Turning the Tide: Climate Change, Social Change, and Islandness

The Second International Conference on Small Island States and Subnational Island Jurisdictions

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BOOK OF ABSTRACTS

Keynote Address: Life in ‘Paradise’: A Social Psychological and Anthropological Study of Nature Conservation in the Caribbean Netherlands
Stacey Mac Donald

In her keynote address, Dr. Stacey Mac Donald will examine the efforts and motives of conservation actors on Bonaire, Saba, and Sint Eustatius, and situates these actors within the larger context of the Caribbean Netherlands. By combining insights and approaches from environmental psychology, anthropology, and Caribbean studies, she investigates how and why residents of the Caribbean Netherlands engage in conservation actions. Situated in social history, cultural and environmental anthropology, public administration, and environmental science, this research aims to create a broader, less compartmentalized, picture and also addresses societal concerns. In addition to her research findings, currently day examples illustrating these concerns and perspectives will be shared based on experiences and observations in the field and acquired through her current work as program advisor for WWF-NL based in the Dutch Caribbean.

1A

Beyond Trophy Assets: Effects of Islandness on Private Islands
Jenelle Maillet, MA Student,University of Prince Edward Island

Abstract:
This presentation will examine the effects of “islandness” on the purchase of private islands, particularly for conservation. The identity, boundedness, and rarity of private islands has created a market that increasingly favours islands as places to spare from development entirely or protect through eco-tourism initiatives. I will draw from the upcoming purchase of Oulton’s Island (Kwesawe’k) Prince Edward Island (Epekwitk), which aims to return the land to the Epekwitnewaq Mi’kmaq, as an example of opportunities created by private islands in the Anthropocene. The story of this island demonstrates “islandness” as a distinct attachment between people and place that invokes the past and imagines the future. This presentation aims to connect with other examples of private islands purchased to provoke societal shifts, especially in how we protect islands in the wake of climate change. Importantly, this presentation will offer critical perspectives on the limits of private islands in mitigating climate impacts.

The Precarity of Migrant Labour and Agriculture: Climate Change and Social Change in PEI
Eliza MacLauchlan

Abstract:
Climate change is affecting the lives of migrant workers in their home villages and in the agriculture sector which draws them to Canada. The agriculture industry in Prince Edward Island heavily relies on migrant workers from Mexico and the Caribbean to meet its labour

needs. As permanently “temporary” residents, migrant workers’ employment in agriculture is considered essential. However, their employment is precarious, and they have little opportunity to obtain permanent residency in Canada. This presentation draws on ethnographic fieldwork with migrant workers in Prince Edward Island and will provide an understanding of the realities of those that produce our food. I will discuss the experiences of migrant agricultural workers working and living on Prince Edward Island with a particular focus on how climate change and social change work in tandem to intensify their precarity.

No Tangible and Intangible Legacies of Wind on Islands
Corinna de Guttry

Astract:
Wind is a feature shared by islands around the world, whether in form of breeze, strong winds, monsoons, typhoon or hurricanes. Proofs of islander´s adaptation strategies are disseminated in the everyday landscape: they range from architectural techniques such as fixtures for roof coverings, to house orientations and coastal protection measures against storms and storm surges. Further intangible vestiges can be found in oral histories, religious celebrations, prayers and songs. The open question is to what extent those legacies can be effective and play a role in future climate change adaptation and mitigation scenario where intensity, frequency and direction of winds is expected to change.
We address this question through two case studies: Eastern Frisian Islands (Germany) and Penghu Archipelago (Taiwan) and we explore the differences and commonalities on the societal and cultural embedded responses to wind and the resulting legacies for the islands´ future lifeworlds.

1B

ClimateSense – Building Social Climate Change Adaptation Capacity in Prince Edward Island
Ross Dwyer & Krystal Pyke

Abstract:
ClimateSense; an internship and training-based program for young professionals on Prince Edward Island; was designed to build local climate adaptation capacity within the Island professional workforce, such as architects, engineers, and planners. During the four years of the program, it transformed beyond traditionally identified “climate professionals” to embrace the interconnectedness of small island communities, though a focus on social climate change adaptation capacity building partnerships.

These partnerships: with arts, indigenous, feminist and second language institutions, helped emphasize the importance of combining traditional professional sectors, with more socially focused organizations, to produce a more comprehensive and deeper understanding of the needs of our Island communities in relation to their climate change capacities.

By not limiting opportunities to only traditionally defined climate professionals, ClimateSense helped spark motivation for social change on the community level by bringing climate training opportunities to non-traditional sectors and individual islanders who now have the knowledge, experience, and social momentum for adaptation action.

This presentation explores the value of knowledge and skills building within the social organization structure of Prince Edward Island and examines if these successes were unique because of their Island setting, and how Islandness affected the programs successes and challenges.

PEI Artists Do Climate Change: Sharing Traditional Knowledge Through the Language of Art
Laurie Brinklow

Abstract:
A fabric art series by Prince Edward Island Catherine Miller in 2011 entitled Rising Sea Level, PEI, 2010, demonstrating blatantly and poignantly what will happen to the Island when sea levels rise to unprecedented levels in the coming decades. If things go as predicted, Prince Edward Island is in danger of becoming four islands by the end of the century, if not sooner. In 2022, post-tropical storm Fiona served as a stark reminder: in 36 hours it destroyed infrastructure, homes, and livelihoods – not to mention the Island's forests and dune systems, leaving the Island – and Islanders – irrevocably changed. Art can be a powerful tool in conveying a message, reaching people on an emotional as well as an intellectual plane. The message of climate change is no different, and Prince Edward Islanders are reacting as never before by doing what they do best: making climate change art. This presentation will address how local and Indigenous Island artists – visual artists and photographers, writers and poets, musicians and performing artists and filmmakers – are working through traditional means such as art shows and concerts, books and films, but also with local NGOs and policymakers and Island youth, to convey powerful messages – wake-up calls while working to instill hope – in order to help Islanders adapt to the changing landscapes and seascapes of their Island home.

Terra Inspira: Arts- and Inquiry-Based Learning as Catalyst for Climate Curiosity in PEI, Canada
Ryan E. Drew

Abstract:

Created by Ryan E. Drew, Terra Inspira (www.terrainspira.ca) is an arts education hub designed for climate-curious educators residing in Epekwitk / PEI, Canada. Responding to extensive community- and place-based research on climate change, biodiversity loss, shoreline erosion, and major weather events, Terra Inspira leverages natural and intentional curiosity through inquiry-based learning, self-directed projects, and hands-on art activities.

Within this framework, the climate curious explore their relationship with planetary well-being and uncover new and innovative ways to sustain PEI and its diverse inhabitants. Constructed on the fundamental belief in the social power of creativity, Terra Inspira includes six cross-curricular and culturally responsive learning adventures (“Fieldnotes”) and a variety of resources that connect climate-curious learners with their natural surroundings. This project was created with support from National Geographic’s COVID-19 Remote Learning Emergency Fund.

1C Metabolism of Islands

Small Islands as Hubs for Sustainability Transformation Research
Dominik Noll

Abstract:
Their geomorphological characteristics make island systems special focal points for sustainability challenges. Small island economies are often characterized by excessive dependence on imports, and as highly vulnerable to the impacts of climate change. In this contribution I address the question of how small islands can enhance their resilience by building on these very same island features. I would like to draw a more positive picture of boundedness and insularity and show how small islands qualify as ideal hubs for sustainability transformation research.
Therefore, I will introduce research conducted on the Greek island of Samothraki, by showing empirical data about the island’s sociometabolic transition from a circular economy towards one that is highly depended on imports and generating large amounts of waste. Based on this historical assessment I will outline sociometabolic potentials for transitioning towards more circular resource use patterns and will elaborate on which potentials islandness entails to achieve these goals. Instead of portraying small islands as vulnerable and fragile I will highlight and leverage their adaptive and transformative potential.

This work is funded by National Funds through FCT - Foundation for Science and Technology under the Project UIDB/05183/2020.

Circular Economy and Community-Based Approach in the Reconstruction of Jamaica Against Flooding
Maryam Vakilbashi, Rob Feick, Simron Singh

Abstract:
Climate change is increasing the frequency and intensity of flooding in many Small Island Developing States (SIDs). Among the many challenges associated with flooding, two aspects of reconstruction require further study. First, the accumulation of a great deal of waste and the need for new materials, as SIDs have constraints on waste disposal and imports. Second,

due to the rapid replacement of structures and infrastructure, the reconstruction plan may not align with architectural typology and neglect community engagement in decision-making. This study proposed a community-based approach that draws upon the circular economy and participatory geographic information system (GIS) to develop sustainable reconstruction planning against flooding in Jamaica as a case study. The community-based approach is taken to investigate the vernacular construction methods and to define sustainable and resilient patterns. A quantitative bottom-up approach based on GIS is applied to calculate the total material stock and the input (imported, local, and recycled) materials for reconstruction. This study will help SIDs to accelerate reconstruction by minimizing import and disposal and engaging community and vernacular construction technic.

