

# MARE Conference

## People and the Sea VIII

### Geopolitics of the Oceans

June 24th-26th, 2015



#### CONFERENCE THEMES:

Geopolitics of the Oceans | 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](http://www.marecentre.nl)



INNOVATIVE FISHERIES MANAGEMENT  
- an Aalborg University Research Centre



UNIVERSITY OF AMSTERDAM

Centre for Maritime MARE Research





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## 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 8th People and the Sea conference in Amsterdam. The theme of this year's conference - Geopolitics of the Oceans – is far from coincidental. We have very recently witnessed the takeover of the Krim (with its port) and skirmishes over the East and South China Seas. The political tensions that are emerging over the influx of migrants/refugees across the Mediterranean constitutes another tangible, example. In the Arctic, which is known to possess enormous mineral wealth, governments, multinational companies and environmental NGOs are gearing up for major encounters. The policy day that MARE organized on June 23<sup>rd</sup>, 2015, in collaboration with Royal Haskoning/DHV, focused specifically on the latter region, exploring the issue from the perspective of 'Social license to operate'.

This year we have divided the conference into six streams: geopolitics of the oceans (the title stream), maritime governance, social relations and culture, fisheries management, knowledge production, and coastal threats and vulnerability. The two hundred odd papers that you have submitted are gathered in 56 panels. In addition, there will be poster sessions, photo exhibitions and book presentations – all together more than enough to keep us busy over three days.

The first keynote address will be given by Prof. Oran Young (University of California-Santa Barbara, USA), on the topic of 'The evolving public order of the oceans' This address is directed to the theme of the conference and provides a link to the preceding policy day. Conference participants will be provided with an opportunity to engage with Prof. Young in a subsequent panel session. This 'meeting the speaker' is a new initiative for MARE and will be continue in the following two keynote sessions.

Prof. Kuperan Viswanathan (University Utara, Malaysia) is our second keynote speaker. Prof. Viswanathan has a long history of involvement with fisheries and will speak to us on the topic 'Employment opportunities for fishers in Southeast Asia'.

This topic is of relevance to the field of marine policy, where growing concern over environmental sustainability is matched with still increasing fisher populations, particularly in Asia.

Prof. Kate Brown (University of Exeter, United Kingdom) will deliver the third keynote address on Friday. Her engagement with the Resilience Network provides an extra flavour to the address, which will concentrate on ‘Unpicking the politics and process of building capacities for change in coastal communities.’

As usual, the conference boasts some special events. The first of these is a musical opening by two concert pianists from London, Kausikan Rajeshkumar and Manon Fischer-Dieskau, who will be playing a movement called ‘Poisson d’Or’ (goldfish) by Claude Debussy. After the opening ceremony we will be transported back to the venue by boat to start the formal proceedings of the conference. A reception marks the end of Day 1, with the conference dinner (open to all!) taking place on Day 2 in our monumental venue, the Dominicus Church. On Day 1, the conference will also function as launching platform for a new Centre for Sustainable Development (Centre for SDS) at the University of Amsterdam.

In conclusion I would like to draw your attention to a recent expansion of MARE’s institutional base. The University of Aalborg (Denmark) and the University of Tromsø (Norway) have recently joined the two old-time partners – the University of Amsterdam and Wageningen University – to provide new inspiration and opportunities. The opening of the conference by Dr. Kathrine Tveiterås of the University of Tromsø is an appropriate indication of our broadening into Scandinavia.

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

Maarten Bavinck

Chair of the organizing committee

## General Information about the conference

### Conference Committee

**Chair committee:** Maarten Bavinck (UvA)

**Conference organizer:** Ali Brown (UvA)

Liesbeth Hasewinkel (UvA Educational Events &  
Conferences)

**Core committee:** Jan van Tatenhove (WUR)

Marloes Kraan (WUR)

**Committee:** Fabio de Castro (UvA)

Sarah Coulthard (University of Northumberland)

Alyne Delaney (UA)

Jahn-Petter Johnsen (UiT)

Derek Johnson (University of Manitoba)

Iris Monnereau (University of the West Indies)

## Sponsors



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**UNIVERSITETET I TROMSØ UiT**



**Gemeente Amsterdam**

## Information and Services

### Registration

On Wednesday June 24<sup>th</sup> you can register between 9.00 and 9.30 a.m. at the Aula where the opening ceremony takes place. On Thursday 25<sup>th</sup> and Friday 26<sup>th</sup> you can register, preferably before 9.00 am, at the information desk located in the tent, to the East of the JK building. Someone at the reception desk in the main E building of the campus will be able to direct you to the tent.

### Information desk

An information desk will be open in the tent where we will hold our teas, lunches and reception. It is located in the parking lot adjacent to the JK building. It will be available, throughout the conference, for any questions or information. MARE volunteers will be available to answer your questions and are recognizable by their red MARE t-shirt.

### Money withdrawal

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

### Lunch

Our tea/coffee breaks, lunch, and welcome reception will be located in a tent behind the JK building (see map on page 10).

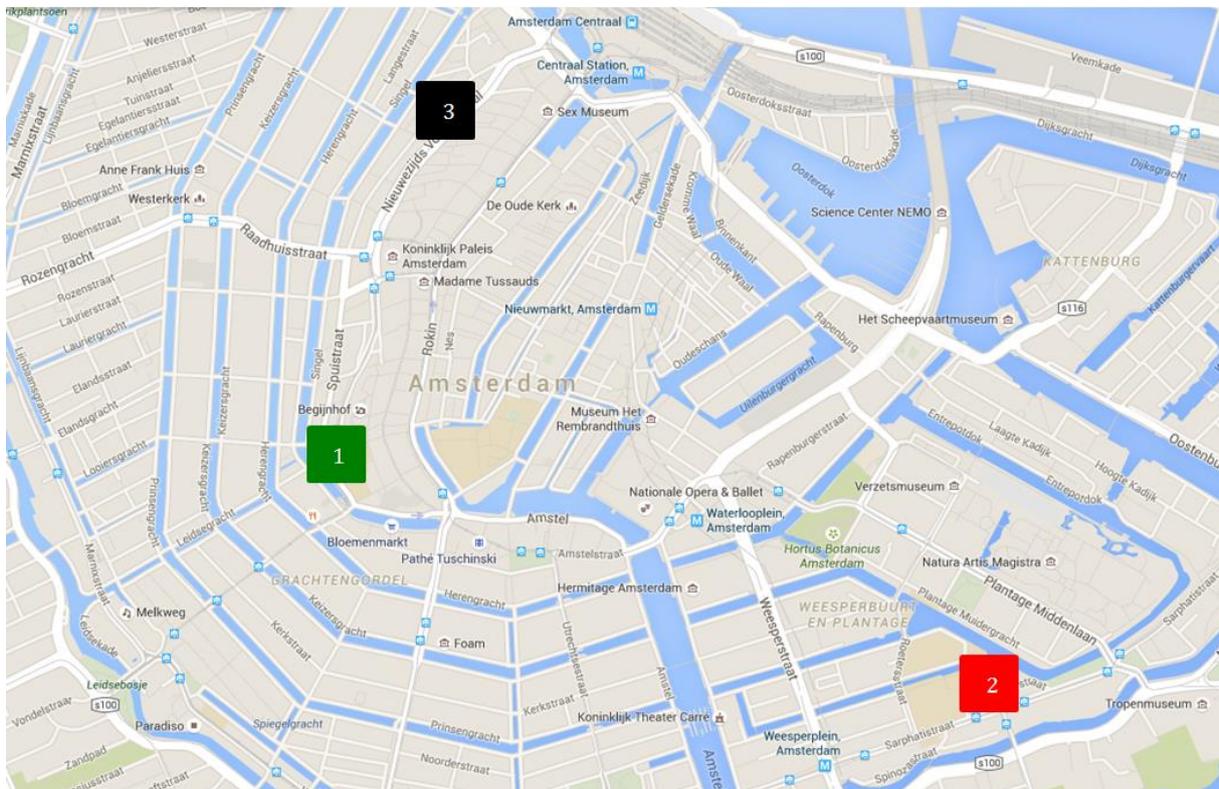
## Internet Information

You received your internet login and password information at registration. For those participants whose host universities utilize the Eduroam wifi system, they can log in with their own accounts on our network. For questions or problems, please see one of the volunteers at the registration desk any time during the conference. Please note that wifi may not function in the Aula or the tent where the breaks and lunches will be served. It will work in all of the rooms on the University of Amsterdam campus.

## Venues and Maps

This year's conference will be held in the University of Amsterdam's Roeterseiland Campus, postcode 1018WV. Located in the east of the city, near Artis Zoo, it is easily accessible by tram (7, 9, 10 and 14) and metro (station Weesperplein) from the city centre. There are a number of hotels in the area, the largest of which is the NH Tropen Hotel.

### Overview of conference venue and locations:

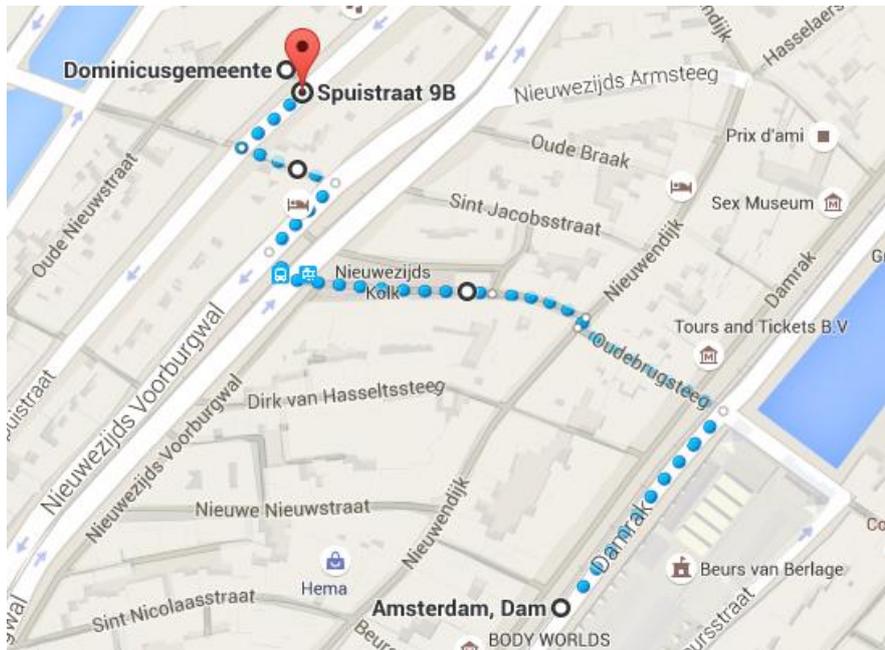


**1** Opening of the conference and First Keynote on Wednesday. **Aula: Singel 411.** The main entrance is on the canal side of the building.

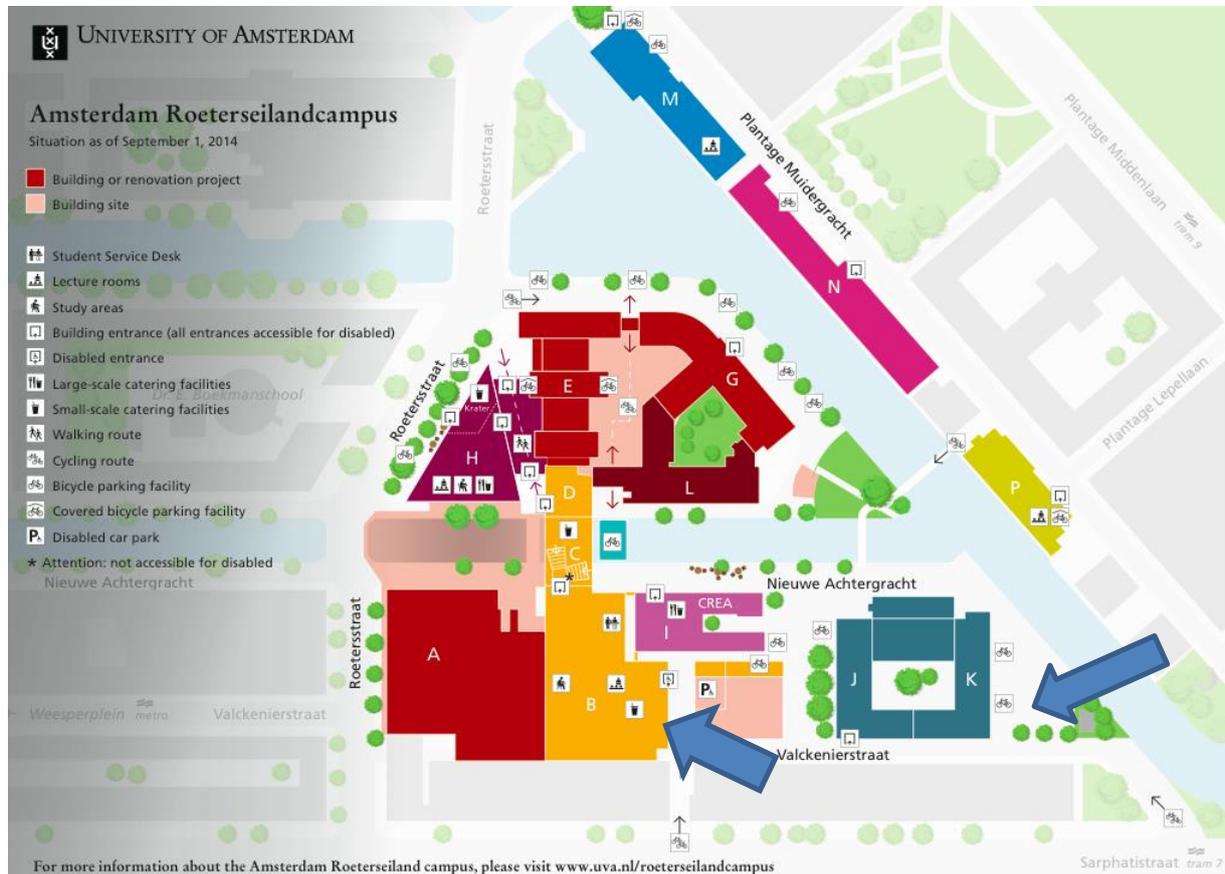
**2**  
Panel sessions J/K Building, Valckenierstraat 65-67.  
Lunch and tea-breaks: TENT J/K Building parking lot on the east side.  
2<sup>nd</sup> and 3<sup>rd</sup> keynote: C Building, Room 1.03 (See next page for map)

**3** Conference dinner is on Thursday, beginning at 6.30pm at the **Dominicus Church, Spuistraat 12.** From the UvA you can take tram 9 from Artis stop on Plantage Middenlaan, direction to "Centraal Station." The church is a 7 minute walk

from the 'Dam Square' stop. See map below for route from the Dam square stop. The entrance to the main hall is on the left (South) side of the building.



## University of Amsterdam Roeterseiland Campus



The blue arrow to the left of this diagram points to the entrance of the C building. The opening keynotes on Thursday and Friday will be located there. From this entrance, simply ascend the steps to the right of the reception desk and room C1.03 is on your left.

The blue arrow to the right indicates the location of the tent during the conference, in which our tea and coffee breaks, lunches, and welcome reception will take place. All panel sessions will take place in the adjacent J/K building.

## Centre for Sustainable Development Studies (Centre for SDS)

The Amsterdam Institute for Social Science Research (AISSR) of the University of Amsterdam, to which MARE is affiliated, is making use of our conference to launch a Centre for Sustainable Development Studies.

The purpose of the Centre for SDS is to:

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

Currently, the Centre for SDS is in the process of building their website. Once it is active it will have updates on the ongoing works of the centre. For more information or to contribute to the Centre for SDS, please contact Joyeeta Gupta at [j.gupta@uva.nl](mailto:j.gupta@uva.nl).

Affiliates of the Centre for Sustainable Development Studies will join the opening sessions of the People and the Sea VIII conference and the lunch on Day 1.

## Music

### During the conference opening on Wednesday, 24<sup>th</sup> of June

This year we are excited to welcome two concert pianists from London, Kausikan Rajeshkumar and Manon Fischer-Dieskau. They will be playing a movement called 'La Mer.'

Born in Stuttgart in 1987, *Manon Fischer-Dieskau* is the daughter of the internationally acclaimed conductor Martin Fischer-Dieskau, and the granddaughter of the great German baritone Dietrich Fischer-Dieskau. During her early musical training at the Purcell School of Music in London, Manon's talent was quickly recognised and she was invited to perform both in the UK and overseas, including at the Linbury Studio at the Royal Opera House, the Queen Elizabeth Hall, the Wigmore Hall and St Martin-in-the-Fields, and in Malta, Israel and Turkey, and made concerto appearances with the New Haifa Symphony Orchestra, the Bilkent Symphony Orchestra, the Haydn Orchester and the London Soloists Chamber Orchestra.

Winning 2nd prize in the International Hindemith Competition in Berlin in 2008, Manon made her debuts in both the Kammermusiksaal of the Berlin Philharmonie and in the Musikhalle in Hamburg, which were followed by concerto performances in Bremen and recitals in Burgundy. After obtaining her Bachelor of Music with honours at the Royal College of Music in 2009, there came an episode pivotal in Manon's musical development: at the invitation of Dietrich Fischer-Dieskau she accompanied singers at his masterclasses in Berlin and at the Schubertiade in Schwarzenberg. Manon was so inspired by the experience of working on German Lieder that she chose to focus on piano accompaniment for her Masters degree at the Royal Academy of Music, where she won the Scott Huxley and Rex Stephens prizes, was selected as a Samling Scholar and performed for numerous Royal Academy projects including appearances at the Austrian Cultural Institute, Oxford Lieder Festival and the Wigmore Hall.

In June 2013 Manon graduated from the Royal Academy of Music and was named the Hodgson Junior Fellow at the Royal Academy of Music for the year 2013/14. She has since performed solo concerti in China and Germany, with upcoming performances in Israel and Romania.

*Kausikan Rajeshkumar* has performed extensively across the UK and abroad, including at the Royal Festival Hall, Wigmore Hall and Queen Elizabeth Hall, and has been

broadcast on BBC television and radio. In 2009, he won the Weimar International Franz Liszt Competition for Young Pianists, and went on to enjoy success in many other competitions, including 1st Prize at the Parnassos International Piano Competition, 1st Prize at the Maria Herrero International Piano Competition 2013 in Spain, 2nd Prize at the Darmstadt International Chopin Piano Competition 2013, the McCallum Prize at the Royal Overseas League Music Competition 2013, 1st Prize at the RCM Schumann Competition, 1st Prize at the RCM Beethoven Competition and the Hopkinson Gold Medal at the RCM.

Kausikan was educated at the Purcell School, Cambridge University and the Royal College of Music, studying with Tessa Nicholson and then Ian Jones, with whom he continues to study. He is now also studying at the Accademia Pianistica di Imola with Leonid Margarius, and the Scuola di Musica di Fiesole with Eliso Virsaladze. Recent engagements include recitals in Spain, France and Germany, the Leeds International Concert Series, Edinburgh Fringe Festival, Cambridge Summer Music Festival, the Royal Festival Hall and the Purcell Room, the Elgar Room, Royal Albert Hall, and concerto appearances in Hanover, Germany and at St. John's, Smith Square, London.

### **'La Mer'**

Composed by Claude Debussy between 1903 and 1905, is a masterpiece, and when played on the piano, requires four hands to play. Despite not being well-received at its debut, it has since become a staple of many symphonies, and is one of Debussy's most admired pieces. It evokes imagined undulating waves of the sea, and the spray of mist, accomplished through a musical onomatopoeia with what some scholars have noted has a mathematical precision.

## MARE/ Douglas Clyde Kongshøj Wilson Best Student Paper Award 2015

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 IX Conference in 2017, 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 2013 was Annet Pauwelussen of Wageningen University.

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.ifm.dk/digitalAssets/83/83019\\_douglas-clyde-kongsh-j-wilson-obit.pdf](http://www.ifm.dk/digitalAssets/83/83019_douglas-clyde-kongsh-j-wilson-obit.pdf)



## Cultural programme

On Wednesday we will be travelling by boat on the canals from the Aula to the University campus. This trip is offered to us by the local government of Amsterdam, as a welcome to you all to Amsterdam. Exploring Amsterdam from



the water, is one of the best ways to appreciate its beauty. Three boats of 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 quay.

### 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.

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: Paulus Potterstraat.

*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 (Thursday 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- 21:00 Address: Prinsengracht 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 [www.gvb.nl](http://www.gvb.nl) . For a up to the minute trip planner on all Dutch public transportation, please visit [www.9292.nl](http://www.9292.nl) . Please note that this site is only available in Dutch.

### **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:* Centraal Station, Leidseplein, Waterlooplein.

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

*Rent a bike:* Damstraat 20-22.

### **Taxis**

Taxi Ccentral 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: [www.iamsterdam.com](http://www.iamsterdam.com)

## General Information about the Programme

### Geopolitics of the Oceans

For anyone following the news, it is clear that geopolitics is back to stay. After years of reasonable quiet on the diplomatic front, conflict over space and resources has re-emerged as a serious problem. Oceans and coasts figure prominently in the geopolitics of our era. Areas in the East and South China Seas and the Black Sea are heavily contested by various nation states, while the Arctic, with its proven oil reserves, is another obvious realm of contestation, with adjacent countries vying to stake their respective claims and environmental movements trying hard to restrict the anticipated damage.

In addition to such spectacular instances, however, there are many other, smaller incidents involving strategic behavior over aquatic space by states and non-state actors alike. This conference strives to examine such events and processes, from a variety of social science perspectives and to learn from them. Important questions to raise are: What does anthropology have to say about fishing conflicts? How to understand the politics of oil exploration and the designation of offshore wind parks? What implications does large-scale migration across the Mediterranean have for security and the stability of the region? How does marine spatial planning change the power balances between (offshore) states?

In addition to the theme of geopolitics, the People and the Sea VIII conference is open to those with more classical interests. These are included in the six streams, but do not hesitate to apply, even if your topic does not fit neatly into one of them. We always make room for the innovative and the maverick.

## Conference Streams:

### **Stream 1: Geopolitics of the oceans**

This stream focuses on the geopolitics of the oceans. Geopolitics is about power and how the world is organized politically. Maritime space and territory are becoming an increasingly important political and strategic factor. Many states have a marine surface area greater than their terrestrial surface. For example, the EU is currently the political institution with the largest share of territorial responsibility in the Atlantic Ocean. This stream is interested in geopolitical aspects of different maritime activities, such as oil and gas drilling, shipping, and fishing, but also in the role of marine spatial planning in the geopolitics of oceans.

### **Stream 2: Maritime governance**

This stream focuses on new developments in maritime governance giving particular attention to aspects of negotiation, consensus building, and legitimacy in integrated maritime policies for regional seas and coastal areas. 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 regions, activities, and governance regimes is an explicit purpose of this stream.

### **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 24<sup>th</sup> of June

Chair: Dr. Kathrine Tveiterås

9.00-9.30: Registration, Coffee and Tea (Location: Aula)

9.30-11.30: Conference Opening and Keynote by Prof. Oran Young (Aula)

11.30-13.30: Boat ride to Roeterseiland Campus and Lunch (Tent)

13.30-15.00: Panel Session 1 (J/K Building)

15.00-15.30: Coffee and Tea Break (Tent)

15.30-17.00: Panel Session 2 (J/K Building)

17.30-19.00: Welcome Reception (Tent)

#### Thursday 25<sup>th</sup> of June

Chair: Dr. Luc van Hoof

9.00-10.00: Keynote: Prof. Kuperan Viswanathan (Room C1.03)

10.00-10.30: Coffee and Tea Break (Tent)

10.30-12.00: Panel Session 3 (J/K Building)

12.00-13.30: Lunch (Tent) and Poster Presentations

12.30-13.30: Film Screenings (JK 1.19)

13.30-15.00: Panel Session 4 (J/K Building)

15.00-15.30: Coffee and Tea Break (Tent)

15.30-17.00: Panel Session 5 (J/K Building)

18.30-22.00: Conference Dinner (Location: Dominicuskerk)

#### Friday 26<sup>th</sup> of June

Chair: Prof. Isa Baud

9.00-10.00: Keynote: Prof. Kate Brown (Room C1.03)

10.00-10.30: Coffee and Tea Break (Tent)

10.30-12.00: Panel Session 6 (J/K Building)

12.00-13.30: Lunch (Tent)

12.30-13.30: Film Screenings (JK 1.19)

13.30-15.00: Panel Session 7 (J/K Building)

15.00-15.30: Coffee and Tea Break (Tent)

15.30-17.00: Panel Session 8 (J/K Building)

## Overview: Panel Sessions

### Wednesday, June 24<sup>th</sup>

9.00-9.30: Registration, Coffee and Tea (Location: Aula)

9.30-11.30: Conference Opening and Keynote by Prof. Oran Young:

11.30-13.30: Boat ride to Roeterseiland Campus and Lunch (Tent)

13.30-15.00: Panel Session 1

15.00-15.30: Coffee and Tea Break (Tent)

15.30-17.00: Panel Session 2

17.30-19.00: Welcome Reception (Tent)

<b>Panel 1, Wednesday June 24th, 13.30- 15.00</b>	<i>The Use of Tracking Technology to Protect Local and Transboundary Marine Species at Risk</i>	<i>Livelihoods</i>	<i>Wellbeing and place-based approaches to identifying the societal values of small-scale fisheries 1</i>	<i>Special Session on Small Scale Fisheries in Europe 1</i>	<i>Bottom-up governance for fisheries: REINCORPFISH 1</i>	<i>Fisheries and Climate Change</i>	<i>Meeting and Discussion with the Keynote Speaker: Prof. Oran Young</i>
	Richard Apostle David VanderZwaag Katie Sykes	Julia M. Novak Colwell Natasha Stacey Kungwan Juntarashote Divya Karnad Alice Joan Ferrer	Derek Johnson Ben Belton Alice Ferrer Rajib Biswal	Catherine Chambers Jose Pascual Cristina Pita Helga Josupeit A Doddema	Naseegh Jaffer Merle Sowman Joeri Scholtens Julia Knoeff	James Howard Clare Fitzsimmons John Bartz Iris Monnereau	Prof. Oran Young
<b>Room / Chair</b>	<b>JK .07 VanderZwaag</b>	<b>JK 1.90 Stacey</b>	<b>JK 3.05B Ferrer</b>	<b>JK B.46 Pascual- Fernandez</b>	<b>JK K.44 Bavinck</b>	<b>1.83 Monnereau</b>	<b>JK 1.19 Tatenhove/Gupta</b>

<b>Panel 2, Wednesday June 24th, 15.30- 17.00</b>	<i>Roundtable: Transboundary Challenges for Small-Scale Fisheries</i>	<i>Wicked Problems of New Governance Objectives</i>	<i>Wellbeing and place-based approaches to identifying the societal values of small-scale fisheries 2</i>	<i>Special Session on Small Scale Fisheries in Europe 2</i>	<i>Political ecology of Indo-Sri Lankan fisheries: REINCORPFISH 2</i>	<i>Responding to Natural Disasters at the Coast</i>	<i>From knowledge production till breakdown</i>
	Andrew Song Tony Charles Joeri Scholtens Johny Stephen Dedi Adhuri	Maaiké Knol Jim Prescott Patrice Guillotreau	Natasha Stacey Carole White Tim Acott Derek Johnson	Jahn Petter Johnsen Joonas Piaan Cristina Pita Maria Nakhshina Alenka Janko Spreizer	Oliver Schulz R. Manimohan Herman Kumara Ajit Menon	Andrés Marín Raquel de La Cruz Modino Alyne Delaney Gay Defiesta Yukiko Matsunaga	Edwin van Helmond Sebastian Uhlmann Marloes Kraan David Reid
<b>Room / Chair</b>	<b>JK 1.19 Scholtens</b>	<b>JK1.83 Knol</b>	<b>JK 3.05B Acott</b>	<b>JK B.46 Johnsen</b>	<b>JK K.44 Menon</b>	<b>JK 1.90 Delaney</b>	<b>JK K.07 Uhlmann</b>

## Thursday, June 25<sup>th</sup>

9.00-10.00: Keynote: Prof. Kuperan Viswanathan (Room C1.03)

10.00-10.30: Coffee and Tea Break (Tent)

10.30-12.00: Panel Session 3

12.00-13.30: Lunch (Tent); Poster Presentations (Tent); 12.30-13.30: Film Screenings ( JK 1.19)

13.30-15.00: Panel Session 4

15.00-15.30: Coffee and Tea Break (Tent)

15.30-17.00: Panel Session 5

18.30-22.00 Conference Dinner (Dominicus Church)

<b>Panel 3, Thursday June 25th, 10.30- 12.00</b>	<i>Geopolitics of the Oceans</i>	<i>Lake Fisheries</i>	<i>Multiple Use Conflicts 1</i>	<i>Fish Consumption</i>	<i>Ethical Frameworks for Fisheries</i>	<i>At the Crossroads: Community based Responses to Coastal Challenges</i>	<i>Interactive governance for small-scale fisheries</i>
	Glen Smith Anna Littaye Sander van den Burg Coco Smits Pierre Failler	Fiona Nunan Sölmundur Karl Pálsson Mafaniso Hara Luomba Joseph Onyango	Peter Arbo Stuart Pearson Steven Lang	Jennifer G. Smith Anna Schuhbauer Moenieba Isaacs	Erik van Doorn Kevin St. Martin Jeppe Høst Milena Arias Schreiber	John Abraham Ahmed Khan Barbara Peterson	Ratana Chuenpagdee Maarten Bavinck Lasse Lindstrom Joeri Scholtens Andrew Song
<b>Room / Chair</b>	<b>JK B.46 Failler</b>	<b>JK K.10 Hara</b>	<b>JK K.07 Arbo</b>	<b>JK 1.90 Isaacs</b>	<b>JK K.44 St. Martin</b>	<b>JK 1.18 Abraham</b>	<b>JK 1.19 Chuenpagdee</b>
<b>Panel 4, Thursday June 25th, 13.30- 15.00</b>	<i>Innovation in Fisheries and Aquaculture</i>	<i>European Common Fisheries Policy</i>	<i>Multiple Use Conflicts 2</i>	<i>Networks and Learning</i>	<i>Global fisheries issues in coastal indigenous contexts</i>	<i>Resilience and Human Wellbeing in Coastal Communities Subject to Shocks</i>	<i>Meeting and Discussion with the Keynote Speaker: Prof. Kuperan Viswanathan</i>
	Tim Haasnoot Patricia Pinto da Silva Håkan Sandersen	Sebastian Linke Anna Antonova Troels Hegland	Olga Stepanova Brigt Dale Andrew Day	Adriana Raveau David Florido Cornelia Nauen	Andrés Cisneros- Montemayor Yoshitaka Ota Miguel Gonzalez Vatosoa Rakotondrazafy	Chris Béné Edward Onumah Patrick Fong Truong Van Tuyen Oscar Amarasinghe	Prof. Kuperan Viswanathan
<b>Room / Chair</b>	<b>JK 1.90 Kraan</b>	<b>JK K.44 Hegland</b>	<b>JK K.07 (req) Dale</b>	<b>JK K.10 (req) Nauen</b>	<b>JK B.46 Gonzales</b>	<b>JK 1.18 McGregor</b>	<b>JK 1.19 Bavinck</b>
<b>Panel 5, Thursday June 25th, 15.30- 17.00</b>	<i>Panel on Aquaculture development and governance</i>	<i>The mechanics and technologies of power in marine geopolitics</i>	<i>Governing Specific Fisheries and Discards</i>	<i>Towards the implementation of the SSF Guidelines</i>	<i>Knowns and Unknowns: Knowledge Sets and Perceptions of Risk in Marine Management</i>	<i>New Horizons: Coastal Communities and Social Ecological Resilience</i>	<i>Regionalization in Marine Governance</i>
	Simon Bush Ben Bolton Aung Hein	Johnny Stephen Jahn Petter Johnson Signe Sønvisena Dag Standal Aarthi Sridhar Paul Foley	Søren Qvist Eliassen Leyre Goti	Nicole Franz Andrew Song Maria Jose Barragan Mandy Doddema Adam Soliman Svein Jentoft	Allain Barnett Courtenay Parlee Donna Curtis Robin Messenger	Prateep Nayak Phillie Mbatha Salas Silvia	Jan van Tatenhove Hilde Toonen Katrine Soma
<b>Room / Chair</b>	<b>JK 1.18 Bush</b>	<b>JK B.46 Smith</b>	<b>JK K.10 (req) Johnsen</b>	<b>JK 1.19 Chuenpagdee</b>	<b>JK K.44 Wiber</b>	<b>JK 1.90 Nayak</b>	<b>JK K.07 Tatenhove</b>

## Friday, June 26<sup>th</sup> 2015

9.00-10.00: Keynote: Prof. Kate Brown (Room C1.03)

10.00-10.30: Coffee and Tea Break (Tent)

10.30-12.00: Panel Session 6

12.00-13.30: Lunch (Tent) ; 12.30-13.30: Film Screenings ( JK 1.19)

13.30-15.00: Panel Session 7

15.00-15.30: Coffee and Tea Break (Tent)

15.30-17.00: Panel Session 8

<b>Panel 6, Friday June 26th, 10.30- 12.00</b>	<i>Integrated Marine Policy Frameworks</i>	<i>Small-scale Fisher Vulnerability</i>	<i>Knowledge Production for Governance</i>	<i>Gendered Lives, Possibilities and constraints for improving fisheries livelihoods and governance</i>	<i>Fisheries Cases of South Africa and South Asia: REINCORPFISH 3</i>	<i>Centre for SDS: Inclusive Development and Coastal Adaptiveness</i>	<i>Meeting and Discussion with the Keynote Speaker: Prof. Kate Brown</i>
	Luc van Hoof Olivier Guyader Paulina Ramierz- Monsalve Wanda van Enst	Ondrej Bazant- Fabre Rachel Turner Vincent Fahy Prateep Nayak	Fabienne Kervarec Rachel Tiller Kari Stange Vilma Kuuliala	Ali Brown Luceni Hellebrandt Joseph Ocran Holly Hapke	Philile Mbatha Serge Raemaekers Oscar Amarasinghe Augustine Soosai	Annisa Triyanti Darryl Colenbrander Joyeeta Gupta Sudirman Saad Arif Satria Muhammad Zaki Mahasin	Kate Brown
<b>Room / Chair</b>	<b>JK K.44 Van Hoof</b>	<b>JK 1.90 Nayak</b>	<b>JK 1.83 Stange</b>	<b>JK .07 Hapke</b>	<b>JK 1.18 Raemaekers</b>	<b>JK 3.05B Gupta</b>	<b>JK 1.19 Coulthard</b>
<b>Panel 7, Friday June 26th, 13.30- 15.00</b>	<i>Marine (Spatial) Planning</i>	<i>Addressing Markets and Resource Governance for Improved Small Scale Fisheries Management</i>	<i>Marine Protected Areas 1</i>	<i>Science in Action 1</i>	<i>The Use of Social Indicators in Fisheries Policies</i>	<i>Human Wellbeing on the Coast</i>	<i>Sustaining fisheries through fisherfolk organization and collective action 1</i>
	Yannick Leroy Ann-Magnhild Solås Kate Brooks Eleni Hatzilyanni	Natasha Stacey Philippa Cohen Hampus Eriksson Kate Barclay Michael Fabinyi	Alex Zachariah- Chaligne Charlotte Michel Katie Hogg Anna Palliser	Judith Floor Ruth Msomphora Machiel Lamers Louisa Evans	Katia Frangoudes Lisa Coburn Matthew McPherson Michael Jepson	Anna Woodhead Sarah Coulthard Easkey Britton	Daniela Kalikoski and Susana Siar Patrick McConney Paul Onyango Svein Jentoft
<b>Room / Chair</b>	<b>JK 1.83 Brooks</b>	<b>JK 1.90 Steenbergen</b>	<b>JK 3.05B Pascual- Fernandez</b>	<b>JK 1.18 (req) Lamers</b>	<b>JK K.44 Frangoudes</b>	<b>JK .07 Chaigneau</b>	<b>JK 1.19 Jentoft</b>
<b>Panel 8, Friday June 26th, 15.30- 17.00</b>	<i>Mapping and Visualization</i>	<i>Property Rights, Fisheries and Ecosystems</i>	<i>Marine Protected Areas 2</i>	<i>Science in Action 2</i>	<i>Developing Appropriate Science</i>	<i>Discussion: How can social science play a better role in applied marine management (research)?</i>	<i>Sustaining fisheries through fisherfolk organization and collective action 2</i>
	Annet P. Pauwelussen Paddy Walker and Loes Witteveen	Ma Yingjie Reade Davis Matthias Kokorsch Arif Satria	Margherita Pieraccini Alicia Said Linn Rabe Tomas Chaigneau	Menuka Udugama Madeleine Gustavsson Laurie Tissi�re Lewis Queirolo	Joanna Piwowarczyk Danika Kleiber Eva-Lotta Sundblad	Marloes Kraan Marieke Verweij	Enrique Alonso Daniela Kalikoski and Susana Siar
<b>Room / Chair</b>	<b>JK 1.83 Pauwelussen</b>	<b>JK 1.90 Satria</b>	<b>JK 3.05B Pieraccini</b>	<b>JK 1.18 Monnereau</b>	<b>JK .07 Chuenpagdee</b>	<b>JK K.44 Kraan</b>	<b>JK 1.19 Bavinck</b>

## Keynote Speakers

### Professor Oran R. Young

*Bren School of Environmental Science and Management,  
University of California (Santa Barbara)*

## The Evolving Public Order of the Oceans: The Interplay of Interests, Ideas, and Influence

The oceans, which cover more than 70% of the Earth's surface, have become a focus of rising interest on the part of those interested in exploiting the economic potential of marine systems as well as those desiring to address growing threats to ocean health. While the UN Convention on the Law of the Sea (UNCLOS) continues to provide a foundation for ocean governance, new initiatives are coming into focus that may produce major adjustments in the public order of the oceans during the coming years.



Three of these initiatives stand out: (i) the move to formulate legally-binding rules designed to protect marine biodiversity in areas beyond national jurisdiction (ABNJs), (ii) the development of spatially and functionally explicit arrangements in such forms as Regional Fisheries Management Organizations (RFMOs), regional seas agreements, and extended marine protected areas (MPAs), and (iii) expansive claims to jurisdiction over the seabed on the part of coastal states based on the provisions of Article 76 of UNCLOS. Who is behind each of these initiatives, and how do they frame both the problems they seek to address and their preferred solutions? Are these initiatives compatible with one another or are they likely to generate more or less severe conflicts among their backers? How will the resultant political processes play out with regard to the public order of the oceans during the near to medium term future? This presentation applies general perspectives derived from recent work on governance to address these questions.

