

Matthew John Oliver

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Education

- 2001 – 2006 Ph.D., Oceanography, Institute of Marine and Coastal Sciences, Rutgers University, New Brunswick, NJ.
1999 – 2001 M.S., Biology, Highest Honors, California Polytechnic State University, San Luis Obispo, CA.
1996 – 1999 B.S., Ecology and Systematic Biology, Summa Cum Laude, California Polytechnic State University, San Luis Obispo, CA.
1993 – 1996 A.A. Natural Sciences, Honors, Cerritos College Norwalk, CA.

Honors/Awards

- 2000 John David Jackmen Memorial Award for Excellence in Biology
1999 Outstanding Graduating Senior, Ecology and Systematic Biology
John David Jackmen Memorial Award for Excellence in Biology
E. H. Lehman Memorial Natural History Award
Montgomery/Richards Marine Biology Scholarship
Dean's Honor List, Winter
Green and Gold Foundation Scholarship
Kevin M. Wright Memorial Biological Scholarship
1998 Dean's Honor List, Fall
Kevin M. Wright Memorial Biological Scholarship
Dean's Honor List, Spring
Green and Gold Foundation Scholarship
1997 GTE Mobile Net Scholar Athlete of the Year
Burger King Scholar Athlete of the Year
Dean's Honor List, Spring
Dean's Honor List, Winter
1996 Dean's Honor List, Spring
Academic Excellence, Cerritos College Foundation
1995 Gold Falcon Service Award
Captain's Award
Mike Merkle Memorial Award for Athletic Excellence
Gold Falcon Service Award

Employment

- 2006 – present Researcher, Funded by NASA ROSES program.
2001 – 2006 Graduate/Teaching Assistantship, Institute of Marine and Coastal Sciences, Rutgers University
1999 – 2001 Graduate/Teaching Assistantship, Environmental Biotechnology Institute, California Polytechnic State University

Research Experience

- 2006 R.V. Maria S. Merian – VISION cruise sponsored by the Max Plank Institute – focused on the interaction between phytoplankton and bacteria during the fall bloom.
2005 R.V. Oceanus – Lagrangian Transport and Transformation Experiment (LaTTE) focused on primary production, community composition and phytoplankton retrotransposable elements in the Hudson River Plume.
2004 R.V. Cape Hatteras – Lagrangian Transport and Transformation Experiment (LaTTE) focused on evolution of optical properties, community composition, and phytoplankton retrotransposable elements of the Hudson River Plume.

- 2003 Norfolk Naval Base, Mine Warfare Readiness and Effectiveness Measuring (MIREM) focused on optical mine detection and radiative transfer in coastal systems.
- 2003 R.V. Suncoaster – Ecology and Oceanography of Harmful Algal Blooms (ECO HAB) focused on detection and diel cycles of *Karenia brevis*.
- 2003 R.V. Suncoaster – Monitoring and Event Response for Harmful Algal Blooms (MER HAB) focused on optical and molecular detection of *Karenia brevis*.
- 2001 Rutgers Tuckerton Field Station (LEO-15), Office of Naval Research Hyperspectral Coupled Ocean Dynamics Experiment (HyCODE)
- 2001 R.V. Walford – Coastal predictive skill experiments focused on coastal upwelling
- 2000 Rutgers Tuckerton Field Station (LEO-15), Office of Naval Research Hyperspectral Coupled Ocean Dynamics Experiment (HyCODE)
- 2000 R.V. Walford – Coastal predictive skill experiments focused on coastal upwelling
- 2000 R.V. Endeavor – Utilization of KSS laser lidar for assessing thermocline depth, CTD/FRRF/Bathypotometer profiles
- 2000 R.V. Point Sur, Monterey Bay – Assisted operation of Bathypotometer and Schindler trap profiles
- 2000 Morro Bay Estuary, Optical quantification of particulate and phytoplankton transport
- 2000 Morro Bay Estuary, DNA Ribotyping Analysis of Non-point Source Fecal Coliforms in conjunction with Regional Water Quality Control Board/California Department of Health
- 1999 Marine Laboratory Center for Coastal and Tropical Benthic Ecology; Internship
- 1998 T.S. Golden Bear Educational Oceanographic Cruise, Cal Poly Quarter at Sea Program

Teaching Experience

- 2003 Teaching Assistant, Physical Oceanography, Fall, Rutgers University
- 2000 Teaching Assistant, Undergraduate Marine Biology, Fall, Cal Poly
- 2000 Teaching Assistant, Undergraduate Computer Applications in Biology, Winter, Cal Poly
- 1999 Laboratory Instructor, Undergraduate Introduction to Animal Physiology, Winter, Cal Poly
- 1999 Laboratory Instructor, Undergraduate Introduction to Organismal Diversity, Fall, Cal Poly

Society Memberships

American Geophysical Union
AAAS

Publications Accepted or In Press

Oliver, M. J., Petrov, D., Ackerly, D., Schofield, O. M. Falkowski, P.G. The Mode and Tempo of Genome Size Evolution in Eukaryotes. 2007. *Genome Research* (accepted).

