

**Second Symposium on Harmful Marine Algae in the U.S.  
Tentative Program  
December 8-13, 2003**

| <b>Schedule</b>                 | <b>Tues., Dec. 9</b>                             | <b>Wed., Dec. 10</b>                                       | <b>Thurs., Dec. 11</b>                                | <b>Fri., Dec. 12</b>  | <b>Sat., Dec. 13</b>                               |
|---------------------------------|--|--|---|---|--|
| 8:30 – 9:00<br>(First day only) | Welcome and Introduction                         |  |   |   |  |
| 8:30 – 10:00                    | <u>9:00 – 10:00</u><br><br><b>Northeast</b>      | <u>8:30 – 10:00</u><br><br><b>National Plan discussion</b> | <u>8:30 – 10:00</u><br><br><b>Mid-Atlantic</b>        | <u>8:30 – 10:00</u><br><br><b>Southeast/Gulf of Mexico</b>            | <u>8:30 – 10:00</u><br><br><b>New Technologies</b> |
| 10:00 – 10:30                   | Coffee break                                     | Coffee break   | Coffee break  | Coffee break  | Coffee break                                       |
| 10:30 – 12:00                   | <b>Northeast</b>                                 | <b>National Plan discussion</b>                            | <b>Mid-Atlantic</b>                                   | <b>Southeast/Gulf of Mexico</b>                                       | <b>New Technologies</b>                            |
| 12:00 – 1:30                    | Lunch break,<br>Swope Dining Hall                | Lunch break,<br>Swope Dining Hall                          | Lunch break,<br>Swope Dining Hall                     | Lunch break,<br>Swope Dining Hall                                     | Lunch break,<br>Swope Dining Hall                  |
| 1:30 – 3:00                     | <b>Outreach</b>                                  | <b>West Coast</b>  | <b>Mid-Atlantic</b>                                   | <b>Southeast/Gulf of Mexico</b>                                       | Ad hoc group meetings                              |
| 3:00 – 3:30                     | Break  | Break  | Break   | Break   | Break  |
| 3:30 – 5:00                     | <b>Poster session (Northeast &amp; Outreach)</b> | <b>West Coast</b>  | <b>Poster session (Mid Atlantic &amp; Mitigation)</b> | <b>Poster session (Southeast/Gulf of Mexico and New Technologies)</b> | Ad hoc group meetings                              |
| 6:00 – 7:30                     | Dinner,<br>Swope Dining Hall                     | Dinner,<br>Swope Dining Hall                               | Dinner,<br>Swope Dining Hall                          | Lobster Dinner,<br>Swope Dining Hall                                  | Dinner,<br>Swope Dining Hall                       |
| 7:30 -                          | <b>Poster Session, (West Coast)</b>              | <b>Discussion Sessions (TBA)</b>                           | Free evening  | Reception & party   |  |



## Second Symposium on Harmful Marine Algae in the U.S.

December 8 – 13, 2003  
Marine Biological Laboratory  
Woods Hole, Massachusetts

### Tentative Program Schedule:

#### Monday, December 8, 2003

- 3:00 – 6:00 p.m.      Registration, Swope Lobby  
6:00 – 7:00 p.m.      Dinner, Swope Dining Hall  
7:00 – 9:30 p.m.      Reception, Swope upstairs lobby

#### Tuesday, December 9

7:00 – 8:30                      BREAKFAST (Swope Dining Hall)

8:30 – 9:00                      Welcome and Introduction  
**Lillie Auditorium**      **Don Anderson**, Woods Hole Oceanographic Institution

#### Session I – Northeast (Dennis McGillicuddy, Session Chair)

9:00 – 9:20                      Long-term patterns of Narragansett Bay phytoplankton driven by decadal shifts in phytoplankton habitat  
**David Borkman** and Theodore J. Smayda

9:20 – 9:40                      Long-term bloom behavior of *Prorocentrum* species in Narragansett Bay  
**Theodore J. Smayda** and David Borkman

9:40 – 10:00                      Biological and phylogenetic characterization of *Amoebophrya* sp. ex *Alexandrium tamarense*  
**Mario R. Sengco**, D. Wayne Coats, Kimberly J. Popenorf, Deana L. Erdner, Kristin E. Gribble, and Donald M. Anderson

