

Dr. Kathleen C. Ruttenberg

Professor

Department of Oceanography, and Department of Geology and Geophysics
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Education

- 1990 Ph.D.: Geology.**
Yale University. *Thesis Title: Diagenesis and Burial of Phosphorus in Marine Sediments: Implications for the Marine Phosphorus Budget.* Dr. R. A. Berner, Advisor.
- 1985 M.Phil.: Geology.**
Yale University.
- 1982 B.A. Chemistry (with specialization in Earth Sciences) and Anthropology.** (Double-Major)
University of California San Diego, Revelle College.

Professional Positions

- 2015- present **Professor**
Department of Oceanography and Department of Geology & Geophysics (joint appointment)
School of Ocean and Earth Science and Technology (SOEST), University of Hawai'i at Manoa.
- 2010- 2015 **Associate Professor**
Department of Oceanography and Department of Geology & Geophysics (joint appointment)
School of Ocean and Earth Science and Technology (SOEST), University of Hawai'i at Manoa.
- 2002-2010 **Assistant Professor**
Department of Oceanography and Department of Geology & Geophysics (joint appointment)
School of Ocean and Earth Science and Technology (SOEST), University of Hawai'i at Manoa.
- 1999-2002 **Associate Scientist:** Department of Marine Chemistry and Geochemistry, Woods Hole Oceanographic Institution.
- 1994-1999 **Assistant Scientist:** Department of Marine Chemistry and Geochemistry, Woods Hole Oceanographic Institution.
- 1993-1994 **Visiting Investigator:** Department of Marine Chemistry and Geochemistry, Woods Hole Oceanographic Institution.

- 1990-1993 **Postdoctoral Investigator:** Department of Marine Chemistry and Geochemistry, Woods Hole Oceanographic Institution.
- 1989-1990 **Postdoctoral Scholar:** Department of Marine Chemistry and Geochemistry, Woods Hole Oceanographic Institution.
- 1985-1989 **Dissertation Research:** Yale University.
- 1982-1983 **Laboratory Technician:** Organic Geochemistry, Scripps Inst. of Oceanography.

Other Professional Appointments

- 2015-2017 Co-Chair, ASLO Aquatic Sciences Meeting (elected)
- 2014-2015 Chair, Gordon Research Conference on Chemical Oceanography (elected)
- 2013-present Affiliate Faculty, Water Resources Research Center (WRRC), UHM
- 2012-2013 Vice Chair, Gordon Research Conference on Chemical Oceanography (elected)
- 2010 Editor Search Committee for Global Biogeochemical Cycles (Journal, AGU)
- 2004-2008 Secretary, Marine Chemistry section, Ocean Sciences Division, American Geophysical Union (elected to 2 consecutive terms)
- 2002-2017 Editorial Board, Aquatic Sciences – Research Across Boundaries (Journal, Springer)
- 1994-2008 Editorial Board, Chemical Geology (Journal, Elsevier)

Research

Principal Research Interests

- Biogeochemistry and cycling of phosphorus (organic and inorganic) and associated bioactive elements (C, N, S) in marine, lacustrine, and riverine systems
- Nutrient limitation of biological productivity in the ocean
- Sediment diagenesis: organic matter reactivity and mineral authigenesis
- Effect of redox chemistry on nutrient cycling

Peer-Reviewed Publications

- Note: Names of students, postdocs, and technicians I've supported are underlined.

1. Daniel McCoy, Margaret A. McManus, Keli‘iahonui Kotubety, Angela Hi‘ilei Kawelo, Charles Young, Brandon D’Andrea, **Kathleen C. Ruttenberg**, Rosanna ‘Anolani Alegado. (2017). Large-scale climatic effects on traditional Hawaiian Fishpond aquaculture. *PLOS One 12(11): e0187951*, <https://doi.org/10.1371/journal.pone.0187951>.
2. Fassbender, A. J. et al. (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: 181-190. <https://doi.org/10.1016/j.marchem.2017.09.002>.
3. Richardson, C., Dulai, H., Popp, B., Ruttenberg, K., Fackrell, J. (2016). Submarine groundwater discharge drives biogeochemistry in two Hawaiian reefs, Accepted for publication: *Limnol. Oceanogr.* 62: 5348-5363; doi: 10.1002/lno.10654
4. Dulaiova, H., Kleven, A., Ruttenberg, K., Briggs, R. and Thomas, F. (2016). Evaluation of submarine groundwater discharge as coastal nutrient source and its role in coastal groundwater quality and quantity. In: Emerging Issues in Groundwater Resources, Ali Fares, Ed., Advances in Water Security Series, Springer International Publishing, Switzerland DOI 10.1007/978-3-319-32008-3.
5. Timmerman, A., McManus, M.A., Cheriton, O. M., Cowen, R.K., Greer, A.C., Kudela, R.M., **Ruttenberg, K.C.**, and Sevadjan, J. (2013) Hidden layers of toxic diatoms in a coastal bay. Special issue of Deep-Sea Research II: Harmful

