Recent Publications from the Church Lab

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.

2017

1. 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.
2. 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 *Crocosphaera*. *Nature Microbiology* 2: doi:10.1038/nmicrobiol.2017.118.
3. 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
4. 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
5. 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.
6. 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
7. 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
8. 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.
9. 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 pCO_2. *The ISME Journal* **11**: 1305-1317.

10. 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*
11. 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.
12. 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

13. 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**
14. 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

15. 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.
16. 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
17. 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.
18. 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.
19. 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.
20. Wilson, S.T., B. Barone, F. Ascani, R. Bidigare, **M. Church**, D. del Valle, S. Dyhrman, 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.

21. 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

22. 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 CO_2 trends across the Hawaiian Ridge. *Geophysical Research Letters*, 41: 6459-6467.
23. 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.
24. Karl, D.M. and **M.J. Church**. 2014. Microbial oceanography and the Hawaii Ocean Time-series programme. *Nature Reviews Microbiology*, 12: 699–713.
25. 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.
26. *Böttjer, D., D. M. Karl, R. M. Letelier, D.A. Viviani, **M. J. Church**. 2014. Experimental assessment of diazotroph responses to elevated seawater pCO_2 in the North Pacific Subtropical Gyre. *Global Biogeochemical Cycles*, 28: 601-616.
27. 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.
28. 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.
29. 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.
30. 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. Kyripdes, 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

31. **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.
32. 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.
33. 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.
34. **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.
35. 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.