

William Z. Haskell II

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RESEARCH INTERESTS

Marine biological production and export
Global biogeochemical cycling of C, O and N
Stable and radioisotope tracers

Autonomous sampling platforms
Upper ocean physicochemical dynamics
Coastal ocean processes

APPOINTMENTS

Staff Scientist & Program Manager | Mote Marine Laboratory *July 2020 – present*
Ocean Technology and Marine Biogeochemistry Programs
(\$525k annual budget in '20/'21; Increased lab efficiency by \$50k/yr)

Postdoctoral Fellow | Monterey Bay Aquarium Research Institute (MBARI) *Aug 2018 – Oct 2019*
Advisor: Andrea Fassbender

Postdoctoral Scholar | Marine Science Institute, UC Santa Barbara *Sept 2017 – Apr 2018*

Postdoctoral Research Fellow | National Science Foundation (NSF–OCE) *Sept 2015 – Aug 2017*
UMCES Horn Point Laboratory & UC Santa Barbara
Advisors: Nicholas Nidzieko & Alyson Santoro

Graduate Research Assistant | University of Southern California *Aug 2009 – Aug 2015*

Graduate Teaching Assistant | University of Southern California *Aug 2009 – Aug 2011*
Courses: Intro. to Oceanography, Planet Earth, The Nature of Scientific Inquiry

Undergraduate Research Assistant | RSMAS, University of Miami *June 2007 – Aug 2009*

EDUCATION

Ph.D. | Ocean Sciences | University of Southern California *Aug 2015*
Advisor: Douglas Hammond
Ecosystem Export Efficiency in an Upwelling Region: A Two-year Time-series Study of Vertical Transport, Particle Export and In-situ Net and Gross Oxygen Production

M.S. | Ocean Sciences | University of Southern California *Aug 2011*
Advisor: Douglas Hammond
Particulate Organic Carbon Flux Calculated From ²³⁴Th Measurements and Sediment Traps in the Eastern Tropical South Pacific

B.S. | Marine Science & Chemistry | RSMAS, University of Miami *May 2009*
Advisor: David Kadko
Relationship of Radon-222 in Ground Water and Strain in the Crust of the South Iceland Seismic Zone and Possible Tectonic Implications

PEER-REVIEWED PUBLICATIONS (* indicates yet to be accepted)

- Haskell, W.Z.**, A.J. Fassbender, J. Long, J. Plant. (2020) Annual net community production of particulate and dissolved organic carbon from a decade of biogeochemical profiling float observations in the Northeast Pacific. *Global Biogeochemical Cycles*, 34, <https://doi.org/10.1029/2020GB006599>.
- Haskell, W.Z.**, D.E. Hammond, M.G. Prokopenko, E.N. Teel, B.N. Seegers, M.A. Ragan, N.