- Algal Blooms in Stratified Systems. RE Berdalet, MA McManus, H Yamazaki (Eds), 101: 129-140. DOI 10.1016/j.dsr2.2013.05.030
6. Briggs, R.A., Padilla-Gamino, J.L., Bidigare, R., Gates, R.D. and **Ruttenberg, K.C.** (2013). Impact of coral spawning on the biogeochemistry of a Hawaiian reef. *Estuarine, Coastal and Shelf Science*, 134: 57-68. <http://dx.doi.org/10.1016/j.ecss.2013.09.013>
 7. Briggs, R.A., **Ruttenberg, K.C.**, Ricardo, A.E., and Glazer, B.T. (2013) Constraining sources of organic matter to tropical coastal sediments: consideration of non-traditional end members. *Aquatic Geochemistry*. 19, DOI: 10.1007/s10498-013-9219-2
 8. **Ruttenberg, K.C.** and Dyhrman, S.T. (2012). Dissolved organic phosphorus production during simulated phytoplankton blooms in a coastal upwelling system. *Frontiers in Microbiology*. Vol. 3, DOI: 10.3399/fmicb/2012.00274.
 9. **Ruttenberg, K.C.** and Sulak, D.S. (2011). Sorption and desorption of dissolved organic phosphorus onto iron (oxyhydr)oxides in seawater. *Geochim. Cosmochim. Acta*, 75: 4095-4112. doi:10.1016/j.gca.2010.10.033.
 10. **Ruttenberg, K.C.**, Ogawa, N.O., Tamburini, E., Colasacco, N.D., Briggs, R.A. and Monaghan, E.J. (2009). Improved, high-through-put approach for phosphorus speciation in natural sediments via the SEDEX sequential extraction method. *Limnol. Oceanogr. Methods*, 7: 319-333.
 11. Mayer, L.M., L.L. Schick, M. Allison, **K. Ruttenberg**, and S. Bentley, (2007). Marine vs. terrigenous organic matter in Louisiana coastal sediments: The uses of bromine:organic carbon ratios. *Marine Chemistry*, 107: 244-254.
 12. Dyhrman, S.T. and **Ruttenberg, K. C.** (2006). Presence and regulation of alkaline phosphatase activity in eukaryotic phytoplankton from the coastal ocean: implications for dissolved organic phosphorus remineralization. *Limnol. Oceanogr.*, 51: 1381-1390.
 13. **Ruttenberg, K.C.** and Dyhrman, S.T. (2005). Temporal and spatial variability of dissolved organic and inorganic phosphorus, and metrics of phosphorus bioavailability in an upwelling-dominated coastal system, *Jour. Geophys. Res.-Oceans*, vol. 110, Citation #C10S13, doi:10.1029/2004JC002837.
 14. Cha, H.J., Lee, C.B., Kim, B.S., Choi, M.S., and **Ruttenberg, K.** (2005). Early diagenetic redistribution and burial of phosphorus in the sediments of the southwestern East Sea (Japan Sea). *Mar Geol.*, 216: 127-143.
 15. Rengefors, K., **Ruttenberg, K.**, Hauptert, C., Howes, B. and Taylor, C. (2003) Experimental investigation of taxon-specific response of alkaline phosphatase activity in natural freshwater phytoplankton. *Limnol. Oceanogr.*, 48: 1167-1175.
 16. Monaghan, E. and **Ruttenberg, K.C.** (1999). Dissolved organic phosphorus in the coastal ocean: Reassessment of available methods and seasonal phosphorus profiles from the Eel River Shelf. *Limnol. Oceanogr.*, 44: 1702-1714.
 17. Mayer, L., Joye, M., Keil, R., **Ruttenberg, K.** and Aller, R. (1998). The importance of suspended particulates in riverine delivery of bioavailable nitrogen to coastal zones. *Global Biogeochem. Cycles*, 12: 573-579.
 18. Goñi, M.A., **Ruttenberg, K.C.** and Eglinton, T.I. (1998). A reassessment of sources and importance of land-derived organic matter in surface sediments from the Gulf of Mexico. *Geochim. Cosmochim. Acta*, 62: 3055-3075.
 19. Goñi, M.A., **Ruttenberg, K.C.**, and Eglinton, T.I. (1997) Sources and contributions of terrigenous organic carbon to surface sediments in the Gulf of Mexico. *Nature*, 389: 275-278.
 20. **Ruttenberg, K.C.** and Goñi, M.A. (1997a). Phosphorus distribution, elemental ratios, and stable carbon isotopic composition of arctic, temperate, and tropical coastal sediments: Tools for characterizing bulk sedimentary organic matter. *Marine Geology*, 139: 123-145.
 21. **Ruttenberg, K.C.** and Goñi, M.A. (1997b). Depth trends in phosphorus distribution and C:N:P ratios of organic matter in Amazon Fan sediments: Indices of organic matter source and burial history. *Proceedings of the Ocean Drilling Program: Scientific Results*, vol. 155: 505-517.
 22. Reimers, C.E., **Ruttenberg, K.C.**, Canfield, D.E., Christiansen, M.B., and Martin, J.B. (1996). Pore water pH and the earliest diagenesis of the Santa Barbara Basin. *Geochim. Cosmochim. Acta*, 60: 4037-4058.
 23. Bauer, J.E., **Ruttenberg, K.C.**, Wolgast, D.M., Monaghan, E., and Schrope, M. (1996). Dissolved and colloidal nitrogen and phosphorus isolated from seawater using different ultrafiltration technologies. *Marine Chemistry*, 55: 33-52.
 24. **Ruttenberg, K.C.** (1994). Proxy Paradox for P Burial. *Nature*, 372: 224-225.

25. **Ruttenberg, Kathleen C.** (1993). Reassessment of the oceanic residence time of phosphorus. *Chemical Geology*, 107: 405-409.
26. **Ruttenberg, K.C.** and Berner, R.A. (1993). Authigenic apatite formation and burial in sediments from non-upwelling, continental margin environments. *Geochim. Cosmochim. Acta.*, 57: 991-1007.
27. Berner, R.A., **Ruttenberg, K.C.**, Ingall, E., Rao, J.-L. (1993). The nature of phosphorus burial in modern marine sediments. In: *Interactions of C, N, P and S Cycles*. NATO ASI Series, vol. 14: 365-378. Wollast, R. Mackenzie, F. and Chou, L. eds. Springer-Verlag, Berlin.
28. **Ruttenberg, Kathleen C.** (1992). Development of a sequential extraction method for different forms of phosphorus in marine sediments. *Limnology and Oceanography*, 37: 1460-1482.
29. Jahnke, R.A. Emerson, S.R. Reimers, C.E. Schuffert, J. **Ruttenberg, K.** and Archer, D. (1989). Benthic recycling of biogenic debris in the eastern tropical Atlantic Ocean. *Geochim. Cosmochim. Acta*, 53: 2947-2960.

Book Chapters

1. **Ruttenberg K.C.** (2019). Phosphorus Cycle. In: Cochran, J. Kirk; Bokuniewicz, J. Henry; Yager, L. Patricia (eds.) *Encyclopedia of Ocean Sciences*, 3rd Edition, vol.[1], pp. 447-460. Oxford: Elsevier. *Invited submission.*
2. Henrieta Dulai, Alana Kleven, **Kathleen Ruttenberg**, Rebecca Briggs, Florence Thomas (2016). Evaluation of submarine groundwater discharge as coastal nutrient source and its role in coastal groundwater quality and quantity. Chapter 8 In: *Emerging Issues in Groundwater Resources*, Ali Fares, ed. pp. DO 10.1007/978-3-319-3008-3; ISBN 978-3-319-32006-9.
3. **Ruttenberg, K.C.** (2014). The Global Phosphorus Cycle. In: *Treatise on Geochemistry – 2nd edition*, (H.D. Holland and K.K. Turekian, eds.) Vol. 10 (Biogeochemistry: W. H. Schlesinger, volume editor), Chapter 13, Elsevier Science, pp. 499-558. *Invited submission.*
4. **Ruttenberg, K.C.** (2003). The Global Phosphorus Cycle. In: *Treatise on Geochemistry*, (H.D. Holland and K.K. Turekian, eds.) Vol. 8 (Biogeochemistry: W. H. Schlesinger, volume editor), Chapter 13, Elsevier Science, pp. 585-643. *Invited submission.*
5. **Ruttenberg, K.C.** (2001). The Phosphorus Cycle. In: *Encyclopedia of Ocean Science*, John Steele, Steve Thorpe and Karl Turekian, eds. ISBN 0-12-227430-X. *Invited submission.*
6. **Ruttenberg, K.C.** (2001) “The Global Biogeochemical Cycle of Phosphorus”. In: *Oxford Encyclopedia of Global Change: Environmental Change and Human Society*, Andrew Goudie, ed., Oxford University Press. ISBN 0195108256. *Invited submission.*

