coastal communities. Based on survey data we will describe and discuss how women and youth are recruited to the fishing fleet. In addition to survey data, we will draw on official statistics and relevant research to discuss the various explanations presently offered for the changes in coastal communities. Thus, the paper is partly a meta study and partly an empirical study of the contemporary situation.

The fishing lifecourse: exploring the importance of social contexts, capitals and (more than) fishing identities

Madeleine Gustavsson (University of Exeter Medical School)

A growing number of studies within the social sciences have used a lifecourse approach. Whilst themes of the lifecourse, such as socialisation and intergenerationality, have been touched on within studies of fishing, little such research have employed a lifecourse lens in its entirety. This paper aims to examine the socio-cultural contexts of fishing through a lifecourse approach by exploring how

capital(s) – in a Bourdieusian sense - are accumulated, dissipated and embodied throughout the lifecourse. The paper is drawn from a case study of the Llŷn peninsula small-scale fishery in north Wales, UK. Through analysing in-depth qualitative interviews with fishing families, the research finds that there are multiple social contexts from which ‘prospective fishers’ can begin their fishing careers, which are shaping the ways in which they can accumulate capital(s). Later on in the lifecourse, fishers (re)negotiate their fishing identities with parenthood as well as with older age. Furthermore, the paper touches on how the fishing lifecourse can be gendered. Findings from this study suggest that the lifecourse approach helps to understand the temporal dimensions of the socio-cultural contexts of the fishing field, shaping fishing lives and what it means to be a ‘good fisher’.

Where have all the people gone? The limits of resilience in coastal communities

Matthias Kokorsch (University of Iceland, Faculty of Life and Environmental Sciences)

Icelandic coastal communities face major challenges on the socio-economic and demographic level. Multiple reasons can be identified. However, restricted access to fishing grounds with de facto privatisation through individual transferable quotas in 1990 caused substantial stress to the economic structure of numerous fisheries-dependent towns and villages. The concept of resilience has been used for the assessment of community development and its prospects in natural resource-based localities. The resilience of two Icelandic coastal communities was evaluated in case studies. Particular focus was set on the attractiveness of fisheries related jobs to local adolescents. Significant differences were found in the level of resilience of these two coastal villages. One is undergoing a successful transition towards a non-fisheries-based existence. The community has lost almost all land-based jobs in fisheries and quotas, but has transformed the former fishing facilities into places of cultural activity as well as work-space for a research and development company. It is therefore a good example of a shift from extractive industries towards creative and knowledge-based industries. This invited the emergence of innovative pathways, leading to an increased ability to attract young talented artists from places outside, and to keep educated and skilled people in the municipality. The other case study site struggles to adjust and seems to have reached the limits of resilience. The author wants to initiate a debate about how to set an end-point to resilience-building efforts and possible future scenarios for such places.

Becoming a fisherman today: pathways into fishing and implications for stewardship in the ‘Cromer Crab’ Fishery, UK

Carole White (University of East Anglia)

The lack of younger generations taking up commercial fishing has been a growing issue in many English coastal towns whose identity was once defined by fishing. The case of the North Norfolk crab fishery – a small-scale fishery in the East of England - is examined to illustrate how and why the recruitment of young fishermen is failing. Accounts from interviews with fishermen of different ages and levels of experience are explored using access theory to elucidate how getting into fishing has changed. The process of becoming a fisherman and making a living from fishing are subject to an increasing regulatory and financial burden. As fishermen have adapted their livelihood strategies, opportunities for work have declined, most notably through a reduction in crew used to save costs. Increased social and spatial mobility among fishing families mean that recruitment into the fishery through a father-to-son pathway is increasingly uncommon. Youngsters not from fishing families face additional barriers, both financial and relational. These want-to-be fishermen must follow alternative pathways into the fishing industry. The effectiveness of initiatives such as funded courses, apprenticeships and other policy interventions are discussed with relevance for similar cases around Europe.

Discussion:

Key points and trends will be highlighted and discussed by the speakers and with the audience. We aim to summarise the main points and each of the talks in order to develop a working paper – and if there is sufficient interest a peer-reviewed publication.

2.4.9. Small-scale fisher economies, small-scale fisher values I	B2.04
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Chair: Derek Johnson

Panel organizer:

Derek Johnson (Department of Anthropology, University of Manitoba)

Panel description: A strong theme in research on small-scale fisheries is the assertion that the work of fishing in itself is motivating and rewarding. Fishers are often also argued to be highly competitive in their pursuit of the big catch. Both of these are statements about the values at play in small-scale fisheries. Both are also statements about elements driving how small-scale fishing economies work. In this panel, emerging from, but not limited to, ongoing work through the project *Too Big to Ignore: Global Partnership for Research on Small-scale Fisheries*, we look at values, transition and wellbeing in small-scale fisher and small-scale aquaculture economies. How can we best theorize and study values in small-scale fisheries and aquaculture? How do the ways in which values have been conceived in studies of small-scale fisheries shape understandings of small-scale fisher economies? Should small-scale fisher economies be seen as operating under a distinct logic in comparison to other sectoral economies and therefore analyzed differently? How do ongoing transitions and heightened mobilities in small-scale fisheries (economic, ecological, technological, and otherwise) influence values? How are such changes filtered through social differences and inequality across the value chain and what are the implications for distribution? Are new economic conditions and relationships indicative of a bleak future for small-scale fisheries, or are there also hints of potentially promising new economic arrangements and associated benefits for fisher wellbeing?

Panel 1. Values in small-scale fisheries transitions**Thinking conceptually about values, wellbeing, and transition in fisheries economies**

Derek Johnson and Jonah Olsen (Department of Anthropology, University of Manitoba)

Starting from a set of assumptions about fisheries economies drawn from economic and maritime anthropology, we set the stage for the papers in the three following panels. We use those assumptions to propose a provisional typology of approaches to value in the fisheries value literature that turns on a gross distinction between relational and objective understandings of value. We then break down and complicate that division, with emphasis on the relevance of social wellbeing approach and necessity of situating values historically. We illustrate our argument with reference to the deep historical legacy of Basque fishing cofradias. We conclude by reflecting on why fisheries are such a rich terrain for theorizing value.

The meaning of small: Diverse values of small-scale fisheries around the world

Mirella de Oliveira Leis and Ratana Chuenpagdee (Memorial University of Newfoundland and Too Big To Ignore – Global Partnership for Small-Scale Fisheries Research)

Small-scale fisheries (SSF) play an important role worldwide in terms of provision of livelihoods, employment, and food security to more than 500 million people, representing more than 90% of fisheries jobs and providing about 50% of total animal protein intake. But the contribution of SSF to

society is even greater than these big numbers can tell, and there is a need for better understanding about the importance of SSF. A study of values can help gain appreciation for what matters to the people and what is desirable to society. Further, understanding what these values are, how they differ between different regions, and how they influence decisions can lead to better fisheries governance. But values, especially the non-economic dimensions, are not easy to studied, especially at the scale necessary to provide useful information for policy formulation. A 'rapid assessment' survey is therefore designed, through the Too Big to Ignore network, to reveal the diversity of value types in various SSF around the world. The survey is divided in two sections, with the first part exploring general information about SSF, and the second part focusing on a value assessment that invites participants to rate 15 value attributes associated with SSF. This paper presents the first analysis of the survey results, based on 28 respondents describing values of SSF from 20 countries in five continents. In general, SSF were rated as having very high value on livelihood security and high values on many dimensions, including ecological conservation, enjoyment and pleasure, sense of freedom and pride, and community cohesion. The reasons behind the meaning and diversity of SSF values in different locations across the globe are also explored.

An Island without fishermen? Diagnosing the implications of neoliberal policies on the future of traditional fishing communities in Malta.

Alicia Said (School of Anthropology and Conservation, University of Kent)

The geographical location of Malta - an island with high accessibility to the sea - has always been a crucial element which maintained a legacy of small-scale artisanal fishing that supported generations of fishing communities. Since EU accession in 2004, however, this legacy has become subject to neoliberal socio-political and economic conditions that are constantly changing the fishing landscape of the traditional small-scale fishing communities. This study shows how the Maltese fishing sector has been moving from being predominantly composed of small family-owned enterprises engaging in small-scale fishing methods, to corporate enterprises which operate along the lines of capitalistic growth. It transpires that such corporate growth resulted from policy-enabling elitist transactions that have favoured financially-equipped and politically-connected individuals, including fishermen, to benefit from the allocation of resources such as funding opportunities and fishing rights. With these distributive injustices in place, the majority of small-scale fishermen have been marginalized and unable to compete on a level playing field with the burgeoning capitalist class, which is now dominating the different fisheries that were once communally shared by the small-scale fisheries sector. Gradually, the socio-economic systems of the small-scale fishing sector are ceasing to exist and since small-scale fishermen do not hold sufficient social, economic and political power, they are unable to deploy bottom-up agency to halt these patterns. In this regard, it is concluded that the future of the small-scale fishing sector is rather bleak, and any new socio-political and economic arrangements to rejuvenate the small-scale fishing sector can only be achieved through an institutional overhaul and a realistic co-management system that addresses the wellbeing of small-scale fishing communities.

Changing values and preconditions in Finnish small-scale fisheries

Pekka Salmi (Natural Resources Institute, Finland)

The economic situation of Finnish small-scale fisheries has become increasingly problematic during the last decades. This is due to several reasons such as increased competition in the market, fishing restrictions and the increase of fish-eating predators. Fishers value the independence and freedom of their work and regard the local community as their support. Many have a life-long commitment to their occupation. Instead of high incomes fishers stress the aim of earning enough income to make a living. The cultural resources, preferred life mode and commitment to the occupation have supported the continuation of commercial fishing, but the future of fishing as a livelihood in Finland seems

uncertain especially at the coastal areas. Finnish fishers feel that public attitudes towards their livelihood have become more critical or ignorant, which has narrowed the access to fishing waters. Changes in values and attitudes are related to the post-productivist transition of the society: coastal and inland waters are increasingly regarded as landscapes of recreation and nature conservation. Thus the space is limited for the traditional natural resource utilization. On the other hand, the new societal values open new opportunities for improving the economy of local food producing small-scale fishers.

2.5.6. Epistemes and knowledge production	B2.05
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Chair: Anna-Katharina Hornidge

Pluriversality or Contradictory Epistemes aboard a Scientific Research Vessel?

Anna-Katharina Hornidge & Rapti Siriwardane-de Zoysa (Social Sciences Department, Working Group Development and Knowledge Sociology , Leibniz-Center for Tropical Marine Ecology (ZMT), Bremen & University of Bremen)

Philosophical, historic, linguistic and socio-anthropological studies on contradiction(s) have conventionally focused on the evolution and implications of dissonance, paradox and contrariety (among others) in human thought and behavior. Yet, less emphasis is paid on exploring the definitional qualities of contradictions themselves, and how their prevalence is made sense of in everyday lifeworlds - be it in the context of religion, politics or scientific knowledge production for example. Scholarly work on contradictions have been diverse, often re-casting their social form and function through the lens of varied diverse topics of study ranging from paradoxical cognitive perceptions, incompatible values, and antithetical social practices to the “simultaneity of opposing forces” that pattern contemporary socio-economic and political life (Harvey, 2014:11). Yet the assumed Janus-faced dualism that forms a characteristic core in the study of contradictions and their diverse typologies (see Berliner, 2016) remains problematic when delineating diverse practices of knowledge production and their structures of meaning-making that are both foregrounded in and are generative of multiple realities or “many-worlds” embodied in the expansive notion of pluriversality (see Kohn, 2013; Viveros de Castro, 2016). Tracing the use of the term from its formative roots in quantum mechanics and ‘pluritopic hermeneutics’ through to its decolonial quarrels with equally embattled notions such as multipolar knowledges and polycentrism, the chapter draws on the experiences of a female social scientist aboard a scientific research vessel taking samples from seabed, water column and air off the coast(s) of southwestern Africa. The research vessel is here considered as a boundary place of knowledge production, enabling and facilitating the crossing of disciplinary, national and gender specific lines of epistemic fragmentation and creating a border zone between field and laboratory research. Yet, while multiple epistemic boundaries are being crossed on board, the vessel at the same time dialogically acts as boundary-reinforcing zone between different disciplines and epistemic cultures, for as Walter Mignolo (2013:3) argues, “relevance is not universal, but depends on the universe of meaning and the belief system under which relevance is determined.” In line with this the chapter elaborates why the empirical study of ‘pluriversality’ as experienced on a German research vessel may offer added purchase to the study of knowledge making contradictions (or ideals in scientific non-contradiction). Moreover we ask whether the term itself offers to be taken as more than just a potent metaphoric device for thinking about – or of thinking through – the co-presence of multiple (epistemic) worlds and the structures at hand nurturing or hindering their interaction.

Epistemic Im/Mobilities: Urban Knowledge Translations for Living with Sea-level Change in Coastal Jakarta

Rapti Siriwardane-de Zoysa, Dr., Postdoctoral researcher, Development & Knowledge Sociology, Social Science Department Leibniz Center for Tropical Marine Research (ZMT), Germany

Anna-Katharina Hornidge, Prof. Dr., Development & Knowledge Sociology, Social Science Department Leibniz-Center for Tropical Marine Research (ZMT), Germany

Metaphoric images and the dynamics of traveling ideas have been of long-term historic and scholarly interest. In contemporary social science research, the notion of traveling ideas re-appears across varied disciplinary frames, approaches and themes taking for example recent political geographic scholarship on traveling models and “model migrations” (see Rottenburg 2009; Mahony and Hulme, 2012; Müller-Mahn, 2013; Behrends and Rottenburg, 2014) and ongoing work on glocal networks, “fast policy” and other facets of policy mobilities (see McCann, 2013; Cohen, 2015; Peck and Theodore, 2015). While there has been overwhelming focus on what forms of knowledge travel and why, their path dependencies and trajectories of mobility, research on localized processes of translation of diverse forms of knowledge and of knowing have been relatively under-researched. This lacuna remains all the more evident when it is increasingly being acknowledged that ideas and policies never simply diffuse or transplant themselves as they journey and re-circulate (Temenos & McCann, 2013). Moreover, the relative importance of knowledge immobilities and fixities - as much as their mobilities - have remained vastly under-theorized. As a point of departure, this presentation offers an integrative approach for the study of what we term as “epistemic mobilities” (or traveling stocks of knowledge), particularly in the context of coastal transformation research. Over the past two decades or more, adaptation and mitigation policies and practices for living with sea level rise have never been as vocally endorsed as by international donor agencies, INGOs, multinational corporations, scientific consultancies, and other bi- and multilateral development cooperation actors from both the so-called Global North as well as the South. Therefore drawing on the sociology of knowledge approach to discourse, assemblage theory and translational sociology, the discussion presents ongoing fieldwork findings derived from a German Science Foundation-funded project on how megacities in island Southeast Asia experientially learn/adapt to and construct futures of living with regional sea-level change. With a particular focus on contemporary Jakarta, we ask how dominant policy blueprints, socio-cultural discourses, and everyday practices for living with coastal change in Jakarta are legitimated and are being locally translated and contextualized in the wake of sea level rise, land subsidence, and urban flooding. As a second step, the presentation expansively engages with how far epistemic mobilities (and their processes and politics of translation) widen spaces for more ground-up experimental and transgressive forms of social learning-living that are at the same time participatory and inclusive. In doing so, the case study brings to attention a multi-billion dollar urban coastal development project - the Great Garuda, a giant sea wall primarily inspired by Dutch engineering and hydro technology. Drawing on ‘follow-the-moving-target methodology’, the presentation traces the genesis, epistemic re-circulations, and processes of multi-scalar and institutional translation of the bounded imaginary of the (*seemingly* Europeanized) sea wall - as the Great Garuda transmutes in its built form. Replete with both old and new mysticisms, we focus not only on articulations and contesting narratives of fear and hope in adapting to socio-environmental risk, but also on tracing the refashioning of new possibilities for coastal living as spaces are redrawn, imagined and futured against a host of contemporary practices such as coastal zoning, (is)land reclamation, and mass informal resettlement.

Small-scale fishers of Colombia select appropriate management measures: application of a new participatory learning approach

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Between 2014 and 2015, a new participatory learning methodology was developed and applied in nine small-scale fishing communities of Colombia, with the purpose of training fishers in the selection of the most appropriate fishing management measures for local conditions. A better understanding of management measures allowed fishers to select minimum mesh sizes regulation, minimum fish size limits, marine protected areas, exclusive small-scale fishing zones, and fishing closures, while both fishing effort and catches controls were perceived as unviable. Individual voting of the management measure was consistent with the collective selection that was subsequently carried out by consensus in the majority of communities (seven of nine), suggesting that the process led fishers to assess in more depth the viability of the management options. Representatives from each fishing community made a presentation of the selected management measures to the National Aquaculture and Fisheries Authority for the purpose of signing participatory management agreements for responsible fishing. This approach changes the way in which fishing regulations are traditionally formulated and applied throughout the territory by the government to a co-management initiatives based on agreements between fishers and the government taking into account the ecological, economic and social characteristics of each fishing community.

Exploring the wicked problem in Swedish fisheries and fisheries management through discourse analysis and story-lines

Ida Wingren (PhD Candidate, Department of Service Management and Service Studies, Lund University, Sweden)

Global fisheries are considered to be in deep crisis and different solutions are posed to solve these challenges. In Sweden, during the last years, the debate on how to deal with different challenges has intensified due to rather extensive management changes, such as discard ban and transferrable fishing concessions. The agencies responsible for Swedish fisheries management are working towards different contradictory goals and make choices which often result in conflicts. It can be stated that fisheries and fisheries management is a wicked problem which means that the problem is complex, difficult to define and poses a constant challenge. In this paper, inspired by Maarten Hajer, it is argued that defining solutions on an environmental problem such as fisheries, is ultimately a question of how the problem itself is defined. Discourses on environmental problems are including different story-lines and narratives on social reality, a structured way of seeing, which provides actors with a set of symbolic references that suggest a common understanding. Defining an environmental problem then should be seen as a social phenomena. In order to explore the dynamics, complexity and scale-dimension of the wicked problem in Swedish fisheries an empirical study has been conducted where mixed methods have been used consisting of document analysis, participating observation and a coastal community has served as a case study. The paper offers insights into how different actors define the (wicked) problem in fisheries and how some certain story-lines are used to reduce discursive complexity of a problem and how different elements of knowledge come to form authoritative narratives and how, within this context, social power can be exercised.

2.1.7. Mobilities of fisheries	B2.01
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Chair: Ragnhild Overå

Moving with fish through the value chain: Fish traders' contribution to food security in Ghana

Ragnhild Overå (Department of Geography, University of Bergen, Norway)

Predominantly female fish traders play pivotal roles in all links of the fish value chain as financiers and/or owners of canoes, outboard motors and fishing gear, as wholesalers, processors, transporters, wholesale-retailers and retailers. Their economic activities are highly spatially mobile as they travel to purchase fish from wherever their own canoe or regular fish supplying canoe seasonally or periodically lands its catch, or they travel to harbor cities to purchase frozen and imported fish. After processing (mostly smoking and drying), they physically travel and/or organize transportation of fish to the markets, thus facilitating the distribution of large quantities of fish reaching retailers, customers and consumers in urban and more remote rural inland areas within and beyond Ghana's borders. Since cold storage, transport and market infrastructure is inadequate, and most consumers have limited purchasing power, fish retail is still mostly in the hands of informal fish traders operating through the marketplace system. This paper argues that the significant role of these fish traders operating in this type of value chain in making a perishable and protein and micronutrient rich source of food physically available and affordable, is poorly understood and underrated. The paper examines 1) how fish trade as a source of income for women in coastal communities contributes to their households' food security and economic sustainability of fishing operations, and 2) the importance of fish traders' distribution of fish to geographical areas and consumer groups who would otherwise not have access to equally nutritious and affordable food. Finally, the paper discusses how processes of change regarding declining catches, expanding urban middle class consumer segments, and modernization of the retail sector may affect fish traders' role in the food system.

When 'homeward bound' is not the final destination: Fisheries mobilities' from sea to land and beyond and the need for research to traverse the sea/land divide

Sofie Joosse¹ and Eva A. Papaioannou²

^{1.} *Department of Urban and Rural Development, Swedish University of Agricultural Sciences, Uppsala, Sweden*

^{2.} *Department of Geography, Rutgers University, New Jersey, USA*

"They greet us homeward bound | and now ashore we'll have good fun | we'll paint them beaches red" (from 'Rolling down to Old Maui' sailor shanty, circa mid-19th century)

"Mobilities" in fisheries are usually understood to be about harvesting, thus typically involve mobilities of fish as resources and fishers as individuals, crews or vessels. Seldom are mobilities of coastal communities or mobilities of fish after landing taken into account. Moreover, how these different mobilities influence each other is rarely considered. Yet, for both caught fish and fishers 'Homeward bound' is often not the final destination. The routes fish and fishers' follow on sea and land and the networks (e.g. commodification, kinship, information sharing) they are part of have implications not only for the management of fisheries but also for food security and overall marine sustainability. As such, we argue that "fisheries" mobilities should be understood within the framework of a "coupled marine-terrestrial fisheries' system". We present examples of mobilities of different tiers of the fisheries' system of the NE USA/NW Atlantic, combining in the research multiple disciplines (environmental and economic geography) and methodological approaches (qualitative and quantitative). We follow the fish, from offshore ('outward bound') (A) to 'ashore' ('homeward bound') (B)

and beyond (C), and investigate how different mobilities coexist, influence and shape each other and if they can be researched in isolation. For the present paper we review how mobilities are shaped by shifts in the distribution of species, regulatory change and the emergence of Community Supported Fisheries and how such mobilities can promote but also hinder fisheries' sustainability.

It's complicated: Adapting California fisheries to and for climate change

Carrie Pomeroy (California Sea Grant & University of California Santa Cruz)

Variability and change have long posed opportunities and challenges for fisheries and fishing communities. Over the past four decades, commercial fisheries in California, as elsewhere, have variously experienced growth, contraction and adjustment. Despite those efforts, however, critical challenges face the state's fisheries, fishing communities, and managers, as global climate change affects the abundance and distribution of marine resources and ocean conditions. What happens to fisheries and communities when resources become more volatile locally or shift in time or location or both? How does governance - formal and informal - affect efforts to adjust to such variability and change? This presentation explores these questions using evidence from recent and ongoing fishery and fishing communities projects throughout the state, and highlights key considerations for fishery participants, communities and resource managers as they seek to adapt to climate change.

Local fishery, global commodity: Fisheries conflict, cooperation, and competition in West Africa

Katherine Seto (University of California at Berkeley)

Accounts of rising fisheries conflicts have been reported from dozens of countries across the globe, particularly between small-scale fishing boats and more capitalized industrial vessels. In addition to the increasing prevalence of conflicts, evidence indicates they are growing more severe, oftentimes involving destruction of artisanal boats, assault, abandonment at sea, and murder. These conflicts have often been construed as a form of resource conflict, driven by multiple actors competing for the limited natural resource of fish. Previous scholarship on resource conflict emphasized the role of scarcity, however, recent scholarship has challenged one-dimensional and deterministic explanations for conflictual outcomes, emphasizing the importance of history, power, and materiality, as well as the contingent nature of social relations. Understanding how and why users conflict or cooperate at sea has substantial implications for policy and the potential to directly improve the types of strategies that can be deployed to mitigate these conflicts. While literature on resource conflict theory abounds, few empirical studies have traced the conditions under which resource users conflict in marine spaces, and equally or more important, when they do not. Here I use empirical data from interactions at sea in Ghana's coastal fisheries to examine the conditions in which resource users conflict or cooperate, and the conditions that contribute to each outcome. Linking these conditions to important broader dynamics at local and global scales, I consider the long-term effects of these patterns of conflict and cooperation for the resilience or vulnerability of the resource system, and identify potential policies to promote cooperative, and avert conflictual interactions at sea.

6.2.4. Community wellbeing and coastal threats	B2.01
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Chair: Merle Sowman

Institutional and Legal Frameworks for Protection of Coastal and Marine Environment from Threats and Vulnerability of Oil Pollution in Nigeria

Dr. Ogwezzy Michael. C (Department of Jurisprudence and International Law, Faculty of Law, Adekunle Ajasin University, Akungba-Akoko, Ondo State, Nigeria)

In Nigeria like most countries of the world, coastal and marine environments are posed to threats, and are vulnerable to oil pollution resulting from spills from marine vessels and ships. Nigeria as a nation has since colonial times, enacted several laws to deal with oil pollution of coastal and marine environment. Oil spillage on the ocean has distributional effects on the environment, economic development and sea activities such as fishing as aquatic life are affected by oil spills. There are several institutions established and legislation enacted to address oil pollution by Ships in Nigeria. These institutions and laws include: the National Oil Spill Detection and Response Agency, National Environmental Standards and Regulation Enforcement Agency, the Nigerian Maritime Administrative and Safety Agency, Nigerian National Petroleum Corporation, Nigerian Ports Authority, and the Federal Ministry of Transport. Apart from the enabling legislations establishing these agencies, other legislations germane to protecting coastal and marine environments from threats and vulnerability of oil spillage by Ships operating in the oil and gas sector include: the Petroleum Act, Oil Pipelines Act, Minerals and Mining Act, Oil in Navigable Waters Act, Merchant Shipping Act, Nigerian Metrological (Establishment, etc) Act and the Constitution of the Federal Republic of Nigeria 1999. The damages caused to marine environment by oil pollution are incalculable. Within marine environment, oil pollution destroys both the mangrove and the lives dependent on it. Apart from spillages by Ships conveying oil products, some of the problems associated with oil pollution resulting from off-shore oil exploration and production activities in Nigeria involve the release of poisonous materials into the environment. This paper, therefore will examine the role of these institutions and how these laws have offered protection to coastal and marine environment from threats and vulnerability of oil spills in Nigeria.