1D

1d Panel: Climate Justice Challenges of 'Sub-National Island Jurisdictions': Experiences from Greenland, Hawaii, Guadeloupe, Martinique, Bonaire and Puerto Rico.

The historical roots of our ecological crises (climate change, biodiversity etc.) lie in the colonial times when the structures of dispossession and extractivism were laid out in the Global South. The colonial logic of extractivism continues (Sultana, 2022) through the legal, political and economic frameworks of many islands with limited sovereignty, which are classified as Sub-national Island Jurisdictions (SNIJ), overseas territories, or unincorporated territories. It is specifically these designations which interrupt and even counter actions from local communities to deal with climate challenges. These islands are dealing with the dual struggle; of on one hand self-determination and on the other hand self-preservation. For instance, they have limited political power to influence decisions made by and on the mainland by occupying powers which affect them. And they often fall within a framework which overlooks geographical, cultural, linguistic, and ethnic differences (Cullen & Brassart Olsen, 2023). The experiences of these islands and how their varying degrees of self-governance and limited self-determination influence not only day to day decision-making but also climate (in)action is an overlooked topic, even though these places are often made highly vulnerable to climate change. (Misiedjan, 2022)

In this panel, we bring together insights from islands such as: Bonaire, Puerto Rico, Greenland, Martinique and Guadeloupe, and Hawaii and how their constructed vulnerability to climate change and lack of sovereignty influence their ability to deal with climate challenges. We will reflect on whether the human rights framework can be leveraged to respond to climate change in their situation (Cullen & Brassart Olsen, 2023), how climate litigation could assist in enforcing a duty of care (Misiedjan, 2022), how grassroots mutual-aid initiatives can advance a decolonial praxis of just disaster recovery and climate justice (García-López, 2021), and which insights from "climate reparations" could inform climate justice moving forward (Serrano & Tapu, 2022).

Together the short presentations of these contributions will feed a panel discussion amongst the authors identifying key enablers of climate injustice for SNIJ, looking at it from legal, political and historical perspectives. In addition, possibilities will be imagined for a just way forward which supports the needs and desires of island(er)s.

Featured in this panel:

- Malcom Ferdinand “What climate justice for non sovereign overseas’ territories? A decolonial ecology perspective”
- Miriam Cullen “Human Rights and Resource Exploitation in Greenland”
- Gustavo García López “Decolonizing colonial-climate disasters through autogestion: Reflections from Puerto Rico”
- Daphina Misiedjan “Climate Justice in the Dutch Kingdom: Arguing Climate Inaction as Discrimination?”

Interactive Session: Recentering Research in and on Small Island States
Anouk Mertens, Nadine Buys, Patrick Arens, Georges Gielen, Eric Mijts

Abstract:
Small island states (SIS) are on the forefront of climate change impact. Paradoxically, climate change research, policy, practice and finances are mainly outlined in the Global North (Overland et al., 2022), and knowledge production on SIS is significantly lower than elsewhere (Pasgaard et al., 2015). Consequently, a lot of the research being done on climate change effects, mitigation and adaptation, suffers from a lack of ownership by the local population and authorities, and disregards the need for locally tailored, contextualized and holistic solutions that take into account the wicked nature of SIS’ sustainability challenges. Within this context, the authors propose to organize an interactive session: starting from experiences from the SISSTEM research team based in Aruba, we would like to discuss with the conference’s audience (i) what are the challenges for locally-based and -owned research on climate change and other sustainability challenges of SIS, and (ii) what are potential solutions for these challenges, in order to increase ownership on the climate change and sustainability research agenda in SIS. Insights from this interactive session could be further developed into an academic publication, with potential co-authorship for active participants.

2A

The Challenges and Opportunities in Legislating Ownership of Solar Panels in Aruba
Chun Luk

Abstract: This paper explores the legal challenges and opportunities of ownership of solar panels in Aruba, focusing in particular on a new amended provision in the Aruban Civil Code. The motivations underpinning the amended Civil Code provision and the legal and societal

obstacles it aimed to address are set out and situated in the context of the Aruban SDG implementation of tackling climate change – more specifically the need for policies and regulatory framework conducive to renewable energy production and consumption. The impact of this legislative change on the uptake of solar panel ownership in Aruba is evaluated through semi-structured interviews with key stakeholders, such as policymakers, credit institutions, solar panel companies and notaries. The paper discusses whether the aim pursued by the legislative amendment has been achieved and contemplates the potential for the transposition of this uniquely Aruban solution to the other Dutch Caribbean islands.

Climate Change Adaptation and Mitigation in Sub-National Island Jurisdictions – The Role of Monetary Policy and Financial Stability

Stephanie Werleman, Steffen Eriksen, and Bert Scholtens

Abstract:
With their close proximity to the ocean, Sub National Island Jurisdictions (SNIJs) are highly sensitive to climate change. Here, we provide an inventory of factors that help understand the relationship between climate change and SNIJs. In particular, we focus on their risk and vulnerability and on their climate mitigation and adaptation planning. We connect with the instruments and capabilities of their monetary policy arrangements and financial system to gauge the resilience of the SNIJs. As our benchmark, we refer to the Small Island Developing States (SIDS), which are studied much more in depth. Next to a high variation in climate change risk, we establish there are significant differences in monetary policy and financial system stability for SNIJs compared to SIDS. We construct an exploratory model to explain the differences. The analysis informs policy makers regarding the formation and implementation of future climate, finance, and monetary policies for SNIJs.

Inuit Community-Led Development to Advance Energy Resilience on Labrador's Remote Island of Ponds

Nicholas Mercer, Tristan Atkins, and B. Wood

Abstract:
The nation of Canada is often celebrated as a global leader in renewable energy development. However, the energy landscape differs dramatically in remote [and metaphorical] island communities throughout the country, who remain widely dependent on diesel-fuel for heat, power, and transportation/shipping. While the public and private sectors often position ‘clean energy’ as a sustainability solution for remote islands, research demonstrates economic and social injustices which may emerge when initiatives are led by outsiders or corporate interests. This research documents the story of university-based researchers and an Inuit Governing Council who partnered on a community-led and strength-based planning approach to advance energy resilience in Black Tickle, a small Inuit community of 85, located off the southeast coast of Labrador on the Island of Ponds. The research involved integrating Inuit knowledge, centering local priorities, and co-designing

culturally appropriate solutions to advance island energy resilience and holistic well-being in the face of a rapidly changing climate.

2B

90 minute Workshop: Islandness at the Intersection of Academic Research and Policymaking
James Ellsmoor

This 1.5-hour workshop will focus on opportunities and best practices for the communication of island research to local, regional and national policymakers, focused on opportunities to create positive change for islands. The session will be based on the work and best practices of the Island Innovation Academic Council and be a practical opportunity for island researchers to share their experiences and contribute to the discussion.

The first part of the workshop will consist of a short introductory presentation followed by breakout group activities led by pre-assigned group leaders. This will be an icebreaker and an opportunity for participants to take part in information exchange and share their personal experiences and goals for research dissemination. It will be emphasised that not all academic research necessarily needs to be applicable to policymaking, but for many researchers there is an opportunity to disseminate research, and that this is particularly important in the field of Island Studies where island institutions so often have close relationships with local and regional government.

The second part of the workshop will feature live interviews with local policymakers (e.g. a Minister from the Government of Aruba) to discuss how research can contribute to their decision-making and obtain personal insights. There will be an opportunity for workshop participants to ask questions. If logistics permit, policymakers from different regions will be included in the discussion by making a hybrid session, that could also be viewed by Island Innovation's virtual audience.

The third and final part of the session will involve participants coming together to share their key insights with the group. These insights will be used to produce a research implementation agenda of needs and best practices for island academia and its intersection with policymaking to be made publicly available.

Circularizing Organic Waste of Grenada and Neighboring SIDS
Shannon K. Henry

Abstract:
As you walk Grenada's Grand Anse beach there are vendors selling trinkets made from organic waste like tamarind shells. During mango season, a majority of crops go unused and

rot because they are not exported. Interviews with cacao farmers reveal that only 30% of the cacao plant is utilized in the chocolate production process, with greater than 60% used excessively as organic fertilizer. The island is buzzing with creativity and abundant in natural resources but lacking in education and financial/management resources to develop quality exports from its organic waste. This abstract proposes that we develop a dialogue around creative, industrial symbiosis solutions to circularizing Grenada's organic waste for the development of high quality, value-added products. My goal is to engage Grenada's agricultural communities and develop models for industrial symbiosis that could be replicated by neighboring SIDS. Uncovering industrial symbiosis opportunities connected to SIDS islands will lessen the impact of global GHG emissions on vulnerable populations, long term. A detailed study of Grenada's agricultural network and life cycle assessment of the island's abundant crops will hopefully arise from this dialogue and determine which categories of organic waste produce effective, high quality products, with low environmental impact. SIDS islands have the agricultural wealth to fill the demand of the growing sustainable product markets and the potential to become major players in the circular economy while maintaining their social metabolism and enhancing lived islandness to combat global climate change.

