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EDUCATION

2003	The College of William and Mary, Ph.D., Marine Science
1999	The College of William and Mary, M.Sc., Marine Science
1994	The Evergreen State College, B.Sc.

ACADEMIC APPOINTMENTS

2016-present	Associate Professor (with tenure); Division of Biological Sciences; Organismal Biology, Ecology, and Evolution; University of Montana
2016	Professor , Department of Oceanography, University of Hawaii
2011-2016	Associate Professor (with tenure), Department of Oceanography, University of Hawaii
2007-2011	Assistant Professor , Department of Oceanography, University of Hawaii
2004-2007	Assistant Researcher , University of Hawaii
2003-2004	Postgraduate Research Scientist , University of California Santa Cruz
1996-2002	Graduate Research Assistant , The College of William and Mary, School of Marine Science

RESEARCH INTERESTS

Microbial ecology, aquatic nitrogen cycling, organic matter production and consumption, diversity of planktonic microorganisms and factors shaping planktonic communities.

AWARDS AND SCHOLARSHIPS

2015	Recipient, Yentsch-Schindler Early Career Award , Association for the Sciences of Limnology and Oceanography
2015	Recipient, Klaus Wrytki Graduate Teaching Award , Department of Oceanography, University of Hawaii
2015	Recipient, 2015 Na Kama Kai Excellence in Teaching Award , Department of Oceanography Graduate Student Association, University of Hawaii
2009	Co-recipient, 2009 Cozzarelli Prize from the <i>Proceedings of the National Academy of Sciences</i> for Dore et al. (2009) "Physical and biogeochemical modulation of ocean acidification in the central North Pacific"
1999	National Science Foundation Antarctic Service Medal

FIELD EXPERIENCE (totaling >480 days at sea):

1994-1996	R/V <i>Weatherbird II</i> (>20 oceanographic research cruises in the Sargasso Sea)
1995	R/V <i>Thomas Thompson</i> U.S. J.G.O.F.S. Arabian Sea Process Study
1996	RVIB <i>N.B. Palmer</i> (Ross Sea, Antarctica)
1998	RVIB <i>N.B. Palmer</i> (US JGOFS AESOPS Ross Sea process cruise)
1998	R/V <i>Aurora Australis</i> (Australian JGOFS Southern Ocean Process Study)
1999-2014	Participant in 25 Hawaii Ocean Time-series (HOT) cruises
2000	RV <i>L.M. Gould</i> (Palmer Basin, Antarctica)
2001	RVIB <i>N.B. Palmer</i> (Palmer Basin, Antarctica)
2002	R/V <i>Kaimikai-o-Kanaloa</i> (central North Pacific)
2003	R/V <i>Kilo Moana</i> (Honolulu, Hawaii to Kodiak, Alaska and return)
2006	R/V <i>Kilo Moana</i> , Chief Scientist, Microbial Oceanography: Genomes to Biomes Cruise (central North Pacific)
2007	R/V <i>Kilo Moana</i> , Chief Scientist, 15 day research cruise: CMORE BULA (Suva, Fiji to Honolulu)
2007	R/V <i>Kilo Moana</i> , Chief Scientist, 10 day research cruise, Microbial Oceanography: Genomes to Biomes Cruise (central North Pacific)
2008	R/V <i>Kilo Moana</i> , Chief Scientist, 10 day research cruise, Microbial Oceanography: Genomes to Biomes Cruise (central North Pacific)
2009	R/V <i>Kilo Moana</i> , Chief Scientist, 10 day research cruise, Microbial Oceanography: Genomes to Biomes Cruise (central North Pacific)
2010	R/V <i>Kilo Moana</i> , Chief Scientist, 10 day research cruise, Microbial Oceanography: Genomes to Biomes Cruise (central North Pacific)
2010	R/V <i>Kilo Moana</i> , Chief Scientist, 10 day research cruise, Diazotrophy in a high CO ₂ world cruise (central North Pacific)
2011	R/V <i>Kilo Moana</i> , Chief Scientist, 11 day research cruise, Diazotrophy in a high CO ₂ world cruise (central North Pacific)
2012	R/V <i>Kilo Moana</i> , Chief Scientist, 10 day research cruise, Microbial Oceanography: Genomes to Biomes Cruise (central North Pacific)
2013	R/V <i>Kilo Moana</i> , Chief Scientist, 10 day research cruise, Microbial Oceanography: Genomes to Biomes Cruise (central North Pacific)
2014	R/V <i>Kilo Moana</i> , Chief Scientist, 7 day research cruise, Microbial Oceanography: Genomes to Biomes Cruise (central North Pacific)
2015	R/V <i>Kilo Moana</i> , Chief Scientist, 10 day research cruise, Microbial Oceanography: Genomes to Biomes Cruise (central North Pacific)

REFERRED PUBLICATIONS*Articles and Invited Book Chapters*

* **NOTE:** Single underline indicates graduate student working under Church's mentorship; double underline indicates undergraduate student working under Church's mentorship; asterisk (*) indicates post-doc working under Church's mentorship.

In Review

1. Rii, Y., Bidigare, R.R., **Church, M.J.** *In Review*. The response of eukaryotic phytoplankton to nitrogenous nutrients in the North Pacific Subtropical Gyre. *Frontiers in Marine Science*.
2. White, A.E., K. Watkins-Brandt, **M.J. Church.** *In Review*. Temporal variability of *Trichodesmium* spp. and diatom-diazotroph assemblages in the North Pacific Subtropical Gyre. *Frontiers in Marine Science*.
3. Peoples, L., Donaldson, S., Osuntokun, O., Xia, Q, Nelson, A., Blanton, J., **Church, M.J.**, Bartlett, D.H. *In Review*. Kermadec and Mariana Trench hadopelagic microbial communities are distinct from those above them. *Environmental Microbiology*.
4. Zakem, E., Al-Haj, A., **Church, M.J.**, van Dijken, G., Dutkiewicz, S., Foster, S.Q., Fulweiler, R.W., Mills, M.M., Follows, M.J. *In Review*. Ecological control of nitrite in the upper ocean. *Nature Communications*.
5. Viviani, D.A., Böttjer, D.*, Letelier, R.M., **Church, M.J.** *In Review*. The influence of abrupt increases in seawater $p\text{CO}_2$ on plankton productivity in the subtropical North Pacific Ocean. *PLoS One*.
6. Rii, Y., Lindh, M.*, **Church, M.J.** Eukaryotic picoplankton diversity in the North Pacific Subtropical Gyre. *In Review*. *Environmental Microbiology*.
7. Lindh, M.*, Maillot, B., Smith, C.R., **Church, M.J.** *In Review*. Habitat filtering of bacterial communities above polymetallic nodule fields and sediments in the Clarion-Clipperton Zone of the Pacific Ocean. *Environmental Microbiology Reports*.

2017

8. Lindh, M.*, Maillot, B., Shulse, C.*, Gooday, A.J., Amon, D.J. Smith, C.R., **Church, M.J.** 2017. From the Surface to the Deep-Sea: Bacterial Distributions across Polymetallic Nodule Fields in the Clarion-Clipperton Zone of the Pacific Ocean. *Frontiers in Microbiology* 8: doi: 10.3389/fmicb.2017.01696.
9. Wilson, S.T., F.O. Aylward, F. Ribalet, B. Barone, J.R. Casey, P. E. Connell, J.A. Eppley, S. Ferrón, A.E. Romano, K.A. Turk-Kubo, A. Vislova, E. V. Armbrust, D.A. Caron, **M.J. Church**, J.P. Zehr, D.M. Karl, E.F. DeLong. 2017. Coordinated regulation of growth, activity and transcription in natural populations of the unicellular nitrogen-fixing cyanobacterium *Crocospaera*. *Nature Microbiology* 2: doi:10.1038/nmicrobiol.2017.118.
10. Limardo, A. J., Sudek, S., Choi, C. J., Poirier, C., Rii, Y. M., Blum, M., Roth, R., Goodenough, U., **Church, M. J.** and Worden, A. Z. 2017. Quantitative biogeography of picoprasinophytes establishes ecotype distributions and

- significant contributions to marine phytoplankton. *Environmental Microbiology*, doi:10.1111/1462-2920.13812
11. Shilova, I. N., Mills, M. M., Robidart, J. C., Turk-Kubo, K. A., Björkman, K. M., Kolber, Z., Rapp, I., van Dijken, G. L., **Church, M. J.**, Arrigo, K. R., Achterberg, E. P. and Zehr, J. P. (2017), Differential effects of nitrate, ammonium, and urea as N sources for microbial communities in the North Pacific Ocean. *Limnology and Oceanography*, doi:10.1002/lno.10590
 12. Karl, D.M. and **M.J. Church**. 2017. Ecosystem structure and dynamics in the North Pacific Subtropical Gyre: New views of an old ocean. *Ecosystems* 3: 433–457.
 13. Goldberg, S.J.*, C.E. Nelson, D.A. Viviani, C.N. Shulse*, and **M.J. Church**. 2017. Cascading influence of inorganic nitrogen substrate on DOM production, composition, lability and microbial community structure in the surface waters of the oligotrophic ocean. *Environmental Microbiology*. doi: 10.1111/1462-2920.13825
 14. Gradoville, M.R., Crump, B.C., Letelier, R.M., **Church, M.J.**, White, A.E. 2017. Microbiome of *Trichodesmium* colonies from the North Pacific Subtropical Gyre. *Frontiers in Microbiology* 8: doi: 10.3389/fmicb.2017.01122
 15. Viviani, D.A. and **M.J. Church**. 2017. Decoupling between bacterial production and primary production over multiple time scales in the North Pacific Subtropical Gyre. *Deep-Sea Research I* 121: 132-142.
 16. Eichner, M.J., I. Klawonn, S.T Wilson, S. Littmann, M. Whitehouse, **M.J. Church**, M.M. Kuypers, D.M Karl, and H. Ploug. 2017. Chemical microenvironments and single-cell carbon and nitrogen uptake in field collected colonies of *Trichodesmium* under different $p\text{CO}_2$. *The ISME Journal* **11**: 1305-1317.
 17. Letelier. R.M., A.E. White, R.R. Bidigare, B. Barone, **M.J. Church**, and D.M. Karl. 2017. Light absorption by phytoplankton in the North Pacific subtropical gyre. *Limnology and Oceanography*
 18. Böttjer, D.*, J.E. Dore, D.M. Karl, R.M. Letelier, C. Mahaffey, S.T. Wilson, and **M.J. Church**. 2017. Temporal variability in nitrogen fixation and particulate nitrogen export at Station ALOHA. *Limnology and Oceanography* 62: 200-216. doi: 10.1002/lno.10386.
 19. Shulse, C. N.*, Maillot, B., Smith, C. R. and **Church, M. J.** Polymetallic nodules, sediments, and deep waters in the equatorial North Pacific exhibit highly diverse and distinct bacterial, archaeal, and microeukaryotic communities. *MicrobiologyOpen*. 2017;6:e00428. <https://doi.org/10.1002/mbo3.428>

2016

20. Rii, Y., D.M. Karl, and **M.J. Church**. 2016. Temporal and vertical variability in picoplankton primary productivity in the North Pacific Subtropical Gyre. *Marine Ecology Progress Series* 562: 1-18. doi.org/10.3354/meps11954.