10:00 – 10:30                      BREAK

#### Lillie Auditorium      Session II – Northeast (Greg Teegarden, Session Chair)

11:00 – 11:50                      Evaluating hypotheses for the initiation and development of *Alexandrium fundyense* blooms in the western Gulf of Maine using a coupled physical-biological model  
**Charles A. Stock**, Dennis J. McGillicuddy, Andrew R. Solow, and Donald M. Anderson

|                                      |   |
|--------------------------------------|---|
| 10:50 – 11:10                        | Mechanisms regulating the large-scale seasonal development of <i>Alexandrium fundyense</i> blooms in the Gulf of Maine (U.S.A.)<br><b>Dennis J. McGillicuddy, Jr.</b> , Donald M. Anderson, Daniel R. Lynch, and David W. Townsend                          |
| 11:10 – 11:30                        | Cross-frontal entrainment of plankton into a buoyant plume: the frog tongue mechanism<br><b>Robert D. Hetland</b> , Dennis J. McGillicuddy, and Richard P. Signell  |
| 11:30 – 11:50                        | Impact of zooplankton grazing on <i>Alexandrium</i> spp. blooms in the offshore Gulf of Maine<br><b>Jefferson T. Turner</b> and David G. Borkman  |
| 12:00 – 1:30                         | LUNCH (Swope Dining Hall)   |
| <b>Lillie Auditorium</b>             | <b>Session III - Outreach (Pat Tester, Session Chair)</b>   |
| 1:30 – 1:50                          | Collaborative, international programs on HABs<br><b>Patricia M. Glibert</b> (representing the GEOHAB and EU-NSF Steering Committees)  |
| 1:50 – 2:10                          | Public outreach materials regarding harmful algal blooms and their possible effects on human health<br>Lora E. Fleming, <b>Barbara Kirkpatrick</b> , Wendy B. Stephan, Lorraine Backer, Richard Clark, Dana Dalpra, Richard Weisman, and Gayl Van De Bogart |
| 2:10 – 2:30                          | Harmful algal bloom science and standards: One perspective<br><b>Karen A. Steidinger</b>  |
| 2:30 – 2:50                          | HAB impacts along the Washington coast – stakeholder outreach<br><b>Daniel L. Ayres</b>   |
| 3:00 – 3:30                          | BREAK (Swope upstairs lobby)  |
| 3:30 – 5:00<br><b>Swope upstairs</b> | <b>Poster session – Northeast and Outreach</b>  |
| 5:00 – 6:00                          | Informal social hour, Swope upstairs lobby  |
| 6:00 – 7:30                          | DINNER (Swope Dining Hall)  |
| 7:30 – 9:00<br><b>Swope upstairs</b> | <b>Poster session – West Coast</b> (with refreshments)  |



**Lillie Auditorium      Session V - West Coast (Raphael Kudela, Session Chair)**

- 3:40 – 4:00      Patterns of marine mammal strandings and toxic *Pseudo-nitzschia*: A multi-year perspective from central California  
**Mary W. Silver** and Frances M. Gulland
- 4:00 – 4:20      An individual-based model of the toxic algae species *Pseudo-nitzschia multiseriis*  
**Maria Siopsis**
- 4:20 – 4:40      Effectiveness of clay flocculation for *Heterosigma akashiwo* bloom removal and benthic effect studies in Puget Sound, Washington  
**J. E. Jack Rensel**, Jeffrey Campbell, and Donald M. Anderson
- 4:40 – 5:00      Nitrogen uptake by the raphidophyte *Heterosigma akashiwo*: A laboratory and field study  
**Julian Herndon** and William P. Cochlan
- 5:00 – 6:00      Informal social hour, Swope upstairs lobby
- 6:00 – 7:30      DINNER (Swope Dining Hall)
- 7:30 -      Discussion Sessions – TBA. (Tentative topics – Cell and Toxin Detection; Centers of Excellence; HAB management, including prevention, control & management; Food Webs)

**Thursday, December 11**

7:00 – 8:30      BREAKFAST (Swope Dining Hall)

**Lillie Auditorium      Session VI - Mid-Atlantic (Sue Banahan, Session Chair)**

- 8:30 – 8:50      Microzooplankton grazing and the population dynamics of HABs  
**Diane K. Stoecker**
- 8:50 – 9:10      Mesozooplankton grazing of microzooplankton: The affect of food web dynamics on the potential for harmful algal bloom formation  
**Matthew L. Reaugh**, Michael R. Roman, and Diane K. Stoecker

