

MICHELE L. BARNES

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SUMMARY OF RESEARCH INTERESTS

I am a social network scientist whose work draws on theories and methods from sociology and complex systems science contribute a better understanding of the linkages among and between people and nature that underpin complex environmental problems. My research explores key issues such as: how social-ecological interactions drive environmental outcomes, how environmental knowledge spreads through society, and how social-ecological networks influence environmental behaviour. My current work focuses on the social structural foundations of adaptation, transformation, and resilience to climate change and other social and environmental shocks; with study sites in Australia, Kenya, and Papua New Guinea. I am committed to research impact and thus regularly work in collaborative, interdisciplinary teams and directly engage with policymakers and practitioners to work toward a sustainable future for both people and ecosystems.

EDUCATION

Ph.D. Natural Resources & Environmental Management, 2015 Dissertation: “Social networks matter: Linking resource user’s social behavior to coupled outcomes in a marine social-ecological system”	University of Hawai‘i at Manoa
Graduate Ocean Policy Certificate, 2013	University of Hawai‘i at Manoa
M.S. Natural Resources & Environmental Management, 2012	University of Hawai‘i at Manoa
B.A. Political Science, 2007, with distinction	University of Hawai‘i at Manoa

AWARDS

2021, Academy of the Social Sciences in Australia, [Paul Bourke Award for Early Career Research](#) (top prize in Australia for early career research in the social sciences). [[Short film summary](#)]

2020, Australian Institute of Policy and Science, [Queensland Young Tall Poppy Award](#) (top prize in Queensland for early career scientific excellence coupled with science communication). [[Short film summary](#)]

2020, Australian Museum, [Eureka Prize](#) for Excellence in Interdisciplinary Scientific Research, ‘Social-Ecological Research Frontiers’ working group, AUD **\$10,000** (top national science prize)

2012 – 2015, Three graduate student oral presentation awards at the University of Hawai‘i

FELLOWSHIPS & GRANTS

I have raised over \$650k in research funding since obtaining my PhD in 2015.

2020, Western Indian Ocean Marine Science Association (WIOMSA) Research Grant: “[Responding to shocks in small-scale fishing communities: a panel-data study to track impacts and responses to COVID-19](#)”, Co-PI, AUD **\$92,800**

2019, Advance Queensland Women’s Research Assistance Program Research Grant, PI, AUD **\$26,000**

2018, Australian Research Council (ARC) Discovery Early Career Researcher Award (Fellowship): “[How social networks and power shape adaptive action](#)”, PI, AUD **\$370,000**

2015, U.S. National Science Foundation (NSF) Social, Behavioral and Economic Sciences Postdoctoral Research Fellowship: “[Linking complex social and ecological systems through integrative network modeling](#)”, PI, AUD **\$208,500**

2014, University of Hawai‘i Graduate Student Organization, Travel Grant to attend the International Network for Social Network Analysis (INSNA) Conference, AUD **\$943**

PUBLICATIONS

I have published 40 peer reviewed articles in 26 academic journals with an average impact factor of 10.14. My publications have received >3600 citations and my h-index is 25 (Google Scholar 15 APR 2022).

* *Student led papers*

Peer-Reviewed Journal Articles

2022. [Barnes, M.L.](#), Jasny, L., Bauman, A., Ben, J., Berardo, R., Bodin, Ö., Cinner, J.E., Feary, D.A., Guerrero, A.M., Januchowski-Hartley, F., Kuange, J.K., Lau, J.D., Wang, P., and J. Zamborain-Mason. ‘Bunkering Down’: how one community is tightening social-ecological network structures in the face of global environmental change. *People and Nature* (in press).

