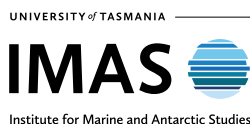


# ANNUAL SHOWCASE REPORT 2023

## Connections and collaborations to ensure a thriving future ocean

11 AUGUST 2023

NIPALUNA/HOBART  
LUTRUWITA/TASMANIA



CENTRE FOR MARINE SOCIOECOLOGY

# A NOTE FROM CMS DIRECTOR AND DEPUTY DIRECTOR

This report outlines a summary of the Centre for Marine Socioecology Annual Showcase Event, which we hosted in Hobart on 11th August 2023. Our largest showcase to date, the event was attended by more than 150 people. The lively and very involved group included CMS researchers and students, University of Tasmania leaders and affiliates, and representatives from Traditional Owner communities, state and federal government organisations, industry bodies and NGOs.

We are pleased and proud to share examples of the great work being done by members of the centre and to provide space for new connections and collaborations. We have had really great feedback on the day and on the scope and richness of the work CMS is doing.

We wholeheartedly thank the many people – our researchers, students, collaborators, and stakeholders – who participated and contributed so enthusiastically to make the day such a great success.



**Professor Gretta Pecl**  
Director



**Dr Beth Fulton**  
Deputy Director

To see the full agenda for the showcase day, please see [Connections and collaborations to ensure a thriving future ocean: CMS Showcase 2023 | Centre for Marine Socioecology](#)

# ABOUT CMS

The Centre for Marine Socioecology is a collaboration between the University of Tasmania and the CSIRO. Based in Hobart at the University of Tasmania, CMS was established, ultimately, to address the current and future use of our marine coasts and oceans using a coordinated interdisciplinary and transdisciplinary approach.

CMS was created to provide the knowledge needed to support the current and future use of our marine coasts and oceans. We bridge research excellence in physical, natural, social sciences and humanities to address complex 'wicked' problems, and to inform sustainable use of our oceans.

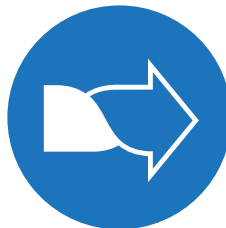
Our research is actively working towards solutions across five key themes:



**Coastal  
& Marine  
Governance**



**Sustainable  
Futures &  
Planetary Health**



**Environmental  
Change &  
Adaptation**



**Knowledge  
Production**



**Science  
Engagement  
& Impact**

CHALLENGES

RESEARCH APPROACH

**CMS VISION:** TO BE A WORLD-LEADING CENTRE TO SUPPORT INFORMED AND SUSTAINABLE MANAGEMENT OF MULTIPLE-USES IN MARINE AND COASTAL SYSTEMS.

## CMS CORE TEAM



**Prof Gretta Pecl**  
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**Dr Rachel Kelly**  
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Executive Support Officer  
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# SHOWCASE AIMS

Globally, recent and ongoing climate impacts have thrown the #climatecrisis into the spotlight.

In Tasmania and Australia, we know that marine and coastal systems are already undergoing rapid and unprecedented changes. How can we best mitigate, adapt, and prepare for these changes and uncertain futures?

Working together, we can achieve the accelerated social, ecological, and technological transformations needed to prepare society, and reduce risk and harm. Everyone has a role to play, but there is a need for collaboration if we are to make collective changes. Collaboration is built on trust and relationships - much focus will need to be on sharing knowledge, listening, learning, and reimagining the status quo together.

With the aim of sharing our perspectives and knowledge, this year's CMS Showcase brought together marine stakeholders from across research, government, industry, and the community, including Indigenous voices.

Our goal was to establish new and old connections and collaborations that can help to collectively ensure a thriving future ocean.



The day was a mix of research and stakeholder and government interests. So rare to see!



I really valued the honesty, authenticity, and 'whole-person' approach, it was refreshing to see.



Bringing people together in a non branded non silo way around issues and solutions from big picture to small



It was inspiring, and so important that we actively envision the future that we want to create



Always so good to hear about interdisciplinary research projects, new research tools and new research opportunities. Also can not underestimate the gains made from CMS members getting together - ideas abound!



# SHOWCASE SUMMARY

## CMS THEME LEADS OVERVIEW

The CMS Showcase brought together a diverse group from CMS and its stakeholders, spanning research, government (state and national), industry, and civil society, for a remarkably engaging day of sharing knowledge and perspectives and building connections. It painted a picture of authenticity, urgency, innovation, opportunity, collaboration, challenge and emotion.

The day proceeded with a packed agenda of rightsholder, stakeholder, and researcher presentations, panels, and discussions. As is usual with CMS, this included strong representation, contributions, and leadership from early career level researchers. Discussions were framed by poignant insights into local history in the Welcome to Country from UTAS Pro Vice Chancellor, Aboriginal Leadership, Prof Greg Lehman, followed by the opening address by UTAS Vice Chancellor Prof Rufus Black, who shared a personal story of how traditional knowledge can help us to be better stewards of the oceans.

CMS Deputy Director Prof Beth Fulton refined the day's framing by encouraging us to reflect on both past and future in considering where we've come from, both personally and professionally, and where we aspire to be - *How can we collectively steer toward a world where we don't put the burden of the future onto future generations?* This first theme of intergenerational equity was woven throughout the rest of the day's discussions. A related issue that was also a focus throughout the day was the importance of investing in supporting and fostering succession for the next generation of researchers and practitioners to maximise their ability to achieve impact.

A second theme of the day was that of risk and risk taking, introduced during the morning session by Dr Alistair Hobday (CSIRO & CMS Steering Committee), and the related concept of the urgent need for transformational change. The group recognised that we are increasingly working in a space where we see that the risks and up-front costs of integrated



approaches are far outweighed by the costs of staying siloed. FRDC Managing Director Patrick Hone encouraged us all to get better at spending less time and money solving yesterday's problems and finding the bandwidth for shared opportunities with a future focus. Through the day we heard numerous inspiring examples of how the innovative tools and research approaches we have in CMS can be leveraged to understand futures, inform decisions and navigate change.

A third and related theme across the day's discussions was the critical role of inclusive and collaborative processes for achieving solutions. While some participants highlighted that collaboration and inclusion can be difficult and costly, they were recognised as being essential. A related topic of discussion across the panels was the "science-policy gap" and how to bridge it. On the one hand researchers wanted to know, *Why isn't government listening to the science?* Government representatives responded that they are listening but have so many issues to deal with that it is impossible to address them all - and that perhaps, scientists are not communicating effectively through means that get their issues on the agenda

(*Write letters!* - Angela Williamson, BECRC), or that political will and support is often lacking.

The fourth theme throughout the showcase discussions was emotion. Collectively, we recognised that science, which is traditionally viewed as void of emotion, is increasingly influenced by emotions and feelings due to the detrimental impact global lack of action on climate and ocean change (amongst other issues) is having on the environment and humanity. There were deep emotional reflections, particularly facilitated through the last panel of the day, and on what these feelings can mean for achieving behavioural change.

**The overarching conclusion from the CMS Showcase was that transformational change is needed now. The group collectively acknowledged a shared responsibility to act. This will require taking risks within, across, and beyond traditional institutions, silos, and disciplines - but these risks are outweighed by what stands to be lost.**

Summary compiled by CMS Theme Leads, led by Dr Rowan Trebilco and Assoc Prof Jo Vince, Dr Rich Cottrell, Dr Maree Fudge, Dr Rachel Kelly, Dr Valeriya Komyakova, Dr Rebecca Shellock, Prof Ingrid van Putten.



# PANELLIST CONTRIBUTIONS AND REFLECTIONS





## SESSION 1

# From Tasmania to the World: Outlook for the Oceans



**Dr Alistair Hobday**

Research Director, CSIRO  
Environment, and CMS  
Member

Climate change is leading to warming oceans - with increased frequency and intensity of extreme events, such as marine heatwaves. As well as end of century projections, we are developing a forecasting capacity at shorter time scales, with ocean temperatures and marine heatwaves. These CSIRO and BOM forecasts provide ocean users with information about the future that can modify the choices they make. The ability to use forecast information depends on the agility of the user. How can we increase this agility?



Hartog, J. R., C. M. Spillman, G. Smith and A. J. Hobday (2023). Forecasts of marine heatwaves for marine industries: reducing risk, building resilience and enhancing management responses. *Deep Sea Research II*: <https://doi.org/10.1016/j.dsr1012.2023.105276>



**Dr Jess Melbourne-Thomas**

Senior Research Scientist,  
CSIRO Environment and CMS  
Member

National and international agencies need assessments of change in ecosystems and their drivers in order to sustain natural systems, to maintain the delivery of services, and to meet the challenge for conserving biodiversity in the long term. A particular challenge for managers is to identify how dangerous future climate change will be for ecosystems and their services and whether mitigation or adaptation may be needed, in advance, in order to achieve the conservation requirements. For regions of international attention, particularly those that have the attention of many management or policy-oriented bodies (such as the Southern Ocean), a standardized process is needed to harmonize scientific information on the status and trends in ecosystems used by the different bodies. That process also needs to ensure the information is available in a timely manner.

The Marine Ecosystem Assessment for the Southern Ocean (MEASO) is the first circumpolar interdisciplinary assessment of Southern Ocean ecosystem status and trends. It has been a 5-year inclusive international activity, modelled on a working group of the Intergovernmental Panel on Climate Change, providing a forward-looking assessment of status and trends in Southern Ocean ecosystems. To date, it has involved over 200 scientists from across the Antarctic



## SESSION 1

and Southern Ocean scientific community (18 countries, >50% identifying as women, >40% early career), contributing to 25 research articles published in a special research topic in Frontiers journals (<https://www.frontiersin.org/research-topics/10606/marine-ecosystem-assessment-for-the-southern-ocean-meeting-the-challenge-for-conserving-earth-ecosystems-in-the-long-term>).