Articles, Book Reviews and Reports

1. *Closing the Human Phosphorus Cycle*, NSF-FEW Workshop Report, (2015), James J. Elser, Matthew S. Platts, Eds., 31 pp. (Workshop dates: June 8-9, 2015, Arlington, VA)
2. Reimers, C., C. Friedrichs, B. Bebout, P. Howd, M. Huettel, R. Jahnke, P. MacCready, **K. Ruttenberg**, L. Sanford and J. Trowbridge (2004). *Coastal Benthic Exchange Dynamics*. TR-040-01, Skidaway Institute of Oceanography, 92 pp.
3. **Ruttenberg, K.C.** (2000). Dissolved organic nutrients in the coastal ocean. In: *The Rhinehart Coastal Research Center Newsletter*, 4(1): 6-7. Woods Hole Oceanographic Institution publ. *Invited submission.*
4. **Ruttenberg, K.C.** (1998). New evidence for phosphate limitation in the coastal ocean. In: *The Woods Hole Oceanographic Institution Annual Report*, pp. 19-20. *Invited submission.*
5. **Ruttenberg, Kathleen C.** (1993). The role of bottom sediments in the aquatic phosphorus cycle. In: *Proceedings of the National Workshop on Phosphorus in Australian Freshwaters*. K. Robards, S. Helliwell, and M. Antolovich, eds. Occasional Paper No. 03/93. Land and Water Resources Research & Developmental Corp., Occasional Paper Series. *Invited submission.*
6. **Ruttenberg, K.C.** (1987). *Phosphate Deposits of the World, Volume I: Proterozoic and Cambrian Phosphorites*. (P.J. Cook and J. Shergold, eds.). Book review, *Economic Geology*, 82(7): 1974.

Manuscripts in Revision

• Note: Names of students I've supported are underlined.

1. Briggs, R.A., **Ruttenberg, K.C.**, Ricardo, A.E., Gier, E.J. and Popp, B.N., Quantifying organic carbon and nitrogen concentration and isotopic composition in carbonate dominated marine sediments. In revision for: *Limnol. Oceanogr. Methods*.
2. Leon Soon, Sherril, **Ruttenberg, Kathleen C.**, Merrifield, Mark A., Thomas Florence I. M. Influence of flow on the establishment of marine microhabitats and biological response within a benthic algal canopy. In revision for: *Limnol. Oceanogr.*

Scientific Presentations and Published Abstracts (last 10 years)

• Note: Names of students, postdocs, and technicians I've supported are underlined.

- Tognacchini, C., Conroy, T., Horley-Feitosa, J., McManus, M. and **Ruttenberg, K.** (2016). The effects of anthropogenic perturbations and climatic change on a tropical coastal system: A comparative study. ASLO Aquatic Sciences Meeting, Feb. 28-Mar. 3, Honolulu HI.
- Dulaiova, H., Kleven, A., **Ruttenberg, K.C.**, Briggs, R.A., and Thomas, F.I.M. (2015). Submarine groundwater discharge and corresponding nutrient fluxes in Kaneohe Bay, Oahu, Water Resource Sustainability Issues on Tropical Islands, Second Conference, Dec. 1-3, Honolulu, HI.
- MacDonald, K.R. and **Ruttenberg, K.C.** (2013). Quantifying reactive iron and associated phosphorus in sediments: Do different selective leaching methods yield comparable results? AGU-ASLO Ocean Sciences Meeting, Honolulu, HI, 2/14.
- Hull, D.H. and **Ruttenberg, K.C.** (2013). Probing the nature of dissolved organic phosphorus (DOP) in aquatic systems: DOP molecular weight distribution and bioavailability. AGU-ASLO Ocean Sciences Meeting, Honolulu, HI, 2/14.
- Ruttenberg, K.C.** and Dyhrman, S.D. (2011). Dissolved organic phosphorus production during a simulated phytoplankton bloom: Experiments in the coastal Oregon upwelling region. Amer. Soc. Limnol. Oceanogr. Meeting, San Juan, Puerto Rico, 2/11.
- Briggs, R.A., **Ruttenberg, K.C.** (2011). Quantifying labile organic phosphorus in suspended particulates and aquatic sediments: An adaptation to the SEDEX method for selective P extraction. Amer. Soc. Limnol. Oceanogr. Meeting, San Juan, Puerto Rico, 2/11.
- Hull, D., Young, C.W. and **Ruttenberg, K.C.** (2011). Seasonal and spatial variability of alkaline phosphatase activity in He'eia Fishpond. Amer. Soc. Limnol. Oceanogr. Meeting, San Juan, Puerto Rico, 2/11.
- Young, C.W., **Ruttenberg, K.C.** and McManus, M.A. (2011). Perturbation of tropical coastal nutrient inventories and phytoplankton ecology during storm events, Oahu, Hawai'i. Amer. Soc. Limnol. Oceanogr. Meeting, San Juan, Puerto Rico, 2/11.
- Briggs, R.A., Padilla-Gamino, J.L., **Ruttenberg, K.C.** and Gates, R.D. (2010). Impact of *Montipora capitata* coral spawning on coastal biogeochemistry of Oahu, Hawai'i. 2nd Annual Asia Pacific Coral Reef Symposium, Phuket, Thailand, 6/10.
- Best Student Paper Award: Briggs, R.A., Ricardo, A.E., **Ruttenberg, K.C.**, and Glazer, B.T. (2010). Linking source, abundance and lability of organic matter to sediment redox conditions and metabolic activity. Amer. Soc. Limnol. Oceanogr. Meeting, Portland, Oregon, 2/10.
- Spitz, Y., Dyhrman, S. and **Ruttenberg, K.** (2009). The importance of phosphorus in fueling phytoplankton production in a coastal upwelling system. AGU-ASLO Ocean Sciences Meeting Abstract, Feb. 2010, Portland, OR.
- Whitehill, A.R., **Ruttenberg, K.C.**, Briggs, R.A., Lyons, T.W. and Colman, A. S. (2009). Phosphorus burial in Cariaco Basin sediments through the last glacial-interglacial transition. Gordon Research Conference in Chemical Oceanography, Aug. 2-7, Tilton, NH.
- Briggs, R.A., **Ruttenberg, K.C.**, Glazer, B.T. and Sulak, D.J. (2008). Relative bioavailability of dissolved organic phosphorus (DOP) versus phosphate (PO₄) in Fe-rich coastal sediments. Amer. Soc. Limnol. Oceanogr. Meeting, Nice, France, 1/09.
- Whitehill, A. R., **Ruttenberg, K.C.**, Briggs, R., Lyons, T.W., and Colman, A.S. (2008) Phosphorus burial in Cariaco Basin

Sediments through the last glacial-interglacial transition. Trans. Amer. Geophys. Union Abstract. Fall AGU meeting, San Francisco, Dec. 2008

Invited: Ruttenberg, K.C. and Tamburini, F.T. (2008) Photoreduction of Aeolian Fe-oxyhydroxides in oligotrophic surface seawater: Implications for bioavailable phosphorus. ASLO meeting, June 2008, St. Johns, Newfoundland, Canada, invited talk in special session on photochemistry in honor of B. Sulzberger.