The Metabolism of Islands: Sustainability Research and Transformation
Double Session/Panel
Simron J. Singh, John Telesford, Rob Feick, Simon Courtenay

Abstract:
The special session brings together contributions that focus on basic and policy-relevant research to foster a transformation to sustainability. Presentations center around island resource use, food, water, and energy security, waste management, resilient infrastructure, and the marine system. Concepts applied are: socio-metabolic research, socio-metabolic risk and vulnerability, circular economy, industrial symbiosis, material stock and flow analysis.

Climate Action! Analyzing the Social/Cultural Aspects at the Grassroots Level Through the Energy Cultures Framework- An Island Study
John Telesford

Abstract:
Climate change actions in islands usual include the pledge to transition their power sectors to more sustainable energy sources. Fossil based fuels energize many islands, and these socio-technical systems (STSs) are dynamically stable, although contributing to climate change. Such STSs may have created an energy culture, which is shaped by an interaction of material culture, energy practices and cognitive norms. However, climate pledges necessitate an understanding of the salient social/culture aspects that exist at the grassroots level, as these may hinder or support the pledges. The mutual objectives of the research therefore are to: 1) apply the energy cultures framework to gather and analyze data and 2) establish an understanding of the salient social/culture aspects that exists, specifically in an island context.

The research is conducted on Grenada in the Caribbean. To the extent that the results reveal support for and/or hinderances to the climate pledge is discussed.

2D

Nutrient Fragility in Isolation: Food Insecurity in Small Island Developing States
Delia Atzori [Online]

Abstract:
The remote Small Island Developing States (SIDS) face huge challenges to preserve their Food and Nutrition Security. Yet, SIDS studies on food security are often outdated, focus on one island country and use exclusive data and dedicated methodologies that cannot be applied elsewhere. This study standardized its methodology to assess availability of food groups and micronutrients at SIDS-wide level. We use FAO's Food Balance Sheets and improve actual intake by correcting for food loss and waste and for intake of micro-nutrients for under-fives. Accuracy of FBS is sometimes questioned because of the related complexity to collect and process data. Yet, recent studies found close correlations between macro- and micronutrient estimates using FBS and national representative data. Geo-visualization techniques and infographics map food group and micronutrient availability per country against required needs. A great share of countries fails to meet food group requirements while none of the SIDS met required doses for micronutrients. Overweight prevalence is correlated to food group availability while overweight and stunting are explained by food group availability and income. The findings prioritize policy actions among SIDS by identifying lack of dietary diversity and deficits of specific micronutrients.

Frequently Asked Questions About Lowering the Environmental Impact of Our Food Consumption, For Islands
Amber S. van Veghel, Salys Sultan, Annemie Geeraerd

Abstract:
"The global food system is a major driver of climate change, land-use change and biodiversity loss, depletion of freshwater resources, and pollution of aquatic and terrestrial ecosystems through nitrogen and phosphorus run-off from fertilizer and manure application" (Springmann et al., 2018). Islands like Aruba, with a near-dependence on food imports, are dependent on this global food system. We will go through some Frequently Asked Questions (FAQs) on eating more sustainable. We will support the answers using our research on quantifying the environmental impact of food imports to Aruba using Life Cycle Assessment (LCA). In particular, we will discuss the carbon footprint of Aruba's food imports, the carbon footprint of vegetable imports, and the environmental impact of fish imports.

Some example FAQs are:

• Why does food have a carbon footprint?
• How can I eat more sustainable?
• If we just eat 100% local food, there will be no carbon emissions, right?
• What are the most sustainable vegetables?

Understanding the Current Status and Drivers of Food Insecurity: Comparing Rural and Urban Papua New Guinea

Bobby Duintjer & Ben Sonneveld

Abstract:
Contradicting narratives on Food Insecurity (FI) blur current food policy discussions in Papua New Guinea (PNG). The nation faces typical island challenges of remoteness, transportation constraints, limited resource access and a high reliance on food imports. Moreover, indications that food policies for poorer rural areas should be formulated separately from more affluent urban areas add to the FI complexity. Calls for targeted food policies in PNG are, therefore, justified, yet this requires a deeper evidenced-based understanding of FI and its drivers. We address this research caveat by analyzing FI prevalence using household data in an ordered logit model. Synoptic tables and data geo-visualization of our robust model show that FI drivers for rural households entail: large family, no education, poor wealth, and land ownership. For urban households, these entails: land ownership, no education, poor wealth, not producing crops and safe drinking water. Rural and urban food policies in PNG can, for certain interventions, be organized in sync while presence of specific factors require more targeted programs.

3A

Self-Determination and Island States: Exploring The Framework for a Domination-Free and Just Global Order In the Face of Climate Change Impacts

Dave-Inder Comar

Abstract:
A variety of fundamental human rights are now at grave risk this century from climate change impacts, including the self-determination of peoples. As recently observed by the International Law Commission, the self-determination of peoples in island States is particularly threatened by climate change impacts such as sea level rise. This submission argues that the human right and legal principle of self-determination should be utilised by island States as a possible legal and political framework for more effective global climate action. Self-determination has historically acted as a “worldmaking” principle in advocating a domination-free and just international order. Island States should explore, among other things, (i) whether climate change impacts reflect a new kind of “domination” that violates their self-determination, and (ii) whether a new process of political self-determination, as profound as decolonisation,

should be initiated by island States in order to preserve their self-determination and sovereignty from climate change impacts.

Institutional development in Aruban Sustainability Policy & Law
Michiel A. Heldeweg

The paper starts with an institutional analysis of the development of Aruban sustainability policy and law of the past 30 years. It goes on to provide an assessment of institutional embeddeness of such policies and laws. Finally, it offers a critical reflection on possible social innovation towards (a more) effective and (socially) just sustainable development; one that recognises both strengths and weaknesses/opportunities & threats of its islandic characteristics.
The paper applies the lens of Ostrom's Institutional Analysis & Development framework and Institutional Legal Theory, to provide a legal governance perspective on an effective and just sustainable development. It includes an analysis and assessment of past and present policies, rules & regimes, and discusses a possible institutional transition; one that safeguards and supports civil society engagement, acknowledgement of rights of nature, and circular economics - transitions that may, if properly connected to Aruba's islandic characteristics, underpin the desired sustainable collective action to establish and maintain a sustainable development.

Galapagos Verde 2050
Kelly Rivera

Abstract:
The Galapagos Verde 2050 initiative was launched in 2014 to tackle the environmental and social challenges facing the Galapagos Islands. This presentation reviews the results of the Galapagos 2050 initiative, which aimed to promote sustainable development, conservation, and community resilience in the Galapagos. The initiative brought together researchers, NGOs, local communities, and government agencies to develop and implement strategies for mitigating the impacts of climate change and promoting social change on the islands. The initiative included a range of projects and interventions, such as the promotion of sustainable tourism, the restoration of degraded ecosystems, the development of alternative livelihoods, and the strengthening of community-based conservation initiatives. The results of the initiative indicate that it has contributed to the conservation of the unique biodiversity of the Galapagos, while also promoting social and economic development for local communities. This presentation encourages further academic research and analysis of the dynamics of climate change and social change on a case-by-case, island-by-island, or regional basis, engaging with notions of islandness and adopting a more comparative framework.

3B

The Effects of the Tourism Industry on the Health of Coral Reefs on Kish Island

Mah Ara Ahmadi

Abstract:
Corals around the world are facing degradation, and the ones in the Persian Gulf, known as the warmest sea in the world, are among them. The major threats to corals are the increase in water temperature and water pollution (Kabiri, Rezai, & Moradi, 2020). Recreational water sports are listed as popular activities in warm water islands, which foster coral degradation. The study of the importance of coral reefs indicates that any threat toward the corals could put a quarter of marine species present in danger (Kelman & Baldacchino, 2016). Kish Island, a popular tourist destination located in the Persian Gulf, consists of a variety of shallow coral reefs. Although the coral reefs in the Persian Gulf survive in extreme weather conditions, they seem to be degrading in the past few years due to the growth of the tourism industry (Shokri & Mohammadi, 2021). This research focuses on the adverse effects of tourism on the health of attractive coral reefs on Kish Island. Based on data collected from semi-structured interviews with owners of recreational clubs, workers in the tourism industry, and locals, this paper examines the impacts of tourism on coral mortality and the bleaching phenomenon in Kish Island.

Factors Impact on Islands Ecosystem and the Improvement, in the Context of Prince Edward Island

Tianxiang Zhou

Abstract:
Islands, unlike continents, tend to have independent, small-scale, but fragile ecosystems. The ecosystem is the biological community on which organisms live and plays a critical role in the ecological environment. Today, we can see that climate change has imposed a great impact on the ecosystem of various islands. In September 2022, hurricane Fiona made landfall on Prince Edward Island and had a major impact on the island's ecosystem. As result, coastal windbreak woods and dunes as natural coast protectors have been eroded. They all play a role as part of the ecosystem and changes in any individual unit can materially affect the functioning of the entire island ecosystem. Improving the ecosystem functionality of islands, especially as the frontier of climate change, has become critical and urgent. Prince Edward Island is at the forefront of dealing with climate change and we can see various improvements in ecosystem functionality, such as introducing living shorelines, and the protection of coastal estuaries, streams and wetlands. These improvements and methodologies can also provide constructive input and experience in the ecosystem functionality of other small islands.

