Clinton A. Oakley

7 September 2026

School of Biological Sciences
Te Herenga Waka Victoria University of Wellington
Wellington, Aotearoa New Zealand

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Professional Appointments

Group Leader and **Senior Research Fellow** 2024–Present

Te Kura Mātauranga Koiora School of Biological Sciences
Te Herenga Waka Victoria University of Wellington, Aotearoa New Zealand

My research team and I explore marine microbial symbioses and their ecological roles by integrating functional 'omics, microbiology, and ecophysiology. I am interested in the complex molecular and physiological bases of symbiosis establishment, maintenance, and breakdown. My work seeks to understand the responses of marine symbioses to global change, explore the biology behind marine ecosystem decline, and improve the survival trajectory of coral reefs.

Teaching Fellow 2022–2024

School of Biological Sciences
Te Herenga Waka Victoria University of Wellington

Research Fellow in Marine Biology 2013–2023

Mentor Prof. Simon Davy, School of Biological Sciences
Te Herenga Waka Victoria University of Wellington

Research Assistant 2007

PI Prof. Johanna Schmitt, Dept. of Ecology, Evolution and Organismal Biology
Brown University, Providence, RI, USA

Field Technician 2006

PI Prof. James Clark, Nicholas School of the Environment
Duke University, Durham, NC, USA

Education

Ph.D., Plant Biology. 2013

University of Georgia, Athens, GA, USA
Dissertation title: Photosynthetic and respiratory responses to thermal stress in the coral symbiont *Symbiodinium*. Advisor: Prof. Gregory Schmidt.

B.S., Biology, *magna cum laude.* 2006

Washington & Lee University, Lexington, VA, USA

Research Funding & Fellowships

Royal Society Te Apārangi Marsden Fund, $1,082,000NZD, **Associate Investigator**. 2025

PI Prof. Simon Davy, Victoria University of Wellington. Associate Investigators **Dr. Clint Oakley**, VUW; Prof. Arthur Grossman, Stanford University; Prof. Virginia Weis, Oregon State University; & Prof. David Suggett, King Abdullah University of Science & Technology.

Title: "Evading digestion in the coral-algal symbiosis: establishing a mechanism for improved coral reef survival in warming seas".

- **The Marsden Fund is "regarded as the hallmark of excellence for research in Aotearoa New Zealand"** and the only national source of investigator-led basic science research. There is one round per year, PIs cannot hold more than one simultaneously, and the success rate is 8–11%.

Royal Society Te Apārangi Marsden Fund, $1,083,000NZD, **Principal Investigator**. 2024
PI Dr. Clint Oakley, Victoria University of Wellington. Associate Investigators Prof. David Suggett, King Abdullah University of Science & Technology; AProf. Ed Chouchani, Harvard University; & Dr. Phil Cleves, Carnegie Institution of Science.
Title: "What makes a coral 'super'? Challenging the oxidative theory of coral bleaching to solve the coral reef crisis." Press release in English or te reo Māori.

Strategic Faculty Research Grant, Victoria University of Wellington, $16,700NZD. 2020
Principal Investigator. Title: "Identifying target genes for intervention in the coral reef crisis."

Royal Society Te Apārangi Marsden Fund, $1,104,000NZD, named Research Fellow. 2020
PI Prof. Simon Davy, Victoria University of Wellington. Associate Investigators Prof. Arthur Grossman, Stanford University; Prof. Virginia Weis, Oregon State University; & AProf. David Suggett, University of Technology of Sydney.
Title: "The language of success: Inter-kingdom communication in the coral-algal symbiosis and the adaptation of coral reefs to climate change."

Royal Society Te Apārangi Marsden Fund, $1,000,500NZD, named Research Fellow. 2018
PI Prof. Simon Davy, Victoria University of Wellington. Associate Investigators Prof. Arthur Grossman, Stanford University; Prof. Virginia Weis, Oregon State University.
Title: "From parasitism to mutualism: symbiosis interaction states and the adaptability of reef corals to climate change."

L'Institut des Récifs Coralliens du Pacifique Grant, €4,500, **Principal Investigator**. 2017
Title: "The proteome and molecular functions of the coral surface mucus layer and its role in coral ecology in Mo'orea."