Ruttenberg, K.C. and Sulak, D.J. (2008) Sorption characteristics of dissolved organic phosphorus onto iron (oxyhydr)oxides in seawater. 2008 Goldschmidt Conference, July 2008, Vancouver, Canada.

Invited: Ruttenberg, K. (2008) Phosphorus biogeochemistry in aquatic systems. US/Japan Joint Symposium on Ocean and Coastal Sciences, Ocean Research Inst, Tokyo, Japan, Mar 2008.

Best Student Paper Award: Briggs, R.A., Ruttenberg, K.C. and Glazer, B.T. (2007). Diurnal surficial oxygen shifts in sandy vs. muddy sediments: Impact on Benthic Iron Fluxes. ASLO Meeting, Feb. 2007, Sante Fe, NM.

Invited: Ruttenberg, K.C. and Dyhrman, S.D. (2006). Reconciling the Geochemists' versus the Biologists' View of Nutrient Limitation in the Ocean. ASLO summer meeting June, 2006, Victoria, BC.

Ruttenberg, K.C. and Dyhrman, S.D. (2006). Bottom Topography Control of Water Column P Cycling on the Oregon Shelf. Ocean Sciences Meeting Feb. 2006, Honolulu, HI.

Invited: Ruttenberg, K.C. (2005). Phosphorus Mobilization During Weathering: Insights from P-Fractionation of River Sediments. GSA meeting, Oct. 2005, Salt Lake City, UT.

Ruttenberg, K.C. (2005). "Phosphorus Mobilization During Weathering: Insights from P-Fractionation of River Sediments." Hawaii Ecosystem Project, Hilo, HI, July 2005.

Ruttenberg, K.C. (2005). "Phosphorus Mobilization During Weathering: Insights from P-Fractionation of River Sediments." Geological Society of America, special tribute session for Fred Mackenzie, Oct. 2005.

Ruttenberg, K.C. (2004) "Dissolved Organic Phosphorus: A Bioavailable P Source in the Coastal Ocean" "Biogeochemistry Brown Bag seminar (9/28/04)

Invited: Ruttenberg, K.C. (2003). "Phosphorus Cycling and the Role of Organic Phosphorus in Nearshore Primary Production". Gordon Research Conference on Chemical Oceanography (8/03):

• **Ruttenberg, K.C.** (2003) "Nutrient Over-Enrichment in the Coastal Zone, Implications for Shifting Limiting Nutrients" "Surf's Up" seminar for undergraduates, UH – G&G Department (11/03):

Student Advising

PhD students advised (4):

Sherril Leon Soon (UH): 2016 to 2017

Danielle Hull (UH): 2014 to present

Rebecca Briggs (UH): 2006-2011, now laboratory manager of the S-LAB, UHM

Kirsten Laarkamp (WHOI): -2000, now at Exxon-Mobil

MS students advised (8):

(*Chair or **Co-Chair of committee)

Sara Coffey* (UH-OCN): 2013-2014 (co-chair with M. McManus)

Arisa Okazaki* (UH-OCN): 2011 to 2015

Danielle Hull*, (UH-OCN): 2011 to 2014, now in the PhD program in Oceanography, UHM

Kathryn Macdonald* (UH-OCN): 2009 to 2012, now communications specialist/program coordinator, National Sea Grant Office

Amanda Timmerman** (co-advised with McManus) (UH-OCN): 2010 to 2012, now PhD candidate at UW

Charles Young III*, (UH-OCN): 2007 to 2011, now a scientist with NOAA-CRED, Honolulu

Emma Williams*, (UH-OCN): 2006-2007

Christie Hauptert (WHOI) – 2000.

PhD dissertation Committees (16)

(*Chair of committee)

M. Consuelo Santamaria Ferrada, School of Earth and Environmental Science, The University of Queensland, Australia, 2017.
Helen Powley (University of Waterloo, Ontario, Canada – Ecohydrology) 2017
Nikki Dijkstra (Utrecht University – Geochemistry), 2017
Danielle Hull* (UH-OCN) 2013 to present
Christopher Jury (UH-OCN), 2012 – Feb 2016
Allison Fong (UH-OCN), 2011 – 2014
Peter Kraal (Utrecht University – Geochemistry), 2011
Sherril Leon Soon* (UH-OCN), 2010 – 2017
Jennifer Murphy (UH-OCN), 2010 – 2012
Iuri Herzfeld (UH-OCN), 2008-2011
William Culter (UH-GG), 2005-2011
Angelos Hannides (UH-OCN), 2005-2008
Rebecca Briggs* (UH-OCN), 2006-2011
Hulya Guylar (UH-Physics, outside member) 2004-2008
Angelos Hannides (UH-OCN), (2005-2007)
Kirsten Laarkamp (WHOI, -2000)
Elizabeth Kujawinski (WHOI -2000; chair of defense)

MS Thesis Committees (10)

(*Chair of committee)

Charles Aka Beebe (UH-OCN) 2017-2018
Amie Dobracki (UH-OCN) 2015-2018
Sara Coffey* (UH-OCN) 2013-2014 (co-chair with M. McManus)
Danielle Hull* (UH-OCN) 2011 to 2014
Arisa Okazaki* (UH-OCN) 2010 to present
Amanda Timmerman* (UH-OCN) 2010 to 2013 (co-chair with M. McManus)
Kathryn MacDonald* (UH-OCN) 2009 to 2012
Charles Young III* (UH-OCN), 2007 to 2011
Courtney Daniels (UH-OCN), 2006-2010
Christie Hauptert (WHOI) – 2000

Graduate Preliminary Qualifying Exam (PQE) Committees (16)

Kristen Fogaren (1/13 -)
Christopher Jury (4/13 -)
Scott Grant (8/11)
Jennifer Murphy (4/10)
Sherril Leon Soon (3/10)
Shimi Rii (12/09)
Fabio De Leo (12/09)
Ana Vaz (11/08)
Allison Fong (6/5/09)
Shimi Rii (fall 2009)
Iuri Hirshfeld (11/05)
Jennifer Brum (11/05-8/8/06)
Amy Apprill (4/06-)
Jackie Padilla-Gamino (10/06-)

Angelos Hannides (5/04)
Julie Stolpar (GG-Planetary) (5/04)

Graduate Comprehensive Exam Committees (9)