2022. [Barnes, M.L.](#), Datta, A., Beeden, R., Morris, S., and I. Zethoven. Navigating climate crises in the Great Barrier Reef. *Global Environmental Change* 74:102494.
- Media (Radio Interview with Triple M): [New Strategies to Save the Great Barrier Reef](#)
- *2022. Otero, D.S., [Barnes, M.L.](#), and E. Ojea. Transformation in times of climate change: What makes a fisher diversify livelihoods? *Frontiers in Marine Science* (in press).
- *2022. Datta, A., [Barnes, M.L.](#), Floyd, T., Sutcliffe, S., Morrison, T.M., and B. Chaffin. Big events, little change: priorities and actor engagement in Great Barrier Reef governance remain stable after mass coral bleaching events. *Journal of Environmental Management* (in press).
- *2022. Bartelet, H., [Barnes, M.L.](#), Zoeller, K., and G. Cumming. Social adaptation can reduce the strength of social-ecological feedbacks from ecosystem degradation. *People and Nature* (in press).
- *2022. Bartelet, H., [Barnes, M.L.](#), and Cumming, G.S. Determinants, outcomes, and feedbacks associated with microeconomic adaptation to climate change. *Regional Environmental Change* 22:59.
2021. Felipe-Lucia, M., Guerrero, A., Alexander, S., Ashander, J., Baggio, J.A., [Barnes, M.L.](#), Bodin, Ö., Bonn, A., Fortin, M., Friedman, R.S., Gephart, J., Helmstedt, K.J., Keyes, A., Kroetz, K., Massol, F., Pocock, M.J.O., Sayles, J., Thompson, R., Wood, S.A., and L. E. Dee. Conceptualizing ecosystem services as social-ecological networks. *Trends in Ecology and Evolution* (in press).
2021. Lau, J. Sutcliffe, S., [Barnes, M.L.](#), Mbaru, E., Muly, I., Muthiga, N., Wanyonyi, S., and J.E. Cinner. COVID-19 impacts on coastal communities in Kenya. *Marine Policy* 134:104803.
2021. Jasny, L., Guerrero, A.G., Hamilton, M., Sayles, J., Prell, C., Matous, P., Rolden Gomez, L., Jacobs, D., Schiffer, E., and [M.L. Barnes](#). Participant engagement in environmentally focused social network data collection. *Social Networks* 66:125-138.
2021. Cinner, J.E., [Barnes, M.L.](#), Gurney, G., Lockie, S., and C. Rojas. Markets and the crowding out of conservation-relevant behavior. *Conservation Biology* 35:816-823.
2020. [Barnes, M.L.](#), Wang, P., Cinner, J.E., Graham, N.A.J., Guerrero, A.G., Jasny, L., Lau, J., Sutcliffe, S., and J. Zamborain-Mason. Social determinants of adaptive and transformative responses to climate change. *Nature Climate Change* 10: 823–828. [Press release](#).
- Media:
 - [Video abstract](#)
 - Behind the Paper blog: [Who you know matters for climate change adaptation](#)
 - Australian Government (ARC): [Personal connections key to climate adaptation](#)
2020. Cinner, J.E., Zamborain-Mason, J, Gurney, G.,G., Graham, N.A.J., MacNeil, A., Hoey, A.S., Mora, C., Villeger, S., Maire, E., McClanahan, T.R., Maina, J.M., Kittinger, J.N., Hicks, C.C., D’agata, S., Huchery, C., [Barnes, M.L.](#), et al. Meeting fisheries, ecosystem function, and biodiversity goals in a human-dominate world. *Science* 368:307-311. [Press release](#).
- Media (Bloomberg): [With Fishing Fleets Tied Up, Marine Life Has a Chance to Recover](#)
2020. Guerrero, A.M., [Barnes, M.L.](#), Bodin, Ö., Davis, K.J., Iftekhar, M.S., Morgans, C., and K.A. Wilson. Key considerations and challenges in the application of social network research for environmental decision making. *Conservation Biology* 34:733-742.
2019. [Barnes, M.L.](#), Bodin, Ö, McClanahan, T.R., Kittinger, J.N., Hoey, A.S., Gaoue, O.G., and N.A.J. Graham. Social-ecological alignment and ecological conditions in coral reefs. *Nature Communications* 10:2039. [Press release](#).
- Media:
 - Forbes (readership of 33m): [Rival fishers that cooperate may ultimately catch more \(and bigger\) fish](#)
 - Hakai Magazine: [The cure to the tragedy of the commons? Cooperation](#)
2019. Bodin, Ö. Alexander, S. Baggio, J. [Barnes, M.L.](#), Berardo, R., Cumming, G., Dee, L., Fischer, M., Fischer, A., Garcia, M.M., Guerrero, A., Hileman, J., Ingold, K., Matous, P., Morrison, T., Nohrstedt, D., Pittman, J., Robins, G., and J. Sayles. Improving network approaches to the study of complex social-ecological interdependencies. *Nature Sustainability* ([available online](#)). [Press release](#).

2019. Cinner, J.E., Lau, J.D., Bauman, A.G., Feary, D.A., Januchowski-Hartley, F.A., Rojas, C.A., [Barnes, M.L.](#), Bergseth, B.J., Shum, E., Lahari, R., Ben, J., and N.A.J. Graham. Sixteen years of social and ecological dynamics reveal challenges and opportunities for adaptive management in sustaining the commons. *Proceedings of the National Academy of Sciences* 116:26474-26483.
2019. [Barnes, M.L.](#), Mbaru, E. and N. Muthiga. Information access and knowledge exchange in co-managed coral reef fisheries. *Biological Conservation* 238:108198. **Invited manuscript for special issue “Coral Reef Conservation.”**
2019. Cinner, J. and [M.L. Barnes](#). Social dimensions of resilience in social-ecological systems. *One Earth* 1:51-56.
2018. Bergseth, B., Gurney, G., [Barnes, M.L.](#), and J.E. Cinner. Addressing poaching in marine protected areas through voluntary surveillance and enforcement *Nature Sustainability* 8:421-426. [Press release](#).
- Media (Breitbart News): [Poachers in marine protected areas go unchallenged by their peers](#)
2018. Alexander, S.A., Bodin, Ö, and [M.L. Barnes](#). Untangling the drivers of community cohesion in a small-scale fisheries. *International Journal of the Commons* 12:519-547.
- *2018. Sutcliffe, S. and [M.L. Barnes](#). The role of shark ecotourism in conservation behaviour: Evidence from Hawaii. *Marine Policy* 97:27-33.
- Outreach article in The Conversation: [Shark tourism can change your mind about these much-maligned predators](#)
2018. Cinner, J.E., Hutchery, C., Maire, E., MacNeil, A.M., Graham, N.A.J., Mora, C., McClanahan, T.R., Kittinger, J.N., Hicks, C.C., D’Agata, S., Hoey, A., [Barnes, M.L.](#), et al. Gravity of human impacts mediates coral reef conservation gains. *Proceedings of the National Academy of Sciences* 115:E6116-E6125. [Press release](#).
- Media:
 - Hakai Magazine: [Fragmented protections fail top predators](#)
 - Breitbart News: [Marine reserves are essential, but increasingly stressed](#)
2018. Marshall, N.A., [Barnes, M.L.](#), Birtles, A., Brown, K., et al. Measuring what matters in the Great Barrier Reef. *Frontiers in Ecology & the Environment* 16:271-277.
2018. Cinner, J.E., Adger, N., Allison, E., [Barnes, M.L.](#), Brown, K., Cohen, P., Gelcich, S., Hicks, C., Hughes, T., Lau, J., Marshall, N., and T. Morrison. Building adaptive capacity in tropical coastal communities. *Nature Climate Change* 8:117-123. [Press release](#).
2017. [Barnes, M.L.](#), Bodin, Ö., Guerrero, A. M., McAllister, R. J., Alexander, S.M. and G. Robins. The social structural foundations of adaptation and transformation in social-ecological systems. *Ecology & Society* 22(4):16. **Invited manuscript for special issue “Beyond Social-Ecological Traps.”**
- Media (Radio Interview with ABC): [What makes coral reef bright spots so bright?](#)
2017. Hughes, T.H., [Barnes, M.L.](#), Bellwood, D.R., Cinner, J.E., Cumming, G.S., Jackson, J.B.C., Kleypas, J., van de Leemput, I.A., Lough, J.M., Morrison, T.H., Palumbi, S.R., van Nes, E.H., and M. Scheffer. Coral reefs in the Anthropocene. *Nature* 546:82-90. [Press release](#).
- Media:
 - BBC: [Coral reefs can be saved but change is inevitable, scientists say](#)
 - The Guardian: [Survival of coral reefs requires radical rethink of what conservation means](#)
2017. Bodin, Ö, [Barnes, M.L.](#), McAllister, R. J., Rocha, J. C., and A. Guerrero. Social-ecological network approaches in interdisciplinary research: A Response to Bohan et al. and Dee et al. *Trends in Ecology & Evolution* 32(8): 547-549.
- *2017. Mbaru, E. and [M.L. Barnes](#). Key players in conservation diffusion: Using social network analysis to identify critical injection points. *Biological Conservation* 210(A):222-232.
2017. [Barnes, M.L.](#), Arita, S., Kalberg, K. and P.S. Leung. When does it pay to cooperate? Strategic information sharing in the harvest of common-pool fishery resources. *Ecological Economics* 131:1-11.
- *2017. Chang, C., [Barnes, M.L.](#), Frye, M., Zhang, M., Quan, R., Resiman, L., Levin, S.A. and D.S. Wilcove. Recreational hunting in the tropics leads to low exit rates in response to declining catch. *Ecology & Society* 22(1):43.
2016. [Barnes, M.L.](#), Lynham, J., Kalberg, K. and P.S. Leung. Social networks and environmental outcomes. *Proceedings of the National Academy of Sciences* 113:6466-6471. [Press release](#).
- Media (print interview/summary article by NRDC): [Can breaking down ethnic barriers in a tuna fishery prevent accidental shark deaths?](#)