Maximising community wellbeing: Exploring the relationship between the benefits that people derive from the coastal zone and threats to those benefits

Natalie Gollan (NSW Department of Primary Industries, Fisheries NSW)

The coastal zone is often managed according to the principles of sustainable development that includes environmental, economic and social pillars. These pillars are equally important, but social sustainability seems to receive a lower priority in both policy and research. A barrier to understanding the social aspects (such as social equity) of sustainable development is a lack of methodology and data enabling the integration of social considerations in natural resource management. This paper will explore the use of a threat and risk assessment process in New South Wales, Australia, which identified and categorised both the benefits that communities gain from the coastal zone and the threats to those benefits. We identified a broad range of benefits that communities gain from the NSW coastal zone including participation (e.g. socialising and sense of community), enjoyment (e.g. enjoying the biodiversity and beauty), cultural heritage and use, intrinsic and bequest values, the viability of businesses and direct economic values. Threats to community benefits were categorised as resource use conflict, environmental, governance, public safety, critical knowledge gaps and lack of access. We used an integrated threat and risk assessment approach and found that the priority threats to community benefits were environmental threats (e.g. climate change, urban stormwater discharge

and agricultural diffuse source runoff), critical knowledge gaps (e.g. inadequate social and economic information) and resource use conflict (e.g. anti-social behaviour). Accordingly, understanding how environmental change associated with priority threats may interact with community benefits is important to determine how communities may respond and react to these changes. Given limited resources, the threat and risk assessment will allow management efforts in NSW to be targeted to the most appropriate threats.

Participatory Vulnerability Assessment in Coastal Communities in the Benguela region, Southern Africar

Merle Sowman and Serge Raemaekers (Department of Environmental and Geographical Science, University of Cape Town)

Climate change poses a key threat to marine ecosystems and fisheries resources as well as communities that depend on these systems for food and livelihoods. Understanding the vulnerability of these socio-ecological systems to climate change, and identifying appropriate adaptation strategies have become a key focus of many research projects and fisheries management agencies in recent years. This paper reports on a rapid and participatory vulnerability assessment methodology developed for application in small-scale fishing communities in the Benguela Current Large Marine Ecosystem region. This participatory methodology takes place in a workshop setting and draws on the observations, perceptions and local knowledge of fishers to better understand the extent to which their livelihoods are susceptible to various socio-ecological changes and their ability to respond to these changes. Findings suggest that key stressors across all countries are associated with socio-economic and governance changes while climate-related changes were seen to exacerbate vulnerability. Knowledge generated by fishers on environmental variability and climate change resonated with available science and helped fill certain gaps, highlighting the value of both knowledge sources for planning and decision-making. By following the exercises required in this methodology, fishers were able to identify a number of adaptation strategies to enhance resilience but stressed the need for support from government and other stakeholders. Participation in the vulnerability assessment enhances understanding, builds capacity, generates knowledge for management, and allows communities to identify locally appropriate adaptation strategies.

2.2.8. Integrating Ecosystem Service Assessments and Fisheries Management – How to modify current fisheries advice taking ecosystem services into account I	B2.07
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Chair: Evangelia Drakou

Panel organizers:

Evangelia Drakou¹, Jörn Schmidt², Camino Lique³

¹*Université de Bretagne Occidentale, Brest, France / University of Twente, Enschede, The Netherlands*

²*Kiel Marine Science and Cluster of Excellence, Future Ocean' Kiel University, Environmental, Resource and Ecological Economics*

³*Joint Research Centre, European Commission, Ispra, Italy*

Panel description: Fishery provides without doubt a multiplicity of ecosystem services while being an important element for the Blue Growth, but still singled out in fisheries management. Fisheries provide humans with direct benefits, like food provision and job creation or indirect ones, linked to cultural values and community composition around traditional fishing practices. The flow of such benefits from ecosystems to humans is taking place through highly mobile and busy oceans and seas. Still to keep receiving those benefits, natural resources related to fisheries need to be managed in a

sustainable way. However traditional fisheries management is still not fully considering fisheries as a marine socio-ecological system with reciprocal effects and interactions among its components, but it advances on improving knowledge on either the social or ecological part of it. But to recognize and incorporate different values of fisheries into any type of management an integrated ecosystem-based approach is needed to balance objectives related to both fisheries and ecosystem services associated to this socio-ecological system. In addition to this, scientific knowledge needs to be enhanced on identifying possible trade-offs and synergies with other types of services and human activities on fishing grounds. This panel discussion is a joint effort of the ICES Strategic Initiative on the Human Dimension and the Marine Biome Working Group of the Ecosystem Services Partnership (ESP) with the objective to bring together these two scientific groups under a common research umbrella. To achieve this, the session gathers a series of interdisciplinary studies linking ecosystem services with fisheries management. The discussion will host presentations of members of both ICES and ESP working groups and will be followed by an open discussion on the major points discussed, facilitated by the hosts.

Breaking down the barriers between Ecosystem services and the Fisheries Socio-Ecological System

Evangelia G Drakou¹, Jörn Schmidt², Camino Liquete³

¹*Université de Brest, UMR M101, AMURE, CNRS, OSU-IUEM, France*

²*Kiel Marine Science and Cluster of Excellence, Future Ocean, Kiel University, Environmental, Resource and Ecological Economics, Germany*

³*Joint Research Centre, European Commission, Ispra, Italy*

Fisheries research gives scientific advice towards informing the management of different types of fisheries, mainly on the basis of the biology of a single stock, i.e. how much can sustainably be harvested from this stock every year. Implicitly, some ecosystem functions of this stock are taken into account through specific natural mortality analyses to assess the stock status and to derive advice on total catch for the following year. Indeed the ecosystem-based management is becoming more and more used on the assessment of fisheries, for instance in the last update of the European Common Fisheries Policy. Still there are several issues and conflicts emerging in different fisheries-related cases around the globe. This highlights the need for a holistic approach of the the marine/fisheries system where ecological, social, economic and institutional aspects are taken into account. We go beyond the standard fisheries or ecosystem-based approach and see the fisheries “system” as a complex, dynamic socio-ecological system, with a variety of interaction types and a broad range of ecosystem services and beneficiaries. Our goal is to highlight the complex nature of this system, give emphasis on different types of ecosystem services generated by this system (from the standard food provisioning ones, to regulating and cultural) and use this approach as a means to incorporate fisheries management in broader decision-making strategies. We highlight research areas where fisheries and ecosystem services science share common grounds and explore ways to improve scientific knowledge around this topic. This work is a conversation starter, aiming to bring together researchers from both communities in order to improve research and practice around the topic.

Ecosystem-based approach to fisheries management

Mark Dickey-Collas (International Council for the Exploration of the Sea (ICES), Denmark)

Pragmatic ecosystem based fisheries management (EBFM) acknowledges the role of evidence based decision-making in a governance framework that is salient, credible and legitimate. As many researchers have shown there are tensions when trying to develop systems that maintain all three of these properties. This presentation will highlight how ICES is trying to ensure that the knowledge base for EBFM is provided with regard to the properties and use examples to highlight challenges and tensions that have arisen. This will include co-creation of methods and incorporation of traditional

knowledge, refining objectives and priorities, data ownership, challenges of providing applied science, understanding of the governance arena, clarifying roles and responsibilities and expectation management.

Linking Ecosystem Service Assessments and Fisheries Management – tridirectional question

Dave Reid (Marine Institute, Galway, Ireland)

Fisheries are inextricably linked to ecosystem services, both as a provider of many of these services, but also as a beneficiary or receiver of such ecosystem services. In addition fisheries clearly have the potential to negatively impact on the provision of some other ecosystem services, or indeed even the ones that they are intrinsic to providing e.g. provisioning. It is apparent that this means that we are dealing with a quite complex trade off problem that we need to reconcile. Fisheries are often criticised for their negative impacts on ecosystem goods and services, e.g. on the sustainability of fish stocks, but also indirectly via sea floor impacts leading to a reduction in goods and services from that ecosystem, e.g. recycling. While these impacts definitely occur, there is a tendency to assume that fishing is always the primary pressure, and hence causes the most impact. Integrated Ecosystem Analysis is therefore a tool to allow us to understand fishing within a fuller range of human activities that impact the marine ecosystem. But fishing is also a major provider of ecosystem goods and services, most obviously provisioning services, which exist only as a potential without fishing. Fishing also provides substantial economic and cultural services, particularly where it is based in peripheral regions with limited economic activity. And this is often the case. Finally, fisheries themselves also benefit from other ecosystem goods and services, most notably, again, in provisioning, as in the food for the fish, but also in terms of, say, essential fish habitats. Fisheries productivity can often be negatively impacted by environmental factors ranging from impacts on recruitment and growth to restriction of migration pathways, nursery areas etc. This probably qualifies as yet another “wicked” problem. I will discuss these three linkages, and consider how to integrate the conflicting demands.

Stakeholder participation in marine management

*Christine Röckmann*¹, Marloes Kraan¹, David Goldsborough², Luc van Hoof¹*

¹ *Wageningen Marine Research*

² *Coastal and Marine Management VHL, University of Applied Sciences*

Conserving nature requires the management of people and managing *together* with people. Marine management relies on scientific knowledge and expertise but is also inherently political, as it deals with aspects of resource access. Both local knowledge of practitioners as well as stakeholders’ world views, values and perceptions are important, adding to the scientific knowledge base and to understanding the management context. This chapter synthesizes existing literature and reviews on stakeholder participation. We analyse two marine management cases using eight key features of participation. The analyses illustrate that a participatory process can still not be successful if an underpinning participatory philosophy and clear objectives are lacking, participation is delayed and not well institutionalised. Clarity is needed about the participatory philosophy and process objective. The goal can be sharing knowledge or negotiating a decision. The increased need of stakeholder knowledge requires clarity about which of the two is driving the process. Rules of the game, including roles, responsibilities and mandate need to be clear to all participants from the beginning.

2.4.10. Gender/Women Relations within Coastal and Fisheries Communities: From Past to Present III	B2.03
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Chair: Danika Kleiber

Panel organizers:

Katia Frangoudes, University of Bretagne Occidentale (France)

Siri Gerrard, Arctic University of Norway (Norway)

Danika Kleiber, Pacific Island Fisheries Science Centre, Joint (USA)

Cristina Pita, University of Aveiro (Portugal)

Panel description:

See 2.4.8

The gender dimension of climate change in European small-scale fisheries: the case of intertidal shellfish gathering by women in Galicia (NW Spain)

Sebastian Villasante^{2,3}, Cristina Pita¹Jose Pascual⁴, Gonzalo Macho^{3,5}, Beatriz Nieto⁶, Graham Pierce⁷, Katia Frangoudes⁸, Priscila Lopes⁹, Luis Outeiro^{1,2}

⁵ Centre for Environmental and Marine Studies (CESAM), University of Aveiro, Portugal; ²University of Santiago de Compostela, Spain, ³Campus do Mar-International Campus of Excellence, Spain, ⁴ University of La Laguna, Spain, ⁵ University of South Carolina, USA; ⁶ Marine Programme Officer, WWF, Spain, ⁷University of Aberdeen, UK, ⁸ University of Brest, France, ⁹ Federal University of Rio Grande do Norte, Brazil.

The gender dimensions in EU fisheries are frequently not taken into account, especially in coastal areas where SSF are highly important, such as Galicia (Northwest of Spain). Intertidal shellfish harvesting in Galicia (mainly focus on clams and cockles) is carried out almost exclusively by women (~3300), but women also have a key role through the entire value seafood chain. From the 1990s, they were able to develop a successful co-management system to harvest highly commercially valuable species which are greatly impacted by weather events. On one hand, during the last decade, heavy rains and parasites blooms caused dramatic, immediate and widespread mortality on clams and cockles. Moreover, higher sea levels and air temperatures, more frequent periods of heavy rains, lower net primary production and more/longer shellfish bed closures due to red tides have already been observed in Galicia and are expected to intensify in a near future. On the other hand, the consequent decline of prices due to high volume of imports, Spanish economic crisis, and increase of poaching led to economic crisis that severely impacted on women. This paper provides the first comprehensive analysis of how climate change may have an impact on the most relevant European fishery carried out by women: intertidal shellfish gathering in Galicia. This paper uses quantitative and qualitative data collected through questionnaires and interviews: a) to analyse the perceptions of women about the climate change impacts on shellfish species, b) to investigate the adaptive strategies developed by women to cope with climate change, and c) to understand how the development of shell-fisherwomen organizations have helped to resist the current crisis and how they may help to shape new transformations needed toward sustainable paths in this sector.

Clam Fisheries as a poverty trap

Rocha, L. M.¹, Lopes, P.F.M.^{2,3}, Begossi, A.^{3,4}, Roper, J. J.⁵, Villasante, S.⁶*

¹Graduate Program in Ecology, Federal University of Rio Grande do Norte-UFRN, Centro Biociências, Lagoa Nova, Natal, RN, Brazil ²Department of Ecology, Federal University of Rio Grande do Norte-UFRN, Centro Biociências, Lagoa Nova, Natal, RN, Brazil ³Fisheries and Food Institute, Santos, SP, Brazil, ⁴UNICAMP/Unisanta, Campinas, SP, Brazil, ⁵Vila Velha University Cx Postal 19034, Curitiba, PR, Brasil ⁶University of Santiago de Compostela – Campus Do Mar, International Campus of Excellence, Av Angel Echevarry s/n. Santiago de Compostela

Coastal marine protected areas (MPAs) can adversely affect the livelihood of those dependent upon those areas for their source of food or income, especially poor fishermen. MPAs can create poverty traps by prohibiting or limiting access to resources. Avoiding the poverty trap requires understanding of socioeconomic sustainability of fishing activities and alternatives (e.g., multiple use areas) to assure that MPAs will have a positive effect on the livelihoods of those dependent upon them. We addressed socioeconomic sustainability of clam extraction with a case study in a Brazilian MPA (Ponta do Tubarão, NE) that lacks a management plan. We followed shellfish gatherers (hereafter shellfishers) while they worked (92 field observations) and analyzed self-reports of their catch (381 reports), from which we estimated their earned income. Shellfishers harvested 93kg of clams per collecting interval (median), which yielded 6kg of meat, for a total annual harvest of 586-1246 tons from the park. Most shellfishers, if they worked every feasible tide, would not achieve a minimum Brazilian monthly wage (USD\$295 at the time). To be socioeconomically sustainable, prices would have to increase by 94% (from USD\$1.70 to USD\$3.30). At such prices, shellfishers would achieve minimum wage after 15.5 workdays, while reducing the take by 49%. However, improving prices and working conditions cannot be achieved without appropriate management of the MPA. For example, if the clam were ecolabeled, then fairer prices could be attained. If properly managed, MPAs could eliminate, rather than cause, poverty traps.

Can Aquaculture be a Viable Option for Improving Livelihood and Food Security for Rohingya Women in Refugee Camps in Bangladesh? Feasibility Study

Yasmin Khan (PhD student, Human Geography, Women and Gender Studies, Southeast Asian Studies, University of Toronto)

Despite food aid provided by the United Nations, Rohingya refugee populations are suffering from malnutrition and protein deficiency, especially women and children. In this project, we will be a partner with WorldFish to investigate the feasibility of an aquaculture solution to food and livelihood insecurity for women refugees in Cox's Bazar, Bangladesh. This study will include analysis of current food and water resources, current livelihood opportunities for women and men, and if and how these resources could support the production of fish and fish products. The study can has possible implications for food aid provided by the United Nations in other displaced populations.

Discussion and conclusion of the sessions

Panel sessions	Series 6	Thursday, 6th of July 14:30 – 16:30
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2.1.8. International Cruise Tourism: Exploring Opportunities and Challenges Facing Destinations from a Critical Perspective II	B2.06
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Chair: Luc Renaud

Panel Organizers:

Jonathan Tardif (York University)

Luc Renaud (Université de Montréal)

Panel Description:

See 2.1.6.

The Cruise Tourism in the Caribbean: Spatialization Issues

Nathalie Petit Charles (CEREGMIA, Faculté de Droit et d'Économie de la Martinique, Université des Antilles)

The cruise industry has evolved considerably in recent years. Caribbean space occupies a prominent place in this increasingly globalized and capitalistic market, organized mainly from Florida ports and extra-Caribbean capital. The economic and commercial logic of this industry, which displaces more and more massive volumes of tourists, escapes the host territories that are no longer able to negotiate economic conditions likely to support their development. The cruise now comes under bubble tourism that captive consumers temporarily leave to travel some exotic environments staged within territorial enclaves. The strategies of the large ship owners, which aim to maximize their incomes through the control of expenses and thus the consumption of their customers, are reinforced by the current security concerns, legitimate and maintained, which justify the staging of these stays within the framework of protected tourist bubbles. In the current context, given the economic logics that prevail in the cruise industry, many small islands are questioning the advisability of supporting cruise tourism. Two types of arguments support this positioning: first of all, the spillover effects on the local economy fall far short of expectations. Second, the current modalities of the development of the cruise (whose control escapes the ports of reception) go against the projects of sustainable development of these islands. This paper discusses the Intra-Caribbean distribution of the cruise flow, a subject of prime importance for the states of the zone whose economic growth is based on tourism in general and cruise in particular. The approach adopted confirms the profit maximization behavior of cruise lines as the factor structuring the dynamic and static distribution of cruise flow in the Caribbean.

A Comprehensive Analysis of Cruise Tourists' Loyalty

Dr. Jim F. Petrick (Department of Recreation, Park & Tourism Sciences, Texas A&M University (USA))

While holistically understanding any portion of tourists' behavior is not possible, few scholars have attempted in-depth studies of any area of tourism. Yet, without comprehensive analyses, tourism theory is less understood, and industry leaders are less prepared to make decisions. The current paper is the result of approximately 15 years of work devoted toward developing a comprehensive understanding of cruise tourists' loyalty, encompassing 9 different data sets (4 qualitative, and 5 quantitative). These studies have examined both the U.S. and Chinese markets and include research on: cruising constraints, motivations and the decision making processes cruise tourists use. The quantitative studies include various onsite surveys (on board ships, in ports of call and at cruise

terminals) and national panel studies while qualitative studies include the use of: critical incident technique, focus groups, open-ended questions and Z-Met analysis. Results of these studies have led to a better theoretical understanding of: 1) Why people decide to cruise (or not); 2) The processes people go through in deciding to take a cruise; 3) The constraints that both cruisers and non-cruisers need to negotiate, 4) The most critical incidences that cruisers encounter during a cruise; 5) Determinants of cruise passengers' behavioral and attitudinal loyalty; 6) Whether loyalty is desired; 7) What causes people to intend (or not) to cruise again; 8) Cruise passengers perceptions of value; 9) The role of price sensitivity related to purchasing a cruise and 10) differences between Chinese and U.S. cruisers. From a managerial perspective, these results can be used to better market to potential cruisers prior to a cruise (by knowing their motivations, constraints, and decision-making processes); during a cruise (by knowing the role of critical incidents, value, quality and satisfaction); and how to better retain them as customers (by understanding how their loyalty, word-of-mouth, and intentions are formed).

Cruise Blogs: An Opportunity to Discuss Sustainability?

Judith Römhild-Raviart (MBA), (MPhil/PhD Candidate, School of Sport & Service Management, University of Brighton, UK)

Cruise tourism contradicts with the principles and concept of sustainability in many ways, yet more and more people are seeking a cruise experience. Criticism in regards to the sustainability of ocean cruising includes, for example, the contribution of cruise ships towards environmental pollution, the limited economic benefits for cruise destinations, or the exclusion of local communities. While previous studies mainly focus on the negative impacts of cruise tourism, and how they can be managed by the industry and cruise destinations alike, little is known about how or whether cruise tourists judge their responsibility to mitigate any negative impacts and maximise the positive impacts of their cruise holiday. Increasingly tourists are making holiday decisions based on information retrieved from the Internet. These include tourism related forums, rating sites (e.g. TripAdvisor), social networking sites (e.g. Travellerspoint), generic social media platforms (e.g. Facebook), as well as weblogs (blogs). As consumers are increasingly engaging in online discussions and information search both prior to, during and after their holidays, the question arises whether social media have the potential to develop discourse about the sustainability of the cruise holiday. This research study uses the example of cruise blogs, to identify the issues discussed online in regards to the social, economic, and environmental impacts of a cruise holiday. It is planned to analyse cruise passengers' reviews and comments from three of the most visited cruise blogs to reveal their opinions about, and attitudes towards, these issues. This study forms the initial stage of a PhD, which seeks to understand sustainable consumers' attitudes towards social, economic, and environmental responsibility in their decision to take a cruise holiday.

Research from Within: Issues of Researcher Positionality in Cruise Research

Jennifer Holland (PhD Candidate, School of Sport and Service Management, University of Brighton, UK)

Cruise tourism is one of the fastest growing sectors of the global tourism industry. Initial research focusing on cruise tourism was limited in scope and volume. However, cruise research has received increasing academic interest and development. Conducting cruise research remains challenging, in part due to the difficulty in access to participants and informants. Researchers have struggled for access to conduct research on cruise ships with only a few studies successfully obtaining access. This has resulted in much cruise research being conducted from an outside lens looking in on the industry. Recently, issues of researcher positionality have arisen during a PhD cruise research study on cruiser and non-cruiser perceptions of a cruise. Emerging from a position of 'insider', the researcher of this study holds a perspective on cruise tourism shaped through many years of shipboard employment, and cruising as a spouse of a senior employee of a cruise line. This perspective has required careful

consideration of reflexivity and positionality throughout the study. In particular, collecting data and speaking with non-cruisers when the researcher is a strong advocate for cruise tourism has presented challenges and generated new ways of understanding for the researcher. This presentation will discuss issues of positionality and associated methodological challenges when exploring traveller perceptions of cruising.

2.2.9. Regional approaches to Marine Spatial Planning

B2.02

Chair: Glenn Smith

Marine Spatial Planning in Scotland. A level playing field?

Glen Smith and Svein Jentoft (Norwegian College of Fishery Science, UiT The Arctic University of Norway)

Marine spatial planning (MSP) is the leading tool in Europe for managing human activities at sea. It is designed to consider the complex interactions between the users of marine space and resources, and their impact on the natural and social environment. These considerations then guide decision making to optimise economic, environmental and social outcomes. As such it is dependent on input from a wide range of sources, key among which are stakeholders. It is on the basis of stakeholder engagement that MSP claims to be participatory. However, the term ‘stakeholder’ is often poorly defined, and in reality refers to a wide range of distinct actors, including individuals, businesses, communities, organisations, etc. A common assumption of MSP is that it will level the playing field between these actors. Evidence is beginning to emerge that this is not necessarily the case. Rather, MSP threatens to institutionalise – and thus legitimise – existing power structures between stakeholders. Partly this is a problem of timing: who is engaged when, i.e. at which stage in the planning process. By examining the case of MSP in Scotland, this paper considers who these stakeholders are and how the configuration of stakeholder engagement affects planning and decision-making processes. It examines, how level the playing field really is, and which stakeholders are allowed onto the field in the first place.

Exploring Stakeholder Perspectives on Transnational Marine Spatial Planning

Malena Ripken¹, Xander Keijser², Thomas Klenke¹, Igor Mayer³

¹ *University of Oldenburg, Germany*

² *Rijkswaterstaat, the Netherlands*

³ *NHTV Breda, University of Applied Science, the Netherlands*

Marine Spatial Planning (MSP) became increasingly important and of high international interests in recent years. MSP and related marine policy and governance have since been characterized by diverse approaches and lacking transnational cooperation. Nevertheless, MSP can be considered a societal process to balance conflicting interests of maritime stakeholders and the marine environment. We identified a strong need of research to identify mismatches and synergies to aim towards a coherent and coordinated process at European Sea basins. Various normative frameworks on EU, as well as national and regional levels have characterized the North Sea for many years. We therefore developed a participatory approach, utilizing the Q Methodology as a tool to systematically study expert’s viewpoint to investigate their perspectives and values on MSP. In general, we used two main approaches, i) the online MSP Q, ii) the supervised MSP Q. Both approaches challenge experts to rank 39 statements on MSP into categories from strongly agree to strongly disagree, in order to investigate their mindset and to identify ‘worldviews’ of certain people and groups of people. Statements cover the whole range of MSP from ecosystem-based management to harmonization of rules and regulations. Our method has been applied with participants from EU funded projects such as

NorthSEE, BalticLINes and SIMcelt. Qualitative and quantitative analysis allows us to compare groups and individuals within or between different institutions, regions or countries. The MSP Q Method is an access to transnational MSP and highly valuable to investigate experts perspectives to eventually add value to future MSP developments.

Implementing Marine spatial planning: is there a right course? Example from the French case in the English Channel

Romain LEGÉ (LETG-Nantes Géolittomer / Université de Nantes)

In France, the European Directive on Marine spatial planning is currently carried out through two strategic documents with different aims and different territorial scales. The first one is a national strategy to clarify the French integrated maritime policy with a long-term vision. The second one, produced by decentralized authorities, will be a regional plan to translate the national policy for the four sections of the French coastline. These regional plans will have a strategic and a spatial component. The French government and its powerful institutions managed the creation of the methodological framework and manage the consultative process and so manage the production of the regional plan. Based on a range of interviews with key informants and stakeholders involved in the process, this paper will come back on the first steps of this consultation. On a broader scope, it will investigate the French way to implement Marine spatial planning, with a specific focus on the methodological choices. The paper will answer the following questions: When and how were the stakeholders involved in the consultative approach? Who were involved? What are their perceptions, visions and expectations, and how were they addressed? Finally, the aim is to highlight “good” and “bad practices” to integrate stakeholders. This research was carried out especially in the English Channel.