Validating Satellite-Based Shorelines on Small Islands with Microtidal Ranges

Tatiana Becker, Tony Sevold

Abstract:

Low-lying small islands are highly vulnerable to the impacts of sea level rise and coastal erosion. To monitor and detect shoreline changes, satellite-based shoreline maps provide a cost-effective approach. However, the accuracy of this remote sensing method needs to be validated. In this study, we will use open-source satellite images and replicable groundtruthing methods to validate shoreline maps from a bay on a small Caribbean with microtidal ranges. Through this study we aim to overcome capacity, access, and financial hurdles associated with long-term coastal monitoring. As such, we will empower small island communities to adopt evidence-based coastal management and climate adaptation strategies that are crucial for their resilience

3C Metabolism of Islands

Sustainable Agriculture and Water Use for Prince Edward Island

Simon C. Courtenay; André St-Hilaire; David L. Burton; Joshua D.M. MacFadyen [Online] and Michael R. van den Heuvel

Abstract:
Prince Edward Island, on Canada's east coast, depends on groundwater for all water uses. With a new Water Act that came into force in 2021 and amended Water Withdrawal Regulations in 2022, the provincial government eliminated a two decade moratorium on new high capacity wells for agriculture. Farmers can now apply for access to water for irrigation and requests will be assessed against the health of local watersheds and farmers' drought contingency plans. Science to inform these decisions includes a federally funded NSERC-Alliance Grant project titled Sustainable Agriculture and Water Use for Prince Edward Island led by Dr. Michael van den Heuvel from the University of Prince Edward Island Department of Biology. This research will explore groundwater use, healthy stream maintenance, and environmental water management, as well as societal division on these issues. Studies will examine full-scale groundwater extraction from seven PEI watersheds for agricultural irrigation and city water supplies.

A Global Analysis of Marine-Food Systems on Islands and Vulnerability and Viability Dimensions

Elham Mohamadi [Online]; Simron Jit Singh; Prateen Kumar Nayak

Island food systems are particularly complex due to their distinct characteristics and vulnerabilities, and are facing various natural and anthropogenic pressures, which are interfering with their ability to deliver their expected outcomes. This study is focused on small-scale fisheries (SSF), as one of the most important assets that should be sustained for ensuring food and nutrition security in island communities as well as globally. The research explores trends and patterns of marine-food systems in 38 small island developing state (SIDS) communities and delineates factors that can help islanders to move from vulnerability

to viability. Results show that over the past six decades, the production of captured and farmed fish has increased by almost 14 times in SIDS, however island populations themselves have not substantially profited from this increased pressure on fish stocks. Given the identified trends, patterns, threats, and opportunities, the vulnerability and viability dimensions of SSF are identified and appropriate framework and indices are proposed to track the vulnerability to viability path.

Water Metabolism
Supriya Pande

Abstract:
The Caribbean island nations are particularly vulnerable to the consequences of climate change. Increasing temperatures and rising sea levels are causing these islands to face an ecological imbalance, extreme weather events, prolonged droughts and floods. The demand for freshwater sources is surpassing its availability, putting communities at a greater risk and making them highly vulnerable. The threshold of water level is indicating that the islands are moving towards water scarcity. The high demand of water in the tourism industry and other industrial sectors has further added to the stress level. This study looks at domestic, commercial and industrial water consumption, local availability and trade dynamics of potential sources of water across these island nations. It also highlights the dynamics of changing water stress levels in these SIDS vis a vis increasing tourism and industrialisation driven unsustainable urbanization. It also explores strategies to cope up with emerging situations. Examining the socio-metabolic risks associated with the water resources will help us understand the water dynamics in these regions. Sustainable water management techniques may also help these communities build more resilient local economies and infrastructure.

3D Panel

Island Food Sovereignty: A Viable Route to Resilient Socio-Ecological Food Production Systems?
Anne McDonald; Iain Hall; Juan Ricardo Gomez
Many island states in the Pacific and Caribbean Regions face multiple challenges that make them vulnerable to food insecurity. These include limited land mass and lack of arable land, fragile natural environments, a narrow resource base and reliance on ocean resources, compounded by a high level of dependence on food imports, particularly processed food. How to reduce these vulnerabilities and increase resilience in socio-ecological food productions systems is a critical question many island states face as they search for sustainable pathways. Focusing only on food security with its four dimensions of food availability, accessibility, utilization and stability, may not effectively turn the tides. Food sovereignty, however, may as it calls for people to have a greater capacity to ensure that

farming and fishing approaches, as well and land- and sea-use policies, are appropriate to the diverse social and ecological contexts in which they occur. Through sharing field-based island narratives and perspectives from the Pacific and Caribbean, this roundtable aims to explore food insecurity and climate change issues, asking the question of how food sovereignty may (or may not) contribute to addressing these complex island vulnerabilities and the challenges they pose, in addition to potentially increasing resilience in socio-ecological production systems as a way forward in island sustainability.

Keynote 2: Conserving Paradise
Natasha Silva and Tyson Lopez

Islands contribute to "only 6.7% of land surface area" of our world, but "they harbor ~20% of the Earth's biodiversity, but unfortunately also ~50% of the threatened species and 75% of the known extinctions since the European expansion around the globe"(Fernández-Palacios et al. 2021). Aruba is not an exception to this rule. The economy of the host country for this conference is driven by tourism, and as the economy continues to grow so will the threats to Aruba's unique nature. Balancing the unique ecosystems and biodiversity of this island state with the pressures of economic and demographic development is a complex and challenging task.

Fundacion Parke Nacional Aruba (FPNA) is an independent conservation authority that manages more than 24 percent of the terrestrial surface of Aruba and 0.2 percent of the territorial waters. In this keynote Tyson and Natasha will highlight the unique characteristics of Aruba's ecosystems and biodiversity, focusing on how FPNA is strategically responding to the changing socio-economic development of this island to safeguard nature and the islandness that our tourism economy depends on.

4A

Contemporary Geosocial Materialities of Islandness on the Portuguese Islands of Macaronesia
Francisco Carlos Martins Anjo Dinis Marques

Abstract:
I propose a reading of the geosocial realities of certain islands of the archipelagoes of the Azores and Madeira. My analysis will focus on the historical interdependencies between islanders, the geological bodies of the islands -marked by phenomena such as oceanic conditioning, coastal erosion, active vulcanism and extraction- and the identity complexities of their populations as imprinted in their historical materialities, mainly through three arches of comparison: popular religiosity, architecture and literature. While contributing to the study of Macaronesia as a region of interest to island scholars, I will try to explore the way geology is weaved into the archipelagoes' socio-artistic dimensions, making it essentially indistinct from

the particular anthropogenic scapes deriving from human occupation of these islands, particularly in late modernity. Lastly, I will hopefully contribute to the discussion over the future of these islands' identities in a moment of mesological crisis at both a global and local scale.

Foodways and Cultural Revitalization in French Polynesia
Kathleen C. Riley [Online] and Emily C. Donaldson [Online]

Abstract:
Te henua ò te ènana (the land of the people) is an archipelago of 10 volcanic islands (6 of which are inhabited) near the middle of the Pacific Ocean. Inscribed on European maps as the "Marquesas" in 1595 and claimed by France in 1842, the archipelago is presently part of the semi-autonomous territory of French Polynesia. Te ènana – or les marquisiens as they came to be called by the French -- have been working to revitalize their culture for over 50 years. And in the last two decades, this effort has increasingly focused on how their heritage is rooted in, and reliant upon, the natural environment. Having come to recognize the ongoing impacts of globalization on their health, their land, and the surrounding ocean, ènana have been taking a proactive approach to cultivating more sustainable foodways that integrate traditional and modern means of producing, distributing, preparing, and consuming food. In addition to tending upland plantations of banana, breadfruit, and taro for household consumption, individuals increasingly plant lettuce, tomatoes, and cucumbers for sale at village markets. While they usually share the meat they hunt with kin and friends, families also sell their pigs for tourist events featuring communal earth ovens. Some communities have been reviving traditional resource management strategies (e.g., rahui) to prevent overfishing by locals while they also depend on international treaties to protect their fishing grounds from foreign trawlers. More and more youth are pursuing technical degrees in agriculture, marine resources, and culinary arts yet still attend to the teachings of their elders about how to live with and off the henua (sea and land). Drawing on various forms of media, interviews, and participatory observation, this paper explores how ènana are navigating global capitalism in ways shaped by their language, environment, and world view. For many, their emerging foodways are a significant expression of their ability to balance a cash economy with economic relationships based on family and subsistence, and advancing their cultural, territorial, and gustatory sovereignty in subtle but powerful ways.

4B

Surfside Science: An Environmental Monitoring Project
Suyin Ridderstraat

The Metabolic foundation has been working on an environmental monitoring project named 'Surfside Science'. The goal of this project is to stimulate citizen scientists and to make the data approachable, replicable and open source. This project has brought together engineers, programmers, environmental scientists. As we measure elements as Ocean acidification,

dissolved oxygen and more. Electronics and environment for the broader audience can get lost in translation.

