

Grieg F. Steward

Department of Oceanography
University of Hawaii
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Education

Ph.D., Marine Biology (1996)

University of California, San Diego
Scripps Institution of Oceanography
La Jolla, California

B.A., Biology (1986)

Cornell University
Ithaca, New York

Employment

2014–present

Professor

2008–2014

Associate Professor

2002–2008

Assistant Professor

University of Hawai'i at Mānoa
Honolulu, HI 96822

2000 – 2001

Post-Graduate Researcher
University of California, Santa Cruz
Santa Cruz, California

1998 – 2000

Post-Doctoral Research Fellow
Monterey Bay Aquarium Research Institute
Moss Landing, California

1996–1998

Post-Graduate Research Oceanographer
Scripps Institution of Oceanography
La Jolla, California

Other Professional Appointments

2008–2010, 2017–2019

Division Head, Biological Oceanography Division

2009–2010, 2018–2019

Associate Department Chair

1996–present

Review Editor *Aquatic Microbial Ecology*

Major Research Interests

environmental and molecular microbiology; viruses of microorganisms; biological oceanography; plankton ecology; subsurface microbiology; microbial coastal water quality; oceans and human health; methods development

Publications

Citations (Source: Google Scholar accessed 16 May 2021)

	TOTAL	Since 2016
Citations	8754	2519
H-index	45	26
i10-Index	72	52

In the following sections, author underlining indicates undergraduate, graduate student, or Post-doc under my supervision.

Journal Articles

- Revising Schvarcz CR, Wilson, ST, Caffin, M, Li Q, Turk-Kubo KA, White AE, Karl DM Zehr JP, **Steward GF**. A novel, widespread diatom-diazotroph symbiosis in the sea. *Nature Communications*
- Revising DeLong JP, Al-Sammak MA, Al-Ameeli ZT, Dunigan DD, Edwards KF, Fuhrmann JJ, Gleghorn JP, Li H, Haramoto K, Harrison AO, Moore RM, Polson SW, Salsberry ME, Schvarcz CR, **Steward GF**, Van Etten J, Wommack KE. Toward an integrative view of virus phenotype. *Nature Reviews Microbiology*
- 2021 Arisdakessian C, Nigro OD, **Steward GF**, Belcaid M. CoCoNet: An Efficient Deep Learning Tool for Viral Metagenome Binning. *Bioinformatics*, btab213, DOI: [10.1093/bioinformatics/btab213](https://doi.org/10.1093/bioinformatics/btab213)
- 2021 Linney MD, Schvarcz CR, **Steward GF**, DeLong EF, Karl DM. A method for characterizing dissolved DNA and its application to the North Pacific Subtropical Gyre. *Limnology and Oceanography: Methods* 19: 210-221
<https://doi.org/10.1002/lom3.10415>
- 2021 Edwards KF, **Steward GF**, Schvarcz CR. Making sense of size and the tradeoffs shaping viral fitness. *Ecology Letters* 24(2): 363-373.
<https://doi.org/10.1111/ele.13630>.
- 2020 Kukovetz K, Hertel B, Schvarcz CR, Saponaro A, Manthey M, Burk U Greiner T, **Steward GF**, Van Etten J, Moroni A, Thiel G, Rauh O. A functional K⁺ channel from Tetraselmis virus 1, a member of the *Mimiviridae*. *Viruses* 2020, 12, 1107;
<https://doi.org/10.3390/v12101107>
- 2020 Li Q, Edwards KF, Schvarcz CR, Selph KE, **Steward GF**. Plasticity in the grazing ecophysiology of *Florentiella* (Dichtyochophyceae), a mixotrophic nanoflagellate that consumes *Prochlorococcus* and other bacteria. *Limnology and Oceanography*
<https://doi.org/10.1002/lno.11585>
- 2018 Roux S, Adriaenssens EM, Dutilh BE, *et al*. Minimum Information about an Uncultivated Virus Genome (MIUViG) *Nature Biotechnology* 37:29–37.
<https://doi.org/10.1038/nbt.4306>
- 2018 Edwards, KF and **GF Steward**. Host traits drive viral life histories across phytoplankton viruses. *The American Naturalist* 191 (5): 566-581.
<https://doi.org/10.1086/696849>

- 2018 Schvarcz, CA and **GF Steward**. A giant virus infecting green algae encodes key fermentation genes. *Virology* **518**: 423-433 doi: <http://dx.doi.org/10.1086/696849>
- 2017 Nigro, OD, SP Jungbluth, H-T Lin, C-C Hsieh, JA Miranda, CR Schvarcz, MS Rappé, **GF Steward**. Viruses in the Oceanic Basement. *mBio* **8**(2) e02129-16. doi: 10.1128/mBio.02129-16
- 2017 Miranda, JA and **GF Steward**. Variables influencing the efficiency and interpretation of reverse transcription, real-time quantitative PCR (RT-qPCR): an empirical study using Bacteriophage MS2. *Journal of Virological Methods*. **241**: 1-10. doi: [10.1016/j.jviromet.2016.12.002](https://doi.org/10.1016/j.jviromet.2016.12.002)
- 2016 Miranda, JA, AI Culley, CR Schvarcz and **GF Steward**. RNA viruses as major contributors to Antarctic viroplankton. *Environmental Microbiology* **18**(11): 3714-3727. doi:10.1111/1462-2920.13291
- 2015 Nigro OD and **GF Steward**. Differential specificity of selective culture media for enumeration of pathogenic vibrios: advantages and limitations of multi-plating methods. *Journal of Microbiological Methods* **111**: 24-30
- 2014 Culley AI, JA Mueller, M Belcaid, EM Wood-Charlson, G Poisson, **GF Steward**. The characterization of RNA viruses in tropical seawater using targeted PCR and metagenomics. *mBio* **5**(3):e01210-14. doi:10.1128/mBio.01210-14.
- 2014 JA Mueller, Culley AI, **GF Steward**. Variables influencing extraction of nucleic acids from microbial plankton (viruses, bacteria, and protists) collected on nanoporous aluminum oxide filters. *Applied and Environmental Microbiology* **80**(13): 3930-3942
- 2014 Durham, BP, J Grote, KA Whittaker, SJ Bender, H Luo, SL Grim, JM Brown, JR Casey, A Dron, L Florez-Leiva, A Krupke, CM Luria, AH Mine, OD Nigro, S Pather, A Talarmin, EK Wear, TS Weber, JM Wilson, MJ Church, EF DeLong, DM Karl, **GF Steward**, JM Eppley, NC Kyrpides, SC Schuster, and MS Rappé. Draft genome sequence of marine alphaproteobacterial strain HIMB11, the first cultivated representative of a unique lineage within the Roseobacter clade possessing an unusually small genome. *Standards in Genomic Sciences* **9**: 632-645
- 2014 Fiedler JW, MA McManus, MS Tomlinson, EH De Carlo, GR Pawlak, **GF Steward**, OD Nigro, RE Timmerman, PS Drupp, JR Wells, CE Ostrander. Real-time observations of the February 2010 Chile and March 2011 Japan tsunamis in Honolulu, Hawaii as recorded by the Pacific Islands Ocean Observing System. *Oceanography* **27**(2): 186-200
- 2013 Brum JR, AI Culley, **GF Steward**. Assembly of a marine metagenome after physical fractionation. *PLoS ONE* **8**(4): e60604 (doi:10.1371/journal.pone.0060604)
- 2013 Johnson AE, BS Powell, GF Steward. Characterizing the effluence near Waikiki, Hawaii with a coupled biophysical model. *Continental Shelf Research* **54**: 1-13 (doi: 10.1016/j.csr.2012.12.007)
- 2013 **Steward GF**, AI Culley, JA Mueller, EM Wood-Charlson, M Belcaid, G Poisson. Are we missing half the viruses in the sea? *ISME Journal* **7**(3) 627-679. Advance online publication 2012 doi: 10.1038/ismej.2012.121
- 2012 Nigro OD, AI Culley, **GF Steward**. Complete genome sequence of bacteriophage VvAW1, which infects *Vibrio vulnificus*. *Standards in Genomic Science* **6**: 415-426

DOI:10.4056/sigs.2846206.

