

SHAWN M. ARELLANO

Woods Hole Oceanographic Institution
Biology Department
Redfield 120, MS #34
Woods Hole, MA 02543
<http://www.whoi.edu/people/sarellano>

Office: +1-508-289-4839
Cell: +1-774-392-3536
Fax: +1-508-457-2134
sarellano@whoi.edu

PROFESSIONAL APPOINTMENTS

- Present **Postdoctoral Scholar**, Woods Hole Oceanographic Institution (WHOI), Woods Hole, MA.
Supervisor: Dr. Lauren S. Mullineaux, Senior Scientist.
- 2009-10 **Postdoctoral Fellow**, Hong Kong University of Science and Technology (HKUST), Clear Water Bay,
Hong Kong SAR, China. Supervisor: Prof. Pei-Yuan Qian.
- 2007-8 **Co-coordinator (Knauss Marine Policy Fellow) of Ecosystem Research Program**, National
Oceanic and Atmospheric Administration (NOAA), Silver Spring, MD. Supervisor: Dr. Leon
Cammen, Director of National Sea Grant.
- 2002-8 **National Science Foundation Graduate Research Fellow & Ford Foundation Predoctoral Fellow**,
University of Oregon (UO), Coos Bay, OR. Supervisor: Prof. Craig M. Young.

EDUCATION

- 2008 **Ph.D. Biology** (Marine Biology), Oregon Institute of Marine Biology (OIMB), UO;
Advisor: Dr. Craig M. Young
- 2000 **B.S. Biology** (Dual emphases in Organismal Biology & Cell Biology), University of Kansas (KU);
Advisor: Dr. Daphne G. Fautin

GENERAL RESEARCH INTERESTS

- **Larval ecology and biology:** larval transport, vertical distribution of larvae, larval behavior in flow, biology of settlement and induction of metamorphosis, and latent effects of larval stress
- **Community dynamics:** Pre- and post-settlement factors affecting recruitment, physiological ecology, reproductive biology, and microbial-invertebrate interactions
- **Deep-sea biology:** Reproductive and larval ecology at chemosynthesis based ecosystems

FELLOWSHIPS & AWARDS

- 2012 Travel Stipends, Society of Integrative and Comparative Biology (SICB) (\$675)
- 2011-12 Co-Principal Investigator, "Can waterborne settlement cues trigger the larval transition from the plankton to the seafloor?" Coastal Ocean Institute, WHOI (\$18,189)
- 2010-12 Woods Hole Oceanographic Institution Postdoctoral Scholarship (\$95K)
- 2010 Research Travel Grant from HKUST (\$770)
- 2007 Dean John A. Knauss Marine Policy Fellowship, National Sea Grant, NOAA (\$41.5K)
- 2002-8 Ford Foundation Predoctoral Fellowship for Minorities (3 years; \$53K)
- 2002-7 National Science Foundation Graduate Research Fellowship (3 years; \$85K)
- 2006 Monterey Bay Aquarium Research Institute Summer Internship (\$5,000)
- 2002/3 American Society for Cell Biology Summer Course Awards (\$3,000 total)
- 2002 Graduate Teaching Fellowship, University of Oregon (tuition for one term)
- 2002 International Women's Fishing Association Scholarship (\$500)
- 2002 University of Oregon General Scholarship (\$1,500)
- 2001 Minority Summer Fellowship, Woods Hole Oceanographic Institution, MA
- 2000/1 Assn. for the Sciences of Limnology & Oceanography (ASLO) Multicultural Program
- 2000 Multicultural Initiatives in Marine Science Undergraduate Program (MIMSUP), Shannon Point Marine Center (SPMC), Western Washington University, WA
- 2000 McNair Scholar Summer Research Grant, University of Kansas (\$3000)

PEER-REVIEWED PUBLICATIONS (*Equal contribution)

