


Catherine Jung Shim Kim

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EDUCATION

- 2021 Ph.D. **The University of Queensland Australia**
School of Biological Sciences, St. Lucia, Queensland, Australia
Thesis Title: *Drivers of benthic composition, cryptic marine biodiversity, and coral health in Timor-Leste.*
Advisors: Prof Ove Hoegh-Guldberg, Honorary Prof Sophie Dove, Dr Chris Roelfsema
Awards: XL Catlin Oceans Scholar, Finalist for Faculty of Science 2020 Awards
- 2012 B.S. **Cornell University** – Science of Earth Systems (Oceanography concentration)
College of Agriculture and Life Sciences, Ithaca, New York, USA
Advisor: Dr Chuck Greene
Awards: Cum Laude, Dean's List six semesters, Michael Mitchell Award

EXPERTISE

Discipline Knowledge

Marine Ecology

- Well-developed knowledge of coastal marine ecosystems such as seagrasses and coral reefs
- Experience monitoring marine ecosystems and assessing ecological processes and stressors
- Knowledge of field survey and sampling techniques such as coral, invertebrate, and fish surveys
- Execution of field work campaigns in remote areas including Timor-Leste, Indonesia, and Hawai'i
- Identification of major reef taxa such as corals, invertebrates, algae, and fish
- Familiarity with benthic image analysis using Coral Point Count and CoralNet
- Data and gear management in the field and sound knowledge of OH&S practices

Quantitative Skills

- Demonstrated experience in computer programming using R
- Implementation and validation of automated image analysis pipelines
- Quantitative analysis of community marine ecology, spatial, and temporal data
- GIS-based relative wave exposure models
- Git and GitHub for version control and collaborative coding practices
- Certified instructor for The Carpentries
- Australian Mathematical Sciences Institute 2021 Winter School, 2 weeks
- R Statistics course 2021 by Dr Murray Hall Ecological Statistician, 2 weeks

Relevant Skills

Project Management

- Securing and managing \$100,000 AUD of external research grants
- Experience coordinating and facilitating workshops
- Communicating results to stakeholders through presentations, publications, and reporting
- Developing and maintaining collaborations with government, NGOs, and research institutions
- Translating research outcomes to diverse internal and external partners and end-users

Software

- R and RStudio
- PRIMER7
- ArcGIS & qGIS
- Microsoft Office 365 Suite
- Google Documents
- Adobe Creative Suite, ImageJ
- Mendeley & Zotero
- Slack
- Zoom

WORK EXPERIENCE

- 2/22–present **Postdoctoral Research Associate**, School of Earth and Atmospheric Sciences, Queensland University of Technology, Brisbane. QLD
- Contributing to the Decision Science and Rubble sub-programs of the Reef Restoration and Adaptation Program
 - Assessing cyclone frequency in Australia and rubble vulnerability
- 7/21–1/22 **Postdoctoral Research Fellow** (0.6 FTE), School of Biological Sciences, The University of Queensland, St. Lucia. QLD
- Organising a workshop with stakeholders and researchers on long-term monitoring and biodiversity conservation in Timor-Leste
 - Testing conservation planning scenarios for land-use and biodiversity in the Indo-Pacific
- 4/21–1/22 **Technology Trainer** (0.4 FTE), Library, The University of Queensland, St. Lucia. QLD
- Providing training for a suite of software such as R through the University Library for students and staff
 - Co-developed and taught 3 R workshops
- 11/20–6/21 **Research Administration Officer**, The University of Queensland, St. Lucia, QLD
- Conducted internal grant reviews of Australian Research Council Discovery Program and Future Fellowship schemes for grantsmanship, eligibility, and compliance
 - Managed a portfolio of 30 applications liaising with candidates to ensure timely submission
- 4/14–3/21 **PhD Candidate**, School of Biological Sciences, The University of Queensland, St. Lucia, QLD
- Developed a coherent research program in coral reef ecology of Timor-Leste
 - Maintained collaborations with Conservation International, Pacific Islands Fisheries Science Center (PIFSC), and the Timor-Leste Ministry of Agriculture and Fisheries (MAF)
 - Presented findings to MAF, non-governmental agencies, and private sector partners
 - Contributed to six XL Catlin Seaview Survey fieldwork campaigns utilising a standard operating procedure collecting kilometer-scale phototransects
 - Analysed over 20,000 photos through an automated image analysis pipeline
 - Organised logistical operations for fieldwork including scientific diving for coral surveys, seawater collection for nutrient analyses, and deployment of temperature loggers
- 1/16–3/16 **Research Fellow**, Smithsonian National Museum of Natural History, Washington DC, US
- DNA barcoded 285 brachyuran crab samples collected via Autonomous Reef Monitoring Structures (ARMS) by PIFSC in Timor-Leste
 - Tracked samples through sequencing pipeline using the Field Information Management System and Lab Information Management System
- 1/12–12/13 **Program Assistant**, Dept Ecology & Evolutionary Biology, Cornell University, Ithaca, NY, US
- Coordinated the National Science Foundation Ecology of Infectious Marine Disease Research Coordination Network grant including communications with 25 researchers
 - Planned inaugural workshop and maintained website
 - Assisted with the site selection and seagrass surveys for the field component of the Ecology of Infectious Marine Disease summer course and conducted seagrass health surveys and preserved blades for histology
 - Quantified the presence of *Labyrinthula* spp. in histological sections
- 6/13-8/13 **Puakō Coral Health Monitoring**, Puakō, HI, US
- Liaised with the Puakō community during the research process and disseminated findings
 - Conducted coral health surveys at ten sites in Puakō, Hawai'i via snorkel
 - Sampled coastal waters and anchialine pools for *Enterococcus* bacteria and set up a $\delta^{15}\text{N}$ algal bioassay using *Ulva fasciata*
- 6/11-8/11 **Young Scientist Intern**, Pacific Islands Fisheries Science Center, National Oceanic and Atmospheric Administration (NOAA), Honolulu, HI, US
- Trained in NOAA's benthic image analysis classification scheme
 - Analysed ~2,000 benthic photographs from a subset of ten years of archived tow surveys from Rose Atoll in the Coral Reef Ecosystem Division using Coral Point Count
 - Processed 12 preserved marine invertebrate samples from ARMS

