THOMAS M. DECARLO

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PROFESSIONAL POSITIONS

ASSISTANT PROFESSOR OF OCEANOGRAPHY *2020 – present*
HAWAI'I PACIFIC UNIVERSITY

POSTDOCTORAL RESEARCH FELLOW *2019 – 2020*
RED SEA RESEARCH CENTER, KING ABDULLAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

POSTDOCTORAL RESEARCH ASSOCIATE *2017 – 2019*
UNIVERSITY OF WESTERN AUSTRALIA, SCHOOL OF EARTH SCIENCES AND OCEANS INSTITUTE
ARC CENTRE OF EXCELLENCE FOR CORAL REEF STUDIES

EDUCATION

MASSACHUSETTS INSTITUTE OF TECHNOLOGY/ *February 2017*
WOODS HOLE OCEANOGRAPHIC INSTITUTION
PHD, JOINT PROGRAM IN OCEANOGRAPHY

UNIVERSITY OF SAN DIEGO BA in Marine Science *May 2012*

FUNDING AND FELLOWSHIPS

NSF STEM ACCESS FOR PERSONS WITH DISABILITIES (P.I.) *2024*
- $28,652 (Supplemental Funding)

NSF GEOBIOLOGY AND LOW-TEMPERATURE GEOCHEMISTRY (CO-P.I.) *2023-2026*
- $152,276

NSF EARLY CAREER AWARD (P.I.) *2023-2028*
- $445,600

NSF GEO RESEARCH EXPERIENCES FOR POST-BACCALAUREATES (P.I.) *2022-2023*
- $36,725 (Supplemental Funding)

NSF MAJOR RESEARCH INSTRUMENTATION (P.I.) *2021-2023*
- $319,965

PADI FOUNDATION GRANTS *2021*
- $4,850

LIZARD ISLAND RESEARCH STATION POSTDOCTORAL FELLOWSHIP *2017-2018*

- $11,000

NSF GRADUATE RESEARCH FELLOWSHIP *2013-2016*

TEACHING

COURSES TAUGHT AT HAWAI'I PACIFIC UNIVERSITY *2020 – present*

- General Oceanography I
- General Oceanography I Lab
- Coral Reef Ecology
- Chemical Oceanography
- Graduate thesis-writing seminar
- Instrumental Analysis
- Ocean Circulation & Applied Climatology

MENTORING

Graduate student supervision

- Hanna Mantanona (Master's, completed 2023) – Hawai'i Pacific University
- Jessica Hankins (Master's, completed 2023) – Hawai'i Pacific University
- Hannah Whitaker (Master's, completed 2023) – Hawai'i Pacific University
- Jordyn Cotton (Master's, completed 2022) – Hawai'i Pacific University
- Fiza Zahid (Master's, completed 2022) – Hawai'i Pacific University
- Claire Ross (PhD co-advisor, completed 2018) – University of Western Australia
- Diego Alaguarda (Master's, completed 2018) – Aix Marseille Universite

PRODUCTS

- CoralCT: software tool to analyze computerized tomography (CT) scans of coral skeletal cores for calcification and bioerosion rates. www.coralct.com

- boronSysArag: codes to determine seawater carbonate system chemistry based on boron isotope and B/Ca measurements of coral skeletons. https://www.biogeosciences.net/15/2819/2018/

MANUSCRIPTS SUBMITTED / IN REVIEW (* SIGNIFIES STUDENT-MENTEE)

*Cotton J.D., *Whelehan A., *Gramse M., Berumen M.L., Cohen A.L., Harrison H.B., McCulloch M.T., Ren H., *Whitaker H.V., *Falk T., *Groenvall E., *Matthews K., & **T.M. DeCarlo** (*submitted*). Calcification decline of long-lived corals throughout the industrial era.

*Hankins J. & **T.M. DeCarlo** (*submitted*). Multi-decadal decoupling between coral calcifying fluid and seawater aragonite saturation states.

*Whitaker H.V. & **T.M. DeCarlo** (*in 2nd round of review*). Re(de)fining Degree-Heating Week: Coral Bleaching Variability Necessitates Regional and Temporal Optimization of Global Forecast Model Stress Metrics. *Coral Reefs*.

*Zahid F., Gajdzik L., Korsmeyer K., *Cotton J.D., Coker D.J., Berumen M.L., & **T.M. DeCarlo** (*in 2nd round of review*). Asynchronous effects of heat stress on massive corals and damselfish in the Red Sea. *PLOS One*.

