



ANNUAL REPORT 2017



CENTRE FOR MARINE SOCIOECOLOGY

INTRODUCTION

Australia is a coastal nation with over 80% of the population living within 50 kilometres of the coast and our coasts and oceans play an important role ecologically, socially and economically. Australia has the sixth longest coastline and third largest exclusive economic zone globally and our marine regions provide valuable services through the provision of food, energy, transportation, tourism, conservation and recreation.

Further demands and pressures on coasts and oceans are expected with increasing coastal populations, food security and emerging industries, such as renewable energies and offshore marine production systems. Managing these multiple uses, some with often conflicting objectives, to ensure sustainable ecosystems, industries and social and economic benefits for communities is a major challenge globally.

The Centre for Marine Socioecology (CMS), is a collaboration between the University of Tasmania and CSIRO with support from the Australian Antarctic Division. It was established in 2014 to provide, develop and integrate the inter-disciplinary research capacity required to meet these challenges. It brings together disciplinary expertise in ocean physics, marine ecology, fisheries and aquaculture, law, economics, sociology, and governance.

We are extremely pleased to see in this annual report that the Centre has gained international recognition and is going from strength to strength and look forward to its continued success into the future.

Professor Brigid Heywood

Deputy Vice-Chancellor (Research),
University of Tasmania

Dr Tony Worby

Director, CSIRO Oceans and Atmosphere

BACKGROUND

The Centre for Marine Socioecology (CMS) brings together multi-disciplinary expertise from the Institute for Marine and Antarctic Studies (IMAS), the Faculties of Arts, Law and the Tasmanian School of Business and Economics (TSBE) at the University of Tasmania and social, economic, biological and physical science researchers at the CSIRO and AAD.

The CMS was officially opened in November 2014 with joint funding from CSIRO and the University of Tasmania to appoint three research fellows and four PhD students. The success of the Centre has seen it rapidly expand beyond this initial group of young researchers, with 20 PhD students, 6 research fellows and over 40 researchers now associated with the Centre.

This multi-disciplinary group has come together in true inter- and trans-disciplinary ways to support the Centre's vision and mission.

VISION A WORLD-LEADING CENTRE TO SUPPORT INFORMED AND SUSTAINABLE MANAGEMENT OF MULTIPLE-USES IN MARINE AND COASTAL SYSTEMS

MISSION TO PROVIDE EXCELLENCE IN RESEARCH AND RESEARCH TRAINING THAT UNDERPINS THE SUSTAINABLE DEVELOPMENT OF THE MARINE DOMAIN FOR ALL USERS AND BUILDS THE NECESSARY CAPACITY TO PROVIDE SKILLS AND SOLUTIONS FOR INDUSTRY, GOVERNMENT AND THE COMMUNITY



Professor Stewart Frusher
(outgoing Director)



Professor Gretta Pecl
(incoming Director)



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2017 HIGHLIGHTS

2017 was another fantastic year for CMS. Collectively, our researchers and students delivered over 20 keynote and invited presentations, a swag of public talks, and were awarded a dozen regional, national and international awards and prizes.



Some highlights from the year include Beth Fulton (CSIRO) and Reg Watson (IMAS) making the 'Highly Cited' list for 2017. This is a global assessment, with researchers on the list ranking in the top 1% by citations for field and publication year, for multiple papers, in the Web of Science.

Professor Stewart Frusher received the University of Tasmania Distinguished Service Medal for his successful career at the University and his research performance in his 19 years of service. Prof Frusher was the inaugural Director of the Centre of Marine Socioecology, and played an instrumental and key role in the development of the CMS. Prof Frusher retired last year, but has continued working on putting together an innovative project on integrated offshore aquaculture and renewable energies.



HIGH PROFILE PAPERS PUBLISHED BY THE CMS INCLUDE:

nature
ecology & evolution

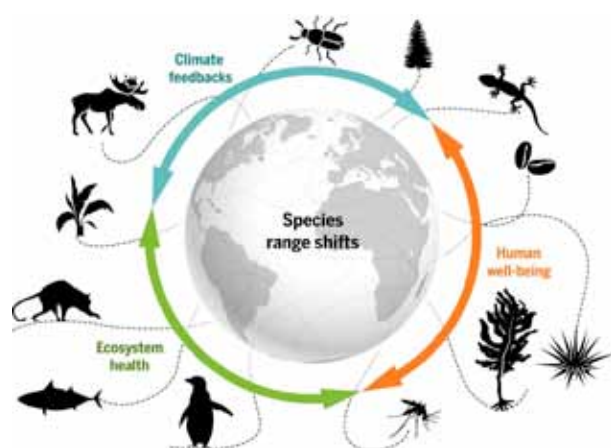
REVIEW ARTICLE
DOI: 10.1038/s41559-017-0258-8

Linked sustainability challenges and trade-offs among fisheries, aquaculture and agriculture

Julia L. Blanchard^{1,2*}, Reg A. Watson^{1,2}, Elizabeth A. Fulton^{2,3}, Richard S. Cottrell^{1,2},
 Kirsty L. Nash^{1,2}, Andrea Bryndum-Buchholz⁴, Matthias Büchner⁵, David A. Carozza⁶,
 William W. L. Cheung⁷, Joshua Elliott⁸, Lindsay N. K. Davidson⁹, Nicholas K. Dulvy¹⁰, John P. Dunne¹⁰,
 Tyler D. Eddy^{4,7}, Eric Galbraith^{11,12}, Heike K. Lotze¹³, Olivier Maury¹³, Christoph Müller¹⁵,
 Derek P. Tittensor¹⁴ and Simon Jennings^{15,16,17}



This paper synthesised global trends in food production, biodiversity threat, human development, and future climate change projections for fisheries and agriculture. We showed that trade-offs exist among sustainable development goals. Comparison of future climate change scenarios for both fisheries and agriculture sectors revealed double jeopardy risks for many coastal nations.



This Science paper emerged from a CMS hosted workshop after the Species on the Move conference in Hobart 2016 (www.speciesonthemove.com). Researchers from 15 countries came together to synthesise for the first time the myriad of ways that as the global climate changes, human well-being, ecosystem function, and even climate itself are increasingly affected by the shifting geography of life.

RESEARCH

Altmetric
1327

REVIEW

Picked up by 28 news outlets
Blogged by 8
Tweeted by 1474
On 33 Facebook pages
Mentioned in 9 Google+ posts
On 1 video
448 readers on Mendeley

CLIMATE CHANGE

Biodiversity redistribution under climate change: Impacts on ecosystems and human well-being

Gretta T. Pecl,^{1,2*} Miguel B. Araújo,^{3,4,5,†} Johann D. Bell,^{6,7} Julia Blanchard,^{1,2}
 Timothy C. Bonebrake,⁸ I-Ching Chen,⁹ Timothy D. Clark,^{1,10} Robert K. Colwell,^{5,11,12,13}
 Finn Danielsen,¹⁴ Birgitta Evengård,¹⁵ Lorena Falconi,¹⁶ Simon Ferrier,¹⁷
 Stewart Frusher,^{1,2} Raquel A. Garcia,^{18,19} Roger B. Griffiths,²⁰ Alistair J. Hobday,^{2,21}
 Charlene Janion-Scheepers,²² Marta A. Jarzyna,²³ Sarah Jennings,^{2,24}
 Jonathan Lenoir,²⁵ Ilse L. Linnertved,²⁶ Victoria Y. Martin,²⁷ Phillipa C. McCormack,²⁸
 Jan McDonald,^{2,29} Nicola J. Mitchell,²⁹ Tero Mustonen,³⁰ John M. Pandolfi,³¹
 Nathalie Pettorelli,³² Ekaterina Popova,³³ Sharon A. Robinson,³⁴ Brett R. Scheffers,³⁵
 Justine D. Shaw,³⁶ Cascade J. B. Sorte,³⁷ Jan M. Strugnell,^{38,39} Jennifer M. Sunday,⁴⁰
 Mao-Ning Tuanmu,⁴¹ Adriana Vergés,⁴² Cédilia Villanueva,^{1,2} Thomas Wernberg,^{29,43}
 Erik Wapstra,⁴⁴ Stephen E. Williams¹⁶

Distributions of Earth's species are changing at accelerating rates, increasingly driven by human-mediated climate change. Such changes are already altering the composition of ecological communities, but beyond conservation of natural systems, how and why does this matter? We review evidence that climate-driven species redistribution at regional to global scales affects ecosystem functioning, human well-being, and the dynamics of climate change itself. Production of natural resources required for food security, patterns of disease transmission, and processes of carbon sequestration are all altered by changes in species distribution. Consideration of these effects of biodiversity redistribution is critical yet lacking in most mitigation and adaptation strategies, including the United Nation's Sustainable Development Goals.

nature
ecology & evolution

ARTICLES

PUBLISHED: 22 JUNE 2017 | VOLUME: 1 | ARTICLE NUMBER: 0188

Body size shifts and early warning signals precede the historic collapse of whale stocks

Christopher F. Clements^{1*}, Julia L. Blanchard^{2,3}, Kirsty L. Nash^{2,3}, Mark A. Hindell^{2,4} and Arpat Ozgul¹

This study investigated whether early warning signals could have detected the historic collapses in whale catches. We showed that, prior to most collapses, declines in the body sizes of whales caught were evident and using this information improved detection of collapse.

www.nature.com/scientificdata

SCIENTIFIC DATA

OPEN

Data Descriptor: A database of global marine commercial, small-scale, illegal and unreported fisheries catch 1950–2014

Received: 23 September 2016

Accepted: 31 January 2017

Reg A. Watson¹

Global fishing is the most significant impact on marine ecosystems. The associated catch – suitably mapped – details both cause and effect. Covering all catch from 1950 to 2014 broken down by taxon, fishing country, gear and sector, this database is a very massive, with >867M records totalling >100 Gb. It documents the catch of >6.6 trillion tonnes of 1,443 taxa of marine animals by 193 national fishing fleets using 48 types of fishing gear over a period of 65 years (since comprehensive records started) on a global spatial grid of 259,200 30-min cells.

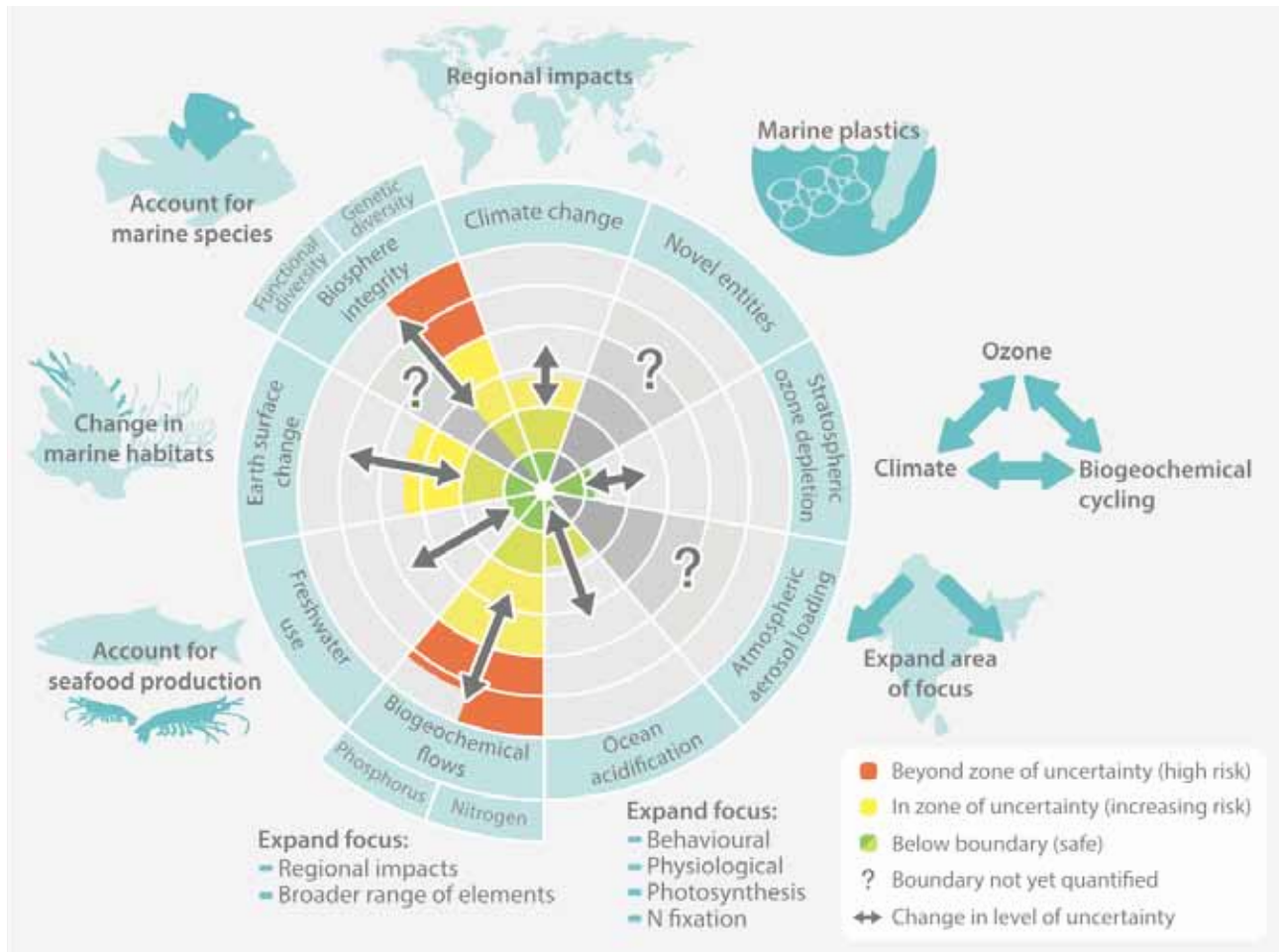


Planetary boundaries for a blue planet

Kirsty L. Nash^{1,2*}, Christopher Cvitanovic^{1,2,3}, Elizabeth A. Fulton^{1,4}, Benjamin S. Halpern^{5,6,7}, E. J. Milner-Gulland⁸, Reg A. Watson^{1,2} and Julia L. Blanchard^{1,2}



This paper explored the Planetary Boundaries framework from a marine perspective, showing that only by better integrating oceans, seas and coasts can the boundaries provide useful guidance for earth system governance, as our marine systems seriously impact on the potential to cross these boundaries now and into the future.



