

## Research Interests

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### Understanding the sources, sinks and cycling of organic matter in marine sediments, in particular :

- Compound specific radiocarbon and stable carbon analysis of sedimentary biomarkers
- The recalcitrance of natural organic compounds in sediments
- The fate of fossil fuel-derived contaminants and their physical and chemical associations with sedimentary organic matter
- The role of microorganisms in the cycling of both natural and anthropogenic organic compounds
- Harnessing energy from the microbial metabolism of carbon in marine sediments

## Education

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<b>2006</b>	<i>Ph.D. Chemical Oceanography</i>	<b>Massachusetts Institute of Technology (MIT)</b> <b>/ Woods Hole Oceanographic Institution (WHOI)</b> , MA, U.S.A. Advisors: T.I. Eglinton and C.M. Reddy Thesis Committee: J.M. Hayes, P.M. Gschwend
<b>2003</b>	<i>Microbial Diversity Course Participant</i>	<b>Marine Biological Laboratory (MBL)</b> Woods Hole, MA, U.S.A.
<b>2000</b>	<i>M.Chem. Chemistry (1st Class Honors)</i>	<b>University of Sussex</b> , U.K.
<b>1998/9</b>	<i>Visiting Student</i>	<b>Reed College</b> , Portland, OR, U.S.A.

## Appointments

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<b>2006 - Present</b>	<i>Postdoctoral Fellow</i>	<b>Harvard University, Cambridge</b> , MA, U.S.A.
<b>2006 - Present</b>	<i>Guest Investigator</i>	<b>Woods Hole Oceanographic Institution (WHOI)</b> , MA, U.S.A.
<b>2006</b>	<i>Lecturer</i>	<b>Department of Earth Science, Boston University</b> , Boston, MA, U.S.A.

## Honors and Awards

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<b>2007</b>	Microbial Science Initiative Postdoctoral Fellowship, Harvard University
<b>2005</b>	Invited Participant, DISCO XIX (Dissertations Symposium on Chemical Oceanography)
<b>2002</b>	American Chemical Society - The Division of Environmental Chemistry, Award of Excellence
<b>2001</b>	Charles Davis Hollister Fellowship, Woods Hole Oceanographic Institution
<b>2000</b>	Louise Gross / Merck Prize for graduating top of senior year, University of Sussex

## Field Experience

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### Research Cruises

R/V Point Lobos: Monterey Canyon, CA, (02/28/07) - Collection of sedimentary microbial fuel cell

R/V Atlantis & D.S.V Alvin: Juan de Fuca Ridge, (08/23/06-09/11/06) - Recovered & sampled microbial incubators & osmosamplers from vents

R/V Clifford Barnes: Seattle, WA to Seattle, WA, (08/01/03-08/08/03) - Collection of sediment freeze cores and water samples

R/V New Horizon: Redwood City, CA to San Diego, CA, (05/27/01-06/10/01) - Collection of various sediment cores and water samples

### Other

West Falmouth Harbor, MA (11/04, 06/04, 11/03, 03/01) - Collection of sediment cores and nutrient porewater profiling

Pawtuxet River, RI (February 2003) - Collection of sediment cores

Sippewissett Marsh and Cedar Swamp, MA (July 2003) - Sampling of microbial mats and collection of environmental samples for microbial analyses

## Teaching Experience

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<b>2006</b>	Lecturer in the Department of Earth Science, Boston University (Boston, MA) Marine Biogeochemistry ( <i>Spring Semester</i> ), Oceanography ( <i>Fall Semester</i> ), Natural Disasters ( <i>Guest Lecturer</i> )
<b>2006 - present</b>	Supervisor to Harvard University undergraduates and Cambridge Rindge and Latin High School students (Cambridge, MA)
<b>2006</b>	Senior Thesis Advisor, Terra Hittson, Boston University Academy (Boston, MA)
<b>2006</b>	Research Project Advisor, Naomi Wells, Wellesley College (Wellesley, MA)
<b>2004 - 2005</b>	Supervised summer student fellow, Heather Bischel and high school student, Brittany Thomas (Woods Hole, MA)
<b>2000 - 2002</b>	Mathematics and Physics tutor for high school students (Boston, MA)

## Published Journal Articles

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1. **White, H.K.**, L. Xu, A. L. Lima, T.I. Eglinton and C.M. Reddy (2005) Abundance, composition, and vertical transport of PAHs in marsh sediments. *Environmental Science and Technology* **39**: 8273-8280.
2. **White, H.K.**, C.M. Reddy and T.I. Eglinton (2005) Isotopic constraints on the fate of petroleum residues sequestered in salt marsh sediments. *Environmental Science and Technology* **39**: 2545-2551.
3. Slater, G.F., **H.K. White**, T.I. Eglinton and C. M. Reddy (2005) Determination of microbial carbon sources in petroleum contaminated sediments using molecular radiocarbon analysis. *Environmental Science & Technology* **39**: 2552-2558.
4. Reddy, C.M., T.I. Eglinton, A.H. Hounshell, **H.K. White**, L. Xu, R.B. Gaines and G.S. Fryxinger (2002) The West Falmouth oil spill after thirty years: The persistence of petroleum hydrocarbons in marsh sediments. *Environmental Science and Technology* **36**: 4754-4760.

