

CELIA Y. CHEN

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EDUCATION

- 1988-1994 Dartmouth College, Ph.D. in Ecology.
1982-1985 Graduate School of Oceanography, University of Rhode Island, M.S. in Biological Oceanography.
1974-1978 Dartmouth College, B.A. in Biology and Environmental Studies.

AWARDS

- 1994 Hannah Croasdale Award for Academic Excellence (awarded annually to the graduating Ph.D. recipient who best exemplifies the qualities of a scholar)

PROFESSIONAL EXPERIENCE

- 5/05-Present Department of Biology, Dartmouth College - *Research Associate Professor* (course taught: Marine Biology and Ecology)
5/00-5/05 Department of Biology, Dartmouth College - *Research Assistant Professor* (course taught: Marine Biology and Ecology)
5/95-5/00 Department of Biology, Dartmouth College - *Research Associate, Visiting Assistant Professor* (courses taught: Ecology and Evolution, Coral Reef Ecology)
6/94-5/95 Department of Biology, Dartmouth College - *Postdoctoral Fellow*.
1/87-2/89 National Research Council, Washington, D.C.- *Marine Board Staff Officer*.
1/86-1/87 U.S. House of Representatives, Merchant Marine and Fisheries Committee, Washington, D.C. - *Sea Grant Congressional Fellow*.
9/82-1/86 Graduate School of Oceanography, Narragansett, R.I. - *Research Assistant*.
8/81-8/82 Beijing Normal University, Beijing, People's Republic of China – *Instructor* for Beijing Environmental Protection Research Institute.
8/78-7/81 Fred C. Hart Associates, Inc., N.Y. N.Y. & Washington, D.C. - *Senior Environmental Analyst*.

SPONSORED RESEARCH GRANTS

- 6/10-6/14 USDA US Forest Service – “Ecosystem Change and Mercury Contamination”, Celia Chen \$35,000.

- 9/10-9/12 NIH INBRE - “Approaches to Biomedical Research”, Pilot Project, “The Role of Ecological, Chemical, and Landscape Factors in Determining Methylmercury Bioaccumulation in Stream Food Webs” Celia Chen, Nick Baer, Kathleen Weathers, \$81,766 (Ron Taylor INBRE PI).
- 4/08-4/13 NIEHS – “Trophic Transfer of Mercury in Aquatic Food Webs.” Celia Chen, Carol Folt, and Robert Mason, \$1,940,176.
- NIEHS – Research Translation Core, Celia Chen, Laurie Rardin, Nancy Serrell, \$1,362,595.
- 6/08-12/10 NOAA “Collaborative Research: Cycling of Mercury in Estuarine Sediments – Biogeochemical Controls on Fate, Transport and Bioaccumulation Along Physical and Chemical Gradients” Celia Chen, Aria Amirbahman, Mary Voytek, \$202,029.
- 6/07-12/10 NOAA “Atmospheric Exchanges of Mercury with Lake Champlain and Their Influence on Rates of Mercury Accumulation in Plankton and Fish” Eric Miller, Celia Chen, Neil Kamman, James Shanley, \$326,219.
- 4/06-6/11 DOD “Biological Processes Affecting Bioaccumulation, Transfer, and Toxicity of Metal Contaminants in Estuarine Sediments” Celia Chen, Nicholas Fisher, and Joseph Shaw, \$1,561,838.
- 4/06-6/08 NIEHS Supplement to Toxic Metals in the Northeast “Fate and Bioavailability of Mercury in Aquatic Ecosystems and Effects on Human Exposure”, Interdisciplinary Workshop, Josh Hamilton, Celia Chen, Nancy Serrell, \$15,000.
- 4/05-4/08 NIEHS “Trophic Transfer of Toxic Metals in Aquatic Food Webs.” Carol Folt and Celia Chen, \$1,219,341.
- 1/05-12/05 NOAA “Enhancements to the Lake Champlain Mercury Mass Balance: A Multidisciplinary Approach.” Ning Gao, Celia Chen, Philip Hopke, Neil Kamman, Rich Poirot, Andrea Lini, James Shanley, \$92,900.
- 6/04-6/05 Mount Desert Biological Laboratory, “Trophic Transfer of Metals in Intertidal/Subtidal Food Webs” Celia Chen, \$2300.
- 4/04-12/04 NOAA - NH Sea Grant "Trophic Transfer of Mercury in Estuarine Food Webs" Celia Chen. \$2100.
- 6/03-6/04 Mount Desert Biological Laboratory, “Trophic Transfer of Metals in Estuarine Food Webs via the 'Nekton Trophic Relay’” Celia Chen, \$4564.
- 4/03-12/03 NOAA - NH Sea Grant "Trophic Transfer of Mercury in Estuarine Food Webs" Celia Chen and Ata Bilgili, \$7800.
- 9/02-9/07 NSF "Development of Methods Linking Genomic and Ecological Responses in a Freshwater Sentinel Species." Joshua Hamilton, Celia Chen, Carol Folt, Michael Lynch, Joseph Shaw, \$2,000,000.

