

JONATHAN B. PURITZ JR.

Harte Research Institute
Texas A&M Corpus Christi
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EDUCATION

- 2011 **Ph.D. in Zoology, University of Hawaii at Manoa**
Committee: Rob Toonen, Brian Bowen, Steve Karl, Megan Donahue, Shannon Bennett
- 2005 **B.S. in Biology with Honors, Brown University**
Advisors: Jon Witman and David Rand

PROFESSIONAL APPOINTMENTS

- 2014- **Postdoctoral Research Associate, Adjunct Graduate Faculty**
Harte Research Institute, Texas A&M Corpus Christi
- 2012-14 **Postdoctoral Research Associate**
Department of Wildlife and Fisheries Science, Texas A&M University
- 2012 **Postdoctoral Scholar, Lecturer**
Hawaii Institute of Marine Biology, University of Hawaii at Manoa

PUBLICATIONS

Statistics

266 Citations
17 Peer reviewed journal articles and book chapters
9 h-index

- In Review Portnoy, D. S., **Puritz, J. B.**, Hollenbeck, C. M., Gelsleichter, J., Chapman, D., Gold, J. R. Selection and sex-biased gene flow: philopatric sorting of adaptive alleles in bonnethead sharks (*Sphyrna tiburo*). *In review. Molecular Ecology*
- In Press Gold, J. R., Willis, S. C., Renshaw, M. A., Buentello, A., Walker, Jr., H. J., **Puritz, J. B.**, Hollenbeck, C. M., Voelker G. Phylogenetic relationships of tropical eastern Pacific snappers (Lutjanidae) inferred from mtDNA sequences. *Systematics and Biodiversity*
- 2014 **Puritz, J.B.**, Matz, M. V., Toonen, R. J., Weber, J. N., Bolnick, D. I., Bird, C. E. Comment: Demystifying the RAD fad. *Molecular Ecology* 23: 5937–5942.
doi: 10.1111/mec.12965
2nd Most Accessed Paper for 2014-2015
Altmetric Score of 27 (97 percentile of all articles in Molecular Ecology)
Ranks in the top 5% of all 2,827,038 articles tracked by Altmetric
- 2014 **Puritz, J. B.**, Hollenbeck, C. M., Gold, J. R. *dDocent*: a RADseq, variant-calling pipeline designed for population genomics of non-model organisms. *PeerJ* 2:e431
<http://dx.doi.org/10.7717/peerj.431>

- 2014 **Puritz, J. B.**, Renshaw, M. A., Abrego, D., Vega, R. R., Gold, J. R. Reproductive variance of brood dams and sires used in restoration enhancement of spotted seatrout (*Cynoscion nebulosus*) in Texas bays and estuaries. **North American Journal of Aquaculture** 76:407–414
- 2013 Toonen, R. J., **Puritz, J. B.**, Forsman, Z.H., Whitney, J. L., Fernandez-Silva, I., Andrews, K. A., Bird, C. E. ezRAD: A Simplified Method for Genomic Genotyping in Non-Model Organisms. **PeerJ** 1:e203 <http://dx.doi.org/10.7717/peerj.203>
Featured Article for week of Nov. 19, 2013
Covered by KIITV News (<http://goo.gl/Pn5JGa>)
Over 6,955 total views and downloads
- 2013 Keever, C., **Puritz, J. B.**, Addison, J. A., Byrne, M., Grosberg, R. K., Toonen R. J., Hart, M.W. Shallow gene pools in the high intertidal: Extreme loss of genetic diversity in viviparous sea stars (Parvulastra). **Biology Letters** 9:20130551
doi:10.1098/rsbl.2013.0551
Covered by Discovery News (<http://goo.gl/odHxuX>)
One of the “10 Sexiest Stories of 2013” by Discovery News (<http://goo.gl/JFRSWI>)
- 2013 Andrews, K. R., Perrin, W. F., Oremus, M. Karczmarski, L., Bowen, B. W., **Puritz, J. B.**, Toonen, R. J. The evolving male: spinner dolphin (*Stenella longirostris*) ecotypes are divergent at Y chromosome but not mtDNA or autosomal markers. **Molecular Ecology** 22: 2408-2423
- 2013 Barbosa, S., Klaten, S., **Puritz, J. B.**, Toonen, R. J., Byrne, M. Very fine scale population genetic structure of sympatric asterinid sea stars with benthic and pelagic larvae: influence of mating system and dispersal potential. **Biological Journal of the Linnean Society** 108: 821-833
- 2013 **Puritz, J. B.** and Toonen, R. J. Next-generation sequencing for high-throughput molecular ecology: a step-by-step protocol for targeted multilocus genotyping by pyrosequencing. Chapter in **Methods in Molecular Biology: Microsatellites**. Volume Editor: Kantartzi, S. K. Pages 89-99
- 2012 **Puritz, J. B.**, Keever, C. C., Addison, J. A., Byrne, M. Hart, M. W, Grosberg, R. K., Toonen, R. J. Extraordinarily rapid life history divergence between *Cryptasterina* sea star species. **Proc. R. Soc. B.** 279: 3914-3922
Covered by Science/AAAS News (<http://goo.gl/aotxmY>)
Covered by NBC News (<http://goo.gl/I9YbMs>)
Covered by Scientific American (<http://goo.gl/QBVZib>)
Over 7,364 total downloads
- 2012 **Puritz, J. B.**, Addison, J. A., Toonen, R. J. Next-Generation Phylogeography: the application of targeted next-generation sequencing of non-model organisms. **PLoS One** 7(3): e34241. doi:10.1371/journal.pone.0034241
Over 8,369 article views
- 2011 **Puritz, J. B.** and Toonen, R. J. Coastal Pollution Limits Pelagic Larval Dispersal. **Nature Communications** 2:228
Covered by Discovery News (<http://goo.gl/g3QMrl>)
8th most downloaded paper on Nat Comm Mar 2011