Schofield, O., Kerfoot, J., Mahoney, K., Moline, M., **Oliver, M.**, Lohrenz, S., Kirkpatrick, G. Vertical Migration of the Toxic dinoflagellate *Karenia brevis* and its Impact on Ocean Optics. 2006. *Journal of Geophysical Research* vol. II, C06009, doi:10.1029/2005JC003115.

Schofield, O., Bosch, J., Glenn, S. M., Kirkpatrick, G., Kerfoot, J., Moline, M., **Oliver, M. J.**, Bissett, W. P. Harmful algal blooms in a dynamic environment: How can optics help the field-going and sample poor biologist? In Real Time Coastal Observing systems for ecosystems dynamics and harmful algal blooms. Babin, M. And Cullen, J. J. (Eds) UNESCO, Paris. (in press).

Glenn, S. M., Schofield, O., Bergmann, T., Chant, R., **Oliver, M. J.**, Crowley, M., Cullen, J., Haidvogel, D., Kohut, J., Moline, M. A. 2004. Studying the Biogeochemical Impact of Summertime Upwelling Using a Coastal Ocean Observatory. *Journal of Geophysical Research* 109, C12S02, doi:10.1029/2003JC002265.

Schofield, O., Bergmann, T., Bissett, W. P. Moline, M. A., Orrico, C., **Oliver, M. J.** 2004. Inversion of Spectral Absorption in the Optically Complex Coastal Waters of the Mid-Atlantic Bight: *Journal of Geophysical Research* 109, C12S04, doi:10.1029/2003JC002071.

- Glenn, S., Schofield, O., Dickey, T., Chant, R. Kohut, J., Barrier, H., Bosch, J., Bowers, L., Creed, E., Haldeman, C., Hunter, E., Kerfoot, J., Mudgal, C., **Oliver, M.**, Roarty, H., Romana, E., Crowley, M., Barrick D., and Jones C. 2004. The expanding role of ocean color and optics in the changing field of operational oceanography. *Oceanography* 17(2): 86-95.
- Schofield, O., Arnone, R., Bissett, W. P., Dickey, T., Davis, Curt, Finkel, Z., **Oliver, M. J.**, Moline, M. A. 2004. Watercolors in the coastal zone: What can we see? *Oceanography* 17(2): 30-37.
- Moline, M. A., Blackwell, S., Chant, R., **Oliver, M. J.**, Bergmann, T., Glenn, S., Schofield, O. Episodic physical forcing and the structure of phytoplankton communities in the coastal waters of New Jersey. 2004. *Journal of Geophysical Research* 110, C12S05, doi:10.1029/2003JC001985.
- Oliver, M. J.**, Schofield, O., Bergmann, T., Glenn S. M., Moline, M. A., Orrico, C. Deriving In Situ Phytoplankton Absorption for Bio-optical Productivity Models in Turbid Waters. 2004. *Journal of Geophysical Research* 109, C07S11, doi:10.1029/2002JC001627.
- Oliver, M. J.**, Kohut, J. T., Irwin, A. J., Glenn, S. M., Schofield, O., Moline, M. A., Bissett, W. P. Bioinformatic Approaches for Objective Detection of Water Masses. 2004. *Journal of Geophysical Research* 109, C07S04, doi:10.1029/2003JC002072.
- Moline, M.A., Arnone, R., Bergmann, T., Glenn, S., **Oliver, M. J.**, Orrico, C., Schofield, O., Tozzi, S. 2004. Variability in spectral backscatter estimated from satellites and its relation to in situ measurements in optically complex coastal waters. *Journal of International Remote Sensing*. 24: 1-4.
- Kirkpatrick, G. J., Orrico, C., Moline, M. A., **Oliver, M. J.**, Schofield, O. 2003. Continuous hyperspectral absorption measurements of colored dissolved organic material in aquatic systems. *Applied Optics* 42(33): 6564-6568.