- 9/01-9/02 NSF “Fate and Transfer of Metals and PCB’s in Baiyangdian Lake, China.” Celia Chen, Meixun Zhao, Carol Folt, \$12,400.
- 4/00-4/05 NIEHS “Trophic Transfer of Toxic Metals in Aquatic Food Webs.” Carol Folt and Celia Chen, \$1,330,605.
- 6/99-5/02 Canadian Forest Service “Multiple Stressors – Effects on Native Amphibian Species of Forested Environments.” Celia Chen and Carol Folt, \$92,690.
- 4/95-4/00 NIEHS "Variation in Bioaccumulation and Biomagnification of Metals in Lakes throughout the Northeastern Region of the U.S.A.” Carol Folt, Celia Chen and Richard Stemberger, \$847,180.

TEACHING EXPERIENCE

Introductory Marine Biology and Ecology. (Undergraduate Course) Department of Biological Sciences, Dartmouth College, Spring 2002, Fall 2002, 2003, 2004, 2005, 2006, 2007, 2009, 2010.

Teacher's Field Course. Celia Chen, David Peart (Dartmouth College), and Len Reitsma (PSU). A field-intensive course to help high school teachers to learn how to conduct investigations in forest, avian, and aquatic ecology. Canaan, NH, June 2002, 2004, 2006.

Young Ecologists Field Course. Celia Chen, David Peart (Dartmouth College), and Len Reitsma (PSU). A field intensive course for high school students to learn how to conduct investigations in forest, avian, and aquatic ecology. Canaan, NH, June 2001.

Tropical Field Ecology. (Undergraduate Course) Department of Biology, Plymouth State College, Puerto Rico, Winter 1996, 2000.

Ecology and Evolution. (Undergraduate Course) Department of Biological Sciences, Dartmouth College. Fall 1997.

Fate and Transfer of Metals in Natural Systems. (Graduate Course) Dartmouth Superfund Basic Research Program, Dartmouth College, Fall 1996.

Coral Reef Ecology. (Undergraduate Course) Department of Biological Sciences, Dartmouth College, Discovery Bay, Jamaica, Winter 1995.

Numerous guest lectures for the Chemistry Department, the Environmental Studies Program, Earth Sciences Department at Dartmouth College and Dartmouth Medical School.