- 2011 Toonen, R. J., Andrews, K. R., Baums, I. B., Bird, C. E., Concepcion, G. T., Daly-Engel, T. S., J. Eble, A. Faucci, M. Gaither, M. Iacchei, **J. Puritz**, J. Schultz, D. Skillings, M. Timmers & B. Bowen. Defining boundaries for ecosystem-based management: A multispecies case study of marine connectivity across the Hawaiian Archipelago. *Journal of Marine Biology* DOI: 10.1155/2011/460173
- 2009 Keever, C. C., Sunday, J., **Puritz, J. B.**, Addison, J. A., Toonen, R. J., Grosberg, R. K., Hart, M. W. Discordant Distributions of Populations and Genetic Variation in a Sea Star with High Dispersal Potential. *Evolution* 63: 3214-3227
- 2008 Haney, R. A., Dionne, M., **Puritz, J. B.**, Rand, D. M. The Comparative Phylogeography of East Coast Estuarine Fishes in Formerly Glaciated Sites: Persistence versus Recolonization in *Cyprinodon variegatus ovinus* and *Fundulus heteroclitus macrolepidotus*. *Journal of Heredity* 100: 284-296
- 2005 Walker, A. N., Bush, P., Puritz, J., Wilson, T., Chang, E. S., Miller, T., Holloway, K., Horst, M. N. Bioaccumulation and Metabolic Effects of the Endocrine Disruptor Methoprene in the Lobster, *Homarus americanus*. *Integrative and Comparative Biology* 45: 118-126

GRANTS AWARDED

2015	Texas Research Development Fund Program Impacts of sewage effluent on genomic diversity and connectivity of marine intertidal communities	\$20,000
2011	NSF East Asian Pacific Science Institute Fellowship Fellowship for two months of research at the University of Sydney	\$8,000
2011	University of Hawaii Graduate Student Organization Travel Grant for 2011 Annual Meeting of the Western Society of Naturalists	\$750
2010	University of Hawaii Graduate Student Organization Travel Grant for 2010 Benthic Ecology Meeting	\$900
2009	University of Hawaii Graduate Student Organization Research grant for sample collection trip to California	\$750
2008	The Charles H. and Margaret B. Edmondson Research Fund Research on the population connectivity of <i>Linckia multifora</i>	\$1,500
2007	Ecology, Evolution, and Conservation Biology Travel Grant Travel Grant for 2007 Annual Meeting of the Western Society of Naturalists	\$750
2007	University of Hawaii Arts and Sciences Advisory Council Award Research expedition to the Chagos Archipelago	\$3,000