Feature article for this issue

21. Ferron, S., del Valle, D.A., Björkman, K.M., Quay, P.D., **Church, M.J.**, Karl, D.M. 2016. Application of membrane inlet mass spectrometry to measure aquatic gross primary production by the ^{18}O *in vitro* method. *Limnology and Oceanography: Methods*, doi: 10.1002/lom3.10116.

2015

22. Rii, Y.M., S. Duhamel, R.R. Bidigare, D.M. Karl, D.J. Repeta, **M.J. Church**. 2015. Diversity and productivity of photosynthetic picoeukaryotes in biogeochemically distinct regions of the South East Pacific Ocean. *Limnology and Oceanography* doi: 10.1002/lno.10255.
23. Björkman, K.M., **M.J. Church**, J.K. Doggett, D.M. Karl. 2015. Differential assimilation of inorganic carbon and leucine by *Prochlorococcus* and non-pigmented bacteria in the oligotrophic North Pacific Subtropical Gyre. *Frontiers in Marine Science* doi: 10.3389/fmicb.2015.01401
24. Viviani, D.A., D.M. Karl, **M.J. Church**. 2015. Photosynthetic production of dissolved and particulate organic carbon in the North Pacific Subtropical Gyre. *Frontiers in Marine Science* doi:10.3389/fmars.2015.00073.
25. White, A.E., R.M. Letelier, A.L. Whitmire, B. Barone, R.R. Bidigare, **M.J. Church**, and D.M. Karl. 2015. Phenology of particle size distributions and primary productivity in the North Pacific Subtropical gyre. *Journal Geophysical Research – Oceans* 120: 7381–7399.
26. Bryant, J.A., F.O. Aylward, J.M. Eppley, D.M. Karl, **M.J. Church**, E.F. DeLong. Wind and sunlight shape microbial diversity in surface waters of the North Pacific Subtropical Gyre. *The ISME Journal* doi: 10.1038/ismej.2015.221.
27. Wilson, S.T., B. Barone, F. Ascani, R. Bidigare, **M. Church**, D. del Valle, S. Dyrman, S. Ferron, J. Fitzsimmons, L. Juranek, Z. Kolber, R. Letelier, S. Martinez-Garcia, D. Nicholson, K. Richards, Y. Rii, M. Rouco, D. Viviani, A. White, J. Zehr, D. Karl. 2015. Short-term variability in euphotic zone biogeochemistry and primary productivity at Station ALOHA: A case study of summer 2012. *Global Biogeochemical Cycles* 29: 1145–1164.
28. Barone, B.*, R.R. Bidigare, **M.J. Church**, D.M. Karl, R.M. Letelier, A.E. White. 2015. Particle distributions and dynamics in the euphotic zone of the North Pacific Subtropical Gyre. *Journal Geophysical Research – Oceans* 120: 3229–3247.

2014

29. Dore, J. E., **M. J. Church**, D. M. Karl, D. W. Sadler and R. M. Letelier. 2014. Paired windward and leeward biogeochemical time series reveal consistent surface ocean CO₂ trends across the Hawaiian Ridge. *Geophysical Research Letters*, 41: 6459-6467.
30. Lincoln, S.A., B. Wai, J.M. Eppley, **M. J. Church**, R E. Summons, E F. DeLong. 2014. Reply to Schouten et al.: Marine Group II planktonic Euryarchaeota are significant contributors to tetraether lipids in the ocean. *Proceedings of the National Academy of Sciences, USA*, doi:10.1073/pnas.1416736111.

31. Karl, D.M. and **M.J. Church**. 2014. Microbial oceanography and the Hawaii Ocean Time-series programme. *Nature Reviews Microbiology*, 12: 699–713.
32. Lincoln, S.A., B. Wai, J.M. Eppley, **M.J. Church**, R. E. Summons, E.F. DeLong. 2014. Planktonic Euryarchaeota are a significant source of archaeal tetraether lipids in the ocean. *Proceedings of the National Academy of Sciences, USA*, 111: 9858–9863.
33. *Böttjer, D., D. M. Karl, R. M. Letelier, D.A. Viviani, **M. J. Church**. 2014. Experimental assessment of diazotroph responses to elevated seawater $p\text{CO}_2$ in the North Pacific Subtropical Gyre. *Global Biogeochemical Cycles*, 28: 601-616.
34. Bates, N., Y. Astor, **M. Church**, K. Currie, J. Dore, M. Gonzalez-Davila, L. Lorenzoni, F. Muller-Karger, J. Olafsson, J. M. Santana-Casiano. 2014. Changing ocean chemistry: A time-series view of ocean uptake of anthropogenic CO_2 and ocean acidification. *Oceanography*, 27: 12-15.
35. Gradoville, R., A. White, D. Böttjer*, **M. Church**, R. Letelier. 2014. Diversity trumps acidification: No carbon dioxide enhancement of *Trichodesmium* community nitrogen or carbon fixation at Station ALOHA. *Limnology and Oceanography*, 59: 645-659.
36. Robidart, J. C., **M. J. Church**, J. P. Ryan, F. Ascani, S. T. Wilson, D. Bombar, R. Marin III, K. J. Richards, D. M. Karl, C. A. Scholin and J. P. Zehr. 2014. Ecogenomic sensor reveals controls on N_2 -fixing microorganisms in the North Pacific Ocean. *The ISME Journal*, 8: 1175-1185.
37. Durham, B. P., J. Grote, K. A. Whittaker, S. J. Bender, H. Luo, S. L. Grim, J. M. Brown, J. R. Casey, A. Dron, L. Florez-Leiva, A. Krupke, C. M. Luria, A. H. Mine, O. D. Nigro, S. Pather, A. Talarmin, E. K. Wear, T. S. Weber, J. M. Wilson, **M. J. Church**, E. F. DeLong, D. M. Karl, G. F. Steward, J. M. Eppley, N. C. Kyriopdes, S. Schuster and M. S. Rappe. 2014. 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.

2013

38. **Church, M.J.**, M. Lomas, F.M. Karger. 2013. Sea Change: Charting the course for biogeochemical ocean time series research in a new millennium. *Deep-Sea Research II*, 93: 2-15.
39. Li, B., D. Karl, R. Letelier, R. Bidigare, and **M.J. Church**. 2013. Temporal and depth variability of chromophytic phytoplankton in the North Pacific Subtropical Gyre. *Deep-Sea Research II*. 93: 84-95.
40. Pasulka, A.L., M.R. Landry, D.A.A. Taniguchi, A.G. Taylor, **M.J. Church**. 2013. Temporal dynamics of phytoplankton and heterotrophic protists at station ALOHA. *Deep-Sea Research II*, 93: 44-57.
41. **Church, M.J.**, D. Böttjer*. 2013. Diversity, ecology, and biogeochemical influence of N_2 fixing microorganisms in the sea. In: Levin S.A. (ed.) Encyclopedia of Biodiversity, second edition, Volume 2, pp. 608-625. Waltham, MA: Academic Press.

42. Hunt, D., Y. Lin, **M.J. Church**, D.M. Karl, S.G. Tringe, L.K. Izzo, Z.I. Johnson. 2013. Uncoupling of abundance and activity of bacterioplankton in open ocean surface waters. *Applied and Environmental Microbiology*, 79: 177-184.

2012

43. Wilson, S.T., D. Böttjer*, **M.J. Church**, D.M. Karl. 2012. Comparative assessment of nitrogen fixation methodologies conducted in the oligotrophic North Pacific Ocean. *Applied and Environmental Microbiology*, 78: 6516-6523.
44. Luo, Y. et al. 2012. Database of diazotrophs in global ocean: Abundances, biomass and nitrogen fixation rates. *Earth System Science Data (ESSD)*, 5: 47-106.
45. Luo, Y., S.C. Doney, M.A.M. Friedrichs, **M.J. Church**, D.M. Karl, H.W. Ducklow. 2012. Interpreting the decadal primary production increase in the North Pacific Subtropical Gyre. *Journal of Geophysical Research: Biogeosciences*, 117, G03019, doi:10.1029/2011JG001830.
46. Juarnek, L. P. Quay, R. Feely, D. Lockwood, D. Karl, **M. Church**. 2012. Biological regulation of North Pacific air-sea CO₂ flux: Evidence from dissolved oxygen isotopes and O₂/Ar. *Journal of Geophysical Research: Oceans*, 117: C05022, doi:10.1029/2011JC007450.
47. Guidi, L., P.H.R. Calil, S. Duhamel, K.M. Bjorkman, G.A. Jackson, B. Li, **M.J. Church**, S.C. Doney, L. Stemmann, S. Tozzi, Z.S. Kolber, K.J. Richards, A.A. Fong, R.M. Letelier, G. Gorsky, D.M. Karl. 2012. Does eddy-eddy interaction promote phytoplankton production and carbon export? *Journal of Geophysical Research*, 117: G02024, doi:10.1029/2012JG001984.
48. Karl, D.M., **M.J. Church**, J.E. Dore, R.M. Letelier, C. Mahaffey. 2012. Predictable and efficient carbon sequestration in the North Pacific Ocean supported by symbiotic nitrogen fixation. *Proceedings of the National Academy of Sciences USA*, 109: 1842-1849.
49. Friedrich, T., A. Timmermann, A. Abe-Ouchi, N. R. Bates, M. O.Chikamoto, **M.J. Church**, J. E. Dore, D. K. Gledhill, M. Gonzalez-D'Avila, M. Heinemann, T. Ilyina, J. H. Jungclaus, E. McLeod, A. Mouchet, J. M. Santana-Casiano. 2012. Detecting regional anthropogenic trends in ocean acidification against natural variability. *Nature Climate Change*, 2: 167-171.

