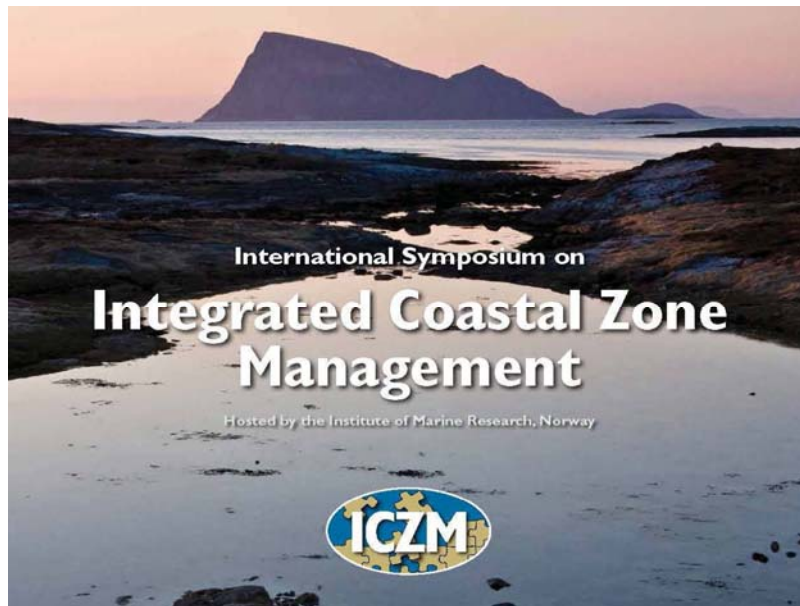


Report



The 2nd International Symposium on Integrated Coastal Zone Management took place in Arendal, Norway between 3-7 July 2011. The main objective of the Symposium "Integrated Coastal Zone Management" was to present current knowledge and to address issues on advice and management related to the coastal zone.

This international multi-disciplinary conference intended to promote science and integration of knowledge for the sustainable management of coastal resources. It provided a venue for scientists, engineers, managers and policy-makers to discuss recent advances and innovative ideas, share experiences and develop networks. A total of 131 persons (including 19 students) from 31 countries participated in the symposium (Australia, Bangladesh, Brazil, Canada, Cuba, Cyprus, Denmark, Estonia, France, Germany, Greece, Iceland, India, Indonesia, Iran, Italy, Japan, Lithuania, Malaysia, New Zealand, Norway, Portugal, Rep. of Korea, Russia, Spain, Sweden, The Netherlands, Turkey, UK, USA). The symposium offered financial support to 17 persons from 11 countries: Australia (1), Bangladesh (2), Brasil (1), Canada (1), Cuba (2), India (2), Iran (2), Malaysia (1), Philippines (2), Russia (3), and USA (1). Many of the conference participants (and several of the presentations given) were from the EU integrated project "SPICOSA" (www.spicosa.eu). The project encompassed 18 study site applications and involved 54 partners. The project developed a "System Approach Framework" (SAF), which aims at incorporating the ecological, social and economic dimensions for the assessment of policy options for the sustainable management of complex coastal zone systems.

During the Symposium, a total of 133 presentations (8 key-note, 55 oral and 70 posters) addressed issues within the following four themes:

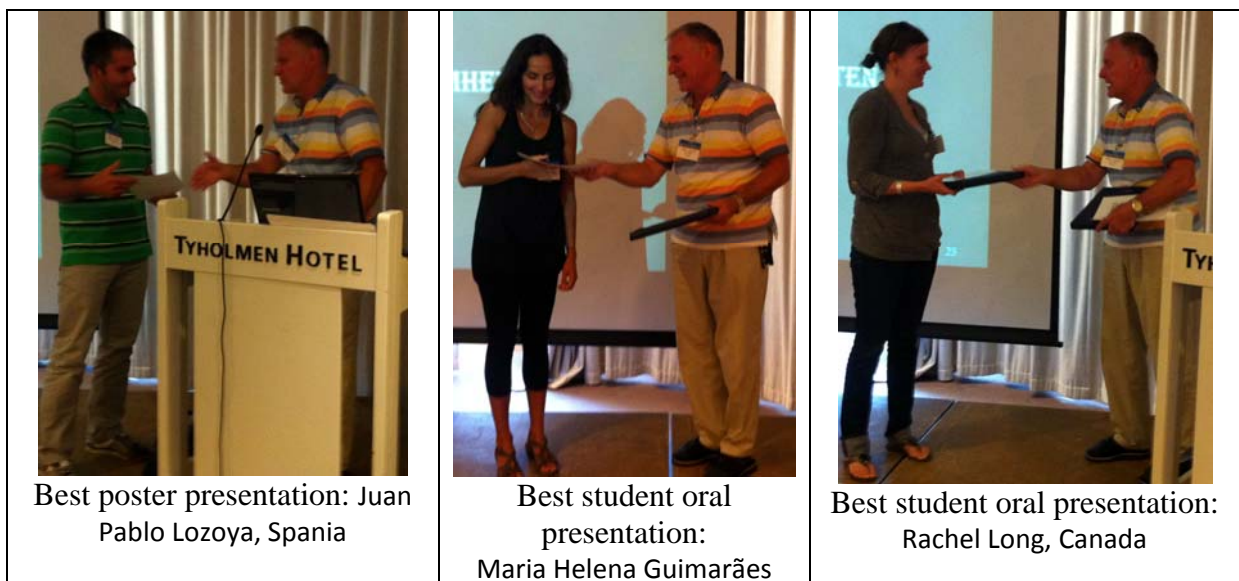
- **Coastal habitats and ecosystem services**
- **Adaptation/mitigation to change in coastal systems**
- **Coastal governance**
- **Linking science and management**