ADVISING AND MENTORING

Undergraduates – Independent studies (Yu Kawakami 2006, Amy Higgins 2006, Paul Wright 2007, Kate Labrum 2008); Theses (Advisor: Ashley Hetrick 2008, Amanda Greenberg 2008, Alanna Purdy 2009; Emily Kyker-Snowman 2010-11; Committee member: Jean Polfus 2006, Chelsea Wood 2007, Chelsea Little 2009; Florence Ling 2010-11); Presidential Scholar (Frances Wang 2010); WISP Students (Shasta Small 2007, Aurora Coon 2007; Cordelia Kumah 2010)

Graduate students – General advising (Paul Pickhardt, Roxanne Karimi, Dartmouth); Committee member (Celia Joaquim-Justo, University of Liege; Amy Dawson, Dartmouth; Erika Schielke, Yale University; Sam Fey, Dartmouth)

Post-doctoral Associates – Joseph Shaw, Dartmouth; Jenn Dijkstra, Wells National Estuarine Research Reserve; Darren Ward, Dartmouth.

PUBLICATIONS (* publications in included in packet)

Chen, C.Y., Driscoll, C.T., Kamman, N.C. Mercury Hotspots in Freshwater Ecosystems: Drivers, Processes, and Patterns. In: *Mercury in the Environment: Pattern and Process*, (ed.) M. Bank, University of California Press, (in press).

*Williams, J.J., J. Dutton, **C.Y. Chen**, N.S. Fisher. 2010. Metal (As, Cd, Hg, and CH₃Hg) bioaccumulation from water and food by the benthic amphipod *Leptocheirus plumulosus*. *Environ. Toxicol. Chem.* 29: 1755-1761.

Ward, D.M., K.H. Nislow, **C.Y. Chen**, and C.L. Folt. 2010. Reduced trace element concentrations in fast-growing juvenile Atlantic salmon in natural streams. *Environ. Sci. Technol.* (in press).

Ward, D.M., K.H. Nislow, **C.Y. Chen**, and C.L. Folt. 2009. Rapid, efficient growth reduces mercury concentrations in stream-dwelling Atlantic salmon. *Trans. Amer. Fish. Soc.* 139:1-10. DOI: 10.1577/T09-032.1.

Chen, C.Y. 2009. China's mercury problem: A sleeping giant? Woodrow Wilson International Center for Scholars. *China Environment Series* 2008/9 10:57-62.

***Chen, C.**, Dionne, M., Mayes, B., Ward, D., Sturup, S., Jackson, B. 2009. Mercury bioavailability and bioaccumulation in estuarine food webs in the Gulf of Maine. *Environ. Sci. Technol.* 43: 1804-1810. DOI: 10.1021/es8017122.

Chen, C. and Wilcox, B. 2008. Ecotoxicology of methylmercury: A transdisciplinary challenge. *EcoHealth* 5:393-395. DOI: 10.1007/s10393-009-0214-4.

Evers, D.C., Mason, R.P., Kamman, N.C., **Chen, C.Y.**, Bogomolni, A.L., Taylor, D.L., Hammerschmidt, C.R., Jones, S.H., Burgess, N.M., Munney, K. Parson, K.C. 2008. An integrated mercury monitoring program for temperate estuarine and marine ecosystems on the North American Atlantic Coast. *Ecohealth* 5: 426-441. DOI: 10.1007/s10393-008-0205-x

Chen, C., Amirbahman, A., Fisher, N., Harding, G., Lamborg, C., Nacci, D., Taylor, D. 2008. Methylmercury in marine ecosystems: spatial patterns and processes of production, bioaccumulation, and biomagnification. *Ecohealth* 5: 399-408. DOI: 10.1007/s10393-008-0201-1.

***Chen, C.Y.**, Serrell, N., Evers, D.C., Fleishman, B.J., Lambert, K.F., Weiss, J., Mason, R.P., Bank, M.S. 2008. Methylmercury in marine ecosystems: From sources to seafood consumers – A workshop report. *Environ. Health Perspectives*. DOI:10.1289/ehp.1121.

*Taylor, V.F., Jackson, B.P., **Chen, C.Y.** 2008. Mercury speciation and total trace element determination of low-biomass biological samples. *Anal. Bioanal. Chem.* 392: 1283–1290.