Henley B., King A., McGregor H., Hoegh-Guldberg O., Karoly D., Lough J., **DeCarlo T.M.**, & B. Linsley (*in 2nd round of review*). Unprecedented Coral Sea heat in at least four centuries. *Nature*.

PEER-REVIEWED PUBLICATIONS (* SIGNIFIES STUDENT-MENTEE)

62. *Mantanona H.C. & **T.M. DeCarlo** (2023). Coral growth persistence amidst bleaching events. *Limnology and Oceanography Letters* 8, 734-741. https://doi.org/10.1002/lol2.10340

61. Chen W-H., Ren H., Chiang J.C.H., Wang Y-L., Cai-Li R-Y, Chen Y-C., Shen C-C., Taylor F.W., **DeCarlo T.M.**, Wu C-R., Mii H-S., & X.T. Wang (*2023*). Increased tropical South Pacific western boundary current transport over the past century. *Nature Geoscience* 16, 590-596*. 10.1038/s41561-023-01212-4*

60. Dee S., **DeCarlo T.M.**, Lozic I., Nilsen J., & N.K. Browne (2023). Low Bioerosion Rates on Inshore Turbid Reefs of Western Australia. *Diversity* 15, 62.

59. Vega Thurber R., …, **DeCarlo T.M.**, …, et al. [29 authors]. Unified methods in collecting, preserving, and archiving coral bleaching and restoration specimens to increase sample utility and interdisciplinary collaboration. *PeerJ 10:e14176*.

58. van Woesik R., …, **DeCarlo T.M.**, …, et al. [28 authors] (2022). Coral-bleaching responses to climate change across biological scales. *Global Change Biology* 28, 4229-4250.

57. Farfan A.F., Apprill A., **DeCarlo T.M.**, Post J.E., Waller R.G., & C.M. Hansel (2021). Crystallographic and chemical signatures in coral skeletal aragonite. *Coral Reefs* 41, 19-34.

56. Hammerman N.M., Rodriguez-Ramirez A., Staples T.L., **DeCarlo T.M.**, Saderne V., Roff G., Leonard N., Zhao J-X., Rossbach S., Havlik M.N., Duarte C.M., & J.M. Pandolfi (2021). Variable response of Red Sea coral communities to recent disturbance events along a latitudinal gradient. *Marine Biology* 168, 177.

55. **DeCarlo T.M.**, Carvalho S., Gajdzik L., Hardenstine R.S., Tanabe L.K., Villalobos R., & M.L. Berumen (2021). Patterns, drivers, and ecological implications of upwelling in coral reef habitats of the southern Red Sea. *Journal of Geophysical Research – Oceans* 126, e2020JC016493.

54. Browne N.K., Cuttler M., Moon K., Morgan K., Ross C.L., Castro-Sanguino C., Kennedy E., Harris D., Barnes P., Bauman A., Beetham E., Bonesso J., Bozec Y-M., Cornwall C.E., Dee S., **DeCarlo T.M.**, D'Olivo J.P., Doropoulos C., Evans R.D., Eyre B., Gatenby P., Gonzalez M., Hamylton S., Hansen J., Lowe R., Mallela J., O'Leary M., Roff G., Saunders B., & A. Zweilfer (2021). Predicting responses of reefs and reef-fronted shorelines to climate change: development of a geo-ecological carbonate reef system model. *Oceanography and Marine Biology: an Annual Review* 59, 229-370.

53. Cornwall C.E., Comeau S., Kornder N.A., Perry C.T., van Hooidonk R., **DeCarlo T.M.**, Pratchett M.S., Anderson K.D., Browne N., Carpenter R., Diaz-Pulido G., D'Olivo J.P., Doo S., Figueiredo J., Fortunato S.A.V., Kennedy E., Lantz C.A., McCulloch M.T., Gonzalez-Rivero M., Schoepf V., Smithers S.G., & R. Lowe (2021). Global declines in coral reef calcium carbonate production under ocean acidification and warming. *Proceedings of the National Academy of Sciences* 118, e2015265118.

52. Gajdzik L., **DeCarlo T.M.**, Koziol A.L., Mousavi-Derazmahalleh M., Coghlan M, Power M.W., Bunce M., Fairclough D.V., Travers M.J., Moore G.I., & J.D. DiBattista (2021). Climate-assisted persistence of tropical fish vagrants in temperate marine ecosystems. *Communications Biology* 4, 1231.