### Biography

Oran Young is a research professor at the Marine Science Institute and professor emeritus and co-director of the Program on Governance for Sustainable Development at the Bren School of Environmental Science & Management at the University of California (Santa Barbara). His research focuses on theories of

environmental governance with applications to issues relating to climate change, marine systems, and the polar regions. He also does comparative research on environmental governance in China and the United States. Dr. Young served for six years as founding chair of the Committee on the Human Dimensions of Global Change of the US National Academy of Sciences. He chaired the Scientific Steering Committee of the international project on the Institutional Dimensions of Global Environmental Change (IDGEC). He was a founding co-chair of the Global Carbon Project and from 2005 to 2010 chaired the Scientific Committee of the International Human Dimensions Programme on Global Environmental Change. An expert on Arctic issues, Dr. Young chaired the Steering Committee of the Arctic Governance Project and is the science advisor to the North Pacific Arctic Conferences. Past service in this realm includes co-chair of the Working Group on Arctic International Relations, member of the US Polar Research Board, founding board member of the Arctic Research Consortium of the United States, vice-president of the International Arctic Science Committee, chair of the Board of Governors of the University of the Arctic, consultant to the Standing Committee of Parliamentarians of the Arctic Region, and co-chair of the 2004 Arctic Human Development Report. He is the author of more than 20 books. His recent books include *Institutional Dynamics: Emergent Patterns in International Environmental Governance* (2010) and *On Environmental Governance: Sustainability, Efficiency, and Equity* (2013). He is currently working on a book tentatively entitled *Sustainability in the Anthropocene: Governing Complex Systems*.



### **Professor K. Kuperan Viswanathan**

*Head of Financial Analysis and Policy Competency Center  
Othman Yeop Abdullah Graduate School of Business  
Universiti Utara Malaysia*

### **Employment Opportunities for Fishers in Southeast Asia**

Fisheries the world over are under heavy overfishing pressure. This has resulted in the collapse of some fisheries and loss of employment to fishers. Fishers often are the most difficult of people to adjust to other modes of work. The management of Oceans has been the weakest in the history of mankind. The vastness and the resources required to control access to the oceans has resulted in limited ability of most nations to manage the oceans. Massive over fishing both legally and illegally has been the outcome. Experts estimate that up to \$23.5 billion worth of fish enter the world market each

year from illegal fishing, which averages to approximately 1 in 5 fish caught in the wild (PEW trusts study 2015). Maintaining employment opportunities for fishers will be a real issue in the years to come as fish stocks decline and opportunities for alternative work for fishers is very limited. This keynote address will focus on this critical issue and challenges faced by fisheries managers and governments of Southeast Asia. These countries produce about 21 million tons of fish accounting for a quarter of the global fish production. The fisheries in the ASEAN region employ close to 30 million people and their employment is being threatened by overfishing and illegal fishing. Given that the average household size of fishing households is five individuals, the total people dependent on fishing is as high as 150 million people. The focus of this address is on how the employment of fishers in Southeast Asia can be secured and what alternative employment options are there given the continued decline in the resource.

### **Biography**

Professor Kuperan Viswanathan is a leading natural resource economist with more than 25 years of experience in resource economics, policy and development research, social science research capacity building, education and training. His works include: a senior researcher at the World Bank affiliated Centers for International Agricultural Research (CGIAR), leading a large-scale Global Project on Fisheries Co-management in Asia and Africa, serving on the editorial committees of major natural resource journals of developing countries. He has also worked with WorldFish, Food and Agricultural Organization of the United Nations (FAO), International Development Research Center of Canada (IDRC), and Danish International Development Assistance (DANIDA), among others. He has led project teams assessing wellbeing and conservation in for ASEAN. He is also a member of an FAO Expert Group that examines the issues of fishing capacity in developing countries and has examined the issue of fishing capacity in the Philippines, Indonesia, Malaysia and Thailand. Based on his international exposure, research and consulting experience in many countries, he teaches Global Economic Theories and Issues and International Business and Managerial Economics for the MBA and DBA students at the Othman Yeop Abdullah Graduate School of Business.

## Professor Katrina Brown

*Environment and Sustainability Institute, University of Exeter*

### **Constructing Resilience: Unpicking the politics and process of building capacities for change in coastal communities**

This paper examines the process of building capacity to manage and shape change in coastal communities. Coastal communities face momentous, multiple and interacting changes: fisheries depletion and resource scarcity; urbanisation and industrialisation; accelerating extraction and expropriation of marine and coastal environments; extreme weather and looming climate change. This paper explores how communities themselves understand the process of building resilience and what they identify as its key factors. It uncovers the micro-politics and power relations that unpin this dynamic process, adding to existing theoretical and empirical understandings of community resilience. Moving beyond identifying core attributes, it looks at how they are linked and how they are mediated by social relations. I extend current approaches to resilience by developing three core concepts that bring politics and social dynamics to the centre of analysis: resistance, rootedness and resourcefulness. I propose some of critical challenges and exciting avenues these suggest for research on people and the sea.

### **Biography**

Katrina Brown is Professor of Social Sciences at the Environment and Sustainability Institute at University of Exeter, based in Cornwall in UK. Kate has a long-standing commitment to interdisciplinary analysis of environmental change and international development. Her research focuses on vulnerability, adaptation and resilience, and ecosystem services and poverty alleviation. She is interested in how people understand, perceive and respond to environmental and other changes, and her work takes a broadly defined political ecology approach. She works in different regions of the world and in different contexts, but with a focus on coastal and marine social ecological systems. Current projects include international collaborations on SPACES (Sustainable Poverty Alleviation and Coastal Ecosystem Services); MAGIC (Multi-scale Adaptations to Global Change in Coastlines); and an AXA Outlook award project, 'You me and our Resilience: Cross-cultural insights into sources of resilience and vulnerability in coastal communities'.



## Parallel Sessions and Paper Abstracts

\* Indicates presenting author and affiliation

<b>Panel sessions</b>	<b>Series 1</b>	<b>Wednesday, 24th of June</b> <b>13:30 – 15:00</b>
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### 1.1. Governance through the Application of Scientific Knowledge: The Use of Tracking Technology to Protect Local and Transboundary Marine Species at Risk

**Chair:** David VanderZwaag

**Panel Organizers:** Richard Apostle and David VanderZwaag

#### Panel Description

*The state of many marine species in the world's oceans is increasingly gloomy, and the scientific uncertainties continue to abound over the status of marine species and the ecosystems on which they depend.*

*A sea of governance challenges surrounds the goal of protecting marine species at risk, at various levels. At the national level, integrated marine spatial planning is still in its early stages, and laws and policies specifically aimed at protecting marine species at risk face common constraints, from scientific uncertainty to lack of political and public will. Crossing national borders, the international community has yet to agree on future directions for managing habitats and human uses in areas beyond national jurisdiction. Putting ecosystem and precautionary approaches into practice within regional fisheries bodies and regional sea arrangements continues to be constrained by strong socioeconomic pressures, national interests, available knowledge, and legal barriers.*

*The Ocean Tracking Network (OTN) is a conservation project, headquartered at Dalhousie University, which aims at integrating ocean-based knowledge. Thousands of marine animals around the world are tracked, using cutting-edge technology, resulting in current, reliable records that can be analyzed, and applied to many different purposes.*

*The knowledge OTN creates has the potential for a transformative effect on governing the oceans, and protecting endangered species. Managing the vast amounts of data generated by the tracking projects is not only a technical challenge by itself, but also raises a series of questions with many problems. Intellectual property, access rights, freedom of knowledge, and knowledge transformation into policy are just few examples of the questions this project copes with.*

*The purpose of the proposed panel is to discuss marine scientific, and governance challenges at the regional and bilateral levels through the work of the socio-legal team of the Ocean Tracking Network (OTN). Three socio-legal case studies will be presented, followed by a discussion:*

**Ocean Tracking Technologies: Observing Species at Risk, Data to Policy Challenges of a Scientific Network.**

*Richard Apostle and Tsafrir Gazit  
Sociology and Social Anthropology, Dalhousie University*

**Polaris Over Turbulent Waters? The Role and Limits of Science in Navigating International Whaling and Sealing Conflicts.**

*Katie Sykes  
Faculty of Law, Thompson Rivers University*

**Sustaining American eel and Atlantic sturgeon: Scientific and Legal Coordinates, Sea of Governance Challenges.**

*David VanderZwaag  
Marine & Environmental Law Institute, Dalhousie University.*

**1.2.Livelihoods**

**Chair:** Natasha Stacey

**Differential livelihood impacts of a closed fishing season on resource dependent stakeholders in Tamil Nadu, India.**

*Julia M. Novak Colwell\*  
Department of Fisheries & Wildlife, Michigan State University, Central Marine Fisheries Research Institute*

The 45 day closed fishing season on the Eastern coast of India was federally endorsed in 2001 and applies to all mechanized boats. However, in some areas fishing communities have chosen to extend the ban to motorized boats as well, leading to place-specific applications of the ban. While there is existing research on the impact of the ban on stock regeneration and limited research on the impact to fishers, this research focuses on the livelihood impacts to fisher laborers and allied sector workers as well as how those impacts feedback to influence resource use practices. Preliminary results will be presented from the first two phases of data collection: surveys and interviews before and during the closed season, in two Tamil Nadu coastal villages that implement the ban differently. We expect to find that livelihood impacts vary by stakeholder group with women and migrant laborers being most disadvantaged during this period, given their inability to qualify for government aid, their lack of political mobilization, and their limited adaptive capacity. We also expect that the place-specific applications of the ban will lead to differences in livelihood impacts and a reallocation of resource use effort to other non-fishery related resources. Finally, we expect village-level factors such as existence, accessibility, and strength of self-help groups to condition livelihood impacts.

**Mobility and livelihood strategies among Bajo in eastern Indonesia: As one door closes another opens**

*Natasha Stacey\*, Jim Prescott  
Research Institute for the Environment and Livelihoods, Charles Darwin University*

The most mobile and specialised of all maritime populations in Indonesia are the Bajo who inhabit some of the most bio-diverse marine areas in the archipelago. They are comprised of former boat nomads, nomadic or migratory boat dwellers. Mobility is a key feature of Bajo livelihood strategies. People move regularly and frequently (for short or extended periods) between home villages, semi-permanent settlements and their fishing grounds that stretch across the archipelago and beyond to the waters of neighboring countries such as Australia in pursuit of livelihoods.

In 1994-1995, Stacey carried out the first ethnographic study of a traditional Bajo fishery active inside the Memorandum of Understanding (MOU) Box area in the Australian Fishing Zone, an area where 'traditional fishing' is permitted for nationals from Indonesia. The study examined Bajo shark fishing and assembled a data set of the historical, social, cultural and economic conditions underpinning Bajo fishing and livelihood strategies from two locations. Two decades later field locations were revisited to examine the changes in fishing patterns and livelihood strategies in particular between shark and tuna fisheries. This interval corresponded with significant fishery management policy shifts in Australia and, in particular, in the exploited border regions. At the same time, pressure on resource sustainability in the Bajo's fishing grounds was amplified. Data are presented to compare participation in the shark fishery from 1994 to 2014, assess changes in semi-nomadic livelihood strategies, and reveal some of the drivers of these changes (policy, economics, resource management, and markets) impacting on livelihood strategies and choices. Strategies involving mobility and diversity are often ignored in fisheries management and even more so in Indonesia where more than 2 million small-scale fishers' wellbeing is predicated on mobility and diversified livelihoods.

### **Socially-conscious governance for conservation, food security and viable livelihoods: A case of small pelagic fisheries of Thailand**

*Kungwan Juntarashote\*, Ratana Chuenpagdee*

*Coastal Development Centre, Bangkok, Thailand; Memorial University, St. John's, Canada*

For over three thousands fishing communities lining the coasts of Thailand, small pelagic fishes such as horse mackerel, Indo-Pacific mackerel, pomfrets, scads and threadfins are their main sources of protein and livelihoods. Indo-Pacific mackerel (*Rastrelliger* spp. or Pla Tu in Thai) is one of the long-time local favorites and a staple dish accompanying rice for common households. Historically caught by small-scale fishers using gill net, the fishery became industrialized with the development of purse seines, which increased the production by tenfold within a decade. While resource competition often leads to displacement of small-scale fisheries, Thai Pla Tu gillnetters have been able to maintain about 40% of the total catches. Pla Tu stock, while in decline, is not in a terrible state. This paper asks why the situation of Pla Tu fishery in Thailand is not doomed and gloomed like in other cases. Through literature review and interview with fishers and government officials, we learn that both biological and institutional factors help sustain Pla Tu fisheries. Pla Tu migrates close to shore for spawning and nursing, and the small size fish are targeted by gillnetters. Purse seine, on the other hand, target mature fish as they move offshore. Thus, there is no direct competition. Another key factor is the implementation of seasonal closure in the upper Gulf of Thailand during the spawning season (15 February to 15 March) for commercial fishery. Using livelihood importance as the main argument, the government allows small-scale fishers to fish in the area with gill net or fish trap during the closed season. Because of this "socially conscious" conservation measure, the wellbeing of small-scale fishing households has improved, local food security achieved, and Pla Tu stock conserved. We conclude that

small-scale fisheries can be viable when resource governance considers social and conservation objectives in geographical context.

### **Fragmentation and plurality of fisheries governance in Maharashtra, India**

*Divya Karnad\**

*Rutgers University*

Fishing in Maharashtra is a conflict-ridden business and livelihood. Fisheries conflicts are governed by both the state and informal community institutions, which govern territoriality, fishing technology and fishing bans. However, the processes by which state and community institutions govern fishing are very different. Contrasting these two forms of governance reveals a specific production of scale mismatches and discourses of power that appear to favour one form of governance over the other.

For instance, discourse surrounding state fisheries governance suggests authoritarian and unilateral decision making, obfuscating overlaps with community based rules. Power is wielded from a specific discourse of fish behaviour and reproduction, fishermen's irrational and violent behaviour, the bureaucratic process and the threat of law enforcement. This discourse also serves to negate the existence of community institutions, consequently bolstering the normative view that fisheries are undergoing a tragedy of the commons, thereby requiring greater state intervention.. Underlying this discourse is an implicit convergence between the rules of state and community institutions, serving to empower community institutions, particularly through the actions of officers of the state. Community institutions, navigate these "loopholes" in order to continue serving the needs of both small and large-scale fishermen. These institutions appear to focus on enforcement and justice, with collective decisions on punishments and the use of more effective, 'non-legible' punishment such as shaming and social ostracism. The state overlooks this form of vigilante behaviour, because it often means that conflicts are effectively settled amongst the fishing communities rather than being directed at their officers. The involvement of state institutions in some conflicts, such as territoriality, always erode their authority, thus making community based enforcement all the more appealing. I thus conclude that the apparent tension between state and community institutions is merely a facade that hides tacit co-operation and mutual empowerment.

### **Nature and Viability of Inter-Local Alliances for Bay Management In Northern Mindanao, Philippines**

*Alice Joan G. Ferrer, Maripaz L. Perez, Len Garces\**

*University of the Philippines Visayas*

Inter-local government alliances for coastal resource management were established in the country soon after decentralization took effect in the early 1990s. The main challenge faced by the alliances is sustainability. Critical legal, institutional, and financial factors must be present to ensure a strong and sustainable alliance. These factors were examined if present in the three alliances for bay management in Northern Mindanao region that include the Gingoog Bay Alliance, Macajalar Bay Development Alliance, and Iligan Bay Alliance in Misamis Occidental. Data were from key informant interviews and secondary sources. Results showed that the members of the three alliances have banded together for a common purpose (coastal resource rehabilitation and poverty alleviation) and have a common base (bay) and shown positive impacts as a result in particular of joint law enforcement and other joint activities. The contracts they have forged, however, are weak given some commitments are not

honored. Resources available do not match the planned programs, project and activities. The three alliances need to focus on what they can deliver as an alliance to match their available resources; they need a governance structure with sufficient power and control to make alliance operation work effectively. They must adopt a financial arrangement that is feasible and legally approved, must learn how to generate revenues, and do not rely heavily on member contributions. National government support such as guidelines on implementation and monitoring of interlocal alliances can help in strengthening these alliances.

### 1.3. Wellbeing and place-based approaches to identifying the societal values of small-scale fisheries 1

**Chair:** Alice Ferrer

**Panel Organizer:** Derek Johnson, University of Manitoba

**Panel Description:**

*These panels are a waypoint in a longer term exercise to reflect on how to craft arguments for the societal values of small-scale fisheries. Their core is a number of honed drafts from a set of contributions to an edited volume on the social and cultural contributions of small-scale fisheries within the project Too Big to Ignore: Global Partnership for Research on Small-scale Fisheries (TBTI). While the panel will highlight theoretical and empirical highlights from the contributions to that volume, it will also identify questions and important conundrums that have emerged from the collaboration that need to be addressed in further work on the topic. Specifically, it will aim to present the rudiments of an agenda for research within the new Diverse Values research cluster within TBTI. Contributions from the audience will be particularly welcome on this point.*

*Theoretically, the panels will reflect on the utility and complementarity of two perspectives for addressing the question of values in small-scale fisheries: social wellbeing and sense of place. We address how these perspectives speak to serious concerns with the very idea of identifying the values of small-scale fisheries. How can such identifications balance generalizability with context sensitivity? How can we speak of values comparatively? What are the implications of change for making claims about values in small-scale fisheries? How can we account for different social positions and social relations, including relations of power, when trying to make value claims for small-scale fisheries? Empirically, the panels will present cases from the Philippines, Indonesia, Malaysia, India, Bangladesh, and the United Kingdom and France.*

**Dried fish production, trade and consumption in Bangladesh through the social wellbeing lens**

*Ben Belton*

*Michigan State University and WorldFish Centre*

This paper adopts social wellbeing as an “integrative” theoretical lens through which to analyze the material realities faced by labourers engaged in drying fish landed from small-scale marine and inland fisheries in Bangladesh, and the ways in which their objective circumstances and subjective experiences are mediated by and constituted through a variety of social and economic relations. A focus on workers engaged in fish processing results in a partial problematization of narratives which represent small-scale fisheries primarily as repositories of positive values. Instead, based on three case studies, we argue that non-fishers employed as labour in the mid-stream of fisheries value chains

often experience low levels of social wellbeing. Fish workers' exposure to various forms of exploitation is linked to the material characteristics of the fishery itself and the nature of power relations within it, as well as to their subordinate positions in relations of gender, ethnicity and class. Whilst members of many fisher households are also subject to similar dynamics, wellbeing among fishers, both objective and subjective, tends to be superior to that of labourers engaged in fish drying. Indeed, in two cases, fishers' wellbeing was contingent partly on their exploitation of workers originating from outside fisher communities (a process partially legitimated by their discursive construction as 'others'). In another case, where fishers and fish workers both originated from a relatively homogenous but partially marginalized community, stronger moral economies prevailed, resulting in somewhat more equitable wellbeing outcomes. These findings indicate the need for further empirically grounded work on social wellbeing in fisheries, which looks beyond fishers themselves to explore the experiences of, and possible wellbeing tradeoffs among, a greater variety of actors in fisheries value chains.

### **Missed-Value of Small-Scale Fishers in Marine Protected Areas in Negros Occidental Province, Philippines**

*Alice Ferrer\* (U. of the Visayas), Terence Dacles (GIZ-The Environment and Rural Development Program); Jinky Hopanda (University of the Philippines in the Visayas Foundation, Inc.)*

The paper explores the potential of small-scale fishers as allies in the implementation of marine protected areas. Three cases of small-scale fishers in the context of marine protected areas in three different local government units in Negros Occidental Province, Philippines were used. These include the Sagay Marine Reserve (SMR) in Sagay City, Danjugan Island Marine Reserve and Sanctuaries (DIMRS) in the municipality of Cauayan, and the Sipalay City Marine Reserve (SCMR). Survey data, with supplement from Focus Group Discussion and secondary data, of three separate studies on marine protected areas conducted in years 2008 and 2012 were revisited to draw new meaning and information. Despite being poor and highly dependent on the fishery resources, the small-scale fishers in the three marine protected areas indicated that they value the fishery resources and recognized the need for its protection and management to ensure food and income in the future. They want to be consulted on matters pertaining to the marine protected areas and to participate in their management. Their reported levels of participation in the management of the marine protected areas differ by site and higher level of participation seems to promote favorable attitude towards the marine protected areas. By involving fishers more directly into the decision-making process and by encouraging their participation in the management since "step zero", they are more likely to agree and comply with rules and regulations, thereby increasing the chances of success of marine protected areas.

### **Divergent perceptions of the social and cultural contributions of small-scale fisheries in Gujarat, India.**

*Rajib Biswal\* (U. of Manitoba) Derek Johnson (U. of Manitoba), and Jyothis Sathyapalan (Centre for Economic and Social Studies, India).*

The fishery of Gujarat is large, productive, diverse, and complex in organization and practice yet it is socially and culturally marginal within the state. With reference to quantitative and ethnographic data, we employ a social wellbeing perspective to frame an analysis of how social difference and a context of ongoing change and ecological uncertainty shape perceptions of the value of small-scale fishing in the state. Our ethnographic evidence draws particularly on the researchers' familiarity with

two small-scale fishing harbours to explore how fishing articulates with caste, religion, class, gender, and history.

#### 1.4. Special session on small-scale fisheries in Europe 1

**Chair: José Pascual**

**Panel Organizers:**

*Cristina Pita, University of Aveiro (Portugal)*

*Jose Pascual, (University de La Laguna (Spain)*

*Maarten Bavinck (University of Amsterdam)*

**Panel Description**

*Artisanal or small-scale fisheries (SSF) are extremely important in the European Union (EU). Landings from EU-SSF are worth around 2 billion euros annually (25% of the revenue generated by EU fisheries) and around 80% of the EU fleet (approx. 85,000 vessels) and over 40% of EU fishers (90,000) are engaged in SSF (Guyader et al., 2013; Macfadyen et al., 2011). Small scale fisheries and aquaculture in Europe confront challenges of very different scope, being this sector more diverse than usually stated. Some of the challenges may arise from the competition for resources with activities, like recreational fisheries, that may target similar species and fishing areas. Also, urban development and tourism may affect many of the activities developed along the coast, in beaches or harbor areas. The competition with larger fleets for resources and markets cannot be underestimated either. Research globally in SSF is the subject of the project TBTI (Too Big To Ignore: Global Partnership for Small-Scale Fisheries Research) and we are focusing in this panel on small-scale fisheries in Europe.*

*The recent approval of the reform of the Common Fisheries Policy (CFP) and the European Maritime and Fisheries Fund (EMFF) invites us all to think about how small-scale fisheries in Europe are being influenced by public policies at different levels (regional, national or European). Our aim in this panel is to show the diversity of European small-scale fisheries and their capacity for adaptation and how they have been influenced by these policies. Contributors are invited to make a comprehensive account of the status and dynamics of the small-scale fisheries sector in their respective country, linking this to the CFP (as well as to national or regional policy trends), especially for EU member-states. The emphasis will be on 'people' (less on technology or catches) with a focus on how small-scale fisheries has changed in the last decades. This proposal is linked to a book project about European SSF and the TBTI project, with 26 countries covered currently. We aim to have a good representation of European countries in the panel.*

**International trade of fisheries products, and the share of small-scale fisheries**

*Helga Josupeit*

*Food and Agriculture Organization of the United Nations (FAO), Rome, Italy;*

The paper will highlight the role of fish imports into the EU from countries outside the Union. Imports of fishery products represents in some countries more than 60% of total fish consumption. The paper will then identify fishmeal and fish oil imports, products that are coming from the industrial fisheries. For the remaining food fish imports, the author will estimate the fish products coming from aquaculture. Finally the remaining fishery imports, now all coming from wild fisheries will be

analyzed to find the share of small scale fishery products. Some trends over time will be given, for commodities where small scale fisheries plays an important role, such as groundfish and cephalopods.

### **Implementing the FAO SSF guidelines – a MSC perspective**

*A Doddema\*, O Oloruntuji, C Leisk*

*Marine Stewardship Council*

The endorsement of the Voluntary Guidelines of Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guidelines) in June 2014 was a major milestone in recognising the importance of the small-scale fisheries sector. A key challenge now is to ensure the successful implementation of the SSF guidelines. In this paper we evaluate how the Marine Stewardship Council (MSC) as a standard setter and ecolabelling program for sustainable fisheries can help the implementation of the SSF guidelines.

The MSC Fisheries Standards is clearly aligned to the FAO Code of Conduct for Responsible Fisheries and has been developed to apply to fisheries globally. Through case studies of small-scale fisheries certified by the MSC, we highlight the applicability of the standard for small-scale fisheries as well as direct effects of certification such as improved co-management, empowerment of fishing communities, price premium and access to new markets, along more sustainable fishing practices. Additionally we showcase how other elements of the program help small-scale fisheries comply with the SSF guidelines.

### **Small-scale fisheries in Spain: challenges and prospects**

*Jose Pascual\*, Sebastián Villasante, Marta Coll, David Florido*

*Universidad de La Laguna, Instituto de Ciencias Políticas y Sociales*

Spanish small-scale fisheries (SSF) are second in importance in Europe after Greece, in terms of number of vessels and employment. The objective of this paper is to provide a comprehensive quantitative and qualitative analysis of SSF in Spain, including the trends of the sector. In particular, we will focus on key factors that influence the development of SSF in the different regions of the country, taking into account their diversity. In some of these areas, like Galicia, there is a strong presence of women, devoted mainly to shell-fishing on foot.

Interactions with other fisheries are highly diverse. In some areas we can find conflicts for the space, as with trawlers in the Mediterranean. In other cases, the interactions derive from how the catches from small-scale fisheries interact in the market with the captures from other fleets.

Fisheries governance in Spain is complex, as some regulatory capacities have been transferred to regional governments, and other pertains to national level. *Cofradías*, with a long history in many coastal areas, are the dominant fisher organizations, recognized and backed as public corporations by central and regional governments. They may have a role in the first sale of the fish, in fisheries management, in developing management plans and in keeping a social control on bans and other management measures, but their strength is highly variable.

Raw numbers of fleet and fishers in SSF have diminished in the last decades. Some European and national policies may have contributed to this phenomenon, like the scrapping funds. In this area, a focus on better marketing strategies looks necessary for small-scale fisheries in Spain to compete with

products from world markets and industrial fisheries. Our analysis will provide insights on the transformation of the fleets, on the social and cultural changes associated and future prospects.

### **Small-scale fisheries in Iceland: Local voices and global complexities**

*Catherine Chambers\*, Niels Einarsson, Anna Karlsdóttir*

*Hólar University College, Hólar, Iceland; cat@mail.holar.is*

Small-scale fisheries make up a small percent of the total revenue generated in the fisheries sector in Iceland, yet occupy an important part of the cultural and political landscape. The past 30 years in particular have been host to dramatic political, technical, social, and economic changes for Icelandic small-scale fishermen, their families, and their home communities. In this chapter, we first focus on the history of small-scale fisheries in Iceland and define characteristics separating these fisheries from large-scale operations that often target the same fish stocks. Next, we describe historical and current fisheries governance arrangements with particular focus on the disproportionate impact that the privatized national fisheries management system has had on small-scale fisheries. Using the Arctic island of Grímsey as a case study, we show how fishing culture itself, through the logic of the Individual Transferable Quota (ITQ) system, has become inextricably and perhaps irreversibly entwined with national and even global financial institutions and processes. Small-scale fishermen are faced with fisheries policy that at once perpetuates and creates the behavior the neoliberal philosophical assumptions behind privatization rest upon. In local realities this has environmental, social and economic implications. We also highlight the quota-free lumpfish fishery and detail limitations in the capacity for small-scale fishermen to achieve collective action. We discuss discourses of resistance to fisheries privatization and include options for mitigating negative impacts of the ITQ privatized system, such as the open access summer jig season that began in 2009. We then place small-scale fisheries in the larger context of regional and national policy trends and show how the 2008 economic crisis and national policies aimed at economic growth affect local fishermen. Finally, we analyze discourses focused on Iceland's EU ascension negotiations and forecast how both national and EU fisheries policies and new FAO guidelines for small-scale fisheries may affect future generations of Icelandic small-scale fishermen.

## **1.5. Bottom-up governance for fisheries: REINCORPFISH 1**

**Chair and Panel Organizer:** Maarten Bavinck

### **Panel Description**

*The objective of this comparative project (2010-2016) is to advance and assess the development of governance frameworks for the understanding and resolution of core fishery conflicts in two major fishing regions: South Africa and South Asia. In both instances, sustained conflict has severely impacted the small-scale capture fisheries. Apartheid has resulted in the marginalization of small-scale fishers in South Africa. The civil war in Sri Lanka (1983-2009) on the other hand has repeatedly displaced the Tamil fishing population of the island; the vacuum created by their absence has been filled by the trawler fleets from India. In both the South African and the South Asian cases, these small-scale fisher groups are seeking to claim their fishing rights and restore socio-economic and community wellbeing. The project facilitates and monitors the negotiation process towards cooperation, making room for mutual learning and for supportive interdisciplinary research.*

*This session presents and explores the results of this project as they stand at the inception of its final year. It does so through two panels, focusing on the synthesis research results (Panel 1) and NGO experience (Panel 2). The format of Panel 2 will necessarily be different than of Panel 1. In addition, we add a set of individual papers that have emerged from the project but can be integrated into the conference mainstream.*

### **Masifundise case study**

Jaffer, N<sup>a</sup>., Michelle<sup>a</sup> et al.

<sup>a</sup>Masifundise Development Trust (MDT)

### **Engaging communities from the bottom up – experiences of capture fisheries in South Africa and South Asia**

*Merle Sowman*

*University of Cape Town*

*Other authors: Maarten Bavinck, and Joeri Scholtens (university of Amsterdam)*

Fisheries in South Africa and the Palk Bay are sites of conflict involving small-scale fishers, industrial fishers and government actors with different interests, cultures and claims. In South Africa, industrialization of the fisheries sector in the early 1990s coupled with colonial and then Apartheid rule resulted in traditional small-scale fishers being restricted from harvesting marine resources and developing local fisheries. In the Palk Bay, the Sri Lankan civil war restricted access to coastal waters for security reasons and this facilitated intrusion of an expanding Indian trawler fleet into Sri Lankan waters. With the advent of democracy in South Africa in 1994, and the cessation of the civil war in Sri Lanka in 2009, there were great expectations that impoverished coastal fishing communities would regain access to coastal resources and rebuild their livelihoods. However, in both contexts small-scale fishers have been faced with overwhelming obstacles to realizing their socio-economic rights. This paper explores the role of three non-governmental organizations (NGOs) in South Africa, Sri Lanka and India in facilitating participation of local fishers in policy processes and dialogues that seek solutions to current conflicts. It explores the political and economic context in which these NGOs operate and examines the various strategies and tactics they employ to challenge state policies and processes that neglect the rights and interests of local fishers. Drawing on the experience of the South African small-scale fisheries policy development process, it highlights the strategies and action repertoire of Masifundise Development Trust, in supporting fishers to gain recognition and claim rights. A review of the strategies employed by NGOs working in the Palk Bay reveals a complex set of factors that create barriers for NGOs to work with communities to address rights and reduce conflict. Through this comparative analysis various insights and lessons are shared on roles, strategies and tactics employed by NGOs to engage communities from the bottom up.

### **Lessons from Sri Lankan efforts at promoting bottom-up governance**

*Joeri Scholtens\*, Maarten Bavinck*

*University of Amsterdam*

This paper provides a critical analysis of a research & policy project aimed at facilitating the alleviation of a cross-boundary fisheries conflict in South Asia 'from the bottom-up'. This project aimed to build bridges between conflicting fishing groups across the Indo-Sri Lankan maritime boundary line and to empower the fishing community in Northern Sri Lanka, which has become marginalized in the course of 26 years of civil warfare. Theoretically, the project had been guided by

the notion of bottom-up, participatory governance that has gained much popularity in the field of fisheries governance over the past decades. We analyse the frustrated efforts of a Sri Lankan NGO's to build a social movement of fishers in Northern Sri Lanka. By doing so, this paper problematizes these efforts and their theoretical grounding in the context of the political economy of post-war Northern Sri Lanka, where military surveillance and charged ethnic tensions, provide a politically polarized context. By analysing fishermen's and project's agency in this charged context, I explore limitations to bottom-up governance and reflect on the opportunities and limitations of science-practitioner collaboration.

### **Females, Fishing and Finance: The Role of Women in Achieving and Maintaining Wellbeing in a Northern Sri Lankan fishing village**

*Knoeff, Julia\*, N.R.M. Pouw*  
*U. of Amsterdam*

Globally small-scale fisheries are environmentally and financially in crisis. Policies and programmes to aid small-scale fisheries communities emphasize introducing new technologies, microcredit and input subsidies in a gender-neutral fashion. This in-depth case study of reconstruction and redevelopment in a post-conflict fishing village in Northern Sri Lanka: Udutturai, illustrates women's critical role as financial managers of the household. This role as well as women's complementary activities in the fisheries sector are discounted and devalued. Instead of building on pre-existing informal lending schemes, credit arrangements and social group support organized by women, policy interventions proceed by the assumption that women operate outside the fisheries economy. Both outside structures imposed by the government in the form of policies and development programmes, as well as village-level cultural norms and values limit the progress and opportunities for gender equality and overall strategies for improving and maintaining household wellbeing.

## **1.6. Fisheries and Climate Change**

**Chair:** Iris Monnereau

### **Social vulnerability of coastal communities to climate change: a Southern hemisphere comparison**

*James A.E. Howard\*, Shankar Aswani, Mary Gasalla, Sarah Jennings, Willem Malherbe, Ivan Martins, R. Narayanakuma, Shyam S. Salim, P. S. Swathilekshmi and Ingrid van Putten.*  
*University of Cape Town, Cape Town, South Africa.*

Marine dependent fishing communities worldwide face a growing multitude of threats and pressures, which affect their livelihoods, cultures, food security and resource base. Furthermore, climate change impacts are projected to compound existing stressors and increase the vulnerability of such communities. This paper presents a comparison of social vulnerability assessments conducted in regions of five countries (Brazil, South Africa, Madagascar, India and Australia) which border some of the fastest warming ocean areas in the southern hemisphere. This work represents the first stage of an ongoing, interdisciplinary, international Belmont Forum project known as GULLS (Global Understanding and Learning for Local Solutions) aimed at understanding and reducing vulnerability of coastal communities. Each country team conducted household surveys with marine dependent

communities, utilising a novel framework which expanded and moved beyond the standard three dimensions of vulnerability to climate change: exposure, sensitivity and adaptive capacity. In particular, this vulnerability assessment was designed to maximise the potential for robust cross-cultural comparison and takes into account the many critiques of vulnerability assessments made to date. In addition to presenting our preliminary findings and analysis of survey data, this paper will also discuss the process of our cross-cultural methodology and reflect on the strengths of pairing detailed local scale work with regional scale comparison in seeking potential solutions to reducing vulnerability.

### **Exploring marine futures with Caribbean Communities: Threats to livelihoods and governance implications**

*Clare Fitzsimmons\*, Turner, RA ;Forster, J ; Young, SE ; Peterson, A ; Gill, D ; Mahon, R ;Stead, SM  
Newcastle University, UK*

Caribbean coral reefs face uncertain futures. Reef dependant livelihoods, such as fishing and tourism, may be correspondingly jeopardised. Climate change threats to reef integrity are exacerbated by growing populations, exploitation and habitat degradation. Predictions of future population, climate and environment are relatively well developed in global and regional models. In contrast, limited studies identify corresponding future behaviours in threatened societies as ecosystem services are lost. We use alternative scenarios to explore social implications of future challenges, reporting outputs from workshops with 18 communities in seven Caribbean countries and territories. Four divergent scenarios are described around two critical future uncertainties; whether local reefs are a) subject to community or top-down management and b) relatively healthy or unhealthy, on a regional scale. Community scenario matrices are compared. Results highlight differences in communities' abilities to see and shape their own futures. Varying adaptive and participatory capacities and visions of viable future governance are apparent. Scenario work generated unique comparative data and a participatory process that anticipates responses to predicted future changes. Sustainable management requires communities' participation now, and their engagement with futures in which coral reefs and dependant livelihoods like fishing and tourism remain important. Supporting community visualisation of diverse futures is an important step towards such locally engaged, adaptive management for sustainable use.

### **Coral Reef Climate Change Adaptation Opportunities in the Gulf Region**

*R. John Bartz*

*University of Miami Abess Center for Ecosystem Science and Policy; University of Miami School of Law*

Coral reefs of the Red Sea and Gulf are among the hottest on the planet and are most vulnerable to additional ocean warming due to climate change. The political situation and coastal policy in the Gulf Region present considerable challenges to coral reef conservation. Shore reclamation and coastal development have destroyed a substantial area of coral reefs, especially along the southern coast of the Gulf. Because these southern areas correspond to warmer temperature regimes, the corals exhibit temperature resilience that could be valuable for prolonging coral reef existence in areas farther north as the temperature warms above the thermal limits of their respective coral populations. However, climate models indicate that the southern areas of the Red Sea and Gulf will experience severe coral bleaching on an annual basis in the next 20–40 years. In the case of the Red Sea, reefs on the northern portion of the Saudi Arabian coast would benefit from genetic exchange via human-assisted

translocation from coral populations farther south. Although the reefs of Iran in the northern Gulf could also benefit from the genetic exchange from southern Gulf coral populations, strained relations between the Gulf Cooperation Council (GCC) states and Iran may prevent coordinated climate change adaptation projects for reef building corals. Nevertheless, within the GCC, there are significant temperature gradients that provide potential opportunities for coral translocation. The consolidated power of the monarchies of the GCC may offer distinct opportunities for initiating conservation measures and allocating resources in a timely manner.

### **Indicator choice in climate change vulnerability assessments: an example from the global fisheries sector**

*Iris Monnereau\*, Robin Mahon, Patrick McConney, Leonard Nurse, Rachel Turner and Henri Vallès.  
Centre for Resource Management and Environmental Studies*

Climate change vulnerability has become prominent over the past decade in policy and academic literature. The impacts of climate change are considered to be highest in Least Developed Countries (LDCs) and Small Island Developing States (SIDS). Past approaches to understanding climate change vulnerability of fisheries sectors have indicated LDCs are the most vulnerable countries. However, these assessments included only a limited number of indicators and very few SIDS as they are often considered to be 'data-deficient'. As a result they conceal the vulnerability of the fisheries sector in SIDS which can have widespread consequences for SIDS in the climate change debate. Guided by a vulnerability framework comprising three components – exposure, sensitivity and adaptive capacity - we have conducted a new national-level fisheries sector vulnerability assessment. In this paper we will demonstrate that the perceived vulnerability of LDCs is partly due to methodological choices made in vulnerability assessments. These can conceal or highlight the relative vulnerability of particular country groups such as SIDS, LDCs and other coastal nations. These methodological choices are often not made explicit in vulnerability assessments yet have wide-scale consequences. The aim of this paper is therefore to systematically how different methodological choices impact the vulnerability outcomes of SIDS, LDCs and other coastal nations as well as take a more detailed focus on the outcome for the Caribbean nations.