- Rollins, B. H. Jones (2019) Net community production in a productive coastal ocean from an autonomous buoyancy-driven glider. *Journal of Geophysical Research: Oceans*, 124, <https://doi.org/10.1029/2019JC015048>.
3. **Haskell, W.Z.** and J.C. Fleming. (2018) Concurrent estimates of carbon export reveal physical biases in $\Delta\text{O}_2/\text{Ar}$ -based net community production estimates in the Southern California Bight. *Jour. of Mar. Sys*, 183, pp. 13-23. doi.org/10.1016/j.jmarsys.2018.03.008.
 4. Teel, E.N., X. Liu, B.N. Seegers, M.A. Ragen, **W.Z. Haskell**, B.H. Jones, N.M. Levine. (2018) Contextualizing time-series data: Quantification of short-term regional variability in the San Pedro Channel using high-resolution in-situ glider data. *Biogeosciences*, 15, 6151-6165. doi.org/10.5194/bg-15-6151-2018.
 5. **Haskell, W.Z.**, M.G. Prokopenko, D.E. Hammond, R.H.R. Stanley, Z.O. Sandwith. (2017) Annual cyclicity in export efficiency in the inner Southern California Bight. *Global Biogeochemical Cycles*, 31, pp. 357-376. doi: 10.1002/2016GB005561.
 6. Fassbender, A.J., H.I. Palevsky, T.R. Martz, A.E. Ingalls, M. Gledhill, S.E. Fawcett, J.A. Brandes, L.I. Aluwihare, the **participants of COME ABOARD, DISCO XXV**. (2017) Perspectives on Chemical Oceanography in the 21st century: Participants of the COME ABOARD Meeting examine aspects of the field in the context of 40 years of DISCO. *Marine Chemistry*, 196, pp. 181-190. doi.org/10.1016/j.marchem.2017.09.002.
 7. **Haskell, W.Z.**, M.G. Prokopenko, D.E. Hammond, R.H.R. Stanley, W.M. Berelson, J.J. Baronas, J.C. Fleming, L. Aluwihare. (2016b) An organic carbon budget for coastal Southern California determined by estimates of upwelled nutrients, net production, and export. *Deep-Sea Res. I.*, 116, pp. 49-76.
 8. **Haskell, W.Z.**, M.G. Prokopenko and R.H.R. Stanley. (2016a) Estimates of vertical turbulent mixing used to determine a vertical gradient in net and gross O_2 production in the oligotrophic South Pacific Gyre. *Geophys. Res. Lett.*, 43, pp. 7590-7599, doi: 10.1002/2016GL069523.
 9. **Haskell, W.Z.**, D.E. Hammond, M.G. Prokopenko. (2015b) A dual-tracer approach to estimate upwelling velocity in coastal Southern California. *Earth and Planet. Sci. Lett.*, 422, pp. 138-149.
 10. **Haskell, W.Z.**, D. Kadko, D.E. Hammond, M.G. Prokopenko, W.M. Berelson, A.N. Knapp, D.G. Capone. (2015a) Upwelling velocity and eddy diffusivity from ^7Be measurements used to compare vertical nutrient flux to export POC flux in the Eastern Tropical South Pacific. *Marine Chemistry*, 168, pp. 140-150.
 11. Berelson, W.M., **W.Z. Haskell**, M.G. Prokopenko, D. G. Capone, A.N. Knapp, D.E. Hammond, N. Rollins. (2015) Biogenic rain and remineralization in the Eastern Tropical South Pacific. *Deep-Sea Res. I*, 99, pp. 23-34.
 12. **Haskell, W.Z.**, W.M. Berelson, D.E. Hammond, D.G. Capone. (2013) Particle sinking dynamics and POC fluxes in the Eastern Tropical South Pacific based on ^{234}Th and sediment trap deployments. *Deep-Sea Res. I*, 81, pp.1-13.
 - *13. **Haskell, W.Z.** and N.J. Nidzieko. (*in prep*) Community metabolism in large oceanic provinces scales allometrically with ecosystem volume.
 - *14. **Haskell, W.Z.**, N.J. Nidzieko, A.W. Fisher, A.E. Santoro. (*in prep.*) Vertical turbulent nitrate flux using in-situ measurements of microstructure shear and nitrate from a propelled AUV.
 - *15. **Haskell, W.Z.**, N.J. Nidzieko, L. Washburn, D.A. Siegel. (*in prep.*) Cross-shelf fluxes of nutrients

and particles in coastal Santa Barbara using a buoyancy-driven glider-mounted ADCP.

FUNDING (* indicates pending)