***Chen, C.Y.**, Hathaway, K.M., Thompson, D.G., Folt, C.L. 2008. Multiple stressor effects of Release, pH, and food on the zooplankton, *Simocephalus vetulus* and larval amphibian, *Rana pipiens*. *Ecotoxicol. and Environ. Safety* 71: 209-218.

Chen, C.Y., Pickhardt, P.C., Xu, M.Q., Folt, C.L. 2008. Mercury and arsenic bioaccumulation and eutrophication in Baiyandian Lake, China. *Water, Air, Soil Poll.* DOI 10.1007/s11270-007-9585-8.

*Shaw, J.R., Colbourne, J.K., Davey, J.C., Glaholt, S.P., Hampton, T.H., **Chen, C.Y.**, Folt, C.L. Hamilton, J.W. 2007. Gene response profiles for *Daphnia pulex* exposed to the environmental stressor cadmium reveals novel crustacean metallothioneins. *BMC Genomics* 8:477.

*Karimi, R., **Chen C.Y.**, Fisher N.S., Pickhardt P.C., Folt C.L. 2007. Stoichiometric controls of mercury dilution by growth. *Proceedings of the National Academy of Sciences* 104:7477-7482.

Evers, D.C., Han, Y.J., Driscoll, C.T., Kamman, N.C., Goodale, M.W., Lambert, K.F., Holsen, T.M., **Chen, C.Y.**, Clair, T.A., Butler, T. 2007. Identification and evaluation of biological hotspots of mercury in the Northeastern U.S. and Eastern Canada. *Bioscience* 57:29-43.

*Driscoll, C.T., Han, Y.J., **Chen, C.Y.**, Evers, D.C., Lambert, K.F., Holsen, T., Kamman, N.C., Munson, R. 2007. Mercury contamination in remote forest and aquatic ecosystems in the Northeastern U.S.: sources, transformations and management options. *Bioscience* 57:17-28.

Rees, J.R., Stürup, S., **Chen, C.Y.**, Folt, C.L., and Karagas, M.R.. 2006. Toenail mercury and dietary fish consumption. *Journal of Exposure Analysis and Environmental Epidemiology* 1-6.

Renshaw, C.E., Bostick, B.C., Feng, X., Wong, C.K., Winston, E.S., Karimi, R., Folt, C.L. and **Chen C.Y.** 2006. Impact of land disturbance on the fate of arsenical pesticides. *J. Environ. Qual.* 35: 61-67.

Shaw, J.R., Dempsey, T.D., **Chen, C.Y.**, Hamilton, J.W., Folt, C.L. 2005. Comparative toxicity of cadmium, zinc, and mixtures of cadmium and zinc to daphniids. *Environ Toxicol Chem.* 25 (1):182-189.

Sturup, S., **Chen, C.**, Jukosky, J., and Folt, C. 2005. Isotope dilution quantification of $^{200}\text{Hg}^{2+}$ and $\text{CH}_3^{201}\text{Hg}^+$ enriched species-specific tracers in aquatic systems by cold vapor ICPMS and algebraic de-convoluting. *International Journal of Mass Spectrometry* 242(2-3):225-231.

Chen, C.Y., Stemberger, R.S., Kamman, N.C., Mayes, B.,M., Folt, C.L. 2005. Patterns of Hg bioaccumulation and transfer in aquatic food webs across multi-lake studies in the Northeast US. *Ecotoxicology* 14:135-147.

Pickhardt, P.C., Folt, C.L., **Chen, C.Y.**, Klaue, B., Blum, J.D. 2005. Impacts of zooplankton composition and algal enrichment on the accumulation of mercury in an experimental freshwater food web. *Sci. Tot. Environ.*339: 89-101.

Chen, C.Y., Folt, C.L. 2005. High plankton biomass reduces mercury biomagnification. *Environ. Sci. Technol.* 39: 115-121.