51. Yan Y-T., Chua S., **DeCarlo T.M.**, Kempf P., Morgan K.M., & A.D. Switzer (2021) Core-CT: A MATLAB application for the quantitative analysis of sediment and coral cores from X-ray computed tomography (CT). *Computers and Geosciences* 156, 104871.

50. Gajdzik L., **DeCarlo T.M.**, Aylagas E., Coker D.J., Green A.L., Majoris J.E., Saderne V.F., Carvalho S., & M.L. Berumen (2021). A portfolio of climate-tailored approaches to advance the design of marine protected areas in the Red Sea. *Global Change Biology* 27, 3956-3968.

49. **DeCarlo T.M.** (2020). The past century of coral bleaching in the Saudi Arabian central Red Sea. *PeerJ* 8, e10200.

48. **DeCarlo T.M.** (2020). Treating coral bleaching as weather: a framework to validate and optimize prediction skill. *PeerJ* 8, e9449.

47. **DeCarlo T.M.**, Gajdzik L., Ellis J., Coker D.J., Roberts M.B., Hammerman N.M., Pandolfi J.M., Monroe A.A. & M.L. Berumen (2020). Nutrient-supplying ocean currents modulate coral bleaching susceptibility. *Science Advances* 6, eabc5493.

46. Reid E.C., Lentz S.J., **DeCarlo T.M.,** Cohen A.L., and K.A. Davis (2020). Physical processes determine spatial structure in water temperature and residence time on a wide reef flat. *Journal of Geophysical Research – Oceans* 125, e2020JC016543.

45. Cavole L.M., & **T.M. DeCarlo** (2020). Early evidence of heat-induced coral bleaching in the Galápagos Islands. *Reef Encounter* 35, 68-72.

44. Davis K.A., Arthur R.S., Reid E.C., Rogers J.S., Fringer O.B., **DeCarlo T.M.**, & A.L. Cohen (2020). Fate of internal waves on a shallow shelf. *Journal of Geophysical Research – Oceans* 125, e2019JC015377.

43. Cornwall C.E., Comeau S., **DeCarlo T.M.**, Larcombe E., Moore B., Giltrow K., Puerzer F., D'Alexis Q., & M.T. McCulloch (2020). A coralline alga gains tolerance to ocean acidification over multiple generations of exposure. *Nature Climate Change* 10, 143-146.

42. **DeCarlo T.M.** & H.B. Harrison (2019). An enigmatic decoupling between heat stress and coral bleaching on the Great Barrier Reef. *PeerJ* 7, e7473.

41. **DeCarlo T.M.**, Harrison H.B., Gajdzik L., Alaguarda D., Rodolfo-Metalpa R., D'Olivo J., Liu G., Patalwala D., & M.T. McCulloch (2019). Acclimatization of massive reef-building corals to consecutive heatwaves. *Proceedings of the Royal Society B* 286, 20190235.

40. **DeCarlo T.M.**, Comeau S., Cornwall C.E., Gajdzik L., Guagliardo P., Sadekov P., Thillainath E.C., Trotter J., & M.T. McCulloch (2019). Investigating marine bio-calcification mechanisms in a changing ocean with *in vivo* and high-resolution *ex vivo* Raman spectroscopy. *Global Change Biology* 25, 1877-1888.

39. **DeCarlo T.M.**, Ross C., & M.T. McCulloch (2019). Diurnal cycles of coral calcifying fluid aragonite saturation state. *Marine Biology* 166, 28.

38. Smallhorn-West P.F., Garvin J.B., Slayback D.A., **DeCarlo T.M.**, Gordon S.E., Fitzgerald S.H., Halafihi T., Jones G.P., & T.C.L. Bridge (2019). Coral reef annihilation, persistence and recovery at Earth's youngest volcanic island. *Coral Reefs* 39, 529-536.

37. D'Olivo J.P., Ellwood G., **DeCarlo T.M.**, & M.T. McCulloch (2019). Deconvolving the long-term impacts of ocean acidification and warming on coral biomineralisation. *Earth and Planetary Science Letters* 526, 115785.

