



# Reimagining Reef Futures

**STORIES OF CREATIVITY,  
COOPERATION, AND COURAGE**

4th Annual Symposium of the Social Science  
Community for the Great Barrier Reef

11-13th September 2024 • Gold Coast, QLD

## Program



## 2024 organising committee

Cindy Huchery	Great Barrier Reef Marine Park Authority (The Reef Authority)
Michelle Dyer	<i>Chair and Convener of the Social Science Community for the Great Barrier Reef</i>
Marcia Smallwood	
Lincoln Bertoli	
Kerrie Foxwell-Norton	Griffith University (GU)
Anne Leitch	<i>Host of the 2024 Symposium</i>
Charu Maini	
Sara Hicks	Griffith University and Gecko Environment Council (GECKO)
Matt Curnock	Commonwealth Scientific & Industrial Research Organisation (CSIRO)
Katerina Kanakis	Office of the Great Barrier Reef & World Heritage (OGBRWH), Queensland
Megan Bickle	Department of Environment Science & Innovation (DESI)
Sofia Mora Restrepo	
Tracy Schultz	University of Queensland (UQ)
Lisa Baier	Department of Climate Change, Energy, the Environment and Water (DCCEEW)
Jacqui Lau	James Cook University (JCU)
Libby Evans-Illidge	Australian Institute of Marine Science (AIMS)
Graham Hemson	Queensland Parks & Wildlife Service (QPWS), Queensland Department of Environment Science & Innovation (DESI)
Marisha Ewart	Southern Cross University (SCU)
Laura Dunstan	Great Barrier Reef Foundation (GBRF)
Julius Kotir	Queensland Department of Agriculture & Fisheries (DAF)
Previous members who have since left	
Sharleen Gesah	Great Barrier Reef Marine Park Authority (The Reef Authority)
Nikki Lyons	
Lisa McComb	Department of Climate Change, Energy, the Environment and Water (DCCEEW)

# Reimagining Reef Futures

STORIES OF CREATIVITY, COOPERATION, AND COURAGE

## Program at a glance

**Wednesday 11 September, 2024**

**Welcome Reception and Field Trip  
SWELL Sculpture Festival, Currumbin Beachfront**

2.00 pm – 8.00 pm

2.00pm	<p><b>Complimentary bus</b> Departs Pacific Fair Shopping Centre Visitors Lounge for SWELL Sculpture Festival</p>
3.00pm–5.00pm	<p><b>SWELL Curated Walk</b> Meet at SWELL Smalls Gallery/VIKA Nippers Currumbin Beach (SLSC end, 766 Pacific Pde, Currumbin)</p> <p>Join us for a walk through SWELL Sculpture Festival, an annual public art extravaganza held on Currumbin beachfront. SWELL artists will guide us to sculptures inspired by reefs, oceans and marine environments. This years' SSCR fieldtrip to SWELL is a wonderful opportunity to engage with the creative arts to inspire our own creativity and be inspired by others. Following the SWELL curated walk, SSCR attendees can purchase dinner and drinks at the SWELL Fringe Pavillion (Wallace Nicoll Park).</p>
6.00pm–8.00pm	<p><b>Welcome Reception and Altered Tides</b> Meet at Wallace Nicoll Park, Paperbark Pavillion, Currumbin Beach</p> <p>Our official Welcome Reception will kickstart the SSCR Symposium. A special event, '<i>Altered Tides: Diving Hidden Worlds</i>' will feature a keynote address from The Reef Authority Assistant Social Science Director Dr Michelle Dyer, followed by a panel discussion and a series of short films.</p> <p>Altered Tides MC: <i>Kerrie Foxwell-Norton, Griffith University</i></p> <p>Keynote Presentation: <i>Michelle Dyer, Great Barrier Reef Marine Park Authority</i></p> <p>Panel Chair: <i>Sara Hicks, GECKO Campaign Coordinator and Griffith University Industry PhD Candidate</i></p> <p>Panellists: <i>Yolanda Waters, Divers for Climate</i> <i>Sarah Jantos, Green Heroes</i> <i>Glenn Barry, Traditional Custodian, SWELL Board member</i> <i>Matthew Curnock, Environmental/social scientist, CSIRO</i> <i>SWELL artist</i></p> <p>Filmmaker: <i>Mr Salvador Cantellano, Salvador Films and Griffith University Phd Candidate</i></p> <p>These events are a collaboration between SSCR, SWELL Sculpture Festival, Griffith University and the Gold Coast and Hinterland Environmental Council (GECKO).</p>

# Thursday 12 September, 2024

Griffith University, Gold Coast Campus

8.00 am	Registration opens	
8.30 am	Welcome from the Social Science Community for the Reef and housekeeping	UNIBAR FUNCTION ROOM
8.35 am	Welcome to Country	UNIBAR FUNCTION ROOM
8.45 am	<b>Keynote: What GBR decision makers want: a reflection on how human dimensions knowledge currently informs GBR decision making, and how it could...</b> <i>Anthea Coggan (CSIRO)</i>	UNIBAR FUNCTION ROOM
9.15 am	<b>Keynote: Yarra yadaba: A case study of cross-cultural connection and 2-way learning in reef research</b> <i>Harry van Issum, Woppaburra TUMRA Aboriginal Corporation and Griffith University; Meaghan Cummins, Woppaburra TUMRA Aboriginal Corporation; Josh Morris, Woppaburra Aboriginal Corporation; and Libby Evans-Illidge, Australian Institute of Marine Science.</i>	UNIBAR FUNCTION ROOM
10.00 am	MORNING TEA	
10.30 am	<b>Session 1.1: Courageous provocations and other types of daring</b>	UNIBAR FUNCTION ROOM
	The Reef Joint Field Management Program; an end user of social science? An icebreaker	<i>Callum Teale-Brown, Isabel Ender and Jason Williams (Reef Joint Field Management Program)</i>
	Equity in coral reef conservation: the relative role of procedural equity criteria in the perceived fairness of decision-making	<i>Melissa Hampton-Smith (JCU)</i>
	Do the Australian public support intervention to protect, restore, and accelerate adaptation to climate change in the Great Barrier Reef?	<i>Stewart Lockie (The Cairns Institute, JCU)</i>
	Redefining social licence for coral reef protection and management	<i>Ingrid Naschwitz (JCU)</i>
	Understanding emotional responses to climate change in the Great Barrier Reef	<i>Claudia Benham (UQ)</i>
	Understanding morality to reimagine reef futures	<i>Jacqueline Lau (JCU)</i>
	How do local families and children feel about the changing Reef? Psycho-social analysis of local households based on experiences and emotions	<i>Sharlene Fechter (UQ)</i>
	Q&A	
	Lessons from a decade of human dimension monitoring in the Great Barrier Reef	<i>Matt Curnock (CSIRO)</i>
	Public perceptions of mangroves and their restoration in the Great Barrier Reef catchment area	<i>Alexandra Rodriguez (Deakin University)</i>
	Collaborative innovation processes are critical to overcoming landholder distrust of management practices to improve reef water quality	<i>Roy Murray-Prior (Agribiz RD&amp;E Services)</i>
	Relationships built on trust and understanding for the well-being of Reef communities	<i>Megan Willis (Department of Agriculture and Fisheries)</i>
	Monitoring the governance system underpinning the development and implementation of the Reef 2050 Plan: A framework for monitoring reef governance health	<i>Diletta Luna Calibeo (QUT)</i>
	Q&A	

10.30 am	<b>Session 1.2: The cooperation component</b>	G.07 DRAMA THEATRE
	Bringing to life the stories of agricultural producers enacting change for the Reef	<i>Meg Bickle, Sofia Mora-Restrepo (DESI)</i>
	Understanding Social Dynamics in Sustainable Farming: Adoption Narratives from Sugarcane Growers in the GBR	<i>Angela Guerrero (QUT)</i>
	Community engagement for novel ecosystem restoration and assisted adaptation: observations and lessons from the Australian Reef Restoration and Adaptation Program	<i>Rachel Eberhard (Eberhard Consulting)</i>
	Q&A	
	Yadaba - Respectful Relationships and building Relationships with Darumbal Country: Developing approaches for Crown of Thorns Starfish (COTS) research and management practice	<i>Vincent Backhaus (The Cairns Institute, JCU) and Malcolm Mann (Darumbal Enterprises Pty Ltd)</i>
	Collaborating for Reef Futures: Enhancing stewardship of Australia's great reef ecosystems	<i>Emma Church (University of Tasmania)</i>
	What can I do? Applying behavioural science approaches to support community engagement in climate change mitigation activities	<i>Diana Kleine (Coral Watch), Karen Johnson (Coral Watch)</i>
	Co-Designing Community-Driven Strategies for Reducing Light Pollution in Queensland Coastal Areas	<i>Bo Pang (Swinburne University of Technology), Sameer Deshpande (Griffith University), Kate Hofmeister (Sunshine Coast Council)</i>
	Q&A	
12.30 pm	LUNCH	
1.30 pm	<b>News of the Great Barrier Reef: Media Expert Panel discussion</b>	UNIBAR FUNCTION ROOM
	<i>Chaired by Kerrie Foxwell-Norton. Graham Readfearn (The Guardian), Sean Kennedy (Climate Media Centre), Claire Konkes (University of Tasmania), Max Newlands (Australian Academy of Science) and Karen Paterson, (National Indigenous Radio Service, First Nations Media Australia)</i>	
2.30 pm	AFTERNOON TEA	
3.00 pm	<b>Session 2.1: Ink to write the next chapter</b>	G.07 DRAMA THEATRE
	Entwining Women and the Great Barrier Reef: Stories of the Past, Prospects for the Future	<i>Kerrie Foxwell-Norton (Griffith University), Deb Anderson (Monash University), Alison Rickert (Griffith University)</i>
	One shock, many stories: Narrating and navigating social-ecological system futures after an extreme climate event	<i>Amber Datta (Arizona State University)</i>
	Co-creating future scenarios with Traditional Custodians in the Great Barrier Reef	<i>Jess Choek (CSIRO)</i>
	Rights and Restoration: examining power and equity in agreement-making frameworks to advance stewardship of the Great Barrier Reef Sea Country	<i>Danielle (Dani) Nembhard (The Cairns Institute, JCU)</i>
	Q&A	
	Green lawfare on the Reef: The strategic use of law in GBR communication	<i>Claire Konkes (University of Tasmania)</i>
	Policies and legislation for Resilience-Based Management (RBM)	<i>Liza Rolim Baggio (UQ)</i>
	Big (data), bold (approaches), and beautiful (networks): Introducing a new methodological pipeline to understand GBR communicative dynamics	<i>Carly Lubicz-Zaorski (QUT)</i>
	Ocean ID. The transformative potential of AI in Biodiversity Conservation.	<i>Sarah Jantos (Green Heroes)</i>
	Creatively connecting to the Reef through VR gaming - an affair of the heart	<i>Alexandra Coghlan (Griffith University)</i>

AR Reef: Exploring the impact of augmented reality on ocean identity and human connections to the Great Barrier Reef in the digital era *Melusine Martin, (Sorbonne Université/JCU)*

Q&A

3.00 pm

**Session 2.2: The gallery of frames**

UNIBAR FUNCTION ROOM

Cultivating capitals: A framework for understanding social relations with the Great Barrier Reef *Gillian Paxton (The Cairns Institute, JCU)*

Integrating Socio-Economic Information for Effective Management of the Great Barrier Reef: Insights from an Ecosystem Service Value Chain Framework *Jeremy De Valck (CQU)*

Holistically managing the values of the Great Barrier Reef: Lessons learned from applying the Whole-of-System, Values-Based Framework *Rachel L Miller (DESI)*

A study of ecosystem service provision in tropical marine environments and its connection to habitat types in the Great Barrier Reef Marine Park *Mark Asher Ford-Learner (JCU)*

Assessing values for Nature-based Solutions in the Great Barrier Reef: an Environmental Economics approach *Rodrigo Zilleruelo (CQU)*

Drivers of willingness to pay among scuba divers in the Great Barrier Reef *Alessia Costa (JCU)*

Q&A

Spatially-integrated social insights to inform Marine Park planning *Vicki Martin (Mosaic Insights)*

A more complete picture of river health: Understanding the human dimensions of waterway health in the Fitzroy Basin *Myfina Healy (Fitzroy Partnership for River Health)*

Why did they break rules, and what should we do about it? - Understanding Marine Park compliance and integrating insights into management *Catherine Moltzen (University of New England)*

Developing and implementing the PROTECT platform for monitoring Reef stewardship *Tracy Schultz (UQ)*

Predictors of marine stewardship behaviour among residents of the Great Barrier Reef region and the role of self-efficacy *Jane Dousset (JCU)*

Analysing the factors influencing the adoption of improved land management practices in Great Barrier Reef catchments *Praseed Thapa (CQU)*

Q&A

5.00 pm

**Presentation day summation and wrap up**

UNIBAR FUNCTION ROOM

*Matt Curnock (CSIRO), Libby Evans-Illidge (AIMS) and Michelle Dyer (The Reef Authority)*

5.30 pm

SYMPOSIUM CLOSE  
SOCIAL DRINKS AT THE UNIBAR

# Friday 13 September, 2024

Griffith University, Gold Coast Campus

ROOM G16 1.11

ROOM G11 4.28/4.29

9.00 am – 10.30 am WORKSHOP 1.1  
**Media, messaging, and the public narrative**  
Sean Kennedy (Climate Media Centre)

WORKSHOP 1.2  
**Where to from here? Reimagining social research methods for a changing world.**  
Claudia Benham (University of Queensland) and Jacqui Lau (James Cook University)

10.30 am – 11.00 am MORNING TEA - SKY LOUNGE FUNCTION ROOM (BUILDING G11), LEVEL 4

11.00 am – 12.00 pm WORKSHOP 1.1 CONTINUED  
**Media, messaging, and the public narrative**  
Sean Kennedy (Climate Media Centre)

WORKSHOP 1.2 CONTINUED  
**Where to from here? Reimagining social research methods for a changing world.**  
Claudia Benham (University of Queensland) and Jacqui Lau (James Cook University)

12.00 pm – 1.30 pm LUNCH

ROOM G11 4.28/4.29

ROOM G16 1.11

1.30 pm – 3.00pm WORKSHOP 2.1  
**What if human centred approaches were a key pillar to protecting Reef Catchments for a Healthy Reef?**  
Maria Rosier (Office of the Great Barrier Reef & World Heritage (OGBRWH), Queensland Department of Environment Science & Innovation (DESI))  
Meg Bickle (Office of the Great Barrier Reef & World Heritage (OGBRWH), Queensland Department of Environment Science & Innovation (DESI))  
Edith Muruka (Department of Climate Change, Energy, the Environment and Water)

WORKSHOP 2.2  
**Network mapping Reef governance: how is the Reef really managed?**  
Mark Limb (Queensland University of Technology)

3.00 pm – 3.30pm AFTERNOON TEA - SKY LOUNGE FUNCTION ROOM (BUILDING G11), LEVEL 4

3.30 pm – 4.30 pm WORKSHOP 2.1 CONTINUED  
**What if human centred approaches were a key pillar to protecting Reef Catchments for a Healthy Reef?**  
Maria Rosier (Office of the Great Barrier Reef & World Heritage (OGBRWH), Queensland Department of Environment Science & Innovation (DESI))  
Meg Bickle (Office of the Great Barrier Reef & World Heritage (OGBRWH), Queensland Department of Environment Science & Innovation (DESI))  
Edith Muruka (Department of Climate Change, Energy, the Environment and Water)

## What GBR decision makers want: a reflection on how human dimensions knowledge currently informs GBR decision making, and how it could...