nature
climate change

PERSPECTIVE

<https://doi.org/10.1038/s41558-017-0010-z>

Understanding and managing trust at the climate science-policy interface

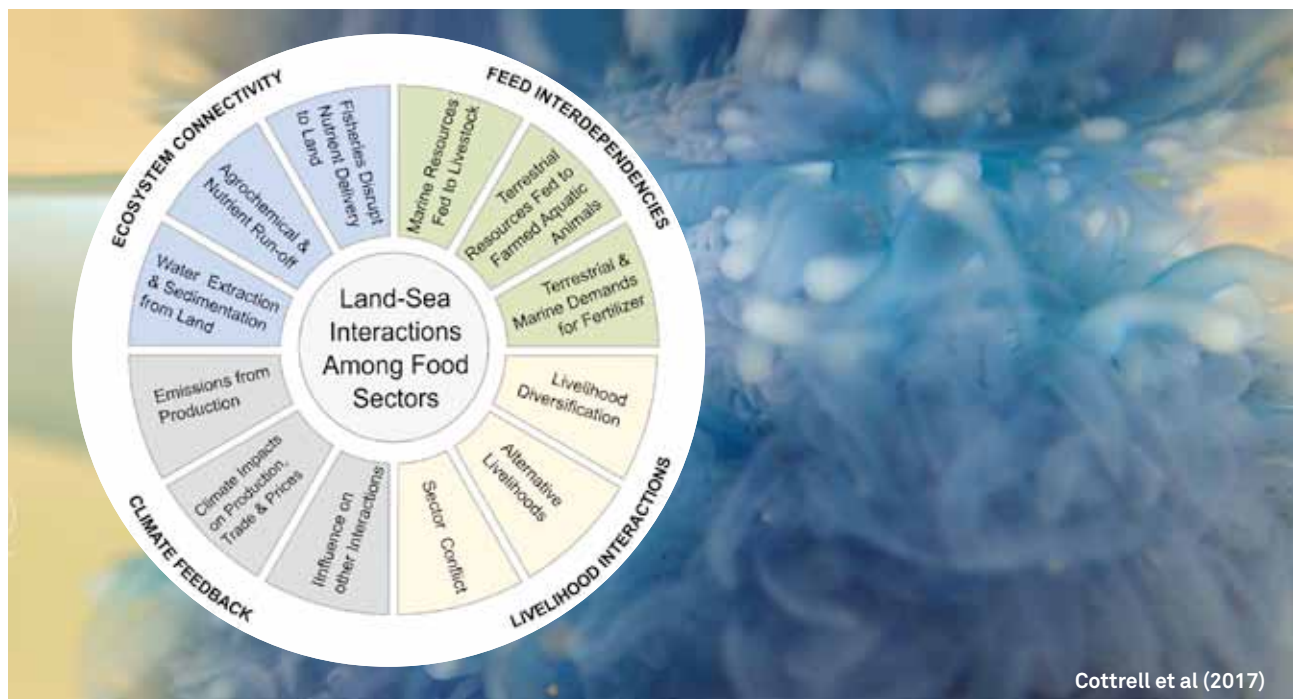
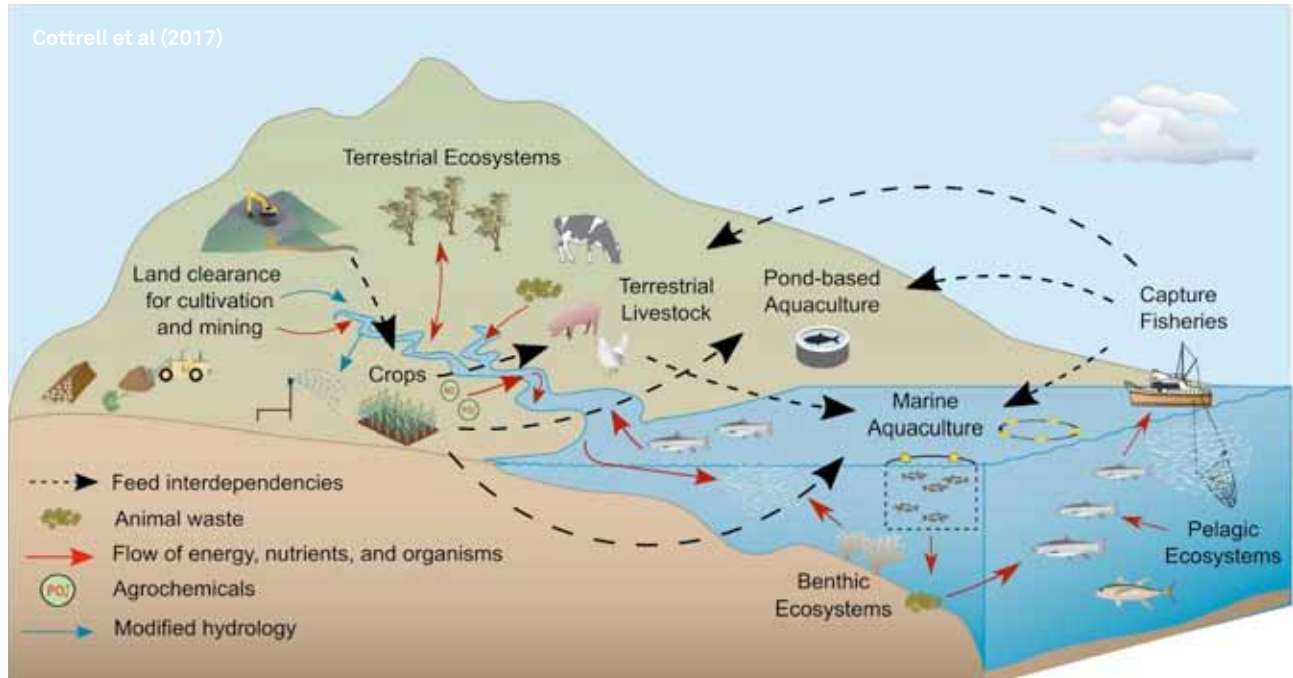
Justine Lacey¹, Mark Howden^{2*}, Christopher Cvitanovic³ and R. M. Colvin²

Climate change effects are accelerating, making the need for appropriate actions informed by sound climate knowledge ever more pressing. A strong climate science-policy relationship facilitates the effective integration of climate knowledge into local, national and global policy processes, increases society's responsiveness to a changing climate, and aligns research activity to policy needs. This complex science-policy relationship requires trust between climate science 'producers' and 'users', but our understanding of trust at this interface remains largely uncritical. To assist climate scientists and policymakers, this Perspective provides insights into how trust develops and operates at the interface of climate science and policy, and examines the extent to which trust can manage—or even create—risk at this interface.

This paper demonstrates that while trust is an important component of the science-policy dynamic, there can be such a thing as 'too much' trust between scientists and policy-makers that can lead to increased risk for both scientists and policy-makers. Understanding this risk is critical to identify and adopt measures which increase the likelihood of positive outcomes for science, policy, and the society which depends on their cooperation.



OUR STUDENTS ARE ALSO LEADING HIGH-QUALITY PAPERS:



Cottrell, RS, Fleming, A, Fulton, EA, Nash, KL, Watson, RA & Blanchard, JL 2017, 'Considering Land-Sea Interactions and Trade-offs for Food and Biodiversity', *Global Change Biology*, vol. 38, no. 1, pp. 42–49.

Cullen-Knox, C, Haward, M, Jabour, J, Ogier, E & Tracey, SR 2017, 'The social licence to operate and its role in marine governance: Insights from Australia', *Marine Policy*, vol. 79, no. February, pp. 70–77, accessed from <http://linkinghub.elsevier.com/retrieve/pii/S0308597X1630642X>.

Cullen-Knox, C, Eccleston, R, Haward, M, Lester, E & Vince, J 2017, 'Contemporary Challenges in Environmental Governance: Technology, governance and the social licence', *Environmental Policy and Governance*, vol. 27, no. 1, pp. 3–13

Kelly, R, Pecl, GT & Fleming, A 2017, 'Social licence in the marine sector: A review of understanding and application', *Marine Policy*, vol. 81, no. March, pp. 21–28, accessed from <<http://linkinghub.elsevier.com/retrieve/pii/S0308597X16306558>>.

Kelly, R, Cottrell, RS, Mackay, M & Rousseau, Y 2017, 'Kathleen Schwerdtner Máñez and Bo Poulsen (eds): Perspectives on oceans past: a handbook of marine environmental history', *Reviews in Fish Biology and Fisheries*, vol. 27, no. 1, pp. 1–2, accessed from <http://dx.doi.org/10.1007/s11160-016-9462-x>

Smith, D, McGee, J & Jabour, J 2016, 'Marine protected areas: a spark for contestation over “rational use” of Antarctic marine living resources in the Southern Ocean?', *Australian Journal of Maritime & Ocean Affairs*, vol. 8, no. 3, pp. 180–198, accessed from <<https://www.tandfonline.com/doi/full/10.1080/18366503.2016.1229398>>.

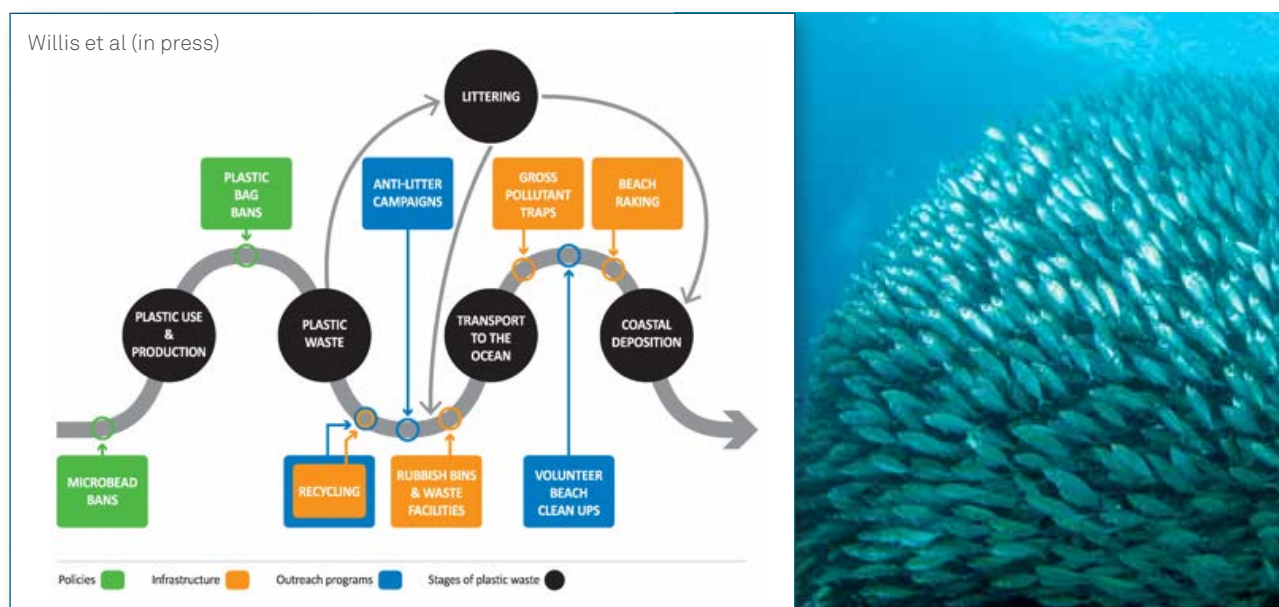
Smith, D & Jabour, J 2017, 'MPAs in ABNJ: lessons from two high seas regimes', *ICES Journal of Marine Science*, no. November, accessed from http://fdslive.oup.com/www.oup.com/pdf/production_in_progress.pdf

Wenta, J, McGee, J & Phelan, L, 2016. 'Can a regional insurance mechanism enhance resilience to slow onset impacts of climate change?', *University of Tasmania Law Review*, vol 35, no. 2 pp. 23-57.

Willis, K, Hardesty, BD, Kriwoken, LK & Wilcox, C 2017, 'Differentiating littering, urban runoff and marine transport as sources of marine debris in coastal and estuarine environments', *Scientific Reports*, 7:44479, accessed from <https://www.nature.com/articles/srep44479>

Willis, K, Maureaud, C, Wilcox, C & Hardesty, BD (In press) 'How successful are waste abatement campaigns and government policies at reducing plastic waste into the marine environment?', *Marine Policy*, no. August, pp. 0–1, accessed from <http://linkinghub.elsevier.com/retrieve/pii/S0308597X17305171>

Willis, KA, Eriksen, R, Wilcox, C & Hardesty, BD 2017, 'Microplastic Distribution at Different Sediment Depths in an Urban Estuary', *Frontiers in Marine Science*, vol. 4, no. December, pp. 1–8, accessed from <http://journal.frontiersin.org/article/10.3389/fmars.2017.00419/full>



CMS RESEARCHERS AND STUDENTS CHANGING THE WORLD

Image credit: Shane Breen

HOMeward BOUND

Karen Alexander

Homeward Bound is a groundbreaking leadership, strategic and science initiative and outreach for women, set against the backdrop of Antarctica. The initiative aims to heighten the influence and impact of women with a science background in order to influence policy and decision making as it shapes our planet. Homeward Bound is a year-long state-of-the-art program to develop their leadership and strategic capabilities, using science to build conviction around the importance of their voices, culminating in a voyage to Antarctica. CMS is proud to have research fellow Karen Alexander selected for the 2018 voyage.

PICTURED BELOW

Justine Barrett, the Hon. Jacquie Petrusma and Karen Alexander



MARINE POLLUTION

PhD student Kathy Willis

Plastic pollution in the marine environment causes financial and environmental damages. Government and non-government organisations have developed many waste abatement strategies to reduce these damages. However little research has worked to discern which of these strategies is most successful at reducing the greatest amount of waste from entering the environment. Kathy's research examines how successful local government waste management policies, infrastructure and outreach programs are at reducing plastic pollution from entering the marine environment. Kathy chose to conduct her research on Australian local government waste abatement strategies as previous research has shown that most litter along Australian coastlines is locally sourced¹. The past year Kathy has been lead author on three papers that each build knowledge toward her research aim. Kathy's most recent study found that councils with a coastal waste management budget who implement recycling, illegal dumping and litter prevention outreach programs have the least waste along their coastlines. The findings from this study can assist waste managers to effectively assign funds and resources towards waste management.

¹ Hardesty et al. 2016

OUR RESEARCH FELLOWS



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LINK TO PROJECTS

[Marinesocioecology.org/1-modelling-socioecological-thresholds-predicting-a-safe-and-just-operating-space-for-humanity-in-the-global-ocean/](https://marinesocioecology.org/1-modelling-socioecological-thresholds-predicting-a-safe-and-just-operating-space-for-humanity-in-the-global-ocean/)

RESEARCH INTERESTS

Functional ecology, small-scale fisheries, resilience of marine social-ecological systems, planetary boundaries

ABOUT KIRSTY

I am originally from the UK. I studied Oceanography with Marine Biology (BSc Hons) at Southampton University. In 2002 I moved to Australia and completed a MAppSci in Tropical Marine Ecology at James Cook University, Townsville. I then spent a number of years doing field research and teaching field techniques in association with the Marine Park Authority in the Seychelles, and teaching college level courses in marine biology and oceanography in the Caribbean. In 2009 I returned to Australia, completing a Masters of Education at Charles Sturt University and a PhD at the ARC Centre of Excellence for Coral Reef Studies at James Cook University. After a 1 year postdoc at the Centre of Excellence for Coral Reef Studies, I moved to the Centre for Marine Socioecology in 2016.