2011

50. Grote, J., C. Bayindirli, K. Bergauer, P. Carpintero de Moraes, H. Chen, L. D'Ambrasio, B. Edwards, B. Fernandez-Gomez, M. Hamisi, R. Logares, D. Nguyen, Y. M. Rii, E. Saeck, C. Schutte, B. Winder, **M. J. Church**, G. F. Steward, D. M. Karl, E. F. DeLong, J. M. Eppley, S. Schuster, N. C. Kyrpides, M. S. Rappé. 2011. Complete genome sequence of strain HIMB100, a cultured representative of the SAR116 clade of marine Alphaproteobacteria. *Standards in Genomic Sciences*, 5: 269-278.

51. Li, B., R. Letelier, D. Karl, **M.J. Church**. 2011. Size-dependent photosynthetic variability in the North Pacific Subtropical Gyre. *Marine Ecology Progress-Series*, 440: 27-40.
52. Brzezinski, M.A., J.W. Krause, **M.J. Church**, D.M. Karl, B. Li, J.L. Jones, B. Updyke. 2011. The annual silica cycle of the oligotrophic North Pacific Ocean. *Deep-Sea Research I*, 58: 988-1001.
53. Watkins-Brandt, K.S., R.M. Letelier, Y.H. Spitz, **M.J. Church**, D. Böttjer*, A.E. White. 2011. Addition of inorganic and organic phosphorus enhances nitrogen and carbon fixation in the oligotrophic North Pacific. *Marine Ecology Progress-Series*, 432: 17-29.
54. Viviani, D.A., K.M. Bjorkman, D.M. Karl, **M.J. Church**. 2011. Plankton metabolism of the surface waters in the tropical and subtropical Pacific Ocean. *Aquatic Microbial Ecology*, 62: 1-12.

2010

55. Luo, Y., H.W. Ducklow, M.A.M. Friedrichs, S.C. Doney, **M.J. Church**. 2010. Oceanic heterotrophic bacterial nutrition by semilabile DOM as revealed by data assimilative modeling. *Aquatic Microbial Ecology*, 60: 273-287.
56. Saba, V. S., M. A. M. Friedrichs, M.-E. Carr, D. Antoine, R. A. Armstrong, I. Asanuma, O. Aumont, N. R. Bates, M. J. Behrenfeld, V. Bennington, L. Bopp, J. Bruggeman, E. T. Buitenhuis, **M.J. Church**, A. M. Ciotti, S. C. Doney, M. Dowell, J. Dunne, S. Dutkiewicz, W. Gregg, N. Hoepffner, K. J. W. Hyde, J. Ishizaka, T. Kameda, D. M. Karl, I. Lima, M. W. Lomas, J. Marra, G. A. McKinley, F. Mélin, J. K. Moore, A. Morel, B. Salihoglu, M. Scardi, T. J. Smyth, S. Tang, J. Tjiputra, J. Uitz, M. Vichi, K. Waters, T. K. Westberry, A. Yool. 2010. The challenges of modeling depth-integrated marine primary productivity over multiple decades: A case study at BATS and HOT. *Global Biogeochemical Cycles*, doi:10.1029/2009GB003655.
57. **Church, M.J.**, B. Wai, D.M. Karl, E.F. DeLong. 2010. Transcriptional activities and distributions of ammonia oxidizing Archaea in the Pacific Ocean. *Environmental Microbiology*, 12: 679-688.

2009

58. **Church, M.J.** 2009. The trophic tapestry of the sea. *Proceedings of the National Academy of Sciences USA*, 106: 15519–15520.
59. Dore, J.E., R. Lukas, D.W. Sadler, **M.J. Church**, D.M. Karl. 2009. Physical and biogeochemical modulation of ocean acidification in the central North Pacific. *Proceedings of the National Academy of Sciences USA*, 106: 12235-12240. ***NOTE: This paper received the Cozzarelli Prize in the Physical Sciences from Proceedings of the National Academy of Sciences.**
60. Eiler, A., D.H. Hayakawa, **M.J. Church**, D.M. Karl, M.S. Rappé. 2009. Dynamics of the SAR11 bacterioplankton lineage in relation to environmental conditions in the oligotrophic North Pacific subtropical gyre. *Environmental Microbiology*, 11: 2291–2300.

61. **Church, M.J.**, C. Mahaffey, R.M. Letelier, R. Lukas, J.P. Zehr, D.M. Karl. 2009. Physical forcing of nitrogen fixation and diazotroph community structure in the North Pacific Subtropical Gyre. *Global Biogeochemical Cycles*, 23: doi:10.1029/2008GB003418.

2008

62. Karl, D.M., R.M. Bidigare, **M.J. Church**, J.E. Dore, R.M. Letelier, C. Mahaffey. 2008. The Nitrogen Cycle in the North Pacific Trades Biome: An evolving paradigm. In: D. Capone, D. Bronk, M. Mulholland, and E. Carpenter (eds.), *Nitrogen in the Marine Environment*, 2nd Edition, pp. 705-769. Academic Press, Burlington, Massachusetts.
63. Karl, D.M., L. Beversdorf, K.M. Björkman, **M.J. Church**, A. Martinez, E.F. DeLong. 2008. Aerobic production of methane in the sea. *Nature Geoscience*, 1: 473-478.
64. Grabowski, M., **M.J. Church**, D.M. Karl. 2008. Nitrogen fixation rates and controls at Station ALOHA. *Aquatic Microbial Ecology*, 52: 175-183.
65. **Church, M.J.** 2008. Resource control of bacterial dynamics in the sea. In *Microbial Ecology of the Oceans*, [ed] D.L. Kirchman. John Wiley & Sons, Inc. New Jersey.
66. Fong, A.A., D.M. Karl, R. Lukas, R.M. Letelier, J.P. Zehr, **M.J. Church**. 2008. Nitrogen fixation in an anticyclonic eddy in the oligotrophic North Pacific Ocean. *The ISME Journal*, 2: 663-676.
67. **Church, M.J.**, K.M. Björkman., D.M. Karl, M.A. Saito, and J.P. Zehr. 2008. Regional distributions of nitrogen fixing bacteria in the Pacific Ocean. *Limnology and Oceanography*, 53: 63-77.
68. Dore, J.D., R.M. Letelier, **M.J. Church**, R. Lukas, D.M. Karl. 2008. Summer phytoplankton blooms in the oligotrophic North Pacific Subtropical Gyre: Historical perspective and recent observations. *Progress in Oceanography*, 76: 2-38.

2007

69. Goebel, N.L., C.A. Edwards, **M.J. Church**, J.P. Zehr. 2007. Modeled contributions of three types of diazotrophs to nitrogen fixation at Station ALOHA. *The ISME Journal*, 1: 606-619.
70. Mincer, T.J., **M.J. Church**, L.T. Taylor, C. Preston, D.M. Karl, E.F. DeLong. 2007. Quantitative distribution of presumptive archaeal and bacterial nitrifiers in Monterey Bay and the North Pacific Subtropical Gyre. *Environmental Microbiology*, 9: 1162-1175.
71. Zehr, J.P., J. P. Montoya, C. M. Short, A. Hansen, B. D. Jenkins, **M. J. Church**, D. M. Karl. 2007. Nitrogenase gene expression in the North Pacific subtropical gyre. *Limnology and Oceanography*, 52: 169-183.
72. Corno, G., D.M. Karl, **M.J. Church**, R.M. Letelier, R. Lukas, M.R. Abbott. 2007. The impact of climate forcing on ecosystem processes in the North Pacific Subtropical Gyre. *Journal of Geophysical Research: Oceans*, 112: C04021, doi:10.1029/2006JC003730

73. McAndrew, P., K. Bjorkman, **M. Church**, P. Morris, N. Jachowski, P.J. leB Williams, D. Karl. 2007. The net metabolic balance of the open ocean: A test of the nutrient enrichment hypothesis. *Marine Ecology-Progress Series*, 332: 63-75.

2006

74. **Church, M.J.**, H.W. Ducklow, R.M. Letelier, D.M. Karl. 2006. Temporal dynamics in photoheterotrophic picoplankton productivity in the subtropical North Pacific Ocean. *Aquatic Microbial Ecology*, 45: 41-53.
75. Zehr, J.P., **M.J. Church**, P. Moisaner. 2006. Diversity, distribution, and biogeochemical significance of nitrogen fixing microorganisms in anoxic and suboxic oceans. In NATO Science Series Book Past and Present Water Column Anoxia [ed.] L. Neretin, pp. 337-372.

2005

76. **Church, M.J.**, C.M. Short, B.D. Jenkins, D.M. Karl, J.P. Zehr. 2005. Temporal patterns of nitrogenase (*nifH*) gene expression in the oligotrophic North Pacific Ocean. *Applied Environmental Microbiology*, 71: 5362-5370.
77. **Church, M.J.**, B.D. Jenkins, D.M. Karl, J.P. Zehr. 2005. Vertical distributions of nitrogen-fixing phylotypes at Station ALOHA in the oligotrophic North Pacific Ocean. *Aquatic Microbial Ecology*, 38: 3-14.

1997-2004

78. **Church, M.J.**, H.W. Ducklow, D.M. Karl. 2004. Light dependence of ³H-leucine incorporation in the oligotrophic North Pacific Ocean. *Applied and Environmental Microbiology*, 70: 4079-4087.
79. Zehr, J. P., L.L. Crumbliss, **M.J. Church**, E.O. Omoregie, B.D. Jenkins. 2003. Nitrogenase genes in commercial PCR and RT-PCR reagents and implications for studies of diversity of nitrogenase and other genes. *Biotechniques*, 35: 996-1005.
80. **Church, M.J.**, E.F. DeLong, H.W. Ducklow, M.B. Karner, C.M. Preston, D.M. Karl. 2003. Abundance and distributions of planktonic *Archaea* and *Bacteria* in the waters west of the Antarctic Peninsula. *Limnology and Oceanography*, 48: 1893-1902.
81. **Church, M.J.**, H.W. Ducklow, D.M. Karl. 2002. Multiyear increases in dissolved organic matter inventories at Station ALOHA in the North Pacific Subtropical Gyre. *Limnology and Oceanography*, 47:1-10.
82. Ducklow, H.W., C. Carlson, **M. Church**, D. Kirchman, D. Smith, G. Steward. 2001. The seasonal development of the bacterioplankton bloom in the Ross Sea, Antarctica, 1994-1997. *Deep-Sea Research II*, 48: 4199-4221.
83. **Church, M.J.**, D. A. Hutchins, H.W. Ducklow. 2000. The limitation of bacterial growth by dissolved organic matter and iron in the Southern Ocean. *Applied and Environmental Microbiology*, 66: 455-466.
84. Falkner, K.K., **M. Church**, C.I. Measures, G. LeBaron, D. Thouson, C. Jeandel, M.C. Stordal, G.A. Gill, R. Mortlock, P. Froelich, L.H. Chan. 1997.

