Coastal People : Southern Skies Inaugural Symposium

Preparing the Gardens

Thursday 11 May 2023, 9am – 5pm

Hutton Theatre, Tūhura Otago Museum



539 Castle Street, PO Box 56, Dunedin 9054 cpss@otago.ac.nz cpss.org.nz

Our vision is flourishing wellness (mauri ora) of coastal communities.



COASTAL PEOPLE : SOUTHERN SKIES

Centre of Research Excellence

Coastal People : Southern Skies is a national Centre of Research Excellence (CoRE) hosted by the University of Otago.



Principal Partners



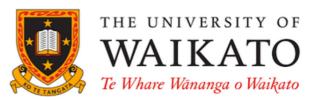
















Tēnā koe, talofa lava, kia orana, mālō e lelei,

On behalf of **Coastal People : Southern Skies Centre of Research Excellence**, we welcome you to our inaugural symposium under the kaupapa of Preparing the Gardens.

Preparing the Gardens is the underlying concept of the establishment of the national Centre of Research Excellence Coastal People : Southern Skies. It draws upon notions of oceanic voyaging and the need to ensure the purpose, the crew, and the waka are equipped for the voyage ahead. Preparing the gardens focuses on the preparation required at the sites the voyage will arrive at, and rest at, so as not to overburden those places, and to be good manuhiri.

In keeping with the kaupapa of preparing the gardens, the three sessions introduce our mahi to date, canvassing capability/capacity building, our community anchor sites and the research platform within the Coastal People : Southern Skies vision of mauri ora (flourishing wellness) of coastal communities. This is our chance to share with you and celebrate our research, to make connections, and to explore opportunities for our work programme going forward.

Thank you to our principal partners, our community anchor site members, our Board and Research Advisory Group members for your guidance and tautoko in the first (almost) two years of Coastal People : Southern Skies.

This inaugural symposium is the first opportunity to bring together members of Coastal People : Southern Skies, our partners, and the public.

Nau mai, haramai ki tō tātou kaupapa. Ki te hoe!

Anne-Marie Jackson, Chris Hepburn and Rose Richards Co-Directors Coastal People : Southern Skies



Symposium Programme Hutton Theatre, Tūhura Otago Museum

- 8.30 Registrations, kapū tī
- 9.00 Karakia Tīmatanga
- 9.10 Whakamārama o te Rā

Welcome and overview of the day from Coastal People : Southern Skies leaders.

- 9.30 **Te Whakatupuranga o te Tangata: Capability and Capacity Building** *Chaired by Professor Rose Richards* Coastal People : Southern Skies has a strong focus on growing the capability and capacity of students, researchers and communities. We have tangata moana, tangata whenua and tangata Tiriti goals which will be shared. We have a rich outreach and engagement programme which will also be shared.
- 11.00 Wā whakatā: Paramanawa Morning Tea

11.30 **Te Manawa o te Kaupapa: Community Anchor Sites** *Chaired by Professor Chris Hepburn*

Members from the community anchor sites will share aspects of their projects, from Rakiura, to Waikawa, to Puketeraki, to Whareponga, to Kawhia and Ngāti Whātua.

13.00 Wā whakatā: Kai tīna Lunch

14.00Te Kaupapa Rangahau: The Research Programme16.30Chaired by Professor Anne-Marie Jackson and Dr Daniel Pritchard

Researchers from across the research programme will share their reflections of preparing the gardens based on their thematic groupings of monitoring, connecting, understanding and restoring.

There will also be an interactive panel with Research Theme Leaders to conclude the session, where questions will be collected from throughout the day, to prompt the korero.



17.00 Karakia Whakamutunga

Session One Te Whakatupuranga o te Kaupapa: Capability and Capacity Building

Chair: Professor Rose Richards Co-Director Coastal People : Southern Skies University of Otago

Abstract

Coastal People : Southern Skies has a strong focus on growing the capability and capacity of students, researchers and communities. This session explores our work so far to support the 'pipeline' of capacity development and seeks advice from all attendees about 'where to from here?'.

The session will start by looking at innovation in the school outreach environment, developing an ocean curriculum and celebrating our postgraduate and postdoctoral Coastal People : Southern Skies members. Further on in the pipeline we offer some reflections on capacity development opportunities for early career, mid and senior staff that are possible within a Centre of Research Excellence context.