RESEARCH AREA

MODELLING SOCIAL-ECOLOGICAL THRESHOLDS: PREDICTING A SAFE AND JUST OPERATING SPACE FOR HUMANITY IN THE GLOBAL OCEAN

April 2017 - April 2020

My project explores the resilience of marine social-ecological systems, with a particular focus on functional ecology and the planetary boundaries framework. My research aims to better understand how societies can minimise environmental impacts while ensuring human wellbeing. This project is a collaborative effort between CMS, UTAS and CSIRO. My primary collaborators are Julia Blanchard, Beth Fulton, Reg Watson, Rich Little, Ben Halpern and E.J. Milner-Gulland.

RECENT ACTIVITIES

I recently published a review on how we can better integrate marine systems into the planetary boundaries framework, and a data paper exploring how functional diversity of fisheries varies among reported and unreported components of global catches.



KAREN ALEXANDER

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LINK TO PROJECTS

<http://marinesocioecology.org/5-regional-ecosystem-based-coastal-management/>

RESEARCH INTERESTS

Environmental governance, conflict, aquaculture, fisheries, blue growth, conservation

PICTURED RIGHT

Chesapeake Bay
San Francisco Bay
Homeward Bound in the news

ABOUT KAREN

I'm originally from Scotland, where I graduated with an honours degree in politics and sociology. After eight years of working in business, I then undertook a master's degree in environmental governance and a PhD in marine science. My PhD combined social science with ecological modelling to investigate the impact of offshore renewable energy (wind, wave and tidal) on the Scottish inshore fishing industry. My subsequent post-docs took me into the realm of aquaculture governance at the Scottish and European scales. Moving to Hobart offered me the chance to focus on my particular interest in marine conflict within the realm of ecosystem-based management (EBM) as a whole.

RESEARCH AREA

REGIONAL ECOSYSTEM-BASED COASTAL MANAGEMENT

February 2016 – January 2019

My current research project focuses on regional EBM in south-east Tasmania. I aim to understand what has prevented implementation of an EBM approach in the region. One potential reason as to why operationalising EBM has been problematic relates to the management of 'sectoral interplay', the conflicts and tensions between different actors involved in the EBM process. I have been investigating the issues in south-east Tasmania, identifying what lessons we can learn from international case studies and plan to develop a framework to manage sectoral interplay.

RECENT ACTIVITIES

In March/April 2017, I undertook a fieldwork trip to the United States to visit three EBM programs considered successful: the Gulf of Maine Council, the Chesapeake Bay Program and the San Francisco Bay-Delta Program. I undertook interviews with a variety of stakeholders to investigate their experience of sectoral interplay issues, and how they had dealt with them.

Additionally, in 2017, I was accepted onto the Homeward Bound (HB) Women in STEM Leadership program. This is a year long program which culminates in an expedition to the Antarctic Peninsula in 2018. The program has been intensive to date, involving diagnostic work on leadership mindsets and styles, learning styles, personal visibility and science communication and lots of fundraising!





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LINK TO PROJECTS

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RESEARCH INTERESTS

Fisheries, climate change responses, marine ecology, ecosystem resilience, life-histories

ABOUT ASTA

I am a research fellow in macroecological modelling at the University of Tasmania, but have an interdisciplinary research background in zoology, evolutionary biology, physiology and molecular ecology. I completed my MSc in zoology at the University of Vilnius, Lithuania and received PhD in 2006 in molecular ecology and zoology at the University of Helsinki, Finland. After my PhD I was awarded a fellowship from the Monterey Bay Aquarium Research Institute, USA to study diversity and connectivity of deep sea chemosynthetic communities. In 2009 I joined CSIRO in Hobart, taking on a new research direction of using ecosystem models to understand how fisheries induced evolution might be affecting marine ecosystems. In 2013 I was granted a fellowship to study fisheries and climate change effects on the Baltic Sea using marine ecosystem models. Since the start of 2017 I have joined the University of Tasmania and CMS.

I love living and working in Tasmania due to its vibrant research community and amazing nature. My biggest dream is to see stronger protection of Tasmanian natural treasures and I hope my work can contribute towards it. When not engrossed in science, I am a busy mum with a passion for gardening, bushwalking, music and attempts at sustainable living on our off-grid property in the bush.

RESEARCH AREA

My current research focuses at developing and applying marine ecosystem models to understand impacts of climate change, species redistributions and fish life-history changes on the function, productivity and resilience of marine ecosystems in Australia and globally. I am working with Julia Blanchard, Gretta Pecl and Rick Stuart-Smith on an ARC funded project "Rewiring marine food webs". The results of our work will have important implications for how to best manage our marine systems under a changing climate.

RECENT ACTIVITIES

My earlier work has demonstrated that species interactions can magnify human impacts on marine communities, and even reverse population resilience predictions made using single species models. This work received a lot of attention from public and media, including a cover story in Australasian Science, ABC Science Report, interview on ABC Radio PM program and interview for a German DRadio.

Currently I am also involved in strengthening trans-disciplinary collaboration to understand effects of temperature changes on marine organisms and am a co-convener of a dedicated symposium at the Australian Marine Sciences Association conference 2018 in Adelaide.



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LINK TO PROJECTS

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profiles/staff/imas/christopher-
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RESEARCH INTERESTS

Knowledge exchange, science-
policy, marine governance,
climate adaptation

ABOUT CHRIS

I am a Research Fellow in the CMS, specialising in knowledge exchange, stakeholder engagement and the governance of marine resources. My work and research in CMS draws on almost ten years of experience working at the interface of science and policy for the Australian Government Department of Environment, and then as a Knowledge Broker in CSIRO's Climate Adaptation Flagship.

RESEARCH AREA

My research is focused on two broad areas. The first aims to enhance knowledge-exchange among scientists and decision-makers (including policy-makers, fishermen, community members, etc.) to support the adaptive governance of marine resources and to ensure their sustainable management for future generations. This research involves: (1) Identifying the current use of science in decision-making processes, (2) identifying the barriers to knowledge exchange among scientists and decision-makers (3) identifying the institutional innovations needed to support improved knowledge exchange, (4) developing strategies for overcoming known barriers to knowledge exchange, and (5) measuring knowledge exchange activities. Building on this, the second focal research area explores how different modes of environmental governance can enhance the resilience of complex socio-ecological systems.

RECENT ACTIVITIES

In November 2017, together with colleagues from the University of Stockholm, I commenced a new research program to identify the institutional attributes that underpin a more productive relationship between marine science, policy and practice. Through this research, I hope to be able to develop a blueprint for research organisations to build capacity to enhance the real world impact of the science they produce.



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LINK TO PROJECTS

Marinesocioecology.org/human-oceanic-size-spectrum-models

RESEARCH INTERESTS

Ecology, fisheries, conservation

ABOUT CAMILLA

I am originally from Italy, where I graduated from bachelor and master degrees in marine ecology. I always dreamed about living in Australia, and, after completing my masters, I moved to Hobart to do my PhD, which focused on evaluating baseline conditions and resulting changes in demersal fish communities of south east Australia. During this time, my interest in understanding human impacts on marine systems and the balance between conservation and exploitation of natural resources for long-term use grew. I enjoyed the PhD experience in Hobart, where I found a great working environment, and I decided to stay for my next step, a postdoc.

RESEARCH AREA

DEVELOPING THE HUMAN COMPONENTS OF OCEANIC SIZE-SPECTRUM ECOSYSTEM MODELS

April 2017 - April 2020

My postdoc project is about extending size-spectrum ecosystem models to include fleet dynamics. This is to better understand fisher's response to changes in biological and economic conditions of a fishery and to predict the consequences that such behaviour might have on ecosystem structure and functioning. This project is a collaborative effort between CSIRO and CMS, and my main collaborators are Beth Fulton, Julia Blanchard, Ingrid Van Putten and Fabio Boschetti.

RECENT ACTIVITIES

Between September and November, I participated in two voyages on board of the RV Investigator to collect biological data on mesopelagic and demersal communities. The first voyage was off the south east Australian coast, while the second was on the tropical North West Shelf, and some of the data collected will be used to inform the size-spectrum ecosystem models that I am currently working on.

PICTURED RIGHT

Working on the RV Investigator





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LINK TO PROJECTS

[Marinesocioecology.org/human-oceanic-size-spectrum-models](https://marinesocioecology.org/human-oceanic-size-spectrum-models)

RESEARCH INTERESTS

Indigenous rights, cultural fisheries, conservation

ABOUT EMMA

I am a trawlulwuy woman, where my traditional lands are tebrakunna country in the north-east of Tasmania. Since graduating as an archaeologist from ANU in the mid-90s I have been fortunate to spend a career in caring for country across Australia. I completed a PhD in regional development in 2017, specifically assisting development of a framework for the first protected area in Tasmania to be jointly managed in association with Aboriginal Tasmanians. Through this work, I wished to apply the portable frameworks of good governance and policy to sea country. My postdoctoral work is concerned with the barriers and opportunities in establishing a market for Tasmanian cultural fisheries.

RESEARCH AREA

WAVE TO PLATE: ESTABLISHING A MARKET FOR TASMANIAN CULTURAL FISHERIES

March 2017 - March 2019

In collaboration with the Tasmanian Government and the Fisheries Research and Development Corporation, my postdoctoral work is concerned with greater participation and engagement from Aboriginal Tasmanians in establishing cultural fisheries. This includes investigating the barriers and opportunities within the current legislation and policy that governs Tasmanian fisheries and providing the mechanisms for collaborations and networks that encourage working together for regional development.

RECENT ACTIVITIES

Dr Lee has presented at an international tourism studies conference in Majorca, Spain, on Indigenous women and cultural fisheries and food tourism. She has been an invited participant to workshops and short courses in Germany and Japan with a focus on including Indigenous knowledges in marine and terrestrial conservation.

OUR PHD STUDENTS



LISA
UFFMAN-
KIRSCH

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My interest for impactful community involvement in natural resource governance was piqued two decades ago when involved in land conservation planning in my hometown region of northeast Ohio, United States. I experienced the conflict between differing priorities of resource use and conservation. Later, from the role of an elected legislative official, I observed what appeared as a misguided role of government in the approval decision-making process. My initial impression was that the law had potential to make a worthwhile contribution to an approval process for development projects that included citizen values and addressed project-specific environmental concerns in a more collaborative and productive manner. My hunch was that answers lied in the discourse generating and clauses describing the laws' purpose and intent. I found this background often forgotten or overlooked after legislative passage and relegation to administrative regulators. This experience led me to study law, where my training focused on environmental, marine and public international law through my juris doctor (Case Western Reserve University; member of the Washington, D.C. bar) and my master of laws (Universiteit Utrecht). I share a sense of injustice about the law's inadequacy in recognizing diverse stakeholder agency, especially in environmental commons, and support operationalization of rights-based participatory consent processes. To study this concern and contribute to legal solutions, I decided to pursue Ph.D. research.

RESEARCH INTERESTS & PROJECT OUTLINE

APPROVAL PROCESSES FOR ACTIVITIES AFFECTING THE MARINE ENVIRONMENT

My research interests lie broadly in legally empowered stakeholder involvement in marine environment governance, both within national jurisdictions and concerning international transboundary issues. My PhD research aims for an improvement of legal approval processes for activities affecting the marine environment. The intent is to advance a decision-making framework for marine project licensing containing best practices for creation of value-influenced relationships, like social license, and designed to uphold the purpose of the underlying law. The expectation is reduced conflict, development and retention of socially licensed relationships, and improved project environmental friendliness in the marine space. My research approaches this through analysis and integration of key social theories, legal doctrines and empirical interactions with diverse marine stakeholders.



BIANCA
HAAS

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After I finished my undergraduate degree in biological sciences in Austria, I moved to Germany to start my Masters in fisheries science. There I got to know the complex interaction between the ocean and humans. During my Masters I attended a conference about marine socio-ecological systems. This conference opened my eyes regarding the importance of understanding humans and their activities in ecological science. I really liked the idea of interdisciplinary work and this highly influenced my choice to do a PhD.

RESEARCH INTERESTS & PROJECT OUTLINE

LINKS AMONG FISHERIES ORGANISATIONS AND NON-BINDING ENVIRONMENTAL AGREEMENTS

I am interested in the sustainable use of marine resources, particularly of fish in areas beyond national jurisdictions. Fish is an important source of food, however some harvest species are considered to be overfished. To mitigate human impacts on the ecosystem, states come together and founded agreements which influence existing organisations such as Regional fisheries management organisations, the only institution which regulates fisheries in the high seas. The interplay of environmental agreements, for example the Sustainable Development Goals, and the fisheries organisations is important for sustainable utilisation of fish resources. The aim of my PhD is to identify the links and interactions among fisheries organisations and environmental agreements for better fisheries management.



ELISAVET
SPANOU

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Born in Greece, raised in Canada and Greece, with an undergraduate degree in Biology from Montpellier, France, and a master's degree in Ecosystem-based Management from Scotland, UK, I believe that my claim to being a citizen of the world is justified. However, I feel most at home around the sea, and the valuation of marine ecosystem services is the main focus of my research. I enjoy exploring the arts in my spare time, and have a passion for performing.

RESEARCH INTERESTS & PROJECT OUTLINE

MAPPING MARINE ECOSYSTEM SERVICES TO THE TOTAL ECONOMIC VALUE FRAMEWORK

A biologist turned ecologist turned economist, the interdisciplinary nature of my PhD – fitting under the broad term of ecological economics – suits me very well.

I am looking into the non-market economic value of marine and coastal ecosystems and the services they provide. It is vital to inform decision-makers of the value of ecosystems and the goods they provide when these are not traded commercially. This ensures that the “hidden” values of ecosystems may be taken into account in cost-benefit analyses and trade-offs.

My research involves investigating the preferences held by local Tasmanians regarding the marine and coastal environment using innovative methods. These are: participatory mapping of local marine and coastal recreational activities and ecosystem services, and deliberative valuation using a choice experiment in a group setting.



RACHEL
KELLY

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I studied my undergraduate BSc. in Marine Science at the National University of Galway, Ireland and completed an MSc. in Marine Conservation and Biodiversity (EMBC+ EU-funded Erasmus degree), studying at Université Pierre et Marie Curie in France and University of Algarve, Portugal, then completing my thesis at NOAA's Marine Protected Areas Centre in Monterey, California. This research stemmed my interest in the social aspects of marine science and piqued my eagerness to learn more. Commencing my PhD in Hobart in 2016 was a steep learning curve. It's been challenging, yet largely rewarding, enlightening and motivating to proceed further into this practical and applied field of marine research.