Planning the Ocean: The Role of Complexity, Uncertainty and Change in Achieving Cooperation around Current and Future Ocean Uses

Áslaug Ásgeirsdóttir (Professor of Politics Bates College Lewiston, ME United States)

Our oceans face multiple challenges from increased pressures from new uses, combined with increasing environmental challenges deriving from anthropogenic climate change. To meet these challenges, governments are increasingly developing Marine Spatial Plans (MSPs), the goal being to balance industrial uses of the ocean with future sustainable oceans. By mapping ocean activities, the goal is to facilitate sustainable uses of the ocean for increased and more differentiated economic growth (blue growth), by developing specific user areas to minimize conflicts around new uses of oceans. Nowhere is this development more evident than in the European Union, which in 2014 issued a directive for member states to develop MSPs for their territorial waters Exclusive Economic Zones by 2020. The dynamic nature of the ocean environment, however, presents three key challenges for MSP. First, there is inherent uncertainty surrounding the nature and value of ocean resources. Second, the ocean is a complex and dynamic environment, and finally, the ocean is facing significant changes. Uncertainty, complexity and change are difficult concepts for policy and political processes, both of which value certainty, simplicity and stability. At the same time, anthropogenic climate change is impacting the world’s oceans, resulting in warmer waters and more acidic oceans, changing migration patterns for fish stocks and changing of the ideal conditions aquaculture. By using examples from existing ocean plans in the Europe (Baltic Sea) and the United States (Rhode Island and Maine), the paper develops how these three concepts influence existing planning and creates future challenges.

3.2.5. Moving Towards Social Sustainability in Fisheries: Unpacking labour and other social criteria	B2.08
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**A Double Panel Proposal Session for MARE 2017
New Directions in Environmental Governance project (NDEG)**

Chair: *Peter Vandergeest*

Panel Organizers:

Peter Vandergeest (York University, Toronto, Canada)

Melissa Marschke (University of Ottawa, Ottawa, Canada)

Panel description: Since 2014 media and advocacy groups have exposed stories of serious worker abuse in the seafood sector both at sea and during processing. While corporate, NGO and government responses have focused immediate attention on labour abuses and how these are linked to so-called IUU (Illegal, Unreported, and Unregulated) fisheries, they have not dealt with many of the processes of which these abuses are symptomatic. These include globalization and competition in the seafood sector; the destruction of ocean ecologies; and how the use of low paid and less than fully documented migrant workers is linked to unequal economic development and a squeeze on livelihood possibilities in rural Asia and Africa. Themes within this session include (but are not limited to): (a) labour relations and state-non-state regulation; (b) the paths and trajectories by which workers arrive at their work; (c) freedom and unfreedom; (d) labour across a continuum of fisheries (including processing); (e) situating labour within broader notions of social sustainability; and (f) the broader governance context (both public and voluntary ecolabeling standards) and its role in delivering socio-ecological sustainability).

Fishing for Polanyi: Disciplinary neo-liberalism and the elusive social benefits of market-oriented governance

Paul Foley (Memorial University)

The proliferation of market mechanisms of governance is occurring in all major internationally traded commodity sectors. Scholars often invoke Karl Polanyi's concept of "embedded" markets to theorize how market mechanisms, such as voluntary third-party certification initiatives, address negative ecological and social impacts of business activities. These new mechanisms of governance are seen by some scholars as a transformative means to re-embed markets with social and environmental values and institutions. This paper examines the extent to which eco-labeling, certification, and similar mechanisms in the fisheries sector can be understood as re-embedding the destructive tendencies of self-regulating markets in society, with a focus on Canada. It argues that there is a significant discrepancy between the ideational and discursive expectations of market mechanisms and the social effects of those instruments in practice.

Financialization in Seafood Processing: Linking Mobilities of Capital and Labour with Precarity

Christine Knott (Memorial University)

In Canada, transnational migrant workers are brought in through the Temporary Foreign Workers Program (TFWP). The New Brunswick seafood processing sector is one of the most prolific users of the TFWP in the province. This is despite its location in a region with a high rate of unemployment and despite the requirement for a Labour Market Impact Assessment (LMIA) before recruiting

internationally migrant workers. Also, financialization processes, such as the ownership of processing plants by private equity firms, have also been occurring within the seafood processing industry in this region. Drawing on interview data and document analysis related to the seafood processing sector in one area of New Brunswick, Canada, this paper explores how shifting mobilities of workers and capital within the NB seafood processing industry has led to increased precarity for all employees of the plants.

Low-skill migrant worker experiences in Atlantic Canadian fish processing plants

Melissa Marschke (University of Ottawa)

Low-skilled workers recruited under Canada's Temporary Foreign Workers Program (TFWP), provide an important labour source in Atlantic Canada's seafood industry. This research unpacks the experiences of 22 migrant workers from Thailand and the Philippines in seafood processing. We pay particular attention to migration routes, labour conditions, and worker mobility, along with worker reflections on their experiences of landing a Canadian job. We compliment this with local perceptions (company staff and local workers) of migrant labour. We argue that this is a case where the fit works: the low number of migrant workers, the geography of the place, the ability of some workers to get into Nova Scotia's provincial nominee program, and the 'heart' that company employees put into making the migrant workers feel at home are important aspects of why migrant workers and company staff are satisfied with this experience. However, the migration routes that the workers took to end up at these seafood processing companies, and the shady practices encountered along the way, leave serious pause for thought. Migrant workers experience significant unfreedom to gain their freedom.

Labour challenges in the off-shore fisheries: Insights from Thailand, Cambodia, Vietnam and Myanmar

Peter Vandergeest (York University)

In this paper we draw on research by our project team, as well as research by academics, NGOs, and media, to outline what we know about labour relations in the fisheries in mainland Southeast Asia. Labour in the fisheries has recently drawn considerable attention, after research by NGOs and media organizations put a spotlight on forced labour practices in fisheries around the world. In Southeast Asia, Thailand's large export-oriented seafood sector has left it open to considerable international scrutiny, and in 2014 the international media put a spotlight on the situation of the 100,000 migrant workers in the industry. The focus has been on cases where workers have been held captive and severely abused—conditions that have been described as modern day slavery. This coverage often leaves out the changing situation of the majority of fisheries workers in Thailand, as well as workers in fisheries in the region. Fisheries labour relations vary significantly both across the region and across different kinds of fisheries, but there are specific arrangements that follow from the history of the fisheries labour relations in the region, as well as from the nature of the work in different kinds of fisheries, and from the ways that workers are recruited. In this paper we review regional patterns in recruitment, forms of freedom and unfreedom, wages and working conditions, government regulations for fisheries labour, and the changing practices in terms of whether and how states monitor and enforce regulations.

2.4.11. Small-scale fisher economies, small-scale fisher values II	B2.04
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Chair: Jonah Olsen

Panel organizer: *Derek Johnson (Department of Anthropology, University of Manitoba)*

Panel description:

See 2.4.9.

Panel 2. Values and valuing in changing small-scale fisher economies

A case for Responsible Fisheries Tourism: Valuing the contribution of small-scale fisheries for sustainable development.

Tim Acott (Greenwich Maritime Centre, University of Greenwich, London)

The small-scale fisheries (SSF) sector makes a vital contribution to global and local food security. It also provides substantial socio-cultural benefits beyond this, including social cohesion, sense of place, community identity, ecological knowledge and cultural ecosystem services. However, the sector faces many economic, social, political and environmental challenges. To fulfil its potential for delivering sustainable development it is important to benefit from the full range of values that SSF generate. In this presentation, we argue that sustainable SSF is multi-functional, and connecting it with responsible tourism provides a potential means for supporting social, economic and environmental sustainability in fishing places. Drawing upon work in Europe and the Turks and Caicos Islands we present seven key arguments supporting this link, relating to: (i) economic growth in coastal places, (ii) encouraging production and consumption of local sustainable seafood, (iii) providing support for sustainable fishing practices, environmental stewardship and strategic coastal planning, (iv) strengthening sense of place and place image (v) maintenance of identities of fishers and fishing communities, (vi) valuing of local knowledge and skills, and (vii) enhancing fishers' livelihoods. A 'Responsible Fisheries Tourism' approach will not be suitable in all contexts, and there are numerous challenges in implementation. However, it can potentially deliver positive and meaningful experiences for tourists whilst also benefiting the SSF sector, fishing communities and marine environments.

A fish called Dollar – commoditization and changing economic value of fish in the Andaman and Nicobar Islands, India

Sahir Advani¹, Mimi E. Lam¹, Derek S. Johnson², Tony J. Pitcher¹

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² *Department of Anthropology, University of Manitoba, Winnipeg, Canada*

Export markets for high-value marine commodities are important drivers of change in island fisheries and small-scale fishing communities. Commoditization, the process whereby societies favour an economy of things over relations embedded within communities and ecosystems, can alter local fishers' perceptions and economies of marine resources. For effective fisheries governance to occur when marine resources become commoditized, it is essential to understand the diverse values (e.g., ecological, economic, social, and cultural) that small-scale fishers and other actors in the value chain associate with the resources, particularly how their values may shift with time and context. Moreover, consideration of non-market factors, such as fishers' cultural origins and relationships with resources and ecosystems, in addition to their interactions with markets, are required to understand the shifting values landscape and economy associated with small-scale fisheries. In this study, we focus on the

relatively new export-oriented fishery in the Andaman and Nicobar Islands, India for leopard coral trout, *Plectropomus leopardus*, a species that previously had a low market and food value, but presently has an economic value ~7 times higher than other locally sold fish. We explore the diverse values and interactions associated with this fish, now locally known as *dollar*, and other marine commodities amongst four small-scale fishing communities that inhabit or have migrated to and settled in these islands. The geographical and cultural origins of these communities range from indigenous inhabitants of the Nicobar Islands, mountainous tribes from erstwhile Burma, agrarian refugees from Bangladesh, and fishing communities from the east coast of India. Through considerations of market and non-market values, our findings in the Andaman and Nicobar Islands provide a concrete example of how diverse fishing communities differentially value marine resources, depending on their historical and cultural origins, as well as their interactions with markets.

Exploring theoretical ideas of value from social science around branding: insights from branding activities of fishery products in Japan

Yinji Li (Tokai University)

The fishery production of Japan fell into 4,669,000 tons in 2015 from 12,820,000 tons in 1984 which is at a peak period. Coping with such resource problem, social responses such as implementation of resource-controlling fisheries, developing resource recovery plans, setting of closed fishing seasons and areas, releasing of juvenile fish, developments of sea grass bed and tideland, have been adopted in many areas. However, many fishing communities with severe management situation still exist. That is mainly because the downturn in fish price caused by increase of imported products and decrease of domestic consumption etc., and a rise of the cost by fuel oil price rise, spur on such unstable fishery situation in addition to the resource problems. It is no exaggeration to say that it's difficult to conquer the current fisheries crisis only by resource control. Meanwhile, activities aiming at enhancing values of fishery products and stable fishery management spread over nationwide. The cases of Sakura shrimp (*Sergia lucens*) in Shizuoka Prefecture and red bream (*Beryx splendens*) in Chiba Prefecture are good examples. This study firstly gives an overview of branding activities of fishery products in Japan, secondly analyzes the actual conditions of branding strategies of the Sakura shrimp and red bream, and discusses the challenges towards effective branding strategies of fishery products, finally explores broader theoretical ideas of value from social science around branding.

Using a wellbeing approach to develop a framework for an integrated socio-economic evaluation of professional fishing

Kate Barclay and Michelle Voyer (University of Technology, Sydney, Australia)

The principles of Ecologically Sustainable Development and Ecosystem Based Fisheries Management require that fisheries be managed for social as well as environmental and economic objectives. Comprehensive assessments of the success of fisheries in achieving all three objectives are, however, rare. There are three main barriers to achieving integrated triple bottom line assessments of fisheries. Firstly, disciplinary divides can be considered 'too hard' to bridge with inherent conflicts between the empirical and deductive traditions of economics and biophysical sciences and the inductive and interpretative approach of much of the social sciences. Secondly, understanding of the social pillar of sustainability is less well developed. And finally, in depth analysis of the social aspects of sustainability often involves qualitative analysis and there are practical difficulties in integrating this with largely quantitative economic and ecological assessments. This paper explores the social wellbeing approach as a framework for an integrated evaluation of the social and economic benefits that communities in New South Wales, Australia receive from professional fish harvesting. Using a review of existing literature and qualitative interviews with more than 160 people associated with the fishing industry the project was able to identify seven key domains of community wellbeing to which the industry contributes. Identification of these domains provided a framework through which

industry contributions could be further explored, through quantitative surveys and economic analysis. This framework enabled successful integration of social and economic, and both qualitative and quantitative information in a manner that enabled a comprehensive assessment of the value of the fishery.

2.4.12. Fish tools and instruments I	B2.05
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Chair: Maarten Bavinck

Legal status of precautionary principle in international fisheries law and its application in the marine fisheries regime of Bangladesh

Abdullah-Al Arif (PhD Candidate, Macquarie Law School, Macquarie University, Sydney, NSW, Australia)

There exist endless debates on the status of precautionary principle in the realm of international environmental law. Moreover, confusion often occurs on the use of phrases that express the concept of precaution, such as, precautionary principle, precautionary approach, precautionary measures, and so on. Precautionary principle was incorporated in major international fisheries agreements amid all these debates and confusions. This paper seeks to examine the status of precautionary principle in international fisheries law. This paper also surveys the regulatory frameworks for exploitation, conservation and management of marine fisheries in Bangladesh to find the application of precautionary principle in the marine fisheries regime in Bangladesh. The maritime area of Bangladesh has increased over the last few years due to successful boundary litigation with two of her neighbours, India and Myanmar, and so has the fishing pressure. Government of Bangladesh through Department of Fisheries under the Ministry of Fisheries and Livestock is mulling over new development plans for the sector. However, the focus of government plans is generally on exploitation of maximum benefits from the sea rather than conservation of marine fisheries and marine biodiversity. After analyzing the relevant laws, policies, and administrative actions, this paper finally argues that the application of precautionary principle is almost absent in the regulatory frameworks for marine fisheries in Bangladesh and calls for incorporation of the same for conservation of marine fisheries and marine biodiversity.

25 years of precaution in fisheries management: what have we learned?

Lynna Cortes Rueda¹, Jan McDonald¹, John Tisdell²

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The precautionary principle is a fundamental principle of natural resources management. The most-widely accepted formulation of precaution, articulated in Principle 15 of the 1992 *Rio Declaration on the Environment and Development* promotes an application of the precautionary principle to environmental protection in accordance to States capabilities. This has different implications for developed and developing countries: the precaution expected in any given decision therefore depends on each country's environmental, economic and social context. This paper results from a critique of literature from the legal, fisheries management and marine science fields, addressing the intersection between the precautionary principle, fisheries management and developing countries. It explores how has the principle been addressed by law and policy makers, fisheries managers and scientists and how the current knowledge has contributed to its implementation in fisheries management in developing countries in accordance with their capabilities. The analysis shows that scholarly efforts have been dedicated to understanding the precautionary principle, its legal status and the implications derived from its adoption both in international and domestic law. A substantial body of literature in the

marine area expands the analysis to capture fisheries, but the vast majority of this work relates to developed countries. There is a minor body of literature on developing countries and fisheries management generally and an even smaller body of research on developing countries and the precautionary principle. There is a significant gap in the literature relating to how this principle should be implemented in a developing country context, especially in relation to how they should manage their fisheries. Research efforts dedicated to investigating this issue could contribute to the improvement of fisheries management in countries with limited resources and capacities.

Struggles over ring seine fishing in India: opportunities, prohibitions and the blame game

Maarten Bavinck (University of Amsterdam)

Ring seine fishing* was introduced to India in the 1980s and has been spreading rapidly along the west and now the east coast. It is highly contested among fishers, policy makers and scientists for environmental as well as social reasons. This paper reports on the struggle taking place over ring seining in Cuddalore District, Tamil Nadu, where it has recently emerged. It is based on ethnographic fieldwork carried out in 2016. I examine the tensions existing within the fisher population of this district and the way in which fisher organizations have mobilized both in favour and against the use of this technology. I also question the position of government, which has officially prohibited the use of ring seines but has taken no action against the large fleet of ring seine vessels now based in the district capital. The case is investigated from the perspectives of political ecology, legal pluralism and theories of social struggle, and hopes to throw light on the chain of conflicts currently occurring over ring seining in various parts of Asia.

**The ring seine is a miniature type of purse seine operated by a group of fishers in pursuit of schools of pelagic fish species.*

Operationalising the precautionary principle in developing country's fisheries management

Lynna Cortes Rueda¹, Jan McDonald¹, John Tisdell²

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2. Tasmanian School of Business and Economics, University of Tasmania

Fishing contributes significantly to the livelihood of coastal communities in many developing countries, through subsistence, artisanal and commercial operations. Overexploitation of fisheries resources is a major challenge in many of these countries, a consequence of both economic imperatives and non-existent or inadequate regulation and enforcement of fishing activity. The precautionary principle has long been recognised in international law as a guiding principle for fisheries governance to ensure the sustainable use of marine resources. Most countries have explicitly or implicitly committed to manage their fishery resources in a precautionary manner, yet the implementation of precaution in domestic law and policy remains fraught. Developing countries in particular have limited legal and institutional capacity and struggle with the cost of the scientific inputs required for implementation approaches that are favoured by wealthier countries. A more contextual, tailored and nuanced approach to operationalising the precautionary principle is needed for developing countries. This would enable them to meet their common-but-differentiated international responsibilities, while recognising that limited resources are available for fisheries management. There has been remarkably little focus on this challenge in fisheries management research and practice. This paper offers three key mechanisms by which developing countries can enhance implementation of the precautionary principle through domestic law and policy, based on an in-depth comparative analysis of the legal regimes for fisheries management in one developed country (Australia) and two developing countries (Colombia and Chile). These mechanisms are: Explicit adoption of the precautionary principle both to guide overall fisheries management policy, and the design and interpretation of fisheries laws. The incorporation of mechanisms to fill gaps in scientific and institutional capacity that meet the

constraints of developing countries. These might include using the information held by regional fisheries organisations or neighbouring states, or citizen science to supplement their science base. The use of adaptive management tools as a pathway towards implementation of precautionary approaches that are flexible and capable of evolving to meet developing country capacity.

The introduction of a voluntary sustainability assessment scheme in the Belgian fishery based on the VALDUVIS tool

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² *Institute for Agricultural and Fisheries Research (ILVO), Social Sciences Unit*

In 2011, a research team at the Institute for Agricultural and Fisheries Research (ILVO) started with the development of a sustainability assessment tool called 'VALDUVIS' (Kinds et al., 2016). On demand of the fishing sector and the Department for Agriculture and Fisheries, a tool needed to be developed to assess and monitor the sustainability of the Belgian fishery at different hierarchical levels: the fleet as a whole, the fleet segments, individual vessels and fish boxes. The aim of the VALDUVIS project (2011-present) is to guide the Belgian fishery towards a higher degree of sustainability, using individual sustainability assessments as a starting point. Once the tool had been developed, a pilot project with five fishers was carried out to test the use of the tool in practice. Based on feedback from this small sample of fishers, some of the indicators were adjusted and a concept for a Fisheries Improvement Program (FIP) was suggested. In 2017-2018, this concept will be implemented on a voluntary basis in the Belgian fishery. The project is supported by the producer organization and barriers to participate were kept at a minimum to ensure a high degree of participation. This paper explores the participatory process that shaped the tool and its subsequent applications and assesses its effectiveness as a new governance framework for the Belgian fishery. Although the participatory process was successful in creating a sense of direction for the implementation of the tool among stakeholder groups, its legitimacy among fishers remains unclear. First, only eight fishers have been present at the discussions about the development and applications of the tool. Second, whereas most indicators are calculated based on readily-available electronic logbook data, some indicators use additional data that need to be collected through personal communication with fishers (currently reference data are used). Third, the scope of the application has shifted numerous times over the past years, making it hard for fishers to know what is being presented now. We set out to collect information about the views, perceptions and hopes of fishers about this newly developed framework in order to assess its effectiveness in guiding the fishery towards sustainability and identify where changes should be applied.

2.3.5. The cultural heritage of fisheries	B2.01
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Chair: Carol Stephenson

Politicizing the Fishers: Redefining Conceptual Boundaries via Alappad's Fishers in Kerala, India

S. Nidheesh (Indian Institute of Technology Madras, Chennai, India)

What are the peculiarities of conflicts that surround fishers when the State intervenes on behalf of a large capital creating investment zones? *Fishing communities not only face the crises and challenges of natural disasters, but also the state seeking to extract resources from the coastal space.* I present a case of my own community – the Alappad fishing community in Kerala, which confronts the Indian Atomic Agencies' extractive interest of radioactive minerals along our coastline. Not surprisingly, in the

narratives of the State, the process of mining is justified as a developmental activity with a larger national interest. However, I argue that these obvious facts slip into a binary of local-national, which leads to depoliticizing the fishing communities. Instead, a central aspect of politicizing is to open up issues of property, to explore it's socially constructed in multiple ways and drawing on literature on legal pluralism that emancipates the more conventional boundaries of national-local binary. My main entry into this perspective is that the property of coastal communities is co-produced across land and sea. This leads me, via focus on the socio-cultural, economic and political stability of coastal communing practices, in a connection and causality to the crisis of fisher groups. If so, the conceptual frames and methods mobilized need to explore the nuances of the confluent space of land and sea. Today the fishermen are involved in a degrading battle for the right to survive in their native land from other more contemporary empires – uprooting this land of rare earth via an economic predicament that threatens the existence of the land itself. For me, viewing my home under such turmoil, calls for politicizing conceptual frames and those that are inter-linked in material worlds of everyday practice.

Alaskan fisherpoets and personality: Introverts in a sea of people or extraverts with water, water everywhere but none to drink?

Jennifer Pickett and Joeri Hofmans (Vrije Universiteit Brussel, Faculty of Psychology and Educational Sciences)

Fishing is a central part of Cromer's identity, a rural coastal community with a long tradition of inshore crab fishing in the East of England, a region that has lost its once commercially important herring industry. Despite significant demographic, economic, social and environmental change, local residents and regular visitors perceive very little change in the town. The crab fishery is still relatively active and although its fishermen have adapted their boats and gear, the essence of fishermen's work has remained. Drawing on one year of qualitative research, this presentation explores the different values held by coastal residents, visitors and fishermen towards fishing. These values relate to the material, subjective and relational aspects of wellbeing in Cromer. However, some of the tensions over place identity are exposed particularly between recent 'newcomers' and local people, and between national and local aspirations for economic development. The result is that Cromer's fishing identity is being defended by the fishermen themselves and by local people who value the fishery as an important part of their place. The future of the fishery and the town depends on whose values and place meanings are privileged. This case study, reveals the political nature of how different understandings of place, development and wellbeing are constructed and contested.

Get up and Tie Your Fingers: Eyemouth 2016, Reflections on community performance of shared maritime heritage.

Carol Stephenson, Fiona MacPherson and Sarah Coulthard (University of Northumbria, Newcastle, UK)

In the 19th Century, Eyemouth was one of the main fishing ports in Scotland. However, it is best known as the site of Britain's worst fishing disaster. During a storm in 1881, 164 fishermen and boys lost their lives in sight of land as their families looked on, leaving 73 widows and 263 fatherless children. Eyemouth today no longer has a thriving fishing industry, as with any post-industrial community it faces a number of challenges: demographic change, and the impact culturally, socially and economically of the loss of the identity of a defining industry. The Eyemouth community continues to value its maritime heritage. In 2016 a request was made by community activists to professional theatre maker Fiona MacPherson for her support in their retelling the story of the disaster. This resulted in *Get Up and Tie Your Fingers: Eyemouth*, a narration of the story intertwined with a contemporary score, which was spoken and sung by the inhabitants of the village, many of whom were direct decedents of those who lost their lives. This paper explores the impact of these performances on those who participated, interrogating their responses to the embodiment of the storytelling, and evaluating the potential for community building and regeneration through the

'performance' of shared heritage. In doing so it examines the way in which fishing heritage continues to resonate in a post-fishing communities, and the importance of performance and the spoken and sung word to emotional connections to the sea, the past and common heritages. Theatre making and story telling techniques enabled the people of Eyemouth to tell their own story and to take ownership of the method of that telling. It is our intention to collaborate with other industrial and post-industrial coastal communities to use these techniques to enable them to explore their stories, their heritage.

Dissent on fisheries development; use of destructive fishing practices in Northern Sri Lanka

¹Peramunagama, S.S.M., ²Amarasinghe, O, ³Dinushika, K.C., ⁴Jayasinghe, A.D., ⁵Srikrishnan, R., ⁶Thileepan, A

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Since the onset of Blue Revolution in late 1950's, technological progress in the sphere of fisheries has resulted in impressive increases in fish production fish consumption, fishing incomes and employment. Yet, this process has also threatened the sustainability of fish resources and, among other things, the use of destructive gear, appears to emerge as a crucial factor causing resource degradation. This paper aims at exploring the diverse destructive fishing practices used by fishers in Northern Sri Lanka, based on a study undertaken in Vankalai, a fisheries village in Mannar District of Northern Sri Lanka, Methodology employed consisted of a pretested structured questionnaire administered to a sample of fishers and conducting focus group discussions with selected groups of men and women from the fishing community. The study revealed that monofilament nets, trawl nets, dynamite, brush-pile and diving are extensively used by the fishers, all of which fall under 'banned gear', according to Fisheries and Aquatic Resources Act 1996. However, the use of such gear has facilitated in catching more fish and earning high incomes. Results of the study revealed that, although fishers acknowledged that the above fishing practices are environmentally unfriendly and destructive, they are compelled to engage in such practices due to serious threats to their livelihoods caused by other stakeholders, especially those outside their community, exploiting their traditional fishing grounds. This paper provides insights into the pervasive use of destructive fishing practices in Northern Sri Lanka and, highlights the need to regulate technological change, strictly enforce fisheries laws against the use of banned gear, institute governance mechanisms to deal with outsiders and conduct educational and awareness programmes on the need to maintain resource sustainability and popularize environmentally-friendly fishing techniques.