Session One: Presenters

Professor Rosalina (Rose) Richards

As the newest Co-Director to join the Coastal People : Southern Skies team, Professor Rose Richards has oversight over capacity development and Pacific strategy. Rose is also Deputy Director of the Va'a o Tautai – Centre for Pacific Health in the Division of Health Sciences, where her research focuses on Pacific wellbeing across a variety of health professions and community led visions of ola manuia (living in Wellbeing). From Samoan and English ancestry, she was born and raised in Te Wai Pounamu, the South Island of Aotearoa. Her academic background is in psychology, public health and Pacific health.



Sally Carson Outreach Programme Manager Coastal People : Southern Skies

Sally Carson is managing the Outreach Programme for Coastal People : Southern Skies alongside her role as the Director of the New Zealand Marine Studies Centre, Department of Marine Science, University of Otago. She has considerable experience leading educational initiatives where school students and the wider community engage with the marine environment, develop science skills and learn how to be kaitiaki for the coast. She has been the driving force behind a number of community education initiatives including the Aquavan and Marine Metre Squared, a national citizen science project on long term monitoring of the New Zealand seashore (www.mm2.net.nz). She has written numerous educational resources and books including the *Collins Field Guide to the New Zealand Seashore*.







Chanel Phillips (Ngāti Hine, Ngāpuhi) Centre of Indigenous Science; Coastal People: Southern Skies, University of Otago

Ko te awa o ngā rangatira Taumārere here i te riri Te rere i Tiria Te puna i Keteriki Keteriki kete tana riki E tū atu nei Ngāti Hine pukepuke rau Tihei wā mauriora!

Dr Chanel Phillips (Ngāti Hine, Ngāpuhi) is co-Theme Lead for Training within Coastal People : Southern Skies (CPSS) and a lecturer in Māori Physical Education and Health, at the Centre of Indigenous Science, University of Otago. Dr Phillips' research is firmly grounded in kaupapa Māori and draws on the connection between matauranga (Maori derived knowledge), wai (water) and health. Her passion for water and the importance of the taiao (environment) for health and wellbeing is at the heart of her work within CPSS. From her doctoral research, which examined Maori perspectives of water safety, the Wai Puna model of Māori water safety and health was developed (Phillips, 2019). Wai Puna currently underpins the New Zealand Water Safety Sector strategy 2025 and is also being implemented into the Recreational Safety Search and Rescue Review led by the Ministry of Transport. Wai Puna focuses on whakapapa (genealogy), mātauranga (Māori knowledge) and tikanga (custom, practices) to support the wellbeing of people from the mountains to the sea. Within CPSS, Wai Puna is about growing cultural competency within our members and partners to better understand whakapapa, mātauranga and tikanga in relation to well-being.





Session One: Student Participants

Louise Bennett-Jones University of Otago

Originally from the British Channel Island of Jersey, Louise undertook an undergraduate degree in Marine Biology & Coastal Ecology at Plymouth University before returning to the island to work as a Marine & Fisheries Officer for the local Environment Department. Wishing to gain further fisheries management knowledge and experience, Louise moved to New Zealand in 2019 to pursue postgraduate study at the University of Otago. Presently, Louise is working alongside Tangata Tiaki for Kāti Huirapa Rūnaka ki Puketeraki to conduct her PhD thesis on the assessment, restoration, and management of pāua (blackfoot abalone, Haliotis iris) in the East Otago Taiāpure. Louise is supported by a scholarship from the Coastal People : Southern Skies Centre of Research Excellence (CPSS).

Denisa Berbece (Honours) School of Biological Sciences Te Herenga Waka - Victoria University of Wellington

Denisa Berbece recently completed her undergraduate degree in Marine Biology at Te Herenga Waka - Victoria University of Wellington. She is now pursuing a PhD with Dr Christopher Cornwall, studying the responses of various New Zealand coralline algal species to multiple global change drivers, particularly ocean acidification and warming. Previous research by Dr Cornwall has demonstrated the potential of some coralline algal taxa to increase their tolerance to ocean acidification over multiple generations via transgenerational acclimatization.

Denisa aims to expand upon this research and it will be the firsttime transgenerational plasticity will be tested for both multiple species and multiple drivers. Focus will be drawn towards the effects of acidification and warming upon the skeletal mineralogy of corallines, with the use of techniques such as Raman spectroscopy and stable isotope analysis. The outcomes of this project will have large implications for protecting New Zealand's marine ecosystems, allowing us insights into the potential for these taxa to survive in the future. Denisa is supported by a CPSS postgraduate scholarship.







