

Ann M. Tarrant

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APPOINTMENTS:

- 2011- Associate Scientist, Biology Department, Woods Hole Oceanographic Institution (WHOI).
- 2007-2011 Assistant Scientist, Biology Department, WHOI.
- 2004-2007 NIH Postdoctoral Fellow, Biology Department, WHOI, Dr. Mark Hahn, Supervisor. Characterized nuclear receptor (ERR) action in fishes and molecular regulation of copepod diapause.
- 2002-2004 Postdoctoral Scholar/Investigator, Biology Department, WHOI, Drs. Mark Hahn and John Stegeman, Supervisors. Investigated the distribution and role of nuclear receptors in marine organisms, including corals.
- 1995-2002 Graduate Student, Oceanography Department, University of Hawaii. Used GC-MS and radioimmunoassay to investigate sources, metabolism and biological activity of estrogens in reef-building corals.

EDUCATION:

- 2002 Ph.D., Oceanography, University of Hawaii at Manoa. Dissertation Title: "Estrogen Action in Scleractinian Corals: Uptake, Metabolism and Physiological Effects." Advisor: Dr. Marlin Atkinson
- 1998 M.S., Oceanography, University of Hawaii at Manoa. Thesis Title: "Measurement of Estradiol and Estrone in Tissue of the Scleractinian Coral, *Montipora verrucosa*: Analytical Developments and Indications of Seasonality." Advisor: Dr. Marlin Atkinson
- 1995 B.S., Biology and Marine Science, University of Miami. *Magna cum Laude*

PROFESSIONAL HONORS AND AWARDS:

- George Thibault Early Career Scientist Award (WHOI), 2014
- Richard B. Sellars Innovative Research Award (WHOI), 2011
- Ruth L. Kirschstein National Research Service Award (NRSA) from National Institute of Environmental Health Sciences (NIEHS), within the National Institutes of Health (NIH), 2004-2007.
- WHOI Postdoctoral Scholarship, 2002-2004
- EPA STAR Graduate Fellowship, 2000-2002.
- STAR Graduate Research Symposium, University of Hawaii, Department of Oceanography, Best Presentation, 1999.
- NDSEG Graduate Research Fellowship, 1996-1999.
- NSF Graduate Research Fellowship (awarded 1996, unable to simultaneously accept).
- EPA STAR Graduate Fellowship (awarded 1996, unable to simultaneously accept).

F.G. Walton Smith Award (University of Miami outstanding marine science undergraduate), 1995.

Phi Beta Kappa, University of Miami Chapter, 1995.

Isaac B. Singer, Full academic scholarship, University of Miami, 1991-1995.

MAJOR RESEARCH INTERESTS:

Cnidarian physiology and stress responses; evolution and diversification of endocrine signaling and circadian regulation in marine animals; nuclear receptor and steroid hormone signaling; molecular regulation of copepod dormancy/diapause.

PUBLICATIONS (* denotes student or postdoc from my laboratory; # denotes equal contributions). My contribution has been annotated for all manuscripts where I am not the sole first author:

Tarrant AM, Gilmore TD, Reitzel AM, Levy O, Technau U, Martindale MQ. (2015) Current directions and future perspectives from the third *Nematostella* research conference. *Zoology* 118(2): 135-40 DOI:10.1016/j.zool.2014.06.005.

Breitburg D, Salisbury J, Bernhard S, Cai W-J, Dupont S, Doney S, Kroeker K, Levin L, Long C, Milke L, Miller S, Passow U, Phelan B, Seibel B, **Tarrant A**, Todgham A. (in press) And on top of all that...Coping with ocean acidification in the midst of many stressors. Submitted to *Oceanography*.

Tarrant AM[#], Baumgartner MF[#], Hansen BH, Altin D, Nordtug T, Olsen AJ. (2014) Transcriptional profiling of reproductive development, lipid storage and molting throughout the last juvenile stage of the marine copepod *Calanus finmarchicus*. *Frontiers in Zoology* 11:91. DOI: 10.1186/s12983-014-0091-8.

Tarrant AM, Reitzel AM*, Kwok CK*, Jenny MJ. (2014) Activation of cnidarian oxidative stress response by ultraviolet light, polycyclic aromatic hydrocarbons and crude oil. *Journal of Experimental Biology* 217(9):1444-53. DOI:10.1242/jeb.093690.

Reitzel AM*, Passamaneck Y, Karchner S, Franks DG, Martindale MQ, **Tarrant AM**, Hahn ME. (2014) Aryl hydrocarbon receptor (AHR) in the cnidarian *Nematostella vectensis*: comparative expression, protein interactions, and ligand binding. *Development Genes and Evolution* 224(1):13-24 DOI: 10.1007/s00427-013-0458-4.

Tarrant AM, Reitzel AM. (2013) Introduction to the symposium—keeping time during evolution: conservation and innovation of the circadian clock. *Integrative and Comparative Biology* 53(1):89-92. DOI: 10.1093/iccb/ict062

Gilmore TD, **Tarrant AM**, Finnerty JR. (2013) A report from the second *Nematostella vectensis* research conference. *Development Genes and Evolution* 223(3):207-11. DOI: 10.1007/s00427-012-0434-4.

Pineda J, Starczak V, **Tarrant AM**, Blythe J, Davis K, Farrar T, Berumen M, and da Silva J. (2013) Two spatial scales in a bleaching event: corals from the mildest and the most extreme thermal environments escape mortality. *Limnology and Oceanography* 58(5): 1531-45. DOI: 10.4319/lo.2013.58.5.1531.

Reitzel AM[#], **Tarrant AM**[#], Levy O. (2013) Circadian clocks in the cnidaria: environmental entrainment, molecular regulation, and organismal outputs. *Integrative and Comparative Biology*. 53(1):118-30. DOI: 10.1093/icb/ict024.