- *2016. Grafeld, S., Oleson, K.L.L., Barnes, M.L., Peng, M., Chan-Halbrecht, C. and M. Weijerman. Divers' willingness to pay for improved coral reef conditions in Guam: An untapped source of funding for management and conservation? *Ecological Economics* 128:202-213.
2016. Barnes, M.L., Kalberg, K., Pan, M. and P.S. Leung. When is brokerage negatively associated with economic benefits? Ethnic diversity, competition, and common-pool resources. *Social Networks* 45:55-65.
2015. Lewison, R., Hobday, A., Maxwell, S., Hazen, E., Hartog, J.R., Dunn, D., Briscoe, D., Fossette, S., O'Keefe, C., Barnes, M.L., Abecassi, M., Bograd, S., Bethoney, D., Bailey, H., Wiley, D., Andrews, S., Howell, E., Hazen, L. and L. Crowder. Dynamic Ocean Management: 21st century approaches for marine resource management and conservation. *BioScience* 65:486-498.
2015. Oleson, K.L.L., Barnes, M.L., Brander, L., Oliver, T., van Beek, I., Zafindrasilivonona, B. and P. van Beukering. Cultural bequest values for ecosystem service flows among indigenous fishers: A discrete choice experiment validated with mixed methods. *Ecological Economics* 114:104-106.
2015. Barnes-Mauthe, M., Oleson, K.L.L., Brander, L., Zafindrasilivonona, B., Oliver, T. and P. van Beukering. Social capital as an ecosystem service: Evidence from a locally managed marine area. *Ecosystem Services* 16:283-293.
2015. Barnes-Mauthe, M., Gray, S.A., Arita, S. Lynham, J. and P.S. Leung. What determines social capital in a social-ecological system? Insights from a network perspective. *Environmental Management* 55(2):392-410.
2014. Geslani, C., Barnes-Mauthe, M., Loke, M. and P.S. Leung. Seafood purchasing preferences of Hawai'i chefs: Comparing actual purchase to stated preferences from a conjoint choice experiment. *Journal of International Food & Agribusiness Marketing* 27(1):50-63.
2013. Barnes-Mauthe, M., Arita, S., Allen, S.D., Gray, S.A. and P.S. Leung. The influence of ethnic diversity on social network structure in a common-pool resource system: Implications for collaborative management. *Ecology and Society* 18(1):23.
2013. Barnes-Mauthe, M., Oleson, K.L.L. and B. Zafindrasilivonona. The total economic value of small-scale fisheries with a characterization of post-landing trends: An application in Madagascar with global relevance. *Fisheries Research* 147:175-185.
2013. Cisneros-Montemayor, A. M., Barnes-Mauthe, M., Al-Abdulrazzak, D., Holm-Navarro, E. and U. R. Sumaila. Global economic value of shark ecotourism: Implications for conservation. *Oryx International Journal of Conservation* 47:381-388.
- Media (TV Interview with Hawaii News Now): [Shark tours are more valuable than shark soup, study finds](#)
2011. Barnes, M., Chan-Halbrecht, C., Zhang, Q. and N. Abejon. Consumer preference and willingness to pay for non-plastic food containers in Honolulu, USA. *Journal of Environmental Protection* 2:1264-1273.

Manuscripts in Review

- *Mbaru, E., Barnes, M.L., and J.E. Cinner. Understanding patterns of conservation diffusion: Empirical results from a fisheries bycatch-reduction management initiative. *Proceedings of the National Academy of Sciences* (revise & resubmit).
- *Otero, D.S., Barnes, M.L., and E. Ojea. Climate adaptation pathways and the role of social-ecological networks in small-scale fisheries. *Scientific Reports* (in review).
- *Sutcliffe, S., Lau, J.D., Barnes, M.L., Mbaru, E., Wade, E., Hungito, W., Mully, I., Wanyonyi, S., Muthiga, N., Cohen, P.J., and J.E. Cinner. COVID-19 impacts on food systems in fishing communities. *Ecology and Society* (in review).
- Bergseth, B. Arias, A., Barnes, M.L., Caldwell, I., Datta, A., Gelcich, S., Ham, S.H., Lau, J.D., Ruano-Chamorro, C., Smallhorn-West, P., Sutcliffe, S., Weekers, D., Zamnorain-Mason, J., and J.E. Cinner. Closing the compliance gap in marine protected areas. *Conservation Biology* (revise & resubmit).