36. Comeau S., Cornwall C.E., Pupier C.A., **DeCarlo T.M.**, Alessi C., Trehern R., & M.T. McCulloch (2019). Flow-driven micro-scale pH variability affects the physiology of corals and coralline algae under ocean acidification. *Scientific Reports* 9, 12829.

35. Ross C., **DeCarlo T.M.**, & M.T. McCulloch (2019). Calibration of Sr/Ca, Li/Mg, and Sr-U Paleothermometry in Branching and Foliose Corals. *Paleoceanography and Paleoclimatology* 34, 1271-1291.

34. Reid E., **DeCarlo T.M.**, Cohen A.L., Wong G.T.F., Lentz S., Safaie A., Hall A., & K.A. Davis (2019) Internal waves influence the thermal and nutrient environment on a shallow coral reef. *Limnology and Oceanography* 64, 1949-1965.

33. Comeau S., Cornwall C.E., **DeCarlo T.M.**, Doo S.S., Carpenter R.C., & M.T. McCulloch (2019). Resistance to ocean acidification in coral reef taxa is not gained by acclimatization. *Nature Climate Change* 9, 477-483.

32. Mollica N.R., Cohen A.L., Alpert A.E., Barkley H.C., Brainard R.E., Carilli J.E., **DeCarlo T.M.**, Drenkard E.J., Lohmann P., Mangubhai S., Pietro K.R., Rivera H.E., Rotjan R.D., Scott-Buechler C., Solow A.R., & C.W. Young (2019). Skeletal records of bleaching reveal different thermal thresholds of Pacific coral reef assemblages. *Coral Reefs* 38, 743-757.

31. D'Olivo J.P., Georgiou L., Falter J., **DeCarlo T.M.**, Irigoien X., Voolstra C.R., Roder C., Trotter J., & M.T. McCulloch (2019). Long-term impacts of the 1997-1998 bleaching event on the growth and resilience of massive *Porites* corals from the central Red Sea. *Geochemistry, Geophysics, Geosystems* 20, 2019GC008312.

30. **DeCarlo T.M.** (2018). Characterizing coral skeleton mineralogy with Raman spectroscopy. *Nature Communications* 9, 5325.

29. **DeCarlo T.M.**, Comeau S., Cornwall C.E., & M.T. McCulloch (2018). Coral resistance to ocean acidification linked to increased calcium at the site of calcification. *Proceedings of the Royal Society B* 285, 20180564.

28. **DeCarlo T.M.**, Farfan G., & H. Ren (2018). The origin and role of organic matrix in coral calcification: insights from comparing coral skeleton and abiogenic aragonite. *Frontiers in Marine Science* 5, 170.

27. **DeCarlo T.M.**, Holcomb M., & M.T. McCulloch (2018). Reviews and syntheses: Revisiting the boron systematics of aragonite and their application to coral calcification. *Biogeosciences* 15, 2819-2834.

26. Farfan G.A., Cordes E.E., Waller R.G., **DeCarlo T.M.**, & C.M. Hansel (2018). Mineralogy of deep-sea coral aragonites as a function of aragonite saturation state. *Frontiers in Marine Science* 5, 473.

25. Ross C.L., **DeCarlo T.M.**, & M.T. McCulloch (2018). Environmental and physiochemical controls on coral calcification along a latitudinal temperature gradient in Western Australia. *Global Change Biology* 25, 431-447.

24. Barkley H.C., Cohen A.L., Mollica N.R., Brainard R.E., Rivera H.E., **DeCarlo T.M.**, Lohmann G.P., Drenkard E.J., Alpert A.E., Young C.W., Vargas-Angel B., Lino K.C., Oliver T.A., Pietro K.R., & V.H. Luu (2018). Repeat bleaching of a central Pacific coral reef over the past six decades (1960-2016). *Communications Biology* 1, 177.

23. Cornwall C.E., Comeau S., **DeCarlo T.M.**, Moore B., D'Alexis Q., & M.T. McCulloch (2018). Resistance of corals and coralline algae to ocean acidification: physiological control of calcification under natural pH variability. *Proceedings of the Royal Society B* 285, 20181168.

22. Comeau S., Cornwall C.E., **DeCarlo T.M.**, Krieger E., & M.T. McCulloch (2018). Similar controls on calcification under ocean acidification across unrelated reef taxa. *Global Change Biology* 24, 4857-4868.