University of Georgia Innovative and Interdisciplinary Research Grant, $1,500USD 2012

USA EPA Science to Achieve Results (STAR) Ph.D. Fellowship, $111,000USD 2010–2013
Title: "Carbon fixation of the diverse coral symbiont *Symbiodinium* in a high-CO_2 ocean."

Funding under review:

Gordon & Betty Moore Foundation Symbiosis in Aquatic Systems Initiative, $TBD
PI Dr Clint Oakley, Co-PI Prof. Francesco Licausi, Oxford University.
Title: "Multi-omics to understand animal cellular adaptation to photosymbiotic oxygen."

Publications

Advised graduate student, †Equal authorship

Summary

Publications:	48	Citations (Google Scholar):	2,923
1st or senior author:	14	*h*-index:	23
Advisee as 1st author:	25	*i*10-index:	36

1. E Laurent*†, JL Matthews†, L Chagnat*, C de Jong*, L Peng, P Cleves, DJ Suggett, **CA Oakley**. Liposome supplementation enhances host metabolism in a model symbiotic cnidarian. ***Marine Life Science & Technology***; in press, available as a preprint at bioRxiv. 2026

2. MT Botana*, RE Lewis, K Mitchell, O Salamin, J Revol-Cavalier, E Heit, A Gamba*, SP Wilkinson, SL Rossett, **CA Oakley**, MR Nitschke, M Hamberg, AR Grossman, DJ Suggett, VM Weis, CE Wheelock, SK Davy. Oxylipin-mediated metabolic signatures of symbiosis homeostasis and thermal stress in a model sea anemone. ***The ISME Journal*** wrag143. 2026

3. H England, **CA Oakley**, A Herdean, DJ Hughes, JL Matthews, E Camp. Manganese supplementation maintains cnidarian–dinoflagellate symbiosis under thermal stress. ***Communications Biology*** 9:477. 2026

4. M Wuerz*, CA Lawson, **CA Oakley**, M Possell, AR Grossman, VM Weis, DJ Suggett, SK Davy. Thermal stress restructures volatile gas emissions from the model cnidarian Aiptasia. ***Coral Reefs*** doi.org/10.1007/s00338-026-02866-3 2026

5. AG Gamba*, **CA Oakley**, IA Ashley*, AR Grossman, VM Weis, DJ Suggett, SK Davy. Thermal stress-induced alterations to oxylipin signal receptors in the cnidarian–dinoflagellate symbiosis. ***Environmental Microbiology*** 28:e70269. 2026

6. LM Gorman*, TR Tivey, EH Raymond, IA Ashley*, **CA Oakley**, AR Grossman, VM Weis, SK Davy. Stability of the cnidarian–dinoflagellate symbiosis is primarily determined by symbiont cell-cycle arrest. ***Proceedings of the National Academy of Sciences of the USA*** 122(14):e2412396122. 2025

7. MT Botana*, RE Lewis, A Quaranta, O Salamin, J Revol-Cavalier, **CA Oakley**, I Feusner, M Hamberg, AR Grossman, DJ Suggett, VM Weis, CE Wheelock, SK Davy. Octadecanoids as emerging lipid mediators in cnidarian–dinoflagellate symbiosis. ***Communications Biology*** 8:1519. 2025

8. B Lust*, JL Matthews*, **CA Oakley**, RE Lewis, H Mendis, L Peng, AR Grossman, VM Weis, SK Davy. The influence of symbiont identity on the proteomic and metabolomic responses of the model cnidarian Aiptasia to thermal stress. ***Environmental Microbiology*** 27:e70073. 2025

9. AG Gamba*, S Harii, F Sinniger, **CA Oakley**, AR Grossman, VM Weis, DJ Suggett, SK Davy. Oxylipin signalling in a coral–dinoflagellate symbiosis. ***Coral Reefs*** 44:1703–1718. doi.org/10.1007/s00338-025-02720-y.f 2025