Minor and trace element chemistry of Lake Baikal, its tributaries, and surrounding hot springs. *Limnology and Oceanography*, 42: 329-345.

Non-Peer Reviewed Publications, Reports, and White Papers:

1. Neuer, S., Benway, H.M., Bates, N., Carlson, C.A., Church, M., DeGrandpre, M., Dunne, J. Letelier, R., Lomas, M., Lorenzoni, L., Muller-Karger, F., Perry, M.J., and Quay, P. 2017. Monitoring Ocean Change in the 21st Century. *Eos*, 98, <https://doi.org/10.1029/2017EO080045>.
2. Burd, A., A. Buchan, **M. Church**, M. Landry, A. McDonnell, U. Passow, D. Steinberg, H. Benway. Towards a transformative understanding of the ocean's biological pump: Priorities for future research. Report of the NSF Biology of the Biological Pump Workshop, February 19-20, 2016. 67 pp. DOI: 10.1575/1912/8263.
3. Mathis, J.T., Feely, R.A., Sutton, A., Carlson, C., Chai, F., Chavez, F., **Church, M.**, Cosca, C., Ishii, M., Mordy, C., Murata, A., Resing, J., Stratton, P., Takahashi, T., and Wanninkhof, R. 2014. Tropical Pacific Biogeochemistry: Status, Implementation and Gaps (White Paper #6). Tropical Pacific Observing System 2020 (TPOS 2020). http://tpos2020.org/wp-content/uploads/WP06_Tropical_Pacific_biogeochemistry.pdf
4. Portner, Hans-O., Karl, David M., Boyd, Philip W., Cheung, William W. L., Lluch-Cota, Salvador E. L., Nojiri, Yukihiro, Schmidt, Daniela N., Zavalov, Peter O., Alheit, Jürgen, Aristegui, Javier, Armstrong, Claire, Beaugrand, Gregory, Belkovich, Vsevolod, Bowler, Chris, Brewer, Peter, **Church, Matthew**, Cooley, Sarah R., del Monte-Luna, Pablo, Edwards, Martin, Flint, Mikhail, Follows, Michael J., Frölicher, Thomas, Fulton, Elizabeth A., Gattuso, Jean-Pierre, Hoegh-Guldberg, Ove, Hofmann, Eileen E., Knoll, Andrew H., Levin, Lisa A., Menzel, Lena, Moloney, Coleen L., Perry, R. Ian, Poloczanska, Elvira S., Roberts, J. Murray, Rost, Björn, Sarmiento, Jorge L., Sedláček, Jan, Storch, Daniela, Wiencke, Christian and Wittmann, Astrid C. 2014. Ocean systems. In Christopher B. Field, Vicente R. Barros, David Jon Dokken, Katharine J. Mach, Michael D. Mastrandrea, T. Eren Bilir, Monalisa Chatterjee, Kristie L. Ebi, Yuka Otsuki Estrada, Robert C. Genova, Betelhem Girma, Eric S. Kissel, Andrew N. Levy, Sandy MacCracken and Patricia R. Mastrandrea (Ed.), *Climate change 2014: impacts, adaptation, and vulnerability. Part A: global and sectoral aspects* (pp. 411-484) New York, United States: Cambridge University Press.
5. **Church, M.J.**, K.M. Björkman, D.M. Karl. 2013. HOT turns 25: A quarter century of Hawaii Ocean Time-series measurements in the North Pacific Subtropical Gyre. *Ocean Carbon Biogeochemistry Newsletter* 6: 1-6.
6. Lampitt, R., P. Favali, C. R. Barnes, M.J. Church, M.F. Cronin, K.L. Hill, Y. Kaneda, D.M. Karl, A.H. Knap, M.J. McPhaden, K.A. Nittis, I. G. Priede, J-F. Rolin, U. Send, C-C Teng, T.W. Trull, D.W.R. Wallace, R.A. Weller. 2009. *In situ* sustained eulerian observations. In Proceedings of OceanObs'09: Sustained Ocean Observations and Information for Society (Vol. 2), Venice,

Italy, 21-25 September 2009, Hall, J., Harrison, D.E. & Stammer, D., Eds.,
ESA Publication WPP-306.

7. **Church, M.J.**, R. Bidigare, J. Dore, D. Karl, M. Landry, R. Letelier, R. Lukas. 2009. The Ocean is HOT: 20 years of Hawaii Ocean Time-Series Research in the North Pacific Subtropical Gyre. *Ocean Carbon Biogeochemistry Newsletter* 2: 1-5.

GRANTS

Current Grants and Contracts

- “Simons Collaboration on Ocean Processes and Ecology (SCOPE)”. PI: M. J. Church. Funding agency: Simons Foundation – Subaward to University of Montana from the University of Hawaii. Project period: 09/2016-06/2020. Award: \$550,415.
- “Simons Collaboration on Ocean Processes and Ecology (SCOPE)”. PI: M.J. Church. Funding agency: Simons Foundation –University of Hawaii. Project period: 07/2017-06/2018. Award: \$11,934
- “Functional assessment of microorganisms associated with polymetallic nodules in the Clarion-Clipperton Zone”. PI: M.J. Church. Funding agency: UK Seabed Resources, Ltd. Project period: 01/2017-12/2018. Award to University of Montana: \$74,701
- “Ecosystem-wide survey of microbial biodiversity, connectivity and ecosystem function across the deep seafloor biome of the CCZ to help assess and manage the impacts of polymetallic nodule mining”. PI: C.R. Smith, co-PIs: J Drazen, M. Church. Funding agency: Gordon and Betty Moore Foundation. Project period: 03/2017 – 02/2020. Award to University of Montana: \$205,155.

Pending Grants and Contracts

- “Collaborative Research: Influence of nutrient N:P stoichiometry on aerobic methane production in freshwater lakes”. PI: M.J. Church, co-PIs: S. Devlin, J. Dore (MSU). Funding agency: National Science Foundation. Project period: 04/18 - 03/21. Request: \$505,634.
- “ABI Development: The ECoGen Pipeline: Improving population genomics data analysis and inferences in ecological & conservation genomics.” PI: B. Hand (UM), co-PIs: G. Lukiart, M. Church, T. Antao (UM). Funding agency: National Science Foundation. Project period: 05/01/18 - 04/30/21. Request: \$921,633.

Past Research Support

- “Dimensions: Collaborative Research: Functional diversity of N metabolism and role in controlling marine phytoplankton community biodiversity”. Funding Agency: National Science Foundation. P.I.: J. Zehr (UCSC), Co P.I.s: M.J. Church (UH), M. Mills (Stanford U.), Z. Kolber (UCSC). Project period: 01/2012-12/2016 (with one year no-cost extension). Award to UH: \$341,405.
- “Benthic biological baseline studies in the CCZ: Megafaunal, macrofaunal, microbial and larval studies, and project oversight”. Funding agency: Seabed Resources Development, Ltd. Subcontract to University of Montana via University of Hawaii. Project period: 09/2016 - 12/2016. Award: \$23,420.

- “The Hawaii Ocean Time-series (HOT): Sustaining ocean ecosystem and climate observations in the North Pacific Subtropical Gyre”. Funding Agency: National Science Foundation. PI: M.J. Church (UH); co-PIs: D. Karl (UH), R. Bidigare (UH), R. Lukas (UH). Project period: 08/2013-07/2018. Award: \$8,148,909.
- “Benthic biological baseline studies in the CCZ: Megafaunal, macrofaunal, microbial and larval studies, and project oversight”. Funding agency: Seabed Resources Development, Ltd. P.I.: C. Smith (UH), co-PIs: J. Drazen (UH), M. Church (UH), E. Vetter (HPU). Project period: 03/2013 - 12/2015. Total award: \$1,304,862; funds to Church \$250,311.
- “Simons Collaboration on Ocean Processes and Ecology (SCOPE)”. Funding agency: Simons Foundation - pass through UH Foundation. Project period: 07/2014-06/2016. Award: \$600,000.
- “Pacific Marine Environmental Laboratory (PMEL) and the Joint Institute for Marine and Atmospheric Research (JIMAR) at the University of Hawai’i at Manoa Ocean Carbon Research”. PI: M.J. Church (UH). Funding agency: National Oceanic and Atmospheric Administration. Project period: 07/2015 - 06/2016. Award: \$5311.
- “Oceanic diazotroph community structure and activities in a high CO₂ world”; PI: M.J. Church (UH), co-P.I. R. Letelier (OSU). Funding Agency: National Science Foundation. Project Period: 02/2009-01/2013. Award: \$439,152.
- “Pacific Marine Environmental Laboratory (PMEL) and the Joint Institute for Marine and Atmospheric Research (JIMAR) at the University of Hawai’i at Manoa Ocean Carbon Research”. PI: M.J. Church (UH). Funding agency: National Oceanic and Atmospheric Administration. Project period: 07/2014-06/2015. Award: \$5011.
- “Center for Microbial Oceanography: Research and Education (C-MORE)” Funding Agency: National Science Foundation. P.I.: D.M. Karl (UH), co-P.I.’s J. Zehr (UCSC), S. Chisholm (MIT), E. DeLong (MIT). Church (Investigator). Project period: 08/2006-07/2015. Award: ~\$100,000/year supporting Church’s research (*i.e.* graduate students, post-docs, etc., totaling ~\$750,000).
- “Pacific Marine Environmental Laboratory (PMEL) and the Joint Institute for Marine and Atmospheric Research (JIMAR) at the University of Hawai’i at Manoa Ocean Carbon Research”. PI: M.J. Church (UH). Funding agency: National Oceanic and Atmospheric Administration. Project period: 07/2013-06/2014. Award: \$4,649.
- “The Hawaii Ocean Time-series (HOT): Sustaining ocean ecosystem and climate observations in the North Pacific Subtropical Gyre”. Funding Agency: National Science Foundation. PI: M.J. Church (UH); co-PIs: D. Karl (UH), R. Bidigare (UH), R. Lukas (UH). Project period: 08/2009-07/2013. Award: \$6,201,878.
- “Microbial Oceanography: Summer training course”. Funding agency: Gordon and Betty Moore Foundation. PI: D. M. Karl; co-PI: M.J. Church. Project period: 05/2010-04/2013. Award: \$453,578.
- “Pacific Marine Environmental Laboratory (PMEL) and the Joint Institute for Marine and Atmospheric Research (JIMAR) at the University of Hawai’i at Manoa Ocean Carbon Research”. Funding agency: National Oceanic and Atmospheric Administration. Project period: 10/2012-12/2013. Award to Church: \$34,543.
- “Optimization of algae lipid yields in mass culture by regulation of growth physiology and microbial ecology”; PI: M.J. Church (UH). Subcontract from

DARPA to Scripps Institution of Oceanography with pass through to UH; Project period: 03/2010- 03/2010, Award: \$29,988.