- 2011 Grote J, A Altunkaya, C Bayindirli, K Bergauer, P Moraes, H. Chen, L D'Ambrosio, B Edwards, B Fernández-Gomez, M Hamisi, R Logares, D Nguyen, S Rii, E Saeck, C Schutte, B Widner, MJ Church, **GF Steward**, DM Karl, EF DeLong, JM Eppley, SC Schuster, NC Kyrpides, MS Rappé. Draft genome sequence of strain HIMB100, a cultured representative of the SAR116 clade of marine alphaproteobacteria. *Standards in Genomic Sciences* 5(3) 269-278.
- 2011 **Steward GF** and CM Preston. Analysis of a viral metagenome from 200 m depth in Monterey Bay, California constructed by direct cloning. *Virology Journal* 8:287 doi: 10.1186/1743-422X-8-287
- 2011 Nigro OD, A Hou, G Vithanage, RS Fujioka, **GF Steward**. Seasonal and spatial variability in pathogenic *Vibrio* spp. in Lake Pontchartrain, Louisiana, USA following Hurricanes Katrina and Rita. *Applied and Environmental Microbiology* 77(15): 5384-5393 doi:10.1128/AEM.02509-10
- 2011 Tomlinson MS, EH DeCarlo, MA McManus, G Pawlak, **GF Steward**, FJ Sansone, OD Nigro, CE Ostrander, RE Timmerman, J Patterson, S Jaramillo. Characterizing the effects of two storms on the coastal waters of O'ahu, Hawai'i, using data from the Pacific Islands Ocean Observing System. *Oceanography* 24(2): 40-57
- 2011 Brum JR, and **GF Steward**. Physical fractionation of aquatic viral assemblages. *Limnology and Oceanography: Methods* 9: 150-163. doi: 10.4319/lom.2011.9.150
- 2011 Farnelid H, AF Andersson, S Bertilsson, WA Al-Soud, LH Hansen, S Sørensen, **GF Steward**, Å Hagström, and L Riemann. The nitrogenase gene pool in surface waters of the global ocean is dominated by genes of non-cyanobacteria *PLoS One* 6(1) e19223. doi:10.1371/journal.pone.0019223
- 2010 Brum JR, and **GF Steward**. Morphological characterization of viruses in the stratified layers of alkaline, hypersaline Mono Lake. *Microbial Ecology* 60(3): 636-643
- 2010 Riemann L, H Farnelid, **GF Steward**. Nitrogenase genes in non-cyanobacterial plankton: prevalence, diversity and regulation in marine waters. *Aquatic Microbial Ecology* 61(3): 235-247. doi: 10.3354/ame01431 (www.int-res.com/articles/ame_oa/same/samepp2.pdf)
- 2009 Culley AI, B Asuncion, **GF Steward**. Detection of inteins among diverse DNA polymerase genes of uncultivated members of the *Phycodnaviridae*. *The ISME Journal*. Published online, December 11, 2008; DOI:10.1038/ismej.2008.120. Published in print 2009 3: 409-413
- 2009 Lang AS, ML Rise, Culley AI, **GF Steward**. RNA viruses in the Sea. *FEMS Microbiology Reviews*. Published online 26 September 2008. DOI: 10.1111/j.1574-6976.2008.00132.x. Published in print March 2009 33(2): 295-323
- 2008 McManus MA, RM Kudela, MW Silver, **GF Steward**, PL Donaghay, JM Sullivan. Cryptic blooms: Are thin layers the missing connection? *Estuaries and Coasts* 31: 396-401
- 2007 Bergeron A, M Belcaid, **GF Steward** and G Poisson. Divide and conquer: enriching environmental sequencing data. *PLoS ONE* 2(9): e830. doi:10.1371/journal.pone.0000830

- 2007 Culley AI and **GF Steward**. New genera of RNA viruses in subtropical seawater inferred from polymerase gene sequences. *Applied and Environmental Microbiology* 73(18): 5937-5944
- 2007 Sinigalliano CD, ML Gidley, T Shibata, D Whitman, TH Dixon, E Laws, A Hou, D Bachoon, L Brand, L Amaral-Zettler, R Gast, **GF Steward**, OD Nigro, R Fujioka, WQ Betancourt, G Vithanage, J Mathews, LE Fleming, HM Solo-Gabriele. Legacy of Hurricane Katrina on the microbial landscape of the New Orleans area. *Proceedings of the National Academy of Sciences of the USA* 104(21): 9029-9034
- 2007 **Steward GF**, LB Fandino, JT Hollibaugh, TE Whitley, and F Azam. Microbial biomass and viral infections of heterotrophic prokaryotes in the sub-surface layer of the central Arctic Ocean. *Deep-Sea Research I* 54(10): 1744-1757
doi:10.1016/j.dsr.2007.04.019 [available online ahead of print 16 May 2007]
- 2007 **Steward GF** and MS Rappé. What's the "meta" with metagenomics? *The ISME Journal* 1(2): 100-102 [Invited Commentary]
- 2006 Moisaner PH, L Shiue, **GF Steward**, BD Jenkins, BM Bebout, JP Zehr. Application of an oligonucleotide microarray for profiling diversity of N₂-fixing microorganisms and *nifH* gene expression in marine microbial mats. *Environmental Microbiology* 8(10): 1721-1735
- 2006 Workman M, (Advisors: OD Nigro, **GF Steward**). Identification of prophages in coastal water isolates of *Staphylococcus aureus*. *Journal of Young Investigators* Volume 15 [online at www.jyi.org/research/re.php?id=844]
- 2005 Brum JR, **GF Steward**, S Jiang, R Jellison. Spatial and Temporal variability of bacteria, viruses, and viral infections of prokaryotes in an alkaline, hypersaline lake. *Aquatic Microbial Ecology* 41: 247-260
- 2005 Fandino, LB, L Riemann, **GF Steward** and F Azam. Population dynamics of *Cytophaga-Flavobacteria* during marine phytoplankton blooms analyzed by quantitative (TaqMan) PCR. *Aquatic Microbial Ecology* 40: 251-257
- 2005 Stotts S, (Advisors: O Nigro, TL Fowler, RS Fujioka, and **GF Steward**). Virulence and antibiotic resistance gene combinations among *Staphylococcus aureus* isolates from coastal waters of Oahu, Hawaii. *Journal of Young Investigators* Volume 12 [online at www.jyi.org/research/re.php?id=148]
- 2004 Suzuki, MT, CM Preston, O Béja, JR de la Torre, **GF Steward**, and EF DeLong. Quantitative phylogenetic screening of ribosomal RNA gene-containing clones in Bacterial Artificial Chromosome (BAC) libraries from different depths in Monterey Bay. *Microbial Ecology* 48(4): 473-488.
- 2004 Brum, JR, **GF Steward**, and DM Karl. A novel method for the measurement of dissolved deoxyribonucleic acid in seawater. *Limnology and Oceanography: Methods* 2: 248-255
- 2004 **Steward GF**, JP Zehr, R Jellison, JP Montoya, and JT Hollibaugh. Vertical distribution of nitrogen-fixing phylotypes in a meromictic, hypersaline lake. *Microbial Ecology* 47: 30-40