Book Chapters

- Barnes, M.L. An integrative network approach for understanding resilience to environmental change. in Lazega, E., Snijders, T., Wittek, R. (eds.). *Social Networks and Social Resilience*. Elgar Research Agenda (book chapter, in press).

Reports

2016. Gough, C., Delevaux, J., Barnes, M. and K. L.L. Oleson. Using temporary closures to enhance social-ecological resilience in a degraded coral reef system. Case Studies of social-ecological resilience in island systems. **American Museum of Natural History Center for Biodiversity and Conservation**, New York, NY, USA.
2012. Barnes-Mauthe, M., Arita, S., Allen S. and P.S. Leung. A network analysis of fisher's social capital and the effects of ethnic diversity in Hawai'i's longline fishery. **Joint Institute for Marine and Atmospheric Research** Contribution 12-381. SOEST 12-03. Honolulu, HI, USA.

PROFESSIONAL APPOINTMENTS

Appointments

- 2022 – present, ARC Centre of Excellence for Coral Reef Studies, James Cook University, Principal Research Fellow/Associate Professor
- 2019 – 2022, ARC Centre of Excellence for Coral Reef Studies, James Cook University, Senior Research Fellow
- 2017 – 2018, ARC Centre of Excellence for Coral Reef Studies, James Cook University, Research Fellow
- 2015 – 2017, University of Hawai'i, NSF Social, Behavioral, and Economic Sciences Postdoctoral Research Fellow
- 2015 – 2017, ARC Centre of Excellence for Coral Reef Studies, James Cook University, Visiting Scholar
- 2012 – 2015, NOAA Pacific Islands Fisheries Science Center Socioeconomics and Planning Group, Research Specialist
- 2011 – 2015, University of Hawai'i, Research Associate & Graduate Research Assistant

TEACHING EXPERIENCE

James Cook University

- 'Human Dimensions of the Environment – Ridge-to-Reef' (an external subject under JCU's Pacific Ridge-to-Reef Program designed to provide an accredited graduate certificate/diploma in Ridge-to-Reef Sustainable Development to a cohort of 52 environmental decision-makers across 14 Pacific countries), Curriculum Developer & Course Instructor (2021)
- Social Networks & the Environment - Theory & Empirical Applications; in 'Human Dimensions of Nature, Environment, and Conservation' (undergraduate and graduate level), College of Science & Engineering, Guest Lecturer and Tutorial Instructor (annually since 2016)

University of Hawai'i

- Human Dimensions of the Coastal Ocean (undergraduate level), Department of Geography, Course Developer and Instructor (Spring 2015)
- Natural Resource and Environmental Policy (graduate level), Department of Natural Resources and Environmental Management, Guest Lecturer (Fall 2013)

Hawai'i Pacific University

- Decision Models for Managers: Statistics, Data Analysis, and Decision Modeling (graduate level), Financial Economics and Information Systems, Instructor (Spring 2014, Fall 2014)

ADVISING & MENTORSHIP

Current Students & Fellows

PhD: Sarah Sutcliffe (James Cook University), Amber Datta (jointly enrolled at James Cook University and University of Montana), Henry Bartelet (James Cook University), Luch McHugh (James Cook University)

Master's: Luisa Fernanda Bedoya Taborda (James Cook University)

Fulbright Fellow: Francis Commercon (M.S. at Yale University)

Previous Students & Fellows

PhD: Emmanuel Mbaru (James Cook University), Diego Salgueiro (informal advisor, University of Vigo), Charlotte

Chang (informal advisor, Princeton University), Julia McDowell (informal advisor, University of Montpellier)

Master's: Edith Shum (Placement, James Cook University), Shanna Grafeld (informal advisor, University of Hawai'i)

Undergrad: Sarah Sutcliffe (James Cook University)

Other Mentoring Experience

2021 – present, **Social-Ecological Adaptation and Linkages (SEA-Link)**, a discussion and working group comprised of students and early career researchers from both the social and ecological sciences focused on general academic training and proficiency in working in interdisciplinary teams to co-produce novel social-ecological research, ***Co-Chair** (bi-weekly at James Cook University)

2016 – present, **How to “Wow” the Crowd with an Effective Scientific Presentation**, a workshop for students and early career researchers, **Workshop Developer and Instructor** (delivered annually at James Cook University)

2015, **Getting Published: A Workshop on Publishing in Peer-Review**, 9th Western Indian Ocean Scientific Association Scientific Symposium, Wild Coast Sun, South Africa, **Co-Workshop Instructor**

END-USER & POLICY UPTAKE

2021 – present, **Science to policy and practice**: Member of the Expert Working Group to develop a National Strategy for Just Adaptation in Australia. The initiative is spearheaded by Future Earth Australia and the Australian Academy of Sciences and is aimed at influencing policy and social change across Australia. The strategy is being written for the Federal Government, but will also be shared with State Governments, the private sector, and philanthropy; and will be launched shortly after the release of the IPCC's ARC6 WGII (Feb 2022).

2021 – present, **Science to policy**: Technical advisor for the Reef Trust Partnership Critical Monitoring Program focused on developing a monitoring program for sustainable use and benefits in the Great Barrier Reef region.

2020 – 2022, **Science to policy and practice**: Leading an active collaboration and co-production process with representatives from the Great Barrier Reef tourism industry, the Australian Marine Conservation Society, The Reef and Rainforest Research Centre, and the Great Barrier Reef Marine Park Authority to assess governance responses to past mass coral bleaching events on the Great Barrier Reef, the barriers and catalysts to these responses, and options for improving responses to future bleaching events and other shocks. Outputs include a practice-oriented peer-reviewed manuscript, outreach pamphlets, and government and other stakeholder briefings.