- 9:10 – 9:30 Viruses as potential regulators of regional brown tide blooms caused by the alga, *Aureococcus anophagefferens* and the assessment of brown tide blooms and related environmental factors in coastal waters of New Jersey (2000-2002)  
**Mary Downes Gastrich**, O. R. Anderson, Christopher J. Gobler, Steven W. Wilhelm, Justine Leigh-Bell, Casey A. Rentz, Richard Lathrop, Scott Haag, Michael P. Weinstein, Michael Danko, David A. Caron, and Rebecca Schaffner
- 9:30 – 9:50 Impacts of viruses isolated from New York waters on growth of the brown tide alga, *Aureococcus anophagefferens*: A field and laboratory assessment  
**Christopher J. Gobler**, Glynis Pererya, Jeffery Krause, Kristen Mauer, Mary Downes Gastrich, O. R. Anderson, and Steven W. Wilhelm
- 9:50 – 10:10 Mediation of benthic-pelagic coupling by microphytobenthos: An energy- and material-based model for initiation of blooms of *Aureococcus anophagefferens*  
**Hugh L. MacIntyre**, Michael W. Lomas, Jeff Cornwell, David J. Suggett, Christopher J. Gobler, Eva W. Koch, and Todd M. Kana
- 10:10 – 10:40 BREAK
- Lillie Auditorium** **Session VII - Mid-Atlantic (Rob Magnien, Session Chair)**
- 10:40 – 11:00 Ecology of *Pfiesteria* spp. and raphidophyte blooms in South Carolina  
**Alan J. Lewitus**, Holly A. Bowers, JoAnn M. Burkholder, Krista A. DeMattio, Howard B. Glasgow, Jr., Kenneth C. Hayes, Jason B. Kempton, Charles J. Keppler, Emily A. Monroe, Amy H. Ringwood, Susan B. Wilde, and Patrick R. Williams
- 11:00 – 11:20 Direct uptake of inorganic and organic nitrogen by *Pfiesteria piscicida* and *P. shumwayae*  
**Patricia M. Glibert**, Howard Glasgow, and JoAnn Burkholder
- 11:20 – 11:40 Cultivation and characterization of amoeboid protists implicated in the putative life cycle of *Pfiesteria piscicida* and related dinoflagellates  
**Patrick M. Gillevet**, Michael T. Peglar, Thomas A. Nerad, and O. Roger Anderson
- 11:40 – 12:00 Observations on the sexual life cycles of *Pfiesteria piscicida* and cryptoperidiniopsoids (Dinophyceae)  
**Matthew W. Parrow** and JoAnn M. Burkholder
- 12:00 – 1:30 LUNCH (Swope Dining Hall)

|                          |  |
|--------------------------|--|
| <b>Lillie Auditorium</b> | <b>Session VIII - Mid-Atlantic (Ted Smayda, Session Chair)</b>   |
| 1:30 – 1:50              | Micropredatory behavior and pathogenicity in <i>Pfiesteria</i> -like dinoflagellates<br><b>Vincent J. Lovko</b> , Wolfgang K. Vogelbein, Leonard W. Haas, Jeffrey D. Shields, Kimberly S. Reece                    |
| 1:50 – 2:10              | Pathogenicity of <i>Pfiesteria piscicida</i> and <i>P. shumwayae</i> to fish: Dose response studies<br><b>Wolfgang K. Vogelbein</b> , Vincent J. Lovko, Leonard W. Haas, Jeffrey D. Shields, and Kimberly S. Reece |
| 2:10 – 2:30              | Relative contribution of toxin and micropredation to ichthyotoxicity of two strains of <i>Pfiesteria shumwayae</i><br><b>Andrew S. Gordon</b> and Brian J. Dyer  |
| 2:30 – 2:50              | Toxic mode of action of KmTx 2, a new fish-killing toxin from <i>Karlodinium micrum</i> (Dinophyceae)<br><b>Jonathan R. Deeds</b> , Joseph P. Y. Kao, Robert E. Hoesch, and Allen R. Place                         |
| 2:50 – 3:10              | Harmful algal toxins and sterols: Not so strange bedfellows?<br><b>Allen R. Place</b> and Jonathan Deeds   |
| 3:10 – 3:40              | BREAK (Swope upstairs lobby)   |
| 3:40 – 5:00              | <b>Poster session – Mid-Atlantic and Mitigation</b>  |
| <b>Swope upstairs</b>    |  |
| 5:00 – 6:00              | Informal social hour, Swope upstairs lobby   |
| 6:00 – 7:30              | DINNER (Swope Dining Hall)   |
| 7:30 -                   | Free evening (beer and wine provided in Swope upstairs lobby)  |

