

James W. Murray

School of Oceanography
University of Washington

Phone: (206) 543-4730

e-mail: jmurray@u.washington.edu

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Education/Employment

1968: B.A. UC Berkeley (Geology); 1973: Ph.D. MIT/WHOI (Chemical Oceanography)
1973 to present: UW Oceanography, Adjunct in Chemistry,
Senior Fellow in JISAO

Teaching:

OCN400 - Chemical Oceanography

OCN521 - Aquatic Chemistry w/ Laurie Balistrieri

OCN529B - Environmental Chemical Modeling w/ Laurie Balistrieri and Mark Benjamin

PCC586 – UW Program on Climate Change Research Seminar

Active Areas of Research:

Personal web site at www.ocean.washington.edu/people/faculty/jmurray/jmurray.html

Nitrogen Transformations under Suboxic Conditions

Evidence in the suboxic zone of the Black Sea suggests that denitrification and anaerobic ammonium oxidation (Anammox) are important processes that produce N₂. Our approach is to measure the distribution of nitrogen species and nitrogen isotopes and to study the rates and microbial mediation of these reactions. I have two students currently working on this project. Clara Fuchsman is doing the geochemical and isotopic analyses and some microbial work. More extensive microbial work is being conducted by John Kirkpatrick. Both Clara and John are co-advised by Dr. Jim Staley in Microbiology. Research cruises were conducted in the Black Sea in 2001, 2003 and 2005. Three short field programs at Gelendzhik, Russia are being conducted in 2007 (May, October and December). Both Clara and John have had Astrobiology Fellowships.

Iron and Carbon Cycling in the equatorial Pacific

We have conducted previous studies of new (using ¹⁵N-NO₃⁻ uptake) and export (using ²³⁴Th and drifting sediment traps) production in the equatorial Pacific. We are currently funded to study the distributions and origin of iron in the equatorial undercurrent. Lia Ossiander is my student on this project and she had first year Fellowship support from the UW PCC. She conducted a modeling study of iron and carbon cycling for her MS research using the French OPA/PISCES model. The distributions of Fe, Al and Mn were measured during the R/V Kilo Moana research cruise in August/September 2006. Analyses and interpretation are underway.

As I currently am supporting three graduate students it will be difficult to start a new student in 2008, for either of these projects, unless the student can obtain first year fellowship support or can come with a graduate fellowship. Possibilities for such support at UW are the Astrobiology Program and the Program on Climate Change (UW PCC).