MEASO key findings for policy are that:

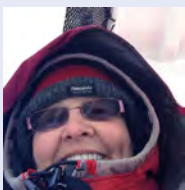
- The Southern Ocean and its ecosystems play critical roles in the climate system. Ecosystem functions are at risk because of anthropogenic climate change
- Climate change is the most significant driver of species and ecosystem change in the Southern Ocean and coastal Antarctica
- Direct human interventions at sufficient scale to reduce sensitivities and exposure of cold- and sea ice-adapted species to the impacts of climate change and preserve Southern Ocean ecosystems are unavailable at present
- Actions are needed to ensure local and regional human activities do not impact resilience of these species and systems, and to reduce the

risk of Southern Ocean ecosystems transitioning into alternative states from which recovery cannot be achieved

- Long-term maintenance of Southern Ocean ecosystems, particularly polar-adapted Antarctic species and coastal systems, can only be achieved, with high confidence, in the long term by curbing climate change and ocean acidification by reducing greenhouse gas emissions



The MEASO Summary for Policy Makers was released (and launched in Hobart) on 18th October 2023. [View the report here](#)



### Dr Lyn Goldsworthy

Lyn Goldsworthy Consulting,  
IMAS Adjunct and CMS  
Member

The policy agenda for achieving thriving, resilient and healthy oceans is complex, highly fragmented although strongly interconnected and ranges in level of bindingness. It is influenced by multiple drivers and sectors and overlapping mandates. Sector-based and area-based measures are the most common. Relevant policies may be found in legislation relating to fishing, mineral and oil extraction, biodiversity protection, recreational use, science, navigation and sustainable development. And may at local, state, national, regional or global level. Enforceability ranges of general guidelines to voluntary agreements to mandatory requirements.

Examples include the national Sustainable Ocean Plan, climate ocean sustainability policy, various fisheries agreements under the Department of Agriculture and protection measures under Parks Australia. A multitude of regional fisheries management organisations complete or overlap with specific regional arrangements designed to for example control pollution or protect specific areas. At the global level the UN Convention on Biological Diversity and the recently UNCLOS Agreement on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction Diversity call for the designation of 30 percent of the ocean by 2030, the UN Framework Convention on Climate Change expresses concerns about the impact of accelerating climate change impacts on marine environments, while the International Seabed Authority continues to negotiate an agreement for the exploitation deep seabed minerals, and UN Sustainable Development Goal 14 extols use of marine resources for development.

## SESSION 1

**Andry Sculthorpe**

Land and Heritage  
Coordinator, Tasmanian  
Aboriginal Centre

In Tasmania, and most of Australia, the rights and interests of Aboriginal people as recognised under the *United Nations Declaration on the Rights of Indigenous People* are largely absent from the day to day management of Marine areas, outside of areas under Native Title Aboriginal people receive little entitlement as being owners of the lands and seas for over 65,000 years. Tasmania's Living Marine Resources Management Act provides for waiving of license fees for recreational take and for procuring resources for cultural activities such as shell necklace making. However, Aboriginal people are absent in benefitting from the marine based economy and have little to no say in how marine resources are managed.

Shared decision making with Aboriginal people and recognition of inherent Aboriginal entitlements would bring a shift in the values system that guides the way society manages the environment. Australian political systems are lacking in the ability to make sound decisions for the environment, and this is evidenced by the state of the environment today. Aboriginal society has been the longest and most sustainable society on the planet, statements that attest to this are not uncommon yet statements of this long relationship are not enough to result in change. Shared decision making is needed to imbed the values and culture that exist within Aboriginal society into broad management of Sea Country.

Colonial nations that seek justice for past wrongs accept that indigenous rights are central to the future planning and management of the marine environment. Australia and Tasmania have not yet come to terms with this responsibility. In other comparable countries the rights and entitlements of Indigenous people lead to substantial economic development opportunities through fisheries quota entitlements. In some cases Indigenous people

are guaranteed a proportion of new fisheries being established and own significant shares in the national fishery, these entitlements are based on a recognition of prior ownership and the theft of these entitlements by colonial powers.

Providing economic development opportunities that lead to self determination outcomes are crucial to the success of efforts to improve circumstances for Aboriginal people such as efforts in 'Closing the Gap'. Aboriginal peoples right to a self determining economic future will rely on a rights based approach to resource management.

Aboriginal people also seek to undertake management activities that address concerns and aspirations around climate change, and other mechanisms of degradation of the marine environment. Opportunities for Sea Country management and funding for Indigenous Sea Rangers provides for important programs for communities to meet their obligations and concerns over their Sea Country.

**Dr Emily Ogier**

Senior Researcher at IMAS,  
CMS Member, and Leader, FRDC  
Human Dimensions Research  
Coordination Program

Analogous to rapid changes in the climate system are changes in our ways of seeing marine systems, and in structures which are shaping our social and economic relationships with marine systems. These include:

**1. Strengthening marine tenure rights of First Nations and Traditional Peoples.** Forms of tenure in Australia which are being formalised include Native Title over coastal waters, commercial fishing access rights, Sea Country Indigenous Protected Area designations. This is re-shaping the ways non-Indigenous communities and sectors access these marine and coastal areas, and the economic structures through which First Nations and Traditional Peoples create the socio-economic outcomes they seek.



## SESSION 1

**2. Increased globalisation of seafood trade.**

More seafood is being produced and exported by developing countries than ever before, while developed economies are becoming increasingly reliant on importing seafood from these producer countries.

**3. Upscaling of ocean renewable energy.** Some energy technologies are ready for large scale deployment in the Southern Ocean, but now face challenges of accessing financial capital required for start up, and of meeting their needs for supporting land-based infrastructure and energy networks. The effects on coastal economies and existing marine sectors of these energy transitions are becoming material.

**4. Upscaling of ocean carbon dioxide removal and climate engineering aspirations.** The idea of the Anthropocene has instilled the concept that humans have already inadvertently engineered the earth's climate system, causing further ecological changes. So is this the age of intentional earth and ecological engineering? Upscaling of such interventions is anticipated in the near future. How effective, enduring and how costly are they? How do they interact with other climate initiatives, namely emissions reduction?

**5. Increasing currency of ocean climate and carbon services.** The oceans and ocean sectors are being seen through a carbon 'lens', and this is raising multiple opportunities (i.e. blue carbon initiatives) as well as new trade offs (i.e. fish as carbon store or food?). The role of MRV (monitoring, reporting, verification) of carbon claims is increasingly crucial in informing these trade offs.

**6. Growth in ocean restoration and ocean-finance architecture.** In the age of the Anthropocene people, are reaching for restorative and regenerative actions. Like blue carbon initiatives, there is an important science role in understanding the permanence and extent of new ecosystem services delivered. At the same time, a range of gaps and opportunities in ocean finance exist which can be harnessed to create incentives for decarbonisation and other sustainability initiatives across maritime sectors.

**Dr Scott Spillias**

CERC Postdoctoral Fellow,  
CSIRO Environment, and  
CMS Member

As our reliance on the oceans and coastal regions grows, addressing the growing complexity of managing marine socio-ecological systems requires collecting and leveraging unprecedented amounts of data. Amassing this wealth of information promises deep and broad insights into marine systems, however, with this data abundance comes the pressing challenge of efficiently processing and interpreting it. At every step of the data supply chain, there is a need for new tools and technologies that can consolidate, evaluate, translate, and synthesize this vast dataset into data products that are useful and relevant for stakeholders and decision-makers involved in ocean management. To meet this challenge, we must increasingly harness the power of algorithms, including Machine Learning and Artificial Intelligence, to augment our capabilities.

These technologies offer immense potential, but they also bring forth new challenges. We must address critical questions regarding their reliability, transparency, and alignment with human values. Striking the right balance is crucial; whilst algorithms can enhance decision-making and efficiency, misunderstandings about where and how to apply them may increase the likelihood of drawing the wrong conclusions from our data and thus produce unintended consequences. In particular, we should be on the lookout for embedded biases in the algorithms we use, and the way we use them, that may impact the fairness and equity of the decisions made, and thus exacerbate the injustices that are already prevalent in science and policy. If however, we are successful in building and using this next generation of tools, we will gain unprecedented opportunities to analyse and navigate the future and present challenges of the marine world.