Reef Island Mapping Using Replicable Methods in Aruba

Christie Metties,Tony Sevold

Abstract:
Reef islands along Aruba's south east coast provide coastal protection and support marine biodiversity of the island, but increasing development and climate change are diminishing these critical safeguards. Mapping changes in reef island extent is vital to understandingthese processes, and tracking efforts to protect them. This paper will present changes to the shape and size of reef islands off the coast of Aruba between the period of 2000 and 2023. The research will be done using open-access satellite imagery from Google Earth and Google Earth Engine. This contributes to a better understanding of the impacts of climate change on Aruba's coastal geomorphology.

"30x30": marine conservation imaginaries?

Yvonne Kunz and Eric Mijts

Healthy oceans play a crucial role in preserving biodiversity as well as in the struggle against climate change. To guarantee this health, the international community has committed to increasing and enlarging so-called marine protected areas (MPAs). By default, small island states are large ocean states, and as such they are a pivotal part of the international development of MPAs. In December 2022, the UN Biodiversity Conference COP15 held in Montreal came to an end with the landmark agreement to put 30% of the planet, hence also 30% of the oceans under protection by 2030 (the so called 30x30 agenda), meeting little resistance. Yet the effectiveness of these areas with regard to both nature conservation and climate change adaptation has been strongly contested. Zooming into case studies in the Dutch Caribbean, we aim to disentangle tensions between the international level imaginaries of marine protected areas on the one hand and what they are capable of achieving on the local level on the other.

We depart from the assumption that dominant ways of imagining ocean conservation are detached from cultural, social, and political meanings of the environment and climate. The dominant way of imaging solutions leads to MPAs as the main area-based tool while the detachment from local ways of knowing the ocean challenges the success of MPAs. Applying the lens of governmentality to marine protected areas in the context of the 30x30 agenda, we aim to understand what knowledge regimes define problems, how solutions are framed accordingly and how they become the accepted truth framing how actors behave. The analysis aims to understand how ocean governance can be more responsive to current challenges such as climate change and species loss. To make maximum use of comparative information, we study the MPAs in Bonaire and in Aruba, the first one has been established

before climate change shaped the policy agenda the second one has been established much more recently, considering climate change.

4C

Empowering Communities to Improve Sustainability Efforts Through CBRM
Tristan Atkins

Abstract:
Community based resource management (CBRM) is steadily increasing in popularity as a pathway towards equitable and just sustainable development, particularly in the context of island communities. It emphasizes community engagement and participation in management and policy processes. It is a form of power decentralization that Small Island Developing States (SIDS) can uniquely benefit from. Broadly based participation, credibility, and mutual trust forms the basis of any successful implementation of CBRM. Unfortunately, there are currently many limitations placed on island communities that interfere with their resiliency and ability to succeed in many sustainability-related endeavours. Additionally, western ideals and colonialist influences have impacted the ability of many researchers, non-governmental organizations, and other groups to provide effective and equitable aid. This presentation will explore the cruciality of co-learning, cross-cultural exchange, and the co-creation of knowledge when working with island communities; and what can be done to improve the ability of island stakeholders worldwide to confront sustainability challenges.

Older Islanders, a Sense of Belonging and the Implications of Climate Volatility
Elaine Eliopoulos; Chris Gilleard, Paul Higgs

Abstract:
In an empirical study on the role of the body in later life, islanders aged 80+ on three islands in the Pacific Northwest, USA described a sense of belonging that transcended physical challenges. Their lived experience highlighted inclusion and community. Island identity proved more salient than their experience of bodily challenges. The beauty of their islands overshadowed any concern over their own agedness. This paper concerns what happens when islands themselves are threatened; when the continuity of their existence is in doubt. Studies have demonstrated the vulnerability of the very old to environmental crises. While younger islanders are able to relocate and restart their lives, ecological crises that disrupt the close affinity between the island and its very old population are likely to prove harder to overcome. The ensuing loss of social networks, solastalgia, and the eroded sense of belonging and community that characterises older people's islandness may make any resettlement particularly hard. The role of the sea in creating the desired sense of otherness from the mainland may be transformed into that of an unwelcome other.

Forced Relocation to an Island: An Insight Into the Rohingya Refugee Resettlement Plan
Mahir Abrar

Bangladesh is a delta country; the land was formed through the deposit of sediments from the Himalayas, which continue to shape the country's geography. The rivers form new land while eroding the old. One such formation is Bhashan Char, an island where the government of Bangladesh had decided to settle some of the Rohingya refugees. The Rohingya people are ethnic South Asian Muslim minorities from Myanmar who have been the victims of forced migration at the hands of the Myanmar junta.The Myanmar government has not created an environment where the refugees can return and has failed to guarantee their safety. Bangladesh is one of the poorest countries in the world, and it does not have the resources to host more than one million refugees in one location. The island and the facilities are not large enough to take even a quarter of the Rohingya refugees in Bangladesh. Still, relocation is believed will reduce pressure on the already stretched refugee camps in Cox's Bazar. The other possible reason for the relocation is to pressure the Rohingya refugees to move back to Myanmar. As part of this, the government has reduced opportunities available to refugees and restricted their movement. The refugees cannot build permanent homes in the camps and cannot attend local schools. The Island does offer solid buildings with community spaces built by the Bangladesh Navy. Relocation has proved to be a controversial decision. Refugees and their advocates have spoken against the relocation describing the island as particularly vulnerable to the sea and inaccessible to the outside world.

4D

Analysis of Urban Metabolism via the Water – Energy – Food Nexus in Small Island States: The Aruban Case
Sharona S. Jurgens, Eric Mijts, Anton van Rompaey

Urban metabolism entails monitoring resources necessary to sustain life such as water, energy, and food. It addresses the ability of the society to reproduce itself culturally and physically through constant exchange of matter and energy with the environment it exists in. Given the rapid urbanization observed for the island state Aruba, it is likely that resource consumption has increased over time. This study aims to identify consumption patterns of the Aruban household. Contrary to the prevailing research methods of analyzing resource use based on statistically available data, this study explores the suitability of data derived from household surveys. From the data we hope to draw conclusions on social variables and factors determining resource use, consumption patterns, and decision making of individual households. Ultimately, we hope to contribute to the understanding of the water – energy – food nexus and sustainable resource consumption in small island states.

Small-Scale Coastal Fisheries in a Changing World: The Case of Shimoda, Japan

Anne McDonald, Iain Hall, Ming Cheng Chen, Erika Salazar, and Juan Ricardo Carlo Gomez Serrano

Small-scale coastal fisheries are an essential part of coastal communities around the world where they contribute to local and national economies, providing income and employment to many, and giving a sense of identity to entire communities as well as individual fishers. Such fisheries are, however, subject to growing pressures from overfishing, environmental changes and degradation, and climate change. The city of Shimoda in Shizuoka, Japan is at the heart of the nation's kinmedai (beryx splendens) fishery. In recent years, despite regulations to prevent overfishing, the fishery has experienced yearly declines in catch raising the question of whether climate change and a changing ocean environment are influencing the fishery. While a small-scale coastal fishery of national importance, the kinmedai industry in Japan is relatively recent, becoming established in the 1970s. The Shimoda fishery therefore provides a valuable case study for considering the consequences of changing conditions, and the potential long-term impact of these on the viability of the fishery itself, on fisher perceptions of identity in an industry that has undergone significant changes in the past few decades. In so doing, this research considers what lessons can be learned from Shimoda and how these might be applied in other island contexts.

If the Ship Stops Sailing
Karlijn van der Loo [Online]

Climate change has underscored the value of shifting responses to food challenges towards food sovereignty-based solutions. This is of particular importance for climate-vulnerable small island states most benefited by increased self-subsistence capacity. COVID-19 put a spotlight on existing climate and structural socio-economic challenges as Aruba was confronted with the risks associated with the extent of import dependency and a tourism-based economic monoculture. This legal and political community-based research identifies challenges such as funding access, land and water scarcity, competition and cooperation, government fragmentation, and continuity. Interviews and surveys form the basis for understanding the ways individuals, NGOs, governments, and international organizations are tackling food sovereignty in Aruba and the region. The intersectionality of the food sovereignty movement allows stakeholders to express a wide realm of factors. These include those particular to islandness and to differing forms of production including hydroponic and vertical farming as compared to traditional and household-scale. This research focuses on individual experiences, challenges, and potentials for development as stakeholders express their needs for the furthering of food sovereignty. Identifying structural obstacles preventing cooperation is essential to understanding the ways islandness can conduce but also be a barrier to collaboration.

Keynote 3: Human-ing Out Loud: Ontologies of Disorder in a Musically Exemplified Trans-Caribbean-Thought
Charissa Granger & Francio Guadeloupe

Jouvay, the midnight jamboree heralding the start of carnival on West Indian islands transposed to the Neerlandophone world, presents an ongoing conversation about how to human in singular-multiple ways which are sensitive to relations between so-called species, spirits, saints, mythical characters, and devils. Another ecosystem, boundless and disenchanted by difference, is imagined and temporarily created in daaance (Stines). With three aaa's, daaance rather than dance encompasses movement, singing, drumming, reverence, language, food, sacrifice, ritual, politics, politricks, and passion. This other ecosystem, perpetually negating systematicity, is a space and a short-offered time where inter- and intra-subjective play, sounding out, and daaance allow for different futures to be imagined and new forms of human-ing that embraces relations with non-human animals and life and death to be practiced. It is a refusal of exclusion and a move towards making inequity inexact.

