

Bethany D. Jenkins



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Education

Ph.D. (2000) University of Oregon, Institute of Molecular Biology

B.A. Mount Holyoke College, MA

Research Interests:

I am interested in how the biochemical capabilities of microbial communities influences biogeochemical cycles and food webs in aquatic environments. I am also interested in how the biochemical potential of marine microbes relates to their ecological roles. I am addressing this question using a combination of molecular, genomic and biochemical approaches. One facet of my research focuses on how the dynamics of nutrient cycling—in particular nitrogenous compounds—influences the structure of microbial populations. Another area of my research uses directed genomic and biochemical approaches to address how changes in the environment induce microbial responses that profoundly impact the marine ecosystem, such as the uptake of iron and the production of toxins by diatoms.

- Influence of nitrogen cycling on the structure of microbial communities
- Application of genomic methods to study nitrogen fixation in the marine environment
- Understanding the relationship between Fe redox chemistry in seawater and the biologically-mediated reactions that render Fe available for uptake by eukaryotic phytoplankton .
- The molecular and biochemical basis for the formation of harmful algal blooms by diatoms in the genus *Pseudo-nitzschia*

Selected Publications:

Church, M. J., C. M. Short, B. D. Jenkins, D. M. Karl, and J. P. Zehr. 2005. Temporal Patterns of Nitrogenase Gene (*nifH*) Expression in the Oligotrophic North Pacific Ocean. *Appl. Environ. Microbiol.* 71:5362-5370.

- Church, M. J., B. D. Jenkins, D. M. Karl, and J. P. Zehr. 2005. Vertical distributions of nitrogen-fixing phylotypes at Stn ALOHA in the oligotrophic North Pacific Ocean. *Aquatic Microbial Ecology* 38:3-14.
- Jenkins, B. D., G. F. Steward, S. M. Short, B. B. Ward, and J. P. Zehr. 2004. Fingerprinting diazotroph communities in the Chesapeake Bay by using a DNA macroarray. *Applied And Environmental Microbiology* 70:1767-1776.
- Short, S. M., B. D. Jenkins, and J. P. Zehr. 2004. Spatial and temporal distribution of two diazotrophic bacteria in the Chesapeake Bay. *Applied And Environmental Microbiology* 70:2186-2192.
- Steward, G. F., B. D. Jenkins, B. B. Ward, and J. P. Zehr. 2004. Development and testing of a DNA macroarray to assess nitrogenase (nifH) gene diversity. *Applied And Environmental Microbiology* 70:1455-1465.
- Armbrust, E. V., J. A. Berges, C. Bowler, B. R. Green, D. Martinez, N. H. Putnam, S. G. Zhou, A. E. Allen, K. E. Apt, M. Bechner, M. A. Brzezinski, B. K. Chaal, A. Chiovitti, A. K. Davis, M. S. Demarest, J. C. Detter, T. Glavina, D. Goodstein, M. Z. Hadi, U. Hellsten, M. Hildebrand, B. D. Jenkins, J. Jurka, V. V. Kapitonov, N. Kroger, W. W. Y. Lau, T. W. Lane, F. W. Larimer, J. C. Lippmeier, S. Lucas, M. Medina, A. Montsant, M. Obornik, M. S. Parker, B. Palenik, G. J. Pazour, P. M. Richardson, T. A. Ryneerson, M. A. Saito, D. C. Schwartz, K. Thamtrakoln, K. Valentin, A. Vardi, F. P. Wilkerson, and D. S. Rokhsar. 2004. The genome of the diatom *Thalassiosira pseudonana*: Ecology, evolution, and metabolism. *Science* 306:79-86.
- Zehr, J. P., B. D. Jenkins, S. M. Short, and G. F. Steward. 2003. Nitrogenase gene diversity and microbial community structure: a cross-system comparison. *Environmental Microbiology* 5:539-554.
- Zehr, J. P., L. L. Crumbliss, M. J. Church, E. O. Omoregie, and B. D. Jenkins. 2003. Nitrogenase genes in PCR and RT-PCR reagents: implications for studies of diversity of functional genes. *Biotechniques* 35:996-+.
- Jenkins, B. D., and A. Barkan. 2001. Recruitment of a peptidyl-tRNA hydrolase as a facilitator of group II intron splicing in chloroplasts. *EMBO Journal* 20:872-879.
- Jenkins, B. D., D. J. Kulhanek, and A. Barkan. 1997. Nuclear mutations that block group II RNA splicing in maize chloroplasts reveal several intron classes with distinct requirements for splicing factors. *Plant Cell* 9:283-96.