- “Collaborative: Biology and Ecology of Newly Discovered Diazotrophs in the Open Ocean”. Funding Agency: National Science Foundation. PI: J. Zehr (UCSC), co-PIs: M. Church (UH), J. Montoya (Ga. Tech). Project Period: 10/2004-07/2009. Subaward: \$230,673.

MENTORSHIP AND TEACHING:

Postdoctoral Fellows:

- Dr. Jennifer Edmonds, 2007-2008; currently Assistant Professor at Nevada State College
- Dr. Daniela Böttjer, 2009-2014, currently staff scientist at University of Hawaii
- Dr. Benedetto Barone, 2012-2015, currently post-doc at University of Hawaii
- Dr. Christine Shulse, 2013-2014, currently post-doc at Lawrence Berkeley Labs
- Dr. Stuart Goldberg, 2013-2015, currently staff scientist with NOAA
- Dr. Markus Lindh, 2015-2016, University of Hawaii
- Dr. Donn Viviani, 2016-2017, University of Hawaii
- Dr. Emma Wear, 2017-present, University of Montana
- Dr. Trista Vick-Majors, 2017-present, University of Montana

Graduate Students Supervised as Major Advisor:

- Alison Fong, Department of Oceanography, University of Hawaii (M.S.)-degree received November 2006.
- Donn Viviani, Department of Oceanography, University of Hawaii (M.S.)-degree received June 2009.
- Binglin Li, Department of Oceanography, University of Hawaii (Ph.D.)-degree received June 2011.
- Brenner Wai, Department of Oceanography, University of Hawaii (M.S.)-degree received December 2013.
- Sara Thomas, Department of Oceanography, University of Hawaii (M.S.)- degree received April 2014.
- Donn Viviani, Department of Oceanography, University of Hawaii (Ph.D.)-degree received May 2016.
- Yoshimi Rii, Department of Oceanography, University of Hawaii (Ph.D.)-degree received May 2016.
- Eint Kyi, Department of Oceanography, University of Hawaii (M.S.)-current
- Paula Moehlenkamp, Department of Oceanography, University of Hawaii (M.S.) 2016.
- Kate Evans, Organismal Biology, Ecology, and Evolution, University of Montana (Ph.D) – current.

Undergraduate Student Mentor:

- Brenner Wai, Global Environmental Sciences, University of Hawaii (B.S., 2010), currently staff with the Hawaii Ocean Time-series program
- Christina Johnson, Global Environmental Sciences, University of Hawaii (B.S., 2013), currently Ph.D. student at University of Southern California
- Lisa Hall, Global Environmental Sciences, University of Hawaii (B.S., 2016).

- Natalie Dornan, Department of Natural Resources and Environmental Management, University of Hawaii (B.S., May 2016).
- Hannah Fay, University of Montana, Summer internship 2017

Graduate Student Thesis Committee Member:

- Marcie Grabowski, Department of Oceanography, University of Hawaii, M.S. degree received December 2005
- Trisha McAndrew, Department of Oceanography, University of Hawaii, M.S. degree received November 2006
- Allison Fong, Department of Oceanography, University of Hawaii, M.S. degree received November 2006
- Tara Clemente, Department of Oceanography, University of Hawaii, M.S. degree received June 2007
- Daniel Wagner, Department of Oceanography, University of Hawaii, M.S. degree received March 2008
- Anna Ritchie, Department of Oceanography, University of Hawaii, M.S. degree received May 2008
- Lucas Beversdorf, Department of Oceanography, University of Hawaii, M.S. degree received June 2008
- Carli Bober, Department of Oceanography, University of Hawaii, M.S. degree received December 2008
- Amy Apprill, Department of Oceanography, University of Hawaii, Ph.D degree received June 2009
- Jennifer Brum, Department of Oceanography, University of Hawaii, Ph.D degree received June 2009
- Donn Viviani, Department of Oceanography, University of Hawaii, M.S. degree received June 2009
- Tracy Campbell, Department of Oceanography, University of Hawaii, M.S. degree received May 2009
- Sarah Yeo, Department of Oceanography, University of Hawaii, M.S. degree received May 2008
- Darin Hayakawa, Microbiology Department, University of Hawaii, Ph.D, degree received May 2012
- Gordon Walker, Department of Oceanography, University of Hawaii, M.S. degree received August 2012
- Olivia Nigro, Department of Oceanography, University of Hawaii, M.S. degree received August 2012
- Sherril Leon-Soon, Department of Oceanography, University of Hawaii, Ph.D, degree received November 2017.
- Jackie Mueller, Department of Oceanography, University of Hawaii, Ph.D. degree received May 2015.
- Liana Jean Auli'i Murillo, Department of Oceanography, University of Hawaii, M.S. degree received May 2013
- Pavica Srsen, Department of Oceanography, University of Hawaii, M.S degree received May 2013
- Scott Grant, Department of Oceanography, University of Hawaii, Ph.D degree received 07/2014

- Sean Jungbluth, Department of Oceanography, University of Hawaii, Ph.D degree received 09/2014
- Phoebe Woodworth-Jefcoats, Marine Biology Program, University of Hawaii, Ph.D., 2015-2016.
- Emily Johnston, Botany Department, University of Hawaii, Ph.D., 2015-2016.
- Joy Lei Lei Shih, Department of Oceanography, University of Hawaii, Ph.D. candidate
- Carla Gimpel, Marine Biology Program, University of Hawaii, Ph.D. candidate
- Veronica Gibson, Botany Department, University of Hawaii, Ph.D., 2015-2017.

Member Ph.D. Qualifying and Comprehensive Exam Committees:

- Amy Apprill, Department of Oceanography, University of Hawaii
- Becky Briggs, Department of Oceanography, University of Hawaii
- Olivia Nigro, Department of Oceanography, University of Hawaii
- Maxine Grand, Department of Oceanography, University of Hawaii
- Fabio DeLeo, Department of Oceanography, University of Hawaii
- Simi Rii, Department of Oceanography, University of Hawaii
- Sherril Leon-Soon, Department of Oceanography, University of Hawaii
- Jennifer Murphy, Department of Oceanography, University of Hawaii
- Christopher Jury, Department of Oceanography, University of Hawaii
- Patrick Drupp, Department of Oceanography, University of Hawaii
- Rebecca Simpson, Department of Oceanography, University of Hawaii
- Colette Kerry, Department of Oceanography, University of Hawaii
- Lydia Baker, Department of Oceanography, University of Hawaii
- LeiLei Joy Shih, Department of Oceanography, University of Hawaii
- Emily Johnston, Botany Department, University of Hawaii
- John Casey, Department of Oceanography, University of Hawaii
- Sean Jungbluth, Department of Oceanography, University of Hawaii
- Veronica Gibson, Botany Department, University of Hawaii
- Lindsey Benjamin, Department of Oceanography, University of Hawaii
- Carla Gimpel, Marine Biology Program, University of Hawaii

TEACHING:

Instructional Activities

- Summer 2017, Sole Instructor for BIOB 491 “Aquatic Microbial Ecology”, Flathead Lake Biological Station, University of Montana.
- Spring 2017, Lead Instructor for BIOM 415 “Microbial Ecology, Diversity, and Evolution”, University of Montana.
- Spring 2016, Lead Instructor for OCN 621 “Biological Oceanography”, University of Hawaii
- Fall 2015, Lead Instructor for OCN 626 “Marine Microplankton Ecology”, University of Hawaii
- Summer 2015, Lead Instructor and co-Director “Microbial Oceanography: Genomes to Biomes”, funded by the National Science Foundation and the Agouron Institute, University of Hawaii

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- Fall 2008, Lead Instructor and co-Director “Microbial Oceanography: Genomes to Biomes” course co-funded by the National Science Foundation and the Agouron Institute. University of Hawaii

- Summer 2008, Lead Instructor and co-Director “Microbial Oceanography: Genomes to Biomes” course co-funded by the National Science Foundation and the Agouron Institute. University of Hawaii
- Spring 2008, Sole Instructor OCN 750: “Topics in Biological Oceanography: Biogeochemical variability in the North Pacific Ocean”. University of Hawaii
- Fall 2007, OCN 780, University of Hawaii
- Fall 2007, Lead Instructor for OCN 626 “Marine Microplankton Ecology”, University of Hawaii
- Summer 2007, Lead Instructor and co-Director “Microbial Oceanography: Genomes to Biomes” course co-funded by the National Science Foundation and the Agouron Institute. University of Hawaii
- Fall 2006, Lead Instructor for OCN 626 “Marine Microplankton Ecology”, University of Hawaii
- Summer 2006, Lead Instructor and co-Director “Microbial Oceanography: Genomes to Biomes” course co-funded by the National Science Foundation and the Agouron Institute. University of Hawaii

PROFESSIONAL ACTIVITIES AND COMMUNITY SERVICE

Invited Seminars and Talks

1. **Church, M.J.** 2017. Water and microbes: The tiny engines that keep the world habitable. Invited speaker for Mission Mountain Audubon Society. Polson, MT. October 2017.
2. **Church, M.J.** 2017. Microbes and Water: Exploring Earth’s invisible forests. Invited lecture for University of Montana Honors College. University of Montana, October 2017.
3. **Church, M.J.** 2017. Water and microbes: The tiny engines that keep the world habitable. Invited Speaker for Science on Tap. Flathead Lake Brewery. September 2017.
4. **Church, M.J.** 2017. The ecology and biogeochemistry of marine nitrogen fixing microorganisms. University of Montana, Systems Ecology Seminar series. May 2017.
5. **Church, M.J.** and S. Emerson. 2016. Time Series Measurements of the Ocean Carbon Cycle. Workshop on Sustained Observations for Carbon Cycle Science and Decision Support, UCAR Boulder, CO. April 2016.
6. **Church, M.J.** 2016. The Biology of the Biological Pump: Quantifying Export. NSF Biology of the Biological Pump Workshop. February 2016.
7. **Church, M.J.** Ocean Time series today and tomorrow. Bermuda Institute of Ocean Sciences, January 2016.
8. **Church, M.J.** 2015. Shipboard and autonomous observations at Station ALOHA: Insights into productivity, export, and nutrient supply in the oligotrophic ocean. Ocean Carbon Biogeochemistry Summer Workshop, Woods Hole Oceanographic Institution. July 2015.
9. **Church, M.J.** 2015. Living the questions: A fortunate path through microbial oceanography. Yentsch-Schindler award acceptance, ASLO Aquatic Sciences Meeting, Granada, Spain, February 2015.
10. **Church, M.J.** 2014. Time, water, and change: The ecology and biogeochemistry of nitrogen cycling in the sea. Invited seminar, Marine Science Institute, UC Santa Barbara. October 2014.