5A

Pre-University Engagement and Education for Sustainable Development in Aruba: The Academic Foundation Year

Molly Chapman, Maarten Eppinga, Tobia de Scisciolo, Eric Mijts

Abstract:
Low participation grades in university education, high dropout ratios, and brain drain are threats for sustainable development in small island states. This leads to a lack of locally developed expertise and local ownership of sustainable development processes due to the dependency on external consultancy and expertise that does not fit the context of the regions in which it is implemented. At the University of Aruba, one of the efforts to address this challenge has been the development of the Academic Foundation Year (AFY). Offered since 2016, the AFY is a one-year full time pre-university program that aims to optimally equip students for higher education, either in Aruba or abroad. Apart from the development of academic skills, the program aims to foster the local embeddedness of the students in context, culture, and history as well as an understanding of opportunities and challenges for sustainable development in small island states.

This study builds on the existing extensive volume of alumni evaluations and quantitative studies with interviews and focus group meetings with lecturers, students, and alumni of the program to come to a deeper understanding of the challenges and opportunities for developing local ownership and initiatives for sustainable development in small island states through education.

Just Resilience in the Governance of Tourist-Island Social-Ecological Systems: The Essentiality of Social Innovation on Bonaire

Francielle Laclé, Eirini Skrimizea, Constanza Parra

Abstract:
Tourism on islands has evidently had its negative aspects, with profits being generated for multinational resorts while local cultures, lifestyles, and limited natural resources are marginalized. Such pressures increase the vulnerability of island social-ecological systems and are only exacerbated by climate change.
To counteract the negative consequences of tourism monoculture, socially innovative governance practices such as place-based sustainability initiatives can be seen as resistance seeds. These initiatives represent socio-political dynamics countering the vulnerabilities of tourism monoculture on islands and leading to negotiation and construction of just resilience. This research seeks to identify if significant institutional dynamics are taking place to call these social innovative initiatives with the features of need satisfaction (material and non-material), reconfiguration of social relations including more-than-human ones, and socio-political empowerment. A multi-method qualitative design will be used, including in-depth semi-structured interviews as well as secondary scientific and grey literature (policy documents, local press and other reports). The research has the potential to provide core insights to policymakers and civil society to further a more just governance structure that goes beyond the dominance of the tourism monoculture economic model. This paper will present the case study of Bonaire in the Caribbean Sea.

Decolonizing Sustainable Development Mapping Practices in Aruba and Texel
Cara Flores

Abstract:
Island communities face many unique challenges when grappling with sustainable development. Mapping, in combination with a decolonial framework that centers historical acknowledgement, knowledge building, and close work with communities to co-produce futures, can help understand these challenges while also identifying where to address specific needs. (How) Can different mapping practices be used in island environments to negotiate their decolonial histories towards desired sustainable futures? In focusing on two diverse islands historically linked by Dutch colonialism, Aruba and Texel, I will combine Participatory Geographic Information Systems, qualitative methods, and artistic approaches to co-design visualizations of valuable place knowledge. Utilizing mapping methods at the local level may help identify local solutions while simultaneously challenging dominant perceptions of sustainable development at the global level. In this paper I will outline the concept of decolonizing within mapping practices, and how it can be applied within the context of these two islands to inform possibilities for collective action at different scales.

5B

The Intersection of Authenticity & Sustainability in Tourism According to Island Residents
Susan Graham

Abstract:
Authenticity and sustainability are well represented in island studies scholarship, although the intersection of the two concepts is less developed. This study examines the linkages between authenticity and sustainability with respect to island tourism by considering the perspectives of island residents, a largely under-utilized viewpoint in authenticity/sustainability scholarship. Using findings from a survey of more than 400 residents of Prince Edward Island (PEI), an island province on the east coast of Canada, respondents clearly linked the concepts of authenticity and sustainability in relation to island tourism experiences. Key concerns included the fragility of authentic island experiences, and the potential dangers that tourism (and over-tourism in particular) posed to the sustainability of these island experiences. Island residents were concerned that their lived experiences were jeopardized by the authentic touristic activities they championed. Authenticity and sustainability were identified as being intertwined, and encompassing impacts on the environment, culture, and communities.

Towards a Free and Open Climate Atlas for the Caribbean Netherlands to Foster Knowledge Exchange and Drive Climate Action

Timo Kelder, Felix van Veldhoven, Kim van Nieuwaal, Arjen Koekoek, Hasse Goosen, Jan-Willem Anker

Climate understanding precedes climate action. Understanding vulnerability to weather extremes and climate change forms the basis of spatial adaptation and climate action. In the Netherlands, the Dutch Climate Impact Atlas (https://www.klimaateffectatlas.nl/en/) offers a valuable source of open access and validated information, which is used by many municipalities, consultants, and local parties.
However, for the Dutch Caribbean Islands, such an atlas does not yet exist. To address this gap, a first climate atlas for the BES islands is being developed this year (2023), bringing together islanders' user needs and opportunities from data providers. In this presentation, we want to share our experiences in producing the first atlas, discuss the challenges around ensuring tailor-made information that meets the needs of users and is fit-for-purpose, and invite feedback on how we can strengthen local capacity, facilitate knowledge exchange across the Dutch Caribbean, and drive climate action.

5C

Imaginaries of Islandness: A Long Term Perspective on Challenges and Solutions.

Rory Walshe

Abstract:
There is a growing literature challenging assumptions about what 'data' on climate change and disasters can be, arguing for the need to account for experiences and knowledge from across deeper history. Small islands can especially benefit from a broader understanding of

what data can be and how it can be collected (or rather co-produced). This talk illustrates how historical narrative and descriptive data from small island archives can act as a valuable source of knowledge on climate and disasters, both past, and present. Drawing from interdisciplinary research combining archive data with contemporary sources research in Mauritius, and future research planned for the South Pacific and Indian Ocean, this talk also explores the utility of adopting 'geographical imaginaries' as an orientating concept to explore diverse knowledges. These including the various ways people experience and know islandness that are generated through lived experience and memories, and the interaction of different imaginaries through time and space.

Oceanic Lives and Livelihoods: Inhabiting "At Risk" Environments and Climate Change: A Case Study of Vanuatu

M Jean Mitchell

Abstract:

Vanuatu, the y-shaped archipelagic nation of eighty-three islands, located in the southwest Pacific, has been frequently designated the most "at risk" country in the world due to geophysical and climatic disasters and its inadequate infrastructure (UNU-EHS, 2015). Since 2015, the country has experienced two category-five cyclones and volcanic eruptions on two islands, one of which resulted in the mass relocation of the Islanders. The storied and diverse landscapes of Vanuatu are also shaped by humans and their swidden gardens as 70 per cent of the population engages in subsistence livelihoods that are now adversely affected by climate change. In Vanuatu, as in much of Melanesia, customary land ownership, knowledge of biodiversity and gift exchanges have been maintained. Islanders have acquired knowledge that is flexible, adaptive and constituted through lived experience. Since scientific and techno-managerial approaches dominate discussions of climate change, it is important to draw attention to the diverse cultural forms and the social and ecological practices through which Islanders respond to climate change and the social changes it precipitates. Drawing on research in Vanuatu, I will discuss the urgency of devising innovative frameworks that capture the global scale of climate change while privileging local contexts, experiences, and knowledge.

Culture in a Climate Changed Future. A case study of the Danish Wadden Island Fanø

Ilse van Dijk & Bettina van Hoven

In spite of much attention to physical aspects of climate change, the relationship between climate change and culture has thus far received little attention in research. Culture develops over time and is shaped by place-specific factors such as history, landscape, weather, flora and fauna. Climate change affects these contextual factors, and as such will have consequences for the culture shaped by them. In addressing the intersection of culture and climate change, the paper draws a qualitative study on Fanø, a low-lying Danish island in the

Wadden Sea. We illustrate how the cultural heritage of Fanø's seafaring past plays an important role in the every day culture of the present. The cultural heritage and the nature of Fanø are at the core of the island's identity. As climate change will affect the community's ability to maintain their cultural heritage, and will change the island's natural values, it will affect what it means to be Fanniker.