## SESSION 1

**Dr Ingrid van Putten**

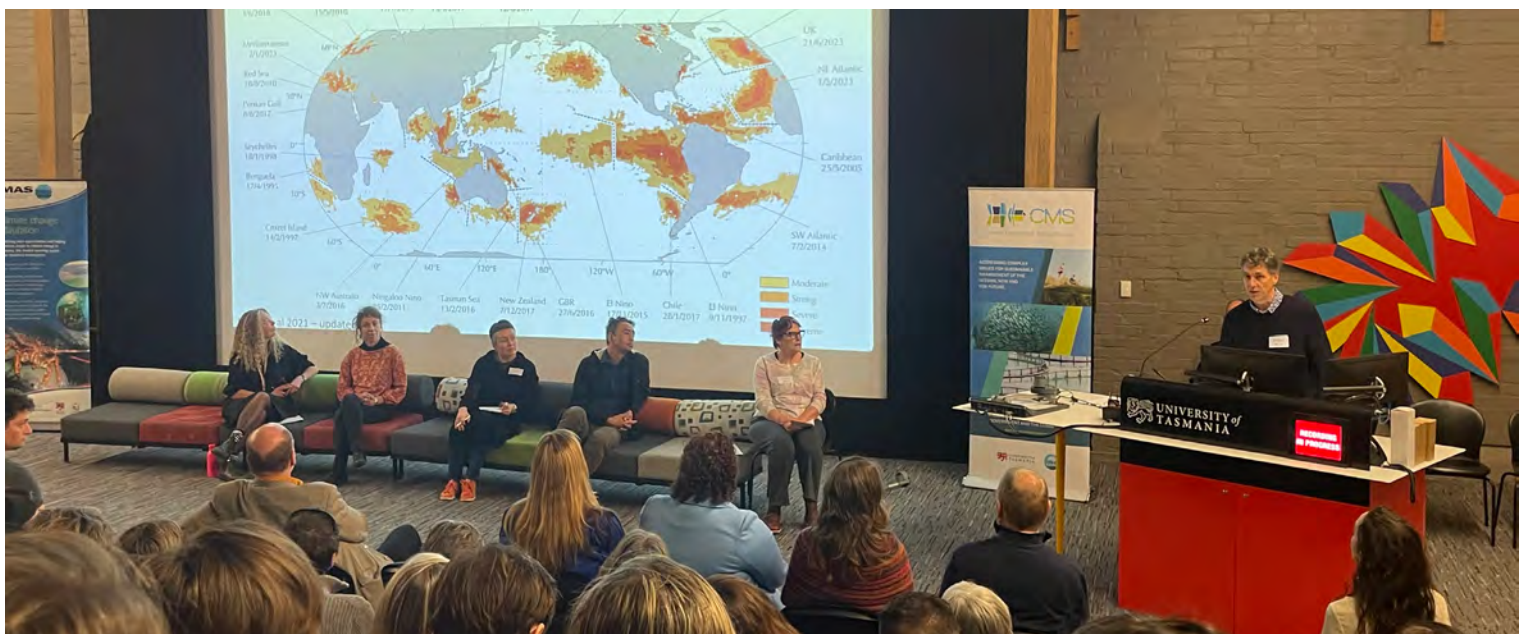
Senior Research Scientist,  
CSIRO and Theme Lead at  
CMS

Economically, Tasmania is linked to the world in many ways and through a diversity of marine industries. But demographically and culturally we are also linked. For instance, global processes such as population growth and migration influence the way we use our marine environment. Global population growth predictions are mirrored in local population growth patterns in Tasmania. Realistically, because of continued growth we can expect even more people living in the coastal zone. We can also expect there to be growing demands for marine recreational activities. This will likely mean that trade-offs between different uses and users will need to be made, and that the potential for conflict between marine resource user groups may grow.

Recreational fishing is one of many recreational activities we undertake in the marine environment. As it is an extractive activity (and shared resource) it needs management interventions to avoid resource depletion and ensure long term sustainability. Participation in recreational fishing in Australia is relatively high when compared to global rates and it is relatively high for Tasmania when compared to Australia, making management very pertinent.

Historically participation in different fisheries (and the target species) has been partially driven by population migration patterns. For example, Greek and Italian people who arrived after WW2 were keen on Cephalopods which up to then had mainly been used as fertilizer or at best, bait. The cultural preferences for particular seafood species drove the development of some previously unexploited fisheries (see also abalone and others). This pattern of culturally influenced fisheries development continues today in different parts of Australia. This is throwing up a number of management challenges ranging from localised depletion to communicating human dangers associated with fishing (exposure) and communication of the rules.

With population increases and the high cultural diversity in Australia, participation in fishing activities are likely to keep growing and changing (as is already being experienced in a number of recreational fisheries today). This highlights that global socio-demographics and migration patterns can influence local participation in marine activities. Due to the extractive nature of recreational fishing, it highlights the need for proactive (and sensitive) management to avoid localised depletion, minimise human exposure to fisheries related hazards, and maximise compliance.





## SESSION 2

# Looking forward: the Sustainable Ocean Plan and the opportunity of a long-term vision for Australia's ocean



**Belinda Jago**

Branch Head, International Environment, Reef and Oceans Division, Oceans and Wildlife, DCCEEW

Australia's ocean economy is rapidly growing. Growth in emerging ocean sectors such as offshore energy and aquaculture offers huge potential to support Australia's transition to renewable energy sources. It also supports ocean-based solutions to climate change. Australia's ocean economy relies on the long-term health and resilience of the ocean. [The State of Environment Report 2021](#) highlighted that our ocean is facing multiple significant pressures. It is critical we ensure our ocean remains healthy and productive. We need to sustain our growing ocean economy, support communities and Traditional Custodians of Sea Country.

Australia is developing a national Sustainable Ocean Plan to consider how Australia wishes to manage the ocean in the future. The plan will be developed collaboratively across governments, First Nations Peoples, marine sectors and industries and other ocean stakeholders and will cover all waters in Australia's Exclusive Economic Zone (from the coastline out to 200 nautical miles). The plan will identify a long-term vision and a roadmap of the policies and programs needed to deliver that vision. Development of the Plan is underway through jurisdiction workshops, First Nations engagement, sector discussions and thematic workshops, with a national ocean summit and finalisation of the plan in 2024.

*If you would like to know more or engage in the process, please reach out to the Sustainable Ocean Plan Taskforce on [SustainableOceanPlan@dcceew.gov.au](mailto:SustainableOceanPlan@dcceew.gov.au)*

## PANEL 1

# Navigating a rapidly changing world



**Dr Ian Dutton**

General Manager (Marine Resources) NRE Tasmania, and CMS Member and Steering Committee Member

As the great acceleration continues, there are a diverse range of challenges to be addressed – in some cases these reflect ongoing and intensifying challenges, while others are new; in both cases, their relative significance is rapidly evolving and in need of more focused strategic attention. Foremost amongst these are:

- Country – where is sea country in our collective agenda(s)?
- Climate – speed and scale
- Capacity – adequacy of resources for response (not just \$)

- Capital – assembling, leveraging and impact oriented
- Cadence – all busy – impairs our (adapt)ability to respond timely?
- Competition – decision space is becoming more complex as “sweet spots” diminish
- Collaborations – we are more connected than ever but are those engagements/partnerships agile enough and are they working?
- Sea knowledge – how much is enough?

To address these will require (a) more interdisciplinary approaches, (b) novel collaborations between public-private-community-First Nations stakeholders, (c) new ways to assemble and deploy available capital to maximise impact and (d) greater agility and speed in standing up scalable responses.





## PANEL 1



**Ms Angela Williamson**

Director, Blue Policy & Planning, Blue Economy Cooperative Centre

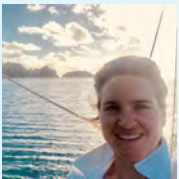
Oceans have provided health, well-being, prosperity and connection to our coastal communities for generations and to Tasmanian Aboriginal people for over sixty thousand years.

Cared for and used responsibly by Tasmania's first peoples, these waters have been a medium for explorers and European colonisers, hunting grounds for whalers and provided ports for seafarers. Today they are home to some of Australia's most recognised seafood producers, play host to a diverse range of temperate marine life and iconic ecosystems, and are fringed by coastal communities. An island state with mature ocean industries such as wild fisheries and finfish farming, Tasmania is also a gateway for new,

emerging and transitioning ocean industries like seaweed farming at scale, open ocean finfish aquaculture and the generation of energy from offshore wind and waves. All are seeking access to shared public waters.

As the importance of oceans in addressing global challenges like climate change, biodiversity restoration, equity, stewardship and food production gains growing recognition and community and consumer sustainability expectations come to the forefront, it's time to look at Tasmania's approach. How to ensure its approach to the oceans is contemporary, that we balance the generation of food + energy with nature, that sustainable industry growth is integrated into a holistic framework for the broader ocean economy and what is needed to ensure Tasmania meets these contemporary directions.

See [Blue Economy CRC's Ocean Ambition](#)



**Ms Eloise Carr**

Tasmanian Director, The Australia Institute

The Australia Institute's goal is to provide intellectual and policy leadership. We conduct research that drives the public debate and secures policy outcomes that make Australia better. In Tasmania we work across democracy and accountability, climate, environmental and economic policy areas.

Tasmania's marine management framework dates back nearly 30 years. The state's main marine law, the Living Marine Resources Management Act 1995 is only now being reviewed for the first time. The State Coastal Policy 1996 has never been comprehensively updated. The Tasmanian

Government has not conducted a state-wide assessment of the condition of Tasmania's marine environment for 14 years, despite a statutory requirement to produce a State of the Environment Report every 5 years.

Despite the economic, environmental and cultural importance of Tasmania's coastal waters, marine governance in Tasmania is outdated, siloed and continues to be dominated by economic imperatives while allowing the health of marine ecosystems to decline. Australia Institute research has found 76% of Tasmanians are concerned or very concerned about the health of their coasts and want more government action to protect it. Our research recommends Tasmania's next main marine law should be designed to achieve integrated marine management and state-wide marine planning, that takes account of all uses and users, including the needs of the environment to remain healthy. What better way is there to ensure a thriving ocean future?

PANEL 1



**Associate Professor Sadie Heckenberg**  
Academic Director Aboriginal Engagement, UTAS



**Mr Martin Exel**  
Managing Director, Seafood Business for Ocean Stewardship (SeaBOS) and CMS Steering Committee Member

Associate Professor Sadie Heckenberg spoke about the critical need for both Cultural Safety and an ethical research model when working in collaboration with Indigenous Peoples. The core philosophy of Sadie’s approach to Indigenous engagement is simple: nothing about us without us. There is a key to garnering a more successful hold on bringing about change regarding all aspects of Cultural Safety, and in particular, culturally safe spaces for those that we work and research with. The solution lies in the ‘need for the system to reflect something of’ us, as self-determining Indigenous people. This is even more important for those that are being researched, whether they be interviewees, or community members whose knowledge becomes the foundation of others work. Researchers need to be guided by Cultural Safety principles that determine protections and empowerment for Indigenous peoples, to ensure any research about Indigenous people is conducted with the consent and input of that community.

