

Andrew Luke King

Natl. Acad. of Sciences/Natl. Research Council Postdoctoral Researcher
NOAA/Northeast Fisheries Science Center
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EDUCATION:

2008: **Ph.D., Oceanography** (Marine Chemistry & Geochemistry), Scripps Institution of Oceanography
2000: **B.S., Biology** (Ecology, Behavior & Evolution), University of California, San Diego

APPOINTMENTS:

2012-present *Adjunct Assistant Professor*, University of Rhode Island
2010-present *Postdoctoral Researcher*, National Oceanic and Atmospheric Administration
2008-2010 *Postdoctoral Researcher*, University of Southern California
2001-2008 *Graduate Student Researcher*, Scripps Institution of Oceanography

RESEARCH EXPERIENCE:

10/10-present *Postdoctoral Researcher, National Academy of Sciences/National Research Council*
Northeast Fisheries Science Center, NMFS, NOAA, Milford, CT
Advisors: Dr. Gary Wikfors and Dr. Shannon Meseck
Research foci: The effects of ocean acidification and CO₂ on elemental cycling and phytoplankton; seawater carbonate system analytical chemistry

6/08-9/10 *Postdoctoral Researcher*
Marine Environmental Biology, University of Southern California
Advisor: Dr. David Hutchins
Research foci: The effects of climate change, ocean acidification, and rising CO₂ on phytoplankton growth and trace metal requirements; ICPMS particulate trace metal analysis and phytoplankton Fe quotas; biological Fe isotope fractionation

9/01-6/08 *Doctoral Research*
Geosciences Research Division, Marine Chemistry & Geochemistry curricular group, Scripps Institution of Oceanography (SIO), UCSD
Advisor: Dr. Katherine Barbeau
Thesis entitled: *Iron distribution and phytoplankton iron limitation in the Southern California Current System*. PhD committee: Drs. M. Landry, B. Mitchell, C. Winant, N. Crawford

6/99-9/99 *Summer Student Fellow/Minority Trainee*
US Geological Survey, Woods Hole Oceanographic Institution (WHOI)
Research focus: Sediment mixing and radioisotope geochemistry

3/98-6/01 *Undergraduate Researcher*
SIO, UCSD; Dept. of Oceanography, University of Hawai'i
Drs. Michael Mullin and Kenneth Smith (SIO, UCSD) and Dr. Mark Huntley (UH)
Research foci: Phytoplankton and zooplankton ecology; nutrient biogeochemistry; benthic-pelagic coupling.

PUBLICATIONS:

Peer-reviewed

13. Wilhelm, SW, **A.L. King**, B.S. Twining, G.R. LeClerc, J.M. DeBruyn, R.F. Strzepek, C.L. Breene, S. Pickmere, M.J. Ellwood, P.W. Boyd, and D.A. Hutchins. 2013. Elemental quotas and physiology of a southwestern Pacific Ocean plankton community as a function of iron

- availability. *Aquatic Microbial Ecology*, 68:185-194, doi:10/3354/ame01611. *This was selected as a feature article by AME editors.*
12. Boyd, P.W., R.F. Strzpek, S. Chiswell, H. Chang, J.M. DeBruyn, M. Ellwood, S. Kennan, **A.L. King**, E.W. Maas, S. Nodder, S.G. Sander, P. Sutton, B.S. Twining, S.W. Wilhelm, and D.A. Hutchins. 2012. Microbial control of diatom bloom dynamics in the open ocean. *Geophysical Research Letters*, 39:L16801, doi:10.1029/2012GL053448.
 11. **King, A.L.**, S.A. Sanudo-Wilhelmy, P.W. Boyd, B.S. Twining, S.W. Wilhelm, C. Breene, M.J. Ellwood, and D.A. Hutchins. 2012. A comparison of biogenic iron quotas during a diatom spring bloom using multiple approaches. *Biogeosciences* 9:667-687.
 10. **King, A.L.**, K. Buck, and K. Barbeau. 2012. Quasi-Lagrangian drifter studies of iron speciation and cycling off Point Conception, California. *Marine Chemistry* 128-129:1-12.
 9. **King, A.L.**, S.A. Sanudo-Wilhelmy, K. Leblanc, D.A. Hutchins, and F. Fu. 2011. CO₂ and vitamin B₁₂ interactions determine trace metal requirements of a subarctic Pacific diatom. *ISME Journal* doi:10.1038/ismej.2010.211.
 8. **King, A.L.** and K. Barbeau. 2011. Dissolved iron and macronutrient distributions in the southern California Current System. *Journal of Geophysical Research – Oceans* 116:C03018, doi:10.1029/2010JC006324.
 7. Beman, J.M., C.-E. Chow, **A.L. King**, Y. Feng, J.A. Fuhrman, A. Andersson, N.R. Bates, B.N. Popp, and D.A. Hutchins. 2011. Global declines in oceanic nitrification rates as a consequence of ocean acidification. *Proceedings of the National Academy of Sciences* 108:208-213.
 6. **King, A.L.** and K. Barbeau. 2007. Evidence for phytoplankton iron limitation in the southern California Current System. *Marine Ecology Progress Series* 342:91-103.
 5. Johnson KS, Boyle E, Bruland K, Coale K, including **King, A.L.** and 30 others. 2007. Developing standards for dissolved iron in seawater. *Eos Transactions AGU* 88:131-132.
 4. Kaufmann, R.S., E.C. Fisher, W.H. Gill, **A.L. King**, M. Laubacher, and B. Sullivan. 2003. Temporal patterns in the distribution, biomass and community structure of macrozooplankton and micronekton within Port Foster, Deception Island, Antarctica. *Deep-Sea Research II* 50: 1765-1785.
 3. Sturz, A.A., S.C. Gray, K. Dykes, **A.L. King**, and J. Radtke. 2003. Seasonal changes of dissolved nutrients within and around Port Foster, Deception Island, Antarctica. *Deep-Sea Research II* 50:1685-1705.
 2. **King, A.L.** and E. La Casella. 2003. Seasonal variations in abundance, distribution, and population structure of *Metridia gerlachei* in Port Foster, Deception Island, Antarctica. *Deep-Sea Research II* 50:1753-1763.
 1. Beaulieu, S.E., M.M. Mullin, S. Pyne, V. Tang, **A.L. King**, and B.S. Twining. 1999. Using an optical plankton counter to determine size distributions of preserved zooplankton samples. *Journal of Plankton Research* 21(10):1939-1956.