21. Ross C.L., Schoepf V., **DeCarlo T.M.**, & M.T. McCulloch (2018). Mechanisms and seasonal drivers of calcification in the temperate coral *Turbinaria reniformis* at its latitudinal limits. *Proceedings of the Royal Society B* 285*,* 20180215.

20. **DeCarlo T.M.**, D'Olivo J.P., Foster T., Holcomb M., Becker T., & M.T. McCulloch (2017). Coral calcifying fluid aragonite saturation states derived from Raman spectroscopy. *Biogeosciences* 14, 5253-5269.

19. **DeCarlo T.M.** & A.L. Cohen (2017). Dissepiments, density bands and signatures of thermal stress in *Porites* skeletons. *Coral Reefs* 36, 749-761.

18. **DeCarlo T.M.**, Cohen A.L., Wong G.T.F., Davis K.A., Lohmann P., & K. Soong (2017). Mass coral mortality under local amplification of 2°C ocean warming. *Scientific Reports* 7, 44586.

17. **DeCarlo T.M.**, Cohen A.L., Wong G.T.F., Shiah F.K., Lentz S.J., Davis K.A., Shamberger K.E.F., & P. Lohmann (2017). Community production modulates coral reef pH and the sensitivity of ecosystem calcification to ocean acidification. *Journal of Geophysical Research – Oceans* 122, 745-761. *Selected for AGU "Editor's Highlights" section

16. **DeCarlo T.M.** (2017). Deriving coral skeletal density from computed tomography (CT): effects of scan and reconstruction settings. *Matters Select*.

15. Gajdzik L., & **T.M. DeCarlo** (2017). The perfect calm: reoccurring mass die-offs on a remote coral atoll. *Matters*.

14. Alpert A.E., Cohen A.L., Oppo D.W., **DeCarlo T.M.,** Gaetani G.A., Hernandez-Delgado E.A., Winter A., & M.E. Gonneea (2017). Twentieth century warming of the tropical Atlantic captured by Sr-U paleothermometry. *Paleoceanography* 32, 146-160.

13. Lentz S.J., Davis K.A., Churchill J.H., & **T.M. DeCarlo** (2017) Coral reef drag coefficients – water depth dependence. *Journal of Physical Oceanography* 47, 1061-1075.

12. Ren H., Chen Y-C., Wang X.T., Wong G.T.F., Cohen A.L., **DeCarlo T.M.,** Weigand M.A., Mii H-S., & D.M. Sigman (2017). 21st Century Rise in Anthropogenic Nitrogen Deposition on a Remote Coral Reef. *Science* 356, 749-752.

11. Gonneea M.E., Cohen A.L., **DeCarlo T.M.,** & M.A. Charette (2017). Relationship between water and aragonite barium concentrations in aquaria reared juvenile corals. *Geochimica et Cosmochimica Acta* 209, 123-134.

10. Silbiger N.J. & **T.M. DeCarlo** (2017). Comment on "Bioerosion: the other ocean acidification problem": on field studies and mechanisms. *ICES Journal of Marine Science* 74, 2489-2493.

9. Pan X., Wong G.T.F., **DeCarlo T.M.,** Tai J-H., & A.L. Cohen (2017). Validation of the remotely sensed nighttime sea surface temperature in the shallow waters at the Dongsha Atoll. *Terrestrial, Atmospheric and Oceanic Sciences* 28, 517-524.

8. **DeCarlo T.M.**, Gaetani G.A., Cohen A.L., Foster G.L., Alpert A.E., & J. Stewart (2016). Coral Sr-U Thermometry. *Paleoceanography* 31, 626-638.

7. Holcomb M., **DeCarlo T.M.**, & M. McCulloch (2016). Factors affecting B/Ca ratios in synthetic aragonite. *Chemical Geology* 437, 67-76.

6. Alpert A.E**.**, Cohen A.L., Oppo W.D., **DeCarlo T.M.**, Gove J.M., & C.W. Young (2016). Comparison of equatorial Pacific sea surface temperature variability and trends with Sr/Ca records from multiple corals. *Paleoceanography* 31, 252-265.

5. **DeCarlo T.M.**, Gaetani G.A., Holcomb M. & A.L. Cohen (2015). Experimental determination of factors controlling U/Ca of aragonite precipitated from seawater: implications for interpreting coral skeleton. *Geochimica et Cosmochimica Acta* 162, 151-165.

