

Travis A. Courtney

PhD Candidate, Scripps Institution of Oceanography

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Education

- 2018 M.S. Oceanography
Scripps Institution of Oceanography, Advisor: Dr. Andreas J. Andersson
- 2013 B.S. Geological Sciences + B.S. Environmental Sciences
University of North Carolina at Chapel Hill, Research Advisor: Dr. Justin B. Ries
- 2012 Field Geology in the Rocky Mountains: Hydrogeology and Environmental Geology
Judson Mead Geologic Field Station, Indiana University at Bloomington

Previous positions

- 2013–2014 Laboratory Technician (Northeastern University) + Visiting Scientist (UNC)
Analyzed growth rates and skeletal geochemistry of *Siderastrea sidera* coral cores

Grants and fellowships

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| 2018 | National Science Foundation Biological Oceanography
“Drivers of coral and reef-scale calcification in the North Atlantic”
* contributed to proposal led by PhD research advisor Dr. Andreas Andersson | \$265,466 |
| 2016 | Shepard Foundation Student Fieldwork
“Seasonal variability of net coral reef calcification in Kāne’ohe Bay, Hawai’i” | \$1,840 |
| 2016 | Shepard Foundation Student Fieldwork
“Impacts of widespread bleaching on net coral reef calcification in Kāne’ohe Bay, Hawai’i” | \$1,985 |
| 2015 | National Science Foundation Graduate Research Fellowship Program | \$138,000 |

Honors and awards

- 2018 Scripps Institution of Oceanography Department Graduate Student Excellence Travel Award
- 2018 Outstanding Mentor Award, Scripps Graduate Peer Mentor Program
- 2016 Outstanding Presentation Award, Scripps Student Symposium
- 2016 Scripps Fellowship (Winter + Summer Quarters) Scripps Institution of Oceanography
- 2015 Cody Fellowship (Fall Quarter), Scripps Institution of Oceanography
- 2015 National Science Foundation Graduate Research Fellowship
- 2013 Graduated with Highest Honors and Distinction, UNC at Chapel Hill
- 2013 Environmental Excellence Award, UNC at Chapel Hill Institute for the Environment
- 2013 Carolina Research Scholar, UNC at Chapel Hill Office of Undergraduate Research
- 2013 Dean’s List (7 Semesters), UNC at Chapel Hill
- 2013 1st Place Undergraduate Poster Award, Anadarko Research Symposium
- 2012 Roy L. Ingram Geology Fund Scholarship, UNC Dept. of Geological Science
- 2012 Judson Mead Geologic Field Station Scholarship, Indiana University at Bloomington
- 2011 Harrington Scholar, UNC at Chapel Hill
- 2009 Wrightsville Beach Longboard Association Scholarship