11. **Church, M.J.** 2013. 25 years of Hawaii Ocean time-series carbon flux determinations: Insights into productivity, export, and nutrient supply in the oligotrophic ocean. Ocean Carbon Biogeochemistry Summer Workshop, Woods Hole Oceanographic Institution. July 2013.
12. **Church, M.J.** 2012. The Hawaii Ocean Time-series (HOT): Highlights and perspectives from more than two decades of ocean observing. Partnership for Observation of the Global Ocean (POGO) annual meeting. School of Ocean and Earth Science and Technology, University of Hawaii at Manoa, USA. January 2012.
13. **Church, M.J.** 2011. Variability in the subtropical North Pacific Ocean nitrogen cycle. University of Southern California Marine Biology and Biological Oceanography Program seminar series. March 2011.
14. **Church, M.J., D. Böttjer, D.M. Karl, R.M. Letelier, D.A. Viviani, J.P. Zehr.** 2011. Nitrogen Fixation in the North Pacific Subtropical Gyre. ASLO Aquatic Sciences Meeting, San Juan, Puerto Rico, February 2011.
15. **Church, M.J.** 2010. Temporal dynamics in organic matter inventories and fluxes: A HOT-BATS comparison. Integrating biogeochemistry and ecosystems in a changing ocean- Regional comparisons, IMBER (Integrated Marine Biogeochemistry and Ecosystems Research) workshop, Crete, Greece.
16. **Church, M.J.** 2010. The Hawaii Ocean Time-series (HOT) program: Highlights and perspectives from two decades of ocean observations. Sea Change: An Ocean Carbon Biogeochemistry (OCB) Scoping Workshop. Honolulu, HI.
17. **Church, M.J.** 2010. Spinning the Wheel: The Ocean's Nitrogen Cycle Viewed Through the Lens of Microbial Ecology. Gordon Research Conference, From Genes to Global Cycles. Tilton, NH.
18. **Church, M.J.** 2010. Capturing the ephemeral: Time-series perspectives on the roles of ocean eddies in the North Pacific Ocean. MBARI CANON Workshop, Monterey Bay Aquarium and Research Institute, Moss Landing, CA.
19. **Church, M.J.** 2008. The Hawaii Ocean Time-series (HOT): Temporal dynamics in ecosystem processes in the subtropical North Pacific Ocean. Changing Times: An International Ocean Biogeochemical Time-Series Workshop. Scripps Institution of Oceanography, La Jolla, CA.
20. **Church, M.J., J.E. Dore, D.M. Karl, R.M. Letelier, R. Lukas.** 2008. Implementation of quality assurance and control practices for ocean time series programs. OceanSITES Annual Meeting, Vienna, Austria.
21. **Church, M.J.** 2008. Microbes and Climate: Stories from the Sea. Hanauma Bay Evening Lecture Series. Honolulu, HI.
22. **Church, M.J., D.M. Karl, A. White, R.M. Letelier.** 2007. The Hawaii Ocean Time-series (HOT): Assessing temporal variability in microbial dynamics and biogeochemistry in the subtropical North Pacific Ocean. Workshop on the Implications and Opportunities of the Marine Genomics Revolution. Bermuda Institute of Ocean Sciences, Bermuda.
23. **Church, M.J.** 2007. Mesoscale forcing of microbial activity and biogeochemistry in the North Pacific Ocean. School of Oceanography, University of Washington.
24. **Church, M.J.** 2007. Time Series Observations at Station ALOHA: Ecosystem Dynamics in the Oligotrophic North Pacific Ocean. Japan Agency for Marine Science and Technology. Tokyo, Japan.

25. **Church, M.J.** 2006. Microbial Dynamics at Station ALOHA in the North Pacific Subtropical Gyre. Pioneering Studies of Young Scientists on Chemical Pollution and Environmental Changes. Ehime University, Matsuyama, Japan.
26. **Church, M.J.** 2006. Advances in understanding the time and space dynamics of marine microbes. Department of Oceanography, University of Hawaii, Honolulu, HI.
27. **Church, M.J.** 2006. Temporal and spatial dynamics of marine microbes. Monterey Bay Aquarium and Research Institute, Monterey, CA.
28. Letelier, R.M., D.M. Karl, **M.J. Church**, and J.P. Zehr. 2005. N₂ fixation research in the subtropical Pacific Ocean. Wenner-Gren Symposium on Marine Cyanobacteria. Stockholm, Sweden.
29. Letelier, R.M., D.M. Karl, R.R. Bidigare, J. Dore, **M.J. Church**. 2005. New and export production in the North Pacific: Lessons from the Hawaii Ocean Time-series. Ocean Carbon and Climate Change Workshop. Woods Hole Oceanography Institution, M.A..
30. **Church, M.J.** 2005. Hawaii Ocean Time-series (HOT): A window to ecosystem variability in the subtropical North Pacific Ocean. International Census of Marine Microbes (ICoMM), Honolulu, HI.
31. **Church, M.J.** 2005. Photoenhanced heterotrophic production in the North Pacific Ocean. ASLO Aquatic Sciences Meeting, Salt Lake City, Utah.
32. Zehr, J.P., S.M. Short, C.M. Short, **M.J. Church**. 2005. Real time PCR applications for quantifying nitrogenase genes and gene expression. ASLO Aquatic Sciences Meeting, Salt Lake City, Utah.
33. **Church, M.J.** 2004. Dynamics of bacterioplankton growth and production in the oligotrophic North Pacific Ocean. Ocean Sciences Department, University of California Santa Cruz.
34. **Church, M.J.** 2003. Bacterial production sees the light: Strategies for growth in oligotrophic ocean ecosystems. DIALOG V. Bermuda.

Selected non-peer reviewed published abstracts and presentations (2009-2016)

1. **Church, M.J.**, Bjorkman, K.M., Karl, D.M., Rii, Y.M., Viviani, D.A. 2017. Emerging views on picoplankton dynamics at Station ALOHA. February, 2017. Association of the Sciences of Limnology and Oceanography Annual Meeting. Honolulu, HI. Oral.
2. Shilova, I. N.; Mills, M. M.; Robidart, J. C.; Turk-Kubo, K. A.; Björkman, K. M.; Kolber, Z. S.; Rapp, I.; van Dijken, G. L.; **Church, M.J.**; Achterberg, E. P.; Arrigo, K. R.; Zehr, J. P. 2017. Diversity matters: The nutrient status and response to nitrogen and iron availability vary among phytoplankton sub-populations in the North Pacific. February, 2017. Association of the Sciences of Limnology and Oceanography Annual Meeting. Honolulu, HI. Oral.
3. Gradoville, M. R.; Crump, B. C.; Letelier, R. M.; **Church, M.J.**; White, A. E. 2017. The diversity and functional potential of microbial communities associated with the colonial N₂ fixing cyanobacterium *Trichodesmium*. February, 2017. Association of the Sciences of Limnology and Oceanography Annual Meeting. Honolulu, HI. Oral.
4. Eichner, M.; Klawonn, I.; Wilson, S. T.; Littmann, S.; Whitehouse, M.; **Church, M.J.**; Kuypers, M. M.; Karl, D. M.; Ploug, H. 2017. Distinct microenvironments and high single-cell variability in *Trichodesmium* colonies collected at Station ALOHA.