The symposium headline paragraph states that for the 'community' of the Great Barrier Reef "the social sciences have never been more critical". In this keynote I reflect on conversations with GBR focussed 'end users' of human dimensions (HD) research and monitoring. Specifically, I will focus on how end users view human dimensions research and monitoring, where it is being used and for what purpose and the challenges that end users currently face when applying it to decision making. As we look forward and image positive Reef futures, I reflect on how we can do and apply HD research and monitoring to achieve a resilient Reef future.

### *Anthea Coggan*

Dr Anthea Coggan is a senior environmental economist with CSIRO Environment based in Brisbane, Australia. Anthea's research focuses on the human side of environmental management challenges. With an increasing focus on the Great Barrier Reef (GBR), Anthea is advancing the application of economic science in Reef management. Particularly, Anthea is leading research into how the Reef is used and the extent and distribution of the benefits generated from this use. Anthea is also applying economic understanding to inform the design of interventions for water quality improving land management in Reef catchments. Anthea leads the Regions in Transition Team and coordinates CSIRO's GBR focussed social science.



## Yarra yadaba: A case study of cross-cultural connection and 2-way learning in reef research.

An extraordinary example of weaving Indigenous knowledge and perspectives together with western reef science has emerged in a partnership between the Woppaburra people, Traditional Owners of the Keppel Islands and surrounding sea Country, and the Australian Institute of Marine Science (AIMS). The project began in 2019 with an on-Country workshop at Konomie (North Keppel Island). Since then, its scope has outgrown the science focus of a research project to explore the drivers of growth and survival of newly settled corals. Through co-design and shared decision making, and by making space for people of both knowledge systems and ways of being to genuinely come together, many unexpected and profound outcomes have emerged. In addition to facilitating re-connection of First Nations people to their Country, the project has produced new cultural expressions and practices that merge science with culture. For example, Woppaburra woman Meaghan Cummins, developed a contemporary dance depicting the adaptation of coral through a cultural lens, based on traditional principles showing the exciting and dynamic nature of culture. The project has also delivered meaningful training and capacity building in both directions. The Woppaburra people have obtained skills that position us for future caring for Country employment, and science staff have gained new insights into the sea Country on which they work. The Woppaburra Coral Project provides a useful model for future reef research partnership projects. This presentation will conclude with a demonstration of the Woppaburra Coral Dance.

### *Libby Evans-Illidge*

Leading the Indigenous Partnerships Program at AIMS is definitely Libby's career highlight to date. She has had the privilege of working with descendants of Australia's original marine scientists, helping to transform AIMS' relationships with First Nations people and establish new ways of bringing AIMS science alongside traditional knowledge and Indigenous perspectives. Prior to her current role, Libby enjoyed a 40-year diverse marine science career blending the doing of science with its uptake and application, including 11 years as Research Director of AIMS@JCU.



### *Harry Van Issum*

Twenty-five years as a lecturer and researcher at Griffith University hasn't killed dampened his enthusiasm for caring for his sea country. He is a Woppaburra traditional custodian and is the chairperson of Woppaburra TUMRA (Traditional Use of Marine Resources Agreement) Aboriginal Corporation. His recent work has focused on the socio-cultural and economic advancement of the Woppaburra people and sea country. Along with other colleagues, he has been successful in a number of grants leading to the establishment of a new office, a Ranger program, restoration activities and numerous employment opportunities for his people. This has been made possible through genuine two-way partnerships.



### *Meaghan Cummins*

As a proud Woppaburra woman, Meaghan has spent her life immersed in culture through Woppaburra, Yalanji, Djiru and Worrongo bloodlines. From a family history of fierce protest and soft nurturing, Meaghan's strong principles have allowed her to fulfil roles as a chairperson, corporation director and manager of a successful on-country youth program. Her strong cultural insights have spawned the coral dance and innovative approaches to blend western and traditional sciences.



### *Josh Morris-Langton*

As a young and motivated Woppaburra man, Josh has passion for his culture and his people. After spending years in Aurukun, the salt water man returned to his own country and the coastal regions. He has a drive to fuse traditional connection to country with modern cultural practices. He achieves this through story and dance and is a member of the respected *Jaran Dance Troupe*. He also currently works at Palm Beach Currumbin State High.





**The Reef Joint Field Management Program; an end user of social science? An icebreaker.**

We, the Reef Joint Field Management Program are the rangers, compliance officers and vessels jointly funded by the State and Federal governments, out on the marine park. We are out there checking for change, delivering conservation actions, enforcing compliance, responding to incidents, developing and maintaining visitor infrastructure and partnering with Traditional Owners in much of these endeavours. We operate on land, sea and air and across the length and breadth of the marine park and its island protected areas. Our staff deal directly and indirectly with a great many of the marine park's user groups, and we implement the majority of the governments' on ground activities.

Despite the scope and scale of the Program and our interactions with, and accountability to, society, we have little connection with the social science programs in the Great Barrier Reef and probably have not benefitted enough from its outputs. We have questions, do you have the answers? We want to start this conversation by telling you what we do and what data we collect that might be beneficial to social science.

Our presentation will provide you with an overview of a \$40 million-dollar annual program and highlight the areas of work to which we think social sciences may be most relevant. Our aim is not to provide the audience with any trenchant scientific insights but to build an understanding within the social science community of the operations and needs of a key management organisation.

*Callum Teale-Brown,  
Isabel Ender and Jason  
Williams (Reef Joint Field  
Management Program)*

The Reef Joint Field Management Program forgettable name and worse acronym, the Program is the \$30m joint Federal and Queensland operation that plays a key role in the management of the marine and island parks in world heritage area. They are the people and boats on and in the water and on the islands implementing conservation and compliance actions and gathering information from locations no one else can get to. The Program has many points of contact with the communities of the Reef, and the people responsible for these areas of business will present.

*Co-authors: Graham Hemson, Tayce Cook,  
Anthony Contarino, Mark Read (Reef Joint  
Field Management Program)*

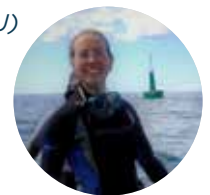
**Equity in coral reef conservation: the relative role of procedural equity criteria in the perceived fairness of decision-making**

Stakeholders' perceptions of the fairness of decision-making can play an important role in social and ecological success of conservation. However, empirical investigations of what contributes to perceived fairness in conservation decision-making are sparse. Here, we surveyed 1266 stakeholders to determine the relative role of six procedural equity criteria (accountability, correctability, influence, participation, transparency, and trust) in perceived fair decision-making in Australia's Great Barrier Reef Marine Park. We find that 1) a perceived lack of procedural equity criteria affects perceived fairness in decision-making more than perceptions of their presence; 2) trust, correctability, and participation play an important role in perceived fair decision-making; and 3) influence has a strong positive relationship with perceptions of fairness in decision-making. The negative impact of lacking procedural equity criteria on perceived fair decision-making revealed in our study emphasizes the critical need for greater attention to procedural equity in conservation practice. Further, our study highlights important avenues for further research, particularly the examination of how the intersection between lived experiences and preferences for procedural equity criteria can contribute to fair decision-making in conservation.

*Melissa Hampton-Smith (JCU)*

My PhD is in environmental social science at James Cook University. Under the supervision of Georgina Gurney, Joshua Cinner, and Jacqueline Lau, my research focuses on fairness in marine conservation, especially how issues of governance and participatory processes can impact environmental management. I have worked collaboratively in Tanzania to study how destructive fishing impacts coastal fishing communities, and have ongoing research projects in southern Tanzania and northern Mozambique. Previously, I lived in Egypt, Tanzania, and Germany while studying social science and environmental science.

*Co-authors: Georgina Gurney (JCU), Matthew Curnock (CSIRO), Joshua Cinner (USyd)*



## Do the Australian public support intervention to protect, restore, and accelerate adaptation to climate change in the Great Barrier Reef?

Implementation of prospective technological interventions intended to provide coral reefs with short-term protection from climate extremes, enhance their recovery from disturbance, and accelerate their adaptation to climate change will depend, among other things, on broad public support. This presentation draws on surveys of Australian residents (n>8000) conducted in 2018 and 2022 to examine support for the development and deployment of novel technological interventions designed to protect (marine cloud brightening and fogging), restore (coral seeding and rubble stabilization, and promote adaptation (natural breeding and genetic breeding) of corals across the Great Barrier Reef. It goes on to examine how support varies across time, social groups, perceived climate risk, intervention technology, and other variables. It finds strong support for research into novel technological interventions and moderate support for the large-scale implementation of these interventions. Trust in science to deliver solutions was a consistently strong predictor of support for both research and large-scale implementation. The testability of impacts was a strong predictor of support for implementation. Perceived climate threat, trust in the Reef's management authority, and ethics were also consistently associated with support for intervention research and implementation. With the vast majority of Australian residents supporting strong action to protect and restore coral reefs the maintenance of trust in scientists and scientific institutions stands out as critical to support for the implementation of novel interventions at scale.

*Stewart Lockie  
(The Cairns Institute, JCU)*

Stewart Lockie is Distinguished Professor of Sociology and Director of the Cairns Institute at James Cook University. Professor Lockie is an environmental sociologist whose research addresses climate change, biodiversity conservation, agriculture, and resource development. He shares leadership of the Reef Restoration and Adaptation Program's Stakeholder and Traditional Owner Engagement Subprogram, was Foundation Chair of the Cairns Port Douglas Reef Hub, and helped establish the Wet Tropics Restoration Alliance. Professor Lockie is also Editor-in-Chief of *Environmental Sociology* and author of *Failure or Reform? Market-Based Policy Instruments for Sustainable Agriculture and Resource Management*, published in 2020 by Routledge, London.



*Co-authors: Henry A. Bartelet (The Cairns Institute, JCU), Brent W. Ritchie (Business School, UQ), Csilla Demeter (Business School, UQ), Lintje Sie, (Griffith Business School, Griffith University), Bruce Taylor (CSIRO Environment)*

## Redefining social licence for coral reef protection and management

Coral reefs worldwide are facing existential threats. Efforts to protect and manage reefs include initiatives to reduce local stressors, facilitate sustainable use, and increasingly, novel technological interventions to restore degraded reefs and bolster resilience. Understanding public perceptions of these initiatives is of increasing importance, as public support and 'social licence' for such initiatives may be critical to their success. However, our current understanding of social licence to operate (SLO) framework is derived largely from a resource extraction context, and predictors of support for different types of reef protection initiatives remain underexplored. Our study addresses this gap, using data from a survey of 2,317 residents of the Great Barrier Reef (GBR) region to examine public perceptions of the importance of three different types of reef protection initiatives: regulatory, scientific, and community stewardship. Linear regression tests revealed that the predictors of support varied with the initiative type. Support for both scientific and regulatory initiatives were influenced strongly by perceptions of threats, such as climate change, and procedural fairness. In contrast, support for community stewardship initiatives was strongly aligned with GBR value-orientations, such as place identity and pride. We find both similarities and differences to predictors studied in other SLO models. Insights from our study highlight the need to broaden understandings of social licence for coral reef protection to assist Reef managers and proponents with anticipating social risks associated with emerging reef protection initiatives.

*Ingrid Naschwitz  
(James Cook University)*

Ingrid holds a master's degree in Environmental Management from James Cook University, where she studied the social acceptance of different types of reef protection initiatives. This research was partly inspired by Ingrid's work in the crown-of-thorns starfish control program, in which she is currently a Voyage Leader for a COTS operator.



*Co-authors: Jacqui Lau (JCU), Matt Curnock (CSIRO Environment)*

## Understanding emotional responses to climate change in the Great Barrier Reef

Climate change is increasingly known to affect emotional well-being, and people with lived experience of disruptions to valued places, species and ecosystems are at high risk of wellbeing impacts. Drawing on rich interviews with community representatives from across the Great Barrier Reef region, this presentation explores the diversity of emotional responses to climate change in the Great Barrier Reef, and discusses how relationships to place, lived experiences of environmental change, and perceptions of governance play a role in shaping the emotional effects of climate change on people in the Reef.