5D

Unbeatable Profits and Uncountable Costs: Peri-Urban Property Speculation and the Collapse of Local Horticulture in Aotearoa
Benjamin Felix Richardson

As the world's cities grow, fortunes are made from the land that lies in their path. Across the planet, people are moving from rural areas to urban centres at an unprecedented rate, yet rural land is being converted to urban uses at even faster pace due to the unmatched profitability of building suburban housing on formerly rural land. This form of development is as destabilizing as it is lucrative, transforming the food-producing areas and ecosystem services that made urban life possible in the first place into suburbs that lack necessary infrastructure and possess a marked vulnerability to climate change. A mountainous island nation with a relatively small proportion of versatile horticultural land in Te Ika-a-Māui/the North Island that feeds the rest of the country, Aotearoa faces a significant threat to food security from suburban property speculation. To present a perspective on how this occurs at an individual level, I discuss the results of my ethnographic research on property developers, local officials, landowners, and horticulturalists working at the edge of Tamaki Makaurau/Auckland, the largest and fastest-growing urban centre in Aotearoa. I show how these parties compete and collaborate amongst one another to shape the future of the city's edge to suit their interests, and how the lives of residents old and new are affected by these decisions.

The Impact of Climate Change on Water Resources and the Willingness of Stakeholders to Utilize Non-Traditional Water Sources in Prince Edward Island, Canada
Joshua MacFadyen [Online] & Donna Miller-Ayton

The sixth Intergovernmental Panel on Climate Change (IPCC) Assessment Report states with high confidence that climate change has modified the components of the global water cycle and the presence of freshwater. The modified water cycle will alter the quantity and quality of surface and groundwater and trigger water scarcity worldwide. In addition to climate change, land use changes, contamination, population growth and other environmental and societal factors also contribute to the depletion of freshwater resources. Changes in the climate system and increased water consumption will affect the quality and quantity of water on Prince Edward Island (PEI), Canada's smallest but most densely populated province.

Water scarcity will result in problems for food security, environmental sustainability and economic development in the immediate future. Sustainability scientists are now focused on identifying alternative water resources and effective management strategies to address global climatic changes, rapid population growth and guaranteed access to safe water. A preliminary assessment of the Maritimes Basin and continental shelf surrounding PEI suggests ample groundwater supply in offshore aquifers, referred to as untapped reserves.

Currently, there is no legislation that governs local groundwater resources in PEI and no specific governance system to manage offshore freshwater aquifers. The United Nations Convention on the Law of the Sea (LOSC) is the principal governance regime for marine resources. Utilizing offshore groundwater will require a full grasp of the interrelated climate change and socioeconomic implications. Additionally, introducing this water source will require analysis to address the outlined issues and acceptance and consensus of the island's population (permanent and seasonal) to use it for residential and other sectoral purposes.

Through assessing existing literature and policy documents, findings from a semi-structured survey and relevant case studies, this paper will analyze the practicality of introducing a non-traditional water source (freshwater offshore aquifers - FOAs) and investigate the applicability of the existing policy framework to govern the introduction. It will also garner and assess the citizen's perception of the source and their willingness or unwillingness to utilize it for personal and economic activities.

Keywords: Climate Change, Water Scarcity, Water Resources, Offshore Freshwater Aquifers, Groundwater, Prince Edward Island

6A

Environmental governance arrangements for protected areas on the island of Trinidad and Tobago

Kimberly Wishart & Chu Foon

Effective governance arrangements are important for the conservation of island natural resources. This study examines the impacts of governance arrangements on protected areas (PAs). Surveys were conducted amongst actors in three PAs in Trinidad and Tobago. Results found that Matura, the only partially co-managed PA, had the most well-connected network with a range of supporting local, regional and international actors. Caroni, which has similar state actors but no co-management arrangement, has less connections and few regional and international supports. The perceived network performance for Matura was more positive than that of Caroni. This suggests a potential link between the establishment of a co-management arrangement for governing a PA and the network structure and overall network performance in the PA. Although the Main Ridge was not co-managed, was comparatively not well connected and had fewer regional and international supports, its perceived network performance was in some measurements better than that of Matura. This suggests there may

be other factors which are influencing perceptions on network performance. The study demonstrates that while a transition to co-managed PAs could be a beneficial step forward in governing these areas, there is a need to explore other influential factors.

Evaluating Biodiversity Conservation Policy for Improved Outcomes in Small Island Developing States

Iain Hall, Anne McDonald, William Kostka

Small Island Developing States (SIDS) are facing a dual crisis of climate change and biodiversity loss, with both issues presenting existential threats. These issues are also intrinsically linked: climate change is fast becoming the biggest direct threat to biodiversity and exacerbates other drivers of biodiversity loss, while biodiversity is essential for climate mitigation, adaption and resilience building. Furthermore, the human populations of SIDS are often heavily dependent on their biodiversity for many aspects of daily life. However, much global focus and funding prioritises climate change action over biodiversity conservation, and existing global biodiversity policies are not proving effective enough in driving conservation. In addition, implementing any environmental policy places a significant resource burden on the economies and governments of SIDS. Taking the Federated States of Micronesia as a case study, this research utilised a combination of policy analysis and stakeholder interviews to examine whether biodiversity conservation policy implementation in SIDS could be made more effective by considering conservation as a climate policy issue. While the research results support the separation of conservation and climate as policy issues, they also provide insight into how different variables may restrict or support conservation policy implementation in the FSM, and how these might be addressed.

Towards an Impossible Polis: Sea-level Rise and State Continuity

Alex Green [Online]

Human-cause climate change threatens many vulnerable communities. The existential position of Small Island Developing States (SIDS) is perhaps the most pressing example. SIDS face a unique threat from rising sea-levels, encompassing not only the shrinking of their land and maritime boundaries but also the possibility of complete submergence. The traditional interpretation of the law that governs state continuity is, as I have argued elsewhere, peculiarly austere. On this view, States cannot exist without land-based territory, implying that SIDS are doomed to legal as well as physical extinction, with all the concomitant dangers that such formal dissolution may bring, including, importantly, the statelessness of their erstwhile populations. In this paper, I attack this austere interpretation of international law. In particular, I criticise it for lacking both existential and, importantly, jurisdictional imagination. My argument uses China Miéville’s award-winning 'weird fiction' novel, The City & The City, as an analytical lens. Set within a geographical space occupied by Beszél and Ul Qoma, two fictional cities that exist both side-by-side and on top of one another, this text provokes us to ask: if we can imagine two cities that occupy the same space, why not imagine a State that exists, notwithstanding the total submergence of the landmass it once occupied?

I contend that international law should make greater space for the existence and status of political communities that do not comply with its standard conceptions of statehood. The pressing dangers of human-caused climate change demand no less.

6B

Music in Carnival spaces and interpretations of environmental challenges in the Dutch Caribbean

Gregory T E Richardson

Any educational project that studies the effects of climate change and environmental challenges in the Caribbean, besides the common scientific approaches, must include folk narrations throughout the community as expressed especially in the arts. Musical expressions during Caribbean carnivals in particular are often reflections of how people respond to environmental challenges through forms of resilience and enjoyment. In this presentation, Dutch Caribbean musical expressions popular during the yearly carnival, such as Calypso, Soca and Tumba, will be looked at in relation to environmental challenges. In particular, how these musical narrations incorporate themes such as storms, floods, drought and coastal erosion in their musical productions; both their lyrics as well as accompanied dances. In the end, this presentation will also look at how these theorizations can inform our educational practices as it relates to sustainability and the SDG's. For example, what it teaches us about creativity, resilience and joy often in the midst of catastrophe and how we can incorporate some of these teachings from the Caribbean experience in the global response to environmental challenges.

Musica di carnaval y su interpretacion di retonan di medio ambiente den Caribe Hulandes (Papiamento)

Cualkier proyecto educativo cu ta studia e efectonan di cambio climatologico y retonan di medio ambiente den Caribe, banda di e metodonan scientifico, mester inclui e perspectiva di comunidad tambe, specialmente esnan cu ta sali for di e mundo di arte y expresion. Expresionnan musical durante carnavalnan di Caribe hopi biaha ta un refleccion di con ta bay om cu retonan di medio ambiente pa medio de resiliencia y goso. E presentacion aki lo enfoca riba produccionnan musical popular durante e periodo di carnaval den Caribe Hulandes manera Calypso, Soca y Tumba en relacion cu retonan di medio ambiente. In particular con temanan manera storm/mal tempo, overstroming, secura y erosion di costa ta bin pa dilanti den cantica; letra y baile entre otro. Na final e presentacion aki lo wak con e teorisacionnan aki por sostene enseñanza riba e tema di sostenibilidad y e SDG's. Por ehempel ki nos por siña di e creatividad, resiliencia y goso como respons riba desasternan natural. Ademas con por traduci e conocemento caribense aki riba un nivel mundial ora ta trata di e retonan di medio ambiente global.

How Caribbean Music Performs to Aid in Weathering the Storms and Intervene in Their Repetition

Charissa Granger

Music creates possibility in spaces of enclosure to rethink and feel our relation to climate otherwise. This paper describes a Caribbean sonospoetics, that is, the ongoing invention in music, including instruments, sounds, riddims, and grooves integral to how those who face the “abyss of the unknown” (Glissant 6-7) redesign life anew. Analyzing the textures and materiality of Caribbean sonospoetics, I ask: Can we imagine what a Caribbean sonospoetic way of knowing our built and natural environment can do to transform our relationship to climate events, changes, and quality of life in the face of climate catastrophe?
I argue that the ring of a chapi, scrape of a wiri, resonance of a mouth bow, vibration of a steelpan, conch, horns, and calabash orient us differently, bringing us into a different relationship with the world, one where the interplay and entanglement with our natural environment is not of disconnection. The above instruments make us attuned to our environment which enables possibilities to inaugurate climate knowledge otherwise. Sylvia Wynter calls for a rewriting of knowledge as we know it, encouraging us to imagine, think and envision a new science of the world. Can we examine the possibilities of popular Caribbean music practices to disseminate climate knowledge?
Thus far, Dutch Caribbean scholarly inquiry into climate change remains in the realm of policy, politics, scientific data collection, and technological innovation to mediate and mitigate damage. However, there remains a lacuna in examining the role and usefulness of music in Caribbean climate research.