## **1.7. Meeting and Discussion with Kenote Speaker: Prof. Oran Young**

Discussion with Oran Young, facilitated by Joyeeta Gupta and Jan van Tatenhove

<b>Panel sessions</b>	<b>Series 2</b>	<b>Wednesday, 26th of June 15:30-17:00</b>
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<b>2.1. Roundtable: Transboundary Challenges for Small-scale Fisheries</b>
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**Chair:** Joeri Scholtens

**Panel Organizers:** *Joeri Scholtens (University of Amsterdam), Andrew Song (McGill University), Johnny Stephen (University of Amsterdam).*

**Panel Description:**

*Small-scale fisheries and their governance are intrinsically connected to natural, social and political processes that occur outside the domain of a ‘fisheries system’. This connection is arguably nowhere better seen than in the case of transboundary fishing, where local, regional, national and international interests and identities are deeply interconnected.*

*This panel aims to explore how small-scale fisheries are interlinked with and affected by (the politics of) maritime boundaries, which is a relatively unexplored, yet important subject. Disruption of small-scale fishers’ livelihoods and environmental degradation are often observed in cases of disputed sea boundaries as well as in cases of internationalization of fishing fleets. While many scholars have studied the subject of transboundary fisheries (e.g. with aspects involving stock dynamics, political economy, and UNCLOS), there is little research that has explicitly explored implications for small-scale fishers. This panel aims to explore a research agenda for understanding how maritime transboundary issues intersect with the concerns of small-scale fisheries. This panel is an activity by the new TBTI research cluster on ‘Transboundary Challenges for small-scale fishers’.*

**Exploring a research agenda on transboundary challenges for small-scale fishers**

*Joeri Scholtens, Andrew Song, Johnny Stephen.*

With three short introductory vignettes:

- 1 ) The logic of fishing in transboundary space: strategies of transboundary fishers  
*Johnny Stephen*
- 2 ) Small-scale fishers’ dealings with foreign fleet intrusions.  
*Joeri Scholtens*
- 3 ) Small-scale fishers’ entanglement in geopolitical maritime boundary disputes  
*Andrew Song*

**The Complexities of Transborder Fisheries in Malacca Strait: Reflections from four years’ experience of assisting Indonesian fishers caught in Malaysia**

*Dedi Supriadi Adhuri. Research Center for Society and Culture, Indonesian Institute of Sciences*

**Elements of a research agenda on transboundary challenges for small-scale fisheries. With illustrations from interactions of small-boat fishers on the Canada-US border .**

*Anthony Charles, School of the Environment, Saint Mary’s University*

Small group discussions with audience on shaping the research agenda

- 1: What are the major gaps in knowledge regarding the impact of transboundary issues on SSF?
- 2: What are crucial questions for a meaningful research agenda on transboundary challenges for SSF?

## 2.2. Wicked Problems of New Governance Objectives

**Chair:** Maaïke Knol

### **Innovative marine governance for Blue Growth: Setting a research and training agenda**

*Maaïke Knol\*, Maarten Bavinck; Petter Holm; Jahn Petter Johnsen; Judith van Leeuwen; José Pascual-Fernandez; Jesper Raakjær; Jan van Tatenhove*  
*University of Tromsø*

The marine realm of Europe is rapidly expanding and has large potential to become a major contributor to economic growth. With its Blue Growth strategy, the European Union aims to facilitate marine value creation in the present and the future. Although the potential for growth is considered to be significant, appropriate investments in governance and research are required. Flanking research will extend beyond the technological and economic domains since initiatives for value creation must take account of social and environmental concerns such as climate change, environmental protection, and human wellbeing. Governance must also reckon with existing regulatory structures, economic activities and traditions. Securing appropriate governance structures is therefore key to the materialisation of Blue Growth.

Innovative marine governance is thus directed at facilitating sustainable value creation, thereby taking into account the diversity of actors and levels of governance. It deals with unknown futures - with developments that are difficult to predict and foresee. Innovative marine governance emphasises an interest in how new forms of value creation are developed and implemented, such as through technological innovation.

We present a research and training agenda that is built on three core processes in marine governance: regionalisation, democratisation and knowledge production. Furthermore, we argue that marine governance research and training should be international, intersectoral and interdisciplinary with strong connections to the public and private sector. Such research and training should deliver theoretical insights and practical knowledge for achieving long-term sustainable growth in the marine and maritime sectors.

### **On the Fisheries Management Merry-go-round: a blur of images passing by**

*J. Prescott*  
*Australian Fisheries Management Authority*

This paper provides a contrasting perspective on fisheries management to the 'standardised' Ecosystem Approach to Fisheries Management. Management, like the fisheries themselves, is a complex undertaking involving dynamic processes. Aquatic ecosystems are variable at different scales of space and time and there is growing evidence that there are profound environmental shifts

underway driven by anthropogenic forces. Harvested species are also dynamic and respond to the environment in often unpredictable ways. However, the fact that fisheries are interactions between humans and natural systems is what's responsible for much of their complexity.

How should management proceed in the face of such complex and often wicked problems? Certainly, numerous successfully managed fisheries might provide useful examples, however, most of these are highly contextual and almost all are found within a few western countries. Despite this, these experiences have produced various programs providing general, predominantly science-based, advice about how fisheries should be managed. Over the past two decades, what were once mostly single-species perspectives, have given way to the ecosystem approach which attempts to embrace the human aspects of the fishery and more holistically addresses the fishery in its supporting natural system. In principle, an ecosystem approach is eminently sensible. However it is exceptionally ambitious which makes success improbable for many who may try it. Simpler management models, while plainly inferior in theory, may be better starting points for more effective management in many fisheries. Drawing on several case studies we explore and contrast possible management pathways that may lead to more manageable and relevant interventions.

#### **Towards an operational typological tool to triage human responses to marine resource crises**

*P. Guillotreau\*, R.I. Perry, A. Bundy, R. Chuenpagdee, E. Allison, O. Defeo, B. Glaeser, M. Isaacs, Y. Li\**  
*University of Nantes, France*

Humans are inextricably linked to natural systems, which provide a range of benefits including food and livelihoods. As we increase our understanding of the many linkages and interactions within marine ecosystems and between marine ecosystems and various components of human society, there is an increased recognition that we need to take a holistic, interdisciplinary approach to our management and use of natural systems. These linked social and ecological systems are subject to change and when they change in unexpected ways, impacting human livelihoods and well-being, the changes are usually described as crises. Such crises require a response from the human governing system to mitigate the impacts of the change. To date, there have been few attempts to develop a structured approach to review and understand what governance responses are effective (or not effective) for different types of marine ecosystem changes and human social systems. Using the IMBER-ADApT (Assessment based on Description and responses, and Appraisal for a Typology) framework, we describe the development of a typology of marine resource crises and human (governance) responses, for linked marine social and ecological systems. Using marine case studies, we describe how they can be used (1) as a simple inventory of the types of crises, and the governance responses (and whether they were successful); and (2) to develop a typology that identifies and groups similar crises, human contexts, and responses. We discuss the key characteristics that might be used as 'entry points' into the inventory and as criteria for the typology, and show how these can be used to develop the typology (and some of the difficulties). The goal is to produce an operational system to assist and guide cost-effective policy and governing responses to marine resource crises that allows users to quickly identify which responses have worked (and which have not worked), and why, in similar situations elsewhere.

## 2.3. Wellbeing and place-based approaches to identifying the societal values of small-scale fisheries 2

**Chair:** Tim Acott

### **Understanding Social Wellbeing and Values of SSF amongst the Sama-Bajau of archipelagic Southeast Asia**

*Natasha Stacey\*, Dirk Steenbergen, Julian Clifton and Greg Acciaioli*  
*Charles Darwin University*

The Sama-Bajau represent one of the most widely dispersed Indigenous groups in Southeast Asia. Recent estimates indicate a total population of approximately 1.1 million, with around 200,000 living in areas of high biodiversity in the islands of eastern Indonesia, 347,000 in Malaysia (Sabah) and 564,000 in the Philippines. Sama-Bajau culture is intimately connected to marine environments on which they depend for subsistence and cash income as well as their cultural identity. Culturally defined patterns of fishing activity (including migratory expeditions) unite all sectors of Sama-Bajau communities through catching, consuming, processing and trading of marine resources. Fishing and gathering of shellfish and other strand resources provides the focus for individual and communal relations within villages and across extensive kin and trading networks. The maintenance and transmission of Indigenous language and knowledge between generations occurs through socialisation in livelihoods and related social and cultural activities. As such, customary beliefs and practices in relation to boats and sea spirits endure among the Sama-Bajau, and are primarily oriented to ensuring return on fishing effort. Sama-Bajau small-scale fisheries (SSF) across insular Southeast Asia therefore present a highly relevant case study. We will explore the dimensions of social wellbeing in the Sama-Bajau context and identify how the Sama-Bajau have responded to endogenously developed and exogenously induced drivers. Utilising our collective experience of Sama-Bajau society in diverse locations across Indonesia, Malaysia and the Philippines, we will discuss the parameters of continuity and transformation in Sama-Bajau way of life. The case study offers the opportunity to explore how historical and contemporary drivers have contributed to the variability of Sama-Bajau social welfare, spatially and temporally.

### **Symbols of resilience: Place meanings and contestations over 'fishing' as part of place identity**

*Carole White*  
*U. of East Anglia*

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.

**Exploring cultural ecosystem services and wellbeing through a place-based approach: the case of small-scale fisheries along the English Channel and Southern North Sea**

*Tim Acott\*, Julie Urquhart*  
*U. of Greenwich*

Acott and Urquhart developed an understanding of cultural ecosystem services (CES) built upon sense of place (Urquhart and Acott 2013, Acott and Urquhart 2014). They concluded their studies by describing how small-scale fishing results in a series of ‘transformations’ that give rise to socio-cultural value. This current paper develops this perspective using empirical case examples from two INTERREG IVA projects (CHARM and GIFS) with attention being given to sense of place as a way of understanding CES in relation to social wellbeing. Small-scale fishing creates socio-ecological transformations that connect marine and terrestrial environments. Human wellbeing is an important driver of these transformations that result in the creation of new socio-ecological assemblages and networks. However, reductive practices in fisheries management have tended to focus on ecological and economic dimensions that have rendered the social and cultural importance of fishing largely invisible, at least in the context of governance and policy making but not to the fishing communities themselves. Drawing together CES and sense of place with a wellbeing perspective helps to make visible the social and cultural importance of small-scale fishing. In developing such a perspective the importance of giving attention to the co-constructed nature of marine / terrestrial relationships becomes apparent.

**The importance and necessary cautions of a wellbeing and place-based approach to the values of small-scale fisheries**

*Derek Johnson\*, Tim Acott, Natasha Stacey, Julie Urquhart*  
*U. of Manitoba*

In this presentation we build an emergent theorization of the notion of small-scale fisheries values based on the conceptual interpretations and empirical cases presented by the contributors to these panels and to the edited volume from which the foregoing papers are a selection. We return to the strengths and limitations of values as a key plank in the argument in favour of small-scale fisheries and reflect on how the notion may be strengthened by interpretations of social wellbeing and placed-based analytical perspectives.

**2.4. Special Session on Small Scale Fisheries in Europe 2**

**Chair:** Jahn Petter Johnsen

**“Nice harbour but where are the fishers?”: Critical insight into fisheries policies and its effects to small-scale fisheries in Estonia**

*Joonas Plaan*  
*Memorial University of Newfoundland, Canada*

This paper examines the ways in which national and international policies and strategies regulating trade, labor, development and the environment have socioeconomically influenced small-scale fisheries in Estonia. Estonian small-scale fisheries, both coastal and inland, are facing decline in many fish species, inadequate marketing opportunities and low income, amortisation of fishing equipment and other infrastructure, and absence of strategies for the future. The paper focuses on effects of new policies, which accession to EU have brought to the lives of fishers and their families. First, most regulations concerning fisheries have become extensively international and standardised, often not accounting local ecological and sociocultural particularities. Second, Common Fisheries Policy has opened up labor market, which has encouraged many fishermen to supplement fishing incomes with migration to other fishing grounds in neighbour states. Third, new development strategies have brought substitutes, which have been invested into modernisation of equipment and infrastructure, developing new marketing strategies, and promoting tourism in traditional fishing communities. New policies have helped to maintain traditional involvement in fishing and fishers population has stabilised. Nevertheless, existing top-down programs do not treat the social and economic variables that underpin the vulnerability to problems small-scale fisheries face. Solving one aspect of the declining fish populations (e.g. better equipment) will not deliver a situation for already-stressed communities. Thus, there is concern that the focus in national plans is mostly on technical and infrastructural interventions with little, if any, attention to social and institutional issues considering small-scale fisheries in Estonia.

#### **Small scale fisheries in Norway.**

*Jahn Petter Johnsen*

*Norwegian College of Fishery Science, The Arctic University of Norway, Tromsø, Norway;*

Until the 1990s major fisheries in Norway was open access and heavily subsidised. Since then, Norwegian fisheries have changed radically. The closure of the major fisheries, following collapses in important stocks, have affected all types of fishing, small, medium and large scale. Thus, the strategies to make the sector sustainable, both in ecological and economical terms, have contributed to change both the social organisation in the fisheries, the technology and the fishing practices. Parallel to the policy for structural change, Norwegian fisheries policy, has also aimed towards protection of the small scale fishing fleet, originally consisting of vessels smaller than 15 m. Thus, inside the framework of a national policy focusing on sustainability and profitability, the small scale fisheries have been transformed from being a part-time activity, combined with other sources of income, into to a full time profession. While the concept small scale fisheries imply that these fisheries in terms of impact, organisation and scale are radically different from large scale, the situation in Norway is different, with the small scale fleet as an integrated part of the fishing industry. This chapter will present the background for this situation, identify and analyse important drivers behind the and finally point to what lessons that can be learned from the development.

#### **Fishing in the NE Adriatic: from borders to projects.**

*Alenka Janko Spreizer\*, Nataša Rogelja*

*University of Primorska – Faculty of Humanities, Department of Anthropology and Cultural Studies, Slovenia*

The contribution describes fisheries in Slovenia from 1991, following the cessation from the former Socialist Federal Republic of Yugoslavia, to 2014, in the context of implementing the common

European policy and sustainable development. First, we analyse socio-political and economic changes from 1991 significant to fisheries and confronting the systemic aspect with the aspects of actors – politicians, fisheries specialists, and fishermen – to shed light on the understanding of sustainable management of the sea. This period marked a significant decrease in water areas designated for industrial fisheries. Previous jurisdictions over sea management were transferred from institutions in Croatia to Slovenia, which had to establish a national network of fisheries institutions. In the next step we describe the processes of EU accession and harmonisation of national legislation with EU regulations in the context of common European fishery policy reforms after 2002. Reflecting on the transition, we depict the changing situation of small coastal fishermen. The first issues arose in relations between industrial and small coastal fishermen, the decrease in the fishing fleet in compliance with the EU sustainability criteria, and management strategies in addressing the inadequate regulation of fishermen's status. Coordinated collaboration among the ministry, fishery institutions, and their representatives was gradually introduced. Finally, we discuss examples of active implementation of the reformed common European fisheries policy, as well as present social and cultural processes accompanying the formation of the national strategic plan for 2007–2014, implementation of the operation programme for the development of the fisheries in the state, and decrease in fishing effort within the framework of the EFF.

### **Challenges of governing small-scale fisheries in Northwest Russia**

*Nakhshina, Maria*

Fishing has been the primary activity and source of income in many rural areas of Northwest Russia. Salmon fishing in particular has played an important role in local economy and identity.

During the Soviet period, fishing was done by state enterprises and collective farms; individual fishing for salmon and other precious fish was entirely forbidden. At the same time, Soviet collective farms could fish without any quota restrictions. This generated significant employment in the fisheries and allowed people to procure salmon for subsistence purposes through work channels.

As post-Soviet Russia embraced the market economy, the state introduced fishing concessions. State organisations and collective farms had their quotas severely cut, as they now had to compete with numerous private fishing enterprises; prices for fuel and fishing equipment rocketed towards market levels. Small-scale marine fisheries became largely unprofitable.

Current Russian legislation does not recognise small-scale fisheries as a phenomenon in its own right, ascribing them the same legal status as to large-scale fisheries. Participation in commercial small-scale fishing therefore does not bring operators any benefits. At the same time, small-scale fisheries continue to play an important role in socioeconomic wellbeing of people both in rural and urban areas of Russia.

This paper looks at small-scale fisheries in Arkhangelsk oblast in the Russian northwest to study contemporary challenges of fisheries management in Russia. The analysis of fisheries' legislation and management system and predicaments of small-scale fisheries as they unfold in Arkhangelsk oblast touches upon issues that are relevant for fishermen across the country.

### **Small-scale fisheries in Portugal: current status, challenges and opportunities.**

*Cristina Pita\*, Telmo Morato, Miguel Gaspar*

*Centre for Environmental and Marine Studies (CESAM) & Department of Biology, University of Aveiro, Portugal*

Portuguese fisheries can be characterized as being small-scale fisheries (SSF), as the fleet is comprised mostly of vessels with an overall length equal or lower than 9m (84% of the total fleet) targeting multiple species with a wide range of fishing gears. The SSF fleet employs mostly traditional passive fishing gears, such as set gillnets, trammel nets, set longlines, hand and pole-lines, and pots and traps; together these account for 93% of all the SSF gear licenses. The fish landed by the SSF fleet has a high quality and is, mostly, commercialized fresh in the national market.

SSF in Portugal have a high social, economic and cultural importance; with Portuguese culture and traditions deeply rooted in fishing, being the economic basis of many fishing communities, characterized by a low economic diversification and high dependent on fishing. SSF are also important in environmental terms as the fleet operates in environmentally sensitive areas. However, there is a general lack of information about the environmental and human dimensions of SSF, which hampers the sustainable management of the fleet, the resources and the ecosystems where the fisheries take place. Furthermore, SSF have traditionally been neglected and this has resulted on, and is also a consequence of, small-scale and artisanal fishers being poorly organized, weakly represented and often ignored in local, regional and national fisheries decision-making processes that regulate their fisheries.

This paper will describe SSF fisheries in Portuguese mainland, the Azores and Madeira. It will give an overview of the status and trends of the sector, the management of SSF, discuss the impacts of the common fisheries policy (CFP) in the sector, and challenges and opportunities brought forward with the recent reform of the CFP and the greater emphasis it puts on SSF.

## **2.5. Political Ecology of Indo-Sri Lankan fisheries: REINCORPFISH 2**

**Chair:** Ajit Menon

### **Power and democratic participation in fisheries governance: evidence from South Africa's Cape Peninsula**

*Schulz, O.*

*University of Cape Town*

The concept of 'participation' has become an increasingly prominent feature of fisheries governance theory and policy-making over the last two decades. Participation is now widely promoted by policy-makers and social science scholars around the globe, based on the rationale that the involvement of resource user groups can improve the efficacy of fisheries policy and management processes, while also facilitating greater democracy in these processes. This paper seeks to interrogate the democratic rationale for participation by exploring the relationship between power and participation in fisheries governance processes. From the perspective of contemporary theoretical approaches to fisheries governance, participation tends to be conceptualised in terms of collaborative engagement between

divergent sets of actors, who work together as partners to achieve shared goals. Yet these theoretical approaches do not sufficiently confront the strategic practices and structural inequalities of power that shape participatory interactions during fisheries policy and management processes. The asymmetries of political and economic power between actors such as small-scale fishers, state officials, scientists, and industrial fishing company representatives have an inherent potential to undermine democratic participation. There is thus a fundamental need to bring the issue of power to the centre of the analysis and theorising of participation in fisheries governance processes. Drawing on ethnographic research conducted in South Africa on the Cape Peninsula, this paper will demonstrate some of the ways that asymmetrical power relations serve to undermine the democratic possibilities of participation in fisheries governance.

### **Production Relations in Palk Bay fisheries**

*Manimohan, R\*. and A. Menon<sup>a</sup>*

*Madras Institute of Development Studies*

Researchers working on the political ecology of fisheries focus on whether capitalist relations have developed in fisheries or not. Two major strands of literature represent this trend. Some scholars take a neo-populist position similar to Chayanovian peasant economy that undermines class dynamics and process of capital accumulation. Another section of scholars contest this stand, and look at processes of social differentiation and class relations, through Marxian political economy lens. The present paper examines the way in which class relations take particular expressions in Palk Bay fisheries in South India. A typology of trawl owners has been made on the basis of four broad criteria such as investment on fishing instruments, credit worthiness, labour relations and social standing. The typology includes owners of three categories viz., small, medium and large. Besides, a fourth category of trawler workers is also defined. The typology of trawler fisher class is systematically applied to understand labour process in fisheries that underpins the production of value.

### **Coastal land-grabbing in Sri Lanka: the legacy of civil war.**

*Kumara, H<sup>a</sup>*

*National Fisheries Solidarity (NAFSO)*

During the civil war in Sri Lanka (1983-2009) a large number of fishing communities in the north and north-west were displaced to make way for so-called high security zones. In the post war period their land has not yet been given back and they are thus still living as internally displaced people (IDP). This presentation will focus on two specific cases in Mannar and in Jaffna districts. Rights groups have been taking steps to return these lands to the fishing communities in question, but with limited success. In fact, the use of coastal lands for military purposes, business matters, agriculture or infrastructural development is still increasing, which is a major hindrance to fisher rehabilitation.

### **The political ecology of palk bay fisheries: geographies of fisher identity, ethnicity and nation**

*Ajit Menon (et al)*

*Madras Institute of Development Studies*

Increasing tension between Indian trawl fishers from the state of Tamil Nadu and Sri Lankan artisanal fishers from the Northern Province in the Palk Bay has resulted in the Sri Lankan government patrolling the international maritime boundary line (IMBL) more stringently and increased arrests of

Indian trawl fishers. Indian trawl fishers with their bottom-net technologies regularly engage in cross-border fishing to the detriment of Sri Lankan artisanal fishers whose nets are irreparably damaged. This paper argues that the present 'fisheries crisis' in the Palk Bay must be understood from a political ecology perspective that takes cognisance of the circuitous and contradictory nature of capital accumulation. It also emphasises the need to pay attention to how accumulation and the spatial practices of trawl fishers have been shaped by geographies of capital, fisher conflict and the nation-state, taking issue with the linear narratives of earlier political ecology of fisheries literature.

## 2.6. Responding to Natural Disasters of the Coast

**Chair:** Alyne Delaney

### **Understanding post-disaster response trajectories in small-scale fisher organizations in Bio-Bio, Chile.**

*Andrés Marín*

*Stockholm Resilience Centre, Stockholm University - Sweden*

Increased likelihood and severity of coastal disasters in the 21st century represent major threats for coastal and fishing communities' survival, resource management capacity and livelihoods. Disaster research has frequently looked for key single factors explaining why some groups are more resilient (or less vulnerable) and better prepared to cope with and recover from devastating disasters. In this study, we draw on Chile's 2010 tsunami and its impacts on small-scale fisheries in the Bio-Bio region, to explore configurations of internal (i.e., social capital) and external (i.e., geophysical) factors that determine resource users' heterogeneous post-disaster performance. Using semi-structured questionnaires applied to 21 fisher leaders and to key informants in the fishery sector, and secondary base-line information, we assess how the concurrency of factors can help explain how fisher organizations have responded in the mid-term. Results show that linking social capital is very important for more desirable post-disaster trajectories; however, the actual effect of social capital greatly depends on the interplay with other relevant factors. Geographical isolation and the amount of damage can amplify or reduce the benefits obtained from vertical supportive and collaborative relationships. Else, changes in social capital over time can also explain why some organizations respond better than others. Our findings suggest that the capacity of local users to steer better responses through their social networks is vital but should not be overestimated. Understanding what makes a difference for fishing communities in the aftermath of coastal disasters can inform the design of more effective and efficient responses and policies in Chile and more broadly. The goal is to enable the recovery and improvement of coastal livelihoods and to reduce people's vulnerabilities to natural hazards and other socioecological changes.

### **Marine Reserves, Governance and Uncertainty. Responses to the eruption of underwater volcano of El Hierro.**

*Raquel de La Cruz Modino\*, José J. Pascual Fernández*

*Institute of Social & Political Science, University of La Laguna (Spain)*

The Marine Reserve (MR) Punta de La Restinga-Sea of Calm was created in 1996 with the local fishermen's support, along the so called "Sea of Calm" on the coast of the El Hierro island (Canary

Islands, Spain). The MR has quickly become a diving destination for Spanish tourist mainly, although its relevance as a management tool has been traditionally focused fisheries government. During the fall of 2011, the explosion of a submarine volcano in the Sea of Calms preceded by several seismic crises, affected the coastal waters and the entire insular economy. The disaster, jointly with the Spanish economic crisis, prompted a deep crisis in the island.

This proposal analyzes the socio-economical effects of the volcano crisis, the government responses and community proposals, facing the important changes occurred at ecological, social, economic but also politic levels. Because all of this also coinciding with a shift in the island politic context, after three decades of nationalist hegemony. Local population in El Hierro has faced and still facing, a recovery process marked by the confrontation between different actors, public and private groups from the civil society of the island. These are not simply results from the management of the volcano eruption and the difficulties added by the Spanish economic crisis. Many of them becomes from the confrontation and change of the traditional relationships between administrators and different coastal stakeholders groups in the Island. The work shows as fishers' resilience is higher than other communities and coastal stakeholders groups related to tourism.

### **Social Sustainability in Post-3.11 Coastal Japan: The Significance of Social Capital**

*Alyne Delaney*

*Innovative Fisheries Management, Aalborg University (IFM-AAU)*

This paper explores the concept of social sustainability in Japan in the aftermath of the events of the Great East Japan Earthquake of March 11, 2011 (hereafter 3.11). 3.11, referred to as a triple disaster, was the most devastating disaster Japan had faced since the end of WWII. With more than 18,000 people dead or missing, three quarters of a million buildings severely damaged or destroyed, and with hundreds of communities in 133 municipalities impacted, recovery and reconstruction is a massive undertaking. More than three years after 3.11, tens of thousands of people remain in temporary housing with numerous communities and neighbourhoods awaiting promised reconstruction. To this day, numerous grass-roots projects have been undertaken in the region, yet 60% of the government's reconstruction funds sit in Tohoku banks, as yet unspent by the local municipalities.

This paper documents the efforts made by residents and officials in one northeastern Pacific coastal town to ensure the live-ability of their town, and the livelihoods of residents. Applying a case study approach, this chapter presents two activities: 1) the development of the town's marine industries, using fishing cooperative association (FCA), citizen, and town hall resources, and 2) the continuing use of 3.11volunteers in local agricultural and marine production and in community life. The potency of the use of these two pillars revolves around the presumed strength of the marine environment through using the cultural approach of *machizukuri* and the rise of citizen volunteerism. Combined, they stand as strong efforts in the search for social sustainability in this Miyagi community.

### **Weathering the Storm: Impacts on and Responses of Small Island Fishing Households to Typhoon Haiyan in Central Philippines**

*Gay Defiesta*

*University of the Philippines Visayas, Miag-ao, Iloilo, Philippines*

*Mary Barby Badayos-Jover, Hanny John Mediodia and Rodelio F. Subade*

Typhoon Haiyan, the strongest storm to ever hit the Philippines, devastated the fishing communities of Visayas, central Philippines. Strong winds and storm surges as high as 19 feet ravaged coastal areas causing deaths and massive destruction to properties and crops. Among the hardest hit are small island coastal communities. Fishing and related sources of income in these areas stopped due to the destruction of boats and fishing gears. Fishing households were left without income for a number of weeks after the typhoon. It is important to understand the impacts of disasters like Typhoon Haiyan on fishers' livelihoods for successful rehabilitation and reconstruction to build back better communities. This paper analyzes the effects of the disaster on the livelihoods of fishers in a small island as well as look into their coping mechanisms after the typhoon. The primary objective is to understand the nature and composition of these livelihoods and their critical role in the fishing households' recovery from the impacts of the typhoon. Recently, the sustainable livelihoods approach has been applied in vulnerability and impact assessment studies of disasters and climate change (Defiesta and Rapera, 2014). This study likewise applies livelihoods analysis to Barangay Bayas, one of the small island communities in Northern Iloilo, Central Philippines, severely affected by typhoon Haiyan. Data were gathered from focus group discussions, workshops and secondary sources. Results show that the community relies heavily on fishing as source of income; hence other livelihoods were also affected when this was disrupted by the typhoon. This has important implications on households' resilience and recovery from the typhoon as well as in the design of rehabilitation strategies for the community.

### **Community Service Activities by Schoolchildren after the 2011 Tsunami**

*Yukiko Matsunaga and Akifumi Iwabuchi*

*Tokyo University of Marine Science and Technology*

The Japan Earthquake and Tsunami of 2011 caused serious damage to its Pacific coastal area. As well in one maritime community in Kuji city of northeastern Honshu island, many houses, bridges, or fishing port were destroyed and boats or gears were swept away, but no victim numbered fortunately. Shortly after this natural disaster, the community reconstruction work started, and in the following year local female dive and fixed shore net fisheries were resumed again. Like other small hamlets, this fishermen's village was conservative and self-enclosed. When relief clothes supplied by outsiders arrived there, therefore, schoolchildren performed an important role, for example, in dividing and distributing them to each household. The tsunami was also one of triggers that led schoolchildren to think about the marine environment and culture around them. In cooperation with some non-local organizations and universities, they had new opportunity to take lessons in environmental and cultural study: regenerating and restoring sea creatures, which seemed to become extinct after tsunami, in shallow coastal waters, making eco-friendly soaps from waste oil, playing the lead in traditional festivals, imparting their ocean knowledge to other schoolchildren in mountainous areas, exchanging opinions with foreign pupils about environmental issues, and so forth. The short video, which dealt with those children's community service activities such as consideration to marine environmental preservation, was created by them. It won a prize in a domestic kid's video competition, and then in 2014 it was screened with English subtitles during the 5th International Pacific Marine Educators Network Conference held in Tokyo. With the video those schoolchildren made the English presentation upon their community works in front of international scholars, too. Because their activities, video, and presentation became highly evaluated, the video was also showed during the 2014 Youth Ocean Conservation Summit and its Film Festival in Florida, U. S.

## **2.7. From knowledge production till breakdown: is the landing obligation a threat to industry-science partnerships?**

**Chair:** Sebastian Uhlmann

**Panel Organizer:**

*Sebastian Uhlmann (Institute for Agriculture and Fisheries Research)*

*Marloes Kraan (IMARES Wageningen UR)*

**Panel Description**

*In response to concerns about the far-reaching consequences of the landing obligation for the production of both scientific and fishers (ecological) knowledge, we would like to stimulate discussion about ways to safeguard, extend or replace existing pathways of knowledge production in the marine realm. How can fishers credibly demonstrate that they have become more selective in their fishing patterns, since the introduction of the landing obligation? Have traditional techniques of data collection such as observer-based sampling at sea still have a place under the reformed Common Fisheries Policy? Or do electronic monitoring approaches provide the 100% traceability and reliability that works in the fisher's favour? Are there other or complementary, co-operative approaches that will prevent the erosion of trust in industry-science partnerships? These and other questions surrounding the consequences of the landing obligation for knowledge production, will be the focus of this panel.*

**What is the catch of a catch quota management system?**

*A.T.M. van Helmond\*, M. Kraan, C. Chun and J.J. Poos*

*IMARES Wageningen UR.*

In the beginning 2011 the Dutch Ministry proposed a pilot study for a catch quota regime for cod *Gadus Morhua* for commercial vessels in the Netherlands. The participating vessels received up to 30% additional cod quota under the condition that all cod catches are recorded and being deducted from their quota, including small-sized fish that have no commercial value. This catch quota regime creates the incentive for fishers to maximize the revenue from their individual quota and, consequently, to minimize the catch of undersized juvenile fish. This study investigates the ability of fishers of different metiers to adjust to such a catch quota regime. Commonly, mechanistic models, based on economic interests, are used to analyse and evaluate management scenarios. However, fisheries management is a complex system in which a manager should take the interests of many stakeholders into account. Each fishing vessel operates within their own framework of fisheries knowledge, available quota, resource capacities, traditions and cultural background. This study combined remote electronic monitoring and a social science perspective in analysing fishing behaviour, and created an unique insight of the impact of forthcoming fisheries management reforms on the level of individual fishers. In contrast with the European approach to manage all fisheries homogenously at regional level, this study points out that such a holistic approach towards more sustainable fisheries can be counterproductive for certain fisheries, groups of fishers or individual fishers. Besides economical interest, also, tradition, cultural background, fisheries knowledge and regulation are crucial factors for the success of a management plan. In the context of the reform of the Common Fisheries Policy in Europe, our study is well-timed and the conclusions are an important message to fisheries managers endeavouring to mitigate overfishing and keep economic resilience of the fishing industry low at the same time.

### **“I spy with my little eye...a floundering flatfish”: can self-sampling by fishers facilitate the implementation of the discard ban?**

*Sebastian Uhlmann\*, Ruben Theunynck*

*Institute for Agricultural and Fisheries Research (ILVO)*

With the reformed Common Fisheries Policy more than ever before it is important to know what commercial fishers catch at-sea, as opposed to what is landed ashore. Assessments of the condition of captured fish will be equally important for granting exemptions from the landing obligation or discard ban on the basis of ‘high survival’. To meet these data needs, fisheries-dependent observations are needed on large spatial and temporal scales. Traditional techniques of observer monitoring may not suffice and the utility of alternatives such as self-sampling and electronic monitoring need to be explored. Practicality of collection and validation of data are key challenges. Using a case study where the ability of different observers to accurately score presence/absence of neuro-muscular reflex impairment and physical injury was compared, we illustrate how to control bias and improve data reliability. The Reflex Action Mortality Predictor (RAMP) method is a proven concept that has been validated in predicting vitality and mortality in a variety of taxa. It may be a promising technique to reliably predict survival of discarded fish without actually tracing its fate. For making predictions about survival on a fleet-wide scale, considerable numbers of fish caught across the full spectrum of possible fishing conditions, will need to be assessed. Integrating self-sampling, observer and electronic monitoring techniques in the collection of such and other data, and tying their quality to an incentive-based system of levies or auction sales may be the way forward for a ‘future fleet’.

### **Dilemma’s in studying behavior of fishermen in the context of contested fisheries policy**

*Marloes Kraan*

*IMARES Wageningen UR*

Since the implementation process of the landing obligation (LO) started in 2013, the Dutch fishing fleet is undertaking numerous research projects to prepare for what is coming. The LO forbids the discarding of undersized quota species. This is a radical change of policy, as the landing of undersized fish had always been forbidden. The measure, aiming to end ‘wasteful practices’ is contested. It is expected to have big implications for the Dutch demersal fishing fleet as discard percentages have been quite high. Research is needed to foresee how the fleet can respond to the new policy. The research is subsidized via a scheme of the Dutch government. The fleet representatives have regular meetings with the government to discuss the progress of the projects. During these meetings, where also research institutes and NGO’s are present, the preparatory actions the government undertakes at the EU level are also discussed; as well as feedback is given of the NSAC discussions. The government and the fisher representatives are cooperating in the implementation. This cooperation, however is under continuous tension. There are two important reasons for this. First of all because the fishing fleet is so against the LO, that they are very reluctant to participate in the implementation of the measure. Secondly because the influence of the Dutch government is limited, as the implementation of the LO is steered at the regional and international level. One of the research projects aims to investigate in what way fishermen can fish more selectively by changing their fishing behavior. It aims to understand the way in which fishermen currently choose where and how to fish, and to understand their room to maneuver to catch less undersized fish. This paper discusses the methodological, ethical and knowledge dilemma’s surrounding this research project.

### **Bottom-up designing with fishermen of the details of the novel RTI fisheries management system**

*David G. Reid\*, Sarah B. M. Kraak*

*Marine Institute, Rinville, Oranmore, Co. Galway, Ireland.*

The 'Real-Time Incentive (RTI)' fisheries-management instrument replaces catch/landings quotas and days-at-sea limitations with a single allocation of fishing-impact credits ('RTIs'), for the integrated regulation of fishing mortality rates of multiple species and impacts on the ecosystem. Fishers can fish where and when they want and spend their allocated RTIs according to spatiotemporally varying tariffs. Managers set the tariffs based on agreed target mortality rates of multiple species, using knowledge of the spatiotemporally varying catchabilities of the various species caught/impacted in a mixed fishery. Simulations have shown that RTI may perform better than several traditional management systems, such as effort restriction and catch/landings quotas, in terms of controlling the harvest rates of several species in a mixed fishery while at the same time limiting impact on vulnerable ecosystem elements.

Because the RTI system is flexible it is very amenable to extensive bottom-up designing through consultation with all the stakeholders. Consultation with the industry from the start will allow for increased industry buy-in as well as the acquisition of knowledge on their anticipated responses and on idiosyncratic incentives that are most likely to work in each particular case.

We report on the interactions we have had in the course of three years with the fishermen and their representatives of the Irish South and West Fish Producers Organisation (ISWFPO). Presentation of the RTI concept by scientists was initially met with interest, but also caution and suspicion. In the course of time it became clear to the fishermen and their representatives that they could have much influence on the detailed design of the RTI implementation. As a result, the ISWFPO would like to pilot the RTI system. In our later interactions, some fishermen came up with innovative suggestions to incorporate into the RTI system, for example, the individual "golden rectangle" with reduced tariff.