Larissa Hinds (Masters) Te Iho Whenua | School of Geography University of Otago

Larissa Hinds is a Tauiwi researcher based in Te Iho Whenua | School of Geography. Larissa holds a Bachelor of Laws, Bachelor of Science and Diploma of Language from the University of Otago. Larissa worked in community development prior to returning for postgraduate study, and recently joined Aukaha as a policy intern within the Mana Taiao (environment & planning) team. Outside of study, Larissa has been involved in arts initiatives including 'Shared Lines: Pūtahitanga' - a group show that exhibited in Ōtautahi Christchurch and Te Ngākau Civic Square, Wellington. Larissa is supported by a CPSS postgraduate scholarship.

Jacinta Beckwith (PhD) Centre of Indigenous Science & Archaeology University of Otago

Jacinta is Ngāti Kahungunu (Ngāi Te Rangikoianake) and Ngāti Porou (Te Whānau a Pōkai), Ōtepoti born and raised, and Head Curator Māori at the Hocken Collections where she leads the preservation, protection, development, and accessibility of taonga in the Hocken and the wider University of Otago Library Collections. She is a researcher in the Ruruku waka building project by Hauteruruku ki Puketeraki, member of weaving rōpū Whiria ka aho ki Puketeraki, and member of the Ōtākou branch of the Māori Women's Welfare League.

Jacinta has served as Te Waka-a-Māui representative on the national council for Te Rōpū Whakahau: National Association for Māori in libraries and the cultural heritage sector, and as Board Member for the Blue Oyster Arts Trust. She is a member of Kāhui Kaitiaki: network of Māori museum and gallery professionals: he taonga ora, he tangata ora. Jacinta is supported by a CPSS PhD scholarship.









Mino Cleverley (PhD) Centre for Sustainability University of Otago

Mino Cleverley is an Aotearoa-born Samoan. He began his career as a Chartered Professional Engineer and has been a Management Consultant and Educator. With a passion for equity and sustainability, he felt compelled to return to University to pursue a PhD. He is conducting his research with the Centre for Sustainability at the University of Otago, where he is immersing himself in social science and Indigenous approaches to understanding the societal impacts of climate change in Samoa. Mino is supported by a CPSS PhD scholarship.

Te Kahurangi Skelton-Pue (Masters) Centre of Indigenous Science

Ko hea, Ko hea tērā mounga e tū mai rā Ko Taranaki pea, Nukunuku mai, nekeneke mai Ki taku tauaro kikini ai e ha!

Tēnā koutou katoa, he kākano au nō Taranaki mounga, nō ngā iwi o Te Ātiawa, Taranaki me Ngāti Maru ahau. Kei te mihi.

My whakapapa links to Te Ātiawa, Taranaki and Ngāti Maru firmly ground me as a wāhine Māori and emerging postgraduate student.

I'm proudly a student of Te Koronga and the Centre of Indigenous Science where we are guided by ancestral scholarship and Māori excellence. My research draws upon the methodological frameworks of Kaupapa Māori theory and further advocates for rangahau a-iwi. The research explores Climate Change from a Taranaki perspective. Ko te kaupapa matua o tēnei rangahau: Ka tika te mouri o te taiao ka tika tonu te mouri o te tangata. Te Kahurangi is supported by a CPSS postgraduate scholarship.







Postdoctoral Research Fellow

Terina Raureti Te Koronga, Centre of Indigenous Science

I am a Postdoctoral Research Fellow based in Ōtaki. My kaupapa is creating kura kauora, a Māori swimming programme that will be incorporated into Te Kura-ā-iwi o Whakatupuranga Rua Mano in Ōtaki, with the potential to have uptake in kura across the country. I work alongside my whānau and community in Ōtaki to create a wai kaupapa that is reflective of how we engage with the wai. Kura kauora is based on kauora, a theory and praxis of swimming for Māori that was created in my PhD. It is centred on the three key pou of kaukau (swimming as play), kauhoe (swimming as providing) and kautiaki (swimming as protection) which in their unique elements enhace whānau health and well-being. Kauora is about a strengthened connection to our whānau, past, present and future through engaging in the wai so that whānau and the water continue to flow for generations to come.

Terina is one of two CPSS-funded postdoctoral fellows.