PUBLICATIONS

- Kim CJS**, Roelfsema C, Dove S, Hoegh-Guldberg O. (*in press*). The condition of coral reefs in Timor-Leste before and after the 2016-2017 marine heatwave. *Oceans* (1001163)
- Nolan MKB, **Kim CJS**, Hoegh-Guldberg O, Beger M. (2021). The benefits of heterogeneity in spatial planning within coral reef environments. *Biol Conserv*, 258: 109-155. doi:10.1016/j.biocon.2021.109155
- Rodriguez-Ramirez A, González-Rivero M, Beijbom O, Bailhache C, Bongaerts P, Brown K, Bryant DEP, Dalton P, Dove S, Ganase A, Kennedy EV, **Kim CJS**... (2020) A contemporary baseline record of the world's coral reefs. *Sci Data*, 7(1): 355. doi: 10.1038/s41597-020-00698-6.
- Kennedy EV, Vercelloni J, Neal B, Ambariyanto, Bryant D, Ganase A, Gartell P, Brown K, **Kim CJS**... (2020) Coral Reef Community Changes in Karimunjawa National Park, Indonesia: Assessing the Efficacy of Management ... *J Mar Sci Eng*, 8(760): 27. doi:10.3390/jmse8100760
- González-Rivero M, Beijbom O, Rodriguez-Ramirez A, Bryant DEP, Ganase A, Gonzalez-Marrero, Herrera-Reveles A, Kennedy EV, **Kim CJS**... (2020). Monitoring of Coral Reefs Using Artificial Intelligence: A Feasible and Cost-Effective Approach. *Rem Sens*, 12(3): 489. doi: 10.3390/rs12030489
- Yoshioka RM, **Kim CJS**, Tracy AM, Most R, Harvell CD. (2016). Linking sewage pollution and water quality to spatial patterns of *Porites lobata* growth anomalies ... *Mar Pollut Bull*, 104: 313-321.
- Groner ML, Burge CA, **Kim CJS**, Rees E, Van Alstyne KL, Yang S, Wyllie-Echeverria S, Harvell CD. (2015). Plant characteristics associated with widespread *Dis of Aquat Org*, 118: 159-168.
- Groner ML, Burge CA, Couch CS, **Kim CJS**, Siegmund GF, Singhal S, Smoot SC, Harvell CD, Wyllie-Echeverria S, Jarrell A, Gaydos JK. (2014). Host demography influences the prevalence and severity of seagrass wasting disease. *Dis of Aquat Org*, 108: 165-175. doi: 10.3354/dao02709
- Burge CA, **Kim CJS**, Lyles JM, Harvell CD. (2013). Special Issue Oceans and Humans Health: The Ecology of Marine Opportunists. *Microb Ecol*, 65(4): 869-79. doi:10.1007/s00248-013-0190-7

OTHER PUBLICATIONS

- Kim CJS. (2020). *Tara Bandu in Timor-Leste*. Report for the Scientific Exploration Society, Motcombe, UK.
- Kim CJS. (2016). *Coral Health and Disease in Timor-Leste*. Report for the Global Change Institute, The University of Queensland, St. Lucia, QLD, Australia.
- Kim CJS, Yoshioka RM, Harvell CD. (2013). *Linking sewage pollution and water quality to spatial patterns of Porites growth anomalies in Puakō, HI*. Report for the Puakō Community Assoc., Puakō, HI.