2019 - present, **Science to policy**: Member of the Scientific Reference Group for the Great Sandy Marine Park Re-Zoning Plan for the Queensland Department of Environment and Science, Australia. Membership involves a thorough review of the marine park zoning plan and providing social scientific advice both in writing and during bi-monthly meetings throughout 2019-2021.

2016, 2017, 2019, **Science to practice**: Discussed results on the barriers to information access and knowledge exchange among in co-managed fisheries in Kenya at the annual Fisher's Forum hosted by the Wildlife Conservation Society's Coral Reef Conservation Program. The forum brings together a diverse range of stakeholders, including fishing communities, fisheries managers, non-governmental organizations, and other actors involved in the conservation and management of the Kenyan coast.

2016, **Science to policy**: Linked results from our study on consumer preferences for sustainable food containers to support passage of County of Hawai'i Bill 140, an ordinance to reduce the use of expanded polystyrene “Styrofoam” food containers and food service ware.

2016, **Science to practice**: Supported the Wildlife Conservation Society's Coral Reef Conservation Project in applying social network methods to identify key players to engage with along the Kenyan coast to facilitate the diffusion of gated traps, a sustainable fishing technology intended to increase target catch while decreasing bycatch of unwanted and vulnerable species.

2016, **Science to practice**: Supported the design of an integrated social survey for Blue Ventures Conservation's Monitoring & Evaluation Program in coastal Madagascar.

2015, **Science to policy**: Worked with the Australian National Climate Change Adaptation Research Facility to develop a strategy for managing the Great Barrier Reef in light of climate change impacts, resulting in 'Policy Information Brief 1: Climate Change and the Great Barrier Reef'.

2015, **Science to practice**: Trained field staff from the Wildlife Conservation Society's office in Mombasa, Kenya on social

network methods and analyses, general social science survey techniques, data collection, and data entry.

2015, **Science to policy**: Presented scientific results from multiple social and economic studies on Hawai'i's longline fishery to the Western Pacific Regional Fishery Management Council's 188th Meeting of the Scientific and Statistical Committee to support the development of fishery policy.

2010 – present, **Science to policy and practice**: Acting science advisor for Water Inspired Conservation and One Ocean Research, a partnership of non-profit organizations dedicated to shark research, education, and conservation by linking science to policy and practice through engagement with communities, working with legislatures to support shark conservation policies, and increasing public awareness of shark and other marine conservation issues.

WORKSHOPS & WORKING GROUPS

2021, **Social Networks and Social Resilience**, an international working group bringing together insights regarding the role of social networks on social resilience across a broad array of disciplines, including environment, health, politics, and the economy. Organized by Tom Snijders (U of Oxford), Emmanuel Lazega (CNRS, France), and Rafael Wittek (U of Groningen) in preparation for our collaborative book on this topic, invited participant

2021, **Pathways to Impact for Coral Reef Research**, Townsville, Australia, invited participant

2019-present, **Social-Ecological Interactions and Responses to Change**, an interdisciplinary working group comprised of ecologists, social scientists, and modelers analysing how social and ecological relationships in coastal communities underpin, and are affected by, social and ecological change, *organizer and group leader

2020-2022, **Ocean Modelling Forum: Climate and Communities**, a working group that brings managers, scientists, and ocean community users together to use models to take on complex ocean issues. Co-funded by the Nature Conservancy, the David and Lucile Packard Foundation, and the University of Washington, invited working group member

2019, **Social-Ecological Networks & Ecosystem Services Across Scales**, SESYNC working group, National Socio-Environmental Synthesis Center, Annapolis, USA, invited participant

2018, **Multilevel Social-Ecological Networks in Coral Reefs**, Townsville, Australia, *organizer

2018, **Cooperation & Conflict TURF Fisheries Workshop**, Townsville, Australia, invited participant

2017-2022, **Economic Network Dynamics and the Origins of Wealth (ENDOW)**, U.S. NSF funded working group conducting a global, cross-cultural comparison on the dynamics of social networks and wealth inequality in rural settings, invited working group member

2017, **Climate Change & Coastal Livelihoods Workshop**, Magnetic Island, Australia, invited participant

2017, **Global Fisheries & Human Health**, SESYNC working group, National Socio-Environmental Synthesis Center, Annapolis, USA, invited participant

2017, **Reef Futures 2.0**, working group, Chamonix, France, invited participant

2017, **Capturing Social-Ecological Linkages Through Integrative Network Modeling**, NSF Grant Meeting and workshop, University of Hawai'i, *organizer

2016, **Social-Ecological Research Frontiers Workshop**, Hana, Hawai'i, invited participant

2016, **Society & Governance Workshop**, a workshop retreat for ARC Centre of Excellence for Coral Reef Studies Social Science Fellows, Magnetic Island, Australia, *organizer

2016, **Adaptations & Compliance in TURF Fisheries Workshop**, University of California, Santa Barbara, USA, invited participant

2015, **Social-Ecological Research Frontiers Workshop**, University of Montpellier, France, invited participant

2015, **ARC Centre for Environmental Decisions Social Network Analysis Workshop**, University of Queensland, Australia, invited participant

2014 – 2015, **Applied Conservation Social Network Analysis Community of Practice**, The Conservation Planning Institute, member and contributor

2014, **Marine Research Network Transdisciplinary Academy in Marine Resource Sustainability**, Hatfield Marine Science Center, Oregon State University, selected participant

2014 - 2015 **Social-Ecological Complexity & Adaptation in Marine Systems** NSF Coupled Natural-Human Systems Grant Meeting, Princeton University, invited participant