Publications Submitted

- Schofield, O., **Oliver, M.**, Moline, M. A. Mixing and Photoacclimation in Coastal Antarctica: Impact on Photosynthetic Quantum Yields.
- Connolly, J., Knight, C., **Oliver, M.**, Tomanek, L., Beaulieu, J., Moline, M. Correlated Evolution of Cell Volume and Genome Size in Diatoms (Bacillariophyceae).
- Moline, M. A., **Oliver, M. J.**, Mobley, C. D., Sundman, L., Bensky, T., Bergmann, T., Bissett, W. P., Case, J., Raymond, E. H., Schofield, O. M. E. Bioluminescence in a Complex Coastal Environment I: Temporal Dynamics of Night-time Water-leaving Radiance.
- Oliver, M. J.**, Moline, M. A., Mobley, C. D., Sundman, Schofield, O. M. E. Bioluminescence in a Complex Coastal Environment II: Prediction of Bioluminescent Source Depth from Spectral Water Leaving Radiance.
- Schofield, O., Chant, R., Glenn, S., Bosch, J., Gong, D., Kahl, A., Kohut, J., Moline, M., **Oliver, M.**, Reinfelder, J., Frazer, T. The Hudson River plume and its role in low dissolved oxygen on the

Grants Awarded

- NASA 2006-2008, Bioinformatic mapping of ocean biogeochemical provinces, Matthew Oliver, Andrew Irwin, Oscar Schofield, Paul Falkowski (\$491,000).

Invited Lectures

Bioinformatic Approaches for Objective Detection of Water Masses on Continental Shelves: Early Results from LaTTE 2005, Lamont-Doherty Earth Observatory, Columbia University, NY, May 5, 2005.

Evolution of Dinoflagellate and Diatom Genomes; thoroughbreds of the Eukaryotes, Mote Marine Laboratory, Sarasota, FL. June, 2005.

Selfish Genes in Phytoplankton Genomes; From Environmental Induction to Evolutionary Patterns, Dalhousie University, Halifax, NS. Nov, 2006.

From Global to Meter Scales; A Biologists Quest to Use Photons to Uncover Environmental Structure and Function, Naval Research Laboratory, Stennis Space Center, MS. Feb, 2007.

Contributed Abstracts

Schofield, O., L. Bowers, G. Fotti, S. Glenn, D. Gong, A. Kahl, J. Kohut, **M. Oliver**, J. Wilkin, R. Chant (2006) Studying the Dynamics and Biological Significance of the Hudson River Using an Ocean Observatory. Marine Technology Society, Boston Meeting, September 2006.

Frazer, T.K., S.R. Keller, O. Schofield, S.M. Glenn, J. Kohut, R.J. Chant, **M. Oliver**, J.R. Reinfelder, M.A. Moline, M. Zhou, R.F. Chen. Coastal Ocean Observatories Enable Biological Investigations in a Buoyant Plume. Marine Technology Society, Boston Meeting, September 2006.

Oliver, M. J., Petrov, D., Ackerly, D., Falkowski, P., Schofield, O. The Rapid Evolution Of Diatom And Dinoflagellate Genomes. Ocean Sciences Meeting, Honolulu, Hawaii, Feb 20-24, 2006.

Bosch, J., Schofield, O., Kohut, J., Glenn, S., Gogte, M. **Oliver, M.** East Coast Plumes and Blooms: Monitoring On-Ramp Traffic to the Ocean Highway off New Jersey. Ocean Sciences Meeting, Honolulu, Hawaii, Feb 20-24, 2006.

Connolly, J., Moline, M., Knight, C., **Oliver, M.** Exploring the Evolutionary Implications of Diatom (Bacillariophyceae) Genome Size Variation. Ocean Sciences Meeting, Honolulu, Hawaii, Feb 20-24, 2006.

Frazer, T. K., Schofield, O., Moline, M. M., Glenn, S. M., Kohut, J. T., Chant, R. J., Keller, S. R., **Oliver, M. J.**, Reinfelder, J. R., Zhou, M., Chen, R. F. LaTTE 2005: Super Size Me! Ocean Sciences Meeting, Honolulu, Hawaii, Feb 20-24, 2006.

Oliver, M. J., Finkel, Z, Schofield, O. M., Falkowski, P. G., de Vargas, C. Retrotransposons in Diatom Taxa. The International Ocean Research Conference, UNESCO Headquarters, Paris, France, June 6-10, 2005.