RESEARCH EXPERIENCE

2012-

Postdoctoral Researcher, Harte Research Institute, Texas A&M Corpus Christ

Under supervision of Dr. John Gold (2012-14, Wildlife and Fisheries, Texas A&M)

- Using RADSeq to investigate the effects of the Deepwater Horizon oil spill, environmental conditions, marine reserves and artificial reefs on the molecular ecology and population genomics of Red Snapper in the Gulf of Mexico
- Developing a custom analysis pipeline (called dDocent) to perform quality control, *de novo* assembly, read mapping, SNP calling, and quality filtering of double digest RAD-seq data
- Using Illumina and Pacific Biosciences sequencing in a hybrid approach to sequence the genome of red snapper (*Lutjanus campechanus*)
- Using RADseq To survey impacts of sewage effluent on genetic diversity and connectivity of marine organisms on the South Texas Coast

2012

Postdoctoral Researcher, Hawaii Institute of Marine Biology

Under supervision of Dr. Robert Toonen and Dr. Chris Bird

- Designed, implemented, and tested, a simplified Restriction Association DNA (RAD) protocol to isolate and barcode thousands of SNP loci across several different marine phyla utilizing the high-throughput Illumina sequencing platform, along with a custom bioinformatics analysis pipeline
- Responsible for the development, implementation, ground-truthing, and experimental application a “ReefChip” microarray of mtDNA sequences to assess environmental, gut, and fecal samples for biodiversity, especially invasive species

2007-09

Research Assistant, Hawaii Institute of Marine Biology

Under supervision of Dr. Robert Toonen and in collaboration with Dr. Rick Grosberg, Dr. Michael Hart, Dr. Maria Byrne, Dr. Jason A. Addison, Dr. Sergio Barbosa, and Dr. Carson C. Keever

- Investigated the impact of life history on population connectivity, using Asterinid sea stars as a model system
- Developed nDNA intron sequence markers for phylogeography and population genetics across 7 different species
- Designed a protocol to sequence simultaneously sequence 3200 loci using 454 Sequencing
- Implemented seascape genetics framework to demonstrate that sewage effluent and urban runoff are limiting connectivity
- Discovered one of the fastest known marine speciation events to date

2008

Field Assistant, Diego Garcia- Chagos Archipelago

Under supervision of Dr. Robert Toonen

- Responsible for entire marine invertebrate collection in Diego Garcia.

2007

Field Assistant, NOAA R/V Hi'ialakai, NWHI

Under supervision of Dr. Robert Toonen

- Assisted with general marine invertebrate collection in the Northwestern Hawaiian Islands.
- Responsible for field collection and database management.

2005-06

Research Assistant, HPCSU

Under supervision of Dr. Larry Basch

- Monitoring invertebrate recruitment on coral reefs along the Kona coast of the island of Hawaii

2005

Senior Thesis Research, Brown University

Under supervision of Dr. David Rand

- Investigated the origins of clinal variation in *Fundulus heteroclitus*

- 2004 **Hughes Fellowship Researcher/Intern, Brown University**
Under supervision of Dr. Jon Witman
- Developed and implemented personal research project (Fall 2004)
 - Investigated anthropogenic hypoxia as a selective force on *Ilyanassa obsoleta*
- 2003 **Research Intern, Darling Marine Center, University of Maine**
Under supervision of Dr. Mike Horst
- Investigated the Effects of Pesticide Exposure to *Homarus americanus*