4. **DeCarlo T.M.**, Cohen A.L., Barkley H.C., Cobban Q., Young C., Shamberger K.E., Brainard R.E., & Y. Golbuu (2015). Coral macrobioerosion is accelerated by ocean acidification and nutrients. *Geology* 43, 7-10.

3. **DeCarlo T.M.**, Karnauskas K.B., Davis K.A., & G.T.F. Wong. (2015). Climate modulates internal wave activity in the Northern South China Sea. *Geophysical Research Letters* 42, 831-838.

2. Barkley H.C., Cohen A.L., Golbuu Y., Starczak V.R., **DeCarlo T.M.,** & K.E.F. Shamberger (2015). Changes in coral reef communities across a natural gradient in seawater pH. *Science Advances* 1, e1500328

1. Holcomb M., **DeCarlo T.M.**, Schoepf V., Dissard D., Tanaka K., & M. McCulloch. (2015). Cleaning and pre-treatment procedures for biogenic and synthetic calcium carbonate powders for determination of elemental and boron isotopic compositions. *Chemical Geology* 398, 11-21.

CONFERENCES AND PRESENTATIONS

(INVITED KEYNOTE TALK) TROPICAL CLIMATE MEETING, BREMEN, GERMANY, 2023
DeCarlo T.M., Extracting climate information from coral skeletons.

(TALK) GOLDSCHMIDT CONFERENCE, HONOLULU, HI (U.S.A), 2022
DeCarlo T.M. Do coral really build their skeletons from amorphous calcium carbonate?

(TALK) UNIVERSITY OF HAWAI'I, SOEST DEPARTMENT SEMINAR, 2022
DeCarlo T.M., Understanding coral calcification with Raman spectrometry

(TALK) OCEAN SCIENCES MEETING, SAN DIEGO (U.S.A), 2020
DeCarlo T.M., Harrision H.B., Ellis J., Gajdzik L., Coker D., & M.L. Berumen. The role of ocean currents in modulating coral bleaching susceptibility.

(TALK) CORAL REEF FUTURES SYMPOSIUM, BRISBANE (AUSTRALIA), 2018
DeCarlo T.M., Alaguarda D., Harrison H., Rodolfo-Metalpa R., Gajdzik L., D'Olivo J.P., Liu G., & M.T. McCulloch. Successive bleaching events increase thermal tolerance in *Porites* corals.

(TALK) ASIA PACIFIC CORAL REEF SYMPOSIUM, CEBU (PHILIPPINES), 2018
DeCarlo T.M., Alaguarda D., Harrison H., Rodolfo-Metalpa R., Gajdzik L., D'Olivo J.P., Liu G., & M.T. McCulloch. Coral thermal stress histories over the past two centuries from the northern Great Barrier Reef and Coral Sea.

(TALK) GOLDSCHMIDT, PARIS (FRANCE), 2017
DeCarlo T.M., D'Olivo J.P., Foster T., Holcomb M., Comeau S., Cornwall C., & M.T. McCulloch. Coral calcifying fluid aragonite saturation states derived from Raman spectroscopy.

(POSTER) AMERICAN GEOPHYSICAL UNION FALL MEETING, SAN FRANCISCO (U.S.A.), 2016
DeCarlo T.M., Gaetani G.A., Cohen A.L., Foster G.L., Alpert A.E., & J. Stewart (2016). Coral Sr-U Thermometry.

(TALK) CLIMATE ANALYSIS WORKSHOP, WOODS HOLE OCEANOGRAPHIC INSTITUTION, 2016
DeCarlo T.M., Karnauskas K.B., Davis K.A., & G.T.F. Wong. (2016). Climate modulates internal wave activity in the Northern South China Sea.

(TALK) 13TH INTERNATIONAL CORAL REEF SYMPOSIUM, HONOLULU (U.S.A.), 2016
DeCarlo T.M., Cohen A.L., Wong G.T.F., Shiah F.K., Lentz S.J., Shamberger K.E.F., and Davis K.A. Interaction Between Community Metabolism and Reef Water pH on a Coral Atoll in the South China Sea.

(TALK) UNIVERSITY OF CALIFORNIA, IRVINE, OCEAN BIOGEOCHEMISTRY SEMINAR, 2015
DeCarlo T.M., Cohen A.L., Davis K.A., Lentz S., & K.E.F. Shamberger. Rapid calcification on a coral atoll nourished by internal waves.