Kohut, J., Chant, R., Glenn, S., Schofield, O., **Oliver, M. J.** Observed response of the Hudson river plume to wind forcing. The International Ocean Research Conference, UNESCO Headquarters, Paris, France, June 6-10, 2005.

Kohut, J., Bosch, J. A., **Oliver, M. J.**, Glenn, S. M. and Schofield, O. M. E. Evolution of Fronts in the Mid-Atlantic Bight (MAB): What Exit on the Ocean Highway off New Jersey? American Geophysical Union Fall Meeting, San Francisco, CA. Dec 13-17, 2004.

Oliver, M. J., Kohut, J. T., Irwin, A. J., Glenn, S. M., Schofield, O., Moline, M. A., Bissett, W. P. Bioinformatic Approaches for Objective Detection of Water Masses. Ocean Optics XVII, Fremantle, Au, Oct 25-29, 2004.

Oliver, M. J., Finkel, Z. V., Schofield, O. M. and Falkowski, P. G. A Hypothesis of Genome Structure in Marine Phytoplankton. 56th Annual Meeting of The Society of Protozoologists June 2-6, Bryant College, Smithfield, Rhode Island, 2004.

Matteson, R. S., Moline, M. A., Bellingham, J. G., Blackwell, S. M., Chavez, F. P., Haddock, S., McManus, M. A., **Oliver, M. J.**, Schofield, O. M. Distribution of Optical Constituents in Response to Episodic Upwelling in Monterey Bay ASLO/TOS Ocean Research Conference Feb 15 - 20 Honolulu, HI, 2004.

Oliver, M. J., Bergmann, T., Glenn, S., Moline, M., Orrico, C., Schofield, O. Application of Optical Inversion Model: Implications for Constituent Specific Absorption and Bio-Optical Modeling of Primary Production. Ocean Optics XVI, Santa Fe, NM. 2002.

Schofield, O., Bergmann, T., Bissett, W. P., Kirkpatrick, G., **Oliver, M. J.**, Orrico, C., Moline, M. A., Glenn, S. Inversion of the Inherent Optical Properties and Their Utility for Delineation of Water Masses in Turbid Coastal Waters. Ocean Optics XVI, Santa Fe, NM. 2002.

Moline, M. A., Bergmann, T., Bissett, W. P., Case, J., Herren, C., Mobley, C. D., **Oliver, M. J.**, Schofield, O., Sundman L. (2002). Integrating optics and biology: Estimation of bioluminescence leaving radiance from an autonomous vertical profiler. Ocean Optics XVI, Santa Fe, NM, 2002.

Oliver, M. J., Moline, M. A., Schofield, O., Bergmann, T., Glenn, S., Bisset, W. P., Bio-Optical Estimates of Phytoplankton Productivity From an Autonomous In Situ Profiler in the Coastal Waters of the Mid-Atlantic Bight. Ocean Sciences Meeting, Honolulu, Hawaii, 2002.

Kirkpatrick, GH., **Oliver, M. J.**, Berg, B., Orrico, C., Moline, M. A., Lohrenz, S. E., Schofield, O. Continuous, Real-Time Determination Of Hyperspectral Absorption Of Colored Dissolved Organic Material. Ocean Sciences Meeting, Honolulu, Hawaii, 2002.

Pearson, J. A., Blackwell, S. M., Doughty, N., Moline, M. A., **Oliver, M. J.**, Orrico, C., Optical estimation of Phytoplankton and Sediment Transport in Morro Bay Estuary. Ocean Sciences Meeting, Honolulu, Hawaii, 2002.

Moline, M. A., Arnone, R., Bergmann, T., Glenn, S., **Oliver, M. J.**, Orrico, C., Schofield, O., Tozzi, S., Variability in Spectral Backscatter Estimated from Satellites and its Relation to In-Situ Measurements in Optically Complex Coastal Waters. Presented at, Oceans From Space 2000 Venice, Italy. 2000. Sponsored by the Joint European center and NASA. (Best Poster Award)

Community Service

Reviewer for Journal of Geophysical Research; Geophysical Research Letters; Marine Biology; Estuarine, Coastal and Shelf Science; Marine Ecology Progress Series
2003-present Ecology Tour Guide, Hutchison Memorial Forest, NJ.
2005 Science Judge, Shore Bowl (NOSB, New Jersey)
2004 Science Judge, Shore Bowl (NOSB, New Jersey)
2003 Science Judge, Shore Bowl (NOSB, New Jersey)

Special Skills

Visual Basic Programming
R Programming
S+ Programming
PADI Rescue Diver
Quantitative PCR