10. C Schmidt, DN Puerto Rueda, M Nusser, **CA Oakley**, X Pochon, M Stuhr, DS Raposo, SK Davy. A novel menthol-DCMU bleaching method for foraminifera: Generating aposymbiotic hosts for symbiosis research. ***Symbiosis*** doi.org/10.1007/s13199-025-01046-1. 2025

11. AG Mashini*†, **CA Oakley**†, AR Grossman, L Peng, AR Grossman, VM Weis, SK Davy. Proteomes of native and non-native symbionts reveal responses underpinning host-symbiont specificity in the cnidarian–dinoflagellate symbiosis. ***The ISME Journal*** wrae122. 2024

12. AG Gamba*, **CA Oakley**, IA Ashley*, AR Grossman, VM Weis, DJ Suggett, SK Davy. Characterisation of oxylipin receptors and their potential role in inter-partner signalling in a model cnidarian-dinoflagellate symbiosis. ***Environmental Microbiology*** 26(12):e70015. 2024

13. **CA Oakley**, GI Newson*, L Peng, SK Davy. The *Symbiodinium* proteome under thermal and nutrient stress. ***Plant and Cell Physiology*** pcac175. 2023

14. AG Mashini*, **CA Oakley**, S Beepat, L Peng, VM Weis, AR Grossman, SK Davy. The influence of symbiosis on the proteome of the *Exaiptasia* endosymbiont *Breviolum minutum*. ***Microorganisms*** 11:2 292. 2023

15. M Wuerz*, CA Lawson, **CA Oakley**, M Possell, SP Wilkinson, AR Grossman, VM Weis, DJ Suggett, SK Davy. Symbiont identity impacts the microbiome and volatilome of a model cnidarian–dinoflagellate symbiosis. ***Biology*** 12:1014. 2023

16. SW Davies, … **CA Oakley**, *et al*. Building consensus around the assessment and interpretation of Symbiodiniaceae diversity. ***PeerJ*** 11:e15023. 2023

17. IM Ashley*, SA Kitchen, LM Gorman*, AR Grossman, **CA Oakley**, DJ Suggett, VM Weis, SL Rosset, SK Davy. Genomic conservation and putative downstream functionality of the phosphatidylinositol signalling pathway in the cnidarian–dinoflagellate symbiosis. ***Frontiers in Microbiology*** 10.3389/fmicb.2022.1094255. 2023

18. C Pogoreutz, **CA Oakley**, N Rädecker, Anny Cárdenas, G Perna, L Peng, SK Davy, DK Ngugi, CR Voolstra. Coral holobiont cues prime *Endozoicomonas* to a symbiotic lifestyle. ***The ISME Journal*** 16: 1883–1895. 2022

19. E Camp, T Kahlke, B Signal, **CA Oakley**, A Lutz, D Suggett, W Leggat. Proteome, metabolome and transcriptome data for three Symbiodiniaceae under ambient and heat stress conditions. ***Scientific Data*** 9: 153. 2022

20. **CA Oakley**, S Pontasch, PL Fisher, SP Wilkinson, RA Keyzers, T Krueger, S Dove, O Hoegh-Guldberg, W Leggat, SK Davy. Thylakoid fatty acid composition and response to short-term cold and heat stress differs between high-latitude Symbiodiniaceae. ***Coral Reefs*** 41: 343–353. 2022

21. M Wuerz*, CA Lawson, M Ueland, **CA Oakley**, AR Grossman, VM Weis, DJ Suggett, SK Davy. Symbiosis induces unique volatile profiles in the model cnidarian Aiptasia. ***Journal of Experimental Biology*** doi/10.1242/jeb.244600. 2022

22. AG Mashini*, **CA Oakley**, AR Grossman, VM Weis, SK Davy. Immunolocalisation of metabolite transporter proteins in a model cnidarian–dinoflagellate symbiosis. ***Applied and Environmental Microbiology***, e00412−22. 2022

23. LM Gorman*, G Cui, M Aranda, **CA Oakley**, AR Grossman, VM Weis, SK Davy. Symbiosis with dinoflagellates alters cnidarian cell-cycle gene expression. ***Cellular Microbiology*** 3330160. 2022