2013 – 2015, **Dynamic Ocean Management Forensics Working Group**, Center for Ocean Solutions, Stanford University,

member and contributor

SERVICE & COMMUNITY ENGAGEMENT

Editorial and Professional Association Boards

- Australian Network for Social Network Analysis (*vice president*, 2021-present)
- Ecology & Society (*editorial board member*, 2018 - present)
- Proceedings of the National Academy of Sciences (*invited guest editor*, 2019)

Organized Symposia

- 2022, Special theme lead organizer, “Social Networks, Disaster Recovery, and Environmental Governance in the Context of Climate Change”, International Network for Social Network Analysis Sunbelt 2022 Conference, Cairns, Australia
- 2020, Special session organizer, “Power, Equity, and Justice in Marine Social-Ecological Systems Undergoing Rapid Change”, International Symposium on Society and Resource Management, Cairns, Australia (moved online to virtual format due to the COVID-19 pandemic)
- 2019, Special session organizer and host, “Network Approaches for Studying Social-Ecological Systems”, International Network for Social Network Analysis Sunbelt Meeting, Montreal, Canada
- 2017, Organizer and host, “Professional Development Workshop for Students and Early Career Researchers”: a workshop covering (1) CVs, cover letters, research and teaching statements, (2) giving an effective scientific presentation, and (3) getting published in peer-review, ARC Centre of Excellence for Coral Reef Studies, James Cook University, Townsville, Australia
- 2017, Special session organizer, “Cutting Edge Advances in Environmental Social Science for Marine Conservation”, International Marine Conservation Congress, Kuching, Malaysia
- 2017, Special session organizer and host, “Network Approaches for Environmental Governance”, International Network for Social Network Analysis Sunbelt Meeting, Beijing, China
- 2016, Special session organizer and host, “Social Network Analysis for Conservation: Challenges and Opportunities”, Society for Conservation Biology Oceania Meeting, Brisbane, Australia

Science Communication

Media: I regularly contribute to press releases and I have been interviewed by the ABC, WIN News, Hawaii News Now, Channel 7 News, Hakai Magazine, and the National Resources Defence Council, among others (see ‘media’ under Publications above). I actively use social media to promote my research findings and the findings of others (e.g. Twitter @MicheleLBarnes, 1803 followers).

- 2021, Author of science communication article for [The Science Breaker](#) titled “[More than money: what do we need to adapt to climate change?](#)”
- 2020, Author of Behind the Paper blog for [Nature’s Behavioural and Social Sciences Research Community](#) titled “[Who you know matters for climate change adaptation](#)”
- 2020, Author of outreach blog for the [ARC Centre of Excellence for Coral Reef Studies Research Insights](#) titled “[Lessons from the Pacific about balancing community and environmental needs](#)”
- 2019, Featured Scientist in environmental documentary ‘[Saving Jaws](#)’
- 2018, Author of science communication article for [The Conservation](#) titled “[Shark tourism can change your mind about these much maligned predators](#)” to promote public engagement”
- 2017, Public Forum Presenter, w/ ‘Dr. Karl’ (Kruszelnicki) at the ARC Centre of Excellence for Coral Reef Studies annual symposium. My talk “[Moving beyond doom & gloom](#)” focused on translating insights from behavioural science to demonstrate that simple actions, such as changing the way we talk about climate change, can help us to achieve the radical actions needed to sustain environmental resources into the future.
- 2017, Author of science communication article for [The Skimmer on Marine Ecosystems and Management](#) (11:1) titled “[Understanding and utilizing social networks can increase adoption and diffusion of conservation initiatives](#)”
- 2013, Author of science communication article for the [SAMUDRA Report](#) (Issue no. 66), produced by the International

Collective in Support of Fishworkers, titled “Economically Valuable”.

Committees and Volunteer Service

- 2021, Diversity, Equity, and Inclusion Committee Member, International Network for Social Network Analysis (INSNA) policies and procedures review.
- 2021, Judging Panel Member, 3 Minute Thesis (3MT) Competition, ARC Centre of Excellence for Coral Reef Studies, James Cook University
- 2021 – present, Organizing Committee Member, International Network for Social Network Analysis (INSNA) Sunbelt Meeting 2022. My role is focused on Equity and Inclusion at the event and the development of a special theme which will run for a full day: “*Social Networks, Disaster Recovery, and Environmental Governance in the face of Climate Change.*”
- 2020 – present, Co-founder and chair, Justice, Equity, Diversity, and Inclusion (JEDI) Committee, ARC Centre of Excellence for Coral Reef Studies, James Cook University
- 2021, Industry Participant and Mentor, Annual Connecting Women in STEM Event for female high school students. In 2021 this event was virtual and included students from over 20 schools across Australia, many located in the Northern Territory and including Thebarton Senior College, the only New Arrivals Program provider in South Australia which provides intensive language courses for newly arrived refugee students.
- 2020 – present, Member, Great Barrier Reef Human Dimension Community of Practice
- 2020, Panel Member, served on a professional development panel for students and early career researchers focused on “Project descriptions for ARC and non-ARC funding applications”
- 2019, Search committee member, served on a search committee for an environmental social science postdoctoral research fellow at the ARC Centre of Excellence for Coral Reef Studies, James Cook University
- 2017 - 2018, Committee member, Postdoctoral Research Fellow Committee, ARC Centre of Excellence for Coral Reef Studies, James Cook University
- 2016, Search committee member, served on a search committee for an environmental social science postdoctoral research fellow at the ARC Centre of Excellence for Coral Reef Studies, James Cook University
- 2011, Awards selection committee member, College of Tropical Agriculture and Human Resources, University of Hawai‘i