<b>Panel sessions</b>	<b>Series 3</b>	<b>Thursday, 25<sup>th</sup> of June</b> <b>10:30 – 12:00</b>
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### 3.1. Geopolitics of the Oceans

**Chair:** Pierre Failler

#### **Harnessing the potential of the “Blue Economy”**

*Iris MonnerEAU and Pierre Failler\**

*Economics and Finance, Portsmouth Business School, University of Portsmouth*

The concept of the “Blue economy” (BE) has been gaining grounds in academia and policy makers in recent years. It’s been mainly used in the African context but has been gaining ground in other regions as well. The concept reinforces conservation and sustainable management of oceans and builds onto the concept of the green economy as it was argued the green economy was not properly applicable for islands and coastal countries. The BE approach recognizes the productivity of healthy ocean ecosystems as a pathway for ocean-based economies, as well as ensuring that Small Island Developing States and other coastal countries benefit from their marine resources. The recent increasing interest in the riches of the last oceanic frontiers based on developing BE sectors such as oil and gas; deep sea mining; fishing and developing strategic maritime transport routes is quickly gaining momentum and fueling controversial geopolitical debates. Although the concept itself is novel it remains to be examined to what extent the concept actually provides a new approach, in comparison to, for example, Integrated Coastal Zone Management. It is also important to examine how diverse goals such as social equity while based on large-capital investments for port development and offshore oil exploration can be combined. In this paper we therefore want to explore (but are not limited to): the development of the concept; its current use in academia and policy circles; the perceived novelty of the concept; the interaction between BE development and increasing importance of geopolitics; and the applicability and limitations of the concept in practice.

#### **Power to the people: The Crown Estate, reform, and the potential for lower level marine stewardship in Scotland.**

*Glen Smith*

*UiT, The Arctic University of Norway*

The United Kingdom’s Crown Estate Commission is a unique organisation that manages a vast terrestrial and marine ‘Crown Estate’. Its role is often compared to that of a landlord, with the power to lease sites for development. In the marine environment it has played a crucial role in attracting investment to rapidly growing industries such as offshore renewable energies and aquaculture. Profits made on the Crown Estate are transferred to the UK Treasury for public spending.

Yet serious and long standing concerns exist regarding the Commission’s autonomy, accountability and engagement processes. Calls for reform have been voiced most loudly in Scotland where many believe profits from the Scottish estate should be administered by the Scottish Government. In October

2014 it was announced that this will indeed happen. In a two-step process responsibility for the management of the Crown Estate Commission – including all of its assets and profits made on these – shall be transferred to Edinburgh, and later to local authorities.

This paper explores the likely changes to the Commission in Scotland and how its estate is managed. It discusses the potential for alternative, localised means of managing coastal and marine resources. What transparent and accountable instruments already exist or could be developed to allow this? How can the sustainable use of these resources – and benefits to local communities – be safeguarded?

Given the vast expansion of maritime activities in Scotland's seas, this is a significant geopolitical debate about power and political and social organisation on a domestic and local level.

### **The sustainable management of maritime areas in the western Pacific: ecological or political underlying challenges?**

*Anne Littaye*

*Agence des aires marines protégées, French Marine Protected Areas Agency*

The Pacific Ocean covers one-third of the Earth's surface. The key challenges faced by western Pacific nations are a better integrated nature of their economies within the region that undoubtedly has become the world's economic centre of gravity. Several of these island nations are both faced with societal and climatic changes. What is the weight of their sovereignty in their resource exploitation and what are the benefits for the local populations?

At the same time, all countries are strongly committed to ensuring biodiversity world heritage conservation. The international Conventions such as the Convention on Biological Diversity and its regional and national versions recommend the designation of 10% of Marine Protected Areas. The Pacific Ocean is one of the richest sources of natural and cultural diversity; yet only a tiny fraction is known.

A marine spatial planning project took place over the western Pacific region which gathers 22 island countries and territories. The main goal was to provide elements and proposals to strengthen the cooperation between the states to ensure both the conservation of its exceptional diversity and a sustainable and fair development. A prospective and participative approach was implemented. The output suggested fresh forms of regional and sub-regional cooperation to meet the security of populations facing climate change impacts, the food security and the economic development challenge given the insular and remote area. Marine Protected Areas according to various modes and different spatial scales were central to the solutions proposed.

These new perspectives, in the frame of existing ones, raise the question of combining challenges in developed countries with transition nations and world heritage conservation? Can maritime management allow the small island states to become great maritime ones and how?

### **Blue Growth: technological enthusiasm or more?**

*Sander van den Burg\*, Bas Bolman*

*LEI Wageningen UR*

European and national policy-makers have eyes on the seas when it comes to the creation of economic growth and jobs the realization of the “smart, sustainable and inclusive” society desired. The notion of Blue Growth points to “the long term strategy to support sustainable growth in the marine and maritime sectors as a whole”. It is “the maritime contribution to achieving the goals of the Europe 2020 strategy”.

Recognizing the importance of existing economic activities, the concept Blue Growth points to the potential of five emergent economic activities: aquaculture, coastal and maritime tourism, marine biotechnology, ocean energy and sea bed mining. Blue Growth was initiated at EU level and is now seeping into national policy making (e.g. the Noordzee Gebiedsagenda 2050).

Development of these new economic activities increases the risk of conflict with existing users of the sea, already witnessed in development of offshore wind energy. Ambitions for marine nature conservation might hamper realization of the full employment as well. But are these risks to be taken seriously? The enthusiasm about the potential of these sectors is often based on (assumed) technological developments. In reality, the traditional uses of the sea are still dominant. Both value and job creation is highly dependent on traditional uses of the sea, such as transport, and fisheries.

This paper looks beyond technical enthusiasm and addresses two questions: (1) how realistic are the expectations for realising Blue Growth in the North Sea and (2) what bottlenecks can hamper realisation of Blue Growth? This paper is based on original research in the H2020 project MARIBE and the WOt project “Sustainable Business Opportunities at Sea” and discusses the challenges for realization of Blue Growth. It particularly addressed these challenges from a societal perspective.

### **A Social License to Operate for the oil & gas industry in the Arctic: Exploring the theory and examples from Greenland**

*Coco C.A. Smits\*, Jan P.M. van Tatenhove, Judith van Leeuwen  
Wageningen UR*

The Arctic Ocean is opening up due to climate change and the number of industrial activities is on the rise. Nation states want to develop oil and gas activities to diversify their economies and regard these activities of national strategic importance. Oil companies want to develop oil and gas activities to secure new reserves for long-term, future energy supply.

Oil companies operate in a globalized World where States are no longer the only governing actor. Regulatory frameworks are in place to safeguard national interests and guarantee an environmentally and socially sound way of working. However, following these requirements set by the State is no longer enough. Global and local societies have different and often more intangible requirements for the oil and gas industry and their activities. They use amongst others social media, internet and public campaigns to mobilise crowds and enforce their point of view. Ensuring a ‘Social License to Operate’ is essential for oil companies if they want to perform their activities according to schedule, budget and without reputational damage.

However, what a Social License to Operate is and how to achieve it, is unknown. This paper will conceptualize the phenomenon of a Social License to Operate for the oil and gas industry in the Arctic. The starting point is that a Social License to Operate is shaped within a governance arrangement

where different actors interact and form an institutional basis to define this phenomenon. Connections with other concepts such as risk society, the resource curse and corporate social responsibility will be discussed to define institutional setting of the 'Social License to Operate' arrangements. We will elaborate upon the mechanisms (such as trust, accountability, knowledge and local benefit) that can be used to shape this arrangement and explore the application of on oil and gas developments in Greenland.

### 3.2.Lake Fisheries

**Chair: Mafaniso Hara**

#### **Networking for Fisheries Co-management on Lake Victoria, East Africa**

*Fiona Nunan*

*International Development Department, University of Birmingham, UK*

Fisheries co-management has long been viewed as a network of relations between and within stakeholder groups. This view of co-management has been further developed and explored through the application of social network analysis. Such application has generally taken an approach of mapping and investigating whole networks, including in relation to knowledge and information sharing, and leadership. There are very few examples, however, of mapping personal, or ego, networks to inform the theory and practice of co-management.

This paper reports on a novel application of social network analysis to the personal relations of fisheries stakeholders on Lake Victoria, East Africa, to investigate which relations may influence how people behave within fisheries and how these relations influence attitudes to, and engagement with, co-management.

Co-management was introduced in Lake Victoria in the early 2000s, but mixed performance of the local co-management structures of Beach Management Units is reported and concern continues about the level of Nile perch stocks and the extent of illegal fisheries activities. The research aims to inform reflection on approaches to co-management through better understanding of the nature and extent of influence of different types of interpersonal relations on fisheries stakeholders' behaviour, decision-making and knowledge.

The paper reports on the design of the research approach and how fieldwork is being undertaken in the three countries bordering Lake Victoria (Kenya, Tanzania and Uganda), with interviews underway with beach-level actors (boat owners, crew, processors, traders and fish agents), government fisheries officers at national and local levels and Members of Parliament with constituencies around the lake.

#### **A history of success or failure? Perception, social position and governance in the fisheries of Lake Winnipeg**

*Sölmundur Karl Pálsson*

*University of Manitoba*

In the late 1960s, the Provincial government of Manitoba and Federal Government of Canada made critical institutional interventions that revamped inland fisheries management. The key interventions, a government marketing board and what eventually became an ITQ system have been viewed as a success by many Euro-Canadian fishers who live adjacent to the southern part of Lake Winnipeg in the town of Gimli. These fishers argue that the institutions have largely met both their subjective and material well-being in terms of independence and financial security. A key finding of my research is that institutional constraints on the ITQ system, including from its coexistence with the marketing board, have mitigated the negative social impacts that are normally associated with such systems.

However, there are indications that my findings in Gimli about perceptions of these institutions differ from those of native First Nations fishers who live elsewhere around the lake. This is probably explicable by the different histories of these populations, different mixes of target species between fisheries, and the different role of the subsistence fishery for native fishers which do not fit well with the ITQ system. In this paper I will explore these possible reasons why native fishers might hold a different perspective than fishers from Gimli on the governance of the fishery of Lake Winnipeg.

### **Between a rock and a hard place: the need for and challenges to implementation of Rights Based Fisheries Management in small-scale fisheries of Southern Lake Malawi**

*Mafaniso Hara\*, Friday Njaya*

*Institute for Poverty, Land and Agrarian Studies (PLAAS), University of the Western Cape*

There has been a declining trend of commercially valuable fish species, especially the Chambo (*Oreochromis spp*), in southern Lake Malawi. Although there might be lack of reliable and scientifically backed evidence, most experts and experienced fishers concur that productivity of most fish stocks in the area is much below par compared to their productivity about two to three decades ago. This leads to the hypotheses that the fish stocks are generally over-exploited. This trend will continue or their productivity will remain at these depressed levels unless bold and drastic measures are taken. This article argues that Rights Based Management (RBM) holds the best promise for moving towards sustainable fisheries management in the southern Lake Malawi (Southeast and Southwest Arms) area while recognizing the need for a broad human rights approach for fishing communities. Of note is that co-management was introduced in area in the early millennium as part of attempts to strengthen user fishing rights, local accountability and stewardship. It is realized though that the implementation of the RBM approach will not be easy given the historical developmental open access management approach and general unorganized characteristics of the small-scale fisheries sector.

### **Illegal, unreported and unregulated fishing as a governability problem: A case of Lake Victoria**

*Luomba Joseph Onyango\*, Ratana Chuenpagdee*

*Memorial University of Newfoundland, Canada*

The persistent Illegal, Unreported and Unregulated (IUU) fishing and trade of illegal fish, since proliferation of Nile perch in 1980s remains a challenge in Lake Victoria. For decades, various alleviation strategies including community compliance through established Beach Management Units have been employed to address the problem, but with little success. As a result, fisheries stocks continue to decline, affecting thus the social and economic wellbeing of numerous fishing communities around the lake. According to the interactive governance, the persisting IUU fishing is an indication of over-reliance on management technical fixes to addressing a wicked problem. In this

paper, we illustrate how to examine IUU from a governability perspective and how such analytical lens can help understand why IUU fishing occurs in the first place, and whether it is perceived as a problem, how and by whom. This kind of investigation, we argue, is imperative to addressing the situation.

### 3.3. Multiple Use Conflicts 1

**Chair: Peter Arbo**

#### **User conflicts in marine ecosystem-based management**

*Peter Arbo\*, Phạm Thị Thanh Thủy*

*University of Tromsø – The Arctic University of Norway*

Coastal states around the world are currently adopting an integrated and ecosystem-based approach to the management of coastal and marine areas. In the implementation of the ecosystem approach, the marine ecosystem tend to be made the object of management. However, what can be managed are only the human activities and influences, not the marine ecosystem as such. In this perspective, it seems to be a paradox that little attention is paid to the management systems and the conditions for regulating industrial activities and solving user conflicts.

Increasing diversity and intensity of marine activities gives rise to many kinds of user conflicts. Users may have overlapping and mutually exclusive spatial claims and interests, or their activities may have adverse effects on other stakeholders. As an illustration, we look at the relationship between the offshore oil and gas industry and the fishing industry in Norway and Vietnam, respectively.

In Norway and Vietnam, the two industries are increasingly operating side-by-side and competing for the same waters, but the structure of the industries, the management systems and the institutional frameworks are dissimilar. As an effect, potential user conflicts are dealt with in different ways, which also has a bearing on the marine ecosystems through various feedback mechanisms. In the discussion, we apply a typology developed by Fritz Scharpf, distinguishing between non-cooperation, negative coordination, and positive coordination. While the situation in Vietnam is characterized by non-cooperation and negative coordination, there is also a strong element of positive coordination between the two industries in Norway. The paper discusses how this is achieved and lessons that can be learned.

#### **How conflicts are managed in the World's Harbours; sharing what has been learnt**

*Stuart Pearson\*, Wiwin Windupranata, Amanda Putri, Ma Yingjie, Ana Vila-Concejo, Emilio Fernández, Gonzalo Méndez, Jo Banks, Shengnan Chen and others in the World Harbour Project*

*School of Physical, Environmental and Mathematical Sciences, University of New South Wales Canberra, Canberra, 2600, Australia,*

Harbour users seek access to the common pool natural resources of the sea and land for different things so there are often conflicts. And the way that conflicts are solved shows something important about the harbour users themselves - knowledge that can be shared through a recently established network of world harbour researchers. The way the emergent problems and issues are solved and

resolved also shows where research opportunities exist. Research and knowledge sharing that can help avoid and mitigate conflicts have included use of markets, legal frameworks, zoning, suasion and other measures that contribute to the economic, social and environmental characteristics of the world's harbours.

Integration of human and biophysical science perspectives from case-studies of conflicts shows that options exist for opening-up to new modes of knowledge production and use. We have gathered these case-studies of conflicts in selected harbours from expert authors short descriptions tell what is important about the harbour, its users in conflict and what comes from knowing more about the harbour. Finally viewed together the key considerations for future research demonstrates the opportunity to manage cross-cultural use of scientific experience to enhance the fair, sustainable, effective and efficient use of harbours.

This new project involves 14 Harbours to date in places such as Abu Dhabi, Australia, Brazil, Greece, Grenada, Hong Kong, Indonesia, Italy, New Zealand, Qingdao, Shanghai, Singapore, Spain and USA. The project is fostered by the Sydney Institute of Marine Science and aims to link, facilitate and enhance programs of research and management across major urban harbours and ports of the world. This paper reports from Working Group 3 of the project – Multiple Uses and Users. Suggestions are welcome and further information is available from Jo Banks and Stuart Pearson and the web site <http://sims.org.au/research/long-term-projects/world-harbour-project/>

### **The Tourist Gaze, The Rise of Aquaculture and Heritage Wars on the Gentrifying Seacoast**

*Steven Lang*

*LaGuardia Community College at (CUNY) City University of New York,*

Increasingly, as gentrification and tourism transform the economy, culture and environments of many coastal regions, productive activities such as commercial fishing are being marginalized and replaced by service-oriented leisure and marine recreational occupations. While commercial fishing has declined, maritime heritage is increasingly being celebrated, marketed and commodified. It has become a product for place promotion schemes to attract tourists as well as a source identity, meaning and conflict for both newer “amenity migrants” and long- term residents on the gentrifying coast.

This paper will explore how Long Island commercial fishers struggle and adapt to both the imposition of the tourist gaze and the rise of modern aquaculture on the changing consumer coast. It will discuss and evaluate the various strategies and forms of staged authenticity that they use to perform tradition for people with a taste for their lifestyle rather than their catch. Special emphasis will be placed on the role that fishers play in the burgeoning food tourism industry that celebrates and promotes local food and culinary traditions that have acquired a heritage status. It will also place the shift from harvesting fish to harvesting heritage in a wider economic, political and cultural context and compare and contrast the Long Island maritime heritage industry with other coastal regions undergoing gentrification and heritagisation.

The maritime heritage industry has its champions and critics and is the source of heated debates regarding its ultimate positive or negative consequences for people and communities along the coast. The same is true for modern aquaculture. Both raise complex issues of cultural commodification, authenticity, nostalgia and heritage dissonance that this paper will address.

### 3.4. Fish Consumption

**Chair: Moenieba Isaacs**

#### **Where Are All The Fish? An Analysis of Local Fish Networks and Gift Networks in the Westfjords of Iceland**

*Jennifer G. Smith\*, Catherine P. Chambers*  
*University Centre of the Westfjords*

Local Food Networks (LFN) are re-emerging throughout the industrialized world as a means for individuals and communities to counteract unwanted aspects of globalized food systems by increasing control over food supply. Analyses of LFNs are typically focused on agricultural systems and detailed studies on rural coastal communities and LFNs for marine products are lacking. In Iceland, marine products are a significant contributor to the nation's GDP and per capita fish consumption is notably high; however, little information exists about fish consumer habits in rural, geographically isolated locations. This research explores the dynamics of local networks for fish in two fishing communities in the Westfjords of Iceland and the social and political factors determining access to fish products. We distributed a fish consumption survey in two case study towns to explore local residents' fish consumption habits, preferences, cultural identification with fish consumption, and overall satisfaction with access to fresh fish. Survey data and qualitative interview data were interpreted within a political ecology framework in order to analyze the ways in which fisheries management policies and internationalized food distribution chains affect consumer-level access to local fish resources. Results indicate that preference for local fish sources remains high and that fish consumption is largely embedded within a gift network reliant on personal connections to the fishing industry, rather than typical channels of commercial supermarkets where available products are costly, frozen, and non-local. Fish gifting is a means of circumventing participation in Iceland's fisheries management system while simultaneously relying on capital invested in that same system. Individuals lacking personal connections to the fishing industry must source their fish from large-scale structures designed for the globalized food system. LFNs for fish in rural Icelandic communities are therefore expressions of power dimensions that are symptomatic of the larger inequalities built into the fisheries management structure, which is designed to favor high capital investors in a globalized food system. The disconnection between globalized production mechanisms and local consumption patterns demonstrates the impacts that national political structures can have on LFN development in small communities.

#### **A first assessment of global small-scale versus large-scale fisheries subsidies**

*Anna Schuhbauer\*, U. Rashid Sumaila*  
*Fisheries Economic Research Unit, Fisheries Centre*

Harmful fisheries subsidies, which are known to exacerbate overcapitalization of fishing fleets, have been identified as one of the main contributors to the global fisheries crisis. Despite the fact that globally more than 90% of all active fishing vessels are considered small-scale, research efforts to describe fisheries subsidies have mainly been focussed on the large-scale sector. We have used global fisheries datasets, including data on global fisheries subsidies to determine the proportion of

published subsidy estimates that are paid to large- and small-scale fisheries by country. Our preliminary analysis revealed that the small-scale fishing sector in most of the assessed countries receives notably less amounts of subsidies per tonne of catch compared to those for the large-scale sector. For example, Mexico's total fisheries subsidies are estimated at USD 213 million per year out of which only about 12% go to the small-scale fishing sector, which lands about 40% of the country's total landings. Clearly, most of the subsidies received from the Mexican government are directed at the large-scale industrial fishing sector and not the already marginalized small-scale fisheries.

**TBTI Research Cluster: “How important are fish as food for human nutrition?”**

*Moenieba Isaacs\*, Lindsay Aylesworth, Kungwan Juntarashote and Ratana Chuenpagdee  
Institute for Poverty, Land, and Agrarian Studies (PLAAS), U. of Western Cape*

Concern about food security and malnutrition continues to rise globally, including among communities living near water bodies where fish should go directly to feed local populations. Competition for fish in these communities is prevalent, not only in terms of harvesting for human consumption but also for feed production industries that rely on fish as raw materials. The reliance of aquaculture on wild-caught fish, fishmeal and fish oil add to food security concerns. How vulnerable are small-scale fishers to malnutrition and with whom do they compete in order to secure food for their families? The Too Big To Ignore Fish as Food research cluster will address these pressing questions through a global scan of small-scale fisheries in marine and inland systems. We pose five main research questions: How important are small-scale fisher catches to family consumption and nutrition? Do small-scale fishers value catch as a source of protein or as a livelihood to purchase other food? How do small-scale fisher catches contribute directly and indirectly to food consumption? Have consumer preferences for small-scale fisher catch consumption changed over time? How have national and international food policies influenced small-scale fishers and domestic fish consumption? This ultimate aim of this cluster is to provide evidence that fish, and in particular small fish, are a critical source of nutrition for humans and that when more fish are prioritized for human consumption, the global food security will be enhanced.

### 3.5. Ethical Frameworks for Fisheries

**Chair: Kevin St. Martin**

**Highly migratory fish stocks: a common heritage case study**

*Erik van Doorn*

*Walther-Schücking-Institute for International Law, Kiel University, Germany*

The current status of the world's fisheries is deplorable. Tried concepts seem not to be sufficient to prevent species from over-exploitation, if not extinction. Most proposed solutions, however, use individual rights as a basis. This paper takes a reverse approach and develops a normative framework that is based on the idea of a common heritage. The main question to answer is consequently to what extent the notion of common heritage of humankind and its interaction with other principles could provide enhanced protection for highly migratory fish stocks. To discover new opportunities for future ocean governance, this project investigates the interaction of the common heritage principle with the freedom of the high seas, intergenerational justice and the idea of trusteeship.

The five evident characteristics of areas designated as common heritage of humankind are (1) peaceful use; (2) non-appropriation; (3) equitable sharing; (4) protection and preservation for the benefit and interest of humankind; and (5) governance and management by an international authority. Humankind is aware of the ideal of (re)distribution of wealth since time immemorial. Major religions incorporated the idea of stewardship or trusteeship.

Realising both the aims of utilisation and preservation at the same time appears to be difficult. The 1982 United Nations Law of the Sea Convention offers a solution by theoretically splitting a fish stock in a part that shall not be touched and a part that can be fished. The maximum sustainable yield forms the boundary between these two parts. The minimum biomass that prevents a stock from decline shall remain untouched. The other part of the stock can be fished. One step further would be to turn the latter part into a public trust for which then similar rules could be applicable as to the mineral resources of the deep seabed.

### **Aligning Small Scale Fishing with the “Solidarity Economy”: Expanding Research and Political Possibilities.**

*Kevin St. Martin,  
Rutgers University*

Fisheries governance and fishing economies are rapidly reformatting due to a variety of forces that include advances in management trajectories, ecosystem metrologies, climate changing distributions, as well as community-based innovations. As a result there are a growing number of cases and examples from which to imagine the future of fisheries. Judging the range of emerging systems (whether they be centered on privatized access or community-based fishing), is most often done relative to their effect on "small scale fishing." Fisheries social scientists, anthropologists, and others ask, either implicitly or explicitly: "Will small scale fishing communities survive?" Answering this question empirically most often requires an explication and accounting of boats under a particular size or with pre-modern gear, crew entanglements with families, or fish markets untouched by forces of globalization. While defining and locating actually existing small scale fishing is vital, we seek to define and locate an ethics of small scale fishing. These ethics include a concern for livelihoods, for fair distributions of wealth, for fish as accessible food, and for commons stewardship. Focusing on such ethics, and the alternative economies they foster, rather than small scale fishing per se, has clear implications for both research and politics. In terms of research, small scale fishing ethics might be recognized (to greater and lesser degrees) across a variety of sites which might actually be devoid of small scale fishing; the potentials of such sites will only be activated if they are made legible through research. In terms of politics, small scale fishing ethics are clearly aligned with community-based agriculture, cooperative enterprise, co-housing, urban commons practices, fair trade, indigenous economies, and so on; indeed, the fate of small scale fishing might be profitably conjoined with that of other “solidarity economy” practices. The latter, unlike small scale fishing, is multiplying and expanding.

### **Finding values in market-based fisheries management**

*Jeppe Høst  
University of Copenhagen,*

In this paper I will argue that market-based fisheries management systems, such as ITQs and catch shares, evolve around two distinct value systems. On one side is the fish resource as a raw material and basis for actual fishing practices, and on the other side, is the quota as an object of investment and speculation. These two different value systems enable different practices, while they also hinder certain types of social organization. Through empirical material I will show a number of contradictions and precarious dynamics in and between these two value systems as they co-exist in market-based distribution of fish resources in Denmark. These contradictions and interplays pose serious questions to policy makers, managers and to privatization as a governance tool. The paper argues that unequal access and sub-subsequent leasing becomes crucial in the value creation for quota as an investment, while on the other side, ownership becomes more fluid and difficult to control for policy makers. These findings also seriously questions the economic assumption that privatization of fish resources will reward the most efficient fishers. Instead it is argued that the most efficient fishers are needed as quota-tenants in order to pay a leasing rent, which in turn constitutes the profit made on fish quota as an investment.

### **Selling the Commons: Evaluating the Economic, Environmental and Social Sustainability of Individual Transferable Quotas (ITQs) in Swedish fisheries.**

*Milena Arias Schreiber\*, Sebastian Linke*

*Gothenburg University, Department of Philosophy, Linguistics and Theory of Science*

The depletion of fish stocks and other forms of environmental degradation due to overfishing in EU waters is a problem as well known as it is unsolved. There is a general consensus that vessel capacity must be drastically and continuously reduced, and incentives to respect and collaborate around realistic stock and quota estimates must be created. Rights-based fisheries management tools like *Individual Transferable Quotas (ITQs)* are seen as promising measures to counter the well-known open access and fleet overcapacity problems that have been identified as leading to overfishing. They have the capacity to transform a heavily subsidised declining sector into an economically viable market-based fishing system.

The introduction of an ITQ system may however give rise to a number of unforeseen difficulties that have to be dealt with and properly investigated. Unintended consequences of ITQs systems may include a rise in the amount of by-catches and discards of less valuable fish, and the concentration of fishing rights among certain powerful fishing groups, with associated social and cultural consequences. Because ITQs might have unwanted effects on a range of environmental, social and cultural aspects of coastal fishing communities, the backstage process of introduction of ITQs needs to be analysed carefully at the local level from different disciplinary perspectives. This research project takes a transdisciplinary approach to evaluate the introduction of possible further implementation of ITQs systems in Sweden. The subtle and limited introduction of an ITQ system in the Swedish pelagic fisheries (i.e. of herring, sprat and mackerel) will be empirically investigated and the results compared with the situation in neighbouring countries like Denmark and Norway, where rights-based management has been adopted on a broader scale. By taking social, environmental and economic perspectives into account, this research attempts to present a holistic vision of the effects of ITQs systems.

### **3.6. At the Crossroads: Community based Responses to Coastal Challenges**

**Chair:** John Abraham

**Panel Organizer:** Anthony Charles, Saint Mary's University Halifax NS Canada.

### **Panel Description**

*Coastal communities around the world face an array of unique challenges. As the only places on earth which bring together humans, ocean, air and earth into the same habitat they are vulnerable to a complex series of factors such as coastal hazards, climate change impacts and environmental degradation. With most of the world's population projected to live in coastal cities over the next century, keeping our coastal communities healthy is a key to enabling human beings to flourish. This panel brings together the perspectives of three major research projects which are examining community level responses to these coastal challenges.*

*Based on a comprehensive global meta-analysis of coastal hazard responses, Barbara Paterson will discuss how coastal communities around the world respond to various hazardous events. This discussion will be based on a systematic review of the global 'state of the art' in local-level responses to hazardous events, that was carried out as part of the Marine Environmental Observation and Response (MEOPAR) Network. MEOPAR is a team of Canadian researchers researching response to risk in the marine environment to help reduce Canada's vulnerability and exposure to hazards and improve responses to marine emergencies. Paterson proposes a typology of community-level responses that can be used to identify best practices for Canadian coastal communities based on experiences in communities worldwide.*

*Best practices rely on a suitable policy environment in which they can be implemented. Drawing from his work on the Partnership for Canada-Caribbean Climate Change Adaptation (ParCA) Ahmed Khan will discuss what governance mechanisms and best management practices are available to improve coastal community resilience under rapid environmental change and extreme events. Khan will focus on attributes for place-based adaptation planning at the community level, recognizing that most institutional responses and adaptation planning are initiated at the national and international levels. He will show that communities that are the most 'climate ready' are those that take an integrated approach to disaster risk management, economic planning, resource management, and ecosystem-based approaches which involve local institutions, partnership arrangements, and multi-scale linkages for funding and resource allocation.*

*John Abraham will discuss how social-ecological outcomes are impacted by social and environmental contexts. Using a series of global datasets (including the World Values Survey, Environmental Sustainability Index, Human Development Index) he will show how a coupled human and environmental systems analysis can provide unique insights into the incentives for community based conservation and resilience. Abraham will show that such incentives are variable, changing with the specific social, economic and environmental setting. He will conclude this analysis with the implications for policy that can engage incentives for social-ecological resilience more effectively.*

### **Modeling Environmental Stewardship at a global level: A macro-analysis based on the World Values Survey.**

*John Abraham*

*Community Conservation Research Network, Saint Mary's University, Halifax NS*

In this paper we aim to provide an examination of the relationship between conservation, livelihoods and community attributes at the global level. We argue that a coupled human and environmental systems analysis can provide unique insights into the incentives for community based conservation and resilience. We provide an analysis of subjective perceptions concerning the relationship between communities, the natural environment and livelihoods as we link these relationships within the framework of a coupled human and environmental system, where the analysis of human (society) and natural (environment) systems are integrated. We propose a model which will examine the role of community attributes (namely social capital) and environmental attributes (namely pollution) in producing stewardship and economic outcomes. We use the World Values Survey (Wave 6) data set to specify a structural equation model that approximates a coupled human-environment evaluation of environmental stewardship, economic livelihoods and community. Using this analysis with a series of other data sets (Human Development Index, Environmental Sustainability Index), we show that incentives for conservation are variable, changing with the specific social, economic and environmental setting.

### **A systematic review of best management practices and governance strategies for scaling-up climate change adaptation portfolios in coastal regions.**

*Ahmed Khan\*, Derek Armitage, and Tony Charles*

*Partnership for Canada-Caribbean Climate Change Adaptation (ParCA) , School of Business and School of Environment, Saint Mary's University*

Coastal zones around the world are highly susceptible and vulnerable to climate change risk – mainly sea level rise, storms and coastal erosion, infrastructure damage, and loss of livelihoods that impact local households and national economies. Although there are many initiatives and emerging policies on climate change adaptation and coastal planning at the national level, often little resources are available at the local level, where the brunt of the impacts is felt. This contribution addresses the question “what governance mechanisms and best management practices are available for local communities to be resilient in the face of rapid environmental change?” A systematic review and meta-analysis is conducted to assess the level of readiness and integration amongst vulnerable resource sectors (fisheries, tourism, etc.), climate change policies (e.g. adaptation and disaster risk reduction), and development planning frameworks for improving local adaptation portfolios. Preliminary findings show that there are collective efforts at various levels of governments with stakeholder groups in addressing climate change impacts using integrated approaches. Local communities are involved in myriad institutional approaches that involve resource management strategies, disaster risk reduction measures, and land-use planning at multi-scales. A synthesis of the findings will contribute to knowledge mobilization initiatives by the ParCA project in addressing climate change impacts and coastal management challenges.

### **Coastal communities and threats from the ocean.**

*Barbara Paterson*

*MEOPAR, Saint Mary's University, Halifax NS Canada*

Coastal communities are exposed to threats from the ocean, such as storms, floods, and oil spills, which grow in intensity as our weather becomes more severe due to climate change. We have carried out a systematic review of the global state of the art in community responses to hazardous events. This work is part of the Marine Environmental Observation and Response (MEOPAR) Network, a team of Canadian natural and social scientists formed to strengthen the resilience of Canada's coasts. We

present results from a meta-analysis of documented community level responses and discuss the anticipated benefits of our research for different audiences. In particular we propose a typology of community-level responses that can be used to identify best practices for Canadian coastal communities based on experiences in communities worldwide.

### **3.7. Interactive Governance for small-scale fisheries**

**Chair:** Ratana Chuenpagdee

This panel session will introduce the upcoming book *Interactive Governance for Small-Scale Fisheries: Global Reflections* and will bring together the the authors and editors to engage in discussion on current trends and reflections on SSF governance.

Drawing on more than 30 case studies from around the world, this book offers a multitude of examples for improving the governance of small-scale fisheries. Contributors from some 36 countries argue that reform, transformation and innovation are vital to achieving sustainable small-scale fisheries - especially for mitigating the threats and vulnerabilities of global change. For this to happen, governing systems must be context-specific and the governability of small-scale fisheries properly assessed.

The volume corresponds well with the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in 2014, spearheaded by the United Nations Food and Agriculture Organization (FAO). These affirm the importance of small-scale fisheries for food security, nutrition, livelihoods, rural development and poverty reduction. The book arises from the project Too Big To Ignore: Global Partnership for Small-Scale Fisheries Research (TBTI).

<b>Panel sessions</b>	<b>Series 4</b>	<b>Thursday, 25<sup>th</sup> of June</b> <b>13:30 – 15:00</b>
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#### 4.1. Innovation in Fisheries and Aquaculture

**Chair:** Marloes Kraan

**Lessons learned from the transition towards an innovative fishing technique: A case study on the introduction of the pulse trawl technique in the Dutch flatfish fishery.**

*Tim Haasnoot\*, Marloes Kraan, Simon Bush*

*Environmental Policy Group, Wageningen University*

This paper focuses on the transition in the Dutch cutter fleet from the conventional beam trawl to the pulse trawl technique. While some innovative fishing gears manage to breakthrough relatively quickly in a regime, other innovative fishing gears encounter a lot of resistance and struggle to breakthrough. An example of a fishing gear that struggled to breakthrough is the pulse trawl technique on flatfish. It is a fishing technique that makes use of electric pulses to catch flatfish. This fishing technique is developed in the Netherlands in order to provide an alternative for the conventional beam trawl technique, which was struggling with rising fuel prices and growing concerns and criticism on its environmental impact. However, the use of electricity in fishing practices is banned by the European Union. As a result, the ban is complicating the wider breakthrough of this innovative fishing gear. By using the multi-level perspective on transitions theory of (Geels, 2002) as the analytical framework for this case study, insights are gained in the transition pathway of the pulse trawl technique. As a result, this case study discusses the interaction between the different levels and the influence of competition and technology-push on the transition pathway. Overall, this case study can contribute to our knowledge on how technological transitions in fisheries come about.

**Following the Fish: Where the New England commercial catch goes and why it matters.**

*Patricia Pinto da Silva\*, J. Olson (NOAA Fisheries), A. Baker (Rutgers University), S. Benjamin (NOAA Contractor), M. Ratzel (Independent Contractor)*

*NOAA Fisheries*

Fisheries management in the US gives little consideration to fish after it's landed, despite reference in national law to preferred social outcomes like food production; fisheries are part of regional/national food policy yet have rarely been part of that discussion either. We describe research to better understand these benefits by following the flow of different fisheries in New England, from where fish are caught to ultimate use and distribution. We explain research motivations and challenges encountered; present examples showing use and destination of different species; and consider what this means for food and fisheries policy in the region and beyond.

**Governability of production site structure in Norwegian Salmon farming Authors Håkan T.**

*Sandersen\*, Ingrid Kvalvik*

*University of Nordland, Bodø, Norway*

The production sites are the scarce natural resource in marine aquaculture. In Norway, the world's largest salmon producer, new production sites are allocated through complicated processes and interactions between the aquaculture companies, the coastal municipalities and regional and national aquaculture and environmental authorities. The government and industry aim to at least double the current production. To achieve this, the industry is amongst others dependent on access to more and better production sites. The production sites have largely been allocated through a "first come, first serve" system, limited by environmental and other regulations. It is a commonly held opinion that the aquaculture sites are managed neither in a sustainable way nor as a scarce commodity of great value. The last 15 years the authorities have introduced measures to manage the sites more efficient, and have partly succeeded in this. The government is now considering a comprehensive zoning program which involves large changes in the siting structures in order to improve the efficiency and sustainability of the industry. However, the vested interests in the existing siting structure, the company structure and the coastal lay-out make such larger reforms difficult.

Our research question is: What are the main limitations to the governability of the production site structure in the current situation, and what are the main governability problems in the current site allocation system? In this paper the governability of the site allocation system of the Norwegian salmon farming industry is analyzed and addressed by applying the interactive governance and governability approach (Kooiman and Bavinck 2013). The interactive governance approach emphasizes the two-way exchange between the governing system and the system-to-be-governed, and is highlighting the governing roles of state, market and civil society and their interactions, and we will in the analysis specifically focus on the dimensions diversity, complexity, dynamics and scale.

<b>4.2. European Common Fisheries Policy</b>	
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**Chair:** Troels Hegland

**Stakeholder participation and representation – theoretical models and practical consequences for EU (Regional) Advisory Councils**

*Sebastian Linke\*, Svein Jentoft*  
*University of Gothenburg*

In recent reforms of the EU's Common Fisheries Policy (CFP) legitimacy deficits have been realised resulting in increased stakeholder involvement in policy development and management. Through Europe Regional Advisory Councils (RACs) were established to engage stakeholders from various sectors within the CFP, which required a system and procedures for stakeholder representation. This representation was nominally defined with a specific ratio: representatives from fishing sectors were assigned two thirds of the seats and so-called "other interest groups", dominated by environmental NGOs, got one third of the seats in each RAC.

In this paper we discuss principles for representation and participation in democracy and investigate their relevance and practical consequences for EU fisheries governance and the RACs. The theoretical discussion highlights democratic ideals of direct participation (e.g. of fishers) in policy-making as well as their limits and impracticalities.

Our analysis of the Baltic Sea RAC reveals the dominance of a particular type of interest-based representation manifesting itself in a particular modus operandi for the discussions and negotiations as displayed in antagonist debates between fisheries' and NGO representatives. Characteristics of so-called "virtue-representation" encompassing a more careful design and use of rhetoric and argumentation, involving both the acts of speaking and listening for guaranteeing a sound deliberative process, can hence often not be found in the discussions and negotiations. Our study shows how unresolved issues of how representation should be done in the RAC system can result in problems and conflicts about the legitimacy of certain stakeholders and their involvement in the CFP. This may ultimately exacerbate the RACs' opportunities for contributing to a more progressive governance process that ascribes them a responsible and accountable role in regional fisheries management systems.