Chen, C.Y., Folt, C.L. High Plankton Abundance Reduces Trophic Transfer of Mercury. 2005. *Learned Discourse. SETAC.*

Chen, C.Y., Mayes, B.M. 2004. Trophic transfer of metals in estuarine food webs. *Mount Desert Island Biological Laboratory Bulletin.*

Chen, C.Y., Hathaway, K.M., and Folt, C.L. 2004. Multiple stress effects of Vision herbicide, pH and food on zooplankton and larval amphibian species from forest wetlands. *Environ. Toxicol. Chem.* 23: 823-831.

Chen, C.Y. and Folt, C.L. 2002. Ecophysiological Responses to warming events by two sympatric zooplankton species. *J. Plank. Res.* 24 579-589.

Pickhardt, P.C., Folt, C.L., **Chen, C.Y.**, Klaue, B. and Blum, J.D. 2002. Algal blooms reduce the uptake of methylmercury in freshwater food webs. *Proceedings of the National Academy of Sciences* 99: 4419-4423.

Folt, C.L., **Chen, C.Y.**, Pickhardt, P.C. 2002. Using plankton food web variables as indicators for the accumulation of toxic metals in fish. IN: Wilson, S.H. & Suk, W.A., editors. *Biomarkers of Environmentally Associated Disease* 287-307 (Lewis Press, N.Y.).

Chen, C.Y. and Folt, C.L. 2000. Bioaccumulation and diminution of arsenic and lead in a freshwater food web. *Environ. Sci. Technol.* 34:3878-3884.

Chen, C.Y., Folt, C.L., Stemberger, R.S, Blum, J.D., Klaue,B., and Pickhardt, P.C. 2000. Accumulation of heavy metals in food web components across a gradient of lakes. *Limnol. Oceanogr.* 45: 1525-1536.

Chen, C.Y., Sillett, K., Folt, C.L., Whittemore, S, and Barchowsky, A. 1999. Molecular and demographic measures of arsenic stress in *D. pulex*. *Hydrobiol.* 410: 229-238.

Folt, C.L., **Chen, C.Y.**, Moore, M.V., and Burnaford, J. 1999. Synergism and antagonism among multiple stressors. *Limnol. Oceanogr* 44: 864-877.

Stemberger, R.S. and **Chen, C.Y.** 1998. Fish tissue metals and zooplankton assemblages of Northeastern US lakes. *Can. J. Fish. Aquat. Sci.* 55: 339-352.

Chen, C.Y. and Folt, C.L. 1997. The potential for hybridization in freshwater copepods. *Oecologia* 111: 557-564.

Moore, M.V., **Chen, C.Y.**, Driscoll, C.T., Flebbe, P.A., C.L., Folt, Hemond, H.F., Howarth, R.W., Mather, J.R., Murdoch, P.S., and Pace, M.L. 1997. Potential effects of climate change on freshwater ecosystems of the New England/MidAtlantic region. *Hydrological Processes*. *Hydrological Processes* 11: 925-947.

Chen, C.Y. and Folt, C.L. 1996. Consequences of fall warming for zooplankton overwintering success. *Limnol. Oceanogr.* 41: 1077-1086.

Intergovernmental Panel on Climate Change (IPCC). 1996. *Climate Change 1995 Impacts, Adaptations and Mitigation of Climate Change: Scientific-Technical Analyses*. Cambridge, Cambridge University Press. (Contributor).

Moore, M.V., **Chen, C.Y.**, Driscoll, C.T., Flebbe, P.A., Folt, C.L., Hemond, H.F., Howarth, R.W., Mather, J.R., Murdoch, P.S., and Pace, M.L. 1995. Summary - New England Mid/Atlantic Region. IN: McKnight, D.M. and A.P.Covich, editors. *Regional Assessment of Freshwater Ecosystems and Climate Change in North America*. Briefing Report. Published by American Society of Limnology and Oceanography and North American Benthological Society.

Chen, C.Y. and Durbin, E.G. 1994. Effect of pH on the growth and carbon uptake of marine phytoplankton. *Mar. Ecol. Prog. Ser.* 109: 83-94.