Reviewing Activities

- Journals: Science, Nature Sustainability, Nature Communications, Proceedings of the National Academy of Sciences, Social Networks, Global Environmental Change, Current Opinion in Environmental Sustainability, Climate Risk Management, Conservation Letters, Ecology & Society, Ecological Economics, Ambio, Society & Natural Resources, International Journal of the Commons, Coastal Management, Plos One, Applied Geography, Fish & Fisheries, Canadian Journal of Fisheries & Aquaculture, Biological Conservation, Journal of Environmental Management, American Journal of Psychology, World Development, Policy Studies Journal
- Funding agencies/grant proposals: Australian Research Council (Discovery and Linkage Programs, annually since 2019), Canada’s Social Sciences and Humanities Research Council (2020), Inter-American Institute for Global Change Research (2019), National Geographic (2017), U.S. National Science Foundation (Cultural Anthropology Program, 2016), NOAA (Saltonstall-Kennedy Grant Program, 2015)

Professional Affiliations

Australian Network for Social Network Analysis (Vice President); International Network for Social Network Analysis; Naseberry: Network Analysis in Social-Ecological Studies; Western Indian Ocean Marine Science Society; International Society for Reef Studies; CHANS-Net: The International Network of Research on Coupled Human and Natural Systems

INVITED TALKS

2021. ARC Centre of Excellence for Coral Reef Studies Annual Symposium, “People and reefs: adapting to a changing world.” **invited keynote address*
2021. Great Barrier Reef Social Science Symposium, “Navigating climate change in the Great Barrier Reef”.
2021. Australian Institute for Disaster Resilience, virtual workshop series, “Social networks and resilience to environmental

change”.

2021. Global Socio-Environmental Network Consortium, virtual event, “Dynamic social-ecological connectivity in the face of global environmental change”.
2021. Elgar Research Agenda Social Networks and Social Resilience book development, virtual event, “An integrative network approach for understanding resilience to environmental change”.
2020. International Ocean Modelling Forum Working Group on Climate and Communities, virtual event, “Social determinants of adaptive and transformative responses to climate change”.
2020. Centre for Sustainable Tropical Fisheries and Aquaculture, James Cook University, Townsville, Australia, “Connections matter: how social-ecological networks underpin sustainable fisheries and resilient fishing communities”.
2020. International Conference for Young Marine Researchers (ICYMARE) keynote address, “Understanding social-ecological systems: Towards sustainable management of marine resources.” **Unable to present due to COVID-19*
2019. ARC Centre of Excellence for Coral Reef Studies Annual Symposium, Australian National Maritime Museum, Sydney, Australia “Social networks, social-ecological feedbacks, and power shape responses to climate change.”
2019. School for Environment and Sustainability, University of Michigan, USA “A social-ecological network approach reveals how interdependencies mediate adaptive action and cooperation.”
2019. Department of Community Sustainability, Michigan State University, USA “Social-ecological linkages: networks, bright spots, and coral reefs.”
2018. Australian Social Network Analysis Conference, invited panel member for closing remarks.
2017. ARC Centre of Excellence for Coral Reef Studies Annual Symposium, Australian Academy of Sciences, Canberra, Australia “Moving beyond doom and gloom” **Public Forum talk*
2017. Department of Environmental Studies, University of California – Santa Cruz, USA “An integrative systems approach to marine and coastal governance.”
2017. Department of Environmental Science and Policy, University of California – Davis, USA “Social-ecological linkages: An integrative systems approach to environmental governance.”
2016. Sustainable Fisheries Group, University of California – Santa Barbara, USA “Social networks matter: Linking resource user’s social behavior to coupled outcomes in a marine social-ecological system.”
2016. Center for Environmental Policy and Behavior, University of California – Davis, USA “Social networks matter: Linking resource user’s social behavior to coupled outcomes in a marine social-ecological system.”
2015. ARC Centre of Excellence for Coral Reef Studies Annual Symposium, Hobart, Tasmania “The cost of cooperation: the potential and pitfalls of manipulating social networks to achieve sustainable fisheries.”
2015. ARC Centre of Excellence for Environmental Decisions, University of Queensland, Brisbane, Australia “Is there a cost to cooperation? Information sharing networks and coupled outcomes in a competitive common-pool resource system.”
2015. NOAA Inouye Regional Center, Honolulu, Hawai‘i “Social networks and coupled outcomes in Hawai‘i’s longline fishery.”
2015. Western Pacific Regional Fishery Management Council 188th Meeting of the Scientific and Statistical Committee, Honolulu, Hawai‘i “The role of fisher’s information sharing networks on coupled outcomes in Hawai‘i’s longline fishery.”
2015. ARC Centre of Excellence for Coral Reef Studies, James Cook University, Townsville, Australia “Social-ecological linkages: An integrative systems approach to marine and coastal governance.”
2015. School of Public Policy, Oregon State University, Corvallis, Oregon “Social-ecological linkages: An integrative systems approach to marine and coastal policy.”
2014. Social-Ecological Complexity and Adaptation in Marine Systems Group, Princeton University, Princeton, New Jersey “Information sharing networks in Hawai‘i’s longline fishery: What role do they play?”
2012. Pelagic Fisheries Research Program Principal Investigator’s Meeting, Honolulu, Hawai‘i “Information sharing networks and ethnic homophily in Hawai‘i’s longline fishery.”

CONFERENCE AND OTHER PRESENTATIONS

2022. International Network for Social Network Analysis Sunbelt Conference, Cairns, Australia ““Bunkering Down”: how communities are tightening social-ecological network structures in response to global environmental change.”