RESEARCH INTERESTS & PROJECT OUTLINE

SOCIAL LICENCE IN THE MARINE REALM:
IMPROVING COMMUNITY KNOWLEDGE AND
ENGAGEMENT IN LOCAL MARINE INDUSTRIES
USING CITIZEN SCIENCE

My research aims to produce novel understanding as to how social licence may be used to bridge communication gaps and barriers between diverse users of the ocean environment and how we can advance our understanding of social licence by applying it to the marine sector. This project outlines the value of social licence and its global potential towards garnering the cooperative industry-community involvement necessary to advise managers in sharing ocean resources sustainably in our changing world. This research is among the first attempts to link social licence theory with citizen science, aiming to produce actual practical outcomes that may be applied in sustainable management, and has considerable potential to produce novel, and influence future, theoretical understandings of social licence and citizen science, and their application in the management and development of sustainable ocean use.



HANNAH
FOGARTY

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My interest in wildlife and the natural environment began at a very early age, making it an obvious decision to complete my higher education in the biological sciences. I completed my Bachelor of Science and Honours degrees at UTAS and IMAS, before additionally joining CMS for my PhD in early 2017. I have broad experience working within the industry, having taught Antarctic Studies at UTAS, undertaken an Industrial Traineeship with CSIRO and an internship with CCAMLR, as well as volunteer work with DPIPWE and Bonorong Wildlife Sanctuary. I currently enjoy researching the marine science-policy space, focusing on fisheries management.

RESEARCH INTERESTS & PROJECT OUTLINE

CLIMATE READY: IDENTIFYING ADAPTATION
PREPAREDNESS IN AUSTRALIAN STATE FISHERIES

My research interests include understanding the implications of climate change on marine ecosystems and natural resources, as well as fisheries management adaptations for climate change. My earlier research investigated the use of "first sightings" of species outside their normal range as early detectors for climate-driven changes in species distributions, while my PhD further investigates biological changes driven by climate change, and what implications these have on Australian state fisheries. My PhD aims to identify ways for Australian state fisheries to prepare for the effects of long-term climate change through management adaptation, by utilising various quantitative and qualitative research methods.



KATHY
WILLIS

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I completed my undergraduate and honours degree in science at the University of Tasmania. During my studies and travels in-between semesters I witnessed the large amount of plastic waste entering the marine environment and the lack of appropriate waste management to control it. This sparked my passion to understand waste management in both developed and developing nations and strategies reducing the amount of waste entering the marine environment. In 2016 I worked as a research assistant at CSIRO and the following year I commenced my PhD.

RESEARCH INTERESTS & PROJECT OUTLINE

WHAT WASTE ABATEMENT STRATEGIES ARE MOST EFFECTIVE AT REDUCING WASTE INTO THE MARINE ENVIRONMENT?

My research interests are broadly in sustainable waste management. As consumer demands on plastic products, in particularly single-use plastics, grow so too does the amount of plastic entering the waste stream and environment. Organisations are reducing and managing this waste from multiple approaches. However, which approaches are successful are reducing waste? My PhD aims to determine what local government waste abatement policies, outreach programs and infrastructure are best at reducing waste in the marine environment.



DANIELLE
SMITH

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I completed both my undergraduate degree in environmental sciences and my masters in coastal and marine resource management in the UK. I then went on to work as a marine environmental consultant in the UK and internationally for the past 13 years. In 2011, my passion for the marine environment drew me to Australia's large and diverse coastline. Based in Queensland, I managed a large multidisciplinary project assessing the potential impacts of dredging and dredged material disposal from six ports and harbours within the Great Barrier Reef Marine Park. I then went on to work within the offshore marine environment in Western Australia undertaking environmental assessments for oil and gas exploration activities. My interests have now taken me further into the remote seas as I seek to protect and manage the oceans resources in areas beyond national jurisdiction.

RESEARCH INTERESTS & PROJECT OUTLINE

WHAT FACTORS CONTRIBUTE TO THE EFFECTIVENESS OF LEGAL REGIMES IN ESTABLISHING AND IMPLEMENTING MPAS IN THE HIGH SEAS?

My research project looks at the factors that contribute to the effectiveness of legal regimes in establishing and implementing marine protected areas (MPAs) in the high seas. To date 12 MPAs have been established in the high seas; two in the Southern Ocean and 10 in the North-East Atlantic region. MPAs in the high seas are a relatively recent concept and few academics have analysed and discussed the complex issues surrounding the negotiation, planning, and establishment of MPAs in the high seas. This research project aims to address these gaps and to analyse the drivers of the formation and management of high seas MPAs in two case studies; the Southern Ocean and North- East Atlantic, with a vision to providing recommendations for the establishment and future management of MPAs within the Southern Ocean.



MARY
MACKAY

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After working as scuba diving instructor in Fiji, Indonesia and Malta I'd fallen in love with the ocean and I decided to complete a BSc in Environmental Biology and Geography at The University of St Andrews followed by a MSc in Marine Systems and Policies and The University of Edinburgh. My master's thesis took me to Sri Lanka to conduct research on the conflicts in small-scale fisheries. It was there that I became aware of the consequences of non-compliance with regulations within fisheries and inspired to pursue my PhD investigating alternative management methods for compliance behaviour in fisheries.

RESEARCH INTERESTS & PROJECT OUTLINE

THE ROLE OF INCENTIVES, REGULATION, AND NUDGES IN INFLUENCING COMPLIANCE BEHAVIOUR OF RECREATIONAL FISHERS

The threat that non-compliance poses to the sustainability of resources, marine conservation and marine socio-ecological systems are consequential, meaning that policies based on current research may be less effective than anticipated if they are not complied with. This project aims to gain a greater understanding of current regulatory compliance behaviour of recreational fishers and the incentivising of compliance behaviour through positive reinforcement (nudges), rather than additional punitive economic incentives. Nudges have been seen to have a large influence over pro-social behaviours, and have potential to reduce management costs and improve marine resource sustainability. I am exploring and testing the potential of nudges in recreational fisheries management.



YANNICK
ROUSSEAU

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I completed a Master's degree in Physics in France before deciding to take on traveling. A few countries and years later, I decided to go back to academia and finished another degree in Environmental Science and Resource Management at the University of Iceland. Another few countries later and I am in Australia taking on a PhD in the field of fisheries. Being part of the CMS is for me the continuation of interests in many fields of studies and recognising the importance of interdisciplinary approaches.

RESEARCH INTERESTS & PROJECT OUTLINE

THE FUTURE OF SEAFOOD PRODUCTION

My research interests are varied and cross disciplines. As food security relies heavily on marine fisheries and will continue to do so in the future, there is an increasing need to develop and implement models for global fishing. These models have in the past focused on single-minded approaches, may they be biologic, economic or social, and relied on out-dated data, in particular with regards to the fishing fleet of the world. My project focuses on questioning the assumptions made in global fishing fleet dynamics, from the legal definitions of fishing sectors to the size and power of fishing fleets, and observing their respective evolution. In the long term, this will contribute toward an integrated socioecological model of the global fishing fleet and its catch.



KELSEY
RICHARDSON

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I am from California, USA, where I graduated with my bachelor and master's degrees in marine sciences and international environmental policy. I am also an avid cruising sailor. During the years that I spent at sea working and sailing around the world I saw firsthand the global scope of the ocean plastic pollution problem, which inspired my commitment to work on this issue. My work on plastic pollution has included a fellowship at the United Nations Environment Programme headquarters (UNEP, Kenya), and work across the Pacific region with the Secretariat of the Pacific Regional Environment Programme (SPREP, Samoa). My interests in using science to inform policy and management decisions designed to decrease marine plastic pollution, as well as interests in the intersection of fisheries management and the marine debris issue inspired me to move to Australia to pursue my PhD.

RESEARCH INTERESTS & PROJECT OUTLINE

GLOBAL GHOST GEAR ANALYSIS: MAPPING FISHERIES GEAR LOSS, FATES AND IMPACTS AROUND THE WORLD

Abandoned, lost or discarded fishing gear (ALDFG) represents a significant yet ultimately unknown amount of global marine debris. Once lost to the marine environment, this fishing gear presents serious hazards and impacts to fisheries. It also has the potential to entangle or ensnare fish and other marine and terrestrial wildlife, as well as smother sea floor and fragile coastal environments. No statistically rigorous estimate currently exists for the amount of fishing gear lost globally. My PhD research aims to provide a comprehensive global analysis of commercial fisheries gear loss, including identification of the amounts, types, fates and impacts from major fisheries around the world. This work will be used to inform strategies to reduce gear loss and its associated impacts.



JOSEPH
WENTA

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I completed undergraduate studies in Law and Forensic Science at the University of Newcastle, New South Wales, before joining the academic staff at Newcastle Law School. In addition to teaching a wide range of undergraduate courses in Law, I undertook research in Australian public law and international climate change law and governance. I have published in leading journals including the Melbourne Journal of International Law and Review of European, International and Comparative Environmental Law. My interest in better understanding the role of law in responses to social and ecological change prompted me to pursue postgraduate research.

RESEARCH INTERESTS & PROJECT OUTLINE

SOCIAL ECOLOGICAL RESILIENCE, ENVIRONMENTAL JUSTICE AND CLIMATE ADAPTATION LAW

Building on my broader interest in public law, my current research examines legal responses to climate change. Climate change tests law's responsiveness to non-linear system dynamics. Climate impacts are also likely to disproportionately affect disadvantaged communities, who typically have reduced capacity to respond to change. My PhD research explores the capacity of the Australian legal system to promote resilience and justice in adaptation to climate change. Drawing upon the social-ecological resilience and environmental justice frameworks, I examine the vital role of legal responses in promoting responsiveness to change while also accounting for inequities in the distribution of climate impacts.



CLOE
CUMMINGS

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I completed a Bachelor of Marine Science (Hons First Class) through the Institute for Marine and Antarctic Studies and the University of Tasmania in 2016. From an ecology background, my interests have moved increasingly towards socioecological problems and a whole-of-system approach to environment and resource management. I am also interested in horizon scanning and exploring pre-emptive conservation strategies.

RESEARCH INTERESTS & PROJECT OUTLINE

TOP PREDATORS AND FEEDING PEOPLE FROM THE OCEAN:

NATURAL BEHAVIOUR, HABITUATION, AND THE FORAGING ECOLOGY OF FUR SEALS IN TASMANIA

While healthy top predator populations are essential for ecosystem health, producing food around them can undoubtedly be difficult. Given that global demand for seafood is projected to increase, anthropogenic climate change is projected to impact fisheries catches, and that many global fish stocks are already overfished, these challenges are likely to intensify into the future. For my PhD, I'm doing interdisciplinary research on the relationship between seals and fisheries in Tasmania. I'm focussing especially on developing a baseline understanding of Australian fur seal foraging behaviour and diet, and on using social research methods to progress the conversation about coexistence with wildlife while producing oceanic food.



MOHAMMAD
KHODAJOUEI

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I completed my bachelor degree in Surveying and Spatial Sciences at the University of Kerman, Iran in 2010. The years that followed I worked as a land surveyor for a company in my home country. To secure my future career I decided to continue my studies in Australia. In 2015, I received my master's degree in Geographic Information System and Remote Sensing from the University of Tasmania. Currently, I am a first year PhD student in aquaculture studies, working on spatio-temporal decision making support tool for aquaculture.

RESEARCH INTERESTS & PROJECT OUTLINE

AN INTEGRATED GEOGRAPHIC INFORMATION SYSTEM (GIS) WITH SYSTEM DYNAMICS (SD) TO BUILD A SPATIO-TEMPORAL DECISION SUPPORT TOOL FOR AQUACULTURE

As aquaculture continues to domesticate the ocean in larger scale, it is important to avoid making similar mistakes to those that were made during the comparable expansion in the green revolution. This project therefore aims to include an understanding of the potential long term ecological and social impacts of aquaculture development into the planning process. Since the interactions between the ecological and social components of the system occur at different spatio-temporal scales, the relationships among them are nonlinear, history dependent, adaptive, counterintuitive, governed by feedback loop and vary significantly with location. The main objective of this PhD project is to integrate GIS with SD to produce a spatio-temporal decision support tool for aquaculture that would enable managers to minimise adverse environmental impacts, social conflicts, and maximise economic return.



CARLA
SBROCCHI

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I work at the intersection of science and society because I enjoy the challenge of pursuing practical solutions to real-world problems. I'm driven by the idea that addressing issues together is the way to make real change, and I get a real kick out of bringing people together to probe the possibilities. I've worked in various areas of natural resource management and public policy, and I'm particularly interested in design and implementation of management practices which support environmental and social outcomes. This interest has led to pursuing a PhD, providing an opportunity to dig into these concepts and testing them out.

RESEARCH INTERESTS & PROJECT OUTLINE

INTEGRATING HUMAN AND ENVIRONMENTAL DIMENSIONS FOR SUSTAINABLE FISHERIES

Broadly, my research concerns areas where science and society intersect, such as environmental policy, citizen science and natural resource management. I am particularly interested in applying interdisciplinary techniques to the study of human-environment interactions. My PhD research seeks to understand how different methods of integrating social, environmental and economic data can help describe the net benefits and trade-offs of fishing on fishing-dependent communities and wider society. This work will supplement existing biological and economic models used to report on the sustainability of fishing industries, and will contribute to the development of policies and practices to sustain seafood production and livelihoods while also conserving ecosystems.



MAREE
FUDGE

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 @mareefudge

I completed my undergraduate degree in political studies at the Australian National University before establishing a career in non-profit governance, management and social policy. My work as a social researcher and consultant in Tasmania, Australia, has led me to confront the complexity of community and stakeholder engagement and social licence in coastal and marine governance. Who gets to be involved in coastal governance and decision-making, how are they involved, who gets left out and who decides on all of that - these are political questions of representation and participation in coastal governance. These are also the questions that led me to my PhD research.

RESEARCH INTERESTS & PROJECT OUTLINE

PARTICIPATION AND REPRESENTATION: A CRITIQUE OF STAKEHOLDER ENGAGEMENT IN COASTAL GOVERNANCE

My research interests lie in the applied policy and governance interface, and citizen, community and stakeholder engagement in governance and policy processes. As demands for greater public participation continue to grow across democratic nations, and demands on changing marine resources are intensifying, governing multiple use social-ecological systems like coastal zones is increasingly complex. My PhD is a critique of current participatory practices in coastal governance, with the aim of improving institutional designs for governing shared marine and coastal systems.



COCO
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I completed my Bachelor's degree in applied science majoring in Conservation and management and integrated resource management at the University of Queensland. This was followed by a career in environmental consulting and marine research, both in Australia and abroad. After a few years of working in environmental management and observing the mechanisms of environmental and social change I moved to Hobart, Tasmania to conduct my honours research. This research contributed to the understanding of social licence in marine governance. This fuelled my desire for not only a greater understanding of the nuances of claims-making and decision-making and the process of seafood governance, but integration in a local and global community of people that work in this space. This led me to undertaking a PhD with the Centre for Marine Socioecology.