Chen, C.Y. and C.L. Folt. 1993. Measures of food quality as demographic predictors in freshwater copepods. *J. Plank. Res.* 15: 1247-1261.

National Research Council (NRC). 1990. *Managing Troubled Waters: The Role of Marine Environmental Monitoring*. Washington, D.C. National Academy Press. (Contributor).

National Research Council (NRC). 1990. *Monitoring Southern California's Coastal Waters*. Washington, D.C. National Academy Press. (Contributor).

National Research Council (NRC). 1989. *Contaminated Marine Sediments - Assessment and Remediation*. Washington, D.C. National Academy Press. (Contributor).

National Research Council (NRC). 1988. *Strategies for Obtaining Ship Services*. Washington, D.C. National Academy Press. (Contributor).

INVITED TALKS

Chen, C.Y. Mercury Fate in Aquatic Ecosystems. Invited seminar. ATSDR, Center for Disease Control, Atlanta, GA, September 2010.

Chen, C.Y. Ecological Factors Controlling Metal Fate in Aquatic Food Webs. Invited seminar. Marine Biological Laboratory, Woods Hole, MA, April 2010.

Chen, C.Y. Ecological Factors Controlling Metal Fate in Aquatic Food Webs. Invited seminar. University of South Carolina, Columbia SC, April 2010.

Chen, C.Y. Ecological Factors Controlling Metal Fate in Aquatic Food Webs. Invited seminar. University of Connecticut, Avery Point CT, December 2009.

Chen, C.Y. Mercury Fate in Aquatic Ecosystems. Invited seminar. Wellesley College, Wellesley MA, May 2009.

Chen, C.Y. Mercury Fate in Aquatic Ecosystems. Invited seminar. University of Maine at Orono ME, April 2009.

Chen, C.Y. Mercury Transport and Fate in Aquatic Ecosystems. Invited seminar. University of New Hampshire, Durham, NH, October 2008.

Chen, C.Y. and C.L. Folt. Trophic transfer of toxic metals in aquatic food webs. Jiaotong University, Shanghai China, Invited Seminar. December 2002.

Chen, C.Y. and C.L. Folt. Trophic transfer of toxic metals in aquatic food Webs. Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, Beijing China, Invited Seminar. December 2002.

Chen, C.Y. and C.L. Folt. Trophic transfer of metals in aquatic food webs. Institute of Zoology of the Chinese Academy of Sciences, Beijing, China, Invited seminar. June 2001.

Chen, C.Y., C.L. Folt, and R.S. Stemberger. Fate and transfer of metals in aquatic food webs. Aquatic Seminar Series, Massachusetts Institute of Technology, Boston, MA, Invited seminar. October 1997.

Chen, C.Y. and C.L. Folt. Food web structure and heavy metals in fish of Northeastern U.S. lakes. EPA Research Seminar Series on Assessing Metals in Ecosystems, Boston, MA, Invited seminar. June 1997.

Chen, C.Y. Implications of climate change for freshwater plankton. Marine Sciences Research Center, State University of New York at Stonybrook, Invited seminar. February 1996.

Chen, C.Y. Trophic transfer of metals in aquatic food webs. Biology Department, Plymouth State University, Plymouth NH, Invited seminar. March 2000.

THESES

Chen, C.Y. 1994. Demographic consequences of seasonal variation in environmental stress. Ph.D. dissertation. Dartmouth College.

Chen, C.Y. 1986. Effect of pH on the growth and carbon uptake of marine phytoplankton. Masters thesis. Graduate School of Oceanography, University of Rhode Island.

PROFESSIONAL COMMITTEES AND ORGANIZATIONS

American Society of Limnology and Oceanography

Society of Environmental Toxicology and Chemistry (SETAC)

North Atlantic Chapter of SETAC

Lake Sunapee Protection Association Science Advisory Committee

Biodiversity Research Institute Scientific Council

Ecohealth Review Editor