24. MR Nitschke, SL Rosset, **CA Oakley**, SG Gardner, EF Camp, DJ Suggett, SK Davy. The diversity and ecology of Symbiodiniaceae: a trait-based review. ***Adv. in Mar. Biology*** 92: 55−127. 2022

25. G Tortorelli, **CA Oakley**, SK Davy, MJH van Oppen, GI McFadden. Cell wall proteomic analysis of the coral photosymbionts *Breviolum minutum* and *Cladocopium goreaui*. ***Journal of Eukaryotic Microbiology*** 69:e12870. 2022

26. JL Matthews*, R Cunning, R Witson-Williams, **CA Oakley**, A Lutz, U Roessner, AR Grossman, VM Weis, RD Gates, SK Davy. The metabolic significance of symbiont community composition in the coral-algal symbiosis. ***Appl Env Metabolomics*** 211–229. 2022

27. JK Kihika, SA Wood, L Rhodes, KF Smith, MR Miller, X Pochon, L Thompson, J Butler, J Schattsschneider, **CA Oakley**, KG Ryan. Cryopreservation of six Symbiodiniaceae genera: assessment of fatty acid profiles in response to increased salinity treatments. ***Sci. Reports*** 12:12408. 2022

28. TC LaJeunesse, J Wiedenmann, P Casado de Amezúa, I D'Ambra, K Turnham, M Nitschke, **CA Oakley**, C Spano, V Cubillos, SK Davy, DJ Suggett. Revival of *Philozoon* Geddes for host-specialized dinoflagellates, 'zooxanthellae', in animals from coastal temperate zones of Northern and Southern Hemispheres. ***Eur J Phycol*** 57: 2 166–180. 2022

29. SL Rosset, **CA Oakley**, C Ferrier-Pagès, DJ Suggett, VM Weis, SK Davy. The molecular language of the cnidarian–dinoflagellate symbiosis. ***Trends in Microbiology*** 4: 320–333. 2021

30. Beepat S, SK Davy, **CA Oakley**, A Mashini, L Peng, JJ Bell. Increased cellular detoxification, cytoskeletal activities and protein transport explain physiological stress response mechanisms in a lagoon sponge. ***Journal of Experimental Biology*** 224: jeb242820. 2021

31. LM Gorman*, SP Wilkinson, **CA Oakley**, AR Grossman, VM Weis, SK Davy. Phylogenetic analysis of cell-cycle regulatory proteins within the Symbiodiniaceae. ***Sci. Reports*** 10:20473. 2020

32. JL Matthews*, R Cunning, R Ritson-Williams, **CA Oakley**, A Lutz, U Roessner, AR Grossman, VM Weis, RD Gates, SK Davy. Metabolite pools of the reef-building coral *Montipora capitata* are unaffected by Symbiodiniaceae community composition. ***Coral Reefs*** 39 (6), 1727–1737. 2020

33. AE Sproles*, **CA Oakley**, T Krueger, AG Grossman, VM Weis, A Meibom, SK Davy. Sub-cellular imaging shows reduced photosynthetic carbon and increased nitrogen assimilation by the heterologous endosymbiont *Durusdinium trenchii* in the model cnidarian Aiptasia. ***Environmental Microbiology*** 22:9 3741–3753. 2020

34. AE Sproles*†, **CA Oakley**†, JL Matthews*, L Peng, VM Weis, JG Owen, AR Grossman, SK Davy. Proteomics quantifies protein expression changes in a model cnidarian colonized by a thermally tolerant but suboptimal symbiont. ***The ISME Journal*** 13: 2334–2345. 2019

35. JL Matthews*, **CA Oakley**, A Lutz, KE Hillyer, U Roessner, AG Grossman, VM Weis, SK Davy. Partner switching and metabolic flux in a model cnidarian–*Symbiodinium* symbiosis. ***Proceedings of the Royal Society B: Biological Sciences*** 285: 20182336. 2018

36. **CA Oakley**, SK Davy. Cellular Biology of Coral Bleaching. In: MJH van Oppen, JM Lough, editors. *Coral bleaching: Patterns, processes, causes and consequences*. 2nd ed. Springer. 2018