### **Fair Fishing: Human Rights and Sustainability in Bilateral Fishing Agreements between the European Union and Developing States.**

*Anna Antonova*

This project investigates bilateral fishing agreements between the European Union and developing states in order to assess the extent to which these agreements are as successful at implementing international law principles as European Union officials have claimed they do. Over the past two decades, European Union rhetoric has communicated an intent to take on a normative power role in enacting human rights and sustainable development approaches into global fisheries policy. Officials have propagated an image of a "new Europe," conscientious of its colonizing heritage, committed to promoting good maritime governance, and ensuring responsible fishing worldwide as part of its global responsibility to sustainable development. These normative principles have at times been framed as an integral part of the European Union's legal and political identity. In practice, however, the bilateral agreements have often come short of European Union aspirations, facing criticism for hindering rather than aiding local development. This project explores the bilateral agreements from an international law perspective, engaging in legal and political discourse analysis and in a detailed case study on European Union-Senegal fishing relations. For the European Union, the study raises questions about conflicts between national and supranational fishing goals and about the challenges these conflicts present to its goal of normative leadership. More generally, the project suggests implications for enacting international law principles on the ground, as well as for the inherent power dynamics of post-colonial relations fifty years on.

### **(How) does context matter? A comparison of two consecutive reforms of the Common Fisheries Policy of the European Union**

*Troels J. Hegland*

*Innovative Fisheries Management (IFM) – an Aalborg University Research Centre, Denmark*

This paper describes how the context of EU fisheries policy-making changed between the 2002 reform of the Common Fisheries Policy and the 2013 reform and discusses what implications the changes in the context of the two reforms had on the direction of the policy - if any. Context is defined broadly and includes categories such as: 1) changes to the EU fisheries decision-making structure (incl. the Regional Advisory Councils, the Lisbon Treaty, and changes to the Commission's organizational structure), 2) changes in the stakeholder environment (incl. the power of campaigns and

professionalization), 3) enlargements of the EU and the implications of these on traditional coalition patterns, 4) changes in the overall policy-environment (incl. the financial crisis, the ‘technocratization’ of fisheries policy’), and, finally, 5) the state of the fishing industry and the fisheries resources.

<b>4.3. Multiple Use Conflicts 2</b>
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**Chair:** Brigte Dale

**Conflict resolution in strategies for sustainable coastal and marine management: the need for better integration.**

*Olga Stepanova*

*School of Global Studies, University of Gothenburg*

Conflicts of interests and uses are natural part of coastal complexity. Coastal management is challenged with resolution of such conflicts in a long term oriented, sustainable way. In prior research on local coastal conflict resolution in four European countries conducted within international project SECOA (Solutions for Environmental Contrasts in Coastal Areas) deficits in the practices of conflict resolution were identified. These deficits included insufficient attention to practices of knowledge use and integration, inequalities of power relations and lack of long term oriented conflict resolution.

With regard to conflict resolution and the identified deficits in particular, three approaches to coastal and marine management are discussed and compared: integrated coastal zone management, marine spatial planning and ecosystem-based management. It is found that in the three management approaches conflict resolution is addressed and operationalized in different ways and to a different degree, often insufficiently and without long term goals. Lack (in some cases absence) of attention to inequalities of power relations appears as a major deficit. Knowledge integration through the broad notion of participation appears as a common approach for conflict resolution in the discussed management strategies, but actual mechanisms for integration are rarely discussed.

It is proposed that through better operationalization of knowledge and power dynamics in conflict resolution, coastal and marine management may be improved. Better integration of conflict resolution into practices of coastal and marine management is necessary in order to make a step toward sustainable use of natural resources. Adaptive co-management and adaptive governance of coastal resources are discussed as possible ways to integrate conflict resolution in broader strategies of resource management.

**The Fjord as a Contested Space: Aquaculture, Values and Policies in a North-Norwegian Municipality**

*Brigte Dale, Håkan Sandersen (University of Nordland)*

*Nordland Research institute*

Besides the petroleum industry, no other sector has over the past decade shown a similar growth pattern to the salmon farming industry in Norway. However, in Nordland County – Norway’s most important aquaculture region – most of the so-called aquaculture super-sites are already in

production, and the industry has expressed a need for new sites in order to meet goal set by the national government of a five-fold increase in production and export of aquaculture products (predominantly salmon). The access to new sites are controlled by the coastal municipalities and as the industry has developed, tensions and increasing skepticism concerning negative ecological imprints and modest ripple effects at the municipal level, as well as a heightened awareness of other ecosystem services (ESS) and valued use of space *and* place has in many municipalities led to a more reluctant and restrictive policy concerning designation of new areas for aquaculture production. Indeed, previous research has shown that social acceptability of aquaculture industry is connected to environmental impacts, but also that it depends on case specific challenges and issues beyond the constructed dichotomy development vs protection of the environment.

This paper aims to describe how the way aquaculture occupies space in the fjord accentuates different understandings of nature and the different ways nature and natural resources are valued, and consequently how these different perceptions influences policy processes relating to coastal zone management. Through investigating the Tysfjord fjords system – *a place* - as consisting of contested *spaces*, as physical manifestations *in landscape* of what is called taskscapes, we further seek to show how identity, well-being and a sense of ontological security and purpose is (re)produced by multiple stakeholders in the communities surrounding the fjord – and to analyze to what extent these contestation have explanatory value when seeking to explain how different value systems influences political decisions.

### **West Coast Aquatic**

*Andrew Day*

*Vancouver Aquarium and Coasts and Oceans Research Institute*

The West Coast of Vancouver Island is one of the richest and most diverse marine ecoregions in the world. The area is roughly the size of Portugal and is characterized by an extensive array of fjords, bays, islands, reefs, and deepwater canyons and shelves, as well as some of the highest rainfall in North America. This rich habitat contributes to an abundance of life: ancient coastal rainforests, the second largest fish catch in North America, and presence of a third of the world's marine mammal species, as a few examples.

This abundance and diversity faces a variety of threats and opportunities. Central to addressing the threats and realizing opportunities is governance: the ability to make effective decisions in an efficient manner based on the best available knowledge. Yet the area faces the same challenge as many coastal regions throughout the world: it is managed and used by a complex array of government agencies, aboriginal peoples, business sectors, communities, non-profits, and researchers. Integrating these groups represents an enormous task.

Our discussion will focus on the use of an innovative governance arrangement involving four levels of government and ten marine sectors. We will discuss how West Coast Aquatic has succeeded as an integrated governance body for the past twelve years, completing Canada's second integrated coastal and ocean management strategy, and Canada's first integrated salmon strategy. Both of these were endorsed by key levels of government and all major stakeholder groups. It has also used new tools and approaches to identify ecologically significant areas and integrate them into Marine Spatial Plans. Tools include InVEST ecosystem service models (our area is an international pilot area for their

development and application), MARXAN, traditional and local knowledge mapping, and a Framework for Marine Spatial Planning.

#### 4.4. Networks and Learning

**Chair:** Cornelia Nauen

##### **Comparative analysis of marine and land management instruments for land-sea integration**

*Adriana Raveau\*, Florence Krowicki, Fabienne Kervoarec*

*ACTeon*

As an answer to past failures of a sectoral approach to manage the environment in a sustainable manner, more integrated policies are being defined. Considering emerging coastal and marine policies and ongoing attempts and difficulties to build a land-sea integrated policy, this paper presents an analysis adopting two complementary perspectives: (1) a comparative study of several water, coastal and sea management policies or principles (i.e Water Framework Directive, Marine Strategy Framework Directive, Marine Spatial Planning, Integrated Coastal Zone Management); (2) an analysis of integration, as a concept. The work is based on a diversity of projects and policy observations, at regional sea (Channel), national (France) and international (Europe) levels.

The comparative analysis will be built around three main questions for each tool or approach:

- how is integration defined and considered as a principle in the texts?
- how is integrated management understood (or perceived) by the stakeholders involved in or impacted by these policies ?
- how integrated are the projects implementing these policies in practice?

This will be done through an analysis of the main texts, a literature review and interviews allowing to compare the aims of policies and the results in practice.

To put this analysis under perspective, integration will then be studied as a concept, questioning three key dimensions: (1) scale integration, from local to national (French) and European levels; (2) space integration, looking at sea, coastal and land system; and (3) man and nature integration, understood as the capacity to take into account interactions between humans and the environment.

One key assumption underlying our work is that for an effective integrated policy implementation, it is required that integration includes those three dimensions in practice (but not necessarily in the text). It raises then the issue of feasibility of such a complete integration in practice.

##### **Building networks between the stakeholders in Andalusian maritime sector. The exploration of new methodological approaches.**

*David Florido\*, Inmaculada Martínez, Juan Luis Suárez Isidro Maya, Daniel Holgado*

*Universidad de Sevilla*

There is a growing demand for procedures and tools for the inclusion of social agents in the policy making processes. European policies are no longer conceived without including procedures to guarantee public participation. In the academic filed, the governance approach is well defined and it is proposed as a necessary government style to improve the efficacy and legitimacy of the fishing and

maritime policy. We start from the hypothesis that participatory systems are not only a management tool, but also could become a procedure to solve conflicts.

In Andalusia (Southern Spain), the implementation of the participatory tools in the maritime and fishing policies is underdeveloped, although the first steps are carrying out in some of the policy making arenas. This is the case of the fishing harbors, regulated by mean of the Master Plan of Andalusian Ports (2014-2010) launched by the Regional Government. This policy and administrative agency is taking action for community participation in the maritime sector to promote new economic and cultural usages around fishing and nautical sector. Within this emerging framework we present a case study as an example of the combination of networks and stakeholder approaches, using data from a study of fishing enclaves in Andalusia to explore the possibilities to launch a participatory management policy. By combining these methodological tools, we describe the most relevant actors and organizations in the fisheries sector in Andalusia, as well as relations between them and the structuring of the sector. Therefore, it is a case where we mix ethnographic fieldwork with network analysis in a broader context of action-research. This proposal is a partial result of the Research Project *Revitalization of the fishing sites in the Andalusian Ports System. Economic Uses, Governance and Heritagisation* (2013-2015) (GGI3001IDI0).

### **Perspectives of stakeholders on fisheries policy reform in Senegal**

*Cornelia E Nauer\*, Aliou Sall*

*Mundus maris asbl*

As IUU fishing contributes to heavy losses in fiscal and individual income from different types of fisheries in Senegal, pressure for policy reform increases. The social and economic activities based on marine living resources accounted for an estimated 4.8 % of GDP in 2011 and often unquantified, yet significant, stakes in domestic and regional food security, employment, coastal management, international commerce and balance of payment. The presence of international fleets in addition to embeddedness of extractions from all fleets in international trade adds to the socio-economic and political weight of the “sector”. Over time, significant public and private investment has expanded fishing capacity beyond the domestic resource base. Senegal is not alone in suffering from the resulting overcapacity. But absence of social consensus on restrictions in combination with weak law enforcement capacity poses particular challenges.

Field research is being carried out from November 2014 through February 2015 in artisanal landing sites (Guét Ndar, Kayar, Joal, Mbour, Hann, Ngaparou, Toubab Dialaw, landing places in Casamance) to get a better understanding about the perceptions of a range of economic actors associated with the fisheries about the policy reform process. More than 300 semi-structured interviews have been conducted with fishermen, including boat owners, traders, women fish micro-mongers, boat builders and different types of professional representatives. One objective is to identify any levers on how to overcome the stalemate between officialdom and operators along the value chain of artisanal fisheries. Results are discussed against the back-drop of regional and national efforts in Senegal and neighbouring countries to capture more of the resource rent for the countries concerned in a sustainable manner.

## 4.5. Global fisheries issues in coastal indigenous contexts: bringing nuance to the forefront

**Chair:** Miguel Gonzales

**Global fisheries issues in a coastal indigenous context: bringing nuance to the forefront.**

**Panel organizers:** Yoshitaka Ota and Andrés M. Cisneros-Montemayor

### Panel Description

*Indigenous groups around the world include some 200 million people, 5% of the global population, yet an overwhelming number exist in precarious social conditions. Competing marine resource users have historically been an obvious source of conflict for coastal indigenous groups, yet natural resources remains a vital part of their food security and cultural heritage. In the modern context, broader ecological and political pressures affect fisheries behavior and governance as marginalized communities become rapidly exposed to global market and environmental changes. Moreover, the ongoing growth in users and alternative uses of ocean space, including the implementation of marine protected areas, have increased the literal and figurative confinement of coastal indigenous groups, jeopardizing their ability to continue fishing and, by proxy, what they consider to be their cultural right to fish. For instance, development that displaces groups from an area and/or the linking of official recognition and special rights of traditionally-mobile groups to a defined spatial area (e.g. a reserve) limit access to marine resources and can act (sometimes intentionally) as a barrier to self-reliance. This is unsurprising following most colonial histories and the continued political disengagement of states to support and respect indigenous peoples.*

*In this panel, we thus consider to what extent these groups, in their specific context, are overwhelmingly excluded from policy discussions on global and local solutions to fisheries management issues. This occurs even while they are at the front line of multiple and cumulative impacts from emerging environmental events external to their control, notably climate change. We will bring together researchers and practitioners in the fields of anthropology, fisheries management, conservation, governance and legal studies to present current research initiatives on global indigenous fisheries to 1) reveal the vulnerability of Indigenous communities to issues and challenges faced by wider fisheries and marine governance efforts; and 2) discuss how we can advance both science and policy to protect peoples' right to fish and food security. The topics presented will include a global indigenous fisheries database, case studies addressing ecological and social stress that undermine fisheries, including the impact of climate change and marine area management, and international legal pathways that can provide a more holistic policy for the international fisheries governance.*

*Ultimately, the objective of this panel is to bring issues of indigenous fisheries to the forefront of broader sustainability and food security discussions, and challenge current paradigms of marine governance research from both local and global perspectives.*

**A global estimate of marine fish requirements of coastal indigenous groups** Andrés M. Cisneros-Montemayor (presenter) and Yoshitaka Ota.

*NEREUS Program and Fisheries Economics Research Unit. Fisheries Centre, The University of British Columbia.*

**National Fisheries Governance and Community Based management in Madagascar.**

*Vatosoa Rakondrazafy. Blue Ventures Foundation of Madagascar.*

**Indigenous land and aquatic resources in Latin America: emerging norms and outstanding issues, experiences from Nicaragua and Bolivia.**

*Miguel Gonzalez. International Development Studies, York University.*

**4.6. Resilience and Human Wellbeing in Coastal Communities Subject to Shocks**

**Chair: Allister McGregor**

**Panel Organizer:** Professor J Allister McGregor, et al

**Panel Description**

*This panel consists of a set of papers that present findings from a three year UK ESRC research project on wellbeing and resilience in coastal fishing communities.*

**Resilience and Human Wellbeing in Coastal Communities Subject to Shocks.**

*C. Bene, J.A.McGregor (IDS), D. Mills (Worldfish).*

*CIAT*

Both resilience and wellbeing are big topics in the social sciences at this time and are the focus of considerable policy attention. It would seem intuitive that they should be related in a number of ways: for example, that one would expect resilience to be a contributory factor for wellbeing and/or that the achievement of resilience in times of crisis might come at the expense of wellbeing. This paper reports findings from a detailed empirical study of resilience and wellbeing in coastal communities in four countries. The fishers in these communities have been affected over recent years by a range of shocks and crises. By comparing findings from across the eight communities, across the four countries, the paper considers how different people in these communities respond to and cope with shocks. It seeks to understand how the relationships between resilience and wellbeing work in different social, cultural and economic contexts. The paper provides insights into the nature and dynamics of vulnerability in these four different country settings

**Commonalities in response to diverse shocks: lessons learnt from the asset poor fishing communities in the coastal beach areas of Vietnam**

*Truong Van Tuyen\*, Christophe Bene, Allister McGregor, Ho Le Phi Khanh, Truong Quang Dung, and Nguyen Thi Da Thao*

This paper examines the shocks and stressors faced by fishing households and their responses to them. It explores the ways that household characteristics affect the relationship between shocks and responses. The analyses of the household responses and their recovery from the shocks, provides a means of exploring the relationships between resilience and wellbeing in one type of asset-poor fishing community in Vietnam. The two communities studied are large and located mainly in the coastal beach areas in Hue Province. The fishers practice near-shore fishing with the traditional gears and small boats. The study finds that over the last decade they have faced a diverse range shocks and

stressors a number of which are a consequence of the global fisheries crisis. In an effort to maintain their family life households have been found to adopt a wide range of responses with different frequencies reported amongst households and in relation to specific kinds of shock. Although the two communities have important differences, there is not a great deal of difference between the types of responses adopted across the communities as a whole. The common practice is that the households adopt a complex of responses in the face of multiple and cumulative shocks, rather responses to specific shocks. Although many households expressed an aspiration to move into off-shore fishing, most of the practiced responses reported were founded in the coastal and land-based strategies. Across both communities, household responses and recovery from shocks are influenced by health, their shock perception, and other characteristics of the household members, such as age. These findings provide a basis for further analysis of the resilience and wellbeing of asset-poor fishing households, although the extent to which there are trade-offs between the two in these contexts are as of yet not clear from this data. The findings suggest that an appropriate and practical policy for fisheries development in these communities is one that aims to reduce fishing intensity through supporting the diversification of coastal fishers' livelihoods.

### **Sailing through Troubled Waters; How and Why fishers 'get by' rather than 'get out', at the face of shocks? Lessons learnt from southern Sri Lanka.**

*Oscar Amarasinghe\*, Chris Bene and Anuradhi D. Jayasinghe*

The global fisheries crisis has drawn the attention of academics, researchers and policy makers to question of what constitutes sustainable development for fishers and fisheries. There has been an emphasis on the development of appropriate governance arrangements, which will effectively address the clash between ecosystem health goals and human development goals. The focus on governance stems from the fact that there is a tremendous decline in fisheries resources (both in stock size and composition), while at the same time millions of people who are dependent on fisheries are being made more vulnerable to crises of subsistence and are being pushed over into poverty. Fishers have been compelled to confront these diverse changes and adapt themselves to changing the circumstances in order to 'remain in the game'. But, for many this has not been an easy task. Poverty has become pervasive and the livelihoods of small scale fishers have come under threat. Based on field studies carried out in Southern Sri Lanka, this paper shows that there is little evidence of small scale fishers leaving the fisheries sector because of their inability to cope with shocks and stresses. Small scale fishers in the communities studied are found to have been able to cope with fishing-related shocks and have been able to 'get by' rather than 'get out' of fisheries. Fishers are shown to effectively adapt using a wide range of strategies to cope with a diverse range of shocks and to be resilient. It is also shown that, even under a range of shocks, there is an array of factors which pulls people into the fisheries sector, providing ample evidence that fishing is not only a livelihood, but also a 'way of life'.

### **A Wellbeing Analysis of Fishers and Fish Processors in the Western Region of Ghana.**

*Onumah E. E\*, Ocran J., Al-Hassan R. M.*

*Department of Agricultural Economics and Agribusiness, University of Ghana*

This paper considers the concept of social wellbeing in the context of material conditions, quality of life, and sustainability dimensions to explore the key factors that affect the wellbeing of fishers and fish processors in two rural fishing communities namely Abuesi and Ngyereasia in the Western Region of Ghana using 119 respondents. A Principal Component Analysis (PCA) was conducted to

identify the factors under each of the dimensions included in the Structural Equation Modelling (SEM). The SEM analysis was used to examine the effect of the three dimensions on the wellbeing of the fishers and the fish processors. Data reliability and validity was tested using Cronbach's Alpha test analysis. Findings from the PCA revealed that all factors under the material condition dimension, whilst five factors under quality of life dimension and two under the sustainability dimension fulfilled the criteria of being included in the SEM analysis. The Cronbach's Alpha analysis revealed efficient data validity, reliability and consistency. Overall, findings from the SEM analysis are that structural direct effect of material condition, quality of life of the individual and sustainability of the socio-economic and ecosystems on wellbeing were positive and highly significant. Hence, it is essential to reaffirm that the three dimensions ultimately affect the wellbeing of Ghanaian fishers and fish processors in the study area for important policy interventions.

**Tangled in their own safety nets: Fijian small scale fisher's responses to fisheries resource scarcity.**

*Patrick Fong*

*Institute of Applied Science, The University of the South Pacific*

Surrounded by vast fishing grounds but faced with limited the availability of other resources and opportunities in small island developing states (SIDS), small scale fisheries play an important role in the livelihoods and economy of the local people. However, for SIDS such as Fiji, this overdependence on the sector and poor management over the years have resulted in the decline in fisheries resources. One of the major concerns arising from this crisis is its negative impacts on the wellbeing of the people that depend on small scale fisheries. In this context, the goal of this research is to address the current fisheries crisis by providing a more policy-relevant analysis of fisheries resource scarcity and its social impacts on the local people, and simultaneously help the sector continue contributing to its pro-poor functions in SIDS. The study uses a combined resilience-wellbeing framework to explore the different response that fishers and their families have to crises. The framework captures the human dimensions of the fisheries crisis and provides an understanding of the consequences that crises have on the lives of the people who depend on fish-related activities in SIDS. It also examines the ways that people respond to the policy responses that these crises have triggered. The research findings provide insights into possible ways forward on how the fisheries and other crises can be addressed in Fiji.

<b>4.7 Meeting and Discussion with the Keynote Speaker: Prof. Kuperan Viswanathan</b>
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Discussion with keynote speaker Prof. Kuperan Viswanathan, facilitated by Maarten Bavinck.

<b>Panel sessions</b>	<b>Series 5</b>	<b>Thursday, 25<sup>th</sup> of June</b> <b>15:30 – 17:00</b>
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<b>5.1. Panel on Aquaculture development and governance</b>
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**Chair: Megan Bailey**

**Governing aquaculture sustainability through global value chains**

*Simon R. Bush*

As the importance of aquaculture for delivering global fish protein continues to grow so too does pressure for sustainable production practices. Steering the sector to move to ‘good’ or ‘better’ production practices involved a private governance arrangements, such as third party certification, operating through value chains supplying consumer markets in the global North. As the limitations of certification have become increasingly apparent, attention has turned to a new mix of private and public governance arrangements engaging both global and domestic aquaculture value chains; including transparency and traceability systems, public-private sustainability partnerships, benchmarking schemes and area-based management approaches. In this paper, I provide a review of how the structure of value chains for globally traded species, including salmon, tilapia, shrimp and pangasius, determine the design of these new arrangements and analyse the extent to which they can effect a new round of sustainability governance for the sector. What are the implications of these governance arrangements for both social and environmental outcomes? Will developed and developing economies be equally engaged? Can they improve upon certification and state regulation? And what new capabilities do aquaculture producers, processors and traders need to improve their production practices, while remaining competitive in a global aquaculture industry? Addressing these questions will help to us to identify new geographies of sustainability created through governing aquaculture through global value chains.

**Deltas and Clusters: An economic geography of Asian aquaculture development**

*Ben Belton\*, Thomas Reardon, Aung Hein, L. Seng Kham and Kyan Htoo*

*Michigan State University*

Building on an assessment of aquaculture value chains in Myanmar’s Ayeyarwaddy Delta, supplemented with a review other major aquaculture ‘hotspots’ in tropical mainland Asia (Andhra Pradesh in India, Bangladesh, Central Thailand, Southern Vietnam and Guangdong in China), this paper characterizes and explains the economic geography of Asian aquaculture development. Two overarching patterns are evident: 1) all of the landscapes where major concentrations of aquaculture occur are deltaic; 2) within these deltas, aquaculture development has occurred in a highly geographically clustered manner. These patterns can be explained with respect to the following factors: a) a historical propensity for populations in deltaic environments to consume fish as a compliment to the other staple, rice; b) legacies of profound ecological and economic transformation as a result of water management and transport schemes which opened up delta regions to massive inward migration, expansion and intensification of agricultural production and trade; c) access to and control over water; d) declines in naturally occurring fish stocks; e) proximity and/or access to major

urban markets with growing populations, rising incomes and accompanying changes in dietary patterns; f) symbiotic co-location in proximity to agro-industry at the urban periphery and around rural growth centers (food processing, feed manufacture, intensive livestock); g) economies of agglomeration in growth poles where specialized value chain actors benefit from reduced entry and transaction costs; h) localized demonstration effects.

### **The ‘quiet revolution’ in Myanmar’s aquaculture value chains**

*Aung Hein\*, L. Seng Khan, Kyan Htoo and Ben Belton  
Myanmar Development Resources Institute,*

This paper summarizes key findings on the current status of aquaculture value chains in Myanmar, based on an intensive ‘rapid reconnaissance’ study conducted in 2014. Myanmar is the 10th largest producer of farmed fish in the world, and 7th in Asia, but very little is known outside the country regarding the status of its aquaculture sector. A limited literature on the subject typifies aquaculture as dominated by large-scale, export-oriented farms, characterized by low productivity and efficiency and providing limited employment. In contrast to many other Asian countries, there is believed to be an almost complete absence of small- and medium-scale producers, in part because the authorities do not allow ponds to be built on land suitable for rice cultivation. Whilst some of these characterizations are partially correct, our research findings paint a picture of dynamic transformation. During the last decade, rapid and sustained growth of aquaculture enterprises has taken place in the area surrounding the capital city Yangon, relatively unfettered by official restrictions on land use, in response to burgeoning opportunities in domestic markets. Technical change has resulted in widespread productivity increases, and growing numbers of small and medium scale commercial producers have entered production. These changes have resulted in rapid value chain development, with small and medium enterprises providing an increasingly diverse range of supporting goods and services which employ large numbers of workers. A ‘quiet revolution’ in aquaculture value chains, similar to that occurring in the value chains of a wide range of other non-staple foods throughout Asia, is thus very much underway in Myanmar.

## **5.2. The mechanics and technologies of power in marine geopolitics**

**Chair:** Glen Smith

**Panel organizers:** *Glen Smith and Aarthi Sridhar*

### **Panel Description**

*“Geopolitics is about power and how the world is organized politically”. This conference stream at MARE 2015 gives us the opportunity to examine power play in marine resource management in a time when ocean space is becoming increasingly contested. Governing these systems and maintaining some kind of order in the potential chaos is about organizing society.*

*As noted by Pálsson (2006) the conventional perspective, sees resource governance as a socially constructed governing system that acts upon a natural system of objects to be governed. More recent perspectives view these systems as a tightly linked socio-natural whole (Kooiman et al 2005, Jentoft 2007, Berkes 2010, Johnson 2013). In a time when complex marine governance and management challenges demand an ever improving knowledge*

of the 'system to be governed' – the seas – we must not neglect the task of better understanding how we organize ourselves. It follows that understanding the governance of this socio-natural system is about exploring the relationship between power and organization (Sinclair et al. 2009, Mather 2012, Johnsen 2014). One access point lies in the mechanics and technologies of power.

As Lemke (Lemke 2001: 201) writes of the transition from government to governance, even if the state becomes more invisible, it does not abdicate; it retains control through the control apparatus, but governs through indirect mechanisms and leaves more responsibility to the governed. The concept "technologies of power" is inspired by Foucault's "technologies of security" and denotes the techniques that governors can use to influence the governed (Foucault 2009: 8-11).

In this perspective, governance is about governmentality (Foucault 2008; Foucault 2009; Sennellart 2009). Governmentality "seeks to distinguish the particular mentalities, arts and regimes of government and administration" (Dean 2006: 2). It is important that we scrutinize these mechanics of governing and of being governed. How is this achieved? What are the (subtle) techniques of cultivating the mentalities of governing and being governed? What are the outcomes of these processes? And what happens when they are resisted?

Actor network theory (ANT) can be used here to help the researcher acknowledge and study the effect of non-human actors, devices and objects on organisational networks (Callon 1998, Latour 1999). By doing so it is possible to explore the way actors are enlisted into networks. This is described as creating 'allies' (Latour) through "negotiations, trials of strength and tricks" (Callon, 1998, p. 74). To appreciate how networks are formed we must consider "agents, devices, texts, relatively standardised sets of organisational relations, social technologies, boundary protocols, organisational forms" (Law, 1992, p. 385). It is here that power operates.

This panel proposes a discussion of examples of these processes in a range of geopolitical contexts and scales, with a focus on the instruments and the mechanics used to produce power and governmentality. In this way we can aim at better understanding how marine management and governance systems come into being and what they produce.

The panel will follow an interactive format comprising brief presentations of a key issue in each paper, followed by moderated discussions around select cross-cutting conceptual themes.

### **Governmentality and fish resource allocation: insights from Newfoundland and Labrador's northern shrimp industry.**

Paul Foley (Presenter) and Charles Mather  
Memorial University

### **Obligatory points of passage and boundary objects in fisheries science in India – recalling post-coloniality**

Aarthi Sridhar<sup>a</sup>  
Jawaharlal Nehru University, Delhi (visiting scholar at University of Amsterdam)

### **Governing the Fisher Body – Safety as Bodypolitics and Fisheries Governance**

Signe A. Sønvisen (Presenter)<sup>a</sup>, Trine Thorvaldsen<sup>b</sup> and Jahn Petter Johnsen<sup>b</sup>

<sup>a</sup> - Sintef Fisheries and Aquaculture

<sup>b</sup> - UiT, The Arctic University of Norway

**What is a coastal vessel?***Dag Standal**Sintef Fisheries and Aquaculture***Marine space as natural, political and administrative objects - marine spatial management, governmentality and governance in Norway***Jahn Petter Johnson**UiT, The Arctic University of Norway***In search of elusive agency; using Actor Network Theory (ANT) to understand power and political agency among the trawl fisheries in Palk Bay, India.***Johny Stephen**University of Amsterdam***Creating the spaces, filling them up. Towards Marine Spatial Planning in The Pentland Firth and Orkney Waters.***Glen Smith**UiT, The Arctic University of Norway***5.3. Governing Specific Fisheries and Discards****Chair: Jahn Petter Johnson****Implementation of discard ban (landing obligation) – vessel level processes***Søren Qvist Eliassen**Aalborg University and DTU Aqua*

The presentation evaluates experiences on acceptance of landing obligation regulation and behavioural changes among skippers as a part of a Danish project MiniDisc. In the project 14 vessels in 4 different demersal fleets (trawl and Danish seine) has accepted to register all catches which would be landed under landing obligation, while they get relative free hands to experiment with gear modifications to reduce bycatch and optimise market value of the catch. In this relation, a study in March-April 2015 based on in-depth interviews will compare participating and non-participating skippers' accept and understanding of the landing obligation regulation. This includes to register the steps they have taken to adjust to the new conditions, both in regard technical measures (gear modification, vessel adjustments etc.) and behaviour (fishing practice, surveying markets etc.).

The presentation will discuss the various elements of the adjustment processes at the individual vessel, and how the process, under which the landing obligation is implemented, can influence the speed and quality of the adjustment at vessel level.

**Protecting biodiversity and small scale fisheries, a wicked problem in the making?***Leyre Goti**THÜNEN Institute of Sea Fisheries, Hamburg, Germany*

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?

A proposal for a co-management measure in the gillnets fisheries in the German state of Schleswig-Holstein has been set out with the aim of bringing together conservation and fisheries. Despite the improvement that the initiative (a voluntary agreement) presents with respect to a pure command and control management style, the complexity of the situation causes a high level of uncertainty on biological, social and economic aspects. On the other hand, a preliminary impact assessment shows that the measures under the agreement (closures and effort restrictions) have real social and economic consequences.

What is apparently a respectful fishing method for the stock of fish and the habitat poses some risks for biodiversity, including charismatic species as harbour porpoises and sea ducks. The lack of information on the biological aspects of these species makes it difficult to measure which is the current state and the desired objective

In addition to this, the use of closures (Natura 2000 in the most part) as well as the spatial proximity between different countries and multiple levels of governance make the problem unique. The deficient communication between the different actors, including fishermen, environmental NGOs, managers and scientists are also symptoms of broader problems of overfishing, poor performance and conservation issues.

Considering these aspects and in the light of previous analysis under the frameworks of impact assessment and ecosystem services, and we will use the approach of wicked problem to try to improve the advice for management.

#### **5.4. Towards the implementation of the SSF guidelines**

**Chair: Ratana Chuenpagdee**

*Participants:*

Nicole Franz

Andrew Song

Maria Jose Barragan

Mandy Doddema

Adam Soliman

Svein Jentoft

### Panel Description

*The Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the context of Food Security and Poverty Eradication (SSF Guidelines) have been endorsed by the FAO Committee on Fisheries in June 2014 after a long participatory consultation process which involved over 4000 stakeholders from over 100 countries.*

*The endorsement was an important achievement, but now the challenge of implementation lies ahead. The commitment to implement the SSF Guidelines varies, as do the national policies and strategies for fisheries sector governance within countries and regions.*

*This panel session aims a) to provide an introduction to the SSF Guidelines and a brief overview of ongoing initiatives and processes to implement the SSF Guidelines, and b) to exchange experiences and perspectives on the implementation of the SSF Guidelines of panel members. Our ultimate objective is to document these experiences and to contribute to develop a methodology to assess the enabling environment for the implementation of the SSF Guidelines at various levels. This work is proposed within the context of the cluster 'SSF Guidelines' of the Too Big To Ignore research partnership.*

*Such a methodology should be able to assess the baseline status of the following aspects in relation to coherence with the principles of the SSF Guidelines:*

- *the legal, regulatory and policy framework*
- *the institutional framework*
- *the information, research, communication, and mobilization environment*
- *the level of capacity (human, financial, technical, logistic) – within the public domain and of other relevant stakeholders, in particular fisher and fishworker organizations.*

*The outcome of such an assessment should allow identifying potential priorities and entry points for the SSF Guidelines implementation. It should also allow developing indicators to monitor progress of the implementation.*

*The panel session will present starting points for such a methodology, based on specific experiences and views of the panelists and will provide an opportunity for conference participants to join the cluster initiative*

## 5.5. Knowns and Unknowns: Knowledge Sets and Perceptions of Risk in Marine Management

**Chair:** Melanie Wiber

**Panel Organizers:** *Melanie G. Wiber and Allain Barnett, Department of Anthropology, University of New Brunswick*

### Panel Description

*As Giddens (1999:3) notes: "The idea of risk is bound up with the aspiration to control and particularly with the idea of controlling the future". This panel explores the concept of "manufactured risk" as applied to marine management with a focus on the near shore in the Canadian Maritimes. It draws on Giddens and Beck to define risk as a probable event projected into the future, with potential benefit to some and harm to others (values), and with a high uncertainty as to how that risk may play out given complex socio-ecological pathways. The papers in*

*the panel rely on multiple knowledge systems to explore the co-construction of risk perception and the resulting “compulsion to act” (Beck 2006:332), and describe the various ways in which risk is subsequently an object of debate, conflict and negotiation. Known and unknown risks addressed in the various papers include potential impacts arising from climate change, marine debris, aquaculture processes and market downturns. Utilizing both an instrumental view of risk analysis and a critical theory of risk, the papers will also explore how risk trade-offs in marine management transfer risk impacts from some social actors to others, and plays a role in power struggles within management institutions.*

### **Fitting what to what? Paying attention to arguments about scale in fisheries risk governance**

*Allain J. Barnett,*

*Department of Anthropology, University of New Brunswick*

Scholars of social-ecological systems have emphasized the importance of scale in determining the efficacy of governance. The goal of governance, it is argued, is to fit the scale of governance to that of the social-ecological problems they are design to regulate. This leads scholars to suggest governance regimes such as co-management, polycentricity, and decentralization, or in some cases, vertical hierarchies. While it is clear that “misfitting” scalar arrangements can result in negative ecological and social consequences, questions remain about the project of scalar matching. Using insights from fieldwork and interviews in Southwest New Brunswick regarding the risks of various coastal marine uses on commercial fish stocks, we explore some of the complications with scalar matching. First, we find that political actors play an important role in constructing the scale of a problem in such a way as to quarantine a problem to a “local” and more manageable scale. Second, using concepts regarding the standardization of boundary objects and knowledge infrastructure, we show that governance networks become standardized within a fluid temporal and spatial network of social-ecological interactions. Finally, we argue that this standardization of governance results in the marginalization of important human and non-human actors in a system. These actors, while standardized as beyond the scope of governance, or as unknown unknowns, play an important role in precipitating the unintended consequences governance systems attempt to avoid. We link this process to Beck’s world risk society thesis, wherein our modernity-based ways of avoiding risks become the very sources of new and more complex forms of risk. To conclude, we support the project of scalar matching. However, we reiterate the calls for reflexivity in the process of scalar governance, to maintain an element of fluidity in our scalar matching projects.

### **The compulsion to act in Southwest New Brunswick Canada: local knowledge about risk in the marine environment**

*Courtenay E. Parlee,*

*University of New Brunswick, Canada*

Since the 1980’s, the New Brunswick salmon aquaculture industry has rapidly expanded throughout Southwest New Brunswick, where traditional fisheries such as lobster, groundfish and herring continue to operate. This has significantly changed the social, cultural, economic and ecological nature of the fisheries. Some of the risks associated with these changes include conflict between the two groups because of limited space, sea lice pesticide poisoning of lobster, and gear entanglement. In Southwest New Brunswick, the Bay of Fundy Marine Resource Planning Initiative was established as a proactive approach to risk assessment and management. Through community consultation, the Planning Initiative developed a set of ‘Community Values Criteria’. These were designed to provide

“proponents, users and decision makers, with criteria for using the marine space and resources within the defined planning area” and “the criteria to determine what information will be used to review their application before submitting their development proposal, leading to greater predictability and reducing conflicts in the planning area”. The Community Values Criteria required operationalizing, which generated debate as to whether the Planning Initiative should be decision-making or advisory. In the end, two levels of governments decided it would take on the role of an advisory committee. It’s mandate would be to “provide advice and recommendations” to government on policies, processes, or strategic matters “of significant public interest associated with new or existing activities from a community based perspective”, using the community values criteria to support decision-making. This presentation will explore the co-construction of this tool, which expresses local knowledge about risk and efforts by the advisory committee to expand and apply the community values criteria. Particular emphasis will be placed on the struggles of the advisory committee to deal with local risk and the implications of this.

### **Exploring ‘expertise’ to increase understanding of risk**

*Donna G. Curtis,*

*PhD Candidate University of New Brunswick*

Environmental, economic and social risks are a reality affecting the livelihoods of inshore lobster fishermen in southwestern New Brunswick, Canada. The risks facing these fishermen have been precipitated by the growing number of competing industries in the shared waters of the Bay of Fundy, including Atlantic salmon (*Salmo salar*) finfish aquaculture. To better manage access and combined uses of ocean and coastal resources requires well-informed risk analysis and democratic decisionmaking processes inclusive of both scientific and experiential knowledge. Recent literature indicates that factors enhancing or detracting from knowledge exchange are not well understood. To better understand how knowledge can be co-constructed, this paper relies on a case study of knowledge exchange between fishermen and scientists in a three-year marine risk assessment project. Specifically, this paper reports on the development of a research protocol for studying the abundance of female lobsters (*Homarus americanus*) in waters affected by finfish aquaculture. The work follows the knowledge exchange of subject ‘expertise’ by both fishermen and scientists and how this subject knowledge is contributed, exchanged and accepted for use in the research protocol. It is argued that the defining, understanding and treatment of what is ‘expertise’ and ‘expert knowledge’ contributes directly to how risks is both perceived and addressed.