Awards

- Award for the best oral presentation were given to Victoria Judith Isaac, Brasil

- Two separate awards for the best student oral presentation were given to: Rachel Long, Canada and Maria Helena Guimarães, Portugal
- Two separate awards for the best poster presentation were given to: Ratna Sari Dewi, Indonesia and Juan Pablo Lozoya, Spain
- The award for the best student poster presentation were given to: Richard Coz, France

The high number of excellent presentations given during the Symposium made it very difficult to select winners for the assembled jury, which was composed of experts from Denmark, France, Australia and Norway. The selection of best paper or poster was highly complicated because of the inter-disciplinarity of the participants and their contributions, which covered different scientific disciplines such as biology/ecology, social science and economics. In some cases the contributions were themselves multi-disciplinary. To meet this challenge, the assembled jury reflected in their background this multi-disciplinarity.



Overview timetable and invited speakers

Sunday 3 July 2011

1900 - 2100 Welcome reception. Host: Arendal municipality and Mayor Torill R. Larsen

Monday 4 July 2011

0900 - 0920 Opening ceremony

0920 - 0930 Opening Symposium - **County governor Øystein Djupedal**

0930 - 1010 **Introductory lecture: Thomas Sawyer Hopkins (USA):** The Role of Science in the Transition to Sustainability: Coastal Zone Examples

1030 - 1800 **Theme 1: Coastal habitats and ecosystem services**

1030 - 1100 Key note speaker: Torjan Bodvin (Norway): Mapping and valuating of marine habitats – a basic knowledge for coastal management and surveillance

1930 - 2130 Reception at Institute of Marine Research

Tuesday 5 July 2011

0900 - 1700 **Theme 2: Adaptation/mitigation to change in coastal systems**

0900 - 0930 **Key note speaker: Frede Thingstad (Norway):** Variable nutrient pathways through the microbial part of the pelagic food web – an insight relevant to management issues?

1330 - 1400 **Key note speaker: Tim Smith (Australia):** Enhancing the Ability of Coastal Regions to Respond to Climate Change

1700 - 1900 **Poster Session**

Wednesday 6 July 2011

0900 - 1545 **Theme 3: Coastal governance**

0900 - 0930 **Key note speaker: Daniel Pauly (Canada):** Small-scale fisheries: an evaluation of their role in the coastal zones

1400 - 1430 **Key note speaker: Peter R. Burbridge (UK):** Non-stutory approaches to integrated coastal management based on UK experience

1615 - 1800 **Theme 4: Linking science and management**

2000 Banquet at Tyholmen hotel

Thursday 7 July 2011

0900 - 1500 **Theme 4: Linking science and management**

0900 - 0930 **Key-note: Andreas Kannen (Germany):** Science Policy Interactions: Between policy fragmentation, integration and new paradigms for planning and management

1330 - 1400 **Key note speaker: Denis Bailly (France):** The social factor in the system approach for ICZM - challenges and options

1500 - 1515 Awards - closing remarks

More detailed information, including abstracts, of the different presentations is given on the symposium homepage (www.imr.no/iczm) and the Book of abstracts.