*Claudia Benham (UQ)*

Dr Claudia Benham is an environmental social scientist and ARC DECRA Fellow at the University of Queensland. Her work explores how communities experience and respond to environmental change in marine and coastal ecosystems, with a focus on Australia and the Pacific region. Claudia's current research examines how climate change affects community wellbeing in the Great Barrier Reef region through experiences of ecological grief and loss, and how inclusive governance practices can help to bring about sustainable futures for people and the Reef.



## Understanding morality to reimagine reef futures

Coastal communities along the Great Barrier Reef are facing significant changes, both socially and ecologically. These changes bring up important moral and ethical questions about how to govern futures fairly. In this talk, I contend that understanding the different moral values held by people and groups along the Great Barrier Reef will help illuminate better and fairer ways to navigate change. As an example, I introduce a case study about shark depredation—a growing issue in commercial and recreational fisheries along the Great Barrier Reef and more broadly, whereby sharks take fish that have been hooked. This issue is not just about the immediate costs to fishers but evokes deeper moral beliefs about the right way to manage fisheries and competing interests along the coast. People have strong feelings about how things should be done, and these beliefs can lead to conflicts. Building on this example, I will then briefly share insights and tools from studies of morality in the behavioral and social sciences. I argue that these tools can help us elicit and work towards fairer and more sustainable futures for the reef and will outline future research plans to apply them to the Southern Great Barrier Reef Plan of Management.

*Jacqueline Lau (JCU)*

Dr. Jacqui Lau is an environmental social scientist and DECRA Fellow whose interdisciplinary research spans human geography, development studies, sociology, and conservation to explore change in coastal communities. She has studied ecosystem services, customary management of coral reefs, and equity in conservation and climate change policy in the Pacific and beyond. Jacqui's current research focuses on how moral values shape adaptation to environmental change along the Great Barrier Reef.

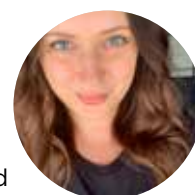


## How do local families and children feel about the changing Reef? Psycho-social analysis of local households based on experiences and emotions

Ecological grief – an emotional reaction to the loss of valued places, ecosystems, or species – is increasingly occurring in response to the decline of ocean ecosystems due to climate change and other stressors. In this PhD project, we explore how households (in particular families and children) living in coastal areas of the Great Barrier Reef feel about the effects of climate change in their marine neighbourhood. We also explore how discussions at the household scale reflect and are connected – or not – to the broader political sphere of decision making about oceans and climate change. There is an existing gap in research that shows the prospects and limits of the role of the household and family in political decision-making processes and resilience-building for climate change and ecological grief. The framework that underpins this project is one where future political and scientific decisions reflect and incorporate children and families' perspectives and feelings about the changes they observe in the reef environment. In this project, we will use an interdisciplinary approach drawing from social and political science by using qualitative mixed-methods in form of interviews and surveys with local families and schools, through partnerships with Reef Guardian Schools. The project will be based on household-level analyses of the lived experience of GBR's local families and children. Understanding the emotional dimensions of climate change and oceans at the household level will help to integrate a novel, and critical dimension to our understanding of how people, their feelings and well-being, and oceans inter-relate.

*Sharlene Fechter (UQ)*

I started my PhD at the University of Queensland in January 2024. I am originally from Germany where I live with my husband and my 3-years old daughter. I did my Bachelor degree in Environmental Engineering at the University of Applied Science in Bremen, Germany, and my Masters degree in Marine Environmental Science at the Carl von Ossietzky University Oldenburg, Germany. During my Bachelor degree I studied one and a half years at the Murdoch University in Perth, Australia. While living in Australia I deeply fell in love with the ocean and marine science – and that's why I am here, fighting and caring for the Reef.



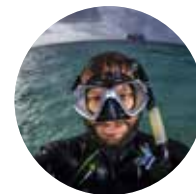
*Co-authors: Claudia Benham (UQ), Ans Vercammen (UQ)*

## Lessons from a decade of human dimension monitoring in the Great Barrier Reef

As a social-ecological system, the Great Barrier Reef (GBR, the Reef) is in a period of rapid system-wide change. Policy instruments such as the Reef 2050 Long-Term Sustainability Plan and the Reef Blueprint 2030 have identified Reef-dependent communities, stakeholders and Traditional Owners as key partners in delivering multiple initiatives intended to bolster Reef resilience. Understanding the diversity of community values, perceptions and aspirations for the Reef is therefore critical for Reef managers and decision makers who seek to engender public support, strengthen community partnerships and capacity, and deliver equitable outcomes from Reef protection initiatives. The Social and Economic Long-Term Monitoring Program (SELTMP) contributes to an improved understanding of human dimension components of the GBR social-ecological system. In this presentation, we outline some of the key findings and outcomes from a decade of SELTMP's monitoring of Reef communities from 2013 to 2023. Major events over this period have driven significant changes – on the Reef, in the policy landscape, and within Reef communities. We show examples of how SELTMP's time-series datasets have revealed changes in community emotional connections to Reef, trust in science, and perceptions of threats, with implications for adaptive Reef management and insights to help guide more effective, purposeful community engagement.

*Matt Curnock (CSIRO)*

Dr Matt Curnock is a senior social-environmental scientist working with the CSIRO, based in Townsville. His scientific career over the past two decades has encompassed numerous natural resource management, climate adaptation, tourism, and Great Barrier Reef-related projects, including the design and implementation of integrated social and ecological monitoring programs for adaptive resource management.



*Co-authors: Aditi Mankad, Elizabeth Hobman, Petina Pert (CSIRO)*

## Public perceptions of mangroves and their restoration in the Great Barrier Reef catchment area

Understanding the needs, perceptions, and priorities of communities can enhance their involvement in projects and improve the fairness, success, and effectiveness of project outcomes in the short and long term. However, research on people's perceptions is limited in the context of coastal restoration. Despite the increase in mangrove restoration projects in recent years, global success is hindered by social and governance barriers, which may be attributed to the lack of consideration for social dimensions in decision-making processes. In this talk, I will present a survey designed for residents of the Great Barrier Reef catchment (GBR) area. The survey aims to examine their level of awareness of mangrove ecosystems and understand the benefits and drawbacks that people associate with mangroves and their restoration. The insights gained from this study can enhance mangrove restoration efforts in the region by leveraging public perceptions, tailoring communication strategies for decision-makers, and providing recommendations for future work to engage specific resident groups.

*Alexandra Rodriguez (Deakin University)*

Alexandra, a PhD candidate at Deakin University and member of the Blue Carbon Lab, brings over a decade of experience as a biologist and project manager in Colombia. She has collaborated extensively with stakeholders to restore degraded marine and coastal ecosystems. Alexandra's journey has revealed the limitations of relying solely on natural sciences for success. As a strategic visionary and planner, she dreams of reconnecting humanity with nature by integrating natural and social dimensions. Her current focus is on reshaping restoration efforts, emphasizing a holistic approach to sustainability by integrating social sciences more intentionally in projects on the ground.



*Co-authors: Vanessa Adams (University of Tasmania), Rifaee Rasheed (Deakin University), Maria Palacios (RMIT University), Micheli Costa (RMIT University), Melissa Wartman (University of Tasmania), Peter Macreadie (RMIT University)*

## Collaborative innovation processes are critical to overcoming landholder distrust of management practices to improve reef water quality

Management practice change in agriculture occurs within an agricultural innovations system (AIS). This system encompasses the learning and development that occurs when individuals and institutions engage in generating and sharing new knowledge, products, processes, and forms of organisation. Both formal and informal governance systems determine how the interactions take place and ultimately influence the uptake of management practices by land managers. To investigate factors that hinder or enable the uptake of management practices that aim to improve water quality outcomes for the Great Barrier Reef for the 2022 Scientific Consensus Statement, we developed a framework using a simple AIS model of the key actors and institutions involved in the GBR agricultural value chains, an adapted ecological systems model, and a model for the governance of agricultural innovations. The research undertaken identified that the uptake of agricultural management practices within the context of the Great Barrier Reef continues to be a 'wicked problem', which is intensified by landholder distrust and suspicion of government and scientists involved in GBR research and program delivery. Management practices and programs for agricultural and urban land managers will be more efficacious if they are developed, tested, scaled, monitored and evaluated using collaborative processes that actively involve key actors in the relevant communities, value chains and innovation systems to build trust. Additionally, collaborative transdisciplinary research, planning and evaluation processes need to be maintained across time, locations, communities, and organisations.

*Roy Murray-Prior  
(Agribiz RD&E Services)*

Dr Roy Murray-Prior was raised on a sugar farm in the wet tropics of Australia. His initial degree in Rural Science (UNE) led to a job as an extension officer. He has a Postgraduate Diploma in Agricultural Extension (U Melb), a MSc in Agricultural Economics (Cornell). His PhD (UNE) critiqued economic theory for understanding decision making and used hierarchical decision modelling and personal construct theory to study farmer decisions. He has undertaken research, development and extension projects in India, Nepal, Bangladesh, Laos, Philippines, Indonesia, East Timor, Nigeria, Mozambique, South Africa, PNG, USA, multiple Australian states and South Pacific countries.



*Co-authors: Tracy Schultz and Angela Dean (UQ), Peter Long (Peter Long Consulting), Anthea Coggan (CSIRO)*

## Relationships built on trust and understanding for the well-being of Reef communities

A research survey by GR Consulting evaluated the impact of the Reef Water Quality (RWQ) Grazing Extension Support project (2017-2022). Survey discussions were with 80 members of the grazing community in Queensland's reef catchments reporting impact on 2,121,500 hectares of grazing land. 93% considered doing new or different management on their property after attending DAF extension activities. 87% started or completed some new or different management. Just 25% of respondents made a grazing land management change (GLM) as at least part of major management changes.

Graziers' reported making multiple management changes, small and large, over the five years of the project and yet most describe a change in its individuality rather than as part of a system. A key element missing from DAF's extension strategy is an agricultural systems approach. Using a systems approach can focus attention on the collective of changes that reduce sediments leaving catchments. It can do so through connecting GLM to each change.

The opportunity for extension staff is to integrate systems approaches into extension delivery capitalising on the high level of trust and confidence reported by graziers in DAF RWQ extension staff. Reported changes demonstrated the value of well-rounded on-going engagements for extension staff to first understand a grazier's business and then promote change through relationships built on trust and understanding. As well graziers reported wanting support that connected them to other graziers using practices of interest to them. The report recommended extension staff plan how to use peer learning in all extension delivery.

*Megan Willis  
(Department of Agriculture and Fisheries)*

Megan Willis is a Senior Extension Officer (Beef) with the Department of Agriculture and Fisheries. She currently leads the Office of the Great Barrier Reef project "Grazing Extension Support", which involves a team of over 25 staff in the Burdekin, Fitzroy and Burnett Mary Catchments and directly supervises 2 of those staff. She has been based in Townsville for 5 years following 8 years based with the Extensive Livestock Systems RD&E team in Charters Towers. Megan started her career with DAF as a technical officer at Swans Lagoon Research Station in 2004 and went on to be a Biosecurity Officer based in Charleville, Winton and Mount Isa. Her technical expertise centres around grazing land management (GLM) and she is an accredited deliverer for GLM EDGE, Grazing Fundamentals EDGE and Stocktake GLM. Megan has been integral to the introduction of a practice framework for extension in grazing. She is involved in on-going work to apply the framework within the team as well as contribute to a consistent induction process for extension staff generally.



*Co-author: Gerry Roberts (GR Consulting)*

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## Monitoring the governance system underpinning the development and implementation of the Reef 2050 Plan: A framework for monitoring reef governance health

In 2021 the Australian and Queensland governments released the Reef 2050 Plan (the Plan) for the protection and sustainable use of the Great Barrier Reef. Through its governance key objective, the Plan recognises that effective Reef governance requires collaborative leadership, coordinated action, and continuous improvement. However, although the Plan is generally supported by indicators and monitoring systems for adaptive management, there is a critical knowledge gap concerning the measurement of progress toward the governance objective. There is no accepted framework for monitoring the health of the reef governance system and the system is not yet benchmarked. International frameworks for good governance (such as the International Union for Conservation of Nature) provide normative guidelines on attributes and potential starting points for assessing healthy governance. GBR studies have assessed aspects of governance, however a fit-for-purpose framework to monitor the health of governance processes, institutions, and actors impacting on Reef 2050 Plan outcomes is required.

This paper reports findings from a Reef Trust Partnership project to develop an approach for measuring the health of the reef governance system. Guided by appreciative inquiry, data from multiple sources (literature review, interviews and focus groups with Traditional Owners and policy actors, maps of policy and planning arrangements and networks in software 'R', and delphi panels) were synthesised to develop a monitoring framework of attributes for assessing health and a first benchmark assessment. We end with reflections on the utility of the framework in monitoring and advancing reef health.

*Diletta Luna Calibeo (QUT)*

Diletta Luna Calibeo is a Research Associate at QUT, where she has been working since 2021 on the Integrated Monitoring and Reporting (IMR) project focused on monitoring the governance system of the Reef 2050 Plan. Soon after obtaining her doctoral degree in 2018, Diletta became a Research Fellow on an ARC Project concerned with participatory issues related to the Australian Public Inquiry on controversial environmental projects. Stemming from her social sciences background, Diletta has a keen research interest in the interconnections between environmental politics, the politics of digital media communication, environmental campaigning, community and stakeholder engagement, and governance and public policy.