Session Two Te Manawa o te Kaupapa: Community Anchor Sites

Chair: Professor Chris Hepburn Co-Director Coastal People : Southern Skies University of Otago

Abstract

In this session we will hear from the five coastal communities that are the community anchor sites of Coastal People : Southern Skies (CPSS). Through CPSS funding, each of the five communities will explore what capability building and research excellence looks like for them in their own unique context as they face a changing climate.

These community anchor sites have played a large role in the development of CPSS researchers and students. They are recognised as foundational community partners, having contributed to high-quality research for many years prior to the establishment of CPSS. These five communities were represented in the Centre of Research Excellence bid at the final TEC panel interviews in 2020.

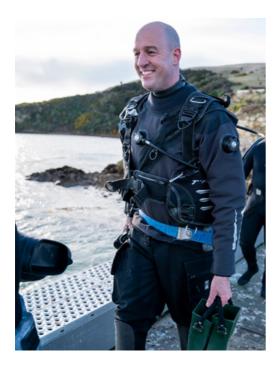
It is a privilege to be able to continue sharing and collaborating with these anchor sites who embody the mauri ora of coastal communities. We welcome the opportunity to invite them to the stage.

In this panel, we will hear about the mahi each of the communities is involved with, the contemporary issues facing them today, and how they envision the research sector contributing to the mauri ora of coastal communities.



Professor Chris Hepburn

Professor Hepburn is a PhD graduate from Otago who grew up in Cromwell. Chris and his team of students and collaborators work alongside coastal communities in their struggles to restore and maintain ways of life associated with productive coastal ecosystems and fisheries. Application of his research and teaching to support local action that has helped return local fisheries rights to local people has been a highlight of his work to date. He is a proud member of the East Otago Taiāpure Management Committee and Co-Director of the marine climate change focused Coastal People : Southern Skies Centre of Research Excellence.







Mr Danny Poa is currently the Kaitiaki Kaupapa of Coastal People : Southern Skies. His role entails maintaining relationships between our academic stakeholders and communities we work alongside. Danny has graduated with a Masters of Business Administration.







Session Two: Panel Participants

Steph Blair (Ngāi Tahu, Kāti Mamoe, Waitaha) Rangatahi Tūmeke Project

Steph Blair is the founder and leadership member of Rangatahi Tūmeke, a charitable trust that run wānanga to help connect rangatahi to the natural environment as a tool to develop confidence and life skills for the last 10 years. Rangatahi Tūmeke plan to use the CPSS funding to help realise their aspiration of the planning and construction of a whare wānanga on SILNA (South Island Landless Natives Act) land. Through the build, Rangatahi will be exposed to mātauranga Māori, construction and trade experience and freshwater, surveying and biodiversity sciences.

Steph has been in the Education sector for decades as a teacher and involved with city council, regional council and the Awarua Rūnaka through Rangatahi Tūmeke. Steph and her whānau have collaborated with members of CPSS over several years, including reseeding over 100,000 infant and juvenile paua along the South Island coastline and voyaging to Rakiura with Te Toki Voyaging Trust.









Brendan Flack (Kāi Tahu, Kāti Mamoe, Kāi Te Ruahikihiki) Ruruku Project



Brendan Flack is project leader of the CPSS funded grant 'Ruruku' which is about bringing the community together to wānanga around the planning and construction of a traditional sailing canoe. This project is based in Karitane with Hau te Ruruku ki Puketeraki waka club and Kāti Huirapa ki Puketeraki hapū.

Brendan is Tangata Tiaki for Kāti Huirapa, Chair of the East Otago Taiapure Committee and is the Pou Tuarā for CPSS, helping guide and support the five community anchor sites. For over ten years, the community at Puketeraki has worked alongside CPSS-affiliated researchers leading out on dozens of teaching and research programmes.

Tame Te Rangi (Ngāti Whātua) Kaipara Maurikura Capability Development Project

Tame Te Rangi is a representative of Te Rūnanga o Ngāti Whātua, one of two signed iwi partners of CPSS. Ngāti Whātua has supported Co-Director of CPSS, Professor Anne-Marie Jackson, as an uri of Ngāti Whātua throughout her entire research career to date, alongside affiliated students and colleagues.

Tame Te Rangi is Treaty Claims Negotiator and Tikanga Advisor of Te Rūnanga o Ngāti Whātua. Ngāti Whātua plans to use the CPSS seeding grant to develop research projects aligned with the Maurikura Kaipara Remediation Programme in restoring the health and mauri of Kaipara Moana.