Publications

11. Page HN, **Courtney TA**, De Carlo EH, Howins NM, Koester I, Andersson AJ. Spatiotemporal variability in seawater carbon chemistry for a coral reef flat in Kāne'ohe Bay, Hawai'i. *Limnology and Oceanography* 2018.
10. Guest JR, Edmunds PJ, Gates RD, Kuffner IB, Andersson AJ, Barnes BB, Chollett I, **Courtney TA**, Elahi R, Gross K, Lenz EA, Mitarai S, Mumby PJ, Nelson HR, Parker BA, Putnam HM, Rogers CS, Toth LT. A framework for identifying and characterising coral reef "oases" against a backdrop of degradation. *Journal of Applied Ecology* 2018, 00:1-11.
9. **Courtney TA**, De Carlo EH, Page HN, Bahr KD, Barro A, Howins N, Tabata R, Terlouw G, Rodgers KS, Andersson AJ. Recovery of reef-scale calcification following a bleaching event in Kāne'ohe Bay, Hawai'i. *Limnology & Oceanography Letters* 2018, 3:1–9.
8. **Courtney TA**, Lebrato M, Bates NR, Collins A, de Putron SJ, Garley R, Johnson, R, Molinero JC, Noyes TJ, Sabine CL, Andersson AJ. Environmental controls on modern scleractinian coral and reef-scale calcification. *Science Advances*, 2017, 3(11), p.e1701356.
7. Page HN, **Courtney TA**, Collins A, De Carlo EH, Andersson AJ. Net community metabolism and seawater carbonate chemistry scale non-intuitively with coral cover. *Frontiers in Marine Science* 2017, 4:161.
6. **Courtney TA**, Andersson AJ, Bates NB, Collins A, Cyronak T, de Putron SJ, Eyre BD, Garley R, Hochberg EJ, Johnson R, Musielewicz S, Noyes T, Sabine CL, Sutton AJ, Toncin J, Tribollet A. Comparing Chemistry and Census-based Estimates of Net Ecosystem Calcification on a Rim Reef in Bermuda. *Frontiers in Marine Science* 2016, 3:181.
5. Baumann JH, Townsend JE, **Courtney TA**, Aichelman HE, Davies SW, Lima FP, Castillo KD. Temperature Regimes Impact Coral Assemblages along Environmental Gradients on Lagoonal Reefs in Belize. *PLoS ONE* 2016, 11(9): e0162098.
4. Aichelman HE, Townsend JE, **Courtney TA**, Baumann JH, Davies SW, Castillo KD. Heterotrophy mitigates the response of the temperate coral *Oculina arbuscula* to temperature stress. *Ecology and Evolution* 2016, 6(18): 6758-6769.
3. Horvath KM, Castillo KD, Armstrong P, Westfield IT, **Courtney T**, Ries JB. Next-century ocean acidification and warming both reduce calcification rate, but only acidification alters skeletal morphology of reef-building coral *Siderastrea siderea*. *Scientific Reports* 2016, 6:29613.
2. **Courtney T**, Ries JB. Impact of atmospheric $p\text{CO}_2$, seawater temperature, and calcification rate on the $\delta^{18}\text{O}$ and $\delta^{13}\text{C}$ composition of echinoid calcite (*Echinometra viridis*). *Chemical Geology* 2015, 411: 228-239.
1. **Courtney T**, Ries JB, Westfield I. Predicted end of 21st century CO_2 -induced ocean acidification decreases calcification rates in the tropical urchin *Echinometra viridis*. *Journal of Experimental Marine Biology and Ecology* 2013, 440: 169-175.

Conference presentations and invited talks

11. **Courtney TA.** The science (and value) of coral reef calcification. San Diego State Environmental Business Society. October 2018.
10. **Courtney TA.** Environmental controls on coral and reef-scale calcification. National Sun Yat-sen University lunch seminar. July 2018.
9. **Courtney TA,** Lebrato M, Bates NR, Collins A, de Putron SJ, Garley R, Johnson, R, Molinero JC, Noyes TJ, Sabine CL, Andersson AJ. New insights into the drivers of coral and reef-scale calcification from Bermuda. Ocean Sciences Meeting 2018.
8. **Courtney TA.** Environmental controls on coral and reef-scale calcification. San Diego Coral Club 2017.
7. **Courtney TA,** Andersson AJ, De Carlo EH, Page HN, Koester I, Terlouw G, Tabata R, Bahr KD, Rodgers KS. Coral bleaching impacts on reef-scale net calcification and net community production in Kāneʻohe Bay, HI. ASLO Ocean Sciences Meeting 2017.
6. **Courtney TA,** Andersson AJ. Seasonal patterns in calcium carbonate production of a Bermuda coral reef. Scripps Student Symposium 2016.
5. **Courtney TA,** Andersson AJ, Cyronak T, Noyes T, Bates NR, Collins A, de Putron S, Garley R, Hochberg EJ, Johnson R. Comparing chemistry and census-based estimates of net ecosystem calcification on a rim reef in Bermuda. 13th International Coral Reef Symposium 2016.
4. **Courtney T,** Baumann J, Foguel AD, Horvath K, Westfield I, Castillo KD, Ries JB. Characterizing 21st century growth trends of the scleractinian coral *Siderastrea siderea* throughout the Belize barrier reef and atoll system. Benthic Ecology Meeting 2014.
3. **Courtney T,** Ries JB, Westfield I. Impact of atmospheric $p\text{CO}_2$ and seawater temperature on calcification rate and stable isotopic composition ($\delta^{18}\text{O}$, $\delta^{13}\text{C}$) of echinoid calcite (*Echinometra viridis*). UNC at Chapel Hill Anadarko Research Symposium 2013.
2. **Courtney T,** Ries JB, Westfield I. *Echinometra viridis* exhibits seasonal response in calcification rates to predicted end of 21st century CO_2 -induced ocean acidification. Geological Society of America Fall Meeting 2012.
1. **Courtney T,** Ries JB, Westfield I. Effects of warming and CO_2 -induced acidification on the tropical urchin *Echinometra viridis*. UNC at Chapel Hill Department of Marine Sciences Seminar Series 2012.