We are faced with rapidly changing climate, rapidly changing regulatory framework, and rapidly changing societal expectations. That means we need to identify how to rapidly change approaches and devise new solutions, often with limited information as the past doesn’t necessarily show us what the future will be like, particularly in the case of climate change. To begin, there’s a deep need to address intergenerational justice both culturally and socially. Accepting and acknowledging significant mistakes and unacceptable actions have happened in the past, is the first step towards making a difference in the future. Then the regulatory frameworks - there are multiple new and coming regulations which corporations must address. Just two include GHG emissions reductions targets and the Task Force for Nature Related Financial Disclosures - which will include active reporting on how business is addressing both climate risks and social impacts in their operations. Our economy can’t suddenly stop as business changes to meet necessary climate mitigation measures, so we need to embrace all possible options to achieve reductions in the short term, while transitioning to longer term solutions. In the short term, we have many options such as alternative energy, nature-based solutions with better management, offsets, new fuel sources, technology for carbon capture and storage, and more. Addressing social impacts while making these changes is critical, as ‘business at all cost’ is unacceptable, and treating people with respect is crucial. The challenge is how to focus efforts to achieve results, across all sectors of society.

**Cultural Safety Model**



**Ethical Research Model**



Mechanisms to identify where to focus efforts include a starting point with science-based risk analyses to identify core problem areas, and then a focus across the groups on working together – first by building trust, then being able to have constructive dialogues and develop lasting



## PANEL 1

collaborations. Those collaborations need to have both internal and public reporting against indicators, to ensure there is accountability. Combined, this approach will drive positive results. Key roadblocks remain capacity and resources, which means there is an even greater need to coordinate efforts across multi-disciplinary science, multi-sectoral industry, and multi-cultural society, to make progress together. As with SeaBOS, the rapidly changing world needs us to be making transformational change, now, to ensure there is a positive future for all.



**Dr Jennifer Hemer**

Program Manager, Water and Marine, NRM South

Through broad collaboration and partnership, NRM South strives to effectively protect, restore, and build resilience within natural systems. We create effective solutions for challenges across three key program areas; water, biodiversity, and land. The projects we deliver benefit the connected environment, economy, and people of the southern region of Tasmania and statewide. Recently, we have secured investment to restore temperate saltmarsh and other important wetlands, seagrass, and native oyster reef habitats. We have partnered with the seafood industry, conservation organisations, government, and research institutions to build knowledge about processes and practices which benefit marine biodiversity and productivity and worked with the community to deliver on-ground action. We deliver projects which aim to protect and improve the trajectory of threatened marine species and ecological communities. Changes in the physical environment associated with a changing climate, aging infrastructure, and changing patterns of human movement and their cumulative impacts as some of the complex threats in Tasmania's coastal areas and marine waters. Habitat loss and fragmentation,

species movement and biosecurity incursions, changes in processes along the coast and changes to water quality are some of the pressing issues we'll address through the projects we deliver over the next 5 to 10 years.

NRM South will focus on minimising risk by building environmental systems and ecological community resilience. We'll continue to scale up ecosystem and habitat restoration, applying research outcomes on the ground and partnering to multiply effect. We'll look toward natural capital accounting and the value of market approaches to illustrate how the work we do has outcomes for environmental services and core benefits, and to drive further investment. We'll achieve this by continuing to foster participation, partnerships, and collaborations. Over the next decade we need to support skill development in condition assessment and environmental economic accounting, and market approaches. Our work needs to adopt contemporary spatial planning and decision support methodologies which encompass climate risk for assessing the effectiveness of on-ground actions. We need to continue to develop research partnerships which enable effective monitoring and improvement of scaled-up restoration efforts, and offer support to others, particularly Aboriginal people, to lead on-ground action. Tools and models which forecast risk and predict climate adaptation responses to guide investment in marine waters, and on the land, are essential for this effort. We will adopt contemporary monitoring methodologies and new technologies to assess conditions, while also participating in advanced data collection, and inform the infrastructure to enable data contribution arising from the work we do. Measuring outcomes for core benefits is emerging as a key part of our activities, including the human element of our work in the landscape by understanding livelihood and wellbeing benefits. Our work is dependent on navigating regulatory systems which are designed to permit development and extraction activities, rather than restoration, and we'll continue to work to advocate for change through our work.

## PANEL 2

# Collaboration for a thriving future ocean



**Dr Dirk Welsford**  
Science Convenor,  
DCCEEW and CMS Member

Australia's research funding pool is limited and so a strategic approach is needed to decide where resources should be focussed. The current Australian science and research priorities were developed by the Australian Government in 2015 and focussed on economic and productivity growth. In 2022 the Albanese government announced

a process to refresh these priorities, focussed on science that draws on Australia's natural advantages, most urgent needs and that will benefit the entire community. Due to be finalised in late 2023, these new priorities acknowledge the need for multi- and trans-disciplinary approaches to assist industry, communities and government respond to the challenges of climate change and biodiversity loss and build sustainable socioecological systems. Hence they provide a once-in a decade opportunity for Australia's research community to collaborate on a contemporary set of research priorities.



How should Australia decide where to invest in science and research?

- What are areas of advantage?
- What are areas of urgent need?
- What are the important enablers to use the best science?

*No room or time for 'pet rocks' - a strategic approach is needed*

## PANEL 2

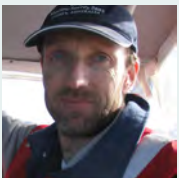
**Dr Sarah Russell**

Director Climate Change, Renewables, Climate and Future Industries Tasmania, Department of State Growth

The Climate Change Office, in Renewables, Climate and Future Industries Tasmania, coordinates the Tasmanian Government's climate change action, in partnership with business, community, and other levels of government. Our key goal, which we share with many in Tasmania, especially the scientific community, is to deliver practical, impactful, evidence-based action on climate change. To deliver these actions, we rely strongly on our partnerships with a diverse range of engaged stakeholders. These stakeholders include the scientific community, our intragovernmental colleagues, local government, peak organisations and community groups. We

also focus on complementarity with our national and sub-national colleagues. Our approach to collaboration relies on evidence-based decisions, building trust, talking early and often, and being honest about where can add value. We know that climate change is an all-encompassing sector, with potential conflicts across the spectrum. These conflicts include: the economic growth agenda; the conservation agenda, in terms of environmental and resource protection; climate change impacts on systems and people; and the governance required to resolve these conflicts. We also recognise the potential conflicts between sectors, but we are starting to see a pull in the same direction. Over the coming decade, our goal is to support that movement in the same direction, with evidence-based action to reduce greenhouse gas emissions, support the transition to a low emissions economy, and build resilience.

See latest [RecFit plan for Tasmania](#)

**Dr Alan Jordan**

NESP Marine and Coastal Hub Leader (Southern node)

Australia is responsible for managing and protecting the third-largest marine estate in the world, and while our oceans provide tremendous environmental, cultural, social and economic benefits, these are subject to a range of cumulative pressures. The Marine and Coastal Hub is one of four Hubs funded by the Australian Government through the National Environmental Science Program (NESP) until mid 2027, and aims to deliver high-quality applied research that improves outcomes for Australia's marine and coastal environment and communities. The hub consists of a collaboration between 30 research institutions and agencies that aim to continue to build partnerships and engagement with researchers, research users and communities as the co-design and co-delivery elements of priority research areas.

The hub is addressing the needs of research-users and stakeholders across several integrating thematic areas, including protected places, threatened and migratory species and ecological communities, people and sustainable use, and ecosystem restoration and protection. The hub is also driving coordinated research under NESP's 'protected place management' cross-cutting initiative which is conducting research to support the management of Australia's protected places and heritage, including the national park estate and Ramsar sites in both marine and terrestrial environments. In addition, a range of policy initiatives, rapidly developing marine industries, ongoing threats to species and ecological communities, and a desire for ecosystem restoration are setting the context for environmental research investment, and collaborations are essential to meeting some of these challenges in the timeframes that are required.



## PANEL 2

**Dr Patrick Hone**

Managing Director, Fisheries Research and Development Corporation (FRDC), and Chair of the National Marine Science Committee (NMSC)

It's a complex world and we cannot be everywhere - so we need trusted partnerships and an excellent conceptual map that lets us navigate this complexity. The Challenges we face are large and in many ways disproportionate to our ability as a science team to respond - they reflect "complexity". Key points from Patrick's talk include:

- To make change at scale we are going to need to do "Different things"
- FRDC has Identified 10 enduring challenges (see graphic)

- These require FRDC to change the way we manage knowledge - and think in a more systems-intelligence way
- FRDC has 5 principles to change the way we partner and co-invest
  - Principle 1: Ability to operate across or even outside of the individual sector focus.
  - Principle 2: Authority to act underpinning an agile investment framework.
  - Principle 3: Capacity to manage uncertainty through adaptation.
  - Principle 4: Ability to deliver arrangements which are enduring (10 - 20 years).
  - Principle 5. Capacity to attract non-traditional investors as partners.

Lastly, how do we bring other people into the tent so that we don't just talk to ourselves?

See [FRDC R&D Plan 2020-2025 | FRDC](#)



## PANEL 2

**Dr Valeriya Komyakova**

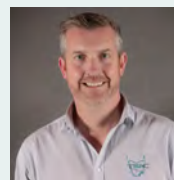
Lecturer, Institute for Marine and Antarctic Studies, and Theme Lead at CMS

Today, globally we face significant threats that can impede human well-being and in some cases survival. Mitigating and adapting to significant environmental, sociological, and economic threats, such as accelerating climate change, requires international, cross-sector and interdisciplinary collaborations. However, it does not matter what solutions we may devise or what collaborations we may build or strengthen today if we do not assure succession. If we do not provide pathways to the next generation to be prepared to take the lead when the time comes, our efforts today will be in vain. Frameworks have been developed to provide guidance on engagement of early career ocean professionals (ECOPs) across all sectors, backgrounds and disciplines in the design of solutions for the sustainable ocean (e.g. [Satterthwaite et al., 2022](#)). This engagement must happen across multiple spheres, including education, culture, governance, networks building and incentives. It is our responsibility to provide necessary security and training, so future leaders do not drown in those leadership shoes, as many of us initially did.