**Friday, December 12**

7:00 – 8:30 BREAKFAST (Swope Dining Hall)

**Lillie Auditorium Session IX - SE/Gulf of Mexico (Tracy Villareal, Session Chair)**

8:30 - 8:50 Characteristics of the *Karenia brevis* diel vertical migration based on laboratory observations  
**Daniel Kamykowski**, Thomas G. Wolcott, Gerald S. Janowitz, Edward J. Milligan, Blake Schaeffer, Laurie McKay, Geoffrey Sinclair, and Jessica Ramsey

- 8:50 – 9:10 Does nitrogen regeneration from the N<sub>2</sub> fixing cyanobacteria *Trichodesmium* spp. fuel *Karenia brevis* blooms in the Gulf of Mexico?  
**Margaret R. Mulholland**, Cynthia A. Heil, Deborah A. Bronk, Judith M. O’Neil, and Peter Bernhardt
- 9:10 – 9:30 Assessing the bioavailability and uptake of dissolved humic substances by the HAB species *Karenia brevis* using radioisotopic techniques  
**Cynthia A. Heil**
- 9:30 – 9:50 Primary productivity by the toxic Florida red-tide dinoflagellate, *Karenia brevis*: Evaluation of a bio-optical model with laboratory and field data  
**Terence J. Evens**, Robert E. Reed, Donald G. Redalje, Steven E. Lohrenz, David F. Millie, Oscar Schofield, and Gary J. Kirkpatrick
- 9:50 – 10:10 An initial assessment of gyroxanthin-radiolabeling as a tool for determination of *Karenia brevis* carbon-specific growth rates *in situ*  
**Tammi L. Richardson** and James L. Pinckney
- 10:10 – 10:40 BREAK
- Lillie Auditorium Session X - SE/Gulf of Mexico (Lisa Campbell, Session Chair)**
- 10:40 – 11:00 Cell-concentration dependence in net growth of *Alexandrium monilatum*  
**Andrew R. Juhl** and Peter J. S. Franks
- 11:00 – 11:20 Harmful algal blooms in Florida’s marine waters: The new millenium  
**Jan H. Landsberg**, Leanne J. Flewelling, Jay P. Abbott, Karen A. Steidinger, Susan Cook, Earnest Truby, R. William Richardson, Daniel Hammond, Heather Hamilton, Ken Hayes, Paula Scott, Jennifer Wolny, Aaron Shurtleff, Lizz Singh, and Beverly Roberts
- 11:20 – 11:40 Ciguatera fish poisoning associated with oil production platforms along the Texas coast  
**Tracy A. Villareal**, Shari Hanson, Jessica A. Tiedeken, Marie-Yasmine Bottein, and Steve L. Morton
- 11:40 – 12:00 Physiology and ecology of macroalgal blooms (green tides) on coral reefs off northern Palm Beach County, Florida (USA)  
**Brian E. Lapointe**, Peter J. Barile, Kelly L. Rankin, and Charles S. Yentsch
- 12:00 – 1:30 LUNCH (Swope Dining Hall)