*Co-authors: Karen Vella (QUT), Allan Dale (JCU), Mark Limb (QUT), Margaret Gooch, (JCU), Rachel Eberhard (QUT), Hurriyet Babacan (JCU), Jenny McHugh (JCU), Umberto Baresi (QUT)*

### Bringing to life the stories of agricultural producers enacting change for the Reef

Personas promote empathy and provide story-telling platforms, and by placing the focus on individuals rather than groups, they enhance understanding of the contested values of the Great Barrier Reef and enable the Reef community to share knowledge and stories. Landholder personas are average interpretations based on research, that embody the behaviours, attitudes and motivations of real agricultural producers in Reef catchments, by main commodity produced. This creative research methodology draws on a wide range of voluntary data collected from agricultural producers in the catchments which provides a platform for critical and collaborative thinking around social dimensions of the Reef, particularly related to agricultural communities. This presentation aims to promote co-design and participation, by bringing to life the producers' stories through the lens of the social, economic, institutional, environmental, and cultural factors that influence producers' abilities to enact practice change and deliver positive water quality outcomes in the Great Barrier Reef.

#### *Meg Bickle (DESI)*

Meg Bickle, Principal Policy Officer in the Office of the Great Barrier Reef & World Heritage (OGBRWH), leads the delivery of the Human Dimensions program of work to support Reef 2050 WQIP targets and outcomes. Meg has spent the last 10 years working closely with the agricultural sector in the Reef regions to design and deliver on-ground practice change projects and Best Management Practice programs. Meg is passionate about sustainable agriculture and applying social and behavioural insights within Reef projects to enhance the likelihood of achieving enduring farm practice change, ensuring gains for farmers and the Reef are maximised.



#### *Sofia Mora-Restrepo (DESI)*

Sofia Mora Restrepo is a Project Officer with the Behavioural Insights team in the Office of the Great Barrier Reef and World Heritage. As an environmental economist, currently completing a Master of Environmental Management through University of Queensland, Sofia is contributing to the development and delivery of the Human Dimensions program of work which applies behavioural insights to improve agricultural practices and reduce their impact on water quality in Reef catchments.



*Co-author: Katerina Kanakis (DESI)*

### Understanding Social Dynamics in Sustainable Farming: Adoption Narratives from Sugarcane Growers in the GBR

The Great Barrier Reef is under severe environmental stress, necessitating the adoption of effective land management practices to enhance water quality. While numerous programs exist to encourage these practices among farmers, the social dynamics influencing their adoption are not well understood. To bridge this gap, our study conducted in-depth interviews with 35 sugarcane growers in the Gordonvale and Babinda areas of the Mulgrave-Russell region during 2023 and 2024. These participants represent 44% of the local farming community. We employed a net-map approach in conjunction with social network analysis, integrating both quantitative and qualitative methodologies. This approach allowed us to uncover "narratives of adoption," which detail how various relationships—such as those with family, friends, and market agents—influence adoption decisions and the mechanisms that facilitate these decisions. Our analysis leverages theoretical frameworks of social capital and relational embeddedness to delve into the social processes driving practice adoption. The findings reveal the complex interplay of social influences and highlight key factors that either promote or hinder the adoption of sustainable practices. Understanding these social dimensions is crucial for designing more effective interventions and support programs that resonate with the farmers' social contexts. By providing a deeper insight into the relational aspects of practice adoption, this study contributes to the broader efforts of preserving the Great Barrier Reef through improved agricultural practices.

#### *Angela Guerrero (QUT)*

Dr. Angela Guerrero is a sustainability scientist and Senior Research Fellow at QUT. Her research explores human behaviour and collaboration in environmental management. Her current work focuses on sustainable land management practices and how human networks (peer/social, governance, global trade) influence decisions affecting critical ecosystems.



*Co-author: Daniel Cruz Lopez (QUT)*

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## Community engagement for novel ecosystem restoration and assisted adaptation: observations and lessons from the Australian Reef Restoration and Adaptation Program

This paper presents valuable learnings derived from community engagement and deliberation efforts applied to ecosystem restoration and assisted adaptation within the Reef Restoration and Adaptation Program, a major research and development initiative focused on identifying and testing novel management interventions aimed at preserving Australia's Great Barrier Reef. The high degree of complexity and uncertainty related to the technical, social, and ecological factors characteristic of the Program significantly shapes the needs for community engagement and deliberation.

Through this paper, we share our observations and lessons on how effective engagement practices can successfully anticipate and respond to these complex and ever-changing implementation contexts. The methods employed in our study encompass qualitative analysis of a wide array of documents, interviews, and in-depth group discussions. This approach enabled us to elicit transferable insights, including the pivotal role that adaptive and deliberative approaches play in recognizing and being responsive to the rights and interests of diverse stakeholders, particularly First Nation peoples, within research and development programs for ecosystem restoration and assisted adaptation. We discuss how these adaptive strategies can contribute to shaping future collaborations, fostering partnerships, and inclusive decision-making processes. Our findings underscore the critical importance of adaptive and deliberative approaches in achieving successful community engagement and ecosystem restoration outcomes.

*Rachel Eberhard  
(Eberhard Consulting)*

Dr. Rachel Eberhard has been an independent consultant since 2005. Rachel works with clients to improve environmental and natural resource management policy and programs, with a particular interest in collaboration, evaluation and adaptation. Rachel is currently working with QUT on the Great Barrier Reef Restoration and Adaptation Program (the topic of this presentation).



*Co-authors: Baresi, U. (QUT), Eberhard, R. (Rachel Eberhard Consulting), Vella, K. (QUT), Gooch, M. (QUT), Piggott-McKellar, A. (QUT), Calibeo, D. (QUT), Lockie, S. (JCU), Taylor, B. (CSIRO), Bohensky, E. (CSIRO), Brooksbank, J.L. (GBRF), Curnock, M. (CSIRO), Graham, T. (JCU), Kong, T. (CSIRO), Lyons, P. (CSIRO), Maclean, K. (CSIRO), Paxton, G. (JCU), Schmitt, K. (CSIRO), Siehoyono Sie, L.. (UQ), Stone-Jovicich, S. (CSIRO)*



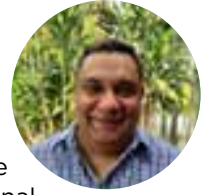
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## Yadaba - Respectful Relationships and building Relationships with Darumbal Country: Developing approaches for Crown of Thorns Starfish (COTS) research and management practice

Building relationships with Aboriginal and Torres Strait Islander peoples, knowledges and communities is a complex, dynamic, and evolving strategy for any researcher. In the context of research across the Great Barrier Reef, these relationships can become entangled in a web of reference points that are determined across a multi-placed, multi-institutional and multi-zoned sociopolitical ecology of power structures. Reef Traditional Owners are at the centre of this dynamic responding and accounting for these interactions while also being responsible for Community priorities and needs and the obligations to people, place, and Sea Country. At the outset, research methods involving Indigenous peoples, topics, knowledges, and communities are required to account for demonstrations in their projects of the six core values acknowledged in the Ethical conduct in research with Aboriginal and Torres Strait Islander Peoples and communities: Guidelines for researchers and stakeholder's handbook. Methods also tend to be implicit in guiding researchers to understand the important foundation strategies for relationships and the process of relationship building, often focusing in on the identity of the researcher, sampling, data collection strategy, analysis, and methodology. Utilising storytelling to demonstrate an arc of evolving relationships across a research project, the paper aims to develop an example of how method informed a Crown of Thorns Starfish (COTS) project involved in developing guidelines and principles to support meaningful partnerships between Reef Traditional Owners, Sea Country values and COTS research and management. Beginning with a Community of Practice (COP) approach the paper highlights the conditions for co-design to then consider genuine partnerships for co-production of project relationships and priorities and conclude with Darumbal Country reflections of the project and its impact.

*Vincent Backhaus  
(The Cairns Institute, JCU)*

Dr Vincent Backhaus is a Research Fellow based at the Cairns Institute where his current research explores the engagement of Reef Traditional Owners across the Great Barrier Reef and the ways Traditional Owner values inform, lead, and govern Crown of Thorns research and management. Prior to this he taught across the suite of Indigenous Studies subjects offered through the Indigenous Education and Research Centre, James Cook University and continues to supervise Masters and Doctoral candidates. He is also part of the development team for the JCU-CSIRO strategic partnership which has a key focus on Building Indigenous Research Capacity in the North.



*Malcolm Mann (Darumbal  
Enterprises Pty Ltd)*

Malcolm Mann is a Darumbal Traditional Custodian and has South Sea Islander heritage. Mal is a Business Development Manager for Darumbal Enterprises Pty Ltd since 2020 and oversees multiple contracts, projects, programs and partnerships for Darumbal. Mal is a Director for the Darumbal Group of Companies since 2016. Mal is a member of the Great Barrier Reef Foundation's Traditional Owner Advisory Group since 2018. Mal is one of the original members of the Traditional Owner Steering Group for the Reef 2050 Traditional Owner Implementation Plan and a previous Chair for the Great Barrier Reef Marine Park Authority Indigenous Reef Advisory Committee. Mal is also the Darumbal Traditional Use of Marine Resources Agreement TUMRA Chair and a Working Group member of the newly formed Fitzroy Catchment Traditional Owner Alliance. Mal is an advocate for self-determination, connection to country, leadership and governance.



*Co-authors: Stewart Lockie (The Cairns  
Institute, JCU), Felecia Watkin Lui  
(Indigenous Education and Research Centre,  
JCU), Kirsten Mclean (CSIRO), Ty'a Dynevor  
(The Cairns Institute, JCU), Marie Shipton  
(Dabu Jajikal Aboriginal Corporation)*

## Collaborating for Reef Futures: Enhancing stewardship of Australia's great reef ecosystems

The Great Southern Reef (GSR) spans 8,000 km along Australia's southern coast, from Kalbarri in WA to Coolangatta in QLD, encompassing diverse ecosystems like kelp forests, seagrass meadows, and oyster reefs. It stands as a global biodiversity hotspot, deeply valued by Indigenous Australians and vital for local economies through activities such as fishing and tourism.

Supported by the Ian Potter Foundation, the Great Southern Reef Research Partnership brings together Australian universities, management agencies, and NGOs to study and protect these ecosystems. By focusing on ecological and socio-ecological systems, the partnership aims to enhance their recognition and promote sustainable management practices.

Objectives include national-scale biodiversity monitoring, understanding critical ecological processes, and studying social dynamics to develop sustainable strategies. The partnership integrates advanced technologies and behavioural sciences to inform conservation efforts.

Aligned with the symposium theme "Reimagining Reef Futures: Stories of Creativity, Cooperation, and Courage," this initiative promotes collaboration and shared learning. The Great Southern Reef partnership invites all reef communities to join in efforts that advance our understanding and management of Australia's marine ecosystems. Together, we can ensure the long-term sustainability and stewardship of these remarkable reef systems, fostering resilience and prosperity for these critical ocean environments.

*Emma Church (University of Tasmania)*

Emma Church is a Research Fellow in Great Southern Reef Socioecology at the University of Tasmania's Institute for Marine and Antarctic Studies and Centre for Marine Socioecology. She leads an interdisciplinary research initiative exploring community awareness, conservation behaviours, and stewardship of the Great Southern Reef—an interconnected temperate reef system spanning 8,000 km of Australia's southern coastline.



As a marine social scientist, Emma investigates patterns and drivers of environmental stewardship and the effectiveness of engagement tools for motivating conservation action. Her passion for marine environments, shaped by her experiences as a surfer and diver, drives her collaborative work with industry, government, and communities.

Emma's diverse experience includes reporting on Queensland's State of Science, monitoring Southern Oceans with CSIRO, and participating in the Homeward Bound Women's Global Leadership Initiative.

## What can I do? Applying behavioural science approaches to support community engagement in climate change mitigation activities

CoralWatch was developed as a citizen science organisation in 2002 to monitor coral bleaching and coral health. Using a scientifically validated colour matching system called the Coral Health Chart, the project has been widely adopted by scientists, environmental consultants, dive clubs, resorts, schools, local governments, and community organizations across 81 countries. To complement this global monitoring effort, the CoralWatch citizen science program has expanded to develop educational programs, workshops, and outreach activities to educate people about coral reefs, threats, monitoring techniques, and the urgent need for conservation measures. However, feedback from these activities, coupled with research findings, indicate that while people are increasingly aware of the impacts of climate change on the reef, they are unsure about the actions that can be taken at an individual and community level to mitigate climate impacts.

The CoralWatch "What can I do" program, supported by the GBRF, aims to make climate change solutions accessible to a public increasingly committed to a decarbonized future. Using behavioural science approaches, the program seeks to empower individuals and families to be actively involved in climate change mitigation activities. The program will also use qualitative methods to measure impact and document successes, failures, and lessons learned to inform the replication and scaling up of similar projects across Queensland.

*Diana Kleine (Coral Watch)*

Diana Kleine is project manager for CoralWatch ([www.coralwatch.org](http://www.coralwatch.org)) since 2007, organising education, monitoring and outreach events globally. Diana's background is in teaching, graphic art and science communication aiming to raise awareness about coral reefs and to encourage people to help save reefs from home. Diana is co-author and designer of the book "Coral Reefs and Climate Change" published by CoralWatch (second edition 2012). Diana has been lucky to dive all over the world and is excited to present the CoralWatch 'What Can I Do?' project, inspiring especially youth and their families to reduce carbon emissions for the future of reefs.



*Karen Johnson (Coral Watch)*

Karen Johnson draws from her background providing environmental management solutions as a sustainability consultation and she is passionate about empowering people to become natural resource managers. People protect what they love and through citizen science and CoralWatch's monitoring program Karen shows people how they can make a difference and protect the health of our reefs.



*Co-authors: Yolanda Waters (CoralWatch and UQ), Angela Dean (UQ), Carissa Klein (UQ)*

## Co-Designing Community-Driven Strategies for Reducing Light Pollution in Queensland Coastal Areas

The “Reducing Light Pollution in Coastal Communities” project convened over 100 stakeholders from Queensland’s coastal regions to develop actionable solutions to light pollution challenges threatening marine life in the Great Barrier Reef (GBR) regions. This initiative focused on marine turtles, highly susceptible to light disturbances, through participatory co-design workshops held across Sunshine Coast, Bundaberg, and Gladstone.