2.2.10. Integrating Ecosystem Service Assessments and Fisheries Management – How to modify current fisheries advice taking ecosystem services into account II	B2.07
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Chair: Jörn Schmidt

Panel organizers: *Evangelia Drakou¹, Jörn Schmidt², Camino Liquete³*

¹*Université de Bretagne Occidentale, Brest, France / University of Twente, Enschede, The Netherlands*

²*Kiel Marine Science and Cluster of Excellence, Future Ocean' Kiel University, Environmental, Resource and Ecological Economics, Germany*

³*Joint Research Centre, European Commission, Ispra, Italy*

Panel description:

See 2.2.8.

Bridging the Information Gap: Water Quality Assessments of Aquaculture Infrastructure in the North Sea Through Ecological Models to Determine Scenario Based Ecosystem Service Trade-Offs*

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Through the utilization of ecological models, natural processes can be simulated through mathematical reconstructions of the system. This allows investigators to look at various proposed scenarios and determine probabilistic outcomes and impacts of such ventures on the local ecosystems through the utilization of the Delft-3D Water Quality modeling software in conjunction with benthic productivity modules. Filter-feeders and bivalves have been identified as playing a key role in controlling the eutrophication of coastal waters as well as increasing the overall water quality by removing both organic and inorganic suspended particulate matter. Through filtering and bio-deposition, a suppression of the total suspended matter within the water column occurs and the flux of key nutrients to the benthos is increased which strengthens the benthic-pelagic relationship. To this end, the Ecosystem Services within the Regulation and Maintenance branch of the CICES classification can be affected by the implementation of aquaculture farms while also providing a provisioning element. Application of such a model provides insight into the total suspended matter, nutrient, and algal concentrations, as well as determining the potential sink effect that aquaculture farms can also exude on the local system. Benthic creatures such as mussels and cockles consume primary producers not only from the immediate vicinity, but also those carried on the currents from localized hot spots of primary productivity. The uptake via aquaculture of this element has the potentiality to limit the food supply of the local benthic communities and lower the habitat suitability for naturally occurring populations within regions of influence. These naturally occurring communities not only supply erosion protection for the inertial flats upon which they reside, but also affect water quality. Through the investigation of various farming scenarios, an estimate of the potential impact and shift of Ecosystem Services provided can be evaluated in order to elucidate stakeholders and policy makers to the multi-faceted implications of such executing such investment schemes. This can be done through a combination of hindcasting scenarios as well as considering future projections. By analyzing the outputs in terms of key indicators which relate to Ecosystem Services and act as proxies, it is possible to provide an indication as to the effects of aquaculture within the context of Ecosystem Services.

**This work has received funding from the European Unions Horizon 2020 research and innovation programme under grant agreement No 641762*

An ecosystem services based assessment to support kelp fisheries management in Iroise sea

Denis Bailly, Olivier Guyader**, Alice Vanhoutte---Brunier****, Martial Laurans***, Philippe Le Nilliot****, Katia Frangoudes**

** AMURE, Université de Bretagne Occidentale, Brest, France*

*** AMURE, IFREMER, Brest, France*

**** DYNECO, IFREMER, Brest, France*

***** Agence Française de la Biodiversité, Brest, France*

VALMER project (INTERREG IVA) developed a framework for participatory assessment of marine ecosystem services in support to management. Kelp harvesting in Molène archipelago was selected as one policy area to apply this framework. The Molène archipelago, located in the westernmost part of France, is home to the most diversified algae *Laminaria* fields in Europe. This area is remarkable due to the outstanding natural ecosystem containing dozens of species of algae, marine mammals and birds of national and European significance. Among species depending on kelp habitats are fisheries resources and species with a high conservation status. Kelps are sought by agrifood, pharmaceutical and cosmetic industries for their alginate content and demand is increasing. The archipelago is included in the boundaries of the Iroise Sea Marine Park. The cohabitation of sustainable activities in the Park is an important management issue, as is natural and cultural heritage conservation. The VALMER team of the park worked with scientists and stakeholders to assess the current provision of services provided by the Iroise kelp ecosystem and to simulate, with a dynamic model, the fluctuations of service levels according to different management options. The choice of which ecosystem services to focus on was determined using the 'trriage' method. A conceptual model of the functions of kelp social and ecological system was developed first. Then a dynamic system model has been developed for simulating the impacts of various fisheries management options on key ecosystem services. Kelp management exploratory scenarios were tested and discussed. Ecosystem Services Assessment provided clarity with regards to the benefits received from the ecosystem and improved understanding of trade-offs.

Disentangling marine ecosystem service co-production in European fisheries

*Sebastian Villasante*¹, Gonzalo Macho², Elena Ojea²*

¹University of Santiago de Compostela, A Coruña, Spain

²University of Vigo, Spain

Marine ES assessments need to consider non-natural capital inputs (financial, technology, energy inputs) that contribute to marine ES delivery, as they affect the way we evaluate the broad notion of sustainability. The role of co-production has also been explicitly acknowledged as a key idea in the science-policy interface. The objective of this paper is to create an inventory of key co-production examples in marine social-ecological systems. The inventory will go through existing documentation from international and national agencies, other authorities and research institutions that have documented information from current or finished research projects and initiatives about and/or including the physical and cognitive types of co-production. We will compare and contrast these diverse experiences through quantitative and qualitative, descriptive methods. The inventory of co-production processes of marine ES will help to understand what lessons and conclusions have been drawn and what have been key issues for advancing collaboration for further inclusion of the co-production of marine ES in integrated assessments of marine socio-ecological systems. Understanding how natural capital and other forms of capital are combined to co-produce different marine ES, types,

quantity and quality of ES will give us a better understanding of the dynamics of marine social-ecological systems and their implications for policy.

2.4.13. Gendered vulnerabilities	B2.03
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Chair: Nitya Rao

Migration Dynamics and Gendered Vulnerabilities in Indian Marine Fishing Communities

Nitya Rao (School of International Development, University of East Anglia, Norwich, UK)

Sajith Sukumaran (FishMarc)

India has a long coast line which supports a large and diverse marine fishery industry involving a population of close to four million, with an annual production of 4.5 million tonnes. Fishing populations are highly mobile, yet little is known about the changing nature and dynamics of migration patterns of these communities. This paper seeks to fill this gap. Development of coastal regions, coastal erosion, technological changes, territorial conflicts, and changing aspirations, have lead to changing perceptions of the sea, and consequently new patterns of migration and mobility. There are entire communities that have been displaced by the rapid industrialisation along the coast; fishermen who stay at sea for longer periods of time, with the help of larger boats, hired labour, and more sophisticated equipment; and still others, young men and women, who move out of fishing, often for labouring jobs within India and overseas. Spatial movements are differentiated by age, gender, skills, and social position, and while creating opportunities for improving wellbeing, they carry a host of gendered vulnerabilities and risks - environmental, economic and social. Based on a preliminary mapping of movements in and out of fishing communities in coastal India, through an analysis of secondary data, combined with primary qualitative research, this paper points not just to the diversity in migration patterns and drivers; responses and adaptive mechanisms, but the ways in which people, men and women, creatively use multiple resources and relationships, ranging from caste, kinship and religion, technological choices and migrant networks, to earn higher incomes, build assets and secure their future wellbeing.

Understanding vulnerability and resilience of women entrepreneurs in the fisheries value chain: a study in two coastal states of India

Sneha G. S. (Amrita School of Business, Amrita University)

Gopakumar Viswanathan (Faculty Associate, Amrita School of Business, Amrita University)

Dr. Amalendu Jyotishi (Professor, Amrita School of Business, Amrita University)

The commodity chain is the series of players and interactions that link the movement of a commodity from the producer to the consumer. There is a series of nodes in between with unequal exchanges among and within them including gendered interactions. We extend this value chain analysis in the context of marine fisheries, especially in the port-to-plate context. We identify the processes and actors in the fish value chain and locate the women entrepreneurs' role in this chain through an extant review of literature. The actors in general and the women entrepreneur involved in the fish value chains at different process levels are subject to multiple vulnerabilities. The vulnerability may be the result of an external shock, political or regulatory (e.g. sudden change in domestic government norms), economic (e.g. competitive, increased international trade, international quality standards), catch (e.g. over fishing, illegal and unregulated fishing, fish stock depletion), behavioural or technological. The vulnerabilities at each levels in the value chain with specific focus on how women entrepreneurs perceive and respond to them are studied in this paper. Against the backdrop of these vulnerabilities, this paper also looks at the endowment of natural, physical, social, financial and human capital among the women entrepreneurs and how they play an important role in their

resilience. By studying the role of women as entrepreneurs in the fish value chain we intend to do twofold contribution. At the first level we identify the role of women entrepreneurs in the spectrum of fish value chain. Second, through the qualitative analysis based on interactions with the women entrepreneurs in Tamil Nadu and Kerala we identify the characteristics and evolution of women entrepreneurs in this value chain and how they have remained resilient to vulnerabilities arising out of globalization.

She-based: Developments in Promoting Occupational Gender Balance for Filipino Women Seafarers

Maria Emilynda Jeddahlyn Pia V. Benosa

Institute for Maritime Affairs and Law of the Sea

University of the Philippines Law Center

The adoption in 2010 of amendments to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) could not have been made in a venue more fitting than Manila, Philippines. Data from the International Organization for Migration show that Filipinos constitute almost a quarter of all international seafaring crews. But figures from the Philippine Overseas Employment Administration (POEA), borne of a declared policy in the 1970s to capitalize on the country's human resources, show that women seafarers only comprise less than 3% of all sea-based deployments. This is in stark contrast with numbers for the land-based workforce, where women account for roughly 54.6% of documented deployments. While "She-to-Sea" and similar campaigns may help boost offshore opportunities for women and complement the International Maritime Organization's (IMO) directives for the same, a profound effect remains to be seen. The fact that they exist at all suggests that questions linger as to equal opportunity in sea-based careers, the variety thereof, and state support for the same. This study reviews Philippine legal and policy developments in promoting opportunities for women and institutionalizing gender balance in sea-based careers. The first part explores the impact of statutory enactments such as the Philippines' Women in Development and Nation-Building Act, and Magna Carta of Women, on the deployment of women seafarers. The second part is a case study profiling women seafarers in offshore mining operations, which currently ranks least among the industries for which they are deployed. The third part examines the nature of complaints and claims involving women seafarers, filed before Philippine administrative agencies, including the POEA, National Labor Relations Commission, Department of Labor and Employment, and Maritime Industry Administration. Results of the above will thereafter be evaluated for compliance with the CEDAW, International Labor Organization and IMO standards, and the Philippines' own national targets, among others, in promoting occupational gender balance in sea-based careers. Recommendations will also be drawn from experiences and developments in other seafarer-sending jurisdictions.

Panel sessions	Series 7	Thursday, 6th of July 16:30 – 18:00
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2.1.9. Fish on the move	B2.06
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Chair: Tom Selwyn

Panel organizers:

Nataša Rogelja (Research Centre of the Slovenian Academy of Sciences and Arts, Slovenian Migration Institute)

Alenka Janko Spreizer (University of Primorska, Faculty of Humanities, Institute for intercultural studies)

Panel description: This panel session will introduce the book *Fish on the Move: Fishing between Borders and Discourses in Northern Adriatic*, published within MARE publication series, Volume 11. It will bring together the authors and editors to engage in discussion on current situation on marine fisheries in the North Adriatic region, a region that carries any number of historical and contemporary resonances with many other parts of Europe and Mediterranean. Within this setting, the leitmotif of the book is modest and ambitious at once, aiming to link global, regional, national and local issues on the subject of maritime fishery in order to understand people's everyday realities along the present-day Slovene coast within the context of processes (during socialist, transition, and EU periods) that have impacted them. The panel starts with an "introductory walk" along the nowadays Slovene coast with the aim to equip the audience with a contextual framework that will enable them safely navigate the sea routes along the borders, as well as to walk confidently between the material sites, symbolic features, and to understand the social relations that have generated different discourses of this place throughout its history. In this ethnographic walk, presented in the form of visual material we will present water and land routes of different actors within N Adriatic. Apart from the walk the panel will bring together a number of contested elements, orchestrating different levels of reality embodied in the landscape of N Adriatic, embracing also the invisible ones, while at the same time showing that no narrative has the last word. Presenting small boats and coastal fishermen as carriers of larger stories will help the audience of this panel staying afloat within the sea of big stories.

2.2.11. Fisheries governance**B2.02****Chair:** Andrew Song**Constructing Governability***Andrew M. Song^{1,2,*}, Jahn Petter Johnsen³, Tiffany H. Morrison¹*¹*ARC Centre of Excellence for Coral Reef Studies, James Cook University, Australia*²*WorldFish, c/o ARC Centre of Excellence for Coral Reef Studies, Australia*³*Norwegian College of Fishery Science, UiT The Arctic University of Norway, Norway*

Governability is an intriguing concept. Thinking about a social-ecological system to be governed – whether a watershed, a fishery or a marine reserve – in terms of how governable it is or how governable it can be, can potentially attract innovative ways of approaching governance issues. While interest in the concept and its application to the field of fisheries and other natural resources has been growing, it is also faced with notable conceptual and methodological limitations. This paper revisits the concept of governability in an attempt to sharpen its potential as an overarching analytical frame of reference for natural resource governance. In doing so, we aim to enhance its value by expanding its theoretical purview. The argument made here draws upon cybernetics, a part of general systems theory that focuses on control and feedback. By highlighting the reciprocal nature of any governor-governed relationship and subsequently the co-produced nature of governing outcomes, we call for a relational and constructivist approach to governability enabled through the representations of consent or dissent as well as the definitional power of governing instruments.

A legal pluralist view on fisheries governance in the South Pacific*Janne Rohe, Sebastian Ferse (Leibniz Centre for Tropical Marine Research (ZMT), Bremen, Germany)*

Coastal communities in the South Pacific are closely bound to the sea. Customary systems to locally manage marine resources have developed in the region a long time ago. In many places, these systems continue to form the basis of community-based marine management efforts. At the same time, national (fisheries and environmental) legislation regulates various aspects regarding the marine realm. The result is a legal pluralist situation. A circumstance that can cause confusion about the scope and applicability of (legally backed) customary fishing rights vis-a-vis national law - which can lower the governability of coastal fisheries. This study draws on qualitative data from Fiji and the Solomon Islands. It examines how the national marine governance frameworks influence, (dis-) connect to, and (can) support or hinder community-based marine management efforts. Throughout the analysis of these multi-level interactions the paper also contrasts the different political and administrative systems of the two Pacific Island States. Fiji has a centralized government, whereas in Solomon Islands governance authority is more dispersed and partly delegated to provincial governments. This study further reveals on the one hand how partner agencies that engage in local marine management (e.g., international and local NGOs, conservation networks, research organizations) can play a vital role in bridging the local and national levels. On the other hand, the study raises the question whether partner agencies' engagement might run the risk of 'exempting' governments from their responsibility to reach out to coastal communities. This paper aims to contribute to ongoing discussions about improving fisheries governance in a legal pluralist context in order to enhance positive social and ecological outcomes.

'A sea of troubles': Brexit and the fisheries question

Jeremy Phillipson (School of Agriculture, Food and Rural Development Newcastle University, UK)

David Symes (University of Hull, UK)

Brexit poses a major challenge to the stability of European fisheries management. Until now, neighbouring EU member states have shared the bounty of the living resources of the seas around Britain through 'open access' and, more recently, 'equal access' principles. Taking back responsibility for the regulation of fisheries within the UK's Exclusive Economic Zone will cut across longstanding relationships, putting at risk recent recovery and future sustainability of shared fish stocks. While Brexit negotiations are expected to focus on a rebalancing of fishing opportunities within the UK EEZ, the aim of the paper is to examine the longer term implications for the governance of fisheries in the seas around Britain. It will cover the likely restructuring of legal, institutional and regulatory arrangements for fisheries management and emphasise the prior need for a shared vision and robust *modus operandi* for collaboration between the UK and EU to ensure the sustainability of resources, viability of fishing activity and the health of marine ecosystems.

Governability of high value fisheries for global markets in developing countries: a case study of sea cucumbers in Papua New Guinea

Kate Barclay (Associate Professor, Faculty of Arts and Social Sciences, University of Technology Sydney)

High demand and prices in global markets for luxury seafood fished by coastal communities in developing countries often results in overfishing. There are few other opportunities for fishers to earn cash, weak government control over fishing, and markets are beyond the control of the states in which the environmental damage is occurring. This situation comprises a complex set of issues to define, explain and solve. Using the sea cucumber fishery of Papua New Guinea (PNG) we illustrate how the fish chain concept within the interactive governance framework provides a holistic approach to reveal governability limits and possibilities for such a fishery. First the fish chain is examined as a 'system to be governed' from fishing through trade to retail markets. Next the various governing systems that operate on the fish chain are evaluated for their effect on the governability of the fishery. This paper illuminates two key lessons that may be useful for similar fisheries elsewhere. One is that the management approach taken by the PNG Government to regulate exports rather than the fishery per se has excellent potential to be effective where fisheries are informal and geographically dispersed throughout areas with low government reach. The second lesson is that development – improved wellbeing in coastal communities – is fundamental to the fishery as a motivating force, and as a principle legitimizing actions within the fishery and its management. Yet development is not well addressed in the governing system institutions responsible for the fishery, constituting a significant obstacle to governability.

Socio-environmental narratives and coastal conservation in a (dis)integrating European Union

Anna S. Antonova (Marie Skłodowska-Curie Doctoral Research Fellow in Environmental Humanities, University of Leeds, Leeds, UK)

As a year of political upheavals gives way to a year of their consummation, scholarship looks to evaluate the relationship between socio-cultural narratives and global politics, including in areas such as marine and environmental governance. This paper examines these links in an EU context by combining political ecology, environmental humanities, and critical policy studies approaches. It analyses interplay between discursive societal mechanisms and multi-level governance processes in two case studies that feature contestation and conflict over the meaning, imaginaries, and management of coastal space: the Bulgarian Black Sea and the Yorkshire North Sea shores. In Bulgaria, nature conservation of (along) the coast is intertwined with positive attitudes toward EU institutions, especially the European Commission and the European Court of Justice, as sources of

democratic and judicial legitimacy. Meanwhile, in Yorkshire, dynamics of social exclusion, spurred by the decline of fisheries and seaside resort tourism, have framed both environmental conservation and EU governance as external threats, motivating many to vote “Leave” in the 2016 referendum. These dynamics show a reciprocal relationship between socio-cultural perceptions of coastal space and attitudes toward the supranational policies and institutions in place to govern it. In light of this, this paper offers some thoughts on the inherent complexities of coastal conservation in a changing Europe.

2.3.4. Unpacking labour and other social criteria II	B2.08
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**Moving Towards Social Sustainability in Fisheries: Unpacking labour and other social criteria
A Double Panel Proposal Session for MARE 2017
New Directions in Environmental Governance project (NDEG)**

Panel Organizers:

Peter Vandergeest (York University, Toronto, Canada)
Melissa Marschke (University of Ottawa, Ottawa, Canada)

Panel description:

See 2.3.4.

Integrating labour into seafood sustainability: An analysis of emerging discourses and solutions in Thailand

Olivia Tran (University of Ottawa)
Yavanna Puts (Wageningen University)

Labour in the fishing industry is a complex issue to govern due to the mobility of fishing vessels, the obscure movement of products and labour through supply chains, and the mobility of often undocumented workers. Informal discussions with workers as well as interviews with seafood and labour-related organizations in Thailand suggest that current efforts at reforming Thai fisheries are improving overall labour conditions for the seafood industry’s migrant workers. We describe recent developments addressing labour issues in Thailand’s seafood industry and argue that while the rise of data-driven innovations like hotlines and traceability technologies fill an important data gap, social innovations such as welfare committees come across resistance due to cultural sensitivities and lack of economic incentives. Interviews with trafficked Burmese fishers reveal that social innovations in anti-trafficking are particularly lagging. While many solutions address overall working conditions and promote evidence-based fisheries reform, they seem to neglect more complex and difficult systemic barriers such as discrimination, hierarchical governance, and a narrative that places fault with migrants.

The social welfare gains of adopting Fair Trade USA fisheries standards

Emilie Normand and Megan Bailey (Dalhousie University)

There is an increasing recognition in global seafood markets that social sustainability is becoming the imperative of the day. Emergence of the Fair Trade USA capture fisheries standard is one solution to incentivize and reward good social practices in the fishery, and it is based on six core standards. The gains from adopting a Fair Trade USA seafood certification can manifest as the profit gains to a fishery from the emergent market opportunities otherwise unavailable to the individual fisheries. Often when assessing the economic value of an enterprise the value solely reflects firm-level figures. However,

with the Fair Trade fisheries standards, the private benefits to the fishery do not fully encapsulate the benefits to society. The Fair Trade certification seeks to include small-scale fisheries in developing countries, and the standards include many social improvement aspects. This study attempts to identify possible positive externalities associated with adopting the standards necessary to attain Fair Trade certification of capture fisheries in order to encapsulate not only firm-level benefits, but also to allow for the possibility of benefits at the level of society. Each of the six standards for Fair Trade fisheries will be assessed for their benefit to society as a whole. Social benefit will be represented as a marginal value with monetary units based on an appropriate measure for each standard, and estimated by incorporating these values into standard (firm-level) and expanded (society level) models. By aggregating the social benefit of each standard, a general model can be produced to encapsulate the total social benefits. This model can be used by fisheries and/or countries as a whole in a decision-making process on whether or not to seek Fair Trade certification, with the intention of incentivizing a shift to more safe and sustainable fisheries practices.

Environmental sustainability in the era of the Sustainable Development Goals: a Marine Stewardship Council perspective

Catherine Longo (Marine Stewardship Council)

Christopher Anderson (Amber Himes-Cornell)

Private initiatives such as the Marine Stewardship Council (MSC) use ecolabeling as a market-based incentive towards a more sustainable use of natural resources. In order to become MSC-certified, harvesters (or their representatives) are mainly assessed for the environmental sustainability of their fishing practices. Economic and social sustainability criteria (e.g., workers' rights, gender equality, etc) are not explicit MSC Fisheries Standard requirements, other than criteria on participatory management processes and avoidance of slave labor. Yet, sustainable fisheries and healthy ecosystems can be expected to support stable livelihoods and food security. In addition, socio-economic benefits, such as price premium, reputational gains, community empowerment, and stronger stake-holder partnerships have often been observed as an effect of certification and in some cases represent the main incentive to fisheries deciding to enter the program. There have been reports of negative social and economic impacts as well, due to competition and local price increases suffered by non-certified fisheries. Monitoring indirect impacts of certification programs, such as those listed above, is established as best practice by the ISEAL Code of Good Practice for Assessing the Impacts of Social and Environmental Standards (Impacts Code) and may be ultimately seen as an ethical duty, regardless of whether any formal claim is being made with regard to social sustainability. Moreover, as management frameworks and civil society increasingly acknowledge that environmental and social elements of sustainability are inextricably linked, and socio-economic dimensions of fisheries gain more attention, there is growing demand to evaluate and document effects of ecolabeling initiatives, such as MSC, not only on species and habitats, but also on the people involved in (or excluded by) the program. This shift in attention is reflected in the Global Goals for Sustainable Development recently adopted by the United Nations General Assembly. Importantly, investigating these effects can help understand social and economic mechanisms driving incentives as well as challenges to accessing certification programs and ultimately achieving sustainable practices. Learnings could be applied to enhancing positive benefits and reducing the likelihood of negative indirect effects of the MSC program. Here we discuss how MSC is tackling these challenges through, among other things, a new data collection initiative.

Navigating for sustainability: capturing the governance capabilities of the Marine Stewardship Council

Hilde Toonen (Wageningen University)

Voluntary Sustainability Standards (VSS) like the Marine Stewardship Council (MSC) need to account for their sustainability performance. They are non-state-market-based arrangements that try to (re) direct production, trade and consumption of commodities, including seafood, towards sustainability. VSS have to deal with pressing demands for proof of impact in order to maintain and enhance support from public and private stakeholders, and society as a whole. When it comes to sustainability performance, whether this concerns environmental and/or socio-economic impacts, one can question the “internal fit” between the way an organization is structured, and the activities needed to assess and communicate its effectiveness, so how the institutional design enables or constrains ways of dealing with demands to prove impact. Until now, research on this topic is mainly conducted through qualitative case studies of individual VSS, such as the MSC which has been under academic scrutiny since its foundation. However, there is a call for systematic analysis that generates general lessons on what factors and conditions are most important in creating the “best fit”. In response to this call, an assessment framework is developed by which the governance capabilities of VSS can be compared and contrasted. These capabilities refer to the ability of an organization to i) be reflexive; ii) be responsive; iii) be resilient; iv) revitalize deadlocks; and v) de- and re-link the problem level to levels on the governance scale. In the development of the assessment framework for cross-case comparison, the MSC is used as case to illustrate the operationalization of the five capabilities into clear descriptors. But, as this paper will show, the analysis of the governance capabilities of the MSC is more than just an example. It sets out the ways in which they handle concerns and questions about their impact and points to specific conclusions and recommendations for the MSC.

2.4.14. Small-scale fisher economies, small-scale fisher values III	B2.04
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Chair: Derek Johnson

Panel organizer: *Derek Johnson (Department of Anthropology, University of Manitoba, Winnipeg, Manitoba, Canada)*

Panel description:

See 2.4.9

Panel 3 Diverse values and wellbeing in small-scale fisheries

The ‘Simple Life’: lessons on wellbeing from small-scale fishers in Ubatuba, Southeastern Brazil

Marta Leite¹ and Derek Johnson².