Eliz Ngarimu (Ngāti Porou, Te Aitanga a Mate) Te Tahuna o Whareponga Project

Eliz is project leader on the CPSS project Te Tahuna o Whareponga: Wa Nehera O Naianei, Kei Mua: The Past, The Present and Future Fisheries at Whareponga. The project aims to understand traditional mahinga kai practices and fisheries management in Whareponga East Coast.

Eliz and her Ngarimu whānau have been community advocates in education and whānau ora spaces. The Whareponga community collaboration and knowledge sharing around fisheries surveys and strategies has provided many opportunities for capability building over the years.





Zane Smith (Rakiura Māori) and Jennifer Jamieson (Cook Islands Māori) Rakiura Marine Research & Education Project

Zane Smith (Ngati Mamoe, Waitaha, Ngāi Tahu) is the project lead for Rakiura Marine Research & Education Project. He is a sixth generation Stewart Islander and is a commercial pāua diver, crayfisher and aquaculturalist. Zane has lived and worked on and in the waters surrounding Rakiura for many years and has experience on a range of research projects including work developing new products from seaweed and the control of an invasive kelp.

Jen Jamieson was born in Hawkes Bay and grew up in Bluff. Her father's great grandfather came over from Sweden to Stewart Island as a boat builder and Jen has had ties to the Island ever since; Jen's mother was born in Rarotonga. Jen's passion is crayfishing and this year will be her 5th season crewing for her father. They fish around the beautiful Port Pegasus.









Session Three Te Rangahau: The Research Programme

Chair: Professor Anne-Marie Jackson and Dr Daniel Pritchard CPSS Co-Director; CPSS Deputy Director, University of Otago

Abstract

The research programme of Coastal People : Southern Skies (CPSS) is structured around the metaphor of a voyaging canoe. It has a Marine hull and a Well-being hull – with Te Pae Māhutonga (the Southern Cross Star Constellation), reflecting Tā (Sir) Mason Durie's model of well-being. There are two tumu (moorings): **Monitoring** at the bow, and **Training** at the stern. Connections to these moorings are threaded throughout each of the platform themes: **Connecting**, **Understanding** and **Restoring**.

Each theme is connected and braced by a series of inter-connected projects that draw on both hulls to apply cross-disciplinary and cross-cultural approaches to marine research. The two sails represent **Voyages** that acknowledge the Pacific Ocean that connects us and renews the excitement of learning between people of our Island nations; and **Innovations** leading to a new journey and new destinations.

In this session, we will hear from Theme and Tumu Leaders about the research underway (and planned) in each area of CPSS. This will be followed by a Q&A session focusing on existing and planned research projects, as we begin the shift from "preparing the gardens" to the second phase of CPSS from 2025, "balancing the waka".



Professor Anne-Marie Jackson (Ngāti Whātua, Ngāti Kahu o Whangaroa, Ngāpuhi, Ngātiwai)

Professor Anne-Marie is one of the Co-Directors of Coastal People : Southern Skies. She leads Coastal People : Southern Skies strategy and has administrative oversight. She is Kaihautū of the Centre of Indigenous Science and Te Koronga at the University of Otago. Her mahi focuses on mauri ora (flourishing wellness), namely through the application of te ao Māori, te Tiriti o Waitangi and kaupapa Māori. She is nearing the completion of a Health Research Council funded Rangahau Hauora Māori Project Tangaroa Ara Rau: Māori water safety programme for whānau and a Marsden Fund project Te whai wawewawe ā Māuitikitiki-ā-Taranga: Revitalisation of Māori string figure knowledge and practice.



Dr Daniel Pritchard

Dr Daniel Pritchard is the Deputy Director of Coastal People : Southern Skies and a co-leader of the Monitoring Tumu with Dr Kim Currie (NIWA). He is a seaweed ecophysiologist with an interest in the wider impacts of anthropogenic modifications on coastal ecosystems. He brings expertise in data management and numerical modelling and has significant experience working alongside coastal communities in the development of research projects that support the management of the Ngāi Tahu Customary Protection Area network (he was formerly Principal Scientist Mahinga Kai at Te Rūnanga o Ngāi Tahu). In this mahi he has designed and conducted baseline fisheries and habitat monitoring surveys, and provided support to coastal communities, and Māori communities.