Reitzel AM*, Chu T, Edquist S, Genovese C, Church C, **Tarrant AM**, Finnerty JR. (2013) Physiological and developmental responses to temperature by the estuarine sea anemone *Nematostella vectensis*: evidence for local adaptation to high temperatures. *Marine Ecology Progress Series*. 484: 115-130. DOI: 10.3354/meps10281.

- Tarrant AM**, Franks DG, Verslycke T. (2012) Gene expression in American lobster (*Homarus americanus*) with epizootic shell disease. *Journal of Shellfish Research*. 31(2):505-13. DOI:10.2983/035.031.0200.
- Reitzel AM*, Ryan JR, **Tarrant AM**. (2012) Establishing a model organism: A report from the first annual *Nematostella* meeting. *Bioessays*. 34(2):158-61. DOI: 10.1002/bies.201100145
- Tarrant AM**, Behrendt L*, Stegeman JJ, Verslycke T. (2011) Ecdysteroid receptor from the American lobster, *Homarus americanus*: EcR/RXR isoform cloning and ligand-binding properties. *General and Comparative Endocrinology*. 173(2):346-55.
- Tarrant AM**, Mindnich M. (2011) Perspectives on steroid metabolism in marine organisms. *Journal of Steroid Biochemistry and Molecular Biology* 127(3-5): 147-9. DOI: 10.1016/j.jsbmb.2011.09.005.
- Callard GV, **Tarrant AM**, Novillo A, Yacci P, Ciaccia L, Vajda S, Chuang G-Y, Kozakov D, Greytak SR, Sawyer S, Hoover C, Kotter K. (2011). Evolutionary origins of the estrogen signaling system: insights from amphioxus. *Journal of Steroid Biochemistry and Molecular Biology*. 127(3-5):176-88.
- Aruda AM*, Baumgartner MF, Reitzel AM*, **Tarrant AM**. (2011). Heat shock protein expression during stress and diapause in the marine copepod *Calanus finmarchicus*. *Journal of Insect Physiology* 57(5):665-75.
- Reitzel AM*, Pang K, Ryan JF, Mullikin JC, Martindale MQ, Baxevanis AD, **Tarrant AM**. (2011) Nuclear receptors from the ctenophore *Mnemiopsis leidyi* lack a zinc-finger DNA-binding domain: lineage-specific loss or ancestral condition in the emergence of the nuclear receptor superfamily? *EvoDevo* 2:3.
- Tarrant AM**, Stegeman JJ, Verslycke T (2010) Altered gene expression associated with epizootic shell disease in the American lobster, *Homarus americanus*. *Fish and Shellfish Immunology* 29(6):1003-9.
- Reitzel AM*, **Tarrant AM**. (2010). Correlated evolution of androgen receptor and aromatase revisited. *Molecular Biology and Evolution*. 27(10):2211-5.
- Reitzel AM*, Behrendt L*, **Tarrant AM** (2010) Light entrained rhythmic gene expression in the sea anemone *Nematostella vectensis*: the evolution of the animal circadian clock. *PLoS ONE* 5(9):e12805.
- Cantin NE*, Cohen AL, Karnauskas KB, **Tarrant AM**, McCorkle DC (2010) Ocean warming slows coral growth in the central Red Sea. *Science* 329:322-5. (note * co-advised).
- Greytak SR, **Tarrant AM**, Nacci D, Hahn ME, Callard GV (2010) Estrogen responses in killifish (*Fundulus heteroclitus*) from polluted and unpolluted environments are site- and gene-specific. *Aquatic Toxicology* 99:291-9.
- Karchner SI, Jenny MJ, **Tarrant AM**, Evans BR, Kang HR, Bae I, Sherr DH, Hahn ME. (2009) The active form of human aryl hydrocarbon receptor (AHR) repressor lacks exon 8, and its Pro 185 and Ala 185 variants repress both AHR and hypoxia-inducible factor. *Molecular and Cellular Biology* 29(13): 3465-77.
- Reitzel AM*, **Tarrant AM**. (2009) Nuclear receptor complement of the cnidarian *Nematostella vectensis*: phylogenetic relationships and developmental expression patterns. *BMC Evolutionary Biology*. 9:230.
- Tarrant AM**, Reitzel AM*, Blomquist CH, Haller F, Tokarz J, Adamski J. (2009) Steroid metabolism in cnidarians: Insights from *Nematostella vectensis*. *Molecular and Cellular Endocrinology* 301(1-2):27-36 doi:10.1016/j.mce.2008.09.037.

Tarrant AM, Cortés J, Atkinson M, Atkinson S, Johanning K, Chiang T-C, Vargas JA, McLachlan JA. (2008) Three orphan nuclear receptors in the scleractinian coral *Pocillopora damicornis*. *Revista de Biología Tropical* 56(Suppl. 4): 39-48.

Tarrant AM[#], Baumgartner MF[#], Verslycke T, Johnson CL. (2008) Differential gene expression in diapausing and active *Calanus finmarchicus* (Copepoda). *Marine Ecology Progress Series* 355:193-207.

Goldstone JV, Goldstone HMH, Morrison AM, **Tarrant AM**, Kern SE, Woodin BR, Stegeman JJ. (2007) Cytochrome P450 1 genes in early deuterostomes (tunicates and sea urchins) and vertebrates (chicken and frog): Origin and diversification of the CYP1 gene family. *Molecular Biology and Evolution* 24(12): 2619-31.

Tarrant AM. (2007) Hormonal signaling in cnidarians: do we understand the pathways well enough to know whether they are being disrupted? *Ecotoxicology* 16:5-13.

Tarrant AM, Greytak SR, Callard GV, Hahn ME. (2006) Estrogen receptor-related receptors in the killifish *Fundulus heteroclitus*, diversity, expression, and estrogen responsiveness. *Journal of Molecular Endocrinology*, 37: 1-17.