- February, 2017. Association of the Sciences of Limnology and Oceanography Annual Meeting. Honolulu, HI. Oral.
5. Lindh, M. V.; **Church, M.J.** 2017. There and back again - Unraveling mechanisms of microbial biogeography in the North Pacific Subtropical Gyre to and from Station ALOHA. February, 2016. Association of the Sciences of Limnology and Oceanography Annual Meeting. Honolulu, HI. Poster.
 6. Rii, Y. M.; Lindh, M. V.; **Church, M.J.** 2017. Diversity and dynamics of eukaryotic picoplankton in the North Pacific Subtropical Gyre. February, 2017. Association of the Sciences of Limnology and Oceanography Annual Meeting. Honolulu, HI. Oral.
 7. Van Dijken, G., D. Whitt, M. Mills, I. Shilova, J. Robidart, K. Bjorkman, **M. Church**, J. Zehr, K. Arrigo. 2016. Observations of a summertime phytoplankton bloom in the northeastern subtropical Pacific. AGU/ASLO/TOS Ocean Sciences Meeting. New Orleans, LA. February 2016. Poster.
 8. Viviani, D., **M. Church**. 2016. The effects of light, primary production, and temperature on bacterial production at Station ALOHA. AGU/ASLO/TOS Ocean Sciences Meeting. New Orleans, LA. February 2016. Poster.
 9. Bottjer, D., J. Dore, D. Karl, R. Letelier, C. Mahaffey, S. Wilson, J. Zehr, **M. Church**. 2016. Temporal Variability in Nitrogen Fixation and Particulate Nitrogen Export at Station ALOHA. AGU/ASLO/TOS Ocean Sciences Meeting. New Orleans, LA. February 2016. Poster.
 10. Zehr, J., M. Mills, I. Shilova, K. Turk-Kubo, J. Robidart, G. van Dijken, K. Bjorkman, D. Whitt, B. Wai, **M.J. Church**, *et al.* 2016. Dimensions of biodiversity of oceanic nitrogen cycling: nutrient co-limitation, nitrogen substrate preferences and more. AGU/ASLO/TOS Ocean Sciences Meeting. New Orleans, LA. February 2016. Oral.
 11. Mills, M., I. Shilova, J. Robidart, K. Bjorkman, G. van Dijken, K. Turk-Kubo, Z. Kolber, E. Achterberg, **M. Church**, J. Zehr, K. Arrigo. 2016. Differential Effects of Nitrate (NO₃-), Ammonium (NH₄⁺) and Urea on Phytoplankton Communities in the North Pacific Subtropical Gyre. AGU/ASLO/TOS Ocean Sciences Meeting. New Orleans, LA. February 2016. Oral.
 12. Rii, Y., R. Bidigare, **M. Church**. 2016. Responses of photosynthetic assemblage structure and physiology to variations in nitrogen substrates. AGU/ASLO/TOS Ocean Sciences Meeting. New Orleans, LA. February 2016. Poster.
 13. Barone, B., R. Bidigare, G. Carter, **M. Church**, R. Foreman, D. Karl. 2016. Inorganic Nutrient Diffusion at the Base of the Nutricline and its Association with the Deep Chlorophyll *a* Maximum Layer. AGU/ASLO/TOS Ocean Sciences Meeting. New Orleans, LA. February 2016. Oral.
 14. Shulse, C.N., B. Maillot, T.N. Nielsen, E.F. DeLong, C.S. Smith, **M.J. Church**. Microbial diversity and metabolic potential of a polymetallic nodule field. 14th Deep Sea Biology Symposium. September, 2015, Aveiro, Portugal. Oral.
 15. Smith C.R., D.J. Amon, J. Drazen, **M. Church**, E. Vetter, A.G. Glover, T.G. Dalhgren, A.J. Gooday, P. Martinez, A. Sweetman, A. Ziegler. Nodule Mining and Ocean Stewardship in the CCZ: The Design of the ABYSSLINE Project and Initial Biodiversity Results. 14th Deep Sea Biology Symposium. September, 2015, Aveiro, Portugal. Oral.

16. Björkman, K., **M Church**, D Karl. 2015. Spatial and Temporal Variability in the Concentration and Turnover of the Inorganic Phosphate and Adenosine-5'-triphosphate pools in the North Pacific Subtropical Gyre. EGU General Assembly Conference Abstracts, Vienna, Austria. Oral.
17. D.M. Karl, T. Clemente, E. Grabowski, S.T. Wilson, R. Letelier, **M.J. Church**. 2014. Variability in particle export at Station ALOHA. Ocean Sciences Meeting, February 2014. Honolulu, HI. Oral.
18. Wai, B.R.K.*, D.M. Karl, E.F. DeLong, **M.J. Church**. 2014. Time-series assessment of ammonia oxidizing *Archaea* at Station ALOHA. Ocean Sciences Meeting, February 2014. Honolulu, HI. Poster.
19. Rii, Y.M.*, S. Duhamel, R.R. Bidigare, D.M. Karl, D. Repeta, **M.J. Church**. 2014. CONTRIBUTION OF PHOTOSYNTHETIC PICOEUKARYOTES TO PRIMARY PRODUCTION AND PARTICLE FLUX IN BIOGEOCHEMICALLY DISTINCT REGIONS OF THE EASTERN SOUTH PACIFIC OCEAN. Ocean Sciences Meeting, February 2014. Honolulu, HI. Poster.
20. Barone, B., **M.J. Church**, D.M. Karl, R.M. Letelier, A. White. 2014. SIZE STRUCTURE AND PARTICLE MAXIMA IN DIFFERENT LAYERS OF THE WATER COLUMN OF A SUBTROPICAL GYRE: INFLUENCES OF ALGAL ECOLOGY AND DENSITY STRATIFICATION. Ocean Sciences Meeting, February 2014. Honolulu, HI. Oral.
21. Björkman, K. M.; Doggett, J. K.; **Church, M. J.**; Karl, D. M. 2014. DIFFERENTIAL RESPONSE TO LIGHT INTENSITY IN 14C-BICARBONATE VERSUS 3H-LEUCINE INCORPORATION BY PROCHLOROCOCCUS AT STATION ALOHA. Ocean Sciences Meeting, February 2014. Honolulu, HI. Poster.
22. Böttjer, D.; Viviani, D.*; Karl, D. M.; Letelier, R. M.; **Church, M. J.** 2014. NO EVIDENCE FOR ENHANCED CARBON OR DINITROGEN FIXATION UNDER ELEVATED SEAWATER PCO₂ IN THE NORTH PACIFIC SUBTROPICAL GYRE. Ocean Sciences Meeting, February 2014. Honolulu, HI. Poster.
23. **Church, M. J.**; HOT Team. 2014. THE HAWAII OCEAN TIME-SERIES (HOT) PROGRAM TURNS 25: HIGHLIGHTS OF A QUARTER CENTURY OF SUSTAINED OBSERVATIONS IN THE SEA. Ocean Sciences Meeting, February 2014. Honolulu, HI. Poster.
24. Segura-Noguera, M.; Curless, S. E.; **Church, M. J.**; Karl, D. M. 2014. AMMONIUM DISTRIBUTION AT STATION ALOHA IN THE NORTH PACIFIC SUBTROPICAL GYRE. Ocean Sciences Meeting, February 2014. Honolulu, HI. Poster.
25. Bryant, J. B.; Eppley, J. M.; Karl, D. M.; **Church, M. J.**; DeLong, E. F. 2014. WIND AND SEASON DRIVE MICROBIAL COMMUNITY DIVERSITY IN THE NORTH PACIFIC SUBTROPICAL GYRE AT STATION ALOHA. Ocean Sciences Meeting, February 2014. Honolulu, HI. Oral.
26. Letelier, R. M.; White, A. E.; **Church, M. J.**; Karl, D. M.; Bidigare, R. R. 2014. LOCAL TO BASIN SCALE MODULATION OF PRIMARY PRODUCTIVITY IN THE NORTH PACIFIC SUBTROPICAL GYRE: LESSONS LEARNED FROM THE HAWAII OCEAN TIME-SERIES PROGRAM. Ocean Sciences Meeting, February 2014. Honolulu, HI. Poster.

27. Sadler, D. W.; Dore, J. E.; **Church, M. J.**; Fujieki, L. A.; Karl, D. M. 2014. ASSESSING THE INTERNAL CONSISTENCY OF CO₂ MEASUREMENTS AT STATION ALOHA. Ocean Sciences Meeting, February 2014. Honolulu, HI. Poster.
28. Viviani, D. A.*; **Church, M. J.** 2014. DISSOLVED ORGANIC MATTER PRODUCTION AND MICROBIAL GROWTH AT STATION ALOHA. Ocean Sciences Meeting, February 2014. Honolulu, HI. Poster.
29. Thomas, S. E.*; **Church, M. J.** 2014. DIVERSITY AND ACTIVITY OF CHEMOAUTOTROPHIC BACTERIA IN THE APHOTIC WATERS OF THE SUBTROPICAL NORTH PACIFIC OCEAN. Ocean Sciences Meeting, February 2014. Honolulu, HI. Poster.
30. Gradoville, M. R.; White, A. E.; Böttjer, D.; **Church, M. J.**; Letelier, R. M. 2014. DIVERSITY TRUMPS ACIDIFICATION: NO CO₂ ENHANCEMENT OF N₂ FIXATION BY THE TRICHODESMIUM COMMUNITY AT STATION ALOHA. Ocean Sciences Meeting, February 2014. Honolulu, HI. Oral.
31. Grant, S. R.; Rappe, M.; **Church, M.** 2014. GROWTH STUDY OF THE SAR11 COASTAL ISOLATE HIMB114 IN BATCH AND CONTINUOUS CULTURE. Ocean Sciences Meeting, February 2014. Honolulu, HI. Oral.
32. Rii, Y. M.*; Bidigare, R. R.; Bowers, R. M.; **Church, M. J.**; Omori, E. H.; Rappé, M. S. 2014. PHYTOPLANKTON DIVERSITY IN EUTROPHIC TO HYPEROLIGOTROPHIC REGIONS IN THE EASTERN SOUTH PACIFIC OCEAN. Joint Aquatic Sciences Meeting, May 2014. Portland, OR. Oral.
33. Heal, K. R.*; Smith, S. R.; **Church, M. J.** 2013. PHOTOSYNTHETIC PARAMETERS OVER HOURLY AND DAILY TIMESCALES SHED LIGHT ON POPULATION STABILITY AT STATION ALOHA. Aquatic Sciences Meeting, February 2013. New Orleans, LA. Poster.
34. Smith, S. R.*; Heal, K. R.; **Church, M. J.** 2013. HIGH RESOLUTION SAMPLING REVEALS LIGHT-DRIVEN FLUCTUATIONS IN MICROBIAL POPULATION SIZE AND ACTIVITIES AT STATION ALOHA. Aquatic Sciences Meeting, February 2013. New Orleans, LA. Poster.
35. Robidart, J. C.; **Church, M. J.**; Ryan, J. P.; Wilson, S. T.; Ascani, F.; Marin III, R.; Richards, K.; Karl, D. M.; Scholin, C. A.; Zehr, J. P. 2013. APPLICATION OF HIGH RESOLUTION AUTONOMOUS TIME SERIES TO DETECT PATTERNS OF NITROGEN FIXING CYANOBACTERIA IN THE NORTH PACIFIC OCEAN. Aquatic Sciences Meeting, February 2013. New Orleans, LA. Poster.
36. Kavanaugh, M. T.; Hales, B. R.; Letelier, R. M.; Doney, S.; Davis, C. O.; Spitz, Y. H.; White, A. E.; **Church, M. J.**; Saraceno, M. 2013. DYNAMIC SEASCAPES: AN OBJECTIVE AND HIERARCHICAL FRAMEWORK FOR UNDERSTANDING PELAGIC SPATIOTEMPORAL VARIABILITY. Aquatic Sciences Meeting, February 2013. New Orleans, LA. Oral.
37. Viviani, D. A.*; **Church, M. J.**; Böttjer, D. 2013. VARIABILITY IN DISSOLVED PRIMARY PRODUCTION AND MICROBIAL GROWTH IN THE NORTH PACIFIC SUBTROPICAL GYRE. Aquatic Sciences Meeting, February 2013. New Orleans, LA. Poster.
38. Dore, J. E.; Lukas, R.; **Church, M. J.**; Sadler, D. W.; Karl, D. M. 2012. CONSISTENT TRENDS AND PATTERNS OF INTERANNUAL VARIABILITY IN SURFACE OCEAN CO₂ AT CONTRASTING SITES WINDWARD AND