The project was successful in engaging a diverse group of over 100 participants from Sunshine Coast, Bundaberg, and Gladstone. This group included a wide range of demographics, such as local residents, policymakers, and conservationists. These stakeholders actively participated in co-design workshops, which utilized collaborative discussions and strategy sessions to generate actionable insights.

The project’s findings revealed innovative strategies and recommendations for effective light pollution mitigation. It proposed stringent, turtle-friendly lighting regulations that mandate downward-facing, shielded fixtures to minimise sky glow. The project also suggested comprehensive public education initiatives to elevate community understanding of light pollution’s adverse effects, targeting educational institutions, community centres, and tourist hotspots. The introduction of incentive programs for residents and businesses to adopt environmentally friendly lighting was also recommended to foster community engagement and compliance. These programs would include financial subsidies for those installing compliant lighting systems and recognition awards for conservation efforts. Technological enhancements, such as the integration of motion-sensor and timer-based lighting solutions, were advised to limit unnecessary light usage during critical periods for wildlife activity. These technological solutions aim to balance human needs with environmental preservation.

The project exemplifies the potential of social sciences to lead substantial community-driven environmental change, offering a model that can be adapted and replicated in similar ecological settings to address other challenges of the GBR. This approach addresses immediate ecological challenges and fosters long-term sustainable practices within coastal communities.

*Bo Pang (Swinburne University of Technology)*

Dr Bo Pang: Dr. Bo Pang is a Senior Lecturer at Swinburne University of Technology Holding a PhD in Social Marketing and Behavioural Change, he specialised in design and evaluation of programs promoting wildlife conservation and energy efficiency. His research, supported by over AU\$2.9 million in funding, emphasizes evidence-informed interventions for positive social changes. Previously, he served as Deputy Director at Social Marketing @ Griffith Centre, Australia’s largest behavioural change research centre, before joining Swinburne.



*Sameer Deshpande (Griffith University)*

Dr Sameer Deshpande: Over two decades, in the area of ‘marketing for a better world,’ Sameer has taught, widely published in academic journals, books, and conference proceedings, reviewed, and trained and consulted with government and non-profit organizations in India, Canada, Singapore, Australia, and the U.S. He is the Editor of Social Marketing Quarterly. Sameer focuses on testing the effectiveness of behaviour change initiatives using social marketing frameworks, with particular emphasis on the consumer-insights approach in various contexts.



*Kate Hofmeister (Sunshine Coast Council)*

Kate Hofmeister is a conservation biologist and citizen science practitioner delivering threatened species conservation programming for Sunshine Coast Council. Kate has expertise in marine animal ecology and research, citizen science, restorative farming and traditional owner and community engagement. Kate is known for her careful diplomacy, persistence and dedication to informed and effective action. Kate was honoured by her community as a finalist for Citizen of the Year for the Sunshine Coast in 2023 in recognition of her contribution to community-based threatened species conservation.



*Co-authors: Associate Professor Sameer Deshpande (Social Marketing @ Griffith, Griffith University), Kate Hofmeister (Sunshine Coast Council), Lauren Stowe (Social Marketing @ Griffith, Griffith University)*

What makes Reef news? Who tells Reef stories and why? As social scientists, how can we amplify our stories in news and other media?

In this session, our esteemed panel will unpack news and other media, leading discussions around the ways the Great Barrier Reef is or could be, communicated in the public sphere. Our panellists include current and former journalists and academics who will share their expertise and experiences to help our social science community better understand and navigate the networks of contemporary media.

*Graham Readfearn*  
(Climate and Environment Reporter,  
*The Guardian Australia*)

Graham Readfearn is a climate and environment reporter for the Guardian, with almost 30 years experience in newspapers, magazines, radio and online news. Graham leads Guardian Australia's coverage of the science, health and politics of the reef.



*Claire Konkes*  
(Senior Lecturer in Environmental  
Communication, Media and  
Journalism, University of Tasmania)

Dr. Claire Konkes is a Senior Lecturer in Media and Communication at the University of Tasmania. Her work focuses on the role of news and other media in policy and governance debates. Her book, *Green Lawfare: The Strategic Use of Law in Mediatized Environmental Conflict* (Peter Lang), was released in June 2024. With experience in environmental advocacy and journalism, Claire brings a multi-sectoral perspective to her teaching and research, exploring how news media shapes societal understanding and response to complex challenges.



*Maxine Newlands*  
(Policy Analyst, Australian Academy of  
Science)

Dr. Maxine Newlands is a former journalist, and now a leading policy analyst and political scientist specializing in the media's impact on Reef policy. Max is a highly respected leader in environmental policy analysis and Reef politics. Her recent publications include editor of *Critical Approaches to the Australian Blue Humanities* (Routledge, 2024) and author of *Environmental Politics of the Great Barrier Reef* (Routledge, 2025).



*Sean Kennedy*  
(Senior Media Advisor, Climate Media  
Centre)

Sean has worked in the media industry for over 15 years as a producer on broadcast television programming and commercial production; he also has a community based ecotourism and agroforestry project in the Leuser ecosystem. He is passionate about science communication and supporting a public narrative which is conducive to humanity finding its equilibrium within nature by design rather than disaster.



*Karen Paterson*  
(Manager, National Indigenous Radio  
Service/Board Member, First Nations  
Media Australia)

Karen Paterson (nee' Dorante) is a Wagadam/Daurareb woman from the Torres Strait. She has been involved in media for over 30 years and is currently the general manager of the National Indigenous Radio Service, based in Brisbane. She has also worked in various roles at 98.9FM, Radio 4MW and the Australian Broadcasting Corporation. Karen is an advocate for the Indigenous community radio sector and is a director on First Nations Media Australia, Torres News and the Murri School.



## Entwining Women and the Great Barrier Reef: Stories of the Past, Prospects for the Future

In the early seventies, Alison Rickert arrived on One Tree Island as a young woman and began with her then partner to build the station facilities and participate in research projects. The story of the buildings that are there now, fifty years later, can be told through the life of Alison Rickert. In unpacking Alison's story, a new story of the Reef begins to emerge including and beyond the usual stories of science, industries and party politics. The Reef becomes a site of gender politics, of women's lives and bodies, of strength and violence, challenge and opportunity – of equity and justice. In this session, we bring Alison's story from the margins to the centre – and those of the many women who have already shared their stories as part of the Women of the Great Barrier Reef Project – to consider women's role in the past and future of the Reef. Cradled by Alison's experience and her insight, now and then, we explore the meaning and potential of women's stories of the Reef to retell the past, illuminate the present and critically, reimagine the future. We find extraordinary potential in women's stories of courage, creativity and cooperation to ignite more inclusive Reef futures for all.

### *Kerrie Foxwell-Norton (Griffith University)*

Kerrie Foxwell-Norton is an Associate Professor of Environmental Communication and a leader within the Griffith Climate Action Beacon at Griffith University. Her research explores the relations between culture and communication, with a special interest in Australia's coastal and marine environments and the communities therein. Kerrie is passionate about meaningful community-based research, fostering engagement and participation in environmental challenges. Her work is underpinned by the principles of equity and justice, seeking access and inclusion for diverse peoples and other species in pursuit of more positive environmental futures. Her collaborative research projects include Women of the Great Barrier Reef, Warming Up: Building the capacity of Australian community radio to communicate climate changes and Saving Our Species: Creating Systemic Change in Regional Communities (ARC/LP220200839). She is currently writing her first Reef book, *Communicating the Great Barrier Reef: Media, Politics and Ecology* (Palgrave MacMillan) which is due for release in 2025.



### *Deb Anderson (Monash)*

Deb Anderson is an academic based in Melbourne. Born in the Wet Tropics, she worked as a Fairfax journalist in Australia and overseas before joining Monash University as a lecturer in environmental journalism. Her research explores the lived experience and media coverage of Australian weather extremes in an era of highly politicised knowledge on anthropogenic climate change. She has published widely on the topic (eg. *Endurance: Australian Stories of Drought*, CSIRO Publishing, 2014), while recording oral history collections for cultural institutions such as Museum Victoria. Deb is now working on three projects in oral history: a State Library of Queensland project with Kerrie Foxwell-Norton on women's roles in protecting the Great Barrier Reef, a national study of women's climate journalism, and an Australian Research Council project on journalism, community and trauma.



### *Alison Rickert (Griffith University)*

Alison Rickert holds a Bachelor of Science (Honours) in biology and psychology. In the 1970s, she lived on remote islands on the Great Barrier Reef as a marine biologist, pioneering two research stations. Her connection with the Reef has spanned five decades. Raising three children awakened a fierce mother's love, which energises her advocacy for the places she loves. As a counsellor with Relationships Australia for twelve years, Alison learned the challenges of changing human behaviour. A climate change activist trained by Al Gore in 2006, she advocates for a planetary and feminine perspective, urging mindfulness of our interconnectedness and the need to act collectively to protect our planet.



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## One shock, many stories: Narrating and navigating social-ecological system futures after an extreme climate event

Climate change is rapidly altering the Great Barrier Reef, requiring governance solutions across multiple levels and sectors to navigate towards the best outcomes. In delivering acute social-ecological shocks, extreme climate events could provide opportunities for governance actors (i.e. managers and decision-makers) to re-imagine management goals and strategies and pursue inclusive social-ecological futures. Alternatively, these shocks may disrupt governance and ignite political tensions that instead drive governance actors apart. There has been limited empirical investigation of how governance actors envision social-ecological futures after extreme climate events, how these visions are entangled in the political dynamics of social-ecological systems, and what implications this has for governance. The preoccupation of previous research with the catalytic effects of individual 'leadership' ignores the multiple visions that may arise and be contested by a wider range of actors after a crisis. This overlooks opportunities to foster creative solutions and manage tensions between actor groups. We utilize narrative analysis to articulate the synergies and tensions between the multiple ways that governance actors envision futures after recurrent mass coral bleaching events on the Great Barrier Reef. We confirm that what counts as a "desirable" future is highly subjective, and that governance actors frame problems, solutions, and the role for other actors differently. We show that the level and sector of governance in which actors work shapes the narratives they construct. We conclude by exploring how new approaches could stimulate more effective multi-level, cross-sector governance, through assisting diverse governance actors to narrate and shape creative and inclusive paths forward.

*Amber Datta*  
(Arizona State University)

I am an environmental social scientist focused on adaptive and anticipatory coral reef governance.

My passion for marine governance in the Pacific grew from a childhood spent exploring the tidepools and reefs of Hawai'i. My dissertation research examined management and governance responses to mass coral bleaching events and implications for governing reefs. My postdoctoral research examines policy and legal mechanisms for overcoming barriers to community-led adaptive reef fisheries management. I completed a cotutelle PhD in Environment, Agriculture, and Related Studies at James Cook University and the University of Montana.

*Co-authors: Brian Chaffin, Tiffany Morrison, Carina Wyborn, Jill Belsky*



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## Co-creating future scenarios with Traditional Custodians in the Great Barrier Reef

Innovative approaches to planning for the future management of the Great Barrier Reef (GBR) are needed to help the GBR recover from impacts of climate change and other human pressures. Significant efforts have been applied in formal scenario and future planning of the GBR by federal managing authorities and scientific organisations. However, these efforts have limited recognition of the efforts carried out by the cultural authorities of Traditional Custodians (Australian First Nations Peoples) to apply their knowledges and aspirations for the future of their customary marine and terrestrial areas. First Nations Peoples perspectives and aspirations are critical to informing regional-level governance and maximising the GBR's chance of recovery and resilience. 'Indigenous futures thinking' is an emerging field with great potential for innovation and improved outcomes for First Nations Peoples and nature. We apply this approach using a co-design framework with the Woppaburra Traditional Custodians of the GBR to explore alternative future scenarios that support their aspirations, the health of their sea country, and their health more broadly. We demonstrate a novel application of qualitative mathematical modelling to weave together Western and Woppaburra knowledges that explores and identifies pathways and interventions to work towards their desired futures, as well as contribute to more inclusive and just management of the GBR.

### *Jess Cheok (CSIRO)*

Jess is an environmental scientist and spatial planner, with a focus on marine environments and problems of scale in natural resource management. Her work draws upon and integrates across diverse fields, using qualitative and quantitative research methods to tackle conservation and natural resource problems. Jess' current research focuses on co-designing approaches to futures thinking with Traditional Owner groups in the Great Barrier Reef, and exploring the types of resilience strategies and pathways adopted by these groups.



### *Sonny Van Issum (Woppaburra TUMRA)*

Sonny is a Woppaburra Traditional Custodian and is descended from the Mumkwadran family. He is the Chairperson of the Woppaburra TUMRA Aboriginal Corporation, as well as a Principal Research Fellow at the Griffith Centre for Social and Cultural Research. His involvement in various local, state and national committees aims to improve access, participation, and opportunities for Woppaburra people to engage meaningfully with their Country, through cultural revitalisation, protection and conservation. He believes that Traditional Custodians have an obligation to look after their Sea-Country and also lead the way to include other stakeholders, such as the Reef Authority, QPWS, and the broader community.



### *Rob Muir (Woppaburra TUMRA)*

Rob is a Woppaburra Traditional Custodian and is descended from the Oorong-Ooran family. He is Project Manager for the Woppaburra TUMRA Aboriginal Corporation, and works with Darumbal, Yuwi, PCCC and the Reef Authority on the Southern Plan of Management for the GBR. He is interested in how customary governance can improve decision-making for the Reef and how Indigenous perspectives can contribute innovations to different areas of science and decision-support activities happening in the Reef and neighbouring regions.