General report

Coastal waters around the globe suffer from strain due to a wide range of human activities. The situation calls for a holistic approach, combining expertise from nature science and social science, to reach a balanced and sustainable development of the coastal zone. The concept ICZM was born in 1992 during the United Nations Conference on Environment and Development (UNCED). ICZM is defined as a decision making process focused on sustainable use, development and protection of seaside terrestrial and coastal marine areas and their resources, in continuous realization. The coastal zone includes both coastal waters and narrow strip of land separating the marine and terrestrial environment. The coastal zone thus offers a myriad of goods and services ranging from production to protection. Despite its relatively small coverage in percentage of global surface area, this zone is highly productive and sustains a high biodiversity.

Growing pressure from increasingly diverse human activities coupled with climate change impacts threaten the functional integrity of these coastal ecosystems. A multi-disciplinary approach towards understanding drivers, pressures and impacts in the coastal zone requires effective integration of data and information in policy and management. Competing claims to the coastal areas of a given nation are nothing new, but they are likely to intensify in the future. Currently, about 60 % of the world population lives within 60 km of the coast but at the current rate of growth, this percentage is

predicted to increase to 75 % within just two decades. In addition, tourism is growing in importance worldwide, adding its share of pressure on the coastal zone and increasing pressure on these coastal resources. Aquaculture, yet another competitor for coastal resources, is also on the increase as capture fisheries stagnate or decline globally. Competition for resources can result in either cooperative or conflictual responses. In the case of coastal resources, the expansion of the aquaculture industry represents the reallocation of common pool resources such as coastal and sea areas onto private hands – converting once common areas into private areas from which others are excluded. In addition, aquaculture carries the potential to impact those resources that remain held in common – wild fish stocks (particularly salmon), the seascape and the coastline. The specific mechanisms for handling distribution of coastal goods are to be found within the institutions that exist for ICZM. One key idea behind the concept of ICZM is to create cooperative management solutions for the use of the areas, making them both politically as well as ecologically sustainable. A range of plans may be ecologically sustainable, but for any plan to work, stakeholders must be invested in it. This implies, that stakeholders, whether they are local fishermen or local municipalities, have access to and understanding of the problems and issues with which they are confronted and the choices with which they are faced.

One of the prominent key note speakers at the conference Prof. Tom Hopkins, science coordinator of SPICOSA, asked why we are moving too slowly towards Sustainability. The answer to the question, of who is responsible for Sustainable Development, is no one and everyone. This may give us a clue as to why we won't get there in time. We are starting to study complex human systems and we know that they have the capacity to reorganize to lower entropic states and that this capacity depends on the health and diversity of its components. The unfortunate reality is instead that these systems are degrading to higher entropic states. We know some scenarios of change that could make the degradation worse, but we don't seem to have any complete scenarios that would reverse this degradation trend. This is where everyone comes in and everyone needs to cooperate. The chain of interacting components that constitutes the circle of responsibility necessary for a sustainable society may start or end with appropriate science and public awareness, but in between there is a lot of inertia against change in the societal components that needs to be overcome in order to make the cycle complete. According to Prof. Hopkins the SPICOSA project has arguably demonstrated a method by which science might help jump-start this reorganization process. It would require accelerating two coupled trends that are already in place, an expansion to complex systems science, and a more interactive role between science and society. To provide specific material for this discussion, Prof. Hopkins presented how the 'systems approach' was applied to policy issues in eighteen European coastal sites and what was learned about how scientific research, coupled with local societies, can better address coastal issues and guide coastal management for the transition to Sustainable Development.

The strength of the first and present symposium was that there were no parallel sessions, resulting in that all participants had to learn from each other independent of their own background and interest. This resulted in a wide thematic spread, from micro algae to big whales. A selection of the work presented will be published during late 2012.

The Symposium proceedings

The Symposium proceedings (Editors: E. Moksness E. Dahl and J. Støttrup) will be published in 2012 by Wiley-Blackwell Publishing. [http:// www.wiley.com](http://www.wiley.com).