- LEEWARD OF THE HAWAIIAN ISLANDS. Ocean Sciences Meeting, February 2012, Salt Lake City, UT. Poster.
39. Pasulka, A. P.; Landry, M. R.; Taniguchi, D. A.; Taylor, A. G.; **Church, M. J.** 2012. TEMPORAL DYNAMICS OF PHYTOPLANKTON AND HETEROTROPHIC PROTISTS AT STATION ALOHA. Ocean Sciences Meeting, February 2012, Salt Lake City, UT. Poster.
 40. White, A. E.; Whitmire, A. L.; Letelier, R. M.; Kavanaugh, M. T.; **Church, M. J.** 2012. TIME-SERIES ANALYSES OF PRIMARY PRODUCTIVITY AS A FUNCTION OF ABSORPTION, PIGMENT BASED PHYTOPLANKTON DIVERSITY AND PARTICLE SIZE DISTRIBUTIONS. Ocean Sciences Meeting, February 2012, Salt Lake City, UT. Poster.
 41. Kavanaugh, M. T.; Hales, B.; Saraceno, M.; Spitz, Y. H.; White, A. E.; **Church, M. J.**; Letelier, R. M. 2012. SATELLITE-DERIVED DYNAMIC SEASCAPES: SPATIOTEMPORAL CONTEXT FOR OCEANOGRAPHIC OBSERVATIONS OF NORTH PACIFIC ECOSYSTEMS. Ocean Sciences Meeting, February 2012, Salt Lake City, UT. Poster.
 42. Gradoville, M. R.; White, A. E.; Zirbel, M. J.; Böttjer, D.; **Church, M. J.**; Letelier, R. M. 2012. METABOLIC RESPONSE OF TRICHODESMIUM AND CROCOSPHAERA TO PCO₂ PERTURBATIONS ON MULTIPLE TIME SCALES. Ocean Sciences Meeting, February 2012, Salt Lake City, UT. Oral.
 43. Brzezinski, M.A., J.W. Krause, B. Li, **M.J. Church.** 2011. Interannual variability and drivers of the silicon cycle at the Hawaii Ocean Time-series Station ALOHA. *ASLO Aquatic Sciences Meeting*, San Juan, Puerto Rico, February 2011. Oral.
 44. Johnson, K.S., S.C. Riser, D. Swift, L.J. Coletti, H.W. Jannasch, J.N. Plant, C.M. Sakamoto, M.W. Lomas, **M.J. Church.** 2011. HOT and BATS: In situ comparison using profiling floats with chemical sensors. *ASLO Aquatic Sciences Meeting*, San Juan, Puerto Rico, February 2011. Oral.
 45. Lomas, M.W. and **M.J. Church.** 2010. BATS and HOT: Comparative analyses of similar yet different ecosystems. *ASLO Aquatic Sciences Meeting*, San Juan, Puerto Rico, February 2011. Oral.
 46. Böttjer, D., **M.J. Church**, R.M. Letelier, D. Sadler, D. Viviani, K.S. Watkins-Brandt. 2011. Diazotroph activity and community structure in a high CO₂ world. *ASLO Aquatic Sciences Meeting*, February 2011. Poster.
 47. Gradoville, R.M., K.S. Watkins-Brandt, A.E. White, **M.J. Church**, R.M. Letelier. 2011. Comparison of N₂ fixation response by Trichodesmium to pCO₂ perturbations using gas bubbling and acid/base approaches. *ASLO Aquatic Sciences Meeting*, San Juan, Puerto Rico, February 2011. Oral.
 48. Lomas, M.W. and **M.J. Church.** 2010. BATS and HOT: Comparative analyses of similar yet different ecosystems. *Integrating biogeochemistry and ecosystems in a changing ocean- Regional comparisons, IMBER (Integrated Marine Biogeochemistry and Ecosystems Research) workshop*, Crete, Greece. Oral.
 49. Dore, J.E., **M.J. Church**, C. Mahaffey, R.M. Letelier, D.M. Karl. 2010. Reconciling N₂ fixation rate estimates in the subtropical North Pacific Ocean. *AGU/ASLO Ocean Sciences Meeting*, Portland, OR. Poster.
 50. Santiago-Mandujano, F., R. Lukas, S. DeCarlo, P. Lethaby, J. Snyder, E. Firing, R. Bidigare, **M. Church**, J.D. Dore, D.M. Karl, M. Landry, and R. Letelier. 2010.

- Physical Trends at Station ALOHA in the North Pacific Subtropical Gyre. *AGU/ASLO Ocean Sciences Meeting*, Portland, OR. Poster.
51. Björkman, K.M., **M.J. Church**, K. Doggett, D.M. Karl. 2010. The effect of light on phosphorus and amino acid uptake in specific microbial populations in the North Pacific subtropical gyre using cell-sorting flow cytometry. *AGU/ASLO Ocean Sciences Meeting*, Portland, OR. Oral.
 52. Li, B., M. Brzezinski, D.M. Karl, **M.J. Church**. 2010. Investigations into the temporal and spatial dynamics of diatoms in the North Pacific Subtropical Gyre (NPSG). *AGU/ASLO Ocean Sciences Meeting*, Portland, OR. Poster.
 53. **Church, M.J.**, R. Bidigare, J. E. Dore, M.R. Landry, R.M. Letelier, R. Lukas, D.M. Karl. 2010. The annual flow of carbon through an open ocean plankton food web: Reflections on 20 years of measurements at Station ALOHA. *AGU/ASLO Ocean Sciences Meeting*, Portland, OR. Poster.
 54. Rappé, M S; Hayakawa, D H; Eiler, A; Karl, D M; **Church, M J**; 2009. DRIVERS OF BACTERIOPLANKTON COMPOSITION IN THE NORTH PACIFIC SUBTROPICAL GYRE. ASLO Aquatic Sciences Meeting, Nice, France. January 2009. Poster.
 55. **Church, M.J.** 2009. Investigating the responses of ocean diazotrophs to variations in seawater $p\text{CO}_2$ in the North Pacific Subtropical Gyre. *Rising CO₂, Ocean Acidification, and Their Impacts on Marine Microbes*. University of Hawaii, Honolulu, Hawaii. Oral.

International and National Community Activities and Workshops (2011-2016):

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| 2017 | Member , Ocean Carbon Biogeochemistry Program Ocean Time Series Committee. |
| 2016-present | Chair , Steering Committee, Ocean Carbon Biogeochemistry Program |
| 2016 | Steering committee member , NSF funded workshop on “The biology of the biological carbon pump”. February 2016. New Orleans, LA. |
| 2015 | Session co-Chair “Evolving Views on Physical, Ecological, and Biogeochemical Underpinnings of Plankton Blooms”, Ocean Carbon Biogeochemistry summer workshop, Woods Hole, MA. July 2015. |
| 2014 | Session co-Chair , Ocean Sciences Meeting, Honolulu, HI., February 2014 |
| 2013 | Invited panelist , First Technical Experts Workshop for the Global Ocean Observing System (GOOS) Biogeochemistry Panel, Intergovernmental Oceanographic Commission and UNESCO. Townsville, Australia. November 2013. |
| 2013-2015 | Vice Chair and Steering Committee Member , Ocean Carbon Biogeochemistry Program |
| 2012 | Invited participant , Global Intercomparability in a Changing Ocean: An International Time-Series Methods Workshop sponsored by the IOCCP and OCB. Bermuda. November 2012. |
| 2012 | Guest Editor , Deep-Sea Research Special Issue on Ocean Time Series |
| 2012 | Session co-Chair , Ocean Sciences Meeting, Salt Lake City, UT. February 2012 |
| 2012-present | Associate Editor , <i>Frontiers in Aquatic Microbiology</i> |

School and Departmental Committee Service:

2017	Member, University of Montana Academic Committee on Water
2016	Member, Search Committee for faculty position in Stream Ecology, Flathead Lake Biological Station, University of Montana
2015-2016	Chair, Departmental Teaching Evaluation Committee
2014	Member, Departmental Teaching Evaluation Committee
2013	Member, SOEST Young Investigator Search Committee Member, Departmental Personnel Committee Member, <i>ad hoc</i> Departmental committee on graduate core course curriculum
2012	Chair, Departmental Personnel Committee
2012	Interim Biological Oceanography Division Head
2012	Chair, Search Committee for Department of Oceanography Sustainability Faculty Cluster Hire
2012	Committee member, Faculty search for Plankton Ecologist in the Department of Oceanography
2010-present	SOEST Research Council
2010-present	SOEST Ship Users Committee
2012-present	COSEE Island Earth, Science Advisory Committee
2009-2012	Department of Oceanography Graduate Student Recruitment Committee

Editorial Service:

- Associate Editor (2017), *Frontiers in Microbiology* Special Issue on “Microbial ecology in the North Pacific subtropical gyre”
- Associate Editor (2017), *Limnology and Oceanography* Special Issue on “Long-term perspectives in aquatic research”
- Associate Editor, *Frontiers in Microbiology* (2010-present)
- Review Editor, *Aquatic Microbial Ecology* (2008-present)

Journal Reviewer:

Aquatic Microbial Ecology, Applied and Environmental Microbiology, Aquatic Microbial Ecology, Deep-Sea Research I and II, Ecosystems, Environmental Microbiology, Estuaries, ISME Journal, Journal Geophysical Research-Oceans, Limnology and Oceanography, Microbial Ecology, Nature, Nature Microbiology, Proceedings of the National Academy of Sciences, Science, Global Biogeochemical Cycles, Global Change Biology

Agency Panel Service:

National Science Foundation, NASA

Agency Proposal Reviewer:

National Science Foundation, National Oceanic and Atmospheric Administration, National Environment Research Council, Schmidt Ocean Institute