PRESENTATIONS AND INVITED TALKS * oral presentation, † invited presentation

- Kim CJS** † (2021) Coral Reef Ecology of Timor-Leste: The Last Frontier of the Coral Triangle. Virtual Guest Lecture. Colby College, Maine, USA*
- Kim CJS** † (2020) Coral Reef Management and *Tara Bandu* on Atauro Island: an ecologist's perspective. Talk. Timor-Leste: the Island and the World Conference, Virtual Dili, Timor-Leste*
- Kim CJS** † (2019) Drivers of benthic composition, cryptic marine biodiversity, and coral health in Timor-Leste. Guest Lecture. Universidade Nasionál Timór Lorosa'e, Dili, Timor-Leste*
- Kim CJS** † (2019) Drivers of benthic composition, cryptic marine biodiversity, and coral health in Timor-Leste. Invited Talk. Ministry of Agriculture and Fisheries, Dili, Timor-Leste*
- Kim CJS**, Dove S, Hoegh-Guldberg O, Meyer C (2017) Biodiversity of Coral Reef Cryptofauna in Relation to Coral Reef Habitat. PEP talk. Australian Marine Science Association Conference, Darwin, Australia*
- Kim CJS**, Roelfsema C, Dove S, Hoegh-Guldberg O (2016) Prevalence of Disease in Dili, Timor-Leste and Potential Drivers. Poster. International Coral Reef Symposium, Honolulu, HI, US
- Kim CJS** † (2015) Benthic composition, marine biodiversity, and coral health along the northern coast of Timor-Leste. Invited Talk. Ministry of Agriculture and Fisheries, Dili, Timor-Leste*
- Kim CJS**, Neal B, Misa P, Timmers M, Vargas-Angel B, Roelfsema C, Dove S, Hoegh-Guldberg O (2015) Benthic Composition and Marine Biodiversity of Coral Reefs along the Northern Coast of Timor-Leste Presentation. Australian Coral Reef Society Conference, Daydream Island, Australia*
- Kim CJS**, Yoshioka RM, Harvell CD (2014) Coral Health and Water Quality in Puakō, HI. Poster. Ocean Sciences Meeting, Honolulu, HI, US
- Kim CJS** (2012) Benthic Community Structure and Biodiversity of Marine Invertebrates of Rose Atoll. Poster. Benthic Ecology Meeting, Norfolk, VA, US

AWARDS

- 2020 The University of Queensland Faculty of Science Awards Finalist
- 2018 Life Science Young Achiever Award Finalist, Women in Technology
- 2017 Best PEP talk Fisheries and Research and Development Council award, Australian Marine Science Association Conference in Darwin
- 2014 BioMed Central Ecology Image Competition
Winner of the Conservation Ecology and Biodiversity Research Section for
“Healthy coral reef ecosystems are becoming a rarity”

GRANTS

- 2021 Estate of Winifred Violet Scott Grant, 65,300 AUD
- 2021 Small Grant for R workshop, Centre for Conservation and Biodiversity Science, 1,400 AUD
- 2019 Scientific Exploration Society Elodie Sandford Explorer Award 6,800 GBP
- 2017 Estate of Winifred Violet Scott Grant, 26,300 AUD
- 2016 Australian Research Council Centre of Excellence for Coral Reef Studies International Coral Reef Symposium Student Travel Award, 1,000 AUD
- 2015 Society of Conservation Biology Marine Section Small Grants, 700 USD
- 2015 The University of Queensland Graduate Student International Travel Award, 3,500 AUD
- 2015 Australian Research Council Centre of Excellence for Coral Reef Studies Symposium Student Travel Award, 900 AUD
- 2015 Australian Coral Reef Society Conference Student Travel Award, 200 AUD
- 2014 XL Catlin Seaview Survey Ocean Graduate Scholarship, 2014-2018, 100,000 AUD
- 2011 Dextra Undergraduate Research Endowment Fund, Cornell University 1,500 USD
- 2011 Michael Mitchell Memorial Fund, Cornell University 3,000 USD