2021. Network Science Society and the International Network for Social Network Analysis first joint conference, virtual event due to COVID-19 “Social determinants of adaptive and transformative responses to climate change.”
2020. International Symposium on Society and Resource Management, virtual event due to COVID-19 “How social networks and power interact to shape responses to climate change: Evidence from Papua New Guinea.”
2019. International Network for Social Network Analysis Sunbelt Conference, Montreal, Canada “Social-ecological networks and adaptive responses to a changing climate.” **organizer of special session on ‘Network Approaches for Studying Social-Ecological Systems’*
2018. Australian Social Network Analysis Conference, Canberra, Australia “Multilevel, social-ecological networks and cooperation in the commons.”
2017. International Network for Social Network Analysis Sunbelt Conference, Beijing, China “Linking social and ecological networks for environmental problem solving.” **organizer of special session on ‘Network Approaches for Environmental Governance’*
2016. Australian Social Network Analysis Conference, Melbourne, Australia “Theorizing the social-structural foundations of adaptation and transformation in social-ecological systems.”
2016. Society for Conservation Biology Oceania Meeting, Brisbane, Australia “Linking social networks to environmental outcomes.” **organizer of special session on ‘Social Network Analysis for Conservation: Challenges and Opportunities*
2016. International Coral Reef Symposium, Honolulu, Hawai‘i “Inequity in co-management of coral reefs.”
2015. Western Indian Ocean Marine Science Association, Wild Coast, South Africa “Social capital as an ecosystem service: Evidence from a locally managed marine area.”
2015. International Network for Social Network Analysis Sunbelt Conference, Brighton, UK “Social networks and coupled outcomes in a marine social-ecological system.”
2015. University of Hawai‘i Department of Economics Seminar on Energy and Environmental Policy and CTAHR Student Research Symposium, Honolulu, Hawai‘i “Social networks and coupled outcomes in a marine social-ecological system.” **PhD Student Oral Presentation Award of Merit*
2014. International Institute for Fisheries Economics and Trade Biannual Conference, Brisbane, Australia “Information sharing networks and rates of incidental catch.”
2014. International Institute for Fisheries Economics and Trade Biannual Conference, Brisbane, Australia “Cultural bequest values for ecosystem service flows among indigenous fishers: A discrete choice experiment validated with mixed methods.”
2014. International Institute for Fisheries Economics and Trade Biannual Conference, Brisbane, Australia and CTAHR Student Research Symposium, Honolulu, Hawai‘i “The total economic value of small-scale fisheries with a characterization of post-landing trends: An application in Madagascar with global relevance.” **Best PhD Student Oral Presentation Award*
2014. International Network for Social Network Analysis Sunbelt Conference, St. Petersburg, Florida “The role of ethnic diversity and individual stakeholder attributes on social network capital in a social-ecological system.”
2013. North American Association for Fisheries Economics Biannual Forum, St. Petersburg, Florida “Do stakeholder attributes influence social network capital? Evidence from an ethnically diverse fishery.”
2013. CTAHR Student Research Symposium, Honolulu, Hawai‘i “Human capital and social network capital in an ethnically diverse resource system.”
2012. International Institute for Fisheries Economics and Trade Biannual Conference, Dar Es Salaam, Tanzania “Ethnic diversity, social capital, and the potential for co-management: a case study of Hawai‘i’s longline fishery.”
2012. Joint Institute for Marine and Atmospheric Research Symposium and CTAHR Student Research Symposium; Honolulu, HI “Impacts of ethnic diversity on social network capital in a competitive pelagic fishery: the case of Hawai‘i’s longline fishery.” **Gamma Sigma Delta Best MS Student Oral Presentation Award*

RESEARCH EXPERIENCE

Fieldwork

- 2022, 2019, 2015, Fieldwork: Kenya, trained local field site researchers, interpreters, and local community guides and oversaw fieldwork in five Kenyan coastal villages

- 2018, Fieldwork: Papua New Guinea, organized and led a field expedition consisting of social scientists, local field site researchers, interpreters, and local community guides in a Papua New Guinean coastal village
- 2016, Fieldwork: Papua New Guinea, organized and co-led a large field expedition consisting of social scientists, ecologists, local field site researchers, interpreters, and local community guides in three Papua New Guinean coastal villages
- 2016, Fieldwork: Hawai'i, organized and led a team of researchers and interpreters in collecting follow-up social network and socioeconomic data on Hawai'i's longline fishery
- 2013 – 2014, Fieldwork: Hawai'i, led a field team of researchers and interpreters in collecting economic cost-earnings data on Hawai'i's longline fishery
- 2011, Fieldwork: Hawai'i, led a field team of researchers and interpreters in collecting social network data on Hawai'i's longline fishery

Skills and Select Training Courses

Proficient in Stata, R, SPSS, UCINET, NetDraw, and MPNet. Working knowledge of Gephi and Pajek.

- 2021, 'Big Data Analysis for Social Scientists', online course by R. Ackland, Australian National University
- 2020, Diversity and Inclusion training, delivered online by Polykala
- 2019, 'Egocentric Network Data Analysis with ERGMs using Statnet', by P. Krivitsky and M. Morris, INSNA Sunbelt
- 2017, 'Analysis of Longitudinal Social Network Data using RSIENA', by P. Block et al., INSNA Sunbelt
- 2017, 'Advanced RSIENA and Advanced Actor-Oriented Network Modeling', by P. Block et al., INSNA Sunbelt
- 2015, 'Introduction to GLM with R: Bayesian and Frequentist Approaches', by A. Zuur
- 2015, 'Exponential Random Graph Models for Social Networks', by M. Morris and C. Butts, INSNA Sunbelt
- 2015, 'Intro to Network Analysis with R and Statnet', by R. Acton and L. Jasny, INSNA Sunbelt
- 2014, 'Social and Economic Networks: Models and Analysis,' online course by M. Jackson of Stanford University
- 2014, 'Network Methods for Behavior Change' by T. Valente, INSNA Sunbelt

REFERENCES

- Steve Borgatti**, Professor and Gatton Endowed Chair, Gatton College of Business and Economics, University of Kentucky, Lexington, KY 40506 United States. Email: SBORG2@uky.edu; Tel: + 1 859 257 2257
- Garry Robins**, Honorary Professor and Social Network Methodologist, Melbourne School of Psychological Sciences, University of Melbourne, Melbourne, VIC 3010 Australia. E-mail: garrylr@unimelb.edu.au
- Alana Grech**, Assistant Director, ARC Centre of Excellence for Coral Reef Studies, James Cook University, Townsville, QLD 4810 Australia. Email: alana.grech@jcu.edu.au; Tel: + 61 7 4781 4107