37. AE Sproles*, NL Kirk, SA Kitchen, **CA Oakley**, AR Grossman, VM Weis, SK Davy. Phylogenetic characterization of transporter proteins in the cnidarian-dinoflagellate symbiosis. ***Molecular Phylogenetics and Evolution*** 120: 307–320. 2018

38. JL Matthews*, CM Crowder, **CA Oakley**, A Lutz, VM Weis, AR Grossman, E Meyer, U Roessner, SK Davy. Optimal nutrient exchange and immune responses operate in partner specificity in the cnidarian-dinoflagellate symbiosis. ***Proceedings of the National Academy of Sciences of the USA*** 114:50 13194–13199 2017

39. **CA Oakley**, E Durand, S Wilkinson, L Peng, VM Weis, AR Grossman, SK Davy. Thermal shock induces host proteostasis disruption and endoplasmic reticulum stress in the model cnidarian Aiptasia. ***Journal of Proteome Research*** 16: 2121–2134 2017

40. **CA Oakley**, MF Ameismeier, L Peng, VM Weis, AR Grossman, SK Davy. Symbiosis induces widespread changes in the proteome of the model cnidarian Aiptasia. ***Cellular Microbiology*** 18:7 1009–1023 2016

41. JL Matthews*, AE Sproles*, **CA Oakley**, AR Grossman, VM Weis, SK Davy. Menthol-induced aposymbiosis rapidly and effectively provides experimental cnidarians for symbiosis investigations. ***Journal of Experimental Biology*** 219: 306–310 2015

42. **CA Oakley**, BM Hopkinson, GW Schmidt. Mitochondrial terminal alternative oxidase and its enhancement by thermal stress in the coral symbiont *Symbiodinium*. ***Coral Reefs*** 33:2 543–552 2014

43. **CA Oakley**, GW Schmidt, BM Hopkinson. Thermal responses of *Symbiodinium* photosynthetic carbon assimilation. ***Coral Reefs*** 33:2 501–512 2014

44. JL Dimond, BL Bingham, G Muller-Parker, **CA Oakley**. Symbiont physiology and dynamics before and during symbiont shifts in a flexible algal-cnidarian symbiosis. ***J Phycol*** 49:6 1074–83 2013

45. **CA Oakley**, JS Knox. Plant species richness increases resistance to invasion by non-resident plant species during grassland restoration. ***App. Vegetation Science*** 16:1 21–28 2013

46. **CA Oakley**, BM Hopkinson, GW Schmidt. A modular system for the measurement of photosynthetic CO_2 and O_2 gas flux and electron transport in microalgae. ***Limnology and Oceanography: Methods*** 10: 968–977 2012

47. DW Kemp, **CA Oakley**, DJ Thornhill, LA Newcomb, GW Schmidt, WK Fitt. Catastrophic mortality on inshore coral reefs of the Florida Keys due to severe low-temperature stress. ***Global Change Biology*** 17: 11 3468–3477 2011

48. RJ Newton, LE Griffin, KM Bowles, C Meile, S Gifford, CE Givens, EC Howard, E King, **CA Oakley**, CR Reisch, JM Rinta-Kanto, S Sharma, S Sun, V Varaljay, JR Westrich, MA Moran. Genome characteristics of a generalist marine bacterial lineage. ***The ISME Journal*** 1:10 1–15 2010

Edited Volumes

Coral Reef Ecosystems Theme Issue, Guest Editor. *Emerging Topics in Life Sci* 6:1 1–136. 2022

Manuscripts in Revision

IA Ashley*, SL Rosset, **CA Oakley**, L Peng, AR Grossman, DJ Suggett, VM Weis, SK Davy. Extracellular vesicles as a potential inter-partner communication mechanism in the cnidarian–dinoflagellate symbiosis. ***Journal of Phycology***

Manuscripts in Review

AG Gamba*, **CA Oakley**, IA Ashley*, AR Grossman, VM Weis, DJ Suggett, SK Davy. Unlocking the role of prostaglandin E2 receptor 4 in regulating the cnidarian-dinoflagellate symbiosis via metabolomic and lipidomic profiling. ***Communications Biology***

Supervision and Mentorship

Supervised Ph.D. Students

As Primary Supervisor:

- Chiara de Jong (in progress). Thesis title: "The role of oxidative signalling in the establishment and breakdown of the cnidarian–dinoflagellate symbiosis."
- Lénaïc Chagnat (in progress): "Host oxidative stress mechanisms in coral bleaching".