MEDIA & OUTREACH

- 2016-*present* **Young Science Ambassador**, Wonder of Science (WoS), The University of Queensland
- WoS representative for Avoid Island Nature Refuge workshop with the Queensland Trust for Nature, Great Barrier Reef Foundation, and indigenous rangers
 - Travel to regional and rural areas in Queensland for STEM outreach
 - Speaker in 2020 Coolumboola Virtual STEM Camp for girls
 - Public seminar for 2019 Flying Scientist event in Airlie Beach
 - Provided ‘virtual diving’ experiences using XL Catlin Seaview Survey underwater imagery
- 2016, 2019 **Volunteer**, National Ocean Science Bowl
- Moderator at the Chesapeake Bay Bowl regional competition in 2016 and 2019.
 - Moderator at the national competition in 2019
- 2018 **Volunteer**, Pennsylvania State University Science-U
- Guest speaker during a biology summer camp session for 25 middle school students
- 2017, 2021 **Science Team**, UniDive Club, Brisbane, Australia
- Served as a volunteer member of the science committee for the Flinders Reef Ecological Assessment and Mooloolaba Ecological Assessment and Mapping citizen science project using Reef Check Australia and Coral Watch methods
- 2015 **Create Change Video Campaign**, University of Queensland
- Featured for a 2-minute video promoting UQ and the XL Catlin Seaview Survey: https://youtu.be/vvaTLQ_8uMY
- 2014 - 2016 **Contributor**, XL Catlin Seaview Survey blog
- Wrote and provided imagery for blog during field expeditions
 - Surveying Green Island – May 2016
 - Wrapping up in Timor-Leste – December 2015
 - Return to Timor-Leste to Assess Coral Health – November 2015
- 2014 **Outreach**, XL Catlin Education Programme Coral Live! Skype Classroom
- Presented on coral reef ecosystems personalized to middle and high school-aged students’ questions in the United Kingdom via Skype

TEACHING EXPERIENCE

- 2020 **Instructor**, R for Reproducible Scientific Analysis 2-day courses, Queensland Cyber Infrastructure Foundation, Brisbane, QLD
- 2019 **Academic Advisor**, Placements, The University of Queensland, St. Lucia, QLD
- 2018 **Tutor**, Oceanography, The University of Queensland, St. Lucia, QLD
Tutor, Sustainable Consumption and Production, The University of Queensland, St. Lucia, QLD
Academic Advisor, Placements, The University of Queensland, St. Lucia, QLD
- 2013 **Internship Coordinator**, Hawai'i Sustainability Semester, Kamuela, Hawai'i, USA
Coordinated three student interns with The Nature Conservancy.
- 2011–2012 **Trainer**, Empathy Assistance & Referral Service, Cornell University, Ithaca, New York, USA
Three semesters of listening, interpersonal communication, and counselling training.
- 2011 **Teaching Assistant**, Marine Invertebrates Seminar, Cornell University, Ithaca, New York, USA

CERTIFICATIONS

- 2017 Centre of Marine Science Boat Handling Workshop at Moreton Bay Research Station
- 2015 Recreational Marine Driver License, Queensland, Australia
- 2015 Short Range Operator Certificate of Proficiency marine radio license, Australia
- 2014 Australian Divers Accreditation Scheme 2815 Scientific Diver, The University of Queensland
- 2010 TDI Diver Propulsion Vehicle; PADI Open Water, Advanced, and Rescue; 350+ dives
- 2010 Quantitative Underwater Ecological Surveying Techniques, University of Hawai'i Hilo
Driver's License Virginia, USA
Regular recertification of First Aid, CPR, Advanced Resuscitation First Aid, Mental Health First Aid
Attainment of regular 2299 Dive Medicals

PROFESSIONAL AFFILIATIONS

- R Ladies Brisbane Chapter, Co-organiser 2020 – present
- International Coral Reef Society
- Australian Coral Reef Society
- Women in Technology, Life Sciences Committee 2016 – 2018
- Centre of Excellence in Coral Reef Studies Student Committee 2015 – 2017

REFERENCES

Dr Ove Hoegh-Guldberg

Professor, School of Biological Sciences, The University of Queensland
Level 7, Gehrmann Lab (60), St. Lucia, QLD 4072 Australia
oveh@uq.edu.au, +617 334 67417

PhD supervisor assisting with question formulation and writing up of research for three thesis chapters and publication.

Dr Sophie Dove

Honorary Professor, School of Biological Sciences, The University of Queensland
Level 7, Gehrmann Lab (60), St. Lucia, QLD 4072 Australia
sophie@uq.edu.au, +617 3365 7229

PhD supervisor assisting with project design for three thesis chapters and writing for thesis and publication.

Molly Timmers

National Oceanic and Atmospheric Administration, Pacific Islands Fisheries Science Center
1845 Wasp Blvd. Bldg. 176, Honolulu, HI 96818 USA
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Supervisor for NOAA internship and collaborator for assessing coral reef cryptofaunal community in Timor-Leste.