Krissy Remple (UH-OCN-BOD) 2017
Victoria Futch (1/15-)
Amanda Ziegler (9/15-10/15)
Kelly Pearson (10/15-)
Pavica Sarsn (12/14-12/19/15)
Kristen Fogaren (1/13 -)
Christopher Jury (4/13 -)
Sherry Chou (11/13 -)
Christine Waters (GG Dept. 9/13-12/13)

Graduate Advisory Committees (13)

Evan Lechner (OCN-MGG): 8/18 – present
Sean Mahaffey (OCN-MGG): 8/18 – present
Katherine Foly (OCN-PO): 1/18 - present
Amie Dobracki (OCN-MGG) 8/15-1/17
Arisa Okazaki (chair): 12/10 – 12/13
Danielle Hull (chair): 1/11 – 8/13
Sara Coffey (co-chair with McManus): 8/13 -
Chih-Chiang (Oliver) Hsieh (OCN-MGG): 8/13 -
Amanda Timmerman (co-chair, with M. McManus: 9/10-
Ana Vaz (OCN-PO) (8/06-10/08)
Emma Williams, MGG (chair): 8/06-
Christine Pequignet, (OCN-PO): 8/05-1/07
Parker Mason (OCN-PO): 8/05-
Jennifer Brum (OCN-BO): 8/05-
Jennifer Schulz (OCN-BO): 12/03 -
Rebecca Briggs, MGG (chair): 8/04 -

GES Undergraduate Senior Thesis Advisor (4)

Daniel Sulak (2007-2009)
Amanda Ricardo (2008, member Honors Committee; Glazer Chair)
Danielle Hull (2008-2010)
Danny McCoy (2011)

GES Undergraduate Academic Advisor (18)

Caroline ?? (2006-2007)
C. Kontoes (2006-2007)
Conor Jerolmon (2011-2014)
Anela Whisenhunt (2011)
Jeremy Basunana (2011-2012)
Erika Mizokuchi (fall 2011-2013)
Matthew Brady (fall 2013)
Caitlin Demers (fall 2013)
Stephanie Iha (fall 2013 - spring 2016)
Rachel Chang (fall 2013 - spring 2016)

Lauren Yumol (fall 2014 - spring 2016)
Katy Christensen (fall 2013 - spring 2016)
Ted Conroy (fall 2014 - 2015)
Elizabeth Dionne (2015 - 2018)
Carla Mae Esquivel (2015 - 2018)
Michelle Marchant (2015 -2016)
Norma-Jean Driscoll (2016 - 2018)
Zoe Curley (2016 – present)
Christina Zone (2017 - 2018)
Jordan Schmidt (2017-present)

Undergraduate supervisor (11)

Maya Shideler (UH-S-LAB) (2018 – present)
Simone Rey (2017-present)
Ryan Uenten (UH-S-LAB) 2014-2018
Katy Christensen (UH-S-LAB) 1/17-8/17
Kayla Brignac (UH-S-LAB) 2016-2017
Brandon D’Andrea (2013, 2014, 2015)
Camilla Tognacchini (2015)
Ted Conroy (2015)
Caroline Greenwood (2015)
Sierra Baker (2015)
Jason Anthony (UH-S-LAB) 6/13-8/13
Adina Kass (2008 visiting student from U Michigan)
Kahoali’i Keahi (2009-2011; 1/09-6/09 – C-MORE Intern)
Sarah Yasui (Fall 2011)

Unaffiliated students (6):

Camilla Tognacchini (UH-OCN) 6/16-present
Joelle Kubenek (Germany) summer 2015
Kim Falinski (UH-OCN) summer 2011
Adina Kass (U Michigan) 2009-2010
Andrew Whitefield (U Chicago) summer 2007
Juan Izquierdo (Spain) 2000

High School students (7):

Joshua Cole (Puhanou, 2009-2010)
Kayla Morikami (Punahou, 2009-2010)
Lin Rui Li (UH Lab School, 2007 – 2009)
Marley Bice, (WHOI, from UH: Jan - May 2003)
Shawn Johnson (WHOI, from UH: Jan - May 2003)
Kate (WHOI)
So Young Morris (WHOI)

Staff supervisor (7):

Amanda Loveless (2019-present)
Emily Townsend, Lab Assistant (S-LAB, UH) (7/16 – 7/18)

Danielle Hull, Lab Manager (S-LAB, UH) (2/16 – present)
 Rebecca Briggs, Lab Manager (S-LAB, UH) 1/12 – 2/16)
 Marcie Grabowski, Research Assistant (UH: XX - 10/07)
 Tori Ziemann, Research Assistant (WHOI, from UH: Jan – May 2003)
 Mary Lardie, Research Assistant (WHOI, from UH: Jan – May 2003)
 Eileen Monaghan (WHOI: 1995 – 1999)

Postdoc supervisor (3):

Clare Davis (Jan 2019 -)
 Federica Tamburini (WHOI: Jan-Dec 2002; UH: Jan – June 2003)
 Kirsten Laarkamp (WHOI: 2000-2001)
 Sonya Dyhrman (WHOI: 1998-2000)

Field Work (last 5 years)

2003 Participated in 4-week COAST cruise on R/V Revelle, part of my NSF project (1/14-2/14, 03)
 2006-2016 Small boats, He'eia Fishpond, Kane'ohe Bay (DLNR/NOAA and Sea Grant projects)
 2011 RV Kilo Moana (UH), Oahu, teaching cruise, March 4-10th (SOEST Internal funding)
 2011 Kaneohe Bay water column and macroalgae sampling (NOAA project)
 2018 North Atlantic Subtropical Gyre, R/V Atlantic Explorer (NSF-OCE 2018-2020); sent Denys Vonderhaar

Service (2002 – 2018, UH)

Departmental Committees & Service

Department of Oceanography

Mar 2003 – June 2003 Served on Search committee for two GES tenure-track faculty positions
 Sept. 2003 Served on the committee to draft the 'white paper' for future vision of oceanography department, requested by (then) Dean Barry Raleigh
 Dec. 2003 Served on the committee to revise graduate student pre-requisites, course requirements and curriculum
 2003 - 2004 Member, Search Committee to replace Steven Smith
 2002 - 2006 Coordinator, bi-weekly Biogeochemistry Brown Bag lecture/discussion series (a forum for students, postdocs, and staff to present new ideas and data for discussion (initiated 11.13.02; Brian Glazer took over as coordinator 9/06)
 Nov. 2005-August 2006 Chair, committee to organize SNUG and MSB 304 cold rooms
 2008 Chair, ad hoc committee to define the parameters of a faculty hire in the field of Earth Systems Science for the Division of Marine Geology and Geochemistry.
 May 2006 – April 2011 Member, ad hoc committee for Nutrient Analysis Facility
 May 2010 – Dec. 2011 Chair, Graduate Exam Restructuring Committee
 Sept. 2010 – present Awards committee
 Aug. 2011 - Dec. 2011 Department Personnel Committee (DPC)
 Jan 2013 – May 2014 Member, Graduate Exam Restructuring Committee
 Jan. - Mar. 2013 Chair, Graduate Admissions Committee, Marine Chemistry & Geochemistry Division
 March 2013-Aug 2014 Chair, Faculty Search Committee, Marine Chemistry & Geochemistry Position