- 2004 Jiang S, **G Steward**, R Jellison, W Chu and S Choi. Abundance, distribution and diversity of viruses in alkaline, hypersaline, Mono Lake, California. *Microbial Ecology* 47: 9-17
- 2004 **Steward, GF**, BD Jenkins, BB Ward, and JP Zehr. Development and testing of a DNA macroarray to assess nitrogenase gene (*nifH*) diversity. *Applied and Environmental Microbiology* 70: 1455-1465
- 2004 Jenkins, BD, **GF Steward**, SM Short, BB Ward, JP Zehr. Fingerprinting diazotroph communities in the Chesapeake Bay using a DNA macroarray *Applied and Environmental Microbiology* 70: 1767-1776
- 2003 Middelboe M, L Riemann, **GF Steward**, V Hansen, O Nybroe. Virus-induced transfer of organic carbon between marine bacteria in a model community. *Aquatic Microbial Ecology* 31: 1-10.
- 2003 Zehr JP, BD Jenkins, SM Short, **GF Steward**. Nitrogenase gene diversity and microbial community structure: a cross-system comparison. *Environmental Microbiology* 5 (7): 539-554
- 2001 Ducklow HW, CA Carlson, M Church, DL Kirchman, DC Smith and **GF Steward**. The seasonal development of the bacterioplankton bloom in the Ross Sea, Antarctica, 1994-97. *Deep-Sea Research II* 48: 4199-4221
- 2001 Ducklow HW, DC Smith, L Campbell, MR Landry, HL Quinby, **GF Steward** and F Azam. Heterotrophic bacterioplankton distributions in the Arabian Sea: Basin-wide response to high primary productivity. *Deep-Sea Research II* 48: 1303-1323
- 2001 Fandino LB, L Riemann, **GF Steward**, RA Long and F Azam. Variations in bacterial community structure during a dinoflagellate bloom analyzed by DGGE and rDNA sequencing. *Aquatic Microbial Ecology* 23: 119-130
- 2001 Kirchman DL, B Meon, HW Ducklow, CA Carlson, DA Hansell and **GF Steward**. Glucose fluxes and concentrations of dissolved combined sugars (polysaccharides) in the Ross Sea and Polar Front Zone, Antarctica. *Deep-Sea Research II* 48: 4179-4197
- 2001 Zehr JP, JB Waterbury, PJ Turner, JP Montoya, E Omoregie, **GF Steward**, A Hansen and DM Karl. Unicellular cyanobacteria fix N₂ in the subtropical North Pacific Ocean. *Nature* V412:635-638.
- 2000 Ducklow HW, M-L Dickson, DL Kirchman, **GF Steward**, J Orchardo, J Marra and F Azam. Constraining bacterial production, conversion efficiency, and respiration in the Ross Sea. *Deep-Sea Research II* 47: 3227-3247
- 2000 Garrison, DL, MM Gowing, MP Hughes, L Campbell, DA Caron, MR Dennett, A Shalapyonok, RJ Olson, MR Landry, SL Brown, HB Liu, F Azam, **GF Steward**, HW Ducklow and DC Smith. Microbial food web structure in the Arabian Sea: a US JGOFS study. *Deep-Sea Research II* 47: 1387-1422
- 2000 Grossart H-P, **GF Steward**, J Martinez. and F Azam. A simple, rapid method for demonstrating bacterial flagella. *Applied and Environmental Microbiology* 66: 3632-3636

- 2000 Riemann L, **GF Steward** and F Azam. Dynamics of bacterial community composition and activity during mesocosm diatom blooms. *Applied and Environmental Microbiology* 66: 578-587
- 2000 Rohwer F, A Segall, **G Steward**, V Seguritan, M Breitbart, F Wolven and F Azam. The complete genomic sequence of the marine phage Roseophage SIO1 indicates homology with non-marine phages. *Limnology and Oceanography* 45: 408-418
- 2000 **Steward GF**, IL Montiel and F Azam. Genome size distributions indicate variability and similarities among marine viral assemblages from diverse environments. *Limnology and Oceanography* 45: 1697-1706
- 1999 Riemann L, **GF Steward**, LB Fandino, L Campbell, MR Landry and F Azam. Bacterial community composition during two consecutive NE monsoon periods in the Arabian Sea studied by denaturing gradient gel electrophoresis (DGGE) of rRNA genes. *Deep Sea Research II* 46: 1791-1811
- 1999 **Steward GF** and F Azam. Bromodeoxyuridine as an alternative to ³H-thymidine for measuring bacterial productivity in aquatic samples. *Aquatic Microbial Ecology* 19: 57-66
- 1996 Martinez J, DC Smith, **GF Steward** and F Azam. Variability in ectohydrolytic enzyme activities of pelagic marine bacteria and its significance for substrate processing in the sea. *Aquatic Microbial Ecology* 10: 223-230.
- 1996 **Steward GF**, DC Smith and F Azam. Abundance and production of bacteria and viruses in the Bering and Chukchi Seas. *Marine Ecology Progress Series* 131: 287-300.
- 1995 Smith DC, **GF Steward**, RA Long and F Azam. Bacterial mediation of carbon fluxes during a diatom bloom in a mesocosm. *Deep-Sea Research Part II* 42: 75-97.
- 1994 Azam F, **GF Steward**, DC Smith and HW Ducklow. Significance of bacteria in carbon fluxes in the Arabian Sea. *Proceedings of the Indian Academy of Sciences (Earth and Planetary Science)* 103: 341-351. [Review]
- 1994 Azam F, DC Smith, **GF Steward** and Å Hagström. Bacteria-organic matter coupling and its significance for oceanic carbon cycling. *Microbial Ecology* 28: 167-179. [Review]
- 1993 Cochlan WP, J Wikner, **GF Steward**, DC Smith and F Azam. Spatial distribution of viruses, bacteria and chlorophyll-a in neritic, oceanic and estuarine environments. *Marine Ecology Progress Series* 92: 77-87.
- 1993 Wikner J, JJ Vallino, **GF Steward**, DC Smith and F Azam. Nucleic acids from the host bacterium as a major source of nucleotides for three marine bacteriophages. *FEMS Microbiology Ecology* 12: 237-248.
- 1992 Hollibaugh JT, PS Wong, F Azam, DC Smith, **GF Steward** and BE Cole. Measurement of bacterioplankton production in Antarctic coastal waters: comparison of thymidine and l-leucine methods and verification of labeling patterns. *Antarctic Journal of the United States* 27(5): 127-128.