RESEARCH INTERESTS & PROJECT OUTLINE

TRANSNATIONAL ENVIRONMENTAL CAMPAIGNS IN THE AUSTRALIA-ASIA REGION: THE CASE OF SEAFOOD, FISHERIES AND TARGET MARKETS

My research interests more broadly lie in understanding drivers for change, particularly in the realm of environmental sustainability. With increasing pressure on our marine environment to produce food, new forms of information and communication technologies and growing global trade there is an identified need to understand the link between media, public and policy. My PhD seeks to understand the nature, dynamics and complexity environmental debate in relation to seafood, fisheries and target markets. This is achieved by investigating how environmental concerns regarding seafood sustainability are produced, communicated, responded to and potentially resolved both nationally and transnationally.



RICHARD
COTTRELL

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I completed my undergraduate degree in biological sciences in the UK before moving to Southeast Asia to start a career in outdoor environmental education. Living in tropical Asia was both fascinating for me as a budding naturalist but also invaluable for understanding the suite of interacting socioeconomic and biophysical drivers behind the region's rapid biodiversity loss. The desire for a deeper understanding of how to measure, weight and communicate these issues through social-ecological data drove me to do a Masters degree on the principles of ecosystem-based management and eventually on to my PhD.

RESEARCH INTERESTS & PROJECT OUTLINE

BRIDGING THE LAND-SEA DIVIDE: LINKS, INTERACTIONS AND TRADE-OFFS FOR FOOD SECURITY AND BIODIVERSITY

My research interests lie broadly in environmental sustainability, particularly regarding the ecological impacts of human food production. With the human population growing and consumers becoming wealthier, we have a pressing need to simultaneously meet food demands and address inequities in food security, while maintaining the integrity of Earth's biosphere. Advances to agriculture, aquaculture and fisheries sectors will be crucial - but to what extent are they interdependent? My PhD aims to identify links and interactions among terrestrial and aquatic food sectors and whether these present trade-offs for both food and biodiversity under global change.



LYNNA
CORTES
RUEDA

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I have a Bachelor Degree in Law from the National University of Colombia and a Bachelor Degree in Accounting from the Javeriana University. I joined the Tax Practice of Deloitte Colombia in 2004 where I focused on tax advisory and consultancy for companies and individuals. In 2008 I took study leave to complete a Master Degree in International Tax at the University of Melbourne. I moved permanently to Australia in October 2012, and was admitted as a PhD Candidate at UTAS in February 2013.

RESEARCH INTERESTS & PROJECT OUTLINE

OPERATIONALISING THE PRECAUTIONARY PRINCIPLE IN FISHERIES MANAGEMENT IN DEVELOPING COUNTRIES: A CASE FOR DIFFERENTIATION

My research project will identify the mechanisms by which developing countries can enhance implementation of the precautionary principle through domestic law and policy, based on an in-depth comparative analysis of the legal regimes for fisheries management in one developed country (Australia) and two developing countries (Colombia and Chile). More specifically this project will:

- Explore how the current knowledge on the precautionary principle has contributed to its implementation in fisheries management in developing countries in accordance with their capabilities Investigate the constraints and limitations in the implementation of the precautionary principle in fisheries law in Australia, Chile and Colombia through interviews with key informants
- Propose legal mechanisms and tools to meet developing countries differentiated capacities and constraints in the implementation of precautionary approaches in fisheries management
- Contribute to a broader understanding of the implications of sustainable development in the context of developing countries.



ANGELA
ABOLHASSANI

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I departed from my undergraduate studies at Arizona State University in the United States with a quixotic mix of degrees, including two Bachelors of Arts in Global Studies and English Literature and a minor in Biological Sciences. While researching for my honours thesis I discovered a home in the niche policy-making world of transboundary tuna management. In 2014, I completed internships with the Food and Agriculture Organisation of the United Nations in Rome, Italy and the Secretariat of the Western and Central Pacific Fisheries Commission in Pohnpei, Micronesia. My experiences with both intergovernmental organisations peaked my interest in the connections to be drawn between transboundary tuna management and regional food security and development concerns.

RESEARCH INTERESTS & PROJECT OUTLINE

TRANSBOUNDARY TUNA MANAGEMENT, DIFFERENTIAL TREATMENT AND THE SPECIAL REQUIREMENTS OF DEVELOPING COASTAL STATES

My research interests lie in the legal frameworks and policy-making processes that drive transboundary tuna management. I specifically study the primary institutional home for these processes, which are regional fisheries management organisations. My PhD work compares two such organisations operating in developing regions. They are the Indian Ocean Tuna Commission and Western and Central Pacific Fisheries Commission. My dissertation examines how conflictual decision-making among developing coastal states and industrialised fishing states within these organisations are conducted and mediated through treaty law on differential treatment. I explore, compare and contrast how differential treatment is operationalised within both organisations and the extent to which outcomes of this contestation impact on regional food security and development concerns.



NIYOMI
AYESHA
PETHIYAGODA

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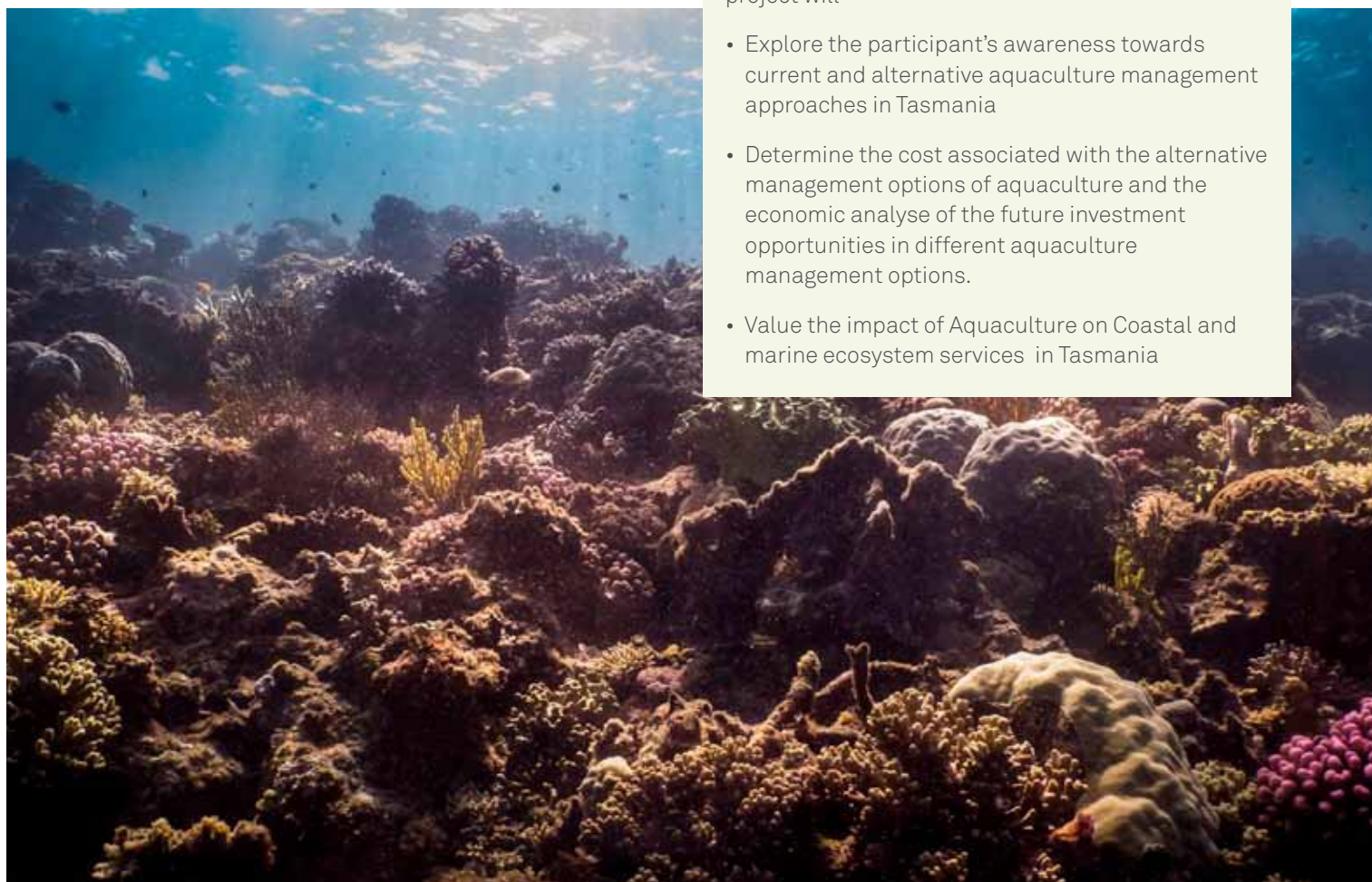
I completed my undergraduate degree in Agriculture sciences in Sri Lanka, and Masters in Fisheries and Aquaculture Management and Economics at the University of Tromsø, Norway which has directed my interest towards Aquaculture and coastal and marine ecosystem management. Having completed my postgraduate studies in Norway, I joined the academic staff of the Faculty of Agriculture, University of Ruhuna, Sri Lanka which broadened my vision, paving way for future career as an academic and a researcher. The desire for working and researching in the field of Coastal and Marine ecosystems eventually pushed me to do my doctoral studies in Ecosystem valuation.

RESEARCH INTERESTS & PROJECT OUTLINE

ECONOMIC ANALYSIS AND THE APPLICATION OF DISCRETE CHOICE EXPERIMENTS TO VALUE THE IMPACT OF ALTERNATIVE MANAGEMENT SYSTEMS OF AQUACULTURE ON COASTAL AND MARINE ECOSYSTEMS IN TASMANIA

My research interest is broadly aimed at Ecosystem valuation and policy evaluation particularly with regard to Coastal and Marine Ecosystems (CMEs). An understanding of CMEs and their underlying economic value to humanity has become increasingly important for local, national, and global policy and decision-making. Growing Aquaculture has given new challenges in Coastal and Marine ecosystem degradation and ecosystem failures. As a possible solution to this issue, different alternative management approaches have been newly proposed with the potential to mitigate some of the key issues in aquaculture. The overall research objective of my PhD project is applying economic analysis to know the future investment opportunities in different aquaculture management options and, thereby application of discrete choice modelling to value the impact of Aquaculture on Coastal and marine ecosystems in Tasmania. More specifically this PhD project will

- Explore the participant's awareness towards current and alternative aquaculture management approaches in Tasmania
- Determine the cost associated with the alternative management options of aquaculture and the economic analysis of the future investment opportunities in different aquaculture management options.
- Value the impact of Aquaculture on Coastal and marine ecosystem services in Tasmania



CMS CONNECTIONS AND INTERNATIONAL IMPACT

CMS strongly values our direct connections with local stakeholders and the applied impacts of our research, however we also have strong academic impact at the global scale. Our staff and students have collectively published with hundreds of international co-authors, with citation metrics more than double the world average for similar publications. Field-Weighted Citation Impact takes into account the differences in research behavior across disciplines, revealing how the number of citations received compares with the average number of citations received by all other similar publications indexed in the Scopus database (a value of 1 indicates world average).

Overall research performance

Scholarly Output

59

Citation Count

95

Authors

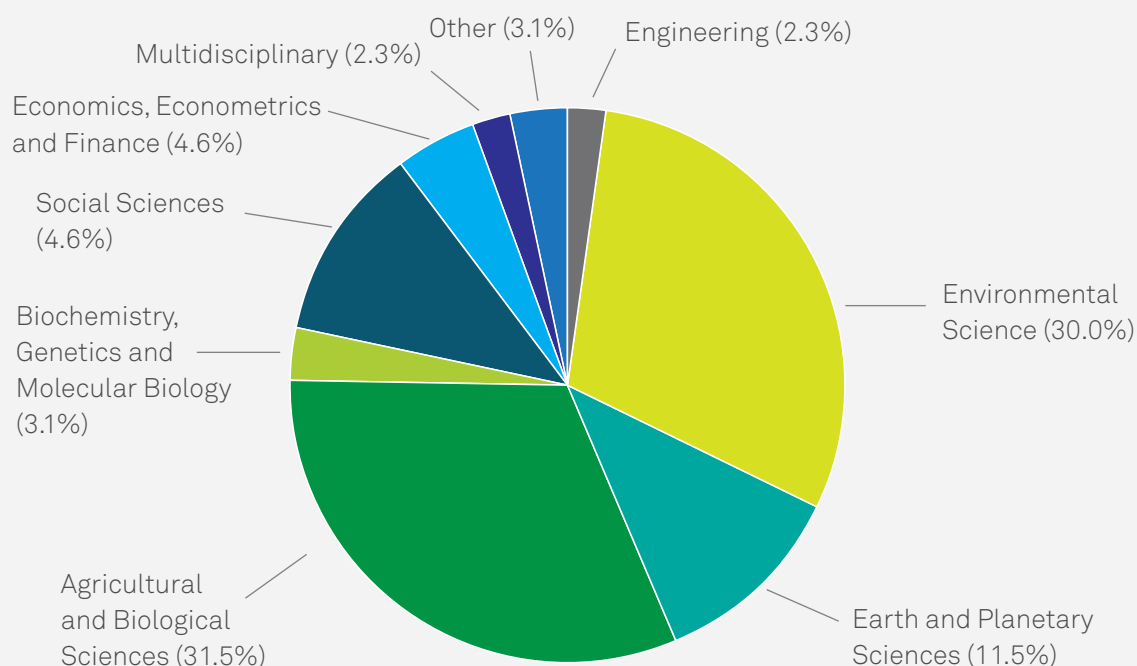
413

Citations per Publication

1.6

Field-Weighted Citation Impact

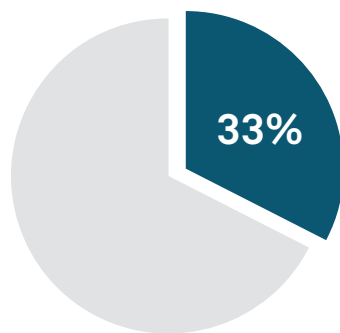
2.31



*Note: not all 2017 CMS publications could be included in these analyses. Thank you to Dr Angela McGuire U Tas Research Office for assistance with these analyses. SciVal Metrics, Elsevier 2018. Exported Mar 5, 2018.