In review or in preparation for submission

- Nodder, S.D., Sutton, P., Kennan, S., Boyd, P.W., Ellwood, M.J., Schwarz, J., Maas, E.W., Chang, F.H. Wilhelm, S.W., DeBruyn, J., Strzpek, R.F., **King, A.L.**, Hutchins, D.A. Law, C.S., Northcote, L. Spring bloom evolution in a warm-core subtropical eddy, Southwestern Pacific Ocean.
- Twining, B. S., Nodder, S. D., **King, A. L.**, Hutchins, D. A., LeCleur, G. R., DeBruyn, J. M., Maas, E.W., Vogt, S., Wilhelm, S.W., and Boyd, P. W. Maps of major and trace elements in sinking diatoms reveal differential remineralization.

FELLOWSHIPS & AWARDS:

- 5/11-present **National Academy of Sciences/National Research Council Postdoctoral Research Associateship Award**
- 10/10 **Best Young Scientist Award** in session, IMBIZO2, Crete, Greece

- 10/10 **Invitee** from IMBER/NSF to IMBIZO2 marine biogeochemistry workshop, Crete, Greece
- 8/10 **Best Oral Presentation**, ClimECO2 Climate change and the oceans workshop, Brest, France
- 8/10 **Invitee** from US GLOBEC, PICES, and IMBER to ClimECO2 oceans and climate change summer school/workshop, Brest, France
- 3/08 **Student Travel Award** for 2008 ASLO Ocean Sciences Meeting, Orlando, FL
- 10/06 **Best Oral Presentation** in session, North Pacific Marine Organization (PICES), XV Annual Meeting, Yokohama, Japan
- 6/05 **Best Student Poster** (3rd) overall, TOS/UNESCO International Ocean Research Conference, Paris, France
- 2/04 **Best Student Poster** in session, ASLO/TOS Ocean Research Conference, Honolulu, HI
- 6/99-6/00 **David Marc Belkin Research Scholarship**, funding for undergraduate research, UCSD
- 3/00 **Antarctica Service Medal** presented by the National Science Foundation (NSF)
- 6/99-9/99 **WHOI Summer Student Fellow/Minority Trainee**
- 1/99-3/99 **2 NSF - Research Experience for Undergraduates** awards

FUNDED PROJECTS:

Pending:

- 2013 – Diatom transcriptomic and biochemical response to ocean acidification in coastal upwelling regimes (PIs: B. Jenkins, A.L. King), NSF Ocean Acidification, \$900k, 3 years
- 2013 – The genetic response of diatoms to future ocean pH and CO₂ levels (PIs: B. Jenkins, A.L. King), Rhode Island Science and Technology Advisory Council, \$200k, 1 year
- 2013 – Effects of ocean acidification on phytoplankton physiology and nutrition for fishery-based food webs (PIs: A.L. King, S. Meseck, L. Milke, B. Jenkins, G. Wikfors), NOAA FY14 Ocean Acidification Research program, \$100k, 1 year

Funded:

- 2013 – Effects of ocean acidification on phytoplankton physiology and nutrition for fishery-based food webs FY13 (PIs: A.L. King, S. Meseck, L. Milke, B. Jenkins, G. Wikfors), NOAA Ocean Acidification Research program, \$46k, 1 year
- 2012 – Effects of ocean acidification on phytoplankton physiology and nutrition for fishery-based food webs FY12 (PIs: A.L. King, S. Meseck, L. Milke, B. Jenkins, G. Wikfors), NOAA Ocean Acidification Research program, \$91k, 1 year
- 2011 – The effects of ocean acidification on phytoplankton nutrition for fishery-based foodwebs FY11 (PIs: A.L. King, S. Meseck, L. Milke, G. Wikfors), NOAA Ocean Acidification Research program, \$130k, 1 year

Assisted with preparing:

- 2008 – Collaborative Research: FeCycle II – Natural variability in plankton iron quotas during an unamended Lagrangian experiment (PIs: D. Hutchins, S. Wilhelm, B. Twining), NSF OCE-CHEM, \$255k, 2 years
- 2004 – LTER: Nonlinear transitions in the California Current Coastal Pelagic Ecosystem (PIs: M. Ohman, K. Barbeau, R. Goericke, M. Landry, A. Miller), NSF OCE-BIO, \$4.9M, 3 years

RESEARCH PRESENTATIONS:

- 10/13 **Research seminar** (*invited*): Norwegian Institute of Water Research (NIVA), Bergen, Norway
- 3/13 **Research seminar** (*invited*): Skidaway Institute of Oceanography, Savannah, GA
- 2/13 **Research seminar** (*invited*): Texas A&M University, College Station, TX
- 11/12 **Research seminar** (*invited*): Bedford Institute of Oceanography, Dartmouth, Nova Scotia
- 11/12 **Research seminar** (*invited*): Dalhousie University, Halifax, Nova Scotia
- 9/12 **Oral presentation** Oceans in a High CO₂ World III, Monterey, CA
- 8/12 **Research seminar** (*invited*): Lamont Doherty Earth Observatory

- 9/11 **Oral presentation** (*invited*): American Fisheries Society Annual Meeting, Seattle, WA
 8/11 **Poster presentation** Gordon Research Conference: Chem. Oceanography, Andover, NH
 10/10 **Poster presentation** (*invited*): IMBIZO2 workshop, Crete, Greece
 8/10 **Oral Presentation** (*invited*): ClimECO2 workshop, Brest, France
 6/10 **Poster Presentation** Gordon Research Conference: Env. Bioinorganic Chem., Newport, RI
 4/10 **Research seminar** (*invited*): California Institute of Technology, Pasadena, CA
 3/10 **Research seminar** (*invited*): Department of Navy, SPAWAR, San Diego, CA
 2/10 **Poster Presentation**: Aquatic Sciences Meeting, Portland, OR
 3/09 **Research seminar** (*invited*): Department of Navy, SPAWAR, San Diego, CA
 3/09 **Research seminar** (*invited*): LiveFuels Inc., San Carlos, CA
 1/09 **Oral Presentation** Aquatic Sciences Meeting, Nice, France
 3/08 **Poster Presentation** Ocean Sciences Conference, Orlando, FL
 6/07 **Research seminar** (*invited*): University of Southern California
 10/06 **Oral Presentation** North Pacific Marine Organization, XV Annual Meeting, Yokohama, Japan
 9/06 **Poster Presentation** LTER All Scientist Meeting, Estes Park, CO
 2/06 **Poster Presentation** Ocean Research Conference, Honolulu, HI
 12/05 **Oral Presentation** CalCOFI conference, San Diego, CA
 6/05 **Poster Presentation** TOS/UNESCO International Ocean Research Conference, Paris, France
 2/04 **Poster Presentation** ASLO/TOS Ocean Research Conference, Honolulu, HI
 11/03 **Poster Presentation** CalCOFI conference, Pacific Grove, CA

FORMAL TEACHING EXPERIENCE:

- Spring 2008 **Invited Guest Lecture** – SIO101 “California Coastal Oceanography” on trace metal biogeochemistry, SIO, UCSD; Course taught by Dr. L. Aluwihare and Dr. M. Landry
 Spring 2007 **Invited Guest Lecture** – SIO101 “California Coastal Oceanography” on trace metal biogeochemistry, SIO, UCSD; Course taught by Dr. L. Aluwihare and Dr. M. Landry
 Fall 2007 **Invited Guest Lecture** – SIO 141/CHEM 174 “Chemical Principles of Marine Systems” on particle cycle dynamics, SIO, UCSD; Course taught by Dr. A. Dickson
 Fall 2006 **Invited Guest Lecture** – SIO 160 “Introduction to Tectonics” on oceanographic sampling techniques during student cruise to Santa Barbara Basin, California, SIO, UCSD; Course taught by Dr. N. Driscoll
 Summer 2006 **Instructor** – California State Summer School for Mathematics and Science (COSMOS), “Living Oceans and Climate Change”, designed and taught lab, field, and lecture components, SIO, UCSD
 Summer 2005 **Teaching assistant** – California State Summer School for Mathematics and Science (COSMOS), “Living Oceans and Climate Change”, designed and taught lab and field components, SIO, UCSD; Course taught by Drs. A. Dickson, K. Barbeau, and J. Graham