¹*Natural Resources Institute, University of Manitoba, Winnipeg, Manitoba, Canada*

²*Department of Anthropology, University of Manitoba, Winnipeg, Manitoba, Canada*

In Ubatuba, Brazil, the construction of a highway in the 1970s connected the area to both São Paulo and Rio de Janeiro cities, initiating a rapid process of economic development and a shift towards tourism-oriented activities. The objective of this paper is to investigate how local fishers’ values influence their responses to the emergence of a more neoliberal economy. Fieldwork was conducted between 2015 and 2016. The results revealed that fishers embrace living a modest life and that the values associated with this lifestyle significantly impact how they engage with development. Several findings illustrate this idea. First, regardless of the presence of potentially more lucrative and secure

jobs in the area, most fishers choose to forgo these opportunities in lieu of fishing activities. Second, fishing did not compose the primary source of income for almost two-thirds of fisher's households, and yet, fishers dedicated most of their time to this activity. Typical alternative sources of revenue included those that allowed for more freedom to fish, such as working with tourism in the high season and renting a second house. Third, despite the evident existence of wealth differentiation, most fishers view their overall household wellbeing as equal in condition to other community fishing families. Fishers, indeed, did not differentiate themselves class-wise. Participants attributed these similarities to the existence of a shared lifestyle among all fishers. Faith in God, family 'togetherness,' and fishing activities compose central elements to what locals call a "vida simples" ("simple life"). The embodiment of this lifestyle captures a major piece of small-scale Caiçara fisher's cultural identity, independent of social class or status. This research concludes that Caiçara fishers do not operate under a simple profit rationale and that maintaining a "simple life" is more intrinsic to Caiçara fishers' than many classic development studies would assume.

Values and responses to globalised change in small-scale fisheries: insights from the Colombian Pacific Coast

C.J. Idrobo (Interdisciplinary Centre for Development Studies, Universidad de los Andes, Bogotá, Colombia)

How are the diverse values surrounding small-scale fishers being mobilised and transformed by local organisations within regional, national and international economies that include tourism and specialised value chains? Emergent perspectives, such as social wellbeing, provide a lens to see how values in small-scale fisheries go beyond economic matters to include sense of place, identity and healthy human-environment relations. Within the context of globalized change, people living in the Colombian Pacific Coast are working to negotiate the continuity of fishing economies and ways of life with rapid transformations in the regional economy, including growth in tourism. This project examines how local organizations in coastal communities in this region of Colombia are developing social and entrepreneurial initiatives that respond to these challenges in ways that meet local needs, desires and aspirations. Some of these initiatives involve bridging small-scale fishing practices with the tourism economy as well as linking fish and sea food trade with innovative value chains for products from sustainable, small-scale enterprises. This project is conducted in partnership with the *Mano Cambiada* corporation and follows a participatory methodology. What is remarkable about these initiatives is that their objectives go beyond satisfying immediate economic needs and enhancing the commercial potential of the fishery. They also aim to maintain healthy relationships among people and with the local environment by balancing continuity of valued ways life with processes of change associated with globalisation and the desire 'not to be left behind'.

Seafood Ethics: Capturing Diverse Values in Fisheries and Aquaculture

Mimi Lam (University of British Columbia, Institute for the Oceans and Fisheries, from August 2017: University of Bergen, Centre for the Study of the Sciences and Humanities)

A pervasive theme in fisheries and aquaculture is the market value of fishery resources to fish producers, fishing communities, and maritime economies. Consequently, often missing in resource management and policy is the explicit specification of non-market values that also drive human behaviour. These include, but are not limited to sociocultural and ecological values. In this presentation, I will overview my recent work to identify and assess diverse values in fisheries and aquaculture, which is foundational to the new research field of seafood ethics. First, I will present a values- and ecosystem-based management approach (VEBMA) that I developed with colleagues to facilitate collaborative governance solutions for the conflicted Haida Gwaii herring fishery in Canada. VEBMA highlights policy tradeoffs in a decision matrix that encompasses both values-based preferences and modelled ecological impacts and risks. Next, I will present another novel decision-support tool to assess the ethics of fisheries and aquaculture systems, the Ethical Matrix-Rapfish

approach. Evaluated against the (western) ethical principles of wellbeing, autonomy, and justice, the impacts of global large- and small-scale fisheries and carnivorous and herbivorous aquaculture systems have been compared for diverse interest groups at various scales, ranging from the natural system (ecosystem, fish populations, and individual fish) to the human system (society, government, stakeholders within the seafood value chain, and future generations). Finally, I will summarize the implications of embedding diverse values and ethics in the management framework for enhancing marine resource sustainability, policy and governance. Notably, capturing diverse values can facilitate transparent, accountable, and inclusive governance by helping to structure decision-making and resolve inherent policy trade-offs that emerge at the science-policy nexus.

Rountable discussion of themes arising from the panels

2.4.15. Fish tools and instruments II	B2.05
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Chair: Scott Crosson

Uptake of technological innovation: the case of pulse in Dutch and Belgian fisheries

Katell G. Hamon¹, Arne Kinds², Hans Polet², Jan-Jaap Poos³, Vera Scherders⁴, Katrien Verl e², Birgit de Vos¹, Adriaan Rijnsdorp³

¹*Wageningen Economic Research*

²*ILVO*

³*Wageningen Marine Research*

⁴*Wageningen University and Research*

In this study we focused on the mitigation of the benthic impacts of the beam trawl fisheries for sole through the use of electricity as a technological innovation (pulse trawls replacing traditional beam trawl) and particularly on the economics of the gear transition. We identify drivers that probably influenced the technological change and got insight in the factors that may promote or hamper the use pulse trawl. The studies show that the pulse trawl is economically more profitable than the traditional beam trawl when targeting sole. This is particularly true when fuel prices are high and also when the landing obligation is implemented (because the catch is more selective). In the Dutch fishery, the wages of the crew operating with pulse are also higher which probably explain the support that the pulse trawl received from the crew. However this is not the case in the Belgian fleet where crew wages are based on value of landings only (as opposed to value of landings minus fuel price in the Dutch fishery). In addition to the good economic performances of the pulse trawl, non-financial factors have played a role in the uptake of the pulse trawl in the sole fishery. In particular, the information sharing amongst fisher through study groups and demonstration days have accelerated the process in the Netherlands. The support of the Dutch government was also influential. In contrast, barriers such as limiting days at sea in the North Sea for Belgian fishers and the controversial image of the pulse may have hindered the adoption of pulse in Belgium.

The Impact of the Affordable Care Act in North Carolina's Commercial Fisheries

Scott Crosson (NOAA Southeast Fisheries Science Center)

Christina Wiegand (Coastal Resources Management Program, East Carolina University)

We provide an initial look at our follow up study on the impact of the Affordable Care Act (ACA) on U.S. commercial fisheries. Earlier work found that in the years immediately preceding the passage of the ACA, North Carolina's commercial fishermen were more likely to purchase health insurance coverage on the private market if they worked in a more dangerous environment or were more highly

vested in fishing. Our preliminary results show that North Carolina's commercial fishermen are indeed purchasing health insurance through the ACA in significant numbers. Insurance coverage has risen overall, although some fishermen are still choosing to remain uninsured. We provide early estimates on the size of the ACA subsidies and changes in fishing behavior and investment.

Actor-Based Design of a Management System for the Elephant Marsh Fishery in Malawi

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In Malawi, fishing community user groups known as beach village committees, traditional chiefs, government officers, and fishers are the key players in fisheries management. Fish catch trends at the Elephant Marsh Fishery in southern Malawi are declining. Based on interviews and participant observation, this article uses an actor-based framework (known as Action-in-Context) to unveil the issues that are crucial in devising a sustainable governance system for the fishery. We establish and propose that the key social variables for the design of a three-pillared (locally based, weak, and amorphous) resilient institution for sustainability of the Elephant Marsh Fishery are (i) the social reputation of the leaders of local fishery institutions (beach village committee leaders), and (ii) the power dynamics between traditional chiefs and these local fishery leaders. We end the article by exploring the implications of the findings on the sustainability of the fishery under rising resource pressure.

Canadian bi-coastal experience in alternatives to groundfish ITQs

Evelyn Pinkerton (Professor, Simon Fraser University)

Marc Allain (formerly Executive Secretary, Canadian Independent Fish Harvesters' Federation)

Abstract: Fisheries managers and neoliberal fisheries economists in North America and Europe promote Individual Transferable Quotas (ITQs) as an efficient solution to the problem of the dissipation of resource rents caused by over-capitalization in the race for fish under competitive quota or open access fisheries. Economists consider the Pacific halibut fishery an example of successful implementation of this market-driven quota trading system. However, critics note the weak performance of this management model in distribution of benefits, increased capital costs to fishermen, deteriorating safety conditions, reductions in crew income and deterioration of fishing assets caused by the inevitable drift of control of quota to non-fishermen. They point to the alternate layup system which successfully managed the Pacific halibut fishery for four decades prior to the introduction of ITQs. A system similar to the layup has been used for Atlantic halibut for the last four years, led by the Fish Food and Allied Workers Union (FFAW) representing owner-operator holders in the halibut fishery off of western Newfoundland. The FFAW rejected the two halibut management plan options presented to them by the Department of Fisheries and Oceans: short derby fishery openings or ITQs. Instead the FFAW worked with license holders to develop a management plan that required harvesters to choose between different fishing options that spread fishing opportunities over time. This approach not only met conservation objectives but delivered strong economic returns to fishermen, especially when compared to their current Pacific counterparts fishing under the market driven regime. The authors consider the advantages of the Canadian east and west coast halibut management alternatives to ITQs and their possible application to EU groundfisheries.

Discard ban calls for a more flexible technical gear regulation with industry involvement

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2 National Institute of Aquatic Resources, Technical University of Denmark, Charlottenlund, Denmark

Traditionally top-down processes have characterized the EU fisheries management. This has also been the case regarding the Technical Measures, regulating the specifications of legally used gear at sea level. The top-down process has left the fishers with little variation in choice of gear to adjust to the specific fishing conditions, leaving discard as a central opportunity to adjust catches to what could be legally landed. The gradual implementation of discard ban in European fisheries, creates a need for the fishers to have a variety of gear adjusted to the specific fishing conditions to choose between. This article discusses how fishers can be involved in development and documentation of selectivity for a variety of gear that offer more opportunities to address the specific fishing conditions and thereby adjust the catches to their quota and avoid discard. The perspectives in new technical regulation proposal for the EU fisheries is discussed based on a brief analysis of the current technical regulation of EU and an “ideal” pathway to address the problem, as outlined in the “Fast Track-project”. Throughout the article three themes is discussed; Procedures for deciding on which gear and gear variation can be used, who and how the decisions are taken, How the level of selectivity can be documented and the possible role of the regional groups, established by the latest revision of the Common Fisheries Policies.

2.4.16. Stakeholder involvement in fisheries governance	B2.07
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Chair: Mbach Ruth Msomphora

Stakeholder participation in fisheries management: Through interactive governance perspective

Mbach Ruth Msomphora (UiT The Arctic University of Norway)

Stakeholder participation is a concept that has become acceptable in all areas of decision-making during the last few decades, partly due to dissatisfaction with the performance of fisheries management systems across the world. Among other issues, discarding, especially of marketable fish, is a serious and continuing problem despite the heavy emphasis on conservation policies. The absence of responsibility for industry and stakeholder groups is evidenced as the main reason for the problem. In this regard, authors in this field expect that a fisheries governance that entails sharing management responsibilities between the authorities and the resource users i.e. ‘co-management¹’ and more recently ‘results-based management’ (RBM²) will result into developing a positive feedback loop. The purpose of this talk is therefore to show how a theoretical framework can be established on how and to what extent the stakeholders can efficaciously be involved in the management of fisheries, especially within the coastal areas (small-scale fisheries). This central topic is explored using the existing literature and practical knowledge from the Scottish Inshore Fisheries Groups (IFGs) case

¹ Co-management herein refers to the joint management of the fisheries in terms of some arrangement of power sharing between the government and a community of resource users including the interested groups/individuals (stakeholders), as denoted in the recent developments of theories and customs in fisheries governance.

² Based on the European Commission’s suggestions, RBM can be delineated as defining an acceptable impact and then leaving it to those concerned to identify the means to meet the requirements and to document the effectiveness of the means. RBM is a management strategy focusing on performance and achievement of results.

study; with particular interest on how coastal fisheries governance with the perspective of an interactive participation (interactive governance) could successfully be conducted.

What happens with the advisory process when fish stocks change distribution?

Harald Sakarias Brøvig Hansen (Fridtjof Nansen Institute and the Norwegian College of Fishery Science)

Fisheries management is filled with challenges and when stocks are changing distribution due to factors such as climate change and food availability, the challenges may increase. Not only are the coastal state negotiations impeded, also the advisory process on stock state, distribution and size may be affected. The predominating fisheries management regime is very knowledge intensive and institutionalized over long time. This is operationalized through what has been termed the TAC Machine where data are routinely collected and analyzed and transformed into a management advice. Consequently, approaches, procedures and models will be rather stable. However, even if they are constructed to handle short term variations, they may not capture more comprehensive changes. Models currently used to manage exploited stocks may have shortcomings when applied to changing stocks, not taking ecosystem processes and distribution into account. In this paper I will follow the advice process for mackerel, herring and blue whiting in the Norwegian Sea from national research to the communication of advice from ICES to the coastal states to explore to identify how the advisory process take changes into account. The research is based on literature studies, interviews with researchers and observation in ICES working groups.

Panel sessions	Series 8	Friday, 7th of July 10:30 – 12:00
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3.1.10. Social-ecological change and livelihood mobility across the land-sea interface I	B2.06
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Chair: Jeremy Pittman

Panel organizers:

Jeremy Pittman (University of Waterloo)

Prateep Kumar Nayak (University of Waterloo)

Panel Description: Our session will examine theoretical frameworks and empirical cases of social-ecological change and livelihood mobility across the land-sea interface. We are interested in examining how different degrees of livelihood mobility within and between land and sea systems influences the adaptive capacity of households and communities to social-ecological change. Land-sea systems are currently being ‘squeezed’ by multiple forms of social-ecological change, such as (a) population growth and intensification of resource use, (b) the loss or degradation of ecosystems, and (c) climate change, which cumulatively can lead to nonlinear and abrupt change in these systems. Livelihood mobility between land and sea systems – for example, fishers becoming engaged in agriculture or other land-based activities if fish populations collapse – could be an important component of adaptive capacity in such contexts. However, livelihood mobility can be enabled or constrained by several factors, such as management, governance, culture and human capital. Many relevant bodies of theory exist to unpack these enablers and constraints; however, there is a dearth of tangible applications that operationalize this theory specifically in the context of livelihood mobility across the land-sea interface. We propose a two-part session that aims to fill this gap by examining both relevant theories and empirical case studies of livelihood mobility in land-sea systems. We will purposefully place the empirical work of early career researchers in relation to theory from senior researchers to (1) characterize the intergenerational progression of theories and ideas and (2) chart a course for the future of mobilities research across the land-sea interface.

Presenters – Theory

Why change? Understanding land-sea dynamics from interactive governance perspective

Ratana Chuenpagdee (Too Big To Ignore Project, Memorial University of Newfoundland, St. John’s, NL Canada)

Many theoretical frameworks can be used to understand social-ecological change taking place in the land-sea interface. What distinguishes ‘interactive governance’ from others is the focus on ‘interactions’, which constitute the dynamics of the systems. While interactions are observable, little effort has been spent on understanding them. The question about ‘why change’ reflects the fact that not all interactions lead to change. Instead, they are indication of the system dynamics. Land-sea interface can be more or less governable depending on the extent to which these dynamics are understood and incorporated in governance.

Lessons for understanding mobility across the land-sea interface from the agrarian transition literature

Derek Johnson (Department of Anthropology, University of Manitoba)

While considerations of mobility in the context of maritime livelihood transitions may be a relatively new theme, it is one that has been a subject of research in agriculture for many years. In this presentation I look at the ways in which labour mobility has been theorized in agrarian studies and then assess the relevance of those approaches to maritime livelihoods and fisheries in particular. I look, in particular, at how lessons from the agrarian transition literature might translate into the languages of interactive governance, social wellbeing, and political ecology in fisheries. I draw on examples from my research in these areas in India to illustrate the transferability of approaches from one domain to the other.

The new concept of coastal governance in the era of Umigyo in Japan

Yinji Li (Tokai University)

Xiaobo Lou (Tokyo University of Marine Science and Technology)

Two major structural contradictions have become tangible in Japanese coastal use after 1980's, with the background of economic development and diversifying needs of coastal use. One is the contradiction between coastal development/utilization and environmental conservation. The other one is contradiction concerning restructuring of coastal industry and conflicts adjustment. Thus far, Japan has coped with these structural issues in a "vertically-divided administrative" way by individual laws such as "Fisheries Law", "Coast Act", "Act on Fishing Ports", "Port and Harbor Act" etc., and the "Basic Act of Ocean Policy" was established in 2007 aiming for integrated coastal management. However, it's difficult to say that such response is leading concrete problem-solving of coastal issues. Measures to complement such administrative-oriented management, there are arguments saying that the fishermen's side which possess the high priority with fishery rights in coastal use, and plays a leading role in fishery resource management should be the key management body of coastal area. On the other hand, while the problems regarding decreasing numbers of fishermen and members of fisheries cooperatives and slumps in operation of fisheries cooperatives became more serious with the background of industrial reduction in Japanese fishery, as well as with the diversifying coastal use, there are also people argue that fisheries often disturb harmonized coastal use due to its "strong right", and doubt fishermen's ability and capability of coastal management. Meanwhile, various economic activities utilizing not only fishery resources but also other local resources such as marine/landscapes/tradition/culture etc. (Such activity is generically called "Umigyo" here.) are developed aggressively in Japanese coastal areas after 1990's, and the economies of Japanese coastal area today has turned into an era of "Umigyo". In the coastal areas where "Umigyo" is developed, a harmonized coastal use and governance is well achieved, as well as the capacity building for fishermen is well enhanced. Thus, this study aims to clarify Japanese coastal governance in the era of "Umigyo", and to propose an ideal way of coastal governance. Firstly, it gives an overview of characteristics of coastal use today, and fishermen's role and limitations in coastal governance. Secondly, it clarifies the actual conditions of "Umigyo" and its contribution to coastal governance. Based on above analysis, finally, it explores the legitimacy of coastal governance centered on fishermen and an ideal way of coastal governance in the era of "Umigyo" in Japan.

3.2.12. Exploring the Human Dimensions of Large Marine Protected Areas	B2.02
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Chair: Noella Gray

Panel organizer: *Noella Gray (University of Guelph, Canada)*

Panel Description: The proposed panels focus on a recent development in marine conservation and governance – large marine protected areas (LMPAs). Defined as areas greater than 100,000km², LMPAs have proliferated in the past ten years. LMPAs play a critical role in moving toward the Convention on Biological Diversity (CBD) Aichi Target 11 (10% of coastal and marine areas protected by 2020) as well as Sustainable Development Goal 14 (which also includes the 10% target). However, LMPAs are also widely contested and their outcomes poorly understood. Large MPAs are different from smaller MPAs in coastal areas. Their meaning and value for diverse groups are less visible and their size and remoteness pose unprecedented governance challenges. Their social, political, and economic impacts are understudied and potentially far-reaching, with implications for the populations of entire nations. Based on the results of a three-year, collaborative, multi-sited research and outreach project, these panels will consider the ‘human dimensions’ of LMPAs and examine the emergence, form, function, and social outcomes of large MPAs as a governance tool. Papers will present the results of several individual cases as well as consider insights gained through cross-case analyses. We will invite 1-2 discussants to offer constructive feedback and insights on the collection of papers.

MPA Targets, Large Marine Protected Areas, and the Global Marine Conservation Consensus

Lisa M. Campbell (Duke University Marine Lab)

Marine conservation has received increased attention by national and international governments, organizations, and agreements over the past decade, and one means of pursuing it has been via the negotiation and pursuit of marine protected area (MPA) targets. We have been studying the evolution of MPA targets – the debates and rationales that underlie them – and their effects on conservation in particular places, including at 5 sites around the world where large MPAs (LMPAs, defined as over 100,000 square km) have been established or proposed. The recent but rapid proliferation of LMPAs provides both opportunities for and constraints on target driven conservation. The subsequent papers in these two panels on the ‘human dimensions’ of large MPAs present findings and analysis at and across specific sites. In this introduction, we situate this work within the MPA targets regime, and its evolution over the past decade. Based on research conducted at 5 international meetings where MPA targets have been debated, and ultimately adopted, we reveal how LMPAs reflect, reinforce, and challenge the global marine conservation consensus about the role of MPAs in marine conservation.

Potentials and entanglements in the establishment of a large-scale marine conservation area in Rapa Nui (Easter Island, Chile)

Sarah Bess Jones Zigler (Duke University Marine Lab)

This research concerns the unintended potentials and entanglements of the process of attempting to establish a large-scale marine protected area in Rapa Nui, based on four months of ethnographic research over three field seasons including 40 interviews and observation at over 36 community meetings. Since 2010, community members, local organizations, international organizations, universities, and the Chilean government have discussed multiple options for marine conservation for Rapa Nui. Although various visions for marine conservation have been discussed, at the Our Ocean conference hosted in Chile on October 5th, 2015, Chile announced its intention to establish one of the world’s largest marine reserves around Rapa Nui. This announcement is pending the approval of the

island's indigenous community, as required by the International Labor Organization's Convention 169, to which Chile is signatory. The Chilean government began planning an indigenous consultation for a marine conservation area, but this process was quickly subsumed under a more urgent indigenous consultation- the Special Statute of Rapa Nui. The Special Statute of Rapa Nui is a renegotiation of the governance structure, the territorial administration, and the maritime administration of the island. Because the Special Statute included the topic of the territorial sea, conversations concerning a potential marine conservation area became entangled in discussions of indigenous rights and Rapa Nui's relationship with Chile. Although initial proposals for marine conservation in Rapa Nui centered on the possibility of creating a large-scale marine protected area, the Special Statute proposal centers on the establishment of indigenous rights to the entire 200-mile EEZ as a precursor to any marine conservation figure. This emergent dialogue between large-scale marine conservation and the Special Statute is at least in part due to the scale of the conservation undertaking at stake, as international, national, and local commitments to indigenous rights and marine conservation intersect.

Governing Large Marine Protected Areas: Insights from the Remote Phoenix Islands Protected Area

Lillian Mitchell and Noella Gray (University of Guelph)

Large marine protected areas (LMPAs) greater than 100,000 km² have recently proliferated as a means of ocean conservation. Some scholars attribute this proliferation to the desire of states to meet international conservation targets. However, there is concern that in attendance to such goals, the establishment of LMPAs has led to social injustice through the top-down decision-making processes that have come to characterize LMPAs. Attentive to these concerns, this research explores the governance of LMPAs through a case study analysis of the Phoenix Islands Protected Area (PIPA) in Kiribati, one of the oldest established LMPAs. Interviews were conducted in summer 2016 with 45 actors who have knowledge of PIPA's governance structure and its outcomes. Findings of this case reveal several key themes. First, despite the collaborative governance structure between government and international partners, there has been a perceived lack of participation in Kiribati. Here we see that the characterization of LMPAs as 'unpeopled' spaces has led to difficulties in how stakeholders are defined. Second, although fortress conservation has traditionally been state-led, the high-degree of involvement from NGOs has not signaled a move towards greater cooperation. Furthermore, several respondents expressed concern regarding the authority and control of non-state actors as a threat to national sovereignty. Third, a recent election has led to questions regarding PIPA's 'unfulfilled promises' of social and economic benefits. Popularly called Kiribati's 'gift to humanity', PIPA was expected to provide benefits for the people of Kiribati. However, the dominant perception among respondents is that while PIPA has been celebrated as a success for conservation, it has not been a social success. This case reveals that even in remote, uninhabited spaces people expect benefits from conservation activities. Long term support for this site will be dependent on internalizing PIPA as a part of the national identity.

Sociopolitical Outcomes of the Marianas Trench Marine National Monument

Katie Wilson (Master of Science Student, Human Dimensions of Natural Resources, Colorado State University)

Dr. Rebecca Gruby (Associate Professor, Human Dimensions of Natural Resources, Colorado State University)

Large marine protected areas (LMPAs) are arguably the most important contemporary trend in marine conservation, now accounting for more than half of the global ocean area under protection. As many LMPAs encompass remote and open ocean where human interests, uses, and values are often less visible than in coastal areas, it can be tempting to overlook their social and political outcomes. While such outcomes of smaller, inshore MPAs are well acknowledged and studied, the social and political outcomes of LMPAs have been heavily debated despite a lack of empirical research. This paper engages a case study of the Marianas Trench Marine National Monument (MTMNM), declared

in 2009 in the U.S. territory of Guam and the Commonwealth of the Northern Mariana Islands, to explore the sociopolitical outcomes of a longer-standing large marine protected area. We conceptualize these outcomes broadly to encompass both sociopolitical change processes and impacts. In the case of the MTMNM, we identify outcomes that are familiar to conventional MPAs (e.g., conflict, perceptions of unfulfilled promises) and unique from them (e.g., symbolic and material struggles for territory and sovereignty). As the LMPA movement develops, researchers and practitioners must be attentive to the model's potential to impart outcomes which differ from those within conventional MPAs, owing to the unique geographical and political characteristics of large marine protected areas.

3.2.13. Politics in maritime governance	B2.08
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Chair: Ingrid Bay-Larsen

Discourse and problem construction in a changing coastal commons: Climate change and small-scale fisheries management in Mexico

Alejandro García Lozano, Hillary Smith and Xavier Basurto (Duke University Marine Lab, Beaufort)

In the coming decades, accelerating processes of climate change will likely exacerbate ongoing problems in the governance of the world's oceans. Understanding impacts on small-scale fisheries is especially important because they generate the majority of global catch, fisheries jobs, and seafood for human consumption. The impacts of climate change are becoming increasingly salient to small-scale fishers in Mexico, particularly species distribution shifts and stock declines. Fishers in Mexico commonly organize into fishing cooperatives, through which they have formed multi-level organizations for collective action and political representation—i.e., federations of cooperatives at the regional level and confederations at the national level. The annual assemblies of national confederations are key spaces for the contestation of problems, as well as the generation of management solutions, through open dialogue with government agencies. The purpose of this paper is to examine the exchanges and interactions taking place in these political spaces created by confederations. We examine the annual assembly of one of two confederations in Mexico as such a forum for political exchange. We use discourse analysis to examine the dialogues taking place, focusing especially on discussions of climate change and its impacts on small-scale fisheries. Our work demonstrates how social actors position themselves in relation to others through discourse; how certain narratives and discursive elements are deployed to reify or depart from common understandings of fisheries problems, influencing the kinds of solutions that emerge; and lastly, how actors make argumentative claims through narratives and rhetorical devices, which ultimately aim to shape policy processes.