Outputs in Top Citation Percentiles

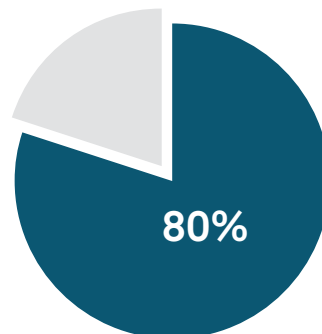
Publications in top 10% most cited worldwide



CMS Publications

Publications in Top Journal Percentiles

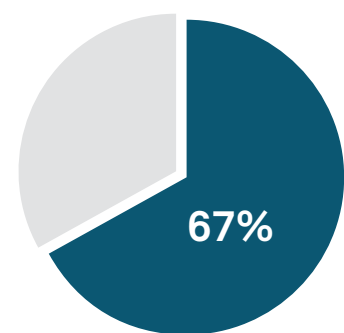
Publications in top 10% journals by CiteScore Percentile



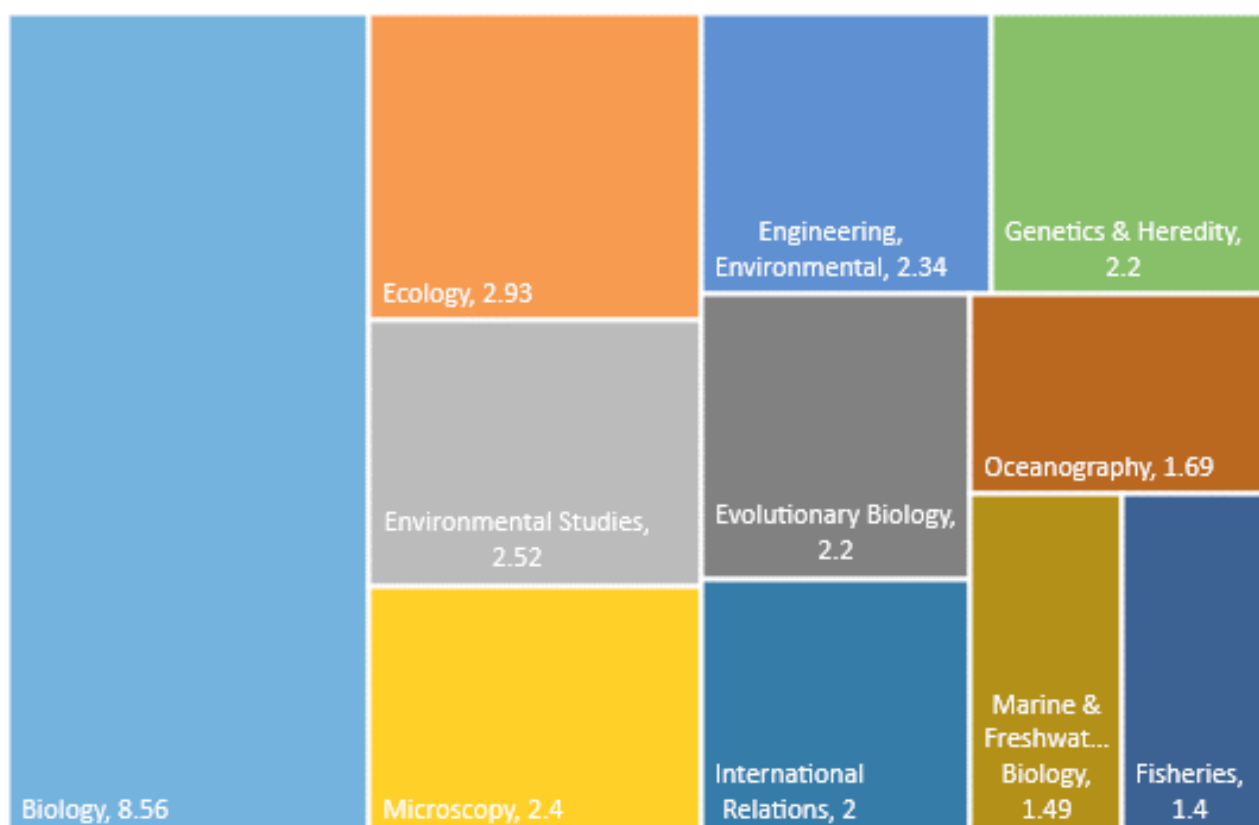
CMS Publications

International Collaboration

Publications co-authored with Institutions in other countries



CMS Publications



Indicators: Category Normalized Citation Impact **Schema:** Web of Science **Time Period:** 2016-2018 **Dataset:** DOIs2

InCities dataset updated Feb 11, 2018. Includes Web of Science content indexed through Dec 31, 2017. Export Date: Mar 5, 2018

Noting that citations are only one measure of research impact, Normalised Citation Impact (NCI), is an indication of high impact research areas, with an NCI of 1 considered world standard and an NCI value of two considered twice world average. The NCI values in the figure above clearly show indications of research impacts substantially above world average in each of the diverse research fields of CMS publications (1.4-8.5x world average).

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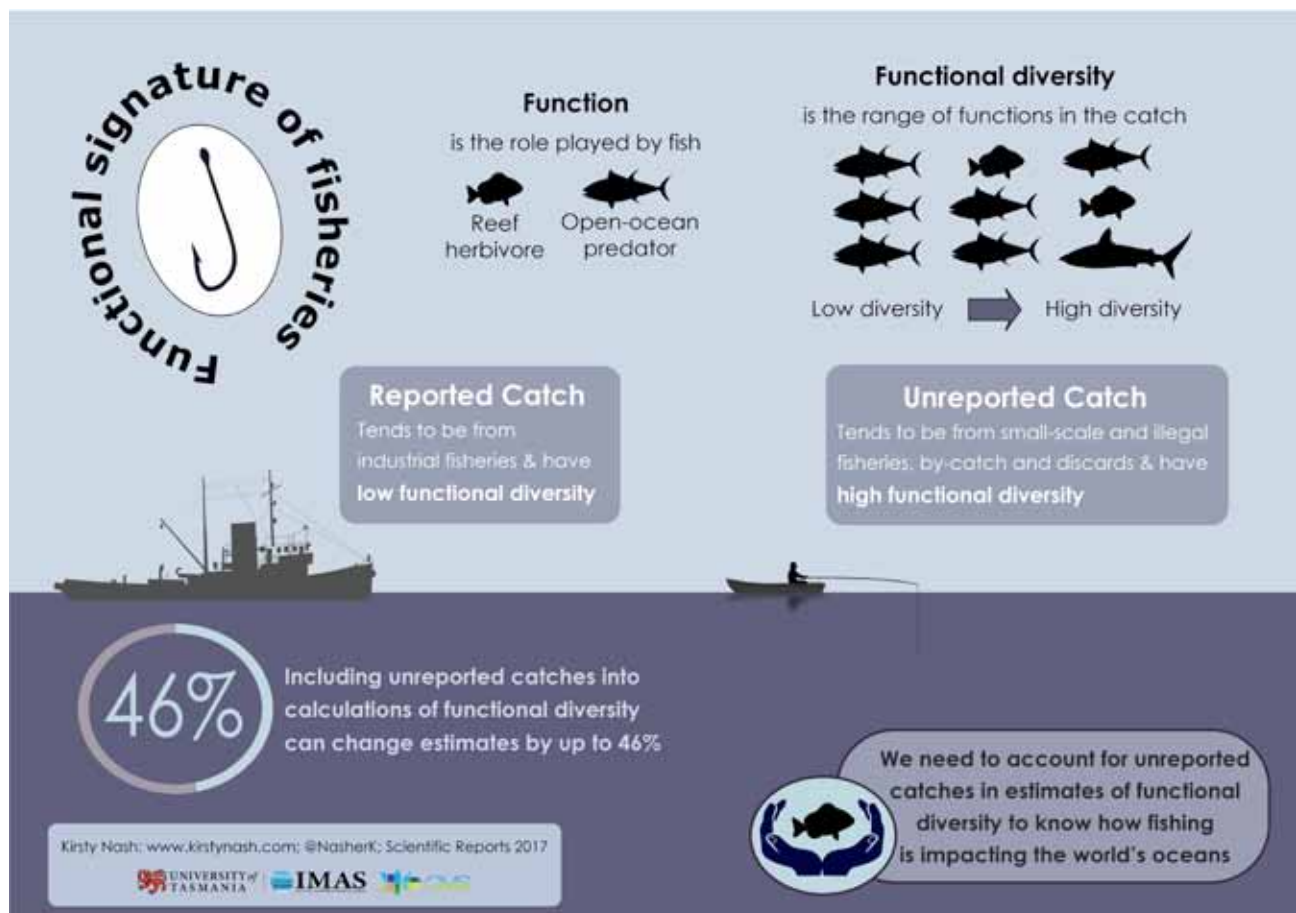


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6. **Plaganyi, EE & Fulton, EA** 2017. The Future of Modeling to Support Conservation Decisions in the Anthropocene Ocean. In: Levin, P.S. and Poe M.R. *Conservation for the Anthropocene Ocean: Interdisciplinary Science in Support of Nature and People*. Academic Press: London. 423–446.

REPORTS

1. **Condie, S**, Gorton, R, Hadley, S, **Little, R**, **MacLeod, C**, **Ogier, E**, Proctor, W, Ross, J, Sporcic, M & Wild-Allen, K 2017. Risk-based tools supporting consultation, planning and adaptive management for aquaculture and other multiple-uses of the coastal waters of southern Tasmania. FRDC Final Report (Project No. 2012/024), CSIRO, Hobart, Tasmania, Australia (April 2017)
2. **Lee, E** 2017. 'Adapting successful joint management models to cultural fisheries for good governance', Centre for Marine Socioecology, University of Tasmania, Hobart.
3. Ross, DJ & **Macleod, CM** 2017. 'Environmental Research in Macquarie Harbour: Interim Synopsis of Benthic and Water Column Conditions'. Prepared for the EPA and DPIPW (January 2017).
4. **Pecl, G** contributed to the report of the ICES/PICES Workshop on Regional climate change vulnerability assessment for the large marine ecosystems of the northern hemisphere (WKSICCME-CVA), held in Copenhagen, 19 – 22 July 2017
5. **Fulton, EA**, **Hobday, AJ**, Pethybridge, A, **Blanchard, J**, Bulman, C, Butler, I, Cheung, W, Dutra, L, Gorton, B, Hutton, T, Lozano-Montes, H, Matear, R, **Pecl, G**, **Villanueva, C**, Zhang, X. Decadal scale projection of changes in Australian fisheries stocks under climate change. FRDC 2016-139 (December 2017).
6. S.Waddell, S, & **McDonald, J**. Coastal and Marine Resources Technical Paper 4, Australian Panel of Experts on Environmental Law

AUTHORED BLOGS

Cvitanovic C. Three ways that knowledge brokers can strengthen the impact of scientific research, in *Research in Action*. <http://www.researchtoaction.org/2017/04/three-ways-knowledge-brokers-can-strengthen-impact-scientific-research/>

Marshall N & **Cvitanovic C**. Ten top tips for social scientists seeking to influence policy, in *The London School of Economics and Political Science Blog*. <http://blogs.lse.ac.uk/impactofsocialsciences/2017/03/15/ten-top-tips-for-social-scientists-seeking-to-influence-policy/>

VIDEOS

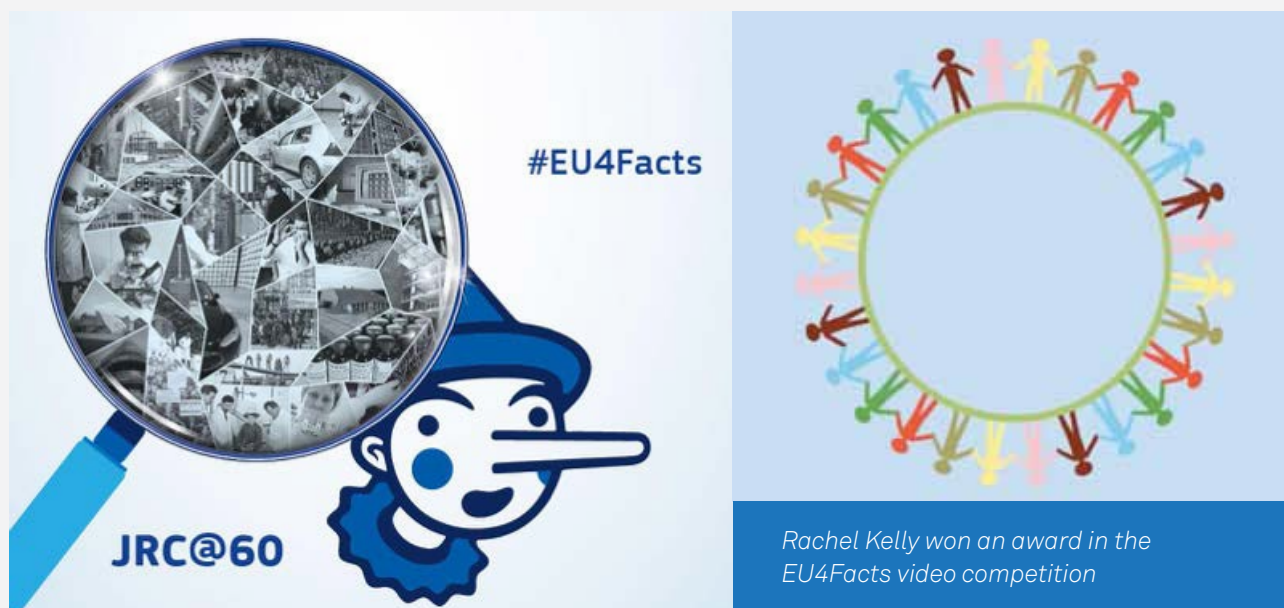
Alexander KA, winning video Homeward Bound Women in STEM for trip to Antarctica <https://www.youtube.com/watch?v=4fC6WGbmLqQ>

Cullen-Knox C. Video produced by the UTAS research division on PHD Candidate Coco Cullen-Knox and her research in conjunction with the Centre for Marine Socioecology. <https://www.youtube.com/watch?v=WNyTddfCGA0&t=6s>

Kelly R. EU4Facts video competition. https://www.youtube.com/watch?v=26rRqA2_sgU&feature=youtu.be

Nash K. Planetary boundaries for a blue planet. <https://youtu.be/9rbliLD3e6k>

Pecl G. et al Species on the move: impacts on ecosystems and human well-being. <https://www.youtube.com/watch?v=6d-3Nv2n-Xk>



OTHER OUTPUTS, WORKSHOPS AND MEDIA

Blanchard J – ABC Drive Radio interview on Nature Ecology and Evolution paper “Linked sustainability challenges for fisheries, aquaculture and agriculture” in August 2017

Blanchard J & Stuart Corney – Invited Guests on Edge Radio 1 hr programme “The 101” on “Climate change” in August 2107

Blanchard J Food, Ecosystems and the Anthropocene Workshop, December 2017

Alexander K ‘Crossing the Divide: Homeward Bound’, Women in STEM art/science exhibition. 9-13 August, Salamanca Arts Centre, Hobart.

Pecl, GT, Half of All Species Are on the Move - And We’re Feeling It, National Geographic, National Geographic Partners, LLC, Des Moines, IA 50340 United States, pp. 1-8. (2017)

Pecl, GT, Verges, A, Popova, E, and **McDonald, J**, Climate change is causing a major redistribution of life on Earth, World Economic Forum, World Economic Forum, Geneva, Switzerland (2017).