20. **Arellano, SM**, Y Zhang, KH Chandramouli, PY Qian. *In prep*. Proteomic shifts correlated with competency and metamorphosis in the marine gastropod *Crepidula onyx*.
19. **Arellano, SM***, OO Lee*, FF Lafi, J Yang, Y Wang, CM Young, and P-Y Qian. *In Review*. Deep sequencing of *Ectyomyxilla methanophila*, an epibiotic sponge on cold-seep tubeworms, reveals chemoautotrophic and PAH-degrading microbial associations.
18. Wang, Y, J Yang, **SM Arellano**, OO Lee, FF Lafi, SCK Lau, YH Wong, A Al-Suwailem, PY Qian. *In Review*. Metagenomic analysis of microbial communities from deep-sea hydrothermal brine systems in the Red Sea.
17. Young, CM, R He, RB Emlet, Y Li, H Qian, **SM Arellano**, A Van Gaest, KC Bennett, M Wolf-Watts, TI Smart, ME Rice. *In Review*. Simulated dispersal trajectories of deep-sea larvae from the intra-American seas. *Integr. Comp. Biol.*
16. **Arellano, SM**, AM Reitzel, C Button. 2012. Variation in vertical distribution of sand dollar larvae relative to haloclines, food, and fish cues. *J. Exp. Mar. Biol. Ecol.* 414-415: 28-37.
15. Adams, DK*, **SM Arellano***, B Govenar*. 2012. Larval exchange: vent life in the water column. *Oceanography* 25(1):256–268. ****Recommended by the Faculty of 1000****
14. Govenar, B*, **SM Arellano***, DK Adams*. 2012. Box 1. Rebuilding a vent community: Lessons from the EPR Integrated Study Site. *Oceanography* 25(1)
13. Chen, ZF, K Matsumura, H Wang, **SM Arellano**, X Yan, I Alam, JAC Archer, VB Bajic, PY Qian. 2011. Toward an understanding of the molecular mechanisms of barnacle larval settlement: a comparative transcriptomic approach. *PLoS One* 6 (7): e22913.
12. **Arellano, SM**, CM Young. 2011. Temperature and salinity tolerances of embryos and larvae of the deep-sea mytilid mussel "*Bathymodiolus" childressi*. *Mar. Biol.* 158 (11): 2481-2493.
11. Zhang, H, YH Wong, H Wang, ZF Chen, **SM Arellano**, T Ravasi, P Qian. 2011. Quantitative proteomics identify molecular targets that are crucial in larval settlement and metamorphosis of *Bugula neritina*. *J. Proteome Res.* 10: 349–360.
10. Diederich, CM, JN Jarrett, OR Chaparro, CJ Segura, **SM Arellano**, JA Pechenik. 2011. The effects of short-term salinity stress on pre- and post-metamorphic growth, survival, and development in three calyptraeid gastropods. *J. Exp. Mar. Biol. Ecol.* 397: 94-105.
9. **Arellano, SM**, CM Young. 2010. Pre- and post-settlement effects on the fine-scale spatial distribution of a cold-seep mussel. *Mar. Ecol. Prog. Ser.* 414: 131-144.
8. Zhang, Y, J Sun, K Xiao, **SM Arellano**, V Thiyagarajan, PY Qian. 2010. 2D gel-based multiplexed proteomic analysis during larval development and metamorphosis of the biofouling polychaete tubeworm *Hydroides elegans*. *J. Proteome Res.* 9: 4851-4860.
7. Zhang, Y, Y Xing, **SM Arellano**, K Xiao, PY Qian. 2010. Comparative proteome and phosphoproteome analyses during cyprid development of the barnacle *Balanus (=Amphibalanus) amphitrite*. *J. Prot. Res.* 9 (6): 3146–3157.
6. Wong, YH, **SM Arellano**, H Zhang, PY Qian. 2010. Dependency on de novo protein synthesis and proteomic changes during metamorphosis of the marine bryozoan *Bugula neritina*. *Proteome Sci.* 8: 25-38.
5. **Arellano, SM**, CM Young. 2009. Spawning, development, and the duration of larval life in a deep-sea, cold-seep mussel. *Biol. Bull.* 216: 149-162.
4. Van Gaest, AL, CM Young, JJ Young, AR Helms, **SM Arellano**. 2007. Physiological and behavioral responses of *Bathynnerita naticoidea* (Gastropoda: Neritidae) and *Methanoaricia dendrobranchiata* (Polychaeta: Orbiniidae) to hypersaline conditions at a brine pool cold seep. *Mar. Ecol.* 28: 199-207.
3. Tyler, PA, CM Young, E Dolan, **SM Arellano**, S Brooke, M Baker. 2007. Gametogenic periodicity in the chemosynthetic cold-seep mussel *Bathymodiolus childressi*. *Mar. Biol.* 150 (5): 829-840.
2. Reitzel, A, J Webb, **SM Arellano**. 2004. Growth, development and condition of *Dendraster excentricus* (Eschscholtz) larvae reared on natural and laboratory diets. *J. Plankton Res.* 26 (8): 901-908.
1. **Arellano SM**, DG Fautin. 2001. Redescription and range extension of the sea anemone *Exocoelactis actinostoloides* (Wassilieff, 1908) with revision of genus *Exocoelactis* (Cnidaria, Anthozoa, Actiniaria). *Zoosystema* 23 (4): 645-657.