### **Responding to Risk: A Case Study on Season Change Requests & the Role of Managing Institutions in Eastern Nova Scotia’s Lobster Industry**

*Robin A. Messenger,*

*M.A. Department of Anthropology, University of New Brunswick*

For decades the value of co-management in Canada’s fisheries, often in the broader context of achieving or maintaining sustainability, has been widely advocated in federal and provincial policies. Co-management is often conceptualized in terms of a formal power-sharing arrangement between a unified government and a homogenous community of resource users. The ability to respond to risk is supposedly enhanced through shared governance arrangements. In Eastern Canada, this aspirational approach to management endorses the devolution of decision-making powers to resource users involved in democratic management/advisory boards. In Eastern Nova Scotia, however, the ability to

maintain or develop new co-management institutions is challenged by issues of fair representation, transparency, trust, social capital and power dynamics between neighbouring communities. This became evident when a proposal to change the fishing season in response to market challenges was put to a vote. Adopting the notion of adaptive co-management, where the focus is on function, process, and the appreciation that social-ecological systems are complex, adaptive, and characterized by an inherent degree of uncertainty, my case study will critically assess normative concepts of co-management such as power sharing, trust, and social learning.

## 5.6. New Horizons: Coastal Communities and Social Ecological Resilience

**Chair:** Prateep Nayak

**Panel Organizer:** *Anthony Charles*

### **Panel Description**

This panel will present a rich variety of perspectives on coastal resilience based on the work of the Community Conservation Research Network (CCRN). The CCRN is a partnership of researchers, community partners, government and non-governmental organizations and students working in 14 countries to create a comparative analysis of community based conservation initiatives. The CCRN works within a Social-Ecological Systems (SES) framework which links together the 'human system' (e.g. communities, society, economy) and the 'natural system' (e.g. ecosystems) in a two-way feedback relationship.

This framework provides a useful approach towards describing and analysing social and ecological resilience in coastal communities. Our panel will discuss community resilience from a social ecological perspective and discuss the incorporation of socio-ecological perspectives into long-standing policy instruments (Protected Areas, Marine Planning, National Parks) directed at ameliorating threats to coastal livelihoods and conservation.

Prateep Nayak will discuss regimes shifts and highlight the role of drivers in anticipating, navigating and averting regime shifts in coastal-marine systems. Nayak will show how a better understanding of multi-directional internal and external drivers, can help to determine when and how coastal-marine systems become vulnerable to abrupt change and conclude with a discussion of how this has significant implications for the development of policy to improve community resilience.

Against this theoretical examination, Silvia Salas will discuss the role of diverse social and economic incentives in coastal community resilience. She will show how tensions emerge between those who engage in traditional practices of cooperation and those who benefit from external market incentives and the prospects for their resolution to improve resilience.

Applying these perspectives to policy instruments, Philile Mbatha will discuss her work in coastal South Africa where local community perspectives are being brought to bear on the creation of Protected Areas.

Arif Satria will discuss the development of a resource management system in a National Park in Timur, Indonesia. Local community conservation practices stem from the *papadak* system, a traditional

form of resource management that has been inexistence since the pre-colonial era. Satria will explore this system, its typology and the prospects for its incorporation into a broader a fisheries management plan for the area.

### **Community-Based Responses to Social-Ecological Regime Shifts**

*Prateep Kumar Nayak\*, Derek Armitage*

*Environmental Change and Governance Group, Faculty of Environment, University of Waterloo, Canada*

Social-ecological regime shifts are abrupt, long-term and significant changes in linked systems of people and nature with uncertain implications for ecosystem services and human wellbeing. Regime shifts in terrestrial and aquatic ecosystems are relatively well studied, although they remain difficult to anticipate because of lag effects and the interaction of biophysical variables across scales. Barriers to anticipating and navigating regime shifts also reflect incomplete consideration of important social processes. Here, we examine a range of community responses to impending and ongoing processes of regime shift in coastal social-ecological systems and make an initial assessment of their implications for community-based management and conservation. Experiences with rapid social-ecological change in two lagoon systems - the Chilika lagoon in India and the Tam Giang lagoon in Vietnam - provide examples and help to clarify the ways in which communities are responding to often rapid changes. Both lagoons have or are currently experiencing significant environmental change from a wide range of drivers, and major shifts in social and ecological system components at local and regional scales (e.g., village, commune, district, state). We highlight elements of promising practices (e.g., community level institutional and management norms and rule) and policies (e.g., community-focused, collaborative, flexible) that can help address adverse outcomes of regime shift and promote community-based conservation and governance approaches to better anticipate and respond to the challenges posed. We conclude that effective responses to social-ecological regime shifts will require a transition towards interdisciplinary research, an integrative and scale-specific suite of quantitatively and qualitatively robust variables for assessment, and investments in management and governance approaches that are systemic, multi-level and adaptive.

### **Influence of plural governance systems on coastal livelihood strategies: The case of Kosi Bay, South Africa**

*Mbatha, Philile\*, Merle Sowman, Rachel Wynberg*

Thousands of rural households along the South African coast rely on marine resources, forest products and agricultural resources for subsistence use or local sale in order to support their livelihoods. These practices have continued in many rural areas despite restrictive legislation during the colonial and later apartheid administrations. More contemporary restrictions have emerged in the post-1994 democratic state due to an expansion of the conservation estate and increased efforts to improve compliance in existing protected areas. This conservation drive is due largely to environmental concerns as well as the country's international and national commitments to enhance biodiversity protection. Addressing these competing interests falls squarely in the realm of actors and institutions involved in the governance of coastal areas. Such governance arrangements are all the more contested and complex due to the plurality of actors and institutions whose powers, roles and approaches are informed by different sources of law, worldviews and epistemologies. These disparities create confusion and conflict amongst the various actors and local communities and raise questions about rights, management responsibilities, and decision-making powers. Through the lens

of Kosi Bay, a rural coastal system located within South Africa's first World Heritage Site, iSimangaliso; this study 1) explores the livelihood strategies employed by rural coastal communities living in three villages in the conservation areas, 2) describes the complex governance systems relevant to coastal resource use, and 3) seeks to understand how people's livelihood strategies and choices have been influenced by changing plural governance systems and processes. The paper highlights the critical role of governance in assessing people's livelihood strategies and argues for greater attention to governance in livelihood analyses.

**Cooperation or competition? Understanding the context and incentives driven small-scale fisher in a local community of Yucatan, Mexico.**

*Salas Siloia\*, Guevara-Cruz Citlalli, Julia Fraga*

*Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional, Unidad Mérida.*

According to several social scientists pooling landings from shared resources can reduce competition, but it requires agreements on the operation system. On the other hand competition consistently yields in clashes among fishers and requires more effort for people engagement to solve the problems. We present the case study of a small fishing community where both processes cooperation and competition have been in place under different circumstances, the former given traditional patterns of behavior within the community and the second incentivized by external factors. The aim of the study was to learn if cooperation processes take place in this community, either at individual level or at the community level, and if so, to identify the incentives that motivate this strategy. We also wanted to evaluate under which circumstances competition would occur. Log-books provided by fishing cooperative members and interview applied in the community were used for this purpose. Logbook data from different fishing seasons include daily catch by fisher and species. Interviews provided direct information from fishers. Results showed that fishers in the community cooperated at the individual level (between fishers) and also within the community (fishers helping other community members called locally seagulls, who gather fish products at the landing sites). The incentives that motivate fishers to cooperate have changed through time, but the strategies, although not vastly widespread, have been in place for almost a decade. The case of the new sea cucumber fishery, on the other hand, shows the problem of an abuse of market power for personal gain of leaders or middlemen at the cost of the "social breakdown" of the community. Important changes are evident in this community since the inception of external groups that participate in the fishery, either fishing illegally or buying the product. We discuss around the incentives for the observed patterns and the challenges that local fisher have to face regarding such external factors and at the same time to maintain their local practices.

**5.7. Regionalization in Marine Governance**

**Chair:** Jan van Tatenhove

**Panel organizers:** Jan van Tatenhove, Judith van Leeuwen and Katrine Soma  
Wageningen University (ENP/PAP)

**Panel Description**

*In this panel we address Marine Governance from different perspectives. The articles in this panel will be published in a Special Issue in the journal Ocean and Coastal Management later this year. Author affiliations can be found in Table 1.*

### **Marine Governance in a European Context: Integration and Cooperation for ecosystem-based management**

*Jan van Tatenhove\* Katrine Soma, Judith van Leeuwen  
Wageningen UR*

This article reflects on processes of regionalization in Marine Governance to implement EBM. The aim is to provide a framework to unravel the challenges of integration and cooperation in Marine Governance. We conclude this article by reflecting on how the lack of integration and cooperation affect principles of good governance in EU marine governance.

### **The integration of social acceptance in marine governance in Europe**

*Katrine Soma\*, Claire Haggett*

Whilst sites for offshore wind in European marine areas are increasing, a series of on-going studies show social acceptance of renewable energy developments to be low. This article reflects on the rationale for public support and opposition, relationships with planning frameworks and opportunities for engagement and consultation, as well as the characteristics of the policy and permitting processes which have an influence on social acceptance.

### **The Power of the Offshore (Super-) Grid in Advancing Marine Regionalization**

*Hilde M Toonen\*, Stephen A Jay*

Large scale and transnational electricity grids facilitate balancing capacity and demand, and increase potential for energy trading. By outlining their historical path and the envisioned outlook, this article shows how offshore (super-)grid developments link up to marine regionalization and related processes of integration and cooperation. It is argued that scaling-up grids to the regional sea faces obstacles which depend on persistent practical and policy realities, and which may be relevant to marine regionalization.

<b>Panel sessions</b>	<b>Series 6</b>	<b>Friday, 26<sup>th</sup> of June</b> <b>10:30 – 12:00</b>
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## 6.1. Integrated Marine Policy Frameworks

**Chair:** Luc van Hoof

### **Fisheries management, the ecosystem approach, regionalisation and the elephants in the room**

*Luc van Hoof*

*IMARES Institute for Marine Resources and Ecosystem Studies, the Netherlands*

In the 2002 reform of the EU Common Fisheries Policy for the first time the Ecosystem Approach was being mentioned. In the 2013 reform the Ecosystem Approach has been further detailed and operationalised in the field of fisheries management. In parallel the EU Marine Strategy Framework Directive operationalised the Ecosystem Approach in the field of Environmental Management and the status of the ecosystem.

Many definitions of the Ecosystem Approach circulate, yet the common denominator is the systems approach which seeks to take the entirety of a marine ecosystem into consideration. As Marine Ecosystems cover large areas, on a geo-political scale this approach calls for cooperation at the ecosystem level between the riparian states. This regional cooperation has been acknowledged in the EU Marine Strategy Framework Directive and the EU Marine Spatial Planning Directive, however without providing details on how this cooperation can be effectuated.

In this article, based on analyses within a number of European Projects and discussions with relevant actors, we will revisit the relationship between the Ecosystem Approach, fisheries management and the need for regionalisation. Next we will analyse the impact of the need for regionalisation and, moreover, we will focus on the elephants in the room: obvious issues related to the need for regionalisation which apparently remain undiscussed. These elephants concern the position of regional cooperation between Member States vis a vis the treaty of the European Union, the ecosystem approach between fisheries management and the Marine Strategy Framework Directive, stakeholder involvement and the balancing of ecological and economic concerns, Relative Stability and possible models for organising regional cooperation.

In the final analysis we will discuss our findings and seek possible ways forward to make the obvious problems either disappear by talking about it or reduce it to a solvable problem.

### **Self management of vessel quota by the producer organisations in France: progress and prospects for the governance of the fisheries system.**

*O. Guyader, S.\*; Metz, Z. Larabi. C. Macher, F. Daurès, P. Le Floch*

*\*Ifremer, UMR AMURE, Unité d'Economie Maritime*

The aim of the paper is to present the results of a study carried out for the analysis of producer organizations (POs) in France, particularly in the management of EU fishing quotas. The project

reform of the common fisheries policy aims to strengthen the role of fisheries organizations in the co-management of fisheries and the recent French law on agriculture and fisheries has recently improved the regulatory powers of POs. As described in recent scientific papers, the evolution of the institutional context can be critical in the fisheries system governance especially in terms of management measures effectiveness. Based on national survey, we present some key findings on the structure and functioning of the POs. This study provides a general overview of fisheries subject to vessel quota allocation and the ways quotas are allocated. In a context of collective and self management of sub-quotas, this work also highlights the limits of the action of the POs and identifies ways of development for better integration of management processes in the analysis of the fleet and fisheries dynamics.

### **Institutional challenges for policy-making and fisheries advise to move to a full EAFM approach within the current governance structures for marine policies**

*Paulina Ramirez-Monsalve*

*Innovative Fisheries Management, Aalborg University (IFM-AAU)*

The EU is aiming to apply an Ecosystem Approach (EA) to the management of all human activities in the marine environment. While some authors claim that the institutional structures to support this implementation are in place, most of the evidence points to the contrary. Four have been seen as the main institutional ambiguities that challenge the relevant stakeholders to provide EA advice. These institutional ambiguities are a) unclear guidance on how to deal with trade-offs; b) non-existing support to stop thinking sectorial; c) regional organisations which keep on obtaining roles in developing EU marine policy, yet are not recognised competent authorities for formulating and implementing policy; and mainly d) not clear rules or motivators for the different actors, from the different sectors, across the different regions to sit down at a table and agree on the trade-offs that would be necessary to take in order to manage the marine ecosystem as a whole and in a truly sustainable way. The current paper explores these institutional ambiguities from the lens of fisheries, focusing on the challenges for providing an EA advice to the fisheries management.

### **Individual Science-Policy Mediators in the Wadden Sea: strategies and goals to enrich decision-making**

*Wanda van Enst\*, H.A.C. Runhaar, P.P.J. Driessen*

*Utrecht University, Copernicus Institute of Sustainable Development*

The interactions between environmental science and policy is often contested, due to – amongst others – problems with the strategic production and use of knowledge. Scientific literature presents solutions for these interaction problems in the shape of so-called science-policy interfaces (SPIs): processes, organisations or individuals which aim at enhancing the level of credibility, legitimacy and/or salience (depending on the interaction problem at stake) of the knowledge used to (theoretically) enrich decision-making processes. Concluding a thorough literature review on these interaction problems and SPIs, we argue that three interfaces can be identified: i) boundary organization; ii) individual science-policy mediators; and iii) participating knowledge development processes. Little, however, is known on what interface to use with the occurrence of specific interaction problems, leading us to the question: SPIs, what works where, when and how?

This paper will discuss the individual science-policy mediator (e.g. Honest Broker, knowledge broker) as being a SPI. Although there is a broad range of literature on these mediators, there appears to be little empirical evidence on the goals and strategies of these individuals. This paper will present an empirical research among 15 to 20 science-policy mediators, who operate in the field of environmental science and policy. A specific focus will lie on their experiences with policy problems occurring in the Wadden Sea area (is a shallow estuarine sea North of the Netherlands, Germany and Denmark, of great ecological but also economic value). Through in-depth desk research and semi-structured interviews among the identified science-policy mediators we aim to present the strategies these individuals have, in order to enhance the level of credibility, legitimacy and salience of the knowledge, and to what extent they are used to enrich decision-making processes. The analysis will provide us with further empirical insights in when, where and how these individuals operate, and how they develop strategies for sustainable governance.

## 6.2. Small-scale Fisher Vulnerability

**Chair:** Prateep Nayak

### **Small-scale fishing community vulnerability to land-use change on the influence zone of the Veracruz Reef-System, Mexico**

*Ondrej Bazant-Fabre\*, Patricia Arceo, Gabriela Galindo-Cortés and Pedro Reyna-González  
Universidad Veracruzana, Instituto de Ciencias del Mar y Pesquerías*

In the past, the Veracruz Reef-System allowed the coastal settlement of a commercial port and fishing communities due to the protection and biodiversity it provides; the communities adjacent to the port became the city of Veracruz to the north, while others became the towns of Boca del Río and Antón Lizardo southward. However, in the past 50 years an accelerated urban growth, promoted by political development plans, has joined Boca del Río and Veracruz in a single metropolitan area and it seems it will reach Antón Lizardo in the near future. Furthermore, the reef-system was decreed a marine park in 1992 and the expansion of the port was recently authorized, which will destroy a couple of single reefs in its northernmost portion and displace the fishing community of Playa Norte. The objective of this study is to evaluate the vulnerability of small-scale fisheries of these three communities under land-use pressure; our hypothesis is that the property regimes or tenure of land and sea associated with these changes primordially affect the fishers' rights and access, but also their livelihoods and wellbeing, economic opportunities, food security and governance. A two-way methodology was developed: i) vulnerability index, composed of sensitivity and adaptive capacity indicators collected via weighted surveys; and ii) exposure index, composed of changes between four categories of land-use impact and generated via geographical information system analyses for the last five decades. As a preliminary result, 11 indicators of sensitivity grouped in three criteria were defined: fishing activity, food security and proximity to shore and access to the economic exclusive zone; likewise, 14 indicators of adaptive capacity grouped in three criteria were defined: socioeconomic profile, opportunity cost and local governance. Surprisingly, the vulnerability of all three fishing communities was low, due to

intermediate-low scores of sensitivity and intermediate-high scores of adaptive capacity.

### **Socio-economic and governance factors influence fishers' anticipated behaviour**

*Rachel Turner\*, Fitzsimmons C, Forster J, Gill D, Mahon R, Oxenford H, Peterson A, Schuhmann P, Stead S  
Environment and Sustainability Institute, University of Exeter, UK*

Failures of fisheries management systems to halt declines in world fisheries production have been well-documented, leading to calls for improved governance. An appreciation of the factors influencing fishers' behaviour is recognised as necessary to inform policies designed to support conservation and development goals. Numerous factors influence fishing behaviour, including social, environmental and cultural factors operating at the level of the individual, household, community and country, but the relationship between governance and resource use behaviour is not well understood. Though understanding of the correspondence between good governance and good outcomes is an active area of research, this relationship remains largely undefined, in part because of a lack of studies that empirically explore the links between resource users' perceptions of governance and their behaviour, taking account of socio-economic contexts that influence decision making. This study explores fishers' anticipated future changes in fishing effort across twelve communities in four countries in the Wider Caribbean, under the hypothetical scenario that fish catches remain at current levels. While the drivers of hypothetical declines in catches have been explored in a number of studies, we consider the 'no-change' scenario to explore the drivers of fishers' behaviour in the absence of drastic changes in resource availability. We explore how a variety of socio-economic variables and perceptions related to environmental health and governance influence fishers' responses. The analysis presented demonstrates that perception of resource governance is an important predictor of fishers' anticipated future behaviour, and the operationalisation of good governance principles may encourage stewardship among resource users.

### **Artisanal Fishers and the CFP – an Irish Perspective**

*Vincent Fahy*

*National University of Ireland, Galway*

Fisheries governance in Europe under the aegis of the Common Fisheries Policy (CFP) has drawn criticism that it favours industrial fleets over small-scale or artisanal fishers. This criticism stems in part from the top-down governance of the CFP, with senior decision-making civil servants depending on economic and scientific data in shaping policies, with scant regard to stakeholder input or socio-cultural parameters. This is particularly problematic for the small-scale fisher. Whereas many members of the industrial fleet belong to fisheries organisations and may have agents actively lobbying in Brussels on their behalf, the small-scale fishers are typically a disparate group and are usually only active on a localised level. In looking at the Irish example, there is an active fishing fleet of 2125 boats, with 86% of these meeting the CFP metric for "small-scale", i.e. 12m or under. This paper will examine apparent disparities between the quota allocations for the industrialised fleet and the small-scale fishers, focusing specifically on Ireland. The efficacy of the relatively new initiative of the FLAGs (Fisheries Local Action Groups) as set up by BIM (Bord Iascaigh Mhara/Irish Sea Fisheries Board) to encourage development and diversity with the inshore fleet will also be examined.

### **Institutional challenges to the governance of small-scale coastal fisheries: The Case of Chilika Lagoon, Bay of Bengal, India**

*Prateep Kumar Nayak*

*School for Environment, Enterprise and Development, Environmental Change and Governance Group, Faculty of Environment, University of Waterloo, Canada*

This paper examines institutional challenges to the governance of small-scale coastal fisheries. I use Chilika Lagoon, on the East Coast of India, as a case study to analyse how even in situations of institutional plenty there could still be critical gaps or a lack of linkages between the higher and lower level institutions resulting in a top-down dominance and cooptation of ground-up institutional processes. Various institutional issues in Chilika are examined from the point of both historical developments and current trends with an objective to identify possible institutional arrangements required for effective governance of lagoon commons. Inter-institution dynamics are studied to explore alternate ways to bring a new balance amongst existing institutions and ways to achieve more functional but equitable multi-level networks based on polycentric arrangement. I conclude by emphasizing that appropriate institutions need to be put in place across different levels and linkages amongst them established in order to empower local fishers and revive their collective strength to negotiate their rights with multiple contesting stakeholders.

### 6.3. Knowledge Production for Governance

**Chair:** Kari Stange

#### **Questioning the diversity of stakeholders' socio-spatial representations of sea-land interface**

*Fabienne Kervarec\*, Y. Arama (ACTeon), S. Hernandez (ACTeon), F.Krowicki (ACTeon), R. Legé (LETG-Nantes Géolittomer - UMR 6554 CNRS / Université de Nantes), C.Michel (Usages et Territoires), A.Raveau (ACTeon), B.Trouillet (LETG-Nantes Géolittomer - UMR 6554 CNRS / Université de Nantes).*

*CTeon, associate researcher to AMURE research unit*

This paper presents an analysis of the diversity of stakeholders' socio-spatial representations of sea-land interface, based on a field work led among French stakeholders in the Eastern English Channel area. 28 stakeholders representing different institutions and organisations (for instance fishing committee, wind energy organisation, state services, agency for protected marine areas, association for the protection of environment, etc.) have been questioned regarding their individual representations. A three step protocol has been used: (1) a hand drawn map of their activity area; (2) free association of ideas; (3) a map of management issues. For each step, interviewees have been invited to comment their production.

The collected material has been then analyzed to explore contrasting views, focusing on the place and representation of land, coastal and marine areas and elements. This paper will present more specifically an analysis based on the "value profile" approach (Mallein, Weber). The methodology follows 2 main steps:

- (1) Based on 5 key relations (personal relations to time, space, sociability, knowledge and action), 6 "ideal type profiles" (i.e. theoretical profiles) have been built. When considering land-sea interface, those various profiles focus respectively to market chain, territorial development, political issues, environment protection, landscape aesthetics, or cultural heritage.

- 1) Those various ideal type profiles have been then combined to build “complex profiles” reflecting the 28 individual observed profiles. A typology of 6 “complex profiles” has been built then.

The paper will present the method and the analysis of those complex profiles, considering two main questions: what are the key factors determining the stakeholders’ representations of sea-land interface? How do those complex profiles meet each others?

This work is part of a research project called “Dessine-moi un système mer-terre”, assuming the diversity of representations for sea-land interface as potentially limiting integrated marine and coastal governance.

### **Using local knowledge to improve modelling of environmental politics**

*Rachel Tiller\*, Russell Richards and Jean-Luc De Kok  
SINTEF Fisheries and Aquaculture, Norway*

Stakeholders are increasingly being sought out for their opinions on environmental policy. The direct inclusion of their perceptions in environmental models, however, has been limited given the challenges in among others incorporating non-numerical data into mathematical models. However, excluding stakeholders from the model-building process can lead to models that provide policy advice that prove difficult to implement because of a lack of stakeholder acceptance of model results (legitimacy). Natural resource management is one area where stakeholder engagement in the ‘modelling process’ has strong efficacy. For example, the projected increase in sea surface temperature due to climate change is expected to facilitate large changes in the marine food web. *Scientists* will be primarily interested in the marine food web whereas regional *marine or coastal authorities* will want to have information on the long-term changes in fisheries or aquaculture productivity, and how this affects local communities in their precincts. We explore this approach using test data from a workshop with 1) an interdisciplinary group of international scientists and 2) a group of marine stakeholders in Tromsø, Norway. This helps us identify the relevant problems, indicators and management options to be included in system model. This system model serves as conceptual framework and architectural design for an operational decision support system.

### **What kind of knowledge is needed to support management of a brand new fishery?**

*Kari Stange  
Environmental Policy Group, Wageningen University, The Netherlands*

A commercial fishery for boarfish (*Capros aper*) in the waters southwest of Ireland has developed rapidly during the last decade. During the years 2010-2014, Irish and Danish industry stakeholders and scientists initiated collaborative efforts aimed at quickly filling knowledge gaps and improve the knowledge base for boarfish stock assessment and management. This paper analyses these industry-science collaborative initiatives by applying an organisation management framework that was developed specifically to investigate the dynamics of knowledge exchange in mixed-actor settings. The collaborations led to new scientific insights into boarfish biology, generated proposals for two management plans, initiated an annual boarfish-specific acoustic survey, and produced data to underpin a stock assessment. A common goal of obtaining a sustainable fishery for boarfish motivated dedicated efforts to quickly generate new knowledge and bring it forward into the management domain. The fishing industry mobilised funding for scientists and connected actors and activities across scales. Each participant contributed by doing tasks they were already good at while keeping

others updated about progress. The study highlights the information requirements for fish stocks that are managed under the European Common Fisheries Policy. The findings demonstrate that industry actors can fill important roles in the process of generating a scientific knowledge base for fisheries management.

*Vilma Kuuliala*

*Durrell Institute of Conservation and Ecology (DICE), University of Kent*

As marine conservation gains increasing attention and popularity, concepts and policies are borrowed from terrestrial conservation. However, some of the concepts are vague enough in the terrestrial environment, and there is even less consensus of their use in the marine context. The use and interpretation of the concepts “wilderness” and “participation” are studied in the context of Scottish coastal and marine conservation, in legislation and media, and by the local people and other stakeholders. The findings will be used to locate potential conflicts in the coastal and marine management processes, stemming from ambiguous use of common terminology.

#### **6.4. Gendered Lives, Possibilities and constraints for improving fisheries livelihoods and governance**

**Chair:** Holly Hapke

##### **The Politics and Gender of Space: Women’s Access to Sea and Shore in Northern Sri Lanka**

*Ali Brown*

*University of Amsterdam, AISSR*

Along the Palk Bay of Northern Sri Lanka, women in fishing communities engage in fisheries-related activities to varying extents. The types of engagement with fisheries activities is based not only on availability of shore-based activities, but also to the politics of space, as conceptualized by Doreen Massey (2005). Research conducted in 2012 and 2014 highlights the activities women pursue to ensure livelihoods and the barriers to access of space, which are often framed in cultural and political contexts. Exploration into this phenomenon is of particular salience given the post-conflict status of Northern Sri Lanka, which has left as many as one-third of all households to be headed by women. This is further exacerbated by common challenges facing post-conflict contexts: increasing alcoholism amongst men, increased suicide and depression rates, and the presence of all-male military bases throughout the region. Furthermore, weather and fishing patterns in the region have decreased availability or viability of economically productive activity in fisheries and paddy cultivation, and opportunities for other types work is limited and often not economically or practically viable for women. This presentation will focus on the socio-cultural constructions of gender, power and space and relate them to the various forms of fisheries-related activities available in the region, and to what extent women engage in them, or have the desire to engage in them but are unable to do so. This situation has affected the perceptions of Human Security (Tadjbakhsh and Chenoy, 2007), which has implications for current and future livelihood prospects and activities.

##### **Analyzing gender gap at Patos Lagoon Forum (Brazil): experiences and contributions for governance and fishery management**

*Luceni Hellebrandt\**, *Patrícia Abdallah (FURG – Brazil)*, *Carmen Rial (UFSC – Brazil)*, *Maria do Rosário de Fátima Andrade Leitão (UFRPE – Brazil)*  
*UFSC – Brazil; VU Amsterdam – Netherlands*

How to strengthen governance? The gender gap is a good clue. In this paper, we show how much is the gender gap through a well know experience of management instance, the co-management of fishery in south of Brazil, the Patos Lagoon Forum. We analyzed the minutes of all meetings (which happens once a month) of Patos Lagoon Forum since their start at 1996. Using content analysis we searched for women demands and how they participate on meetings to see how their voices are heard on a participative process management of one of the biggest Lagoon of the world. The motivation of this analyses follows the recommendation from Food and Agriculture Organization of the United Nations to Security Sustainable Small-Scale Fisheries, approved in 2014, which points gender equality as one of the five main thematic areas in relation to responsible fisheries and sustainable development. Patos Lagoon has around 11.000 square kilometers of extension, and the management instance – Patos Lagoon Forum – brings together 21 institutions with interest in local coastal management. The main focus of Patos Lagoon Forum is the estuarine area (9% of Patos Lagoon area) which has about 5.000 workers of artisanal fishing legally registered on Brazilian Ministry of Fisheries, of which 30% are women.

### **Gender and Social Resilience in the Fishing Industry: A Case of the Western Region of Ghana**

*Ocran J.\**, *Alhassan M. R.*, *Onumah E. E*

*Department of Agricultural Economics and Agribusiness, University of Ghana*

This study examines the comparative vulnerabilities of men (small-scale fishers) and women (fish processors) in terms of susceptibility to specific shocks within the fishing industry and their relative abilities and capacities to respond to the shocks. Structured questionnaires were administered to 119 respondents, whilst 9 focus group discussions were held to examine the social networks and relationship between the small-scale fishers and the fish processors and also to identify the social resilience categories to which the response mechanisms belong, whilst gender use of resilience strategies among fishers and fish processors were identified. Findings demonstrate that fish processors in the western region of Ghana depend very much on the fortunes of the small-scale fishers in their economic activities. At the same time, fishers also rely on fish processors as a form of social security. With the crisis in the fishing industry, both fishers and processors initiate various mechanisms as they respond to the crisis. Women are however often perceived to be less resilient and more vulnerable than men in the face of social and economic challenges..

### **Gendered Livelihoods in the Global Fish-Food Economy**

*Holly M. Hapke*

*U.S. National Science Foundation*

Over the past several decades, global economic relations within the fisheries sector have intensified creating a “global fish-food system”. Until recently, relatively little attention has been paid to the gendered spatial relations underlying this system and the differential way globalization shapes men and women fish workers’ livelihood options. Drawing on field research conducted in Kerala, India, I examine how globalizing trends and processes impact local labor processes, how local norms and ideologies of gender and identity give specific form to such impacts, and how the livelihood

opportunities of various groups of individuals and households are thereby affected. The analytical framework adopted in this study is multi-scalar in approach and integrates insights from commodity chain analysis, livelihoods analysis, and feminist household economy studies. I analyze household-level economic data and gendered patterns of labor among three fisherfolk communities in Trivandrum District, Kerala to illustrate the complexities of global economic processes and the diverse impacts of globalization on local communities. While commodity chain analysis informed by the gender division of labor provides insight into general patterns of economic transformation, extending this analysis to the household and livelihood strategies provides a more nuanced understanding of how global economic processes affect households and individuals in particular ways. This approach, I argue, provides a means of incorporating and understanding the multiple facets of difference in the intersection between gender, culture, and economy. One outcome of the analysis is to suggest how the utilization of such a framework offers a means by which we might theoretically understand the gendered nature of globalization in resource-based economies.

## 6.5 Fisheries Cases of South Africa and South Asia: REINCORPFISH 3

**Chair:** Serge Raemaekers

### **Governance dilemmas in South Africa's Western Cape traditional line fishery**

*Serge Raemaekers\*, Philip van der Krogt and Maarten Bavinck*

*Department of Environmental and Geographical Sciences University of Cape Town*

The Western Cape line-fishery is one of South Africa's oldest fisheries. The fishery is now exclusively a boat-based, hook and hand line operation. In this paper, we discuss the governance of this fishery. In unpacking the line-fishery system, we point to the emergence of two seemingly distinct groups within a single fishery as a result of a divisive governing system. The first group, characterized by a highly competitive and mobile small-scale commercial fishing fleet, is governed by the existing traditional line fish policy, a series of individual commercial rights allocation processes and the overarching Marine Living Resources Act (MLRA). The fishery is also one of the least transformed fisheries in South Africa post-1994 and often subject to public scrutiny. Changes in key species distribution and abundance, costs of fishing and market demands are rendering fishing practices economically unviable, with many rights holders looking at exiting the sector.

The second group is a collection of coastal communities and small-scale fishers that target line fish as part of their traditional livelihood practices, using less mobile boats powered by small engines. This segment, marginalised through Apartheid and largely left out of post-Apartheid fishery reform under the MLRA, is seeking redress and recognition through a newly minted small-scale fisheries policy. We argue that the traditional line-fishery policy needs reform, given the contemporary ecological and economic realities of line fishing, as well as the traditional rights of small-scale fishers. However, at the same time, many rights holders from the first group have few alternatives, but do not associate with the small-scale fisheries policy. Many of their crewmembers would qualify as small-scale fishers. We explore questions of optimal resource use, subsidiarity, rights-based fisheries management and value chain development

### **Into deep murky waters: the future of deep sea fishing in Sri Lanka**

*Amarasinghe, O., Wilkinson, C.  
University of Ruhuna, Sri Lanka*

Sri Lanka's deep sea fishing sub sector is in crisis. Fishers operating Multiday boats are often arrested for poaching in India, Maldives, Andaman Islands, and in the waters of many other countries. The European Commission accused that Sri Lanka's deep sea vessels, including the 'flag of convenience' vessels, are engaged in IUU fishing. This has recently led to the imposition of a ban on fish imports from Sri Lanka, with which Sri Lanka is losing 74 million Euro annually, while it threatens the livelihoods of thousands of people, depending on deep sea fishing. Unless these issues are immediately addressed, the deep sea fishing sub sector is going to suffer heavily. This paper is based on the results of two separate studies; a field survey on the profitability of multiday fishing and, a series of key informant discussions to study the operation of 'flag of convenience vessels'. Field survey of five harbours revealed that deep sea multiday boats earn positive net profits indicating their long term viability. Yet, profitability of multiday crafts decreased when craft length exceeded 38 ft, The larger crafts often fish beyond Sri Lanka's EEZ and poach in other's territories, which has led to arrests and detention of fishers in foreign territories. The results of the study revealed that these boats could break even if they fish in Sri Lanka's waters and thus, fishing in others' territories could not be justified on the grounds of 'economic viability'. Although the introduction of Vessel Monitoring System (VMS) was proposed long ago to prevent these boats crossing maritime boundaries, it has yet to be implemented. Besides Sri Lanka's multiday fishers, 'flag of convenience' vessels too fish in deep seas, flying the Sri Lankan flag. Some are in fact, joint ventures with 40 percent Sri Lankan ownership. Sri Lanka's 'open registry' policy is an incentive for foreign ships to be registered here, whose fishing activities are not strictly regulated by Sri Lanka's fisheries authorities. Today, a considerable number of such ships are in operation. Due to the fact that, Sri Lanka has not ratified some important maritime conventions, these vessels are not properly regulated for safety, pollution, etc. These are all matters of serious concern, which have to be addressed immediately, if Sri Lanka is to save its deep sea fleet from sinking in dark murky waters.

### **Illegal fishing gears in Mannar district: causes and prospects**

*Sosai, A.S.*

*Department of Geography, University of Jaffna, Sri Lanka*

Illegal fishing net use on oceans is one of the most serious threats to the health of the world's fisheries and for the secure employment of fishers. Illegal modes of fishing adversely affect the fishing industry according to the Fisheries and Aquatic Resource of Sri Lanka which is the regulatory body of the fisheries industry. In Sri Lanka, usages of illegal fishing methods are increasing in recent years.

Using illegal fishing methods in the form of dynamite, stupefying substance, other noxious, harmful materials or substance and bottom trawling methods are common practice throughout the coastal areas of Sri Lanka, especially in the Palk Bay region and Gulf Mannar in northern Sri Lanka.

The fisheries act, 1996 of ministry of Fisheries and aquatic resources strongly prohibits the above mentioned illegal fishing methods. Further, the Department of fisheries and Aquatic Resources in Mannar District, Sri Lanka has also taken action to prohibit illegal fishing methods, such as kind of harmful artificial fishing devices constructed by mangrove tree logs, concrete pillars, stones, and old

car bodies, as well as monofilament nets, dynamiting and tree branches for squid fishing in the district since 2010.

As a result, marine resources especially, coral reefs, mangroves, mammals, endangering species including turtles are destroyed by the use of this illegal fishing methods. The marine organisms of the sea bed and aquatic biotic resources have not only been destroyed but also disrupted. In addition, valuable human life has been lost in these illegal processes. On the whole, it affects the entire small scale fishing community in the particular region..The affected fishers on several occasions complaints to relevant authorities on this issue, however authorities failed to take action against them due to the political interference in this region.

There was an urgent need for identifying the prohibited or illegal fishing activities and the use of dangerous or harmful substances in fishing. The present study was carried out in Mannar coastal area from June 2013 until the latter part of December 2014. Such identification focused on the major threats and impacts on the fishing community and the socio, economic, biological and ecological impacts through these studies, field surveys and library methods. The study targets to find out appropriate planning and remedies to minimize illegal fishing and to save the coastal bio diversity and fishing community.

## 6.6. Centre for SDS: Inclusive Development and Coastal Adaptiveness

**Chair: Joyeeta Gupta**

**Social Capital Role in Promoting Inclusiveness: Lesson Learnt in The Case Of Mangrove Ecosystem-Based Coastal Protection Program in Demak, Indonesia**

**Authors**

*Annisa Triyanti\*, Muh Aris Marfai*  
*University of Amsterdam, AISSR*

Coastal area is very dynamic in terms of its natural and social process and therefore vulnerable towards coastal disaster. It has been the center of attention towards using creative solutions for coastal protection measures, including by utilizing ecosystem services. The notions of social capital has been utilized in terms of promoting the equal rights of every actors in disaster risk reduction program.

Previous studies have shown that mangrove ecosystem based coastal protection in Indonesia has shown a possible contribution towards promoting inclusive governance process. Local community, local government and NGO has been working together in reducing disaster risk. They are taking advantage of regulating service provided by mangrove ecosystem in order to protect their coastal area from disaster. In the same time, the local agencies have been intensely collaborating with provincial, national, and international level in its hierarchy , resulting into a very complex interaction which can lead to either conflict or cooperation. These condition will influence the overall governance process and disrupt and –or enhance the opportunity to achieve inclusiveness.