March 2013-present	Chair, Departmental Ombudsperson Exploration Committee
May 2013-Aug 2014	Department Personnel Committee (DPC)
May 2017 – July 2017	Ad Hoc committee to search for Department Chair
Aug. 2017 - July 2018	Department Personnel Committee (DPC)
Aug. 2017-Nov 2018	Member, Faculty Search Committee, POD
April 2018-	Member, Faculty Search Committee, MGGD

Department of Geology and Geophysics

Aug. 2002 – July 2003	Graduate Studies Committee
Aug. 2003 – July 2005	Graduate Admissions Committee
Aug. 2005 – July 2006	Honors and Relations Committee
Aug. 2008 – July 2009	Honors and Relations Committee
Sept. 2006-Aug. 2007	Graduate Admissions Committee
July 2007-Oct. 2007	Search Committee for GG Assistant/Associate Specialist, Stable Isotope Lab Manager
Aug. 2009 – July 2011	Graduate Studies Committee
Aug. 2011 – Aug. 2013	Honors and Relations Committee
Aug. 2013 – 2018	Graduate Studies Committee
Aug. 2018-	Student Committee

SOEST Committees & Service

Aug. 2011 – Present	PI, S-LAB; supervisor of S-LAB Manager, Dr. Rebecca Briggs, Ms. Danielle Hull (since 2/16)
Aug. 2011 – Present	Chair, S-LAB Advisory Committee
Feb-Mar 2013	Visiting SOEST prospective student cohort committee
Mar.-Aug. 2015	HIMB Director Search Committee
April-May, 2019	Organized and hosted 3-day visit of Dr. Tuba Ozkan-Haller, including meetings, workshops and 2 seminars

UHM Committees & Service

Nov. 2017 – Present	Tenure and Promotions Committee
April-May, 2019	Organized and hosted 3-day visit of Dr. Tuba Ozkan-Haller, including meetings, workshops and 2 seminars

National / International Committees and Service:

- Co-Chair ASLO Ocean Sciences Meeting (Appointed: Fall 2015, serve through March 2017).
- Geochemical Society committee to initiate an annual Robert A. Berner lecture at the Goldschmidt Conference; inaugural lecture August 2017, Paris Goldschmidt; 2ND Lecture at the Boston Goldschmidt conference, August 2018.
- Panelist for NSF-EPSCoR Site Visit, University of Maine, Orono, ME Aug. 22-24, 2017.
- Chair Gordon Research Conference on Chemical Oceanography (Elected term: 2013-2015).
- NSF Workshop participant, Closing the Human Phosphorus Cycle, NSF-FEW Workshop dates: June 8-9, 2015, Arlington, VA

6/1/04 – 6/30/08	Secretary, American Geophysical Union, Ocean Sciences-Marine Geochemistry Section: Organizer of Fall AGU meeting, San Francisco, Organizer of student presentation evaluations for Fall AGU meeting, San Francisco
2008	Co-chair with Dr. R. E. Blake (Yale Univ.) of special session at the 2008 Goldschmidt Conference, July 2008, Vancouver, Canada: Transformations, Transport, and Sequestration of P and N in Aquatic Sediments and Terrestrial Soils: Atomic to Global Scale Fluid-Solid Interactions
2002 – 2016	Associate Editor, Aquatic Sciences – Research Across Boundaries, Springer.
Aug 2009	Discussion leader at the 2009 Gordon Conference on Chemical Oceanography, August 2009, New Hampshire: 'Physical Structure/Dynamics: Biogeochemical Coupling'
Aug. 2011	Invited Discussion Chair, Gordon Conference on Chemical Oceanography
2011	Goldschmidt Conference on Geochemistry (2011): Team Member, organizing Theme 17: Biogeochemistry: From microbes to macro and cycles.
2011-2013	Vice Chair, Gordon Research Conference on Chemical Oceanography
2013 - 2015	Chair, Gordon Research Conference on Chemical Oceanography
2015	NSF Workshop participant, Closing the Human Phosphorus Cycle, NSF-FEW Workshop dates: June 8-9, 2015, Arlington, VA
2015-2017	Co-Chair, ASLO Aquatic Sciences Meeting
2016 - present	Geochemical Society Berner Lecturer selection committee
July-Aug 2017	Panelist, NSF-EPSCoR Site Visit, University of Maine, Orono, ME Aug. 22-24, 2017.
May-Sept., 2010	AGU journal Global Biogeochemical Cycles editor search committee
2011	Goldschmidt Conference on Geochemistry (2011): Team Member, organizing Theme 17: Biogeochemistry: From microbes to macro and cycles
2011	Gordon Conference on Chemical Oceanography, Invited Discussion Chair, August 2011 (D. Burdige, Meeting Chair)
xxx -2003– 2008	Member, Editorial Board, Chemical Geology
May 15-18, 2006	NSF-OCE Review Panel
2006	Co-convener of special session "Biogeochemistry of Planktonic Phosphorus Cycling: Genes to Geochemistry" at Summer ASLO meeting, Victoria, BC, 2006
2004	Workshop committee member, CoOP C-BED exchange Committee (attended workshop 4/5-4/7/04, St. Petersburg, FL, was discussion leader for break-out groups, and participated in drafting of document)
2000 - 2003	CoOP Scientific Steering Committee

Manuscript reviewer for

Deep-Sea Research I & II, Continental Shelf Research, Biogeochemistry, Limnology and Oceanography Methods, Chemical Geology, Estuarine Coastal and Shelf Science, *G³*, *Geochimica et Cosmochimica Acta*, *Marine Ecology Progress Series*, *Estuaries, Limnology and Oceanography*, *Oceanography Magazine*, *Marine Chemistry*, *Estuaries and Coasts*, *Scientia Marina*, *Global Biogeochemical Cycles*, *Aquatic Sciences*, *Science*, *Nature*, *PLOs-One*, *Journal of Hydrology*, *PNAS*, *Marine Geology*

Proposal reviewer for

NOAA, NSF (EAR, OCE, DEB, BIO, PSS), NERC, ACS-PRF, NOAA-ECOHAB, NOAA-COP, NOAA-Sea Grant

Community service activities

2007-present	Informal science advisor for Paepae O He'eia, non-profit native Hawaiian group restoring a coastal fishpond on O'ahu for aquaculture.
2009-2014	Guest lectures/presentations, Kahala Elementary School, various topics related to Oceanography, and making a career as an oceanographer
May 2014	Presented at He'eia Fishpond Science Night May 2014
Sept. 2014	Led Water Quality Workshop at the invitation of Brenda Asuncion (Kua'aina Ulu 'Auamo: KUA) and Kimi Makaiau (Alu Like, Inc.)
2012-2016	Kahala Elementary School Community Committee