Blomquist C, Lima P, **Tarrant AM**, Atkinson MJ, Atkinson SK. (2006) 17 β -hydroxysteroid dehydrogenase (17 β -HSD) in scleractinian corals, *Comparative Biochemistry and Physiology B. Biochemistry* 143: 397-403.

Tarrant AM. (2005) Endocrine-like signaling in cnidarians: Current understanding and implications for ecophysiology, *Integrative and Comparative Biology* 45(1): 201-214.

Tarrant AM, Atkinson MJ, Atkinson S. (2004) Effects of steroidal estrogens on coral growth and reproduction. *Marine Ecology Progress Series*, 269: 121-129, 2004 doi:10.3354/meps269121.

Tarrant AM, Blomquist C, Lima P, Atkinson S, Atkinson MJ. (2003) Metabolism of androgens and estrogens by reef building corals *Comparative Biochemistry and Physiology B. Biochemistry* 136(3): 473-485.

Atkinson S, Atkinson MJ, **Tarrant AM**. (2003) Estrogens from sewage in the coastal marine environment. *Environmental Health Perspectives* 111(4): 531-535..

Tarrant AM, Atkinson MJ, Atkinson S. (2001) Uptake of estrone from the water column by a coral community. *Marine Biology* 139:321-325.

Tarrant AM, Atkinson S, Atkinson MJ. (1999) Estrone and estradiol-17 β concentration in tissue of the scleractinian coral, *Montipora verrucosa*. *Comparative Biochemistry and Physiology A. Physiology* 122: 85-92.

SUBMITTED MANUSCRIPTS:

Oren M[#], **Tarrant AM**[#], Alon S, Simon-Blecher N, Elbaz I, Applebaum L, Levy O. (Revised manuscript in review) Profiling molecular and behavioral circadian rhythms in the non-symbiotic sea anemone *Nematostella vectensis*. Revised version submitted to *Scientific Reports* (3/16/15) following initial review.

Maas AM*, Lawson GL, **Tarrant AM**. (In revision) Transcriptome-wide analysis of the response of the thecosome pteropod *Clio pyramidata* to short-term CO₂ exposure. In revision for *Comparative Biochemistry and Physiology - Part D: Genomics and Proteomics* following initial review.

PROFESSIONAL ACTIVITIES AT WHOI (OTHER THAN EDUCATION):

Institutional committees and service

Dive control board member (2010-Present)
Scientific Staff Executive Committee, elected representative (2009-2011, This representative body provides input to the decision making process on matters of strategic importance to the institution)
Proposal reviewer for WHOI funding opportunities (2008, 2011, 2014)

Departmental committees and service

Biology seminar co-coordinator (2008-2009)
Participated in Biology Department annual staff review (2009, 2010)

PROFESSIONAL ACTIVITIES OUTSIDE WHOI:

Meetings/Symposia Hosted or Organized

Nematostella Community Meeting December 2013, Eilat, Israel (organized).
Keeping time during animal evolution: Conservation and innovation of the circadian clock, Symposium within SICB annual meeting January 2013, San Francisco, CA (Tarrant & Reitzel co-organized).
Nematostella Community Meeting August 2012, Boston, MA (Gilmore, Tarrant & Finnerty co-organized).
Nematostella Community Meeting June 2011, Woods Hole MA (Tarrant & Reitzel co-organized).
Physiology and ecology of crustacean diapause, Session within ALSO Summer Meeting June 2008, St. Johns, Newfoundland (Tarrant, Baumgartner & Johnson co-organized).

Journal Reviews

2014-2015: Bioessays, BioMed Research International, BMC Genomics, Comparative Biochemistry and Physiology (part D), Endocrine Disruptors, General and Comparative Biology, Integrative and Comparative Biology, Journal of Steroid Biochemistry and Molecular Biology, Symbiosis

Previously (selected):

Aquatic Toxicology, Brazilian Journal of Oceanography, Chemosphere, Comparative Biochemistry and Physiology, Ecotoxicology, Ecotoxicology and Environmental Safety, Environmental Health Perspectives, FEBS Letters, General and Comparative Endocrinology, Journal of Experimental Marine Biology and Ecology, Journal of Foraminiferal Research, Journal of Steroid Biochemistry and Molecular Biology, Marine Biotechnology, Marine Pollution Bulletin, Molecular and Cellular Endocrinology, Symbiosis, PLoS ONE, Tissue & Cell, Toxicological Sciences, Zebrafish.

Proposal Reviews

2014-2015: National Science Foundation (Biological Oceanography), National Science Foundation (Biology Directorate, Developmental Systems), Binational Agricultural Research and Development (BARD) Fund US-Israel, Israeli Science Foundation, New Generation of Polar Researchers (NGPR) Leadership Symposium

Previously (selected): National Science Foundation (Biology, Biological Oceanography), Hudson River Foundation, Israeli Science Foundation, Sigma Delta Epsilon – Graduate Women in Science (SDE-GWIS), US-Israel Binational Science Foundation, NOAA/CSCOR (Center for Sponsored Coastal Ocean Research)

Panel Service

National Science Foundation, Integrative Organismal Systems (2011)

KAUST (King Abdullah University of Science and Technology, Saudi Arabia)

Participated in interview process for 4 faculty members

University of Hawaii at Manoa

Faculty search committee (2002), Academic grievance committee (2000)

Invited participation in expert workshops

Earth Cube Domain End User Workshop: Developing a Community Vision of Cyberinfrastructure Needs for Coral Reef Systems Science, October 23-24 2013. Santa Barbara, California
KAUST Computations Bioscience Collaborative Research Workshop. March 11-13 2009. London, England.
Lobster Health Coalition. February 6 2009. Hyannis, Massachusetts.
Ocean Acidification: The carbonation of the ocean under rising atmospheric CO₂. November 2008. Academia Sinica, Taipei, Taiwan.