Social sustainability in aquaculture governance – from general statements to practical politics

Ann-Magnhild Solås (Nofima – Norwegian Institute of Food, Fisheries and Aquaculture Research)

Sustainability is frequently emphasized as an essential premise for growth in Norwegian aquaculture, as stated in policy documents, as well as in rules and regulations. Aquaculture production affects – and is affected by – a number of societal interests, hence sustainable aquaculture should also take into account the societal effects of the production. While the criteria for environmental sustainability, and to some extent economic sustainability, have been widely discussed, the social aspects of sustainability have been relatively neglected in the Norwegian debates. Thus, when principles for sustainable salmon farming are developed, the discussed measures are almost exclusively environmental. By defining sustainability too narrowly, we may be failing to address many

unresolved issues regarding the salmon farming, such as cultural impacts, local development, rights, knowledge, and legitimacy. In Norway, these issues are particularly relevant when it comes to site permissions for fish farms, where State sector offices are responsible for regulations set by the Aquaculture Act, while local municipal authorities perform inshore marine spatial planning. Defining and operationalizing the 'social matters' in social sustainability is apparently not an easy task, hence different understandings of what it is and how it is achieved may exist among different actors. This paper studies both site permissions and local spatial planning processes, and discusses whether there are different perceptions of social sustainability among different actors involved in the salmon farming sector in Norway, including both industry actors, managers, politicians and stakeholders in local communities. How do rules and regulations enable socially sustainable salmon farms? How is management done in practice? How do salmon farmers perceive social sustainability, and what do they do in order to achieve a socially sustainable salmon production? Which stakeholders are included in decision-making processes, and how?

Green Transition: challenges and opportunities for large scale algae cultivation in the coastal zone

Ingrid Bay-Larsen, Maiken Bjørkan, Camilla Risvoll and Hilde Bjørkhaug (Nordland Research Institute)

Blue carbon is the carbon stored in coastal and marine ecosystems, and is being recognized as important by IPCC, not at least due to the ability to sequester vast amounts of carbon—up to five times that stored in tropical forests (Langaas 2015). This article addresses obstacles and opportunities connected to upscaling algae cultivation along the Norwegian coast. Ideas connected to green transition through a blue bio-economy emphasize how marine protein and fat acids can replace environmentally contested food and fodder production onshore. Integrated multi-trophic aquaculture (IMTA) is expected to resolve major environmental challenges in the aquaculture industry. Political ambitions for expansive growth in the aquaculture industry also request circular systems, where left-overs from one production line may be a valuable resource for. Finally, cultivation of algae for energy purposes and carbon capture and storage is also been high up at the political agenda internationally. However, multiple bottlenecks have been identified, including technological innovation for cost-effective cultivation and harvest (SIG Seaweed 2015), financial capital for “blue carbon” projects, lack of documentation of factual nutrient recycling from IMTA, and sharing of knowledge and competence generated through private funding. Further, little is known about environmental interactions of large scale cultivation of macroalgae and surrounding marine environments and finally area planning and potential land use conflicts lure in the surface of a substantial upscale. This article explore in more detail, challenges connected to reproductive biology (including productivity, seasonality, physiological limit, stock improvement constraints, breeding, short cultivation season, once a year harvesting) and coastal zone planning. Area scarcity is already a well-known constraint in Norwegian aquaculture, and industrial cultivation of macroalgae is expected to increase the pressure and number of stakeholders in the coastal zone.

3.4.17. Too Big To Ignore Special Session on The small-scale fisheries guidelines: global implementation I	B2.04
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Chair: Maria Jose Barragan-Paladines

Panel organizers:

Svein Jentoft (University of Tromsø)

Ratana Chuenpagdee (Memorial University)

Panel description: In June 2014, FAO member-states endorsed the Voluntary Guidelines on Securing Sustainable Small-Scale Fisheries (SSF Guidelines). These Guidelines are one of the most significant landmarks for small-scale fisheries around the world. They are comprehensive in terms of topics covered, and progressive, with their foundations based on human rights and other key principles. It can be anticipated that implementing the SSF Guidelines, whether at local, national, or regional levels, will be challenging. The Too Big To Ignore (TBTI) project embarks on in-depth studies of the implementation of the SSF Guidelines in more than 30 countries around the world, and compiles lessons and reflections in a book volume. This special session presents several case studies in the book, representing a range of challenges that countries and fishing communities face in implementing the guidelines. In addition to presenting lessons learned through the case studies, the presenters in this session are asked to elaborate on whether states can really “walk the talk,” and how to do so. Ultimately, the session will discuss what policy and governance interventions are required in order to improve the realities of small-scale fishing men and women globally and making their livelihoods and communities more secure.

We are proposing 12 papers, organized into three 90-min sessions, each with four papers.

Session 1

Implementing the Voluntary Guidelines for Securing Small-Scale Fisheries

Svein Jentoft (University of Tromsø)

On June 9, 2014 the Committee of Fisheries (COFI) of FAO endorsed the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guidelines). For millions of small-scale fisheries people around the world who are poor and marginalized, this was a historic event and a potential turning point. The SSF Guidelines are the first instrument of its kind particularly aimed at promoting the sustainability of this sector. As the SSF Guidelines address a range of issues that are complex and politically contentious, there are reasons to expect that their implementation will be challenging and far from straight forward. In fact, one may assume that the SSF Guidelines will meet resistance as they are brought from the international level to local communities where fishing people live and work. This book examines the extent to which the SSF Guidelines’ implementation is being initiated around the world and the limitations and opportunities involved in their contextualization and operationalization. It draws on case studies from more than 30 countries in which small-scale fisheries play an important role for food security and community well-being. What can the SSF Guidelines do to promote food security, alleviate poverty, and secure human rights, while at the same time empower fishing communities to take control of their future?

Tuna or Tasi? Fishing for Policy Coherence in Zanzibar's Small-Scale Fisheries Sector

Lasse Lindstrøm and Maricela de la Torres (Stockholm University)

Zanzibar in 1964 merged with Tanganyika to become the United Republic of Tanzania. Zanzibar enjoys autonomy in the governance of marine resources having adverse effects on the implementation of the FAO Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication as Zanzibar is not a member of the FAO as a unit on its own, but only as a part of the URT. While the Guidelines were still unknown to Zanzibar a new fisheries policy was formulated complicating their implementation, as the Guidelines clashes with the new fisheries policy. We examine this clash using the concept policy coherence defined as the coherence between a) development and other policies, and b) development policies of different donors. We downscale it to apply to policies within one sector, small-scale fisheries, by comparing the fisheries policy which is grounded in liberal ideas like commercialization and capitalization, with the FAO SSF Guidelines which ideationally are based in human rights and a view of fishing as also culture and not just any economic activity subject to economic laws. We argue that conflicts between the two may result in failure to implement the FAO SSF Guidelines as they don't come with World Bank and other external funding as the new fishery policy does. Choosing between conflicting policy elements the choice will likely be the fishery policy if the implementation of FAO SSF Guidelines comes with a cost.

Addressing Social Sustainability for Small-Scale Fisheries in Sweden: Institutional Barriers for Implementing the Small-Scale Fisheries Guidelines

Milena Schreiber and Sebastian Linke (Gothenburg University, Sweden)

Swedish coastal fisheries are not sustainable in terms of the status of their main fish stocks, their economic profitability, and as source of regular employment. Social sustainability commitments in fisheries governance advocated by the SSF Guidelines have been so far mostly neglected. In this chapter, we bring attention to two institutional settings at different governance levels relevant for the implementation of the SSF Guidelines in the Swedish context. First, we look at the introduction of social goals under the perspective of the EU's *Common Fisheries Policy (CFP)*. Second, we consider national tensions between forces advocating or opposing a further application of market-based economic instruments, often portrayed as an effective cure for all ills, in fisheries governance. Taking into account the logic on which the SSF Guidelines rest, we evaluate in both cases current processes for stakeholder participation in the formulation of fishing policies and strategies in Sweden. We conclude that the inclusion of a social dimension and stakeholder involvement at the EU level face procedural and institutional limitations that prevent the small-scale fisheries sector from exploiting opportunities for change. Further challenges to the implementation of the SSF Guidelines arise when central national authorities' interpretation of societal benefits opposes other interpretations, and consequently economic calculations take precedence over a participatory process-based, knowledge-accumulating approach to resource management. The SSF Guidelines, therefore, provide important material and intellectual resources to make the most of new chances that can lead to an increased likelihood of change in the direction of sustainable coastal fisheries in Sweden.

3.4.18. Fisheries assessment	B2.05
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Chair: Philip A. Loring

Integrating Social and Economic Assessments in Indonesia's Yellowfin and Skipjack Tuna Fisheries: An exploration of two approaches

Dr Nick McClean (School of International Studies, University of Technology Sydney)

Indonesia is one of the leading producers of tuna globally and a contributor to RFMOs in both the Indian and Pacific Oceans. To align with regional efforts, the Indonesian government has recently embarked on a process of developing a harvest strategy for Yellowfin (YFT) and Skipjack (SKJ) tuna fisheries in its' archipelagic waters. The complexity of Indonesia's fisheries in terms of their social, economic and governance dynamics means that developing sustainable management practices remains challenging. Developing integrated methods that move beyond a focus on biological and economic assessments of optimal harvest levels to account for the complex range of human factors impacting fisheries sustainability has therefore emerged as valuable in setting appropriate fishery objectives, and developing feasible management measures. This paper explores two potential methods for doing so. A social-ecological systems approach constructs relatively simple models of system structure in order to identify key relationships between system elements. This allows feedback loops, and critical actions and behaviours likely to influence fishery sustainability to be identified, and allows for scenario modelling to test proposed management actions. A social wellbeing approach identifies the contributions of fisheries to specific sectors and communities. Identifying "domains" of wellbeing and specifying contributions to each domain, diverse assessments of the fishery are integrated within a single framework. Each of these approaches utilises qualitative and quantitative approaches in different ways, and can be adjusted to produce fishery-wide, or sector/geographically specific assessments. The merits of each approach will be illustrated with specific reference to YFT and SKT fisheries in Indonesia, with a particular focus on interactions between coastal community wellbeing, national economic development, and regional stock sustainability priorities.

Fisheries, food sovereignty, and climate change in Northwest North America: a comparative assessment

Philip A. Loring, Glenna Gannon, Cory Whitely (School of Environment and Sustainability, University of Saskatchewan)

Fisheries of the US Pacific Northwest, British Columbia, and Alaska, range the gamut in terms of perceptions of sustainability, from the imperiled salmon fisheries of the Fraser River to the legendarily prolific salmon runs of Bristol Bay. This paper provides a unique, region-wide assessment of seven fisheries in this region: Fraser River salmon, Haida Gwaii herring, Southeast Alaska halibut, Southcentral Alaska Salmon, Kodiak Island Halibut, Bristol Bay salmon, and Yukon River salmon. We combine a framework for food sovereignty that focuses on historical, relational, and interactive dimensions of these fisheries, with a modified version of the IMBER-Adapt fisheries decision support framework (<http://www.imber.info/Science/Working-Groups/Human-Dimensions/I-MBER-ADApT>). Our assessment illustrates how elevating issues such as governance, rights, and conflict to the same level as biological sustainability provides a much more nuanced picture of sustainability in these fisheries. We also use comparative analysis to identify key strengths and vulnerability, such as whether statutory protections extend to the role of these fisheries in local food systems, that can inform more effective and just management during times of change.

Improving the Logistic System to Secure Effective Food Fish Supply Chain in Indonesia

Atikah Nurhayati⁽¹⁾, Asep A. Handaka⁽²⁾ and Agus H. Purnomo⁽³⁾

Faculty of Fisheries and Marine Science, Padjadjaran University^(1,2)

Socio-economic senior researcher at the Agency for Marine and Fisheries Research and Development⁽³⁾

Indonesia is a world’s major fish producer which can feed not only its citizens but also the people of the world. Currently, the total annual production is 11 tons and expected to double by the year of 2050. Given the potential, fishery has been an important part of the national food security system in Indonesia. Despite such a potential, a big challenge is facing the Indonesians in making fish the reliable source for their food, more specifically source of protein intake. The long geographic distance between the fish production centers and the consumer concentrations has prevented effective supply chain from producers to consumers and therefore demands a good logistic system. This paper is based on our research, which aimed at analyzing the fish supply chain and is to suggest relevant improvement to the chain. The research was conducted in the Year of 2016 in selected locations of Java Island, where intensive transaction on fishery commodities occur. Data used in this research comprises secondary data of time series reports on production and distribution and primary data regarding distribution aspects which were collected through interviews with purposively selected 100 respondents representing fishers, traders and processors. The data were analyzed following the supply chain management framework and processed following logistic regression and validity tests. The main findings of the research are as follows. Firstly, it was found that improperly managed connectivity and logistic chain is the main cause for insecurity of availability and affordability for the consumers. Secondly, lack of quality of most local processed products is a major obstacle for improving affordability and connectivity. The paper concluded with a number of recommended strategies to tackle the problem. These include rationalization of the length of the existing supply chain, intensification of processing activities, and improvement of distribution infrastructure and facilities.

3.1.11. Maritime materiality, mobility and everyday life I	B2.07
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Chair: Anna Antonova

Panel Organizers:

Anna S. Antonova & Roger Norum (University of Leeds)

Panel description: Coastal and maritime regions possess diverse histories that have contributed to rich cultural heritage for many local, national and transnational communities. Today, as social and environmental change along many coastal spaces results in their re-imagination and regeneration, their material pasts and presents inform inhabitants’ imaginations, practices and experiences – not just sailors, merchants and maritime artisans, but also (now) young people, artists, businesses, etc. Similarly, as the cultural landscapes of coastlines, harbours and ports face a variety of environmental and economic challenges (e.g. climate change, pollution, urbanisation, conservation policies, tourism, the advancement of neoliberalism, etc.), coastal communities respond in imaginative, compelling, and increasingly effective ways. This might happen through narrative practices, urban regeneration, social entrepreneurship, or innovative uses of the coasts’ distinct natural and built landscapes. This panel seeks to showcase compelling interdisciplinary research that speaks to the contemporary material and imaginative transformations of coastal spaces and maritime communities. Papers in this panel both evidence and challenge shifts in maritime knowledge, practices, and subjectivities, and consider the everyday cultural and social languages and traditions of local maritime communities. Maritime community here is write broadly, fluidly and inclusively, to include fisherpeople, longshoremen and artisan boatbuilders as much as urban ‘hipsters’, conceptual artists and members of retirement

communities, in addition to fish, cetaceans, plants or factories – anyone or anything that can call a coast, port, harbour or body of water their home.

Sea Change: tracing shifts in maritime labour practices, ships' materialities and seafaring subjectivities

Johanna Markkula (Stanford University)

Through ethnographic fieldwork onboard European owned cargo-ships with mixed national crews, this paper chronicles shifts in maritime knowledge and skills, changing labor practices and regimes, as well as maritime workers' subjectivities, occupational identities and imaginations of seas and seafaring, and the material traces of these shifts onboard ships. I begin the paper by tracing the life-story of one particular ship that is of special importance to me. I do this in order to tell a larger story about continuity and change in the maritime industry, albeit one that is colored not only by my own childhood memories as the daughter of a ship's captain, but also by the historic specificities of Swedish shipping over the last three decades, and especially the "trickling in" of the Swedish welfare state and trade unionism into the industry. The paper then goes on to discuss the material and emotional relationships formed between the crews and their ships, and how these relationships are shaped by changing labor regimes, employment contracts and economic processes and political strategies of shipping stakeholders, such as "Flags of Convenience", and the flexibilization and internationalisation of maritime labor. Finally, the paper discusses how the changing labor regimes and practices, together with material changes in the ships themselves and in technologies of shipping, shape the social relations of the crew in particular ways, as well as influence the seafarers' understandings of their own work and occupational identities, and their relationship with the sea, the ships, and their shipmates. I conclude with an argument suggesting the co-shaping of the materialities of the sea, the ships and seafaring labor, and the subjective experiences and forces of imagination that drive people's work and shape social relations onboard.

Herring Factories at the End of the Universe: Performing the Anthropocene in Iceland's Maritime Heritage Museums and Seafood Tours

Anna S. Antonova (University of Leeds)

Dr. Alison Rieser (University of Hawaii)

Industrial fishing has shaped Iceland for centuries, serving as social mortar, fueling Icelandic independence, and underscoring its geopolitical strategies. However, global pressures from new technologies, overexploitation and climate change in the Anthropocene have dramatically altered Iceland's marine ecosystems and local communities. Neoliberal governance practices of enclosure and resource privatization have re-stratified the social economies of these communities and fueled financial speculation almost to the point of total economic collapse. With tourism replacing fisheries as the engine of Iceland's post-collapse economy, maritime museums and exhibits now perform local dimensions of these processes for Iceland's rapidly growing number of tourists. A variety of maritime heritage discourses – a 1997 documentary, "Give Us This Day," at Ísafjörður's Maritime Museum, the Djúpavík herring factory art exhibit, Siglufjörður's Herring Era Museum, temporary exhibits in Reykjavík's Maritime Museum, and the seafood trail in Suðureyri on the Westfjords peninsula – demonstrate the range of these performances, from resistance to reconciliation. This article examines these discourses using insights from political ecology, tourism studies, and industrial museum geography.

High School, Hemorrhage, and a (Mechanical) Heart: the case of Provincetown, Massachusetts

Dr. Kristen Ounanian (Innovative Fisheries Management (IFM), Department of Planning, Aalborg University)

Situated at the tip of Cape Cod, Provincetown, Massachusetts can feel like the end of the earth. It presents a case of transition and the struggle for communities on the margin to maintain a population of year-round residents. For most of the 20th century Provincetown sustained a vibrant community with commercial fishing as its primary sector alongside tourism's infusion of seasonal visitors and revenue. However, the decline of fisheries, due to stock decline and increasing enclosure, coincided with a dramatic increase in property value largely because of second homebuyers. Presently, the reliance on tourism and the geographic position of Provincetown brings challenges for the local workforce, the provision of affordable housing, and the maintenance of local municipal services. Although many locals do not dispute the present economic importance of tourism, many have come to highlight its lack of suitability as a complete substitute for the fishing industry. During interviews conducted in 2015, respondents spoke about drastic change witnessed over the past three decades both in the local fishing fleet and the wider community. Central were the converging themes of gentrification—or as some referred, “resortification”—the compounding effects of diminishing opportunities in fisheries and the community's geographic remoteness from much of Cape Cod and larger metropolitan areas. The closure of the local high school, a bellwether of change, emblemized this local transformation. Additionally, corporeal imagery, (e.g. “hemorrhage” and “mechanical heart”) serve as metaphors for the importance of the fishing industry and the anxieties surrounding the community's future provide discursive narratives ripe for analysis. The paper reflects the themes and inquiries of the proposed panel, as well as the wider conference theme, in its examination of the mobility of fishing access and residents out of a place, new capital into a place, and the material emblems of a community whose future is in question.

New cetacean economies and industries as blue growth

Dr Roger Norum (University of Leeds, School of English)

For centuries, whales were hunted intensively in the Atlantic and Arctic Oceans (and the seas in between) by Europe's largest seafaring nations. Through the commercial practices of the whaling industry's sailors, merchants, and consumers, whales became the lived expression of man's dominion over nature, of European conquest of the oceans, and of the belief that the Earth's natural resources knew no end. They have since become powerful symbols: in environmental and conservation movements; in global political discourse about territorial rights and indigenous practices; and in popular perceptions of ‘pseudo-human’ creatures with nurturing habits and developed cultures of their own. Meanwhile, commercial whale watching has developed into one the most important niche markets in tourism, a €2 billion global industry. This industry has capitalized on an iconic animal that is perceived as subject to looming threats, both human and non-human. As a result, whales and other cetaceans – both living and dead – are now displayed, exhibited, and observed today in museums and aquariums; on television and in film; in the wild and on organized whale-watching tours. Similarly, the mixed legacies of Europe's whaling past co-exist today with concerns about the marine/coastal environment and the various human societies and cultures that have come to rely upon it. In this paper I discuss the manifold material traces of cetaceans as they are co-opted in contemporary European heritage tourism industries, assessing the implications of this heritage for both human and nonhuman actors in the interlinked contexts of ‘blue growth’. I am particularly interested here in what whaling heritage means to local ‘remote’ communities which have channeled their whaling pasts into one or another material forms of marine ecotourism, and in what the policy implications of this heritage are for both human and nonhuman actors in maritime spaces, and the communities of materiality to which they belong.

The old lost toolbox, it is my village – Nordic Arctic youth and reasoning on mobility and primary industry occupation

Anna Karlsdottir (Senior Research Fellow Nordregio/Associate professor University of Iceland)

This paper explores the reasoning behind young people's choice to stay living in peripheral rural areas and fishery communities in the Arctic regions of the Nordic Countries. I revisit ethnographies with women and young people in the Icelandic fishery communities collected in the first decade of the millennium and compare with reasoning's of young people on occupational choices involved in case studies, in a three year foresight study on sustainable regional development in the Nordic Arctic. The youth in the study from the rural regions in the Nordic Arctic will during the next 10-15 years be engaged in getting an education or establishing as part of the labour market. These young people expect to be mobile and move from their place of origin in order to achieve future dreams. Only a small portion of the participating young people expects to be living in their place of upbringing during the next ten years. Aspirations and choices are connected to expectations and the young Faroese are the only youngsters where significant part expects them to become involved in the fisheries sector. They also foresee a balance with surrounding natural resources where new fish species enter the Faroese territorial water. For the youth in Iceland, Norway, and the Sami in North Sweden there are worries regarding degradation and a lack of environmental care caused by prioritising economic development. Those who express interest education within fisheries, and then in jobs in fisheries refer to their generation as caught in between wishes and realistic future perspectives. Another factor influencing the world view of young people in this part of the world is that there are strong centrifugal urbanization trends and globalization influencing role models. Within this world view, the status of small and remote coastal communities is seen as rather dwindling.

Panel sessions	Series 9	Friday, 7th of July 13:00 – 14:30
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3.1.12. Social-ecological change and livelihood mobility across the land-sea interface II	B2.06
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Chair: Prateep Kumar Nayak

Panel Description:

See 3.1.10.

Presenters - Case studies

Socio-ecological vulnerability and livelihood transition in coastal fisheries-based communities: Evidence from Bangladesh

Iftekhharul Haque (PhD Candidate, School of International Development and Global Studies, University of Ottawa, Canada)

This paper attempts to answer how far-reaching economic and ecological changes are affecting the livelihoods of coastal households in Bangladesh. The Fifth Report of the Intergovernmental Panel on Climate Change (IPCC) ranked Bangladesh as one of the most vulnerable countries to climate change due to projected sea level rise, frequent and intense cyclones, tidal surges, monsoonal flooding, rising temperature and saline water intrusion in coastal areas. More than 3.5 million people in Bangladesh are dependent on coastal fisheries directly or indirectly for their livelihoods. Frequent climatic hazards and adverse ecological changes that have occurred over the past decades make coastal fisheries-based households particularly vulnerable to livelihood and food insecurity. More than ecological factors are at play: government regulations on fisheries, human interventions into the coastal ecosystem, a high interest rate of lending, and corruption by law enforcing agencies in the coastal region reduce the profitability of fishing as a livelihood activity. Coastal fishers in Bangladesh are now facing a lower number of active fishing days, i.e., longer periods of unemployment, due to environmental and regulatory reasons. Crucial to designing effective policies and programs for fishers to adapt to socio-ecological changes is understanding the multiple vulnerabilities facing this large sub-population. Drawing upon a survey of 720 households in 6 villages in 3 coastal districts of Bangladesh, this paper constructs an index of livelihood vulnerability of coastal households, shows considerable changes in livelihood patterns over the decade covered by the survey, and traces how small-scale fisheries-based households are adapting to socio-ecological changes.

Exploring 3-dimensional wellbeing in the wake of de-industrialisation along England's north-eastern coastline

Kelly Johnson (Ph.D. Researcher, Northumbria University)

The legacy of de-industrialisation has left Northeast England's coastline experiencing multiple deprivations including mass unemployment, which is found to have a negative effect on both individual and social wellbeing. In the North-East, the decline of coastal heavy industry such as ship-building, coal-mining and, more recently, fisheries, have resulted in not only a loss of jobs and but also a sense of identity amongst original inhabitants. There is also evidence of growing division within communities, underpinned by out-migration and in-migration of 'new money' as part of regeneration processes seeking to improve the area, but often not reaching the original inhabitants. Existing research on the social impacts of deindustrialisation tends to focus on economic aspects. However,

there is growing interest in UK policy and coastal management arenas in new methods, which can capture a more holistic vision of people’s lives, which works across multiple dimensions. Presenting some early data from a PhD thesis which applies a 3-Dimensional Social Wellbeing framework to assess the impacts of de-industrialisation in Seaham, a coastal town in County Durham. An area that was heavily dependent upon coal mining until 1994 when the last mine in the region closed. Addressing the question of how coastal communities perceive their wellbeing in the context of de-industrialisation. It explores how at different levels, residents responded to the loss of the industry and events, which facilitated, and inhibited, their capacities to adapt to change. This paper discusses recent findings from interviews and focus groups conducted in April-May 2017, which elaborate the challenges of living well in the context of deindustrialisation in the UK. We posit that social wellbeing, as an approach, can inform current coastal governance processes about how people are doing, and has scope to identify opportunities to align people’s future aspirations with coastal regeneration strategies.