- 1. Principle Investigator – GCOOS/NOAA | Maintenance and enhancements to an existing HAB observatory to improve human and ecosystem health.** W. Haskell (Mote); \$159,832; 2020-2021
- 2. Co-Investigator – FWRI-Mote Cooperative Red Tide Monitoring and Research Program |** W. Haskell (Mote); \$132,903; 2020-2021
- 3. Principle Investigator – FWC-Mote Technology Development Initiative | Automated in situ advanced sensing technology development for red tide mitigation and control.** W. Haskell (Mote); \$58,631; 2020-2021
- 4. Co-Investigator – FWC-Mote Technology Development Initiative | Development and validation of new and existing technologies: Expanding PHySS's role in mitigation of harmful algal blooms.** W. Haskell (Mote); \$44,178; 2020-2021
- 5. Principle Investigator - NSF-OCE Postdoctoral Research Fellowship (OCE-PRF 1521616) | Broadening Participation: Internal wave-generated turbulent mixing and vertical nitrate flux during spring and neap tides along the Mid-Atlantic Bight shelf break.** W. Haskell (UCSB); \$173,440; 9/1/15 – 8/31/17
- 6. Author/Project Lead - NSF Chemical Oceanography (OCE 1260692 and 1260296) | Collaborative Research: Use of triple oxygen isotopes and O₂/Ar to constrain Net/Gross Oxygen Production during upwelling and non-upwelling periods in a coastal setting.** M. Prokopenko (Pomona), D. Hammond (USC); \$421,210 - USC; \$228,690 – Pomona; 2/1/13 - 1/31/16
- 7. International Association of Geochemistry Student Research Grant | Use of triple oxygen isotopes and O₂/Ar to estimate Net/Gross Oxygen Production during variable coastal upwelling** W. Haskell (USC); \$1500
- *8. Principle Investigator - GCOOS/NOAA | Maintenance and augmentation of and existing HAB observatory to monitor environmental conditions for human and ecosystem health.** W. Haskell (Mote); \$170,000; 2021-2022 (\$850,000; 2021-2026)
- *9. Principle Investigator – NSF Chemical Oceanography | Quantifying the effects of nutrient variability and net community production on the carbonate system in coastal SW Florida.** W. Haskell and E. Hall (Mote); \$652,782; 2021-2024
- *10. Principle Investigator – NSF Ocean Technology and Interdisciplinary Coordination | Development of an accessible low-cost open source autonomous underwater vehicle for oceanographic research.** W. Haskell (Mote); \$175,390; 2021-2023
- *11. Principle Investigator – National Academies Gulf Research Program Early-Career Research Fellowship |** W. Haskell (Mote); \$75,000; 2021-2022

AWARDS, SCHOLARSHIPS, HONORS

Invited Participant | Dissertations Symposium in Chemical Oceanography (DISCO XXV) and Chemical Oceanography Meeting: A Bottom-up Approach to Research Directions (COME ABOARD) Oct 2016

Invited Participant <i>UNOLS Chief Scientist Training Course</i>	Feb 2016
Woods Hole Oceanographic Institution Postdoctoral Scholarship <i>Awarded</i>	Apr 2015
USC Keck Endowed Graduate Fellowship	2013
USC Sonosky Graduate Fellowship	2011
USC Earth Sciences Department TA Award	2010, 2011
Univ. of Miami George E. Merrick Scholarship	2005 - 2009

FIELD EXPERIENCE

West Florida Shelf glider operations (small boats & R/V <i>Mote</i>)	Aug 2020 - present
California Current Carbon Export (R/V <i>Sally Ride</i>)	Dec 2019
Line P Cruise Northeast Pacific (CCGS <i>John P. Tully</i>)	Jun 2019
Coastal Remus 600 operations Santa Barbara Channel/Shelf Break	2017 – 2018
Remus-Integrated Laser Optic Imaging PIs: L. Mullen, D. Alley (R/V <i>Rachel Carson</i>) (Naval Air Warfare Center (NAWC) Naval Air Station Patuxent River, MD)	Jul 2017
Northrop Grumman Remus 600 ASW Acoustic Detection and Comm. Annual Naval Technology Exercise (Naval Undersea Warfare Center (NUWC) Newport, RI)	Aug 2016
UNOLS Chief Scientist Training Course cruise (R/V <i>Thompson</i>)	Feb 2016
Drifting and Autonomous Platforms Mid-Atlantic Shelf Break (R/V <i>Endeavor</i>)	Nov 2015
Upwelling Regime In-Situ Ecosystem Efficiency study 21 cruises (R/V <i>Yellowfin</i>)	2013 - 2014
San Pedro Ocean Time-Series (SPOT) Cruises Monthly (R/V <i>Yellowfin</i>)	2009 - 2014
Eastern Tropical South Pacific - II (R/V <i>Melville</i>)	Mar - Apr 2011
Eastern Tropical South Pacific - I (R/V <i>Atlantis</i>)	Feb - Mar 2010
Several Bermuda Atlantic Time Series (BATS) Cruises (R/V <i>Atlantic Explorer</i>)	2007 - 2009