Awards

- Woman Scholar Award and Guest Lecturer, Michigan Technological University (2002)
- Coastal Ocean Institute Fellowship, Woods Hole Oceanographic Institution (2001 to 2002)
- Charles D. Hollister Innovative Research Award, WHOI (2001)
- National Academy of Sciences Frontiers of Science Symposium (1999)
- Office of Naval Research Young Investigator Award (1995 to 1998)
- WHOI Postdoctoral Fellowship (1989 to 1990)
- Best Student Paper. Estuarine Research Federation 10th Biennial Conference (1989)
- Estwing Hammer Award for Outstanding Performance in Geology, Yale University (1989)

Invited Lectures

2018	Invited Lecture, University of Southern California, Department of Biology (3/18)
2011	Invited Discussion chair, Gordon Research Conference on Chemical Oceanography
2009	Invited Discussion chair, Gordon Research Conference on Chemical Oceanography
2006	Yale University, New Haven, CT (12/06)
2006	ASLO Summer Meeting, Victoria, BC
2005	Geological Society of America (GSA), Salt Lake City, UT (10/05)
2003	Gordon Research Conference on Chemical Oceanography, Invited talk: <i>Phosphorus Cycling and the Role of Organic Phosphorus in Nearshore Primary Production.</i>
2002	Department of Chemistry, Michigan Technological University
2001	Marine Sciences Research Center, SUNY Stony Brook
2001	SOEST, University of Hawaii
2000	Aquatic Sciences Lecture, MIT Parsons Laboratory
2000	Marine Sciences Research Center, SUNY Stony Brook
2000	Department of Earth Sciences, Boston University
2000	Department of Geological Sciences, University of South Carolina
2000	Department of Earth Sciences, University of New Hampshire, Randolph W. Chapman Colloquium speaker
2000	Center for Marine Science and Technology, UMass Dartmouth
1999	Department of Earth Systems Sciences, Univ. California at Irvine
1997	Department of Geology, University of Rhode Island Graduate School of Oceanography
1997	Department of Marine Sciences, University of North Carolina, Chapel Hill
1994	Department of Geology, State University of New York, Albany
1994	Marine Biological Laboratory, Ecosystems Center, Woods Hole, MA
1993	Center for Research in Isotope Geochemistry and Geochronology (GEOTOP), University of Québec, Montréal
1993	Center for Estuarine and Environmental Sciences, University of Maryland, Chesapeake Biological Laboratory, Solomons, MD

Grants and Contracts

Funded:

1. UHM-SEED-IDEAS Grant: *Developing Strategies to Enhance Gender Equity in STEM Academics within SOEST*. PI: K. Ruttenberg. Granting Period: March – June 2019. Award amount: \$2,500.
2. NSF-OCE, Collaborative Research: *Defining the molecular characteristics of bioavailable dissolved organic phosphorus*. PIs: K. Ruttenberg (Lead PI), Sonya Dyhrman, Columbia-LDEO. Granting period Jan 1, 2018 – Dec 31 2020. Award amount: \$1,116,461; \$717,993 to UH.
3. NSF-EAGER, *Fate of Phosphorus during Photochemical Cycling of Iron Oxyhydr(oxides) in the Upper Ocean*, PI: K. Ruttenberg; granting period: Jan 1, 2014 to Dec. 31 2016, Total budget \$150,000.
4. NOAA Sea Grant Project Development Grant: *Impact of Mangrove Removal on benthic sediment dynamics and redox state in a marine coastal pond: He'eia Fishpond, O'ahu, Hawaii'*; Lead PI: K. Ruttenberg; Co-PI: M. McManus; granting period: April 1, 2014 to March 31, 2015, Total budget \$9,999.
5. NOAA Sea Grant Project Development Grant: *Linking physical variability to the geochemistry and biology of He'eia Fishpond*. Lead PI: M. McManus; Co-PI: K. Ruttenberg; granting period: April 1, 2014 to March 31, 2015, Total budget \$9,999.
6. NOAA Sea Grant Project Development Grant: *Biogeochemical monitoring of the impacts of invasive mangrove removal and potential El Niño effects on He'eia Fishpond*. Lead PI: Brian Glazer; Co-PI: K. Ruttenberg; granting period: xx 1, 2014 to xx 31, 2015, Total budget \$9,999.
7. NOAA Sea Grant: *Impact of Invasive Mangrove Removal on He'eia Fishpond Biogeochemistry*; Lead PI: K. Ruttenberg; Associate Investigators: M. McManus, B. Glazer, C.; granting period: 2012-2014., Total budget \$119,981
8. NSF-OEDG Track I Proposal: *Laulima A 'Ike Pono – Community Collaborations in Geosciences and Place-based Education*. Start date 11/1/09, 3-yr proposal, Total Budget: \$197,855. Co-PIs: Judith Lemus, Florence Thomas (both at HIMB).
9. NOAA-Coral Reef Group: *Tracking Nutrient Sources in Northern Kaneohe Bay*, Start date 4/5/10, 18-month proposal, Total Budget: \$64,031.
10. NOAA-Sea Grant: *The Role of Bottom Sediments in He'eia Fishpond Nutrient Cycling-II*: total budget \$179,975 plus 1 funded GRA, lead PI: K. Ruttenberg; Associate Investigators: M. McManus, B. Glazer, C. Holl; granting period: 2009-2011.
11. NSF-OCE: *Collaborative Research: Biogeochemical Dynamics of Phosphorus in the Coastal Ocean: A Combined Observational, Experimental, and Ecosystem Modeling Study*. Start date 9/1/06, 3-yr proposal, Total Budget: \$713,443; UH Budget: \$202,623, 9/2006-8/2009
12. NOAA-Sea Grant Project Development Grant: *Impact of Coral Spawning Events on Hawaii Coastal Biogeochemistry*. May 15, 2008-June 1, 2009; total budget \$9,999. Co-PI: Dr. Ruth Gates, HIMB
13. NSF-OCE. *Dissolved organic phosphorus cycling in the coastal ocean*. Final year of a 1-year no-cost extension of this initially 3-year grant. K. Ruttenberg, sole PI. The grant expired 8/31/06. Total award was for \$456,522. Remaining funds (\$13,000) were moved to UH in July 2006. 7/2006-9/2006.

Submitted - Pending:

- 1.

Not Funded:

1. NSF-OCE, Collaborative Research: *Defining the molecular characteristics of bioavailable dissolved organic phosphorus*. PIs: K. Ruttenberg (Lead PI), Sonya Dyhrman, Columbia-LDEO, Elizabeth Kujawinski, WHOI; granting period Jan
2. UHM-Seagrant Pre-proposal: *Impact of human-induced environmental change on He'eia Fishpond and adjacent Kane'ohe Bay*. PIs: K. Ruttenberg (Lead PI), Brian Glazer (Co-I); granting period Feb 1, 2018 - Jan. 31, 2020. Total budget: \$83,762.