Other external service

Expert consultant (pro bono) for *Coral Reefs*, a children's book by Jason Chin.

PARTICIPATION IN EDUCATIONAL PROGRAMS, MENTORING AND TRAINING:

COMMITTEES AND OTHER SERVICE

MIT-WHOI Joint Program in Biological Oceanography

Joint Committee for Biological Oceanography (2012-Present)

WHOI Institution-wide Committees and Other Service

Joint Program Admissions Advisory Committee (2008-2010)
Panelist, WHOI postdoctoral women's mentoring lunch (April 2011)
Discussion leader, WHOI Academic Programs workshop on scientific ethics (August 6 2008)

WHOI Biology Department Committee and Other Service

Biology Postdoctoral mentoring committee (2010-2012)
Biology General Exam committee (2009, 2010)
Provided Material for Biology General Exam (2008, 2009, 2010, 2011)

External

Invited panelist, "Maximizing the postdoctoral experience." Department of Molecular and Cellular Biology, Tulane University, New Orleans, 2004.

ADVISING AND MENTORING

Postdoctoral Researchers:

Amy Maas (co-advisor), Postdoctoral Scholar/Investigator (2011-2014)
Adam Reitzel (advisor), Postdoctoral Scholar/Fellow (2007-2012)
Neal Cantin (co-advisor), Postdoctoral Investigator (2008-2010)

Graduate Students:

Advisor (MIT-WHOI Joint Program):

Maja Edenius (2012-present)
Amalia Aruda Almada (Ph.D. 2014)

Research Advisor

Ali Thabet, Al-Azhar University, Egypt (2013-present)

Committee Member (MIT-WHOI Joint Program):

Eleanor Bors (2013-Present), Patricia Tcaciuc (2012-Present), Santiago Herrera (Ph.D. 2014),
Meredith White (Ph.D. 2013), Michael Holcomb (Ph.D. 2009)

Committee Member (Boston University, Cellular and Molecular Biology Department)

Kellie Cotter, (Ph.D. 2014), Rebecca Meyer (2012-present).

Supervisor (Short-term Guest Students)

Imke Podbielski, GEOMAR Inst. Kiel, Germany (Fall 2012)

Jana Deppermann, University of Oldenburg, Germany (2010, 2011)
Chun Kit (Jacky) Kwok, Chinese University of Hong Kong (2011)
Lars Behrendt, University of Hamburg, Germany (2009)

Undergraduate Students:

Ian Jones, University of Maine (WHOI Summer Student Fellow 2014)
Amy Streets, University of Maryland (WHOI Summer Student Fellow 2012)
Caitlin Church, University of San Diego (Guest student 2012)
Javar Henry, Savannah State University (Guest student 2012)
Alexis Fischer, Wellesley College (WHOI Summer Student Fellow 2010)
Abigail Labella, American University (WHOI Summer Student Fellow 2009)
Amalia Aruda, Georgetown University (WHOI Summer Student Fellow 2008, guest student 2006)
Michael Oats, Stonehill College (Guest student 2010)
Allison Tracy, Princeton University (Guest student 2008)
Natasha Rabinowitz, Mount Holyoke College (Guest student 2007)
Suzanne Kern, Colorado College (Guest student 2003), co-mentor
Michele Weber, University of California Berkeley (Guest student 2001)

High School

Jessica Morgan, Plymouth North High School (Summer 2011)

TEACHING

Courses Taught

7.431/7.433 Biology and Ecology of Coral Reefs (MIT-WHOI Joint Program). Lead instructor (with Jesús Pineda and Simon Thorrold). Fall 2008, Fall 2012, Fall 2014.

7.421 Problems in Biological Oceanography- Chronobiology (MIT-WHOI Joint Program, equal co-instructor with Mike Neubert). Fall 2013.

7.431 Biology and Ecology of Coastal Ecosystems in Tropical Oceans (MIT-WHOI Joint Program), Lead Instructor (with Jesús Pineda and Simon Thorrold). Fall 2010.

(Non-credit) Started, organized and led a weekly bioinformatics workshop that ran from March – June 2013 (4 months) and February – July 2014 (10 months). Included hands-on tutorials and discussion of primary literature. Attended by student, postdocs and staff from several departments.

(Non-credit) Tropical Ecology field course (Panama, Liquid Jungle Lab), a course that I co-developed (with Jesús Pineda) for WHOI-MIT Joint Program Students, January 2011, January 2013.

Guest Lectures

Biological Oceanography Course (MIT-WHOI Joint Program), Lecture on Coral Reefs. 2009, 2008, 2007, 2005.

Other Educational Experience

Software developer, Lightcone, Inc. Developed modules for interactive, electronic supplements to introductory genetics and biology textbooks using Flash software. 2001-2002.

Instructor, The Princeton Review, Taught GRE and SAT preparation courses. 2001.

Field Instructor, San Francisco State University and Institute for Cultural Ecology. 1996-8.

Teaching Assistant, Introduction to Oceanography, University of Hawaii at Manoa. 1996-7

INVITED PRESENTATIONS:

Tarrant AM. 2016 (anticipated/invited). Transcriptomics of diapause in a marine copepod. Invited platform presentation within symposium titled “Tapping the power of crustacean transcriptomes to address grand challenges in comparative biology.” To be held within the Annual meeting of the Society of Integrative and Comparative Biology. Portland OR. January 2016.

Tarrant AM. 2015. Assessing physiological changes in *Calanus finmarchicus* through transcriptional profiling. Ocean Outlook Meeting, Bergen, Norway. February 19-20 2015.

Tarrant AM. 2014. Transcriptomic fingerprints of development and circadian cycles in marine invertebrates. Evolution 2014. Invited platform presentation within a symposium titled “Phylogenomics, transcriptomics and the evolution of gene expression” (sponsored by the Society of Systematic Biologists). Raleigh, NC. June 23, 2014.