First of all, we must assure longer term stability and security of employment. ECOPs cannot invest into appropriate skills development, if they are overwhelmed by constantly changing, short-term contracts, and are exposed to stress and anxiety caused by job insecurity and work overload.

Education opportunities must target not only the development of the specialised discipline skills, but also transferable and broadly applicable skills, such as project and team management, budgeting, communication, and stakeholder engagement. We must provide opportunities for the ECOPs to develop networks and cross-sector collaborations, through provision of access to the joined projects and other opportunities. Our governance structures need a change that allows

decentralisation. The next generation is likely the one to deal with extreme impacts of climate change, they are the leaders that will be most affected, hence they should have a say at the table where future solutions and strategies are discussed. We must reimagine our governance structure and our culture in general to assure inclusivity and diversity of voices, knowledge sharing and mutual respect regardless of career stage or other personal identifiers. Knowledge co-design should be celebrated and incentivised and only then can we hope to assure that our work today will make a difference tomorrow.

**Julian Harrington**

Chief Executive, Seafood Industry Tasmania (formally Tasmanian Seafood Industry Council)

The Tasmanian seafood industry operates in an increasingly complex environment, with a diverse range of impacts creating issues and sometimes competing and conflicting interests in the marine environment, such as:

- Marine spatial squeeze – increasing interest in access to the marine estate;
- Climate squeeze – a rapidly changing marine environment bringing invasive species, disease and storm events;
- Rule and policy squeeze – making it difficult to operate and invest in the Tasmanian seafood industry.
- Internal industry squeeze – with different business models having different needs and interests.
- Mental health squeeze – business and personal battles impacting mental health.

The path forward will not be straight forward, and will require meaningful collaboration built on trust, common goals, understanding (and perhaps compensation), government and industry leadership, science and innovation, an acceptance there will be change and some optimism!

## SESSION 3

# CMS research in action: Tools and approaches to prepare for changing times



**Prof Swee-Hoon Chuah**

Director, Tasmanian  
Behavioural Lab, UTAS and  
CMS Member

As with most other sustainability problems today, threats to marine ecosystems are rooted in human behaviour. As such, solutions lie in behaviour change. Policies to bring about behaviour change can be based on: legislation; price-based market tools such as taxes and subsidies; and/or behavioural insights. Legislation causes behaviour change via mandates and prohibitions. Price-based tools induce behaviour change by manipulating costs and benefits. To illustrate, to protect a certain type of fish in a particular marine area, a solution based on legislation would be to impose limits or ban taking them altogether. A solution based on price would be to increase the licence fee to fish in that area. An (economically) rational individual would respond to these regulations and incentives.

In my presentation, I focus on policies based on behavioural insights, which apply insights from behavioural economics and psychology to address behaviours that deviate from rational economic predictions and cannot be (adequately) addressed by the other two. Policies informed by behavioural insights are those where the choice architecture is designed to gently steer people's behaviour into a certain direction. For example, people have a psychological tendency to conform to social

norms. BI-policies can leverage this insight by using messages such as "Most fishers in your community understand the need to protect [type of fish] from depletion. Join them to protect [type of fish]". Unlike taxes and subsidies, BI-policies do not change incentives by making a choice more expensive or cheaper. Unlike mandates and prohibitions, BI-policies do not force or remove choice. In the social norm example above, people are not forced to participate, there are no penalties if they choose not to. As such, a strength of BI-policies is that they are lighter in touch compared to the more traditional policies and therefore, more palatable.

See [Tasmanian Behavioural Lab, UTAS](#)



**Dr Cara Stitzlein**

Research Scientist, CSIRO  
Data61, and CMS Member

It has become widely accepted and commonly known that we need to include a diversity of voices and perspectives when trying to solve complex and wicked problems. Even within our crusty R&D environment, there has been growing appreciation for the social sciences and human centered design as a way to deliver better solutions to a broader groups of individuals and communities. At the



## SESSION 3

CSIRO - data 61 , I work in this awesome space between deep science and industry application. Here, I get to work at both sides of the equation: on the one side, using human centered design principles to work with scientists to translate their deep expertise into something palpable for the industry and directly relevant to their capacity for sustainability change - and on the other side, using design led facilitation techniques to foster a meaningful engagement between the scientists and their industry stakeholders / members of the community.

Two of my favorite tools are:

- the 'how might we' problem reframing activity, which forces a rethinking of what we assume the problem is through an invitation of imagination and looking at things from different perspectives
- the 'journey map' activity, which isn't a lightweight or quick exercise - but helps a diverse audience contribute to their unique perspectives while also finding common ground, and in the best of cases a shared path forward to collaborative work and solution generation



**Associate Professor  
Vanessa Adams**

Associate Professor Conservation and Planning, University of Tasmania, and CMS Member

"Places" are special and our relationship to place can be spatial. The concept of place is one that is intrinsic to being human. We are place makers - we associate meaning and values with *place* to differentiate it from *space*. The concept of *place attachment* describes how strongly people connect to place to distinguish between the physical resources provided by place (*dependence*) and the emotional and symbolic relationships people form with place (*identity*). Over the past decade, the measurement and mapping of the core dimensions of place attachment has been initiated through the concept of landscape values, thereby operationalising the place concept through participatory mapping to make it accessible to support uses such as land-use planning at multiple spatial scales. While there are many 'values' that might be mapped through public participatory GIS, landscape values and preferences of land uses have been well defined and operationalised.

*Landscape values*—when mapped by the public—measure collective perceptions about the importance of place that define human aspirations

for specific areas of land and sea. The mapping of landscape values identifies human connection to place and reveals the complexity of human/environment relationships that may, paradoxically, result in transformation of one location by mining while protecting and preserving another identical landscape in a national park. Related to landscape values, *land-use preferences* capture people's place-specific views about the desirability and appropriateness of alternative land-uses including agriculture, building and development, forestry, infrastructure, mining, energy (e.g., wind farms, coal seam gas), and nature conservation. Preferences measure the social acceptability of land-use which is a key aspect of designing land use plans that align with social values and can be readily implemented.

Asking public participants to map values attached to specific places is a relatively simple survey approach to design, but can be complicated to implement (and often costly if you can't do your own API coding). To reduce these barriers we (Vanessa Adams, Dimuthu Jayakody, Malcolm Johnson, and Stuart Allen) designed the landscape values mapping platform (LVMP) inspired by the many methods and approaches of Greg Brown (focused on PGIS tasks for landscape values, land use preferences, and risks but the sky's the limit for mapping tasks). This platform is available to collaborators - visit [tasvalues.com](https://tasvalues.com) to learn more.

## SESSION 3

**Dr Delphi Ward**

CERC Postdoctoral Fellow,  
CSIRO, and CMS Member

Navigating the interacting changes and pressures in society, economy and environment is complex and challenging. Having tools to boost creative thinking and the collaborative capacity of diverse groups will help us address these interacting challenges holistically - considering the interconnected nature of social-ecological systems, and the feedbacks that can create surprising consequences of interventions. One approach for facilitating novel thinking and problem-solving is through games. Having fun helps us think and

engage more deeply, and serious games are designed to take advantage of this boost to achieve a specific purpose, whether that be learning new concepts, developing and testing strategies for addressing specific problems, or exploring decision making behaviours. My presentation highlighted one example of a game that provides players experience of tipping points in a local ecosystem, economy and community. Our team is using this game as a tool to support collaborative learning and co-production of future scenarios for sustainability of communities, marine industries, and environment. The game provides shared understanding and language around tipping points that players can leverage in discussions to identify possible future tipping points and opportunities to increase sustainability and resilience.

Contact [Dr Delphi Ward](#)



## SESSION 3



**Dr Beth Fulton**

Principal Research Scientist at CSIRO, and Deputy Director of the CMS, UTAS

Humans love to tell stories about the past and the future. Those stories don't always fit seamlessly together, as people can hold discontinuous and even contradictory versions of the world in their head. Structured approaches to "futuring" can help in creating possible futures and then narrow in on the most plausible and find pathways to the most likely, those that are desired and those to avoid. This is often done via structured conversations that often focus just on a couple of dimensions relevant to the context of the futures being envisioned – such as level of trade interconnections or environmental stewardship. However, models can also be used to help play out alternative futures – taking (for instance) global or national economic conditions and climate change scenarios and playing out what happens to regional industries, communities and economies. However, presenting the outputs of these exercises can be challenging in terms of making the detail of the projections tangible.

Drawings, videos, and immersive virtual reality (or augmented reality) experiences all present powerful means of turning workshopped descriptions or model output into engaging demonstrations of what the future visions represent. These are not simple add-ons but require budget lines and rich collaborations in their own right. The effort is well worth it, however, as humans are tactile species and creating a rich picture makes the future "more real" and easier to describe whether it meets objectives and how to take action to realise the future. The increasing accessibility of virtual and augmented reality is facilitating ever more immersive experiences right down to actually "feeling the future".



**Corinne Condie**

CERC Postdoctoral Fellow, CSIRO, and CMS Member

Conflict between stakeholder groups around environmental and social issues can fragment communities and disrupt development. Attempts to mitigate these conflicts are often counterproductive – particularly in high conflict space where poor strategy choice or implementation can result in increased volatility and unintended consequences. How can we reduce this risk? Social influence modelling provides a way to pre-testing strategy prior to real-world implementation. Collaborations through CMS have led to the development of a high-performance social influence and events model (SIEM) that mirrors the evolution of the Tasmanian salmon conflict. This virtual-world has provided managers and policy makers the opportunity to:

- better understand this conflict;
- measure the likely response of key stakeholder groups to changes in government policy, industry strategy and/or company production practices; and
- identify a basket of effective conflict reduction strategies.