The aim of this paper is to identify the forms of social capital in the respective research area and to provide the empirical facts in order to understand the interplay between the implication of social

capital and existing governance configuration and process. It is aimed to also provide a lesson learnt to answer the question of “to what extent social capital could promote inclusiveness governance process towards achieving an effective coastal protection?”. Those aims will be elaborated under the specific case of mangrove ecosystem-based coastal protection program which is located in Demak district, central Java, Indonesia.

### **Challenging conventions of ‘best practice’: The realities of establishing coastal set-backs in developing local-scale contexts in South Africa**

*Darryl. R. Colenbrander\*, Merle R. Sowman*

*Coastal Coordinator, Environmental Resource Management Department, City of Cape Town*

The current approach to coastal development set-back delineation in South Africa is producing high-tech empirical methodologies that attempt to pinpoint areas at risk from physical coastal processes and the subsequent positioning of set-backs in relation to these risk areas. Experience in the Western Cape province of South Africa has shown that this approach contributes only partially to coastal risk management. In the context of an urban and peri-urban environment, and bearing in mind that set-backs have significant socio-economic implications, the development of a set-back line at the local scale requires an expansion beyond just relying on the numerical modelling of physical coastal processes. This research reveals that such an approach is parochial and socially detached and a more inclusive and integrated approach grounded in and spanning localized social, cultural, economic, political and ecological intricacies of the coastal space is required. Fundamental to achieving this is a re-consideration of the broader project management processes applied in the development of set-backs. The paper concludes with a set of principles and guidelines for determining set-backs in complex coastal contexts at the local scale.

### **Inclusive Development and Coastal Adaptiveness**

*Joyeeta Gupta\*, Maarten Bavinck*

*Department of Human Geography, Planning, and International Development, University of Amsterdam*

The current literature on coastal adaptiveness is dominated by neo-liberal, technocratic and efficient approaches to managing the coastal areas and few look at whether an inclusive development approach would lead to a different spatial governance approach. Hence this paper addresses the question: What does inclusive development mean for the visions, processes and approaches to coastal adaptiveness? Inclusive development focuses on both social and ecological inclusiveness. It not only aims at ensuring that even the most marginalized and vulnerable people are engaged in the policy making process; it takes a relational approach in that it also focuses on the politics and processes that lead to inequalities in society. Applying the theory of inclusive development to adaptive governance of coastal areas implies redesigning some of the key elements of adaptive governance. This paper concludes with a conceptual framework about how this can be done.

### **National Marine Spatial Planning in Indonesia**

*Dr. Sudirman Saad*

*Director General of Marine, Coastal and Small Islands Affairs*

*Ministry of Marine Affairs and Fisheries, Republic of Indonesia*

*Muhammad Zaki Mahasin*

*Assistant Deputy Secretary for Program and Budgeting*

*Directorate General of Marine, Coastal and Small Islands Affairs  
Ministry of Marine Affairs and Fisheries, Republic of Indonesia*

## **6.7. Meeting and Discussion with the Keynote Speaker: Prof. Kate Brown**

Discussion with Prof. Kate Brown facilitated by Sarah Coulthard

<b>Panel sessions</b>	<b>Series 7</b>	<b>Friday, 26<sup>th</sup> of June</b> <b>13:30 – 15:00</b>
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## 7.1. Marine (Spatial) Planning

**Chair:** Kate Brooks

### **A new order emerging in the sea?**

*Yannick Leroy\*, Brice Trouillet, Claude Rioux*

*Université de Nantes, LETG*

The first decade of the 21<sup>st</sup> century has witnessed a proliferation of initiatives to develop Marine Spatial Planning (MSP). In this context, MSP is it the « new frontier »? Much more than it, MSP is a new social and political construction of the sea space. It is a process that is socially, institutionally, legally, and politically embedded, which sets the stage for political ambition that may cause conflict, as interests and worldviews differ among the involved parties. But up to now, MSP has only addressed by the technico-technical planning spectrum, with two main tools: zoning and mapping. These tools rationalize and normalize in informing sea space with a neoliberal economic vision: the only spatial dimension of human economic activities in the sea mapped by GIS (“*economic seascape*”). This vision produces indirectly a « missing layer »: the major oversight of the social and political seascape. This notion is more complex than the classical neoliberal economic vision of the sea space as a “frontier”. In fisheries science and management, the social and political seascape refers to two dimensions: one ideal (governance institution, local knowledge and value) and a second material (spatial action, use and practice of the sea space). Because there is also clearly a political spectrum in MSP at local, national and international scales, which is currently largely hidden, how build this social and political seascape? With which tools? Who is involved? On what spatio-temporal scale? Incorporating the “missing layer”, the diverse, dynamic, and multi-scalar social and political seascape of the ocean into MSP process (zoning and mapping) will require new methodologies and data collection.

### **Enacting nature: Knowledge and politics in Norwegian coastal zone planning**

*Ann-Magnhild Solås,*

*Norwegian Institute of Food, Fisheries and Aquaculture Research*

The increasing use of the coastal zone by a variety of actors has put more pressure on near shore marine spatial planning. In Norway, spatial planning in the coastal zone is a task delegated to the local municipal authorities. However, state agencies and other offices, like the Norwegian Coastal Authority, the Norwegian Fisheries Directorate, or indeed the Sami Parliament, do have their say in matters relating to their sectorial interests. This implies that the municipal authorities’ scope of action is limited by the state agencies interests, leading to negotiations over the allocation of coastal space.

Inspired by studies of science, technology and society (STS-studies), this paper argues that negotiations like these take part in constituting the coastal zone as a governable object. Understood in this sense, coastal space is not equal to the undefined natural space, but involves a translation of an ungovernable complexity into a defined object that can serve as a foundation on which governance

interventions can be based. Taking the spatial planning process in one particular local community in North Norway as a point of departure, this paper addresses the question of what it takes for nature to become governable, i.e. the practices of coastal zone planning. Central issues discussed are mappings, stakeholder participation and conflict solving, including negotiations among stakeholder groups and state agencies alike. Who participates, what interests are at stake, and whose knowledge counts? The planning process includes a range of arenas where different actors and interests meet. This paper argues that participation in planning embeds and coordinates the actors that are involved, thus the planning process also constitutes a tool for governance, in line with the spatial plan itself.

### **Social Objectives and Indicators in Australian Fisheries Management Plans**

*Kate Brooks*

*Australian National University, Canberra, Australia*

This paper discusses research in Australia that developed a framework and tools to assist fisheries managers and government agencies engage with the social dimension of industry and community welfare. These tools are focused on providing insights for managers and policy makers into the social impacts and dimensions of management plans and policy implementation, while also taking account of economic and ecological imperatives. The deployment of these objectives and indicators initially provides a benchmark and, over the life of a plan, can be used to identify trends in effects of management arrangements on industry associated communities. The degree to which factors can be monitored will be dependent upon resources of management agencies, however this framework provides options of higher and lower cost and resource intensity. The framework and associated tools allow the consideration of the social dimension, within an evidence base, in policy arrangements, and consequently provide an invaluable contribution to the ability to address resilience and sustainability of fishing industries and associated communities.

### **Marine Spatial Planning around the island of Crete. Preliminary Steps, setting the framework for an integrated approach.**

*Eleni Hatziyanno*

*Directorate of Environment and Spatial Planning, Region of Crete, Greece,*

Integrated Maritime Policy and 2014/89/EU Directive, have established a definite framework for EU Members for an integrated approach of coastal zone management, and for the implementation of an ecosystem approach– marine spatial planning, by taking into account the land-sea interactions.

At the Eastern Mediterranean, activities such as maritime shipping, fishing, aquaculture and tourism, have a huge economic impact at the coastal areas, by involving various end-users, stakeholders and economic operators. Increased demand for maritime space the last decades, and future activities such as oil exploitation, ocean energy and raw materials' extraction, indicate the involvement of different levels of authorities at a regional, macroregional and transnational dimension. However, up to date, there hasn't been prepared any maritime plans, despite the enhanced human activities at the coasts and the enhanced utilization of maritime space.

At Crete, an island of 8336 Km<sup>2</sup> land area and 1050 Km coast line, fast growing of numerous activities at the coastal zone, such as tourism, fishing, shipping, ports, constructions, indicate the necessity of a multisectoral management with an holistic, integrated approach for implementing sustainable marine

policies. Taking into account the growing vulnerability of the marine environment and for an optimal use of ecosystem services, economic development does not have to conflict with ecosystem service delivery. That kind of approach could regulate human uses of marine space, by protecting marine environment and delivering the marine ecosystem services and societal benefit.

The present study sets the challenges around Crete Marine Spatial Planning could exposed to focus on, by mapping the existing activities as well as the increasing pressure on marine space, by describing the ecological parameters of coastal and marine environment. In such an aspect, MSP could be developed into a broad communication process and by involving multiple actors and stakeholders at various governmental and societal levels.

## 7.2. Addressing Markets and Resource Governance for Improved Small Scale Fisheries Management

**Chair:** Dirk Steenbergen

**Panel Organizers:** Dirk Steenbergen, Philippa Cohen, Michael Fabinyi, Kate Barclay, and Hampus Eriksson

### Panel Description

*Fisheries resources in the Asia-Pacific region are under increasing pressure as are the livelihoods of people in coastal communities who depend on them. Overfishing and associated resource declines are often attributed to demand-driven market forces (Cinner et al. 2013). These forces may manifest locally within familiar economic and social networks between fishers and middlemen, or regionally along extensive and advanced (maritime and land-based) market networks which are extending into remote frontiers and connecting local fishing activities with global consumer networks. However, such market forces are also recognised to provide benefits to poor rural communities such as increased cash incomes, which can lead to poverty alleviation and improved food purchasing power. Given the latter context, a major consideration is how communities can govern supply chains in ways that are advantageous to them.*

*Governance of markets ranges from more conventional state regulations to broader forms of 'chain' governance that seek to govern entire commodity chains, and involve civil society and market actors as central players in governance (Kooiman et al. 2005, Chuenpagdee et al. 2013, Bush et al. forthcoming). However, challenges persist in translating what we have learned from both older regulatory approaches and more recent chain analyses into pragmatic management approaches for sustainable SSE. This panel will present cases that describe: (i) the form and function of particular market chains; (ii) how these operate within and across particular social and political contexts; (iv) their governability under various management models; and (v) what kinds of considerations these imply for the management of small scale fisheries.*

*In examining the relationship between market forces and fisheries management, it is imperative to consider complete market chains, and in what wider socio-political and economic spheres they operate. Catches, for example, are often traded along various channels depending on access to particular (internal and external) markets, social relations and networks that people rely on, and demand from consumers or industries. Moreover the kinds of trade strategies that are applied by fishers and middlemen may vary temporally according to seasonal catches, be responsive to market price fluctuations, or be dependent on market infrastructure that is in place. At the 'downstream' end, industries as well as global consumer networks draw from small scale fisheries*

to satisfy growing demands for marine resources. The market chains that link fishers with networks of traders and end consumers consist of dynamic properties, and it remains unclear whether instruments exist to govern them in ways that contribute to local resilience of small-scale fishers.

Key questions this panel seeks to address include:

- How do local conditions (e.g. temporal variability in resource availability, social and economic accountabilities etc.) and external market dynamics influence resource users' access fisheries markets?
- How to ensure that poor residents are able to access the benefits of such markets?
- Can local-level management models provide adequate mechanisms to govern global value-chains, and to what extent does private governance (e.g. by market actors, civil society etc.) offer hope to improve governance of fisheries markets for food security and poverty alleviation goals?

### **Markets and management of small-scale fisheries: social networks and trade strategies in a coastal fishing village in Timor Leste.**

*Dirk Steenbergen*

*Research Institute for Environment and Livelihoods, Charles Darwin University, Australia and North Australia Marine Research Alliance, Darwin, Australia.*

The relationships between markets, resource governance and local livelihoods stand central in contemporary initiatives that are working towards sustainable rural development and resource management. Rural development programs increasingly seek to address market forces when instituting local resource governance frameworks that regulate extraction, allow for fair and pro poor access to benefits, and link local producer-bases with consumer networks. Co-management regimes that oversee small scale fisheries aspire to similar governance objectives however seldom explicitly engage with markets to explore possibilities for regulation mechanisms. Understanding complex dimensions and variability associated to local peoples' access to markets is imperative in addressing income improvement and food security of poor (coastal and inland) groups. The various accountabilities that fishers have, for instance through kinship links, cultural rules or debt, influence to whom fish is sold irrespective of higher price offers elsewhere. Similarly, seasonal catch variability determines whether fishers/middlemen choose to cooperate in selling bundled catches on markets in urban areas or target rural markets and roadside sales.

Such ground-level complexities may often go unrecognised by time-and-resource-bound projects or become lost in the pragmatic translations toward implementation. The paper reflects on ethnographic research conducted in a small fishing village in western Timor Leste. It illustrates what local social, economic, political and environmental factors influence how and why fishers access different market networks the way they currently do, and highlights opportunities for resource co-management regimes, which aspire towards self-regulation and sustainability, to engage with markets.

### **Market interactions with community-based, co-management: a threat to sustainability or a livelihood opportunity?**

*Philippa Cohen*

*WorldFish and ARC Centre of Excellence for Coral Reef Studies, James Cook*

The discourse on solutions to address small-scale fisheries concerns in the Pacific tends to focus heavily on community-based forms of co-management. Decentralizing governance to the community

level permits responsiveness and specificity to local dynamics and objectives. In the Pacific community-based, co-management has concentrated on securing and sustaining the local subsistence functions of small-scale fisheries. Globalization, expanding markets and aspirations for development (beyond subsistence) mean that exploitation pressure on resources at local levels is increasing. To date community-based, co-management has struggled to reconcile objectives of securing local subsistence supply of fish, and increasing interactions with markets to drive local aspirations for development. We examine several case studies of community-based, co-management in Solomon Islands and illustrate how markets have a) influenced the way resources are harvested (gears used, intensity of exploitation) b) influenced the way that management has responded c) initiated interactions of co-management with both self-governance and hierarchical modes of governance. The discourse on community-based, co-management has commonly framed markets as a “threat to sustainability”, where distance to markets is used as an indicator of the intensity of this “threat”. In these cases we find distance to market will not always provide a reliable indicator of “market pressure or opportunity”; while some markets are stable, others are transient in both time and space. Here we discuss opportunities for community-based co-management, at local scales and through interactions with other modes of governance, to better address and account for markets.

### **Domestic markets and small scale fisheries in Solomon Islands: potential for improving governance?**

*Kate Barclay*

*University of Technology Sydney*

Small scale fisheries in developing countries are particularly difficult to manage sustainably due to factors including: the informal nature of activities; the numbers of fishers involved and their geographic spread; lack of government resources to put towards fisheries management; and the lack of other options for food and income available to many small scale fishing people. Markets provide an additional place for regulating fisheries in addition to, or instead of, regulating at the point of harvest. In some markets retailer and conservation organization driven certification schemes constitute a form of private governance on fisheries. Governments also use markets to regulate fisheries, especially where the seafood is traded internationally, in the form of import or export restrictions. Indeed, in the small island countries of the Pacific export bans on overfished shellfish and sea cucumbers are one of the only forms of fisheries management exerted by governments over small scale fisheries. There is also scope for using domestic markets in developing countries for improving sustainability governance, to work around the difficulties in managing small scale fisheries at the point of harvest. Fish are brought together in markets, so markets provide an efficient place to monitor catches. In addition, knowledge of the social relations of markets is useful for devising interventions to influence behaviour towards sustainable fishing practices. Using examples from research on small scale fisheries in Solomon Islands, this paper investigates the potential of using domestic markets for new ways to manage small scale fisheries in developing countries.

### **Pro-poor growth and fisheries markets in developing countries: a Philippine case.**

*Michael Fabinyi*

*Australian Research Council Centre of Excellence for Coral Reef Studies, James Cook University, Australia and WorldFish, Penang, Malaysia.*

The expansion of ‘pro-poor growth’ is a recently popular mantra for international development

agencies and donor governments. Accessing global markets in agriculture and fisheries is one major means by which rural residents of developing countries are expected to ‘transition’ out of inefficient agriculture and poverty. However, these optimistic assertions are rarely examined in terms of how they unfold on the ground. They are also complicated by a range of factors that disrupt this narrative of linear agrarian transition. Not all rural residents are able to access such global markets. In other cases, value chains are structured so as to limit the capacity of those at the extractive end to access significant benefits. In yet other cases, cash earned from access to markets is not spent in ways that lead to poverty reduction. This paper explores these issues with reference to recent ethnographic fieldwork in one community in Palawan province, the Philippines. Fishers there engage with global markets for high value live reef food fish and squid, which are exported to China and Taiwan respectively. Yet, many fishers remain constrained by high degrees of poverty and food insecurity. This paper explores the range of access mechanisms that mediate between the livelihoods of these fishers and global fisheries markets.

### **Governability of global value chains originating from small-scale sea cucumber fisheries.**

*Hampus Eriksson*

*WorldFish, Penang, Malaysia and Australian National Centre for Ocean Resources and Security (ANCORS), University of Wollongong, Australia.*

People throughout the Indo-Pacific region have supplied Chinese consumers with products derived from sea cucumbers for centuries. However, opportunities have vanished for many fishers in the last decade as an unprecedented pattern of fishery closures have swept through at least 20 tropical nations. The Chinese market has responded to local overfishing by rapidly expanding the global sourcing network into new countries. This surge in fishery expansion raises questions about how such a resilient and forceful sourcing system can be governed in a way that is advantageous to small-scale fishing communities. Another recent dynamic to consider in this context is the influence of “boom-bust-ban” cycles, or open-closed pulse fishing management models. This transient type of management can disenfranchise local resource governors and fishers by imposing a blanket ban through hierarchical governance, and create irregular access to markets. Properties of this sourcing system may be non-governable (e.g. the productivity of habitats is outside the control of governors), some may be governable through existing management models (e.g. fishers limits, catch limits), other properties may have the potential to be governed (e.g. value chains), but it is not clear if the instruments to govern them exist. In particular, it is unclear whether local community based co-management models, a dominating discourse to address small-scale fisheries concerns in the Pacific, can develop instruments adequate to govern global value chains, or how co-governance interact with hierarchical management measures. Exploring such instruments and interactions is critical to realizing community benefits and fishery resilience also at the national and community level.

## **7.3. Marine Protected Areas 1**

**Chair:** José Pascual-Fernandez

### **Motivations for Community-Based Conservation: A case from Odisha, India**

*Alex Zachariah-Chaligne\*, Fikret Berkes*

*Natural Resources Institute, University of Manitoba, Winnipeg, Manitoba, Canada*

Community-based conservation has been defined by Western and Wright to include natural resource or biodiversity protection by, for and with the local community. However, surprisingly little is known about what enables community-based conservation. The aim of this paper is to explore and identify potential motivations to understand why a community-based organization chose conservation of endangered olive ridley (*Lepidochelys olivacea*) and environmental stewardship as their flagship project. Samudram Women's Federation is a State-level organization working with small-scale fishing communities in Odisha, one of the poorest states in India. This organization, recipient of the 2010 UNDP Equator Prize, was used as a case to explore questions around collective action for community-based conservation. Data for the research was collected through participant observation, semi-structured interviews, key informant interviews, and focus group discussions. The study analyzed how the interactions and interests between multiple actors within a community shaped the goals and activities for the conservation initiative. Government prohibition of fishing in the nesting season and penalties for killing turtles, or any one single factor, could not explain the conservation behavior. Rather, it was the presence of many complementary factors (economic, political, environmental, social and cultural) that enabled or motivated the community to take up conservation and environment stewardship. Economic factors included job creation involving relatively small incomes from beach patrolling. But economically and socially more significant were the indirect benefits of empowerment through Samudram's capacity-building: gender empowerment, financial literacy program, micro-finance, low-cost equipment and infrastructure, direct linkage to wholesale fish markets, training in value-addition, and marine product diversification. Cultural factors were also important for community-based conservation. For Hindus (and almost all locals are Hindu), the sea turtle is one of the *avatars* (incarnation) of Lord Vishnu, the preserver of life. As one Samudram member put it, "It is our responsibility to protect them [the turtles] ... if we don't, who will?"

### **Futures studies and protected marine area : a way to explore protected area roles in maritime governance**

*Michel Charlotte\**, *BULOT Emmanuel (Consultant)*, *GERMAIN Laurent (Agence des aires marines protégées)*, *TREYER Sébastien (Institute for Sustainable Development and International Relations)*  
*Usages et territoires*

Future studies are more and more widely used in the construction of territorial projects and to anticipate major changes in the coastline, the sea and inland areas: climate changes, risks of submersion and erosion, changes in water resources, increasing urban development ... All of these changes have major consequences on the state of the environment and openly question our ability to act in order to preserve ecological functionalities. We drew on future studies in four exercises carried out by the Agency of Protected marine Areas ("Agence des aires marines protégées") to imagine which would be the role(s) of an environmental marine policy, notably through the use of tools such as Marine Protected Areas. In this article, we present the future studies method used and the results that these exercises produced on the basis of feedback from participants and from the French Agency for Marine Protected Areas .

The method used is based on the building of scenarios for 2040/2050. These scenarios describe possible projects for Marine Protected Areas in 4 different maritime zones: *the Arcachon Basin, the Normano-Breton Gulf, the Gironde and Pertuis Charentais Estuary, the Opal Sea and the Picard Estuaries*. These

scenarios were built with stakeholders in the protection of coastal and marine environments, and in some cases discussed.

This method generated in-depth discussions of the role that natural marine parks can play, by exploring contrasting images. These discussions were sufficiently original and fruitful for the Agency to call on future studies again, for new exercises involving all of the sea-based stakeholders: the "draw me a sea-coast system" project ("dessine moi un système mer-terre"), the Valmer project etc. with stakeholders from the territories concerned.

### **Cabo de Palos-Islas Hormigas and Cabo de Gata-Níjar Marine Reserves, Spain: A governance analysis**

*Katie Hogg\*, Pedro Noguera-Méndez and María Semitiel-García*  
*Departamento de Economía Aplicada, Universidad de Murcia*

This paper examines the governance of Cabo de Palos-Islas Hormigas (CPHMR) and Cabo de Gata-Níjar (CGNMR) Marine Reserves, Spain, paying particular attention to the role of incentives. The governance approach adopted in CGNMR is state led whereas in CPHMR the governance approach is characterised by decentralisation, in this case the reserve falls within both national and regional jurisdictions. Lack of coordination between national and regional government has undermined strategic conservation objectives through inconsistencies in legislation applied to internal and territorial waters and left both reserves vulnerable to local economic development priorities. The reliance on economic and legal incentives has improved overall social well-being, but has also incurred environmental and social costs. Overall, it can be concluded that the current governance approaches are insufficient to effectively address all the challenges and crosscutting issues faced. In order to improve the governance towards more effective and equitable outcomes for both reserves, strengthened leadership from the national government is required, along with participative and knowledge incentives interventions to generate a sense of community stewardship towards the reserves.

### **A comparison of two approaches to natural resource management in a New Zealand marine ecosystem.**

*Anna Palliser*  
*Southern Institute of Technology, Invercargill, South Island, New Zealand and Otago University, Dunedin, New Zealand*

Akaroa harbour is a large, multi-use harbor located in a popular nature-based tourism destination on South Island, New Zealand. Long-standing conflict over appropriate approaches for managing the natural resources of Akaroa harbour troubled the local community for almost twenty years. Community advocates for protectionist approaches towards conservation argued that the only way to regain the abundant marine resources known in the past, was to turn all or part of the harbour into a marine reserve. Marine reserves generally ban all fishing in perpetuity and are governed by a New Zealand government agency, the Department of Conservation, although a local committee often plays a consultation role. In contrast, people arguing for sustainable use approaches considered that a Māori fish management area, termed a taiapure reserve, where fishing is allowed under the jurisdiction of a local management committee, was the best way to manage harbour resources. Currently there are two marine reserves and a taiapure in the harbour area. Using Akaroa harbour as a case study, this

paper compares taiapure and marine reserves from the perspective of building local adaptive capacity for natural resource management and conservation. The taiapure in Akaroa harbour appears to be more successful at building local adaptive capacity than marine reserves because it creates a stronger sense of local ownership, a higher degree of local governance power, more local experiential learning, a greater degree of sharing diverse knowledges and it is building networks with a wider range of groups and institutions. It would appear however that within New Zealand, this is not widely appreciated, with marine reserves often seen as the only way to effectively conserve marine resources.

## 7.4. Science in Action 1

**Chair:** Machiel Lamers

### **Science-policy interactions for seagrass restoration within the Dutch Wadden Sea**

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

Coastal areas have been largely affected by human activities, resulting in current attempts to not only conserve nature but also restore nature. Nature restoration is a broad field: ranging from restoring an 'original' natural state to engineering new ecosystems. In the decisions over nature restoration ecological knowledge plays a crucial role, closely knit with nature preferences and political views. In this research we analyse the empirical case of seagrass (*Zostera marina*) restoration in the Dutch Wadden Sea. After a period of small research projects the restoration effort increased in 2011 when a nature organisation aimed to restore seagrass to create a climate change buffer. We analyse the interactions between nature organisations, governmental organisations and researchers, to show the dynamic process in which meaning is given to the nature restoration. We zoom in on two elements: 1) the perceptions of re-introduction of seagrass by nature organisations, governmental organisations and researchers and 2) how these perceptions were constructed through science-policy interactions. Here, we perceive science-policy as a two-way dynamic interaction between knowledge production and decision-making, within the tradition of Science and Technology Studies. We used the policy arrangement approach to analyse the dynamics in the dimensions of actors, resources, rules and discourses. Our findings are based on document analysis, interviews and observations. The perception of the seagrass plant as ecosystem engineer has been crucial, which was based on scientific insights and strategically used to claim that seagrass restoration could play a role in the adaptation to sea level rise.

### **The role of science in fisheries policy-making: The case of Fisheries management in Europe**

*Mbachii Ruth Msomphora\*, Svein Jentoft  
Faculty of Biosciences, Fisheries and Economics, Norwegian College of Fishery Science*

The transformation of science systems from "traditional academic science" (mode 1 science) to "modern post-academic science" (mode 2 science) often makes the contribution of research to policy-making difficult to be accepted within the traditional scientific community. In comparison to mode 1, knowledge produced in mode 2 science is constructed in accord with commercial, political or other social interests of the bodies that underwrite its production. Despite that mode 2 science is often of obvious value, there are worries that its method for knowledge-assessment do not meet the standards

of scientific plausibility and technical adequacy. Besides, such research is often perceived to suffer from a lack of transparency and verifiability. Hence the main question to be discussed in this paper is: what does mode 2 science-oriented research mean for reliability, credibility, trustworthiness and quality assurance? Fisheries management research in Europe provides a good case study. Thus, with focus on research in fisheries management of Europe, this paper demonstrates what transition from mode 1 to mode 2 may imply to the scientific community and what consequences it might have for the way fisheries science is practiced, legitimised and perceived.

### **The changing role of environmental information in Arctic marine governance**

*Machiel Lamers\*, Alexey Pristupa, Bas Amelung, Maaïke Knol  
Environmental Policy Group, Wageningen University, The Netherlands*

In the Arctic region global environmental change creates new opportunities for sectors such as the offshore petroleum industry and shipping, increasing pressure on marine biological resources. Next to state governance arrangements, informational governance instruments deployed by non-state actors, such as private certification schemes, mapping exercises and observation systems, play a progressive role in introducing ecosystem-based approaches for governing the marine environment. In this paper we review recent academic literature to understand the role of environmental information in Arctic marine governance. Our review reveals that environmental information may on the one hand enable safe or sustainable operations of actors by creating legitimacy and building trust, while on the other hand the participation and empowerment of some actors through information might lead to conflict and controversy. We conclude that the growing importance of information in Arctic marine governance is driven both by state management systems and non-state actors, that currently the enabling role of information dominates the literature, but that the constraining role of information will likely increase in future Arctic marine governance.

### **Desirable or distracting: the Ecosystem Approach to Fisheries Management in tropical small-scale fisheries.**

*Louisa Evans\*, Rose Mwaipopo, Len Garces, Dedi Adhuri, Reuben Sulu, Hampus Eriksson, Doug Beare  
University of Exeter, UK.*

The Ecosystem Approach to Fisheries Management is emerging as a central dogma of modern fisheries management. The roll out of the Ecosystem Approach to Fisheries Management policy has spread from its origins in target species management of temperate fisheries to the foreign corners of tropical small-scale fisheries in developing countries. These fisheries are multi-species, multi-gear, dynamic fisheries that have been governed for centuries by a range of evolving customary and contemporary institutions, with varied but limited success. This paper draws on EU-funded action research to pilot an Ecosystem Approach to Fisheries Management in five fisheries in Indonesia, Philippines, Solomon Islands and Tanzania. We examine the current institutional landscape in the focal fisheries to interrogate the potential of an Ecosystem Approach to Fisheries Management to improve the effectiveness of existing governance. We highlight the limitations of the existing institutional context, particularly in providing a foundation for the Ecosystem Approach to Fisheries Management, but also note that the paradigm does not explicitly or sufficiently address some of these important limitations, for instance the social contract between the state and resource-users. In order for the Ecosystem Approach to Fisheries Management paradigm to transform governance of small-scale fisheries in developing countries it must navigate existing institutional and operational context.

## 7.5. The Use of Social Indicators in Fisheries Policies

**Chair:** Katia Frangoudes

### **The Use of Social Indicators in Fisheries Policies; examples from the USA and Europe**

*Katia Frangoudes\*, Alyne Delaney, Matthew MacPherson, Denis Bailly*

*UMR-AMURE, center for law and economics of the sea, Université de Bretagne Occidentale*

This session explores the use of quantitative societal indicators of fishing community well-being and sustainability, including measures of vulnerability and resilience, in fisheries social impact assessments (SIA). Although sustainable development indices have been created and implemented at national and regional levels, few are available at the local or community level, and even fewer can be used to understand social aspects of fisheries. The value of social indicators is in the robust statistical derivation and the ability to extrapolate to large numbers of communities based on available data. Examples of social indicators will be presented and challenges for the use of social indicators in fisheries SIAs will be addressed, including how social scientists can develop protocols to aid decision makers to utilize indicators effectively and how quantitative indicators can strengthen qualitative analysis.

### **Social Indicators of Fishing Community Vulnerability and Resilience: An Emergent Method for Fisheries Social Impact Assessment in the United States**

*Lisa L. Colburn\*, Michael Jepson*

*NOAA Fisheries*

A challenge for the use of ecosystem approaches for management of marine resources is to find practical methods to link assessments of human and natural systems. By definition, marine resources and management efforts that seek to balance human and ecosystem needs are part of such a socio-ecological system. Another key component of this system is the ability of coastal communities and economies to respond to both marine ecosystem change and management decisions. A goal of the National Oceanic and Atmospheric Administration is to understand the resilience of United States coastal communities and economies and thus their adaptability to the impacts of hazards, including climate change. To meet this goal, 13 indices of social vulnerability and fishing dependence were developed for 2,910 coastal communities in the Eastern United States. By 2015, a subset of these indicators will be calculated for all United States coastal county communities. Indices of climate change vulnerability are also in development. Seventy-five different variables from seven secondary data sources were used to develop 13 indices. Quantitative and qualitative methods were used to establish their reliability. Although widely-used indices of vulnerability and sustainability have been developed at national and regional levels, our research focused on community-level indicators. Such indicators are essential to systematically assess the social impacts of changing access to fishery resources resulting from regulatory changes and environmental conditions. The development, utility, and validity of these indices for social impact assessments of fishing communities will be discussed.

## **Road to the Development of Social Indicators for U.S. Fisheries Social Impact Assessments: A Long and Circuitous Journey**

*Matthew M. McPherson*

*NOAA Fisheries/Southeast Fisheries Science Center*

The passage of National Standard 8 (NS8) in the U.S. Sustainable Fisheries Act of 1996 catalyzed the need for social data and analysis in the US fisheries regulatory process. NS8 mandates that regulators should consider the “social and economic importance of fisheries to communities potentially affected by management measures.” Furthermore, studies have shown that fisheries managers consider social factors as important for understanding the potential impact of regulatory changes. However, providing social impact information in a way that can be used by managers to inform their decisions along with biological and economic information has been a challenge. Instead of consulting the social impact assessments (SIAs) in regulatory studies, managers often rely on perceptions and public comments as the basis for their understanding of the possible social impacts of regulatory actions on fishermen and fishing communities. A fundamental challenge has been the lack of consistency in the collection and presentation of social data. Over the years, however, social scientists from NOAA Fisheries have devoted significant efforts to improve the quality, consistency and presentation of social data provided to decision makers and much progress has been made. This paper describes the major initiatives that have been undertaken to develop a consistent set of social information and indicators including social factor analysis, community profiles and snapshots, social performance measures, and a social science database. The strengths and limitations of these efforts for SIAs will be discussed and some new initiatives that build upon the previous efforts will also be presented.

## **The Use of Social Indicators as a compliment to Economic Analysis in Fishery Management Plans for the U.S. Southeastern Region**

*Michael Jepson\*, Lisa Colburn*

*NOAA Fisheries/Southeast Regional Office*

In 2012, NOAA Fisheries developed a set of social indicators for over 2900 coastal communities in the Northeastern and Southeastern US. Since their development, these indicators have been informing fishery management plans as part of the description of the social environment and environmental justice. These indicators have also provided descriptive information in recent catch share reviews, including a network analysis of the market for IFQ shares and allocation. The paper describes the current use of social indicators and planned improvements in the use of these and new indicators for fisheries management policy including Integrated Ecosystem Assessment and coordination with Economic Assessment.

## **7.6. Human Wellbeing on the Coast**

**Chair:** Tomas Chaigneau

### **Stressed and depressed? The impacts of cumulative change on the health and wellbeing of fishing communities**

*Anna Woodhead\*, Rachel Turner & Kirsten Abernethy*

*Environment and Sustainability Institute, University of Exeter*

Many fishing-dependent communities are at the forefront of socio-ecological change, experiencing a combination of gradual changes, such as increasing costs of fishing, and abrupt changes, such as extreme weather events. This combination of factors, mediated by personal circumstances, community context and the predictability of change, can impact wellbeing. Health may be an important component of wellbeing in fishing communities, as fishers tend to display risk-taking behaviour, are subject to very high stress, but may be less likely to access health services. However, little research has been conducted on the link between health issues associated with working in the fishing industry and the wellbeing of fishermen and fishing communities. The aim of this study was to explore how cumulative changes at multiple levels impact the health and wellbeing of fishers, fishing families and fishing communities. Repeat, semi-structured interviews were conducted with commercial inshore fishermen from Porthleven, Cornwall (UK) to identify changes experienced and their perceived impacts. Key community members were interviewed to provide a wider context of change in the local fishing industry. Results illustrating aspects of the health and wellbeing of fishers, their families and community in the context of cumulative socio-ecological change will be presented.

### **A basic needs approach to understanding the complex link between coastal ecosystem services and human wellbeing**

*Sarah Coulthard\*, Tomas Chaigneau  
Northumbria University*

Ecosystem service research typically starts from ecosystems and then identifies what benefits they deliver to people. This paper explores the merits of the opposite: studying individuals' wellbeing first, and investigating how coastal ecosystems contribute to its different components. A multitude of frameworks now exist which depict the array of wellbeing domains that should be included in any assessment. There also exists considerable debate as to the extent to which the selection of domains should be expert led, or derived from the perspectives of those individuals whose wellbeing is of interest, empowering people to align the way their lives are assessed with their own priorities and values. As part of the ESPA funded SPACES project, which is working to establish how marine ecosystem services can contribute to greater human wellbeing in coastal East Africa, a method was developed to create consensus over domains to be used in wellbeing assessment, that combines expert and community perspectives. Drawing from Doyal and Gough's (1992) Theory of Human Need which provides a theorized list of universal criteria for assessing basic needs, a series of focus groups were conducted in coastal villages in Kenya and Mozambique. These discussions validated the Doyal and Gough (expert-led) list, gave opportunity for new additions, and set locally relevant indicators to assess at what point a basic need can be agreed to be met. A second series of focus groups then deliberated the extent to which different ecosystem services that people have access to can contribute, or detract, from the meeting of basic human needs. The paper discusses the merits and pitfalls of the approach, and posits that understanding the role of ecosystem services in the meeting of basic human needs could help inform decision-making by prioritizing those Ecosystem -Wellbeing linkages that people cannot live without.

### **The power of being understood: a practical application of a wellbeing approach to address social issues in a fishing community**

*Easkey Britton,  
Waves of Freedom, NC Britton, Donegal Women's Centre*

There is widespread decline in coastal regions, in particular in Ireland, and globally coastal communities are struggling with rapid change to their way of life. The social impacts and needs of coastal communities have been particularly neglected and poorly understood in Northern Europe. In Ireland, coastal fishing communities typically have a strong sense of place and identity with associated social and cultural values which are being eroded resulting in a loss of connection. These communities experience high levels of loss and there is a real sense of frustration and disempowerment that their needs are not understood. Lack of voice, a sense of disempowerment, loss of way of life, high suicide rates and social deprivation are just some of the big social issues facing these communities. Focusing directly on big societal issues tends to alienate people, especially in tight-knit coastal communities. In recognition of this, a community health and wellbeing programme was initiated in Ireland's main fishing port, Killybegs. The paper evaluates the impact of this project, a different way of working with health and wellbeing. It offers a model where participants are their own experts, unlocking their potential, and deeper needs are uncovered. It highlights that a powerful and effective way to impact on big issues is through a wellbeing framework. Wellbeing doesn't discriminate and is relevant across all ages and backgrounds, so by organising around a purpose that transcends the interests of every stakeholder and providing a positive reframe on issues, a more inclusive space is created for sharing, trust-building and awareness of the bigger issues as they arise. This approach recognises that people let go of fear when they establish trust, which then extends into the community. Connection is created through an understanding of what health and wellbeing means for the community. Key outcomes, as well as greater trust within the community, are the establishment of a community-led listening and training service. The paper also seeks to explore how we can create an EU-wide platform for the health and well-being of coastal communities.