*Co-authors: Ilisapeci Lyons (CSIRO), Beth Fulton (CSIRO), Iain Gordon (ANU), Garry Peterson (Stockholm Resilience Centre), Liz Wren (Great Barrier Reef Foundation)*

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## Rights and Restoration: examining power and equity in agreement-making frameworks to advance stewardship of the Great Barrier Reef Sea Country

Ecological restoration is a global priority response in the face of unprecedented environmental decline and climate change. With the declaration of the UN Decade on Ecosystem Restoration 2021–2030, restoration is increasingly promoted on an international scale as a mechanism for achieving multiple ecological and social objectives. Concurrently, the need for restoration to respect the rights, aspirations and agency of First Nations Peoples has gained international attention as many ecosystems of restoration interest are within Indigenous territories. Claims that restoration, and broader environmental management, are historically and presently intertwined with settler colonial power structures, make a strong case for more transformative, socially just approaches to stewardship that promote genuine power-sharing. Here, I explore agreement-making, specifically Traditional Use of Marine Resources Agreements (TUMRAs) on the Great Barrier Reef (the Reef), as one such approach. TUMRAs are statutory co-management agreements that identify how Reef Traditional Owners steward their Sea Country estates in partnership with Commonwealth and Queensland governments. The research questions the multiple ways in which power relations infuse these agreement-making processes, exploring if and how they support or inhibit the agency and inherent rights to self-determination of Reef Traditional Owners at varying scales. Preliminary findings highlight how Reef Traditional Owners strategically engage with these legal systems to collectively advance their cultural and political autonomy through environmental management. Research outcomes also bring attention to issues of equity, justice and decolonisation, with implications for compliance with obligations under the UN Declaration on the Rights of Indigenous Peoples and Convention on Biological Diversity.

*Danielle (Dani) Nembhard*  
(The Cairns Institute, JCU)

Dani is a transdisciplinary environmental and social scientist and aspiring scholar-activist. Her current research as a doctoral candidate at The Cairns Institute (JCU) involves a multiscale, historically grounded exploration of how power relations mediate mechanisms designed to support Indigenous-led restoration on the Great Barrier Reef. Previously, Dani worked as an environmental consultant in the Caribbean, specialising in environmental management, restoration, climate adaptation and disaster risk reduction. Her research interests include decolonial and anticolonial models of coastal and marine environmental governance, biocultural diversity and restoration, and the dynamics of power, equity and justice in environmental co-management and conservation approaches.



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## Green lawfare on the Reef: The strategic use of law in GBR communication

The concept of “green lawfare” emerged in Australian news media following the Federal Court’s decision to reject the approval of Adani’s Carmichael mine in 2015, but it has a longer history. Environmental law has grown alongside the global environmental protest movement for more than half a century so that most countries now have environmental laws, greater environmental regulations, and environmental departments, and green lawfare describes how environmental advocates, government and industry actors, and others strategically use a wide range of law in their struggle for definition and legitimacy in increasingly mediated environmental conflict. Green lawfare includes legal challenges to planning decisions that receive scant media attention and strategic litigation designed as much for media visibility as for judicial outcome, the imagining of ecosystems as having legal personhood, strategic litigation aimed at silencing critics, police harassment of activists and journalists, and digital surveillance of activists and journalists.

Its pejorative use of the term green lawfare, however, especially by Australian conservatives, signals an unease with a communication environment that uses the legal system not as a safe harbor for those avoiding the visibility of environmental politics but as an arena of contest.

The full gamut of green lawfare can be observed in environmental conflict around the Great Barrier Reef. Drawing on recent examples, this paper offers a grounded theoretical approach to examine how law is evoked in much of the communicative action informing recent contests over the future of the Great Barrier Reef.

*Claire Konkes*

Claire Konkes is a Senior Lecturer in Media at the University of Tasmania. Her research explores the intersections of news media, public debate, policy and law, especially in environmental matters. Some of her recent projects have looked at media representations of environmental public interest litigation and Australian environmental policy, and her book, *Green Lawfare* (2024) looks at the strategic use of law during environmental conflict. Her journalistic work has been published in *The Monthly* and *The Conversation*.





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## Policies and legislation for Resilience-Based Management (RBM)

Resilience-Based Management - RBM is a climate change adaptation measure proposed by scientists to counter global reef decline. This management strategy considers cumulative impacts, using knowledge of drivers influencing current and future ecosystem functions, to prioritize, implement, and adapt actions that increase the system's resilience (McLeod, 2019). This study focuses on threat mitigation, the most viable and cost-effective action to increase resilience (Maynard, 2010). Considering that policies and legislative instruments can strongly influence threat reduction - controlling activities, inducing behaviors, offering guidance - this research aimed to understand what characteristics policies and legislation might have to support RBM. To date, researchers have worked on RBM definitions, principles, and recommendations. But there has not been much discussion in the literature about the relationship between RBM and legislative and policy instruments, beyond recognition of their importance as tools for implementing RBM. To address this gap in knowledge, this research adopted a case study approach to understand how policies and legislation are implementing RBM on the Great Barrier Reef (GBR). Guided by a philosophical perspective based on constructivism, research methods involved qualitative content analysis and doctrinal research of documentary evidence (i.e. policies, plans, programs, strategies, legislative instruments, technical reports, journal publications). Based on this analysis, this study (i) developed an RBM Framework that offers a holistic view of the context in which policies and legislation operate, including relevant elements that influence impact reduction and (ii) applied the RBM Framework to the GBR, which resulted in recommendations for policies and legislation to support RBM.

*Liza Rolim Baggio*  
(Phd Candidate at UQ)

Liza Rolim Baggio is a Phd Candidate at the School of Law, at the University of Queensland, with expertise in environmental law and passionate about nature. Liza's main interest is to understand how policies and legislation can support sustainable development, which encompasses reducing human pressures. During her career as a lawyer and environmental consultant in Brazil, Liza has participated in projects for the protection of the Atlantic Forest of the Northeast of Brazil, funded by the Brazilian Biodiversity Fund - Funbio, and by the Demonstrative Projects Subprogram - PDA of the Federal Department of the Environment.



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## Big (data), bold (approaches), and beautiful (networks): Introducing a new methodological pipeline to understand GBR communicative dynamics

Digital communication spaces are key sites of knowledge formation and contestation, including about the Great Barrier Reef (GBR), its health, its threats, and the extent of action required to address significant threats like climate change.

While recent research has identified some of the drivers, narratives and tactics at play within contemporary communication networks that could undermine public support for protection and policy, further work is required to better understand these dynamics.

This presentation introduces a mixed-methods pipeline that combines computational social science with qualitative methods, and attitudinal insights from surveys. Specifically, LLM-assisted discourse analysis can be used to classify GBR-related claims at scale. These labelled data are then mapped as social networks to investigate how claims are being furthered, and by whom. Next, these claims and information-sharing patterns are considered over time. These insights are then compared with GBR public perceptions data from other sources, like the Social and Economic Long-Term Monitoring Program (SELTMP).

Examining communicative dynamics in this way can highlight useful patterns for further investigation. For example, despite the increasing frequency of mass coral bleaching, SELTMP shows fewer GBR catchment residents perceive climate as a serious threat to the GBR now, than in 2017. Also, trust in scientists from research institutions is declining. Are there any relationships with these attitudes to attention-getting content, claims, and the stances of central actors in observable communications spaces?

While useful for GBR communicators and policymakers to understand these dynamics, this pipeline also has utility for other mediated environmental conflicts, such as Australia's renewable energy transition.

*Carly Lubicz-Zaorski* (QUT)

Carly Lubicz-Zaorski is a PhD researcher at Queensland University of Technology (QUT). Her interests are in media, politics and environmental policy. She is part of an ARC Laureate Fellowship project: Determining the Drivers and Dynamics of Partisanship and Polarisation in Online Public Debate, with her research focused on Australian climate change policy discussions, including discourses, drivers, and networked discursive alliances. Carly completed her MPhil at James Cook University in 2022 and was awarded a 2023 Dean's Award for Research Excellence for this work. Carly has worked in the Australian media, science communications, and in environment-focused areas of government.



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## Ocean ID. The transformative potential of AI in Biodiversity Conservation

The application of cutting-edge AI technology, specifically facial recognition, presents a groundbreaking approach to conservation efforts for endangered marine species on the Great Barrier Reef and beyond. This study explores the feasibility and effectiveness of utilising AI-powered facial recognition to monitor and protect vulnerable marine animals such as sea turtles, sharks and dugongs. By leveraging advanced machine learning algorithms, the system identifies individual animals based on unique facial features, enabling precise tracking of population dynamics, migration patterns, and habitat usage without invasive methods. The implementation of AI facial recognition holds immense promise in overcoming traditional challenges in marine conservation, including costly and labor-intensive monitoring & identification errors. Real-time data collection facilitated by this technology enhances conservation strategies by providing timely insights into population trends and behavioural changes crucial for informed management decisions. Moreover, the noninvasive nature of AI-based monitoring reduces stress on wildlife, ensuring minimal disturbance to their natural habitat.

This abstract underscores the transformative potential of AI in biodiversity conservation, illustrating its role in revolutionising monitoring practices and fostering sustainable coexistence between marine life and human activities. As threats to marine ecosystems intensify, integrating AI technologies offers a proactive and scalable solution to safeguard endangered species on the Great Barrier Reef and beyond.

*Sarah Jantos (Green Heroes)*

Sarah is the founder of the Australian Registered Charity Green Heroes and a dedicated advocate for marine life conservation.

Through her work in designing community engagement opportunities, she aims to foster a deep appreciation for the interconnectedness of all living things, believing that “to co-exist with nature is both a privilege and a responsibility.” With hands-on experience as a wildlife rescuer for both terrestrial and aquatic species, Sarah understands the critical need to involve and empower the entire community in meaningful projects to prevent the extinction of vulnerable ecosystems and animal species. Her efforts have earned her several awards, most recently, NSW Community Educator of the Year from the Australian Association of Environmental Education (AAEE). Before founding Green Heroes in 2016, Sarah served as a frontline project manager and nurse with humanitarian organisations Médecins Sans Frontières and others.



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## Creatively connecting to the Reef through VR gaming – an affair of the heart

The concepts of ecoliteracy and connection to our natural environments are increasingly important in sustainability (West et al., 2022). This project targets these through a virtual reality reef game, which invites players to build, nurture and connect with their own 360-degree, virtual reef. From a theoretical perspective the game targets concepts of reducing psychological distance, relationality, and ecoliteracy. From a practical perspective, the game is immersive, engaging, and has demonstrable behavioural outcomes of increasing propensity to donate to marine conservation (Coghlan, 2022).

A secondary outcome emerging from the game is its apparent ability to increase the player’s wellbeing. Coghlan and Carter (2020) shows players engaging with the game for 40 minutes, more than twice longer than the average first time player according to Alsop (2022). Meanwhile anecdotal evidence suggests that players experience a sense of calm and wonder while playing the game, not dissimilar to the wellbeing effects of gardening, including marked improvements in stress, depression, anger, loneliness, mood and restorativeness (Soga et al., 2017). To further explore the wellbeing benefits of the VR reef game, this study analyses the heart rate variability (HRV) of participants while playing the game - given that low HRV is a well-known indicator of stress.

*Alexandra Coghlan (Department of Tourism, Sport and Hotel Management, Griffith University)*

Alexandra Coghlan is an Associate Professor of Sustainable Tourism in the Department of Tourism, Sport and Hotel Management at Griffith university. Her research focuses on nature connectedness and new paradigms in sustainability and business. She has worked and researched in and around tourism on the Great Barrier Reef since 2004. More broadly, she is one of four Associate Editors for the Journal of Sustainable Tourism and author of the textbook Introduction to Sustainable Tourism Management (2nd Edition, published in 2023), as well as close to 100 journal articles on tourism and sustainability.

*Co-authors: Anna Kralj (Griffith Institute for Tourism, Griffith University), Minh Nhan (Griffith Institute for Tourism, Griffith University)*



## AR Reef: Exploring the impact of augmented reality on ocean identity and human connections to the Great Barrier Reef in the digital era

This presentation aims to explore the role of augmented reality (AR) – a technology that overlays digital information onto the real-world environment – in fostering human connections to the ocean, using the Great Barrier Reef (GBR) as a case study. In the context of the UN Ocean Decade, which calls for a transformation of “the relationship between people and the ocean”, this study will examine how AR can expand or limit these relationships through the concept of ocean identity. The GBR, facing threats as an ecosystem, serves as an indicator of planetary health, highlighting the intricate links between humans and coral reefs. The construct of ocean identity – the connection between an individual’s self-concept and ocean spaces – can be a key factor in promoting pro-environmental behaviours and sustainable practices, and may have a role in GBR management and protection. Grounded in environmental sociology and ecopsychology, the presentation will present how digital technology can impact the emotional, cognitive, and behavioural dimensions of ocean identity, providing insights to support conservation, and the integration of digital technologies to deepen human connection with the GBR.

*Melusine Martin*  
(Sorbonne Université/JCU)

Melusine Martin is an environmental and digital social scientist, previously a Landhaus Fellow at the Rachel Carson Center and currently an Adjunct Research Fellow at James Cook University. Her research explores human-nature relationships in the digital era, focusing on identity, marine environments, and digital technology. With a PhD from Sorbonne Université and James Cook University, she has contributed to global projects like the International Coral Reef Initiative and the Reef Restoration and Adaptation Program. Her first book “Reconnectez-vous à la nature” [Reconnect to Nature] was published in 2024 by Larousse.



3.00 pm Session 2.2: The gallery of frames

UNIBAR FUNCTION ROOM

## Cultivating capitals: A framework for understanding social relations with the Great Barrier Reef

Innovative strategies to enhance the resilience of socioecological systems like Australia’s Great Barrier Reef demand a robust and inclusive understanding of the human communities embedded within these systems. As Folke et al. (2010) point out, however, many problems in natural resource and environmental management stem from an entrenched inability to approach the social and the ecological as inextricably connected, with human communities still often considered to be external users or stakeholders in ecological systems. In this paper we offer an alternative approach. As part of a comprehensive program of social research conducted under the Reef Restoration and Adaptation Program (RRAP), we conducted in-depth interviews with 140 people living and working in and around the Reef. Inviting participants to provide candid accounts of their experiences and connections with the Reef, we used a narrative approach to explore the multiple and overlapping opportunities that the Reef offered their lives. Drawing on Bourdieu’s theory of practice we show how, while the Reef is undoubtedly a living and physical environment in these accounts, it is simultaneously an experiential and a social field within which participants accumulate and mobilize different resources or forms of capital. Synthesizing our findings into a Reef community capitals framework, we discuss how this might enable more holistic approaches to resilience in the Great Barrier Reef.