Pecl, GT, Climate change: global reshuffle of wildlife will have huge impacts on humanity, The Guardian, Guardian News and Media Limited, 19 Foster Street, Surry Hills, NSW 2010 Australia, pp. 1-4. (2017)

Macleod, C. Examiner article on onshore fish farming (25-11-17) <http://www.examiner.com.au/story/5060696/christine-milne-calls-for-onshore-fish-farming-in-tasmania/>

Lee E 2017, ‘Talking Point: Gradual approach takes us closer to a considered treaty’, Mercury, newspaper article, May 23, < <http://www.themercury.com.au/news/opinion/talking-point-gradual-approach-takes-us-closer-to-a-considered-treaty/news-story/4c74cdc40f30d49683b8766243f06755> >.

Pecl G, Verges A, Popova K, & **McDonald J**. 2017, ‘Climate-driven species on the move are changing (almost) everything’. *The Conversation*, <https://theconversation.com/climate-driven-species-on-the-move-are-changing-almost-everything-74752>

Askaroff, KS, **Blanchard, JL**, **Fulton**, EA ,de Carvalho, S, **Hobday, AJ** et al. *Welcome to the Anthropocene*, IMAS exhibition space (2017) Science-Art exhibition. Dec 7th 2017 Feb 29th 2018.

CONFERENCES AND PUBLIC PRESENTATIONS



Prof Greta Pecl and Dr Emma Lee at the World Science Festival



KEYNOTE PRESENTATIONS

Fulton B. Keynote, Mareframe, Brussels December 2017

Fulton B. Keynote, MODSIM, December 2017

Fulton B. Conasta, Hobart, July 2017

Fulton B. AMEMR, UK, July 2017

Fulton B. Fisheries Society of the British Isles, UK, July 2017

INVITED SPEAKERS

Blanchard J was invited to present at the Impacts World Conference and Inter-sectoral Impact Model inter-Comparison Project. 11-13 Oct 2017, Potsdam, Germany.

Cvitanovic C – National Environmental Social Science Forum, University of Queensland.

Cvitanovic C – Ningaloo Coast World Heritage Committee Annual Meeting, Exmouth.

Fulton B. Resilience 2017, Aug 2017, Stockholm, Sweden

Fulton B. ICCB 2017, Colombia Jul 2017 (presented remotely via video)

Lee E and Pecl G, Ocean Action, World Science Festival, 26 Mar 2017, Brisbane

Macleod C. Invited speaker at the Aquascience Meeting in Christchurch (27th July) “Managing the Environmental Impacts of Salmon Farming – What, Where, Why And How?” This presentation clearly recognised that concerns associated with fish farming are increasingly being acknowledged as covering a broader range of interactions than just ecological impacts, and that some of the most significant concerns relate to broader societal issues and expectations of sustainability. There was considerable discussion on this topic and an invite for Dr Macleod to discuss further with key stakeholders.

McDonald J. Invited speaker: Connecting Coastal Champions Forum, 23 Nov 2017, Melbourne.

Pecl G. Invited speaker at ICES/PICES expert marine climate change vulnerability assessment workshop, Jul 2017, Copenhagen, Denmark

Pecl G. Invited presentation for FAO “Climate vulnerability and cephalopods workshop”, Nov 2017, Rome (presented remotely via skype)

van Putten EI. Invited speaker, ISMFR 2017, Universitas Gadjah Mada (UGM), Yogyakarta

van Putten EI. Invited 2-day lecturer at the University of Tromso, Norway on social network and Bayesian modelling of social systems.

van Putten EI. Invited speaker at the Institute for Marine Research, Bergen, Norway on a probabilistic approach to aquaculture disease modelling.

Vince J was invited to be part of an expert panel on “what cost vanity? Commoditisation of plastics in the cosmetic and fashion industry” at the Beyond Plastic Pollution Conference, held in Sydney 30 Oct – 1 Nov 2017.

GENERAL PRESENTATIONS

Alexander KA Challenges and tensions in marine and coastal ecosystem based management: a systematic review of research into ‘sectoral interplay”. American Association of Geographers Annual Meeting, 5-9 April 2017, Boston, Massachusetts.

Audzijonyte A How to grow best in a marine community? Advances in Marine Ecosystem Modelling and Research conference, 3-6 July 2017, Plymouth, UK.

Audzijonyte A (Bayesian parameter inference and uncertainty estimation in complex ecological models. Advances in Marine Ecosystem Modelling and Research conference, 3-6 July 2017, Plymouth, UK.

Cortes Rueda L, McDonald J & Tisdell J. Operationalising the precautionary principle in developing country’s fisheries management. MARE Conference, 5-7 Jul 2017, Amsterdam, the Netherlands.

Cottrell R. Shocks to terrestrial and aquatic food production: trends, drivers and implications for food security under climate change. Impacts World Conference. 11-13 October 2017. Potsdam, Germany.

Frusher S, Penesis I & Villanueva C. Delivering Innovation in Seafood and Marine Renewable Energy Production: Tasmania Center of Excellence. Sustainable Ocean Summit, 29 Nov - 1 Dec 2017, Halifax, Canada.

Frusher S. Preparing emerging researchers to meet the UN SDG14. Sustainable Ocean Summit, 29 Nov - 1 Dec 2017, Halifax, Canada.



Sydney Fish Market

Jo Vince at the International Conference on Public Policy in Singapore

Frusher S. Enhancing marine production through innovation – developing a sustainable blue Economy. Seafood directions, 27-29 Sep 2017, Sydney

Kelly R. Social Licence in the Marine Realm. MARE Conference, 5-7 Jul 2017, Amsterdam, the Netherlands.

Kelly R (poster) Social Licence for Marine Protection and Management Through Marine Citizen Science in Europe. iDiv Conference, Leipzig 2017, Germany

Lee E. paper presentation and acting as panel chair for two sessions at the 9th International Social Innovation Research Conference, 12-14 Dec 2017, Swinburne University of Technology, Melbourne

Lee E. Cultural safety and the protection of Indigenous women: lessons learnt from Basque fisheries, Critical Tourism Studies VIIth, 25-29 Jun 2017, Mallorca, Spain.

Macleod C, Ogier E, Lai YZ. Incorporating community concerns into decision-support tools for environmental management of finfish aquaculture. How can social science better guide environmental decision makers? AMSA Australian Marine Science Conference, 2-6 Jun 2017, Darwin

Macleod C & Ross DJ. - Broadscale Environmental Monitoring – What is it? Who does it? How does it fit in to Marine and Coastal Management? and Can we do better? AMSA Australian Marine Science Conference, 2-6 Jun 2017, Darwin

Davey A, Ross DJ, **Macleod C,** Coughanowr C, Strain E. World Harbours Project: Eco-engineering for biodiversity – preliminary observations and lessons learnt from Hobart Harbour. AMSA Australian Marine Science Conference, 2-6 Jun 2017, Darwin

McDonald J, Cortes Rueda L & Tisdell J. 25 years of precaution in fisheries management: what have we learned?. MARE Conference, 5-7 Jul 2017, Amsterdam, the Netherlands.

Pecl, GT & the Redmap Australia Team, Redmap Australia: a case study in large-scale approaches to climate change communication and ecological monitoring through 'opportunistic' citizen science, World Symposium on Climate Change Communication, 22-24 February 2017, Manchester, United Kingdom (2017)

Smith D. Planning, negotiating and establishing MPAs in ABNJ: Lessons from two regimes in the Southern Ocean and the North-East Atlantic region. 4th International Marine Protected Areas Congress, 4-8 Sep 2017, Chile,

Spanou E The valuation of Tasmanian coastal and marine sites through the study of real-time visitor GPS location data. World Conference on Natural Resource Modeling, 6-9 Jun 2017, Barcelona, Spain

Vince J & Haward M participated in the International Conference on Public Policy at the National University of Singapore in 27-30 Jun 2017. Joanna chaired a session titled “Non-state Actors and the Governance of Supply Chains”.

van Putten I Great Australian Bight Trawl fishery discards, Fisheries forum, Hobart.



PUBLIC PRESENTATIONS

Blanchard JL, Fulton EA, Hobday AJ. “Welcome to the Anthropocene” Public Science-Art Lectures. IMAS. Dec. 7th, 2017

Frusher S & Pecl GT, invited speakers Royal Society of Tasmania public seminar series, July 2017

Macleod C, Hurd C & Alexander KA. Integrated Multi-Trophic Aquaculture (IMTA): What is it & how does it work? Tuesday 8th August. Aurora Lecture Theatre, IMAS Waterfront

Pecl G. Derwent Sailing Squadron, Sandy Bay, Marine Climate Change, Nov 2017

Pecl G Parliament House, Gender Equity in Science (Homeward Bound Fundraiser), Nov 2017

Pecl G UTAS Science Faculty Breakfast address for International Women’s Day

Vince J ‘Twenty years later: lessons for governance from Australia’s Oceans Policy process’ IMAS HASSL seminar

COMMITTEES, WORKING GROUPS AND NETWORKS

Blanchard J and **Nash K** NCEAS Working Group on “Environmental Impact and Sustainability of Global Food Systems”.

Lee E. Tasmanian Research Advisory Committee, Fisheries Research & Development Corporation, member February 2017

Lee E. UTAS Strategic Plan for Aboriginal Engagement (SPA) Steering Committee

Lee E. ICCA Consortium, Policy and Programme Committee chair, Honorary member since 2015



Pecl G and **Fulton B.** Scientific Steering Committee Effect of Climate Change on the World's Oceans, Washington 2018

Pecl G and **van Putten I.** Research Advisory Board of the €5.58 million 'Climate change and European Aquatic Resources', one of the first Horizon 2020 Blue Growth Projects

Pecl G. National Marine NRM Expert Advisory Group OceanWatch

Uffman-Kirsch L. Member, Earth System Governance Taskforce on Ocean Governance

van Putten EI. Scientific Steering Committee member for the Sustainable Seas National Science Challenge, New Zealand.

van Putten EI. and **Hobday AJ** Scientific Steering Committee Member of the Integrated Marine Biogeochemistry and Ecosystem Research (IMBER) project and **Chris Cvitanovic** was appointed as the Early Career Representative. Ingrid is also Chair of the IMBER Human Dimensions Working Group (HDWG)



Integrated Marine Biosphere Research





CLOCKWISE FROM TOP LEFT Emma Lee in Tsukuba, Japan; Emma Lee in Vilm, Germany; Gretta Pecl and Ingrid van Putten in Lima, Peru

INVITATIONS

Audzijonyte A, invitation to attend a workshop on methods to identify functional groups in ecosystem models and give a department seminar at Macquarie University

Blanchard J was invited to a workshop on food web ecology in Tromsø Norway, which was attended by her PhD student Stacey McCormack, Nov 11-14th, 2017

Lee E was one of 16 global Invited Indigenous and local participants for the Capacity Building Workshop on Nature-Culture Linkages in Heritage Conservation in Asia Pacific, Sacred Landscapes, as part of the inaugural work of UNESCO Chair, Professor Masahito Yoshida, Nature-Culture Linkages in Heritage Conservation, University of Tsukuba, Tsukuba, Japan, September 2017.

Lee E was an Invited participant to Vilm, Germany, as part of a workshop on behalf of the IUCN's World Commission on Protected Areas (WCPA) Specialist Group on Cultural and Spiritual Values of Protected Areas to develop Best Practice Guidelines (BPG), June 2017.

Macleod C, invited presentation at World Harbours Project participant meeting in Xiamen, China from 24-28th Sept 2017. Provided an

overview of issues in Hobart harbour and the Derwent Estuary, which included the need for multiple-use management and planning with a more holistic understanding.

Pecl G & van Putten I were invited to teach the APEC "International Workshop on ecological risk assessment of impacts of climate change on fisheries and aquaculture resources" in Lima, Peru, 27-27 Oct 2017 attended by 40 people from 10 countries and funded by APEC.

van Putten EI, Co-convening workshop on Management Strategy Evaluation at IMBIZO conference in Woodshole, USA, October 2017

Vince J was invited by the Faculty of Political Science, University of Zagreb and Lee Kuan Yew School of Public Policy, National University of Singapore to a fully funded international workshop on The Governance of Collaboration: Co-Production, Contracting, Commissioning and Certification. The workshop was held at the Centre for Advanced Academic Studies in Dubrovnik, Croatia on the 20-22 August. Joanna's paper was titled "Collaboration in private-social partnerships: the case of third party certification in aquaculture."

GRANTS AND SCHOLARSHIPS

GRANTED

- **Cvitanovic C** – Understanding the utility of boundary organisations at linking science to policy: the case of the Baltic Eye - \$26,810 funding from the Baltic Sea Centre, Stockholm University.
- **Kelly R, Flemming A and Pecl GT.** NSW Recreational Fish Trust grant “Can citizen science help build social license for the recreational fishing sector?” \$9,930 (student project)
- **Lee E.** Marine, Antarctic and Maritime Research Theme, University of Tasmania, STEM-HASS Seed Grant. AUD\$3,500
- **Lee E.** Fisheries Research & Development Corporation grant, 2017-2019: ‘Wave to Plate’: Establishing a market for Tasmanian cultural fisheries. \$255,000
- **Lee E.** UTAS Aboriginal Career Development Scholarships to travel to Japan and work with researcher from the University of Tokyo. \$5,000
- **Lee E.** UTAS Aboriginal Career Development Scholarships to attend to the 9th International Social Innovation Research Conference in Melbourne. \$5,000

- **Ogier E.** Project agreement signed with FRDC for 2016-138 Human Dimensions Research Subprogram. \$350,867. This project will run until 2020.
- **Tracey S, Pecl G.** Biology and ecology of southern calamari on the north coast of Tasmania, FRDC. \$416,351
- **Pecl G.** Career Development Scholarship to organise a leadership course for 18 IMAS women from across the three geographical footprints, three Centres, all career stages and from academic and professional streams. \$10,000
- **Vince J,** “Stemming the Plastic Tide: An Evaluation of Land-Based Management” CALE Hothouse Grant \$8,555
- CSIRO Research-Plus PhD scholarship (**Eva Plaganyi** and **Beth Fulton** to supervise) on Advancing MICE – Models of Intermediate Complexity for Ecosystem Assessments
- Cameron DD & **Blanchard J.** The environmental impacts of linked marine and terrestrial food production. UK Royal Society International Exchange Grant. \$19,000
- **Blanchard J, Nash K & Frusher S** recieved an IMAS research enhancement programme funds for a transdisciplinary workshop on “The Limits of Life: Food, Ecosystems and the Anthropocene” \$3,000, Dec 15th, 2017
- **Fulton B, Blanchard J, Pecl GT,** Berkhout J, **Villanueva C, Hobday A,** Cheung W. Decadal scale projection of changes in Australian fisheries stocks under climate change, FRDC. \$140,800

APPLICATION FOR ARC INDUSTRIAL TRAINING CENTRE SUBMITTED

Macleod, C, Haward, M, Gillanders, B, **Lester, E, Fulton, E,** Eccleston, R, **Vince, J, Fleming, A, Pascoe, S, Little, L, Ogier, E,** Nursey-Bray, M, Gardner, C, Rayns, N, Tinch, D, Maynard, D, **McDonald, J, Hobday, A,** Gallagher, S, **van Putten, I,** Sams, L, **Smith, D, Pecl, G, Condie, S,** Woods,

G, Izzo, C, Ward, T, Boag, S, Pyke, C. submitted an application for an ARC Training Centre for Aquaculture, Fisheries and the Blue Economy. The aim of this Centre is to build an economically thriving blue economy: one that meets community expectations, optimises governance and engagement strategies, and ultimately makes good decisions. This training centre aims to transform decision making, management and regulatory processes for fisheries and aquaculture in Southern Australia, and for marine industries more broadly. The Centre research will support sustainable development in our coastal waters by providing:

- i) approaches to more effectively engage stakeholders and to more appropriately account for the diversity of stakeholder interests and expectations,
- ii) information that is more easily accessible and linked to decision support tools that allow for better assessment of potential risks and interactions, and
- iii) improved governance structures.

