

YUAN SHEN

Marine Science Program University of South Carolina Columbia, SC 29208 Web: https://www.researchgate.net/profile/Yuan Shen2 Phone: (803) 777-1017

Email: shen2@email.sc.edu

EDUCATION

Jan. 2012 – present Aug. 2009 – Dec. 2011 Sept. 2005 - Jun. 2009 Ph.D., Marine Science M.Sc., Marine Science B.Sc., Marine Chemistry University of South Carolina, USA University of South Carolina, USA Xiamen University, China

University of South Carolina, USA

<u>Master's thesis</u>: Sources and export of dissolved organic matter in the Mississippi-Atchafalaya River system (Advisor: Ronald Benner)

<u>Bachelor's thesis</u>: Concentrations, distribution and sources of 17 organochlorine pesticides in surface sediments of the Beibu Gulf, China (in Chinese)

RESEARCH EXPERIENCE

Fall 2009 - present

<u>Research Assistant</u> to Dr. Ronald Benner, Carolina Distinguished Professor in the Department of Biological Sciences and Marine Science Program, University of South Carolina, USA

• Research interests are focused on the source, chemical composition, and bioavailability of dissolved organic matter (DOM) in the oceans (Arctic & Antarctic Oceans, Gulf of Mexico), rivers, and groundwater

2007 - 2009

<u>Research Assistant</u> to Dr. Minggang Cai, Associate professor in the College of Oceanography and Environmental Science, Xiamen University, China

- Distributions of heavy metals (Cu, Pb, Zn, Cr, Cd) and persistent organic pollutants (e.g., Organochlorine pesticides) in seawater and sediments
- Growth and pigment production of green microalgae (Haematococcus pluvialis)

TEACHING and MENTORING EXPERIENCE

Teaching Assistant (4 semesters)

- The Ocean Environment (MSCI 101), taught by Dr. Claudia Benitez-Nelson (Fall 2010, Fall 2012)
- The Ocean Environment (MSCI 101), taught by Dr. Howie Scher (Fall 2011)
- The Living Ocean (MSCI 102), taught by Dr. Tammi Richardson (Spring 2012)

<u>Mentoring</u>

- Tae-hoon Kim (2014-2015) Visiting scholar, Seoul National University, South Korea
- Andrew Banks (2014)
 Undergraduate student, University of South Carolina, USA
- Jessica Asirwatham (2013) Undergraduate student, Case Western Reserve University, USA

Xiamen University, China

University of South Carolina

PUBLICATIONS (peer reviewed journal)

- *In review & in preparation:*
- Lechtenfeld O.J., Hertkorn N., **Shen Y.**, Witt M., and Benner R. Marine Sequestration of Carbon in Bacterial Exometabolites. **Nature Communications**. *In review*
- Shen Y., Fichot C.G., Liang S.-K., and Benner R. Seasonal accumulation of marine dissolved organic carbon in a river-influenced ocean margin. Marine Chemistry. *Submitted*
- Shen Y., Banks A., and Benner R. Diurnal variability of dissolved organic matter in a salt marsh estuary. Limnology and Oceanography. *In preparation*
- Walker, B.D., **Shen Y.**, Benner R., and Druffel E.R.M. Export of pre-aged, labile DOM from a central California coastal upwelling system: Insights from D/L amino acids and Δ^{14} C signatures. Limnology and Oceanography. *In preparation*
- Shen Y., Murray A.E., and Benner R. Dissolved organic matter in the Antarctic Ocean. In preparation
- Li P., Chen L., Huang Q, Benner R., **Shen Y.**, and Fichot C.G. Dynamics of dissolved organic matter in the Yangtze estuary and coastal waters. Biogeosciences. *In preparation*
- Published & in press:
- <u>6</u>. Shen Y., Chapelle F., Strom E., and Benner R (*in press*). Origins and bioavailability of dissolved organic matter in groundwater from a fractured-rock aquifer. Biogeochemistry, 10.1007/s10533-014-0029-4
- Shen Y., Fichot C.G., and Benner R. 2012. Dissolved organic matter composition and bioavailability reflect ecosystem productivity in the Western Arctic Ocean. Biogeosciences, 9: 4993-5005.
- <u>4.</u> Peter, S., Shen, Y., Kaiser, K., Benner, R., and Durisch-Kaiser, E. 2012. Bioavailability and diagenetic state of dissolved organic matter in riparian groundwater, Journal of Geophysical Research, 117, G04006, doi:10.1029/2012JG002072
- 3. Shen, Y., Fichot C. G., and Benner R. 2012. Floodplain influence on dissolved organic matter composition and export from the Mississippi-Atchafalaya River system to the Gulf of Mexico. Limnology and Oceanography, 57: 1149-1160.
- 2. Cai, M.G., Qiu, C.R., Shen, Y., Cai, M.H., Huang, S.Y., Qian, B.H., Sun, J.H. Liu, X.Y. 2010. Concentration and distribution of 17 organochlorine pesticides (OCPs) in seawater from the Japan Sea northward to the Arctic Ocean. Science China-Chemistry, 53, 1033-1047. doi:10.1007/s11426-010-0182-0
- <u>1.</u> Shen Y., Cai M.G., Huang S.Y., Shi R.G., Li Z., Lu X.X., 2010. *Haematococcus pluvialis* culture in photobioreactor. Marine Sciences, 34(10), 83-89. (in Chinese)

