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Photo

**Website**

<http://sbi.oregonstate.edu/news/200606.htm>

### Research Fields

- Atmospheric chemistry
- Biogeochemistry
- Carbon Footprint Analysis
- Climatology
- Community & Disaster Planning
- Data Analysis & Statistical Modeling
- Ecology & Ecosystem Management
- Economics
- Energy policy & technology
- Ethics
- Fire
- Forestry & Forest Management
- Geographic Information Systems
- Horticulture
- Human Impacts - economics
- Human Impacts - health
- Human Impacts - policy
- Hydrology
- Impacts - agriculture & horticulture
- Impacts - ecosystems, populations
- Impacts - physical
- Instrumentation
- Mitigation Policy
- Modeling Climate
- Modeling Ecosystems
- Modeling Socioeconomic Processes
- Natural Resource Policy & Planning
- Outreach & Engagement
- Paleoclimatology
- Paleoecology
- Physical Ecology
- Physiological Ecology
- Urban Ecology
- Water Policy & Planning
- Other...

### Specific Research Interests

Developing strategies for accurate estimation of in situ rates of microbial activities in the subsurface (e.g., methanogenesis, methanotrophy, calcite precipitation) related to the carbon cycle. Microbiology of methane hydrates in deep marine sediments and beneath permafrost. Importance of biogeochemical processes in the carbon cycle. Molecular methods for detecting microbes in the environment.

Other research fields: Microbiology, Microbial Ecology, Carbon Sequestration.

Additional website:

<http://www.coas.oregonstate.edu/index.cfm?fuseaction=content.search&searchtype=people&detail=1&id=754>

## **Projects**

Coupled Biogeochemical Process Evaluation for Conceptualizing Trichloroethylene Co-Metabolism (co-PI; funded; U.S. Department of Energy)

Methanogenesis in Hydrate-Bearing Sediments: Integration of Experimental and Theoretical Approaches (Lead PI; funded; US. Department of Energy)

INL-OSU Joint Appointment to Support Subsurface Science (Lead PI; pending; Idaho National Laboratory)

Microbial Activity and Precipitation at Solution-Solution Mixing Zones in Porous Media (Lead PI; pending; U.S. Department of Energy)

Modeling Gas Charge in Marine Sediments (Co-PI; pending; U.S. Minerals Management Service)  
Towards biological control of toxic algal blooms: Genetic characterization of toxin-producing cyanobacteria and their infecting viruses in the Klamath River system (Co-PI; pending; Oregon SeaGrant)

## **Selected Recent Publications**

Colwell, F.S. and R.P. Smith. 2004. Unifying principles of the deep terrestrial and deep marine biospheres, pp 355-367. In (W.S.D. Wilcock, E.F. Delong, D.S. Kelley, J.A. Baross, and S.C. Cary eds.), *Subseafloor Biosphere at Mid-Ocean Ridges*. Geophysical Monograph Series. Vol. 104. American Geophysical Union. Washington, D.C.

Colwell, F.S., T. Nunoura, M.E. Delwiche, S. Boyd, R. Bolton, D. Reed, K. Takai, R.M. Lehman, K. Horikoshi, D.A. Elias, and T.J. Phelps. 2005. Evidence of minimal methanogenic numbers and activity in sediments collected from the JAPEX/JNOC/GSC et al. Mallik 5L-38 gas hydrate production research well. In (S.R. Dallimore and T.S. Collett, eds.), *Scientific Results from the Mallik 2002 Gas Hydrate Production Research Well Program, Mackenzie Delta, Northwest Territories, Canada*, Geological Survey of Canada, Bulletin 585, 11 p.

McKinley, J.P., J.K. Fredrickson, and F.S. Colwell. 2006. Groundwater Microbial Communities, Chapter 106. In (M.G. Anderson, ed.), *Encyclopedia of Hydrological Sciences*. John Wiley Press. New York, New York.

Bodvarsson, G. S., E. L. Majer, J. S. Y. Wang, F. Colwell, and G. Redden. 2006. Initiative Addresses Subsurface Energy and Environment Problems. *EOS Trans. AGU* 87(2): 18-20

Inagaki, F. T. Nunoura, S. Nakagawa, A Teske, M. Lever, A. Lauer, M. Suzuki, K. Takai, M. Delwiche, F.S. Colwell, K.H. Nealson, K. Horikoshi, S. D'Hondt, and B.B. Jørgensen. 2006. Biogeographical distribution and diversity of microbes in methane hydrate-bearing deep marine sediments on the Pacific Ocean Margin. *Proc. Nat. Acad. Sci. USA*. 103: 2815-2820.

Trehu, A.M., M.E. Torres, G. Bohrmann, and F.S. Colwell. 2006. Leg 204 synthesis: Gas hydrate distribution and dynamics in the central Cascadia accretionary complex, pgs 1-40. In (A.M. Trehu, M.E. Torres, G. Bohrmann, and F.S. Colwell, eds.), *Proc. ODP, Sci. Results, 204*: College Station, TX (Ocean Drilling Program), doi:10.2973/odp.proc.sr.204.101.2006; [http://www-odp.tamu.edu/publications/204\\_SR/synth/synth.htm](http://www-odp.tamu.edu/publications/204_SR/synth/synth.htm)

Colwell, F.S. and E.R. Leadbetter. 2007. Prokaryotic diversity: Form, ecophysiology, and habitat, pgs 20-34. In (C.J. Hurst, R.L. Crawford, J.L. Garland, D.A. Lipson, A.L. Mills, and L.D. Stetzenbach, eds.), *Manual of Environmental Microbiology*, Vol. 3. ASM Press. Washington, D.C.

Colwell, F.S., S. Boyd, M.E. Delwiche, D.W. Reed, T.J. Phelps, and D.T. Newby. Estimates of biogenic methane production rates in deep marine sediments at Hydrate Ridge, Cascadia Margin. In preparation.

## **Professional Activities**

Recent Professional Activities:

- Member, Editorial Board for *Biodegradation* (2005-present)
- Co-organizer for the Joint International Symposia on Subsurface Microbiology and Environmental Biogeochemistry (Aug 2005)
- Guest editor for *Geomicrobiology Journal* special issue dedicated to the Joint International Symposia on Subsurface Microbiology and Environmental Biogeochemistry (Aug 2005 - present)
- Member of the Scientific Technology Panel for the Integrated Ocean Drilling Program (Aug 2006 – Aug 2009)