List of participants

Name	Country	email
Christine Crawford	Australia	christine.crawford@utas.edu.au
Jan-Olaf Meynecke	Australia	j.meynecke@griffith.edu.au
Kathryn Chartrand	Australia	chartrkm@yahoo.com
Melissa Nursey-Bray	Australia	melissa.nursey-bray@adelaide.edu.au
Mohammad Siddique	Australia	latif@dal.ca
Nicole Pelton	Australia	nicole.pelton@adelaide.edu.au
Russell G. Richards	Australia	r.richards@griffith.edu.au
Tim Smith	Australia	TSmith5@usc.edu.au
Shahadat Hossain	Bangladesh	hossainms@yahoo.com
Subrata Sarker	Bangladesh	subratasrkr59@gmail.com
Victoria Judith Isaac	Brasil	biologiapesqueira@yahoo.com.br
Daniel Pauly	Canada	d.pauly@fisheries.ubc.ca
Rachel Long	Canada	Rachel.Long@SMU.CA
Gustavo Arencibia Carballo	Cuba	Garen04@gmail.com
Mercedes Isla Molleda	Cuba	merisla@cip.telemar.cu
Nicholas Kathijotes	Cyprus	nicholas.kathijotes@cut.ac.cy
Josianne Støttrup	Denmark	jgs@aqua.dtu.dk
Søren Anker Pedersen	Denmark	sorenap@ices.dk
Merle Loothing	Estonia	merle.looring@ut.ee
Denis Bailly	France	denis.bailly@univ-brest.fr
Esméralda Longépée	France	esmeralda.longepée@univ-lr.fr
Gwendoline Bodin	France	gwen.bodin@hotmail.fr
Fabien Thomas	France	f.thomas00@laposte.net
Mathieu Vaslet	France	mvaslet@gmail.com
Michel Lample	France	lample@univ-brest.fr
Richard Coz	France	rcoz@univ-lr.fr
Xavier Lafon	France	xavier.lafon@developpement-durable.gouv.fr
Andreas Kannen	Germany	Andreas.Kannen@hzg.de
Anne Mette	Germany	amette@kmgne.de
Beate Fiszkal	Germany	beatefiszkal@web.de
Helge Bormann	Germany	helge.bormann@uni-oldenburg.de
Jan M. Landman	Germany	jan.landman@uni-rostock.de
Jesko Hirschfeld	Germany	jesko.hirschfeld@ioew.de
Karin Röttgers	Germany	karin.rottgers@wur.nl
Zoi Konstantinou	Greece	zkon@civil.auth.gr
Dagný Arnarsdóttir	Iceland	dagny@uwestfjords.is
Joseph Sebastian Paimpillil	India	psjoseph@eth.net
Shadananan Nair	India	nair59@yahoo.com
Dr. Nurwajedi	Indonesia	nurwajedi@yahoo.com
Ira Dillenia	Indonesia	iradillenia@yahoo.com
M.Si Yulius	Indonesia	yulius.lpsdkp@gmail.com
Ratna Sari Dewi	Indonesia	dewi.rsd@gmail.com

Sri Lestari Munajati	Indonesia	munajati@yahoo.com
Asghar Abdoli	Iran	asabdoli@yahoo.com
Kourosh Haddadi Moghaddam	Iran	khmoghadam@yahoo.com
Carmela Caroppo	Italy	
Donata Melaku Canu	Italy	dcanu@inogs.it
Thomas Sawyer Hopkins	Italy	tom.hopkins@iamc.cnr.it
Jun Shoji	Japan	jshoji@hiroshima-u.ac.jp
Masahide Kaeriyama	Japan	salmon@fish.hokudai.ac.jp
Rosita Mileriene	Lithuania	rosita@corpi.ku.lt
Saulius Gulbinskas	Lithuania	saulius@corpi.ku.lt
Illisriyani Ismail	Malaysia	illisriyani@gmail.com
Nici Gibbs	New Zealand	nici.gibbs@seafood.co.nz
Alf Ring Kleiven	Norway	alf.ring.kleiven@imr.no
Alice Newton	Norway	<u>an@nilu.no</u>
Anne A. Hageberg	Norway	anne@cmr.no
Anne Blanchard	Norway	anne.blanchard@svt.uib.no
Annelise Chapman	Norway	lise@rundecentre.no
Ann-Lisbeth Agnalt	Norway	ann.lisbeth.agnalt@imr.no
Arne Ervik	Norway	arne.ervik@imr.no
Arne Tesli	Norway	arne.tesli@nibr.no
Arnt Olsen	Norway	arnt.olsen@fiskeridir.no
Audun Sandberg	Norway	audun.sandberg@uin.no
Bjørn Hersoug	Norway	bjorn.hersoug@gmail.com
Christian Neumann	Norway	christian.neumann@grida.no
Einar Dahl	Norway	einar.dahl@imr.no
Eirik Mikkelsen	Norway	eirik.mikkelsen@norut.no
Eivind Oug	Norway	eivind.oug@niva.no
Ellen Sofie Grefsrud	Norway	ellens@imr.no
Erlend Moksness	Norway	moksness@imr.no
Frank Jacobsen	Norway	frank.jacobsen@fiskeridir.no
Frede Thingstad	Norway	Frede.Thingstad@bio.uib.no
Frithjof Moy	Norway	frithjof.moy@imr.no
Hallvard Godøy	Norway	hallvard.godoey@imr.no
Hartvig Christie	Norway	hartvig.christie@niva.no
Håkan T. Sandersen	Norway	Haakan.T.Sandersen@hibo.no
Håkon Kryvi	Norway	hkr@fmho.no
Ina Holter Aamodt	Norway	Ina.Holter.Aamodt@imr.no
Inge Døskeland	Norway	Inge.Doskeland@post.hfk.no
Jan Henrik Sandberg	Norway	Jan.Henrik.Sandberg@fiskarlaget.no
Jon Helge Vølstad	Norway	jon.helge.voelstad@imr.no
Jon Kristian Haugland	Norway	jonkhau@student.matnat.uio.no
Kari Grundvig	Norway	kari.grundvig@fiskeridir.no
Kjell Nedreaas	Norway	kjelln@imr.no
Knut A Hjelt	Norway	knuta.hjelt@fhl.no
Knut Bjørn Stokke	Norway	knut.bjorn.stokke@umb.no
Larus Thor Kristjansson	Norway	larus-thor.kristjansson@fiskeridir.no