JOURNAL REVIEWER

Biogeosciences Estuarine, Coastal and Shelf Science

PRESENTATIONS AT CONFERENCES

International conference:

- **2014**: Dissolved organic matter composition reflects ecosystem productivity. **Ocean Sciences Meeting**, Honolulu, HI (*oral*)
- **2013**: Net dissolved organic carbon accumulation in a river-influenced ocean margin. Aquatic Sciences Meeting, New Orleans, LA (*oral*)
- **2012**: Floodplain influences on dissolved organic matter composition and export from the lower Mississippi-Atchafalaya River system. **Ocean Sciences Meeting**, Salt Lake, UT (*poster*)

Others:

Graduate student day (April 2013) (Room winner in oral presentation), University of South Carolina School of Earth and Ocean Sciences (oral, February 2013), University of South Carolina Graduate student day (poster, April 2012), University of South Carolina School of Earth and Ocean Sciences (poster, February 2012), University of South Carolina

AFFILIATIONS

American Geophysical Union (AGU) Association for the Scientists of Limnology and Oceanography (ASLO)

GRANTS

2014: Diurnal and seasonal changes in labile dissolved organic matter in a salt-marsh estuary Founded by Slocum-Lunz Foundation (\$1200; P.I.: Yuan Shen)

PROJECTS INVOLVED

Microbial Carbon Pump (2012-2015)	
• TARA Ocean Polar Circle (2013)	Circumnavigation of the Arctic
USGS Arctic Ocean Carbon Project (2010-2012)	Canada Basin
Russian-American Long-term Census of the Arctic	
(RUSALCA, 2009-2012)	Bering and Chukchi Seas
• Impacts of Climate on the Eco-Systems and Chemistry of the Arctic	Pacific Environment
(ICESCAPE, 2010-2011)	Chukchi Sea
• Shelf-Basin Interactions program (SBI, 2002-2004)	Chukchi Sea
Malina Scientific program (2009)	Beaufort Sea
• Nansen and Amundsen Basin Observational System (NABOS, 2008) Eastern Arctic
• Circumpolar Flaw Lead program (CFL, 2007)	Amundsen Gulf
• Gulf Carbon project (2009-2010)	Gulf of Mexico
• Antarctic Marine Living Resources (AMLR, 2009-2012)	Antarctic Ocean

AWARDS

2013: Marine Science Award for Outstanding Teaching2013: ASLO Aquatic Sciences Meeting Student Travel Award

PROFESSIONAL SKILLS

- > Instrument:
 - Agilent High Performance Liquid Chromatography system (HPLC 1100)
 - Agilent Ultra High Performance Liquid Chromatography system (UPLC 1260)
 - Agilent Gas Chromatography-mass spectrometry (GC-MS) systems
 - Shimadzu TOC-V analyzer
 - Shimadzu 1601 spectrophotometer
 - CEM Mars 5000 microwave

➢ Chemical analysis:

- Analysis of dissolved organic carbon and chromatographic dissolved organic matter
- Chiral separation of amino acids (LC)
- Analysis of lignin in dissolved organic matter (GC-MS)

OTHER EXPERIENCE

University of South Carolina

Fall 2011 – Spring 2013 Seminar representative

Marine Science Grad Society

Fall 2011 – Spring 2012 President

Gamecock Badminton Club