*Gillian Paxton*  
(The Cairns Institute, JCU)

Dr Gillian Paxton is an environmental anthropologist and a Research Fellow at the Cairns Institute, JCU. She currently works under the Reef Restoration and Adaptation Program (RRAP) and the Crown-of-Thorns Starfish Control Innovation Program (CCIP), where she conducts ‘deep dive’ qualitative social research to gain a nuanced understanding of Reef communities’ perceptions of and aspirations for reef adaptation and restoration. Prior to this, she led several research projects across several organisations on issues including human-wildlife relationships, drought and climate adaptation, Reef community engagement and the adoption of sustainable technologies.



*Co-authors: Stewart Lockie, Linde Draaisma, Henry Bartelet, Vincent Backhaus (The Cairns Institute, JCU)*

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## Integrating Socio-Economic Information for Effective Management of the Great Barrier Reef: Insights from an Ecosystem Service Value Chain Framework

Throughout the extensive history of human dependence on the Great Barrier Reef ecosystems, management choices have predominantly leaned towards ecological and biophysical data rather than socio-economic data. A major reason has been the absence of centralised socio-economic data collected systematically and purposefully, making their application for environmental management decision-making challenging or impractical. Drawing on an extended ecosystem accounting framework created to assemble the many values held by people, we present and test an Ecosystem Service Value Chain (hereafter, Value Chain) approach as a tool for visualising, organising and prioritising socio-economic data. The Value Chain represents the stages and processes involved in the delivery of ecosystem services, from the different coastal and marine ecosystems of the Great Barrier Reef to the ultimate beneficiaries classified as government, industries, households, and Traditional Owners. In this way it provides a practical avenue to understand who benefits from what, as well as how the benefit can be quantified or qualified. The Value Chain also provides a systematic approach to 1. understand data quality, validity, and reliability, 2. identify existing data gaps, and 3. suggest possibilities for these data to be turned into usable information for effective decision-making. We reflect on where this approach worked well, where it did not and discuss possible solutions for further improvements and applications.

*Jeremy De Valck (CQU)*

Dr. Jeremy De Valck is a Belgian-Australian environmental economist serving as a Senior Research Fellow at Central Queensland University (CQU). He leads the Research Theme for Regional and Rural Economies within CQU's Centre for Regional Economies and Supply Chains (CRESC). Additionally, Jeremy is actively involved with CQU's Coastal Marine Ecosystems Research Centre (CMERC) and the Australasian Agricultural and Resource Economics Society (AARES). Originally trained in Forest Engineering in Belgium and Natural Resource Management in the UK, Jeremy earned his PhD in Environmental Economics from KU Leuven (Belgium) in 2015. Subsequently, he joined CQU in Brisbane as a researcher on Prof. John Rolfe's team.



Over the past eight years, Jeremy has led or contributed to 26 successful research projects for industry, and local, state, and federal governments, resulting in numerous publications, presentations and reports. His research focuses on environmental, ecological, and resource economics, with additional interests in regional development, sustainability, agriculture, GIS, and decarbonisation. Much of Jeremy's research specialises in applying stated preference non-market valuation techniques, such as choice modelling, to study environmental assets, and understand people's preferences for different environmental management policies.

Driven by a profound passion for the environment, Jeremy has been particularly drawn to the Great Barrier Reef, one of the world's most iconic ecosystems. His research includes studying the economic implications of water quality changes in the Reef, exploring biodiversity valuation in complex ecosystems, and valuing ecosystem services that benefit society.

*Co-authors: Anthea Coggan (CSIRO), Petina Pert (CSIRO), Diane Jarvis (JCU), Victoria Graham (JCU), Cindy Huchery, (The Reef Authority), Michelle Dyer (The Reef Authority)*

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## Holistically managing the values of the Great Barrier Reef: Lessons learned from applying the Whole-of-System, Values-Based Framework

Humans highly value different aquatic ecosystems of the Great Barrier Reef and its catchments for the variety of biophysical, social, economic and cultural services they provide. Yet, humans are also impacting these same systems through a range of direct activities such as development and changes in land use, and indirectly through the impacts of climate change. Understanding the parts of a system (e.g. the components), how it works (e.g. the processes), how they operate within the landscape at multiple scales, and the services and values they provide, are critical to developing appropriate management activities. The Whole-of-System, Values-Based Framework (the Framework) uses a holistic, integrated management approach to achieve outcomes that consider the biophysical environment alongside social, economic and cultural outcomes at multiple temporal and spatial scales. Although the Framework has underpinned the work of the Queensland Wetlands Program (coordinated by the Queensland Department of Environment, Science and Innovation) for 20 years, it has not been implemented through a full catchment planning approach. Through collaborations with on-ground regional partners, this presentation demonstrates the lessons learned from the development of a plan based on the Framework, including a preview of templates for applying the Framework to other systems within and outside of the Reef. Continuous adaptation of the Framework informed by the lessons learned through its application makes the Whole-of-System, Values-Based Framework a tool that can promote collaboration and foster creative solutions that promote the continuity of the Reef and the ecosystems within its catchment.

*Rachel L Miller  
(Queensland Department of  
Environment, Science and  
Innovation)*



Dr. Rachel Miller is a Senior Project Officer in the Wetlands Unit of the Queensland Department of Environment, Science and Innovation (DESI). Rachel is an environmental social scientist who is passionate about promoting stakeholder engagement to enhance biologically appropriate and socially equitable conservation outcomes. At DESI, Rachel has played an integral role in developing the social science components of the Whole-of-System, Values-Based Framework, including developing web content about ecosystem services, values, and beneficiaries, and expanding the overall social science portfolio of the Wetlands Unit.

*Co-authors: Matthew Griffiths (Queensland Department of Environment, Science and Innovation), Liz Owen (Jaragun EcoServices), Dennis Ah-Kee (Jaragun EcoServices), Mike Ronan (Queensland Department of Environment, Science and Innovation)*

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## A study of ecosystem service provision in tropical marine environments and its connection to habitat types in the Great Barrier Reef Marine Park

The benefits that human populations acquire from marine ecosystems are various and complicated. Despite marine ecosystem service approaches increasing in popularity, information is scarce about how marine ecosystem service supply relates to individual habitat types at the level at which they are often considered in management. We undertook a two stage analyses to obtain a greater understanding into the links between tropical marine habitat types and ecosystem services. First, we assessed studies of tropical marine ecosystem services, with the intention of describing the strengths and weaknesses of current knowledge and connecting identified ecosystem service to individual habitat types. Second, we examined if we could use our new understanding to link ecosystem services to habitat types by mapping ecosystem service supply on Australia's Great Barrier Reef Marine Park. The first step of our analysis demonstrated that although certain habitat types (e.g., seagrass, mangrove and coral reefs) and their associated ecosystem services are well described, others (e.g., sandy shores, and pelagic waters) are far less studied. The spatial component of the analysis demonstrated that habitat mapping can provide a potentially valuable interface between the types and locations of marine ecosystem services. Overall, we found that tropical marine ecosystem services were predominantly located around reefs and in close vicinity to human populations. Our results emphasize the potential worth of ecosystem services approaches for informing management decisions that better link ecological and human values in tropical marine ecosystems.

*Mark Asher Ford-Learner  
(JCU)*



I am currently based in Melbourne and work as an environmental advisor for a disaster management company. I hold a Master of Science in Marine Biology from JCU in Townsville (2021-2022) and a double degree in Arts and Science from Monash University (2016-2020). During my master's, I conducted a research project on ecosystem service supply on the Great Barrier Reef that is in review for publication (the focus of this speed talk). Outside of work and study, I enjoy ocean swimming and running.

*Co-authors: Graeme Cumming (The University of Western Australia), Jane Addison (JCU)*

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## Assessing values for Nature-based Solutions in the Great Barrier Reef: an Environmental Economics approach

Nature-based Solutions (NbS) are defined as human actions to conserve, restore, or create ecosystems to provide multiple benefits to people and nature, addressing societal challenges. This appealing conceptualisation has granted them significant attention and broad support. Importantly, it raises questions about whether NbS can achieve long-term sustainability in the Great Barrier Reef (GBR) region and the level of social support for their implementation. Our research uses environmental valuation (i.e., Choice Modelling) to investigate social preferences and attitudes towards implementing NbS. Our first study used choice models to assess support for funding four types of ecosystem creation projects (including coral gardening) in Queensland. Using mixed logit models, we tested the influence of the projects' size and uncertainty and found that households are willing to pay approximately AU\$ 75-100 per year to implement these projects. Interestingly, our models show that relational values explain people's choices better than the contested dichotomy between instrumental and intrinsic values. The strong association between NbS and relational values offers an opportunity to reframe human-nature relationships. Despite these valuable findings, key questions remain unanswered. Therefore, we are designing a second study to understand whether and why public preferences might vary across (1) management levels (i.e., conserve, restore, or create), (2) ecosystem types (i.e., seagrass, mangroves, corals), and the projects' (3) size, (4) certainty and (5) costs. Our results will shed light on the rationale and motives for supporting NbS implementation and aid decision-makers in the allocation of public funds for NbS in the GBR region.

*Rodrigo Zilleruelo (CQU)*

Rodrigo Zilleruelo holds a bachelor's in marine biology from the Pontifical University of Chile and a Master's in Ecological Economics from the University of Edinburgh. He's currently doing his PhD in environmental economics at Central Queensland University. He has five years' work experience as an environmental economist for the private and public sectors, and three years' teaching experience.



*Co-authors: John Rolfe (CQU), Jeremy de Valck (CQU)*

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## Drivers of willingness to pay among scuba divers in the Great Barrier Reef

Financing the establishment and long-term management of marine reserves remains a significant challenge for many coastal communities. Resource users, such as scuba divers, are known to place a premium on pristine ecological conditions typically found inside marine reserves, and several countries have introduced a user fee for diving in marine reserves, to serve as a revenue stream for their conservation efforts. We conducted a willingness-to-pay (WTP) study with 170 scuba divers in the Great Barrier Reef region to quantify their WTP for various changes in reef attributes. We also explored whether the divers would pay a premium to access highly protected dive sites. We found that divers assigned the highest WTP to experience high coral cover, fish diversity and abundance. Divers were willing to pay 14.50 AUD to dive in a marine reserve even if the biological conditions inside the reserve were identical to those in less protected areas. We also found that most divers were willing to pay a user fee when the purpose of the fee (i.e. to support conservation) was explicitly stated. Our findings can assist the dive tourism industry and Reef managers in their planning for future coral reef tourism opportunities that will help contribute towards the costs of Reef protection initiatives against the backdrop of environmental change.

*Alessia Costa (College of Science & Engineering, JCU)*

Alessia is a PhD candidate at James Cook University (JCU) in Townsville. Her research focuses on designing equitable marine protected areas (MPAs) that generate both socioeconomic and ecological benefits. She has previous experience as a research assistant in a project aimed at stakeholder engagement and developing partnerships to support the establishment of MPAs for fisheries management in Indonesia. In January, Alessia completed a Master of Marine Biology at JCU in marine conservation and management. Her Master's project was supervised by Dr. Reniel Cabral and Dr. Matt Curnock, and it focused on alternative financing mechanisms for the management of MPAs, currently in the process of publication.



*Co-authors: Matt Curnock (CSIRO Environment), Reniel B. Cabral (College of Science & Engineering, JCU)*

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## Spatially-integrated social insights to inform Marine Park planning

The Great Barrier Reef Marine Park Authority (Reef Authority) is working together with Traditional Owner groups and in collaboration with the Queensland Parks and Wildlife Service to develop a new Plan of Management for the southern area of the Marine Park. The Southern Plan of Management aims to safeguard all values of the Great Barrier Reef Marine Park while allowing for multiple uses, reduce conflicts among users, and increase Reef resilience to climate change impacts.

Consultation with relevant groups in the southern Reef is critical to the success of the Plan. This year, the Reef Authority used an innovative online submission form that enabled people to identify locations that are important to them on a digital map of the planning area, and specify the multitude and magnitude of reasons why they value these places. The design of this consultation tool brought together spatial and social sciences. Importantly, social values were defined and measured using guidance from the 2022 IPBES Values Assessment (<https://www.ipbes.net/the-values-assessment>), which represents the latest global thinking on social values of nature.

We will present a summary of the methods used in this consultation and share results to date to demonstrate the value of social science-informed, spatially-integrated research for marine spatial planning.

*Vicki Martin  
(Mosaic Insights)*

Vicki is a social scientist with interests in public engagement in environmental decision-making, behaviour change, stewardship, and communication. Although she has worked on a wide variety of issues across the globe, she is most passionate about the marine environment. She has over 25 years of experience in research and consulting, which started on the Great Barrier Reef in the mid-1990s. Since then, Vicki has worked with interdisciplinary teams in many parts of Australia, New Zealand, the U.S.A., and Chile. At Mosaic Insights, Vicki is leading several social research projects for the Reef Authority and the Great Barrier Reef Foundation.



*Co-authors: Michelle Dyer, Cindy Huchery, Tanja Brugmann, Eve Hinchliffe, Elodie Ledee, Melody Field (The Reef Authority), Jake Allen (Mosaic Insights)*

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## A more complete picture of river health: Understanding the human dimensions of waterway health in the Fitzroy Basin

The Fitzroy Partnership for River Health aims to create a more complete picture of river health through their state-of-the-environment monitoring. Socio-ecological system theory reveals that a comprehensive understanding of ecosystem functioning requires understanding the human dimensions of ecosystems. This public participation mapping research shows human dimensions of ecosystems are significantly influenced by socio-cultural processes which shape when and how people interact with waterways. Simultaneously, this research has shown there is a positive relationship between measures of biophysical ecosystem condition and human dimensions values, but these relationships are not simple, and we cannot draw linear conclusions about how interconnections function. Human dimensions and biophysical dimensions interact dynamically in socio-ecological systems. Local, participatory research begins to shed light on these interactions in the Fitzroy Basin, supporting development of integrated socio-ecological system monitoring.