- 1992 Smith DC, **GF Steward**, F Azam and JT Hollibaugh. Virus and bacteria abundance in the Drake Passage during January and August 1991. *Antarctic Journal of the United States* 27: 125-127.
- 1992 **Steward GF**, J Wikner, DC Smith, WP Cochlan, and F Azam. Estimation of virus production in the sea: I. Method development. *Marine Microbial Food Webs* 6: 57-78
- 1992 **Steward GF**, J Wikner, WP Cochlan, DC Smith and F Azam. Estimation of virus production in the sea: II. Field results. *Marine Microbial Food Webs* 6: 79-90
- 1989 Chang HM, CB Berde, GG Holz 4th, **GF Steward** and RM Kream. Sufentanil, morphine, met-enkephalin, and kappa-agonist (U-50,488H) inhibit substance P release from primary sensory neurons: a model for presynaptic spinal opioid actions. *Anesthesiology* 70: 672-677

Book Chapters

- 2013 **Steward, GF**, AI Culley, EM Wood-Charlson. Marine Viruses. In Levin, S. [ed]. *Encyclopedia of Biodiversity*. Academic Press.
- 2010 Culley, AI, CA Suttle, and **GF Steward**. Characterization of the diversity of marine RNA viruses. In CA Suttle, SW Wilhelm and MG Weinbauer [eds.], *Manual of Aquatic Viral Ecology*. American Society of Limnology and Oceanography.
- 2010 Lawrence, JE, and **GF Steward**. Purification of viruses by centrifugation. In CA Suttle, SW Wilhelm and MG Weinbauer [eds.], *Manual of Aquatic Viral Ecology*. American Society of Limnology and Oceanography.
- 2010 **Steward, GF**, and AI Culley. Extraction and purification of nucleic acids from viruses. In CA Suttle, SW Wilhelm and MG Weinbauer [eds.], *Manual of Aquatic Viral Ecology*. American Society of Limnology and Oceanography.
- 2001 Noble RT and **GF Steward**. Estimating viral proliferation in aquatic samples. In: J. Paul (ed) Marine Microbiology. Methods in Microbiology Series Vol 30. Academic Press Ltd., London
- 2001 **Steward GF**. Fingerprinting viral assemblages by pulsed field gel electrophoresis (PFGE). In: J. Paul (ed) Marine Microbiology. Methods in Microbiology Series Vol 30. Academic Press Ltd., London
- 2000 **Steward GF** and F Azam. Analysis of marine viral communities. In: C. R. Bell, M. Brylinski and P. Johnson-Green (ed) Microbial Biosystems: New Frontiers. *Proceedings of the 8th International Symposium on Microbial Ecology*, Atlantic Canada Society for Microbial Ecology, Halifax pp. 159-165
- 1995 Azam F, DC Smith, RA Long and **GF Steward**. Bacteria in oceanic carbon cycling as a molecular problem In: I. Joint (ed.) Molecular Ecology of Aquatic Microbes. NATO ASI Series Vol. G 38, Springer-Verlag, Berlin, p. 39-54.

Technical Reports

- 2009 Joint I, Karl DM, Doney SC, Armbrust VE, Balch WM, Beman M, Bowler C, Church M, Dickson A, Heidelberg JF, Iglesias-Rodriguez D, Kirchman D, Kolber ZS, Letelier R, Lupp C, Maberly S, Park S, Raven J, Repeta DJ, Riebesell U, **Steward G**, Tortell P, Zeebe RE, Zehr JP. Consequences of high CO₂ and ocean acidification for microbes in the global ocean. Report from an Expert Meeting 24-26 February 2009 in Honolulu HI. Organized by Plymouth

Marine Laboratory, Plymouth, UK and the Center for Microbial Oceanography: Research and Education, Honolulu, HI. Document (PDF) available at:

www.pml.ac.uk/research/marine_biogeochemistry/ocean_acidification/consequences_for_microbes.aspx

Public Outreach Articles

2005 **Steward GF** Viruses in Mono Lake. *Mono Lake Newsletter* Vol XXVII, No. 2, p. 7

Professional Awards and Activities

Awards

- 2020 Board of Regent's Medal for Excellence in Teaching – University of Hawai'i
2020 Excellence in Teaching Award – Na Kama Kai oceanography graduate student organization
2015 Department of Oceanography Edward D. Stroup Award for Excellence in Undergraduate Teaching
1996 Teaching Assistant Excellence Award. Department of Biology, University of California, San Diego

Other Honors & Activities

- 2017 Selected as one of three “Master Teachers” for Spring 2017, by Center for Teaching Excellence, UH Manoa <http://www.cte.hawaii.edu/masterteachers.html>
2017 Travel Award for *Expert Lecture Series*, University of the Philippines, Diliman
2006 Outside opponent, Dissertation Defense of Kjärstin Boström, University of Kalmar, SWEDEN
2005 Associate Member, SCOR Marine Virus Working Group (SCOR WG126)
2003-2004 Participant in the NASA Astrobiology Institute Virus Focus Group
2001 Velux Visiting Professors Program. Marine Biological Laboratory, Helsingør, DENMARK

Invited Talks

- 2019 Symposium on Giant Virus Biology. Max Planck Institute, Schloss Ringberg, Tegernsee, Germany. *Viruses in the sea: why be big?* Nov 18.
2019 CaliciNet User Meeting, Keynote Speaker. Honolulu, HI. *Navigating a sea of viruses – new discoveries in the ocean virome.* May 20.
2019 Hanauma Bay Education Program, “Hanauma Talks”. Honolulu, HI. *Double agents: viruses as enemies and allies of the plankton.* March 14.
2017 University of the Philippines, Diliman, Marine Sciences Institute. “World Expert Lecture Series”. *A sea of infections: a remarkable menagerie of marine viruses shapes ocean life from surface waters to deep in the ocean basement.* May 24
2017 Heriot-Watt University, Lyell Center, Edinburgh by videoconference. *The pervasive influence of viruses on marine life.* April 21
2015 University of Tennessee, Knoxville, Department of Microbiology. *Was it something I ate? A photosynthetic flagellate, a giant ingestible virus, and the mixed blessings of mixotrophy* Sep 28
2015 Marine Molecular Ecology, Gordon Research Conference at Hong University of

- Science and Technology *Deep Infection: Viruses Lurk in the Subsurface Fluids of the Oceanic Crust* Aug 2-7
- 2014 Hanauma Bay Education Center, Honolulu, HI. *Oceans and Human Health: exploring our microbial connections to the sea*. October 13.
- 2014 Center for Dark Energy Biosphere Interactions (C-DEBI) Annual Meeting, Marina, CA. *Viruses in the deep subsurface crustal fluids: sampling challenges and first results*. October 3.
- 2014 NASA Astrobiology Institute Seminar Series, Honolulu, HI. *Tracking tiny giants to the edge of life*. April 21.
- 2014 Nerd Nite Honolulu. My Tiny Valentine: *Viruses can make you sick, but can they also make you sexy?* February 26.
- 2013 International Symposium on Giant Virus Biology, Tergensee, GERMANY. A giant virus infecting a marine phytoplankter in the genus *Florenciella* (Dictyochophyceae). November 17-20.
- 2013 Department of Chemistry, University of Hawaii, Honolulu, HI. *Viruses in the sea: where supramolecular chemistry meets marine ecology*. February 25.
- 2012 National Marine Environmental Monitoring Center, Dalian, CHINA. *Opportunities for monitoring pathogens in the marine environment: a case study with Vibrio vulnificus*. October 22-26.
- 2010 Palmer Station Science Lectures: *Viruses Rule the Sea! Driving ecology and evolution from the Arctic to the Antarctic*. Palmer Station, Antarctica, November 9, 2010.
- 2009 ReefTalk Public Service Presentation. Microbial water quality monitoring. Kailua-Kona, HI, August 18, 2009.
- 2009 Hawaii's Dynamic Ocean: Hawaii Ocean Observing System Public Lecture Series, Honolulu, HI. *Ocean observing systems: challenges and opportunities for microbial water quality monitoring*. February 11, 2009.
- 2008 Hanauma Bay Education Program, Educational Lecture Series. Honolulu, HI. *Marine viruses – are they threats to you?* August 14, 2008.
- 2006 Scripps Institution of Oceanography, La Jolla, CA. Symposium in honor of Farooq Azam's 65th Birthday. *An Azam Tale about Coming of Phage in the 1990's*. February 2007.
- 2006 University of Kalmar, SWEDEN. *Virus Aquaticus*. February 2007.
- 2004 Department of Microbiology Seminar Series, University of Hawaii, Honolulu, HI. *Prospects and problems of using DNA arrays to study microbial community diversity: a case study with the nitrogenase gene*. September 2004.
- 2004 Pacific Research Center for Marine Biomedicine Seminar Series, University of Hawaii, Honolulu, HI. *Swimming in the Gene Pool: Marine Microbial Ecology and Human Health*. August 2004.
- 2002 Ocean Sciences Meeting, Honolulu, HI *Assessing Viral Diversity in the Sea*. February 2002.
- 1999 American Society of Limnology and Oceanography General Meeting, Santa Fe, New Mexico, USA *Measuring bacterial growth rates in aquatic environments: A new approach*. February 1999.