Martin Lund-Iversen	Norway	martin.lund-iversen@nibr.no
Rachel Tiller	Norway	Rachel.Tiller@svt.ntnu.no
Ole Arve Misund	Norway	ole.arve.misund@imr.no
Ragnar Sandbæk	Norway	ragnar.sandbak@fiskeridir.no
Scott Bremer	Norway	scott.bremer@svt.uib.no
Sonja Elin Kleven Jakobsen	Norway	Sonja-Elin-Kleven.Jakobsen@fiskeridir.no
Steven Lutz	Norway	steven.lutz@grida.no
Terje Thorsnes	Norway	terje.thorsnes@ngu.no
Thomas Kiland-Langeland	Norway	tcl@fmaa.no
Toft Kari Østervold	Norway	kari.oestervold.toft@imr.no
Tone Rasmussen	Norway	tone@sea-eco.com
Tore Nepstad	Norway	tore.nepstad@imr.no
Torjan Bodvin	Norway	torjan.bodvin@imr.no
Torstein Pedersen	Norway	torstein.pedersen@uit.no
Trine Bekkby	Norway	trine.bekkby@niva.no
Trond Haukebø	Norway	trond.haukebo@fmmr.no
Trond Ivarjord	Norway	trond.ivarjord@uit.no
Trude Borch	Norway	trude.borch@nofima.no
Øivind Strand	Norway	oivind.strand@imr.no
Øystein Svalheim	Norway	oysval@gmail.com
Corol Richards	Portugal	
John Icely	Portugal	alicely2@gmail.com
Maria Helena Guimarães	Portugal	mguimaraes@ualg.pt
Renata Goncalves	Portugal	rgoncalves@ualg.pt
Changhoon Lee	Rep. of Korea	clee@sejong.ac.kr
Choi Seong An	Rep. of Korea	
Hak-Gyoon Kim	Rep. of Korea	hgkim@nfrdi.go.kr
Dimitri Pavlov	Russia	dimi-pavlov@yandex.ru
Dubrava Kirievskaya	Russia	dubrava.kirievskaya@gmail.com
Natalya Emelyanova	Russia	enata@rambler.ru
Juan Pablo Lozoya	Spain	jplozoya@ceab.csic.es
Rafael Sarda	Spain	sarda@ceab.csic.es
Silvia de Juan	Spain	sdejuan@icm.csic.es
Emma Risén	Sweden	risen@kth.se
Fredrik Gröndahl	Sweden	fgro@kth.se
Frida Franzén	Sweden	frida@enveco.se
Joseph Pechsiri	Sweden	pechsiri@kth.se
Stephanie Janssen	The Netherlands	stephanie.janssen@deltares.nl
Gulsen Avaz	Turkey	Gulsen.Avaz@mam.gov.tr
Loraine McFadden	UK	l.mcfadden@mdx.ac.uk
Paul Tett	UK	paul.tett@sams.ac.uk
Peter R. Burbridge	UK	p.r.burbridge@newcastle.ac.uk
Robert Bensted-Smith	UK	robert.bensted-smith@fauna-flora.org
Samantha Murray	USA	smurray@oceanconservancy.org

Primary Sponsors:



Norad



ARENDAL KOMMUNE



**AUST-AGDER
FYLKESKOMMUNE**