More generally, these models provide a useful management tool to: (i) **reduce conflict levels in coastal communities** that are currently grappling with the consequences of a rapidly evolving Blue Economy (finfish aquaculture, wind energy); (ii) **limit implementation risk for new industries** (seaweed, artificial reef systems, deep-sea mining); and (iii) **minimise management risk relating to issues of access** (fishing quotas, MPAs).



## PANEL 3

# It affects us too. Supporting our people, and the people we work and engage with, to deal with the future(s) ahead



**Dr Chloe Lucas**

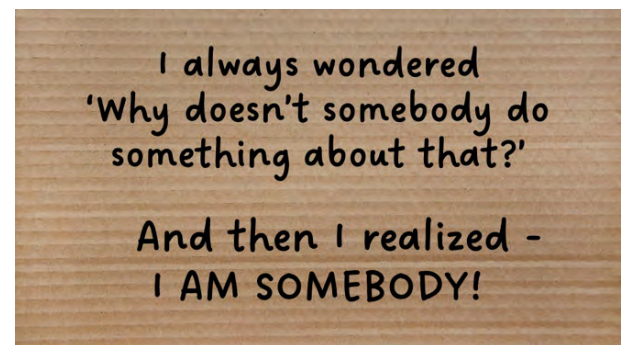
Lecturer and Research Fellow,  
School of Geography, Planning,  
and Spatial Sciences, UTAS and  
CMS Member

We feel climate anxiety, and grief, and worry, because we care. At their core these feelings are expressions of our love – for other people, for other species, and for our planet. There's something powerful about love that can help us to act, and motivate us to lead action. So while these emotions can sometimes feel overwhelming and debilitating, at their core is a powerful urge to protect what we love, and I think it is important to remember that.

I talk with school students as part of Curious Climate Schools, a program that asks students what they want to know about climate change. It is sometimes quite hard to read the questions sent in, because of the emotions they embody. For example, one question submitted last year read "People are aware of climate change, but do nothing. So, what hope do we have? Not many people are willing to make a difference. We can't turn around from this now." In the analysis we ran of children's questions over the last 2 years, 29% of children's questions expressed existential concerns about the future.

Perhaps perversely, scientists say they volunteer to answer children's questions because engaging with

young people offers them hope. Children say the same thing about engaging with scientists. I think it gives all of us a sense of solidarity and energy that we, collectively, care. In my presentation, I talked about dealing with the criticism that we are creating climate anxiety by talking about it. And I also focused on collective action as a way to turn powerful feelings into positive ways forward.



## PANEL 3

**Professor Gretta Pecl**

Professor of climate change ecology at IMAS, and CMS Director, UTAS

When I first set out to do marine science, it was all about exploration and discovery, but now, sometimes it feels like it's more about documenting decline and desperately saving what we can. I first nominated to be a Lead Author with the Intergovernmental Panel on Climate Change (IPCC), as through my science communication activities I found myself having to defend the IPCC, and I really wanted to understand the process and how it worked. But I didn't expect it to be as overwhelming as it was – at every IPCC meeting we had there was some kind of extreme climate event either in the host country where we were meeting, or back home in Australia – unprecedented floods, fires, or mass coral bleaching. When the mass bleaching of the Great Barrier Reef happened in 2016, I genuinely thought the world – or at least Australia – would take notice and start taking climate change seriously. When that didn't happen, I felt dumbfounded at first, and then quite depressed for a while. Then in 2017, there was another mass bleaching event on the Great Barrier Reef and since then it's just felt like watching a train wreck in slow motion. One of the worst times was when the final IPCC report from my working group was being delivered. There were more 'unprecedented floods' at the time, I had multiple reporters start to cry when we were doing interviews about the IPCC report findings ... but then nothing happened, nothing changed, it didn't feel like the dial had shifted at all.

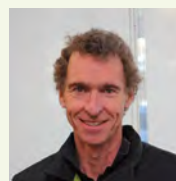
I've found it progressively more difficult to do public talks about climate change, I get teary sometimes talking about the Great Barrier Reef, the burden that our generation is knowingly, willingly placing on young people, and the injustice and inequity being perpetrated on people and places that have had the least to do to cause climate change. It's made me very aware that working on climate change and biodiversity loss comes at a cost for my colleagues

too, and the students we are training to work in these research fields. I want to make sure that we do our best to openly acknowledge that sometimes the work we do can feel challenging for various reasons, and that we need to ensure we provide appropriate support. However, even though I find biodiversity loss and climate change deeply and fundamentally concerning, I actively choose to have hope. I want to play a role in doing what we can, to save what we can, and to work with whoever will work with me, to make the future as positive as possible for as many as possible.



*One of the penalties of an ecological education is that one lives alone in a world of wounds. Much of the damage inflicted on land is quite invisible to laymen. An ecologist must either harden his shell and make believe that the consequences of science are none of his business, or he must be the doctor who sees the marks of death in a community that believes itself well and does not want to be told otherwise".*

**Aldo Leopold**

**Mr Jamie Allnutt**

Transformational Extension and Adoption, Fisheries Research and Development Corporation (FRDC)

I built and added on the other talks drawing on my operational experience working directly with communities and industries on complex and psychologically impacting natural resource and development issues around Australia. I brought an operational/action lens to this session and outlined a way forward which responds to the challenge we face around climate impacts on the marine environment and then in turn the psychological impacts including anxiety and grief. I apply a broad assumption that positive action helps to mitigate psychological impacts - but this is not always the case and this was a qualification to this talk.

## PANEL 3

**Dr Rachel Kelly**

Research Fellow at IMAS, and  
Knowledge Broker at CMS,  
UTAS

We all know we're living in unprecedented times. The reality of the climate threats and disasters that have been projected for decades are now being felt in very real, tangible (and devastating) ways across the globe. But as we watch the #climatecrisis unfolding, we also stand at a window of opportunity for envisioning and shaping how and what a more positive and sustainable future can be. This future under climate change is playing out in front of us, and we have real and influential roles to play. What choices and actions can we make to influence what happens next?

I explored the concept of Active Hope in this context, where 'hope' is defined as a passive and optimistic feeling that things are going to get better (somehow) and that the changes necessary will be enacted (by someone else). In contrast, 'Active Hope' emphasises action: the initiative we, as individuals and society, can take to envision our more desirable futures under climate change, and then take the steps and make the choices (and sacrifices) to realise these futures. Imagination will be central to conceiving these creative responses and redesigning our lives and futures under climate change. I emphasised that we will need to make space, as individuals and within society, to be inspired to imagine and to reconnect with this place and the people we hope to protect and enjoy into the future.

**Dr Graham Wood**

Lecturer in Philosophy, UTAS,  
and CMS Member

I invited attendees to consider some transitions in the human journey and think about how humans responded to transitions in terms of their changing worldview. To begin, I considered two major transitions, the Agricultural Revolution, and the Industrial Revolution. Both these transitions have had profound effects on how humans understand themselves and their place in the world. But those transition are very big spatially, temporally, and conceptually, so here I asked attendees to focus on two particular historical transitions (that are drawn from the Western cultural tradition) and invited them to think about these transitions in terms of the emergence of a particular challenge and how humanity responded to it (other cultural traditions, e.g., Eastern cultural traditions, will have their own examples). In particular, I focused on the place of philosophy in those transitions, and I did this because philosophy is central to a person's worldview.

Firstly, I asked attendees to consider the Late Bronze Age Collapse. This relates to a collapse of a set of interconnected civilisations centred around the

Mediterranean Sea that is understood to have occurred around 1200 BCE. Explanations differ about the causes of this collapse, but I mentioned it because the flourishing of Western civilisation returned (and I also mention it because one of the causes is said to have been attacks from the so-called 'Sea Peoples', and that seems appropriate given our theme). Secondly, I considered the transition from Classical Greece to the Hellenistic Period (traditionally marked by the death of Alexander the Great in 323 BCE). In Classical Greece there were many city states, Athens being one of them, and within these prosperous and relatively stable conditions certain philosophies flourished, such as the philosophy of Aristotle. After the death of Alexander the Great things were very different: geopolitics was much more unstable, and life was more precarious. And within the Hellenistic period certain other philosophies flourished, such as Stoicism and Epicureanism. I didn't go into the details of any of these philosophies. But the point of mentioning all this was to simply invite reflection on the fact that human circumstances change and as a result humans reevaluate their values, take on new worldviews, and find new ways to flourish. We are simply living in a time of change (but, in fact, that is always the case), and so we can take the opportunity to reevaluate our values, reimagine our worldview, and find new ways to flourish. I invited attendees to do that now, just as humans have done before, and will do again!



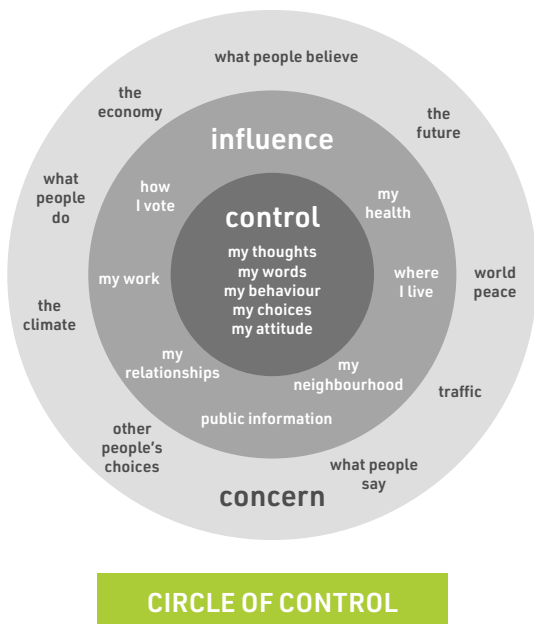
PANEL 3



**Ms Karen Grant**  
Principal Counsellor,  
Outdoor Counselling

Oceans and climate change – a field of scientific endeavour with many wicked problems and arguably everything at stake. Trying to resolve problems with serious consequences over which you have inadequate control is the actual definition of distress. I began by defining our problem. Psychology defines distress as the unpleasant emotion experienced when overwhelmed. But we can define it more specifically to our context – how you feel when you need to resolve problems with serious consequences over which you have inadequate control.