INVITED SEMINARS & KEYNOTE PRESENTATIONS

- 2012 Bowdoin College, Brunswick, ME
- 2012 Shannon Point Marine Center, Western Washington University, Anacortes, WA
- 2011 Biology Departmental Seminar Series, Woods Hole Oceanographic Institution
- 2009 Keynote presenter, 4th International Chemosynthetic Based Ecosystems Symposium, Japan
- 2008 Shannon Point Marine Center, Western Washington University, Anacortes, WA
- 2007 Biology Department Graduate Students Association Seminar Series, PSU
- 2005 Spring Seminar Series, Oregon Institute of Marine Biology, UO

CONTRIBUTED PRESENTATIONS

- 2012 Oral presentation, Ocean Sciences Meeting (TOS/ASLO/AGU), Salt Lake City, UT
- 2012 Oral & Poster presentations, SICB Annual Meeting, Charleston, SC
- 2011 Oral presentation, 1st Int'l Sponge Microbiology Symp., Wurzburg, Germany (Presenter: On On Lee)
- 2010 Oral presentation, Annual WHOI Postdoctoral Symposium, Woods Hole, MA
- 2010 Oral presentation, 9th International Larval Biology Symposium, Wellington, New Zealand
- 2008 Oral presentation, 8th International Larval Biology Symposium, Lisbon, Portugal
- 2007 Oral presentation, SICB Annual Meeting, Phoenix, AZ
- 2006 Oral & Poster presentations, 7th International Larval Biology Symposium, Coos Bay, OR
- 2005 Oral presentation, 3rd International Vent & Seep Biology Symposium, La Jolla, CA
- 2005 Oral presentation, 34th Benthic Ecology Meeting in Williamsburg, VA
- 2004 Poster presentation, SICB Annual Meeting, New Orleans, LA (Presenter: Nora Terwilliger)
- 2003 Poster presentations (2), 10th Deep-Sea Biology Symposium, Coos Bay, OR
- 2001 Oral presentation, ASLO Aquatic Sciences Meeting, Albuquerque, NM
- 2000 Oral presentation, ASLO International Meeting, Copenhagen, Denmark

DEEP-SEA RESEARCH CRUISES & SUBMERSIBLE EXPERIENCE

Co-Chief Scientist on:

- 2 cruises in 2004 to Gulf of Mexico Cold Seeps on Louisiana Slope

Scientist on:

- 14 cruises from 2001 through 2010
- 9 ships: R/V K.O.K. (Hawaii Undersea Research Laboratories), R/V Seward Johnson I & II (HBOI), R/V Walton Smith (U. Miami), R/V Gyre (Texas A&M University), R/V Pelican (LUMCON), R/V Point Lobos (MBARI), R/V Western Flyer (MBARI), R/V Aegaeo (Hellenic Centre for Marine Research)
- 4 Habitats: Deep Hawaiian slope off Kona, Gulf of Mexico Cold Seeps on Louisiana Slope, Monterey Canyon Whale Falls, Red Sea

Submersible Experience:

- 21 dives (14 as chief observer & 7 as observer) in 3 submersibles (DSV Johnson Sea-Links I & II, DSV Pisces VII); Scientist on 2 research cruises using the ROV Tiburon (MBARI)