As Co-Supervisor: Jade Shivak, Chiara Tinazzi, and Marcie Bamber (in progress), and:

- Marina Botana, PhD. Thesis title: "Lipid mediators and a new HOPE in the cnidarian–dinoflagellate symbiosis". Dr Botana is now a postdoctoral fellow at the Karolinska Institutet.
- Andrea Gamba, PhD. "Characterisation of oxylipin receptors in the cnidarian–dinoflagellate symbiosis." Dr Gamba is now a postdoctoral fellow at Stockholm University.
- Imogen Ashley, PhD. "Molecular signalling in the cnidarian–dinoflagellate symbiosis." Dr Ashley is now a postdoctoral scholar at UCLA.
- Maggie Wuerz, PhD. "The volatilome of the cnidarian–dinoflagellate symbiosis."
- Amirhossein Mashini, PhD. "The impact of symbiont diversity on cellular integration and function in the cnidarian–dinoflagellate symbiosis."
- Bobby Lust, PhD. "Nutritional fluxes in the cnidarian–dinoflagellate symbiosis and the adaptability of corals to climate change."
- Lucy Gorman, PhD. "Host-symbiont biomass regulation in the cnidarian–dinoflagellate symbiosis." Dr Gorman is now a postdoctoral scholar at the Marine Biological Association, UK.
- Jennifer Matthews, PhD. "The nutritional implications of partner switching in the cnidarian–dinoflagellate symbiosis." Dr Matthews is now a Deputy Team Leader at University Technology Sydney.
- Ashley Sproles, PhD. "Nutritional interactions in the cnidarian–dinoflagellate symbiosis and their role in symbiosis establishment." Dr Sproles is now a postdoctoral scholar at UC San Diego.

Co-Supervised Masters' Students

- Jacquie Bown, MS. "The effects of ocean acidification on the establishment and maintenance of a model cnidarian–dinoflagellate symbiosis."
- Agustina Giovagnioli, MS. "Proteomic insights into osmoregulation and salinity-induced thermotolerance in the cnidarian–dinoflagellate symbiosis."
- Grace Newson, MS. "The impact of thermal stress and nutrient availability on the physiology and proteome of symbiotic dinoflagellates."
- Andrew Cornwall, MS. "The importance and movement of mud bacterial carbon within the symbiosis of the New Zealand sea anemone *Anthopleura aureoradiata*."

Supervised Undergraduate Students

Maia Horn. Laboratory research volunteer.

Students Mentored

Ph.D. Completed (3): Drs. Yasmin Gabay, Nora Kandler, and Sandeep Beepat.

M.S. Completed (2): Evan Heit and Lauren Fracasso.

Visiting Students: Michael Ameismeier (University of Munich), Elysanne Durand (Université Pierre et Marie Curie), Carole Duchene (École Normale Supérieure), Lucie Munns (University of Southampton), Chloé Carbonne (Université de Bretagne Occidentale), Ester Laurent (Université de Côte d'Azur), Stavriana Neokleous (Wageningen University), Hereiti Teraitua (University d'Angers).

Committee Service: In addition to the above, I have served on 7 PhD committees and been an internal reviewer for one MS thesis.

Teaching Experience

Teaching evaluations available on request.

Microbes and their Environments. Instructor of Record, lectures. 2025–2026
200-level, 50 students. VUW.
Covers the biodiversity, ecophysiology, ecological and epidemiological roles of prokaryotic and eukaryotic microbes in a wide range of environments. Laboratories include bioinformatic workflows, fieldwork, and experimental design. I taught the marine microbiology material.

Ecology. **Instructor of Record**. 2025–2026
400-level (Honors/Masters'), 15 students. VUW.
A graduate seminar course based on readings of classic ecology literature from Real & Brown's Foundations of Ecology, where each reading is paired with recent literature on the same theme. Students present summaries and lead classroom discussions of their assigned papers. I lead student discussions and presentations on classic coral reef and marine ecology papers.