Tarrant AM. 2013. Nuclear receptors in Early-diverging marine animals. Annual meeting of The Endocrine Society (ENDO 2013). June 15-18 2013, San Francisco CA. Invited speaker in “Evolution of Nuclear Receptors” symposium, oral presentation, Abstract S13-2.

Tarrant AM. Reitzel AM, Jenny MJ. 2012. Cellular stress responses in the sea anemone, *Nematostella vectensis*. 9th Okazaki Biology Conference Marine Biology II. Okazaki and Okinawa, Japan. October 2012. (Invited speaker at closed international workshop).

Tarrant AM. 2012. Responses of cnidarians to environmental signals and stressors. Seminar series, Bermuda Institute of Ocean Sciences. July 30, 2012.

Tarrant AM. 2012. “Simple” animals in a complicated world: Responses of sea anemones to environmental signals and stressors. Sigma Xi Induction Ceremony (Keynote speaker), North Shore Chapter, Endicott College, April 26, 2012.

Tarrant AM. 2011. Lobster ecdysteroid signaling as a target of endocrine disruption. Seminar Series, Massachusetts Institute of Technology Sea Grant Program, May 31, 2011.

Tarrant AM. 2011. Coral ecology and physiology in the Red Sea. Red Sea Center Research Symposium. King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia, April 9-11 2011.

Tarrant AM. 2011. Insight into the evolution of the nuclear receptor superfamily and circadian regulation from the sea anemone, *Nematostella vectensis*. Boston University, Biology Department Seminar Series, March 28, 2011.

Tarrant AM. 2010. What sea anemones can teach us about salt marshes, corals and toxicology. Wellesley College, Tropical Ecology Class. December 7, 2010.

Aruda AM, Baumgartner MF, **Tarrant AM**[#]. 2010. Gene expression profiles associated with dormancy in the copepod *Calanus finmarchicus*. International Conference on Invertebrate Reproduction and Development. Prague, Czech Republic. August 2010 [#] presenting/senior author.

Tarrant AM. 2009. Insights into endocrine evolution from reef-building corals and the sea anemone *Nematostella vectensis*. Seminar Series, Department of Civil and Environmental Engineering, Massachusetts Institute of Technology, Cambridge, November 2009.

Tarrant AM Reitzel AM 2009. The nuclear receptor complement of the cnidarian *Nematostella vectensis*. 10th Annual E.hormone Meeting (hormones and the environment), New Orleans, Louisiana. October 2009.

Tarrant AM 2009. *Stylophora pistillata* as a model cnidarian and candidate for genome sequencing. KAUST Computational Bioscience Collaborative Research Workshop, London, England, March 11-13, 2009.

Tarrant AM. 2008. Hormonal signaling and signal disruption on coral reefs. Workshop on “Ocean Acidification: the carbonation of the ocean under rising atmospheric CO₂,” Academia Sinica, Taipei, Taiwan, November 2008.

- Tarrant AM.** 2008. Oceanography of Coral Reef Systems: A research initiative at Woods Hole Oceanographic Institution. Workshop on "Ocean Acidification: the carbonation of the ocean under rising atmospheric CO₂," Academia Sinica, Taipei, Taiwan, November 2008.
- Tarrant AM** 2008. Steroid Signaling, Metabolism and Disruption: Insights from Cnidarians. Workshop on "Steroid metabolism as a target for pharmacological treatment," Eibsee Germany. May 2008.
- Tarrant AM.** 2008. Sleeping beauties: Molecular characterization of diapause in the copepod *Calanus finmarchicus*. Rhode Island College. Biology Department Seminar Series. February 20, 2008.
- Tarrant AM.** 2006. Comparative approaches to characterizing nuclear receptor signaling in aquatic animals. Invited Seminar. University of Washington, School of Aquatic and Fisheries Sciences, Seattle, Washington. April 6, 2006.
- Tarrant AM.** 2006. Raging hormones on the reef: Signals and signal disruption in marine environments. Invited Seminar. University of North Carolina Charlotte, Department of Biology, Charlotte, North Carolina. February 23, 2006.
- Tarrant AM.** 2005. Corals and killifish as models for comparative endocrinology. Invited Seminar. Biology Department, University of Massachusetts, Dartmouth, Dartmouth, Massachusetts, March 29, 2005.
- Tarrant AM.** 2005. Corals and killifish as models for comparative endocrinology. Invited Seminar. Department of Biology, University of Southern Mississippi, Hattiesburg, Mississippi, February 21, 2005.
- Tarrant AM.** 2005. Corals and killifish as models for comparative endocrinology. Invited Seminar. Department of Biology, San Francisco State University, San Francisco, California, February 16, 2005.
- Tarrant AM.** 2004. Love on the rocks? Hormonal signaling and signal disruption in coral reef ecosystems. Symposium entitled: "A Systems Biology Approach to Hormonally Active Agents in the Environment" Annual meeting of the American Chemical Society, Philadelphia. August 22-27, 2004.
- Tarrant AM.** 2004. Effects of estrogens on reef-building corals: comparisons with vertebrates. Symposium entitled: EcoPhysiology and Conservation: The Contribution of Endocrinology and Immunology, Annual meeting of the Society of Integrative and Comparative Biology (SICB), New Orleans. January 5-9, 2004.
- Tarrant AM.** 2003. Raging hormones on the Reef? Estrogens in Scleractinian Corals. DIALOG (Dissertation Initiative for the Advancement of Limnology and Oceanography) V Symposium, Bermuda Biological Station for Research, Bermuda. October 19-24, 2003.
- Tarrant AM.** 2002. From spawning to sewage: estrogens on a coral reef. E.hormone conference, Tulane University, New Orleans. October 2002.