INSTRUMENT EXPERIENCE

Hydroid Remus and Slocum glider | Piloting, field ops, sensor calibration, navigation data analysis
Sensors | Seabird GPCTD/16plus, WetLabs ECO Puck fluorometer/backscatter, LiCor PAR, Aanderaa
 Optode, Clark-type DO, Satlantic SUNA nitrate, RSI Microrider, RDI and Nortek ADCPs, RBR CTD
Pfeiffer PrismaPlus QMG | Underway $\Delta O_2/Ar$ by equilibrator inlet mass spectrometry (EIMS)
High vacuum dissolved gas sampling/analysis | $\Delta O_2/Ar$, $^{16}O/^{17}O/^{18}O$, Winkler titrations
Drifting/moored sediment traps | Deployment/maintenance and trap material analysis
Radioisotope analysis | Gamma spectra and alpha counting
UV/VIS spectrophotometry | Particulate and dissolved nutrient sampling/analysis
CTD rosette | Deployment/assembly, maintenance, SeaBird data processing
Matlab (C++) and Python | Data processing/analysis, biogeochemical modeling, coding
CAD and 3D printing | FreeCAD, Ultimaker S5/Cura

PROFESSIONAL SERVICE, LEADERSHIP, AND OUTREACH

Review Editor <i>Frontiers in Marine Science</i>	2016 – Present
Manuscript Reviewer <i>Journal of Geophysical Research-Biogeosciences, JGR-Oceans,</i> <i>Global Biogeochemical Cycles, Marine Chemistry, Biogeosciences,</i> <i>Progress in Oceanography, Deep-Sea Research</i>	2015 – Present
Panelist <i>National Science Foundation (Chemical Oceanography)</i>	2020
Proposal Reviewer <i>National Science Foundation (Chemical Oceanography)</i>	2015 – Present
Participant <i>NASA EXPORTS Science Meeting (Williamsburg, VA)</i>	2019
Participant <i>NSF OCB Biogeochemical Floats Workshop (Seattle, WA)</i>	2018
Participant <i>NSF OOI Coastal Arrays Workshop (Arlington, VA)</i>	2016

Chief Scientist 21 UpRISEE Cruises (34 days at sea)	2013 - 2014
Chair Southern California Geobiology Symposium Organizing Committee Attended by 130 researchers from 10 universities at USC in April 2014	2014
NSF-OCE Broadening Participation Postdoctoral Fellow	2015 - 2017
Presenter Horn Point Laboratory Open House, Led a hands-on activity designed to educate the public on the use of autonomous vehicles in marine research	2015
Mentor USC Young Researchers Program, Advised underrepresented L.A. high school students (youngresearchers.usc.edu)	2012 – 2014

SELECTED PRESENTATIONS

1. **Haskell, W.Z.** (Invited Talk) “*Observing carbon export out of the surface ocean interface.*” University of Maine - School of Marine Sciences Seminar, Spring 2019. Orono, ME.
2. **Haskell, W.Z.** (Invited Talk) “*Quantifying biological production and carbon export in the dynamic surface ocean.*” University of South Carolina – SEOE Seminar, Spring 2018. Columbia, SC.
3. **Haskell, W.Z.** (Invited Talk) “*Quantifying biological production and export in the dynamic surface ocean.*” Moss Landing Marine Laboratories, Spring 2018. Moss Landing, CA.
4. **Haskell, W.Z.**, M.G. Prokopenko, D.E. Hammond, N. Nidzieko, A.E. Santoro. (Invited Talk) “*Quantifying carbon export in the dynamic surface ocean.*” Scripps Institute of Oceanography – Marine Chemistry and Geochemistry Seminar, Spring 2017. La Jolla, CA.
5. **Haskell, W.Z.**, D.E. Hammond, M.G. Prokopenko, R.H.R. Stanley, W.M. Berelson. (Invited Talk) “*Export efficiency in an upwelling regime.*” DISCO XXV, Fall 2016. Honolulu, HI.
6. **Haskell, W.Z.**, M.G. Prokopenko, D.E. Hammond, N. Nidzieko, A.E. Santoro, R.H.R. Stanley, D. Nicholson, W.M. Berelson. (Invited Talk) “*Biological production and export in the dynamic surface ocean.*” USF College of Marine Science Seminar, Spring 2016. St. Petersburg, FL.
7. **Haskell, W.Z.**, M.G. Prokopenko, D.E. Hammond, R.H.R. Stanley, W.M. Berelson. (Invited Talk) “*⁷Be-based upwelling velocity and O₂-based biological production (2013 and 2014).*” SPOT Time Series Workshop, Fall 2015. Los Angeles, CA.