I offered a framework to help manage distress. This Circle of Control & Care framework conceptualises the oscillating nature of capacity/distress and the vital role of self-care. While it relates to individual action, my hope is by using a common framework, teams will be better able to support each other, reduce their collective distress, and maintain capacity to cope even when circumstances are overwhelming. Distress can be tricky to relieve. It's sidekicks – guilt, worry, resentment – often mobilise to spoil any sense of relief. Finding relief will vary for different people but understanding and embracing a



common framework can facilitate an effective team approach to sustaining good mental health.

This framework accommodates the oscillating nature of capacity and distress and facilitates the vital role of restorative activities. The first step is to differentiate issues or elements of your life into the **circle of control**, influence, and concern, as depicted in this graphic. This clarifies that the only things over which you have real control relate to your own thoughts, feelings, and behaviours. You then have a bunch of other things over which you have influence though not control. The outside circle contains the many things over which you have no control, perhaps limited influence but may be very concerned about. Our definition of distress now makes sense.

Now we flip the circle of control through 90° to add another perspective – your **circle of care**. This represents the scope of things you care about ranging from yourself (and perhaps your immediate family) through to your community and out to the world. The point of this framework is to match your efforts at any given time to the circles within your capacity. When you feel overwhelmed, give yourself permission to focus on a smaller circle – work on issues over which you have control. Embrace self-care opportunities, knowing they provide vital restoration. When you're energized, tackle the big stuff – areas over which your control is reduced but your influence or concern is high.

The key is that with a shared understanding of the oscillating nature of distress and capacity, teams are better able to support each other's varying needs to relieve distress and build capacity. And importantly, you allow yourself to engage in restorative activities knowing the vital role they play in your ongoing capacity and wellbeing.



## PANEL 3



**Mr Steve Willing**  
Facilitator & Coach,  
Growth in Mind

The crux of the climate crisis is not a technical challenge – we know what is happening ‘out there’ and we already have some great proven solutions. The crux is the internal psycho-social challenge for us all. We have great technical and behavioural solutions already, but we (as a species) are not doing enough of them quickly enough to avert the rapidly developing crisis. This is a massive behaviour change project, and our behaviour is a product of our thoughts and emotions.

Why are we talking about emotions? Shouldn't we stick to objective facts? Emotions are physiological sensations that co-arise with thoughts based on our neurological connections – or experience & wisdom. Emotions are intelligent hard data. And if we ignore that data, we're making half-informed, half-baked decisions ... and that's what got us into this mess.

Joanna Macy & Chris Johnstone have identified these narratives of defensive/ protective denial:

- I don't believe it's that dangerous
- It isn't my role to sort this out
- I don't want to stand out from the crowd
- This information threatens my commercial or political interests

- It's so upsetting that I prefer not to think about it
- I feel paralysed - I'm aware of the danger, but I don't know what to do
- There's no point doing anything, because it won't make any difference

These ‘stories’ put us back to sleep, keep us in denial, and keep us running towards ecological & societal collapse. We like to think we're not in denial about the climate/ oceans crisis, but if we've thought any of these stories, we have some work to do. We need to put our own oxygen masks on before helping others. So, let's look at how we're thinking and feeling about it, and what is needed to keep us active and effective at addressing the climate crisis.

Here's another perspective, “Even in the worst-case scenarios, there will be good days.”

Kimberley Nicholas identified 5 Stages of Radical Climate Acceptance (I prefer to call them ‘states’ because they're not linear): Ignorance; Avoidance; Doom; All the ‘feels’; Purpose. This shows us that grief and anxiety is the door or ‘furnace’ that we need to go through to ‘temper’ us and face the crisis. We can't get to sustained action by going around, under or over grief and anxiety – we need to go through it (with care), and not retreat from it. To address the climate challenge effectively, we need to shift from despair and overwhelm, to acknowledgement, acceptance, responsibility, purpose, active hope, action, impact. Once we have a purpose, it becomes the ‘work that we can't not do’.



# PARTICIPANT FEEDBACK



The vulnerability and openness of speakers in the final panel was both comforting to hear but also inspiring.



I thought the panels worked well - giving different point of views equal time and focusing on facts and actions.



The climate anxiety panel was excellent.



Having those discussions was fantastic in a room of other academics/stakeholders who are feeling the same way.



Great day. Exceptionally engaging.



The mix was good: scientists, economists, behavioural economists, researchers, industry, government, think tank.



So many perspectives were presented! The 5-minute presentations were impressive.

## WHAT WAS THE MOST VALUABLE TAKEAWAY FROM THE DAY FOR YOU?

*Re-connecting with the CMS family.*

*The presence of such a variety of groups in the room and seeing that we were all there for a shared overarching reason. It was incredibly reassuring and inspiring.*

*It takes teams of researchers to solve sticky problems such as climate change, or socio-ecological conflict in relation to the development of the blue economy.*

*Transformational change is needed \*now\*.*

*The environment and tone created for networking and getting a better shared understanding.*

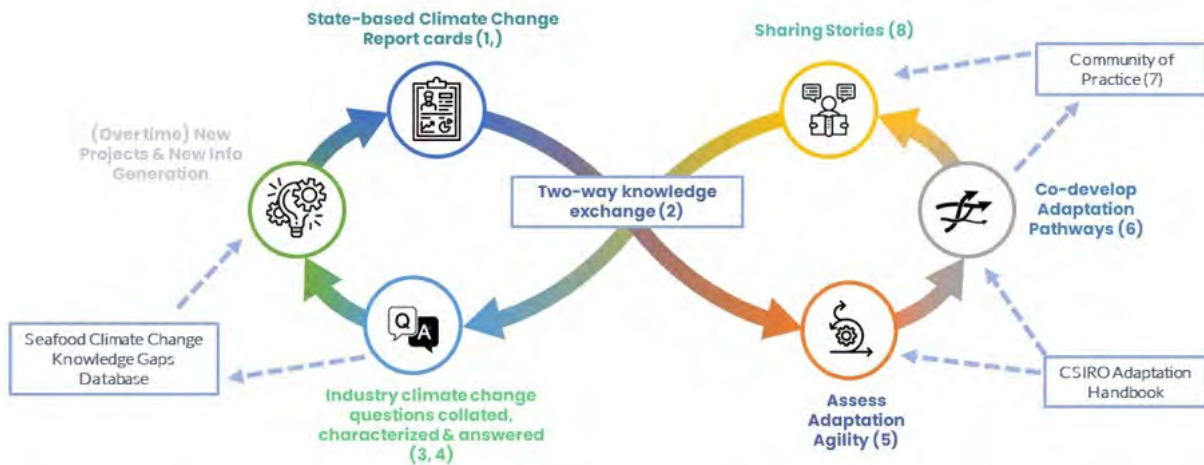


# LOOKING AHEAD TO 2024

## Upcoming events and projects

### Sea Change

Co-developing pathways to mitigate and adapt to a changing climate for fisheries and aquaculture in Australia



### Sea Change: Co-developing pathways to mitigate and adapt to a changing climate for fisheries and aquaculture in Australia

This is a new national multi-organisation project starting in December 2023, funded by FRDC and a consortium of other partners. Sea Change will develop reflexive, ongoing, and two-way knowledge exchange between industry representatives, operators, and managers, and the marine climate change impacts and adaptation research sector, to ensure that climate solutions for fisheries and aquaculture can be co-designed, usable, and adoptable. If you'd like to find out more, please contact [gretta.pecl@utas.edu.au](mailto:gretta.pecl@utas.edu.au).

**First national co-development workshop:**  
March 2024 (date TBC)

**Official project launch:** May 2024





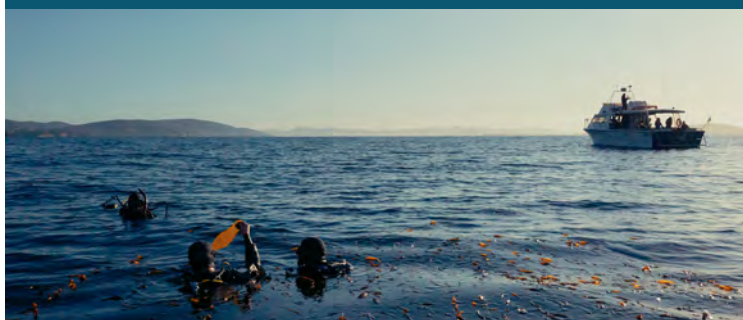
## CMS Interdisciplinary Spring School 2024

1-week interdisciplinary course aimed at Masters and PhD candidates, likely October 2024.

Guest Chair: Assoc Prof Jessica Blythe, Brock University, Canada

We are seeking Tasmanian stakeholders to present their real-life marine industry or management issues to course participants, who are then coached in teams to design approaches to tackle these challenges. Please contact [cms.admin@utas.edu.au](mailto:admin@utas.edu.au) if you or your organisation would like to participate and connect with CMS in this way.