1998 8th International Symposium on Microbial Ecology, Halifax, Nova Scotia, Canada
Analysis of marine viral communities: The killers' fingerprints. August 1998.

Field Work

I have participated in dozens of oceanographic research cruises, which have included work in the **Adriatic and Arabian Seas** and the **Arctic, Atlantic, and Pacific and Southern Oceans** aboard large and small oceanographic research vessels and a nuclear submarine. I have also participated in dozens of sampling expeditions in coastal seas and inland water bodies using small boats (~25 to 60 ft). In my research I have employed ROVs (*Tiburón* from MBARI and *Jason* from WHOI) and I have conducted coastal and blue water SCUBA diving operations. From 2007-2015, I participated in the planning and execution of annual 8- to 10-day expeditions aboard the R/V *Kilo Moana*, a SWATH vessel based at the University of Hawaii Marine Center as part of a summer training course for graduate students in microbial oceanography. I have also led and directly participated in field expeditions by my lab to sample coastal waters of **Antarctica** (2010) and seafloor fluids of the **Juan de Fuca Ridge Flank** (2013) and the North Pond sediment basin at the **Mid-Atlantic Ridge** (2017).

Research Funding

Year on left indicates year proposal was submitted

* = those for which I am or was Principal Investigator

Pending

2021 NSF (Biological Oceanography) Giant viruses in the open ocean: Is large size adaptive when cells are scarce? **\$1,176,227** UH PI: Kyle Edwards. co-PIs: Grieg Steward, Christopher Schvarcz.

Funded – Current

* 2017 NSF (OIA; EPSCoR) 17-36030 *G2P in VOM: An experimental and analytical framework for genome to phenome connections in viruses of microbes* (2017 Sep 01 – 2020 Aug 31) \$5,999,994 total among four collaborating institutions. Subaward of **\$1,126,130** to UH PI: Grieg Steward, co-PI Kyle Edwards.

Funded – Completed

2017 Hawaii Sea Grant. *Enabling real-time predictive modeling of microbial pathogen risk along the Honolulu shoreline* (2018 April 01 – 2020 Mar 31) **\$89,930** PI: Craig Nelson

2017 UH Manoa Strategic Initiative. *SMART Ala Wai: Strategic Monitoring and Resilience Training in the Ala Wai Watershed* (2017 Dec 01 – 30 Jun 2019) **\$600,000** PI: Brian Glazer

*2016 NSF (Biological Oceanography) 16-36402 *Infections in the basement: viral interactions with microbiota inhabiting crustal basalt of the Mid-Atlantic Ridge flank* (2016 Oct 01-2018 Sep 30; no-cost extension to Sep 2020) **\$285,219** PI: Grieg Steward. Co-PI: Mahdi Belcaid

- *2015 NSF (Biological Oceanography) 15-59356 *Eating themselves sick? Ecological interactions among a mixotrophic flagellate, its prokaryotic prey, and a giant ingestible virus* (2016 Mar 01-2019 Feb 28; no-cost extension to March 2020) **\$774,532** PI: Grieg Steward. Co-PI: Kyle Edwards, Karen Selph (My portion 40%)
- *2015 CDEBI *Genomic and proteomic characterization of uncultivated viruses from large-volume samples of crustal fluids from the Juan de Fuca Ridge flank* (2015 April 01-2016 March 31) **\$63,225** PI: Grieg Steward (My portion 100%)
- *2014 NSF STC: Center for Dark Energy Biosphere Interactions (Postdoctoral Fellowship for my post-doc, Olivia Nigro). *Characterizing Viruses and their Influence on the Microbial Community within the Basement Fluids of the Juan de Fuca Ridge Flank* (2014 Apr 01 – 2016 Mar 30) **\$120,000** PI: Grieg Steward
- 2013 Center for Tropical and Subtropical Aquaculture *Increasing production and improving food safety for Hawaii's new bivalve industry* (2014 Oct 01-2016 Sep 30) **\$87,143** PI: Maria Haws, Collaborators: Grieg Steward (my portion 30%), Robert Howerton
- *2013 CDEBI *Metagenomic and electron microscopic investigation of viruses and viral infections of prokaryotes in oceanic basement fluids* (2013 Aug 01-2014 Jul 30) **\$49,809** PI: Grieg Steward (My portion 100%)
- *2012 CFIDS Foundation, Inc. *Testing for the presence of vibrio bacteria in clinical samples from CFIDS patients* (2012 Aug-2014 Jun) **\$31,166** PI: Grieg Steward (My portion 100%)
- *2011 NOAA (Sea Grant) *Environmental control of pathogenic vibrios and its implications for sustainable coastal development in Waikiki* **\$59,504** PI: Grieg Steward; Co-PI: Brian Powell (My portion 50%)
- 2011 NSF (Science and Technology Center) OCE 04-24599 *Center for Microbial Oceanography – Research and Education (C-MORE). RENEWAL* (2011– 2016) **\$17,976,000** PI: Dave Karl (UH), Co-PIs: Ed DeLong (MIT), Sallie Chisholm (MIT), Jonathan Zehr (UCSC). (Portion supporting research in my group varies from ca. **\$40-130K** per annum on average or about 2%)
- *2010 NSF (Office of Polar Programs) PLR 09-44851 *Contribution of viruses to spring bloom dynamics in the Western Antarctic Peninsula* (2010 Aug 15 – 2013 Aug 14) **\$390,849** PI: Grieg Steward (My portion 100%)
- 2010 NSF (Major Research Instrumentation) DBI 10-40548 *MRI: Acquisition of instrumentation for transmission electron microscopy at the University of Hawaii* (2010 August 01 – 2013 July 31) **\$404,128** PI: M. Dunlap (Pacific Biosciences Research Center) Co-PIs: D. Christopher (Molecular Biosciences and Bioengineering), D. Hartline (Békésy Laboratory of Neurobiology), A. Sherwood (Botany), G. Steward (Oceanography)- My “portion” may be estimated as 20% (1 of 5 PIs), but there is no direct funding for me.
- *2009 Hawaii Sea Grant *Vibrio vulnificus strains in coastal waters of Hawaii: distinguishing the good from the bad* (June 01 - Dec 31, 2009), **\$9,879** PI: G.F. Steward (My portion 100%)
- *2008 NSF (Biological Oceanography) OCE 08-26650 *Diversity and ecology of marine RNA viruses* (2008 Sep 01 – 2011 Aug 31) **\$498,325** PI: G.F. Steward (My portion about 60%) Co-PIs: A.I. Culley (Oceanography), G. Poisson (Information and Computer Sciences)