PRESENTATIONS AT MEETINGS: (* denotes student or postdoc from my laboratory; # indicates presenting author, when not first author)

- Maas AE*, **Tarrant AM**, Thabet AA, Bergen AJ, Lawson GL. 2015. An integrative assessment of seasonality in the response of the thecosome pteropods *Limicina retroversa* to CO₂. Aquatic Sciences Meeting February 22-25 2015. Granada, Spain. Abstract 25929 (Oral presentation).
- Tarrant AM**, Baumgartner MF, Hansen BH, Altin D, Nordtug T, Olsen AJ. 2015. Metabolic shifts associated with progression through the last juvenile stage of the copepod *Calanus finmarchicus*. SICB Annual Meeting, West Palm Beach, FL, January 3-7, 2015. Abstract 17.6. (Oral/platform presentation).
- Edenius ML*, **Tarrant AM.** 2015. Characterization of the Integrated Stress Response in sea anemone acclimation to environmental stress. SICB Annual Meeting, West Palm Beach, FL, January 3-7, 2015. Abstract P1-138. (Poster presentation).
- Jones IT*, Maas AE*, **Tarrant AM.** 2014. A circadian metabolic rhythm in the cnidarian *Nematostella vectensis*. SICB Annual Meeting, West Palm Beach, FL, January 3-7, 2015. Abstract P1-155. (Poster presentation).

Maas AE*, Bergan AJ, Lawson GL, Tarrant AM. 2015. Response of the thecosome pteropod *Limacina retroversa* to CO₂ on seasonal time scales. SICB Annual Meeting, West Palm Beach, FL, January 3-7, 2015. Abstract 71.2. (Oral/platform presentation).

Thabet AA*, Maas AE*, Alatalo P, Saber SA, Lawson GL, **Tarrant AM**. 2015. Development of the thecosome pteropod *Limacina retroversa*. SICB Annual Meeting, West Palm Beach, FL, January 3-7, 2015. Abstract P1-63. (Poster presentation).

Tarrant AM, Edenius M*, Reitzel AM, Sladek F. 2013. Hepatocyte nuclear factor 4 (HNF4) signaling in *Nematostella*. International Conference on Coelenterate Biology, Eilat, Israel, December 1-6, 2013. Oral presentation in *Nematostella* symposium. (Oral/platform presentation).

Tarrant AM, Maas AE*. 2013. Daily cycles in oxygen consumption in *Nematostella vectensis*. International Conference on Coelenterate Biology, Eilat, Israel, December 1-6, 2013. (Poster presentation).

Tarrant AM, Baumgartner MF#, Lysiak NS, Hansen BH, Altin D, Nordtug T, Olsen AJ. 2014. Distinguishing between preparation for diapause and the terminal molt in C5 copepodites of the copepod *Calanus finmarchicus* using gene expression profiling. Ocean Sciences Meeting. Honolulu Hawaii February 2014. (Poster presentation).

Aruda Almada A*, Baumgartner M, Mincer T, Tarrant A. Impacts of Host Physiology on its Associated Microbial Communities. American Society of Microbiology Annual Meeting. Abstract No: 1642. 2014 May 17-19. Boston, MA. (Poster presentation).

Tarrant AM, McCorkle DC, dePutron SJ, Church C*, Henry J, Cohen AL. 2013. Variation in size of juvenile corals and sensitivity to ocean acidification. SICB Annual Meeting, San Francisco, CA, January 3-7, 2013. Abstract 695-109128. (Oral/platform presentation).

Reitzel AM*, **Tarrant AM**. 2013. Circadian clock of the starlet sea anemone *Nematostella vectensis*: a conserved network and missing links. SICB Annual Meeting, San Francisco, CA, January 3-7, 2013. (Symposium presentation, Oral).

Baumgartner MF, **Tarrant AM**#, Lysiak NSJ, Hansen BH, Aruda AM, Altin D, Nordtug T, Olsen AJ. 2013. Identifying markers of preparation for dormancy and the terminal molt in *Calanus finmarchicus*. SICB Annual Meeting, San Francisco, CA, January 3-7, 2013. Abstract 701-538631. (Poster presentation)

Tarrant AM, Reitzel AM*. 2012. Induction of antioxidant enzymes in *Nematostella*. StellaFest II: 2nd Annual *Nematostella* Research Conference. Boston University, Boston MA. August 27, 2012. (Oral/platform presentation).

Pineda J, Blythe J, Davis K, da Silva J, Reitzel A, Starczak V, **Tarrant A**. 2012. Temperature on Red Sea reefs at two scales: biological consequences. 12th International Coral Reef Symposium. Cairnes, Australia. July 9-13, 2012. (Oral/platform presentation).

Tarrant AM, Reitzel AM*, Kwok C-K*, Goldstone J, Jenny MJ. 2012. Activation of cellular defenses in the sea anemone *Nematostella vectensis* by PAHs and crude oil. SICB Annual Meeting, Charleston, South Carolina, January 7, 2012. (Oral/platform presentation).

Reitzel AM, Goldstone J, Jenny MJ, **Tarrant AM**. 2011. Identification and expression of genes in response to anthropogenic stressors from the estuarine sea anemone *Nematostella vectensis*. SETAC North America 32st Annual Meeting, Boston MA, November 2011. (Oral/platform presentation).

Cantin N*, Cohen A, **Tarrant AM**. 2011. Interspecific variability in the coral response to rising sea surface temperatures on a central Red Sea reef. ASLO Aquatic Sciences Meeting. San Juan, Puerto Rico, February 13-18, 2011.

Verslycke T, **Tarrant AM**, Stegeman JJ. 2010. Development of a crustacean *in vitro* assay to evaluate the presence and potential non-target effects of insect growth regulator pesticides. SETAC North America 31st Annual Meeting, Portland, Oregon. November 8, 2010.

Smolowitz R, Allam B, Kunkel J, **Tarrant AM**, Verslycke T. 2010. Research findings on the pathology and physiology of shell disease. New approaches to understanding emerging marine diseases: from science

to management. 9th Annual Ronald C. Baird Sea Grant Science Symposium. University of Rhode Island, Kingston, Rhode Island. August 10-11, 2010. (Oral/platform presentation).