Working groups and workshops

“Local-scale ecosystem resilience amid global-scale ocean change: the coral reef example”
USGS Powell Center (2017)

Marine Resources Population Dynamics Workshop, NOAA NMFS (2011)

Teaching and leadership experience

- 2018 Instructor of record, SIO 90 Perspectives on Ocean Science
- 2018 Paleoclimatology Lab lecture (w/Art Miller, PhD)
- 2013 Summer Education Intern, NC Aquarium at Pine Knoll Shores
- 2013 Teaching Assistant, GEOL 101L Introductory Geology Lab, UNC
- 2010 Alternative Fall Break Environmental Trip Co-Leader, UNC APPLES

Graduate students mentored

Emily Parker (SIO Master of Advanced Studies in Marine Biodiversity and Conservation)
Sam Kekuewa (SIO Graduate Peer Mentor Program)
Wiley Wolf (SIO Graduate Peer Mentor Program)

Undergraduates mentored

Hannah Aichelman (UNC-CH)	Courtney Anderson (UNC-CH)
Pualani Armstrong (UNC-CH)	Jessica Boulton (UNC-CH)
Carissa Campbell (UNC-CH)	Kathryn Cobleigh (UNC-CH)
Vallari Eastman (UNC-CH)	Ashley Foguel (UNC-CH)
Hannah Knight (UNC-CH)	Madelyn Roycroft (UNC-CH)
Joseph Townsend (UNC-CH)	

Science outreach

Panelist for San Diego State University Earth Week *Chasing Coral* screening (2018)
Ocean Acidification lecture for UCSD Retirement Association (2018)
Panelist for UCSD Retirement Association *Chasing Coral* screening (2018)
Panelist for Citizens Climate Lobby *Chasing Coral* screening (2017)
Panelist for Smartfin + Changing Tides *Chasing Coral* screening (2017)
Smartfin Project surfboard fin sensors β -tester (2015–present)
Volunteer, Scripps Community Outreach Program for Education (2015–2018)
Volunteer Tutor, Rosa Parks Elementary School (2015, 2016)
Volunteer Scientist, Ocean Discovery Institute (2015, 2016, 2018)
Scientist Participant, SciREN lesson plans for K-12 teachers (2014)
Volunteer, Marine Mammal Day, NC Museum Natural Sciences (2012)

Job related certifications

California Boater License (2018–present)
Motorboat Operator Certification Course (2017–present)
AAUS Science Diver to 60 ft. + nitrox (2011–present; >150 dives)
First Aid, CPR, Dan O₂ and Neurological Assessment Certified (2011–present)
North Carolina Boater Education Certified (2010–present)

Academic service

Peer Reviewer:

Global Change Biology	Hydrobiologia
PeerJ	Marine Chemistry
Coral Reefs	Proceedings of the Royal Society B
Marine Environmental Research	Palaeogeography, Palaeoclimatology, Palaeoecology
Frontiers in Marine Science	

Professional Memberships:

International Society for Reef Studies
The Oceanography Society
Association for the Sciences of Limnology and Oceanography

Scripps Academic Club: Treasurer + Operations (2017–present)

Last Updated Dec 2018