|                                      |  |
|--------------------------------------|--|
| <b>Lillie Auditorium</b>             | <b>Session XI - SE/Gulf of Mexico (Fran Van Dolah, Session Chair)</b>  |
| 1:30 – 1:50                          | Effects of inhaled Florida red tide brevetoxins: An interdisciplinary study in oceans and human health<br><b>Daniel G. Baden</b> , Gregory Bossart, Yung Sung Cheng, Janet Benson, William Abraham, Lora Fleming, Julie Zaias, Lorrie Backer, Andrea Bourdelais, Jerome Naar, Richard Pierce, and Barbara Kirkpatrick                    |
| 1:50 – 2:10                          | Toxicity of the chain forming dinoflagellate, <i>Alexandrium monilatum</i> isolated from the Gulf of Mexico with preliminary structural determination of a novel non-polar toxin<br><b>Steve L. Morton</b> , Michelle H. Hsia, Tracy Schock, Laurinda Smith, Steven Eaker, Kevin Beauchesne, Christina Mikulski, and Peter D. R. Moeller |
| 2:10 – 2:30                          | Seagrass as a route of brevetoxin exposure in the 2002 red tide-related manatee mortality<br><b>Leanne J. Flewelling</b> , Jay P. Abbott, Daniel G. Hammond, Jan Landsberg, Elsa Haubold, Tanya Pulfer, Page Spiess, and Michael S. Henry  |
| 2:30 – 2:50                          | Cellular stress responses of <i>Karenia brevis</i> to heat and oxidative stresses: Identification and response characterization of stress proteins and antioxidant enzymes<br><b>Jeanine S. Miller</b> and Frances M. Van Dolah  |
| 2:50 – 3:10                          | An algicidal bacterium active against <i>Karenia brevis</i> : Involvement of a dissolved compound<br><b>Michael J. Twiner</b> , Christina M. Mikulski, and Gregory J. Doucette   |
| 3:10 – 3:40                          | BREAK  |
| 3:40 – 5:00<br><b>Swope upstairs</b> | <b>Poster session – Southeast/Gulf of Mexico and New Technologies</b>  |
| 5:00 – 6:00                          | Informal social hour, Swope upstairs lobby   |
| 6:00 – 7:30                          | LOBSTER DINNER (Swope Dining Hall)   |
| 7:30 – 11:00                         | Reception and party, Meigs Room and Swope upstairs lobby   |

## Saturday, December 13

7:00 – 8:30 BREAKFAST (Swope Dining Hall)

### Lillie Auditorium Session XII - New Technologies (Chris Scholin, Session Chair)

8:30 – 8:50 Use of ITS-specific polymerase chain reaction (PCR) assays to identify phytoplankton species in complex natural assemblages  
**R. Wayne Litaker**, Mark W. Vandersea, Steve R. Kibler, Kimberly S. Reece, Nancy A. Stokes, Karen A. Steidinger, Dave F. Milie, Brian J. Bendis, Ryan J. Pigg, and Patricia A. Tester

8:50 – 9:10 The cyst transcriptome: Comprehensive analysis of gene expression patterns in *Pfiesteria piscicida* long-term resting cysts  
**Kathryn J. Coyne**, David Hutchins, and S. Craig Cary

9:10 – 9:30 The development and application of a quantitative PCR assay for *Alexandrium fundyense* from the Gulf of Maine  
**Sonya T. Dyhrman**, Deana Erdner, Jane La Du, Madeline Galac, and Donald M. Anderson

9:30 – 9:50 Mapping *Karenia brevis* blooms utilizing automated optical discrimination  
**Gary Kirkpatrick**, David Millie, Mark Moline, Steve Lohrenz, and Oscar Schofield

9:50 – 10:10 Detection and monitoring of harmful algal blooms with satellite  
Richard P. Stumpf, **Michelle Tomlinson**, Timothy Wynne, Jennifer Cannizzaro, and Kendall Carder

10:10 – 10:40 BREAK

### Lillie Auditorium Session XIII - New Technologies (Greg Boyer, Session Chair)

10:40 – 11:00 Gene expression profiling in mouse brain after domoic acid exposure  
**James Ryan**, John Ramsdell, and Frances Van Dolah

11:00 – 11:20 Application of cultured neuronal networks for identification of toxic algae  
**Nadezhda V. Kulagina**, Laurinda Smith, Tina Mikulski, Gregory J. Doucette, John S. Ramsdell, and Joseph J. Pancrazio

11:20 – 11:40 Radiolabelled saxitoxin for receptor assays: Development of improved labeling strategies  
**Sherwood Hall**

11:40 – 12:00 Use of the rapid lateral flow immunochromatographic tests for PSP and ASP in phytoplankton applications  
**Joanne F. Jellett**, Maurice V. Laycock, Cheryl Rafuse, Allan D. Cembella, Stephen Bates, Vera Trainer, and M. Angelica

12:00 Closing

12:30 – 1:30 LUNCH (Swope Dining Hall)

1:30 – 3:00 Ad hoc group meetings – small rooms may be arranged – contact Judy Kleindinst <jkleindinst@whoi.edu>

3:00 – 3:30 BREAK

3:30 – 5:00 Ad hoc group meetings

5:00 – 6:00 Informal social hour, Swope upstairs lobby

6:00 – 7:30 DINNER (Swope Dining Hall)