3.2.14. Exploring the Human Dimensions of Large Marine Protected Areas II	B2.02
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Chair: Noella Gray

Panel Organizers: *Noella Gray (University of Guelph, Canada)*

Panel Description:

See 3.2.12.

Understanding the Human Dimensions of Large Marine Protected Areas: Insights from Cross-case Analyses

Understanding Diverse Perspectives on the Strengths and Weaknesses of Large Marine Protected Areas

Artis, E.J (Graduate student, Department of Geography, University of Guelph)

Large marine protected areas (LMPAs), MPAs greater than 100,000km², have proliferated in the past ten years. The value of LMPAs as conservation tools has been debated, with proponents suggesting they are cost-effective ways to conserve entire ecosystems and critics suggesting they are largely ‘paper parks,’ established for political purposes rather than conservation value. The purpose of this study is to better understand what actors directly engaged with LMPAs think about them, by assessing perceptions of the strengths and weaknesses of LMPAs in relation to diverse values for ocean-space. This study used Q Methodology, a mixed qualitative and quantitative method, to determine common points of view held by different LMPA stakeholders. We conducted Q sorts with 40 respondents associated with five established and proposed LMPA sites, including: Marianas Trench Marine National Monument, United States; Phoenix Islands Protected Area, Kiribati; National Marine Sanctuary, Palau; and the proposed LMPAs in Bermuda and Rapa Nui (Easter Island), Chile. The Q Method analysis revealed three dominant discourses of LMPAs common across all sites and stakeholder groups. They are: (1) ‘the sustainability approach’ which is characterised by a view that LMPAs provide ecological, economic and social benefits; (2) ‘false sense of achievement’ wherein it is felt that LMPAs cause negative social, economic and ecological impacts, and; (3) ‘no-take, no politics’ in which LMPAs can be useful tools if designed correctly but political and international motivations may be deterring from achieving best practice. Better understanding of both the divergent and convergent views within these discourses may help to facilitate dialogue amongst LMPA stakeholders and promote better governance for large-scale marine conservation.

Policy Mobility at Sea: Understanding the global emergence and spread of Large Marine Protected Areas

Dr. Rebecca Gruby (Assistant Professor, Colorado State University)

Large marine protected areas (MPAs) greater than 100,000 km² have emerged as a high-profile policy model that has spread rapidly around the world through global networks of scientists, NGOs, foundations, governments, celebrities, and others. Just eight large MPAs were established in the 36 year period between 1971-2007. Between 2008-2015, 16 additional large MPAs were designated, and that number continues to climb. The purpose of this paper is to explain the emergence and spread of large MPAs as a global policy model. Drawing from the policy mobility literature in human geography, we undertake a 'follow the policy' distended case study approach to track the emergence, mobilization, and mutation of the large MPA policy model within global networks and five sites where it has 'touched down': Bermuda, Rapa Nui (Easter Island), Palau, Kiribati, and the Commonwealth of the Northern Mariana Islands/Guam. Results focus on the mechanisms through which the large MPA model travels, and how the local and sometimes immobile or fixed aspects of place interact with policies mobilized from elsewhere to adopt, adapt, or reject the model.

Large Marine Protected Areas and the Territorialization of the Ocean

Noella Gray (University of Guelph)

Protected areas are, by definition, projects of territorialization – efforts to assert control over space by drawing boundaries and defining access to, rights within, and meanings of the spaces enclosed within those boundaries. Marine protected areas (MPAs) have played an important role in the increasing territorialization of the ocean, as total ocean area under protected status has increased more than fivefold in the past ten years. Large marine protected areas (LMPAs), those MPAs larger than 100,000km², are a particularly noteworthy part of this process; just ten LMPAs account for more than 80% of global MPA coverage and many of them are entirely no-take. What are the consequences of this territorialization process? Proponents argue that LMPAs are critical for global marine biodiversity conservation efforts, protecting entire ecosystems in a cost-effective manner. Critics suggest LMPAs facilitate 'ocean grabbing', social injustices, and geopolitical efforts to reinforce state sovereignty over ocean space. Drawing on the results of a multi-site study of five LMPAs, including key informant interviews and participant observation in Palau, Guam and the Commonwealth of the Northern Mariana Islands (US territories), Kiribati, Bermuda, and Rapa Nui (Easter Island, Chile), this paper explores the multi-faceted, contested process of territorialization at sea. LMPAs both enable and constrain the efforts of diverse actors; ultimately, the outcomes of LMPAs for these actors are intertwined with territorialization processes.

3.2.15. Innovative approaches to maritime governance**B2.08****Chair:** Judith van Leeuwen**Capturing a moving target: de-carbonizing shipping through new forms of governance***Judith van Leeuwen (Environmental Policy Group, Wageningen University)*

Commercial shipping is an international mode of transport running on heavy fuel oil rather than on distillate fuels. Shipping therefore not only contributes to climate change through CO₂ emissions, but also through sulfur, NO_x, PM and black carbon emissions. While sulfur, NO_x and PM are regulated under the MARPOL Convention, CO₂ emissions from shipping were exempted from the UNFCCC or the new Paris Agreement. The secretariat of the MARPOL Convention, i.e. the UN based International Maritime Organization (IMO) was asked to develop regulations instead. The first regulations, technical and operational in nature, were adopted in 2011. In addition, the IMO is considering adopting economic instruments in the form of a levy on fuel oil or energy efficiency or a cap-and-trade system. This chapter aims to give an overview of the way in which the climate change impact of shipping is regulated as well as to reflect on the major bottlenecks that exist in moving forward in this policy domain on the international level. A conflict of interest between developing, but powerful maritime nations (such as Panama) and more pro-active European countries exist. There is a lack of incentives for technical innovation supporting the switch to more sustainable forms of energy. Pressure from society is also limited when it comes to shipping's climate change impact. However, the main challenge is capturing a mobile source of greenhouse gases through an international organization that aims to create a level playing field using a one-size fits all approach and that has limited ways to enforce its regulation. New forms of governance using market- or information-based measures might target ship's greenhouse gases more effectively. This chapter will therefore discuss how such new forms of governance might fill IMO's regulatory gaps and offer different ways of de-carbonizing a mode of transport that is vital to our global economy.

Social Licence in the Marine Realm*Rachel Kelly (University of Tasmania)*

Our global oceans are threatened by climate change, overfishing, pollution and a growing list of other impacts that demonstrate an urgent global need for sustainable ocean management. Whilst marine conservation initiatives and protected ocean spaces have increased over recent years, ocean management still lags behind the terrestrial sectors in incorporating and involving communities in its development. 'Social licence to operate' is an emergent concept in the marine sector but has become an important for development in marine industry and resource use, particularly towards exploring communication and stakeholder engagement. Social licence reflects environmental and social change, and positions the community as an important stakeholder of ocean environments. Here, we argue that great potential exists for its application in the marine context. This talk discusses current understandings of social licence as it occurs in the marine sector. It poses and deliberates questions such as 'How can social licence be measured, monitored and improved in marine industries?', and examines the 'pros and cons' of different popular approaches including citizen science and other participatory approaches. Public and community expectation for sustainability and sustainable practices have become 'the norm' with recognition and adoption of social licence becoming more important than ever. Social licence may be a valuable engagement tool in garnering the co-operative industry-community involvement necessary to advise managers in the daunting task of sharing ocean resources in our changing world. This research has considerable potential to produce novel, and influence future, theoretical understandings of social licence and citizen science, and their application

in the management and development of sustainable ocean use. We identify future themes and areas requiring investigation and application in this domain.

Frienemies: unpacking neoliberal support and its consequences for the Gahirmatha Marine Sanctuary, eastern India

Madhuri Ramesh (Doctoral Candidate, Ashoka Trust for Research in Ecology and the Environment, India)

The value and scale of marine fisheries has increased greatly in developing countries because they now supply most of the global demand for seafood. Simultaneously, the numbers of marine wildlife killed accidentally during industrial fishing has also risen and international concern over such mortality has become a significant barrier to export-oriented trade. As a result, many developing countries have been forced to intensify wildlife conservation efforts to safeguard their marine fisheries from major economic loss. In this paper, I first describe how an iconic Marine Protected Area in eastern India, the Gahirmatha Marine Sanctuary, was primarily created to avert such a trade-related crisis. In view of this and the increasing influence of neoliberal actors with respect to management of the sanctuary, I go on to argue that such MPAs serve as ecological fixes: They provide marginal protection to wildlife and instead, their main function is to screen industrial development in the surrounding landscape. Finally, I also draw attention to the social and ecological effects of such attempts “to mainstream conservation and economic development” to indicate the stark dissonance between neoliberal promises and practices.

3.4.19. Too Big To Ignore Special Session on The small-scale fisheries guidelines: global implementation II	B2.04
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Chair: Nicole Franz

Panel organizers:

Svein Jentoft (University of Tromsø, Norway)
Ratana Chuenpagdee (Memorial University, Canada)

Panel description:

See 3.4.17.

Conditions for Governance of Tenure in Lagoon-Based Small-Scale Fisheries, India

Prateep Kumar Nayak (University of Waterloo, Canada)

This chapter begins by confirming that issues around tenure within lagoon-based small-scale fisheries context have largely been neglected. Despite a growing body of literature on lagoon commons and property rights systems, existing literature on marine and terrestrial tenure tend to subsume tenure issues of coastal lagoons. Lack of specific attention to lagoon tenure can potentially affect their long-term sustainability and further marginalize small-scale fishers that have depended on them for generations. This chapter identifies important challenges associated with lagoon tenure in relation to the implementation of the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication, 2015 (SSF Guidelines), particularly focusing on its provisions for responsible governance of tenure. The tenure provisions in the SSF Guidelines highlight that small-scale fishing communities need to have secure tenure rights to resources that form the basis for their social, economic, and cultural wellbeing, and that the state should recognize and ensure such rights. To this effect, the chapter sets forth some of the key conditions for governance of tenure in the context of lagoon small-scale fisheries social-ecological systems through an extensive treatment of a broad range of fishers’ rights and multi actor responsibilities. Fisher experiences with the impacts of

ongoing rapid social-ecological changes on lagoon tenure and community responses in Chilika Lagoon, Bay of Bengal, India region is used as a case. Data analyzed in this chapter comes from a series of workshops, meetings, and consultations with small-scale fishers and other stakeholders in Chilika. The chapter offers important lessons for governance of lagoon tenure by highlighting its key connections with resource systems, resource sectors, and user-level dynamics, to offer insights on possible institutional and governance arrangements around secure lagoon tenure. Further, it provides suggestions and reflections on the specific characteristics of lagoon small-scale fisheries tenure and possible future directions for governance. Despite its specific focus on lagoon systems, the main learnings about the key conditions, characteristics, and governance directions of small-scale fisheries tenure provides crucial insights on successful implementation of the SSF Guidelines, especially its tenure provisions.

Are the Small-Scale Fisheries Guidelines Sufficient to Halt the Fisheries Decline in Malta?

Alicia Said (University of Kent, United Kingdom)

The fishing sector in Malta has always been one of a small-scale nature with a long history of fishers engaging in traditional small-scale fishing practices. However, this image has undergone a radical shift in the past decade since Malta's accession to the EU in 2004. With the industrialization of the Bluefin tuna fishery and the increase in the number of industrial trawlers, small-scale fishers are facing multi-faceted deprivation to a point where exiting is the only option, a reality evident by the declining number of small-scale fishers engaged in the sector. This case study demonstrates that the problems small-scale fishers are facing are the result of ineffective governance systems which do not cater to the needs of the small-scale fisheries sector and thus the establishment of imminent protective strategies for small-scale fishers are needed. I argue that the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries (SSF Guidelines) should be the starting point for the regeneration of the small-scale fisheries sector in Malta. In line with the scope of the SSF Guidelines, fishers can benefit from enriched stability through the provision of tenure rights and the formation of fisheries local action groups (FLAGs). This way, small-scale fishers, who represent the relics of sustainable fishing in Malta, can become empowered and proactively get involved in designing a long-term vision that restores the image of the small-scale fisheries sector in the neoliberal era.

Laying Foundations for Ecosystem-based Fisheries Management with the Small-Scale Fisheries Guidelines: Lessons from Australia and Southeast Asia

James Prescott and Dirk J. Steenbergen (Charles Darwin University, Australia)

Ecosystem approaches are increasingly mainstreamed in contemporary debate on small-scale fisheries management, however many small-scale fisheries lack solid institutional and scientific foundations on which to build such holistic and inherently more complex management systems. Most small-scale fisheries still operate with little or no effective management. Proponents of ecosystem approaches frequently malign single-species management models that placed less emphasis on wider ecosystem effects. However these 'simpler' approaches are responsible for significant management successes, even in contexts where fisheries were not strictly single species. We argue for incremental development of fisheries management more deeply rooted in successful past management systems. At this stage, there appears too little capacity to manage the complexity associated with a complete paradigm overhaul towards ecosystem-based approaches. The multi-dimensional importance of small-scale fisheries is highlighted in the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries, where ecosystem approaches are identified to guide holistic, integrated management, and facilitate cross institutional interactions. Its application is nuanced and connected with practical measures to ensure that principals of decency, equity, and responsibility, define fabric management's fabric. We draw from this in problematizing the adoption of ecosystem approaches and examine the implications for small-scale fisheries management. We present six small-scale fisheries case studies;

two in Australia where comparatively simple management models were applied, two operating in trans-boundary contexts with Australia and two operating under very different social, political and economic conditions in the wider region of Indonesia. We suggest initial management approaches should primarily strive for better grounding and more realistic targets.

Civil Society Contributions to the Implementation of the Small-Scale Fisheries Guidelines in Mexico

María José Espinosa-Romero (Comunidad y Biodiversidad (COBI), Mexico)

Small-scale fisheries contribute about half of global catches whilst employing approximately 90% of the people directly dependent on capture fisheries. Taking into account the importance of this sector in the global economy, and its contribution to nutrition and livelihoods, in 2015 the Food and Agriculture Organization of the United Nations published the *Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guidelines)*. This chapter describes the contributions, challenges, and lessons learned from implementing the SSF Guidelines, from the perspective of a marine conservation civil society organization (CSO) that works on providing effective solutions for small-scale fisheries management in Mexico in direct collaboration with stakeholders. Mexico is a developing country, with a small-scale fishing force of over 74,000 registered boats, in which diverse fisheries face many challenges to secure livelihoods whilst simultaneously ensuring sustainability and adapting to changing environmental conditions. The SSF Guidelines represents a landmark document that highlights the importance of the small-scale fisheries sector and provides significant guidance to states and stakeholders for ensuring the long-term sustainability of small-scale fisheries. Finally, the chapter provides insights into and recommendations on how CSOs and other interested stakeholders can foster the implementation of the Guidelines.

7.5. Agency, equity and interdisciplinarity in fisheries communities	B2.05
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Chair: Georgina Gurney

Fairness and marine resource management: exploring principles of distributional equity in Fiji

Georgina Gurney^a, Andrew Song^a, Margaret Fox^b, Sangeeta Mangubhai^b

^a*ARC Centre of Excellence for Coral Reef Studies, James Cook University, Queensland 4810, Australia*

^b*Wildlife Conservation Society Fiji, Suva, Fiji*

Marine resource management initiatives invariably result in costs and benefits to local stakeholders. Understanding local stakeholders' perspectives of what constitutes a fair distribution of management impacts is critical because perceptions of equity are important determinants of peoples' attitudes and behavior. Further, given that disparities in how distributional equity is conceived are a key source of management-related conflict, identifying how such conceptions vary between social subgroups is imperative to achieving successful management outcomes. To this end, we explored small-scale fishers' preferences for alternative benefit sharing arrangements in relation to tourist revenue associated with a payments for ecosystem services project involving a marine protected area in Ra province, Fiji. Using semi-structured interviews, we elicited 122 fishers' preferences for alternative benefit sharing arrangements that represent different principles of distributional equity: egalitarianism; utilitarianism; and proportionality (four forms based on need, opportunity cost, contributed effort to project management, and property rights). We also examined whether fishers' preferences for alternative benefit sharing schemes varied according to their position in society. Our research highlights the need to take into account the pluralistic nature of distributive equity when developing marine resource management initiatives.

A diachronic and interdisciplinary perspective on a local island fishery in Fiji

Elodie Fache (Institut de Recherche pour le Développement (IRD) UMR GRED (IRD-UPVM))

Annette Breckwoldt (Leibniz Center for Tropical Marine Research (ZMT) Social-Ecological Systems Analysis)

In the 1970s, Robert Johannes drew attention to a fast erosion of traditional marine resource management in the context of the introduction of cash economies, export markets, new technologies and other concomitants of westernization. Yet, at the turn of the 21st century, he documented a process of “renaissance” of community-based marine resource management in Oceania, despite a real setback experienced by community-based management programmes at the global level. In particular, many marine protected areas (MPAs) of varying sizes have been established in this region and have even gained such an importance that some fisheries specialists today identify an over-reliance on this specific management tool. Most of the Pacific MPAs are denominated as locally-managed marine areas (LMMAs), which are generally loosely based on a customary marine tenure system (such as the *iQoliqoli* in Fiji). Despite this network of LMMAs, which now exists side by side with an increasing number of large-scale marine protected areas, the pressure on marine resources and especially the often negative ecological impacts of fishing are still increasing in the South Pacific region. This paper will deal with these issues through a Fijian case study: the locally-managed marine area (also called ‘*tabu area*’) established in 2001 in the waters of Malawai village, Gau Island, Lomaiviti Province. Fieldworks were undertaken in this village by two researchers, a marine biologist (A. Breckwoldt) and an anthropologist (E. Fache), more than 10 years apart (in 2003-2004 and in 2016). These researchers’ data allow a diachronic analysis of the issues encountered by villagers with regard to the implementation of this wide-spread fisheries management tool, including in terms of governance. Their interdisciplinary dialogue also highlights the importance of taking into account the villagers’ observations and interpretations of fish population decrease through the example of the highly valued Bigeye scad (*Selar crumenophthalmus*), locally called ‘*tugadra*’.

Newfoundland’s Atlantic salmon: ‘too valuable to be caught only once’?

Jennifer Daniels and Charles Mather (Geography Department, Memorial University, St John’s, Canada)*

The idea that an Atlantic salmon might be ‘too valuable to be caught only once’ is attributed to Lee Wulff, a pioneer of catch-and-release methods of angling in Newfoundland, Canada. Catch-and-release is an angling technique that involves playing a fish until it is landed, and then releasing it back into the water where it hopefully survives the encounter. The value of a catch-and-release salmon for Wulff was the role it played during the 1940s and 1950s in establishing Newfoundland as a sportsman’s paradise where anglers could catch the ‘king of the river’ – theoretically at least – more than once. More recently, catch-and-release has been promoted as an angling technique that supports an economically vibrant tourism sector while at the same time conserving salmon stocks, which are under significant pressure across Atlantic Canada. In this way, the catch-and-release salmon is valued for the role it plays in bridging the elusive gap between economic development and environmental sustainability. Drawing on detailed fieldwork in Newfoundland, our research troubles this mode of valuing Atlantic salmon that provides an apparently seamless and unproblematic link between economic value and sustainability. We reveal a largely hidden approach to valuing salmon associated with what we call the ‘willful salmon’. The willful salmon does not exist on its own; it emerges instead out of specific and situated encounters with human anglers. In Haraway’s terms, the willful salmon is the product of a multi-species becoming. Following Haraway, we argue that the relationship between the willful salmon and the angler exceeds the salmon’s economic contribution to Newfoundland’s angling sector. The relationship between the willful salmon and the human angler is shaped by a response-ability that troubles existing approaches to conservation and involves an entirely different ethic of care and accountability. The aim of this paper is to present the willful salmon as a way of questioning the idea that the Atlantic salmon is ‘too valuable to be caught only once’.

Social determinants of management innovations and adaptive capacity in fishing communities

Philippa Cohen and David J. Mills (WorldFish, Penang, Malaysia and ARC Centre of Excellence for Coral Reef Studies James Cook University, Townsville, Australia)*

Development policy increasingly focuses on building capacities to respond to change (adaptation), and to drive change (innovation). Few studies, however, focus specifically on the social and gender differentiation of capacities to adapt and innovate. We address this gap using two separate studies, both of which were conducted in rural communities in Solomon Islands; a developing country, where rural livelihoods and well-being are tightly tied to agriculture and fisheries. Firstly we examine five dimensions of capacity to adapt and to innovate (i.e. assets, flexibility, learning, social organisation, agency) and highlight influential interactions between them. For example, limits to education, physical mobility and agency meant that women and youth, particularly, felt it was difficult to establish relations with external agencies to access technical support or new information important for innovating or adapting. Willingness to bear risk and to challenge social norms hindered both women's and men's capacity to innovate, albeit to differing degrees. Second, we present examine how processes and outcomes of community-based, co-management are socially differentiated. Particular people within communities held greater power and influence in the process of designing, and subsequent processes of adapting, management arrangements. Power differentials were influenced by social and cultural relations and roles, relationships with partner organisations and personal qualities. We found there to be modest to substantial differences in the distribution of costs (e.g., loss of access to fishing grounds) and benefits (e.g., rights to harvest closed areas) from management. Our findings are of value to governance initiatives aiming to bring equitable improvements to well-being within dynamic and diverse social–ecological systems.

Panel sessions	Series 10	Friday, 7th of July 15:00 – 16:30
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3.1.13. Coastal commons from a social-ecological systems perspective	B2.06
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Chair: Achim Schlüter

Exploring Public Perception on Coral Reef Protection in Sulawesi, Indonesia

Abdul Halik (Leibniz Centre for Tropical Marine Research (ZMT-Bremen), Jacobs University Bremen)

Public participation has been endorsed as an effective way to develop an acceptable conservation policy and to reach conservation goals, as it reflects the needs and the desires of the local community. To achieve effective public participation, an understanding of public perception about environmental issues is essential. This study examined the public perception towards coral reef protection in different coastal communities in central Indonesia. Structured interviews were systematically conducted at three sub-districts in the north, central and southeast parts of Sulawesi Island. The results revealed that most respondents perceived that coral reefs status in their communities is within the range of average to very good in condition. In addition, more than half of respondents believed that coral reefs destruction today poses relatively high threats to their communities. These results indicated coral reefs importance for local people in the area. Almost all interviewed respondents perceived that the corals need protection, as destructive fishing practices, perceived as the main threats to coral destruction, still widely existed in the areas. Area management and gear restriction approaches became the preferred management options. The findings from this study could serve to provide the policy makers a basis to develop particular policies that public can accept, thereby to fulfil what common objectives for marine sustainability and conservation in Indonesia.

Governance among social-ecological diversity in coastal commons

Achim Schlüter, Stefan Partelow (Centre for Tropical Marine Research (ZMT), Jacobs University Bremen, Germany)

At the nexus between the land and sea, various social and ecological systems interact to shape the unique dynamics that characterize the coastal commons. A huge diversity of institutions, governance regimes and property rights arrangements have evolved in response to the need for managing coastal resources. Using the Social Ecological Systems Framework (Ostrom, 2007), we want to examine the ecological and social characteristics that define coastal systems as unique SES. Coastal commons bridge the land-sea interface with many unique resource systems and habitat types such as mangroves, coral reefs, beaches, estuaries, water catchments and seagrasses. However, resource use within them is plagued by common pool resource dilemmas related to e.g. fishing and aquaculture, but also pollution and conservation. Considering the human dimension, a foundational understanding of the multitude of governance regimes required to use them in a sustainable way is necessary. This will be connected to empirically observable property regimes in the different realms. As SES are characterised by their interdependencies, we aim to build on previous work that expands how the SES framework can be used to better characterize and analyze the dynamics in coastal systems. In particular, to explore how the framework's conceptual foundation can incorporate dynamics of continuous and interacting system boundaries. Such interdependencies have not been considered properly in the SES Framework. It is assumed that one ecosystem is of central interest and "Related Ecosystems (ECO)" are treated as exogenous. This aspect of the framework is not further specified, in particular for the SES conditions we observe in coastal commons. Similarly as there are

attempts to use the SES Framework for analysing (institutional) changes over time in a single SES (McGinnis and Ostrom, 2014), we will explore how the SES Framework can be used to study temporal interdependencies, which may help to better understand the emergence or lack of collective action.

Approaching social ecological system transformations through livelihoods trajectories: The case of artisanal fishermen in the Magellan Region, Chile

María Amalia Mellado¹, Gustavo Blanco¹², Laura Nahuelhual¹³, Gonzalo Saavedra⁴

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Livelihoods research lacks a socioecological system (SES) perspective and therefore cannot tackle the complexity of long distance and multilevel interactions. We seek to overcome this limitation through the concept of livelihood trajectories (LT), defined as the successive strategies displayed by human communities overtime to ensure survival and wellbeing. Through ethnography as the main tool, we assess LT of artisan fishing communities in the Magellan Region of Chile to show how they affect and are affected by different socioecological changes over a 50-year period. Five distinct periods demarcate LT: i) 1960-73, from the largest recorded earthquake of world history, to the initial expansion of industrial fishing; ii) 1973-82, from the Military coup and the beginning of neoliberal reforms, to its first economic crisis; iii) 1982-90, which marks the fishing boom of Magallanes, increasing family incomes; iv) 1990-2000, from the return to democracy, to the consolidation of the market economy, and the enactment of the General Fishing Law; v) 2000 to present, characterized by changes in fishing and maritime infrastructure, coastal zone planning and modifications in the Fishing Law. Along these periods we identify four different LT marked by migration waves and the deployment of specific strategies that resulted from the combination of the species caught, markets, labor organization, and technologies used. Over time LT show a pattern from species of local and national distribution to species such as king crab, sea urchin, or southern hake, entirely destined to foreign markets. The dynamics of these long distant markets has caused shifts in fishing effort and triggered overexploitation. In response, fishermen have created informal fishing strategies to keep profits high, engaged in technical roundtables to discuss the sustainability of resources, exit the activity to get employed elsewhere, or out migrate the region.