Monitoring

Speaker: Dr Daniel Pritchard Deputy Director, Coastal People : Southern Skies University of Otago

Monitoring is fundamental to our understanding of the marine environment today and what will come in the future. To prepare for and predict what will be, we must know what is. To manage and restore, we must observe and record change. In Aotearoa New Zealand, there has been significant underinvestment in high quality long-term marine monitoring, leaving coastal communities underprepared to confront the challenges of climate change. In the framing metaphor of Coastal People : Southern Skies (CPSS) as a double-hulled waka, the Monitoring Tumu (mooring post) has a foundational and stabilising role, connecting back to fixed and permanent places. It will span the full 7.5-year term of CPSS, providing platforms and opportunities for monitoring and for the coordination, promotion, and support of high quality data collection within CPSS. One of our key workstreams is to establish fixed-point, subtidal biogeochemical and environmental moorings within important habitats at anchor sites across the latitudinal gradient of Aotearoa New Zealand. The first anchor site is at Karitane on the Otago coast. This project builds on a history of successful data collection, support for aligned research projects and community engagement and support. As well as implementing local monitoring, this first project will develop methods, approaches and resources that will be utilised within the Tumu and elsewhere within CPSS. Here we will provide an overview of projects within the Monitoring Tumu, including how partnership with coastal communities is central to our approach.





Connecting

Speaker: Dr Karen Greig Archaeology, University of Otago Southern Pacific Archaeological Research (SPAR)

Connecting people, ecosystems, and climate change-related problems at multiple levels and across space and time, draws on different knowledge systems, research disciplines, academic and practical skills, and cultural traditions. We will conduct research to understand ecosystems, and how people interact with coastal ecosystems in the past, presently and into the future. We will trace past and present human and other migrations/dispersal, to predict and prepare for the social and ecological consequences of generations of climate refugees. Connectivity is more than collaboration – it is the space where radically different perspectives and worldviews interact to create a place of innovation, empowerment, and resilience.

Dr Greig is Co-Director of Southern Pacific Archaeological Research (SPAR), a research unit and consultancy in the School of Social Sciences, University of Otago. Her research is focused on the archaeology of Oceania, archaeological practice and cultural heritage management. Her research addresses questions about the relationships between people, animals and the environment in the past. Current projects investigate interactions between people, pigs and dogs, during the human colonisation of the Pacific region and in social exchange networks, combining ancient DNA and molecular genetic approaches with archaeological and archaeozoological methods. Karen has worked in the heritage profession in New Zealand for over 25 years, and together with SPAR researchers, works with iwi, hapu and whanau in Aotearoa and communities across the Pacific to build capacity in heritage conservation and address threats from climate change.







Understanding

Speaker: Dr Emma Ryan Lecturer, Environmental Science University of Auckland

Understanding the impacts of climate change on important processes in the coastal-marine environment and implications for the values, culture, and well-being that coastal and marine areas provide is a priority. We will determine how local stressors (that can be managed locally also) interact with globally driven stressors that cannot be managed locally. Coastal communities and researchers will co-create new knowledge and connections to enable preparation for a changed marine environment and focus management to maximise climate change resilience.

Dr Ryan is a Lecturer and coastal geomorphologist in Environmental Science at the University of Auckland. Her broad research interests span coastal/coral reef science, coastal management, and climate change adaptation. Emma is Co-Theme Leader of the Understanding theme within CPSS. She co-leads the 'Impacts of Rising Seas' project within the Understanding theme.





Restoring

Speaker: Dr Gaya Gnanalingam Department of Marine Science University of Otago

Restoring focuses on restoration that acknowledges the past, uses knowledge of the present and future, to guide action that provides meaningful benefits today, and for generations to come. With the inevitability of change, we will identify local initiatives to strengthen social-ecological systems and support coastal people as they prepare for change. We will build resilience, maximizing the impact of restoration by focusing on critical processes and species (e.g. ecosystem engineers, cultural keystones). The broader effects of future-focused ecosystem restoration on coastal communities (e.g. social cohesion, capacity) will also be examined.

Dr Gnanalingam's primary research interests are in fisheries restoration and management for long term sustainability. She works to integrate a number of research areas, including stock enhancement, marine ecology, marine policy, fisheries regulation, and Indigenous knowledge, and pairs scientific methods (empirical field observations, laboratory experimentation, and computer modelling) with policy analysis and legislative review.





Notes





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