(TALK) ACADEMIA SINICA, TAIWAN, OCEAN ACIDIFICATION WORKSHOP, 2015
DeCarlo T.M., Cohen A.L., Davis K.A., Lentz S., & K.E.F. Shamberger. Production and calcification rates on Dongsha Atoll: physical and ecological drivers.

(TALK) AMERICAN GEOPHYSICAL UNION FALL MEETING, SAN FRANCISCO (U.S.A.), 2014
DeCarlo T.M., Gaetani G.A., Holcomb M. & A.L. Cohen. Experimental determination of factors controlling U/Ca of aragonite precipitated from seawater: implications for interpreting corals.

(TALK) INDONESIAN ASSOCIATION OF OCEANOLOGISTS, BALIKPAPAN (INDONESIA), 2014
DeCarlo T.M., Cohen A.L., Barkley H.C., Cobban, Q., Young C., Shamberger K.E., Brainard R.E., Golbuu Y. (2014) Coral Reef Bioerosion Rates.

(TALK) NANYANG TECHNOLOGICAL UNIVERSITY DEPARTMENT SEMINAR, SINGAPORE, 2014
DeCarlo T.M., Cohen A.L., Barkley H.C., Cobban, Q., Young C., Shamberger K.E., Brainard R.E., Golbuu Y. (2014) Coral bioerosion is accelerated by ocean acidification and nutrients.

(TALK) ACADEMIA SINICA, TAIWAN, PI MEETING ON SOUTH CHINA SEA RESEARCH, 2014
DeCarlo T.M., and A.L. Cohen (2014) Calcification rates on Dongsha Atoll, South China Sea.

(POSTER) OCEAN SCIENCES MEETING, HONOLULU (U.S.A.), 2014
DeCarlo T.M., Cohen A.L., Barkley H.C., Cobban, Q., Young C., Shamberger K.E., Brainard R.E., Golbuu Y. (2014) Coral reef bioerosion is accelerated by ocean acidification and nutrients.

(POSTER) GRADUATE CLIMATE CONFERENCE WOODS HOLE, MASSACHUSETTS, 2013
DeCarlo T.M., Gaetani G.A., Cohen A.L., Holcomb M. (2013) Climate signals recorded in coral skeletons: from proxy development to paleoclimate interpretation.

(TALK) WOODS HOLE OCEANOGRAPHIC INSTITUTION PALEO LUNCH, 2013
DeCarlo T.M., Gaetani G.A., Cohen A.L., Holcomb M. (2013) Reconstructing ocean temperature with multiple element ratios in coral skeletons.

(POSTER) INTERNATIONAL CONFERENCE ON PALEOCEANOGRAPHY, BARCELONA (SPAIN), 2013
DeCarlo T.M., Gaetani G.A., Cohen A.L., Holcomb M. (2013) Coral skeleton U/Ca as a proxy for the carbonate chemistry of the calcifying fluid.

(TALK) AMERICAN GEOPHYSICAL UNION FALL MEETING, SAN FRANCISCO (U.S.A.), 2011
DeCarlo T.M., Gaetani G.A., Cohen A.L., Zinke J., Grove C. (2011) Rayleigh-Based Multi-Element (RBME) Coral Paleothermometry: New Developments and Applications.

FIELDWORK

HAWAI'I (lead) – coral coring and reef-scale heat budgets	2022-2023
RED SEA, SAUDI ARABIA (co-lead) – coral coring, temperature logger deployments, fish collections, eDNA, BRUVs	*2019-2020*
CORAL SEA, AUSTRALIA – coral coring	*December 2017*
GREAT BARRIER REEF, AUSTRALIA (lead) – coral coring	*October 2017*
CORAL BAY, AUSTRALIA – *In situ* coral staining	*May 2017*

JARVIS ISLAND (co-lead) – ecological surveys, coral coring *November 2015*

DONGSHA ATOLL, TAIWAN (lead) – coral coring for calcification histories, *in situ* reef metabolism rates, reef heat budgets *Summers 2013-2015*

PALAU – coral culturing experiments, coral coring, *April 2013*
in situ reef community metabolism studies *January 2015*

CARIBBEAN (US VIRGIN ISLANDS, MARTINIQUE, BARBADOS, CURACAO) (co-lead) – coral coring for calcification histories *December 2013*

US VIRGIN ISLANDS – coral community surveys *August 2013*

BERMUDA – coral culturing experiments, coral coring *2012, 2013*