Pedro Pombo
Mapping Traditional and Local Knowledge to Foster Climate Change Adaptation: The Case of Cultural Heritage in Small Islands

Abstract:
This presentation shares the initial stages of the Eco-Heritages project, based at Islands and Small States Institute (ISSI) of the University of Malta, investigating how cultural heritages are impacted by climate change and the roles played by heritage and local knowledge in promoting climate change adaptation and sustaining social and environmental resiliencies, focusing on insular geographies.
While climate change impacts cultural and natural contexts, heritage management and traditional cultures may provide solutions through established cultural systems integrating ecological preservation and socioeconomic development.
Departing from the results of a systematic literature review on climate change and cultural heritages in insular contexts, we investigate the integration of heritage and local knowledge within UNESCO managed sites, while addressing changing livelihoods and socioeconomic and environmental vulnerabilities. Relevant for insular contexts experiencing the effects of environmental and climate disruptions, the integration of cultural values in climate change impact mapping and policy decisions may increase participatory methodologies, enabling differentiated approaches and sustaining localized resilience and adaptation programs.

6C

Caribbean Wide Harmonized Beverage Deposit Scheme for a Regional Circular Economy
Bob Paul & Nicole Garofano

On March 2, 2022, UN member states agreed to adopt the historic resolution, “End Plastic Pollution: Towards an internationally legally binding instrument.” Integral to the adoption of such an instrument is social change underpinned by harmonized governance in plastic production, consumption and management.
The Caribbean region lacks a coordinated, harmonized approach to plastic management. The current state sees Caribbean nations engaging in limited in-country recovery and reprocessing of valuable plastic materials. With most plastic formed from fossil fuels, it is important to keep materials circulating for longer to reduce virgin resource consumption and carbon emissions.

One way to shift the current state to a harmonized approach for plastics is through voluntary product stewardship schemes or regulated policy of extended producer responsibility (EPR). These offer opportunities for existing and emerging industries from material recovery.

This paper explores opportunities for EPR for the region focusing on beverage container reuse and recycling. Stories from research from Barbados and St Vincent and the Grenadines will reflect existing governance that could be harmonised across the region.

Green Phenix, a Social Enterprise Creating a Circular and Inclusive Economy in Curacao
Sabine Berendse

Abstract:
Green Phenix is a social enterprise that is catalyzing a circular and inclusive economy on Curacao. The organization was founded in 2018, and is creating value out of plastic waste, using extrusion and 3D printing. By promoting the use of additive manufacturing, the organization contributes to resilience.
The organization now has 12 people on the payroll, offers ‘learn and work programs’ to 48 people annually. These people receive welfare and have been unemployed for a while. The learn and work program provides a steppingstone back into the economy.
After a 2 year application procedure the organization recently received a RESEMBID grant, which enables additional scaling. The last 5 years have brought a lot of insight and we’d love the opportunity to share the lessons learned.

Kawena Elkington and Pua Souza

Ancestral Circular Economy in Hawaii: Aloha Aina as a Framework for Reciprocal Care

Given the dire consequences of the present global climate crisis, the need for alternative ecologically-based economic models could not be more urgent. The economic and environmental concerns of the Circular Economy (CE) are well-developed in CE literature. However, there remains a gap in research concerning CE's impact on culture and social equity. The under- developed social and cultural pillars of the CE, along with universal policy goals calling for a context and need-based framework, makes it necessary to bridge natural and social science objectives in the CE. In this paper we examine how Hawai'i, through the philosophy of aloha 'āina, the Hawaiian Ancestral Circular Economy (ACE), and contemporary community approaches toward advancing Indigenous economic justice, can be one model system for understanding principles of circularity and policy advocacy.

6D

Content Analysis of Canadian Media Reporting of September 2022's Hurricane Fiona in Prince Edward Island, Canada
Andrew Halliday

Abstract:
Hurricane Fiona was a significant natural disaster which hit the Atlantic region of Canada in late September 2022. It knocked out the island's electricity grid with over 35,000 downed trees removed by utility crews to restore power. The restoration of power took many days, with some communities and customers requiring more than three weeks to get restored. It has been noted as the costliest weather event in Atlantic Canadian history.
This paper seeks to illustrate how Canadian media portrayals of this natural disaster framed the issue from a public policy perspective. Further, media coverage is analysis for how island aspects (islandness) is reported by local, regional and national sources. A mixed-methods content analysis utilizing the Eureka database as well as targeted Google searches is conducted. This quantitative and qualitative content analysis of media transcripts across print and broadcast mediums in Prince Edward Island, regional and national outlets is for the period between September 16, 2022 and November 16, 2022.

This study is part of a growing body of research on climate change and public policy on Prince Edward Island.

Use of Cobots in the Event of a Disaster – Legal, Technical and Economic Aspects
Gabriella Iermano, Adrian PîswlĂ, Frank Andreas Schittenhelm & Süleyman Torasan

Abstract:
Climate changes bring new challenges, as one of the many crises existing at this moment for many regions. Islands particularly are affected by imminent sea level rising, which may be

accompanied by flooding and land loss. Disasters caused by storms and heavy rainfall are likely to tend to increase.

Population and authorities need to respond adequately to such disasters, large numbers of trained personnel are often needed in a very short time, especially in the health care sector.

One would have to rely on on-site support personnel, that typically is not available, isolated island location may have problems that cannot be overcome. In such a situation, cobots might be an alternative: airdrop transportable, quick start, tireless (24/7), emotion-free, fearless and with alternative energy supply.

The paper addresses to questions like how and how far the use of cobots, may improve the emergency response as deployed in environmental disaster location, looking at the prerequisites for cobots use, with discussions from a legal, technical, and economic perspective, over the advantages and disadvantages.

Behavioral Norms for Political Actors in Parliament and Government in Small Island Jurisdictions
Brechtje Huiskes

Abstract:
The question underlying this research is whether, in Small-scale (Island) Jurisdictions, the separation of powers and the implementation of checks and balances for representative democracies governed by the rule of law requires a tailored design. Furthermore, the political legal correction mechanisms within sub-national island jurisdictions will be explored. The primary focus is applied to Aruba as a Small Island State and as part of the Kingdom of the Netherlands. Particular attention will be paid to the impact of the different aspects of societal Islandness/insularity on the creation and enforcement of behavioral norms regarding the responsible and accountable functioning of political actors in parliament and government positions. The desired outcome is to formulate objective criteria for such norms and enforcement in a real world context, in order to effectuate positive social change. Desk research will be supplemented by one of more vignettes to illustrate existing challenges and their social impact.

7A

Future Island Voices: The Next Generation of Island Sustainability Research
Anne McDonald & Eric Mijts

Abstract:
Small island sustainability is an issue as complex and diverse as small islands themselves, spanning disciplines, geographies, and generations. At the heart of enabling and ensuring

sustainable island futures lies capacity, itself a multi-faceted issue and one that is demanding of continued and consistent focus. The need for increasing capacity lies not only in meeting the needs of today, but also in maintaining and growing capacities such that future needs can be effectively met. For this to be possible, new generations of island researchers and practitioners must be nurtured and developed, with the net cast wide beyond those who live and work on small islands. With a focus on research, this session combines in-person moderation with virtual attendance to bring together students from around the world to share their island-focused research and perspectives, demonstrating the diversity of research directions and approaches within this multi-dimensional field.

This session will explore multiple concepts relevant to small island sustainability.

Session moderators:

- Anne McDonald, Island Sustainability Institute, Sophia University, Japan
- Eric Mijts, University of Aruba, Aruba

Proposed session commentators:

- Iain Hall, Island Sustainability Institute, Sophia University, Japan
- Simron Singh, University of Waterloo, Canada
- Laurie Brinklow, University of Prince Edward Island, Canada

Keynote 4: "Journey to the International Court of Justice: Taking Climate Change to the World's Highest Court"

The Pacific led campaign to seek an International Court of Justice Advisory Opinion has seen great support at the international level. It began by a group of students, the Pacific Islands Students Fighting Climate Change, and has culminated in the adoption of a UNGA resolution requesting the ICJ to provide an advisory opinion. This talk will discuss the origins of the campaign by focussing on the specific elements of the campaign that remain at the heart of the youth and civil society movement - human rights and intergenerational equity, and how this campaign can help catalyse greater climate action and ambition. It will also speak about how the advisory opinion campaign is important in shaping the development of international law to be capable in more holistically respond to the challenges brought about by both the climate, and the ensuing, human rights crisis.