Verslycke T, **Tarrant AM**. 2010. Lobsters as an ecotoxicological research model in New England coastal waters. SETAC North Atlantic Chapter Annual Meeting, Narragansett, Rhode Island, June 2-4, 2010.

Cantin N*, Cohen AL, Karnauskus K, **Tarrant AM**, McCorkle DC, Saenger CP, Lohmann GP. 2010. Coral growth declines as temperatures rise in the central Red Sea. Ocean Sciences Meeting. Portland, Oregon, February 22-26, 2010.

Tarrant AM, Behrendt L, Stegeman JJ, Verslycke T. 2010. Characterization of the ecdysteroid receptor in the American lobster (*Homarus americanus*) and development of an *in vitro* screening assay. Society of Integrative and Comparative Biology. Seattle, Washington, January 2010. (Poster presentation).

Reitzel AM*, **Tarrant AM**[#]. 2010. Circadian oscillations in gene expression in the sea anemone *Nematostella vectensis*: the evolution of the animal circadian clock. Society of Integrative and Comparative Biology. Seattle, Washington, January 2010. (Oral/platform presentation).

Tarrant AM, Mori C, Thakali S, Sharma M, Yekel H, Verslycke T. 2009. Application of a zebrafish estrogen receptor binding assay for ecological risk assessment of endocrine active substances. 10th Annual E.hormone Meeting (hormones and the environment), New Orleans, Louisiana. October 2009.

Reitzel AM*, **Tarrant AM**[#]. January 2009. The nuclear receptor complement of the cnidarian *Nematostella vectensis*. Society of Integrative and Comparative Biology, Boston, Massachusetts, January 2009. *Presenting author.

Reitzel AM*, **Tarrant AM**. Transcriptional responses by the estuarine sea anemone *Nematostella vectensis* to cadmium exposure. Society of Integrative and Comparative Biology, Boston, Massachusetts, January 2009.

Reitzel AM*, Finnerty JR, **Tarrant AM**. 2009. Taking the heat: organismal and molecular responses of the estuarine sea anemone *Nematostella vectensis* to thermal stress. Society of Integrative and Comparative Biology, Boston, Massachusetts, January 2009.

Mori C, Thakali S, **Tarrant AM**, Sharma M, Verslycke T, Yekel H. 2009. Translating *in vitro* estrogenic assay results to ecological risk assessment. Society of Toxicology March 2009. ***Best risk assessment abstract award.**

Verslycke T, **Tarrant AM**. 2008. Comparative ecotoxicology of vertebrate and invertebrate endocrine disruptors. SETAC North America 29th Annual Meeting, Tampa, Florida, November 17, 2008.

Thakali S, Verslycke T, **Tarrant A**, Yekel K. 2008. Estimating the relative potency of estrogen-like active pharmaceutical ingredients to ecological receptors using a fish estrogen receptor binding assay. SETAC North America 29th Annual Meeting, Tampa, Florida, November 17, 2008.

Tarrant AM, Reitzel, AM. 2008. Nuclear receptors in an evolutionary context: Insights from the sea anemone *Nematostella vectensis*, New England Membrane Enzyme Group (NUTMEG) Annual Meeting, Woods Hole, Massachusetts, October 2008.

Tarrant AM, Reitzel AM, Blomquist CH, Haller F, Tokarz J, Adamski J. 2008. Steroid metabolism in cnidarians: insights into 17 β -HSD activity from the sea anemone *Nematostella vectensis*. New England Membrane Enzyme Group (NUTMEG) Annual Meeting, Woods Hole, Massachusetts, October 2008.

Tarrant AM, Baumgartner MF, Verslycke T, Johnson CL. 2008. Molecular characterization of diapause in the marine copepod *Calanus finmarchicus*. Summer Meeting. American Society of Limnology and Oceanography. St. Johns, Newfoundland, Canada. June 8-13, 2008.

Johnson CL, Leising AW, Runge JA, **Tarrant AM**, Baumgartner MF, Head EJ, Pepin P, Plourde S. 2008. The lipid accumulation hypothesis for dormancy control in oceanic copepods. Summer Meeting. American Society of Limnology and Oceanography. St. Johns, Newfoundland, Canada. June 8-13, 2008.

Karchner SI, Jenny MJ, Franks DG, Woodin BR, **Tarrant AM**, Hahn ME. 2008. Aryl hydrocarbon receptor (AHR) and AHR repressor (AHRR): Insights into transcriptional regulation and novel roles in modulating normal embryonic development. Aquatic Models of Human Disease, Duke University, Durham, North Carolina, January 2008.

Tarrant AM. 2007. Roles of ERR β and ERR γ during fish development. Future Research on Endocrine Disruption: Translation of Basic and Animal Research to Understand Human Disease. Durham NC. August 27-29 2007.

Tarrant AM, Forman B, Yu D, and Hahn ME. 2007. Using fish models to characterize developmental roles of ERR β and ERR γ . Hormone Action in Development and Cancer. New London, New Hampshire. (Gordon Research Conference). July 15-20 2007.

Tarrant AM, Greytak SR, Callard GV, Hahn ME. 2006. Estrogen receptor-related receptors in the Atlantic killifish *Fundulus heteroclitus*: diversity, expression and estrogen responsiveness. Annual meeting of the Society of Integrative and Comparative Biology (SICB), Orlando, Florida. January 2006.

Tarrant AM, Cortes J, Bezy B, Vargas JA, Atkinson MJ, Johanning KJ, Chiang TC, McLachlan JA. 2006. Identification and expression patterns of nuclear receptors in *Pocillopora damicornis*. Annual meeting of the Society of Integrative and Comparative Biology (SICB), Orlando, Florida. January 2006.