TEACHING EXPERIENCE

- 2016 **Invited Faculty, Winter School 2016, ETH Zürich, Switzerland**
Bioinformatics for Adaptation Genomics: Adaptation genomics in the realm of Next-Generation Sequencing data analysis
- Funded by Adaptation to a Changing Environment initiative, ETH Zürich, Switzerland
 - Responsible for whole day workshop on “Extracting SNP data from NGS sequencing”
- 2015 **Invited Faculty, Nha Trang University, Vietnam**
Training workshop for Next Generation Sequencing
- Funded by the project "Building a Mekong River genetic biodiversity research network" in the PEER program funded by USAID In the process of project implementation, NTU partnered with Old Dominion, and Texas A & M University Corpus Christi.
 - Responsible for multiple day workshop on RADseq Bioinformatics
- 2015 **Invited Faculty, Winter School 2015, ETH Zürich, Switzerland**
Bioinformatics for Adaptation Genomics: Adaptation genomics in the realm of Next-Generation Sequencing data analysis
- Funded by the European Science Foundation and the Adaptation to a Changing Environment initiative, ETH Zürich, Switzerland
 - Responsible for whole day workshop on “Extracting SNP data from NGS sequencing”
- 2014 **Invited Faculty, De LaSalle University, Manila, Philippines**
Pacific Advanced Science Institute (PacASI) sponsored workshop: “Introduction to Genome Data Analysis: Assembly, Annotation, and Application.”
- PacASI is a partnership between the Center for Natural Science and Ecological Research at De La Salle University and the National Science Foundation Partnerships for Enhanced Engagement in Research.
 - Responsible for several lectures and hands on workshops designed for international students’ first engagement with genome scale data.
- 2013 **Invited Faculty, Hawaii Institute of Marine Biology**
29th Annual Edwin W. Pauley Summer Program: “Advancing tools for biodiversity studies: Genomics and bioinformatics of cnidarians with a focus on corals”
- Responsible for developing and overseeing student research projects and for a workshop on RAD Sequencing
- 2012 **Lecturer, University of Hawaii at Manoa**
Instructor of record for Biology 404: Advanced Topics in Marine Biology
- Responsible for course development, administration, and lectures for the capstone class for seniors majoring in Marine Biology.
- 2007 **Teaching Assistant, Hawaii Institute of Marine Biology**
Under supervision of Dr. Brian Bowen
Recent Advances in Conservation Genetics Workshop

- American Genetic Association, Laboratory of Genomic Diversity of the National Cancer Institute, and The Smithsonian Institution's Conservation & Research Center's course hosted at the Hawaii Institute of Marine Biology

2006 **Teaching Assistant, University of Hawaii at Manoa**
Invertebrate Zoology under supervision of Dr. Julie Brock

2005 **Teaching Assistant, Brown University**
Principles of Ecology (BI42) under supervision of Dr. Jon Witman

2005 **Teaching Assistant, Brown University**
Invertebrate Zoology (BI41) under supervision of Dr. Mark Bertness and Dr. Eric Sanford

INVITED PRESENTATIONS

2015 **The Seascapes Genetics of Coastal Pollution**
Waterscape Genetics- New Perspectives on Connectivity in Fluid Environments Symposium at the International Association of Landscape Ecology World Congress

2013 **Impacts of Coastal Pollution and Life-History on Marine Population Connectivity**
Biological Sciences Seminar- Old Dominion University

2012 **The Impacts of Coastal Pollution on Marine Population Connectivity**
Harte Research Institute Seminar Series- Texas A&M Corpus Christi

2012 **The Impacts of Coastal Pollution on Marine Population Connectivity**
Wildlife and Fisheries Sciences Brown Bag Seminar- Texas A&M University

2009 **"The Frontiers of Conservation Genetics: From Genes to Genomes"** Hanauma Bay Education Program Lecture Series- Hanauma Bay Nature Preserve

PRESENTATIONS (LAST 6 YEARS)

2015 **Variable patterns of genomic diversity in young-of-the-year Red Snapper (*Lutjanus campechanus*) in the northern Gulf of Mexico**
Puritz, J. B., Portnoy, D. S., Gold, J. R. American Fisheries Society.

2015 **Fishing for selection, but only catching bias: examining library effects in double-digest RAD data in non-model marine species**
Puritz, J. B., Hollenbeck, C. M., Gold, J. R. Plant and Animal Genomes.

2014 **Genomic Studies of Red Snapper (*Lutjanus campechanus*) in U.S. Waters of the Gulf of Mexico and Atlantic Ocean**
Puritz, J. B., Hollenbeck, C. M., Gold, J. R. Evolution.

2013 **Genomic Studies of Red Snapper (*Lutjanus campechanus*) in U.S. Waters of the Gulf of Mexico and Atlantic Ocean**
Puritz, J. B., Hollenbeck, C. M., Gold, J. R. American Fisheries Society.