- 2007 NOAA (OOI) Developing the Hawaii-Pacific Ocean Observing and Information System (2007 Oct 01 – 2010 Sep 30) **\$7,213,164** Collaborators: Brian Taylor (**PI**), Bruce Applegate, Whitlow Au, Ben Brooks, Eric DeCarlo, Margo Edwards, Pierre Flament, Chip Fletcher, Kim Holland, Roger Lukas, Margaret McManus, Mark Merrifield, Geno Pawlak, James Potemra, John Sibert
- *2006 NSF (Small Grants for Exploratory Research) OCE *Abundance and diversity of RNA viruses in oligotrophic oceans.* (2006 Mar 01 – 2007 Feb 28) **\$106,240** PI: Grieg Steward (My portion 100%)
- 2006 NSF (Science and Technology Center) OCE 04-24599 *Center for Microbial Oceanography – Research and Education* (2006 Oct 01– 2011 Sep 30) **\$18,960,000** PI: Dave Karl (UH), Co-PIs: Ed DeLong (MIT), Sallie Chisholm (MIT), Jonathan Zehr (UCSC). (Portion supporting research in my group varies from ca. **\$40-130K** per annum on average or about 2%)
- *2005 NSF (Small Grants for Exploratory Research) OCE 06-21729 *Assessing abundance and diversity of RNA viruses in seawater.* (2006 Mar 01 – 2007 Feb 28) **\$106,240** PI: Grieg Steward (my portion 100%)
- *2005 NSF (Small Grants for Exploratory Research) CHEM OCE 05-54768 *Identifying sources of fecal contamination and the prevalence of human pathogens in water, sediments, and shellfish of Lake Pontchartrain in response to floodwater pumping* (2005 Oct 15 – 2007 Mar 31) **\$148,821** PI: Grieg Steward, Collaborators: R. Fujioka, P. Loh, S. Seifried, A. Tice (my portion 90%)
- *2005 NOAA (West Coast and Polar Regions Undersea Research Center) UAF06-0026 Developmental Proposal: *Preliminary investigation of microbial communities in thin layers of plankton in Monterey Bay, CA.* (2005 Aug 15 – 2006 Aug 14) **\$14,890.78** PI: Grieg Steward (my portion 100%)
- 2005 Hawaii SeaGrant *Microbial community responses to environmental forcing in Kaneohe Bay* (2005 Jan 01– 2007 Dec 31) **\$100,047** (+\$54,000 cost-share) PI: Michael S. Rappé; co-PI: Grieg Steward (my portion 50%)
- *2004 NSF (Small Grants for Exploratory Research) OCE 04-42664 *Development of physical fractionation as an efficient method for the mining of genetic and biochemical diversity in marine microbial communities* (2004 Sep 01 – 2006 Aug 31; extended to 2007 Aug 31) **\$124,055** (\$113,647 + \$10,408 supplement) PI: Grieg Steward; co-PI Michael Rappé (my portion 50%)
- 2003 NIEHS (Centers for Ocean and Human Health) OCE 04-32479 & 1P50EF012740-01 *Pacific Research Center for Marine Biomedicine - **Research Core 2: Microbial pathogens in tropical coastal waters: an ecosystem approach to determine risk and prevent water-borne diseases.*** (2003 Oct 01 – 2008 Sep 30) **\$4,949,885** total (Ed Laws, **Center Proposal PI**); \$1,052,948 Subproject Collaborators: R. Fujioka (**Sub-project PI**), G. Steward, S. Seifried, B. Wilcox, P. Loh, A. Tice, A. Katz, B. Anderson
- 2002 NSF (Major Research Instrumentation) OCE 02-15817 *Acquisition of a high performance sorting flow cytometer for oceanographic and marine ecological research.* (2002 Sep 01 – 2005 Aug 31) **\$509,299** (+\$225,003 UH cost-share) PI: M.R. Landry; co-PIs: R.R. Bidigare, D.M. Karl, J.-A. C. Leong, G. F. Steward

*2001 NSF (Division of Environmental Biology) DEB 01-29174 *Collaborative Research: Ecology of viruses in an alkaline, hypersaline lake, Mono Lake, California*. (2002 Jan 01 – 2004 Dec 31; No-cost extension to Feb 28, 2005) **\$111,693 PI: Grieg Steward;** Collaborators: S. Jiang (UCI) and R. Jellison (UCSB)

Teaching

Major Contributor

2003–present OCN 201 Science of the Sea (33–52% & Course Coordinator 2012, Fall 2019)

2002–present OCN 626 Marine Microplankton Ecology (currently 50%)

2006–2015 CMORE Summer Course “Microbial Oceanography: from Genomes to Biomes” (participated in planning, organization, lectures, and colloquia, supervised lab exercises and field work aboard *R/V Kilo Moana*)

Other Regular Contributions

2015–2018 MBI0 604 Marine Biology Seminar (co-lead of a discussion section)

2007–present OCN 621 Biological Oceanography (variable 1 to 5 guest lectures)

2003–2019 OCN 628 Benthic Biological Oceanography (Instruct a guest lab on enumerating benthic microorganisms)

Additional Contributions

2019 OCN 102 Introduction to the Environment and Sustainability. Assisted the instructor (Michael Cooney) as a facilitator in Friday discussion sections

2014 BIOL 602 Marine Biology – Processes and Impacts. Instructors R. Bidigare, K. Weng. Contributed one guest lecture on *Oceans and Human Health: Pathogens*

2012–2014 BIOL 601/602 Marine Biology – Environments and Organisms (Helped plan Microbiology portion of the course, deliver a lecture and a Lab)

2010, 2015 BIOL 404 Advanced Topics in Marine Biology (1 lecture, 3%; Instructors: A. Sherwood and C. Hunter)

2009 OCN 629 Molecular Methods in Marine Ecology (Contributed 20%)

2007–2009 OCN 403 Marine Functional Genomics and Biotechnology (Contributed 7%)

2006 SUMMER PISCO (Partnership for Interdisciplinary Studies of the Coastal Ocean) summer course on Coastal Physical Oceanography and Marine Ecosystems (invited lecture on small-scale processes), Santa Cruz, CA

2004 OEST 740 Marine Biofilms: Ecology and Impact (Contributed guest lecture)

Mentoring

Post-doctoral

2018–present Christopher Schvarcz

2016–2020 Qian “Lydia” Li

2012–2018 Olivia Nigro

2015 Jaclyn A. Miranda

2009–2011 Elisha Wood-Charlson

2006–2013 Alexander Culley

Graduate Student Advising and Mentoring (UH Department of Oceanography unless otherwise noted)

Thesis and Dissertation Committee Chair

2018–present Petra Byl

2018–present Andrian “Adi” Gajigan

2009–2018 Christopher Schvarcz, Ph.D. completed

2009–2015 Jaclyn (Mueller) Miranda, Ph.D. completed

2009–2012 Gordon Walker, M.S. completed

2004–2012 Olivia Nigro, Ph.D. completed

2003–2009 Jennifer Brum, Ph.D. completed

Thesis and Dissertation Committee Member

2021–present Syrena Whitner (Marine Biology)

2018–present Elizabeth Monaghan (Marine Biology)

2018–present Wesley Sparagon (Marine Biology)

2018–present Clarisse Sullivan

2016–present Morgan Linney

2016–present Anamica Bedi de Dilva

2015–present Pavica Srsen

2018–2021 Jessica Bullington

2016–2020 Elaine Luo (Marine Biology)

2015–2017 Andrian Gajigan (University of the Philippines, Diliman), M.S. completed

2013–2016 Emma Nuss, M.S. completed (Physical Oceanography)

2013–2016 Donn Viviani, Ph.D. completed

2013–2014 Sean Jungbluth, Ph.D. completed

2013–2014 Sara Thomas, M.S. completed

2013 Erin Allman, M.S. completed (Public Health Sciences)

2012–2014 Eric Brucks, M.S. completed (Microbiology)