## Pending Journal Articles

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5. **White, H.K.**, C.M. Reddy and T.I. Eglinton. Relationships between carbon isotopic composition and mode of association of natural organic matter in coastal and continental margin sediments. *In revision for Organic Geochemistry*.
6. **White, H.K.**, C.M. Reddy and T.I. Eglinton. The radiocarbon content of sedimentary organic matter: A global assessment and speculative synthesis. *In preparation for Global Biogeochemical Cycles*.
7. **White, H.K.**, T.I. Eglinton and C.M. Reddy. Radiocarbon as an inverse tracer of fossil fuel-derived contaminants in sediments. *In preparation for Environmental Science & Technology*.
8. **White, H.K.**, C.M. Reddy and T.I. Eglinton. Isotopic constraints on the provenance of individual biomarkers in salt marsh sediments.
9. **White, H.K.**, L. Xu, J.G. Quinn and C.M. Reddy. The unresolved complex mixture (UCM) of hydrocarbons in urban sediments is derived from petroleum. *In preparation for Environmental Science & Technology*.
10. Reimers, C.E., H.A. Stecher III, J.C. Westall, Y. Alleau, K. Howell, L. Soule, P.R. Girguis, **H.K. White**. Substrate degradation kinetics and the Coulombic efficiency of microbial fuel cells supplied with marine plankton. *Submitted to Applied & Environmental Microbiology*.

## Selected Professional Presentations & Abstracts

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### Invited Lectures

- Boston University, Department of Earth Sciences, Boston, MA (March 16, 2006)
- Massachusetts Institute of Technology, E34 Chemical Oceanography Seminar Series, Cambridge, MA (March 17, 2006)
- Massachusetts Institute of Technology, Department of Civil and Environmental, Cambridge, MA (April 26, 2006)
- Ramapo College, Mahwah, NJ (April 19, 2007)

### Contributed Lectures

- American Chemical Society Fall National Meeting, Boston, MA (August 19, 2002)
- European Meeting in Environmental Chemistry, Plymouth, UK (December 13, 2003)
- Environmental Molecular Science Institute Second Annual Workshop, Columbus, OH (June 10, 2003)
- DISCO XIX, Waikaloa, HI (May 6, 2005)
- Ocean Sciences Meeting, Honolulu, HI (February 20, 2006)
- American Chemical Society Fall National Meeting, Boston, MA (August 21, 2007)

### Contributed Posters

- North Atlantic Society of Environmental Toxicology and Chemistry, Plymouth, MA (April, 2001)
- Gordon Research Conference in Organic Geochemistry, Holderness, NH (July 31, 2002)
- American Geophysical Union Ocean Sciences Meeting, Portland, OR (January, 2004)
- Gordon Research Conference in Organic Geochemistry, Holderness, NH (August 8, 2004)
- 22nd International Meeting on Organic Geochemistry, Seville, Spain (September 14, 2005)
- American Society of Microbiology Annual Meeting, Toronto, Canada (May 21, 2006)

### Published Abstracts

- White, H.K.**, L. Xu, A. L. Lima, T.I. Eglinton and C.M. Reddy. Post-depositional transport and fate of PAHs 30 years after the West Falmouth oil spill. Abstracts of papers of the American Chemical Society: U519-U519 016-ENVR Part 1, AUG 18 2002

## Funding Acquisitions & Contributions

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- NSF Collaborative Research (MIP): Microbial interactions at cold seeps: Characterizing C<sub>2</sub>-C<sub>4</sub> hydrocarbon degradation and its influence on AMO & sulfate reduction (Awarded to Girguis and Joye. White contributed to the written proposal)
- The Charles A. & Anne Morrow Lindbergh Foundation, "Developing microbial fuel cells as light systems for rural areas" (2007)

## Professional Affiliations & Service

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- Member of American Geophysical Union (AGU), American Chemical Society (ACS), European Association of Organic Geochemists (EAOG), American Society for Microbiology (ASM)
- Reviewer for Marine Chemistry, Earth & Planetary Science Letters, Environmental Chemistry Letters