Global Change Biology. Instructor of Record, Course co-Coordinator 2023–2026
300-level, 100 students. Te Herenga Waka Victoria University of Wellington (VUW).
Covers the physics of climate change, the effects of climate change on specific ecosystems such as alpine forests and coral reefs, climate projections, and other anthropogenic impacts on organisms, including policy writing to advise government, and a thesis as the primary assessments. I teach lectures on climate change and coral reefs and coral reef restoration.

Animal Diversity. Instructor of Record, lectures and laboratory. 2022–2026
200-level, 140 students. VUW.
Covers the physiology, diversity, evolution, form, and function of animal taxa. Lectures detail how animal forms are a product of and reflect their evolutionary history, function, and environment, as well ecological roles. Laboratories include live presentations and dissections. I teach the marine invertebrate and early chordate lecture and laboratory material.

Biology of Animals. Laboratory Coordinator and Instructor. 2024
100-level, 340 students. VUW.
A comprehensive introduction to animal structure, function, and ecology, primarily focused on mammalian and human biology. Laboratories include physiology demonstrations, experiments and dissections. I coordinated the in-person laboratories, maintained the course Canvas page, hired and managed demonstrators, and managed the course email account for student support.

Kaituruki Matua Senior Tutor, School of Biological Sciences, VUW. 2022
A multifaceted role focused on student and faculty support across multiple courses, including individual student support, dual delivery, online teaching, and Blackboard/Canvas.

Introductory Marine Ecology. Instructor of Record. 2018
200-level, 120 students. VUW.

Covers the diversity and physiology of marine organisms, biological and physical oceanography, structure of marine ecosystems, and marine conservation. I provided lectures on physical and biological oceanography.

Tropical Marine Conservation Practice. Instructor of Record. 2014 & 2015
MS-level, 20 students. VUW.
Field course encompassing the biology, ecology, and conservation of tropical and sub-tropical environments, including North Stradbroke Island and the Great Barrier Reef. I and other instructors led students on snorkeling/field work at these sites, provided lectures, and facilitated guest lecturers with local research and indigenous knowledge leaders.

Biology of Protists. Laboratory Instructor. 2009 & 2010
300-level, University of Georgia.
Explores the wide diversity of eukaryotic microbes, including physiology, taxonomy, evolutionary biology, human interactions, and microscopic investigations. Lab students were asked to produce a portfolio of protist illustrations keyed to at least the genus level.

Tropical Marine Invertebrate Zoology. Field Instructor. 2008 & 2011
400-level, University of Georgia.
A field course on the organismal physiology and ecology of coral reef and seagrass environments of the Florida Keys.

Plant Taxonomy. Laboratory Instructor. 2009 & 2010
MS-level, University of Georgia.
Taxonomy of species of the southeastern USA, focusing on species-level identification. Students were asked to produce a portfolio of pressed and keyed native species, inc. grasses.

Principles of Plant Biology. Laboratory Instructor. 2008 & 2009
100-level, University of Georgia.
Fundamentals of plant biology, including physiology, diversity, ecology, and human interactions. I independently taught four 3-hour lab sections per week.

Service, Training, and Professional Organisations

Science Committee Member, International Coral Reef Symposium 2026
Symbiosis, Editorial Board Member
Maunuhanga Wellington Postdoctoral Society, Founding Committee Member and Chair, VUW
Boatmaster Certificate, NZ Coastguard
PADI Open Water SCUBA Certificate
VUW School of Biological Sciences Ecology and Evolution Seminar Series Coordinator 2022
Royal Society of New Zealand Te Apārangi, Professional Member (MRSNZ)
Marine Photosynthesis Course, U. de Nacional Autónoma de México a Puerto Morelos 2011
International Coral Reef Society, Member
International Symbiosis Society, Member
Australian Coral Reef Society, Member
Australasian Society of Phycology and Aquatic Botany, Member

Grant and manuscript reviewer for:

Coral Research & Development Accelerator Program (CORDAP), National Science Foundation USA (OCE, ad hoc, ×3), the European Research Council, the German Research Foundation, the Human Frontier Science Program, *Global Change Biology*, *The ISME Journal*, *Science of the Total Environment, Trends in Ecology and Evolution*, *Proceedings of the Royal Society B*, *Nature Communications, Molecular Ecology, Communications Biology*, *Coral Reefs*, *Scientific Reports*, *Frontiers in Marine Science*, *Journal of Experimental Marine Biology and Ecology*, *Marine Biology*, *Algal Research*, *BMC Ecology*, *iScience*, *Proteomes*, *Microbiome, Oceanologia*, *PLOS One, Journal of Experimental Biology, Marine Drugs, Biology Letters, PeerJ, Bulletin of Marine Science.*

Press

Quote, "'Dread': coral scientists fear bleaching El Nino could bring". AFP News, S Hussein, 22 May 2026. 2026

Quote, "Coral reefs in Vietnam face collapse. Can conservation efforts turn the tide?" AP News, Y Peterhans and A Ghosal, 5 March 2025. 2025

Interviewed in "A microscopic mystery at the heart of mass-coral bleaching". McDermott, *Proceedings of the National Academy of Sciences* 2020. 2020

"Communication breakdown: symbionts aren't always the same". Invited submission, Nature Microbiology Community 2019. 2019

Selected Presentations

2026 Using oxidative proteomics to unravel the molecular regulation of coral bleaching in the model organism *Exaiptasia diaphana*. International Symposium on Microbial Ecology, ISME20. **CA Oakley,** L Chagnat*, CZ de Jong*, ET Chouchani, PA Cleves, DJ Suggett.

2026 Liposome supplementation enhances host metabolism in a model symbiotic cnidarian. International Coral Reef Symposium 2026. **CA Oakley**, E Laurent*†, JL Matthews†, L Chagnat*, C de Jong*, L Peng, P Cleves, DJ Suggett.

2026 Coral physiology and coral bleaching. Guest lecture, Lewis & Clark College Study Abroad BIOL327 Ecophysiology course.

2025 High-resolution thermal acclimation strategies of robust versus sensitive dinoflagellate coral symbionts. Australasian Society of Phycology and Aquatic Botany. **CA Oakley**, MR Nitschke, L Peng, P Cleves, DJ Suggett, E Camp.

2024 Multi-omics responses to symbiont identity and thermal stress in the model cnidarian Aiptasia. 2024 Australian Coral Reef Symposium, Perth, Australia. **CA Oakley**, B Lust*, JL Matthews, RE Lewis, H Mendis, L Peng, AR Grossman, VM Weis, SK Davy.

2022 Multi-omics comparison of thermal stress and the regulation of gene expression in three Symbiodiniaceae genera. 15th International Coral Reef Symposium, Bremen, Germany. **CA Oakley**, MR Nitschke, EF Camp, T Kahlke, MT Ros, W Leggat, SK Davy, DJ Suggett.

2018 Multiple -omics investigations of thermal stress and symbiont diversity in the cnidarian-dinoflagellate symbiosis. Invited talk, Climate Change Cluster at University of Technology, Sydney. **CA Oakley**, SK Davy.

2018 The host proteome reveals nutrient exchange and cell recognition mechanisms altered by a novel cnidarian-*Symbiodinium* symbiosis. 9th International Symbiosis Society Congress. **CA Oakley**, AE Sproles*, JL Matthews*, L Peng, VM Weis, AR Grossman, SK Davy.

2016 Thermal shock induces host proteostasis disruption and endoplasmic reticulum stress in the model cnidarian *Aiptasia.* 13th International Coral Reef Symposium. **CA Oakley**, E Durand*, S Wilkinson, L Peng, VM Weis, AR Grossman, SK Davy.

2015 The effects of symbiotic state on the proteome of the model cnidarian *Aiptasia*. **CA Oakley**, M Ameismeier, L Peng, VM Weis, AR Grossman, SK Davy. 8th International Symbiosis Society Congress.

2013 Evidence for a mitochondrial alternative terminal oxidase in *Symbiodinium*. **Oakley CA**, BM Hopkinson, GW Schmidt. Australian Coral Reef Society Conference

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