Tarrant AM. 2005. Estrogen receptor-related receptor signaling in teleost fishes. NUTMEG (New England Membrane Enzymes Group) Annual Meeting, Sturbridge, Massachusetts, November 5-7, 2005.

Goldstone JV, Handley Goldstone, HM, Morrison AM, **Tarrant AM**, Kern SE, Woodin BR, Stegeman JJ. Functional evolution of the cytochrome P450 1 gene family: evidence of a pre-vertebrate origin. Pollutant Responses in Marine Organisms (PRIMO XIII). Alessandria, Italy, June 2005.

Tarrant AM, Atkinson S, Atkinson MJ. 2000. Uptake of estrogen from the water column by a reef flat community. 9th International Coral Reef Symposium, Bali, Indonesia. October 23-27, 2000.

OTHER PRESENTATIONS (WHOI Seminars, Outreach, Public Lectures):

Tarrant AM, 2012. Sea anemones and the secrets of life (animal evolution and cnidarian physiology). Presentation to WHOI Journalism Fellows. September 12, 2012.

Tarrant AM, 2011. Responses to environmental signals and stressors by the sea anemone *Nematostella vectensis*. WHOI Biology Department seminar. September 15, 2011.

Tarrant AM, 2011. Sea anemones as indicators of pollution and stress. WHOI Science Made Public Series. August 23, 2011.

Tarrant AM, 2011. How do animals detect and respond to environmental stressors and signals? Monthly meeting of the Development Office, March 23, 2011.

Tarrant AM, 2010. Sea anemones and the secrets of life, animal evolution, and cnidarian physiology. Presentation to WHOI Journalism Fellows, September 2010.

Tarrant AM, 2010. Crossed signals? Hormone receptors in marine invertebrates. WHOI Summer Student Fellows Seminar Series. July 2010.

Tarrant AM, 2009. Nuclear receptors and endocrine disruption in marine and aquatic animals. WHOI Summer Student Fellows Seminar Series. June 2009.

Tarrant AM, 2009. Tropical marine biology: Stress in Paradise (proposed plans for education at the Liquid Jungle Lab). WHOI Liquid Jungle Lab Symposium/Workshop. May 2009.

Tarrant AM, 2008. Making friends with anemones – what can we learn from the starlet sea anemone *Nematostella vectensis*. WHOI Summer Student Fellows Seminar Series. June 16 2008.

Tarrant AM, 2007. Using zebrafish in research. Children's School of Science, Woods Hole, Massachusetts. Summer 2007.

Tarrant AM, 2006. Comparative approaches to characterizing nuclear receptor signaling in aquatic animals. WHOI Biology Department Seminar Series, June 2006.

Tarrant AM, 2006. Molecular investigation of diapause regulation in copepods. WHOI Trustees Meeting, October 2006.

Tarrant AM, 2005. Comparative endocrinology in corals and copepods. WHOI Annual Postdoc Symposium. October 24, 2005.

Tarrant AM, 2005. Biological Oceanography and Marine Biology. Bourne Middle School, June 6, 2005.

SELECTED OTHER OUTREACH ACTIVITIES:

Presentation to Children's School of Science, "Cnidarians" (July 2013)

Falmouth Public Schools Science Fair Judge (2011)

Falmouth Bioblitz Executive Committee (2010)

Woods Hole Bioblitz Group Leader (summer 2010)

SELECTED CRUISES AND FIELD EXPEDITIONS:

January 2013. 11 day field expedition to Liquid Jungle Lab, Isla Canales de Tierra, Panama. Co-taught field course for MIT-WHOI Joint Program Students and recovered instrumentation. Led diving and coral reef components.

January 2011. 11 day field expedition to Liquid Jungle Lab, Isla Canales de Tierra, Panama. Co-taught field course for MIT-WHOI Joint Program Students and recovered instrumentation.

November 2010. 3 day field expedition to Liquid Jungle Lab, Isla Canales de Tierra, Panama. Preliminary studies to assess coral growth rates and the presence of internal waves.

April 2010. 14 day field expedition in Red Sea of Saudi Arabia using liveaboard dive vessel (Dream Island). SCUBA-based collection of coral samples for analysis of coral skeletal growth and tissue composition. Expedition leader.

August 2009. 14 day field expedition in Red Sea of Saudi Arabia using liveaboard dive vessel (Dream Island). SCUBA-based collection of coral samples for analysis of coral skeletal growth and tissue composition. Expedition leader.

February 2009. 14 day field expedition in Red Sea of Saudi Arabia using liveaboard dive vessel (Dream Island). SCUBA-based collection of coral samples for analysis of coral skeletal growth and tissue composition. Expedition leader.

August-September 2008. 14 day field expedition (full trip dates August 19-September 7, 2008) in Red Sea of Saudi Arabia using liveaboard dive vessel (Dream Island). SCUBA-based collection of coral samples for analysis of coral skeletal growth and tissue composition. Expedition leader.

June-July 2008, 20 day field expedition (June 26-July 16) to Hawaii Institute of Marine Biology, Kaneohe, Hawaii. Field work associated with retinoid signaling in reef-building corals.

CERTIFICATIONS AND ADDITIONAL TRAINING:

Current Certifications

AAUS SCUBA Diver, 130 ft certification, WHOI dive program

CPR, First Aid, DAN Oxygen Provider

NAUI Master Diver, Nitrox Certification,

Diving proficiency with drysuits and diver propulsion vehicles (WHOI dive program).

Additional Training

Diseases of Corals and Other Reef Organisms (Mote Marine Laboratory's Pigeon Key Marine Research Center), 1996

Reproduction in Coral Reefs (Edwin W. Pauley Summer Program in Marine Biology, Hawaii Institute of Marine Biology), 1997

Coral Reef Biogeochemistry (Edwin W. Pauley Summer Program in Marine Biology, Hawaii Institute of Marine Biology), 1995.