INFORMAL TEACHING EXPERIENCE:

- 6/12-present **Mentor** – Joselynn Wallace, PhD student, University of Rhode Island
 6/12-present **Mentor** – Sylvanna Gross, high school student researcher, STIR-CUNY program
 10/08-9/10 **Mentor** – Cynthia Breene, PhD student, University of Southern California
 4/2007 **Public outreach** – Picture of the day outreach project, April 2007 CCE LTER cruise; http://cce.lternet.edu/outreach/projects/picture_of_the_day/
 2/07-6/07 **Mentor** – Julien Leblond, MS student trainee, Universite de Provence, France
 7/2006 **Mentor** – Panel member (Chemical Oceanography Representative) for round-table discussion of research with summer undergraduate research fellows, UCSD
 Summer 2004 **Mentor** – Joshawna Nunnery, summer undergraduate researcher, Long Island University, Southampton
 10/03-4/04 **Mentor** – Evelyn Chan, high school student, science fair project (placed 1st in county)
 9/01-9/03 **Teaching evaluation committee** – Marine Chemistry and Geochemistry, SIO, UCSD

- 9/97-3/98 **Mentor** – Boom Alexandria, middle school student, Teacher Education Program, Department of Education Studies, UCSD
- Various **Guest instructor and/or coordinator for public outreach programs** including Carbonate chemistry for shellfish growers (12/12); Expanding Your Horizons in Science, SIO, UCSD (4/07); Chemical Oceanography representative, roundtable discussion for UCSD summer researchers (7/06); UCSD Upward Bound TRIO outreach program, ages 10-16, SIO, UCSD (5/04, 5/05, 5/06); “Polar Research Day: Meet the Scientist” at the Birch Aquarium at Scripps, La Jolla, CA (1/05); “Research in Antarctica” for grade K at Del Mar Heights Elementary, Del Mar, CA (7/03); Del Mar Junior Lifeguard program field trip to the Birch Aquarium and La Jolla Cove, La Jolla, CA, ages 12-16 (7/00, 7/01, 7/02, 7/03, 7/04); “Oceanographic research in the Antarctica” at American International High School, Quito, Ecuador (11/99)

PROFESSIONAL ACTIVITIES:

- Member** Advancing Science of Limnology and Oceanography (ASLO) and American Association for the Advancement of Science (AAAS)
- Reviewer** For *Deep Sea Research Part II: Topical Studies in Oceanography*, *Analytica Chimica Acta*, *J. of Geophysical Research – Oceans*, *International J. of Env. Anal. Chem.*, *J. of Experimental Marine Biology and Ecology*, *J. of Plankton Research*, *Netherlands Organization for Scientific Research*

RESEARCH CRUISES (17 cruises/345 days):

- 9/08 FeCycle II on R/V *Tangaroa*, 25 days; off North Island, New Zealand
- 7/07 Deep chlorophyll maximum, southern CA Current System (sCCS) on R/V *New Horizon*, 18 days
- 5/06&4/07 LTER Process Cruises on R/V *Knorr* & R/V *Thompson*, 30 & 20 days, sCCS
- 11/06 Fall CalCOFI on R/V *Roger Revelle*, 12 days, sCCS
- 3-7/04 Spring and summer CalCOFI on R/V *New Horizon*, 17 days each, sCCS
- 1-7/03 Winter, spring & summer CalCOFI on R/V *David Jordan*, R/V *Roger Revelle*, and R/V *New Horizon*, 21, 17 & 27 days; sCCS
- 11-12/02 Fall CalCOFI on R/V *New Horizon*, 21 days; sCCS
- 7-8/00 GLOBEC NE Pacific on R/V *New Horizon* with Dr. B. Peterson, 22 days
- 2 & 10/99 ERUPT 1 & 2 on R/VIB *L. M. Gould*, 22 and 24 days; Port Foster, Deception Island, Antarctica
- 1-2/99 Palmer Station LTER 99-1 on R/VIB *L. M. Gould* with Dr. R. Ross, 47 days; waters off the Antarctica Peninsula
- 7 & 8/98 Animal collection on R/V *R.G. Sproul* with Dr. M.I. Latz, two & three days; sCCS