2012–2013 Brenner Wai, M.S. completed

2012–2015 Rebecca Prescott, Ph.D. completed (Zoology)

2010–2012 Abigail Johnson, M.S. completed, (Physical Oceanography)

2011 Alexandra Valdés Wochinger, Ph.D. completed (SUNY Stony Brook)

2010–2012 Lydia Baker, M.S. completed

2010–2011 Binglin Li, Ph.D. completed

2008–2012 Darin Hayakawa, Ph.D. completed (Microbiology)

2008–2010 Domonkos Feher, Ph.D. completed (Chemistry)
 2007–2013 Jennifer Salerno, Ph.D. candidate (Zoology)
 2007–2008 Sara Yeo, M.S. completed
 2007–2008 Carli Bober, M.S. completed
 2007–2008 Jillian Ward, Ph.D. completed
 2006–2007 Brian Boeing, M.S. completed
 2006–2009 Kristina Mojica, M.S. completed
 2006 Allison Fong, M.S. completed
 2006 Marina Brandon, M.S. completed
 2005–2007 Brian Stalder, Ph.D. completed (Physics & Astronomy)
 2004–2005 Sarah Mincks, Ph.D. completed
 2003–2004 Phyllis Lam, Ph.D. completed (Marine Geology and Geochemistry Division)
 2002–2003 Jennifer Brum, M.S. completed
 2002–2004 Andy Hansen, M.S. withdrew
 1999–2000 Alexander Culley, M.S. completed – *Moss Landing Marine Laboratories*

Undergraduate Advising and Mentoring

University of Hawaii Students

2019–2020 Kayli Ching (GES Program)
 2018 Colleen Hayward (GES Program)
 2017–2018 Norma-Jean Driscoll (GES Program)
 2013–2016 Kirena Elana Clah, (CMORE Scholar)
 2013 Noelo Charlot (summer undergraduate research project)
 2012 Shaun Giancaterino, B.S. with High Honors (Undergraduate Thesis Chair)
 2012–2013 Teresa Porter (CMORE Scholar)
 2009–2012 La'Toya James, B.S. with Highest Honors (Undergraduate Thesis Chair, CMORE Scholar)
 2008 Brett Marchant (Undergraduate Thesis Chair; CMORE Scholar)
 2008–2009 Sarah Chang (CMORE Scholar)
 2005–2008 Daniel Sulak (GES Program)
 2004 Sally White (Member, Honors Thesis Committee)
 2003–2006 Jeremy Knudsen (GES Program)
 2003–2005 Sara Lidke (GES Program)
 2003–2005 Lauren Vickery (GES Program)
 2003–2004 Christopher Rothschild (Member, Honors Thesis Committee)

Visiting Student Research Mentoring

- 2015 Adrian Wong (summer intern)
2008 Corelle Nakamura (intern, Hawaiian Internship Program)
2007 Brenda Asuncion (intern, Hawaiian Internship Program)
2005 Alexander Marckscheffel (intern from University of Hanover, Germany)
2005 Michael Workman (Summer Undergraduate Research fellowship)
2004 Stephanie Stotts (Summer Undergraduate Research fellowship)
2003 Anita Schorlemmer (intern from University of Mannheim, Germany)
 Lisa Golebiewski (Summer Undergraduate Research fellowship)

High School Student Research Mentoring

- 2017 Ariel Thepsenavong and Olivia Au (McKinley High School). Advised and assisted on a project to examine purity of commercial bottled water compared to tap water.
2015 Iokua Spencer (Olomana School). Advised and assisted on his project to use bioluminescent bacteria to assay water quality. Mr. Spencer won the Stockholm Junior Water Prize Award at the 2015 Windward District Science & Engineering Fair and competed in the National Competition on the mainland.
2015–2016 Sarah Domai ('Iolani School) advising on project investigating vibrios in the Ala Wai canal
2013–2015 William McQuiston; mentoring on research project pre-college
2011 Michelle Pactanac and Maureen Miguel (Waipahu High School); mentoring on senior project
2011 William McQuiston (Iolani School); Advised on Science Fair Project
2010–2011 Kiara Kealoha (Kamehameha School), Mentoring on lab project

Service

Department of Oceanography

- 2018–2019 • Associate Department Chair
2018 • Departmental Personnel Committee
2018 • Space Committee (Chairperson)
2017–present • Division Head, Biological Oceanography Division
2017 • Faculty Search Committee: Biological Oceanographer
2014 • Faculty Search Committee: Marine Geochemist
2013–present • Curriculum Committee
2012–2013 • Exam Restructuring Committee
2012 • Faculty Search Committee: Sustainability Cluster Hire
2011–2013 • Faculty Search Committee Chairperson: Biological Oceanographer
2011 • Faculty Search Committee: Biological Oceanographer
2009–2010 • Space Committee (Chairperson)
2009–2010 • Associate Department Chair

- 2008–2010 • Division Head, Biological Oceanography Division
- 2008–2010 • Department Budget Committee
- 2008–2009 • Departmental Personnel Committee
- 2007 • Graduate student applications coordinator for Biological Oceanography Division
- 2006–2008 • Interim Division Head (during absences of Division Head)
- 2006 • Faculty Search Committee Chairperson: Biological Oceanography
- 2005 • Strategic Plan Drafting (coordinator for the BOD)
- 2005 • Graduate student applications coordinator for Biological Oceanography Division
- 2004 • Faculty Search Committee: Marine Geology and Geochemistry
- 2002 • Committee to address student attrition/time-to graduation (Chairperson)
- 2002 • Rewriting of Graduate Student Computer Requirement (Task Leader)

School of Ocean and Earth Science and Technology

- 2020 • Student Success Committee for Marine Biology Graduate Program
- 2015 • SOEST Open House, Assisted with display/presentations on microplankton
- 2013 • SOEST Open House, Assisted with display/presentations on microplankton
- 2012–present • Advisory Committee for SOEST Laboratory for Analytical Biogeochemistry
- 2012 • Admissions Committee for the Marine Biology Graduate Degree Program
- 2012 • Search Committee for Program Coordinator for Graduate Program in Marine Biology
- 2012 • Search Committee for Temporary Faculty for new Graduate Program in Marine Biology
- 2011 • SOEST Open House, Assisted with display/presentations on microplankton
- 2007–2011 • Hawaii Ocean Observing Initiative (Member, Steering committee; Co-chair, Water Quality Working Group)
- 2006 • SOEST session of the “Manoa Experience” for local high school students
- 2006 • SOEST Welcome Orientation for GES students
- 2005 • SOEST Young Investigator Search Committee
- 2005 • SOEST Open House, Children’s Activities (Volunteer)
- 2003 • SOEST Open House, Assisted with display/presentations on plankton (Volunteer)
- 2002 • SOEST Open House, Ask-a-Scientist Session (Volunteer)
- 2002 • SOEST Public Display at Aloha Towers (Volunteer)
- 2003–2005 • Advisor for Marine Science Summer Undergraduate Fellowship Program (MSURF)

University of Hawaii

- 2018 • Tenure and Promotion Review Committee – Center for Teaching Excellence

- 2018 • Keynote speaker for the Teacher Training Workshop sponsored by the Center for Teaching Excellence – 25 participants (Jan 03)
- 2017 • Invited panel member for “Inside the Master Teacher’s Studio” sponsored by the Center for Teaching Excellence – 20 participants (Feb 15)
- 2014 • Faculty Search Committee (Department of Biology): Marine Biologist
- 2007–2009 • Faculty Senate
- 2008–2009 • Faculty Senate Committee on Athletics
- 2007 • EPSCoR Ecology and Evolutionary Genetics Graduate Student Fellowship selection committee (committee member)
- 2007 • Committee to draft an Approval to Plan document for establishing a graduate degree in marine biology (committee member)
- 2002 • Chancellor’s Advisory Panel to draft a Congressional Initiative for Genomics, Proteomics and Bioinformatics at the University of Hawaii (panel member)
- 2002 • EPSCoR Alliance Meeting at the Medical University of South Carolina, Dec 4-6 (University of Hawaii Representative)