Applying the social-ecological systems framework to pond-based aquaculture on Lombok, Indonesia

Stefan Partelow^{1,2}, Paula Senff¹, Achim Schlüter^{1,2}, Nurliah Buhari³

¹ Leibniz Center for Tropical Marine Research

² Jacobs University

³ University of Mataram, Lombok, Indonesia

There are few studies that apply the social-ecological systems (SES) framework to empirically examine sustainability with an interdisciplinary lens. This study builds on existing literature to operationalize the framework in the context of aquaculture systems, the fastest growing food sector worldwide. We demonstrate a research process for indicator development and mixed methods data collection that can be implemented at the local level to diagnose the sustainability of pond-based aquaculture and to conduct a comparative analysis between aquaculture ponds as distinct social-ecological units. Our case analysis examines a small scale aquaculture community in a coastal mangrove estuary on the island of Lombok, West Nusa Tenggara, Indonesia. We examine the SES at two interrelated levels. At the community level, qualitative data are analyzed with theories of collective action. We observe a provision dilemma related to canal infrastructure management to distribute tidal sea water to each pond, with up and downstream users similar to agriculture irrigation systems. At the pond level, we

collected and transformed ecological and social data into combined quantitative and normalized scores which are used to compare the variability of pond outcomes spatially. The observed ponds are defined by clear physical boundaries and the individuals who farm them. Specifically we examine the link between community level collective action challenges in managing canal infrastructure, pond outcomes and community development. Beyond our case context, this article critically examines methodological challenges for applying the SESF, but we discuss this in the case context. In particular, this study has shown how aquaculture systems can experience common-pool resource dilemmas driven by a combination of social and ecological conditions that are variable at the local and individual level.

3.2.16. The impact of MSP and MPAs on social relationships	B2.02
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Chair: Brice Trouillet

Mapping fisheries in the context of Marine Spatial Planning: a critical approach of power relations, rationalist discourses and participation

Brice Trouillet (University of Nantes)

In current practices, Marine Spatial Planning seems to be rather a technical-oriented process articulated with different steps described by guides. For a part, it is roughly question about mapping then allocating different uses in space by taking into account environmental issues in a ‘win-win process’. Unfortunately, this seems to be a modern tale that can not exist in reality where, starting from spaces and resources to share, there are necessarily competing interests and, accordingly, winners and losers. But this belief and the corollary discourse of rationality are fostering the idea that data, maps, GIS, models and makeshift devices regarding participation and ‘stakeholders engagement’ will solve the problem. In this way of thinking, political choices are obviously often reduced to minimum. Starting from the case of fisheries in France (largely dominated by small-scale ones), due to its interests as an object (spatio-temporal variability, data-poor context, etc.), this paper will try firstly to deconstruct current practices and discourses. Then it will propose a way to engage MSP alternatively in a more ‘political register’ (that is to say basically democratic and lightened), viewed as a necessity and as a bulwark against neoliberal temptations.

Analysis of the changing linkages between ecosystem services and social wellbeing in the context of MPA implementation in Bluefields, Jamaica

Cheryl Chan (Environmental Change and Governance Group, University of Waterloo)

Coastal communities in small island developing states are highly vulnerable to environmental change (e.g., sea level rise, biodiversity loss) and degradation (e.g., pollution, habitat destruction). Yet, for members of these communities, natural capital is a key source of livelihood (e.g., fisheries, tourism). Current policy decisions aimed at achieving long-term conservation of coastal-marine resources may overlook the short-term trade-offs suffered by coastal communities—for example, the potential social-ecological impact of a marine protected area on a small-scale fishery. Such policies utilize a one-size-fits-all approach to conservation that may lead to the decline of wellbeing in coastal communities, and subsequently to low compliance, conflict, and a failure to meet policy goals. This paper applies a synthesized framework of ecosystem services and social wellbeing to examine the interplay of small-scale fisheries and marine protected area governance in the community of Bluefields, Jamaica. I conducted 42 semi-structured interviews, six focus groups, and 78 structured surveys to examine: 1) the ecosystem service bundles that are most valued by different community groups; 2) the linkages between ecosystem service access and social wellbeing; 3) how these linkages have changed since

MPA implementation; and 4) how insights gleaned from these changes can inform the governance of MPAs. Findings suggest that: 1) provisioning and cultural services are highly valued in Bluefields; 2) inshore fishers have suffered the greatest loss of ecosystem service access, and have consequently experienced a steeper decline in social wellbeing; and 3) governance is being hindered by conflict over the goals and management of the protected area, and a lack of transitional support for fishers pursuing alternative livelihoods.

3.2.17. Adaptive capacity and maritime governance	B2.08
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Chair: Rachel Tiller

Playing an experimental game to assess the adaptive capacity of commercial fishers to changing marine environments in Senja, Norway

Rachel Tiller (SINTEF Ocean), Yajie Liu, Center for Economic Research (SØF), Hugo Salgado (TALCA University, Chile) and Jennifer Bailey (NTNU)

As the worldwide consensus on climate change culminated with the ratification of the Paris Agreement in 2016, sea surface temperatures were at record highs for most of the Norwegian Sea and Barents Sea, and increasing trend since the 1970s. The ocean is a significant absorber of atmospheric CO₂, thereby regulating the global climate through the biological pump. The ocean is therefore a prime place where scientists have been studying future and observing ongoing consequences of global warming, and where ecosystem goods and services are changing allegiances with changing chemical compositions in the water, including CO₂, pH, and temperature. At the local level, policy makers and stakeholders alike therefore need to consider whether and how future changes to marine systems caused by climate change may affect their local communities and their adaptive capacity in light of this. However, risk communication of the effects of changes in the marine food web suffers from stakeholders' need for short term returns, and could lead them to put off long-term investments and representing a "dictatorship of the present". The following article therefore explores to what extent the projected cascaded risks and effects of climate change to the marine environment reaches the consciousness of local stakeholders, and to what extent they perceive their adaptation possibilities and mobility options in light of this. We specifically explore the perceptions of commercial fishers to their own adaptive capacity to changes in the marine environment using a mix of methodologies, including an experimental game, in two local communities in Northern Norway.

Benefits and exclusion within the decision-making environment at governing MPAs: the case of Galápagos Marine Reserve (Galapagos Islands) and the Medes Islands Marine Area (Catalonia)

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Public participation at decision and policy making, in MPAs settings, has been a contested process in the last decades. The allocation of high relevance to these processes have been based on the notion that by involving to all the stakeholders, the likeliness of successful outcomes achievement is higher. This paper argues that despite public participation processes are indeed positive strategies to move forward processes that may need large discussion and wide agreement, they are far from being the panacea to solve the conflicts arising within these paths. Under a constructivist perspective, inspired by the Bordieu notion of "fields" and following a qualitative tradition, this paper addresses public participation processes that have taken place in three Marine Protected Areas (MPAs) in Catalonia and El Hierro (Spain) and Galapagos Islands (Ecuador). Results of these studies show that the unequal

execution of power by the stakeholders involved in participatory processes has shown to be a critical instance when voices are raised and counted as legitimate and valid. We argue that the "participationist" perspective by involving all the actors at decision and policy making, gets contested by an "interactionist" approach that enhances the quality and ability to interact, as the main outcome to be achieved under participatory processes. We claim that the decision making environments are intrinsically influenced by the interactions of the systems under scrutiny (i.e., GS, SG, and GI) and are heavily influenced by how power is executed and how legitimacy is enhanced (or blocked). Unless we look at the existing conflicts within public participation processes as spaces of interaction (GI)-where interests, values, principles are shared-and not only searching for technical solutions, the likeliness to achieve governability in those MPAs systems will be delayed.

Linking human rights, sustainability and economics: A combined index for gauging marine conservation interventions

Rebecca Singleton (University of British Columbia and Blue Ventures Conservation) and Rashid Sumaila (University of British Columbia)

As the FAO's Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries are implemented, debate has emerged over the relative contributions that human rights and property rights make to sustainable fisheries. Some argue that securing property rights for small-scale fishers will guarantee both economic and conservation benefits. They have powerful and simple economic theory on their side. Others argue that an excessive focus on property rights in fisheries has so far only exacerbated inequalities by excluding the most vulnerable – contravening human rights and ultimately destabilising conservation efforts when those who are excluded rebel. However, whilst advocates of human rights in fisheries can point to many case studies in which a lack of respect for human rights has undermined conservation initiatives, they lack positive evidence that a human rights-based approach can enhance sustainability – evidence that is vital to build support and momentum for the implementation of the Guidelines, especially in the conservation sector. Here we reiterate previous suggestions that human rights and property rights could work in tandem, rather than be set against each other. Using discounting theory, we make an economic argument that the realisation of human rights is a pre-requisite for successful fisheries management and conservation initiatives in small-scale fishing communities. The links between discount rates and sustainable behaviour are already well explored: A high discounting rate suggests one lives for today, and does not behave in a sustainable manner. Building on Sumaila's poverty index, we construct an index that links the fulfilment of human rights to discounting theory, and thus to sustainability. We also discuss potential use of the index by conservation NGOs and fisheries managers as a pre-assessment tool and a measure of ongoing impact to judge when it might be appropriate to introduce other management measures (including, for example, property-rights based management).

The embedding of collective agency of lead firms in EU fisheries policy

Steven Adolf (Environmental Policy Group, Wageningen University)

This era has seen a growing perception that the traditional capacity of states to steer sustainable forms of transnational food production systems is diminishing. Less attention has been for the fact that parallel to these arrangements sustainability partnerships between states also developed new ways of steering the sustainable practices. In the field of seafood, and in particular tuna, the European Union through its external policy framework of the Common Fisheries Policy has been developing agreements with third countries towards Sustainable Fisheries Partnership Agreements (SFPAs). These agreements combine two core objectives: securing access for the European fisheries industry to the territorial waters of non-EU maritime countries and assuring a sustainable way of exploiting the involved fisheries resources. Observers argue that the negotiations of the SFPAs are increasingly dominated by normative goals and the involved industry has lost much of its agency to steer the

Commission on commercial objectives. This paper questions this notion by researching how the development of collective agency of power and influence of lead firms in the Global Value Chain is embedded in the EU state partnership to influence and interact with the decision making on fisheries policies. The question is how to identify the impact of this collective agency in the institutional context. The collective character of this agency is ignored by the existing Global Value Chain analysis, which lacks to conceptualise collective agency of organized industrial coalitions. This analysis characterise the circumstances that lead to collective organization, in this case of Spanish lead firms in the tuna industry with an increasing emphasis on dealing with Sustainable Fishery Partnerships. The collective agency of the lead firms in the value chain continues to influence the decisions and implementations on fisheries agreements of the state-led partnerships and the related market conditions.

Connecting given routes to guiding roots: the effects of political culture and path-dependency on national regulatory frameworks for aquaculture

Vilde Steiro Amundsen (PhD candidate NTNU Social Research, Norway)

Being a relatively young industry with much yet to learn in regards to improvements in production, environmental impacts, animal welfare, etc., global aquaculture is on a course of continuous and intensive development. Conflicts concerning marine space and resources, the spread of diseases, increased pressure from environmental actors, and ground-breaking innovations in technology are some of the influential factors in the rapid changes that characterize the industry. This necessitates on-going revisions of policies and focus areas by national authorities, which in many cases has led to an ever-increasing complexity through the continuous layering of new regulations. Looking at Norway, Chile and Scotland, three major actors in aquaculture, their respective regulatory frameworks illustrate significant differences in what is considered important issues that require intervention by public administration, despite being part of the same global industry. This paper provides a comparative study of the national regulations for aquaculture in Norway, Chile and Scotland, with the purpose of placing these regulatory frameworks in their respective historical, political, and cultural contexts. We argue that the differences in the national regulatory frameworks are a result of the perpetuation of influences such as political structure and direction, historical pathway and defining events, the degree of involvement of authorities, trust, and governmental legitimacy. The paper thus discusses the theoretical concepts of political culture and path-dependency, where the idea is that chosen routes are influenced by historical, political and cultural roots.

3.4.21. Too Big To Ignore Special Session on The small-scale fisheries guidelines: global implementation III	B2.04
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Chair: Svein Jentoft

Panel organizers:

Svein Jentoft (University of Tromsø, Norway)

Ratana Chuenpagdee (Memorial University, Canada)

Panel description:

See 3.4.17.

Caribbean Fisherfolk Engage the Small-Scale Fisheries Guidelines

Patrick McConney (University of West Indies)

Small-scale fisheries are prominent features of the small island developing states (SIDS) of the Caribbean Community (CARICOM). Small-scale fisheries contribute to foreign exchange earnings, income, food security, employment and culture in most CARICOM SIDS. Fishing industry workers (fisherfolk) and their organisations became engaged in the process of developing the Voluntary Guidelines for Securing Sustainable Small-scale fisheries in the Context of Food Security and Poverty Alleviation (SSF Guidelines) in 2012. Given the subdued responses of most national fisheries authorities to the SSF Guidelines, these civil society formal and informal groups have become the champions of the Guidelines into the current implementation phase. At the same time, they are struggling to engage with the Caribbean Community Common Fisheries Policy (CCCFP) in an environment of limited policy coherence and collaboration. This case study, conceptually grounded in social-ecological system and resilience thinking, examined the engagement of fisherfolk with the SSF Guidelines through the lens of institutional analysis. Through their activities in communication, advocacy, policy influence and capacity development we examined patterns of interaction and outcomes. Fisherfolk are demonstrating increasing capacities for self-organisation, advocacy and policy influence, but face a rather passive policy domain in which active engagement with state agencies can be challenging. The SSF Guidelines process has helped to empower fisherfolk, and if they maintain their trajectory they should realise their potential as change agents in Caribbean policy despite the challenges.

The Role of the Small-Scale Fisheries Guidelines in Reclaiming Human Rights for Small-Scale Fishing People in Colombia

Lina Maria Saavedra-Díaz (Universidad del Magdalena)

For more than five decades, small-scale fisheries in Colombia have felt the devastating consequences of armed conflict and human rights violations. There is now a hope that the peace process will give the country a new start, and help to improve the well-being of small-scale fisheries communities and the sustainability of their natural resources. After the civil war and the drug violence, the government now has the opportunity to focus more on people's welfare and livelihood needs. With the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries (SSF Guidelines) endorsed by FAO member states in 2015, a new direction is outlined. Fisheries in Colombia suffer from the lack of a firm institutional foundation and a dysfunctional governance system, which has resulted in poor coordination of policies and actions targeting small-scale fisheries. This may also be a problem for the implementation of the broad agenda of the SSF Guidelines, which must engage governmental, non-governmental, private, and public institutions at the national, regional, and local levels alike. This

chapter argues that there is a need for governance reform to facilitate the incorporation and implementation of international agreements such as the SSF Guidelines and related instruments. Its mandate should be to convert these commitments into national policies, management strategies, and regulations in accordance with the human rights and good governance principles and ambitions of the SSF Guidelines. This would also be an opportunity to involve all stakeholders and bring them under the same umbrella.

The Buen Vivir and the Small-Scale Fisheries Guidelines in Ecuador: A Comparison

Maria Jose Barragan- Paladines (Leibniz Center for Tropical Marine Ecology)

The Buen Vivir paradigm, included in the Ecuadorian National Development Plan (PNBV) represents a shift in understanding development and articulates mother earth's and human's rights, both as subjects of legal protection. This chapter aims to disentangle contradictions between the PNDV and current practices at the small-scale fisheries sector. Theoretically grounded in the governability concept, we explore commonalities between the Buen Vivir objectives and the Voluntary Guidelines for Securing Sustainable Small-scale Fisheries (SSF Guidelines) principles. We a) illustrates how are the PNBV objectives aligned to the guiding principles of the SSF Guidelines; b) explore to what extent the actions taken by the state address issues desired to achieve small-scale fisheries sustainability; and c) identify what elements within the Ecuadorian fishing governance system are missing in order to enhance small-scale fisheries sustainability. We conducted a comprehensive literature review and empirical work using semi-structured interviews and participant observation. Commonalities on both instruments (e.g. diversity, sustainability, and human dignity) were found and also elements at only the PNBV (e.g. rights of nature and sovereignty) or at the SSF Guidelines (e.g. gender). Additionally, initiatives addressing some threats to the fisheries occur, but still are isolated practices with low connectivity to the entire fisheries systems. Finally, mismatches between the PNBV's rhetoric and the fisheries governance practices occur and have inordinately delayed the improvement of small-scale fisheries governability. Coherent theories and practices at the political and social realms, under innovative ontological and epistemological connotations of fisheries will help to achieve their sustainability under the Buen Vivir paradigm.

3.4.22. Innovative approaches to fisheries management**B2.05****Chair:** Robert Stephenson**Buzos Monitores are not environmental subjects: Results from a community-based ecological monitoring project for fishers in Baja California, Mexico***Anastasia Quintana (PhD student, Duke University)*

Ecological monitoring programs have become popular mechanisms for increasing local participation in conservation projects, particularly in the Global South. The degree of participation varies from token participation to fully decentralized control of a project's development and implementation. Theorists have argued that local participation in conservation can lead to better conservation outcomes due to increased buy-in into the project, a greater sense of ownership over the resource, commonly held property rights, greater monitoring, and other factors. Whose agenda is being furthered by these conservation projects, however, has come under question. Wealthy, foreign donors and aid agencies are often the instigators of conservation projects. Even when there are local benefits from conservation (e.g. increased tourism revenue), these benefits are often captured by local elites or foreign stakeholders. To further problematize local ecological monitoring programs, I draw on Arun Agrawal's concept of "environmentality," which evokes the entanglement of participation with identity. Agrawal discusses how decentralized environmental governance projects precede and create "environmental subjects" who concern themselves with the "environment", further muddying the question of whose agenda is truly being furthered through these projects. I present novel data from an ecological monitoring project in Baja California Sur, Mexico, to discuss the effects of rural fisher participation in a conservation project facilitated by a nongovernmental organization (NGO). This program, called the "Buzos Monitores" or Dive Monitors, was started in 2012 by a local conservation NGO. The nine fisher-participants conduct annual monitoring cruises to estimate fish abundance and biomass in their fishing grounds. The NGO has facilitated the creation of a fisher-designed network of small Protected Areas with no-take zones, which the Buzos Monitores also monitor. Here I discuss how the Buzos Monitores are and are not "environmental subjects", and present lessons-learned for participatory projects in small-scale fisheries management.

Diagnosing multi-scale policy failures of open-access fisheries in a Southern Mediterranean context: The rise of recreational fishing in Malta*Alicia Said, Joseph Tzanopoulos, Douglas Macmillan*

The purpose of this paper is to highlight how multi-scalar policy disconnects can trigger deregulation processes of fisheries management which lead to socio-ecological consequences that threaten the various dimensions of sustainability. In order to contextualize this complexity in a detailed scenario, we take Malta as a case study to show how supranational policies revolving around 'recreational' fisheries can destabilize long-existing functional fishing governance mechanisms and bring about governability problems at the national level. To do this, we adopt a mixed-method approach to investigate the complex and partially obscured social, economic and political dynamics which drive the marine policy that has led to the expansion of the recreational fleet, and demonstrate how these changes have manifestly altered the socio-ecological system that is the bedrock of artisanal fishing communities in Malta. Our results show that the growth of the recreational segment is an implicit outcome of access-enabling policies which are driven by an implicit wider political agenda to somewhat undermine the artisanal sector and promote the growth of large corporate companies. We establish that a substantial number of recreational fishers are actually former artisanal fishermen who

have fallen out of the commercial sector by policy changes, but who have retained their gear and fishing practices and, together with new recreational newcomers, are gradually outcompeting the commercial artisanal sector. This recreational-artisanal co-existence illustrates how deregulation can trigger ideological and spatial user-conflicts which are allowed to emerge due to multi-scalar policy gaps which do not cater for a holistic management of the contested open-access fisheries. Ultimately, we argue that this problem can only be resolved if the governability of capture fisheries matches the socio-ecological realities at play.

Towards a better understanding of fisheries behaviour

Marloes Kraan, Katell Hamon, Eva van den Broek, Adriaan Rijnsdorp, Jan Jaap Poos, Edwin van Helmond, Ruben Verkempynck, Marcel de Vries*

** Wageningen Marine Research, Ijmuiden*

The implementation of the landing obligation in Europe asks for insight about fisheries behaviour, which choices can fishermen make in order to fish more selective. As the landing obligation means a radical change in the European fisheries system, current approaches to fisheries behaviour do not suffice. It is rather unclear how fishermen will respond to the new rules and regulations. Fisheries behaviour research in fisheries science is predominantly done by natural scientists and economists. Mostly by assessing available catch and effort data and by modelling. Fisheries behaviour currently is thus approached by *inferring* human behaviour from statistics. There are however also more direct methods for studying human behaviour, which are used in social sciences, such as direct observation combined with interviews or focused group discussions. This paper will review different approaches to understanding fisheries behaviour from the different sciences (biology, economy and social science) and will discuss a new approach to understanding fisheries behaviour, in the light of the landing obligation.

Practical steps toward integrating economic, social and institutional objectives and indicators in fisheries management

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While international agreements and legislation in most jurisdictions call for incorporation of four pillars of sustainability, the social (including cultural), economic and institutional aspects (the 'human dimension') have been relatively neglected to date within the practice of fishery assessment and management, and as a result, nations are failing to achieve the aspirations of ecosystem-based and integrated management legislation and policies. Recent research publications and discussions have focused on three key impediments: a relative lack of explicit social, economic and institutional objectives; a general lack of process (frameworks, governance) for routine integration of all four pillars of sustainability; and assessment and management processes that are biased towards biological

considerations. The practical integration of ecological, economic, social and institutional aspects requires a 'systems' approach with explicit consideration of strategic and operational aspects of management: multidisciplinary or transdisciplinary evaluations; practical objectives for the four pillars of sustainability; appropriate participation; and a governance system that is able to integrate these diverse considerations in management. We challenge all involved in fisheries to immediately take five practical steps toward integrating ecological, economic, social and institutional aspects: 1) Adopt the perspective of the fishery as a 'system' with interacting natural, human and management elements; 2) Be aware of both strategic and operational aspects of fisheries assessment and management; 3) Articulate overarching objectives that incorporate all four pillars of sustainability; 4) Encourage appropriate (and diverse) disciplinary participation in all aspects of research, evaluation and management; and 5) Encourage development of (or emulate) a participatory governance system.

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Weds. July 5 th	B2.06	B2.02/ E0.22	B2.03	B2.04	B2.05	B2.01	B2.07	B2.03
Panel 1: 13.30-15.00	Roundtable IUU-Fishing Small-Scale Fisheries:	Community & Environment in Marine Spatial Planning Room B2.02	Health and Hidden Vulnerability in Fishing Communities	Markets and small-scale fishery products I	Social sciences and the Azores Islands:	Social Dimensions of Ecosystem Based Fisheries Management	Understanding Challenges to Sustainable Coastal Livelihoods I	Resource mobility: the case of fisheries
Panel 2: 15.30-17.00	Roundtable interactive governance	Supporting Maritime Spatial Planning Room E0.22	The cultural heritage of fisheries	Markets and small-scale fishery products II	Transdisciplinary Research and marine socio-ecological systems	The new discard policy in European fisheries	Understanding Challenges to Sustainable Coastal Livelihoods II	Governing mobility
Thur. July 6 th	B2.06	B2.02	B2.03	B2.04	B2.05	B2.01	B2.07	B2.03
Panel 3: 8.30-10.00	Transboundary Fisheries Management	Ecosystem services in coastal zone planning I	Social capital in fisheries communities	Human rights in small-scale fisheries	Knowledge production and exchange	Adaptation to climate change	The role of scale in governance	Gender/Women Relations within Coastal and Fisheries Communities I
Panel 4: 10.30-12.00	Moving Forward: African Port Authorities in Marine Environmental Governance	Ecosystem services in coastal zone planning II	Regional diversity in social relations	From crisis to recovery – how can research support recovery of fisheries resources and livelihoods?	Traceability and transparency	Regional-global responses to marine system changes	Coastal Communities Conservation & Sustainable Livelihoods	Gender/Women Relations within Coastal and Fisheries Communities II
Panel 4: 13.00-14.30	International Cruise Tourism I	World cafe Phronetic Marine Spatial Planning Research	Intergenerational perspectives on social (im)mobilities and fishing identities	Small-scale fisher economies and values I	Epistemes and knowledge production	Mobilities of fisheries	Ecosystem Service Assessments and Fisheries Management I	Gender/Women Relations within Coastal and Fisheries Communities III
Panel 6: 14.30-16.00	International Cruise Tourism II	Regional approaches to maritime spatial planning	Unpacking labour and other social criteria I	Small-scale fisher economies and values II	Fish tools and instruments I		Ecosystem Service Assessments and Fisheries Management II	Gendered vulnerabilities
Panel 7: 16.30-18.00	Fish on the move	Fisheries governance	Unpacking labour and other social criteria II	Small-scale fisher economies and values III	Fish tools and instruments II		Stakeholder involvement in fisheries governance	
Frida y July 7 th	B2.06	B2.02	B2.03	B2.04	B2.05	B2.01	B2.07	B2.03
Panel 8: 10.30-12.00	Social-ecological change and livelihood mobility I	Exploring the Human Dimensions of Large Marine Protected Areas I	Politics in marine governance	Small-scale fisheries global implementation I	Fisheries assessments		Maritime materiality, mobility and everyday life	
Panel 9: 13.00-14.30	Social-ecological change and livelihood mobility II	Human Dimensions of Large Marine Protected Areas II	Innovative approaches to maritime governance	Small-scale fisheries: global implementation II	Agency, equity and interdisciplinarity in fisheries communities			
Panel 10: 15.00-16.30	Coastal commons from a social-ecological systems perspective	The impact of Marine spatial planning and marine protected areas	Adaptive capacity and maritime governance	Small-scale fisheries: global implementation III	Innovative approaches to fisheries management			