2012 **Extraordinarily Rapid Life History Divergence between *Cryptasterina* Sea Star Species**
Puritz, J. B., Keever, C. C., Addison, J. A., Byrne, M. Hart, M. W., Grosberg, R. K., Toonen, R. J. Evolution (1st Joint Congress on Evolutionary Biology).

- 2011 **Extraordinarily Rapid Life History Divergence between *Cryptasterina* Sea Star Species**
Puritz, J. B., Keever, C. C., Addison, J. A., Byrne, M. Hart, M. W., Grosberg, R. K., Toonen, R. J.
Western Society of Naturalists Annual Meeting.
- 2011 **Speedy Sea Star Speciation: extraordinarily rapid life history divergence between *Cryptasterina* sea star species**
Puritz, J. B., Keever, C. C., Addison, J. A., Byrne, M. Hart, M. W., Grosberg, R. K., Toonen, R. J.
Evolution of Life of Pacific Islands and Coral Reefs Conference.
- 2010 **Coastal Pollution Limits Pelagic Larval Dispersal**
Puritz, J. B. Toonen, R. J. Western Society of Naturalists Annual Meeting.
- 2010 **Parting the Genetic Sea(scape): The alteration of pelagic larval dispersal by coastal pollution**
Puritz, J. B. Toonen, R. J. Evolution.
• Covered by *ScienceNews*. Vol. 179 (2). Pages 18-22 (2011)
- 2010 **Limited Dispersal Despite High Dispersal Potential: The Fine Scale Population Structure of *Patiria miniata* in the Southern California Bight**
Puritz, J. B. Toonen, R. J. Benthic Ecology Meeting.
- 2010 **Contrasting Population Structure and Phylogeography between Two Sympatric Sea Stars with Differing Life History Strategies**
Puritz, J. B., Keever, C. C., Addison, J. A., Hart, M. W., Grosberg, R. K., Byrne, M. A., Toonen, R. J. SICB.

GRADUATE FACULTY SERVICE

- 2014 **Patricia M. Cockett, Master's Thesis Committee Member**
Effects of harvesting on the genetic composition of a crashed Hawaiian fishery

AWARDS AND HONORS

- 2015 **Top 300 Reviewers of Molecular Ecology**
- 2009,11 **Best Paper Honorable Mention, Albert L. Tester Memorial Symposium**
- 2005-06 **National Science Foundation Graduate Research Fellowship Honorable Mention**
- 2005 **Honors awarded to senior thesis, Brown University**
- 2005- **Associate Member of Sigma Xi, Brown University Chapter**
- 2004 **Hughes Fellowship Recipient, Brown University**

PUBLIC OUTREACH

- 2007- **Scientific Blogger**
Created a blog to document the experience of being an NSF EAPSI fellow in Australia.
• jbpastralia2011.wordpress.com
Created a blog to document field research experience aboard the NOAA R/V Hi'ialakai, Northwestern Hawaiian Islands Research cruise in September of 2007.
• <https://sites.google.com/site/jpuritz/cruise>
• Google changed this service and formatting for this webpage is no longer correct
- 2007- **Underwater Photographer**
Photo chosen for "Featured Image" for *PeerJ* (Nov 2013)
Photo chosen for "Image of the Week" for *Nature Communications* (March 2011)
Images have appeared in several publications including NOAA public reports, the Division of Land and Natural Resources of the state of Hawaii outreach posters, and several HIMB and UC Davis press releases.
- 2010-11 **Participant in the Pacific Symposium for Science and Sustainability**
Judged and moderated a high school science competition

TRAINING AND CERTIFICATIONS

- 2014- **Texas A&M Corpus Christi Scientific Diver (AAUS Reciprocity)**
- 2005-12 **University of Hawaii Scientific Diver (AAUS Reciprocity)**
- 2007 **NOAA Advanced Coxswain**

JOURNALS REFEREED

Proceedings of the Royal Society B
JEMBE
Molecular Ecology
BioScience
Conservation Genetics Resources
Aquatic Biology
PLoS Genetics

Ecology and Evolution
MEPS
Journal of Heredity
PLoS One
Heredity
Genetica
Axios

Evolution
Biological Invasions
Marine Biology
Conservation Genetics
Transactions of AFS
PeerJ

REFERENCES

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