## 7.7. Sustaining fisheries through fisherfolk organization and collective action 1

**Chair:** Svein Jentoft

**Panel Organizers:** *FAO, Norwegian College of Fishery Science and Centre for Resource Management and Environmental Studies (Barbados)*

### **Panel Description**

*This panel intends to raise awareness on the role that collective action plays in sustaining livelihoods and eliminating hunger, poverty and resource mismanagement in the small-scale fisheries sector. The goal of the panel is to create a platform for dialogue with academia on effective ways to empower fishing communities and organizations in which fishers' organizations can develop and become strong, gender-equitable and efficient. The panel will provide a forum for exchange, with the objectives of: i) sharing experiences and discussing the importance of strengthening organizations in the fisheries sector; ii) identifying new ideas and solutions to empower communities through the engagement in collective action; iii) identifying success factors and a way forward for strengthening organizations in small-scale fisheries worldwide and (iv) discussing the role and tasks of research centers and academia in the design of a research agenda on this topic. The panelists will present different forms of collective action in fisheries and discuss a variety of perspectives from different countries. Case-studies will present lessons learned from organizations in Barbados, India, Norway, Tanzania and Timor Leste. The outcome of the event will provide inputs and contributions to global, regional and national debates and mechanisms to strengthen the dialogue with and among fishers' organizations worldwide. The outcome will*

*also feed into the discussion on how organizations take an active role in championing the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guidelines) and at the same time benefit from its implementation.*

**Fishing Operations and Technology Branch; Resources Use and Conservation Division;**

*Daniela Kalikoski and Susana Siar,*

*Fisheries and Aquaculture Department; Food and Agriculture Organization of the United Nations.*

**Building the Barbados national union of fisherfolk organisations**

*Patrick McConney\*, B. Simmons*

*Centre for Resource Management and Environmental Studies (CERMES), University of the West Indies, Barbados*

This case study on organisations and collective action in small-scale fisheries is a follow-up to the Workshop on Strengthening Organizations and Collective Action in Fisheries: a way forward in implementing the international guidelines for securing sustainable small-scale fisheries (SSF Guidelines) that took place in FAO, Rome, Italy, on 18–20 March 2013. The evolution, from 1999 to the present, of the Barbados National Union of Fisherfolk Organisations (BARNUFO), a secondary level fisherfolk body, was selected as one of the cases. BARNUFO's members are primary or local level site-based fisherfolk groups. It is linked to the Caribbean Network of Fisherfolk Organisations (CNFO) as a coordinating alliance of the national fisherfolk organisations of countries in the Caribbean Community (CARICOM). BARNUFO has prospered and it has struggled. Its evolution offers insight into the factors that favour both success and failure in fisherfolk organisations. It is now engaged, mainly through the CNFO, in the process of preparing for the implementation of the SSF Guidelines. The case study outlines the methods for the research in which BARNUFO was a collaborator. We summarise the history of fisherfolk organising in Barbados. The evolution of BARNUFO is presented in detail paying particular attention to aspects of collective action. BARNUFO has an impressive record of activity, but having abandoned a strategic plan early on it has found itself in difficulty with dwindling membership and low capacity. Lessons learned about factors that favour success and failure are shared. The report ends with a brief application of an analytical framework to the case study findings in order to make recommendations on resilience, and the implications of the SSF Guidelines for capacity development.

**A case study of beach management units (bmu) in lake victoria, Tanzania**

*Paul Onyango*

*University of Dar es Salaam*

The paper presents the result of a case study undertaken on the Beach Management Units (BMUs) in Lake Victoria, Tanzania. The study focused on three particular areas relevant for BMUs. First it examined BMUs in Tanzania, followed by a review of the legal framework of BMUs, their guidelines and by-laws, and lastly, it digs deeper into the BMU by examining their origin, motivations, functions and purpose/activities, governance, gender issues, networking and external relations, financial issues, factor of success and or failure, among others.

**The fishers' constitution: turning the table for small-scale fisheries in Norway**

*Svein Jentoft,*

*Norwegian College of Fishery Science. The Arctic University of Norway*

The Raw Fish Act (RFA), passed in 1938 in the aftermath of the global financial crisis that hit Norway's fishing industry hard, and the fishers' cooperative sales-organisations that it authorised have come to play a crucial part in Norwegian fisheries and society. In fact, one would not be able to understand the social and economic dynamics of this industry and its governance without analysing this law and these organisations. Not only did they help to empower fishers by prioritising their needs, but by doing so, they also helped to bring fishers out of the poverty that the financial crisis had brought upon them. Since the RFA's enactment, it has undergone reform that has both limited and broadened the mandate and social function of the sales-organisations. Although the historical context and institutional designs of the RFA and sales-organisations respectively are unique, together they address a problem that small-scale fishers are experiencing all over the world - one of marginalisation and exploitation. The RFA and the system of sales-organisations radically altered this predicament. The question, therefore, is what is exceptional and what is general about these institutions? Is their relevance restricted to Norway and the particular historical context within which they were established, or do they offer lessons to be emulated elsewhere?

<b>Panel sessions</b>	<b>Series 8</b>	<b>Friday, 26th of June 15:30 – 17:00</b>
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## 8.1. Mapping and Visualization

**Chairs:** Annet P. Pauwelussen

### **Seafaring and Conservation: A methodological struggle to map other spaces in a maritime region in Indonesia**

*A.P. (Annet) Pauwelussen\*, L.E. (Leontine) Visser and Dr. Ir. G.E. (Gerard) Verschoor  
Sociology of Development and Change group, Wageningen University, The Netherlands*

Maps of maritime spaces often show seas as flat surfaces devoid of human practices. However, to maritime people seas are lived-in spaces, and their continuous movement is constitutive of their sea-based livelihoods. Their way of ‘doing’ space is irreducible to cartographic exercises that fix space and demarcate essences – as is the case with conservation maps. The dominance of maps as images of environmental issues in conservation thus systematically renders invisible a crucial dimension of what makes up maritime life. The aim of this paper is to discuss the methodological struggle to map and visualize these other spaces. The paper is based on 18 months of mobile ethnographic research in the Makassar Strait maritime region, and draws on the seafaring spaces of fishers and maritime traders. Using an experimental mapping process, we show how their ways of doing space ‘undo’ the logic, legibility and relevance of existing conservation maps. Our experiment furthermore sheds light on a disjuncture between cartographic space - which is topologically fixed and ‘out there’, preceding practice - and seafaring space - which is topologically fluid and constituted in practice along relations. Reflecting on different spatial drawings and stories, we explore how different topologies can be partially connected.

### **Portraying the Wadden Sea with filmed narratives, creating mediated encounters.**

*Paddy Walker and Loes Witteveen, Jan van Tatenhove, Judith Santegoets  
Research Group Sustainable Fisheries & Aquaculture. Van Hall Larenstein University of Applied Sciences.*

Visual Problem Appraisal (VPA) is a film-based methodology, which aims to enhance the analysis of complex issues and to facilitate the development of actions. The core of a VPA is based on ‘mediated stakeholder consultations’. It provides a platform for local stakeholders and those in policy and management to explore and act on competing or conflicting interests. The VPA serves as a tool for problem analysis, social dialogue and policy design, enabling co-creation for integrated management and sustainable use of the Wadden Sea World Heritage Site, which stretches from Den Helder in the Netherlands to Esbjerg in Denmark.

The idea for a VPA Wadden Sea results from the use of the VPA Kerala’s Coast, filmed on location in India in 2003/2004, which was used for policy design in Kerala, India. This VPA approach has been used successfully in Higher Education and the public domain. Building on this success, we propose to develop a VPA Wadden Sea, as the management of this World Heritage Site requires a close

cooperation of politicians, scientists, conservationists and people living and working in the area to manage the Wadden Sea as one ecological entity.

In this paper we report on the justification and possible scenarios for the filming and using the VPA Wadden Sea. We will envision the interest and commitment of participants in the 'mediated' encounters with small scale and commercial fishermen, spatial planners, constructors, nature conservationist, local entrepreneurs, tourists, gas extractors, policy makers and other concerned actors. We will also explore the relevance of this VPA in Higher Education as a simulation of action research or a preparation for field research.

## 8.2. Property Rights, Fisheries and Ecosystems

**Chair:** Arif Satria

### **Legislation on marine ecological compensation in China**

*Ma Yingjie\*, Li Xiuyang, Stuart Pearson, Chen Keliang and Jiao Guiying  
Ocean University of China, School of Law and Politics*

The marine ecosystems of China provide broad categories of ecosystem services to the society as food production, nutrient recycling, air quality regulation, climate change mitigation, disease and natural hazard regulation, shoreline protection and biodiversity conservation. All these services are vital for human survival and wellbeing, but before the amendment of the "Marine Environmental Protection Law of PRC" in 1999, only behaviors which may directly change the economic services have been regulated by law. The rapid economic growth in China has resulted in significant change in the coastal ecosystem, some of the ecological services have degraded and are in need of restoration. These are currently receiving the most interest of the government. In recent years a series laws and policies have been adopted to charge people money before they damage the marine ecological services. Some approaches have already curbed unsustainable development and pollution, for example in Shandong Province. This study presents a detailed analysis of China's legislation relating to keep the wellbeing of ecological services of the seas of China, and discusses some legal issues involved. This study also introduces a the special terms and concepts widely used in China under the broad label of, "Marine ecological damage compensation." This study seeks to contribute further improvements in this aspect and offers some suggestions on further legislation in China.

### **Neoliberalism and the Politics of Enclosure: Consequences for Small-Scale Fisheries**

*Reade Davis\*, Evelyn Pinkerton (Simon Fraser University)  
Memorial University of Newfoundland*

Since the 1980s, neoliberal policy policies in many industrialized countries have resulted in the erosion of public institutions and have led directly to an increasing concentration of global wealth in the hands of the most affluent classes. Neoliberal policies have been characterized by a fundamental reimagining of the role of the state and have tended to emphasize the importance of enclosure, privatization, marketization, and deregulation as vehicles through which to improve economic efficiency. In the context of oceans, neoliberalism has been marked by a growing emphasis on privatizing access to ocean spaces and resources, most notably through the imposition of firm

property rights, including ITQs in fisheries, and a rampant push to develop new ocean industries, such as aquaculture, offshore petroleum, and coastal tourism. In many cases, this has resulted in growing competition between sectors and has led to the marginalization of smaller and less profitable operators. As sweeping as these changes have been, discussions of the impact of neoliberalism in fisheries must be contextualized within the longer history of concerns about the perceived dangers of open access and common pool resource management regimes. While neoliberal policies have only recently been introduced in many fisheries around the world, a strong interest in privatization and property rights was present in fisheries discourse much earlier. Furthermore, maritime anthropologists and sociologists have long noted the misfit between fisheries economists' conceptions of fishermen as disembodied individual rational actors and the ethnographic record of how fishermen and fishermen's organizations actually behave in practice. Some of the most consistent findings have been the role that privatization schemes like ITQs have played in concentrating ownership, overcapitalization, blocking the entry of younger fishermen, transferring quota ownership to outsiders and investors, increasing processor control, and hardening class divisions within coastal communities. This session draws upon a series of North American case studies in identifying some of the major changes that have been associated with the neoliberalization of ocean activities in recent years, and the consequences this is having for small-scale fisheries and other people living in rural coastal communities who depend on the ocean in indirect ways. It also reviews some of the ways in which some of these individuals have sought to come up with innovative responses to these policies in an attempt to reassert the importance of small-scale fisheries and ensure that they continue into the future.

#### **From commons to commodity: Icelandic fisheries since the 1990s**

*Matthias Kokorsch\*, Karl Benediktsson*

*University of Iceland - Faculty of Life and Environmental Sciences*

Icelandic fisheries have undergone tremendous changes during the last 30 years. Most important is the 'sea change' in the conceptualisation of the resource itself, from a common pool resource to valuable assets in form of *individual transferable quotas (ITQs)*. Favourable accounts by economists, together with a rather positive assessment of the state of the fish stocks, lead to the frequent assumption within and beyond Iceland that this management regime is a success story. However, shifting the focus from macroeconomics and ecology to the sociospatial perspective, the narrative in many of the coastal villages in Iceland is somewhat different. Communities that had their mainstay in fisheries have faced major challenges in the social, cultural and economic fields. This presentation scrutinises the impacts of the centralisation of quotas and overall changes in the fishing industries. These changes have created profound uncertainties in many fishing villages, sometimes threatening their very existence. These threats can be grappled with either through adjustment or adaption processes. Both are central to the concepts of *adaptive co-management* and *resilience*, which are the theoretical foundations of this discussion. The development of adaptive co-management methods has been advocated as a tool for achieving more sustainable livelihoods. Such management has been portrayed as a viable alternative for avoiding the tragedy of the commons. This is of great theoretical and practical interest to the resource-dependent coastal communities of Iceland, but will also be of importance for fisheries-dependent regions and nations that intend to apply ITQs. The analysis contributes to a necessary debate on social shortcomings and future improvements in quota regimes.

#### **The Rise of Seaweed Culture: Challenge to Property Right System in Coastal Area**

Arif Satria\*, Rinto Andhi Suncoko, Istiqlaliyah M, Hirmen Sofyanto  
Faculty of Human Ecology, Bogor Agricultural University, Indonesia

“Agar” or seaweed is a promising venture for the locals in Rote since it has suitable coastal area for the seaweed farming and cultivation. According to the survey results and interviews with several seaweed farmers, the most suitable area for seaweed is coastal area which is protected by posing (coral) or has shape like a lagoon. Seaweed business is prosperous for locals, because the people of Rote are not the native of fishermen (fishermen who depend on the catch like Bajo and Bugis fishermen). The seaweed farming is a full time job although it doesn't takes a full time that means there are certain times when they farmers can do another job. Farmers harvest the seaweed in the morning and sowing the seeds in the afternoon. The farming method and pattern of seaweed developed in Rote is using a stick with a rope belt which is supported with floating bottles and bottles of empty mineral water. However, there is potential problem regarding property right system. Local people have claimed the location of seaweed as their own, and may be transferred to their next generation. How is legal framework to address this issue?.

Keywords: seaweed farming and cultivation, property right system, legal framework

### 8.3. Marine Protected Areas 2

**Chair:** Margherita Pieraccini

#### **Divergent perceptions of new marine protected areas: legal consciousness in the Isles of Scilly and the Isle of Barra.**

*Margherita Pieraccini*

*School of Law, Wills Memorial Building*

The establishment of protected areas is often associated with a situation of conflict arising between conservation and other human activities in particular spaces. This is primarily due to the fact that protected areas law imposes itself on a complex social texture and, to fulfil its objectives, it requires changes in the behaviour of resource users. Conservation conflicts arising from the establishment of protected areas are well documented in the social science literature and attempts are made to find ways to reduce such conflicts. These accounts, however, tend to describe situations where environmental regulation, embodied in the establishment of protected areas, is an exogenous mechanism requiring changes in the behaviour of resource users. Yet, what of cases in which protected areas law is not regulation *stricto sensu* but serves to officialise existing sustainable practices and may contain an element of future proofing? Does the establishment of this type of protected area still generate practices of resistance and conflict?

This question is answered in this paper using two empirical examples: the designation of new Marine Conservation Zones under the Marine and Coastal Access Act 2009 in the Isles of Scilly (South West of England) and the designation of a new Special Area of Conservation under the 1992 Habitats Directive in Barra (Scottish Outer Hebrides). Both protected areas are highly unlikely to impose changes in sea-users' behaviour, as in both cases they validate existing practices and offer tools that can be used in the future to minimize the effects of presently unknown environmental shocks and stresses. Yet, while in Scilly the new Marine Conservation Zones have been perceived as a positive addition to the

seascape, in Barra the Special Area of Conservation has been heavily contested by the local community. Drawing on the concept of 'legal consciousness' the paper explains these divergent perspectives.

### **Fueling conflict - the case of the creation a Marine Protected Area in Malta**

*Alicia Said\*, Douglas MacMillan, Joseph Tzanzapolous, Brian Campbell*

*DICE, School of Anthropology and Conservation, University of Kent*

European Union accession and the development of pro-conservation policies and measures suggest that a crisis among particular artisanal fishing communities in Malta is imminent. In this article we investigate the role and position of the fishermen in the process of establishing a Special Area of Conservation in the Northwest of Malta, -*Rdum Majjiesa* to *Ras ir-Raheb* MPA. Through a number of interviews and long-term participatory observation, it has been found that the most of the fishermen have been alienated and marginalized from the whole process of the MPA designation. The sole control on the representation of the fishermen by the community leaders has subjugated the knowledge of local fishermen in general, and of trammel netters in particular. In their support towards the MPA, community leaders have employed conservation discourse and are constantly pressurizing authorities to ban the practice of trammel netting therein. The lack of alternative fishing grounds for trammel netters might mean that their days are numbered and conflict is likely to escalate, if their practice is eventually prohibited through the MPA. It is concluded that the State's focus on ecology and biology along with the misrepresentation of the fishermen in the establishment of the MPA, has dominated the process of MPA creation at the expense of local people directly dependent on the resource, and, is thus recommended that effective involvement of fishermen should take place throughout the process as part of a consensual progression to marine conservation in the establishment of SACs.

### **Bridge over troubled waters? – The link between procedural justice and legitimacy in multi-levelled coastal governance**

*Linn Rabe*

*Södertörn University, Sweden*

This paper will theoretically contribute to a better understanding of the links between procedural justice, legitimacy and local implementation of nature conservation in a multi-level governance context. The Baltic Sea macro-region is used as an example.

The Baltic Sea area is commonly pictured as a proactive macro-region with a long-standing tradition of cross-country cooperation in environmental management and ambitious sustainable development goals. The Baltic Marine Environmental Protection Commission (HELCOM) is a prominent intergovernmental platform for environmental cooperation. In this case the issues of justice is only superficially dealt with on the trans-national level, leaving local institutions to deal with complex justice situations to implement agreements. The regionalization of the Baltic Sea management creates a mismatch between the transnational level where possible injustice is reproduced and the local level where injustice is experienced.

This paper will present findings from two comparative case-studies of local processes in Sweden where the HELCOM's agreement to establish a System of Coastal and Marine Baltic Sea Protected

Areas in the Baltic Sea (BSPA) is implemented. The cases of Gräsö Eastern archipelago and Sankta Anna/Missjö archipelago offer interesting empirical material as the level of procedural justice differs in ways that effect the legitimacy of decisions, which in turn can have consequences for stakeholder compliance and the over-all outcome of these conservation projects. In both cases the core conflict centred on local actors' perceived risk of losing decision-making control. In the Gräsö case stakeholders perceive the BSPA as just another example on how the state have overruled them, while in the St Anna case the BSPA offers a first step towards reconciliation, trust and co-management. Perception of justice played a key role in both cases, but only in the latter did it facilitate a constructive management of mistrust and the creation of legitimate decisions. This paper shows why.

### **Challenging the Conservation Win-Win Discourse: Analysing Support for MPAs**

*Tomas Chaigneau\*, Katrina Brown*

*Environment and Sustainability Institute, University of Exeter*

Marine Protected Areas (MPAs) are increasing in numbers around the world, yet it is widely reported that many are failing to reach their objectives. MPAs are frequently promoted as "win-win" scenarios that can both protect biodiversity and lead to increases in fish catch. Furthermore, they are often also seen as a means to attract tourists. This 'win-win' view characterises the dominant discourse surrounding the promotion of MPAs. We call this the 'win-win discourse'. Although this discourse and the arguments derived from it may lead to initial acceptance of what MPAs are and represent, this study analyses how it does not necessarily result in compliance and positive attitudes towards specific MPAs. So the discourse has important implications not just for making the case for MPA implementation, but also for the likelihood of MPAs reaching their objectives.

This paper seeks to explain how the win-win discourse influences support towards MPAs and ultimately, their success. Using data from focus groups and in depth interviews at three MPA sites in the Philippines, we identify three reasons why the win-win discourse can negatively influence support for MPAs: Shattered Expectations; Inequity; and Temptation. Through an understanding of these issues, it becomes possible to suggest certain improvements that can be made pre-MPA implementation that can lead to prolonged support of MPAs. A focus on less tangible and economic MPA benefits, aligning MPA goals with cultural and social values, and higher levels of transparency when describing MPA outcomes are all ways in which prolonged support towards MPAs can be bolstered.

## **8.4. Science in Action 2**

**Chair:** Iris Monnereau

### **Revisiting Fishermen Foraging Strategy and Implications for Fisheries Management**

*Menuka Udugama\*, Garth Holloway and David Tomberlin*

*University of Reading, Reading, United Kingdom*

The effectiveness of fisheries management depends heavily on several key factors where fisher behavior plays a crucial role. Fishermen are unusual foragers, as they rely on sophisticated technology

and are strongly driven by economic factors. Therefore, understanding the spatial behavior and movement strategies of fishermen is essential for resource allocation in fisheries management.

Among various patterns and models explaining movement of species, Lévy flights has been a popular mean of examining animal foraging and movement over the past decade. A diverse variety of foragers have shown to exhibit Levy flight movement pattern which is a special type of random walk. These foragers range from microzooplankton in experiments to humans (i.e. fishermen) in nature. However, previous studies concluding the existence of Lévy flight among fishermen behavior in the sea have recently been called into question for analytical reasons. Therefore, this study aims to consider the hypothesis of levy flight existence in fishermen movement through reanalysis of previously published data. Considering the cognitive abilities of fishermen, behavioral choices made by them and resource distribution, we extend the Lévy flight hypothesis towards seeking a paradigm for understanding fishermen movement.

Bayesian model comparison approach was employed as it allows for several sources of variations to build statistical models tailored to the study question. We also compare and contrast the conclusions obtained through a Bayesian approach with that of previous studies. This work proposes an original contribution to the understanding of fisher foraging behavior, based on the behavioral and movement paradigms as well as Bayesian model selection paradigms. We conclude with some thoughts on the applicability of our methods to fisheries in which data are typically scarce and how this framework compares to or complements other methods such as ethnographic studies or rational choice models.

### **Exploring non-economic aspects of fisheries' sustainability through the cultural construct of "good practice"**

*Madeleine Gustavsson*

*Department of Geography and Planning, University of Liverpool*

Recent debates in fisheries social science have revolved around the (non-)rationalities (economic, social and cultural) underpinning fishing practices and fishers' behaviours. Scholars have previously emphasised the heterogeneous composition of the 'fishing community' by distinguishing between the 'social' and the 'economic' fishers, different 'fishing styles' and the different ways that fishers and policy makers may approach the same issues. Drawing inspiration from work within rural social science, this paper will explore what it means both to be a 'fisher' and live within a 'fishing community'. Work within agriculture has observed the importance of different forms of capital and, drawing on Bourdieu, has noted how these are important in the development of social relations and the performance of the subject position of the 'good farmer'. This research has addressed the cultural resistance and sustainability of certain policy interventions, in particular those focused on economic incentives, by addressing the way cultural symbols of farming need to be performed to fulfil 'good farming' ideals. Others have looked at how cultural symbols of 'good practice' and cultural capital change over time, providing interesting insights for governance mechanisms. By addressing what 'good fishing practice' is and who the 'good fishers' are, as well as how these concepts may change over time in different localities, we can begin to explore the ways in which social, cultural (and economic) capital interact and frame fishing practices. I will here discuss my own preliminary findings while studying the north wales inshore fishery and the – so far – failed attempt to establish marine conservation zones in coastal Welsh waters. This work will challenge current ideas of fisheries sustainability and will offer a non-economic critique of marine policy.

## **Geoprospective, governance and stakeholders involvement in fisheries management**

Laurie Tissière\*, Stéphanie Mahévas, Brice Trouillet

LETG Géolittomer, UMR 6554 CNRS, Université de Nantes (France); *Écologie et Modèles pour l'Halieutique (EMH)*, Ifremer Centre Atlantique, Nantes (France); Institut Universitaire de la Mer et du Littoral (IUML)

The fisheries are changing. Management modifications, social and spatial mutations, environmental changes are all factors of evolution. The statistical simulation is a positivist tool largely used in fisheries sciences and management, in order to understand and assess these dynamics. This situation reinforces the role of experts, scientists and deciders. Nevertheless, even in the Common Fisheries Policy, the decision-making power is, if not gradually, at least partially transferred from the central authorities to community. In this context, methods of diagnostic, objectives definition as well as management strategies evaluation should be reconsidered.

For instance, on the one hand, ISIS-Fish is a simulator of fisheries structure, functions and management rules effects in space and time. But on the other hand, it is not made for a participatory use. Thus, however efficient it may be, it does not permit the involvement of people. So a way must be found to develop an involvement of stakeholders. One of these ways could be to try to make a mix between simulation tools and the "prospective". It aims to identify some desired futures and then scenarios which permits to reach them. Considering such a qualitative, narrative and collective process, we argue that the prospective could be an interesting complementary in order to improve simulation. This proposal wishes to feed a discussion on the use of prospective in fisheries sciences and its contribution to co-management. Particular attention is paid to emerging spatially-explicit prospective (geoprospective).

## **When Rationalization Programs Leave Small Fishery-Dependent Communities Out, Management Structures May Offer a Way Back In**

Lewis Queirolo

NOAA Fisheries Service – Alaska Region

Commercial fishery rationalization is increasingly the norm in Federal fisheries off Alaska. Economic and logistical efficiencies offered by 'privatizing the commons' are well documented and widely accepted. In any significant structural change to the economic *status quo*, there are inevitably winners and losers. Welfare theory demonstrates that, if winners 'gain' sufficiently to allow them to compensate losers, making the former better off and the latter indifferent to the change, society can realize a Pareto improvement. In the context of fishery limited access (e.g., Individual Fishery Quota), however, no mechanisms exist whereby winners may actually compensate losers.

Economic theory, again, offers a "solution" (for economists, at least), through a concept referred to as Kaldor-Hicks efficiency. Under Kaldor-Hicks, an outcome is more efficient if 'winners' could, in theory, compensate those that are made worse off. Crucially, actual compensation does not have to ensue; meaning that, from society's point of view, a more *efficient* outcome can, in fact, leave some worse off. Clearly, *efficient* outcomes are not necessarily *equitable* outcomes.

In the United States, policy makers have come to this realization, sometimes before, but sometimes only after, serious inequities have emerged. Among the most economically vulnerable, but often least obvious, entities impacted by rationalization programs are fishery-dependent communities. Recent

changes to the United States' Magnuson-Stevens Fishery Conservation and Management Act now mandate consideration of fishery-dependent community equity. This paper characterizes several creative policy responses, designed specifically to protect small, rural, fishery-dependent communities in Alaska; and evaluates the prospects for success of each, based upon initial empirical experience.

## 8.5. Developing Appropriate Science

**Chair:** Ratana Chuenpagdee

### **Barriers to effective implementation of Marine Strategy Framework Directive in European waters: the expert perspective**

*Joanna Piwowarczyk\*, Christine Domegan, Cathal O'Mahony, Laia Piñol, Lola Rodríguez  
Institute of Oceanology – Polish Academy of Sciences, Sopot, Poland*

The Marine Strategy Framework Directive (MSFD) was adopted in 2008 by the European Union to promote sustainable use of the European seas and to conserve marine ecosystems. Its implementation turned out to be a process both complex and challenging. Some of the challenges are related to MSFD as a whole, many others are specific to one or more descriptors (D) through which this directive is implemented. Our research addresses the barriers to successful and effective implementation of MSFD in Europe, with a special focus given to four descriptors: eutrophication (D5), contaminants (D8), marine litter (D10), and underwater noise (D11). We identified barriers and assessed their relative importance through a two-day expert workshop based on the Collective Intelligence, a systems science methodology, based on a facilitation process that supports deliberation of complex issues and idea exchange between diverse and different participants. Workshop participants represented a variety of backgrounds and interests, and came from private and public companies and institutions. The participants identified 53 barriers for effective implementation of the MSFD, and grouped these barriers in 6 categories. Technological barriers and socio-economic and political barriers prevailed. 12 priority barriers were used to create a structural map. This map provides an overview of the aggravation pathways between the barriers, and allows for identification of which barriers could be addressed to alleviate other barriers. Insufficient funding, high cost of technology, high power consumption of modern equipment, and lack of common observation methodologies were identified as the most serious and emerging problems. Finally, we put together and compared barriers identified during this expert workshop with barriers gathered at the case study level – in Ireland, Poland, Spain, and at EU level – through a literature review and semi-structured interviews with key informants. We conclude that all relevant stakeholders recognize similar barriers

### **Transdisciplinary research in theory and practice**

*Danika Kleiber\*, Ratana Chuenpagdee  
Too Big To Ignore, Memorial University, NL, CANADA*

Governance of fisheries, particularly small-scale fisheries, needs to be based on broad, comprehensive, and integrative understanding of the multifaceted aspects of fisheries. This requires, not only new thinking about research and governance, but new approaches to teaching, training, and communication about fisheries. In other words, it is a transdisciplinary lens to knowledge production and mobilization that is required. While the utility of transdisciplinary studies has long been

identified, what transdisciplinary means and how to do it is still being debated. We examine these issues in our paper, along with exploring the potential value it adds to fisheries research. Our research involves a review of literature to extract core principles underlying the concept. Next, we analyze the text in the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries to determine the extent to which transdisciplinary thinking can contribute to the implementation. The study shows that key principles underlying transdisciplinary research, such as problem-solving research, humility and respect, collaboration, fairness, and gender equity, align well with those promoted in the guidelines. Thus, the implementation of the guidelines can be promoted through transdisciplinary training and capacity building. Based on this finding, we conduct a workshop with 75 researchers and practitioners interested in small-scale fisheries issues to discuss and formulate key elements of transdisciplinary teaching and learning. These elements form the foundation for a transdisciplinary fisheries course that we are developing and will deliver both as an open-access web-based course and on-site training module for students, researchers, managers, fishers, and community members.

### **Actor-oriented societal indicators of eutrophication of marine environments**

*Eva-Lotta Sundblad\*, Anders Grimvall and Lena Gipperth  
Swedish Institute for the Marine Environment*

Unsatisfactory states of the marine environment are usually strongly related to phenomena in the society. To mitigate such environmental problems the drivers that cause the pressures need to be identified. In general, this implies that many different groups of actors need to be addressed.

In this paper we present a structured method to develop societal indicators that can help identify and follow up measures taken to reduce the pressure of nutrients on marine environments. This method, which integrates analyses of physical flows with a thorough identification of actors, has the following main components:

1. The BPSIR (Behaviour-Pressure-State-Impact-Response) framework that was recently developed to support the implementation of the Marine Strategic Framework Directive, emphasize the importance of acknowledging both direct and indirect actors, drawing attention to important actors along the entire supply chain from raw materials or producer goods to production, distribution, consumption and waste management.
2. A generic model of the flow of substances and goods, which presents physical flows in a standardized way on any scale from flows of specific products to flows aggregated over whole sectors or societies.
3. Analyses of influence that describe how actors influence other actors.

A case study in Sweden regarding eutrophication of marine environment demonstrated that important groups of actors and their behaviour could be identified by analyzing aggregated substance flows, whereas specific actors were more efficiently identified by analyzing product chains.

When links between actors and physical flows of nitrogen and phosphorus have been established, the magnitude of the physical flow can serve as a societal indicator. Other societal indicators can be based on surveys of the behaviour of key actors. Regardless of the type of societal indicators emanating from the method, further work is needed to ensure feasibility of data collection and acceptance of proposed indicators.

## 8.6. Roundtable, Applied social science: How can social science play a better role in applied marine management (research)?

**Chairs:** Marloes Kraan and Marieke Verweij

**Panel Organizers:** *Marieke Verweij (ProSea) and Marloes Kraan (IMARES)*

### Panel Description

*When MARE was erected in 2001 social science in the marine domain was marginal. Over the years this has changed dramatically. MARE conferences easily attract many scientists discussing research in the field of 'people and the sea', and the journals Marine Policy and MAST are thriving. Most of the social scientists work from academic positions. The applied marine research domain is still dominated by ecologists and economists.*

*However, the need for social science input in the practical management debate is growing. New attention fields of marine policy, such as the rise of ecosystem based management, asks for knowledge about social aspects or impacts. And increasing cooperation between government, science and industry takes place in policy implementation or research projects. Both these developments ask for applied and practical social science knowledge and methods.*

*We wish to discuss this at the MARE conference. We would like to see if other social scientists also feel the need for a network of peers that strive to push social sciences outside of academia and towards practical ocean management. A key question is: how can social science play a larger and better role in applied marine research and thereby improve current research / management practices?*

*The format of this panel is a discussion, which will be kicked off by a few sparkly introductions. Discussed issues (for instance):*

- In which areas of practical ocean management does social science have a clear added value?*
- Challenges and dilemma's experienced when moving social sciences towards the practical ocean management debate*
- How we can bridge the gap between academic social science and applied social science (best practices and keys to success)*

## 8.7. Sustaining fisheries through fisherfolk organization and collective action 2

**Chairs:** Susana Siar and Daniela Kalikoski

### **Tara Bandu as a Coastal and Marine Resources Management System. A Case Study in Biacou, Timor Leste**

*Enrique Alonso Población*

This paper presents the results of a research conducted in the hamlet of Biacou, Bobonaro District, Timor-Leste. The study focuses its attention on understanding and existing Tara bandu that regulates

the relationships between youngsters of two hamlets and establishes restriction of access to valuable spaces and resources. The study shows how environmental discourse entered the local context and how the inhabitants of this small hamlet find a ways to integrate the external influences by mixing the “old” and the “new” under new hybrid practices. By doing so they assert claims over land rights and marine tenure. Benefits and drawbacks of this hybrid system are analysed.

### **The Contribution of Civil Society Organizations to Small-Scale Fisheries in Southeast India**

*Maarten Bavinck and V. Vivekanandan\**

This paper is the result of a concentrated study on the role of civil society organizations in the sustenance of small-scale fisheries of Nagapattinam District and Karaikal (UT), also considering their relations with state agencies. The study area is known for its density of small-scale fishing operations as well as civil society activities, the latter of which came to a head in the post-tsunami (2004) period. The study team investigated and compared the roles of non-state village councils (Tamil: Ur Panchayats), cooperatives, NGOs and externally sponsored women’s self-help groups in providing environmental, economic and social support. Ur Panchayats prove to play a central part at the village level, interacting closely with government agencies and providing space for other civil society actors to deploy a variety of advantageous economic and social activities. They also have serious weaknesses, however. The authors argue that the pallet of civil society activities provides important support for small-scale fisheries in the region, but also require reinforcement. One of the main problems is the non-availability of consensus on a long-term fisheries management strategy that also includes small-scale fisheries.

*Discussion afterwards, facilitated by Susana Siar and Daniela Kalikoski of the Food and Agriculture Organization of the UN*



## 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. It has now joined with 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, generally in Amsterdam;
- The publication, in association with Springer, of the open access journal *Maritime Studies* (MAST); and
- The publication, also 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](http://www.marecentre.nl)

### MARE Publication Series

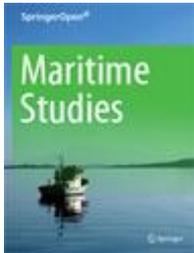
The MARE Publication Series - which is a peer-reviewed, academic product - commenced in 2004 under the auspices of Amsterdam University Press. It realized six volumes on coastal and marine topics. In 2012 the series shifted to Springer, and has since had five new volumes leave the press.

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.



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Svein Jentoft  
Editor-in-Chief

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Weds. June 24 <sup>th</sup>	Room: JK B.46	Room: JK 3.05B	Room: JK 1.19	Room: JK K.44	Room: JK 1.90	Room: JK 1.83	Room: JK .07
<b>Panel 1:</b> 13.30-15.00	Special Session on Small Scale Fisheries in Europe 1	Wellbeing and place-based approaches to identifying the societal values of small-scale fisheries 1	<i>Meeting and Discussion with the Keynote Speaker:</i> Oran Young	Bottom-up governance for fisheries: experiences REINCORPFISH 1	Livelihoods	Fisheries and Climate Change	Governance through the application of Scientific Knowledge: The Use of Tracking Technology to Protect Local and Transboundary Marine Species at Risk.
<b>Panel 2:</b> 15.30-17.00	Special Session on Small Scale Fisheries in Europe 2	Wellbeing and place-based approaches to identifying the societal values of small-scale fisheries 2	Roundtable: Transboundary Challenges for Small-Scale Fisheries	Political ecology of Indo-Sri Lankan fisheries: REINCORPFISH 2	Responding to Natural Disasters at the Coast	Wicked Problems of New Governance Objectives	From knowledge production till breakdown: is the landing obligation a threat to industry-science partnerships?
Thurs. June 25 <sup>th</sup>	Room: JK B.46	Room: JK 1.18	Room: JK 1.19	Room: JK K.44	Room: JK 1.90	Room: JK K.07	Room: JK K.10
<b>Panel 3:</b> 10.30-12.00	Geopolitics of the Oceans	At the Crossroads: Community based Responses to Coastal Challenges	Interactive governance for small-scale fisheries	Ethical Frameworks for Fisheries	Fish Consumption	Multiple Use Conflicts 1	Lake Fisheries
<b>Panel 4:</b> 13.30-15.00	Global fisheries issues in a coastal indigenous context: bringing nuance to the forefront	Resilience and Human Wellbeing in Coastal Communities Subject to Shocks	<i>Meeting and Discussion with the Keynote Speaker:</i> Kuperan Viswanathan	European Common Fisheries Policy	Innovation in Fisheries and Aquaculture	Multiple Use Conflicts 2	Networks and Learning
<b>Panel 5:</b> 15.30-17.00	The mechanics and technologies of power in marine geopolitics	Panel on Aquaculture development and governance	Towards the implementation of the SSF Guidelines	Knowns and Unknowns: Knowledge Sets and Perceptions of Risk in Marine Management	New Horizons: Coastal Communities and Social Ecological Resilience	Regionalization in Marine Governance	Governing Specific Fisheries and Discards
Friday June 26 <sup>th</sup>	Room: JK 3.05B	Room: JK 1.18	Room: JK 1.19	Room: JK K.44	Room: JK 1.90	Room: JK 1.83	Room: JK .07
<b>Panel 6:</b> 10.30-12.00	Centre for SDS: Inclusive Development and Coastal Adaptiveness	Fisheries Cases of South Africa and South Asia: REINCORPFISH 3	<i>Meeting and Discussion with the Keynote Speaker:</i> Kate Brown	Integrated Marine Policy Frameworks	Small-scale Fisher Vulnerability	Knowledge Production for Governance	Gendered Lives, Possibilities and constraints for improving fisheries livelihoods and governance
<b>Panel 7:</b> 13.30-15.00	Marine Protected Areas 1	Science in Action 1	Sustaining fisheries through fisherfolk organization and collective action 1	The Use of Social Indicators in Fisheries Policies	Addressing Markets and Resource Governance for Improved Small Scale Fisheries Management	Marine (Spatial) Planning	Human Wellbeing on the Coast
<b>Panel 8:</b> 15.30-17.00	Marine Protected Areas 2	Science in Action 2	Sustaining fisheries through fisherfolk organization and collective action 2	How can Social Science play a better role in applied marine management (research)?	Property Rights, Fisheries and Ecosystems	Mapping and Visualization	Developing Appropriate Science