State of Hawaii

- 2018 • Interview on ThinkTech Hawaii with Jay Fidell about new virus discovered in coastal waters of Hawaii (May 21)
<https://www.youtube.com/watch?v=4PWhZtWfnBc&feature=youtu.be>
- 2015 • Interview on ThinkTech Hawaii with Jay Fidell about pathogenic vibrios in coastal waters of Hawaii (March 9)
- 2015 • Gave 45-min interactive presentation on Antarctica to approximately 50 children (first and second grade) at the Mid-Pacific Institute (Oct 14)
- 2015 • Gave 45 min presentation on marine plankton to approximately 50 children (fifth grade) at the Mid-Pacific Institute (Oct 2)
- 2013 • Gave one-hour presentations on Antarctica to approximately 80 children (first and second grade) over two days in classrooms at the Mid-Pacific Institute (Oct 3 and Oct 4)
- 2013 • Interview on local public radio show “All Things Marine” with Carlie Wiener about the molasses spill in Honolulu Harbor <http://www.cosee-ie.net/programs/allthingsmarineradioshow/> (October 15, 5–6PM)
- 2012 • Attended and provided feedback on student final presentations of summer research projects for Summer Science Institute on Molecular and Cell Biology at Kamehameha School (July 23).
- 2012 • Provided information on marine microorganisms and demonstration of microscopic methods to Kamehameha School students participating in a summer science program (July 12)
- 2011 • Conducted interactive lesson about the continent of Antarctica for 1st Grade Class, Mid-Pacific Institute (September 21); 19 students, 1 hour
- 2011 • Presentation to high school students in Advanced Placement Biology on environmental sampling and the Ala Wai Canal ecosystem and advising on

- their field projects, 'Iolani School, Honolulu, HI (September 19); ca. 80 students, 45 minutes
- 2011 • Served as judge for “Project Citizen” project on marine pollution, Mililani High School, Mililani, HI (May 21)
 - 2010 • Gave presentation to preschool and kindergarten classrooms at the Mid-Pacific Institute on the food web in the Antarctic
 - 2010 • Provided interview for radio program on Antarctic Research for Hawaii Public Radio broadcast (<http://www.hawaiipublicradio.org/content/uh-scientists-bound-antarctica>)
 - 2008 • Provided interview on pathogens in coastal waters for The Earth and Sea Project broadcast on KHNL news (<http://www.hawaiinewsnow.com/story/9263151/scientists-at-uh-take-a-closer-look-at-bad-microbes-in-hawaiian-waters>)
 - 2007 • Ocean Film Festival, Provided post-film commentary on working in Antarctica and answered audience questions following public screening of two films on Antarctica
 - 2006 • Provided interviews to news media (newspapers and television) regarding water quality in the Ala Wai following a sewage diversion
 - Briefed Hawaii State Department of Health on microbiological water quality results from the Ala Wai canal
 - 2005 • Advised 6th-Grade LegoLand Robotics Contest Team members in Hilo, HI
 - 2004 • Hawaii Ocean Science Bowl Moderator (Volunteer)

National & International

- 2019 • Interview with Miriam Wasser WBUR, Boston, on environmental impact of molasses spills. <https://www.wbur.org/news/2019/01/15/molasses-environment-disaster-boston-harbor> (Jan 15)
- 2018 • National Science Foundation Panel Service
- 2015 • Invited presenter for Teaching Workshop organized by the CMORE Professional Development Organizing Committee – 35 participants local and mainland (Jan 14)
- 2015 • Member of a local committee bidding to bring International Society of Microbial Ecology to Honolulu
- 2015 • Participant in NSF scoping workshop on the Biological Pump
- 2015 • National Science Foundation Panel Service
- 2014 • Co-organized and chaired session on viral ecology for Ocean Sciences Meeting 2014
- 2013 • Interview with Alexa Kurzius of Scholastic Science World about molasses spill in Honolulu Harbor. <http://scienceworld.scholastic.com/Chemistry-News/2013/09/A-Massive-Molasses-Spill> (Sep 23)
- 2013 • Interview with Tanya Lewis of LiveScience.com about molasses spill in Honolulu Harbor <http://www.livescience.com/39832-molasses-spill-suffocating-hawaiian-fish.html> (Sep 18)

- 2013 • Interview with Tanya Basu of National Geographic about molasses spill in Honolulu Harbor. <http://news.nationalgeographic.com/news/2013/13/130917-molasses-oil-spill-hawaii-honolulu-cleanup/> (Sep 16)
- 2013 • Participant in public education and outreach activities on *R/V Atlantis* expedition to the Juan de Fuca Ridge Flank (live interviews) 13–26 July 2013
- 2012 • Served as mentor for national and international high school students at the Student Global Leadership Institute hosted by Punahou School. July 22–August 3, 2012 (<http://www.punahou.edu/page.cfm?p=2530>)
- 2011 • Participated in workshop for community college instructors from the Pacific Islands to help them incorporate marine microbiology into their curriculum. I provided a lecture on microplankton ecology and developed and supplied participants with a laboratory lesson plan on marine microplankton
- 2008 • National Science Foundation Panel Service
- 2006 • Public Colloquium: The Impact of Hurricane Katrina on Human Pathogens in Lake Pontchartrain. Second Annual Morss Colloquium, Woods Hole, MA (presented research results and answered questions)
- 2006 • Outside Dissertation Opponent (Kjärstin Boström - University of Kalmar, SWEDEN)
- 2004 • National Science Foundation Panel Service
- 2002 • Conference Session Chair; February 11-15 Ocean Sciences Meeting 2002, Honolulu, HI “Bridging the Gap: from Molecular Biology to Marine Ecology” (co-chairs: Eric Gaidos, Markus Weinbauer)
- 1998 • Conference Session Chair; August 9-14 International Society for Microbial Ecology 8th International Symposium, Halifax, NS, Canada. “Community Analysis VI-General Molecular”

Manuscript and Proposal Reviews

I have been actively reviewing manuscripts and proposals since 1994 for U.S. and international journals and funding agencies. I have served on proposal review panels for the US National Science Foundation.

I have provided reviews for the following journals:

Antarctic Science, Aquatic Microbial Ecology, Biotechniques, Cell Reports, Deep-Sea Research, Diseases of Aquatic Organisms, Environmental Microbiology, eLife, Estuaries, FEMS Microbiology Ecology, Journal of Basic Microbiology, Journal of Marine Systems, Journal of the Marine Biological Association of the UK, Journal of Marine Biology, Journal of Visual Experiments, Journal of Virological Methods, Limnology & Oceanography, L&O: Methods, Marine Ecology Progress Series, mBio, Microbial Ecology, Nature Reviews Microbiology, Proceedings of the National Academy of Sciences, Science, Virology

I have provided reviews of proposals for the following U.S. and international agencies:

US National Science Foundation, National Oceanic and Atmospheric Administration, Natural Environment Research Council (UK), Department of the Environment and Water Resources (Australia), Icelandic Research Fund (Iceland), Agence Nationale de la Recherche (France), National Research Foundation (Singapore)