WORKSHOPS & SPECIALIZED COURSES

- 2012 **Professional Development Workshop for Early Career Scientists: Communicating Broader Impacts**
Sponsors: *Center for Ocean Sciences Education Excellence (COSEE)*
- 2011 **Strategies and Techniques for Analyzing Microbial Population Structure**, Marine Biological Laboratory, Woods Hole, MA; *Directors: Dr. Mitchell L. Sogin & David B. Mark Welch*
- 2003 **Comparative Marine Invertebrate Embryology**, Friday Harbor Labs, University of Washington; *Drs. Richard Strathmann & George Von Dassow*
- 2002 **Larval Biology**, Friday Harbor Labs, University of Washington; *Drs. Richard Strathmann, Craig Young, Danny Grünbaum*

TEACHING EXPERIENCE

- 2012 **Guest Lecturer**, Marine Biology undergraduate course, Wheaton College (1 lecture, 1 lab)
2011 **Guest Lecturer**, Marine Biology undergraduate course, Wellesley College (1 lecture).
2011 **Guest Lecturer**, Marine Inverts of Cape Cod, WHOI/MIT Joint Program (1 lecture & lab).
2011 **Lecturer**, Short course for British Petroleum employees, WHOI (2 lectures).
2009/10 **Guest Lecturer**, Introduction to Marine Biology, HKUST (9 lectures & 3 exam).
2009 **Guest Lecturer**, Deep-Sea Biology, OIMB (1 lecture).
2004 **Teaching Assistant**, Comparative Embryology and Larval Biology, OIMB.
2003 **Teaching Assistant**, Deep-Sea Biology, OIMB.
2002 **Lab Instructor**, General Biology III: Populations, UO (3 lab sections).
2000 **Marine science teacher**, 4th grade, Anacortes, WA (1 class weekly).
1999/2000 **Lab Instructor**, Introductory Biology for non-majors, KU (6 lab sections total).

PROFESSIONAL SERVICE

Mentoring & Outreach:

- Postdoc Mentor through WHOI's student-postdoc mentoring program. (Present)
- Meeting Mentor through ASLO Multicultural Program, Ocean Sciences, Salt Lake City, UT (February 2012)
- Stephen Hesterberg (DePauw University undergraduate), research assistant. (January 2012)
- Jacob Cravens (Boston College undergraduate), Woods Hole Partnership Education Prog. (Summer 2011)
- Perry Tang (undergraduate at HKUST), research assistant. (2002-2010)

Educational Outreach:

- Oral presentation and Q & A with MIMSUP participants at SPMC (2008)
- Women in Science Presenter, Coos County Boys and Girls Club, Coos Bay, OR (2006)
- Featured on "Scientists' Spotlight," NSF's Ridge 2000 education & outreach website (2006)
- Interview on "Hostile Deep," Discovery Science Channel (2003)
- "Explorer" on NOAA Ocean Exploration Program website (2002/2003)
- Oral presentations to 5th grade science classes, Santa Fe Middle School, Newton, KS (2002)
- Invited panelist, 3rd Annual Expanding Opportunities Conference, Jackson State University, MS (2001)

Other Service:

- Journal reviewer: PLoS One, Journal of Experimental Marine Biology and Ecology, Marine Ecology Progress Series, Deep-Sea Research
- Reviewer: National Science Foundation Division of Biological Oceanography (2008), NOAA Holling's Scholarship (2007)
- Chair for Dispersal of Marine Organisms complementary session at SICB meeting (2012)
- Treasurer, WHOI Postdoctoral Association (2011-present)
- Postdoctoral representative, WHOI Diversity Committee (2011-present)
- Member, Population Connectivity Working Group, International Network for Scientific Investigations of Deep-Sea Ecosystems (INDEEP) (2011-present)
- Organizer, WHOI's weekly larval ecology group meeting (2010-present)
- Assisted with organization of 7th International Larval Biology Symposium, hosted at Oregon Institute of Marine Biology, Coos Bay, OR (2006)
- Assisted with organization of the 10th Deep-Sea Biology Symposium, hosted at Oregon Institute of Marine Biology, Coos Bay, OR (2003)

PROFESSIONAL MEMBERSHIPS

- Society for Integrative and Comparative Biology (Postdoctoral member; 2011-2012)
- The American Association for the Advancement of Science (2011-2012)
- American Malacological Society (2006)
- Association for the Sciences of Limnology & Oceanography (2000, 2001, 2011-2012)