Collectively, these outputs will increase trust in decision making and legitimise our marine industries, by increasing the capacity of industry and government to demonstrate sustainable management of Australia’s marine estate. The Centre will provide industry and government with practical strategies and tools to ensure evidence-based decision making, as well as graduates trained both in how to use these approaches and how to apply them effectively in the real world. Developing the related communication tools, information systems and strategies to define risk will require new knowledge. Ensuring minimal conflict and maximum support for the development of Australia’s blue economy will require complementary understanding of both the biophysical (e.g. resources, habitat, oceans) and the human (e.g. values, rules, trade-offs) systems. As such the research, post-docs and students from the Centre will be fundamentally aligned with the CMS.

AWARDS AND PRIZES



1. **Fulton B.** 2017 – Biennial medallist (and fellow) of the Modelling and Simulation Society of Australia and New Zealand

2. **Pecl G.** and the Redmap Team – Best paper at the World Symposium on Climate Change Communication. Manchester, UK 2017

3. **Pecl G, Blanchard J, Jennings S, McDonald J, Villanueva C,** McCormack P, Falconi L, Janion-Scheepers C, Martin V, Mitchell N, Robinson S, Shaw J, Strugnell J & Verges A. Thinkable 2017 Peer Prize for Women in Science with the entry “Biodiversity redistribution under climate change: Impacts on ecosystems and human well-being”, \$20,000

4. **Pecl G** and the Redmap team, finalist in 2017 Eureka Awards

5. **Alexander KA.** Homeward Bound program

6. **Kelly, R.** Best video Award at the EU4Facts video and posters competition

7. **Kelly, R.** Best Student Paper Award at the MARE Conference 2017, the Netherlands

8. **Kelly, R.** The IMAS prize for the PhD project with the best social impact (\$250), for the publication ‘Social licence in the marine sector: A review of social understanding and application’ Marine Policy 81:21-28.

9. **Fleming A.** Accepted membership to the Global Young Academy

10. **Frusher S.** Vice-Chancellor’s Distinguished Service Medal, University of Tasmania

11. **Fogarty H.** Second place in Peer Prize for Climate with the entry: Using observations of fish outside their usual distribution as early indicators of climate-driven range shifts

12. **Blanchard J** was awarded Swedish University of Agricultural Sciences August T Larssons Visiting Professorship for 2018/2019

13. **Emma Lee,** Shortlisted for CSIRO Indigenous STEM Awards – STEM Professional Career Achievement Award



PhD candidate Rachel Kelly receiving award at MARE Conference

VISITORS



CLOCKWISE FROM TOP LEFT

DR ROBERT STEPHENSON from St. Andrews Biological Station, Canada

DR SARA HORNBERG from the Research Institutes of Sweden is in a 1 year visiting postdoc fellowship at IMAS and CSIRO.

DR AOI SUGIMOTO from the Laboratory of Global Fisheries Science, Department of Global Agricultural Sciences, Graduate School of Agricultural and Life Sciences, University of Tokyo spent 6 months working with CMS researchers.

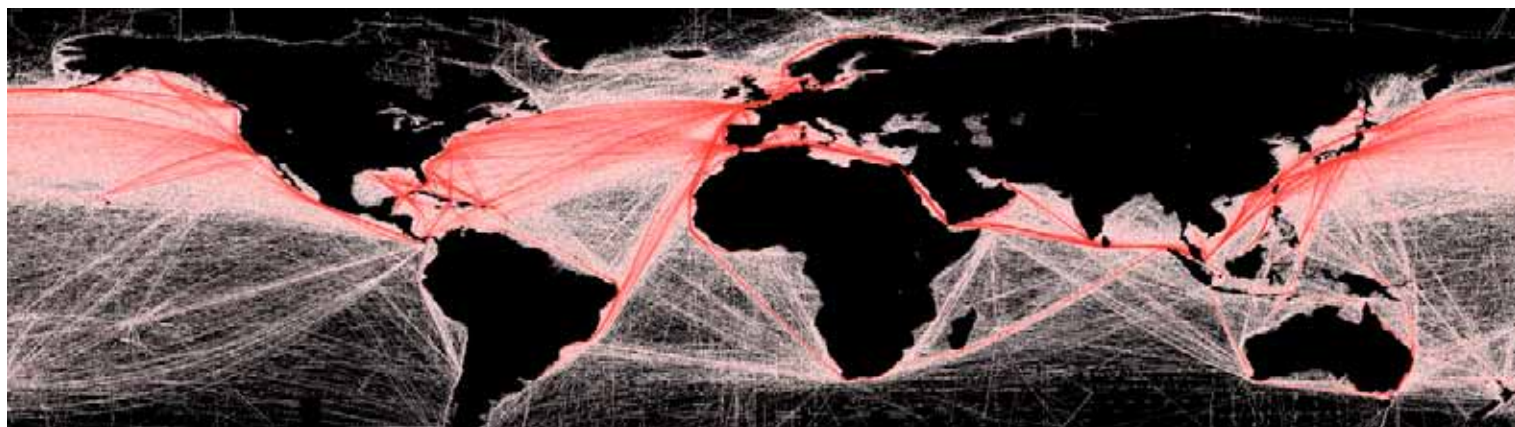
PROFESSOR PETER STOETT Concordia/UOIT Universities from Canada spent some of his time at IMAS and presented a seminar for CMS.

PROFESSOR DUNCAN CAMERON Director of the P³ Centre of Excellence for Translational Plant Science at the University of Sheffield visited to develop a research grant with J Blanchard, which was successful and will lead to a 2-year international exchange.

PROFESSOR BEN HALPERN, Director of the National Center for Ecological Analysis and Synthesis (NCEAS) and chair at University California Santa Barbara and Imperial College London was funded through the UTAS Visiting Fellows Scheme with funds from CMS and IMAS. His visit enabled long-term continued collaborations with CMS researchers including funding for Blanchard J and Nash K to be involved in an NCEAS Working Group on “Environmental Impact and Sustainability of Global Food Systems”.

CAREER DEVELOPMENT FOR CMS STUDENTS AND RESEARCHERS

- Media training session with Andrew Rhodes from the IMAS Marketing team
- Mapping tools and Spatial Data session with Cecilia Villanueva
- Career paths session with Robert Stephenson, a visiting scientist from St. Andrews Biological Station in Canada
- Gretta Pecl hosted a 3 day writing (drafting a collaborative paper) and 'soft-skills' (eg mentoring, networking, social media, career development etc) workshop on Bruny Island for 10 of students and several research fellows
- Several CMS women attended a leadership course, organised by Gretta Pecl and funded by a IMAS Career Development Scholarship
- Julia Blanchard hosted three early career researchers (Dr Jon Reum NOAA/University of Washington; PhD student Phoebe Woodworth-Jefcoats NOAA/University of Hawai'i; Dr Mariella Canales) to help and guide development of size-based ecosystems models, and build capacity for tools in support of ecosystem approaches.



NEW PHD STUDENTS

CANDIDATE	SUPERVISORS	PROJECT	FUNDING SOURCE	FACULTY/ INSTITUTE
Mohammad Khodajouei	Catriona MacLeod Scott Condie Roger Proctor Andy Fischer	Enhancing Decision Making in a Multi-Use Management Environment by Capitalising on Available Information: Linking data sources through GIS to provide meaningful decision support outputs	UTAS Scholarship	IMAS/CSIRO, CMS
Hannah Fogarty	Gretta Pecl Alistair Hobday Chris Cvitanovic	Climate ready: identifying opportunities for adaptation in Australia's state fisheries management	APA Scholarship	IMAS, CMS
Bianca Haas	Marcus Haward Jeffrey McGee Aysha Fleming	Connection between international agreements (e.g. SDGs) and Fishery bodies	UTAS Scholarship	IMAS/CSIRO/ CMS
Kathryn Willis	Joanna Vince Britta Denise Hardesty Chris Wilcox Marcus Haward	The effectiveness of investments in waste abatement facilities, policies and outreach programs in reducing input of waste into the environment	NESP Marine Biodiversity Hub and APA Scholarship	School of Social Sciences, College of Arts and Law/ CSIRO/ CMS
Lynna Cortes Rueda	Jan McDonald John Tisdell	Implementation of the precautionary principle in fisheries management in developing countries: a case for differentiation	Tasmania Graduate Research Scholarship	College of Arts and Law/CMS
Cloe Cummings	Mary-Anne Lea Mark Hindell Rachael Alderman Karen Alexander	Top predators and feeding people from the ocean: natural behaviour, habitation, and the foraging ecology of fur seals in Tasmania	APA Scholarship	IMAS and CMS



WHAT'S NEXT FOR CMS?

2018 is already shaping up to be an exciting year for CMS...

- **Jan McDonald** & **Jeff McGee** will be hosting the Asia-Pacific Workshop on International Law, Climate Change, Oceans and Coasts in February 2018 at the Faculty of Law and IMAS. The workshop will bring together researchers from across the Asia Pacific to explore how the impacts of climate change may affect ocean and coastal law and governance; and the implications of international mitigation commitments for marine or coastal governance.

- **Professor Frusher** together with a committed team is working on a Cooperative Research Centre bid “Delivering innovation in sustainable seafood and renewable energy production for a marine nation”. The launching point for the Blue Economy CRC is to build on Australia’s existing strengths in seafood production, renewable energy and offshore engineering. The integration of these three elements as research priorities is highly strategic and fundamental to the future of the blue economy as they are naturally synergistic and provide the opportunity for businesses in these sectors to share critical support infrastructure and ‘problem-solve’ together, delivering clear productivity and operational cost benefits based on an ‘industrial ecology’ approach. More information is available here about this exciting initiative: www.blueeconomycrc.org.au



- **Chris Cvitanovic** is convening a workshop to help EU-based early career researchers to develop skills to be more effective at the science-policy-society interface to be held in Croatia.
- **Chris Cvitanovic** (convenor), **Ingrid van Putten** and **Beth Fulton** will be lecturers at the ClimEco6 summer school (1-8 August) in Yogyakarta, Indonesia which will focus on “Interdisciplinary approaches to achieving ocean sustainability for societal benefit”
- **Elisavet Spanou** will be working on community outreach and information sessions about her participatory mapping study around Tasmania.

- **Emma Lee** is hosting an Indigenous Fisheries Workshop to bring together Australian and Tasmanian Governments, Aboriginal Tasmanians, non-government organisations and fishery interests to investigate opportunities for regional development towards cultural fisheries. The Workshop is to be opened by the Governor of Tasmania who has been integral in delivering constitutional recognition of Aboriginal Tasmanians.

PLANNED INTERNATIONAL VISITORS

ROB STEPHENSON from the St. Andrews Biological Station, Canada

THE INTEGRATED MARINE BIOSPHERE RESEARCH (IMBER) SCIENTIFIC STEERING COMMITTEE meeting hosted by **Ingrid van Putten** and **Alistair Hobday** will be held at CSIRO Hobart 17-19 Apr 2018. As part of the meeting there will be scientific symposium on global marine science with presentations from CMS students and research fellows, and IMBeR International members

Ingrid van Putten and **Beth Fulton** will be hosting a visiting PhD student in February-March - Kim Scherrer (based at Institut de Ciències i Tecnologia Ambientals, Universitat Autònoma de Barcelona) who is working with Eric Galbraith (at ICREA) on integrating the human dimensions into our Earth system model of the global fishery.

Ingrid van Putten will be hosting a visiting fellow from Brazil – Heloisa Dantas who was awarded a Endeavour Research Fellowship to do a short term research project and will be working on value chain mapping and network analysis on acai palm berry trade from Brazil.



KEYNOTES, PLENARIES AND INVITED TALKS:

COAST TO COAST 2018: MEETING ON THE MARGIN CONFERENCE, Hobart, Apr 2018, <http://coasttocoast2018.org/> (**Lisa Uffman-Kirsch**)

ICES ANNUAL SCIENCE CONFERENCE, Hamburg, Sep 2018, <http://ices.dk/news-and-events/asc/ASC2017/Pages/ASC-2018.aspx> (**Ingrid van Putten** Keynote speaker)

WORLD SOCIAL SCIENCE FORUM 2018, Fukuoka, Japan, Sep 2018 (**Marcus Haward** and **Beth Fulton**)

THE EFFECTS OF CLIMATE CHANGE ON THE WORLD'S OCEANS, Washington, Jun 2018. <http://meetings.pices.int/meetings/international/2018/climate-change/scope> (**Alistair Hobday**)

CONSERVATION SCIENCE, POLICY, AND PRACTICE: CONNECTING THE URBAN TO THE WILD CONFERENCE; NORTH AMERICAN CONGRESS FOR CONSERVATION BIOLOGY, Toronto, Jul 2018, invited interactive session facilitation <http://scbnorthamerica.org/index.php/naccb2018/> (**Lisa Uffman-Kirsch**)

BETTER LAWS FOR A BETTER PLANET SYMPOSIUM, March 2018 (**Jan McDonald**)

Gretta Pecl, our new Director has a host of keynote, plenary and invited talks lined up including:

- **ESTUARINE AND COASTAL SCIENCES ASSOCIATION CONFERENCE**, Perth, Sep 2018, <http://www.estuarinecoastalconference.com/>
- **AUSTRALIAN MARINE SCIENCE ASSOCIATION**, Adelaide, Jul 2018, <http://amsa18.amsa.asn.au/>
- **THE EFFECTS OF CLIMATE CHANGE ON THE WORLD'S OCEANS**, Washington, Jun 2018. <http://meetings.pices.int/meetings/international/2018/climate-change/scope>
- **ACADEMY OF SCIENCE'S 2018 BODEN RESEARCH CONFERENCE**, Canberra, May 2018





CET06 Wave Energy Converter, Carnegie Wave Energy



VISION A WORLD-LEADING CENTRE TO SUPPORT INFORMED AND SUSTAINABLE MANAGEMENT OF MULTIPLE-USES IN MARINE AND COASTAL SYSTEMS

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