3. NOAA Sea Grant: *Building capacity state-wide for fishpond water quality data collection, interpretation, and intercomparison*. PI: K. Ruttenberg; Co-PIs: M. McManus, R. Alegado, B. Asuncion, K. Makaiau; granting period: Feb 1, 2016 to Jan 31, 2018, Total budget \$89,922. Funding decision 2015
4. NSF-OCE, *Collaborative Research: Defining the molecular characteristics of bioavailable dissolved organic phosphorus*. PIs: K. Ruttenberg (Lead PI), Sonya Dyhrman, Columbia-LDEO, Elizabeth Kujawinski, WHOI; granting period Jan 1, 2015-Dec. 31, 2018, Total budget \$483,300. Funding decision 2015
5. NSF-MRI: Acquisition of an XRD.
6. SCOPE Investigator Award Proposal: *Coupled Fe-DOP interactions: Implications for DOP bioavailability*. PI: K. Ruttenberg; granting period: Jan 1, 2015-Dec. 31, 2018, Total budget \$562,021. Funding decision 2014.
7. NSF-EAR (Hydrology): *Collaborative Research: Phosphorus Cycle Linkages to the Surface and Subsurface Hydrology of Tonle Sap Lake (Cambodia), a Model Flood-Pulse System*. Lead PI: K. Ruttenberg. Co-PI: William Burnett, FSU. Start date: 8/1/13, 3-yr proposal, UH budget \$447,514. (submitted 12/05/12). Funding decision 2014.
8. NOAA Sea Grant: *Impact of Invasive Mangrove Removal on He'eia Fishpond Biogeochemistry-II*; Lead PI: K. Ruttenberg; Associate Investigators: M. McManus, B. Glazer; granting period: 2014-2016, Total budget \$44,971. Funding decision 2014.
9. NSF-DEB (Coupled Natural Human Systems Program – CNH): *CNH: Impacts of Changing Land Use Practices on the Ecosystem and Community Within a Hawaiian Ahupua'a*, Lead-PI: F. Thomas, Co-PIs: K. Ruttenberg, H. Aikau (Political Sciences), J. Roughgarden (Affiliate Researcher, ?). Start date: 7/1/12, 4-yr proposal, Total budget: \$1,494,137. (submitted 11/18/11).
10. NSF-DEB: Preliminary Proposal: Collaborative Research: *Relative importance of atmospheric phosphorus deposition for nutrient budgets and eutrophication in Lake Victoria*. Lead PI: J. Aller, SUNY Stony Brook. Co-PI: K. Ruttenberg. Start date: xxxx, x-yr proposal, UH budget \$xxxx. (submitted 1/9/12).
11. NSF-MRI: *MRI: Acquisition of Instrumentation for Analysis of Nutrients and Carbon System parameters in Biogeochemical and Ecosystem Studies*. Lead PI: K. Ruttenberg; Co-PI: Frank Sansone.. Start date, 1/15/11, 2 yr proposal. Total Budget: \$586,893. (decision date 4/21/10)
12. 2. NSF-DEB (Coupled Natural Human Systems Program – CNH): *Mahua'ua 'Ai O Hoi: Impacts of change land use practices on the ecosystem and community within a Hawaiian ahupua'a*, Lead-PI: F. Thomas, Co-PIs: K. Ruttenberg, M. Donahue (HIMB), B. Glazer (OCN), H. Aikau (UH-Political Sciences), M. Benham (Hawaiian Studies), M. Freitas (Hawaiian Studies). Start date 6/1/10, 4-yr proposal, Total budget: \$1,499,383. (decision date: 11/17/09)
13. 3. NSF-EAR (Water Sustainability and Climate Program – WSC): *Climate change and sustainable water resources: Restoring a contemporary Hawaiian ahupua'a*. Start date: Lead-PI: F. Thomas, Co-PIs: K. Ruttenberg, H. Dulaiova (GG), J. Cable (UNC), H. Aikau (UH-Political Sciences). Start date 6/1/10, 3-yr proposal, Total Budget: \$. (decision date: 4/15/10)
14. 4. NSF-OCE: *Impact of Redox Oscillations on Coupled Phosphorus-Iron Cycling in Marine Sediments*, Lead PI: K. Ruttenberg; co-PI: B. Glazer. Start date: 1/1/12, 3-yr proposal, Total budget: \$663,983 (submitted 8/15/11). (decision date 12/19/11)
15. 5. NSF-EAR (Hydrology): *Collaborative Research: Phosphorus Cycle Linkages to the Surface and Subsurface Hydrology of Tonle Sap Lake (Cambodia), a Model Flood-Pulse System*. Lead PI: William Burnett, FSU. Co-PI: K. Ruttenberg. Start date: 9/1/12, 2-yr proposal, UH budget \$348,601. (submitted 11/22/11). (decision date: 5/10/12).
16. WERF-Paul L. Busch Award for Innovation in Applied Water Quality Research: *Self-aggregating microalgal growth in wastewater effluent ponds: A vehicle for biofuel production and nutrient capture*. Award amount: \$100,000. Co-applicants: Sonya Dyhrman (WHOI), Ann Mescher (UW).
17. USGS-WRRI: *Submarine Groundwater Discharge into He'eia Fishpond, Oahu: Impact on Nutrient and Trace Metal Cycling, and Ecological Implications*. Start date, 9/1/09, 3-year proposal. Total Budget: \$173,621. Co-PIs: Margaret McManus, Brian Glazer, Peter Swarzenski (USGS), Eric Grossman (USGS); submitted 2/18/09. Declined 7/09.

18. Castle Foundation: *Water Quality and Biogeochemistry in He'eia Fishpond: Development and Implementation of an Aquatic Chemistry / Ecology Teaching Unit*. Total budget: \$81,567. Submitted by UH Foundation (Lisa Ottinger) 6/2/09.
19. NOAA-Sea Grant: *The Role of Bottom Sediments in He'eia Fishpond Nutrient Cycling*. Award period: 2/2007-1/2009. Award Budget \$119,975, lead PI: K. Ruttenberg; Associate Investigators: M. McManus and B. Glazer. (Includes support for 2 GRAs, not included in Award Budget).
20. NSF-OCE: *Collaborative Research: Biogeochemical Dynamics of Phosphorus in the Coastal Ocean: A Combined Observational, Experimental, and Ecosystem Modeling Study*. Start date 9/1/06, 3-yr proposal, Total Budget: \$713,443; UH Budget: \$202,623, 9/2006-8/2009
21. ACS-PRF: *Fate and Biogeochemical Transformations of Riverine Particulate Phosphorus Across the Terrestrial-Ocean Interface: A Tropical System Case Study*. Submitted 5/5/04, 3-yr proposal, \$120,000.

Professional Memberships

- American Geophysical Union
- American Society of Limnology and Oceanography
- Geochemical Society

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