*Myfina Healy (Fitzroy Partnership for River Health)*

I don't describe myself as belonging to a single discipline, in fact, since I began my study and working career, transdisciplinary thinking and has stood out to me as being our most important way forward in the sustainability and environment space. I studied a Bachelor of Arts in Human Geography and Anthropology, and I have recently completed my Masters in Sustainability and Environment specializing in Environmental Governance. I work with the Fitzroy Partnership for River Health Regional Report Card reporting on waterway ecosystem health and working with community.



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## Why did they break rules, and what should we do about it? – Understanding Marine Park compliance and integrating insights into management

Marine park compliance is a significant challenge for managing government agencies. Park users break the rules for a vast array of often complex reasons. Understanding the contributing factors to compliance can help inform managers' decision-making for more behaviourally effective outcomes. Considerable research has occurred to help understand those who access and use the Great Barrier Reef for fishing and tourism; some of which has focused on compliance. This includes the present research conducted through an integrated PhD, investigating contributing factors and developing improvements at the Great Barrier Reef Marine Park Authority. Workshops were held and further collaboration occurred to holistically understand and visually map Great Barrier Reef Marine Park tourism operator and recreational fishing zoning compliance. Several identified contributing factors will be discussed and visualised (such as environmental factors for recreational fishing and the role of the visitor in tourism management). Increased understanding of compliance issues has also led to developing and refining tools to better capture and use visitor and offender data to inform management. One key component has included developing and implementing a process to characterise recreational fishers into five offender types. This can be used to better select compliance actions, understand changes in offending over time and inform broader treatments such as communications activities.

*Catherine Moltzen  
(University of New England)*

Catherine has a long history in regulatory compliance, including at the Great Barrier Reef Marine Park Authority and the Queensland Department of Agriculture and Science. She's witnessed some pretty fishy behaviour, which inspired her to pursue an applied PhD to understand marine park user behaviour and integrate behavioural understanding into regulatory practice.



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## Developing and implementing the PROTECT platform for monitoring Reef stewardship

The Reef 2050 Plan includes five human dimension objectives, one of which is Stewardship, recognising the essential role community members play in protecting and restoring the Reef. However, a systematic monitoring framework to track progress toward this stewardship objective has been lacking. To fill this gap, the People and Reef Organisations Tackling Environmental Change Together (PROTECT) project, funded by the Reef Trust Partnership, has developed a monitoring platform for Reef stewardship.

This interactive, spatially based platform captures and displays the collective efforts of programs and initiatives that support Reef stewardship, along with individual actions to protect and care for the Reef. Additionally, the platform introduces an innovative approach to allow groups to share stories of impact to highlight how their activities have contributed to improvements to Reef health and/or yielded benefits for the people involved.

Developed with feedback from a diverse range of end-users, including community groups, NRM organisations, and policy and decision-makers at both state and federal levels, this platform aims to be both practical and useful. This presentation will explore the platform's development, emphasising its functions and potential uses. We will reflect on the journey thus far, discussing the challenges and limitations of our approach and their implications for the future of Reef stewardship monitoring. The talk will conclude with the next and final steps for the PROTECT project as it approaches its conclusion in 2024. The PROTECT project is funded by the partnership between the Australian Government's Reef Trust and the Great Barrier Reef Foundation.

*Tracy Schultz (UQ)*

Dr. Tracy Schultz is a behavioral scientist specialising in social research that drives pro-environmental behaviors. She achieves successful project outcomes by collaborating with project partners and stakeholders, fostering effective relationships, and building capacity to deliver impactful environmental results.



*Co-authors: Thom Saunders (QUT), Kate Thompson (QUT), Liz Hobman (CSIRO), Sam Stone-Jovovich (CSIRO), Kirsten McClean (CSIRO), Angela Dean (UQ)*



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## Predictors of marine stewardship behaviour among residents of the Great Barrier Reef region and the role of self-efficacy

As the Great Barrier Reef (GBR, the Reef) faces unprecedented threats, reducing direct pressures from Reef users and fostering stewardship within coastal communities are among the strategic priorities identified in the Australian and Queensland Government's Reef 2050 Long-Term Sustainability Plan. However, the motivational and contextual drivers of Reef users' adoption of stewardship behaviours are poorly understood. Using Bennett and others' (2018) analytical framework of environmental stewardship, our study investigated (i) the relative importance of self-efficacy (i.e. an individual's confidence in their own ability to achieve an outcome) as a motivational predictor of marine stewardship behaviour on the GBR and (ii) factors that influence self-efficacy in relation to Reef-protection. With survey data from 2,317 residents of the GBR region, and using logistic regression tests, we found that self-efficacy was among the significant predictors of self-reported stewardship behaviour, along with respondents' sense of moral obligation to help the Reef, their knowledge of how to help, and their lifestyle values associated with the Reef. Significant predictors of self-efficacy included respondents' knowledge of how to help the Reef, their level of trust in science institutions as a source of Reef-related information, and their belief in climate change as a threat to the GBR. Our findings provide an important empirical contribution to understanding motivational and contextual drivers of stewardship behaviour. These findings highlight factors that could be targeted as leverage points to enhance self-efficacy among residents in the GBR region and thereby remove potential barriers to their adoption of marine stewardship behaviours.

*Jane Dousset (JCU)*

Jane Dousset is a Master of Marine Biology graduate from James Cook University. Jane first discovered her passion for marine biology during her Bachelor of Science at the University of Melbourne. Trading the cool Melbourne climate for the tropics, Jane focused her studies at JCU on marine conservation and management, and recently submitted her master's thesis investigating the role of self-efficacy in marine stewardship action on the GBR. Whilst studying, Jane applied her skills as a Geospatial Analyst at the Reef Authority and she looks forward to continuing to work in the marine management and conservation space in the future.



*Co-authors: Zoe Wang (College of Arts, Society and Education, JCU), Matt Curnock (CSIRO Environment)*

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## Analysing the factors influencing the adoption of improved land management practices in Great Barrier Reef catchments

The degradation of water quality in the Great Barrier Reef (GBR) is a major concern in Australia. Evidence has confirmed that pesticides, nutrients, and sediments transported into the GBR lagoon mainly come from agriculture in the catchment areas. Despite the efforts of Queensland and the Australian governments to improve the water quality entering the GBR by encouraging better land management practices, the current slow rate of adoption by landholders means that targets in the GBR Water Quality Improvement Plan are unlikely to be met. This study uses a desktop review to identify what drives the adoption of better management practices and how adoption rates can be improved. We searched the published literature (forward and backward) using Scopus, ScienceDirect, and Google Scholar and identified 30 peer-reviewed articles about adoption in the GBR for analysis. The results show that a large number of adoption drivers have been identified, including economic returns, risk and uncertainty, transaction costs, and trust. While the studies provide a comprehensive list of the factors that might be important, they are not very helpful in identifying what should be done. We identify gaps in the literature about the dynamics of adoption and the prioritisation or cascading of important factors. Findings from this study will help to identify which adoption drivers are crucial for landholders' decision-making and also open discussion concerning adoption dynamics.

*Praseed Thapa (School of Business and Law, CQU)*

Praseed Thapa is a doctoral candidate at the School of Business and Law, CQ University in Rockhampton. The focus of his PhD is on identifying the underlying drivers of the adoption of improved land management practices by landholders in the Great Barrier Reef (GBR) catchments. Praseed's research is supported by the International Excellence Program at CQUniversity and an Australian Research Council Discovery Project. He holds an MSc in agricultural economics from the University of Hohenheim in Germany and a BSc in agriculture science from Nepal. Praseed has a very strong interest in environmental and resource economics and agricultural adoption.



*Co-authors: John Rolfe (School of Business and Law, CQU)*

# Friday 13 September - Workshop details

Griffith University, Gold Coast Campus

**9.00 am - 12.00 pm**    **Workshop 1.1: Media, messaging, and the public narrative.**    ROOM G16 1.11

This workshop will give valuable insight to how news media report on the reef, what the media are looking for when covering the reef, how a spokespersons messaging affects the public narrative, and can give experts advice on how to prepare for their interactions with the media. It will specifically focus on traditional news media, messaging and a narrative analysis on how the Reef is being portrayed in the media.

*Sean Kennedy*

*Senior Media Advisor at the Climate Media Centre (Climate Council)*

Sean has worked in the media industry for over 15 years as a producer on broadcast television programming and commercial production; he also has a community based ecotourism and agroforestry project in the Leuser ecosystem. He is passionate about science communication and supporting a public narrative which is conducive to humanity finding its equilibrium within nature by design rather than disaster.



**9.00 am - 12.00 pm**    **Workshop 1.2: Where to from here?  
Reimagining social research methods for a  
changing world.**    ROOM G11  
4.28/4.29

This workshop will explore how social science methods are adapting to new challenges and changing environments. The workshop will provide a forum for sharing practical reflections on research methods - what is working and what isn't - in environmental social science research. Participants will also have the opportunity to discuss novel and emerging methods, and their potential to address contemporary issues facing the environment.

*Claudia Benham*

Dr Claudia Benham is an environmental social scientist and ARC DECRA Fellow at the University of Queensland. Her work explores how communities experience and respond to environmental change in marine and coastal ecosystems, with a focus on Australia and the Pacific region. Claudia's current research examines how climate change affects community wellbeing in the Great Barrier Reef region through experiences of ecological grief and loss, and how inclusive governance practices can help to bring about sustainable futures for people and the Reef.



*Jacqui Lau*

Dr. Jacqui Lau is an environmental social scientist and DECRA Fellow whose interdisciplinary research spans human geography, development studies, sociology, and conservation to explore change in coastal communities. She has studied ecosystem services, customary management of coral reefs, and equity in conservation and climate change policy in the Pacific and beyond. Jacqui's current research focuses on how moral values shape adaptation to environmental change along the Great Barrier Reef.



1.30 pm – 4.30pm

**Workshop 2.1: What if human centred approaches were a key pillar to protecting Reef Catchments for a Healthy Reef?**

ROOM G11  
4.28/4.29

This workshop is a great opportunity to collaborate on the Reef 2050 Water Quality Improvement Plan (WQIP) review. The current WQIP guides how the government and communities (including councils, Traditional Owners, the agriculture industry, conservation groups and others) work together to improve water quality in our local waterways and the Great Barrier Reef. The WQIP review process aims to create a holistic and inclusive narrative for improving local water quality, the health of Reef catchments and the community's connection to the catchment and the Reef. A participatory approach is being used in stakeholder engagement to develop the new narrative, framework, objectives, implementation principles and priority actions of the next plan. This workshop is an opportunity to harness the stories shared at the symposium to explore more holistic and inclusive ways of managing Reef catchments by communities.

*Maria Rosier*

Maria Rosier is Manager of Reef Policy at the Queensland Office of the Great Barrier Reef and World Heritage. Maria is an experienced environmental policy professional with over 15 years knowledge and application of environmental policy and legislation in Queensland. Maria has delivered reforms for the Environmental Protection Act, the Nature Conservation Act and the Great Barrier Reef. Maria loves working with people from all backgrounds to find solutions and deliver outcomes for our future generations. Maria comes from Brazil, is passionate about the environment and loves travelling, especially if a beach is involved.



*Edith Muruka*

Edith Muruka is Senior Policy Officer of Reef Water Quality Policy and Science at the Commonwealth Department of Climate Change, Energy, the Environment and Water. Edith has vast international experience in the public, private and community sectors in policy design, development, implementation and analysis. She enjoys travel, languages and volunteers on community radio.



*Meg Bickle*

Meg Bickle, Principal Policy Officer in the Office of the Great Barrier Reef & World Heritage (OGBRWH), leads the delivery of the Human Dimensions program of work to support Reef 2050 WQIP targets and outcomes. Meg has spent the last 10 years working closely with the agricultural sector in the Reef regions to design and deliver on-ground practice change projects and Best Management Practice programs. Meg is passionate about sustainable agriculture, and applying social and behavioural insights within Reef projects to enhance the likelihood of achieving enduring farm practice change, ensuring gains for farmers and the Reef are maximised.



1.30 pm – 3.00pm

**Workshop 2.2: Network mapping Reef governance: how is the Reef really managed?**

ROOM G16 1.11

This workshop aims to showcase the potential of network analysis to improve our understanding of how the complex array of institutions and instruments combine to deliver Reef health. Participants will learn about conformance (outcome) and performance (use) based plan evaluation, and how understanding both elements are important to inform a complete understanding of the effectiveness of strategic level planning for Reef health. Utilising a novel method of participant network mapping, attendees will be encouraged to develop their own maps of Reef governance, and to then to compare and discuss their results with other participants.

*Mark Limb*

Mark Limb is a Senior Lecturer at the Queensland University of Technology, and a qualified urban planner with almost two decades of experience in urban development. He has expertise in policy evaluation, governance, infill development, and land use planning. He has been involved in developing a Reef governance evaluation framework as part of the Integrated Monitoring and Reporting program, has published contributions to the theory and practice of policy evaluation and implementation, and maintains ongoing research in the policy evaluation field, utilising both qualitative and quantitative approaches.





**The Social Science Community for the Great Barrier Reef acknowledges the remarkable worldviews, unique wisdom and enduring connections that have informed the guardianship of the Reef for millennia. We pay our respects to the Traditional Owners as the first scientists of this land and sea, and value their traditional knowledge which continues to inform the current management and stewardship of the Reef for future generations.**