*Pictured: Interdisciplinary spring school 2023 participants with CMS hosts*



## Australian Marine Sciences Association (AMSA) Conference

Joint meeting with New Zealand Marine Sciences Society

['Navigating uncertainty for a sustainable future ocean'](#)

September 15-20th 2024, Hobart



# ANNEX

## EXECUTIVE TEAM

Gretta Pecl, CMS Director  
Beth Fulton, CMS Deputy Director  
Rachel Kelly, CMS Knowledge Broker  
Hannah Fogarty, CMS Executive Support Officer

## STEERING COMMITTEE

Alistair Hobday, CSIRO  
Beth Fulton, CSIRO  
Catriona Macleod, IMAS  
Gretta Pecl, IMAS  
Ian Dutton, NRE Tasmania

Ingrid van Putten, CSIRO  
Jenn Scott, UTAS - School of Psychological Sciences  
Joanna Vince, UTAS - School of Social Sciences

Jonny Stark, AAD  
Martin Exel, Austral Fisheries & SeaBOS  
Natalie Stoeckl, UTAS-TSBE  
Rich Little, CSIRO

## THEME LEADERS

### Coastal & Marine Governance:

Maree Fudge & Joanna Vince

### Sustainable Futures & Planetary Health:

Richard Cottrell & Ingrid van Putten

### Environmental Change & Adaptation:

Rowan Trebilco & Valeriya Komyakova

### Knowledge Production:

Rachel Kelly & Rebecca Shellock

### Science Engagement & Impact:

Connie Cirkony & Beth Strain

## CMS SHOWCASE PRESENTERS AND PANEL CHAIRS

Alan Jordan, UTAS; NESP Marine & Coastal Hub  
Alistair Hobday, CSIRO  
Andrew Constable, AAD (Chair)  
Andry Schulthorpe, Tasmanian Aboriginal Centre  
Angela Williamson, Blue Economy CRC  
Belinda Jago, DCCEEW  
Beth Fulton, CSIRO  
Cara Stitzlein, CSIRO  
Chloe Lucas, UTAS-GPSS  
Corinne Condie, CSIRO  
Delphi Ward, CSIRO  
Dirk Welsford, AAD  
Eloise Carr, The Australia Institute Tasmania  
Emily Ogier, IMAS

Graham Wood, UTAS  
Greg Lehman, UTAS - Aboriginal Leadership  
Gretta Pecl, IMAS  
Ian Dutton, NRE Tasmania  
Ingrid van Putten, CSIRO  
Jamie Allnutt, FRDC  
Jennifer Hemer, NRM South  
Jess Melbourne-Thomas, CSIRO  
Julian Harrington, TSIC  
Karen Evans, CSIRO (Chair)  
Karen Grant, Outdoor Counselling  
Lynda Goldsworthy, IMAS  
Martin Exel, Austral Fisheries & SeaBOS

Natalie Stoeckl, UTAS-TSBE (Chair)  
Patrick Hone, FRDC  
Rachel Kelly, IMAS (MC)  
Rufus Black, UTAS  
Russell Reichelt, AO FTSE (Chair)  
Sadie Heckenberg, UTAS  
Sarah Russell, ReCFIT  
Scott Spillias, CSIRO  
Steve Willing, Growth in Mind (Chair)  
Swee-Hoon Chuah, UTAS-TSBE  
Valeriya Komyakova, IMAS  
Vanessa Adams, UTAS

## CMS SHOWCASE PARTICIPANTS

### CMS Members

Alistair Hobday, CSIRO  
Andrew Constable, AAD  
Anna Farmery, University of Wollongong  
Beth Fulton, CSIRO  
Beth Strain, IMAS  
Cara Stitzlein, CSIRO  
Carolina Chong-Montenegro, Trinity College Dublin  
Chloe Lucas, UTAS - School of Geography, Planning & Spatial Sciences  
Chris Brown, IMAS  
Connie Cirkony, UTAS - School of Education  
Corryne Condie, CSIRO  
Dean Greeno, UTAS - Riawunna Centre  
Delphi Ward, CSIRO  
Dirk Welsford, AAD  
Elizabeth Leane, UTAS - School of Humanities  
Emilie Boulot, UTAS - School of Law

Emily Ogier, IMAS  
Graham Wood, UTAS - School of Humanities  
Gretta Pecl, IMAS  
Hannah Fogarty, IMAS  
Hanne Nielsen, IMAS  
Ian Dutton, NRE Tasmania  
Ingrid van Putten, CSIRO  
Jan McDonald, UTAS - School of Law  
Jess Melbourne-Thomas, CSIRO  
Joanna Vince, UTAS - School of Social Sciences  
Jonny Stark, AAD  
Julia Blanchard, IMAS  
Karen Evans, CSIRO  
Kathy Willis, CSIRO  
Kim Beasy, UTAS - School of Education  
Larelle Bossi, IMAS  
Lynda Goldsworthy, IMAS  
Marcus Haward, IMAS  
Maree Fudge, IMAS  
Martin Exel, Austral Fisheries & SeaBOS

Mary-Anne Lea, IMAS  
Myriam Laharité, IMAS  
Natalie Stoeckl, UTAS-TSBE  
Natasha Chassagne, UTAS - School of Geography, Planning & Spatial Sciences  
Nicholas McClean, UTS  
Niyomi Pethiyagoda, IMAS  
Rachel Kelly, IMAS  
Rebecca Shellock, IMAS  
Richard Cottrell, IMAS  
Rowan Trebilco, CSIRO  
Scott Bennett, IMAS  
Scott Condie, CSIRO  
Scott Spillias, CSIRO  
Sean Tracey, IMAS  
Steven Rust, IMAS  
Stewart Frusher, IMAS  
Swee-Hoon Chuah, UTAS-TSBE  
Valeriya Komyakova, IMAS  
Vanessa Adams, UTAS - School of Geography, Planning & Spatial Sciences



CMS SHOWCASE PARTICIPANTS (CONT.)

**CMS Students**

Andrew Sullivan, IMAS  
 Denis Karcher, ANU  
 Dimuthu Jayakody, UTAS - School of Geography, Planning & Spatial Sciences  
 Edith Shum, UTAS - School of Geography, Planning & Spatial Sciences  
 Giarn Carroll, IMAS  
 Kelly Hoareau, IMAS  
 Kianna Gallagher, UTAS - School of Creative Arts and Media

Kimberly Aiken, IMAS  
 Liam Fullbrook, UTAS - School of Social Sciences  
 Malcolm Johnson, UTAS - School of Geography, Planning & Spatial Sciences  
 Matthew Teston, IMAS  
 Megan Spiteri, IMAS  
 Michael Murunga, IMAS  
 Monique MacLaine, UTAS - CoSE, Riawunna Centre

Natalia De Miranda Grilli, UTAS - School of Social Sciences  
 Olivia Dove, IMAS  
 Paris Tuohy, IMAS  
 Rani Ekawaty, IMAS/CSIRO  
 Vaibhavi Dwivedi, UTAS - School of Social Sciences  
 Victoria Heinrich, UTAS - School of Psychological Sciences

**External Stakeholders, Collaborators, and Traditional Owners**

Adela Jarmusz, NRE Tasmania  
 Alan Jordan, UTAS; NESP Marine Biodiversity Hub  
 Alison Turnbull, UTAS  
 Andry Sculthorpe, Tasmanian Aboriginal Centre  
 Angela Williamson, Blue Economy CRC  
 Anna Borges, Universidade Federal Rural de Pernambuco, Brazil  
 Annabelle Erskine, Marine Solutions  
 Bek Gregory-Richardson, NRE Tasmania  
 Belinda Jago, DCCEEW  
 Bill Harvey, Hobart City Council  
 Camilla Crockart, UTAS  
 Carryn Manicom, Marine Solutions  
 Chloe Simons, DECYP  
 Christopher Wilson, UTAS  
 Claire Mason, CSIRO  
 Dan Wilcock, UN Global Compact Network Australia  
 David Horner, EPA Tasmania  
 David Maynard, FRDC  
 David Smith, CSIRO  
 Eloise Bennett, UTAS  
 Eloise Carr, The Australia Institute Tasmania  
 Emily Thomas, NRE Tasmania

Eoin Nicholson, DCCEEW  
 Eric Brain, NRE Tasmania  
 Evie Callander, Marine Solutions  
 Evie Simpson, The Australia Institute Tasmania  
 Greg Lehman, UTAS  
 Hannah McCleary, CSIRO  
 Heidi Mumme, MI-Fish Consulting  
 Jamie Allnutt, FRDC  
 Jeff Ross, IMAS  
 Jennifer Hemer, NRM South  
 Joce Nettlefold, ABC  
 Joel Williams, UTAS  
 John Gunn, IMOS  
 John Lloyd, Park Australia - Marine Protected Areas Branch  
 Julian Amos, Tas MS  
 Julian Harrington, Tasmanian Seafood Industry Council (TSIC)  
 Justine Lacey, CSIRO  
 Karen Grant, Outdoor Counselling  
 Kate Ward, Marine Solutions  
 Kate Nairn, Australian Academy of Science  
 Kathleen Beyer, UTAS  
 Kelly King, UTAS  
 Kirsten MacAdie, Marine Solutions  
 Kulai Sculthorpe, Tasmanian Aboriginal Centre  
 Kylie Chatfield, NRE Tasmania

Kylie Smith, Huon Aquaculture  
 Lilijana Pecl  
 Madeline Hitchcock, Tasmanian Department of Education  
 Matt Flood, DCCEEW  
 Matt Whittle, Huon Aquaculture  
 Maya Gold, AAD  
 Michelle Heupel, IMOS  
 Nicole Webster, AAD  
 Patrick Hone, FRDC  
 Patti Virtue, UTAS  
 Presley Beswick, NRE Tasmania  
 Rebecca Dawson, Centre of Alternative Technology, UK  
 Rebecca Howarth, Environment Tasmania  
 Rufus Black, UTAS  
 Russell Reichelt, AO FTSE  
 Sadie Heckenberg, UTAS - Riawunna Centre  
 Sarah Russell, DPAC; RecFit  
 Sean Riley, TASSAL  
 Serena Ellery, NRE Tasmania  
 Sowdamini Sessa Prasad, UTAS  
 Steve Willing, Growth in Mind  
 Stuart Harris, Salmon Tasmania  
 Tilla Roy, ECOCEANA  
 Tyson Jones, UTAS  
 Ursula Taylor, Derwent Estuary Program  
 Vanessa Lucieer, IMAS  
 Virginia Gilliland, Macquarie University





## STAY CONNECTED WITH CMS

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