

Karen Crow-Sanchez

Professor

Department of Biology, San Francisco State University,
1600 Holloway Avenue, San Francisco, CA 94132.

Tel: (415)405-2760; e-mail: crow@sfsu.edu; <http://biology.sfsu.edu/people/karen-crow-sanchez>

Professional Preparation

California State University Northridge, CA, Ecology and Evolutionary Biology, B.A., 1986

San Francisco State University-Moss Landing Marine Laboratories, CA, Ichthyology, M.S., 1995

University of California Santa Cruz, CA, Ecology and Evolutionary Biology, Ph.D., 2003

Yale University, CT, Ecology and Evolutionary Biology, Postdoctoral Associate, 2003-2007

Appointments

2018- present	Professor, Department of Biology, San Francisco State University
2013-2018	Associate Professor, Department of Biology, San Francisco State University
2007-2013	Assistant Professor, Department of Biology, San Francisco State University
2003-2007	Postdoctoral Associate, Yale University, Department of Ecology and Evolutionary Biology
1994-1996	Research Technician, Stanford University, Hopkins Marine Station
1990-1994	Teacher and Curriculum Specialist, California State University, Long Beach; National Science Foundation, Young Scholars Ocean Science Institute
1988-1990	Interpretive Ranger Channel Islands National Park
1986-1991	Teacher and Department Chairperson, Los Angeles Unified School District, El Sereno Junior High School

Publications (^UUndergraduate, ^GGraduate, *underrepresented minorities)

Publications on body plan evolution, phylogenomics, and reproductive strategies in fishes:

- John D. Swenson^G, Jeff Klomp, Robert A. Fisher, **Karen D. Crow**. 2018. How the Devil Ray Got Its Horns: The Evolution and Development of Cephalic Lobes in Myliobatid Stingrays (Batoidea: Myliobatidae). **Frontiers in Ecology and Evolution**. <https://doi.org/10.3389/fevo.2018.00181>
- Kayla Hall^U, Peter Hundt⁺, John Swenson^G, Adam Summers, **Karen D. Crow**. 2018. The evolution of underwater flight: the redistribution of pectoral fin rays, in manta rays and their relatives (Myliobatidae). **Journal of Morphology**. DOI: 10.1002/jmor.20837
- Healy Hamilton, Norah Saarman, Graham Short, Beth Moore, Tinya Hoang, Chris Grace^G, Martin Gomon, **Karen Crow**, W. Brian Simison. 2016. Molecular phylogeny and patterns of diversification in syngnathid fishes. **Molecular Phylogenetics and Evolution**. 107 (2017) 388-403.
- John R. LaBrecque^U, Yvette R. Alva-Campbell*, Sophie Archambeault^G, **Karen D. Crow**. 2014. Multiple paternity is a shared reproductive strategy in the live-bearing surferperches (Embiotocidae) that may be associated with female fitness. **Ecology and Evolution**. 4(12) 2316-2329.
- Sophie Archambeault^G, Eric Ng^U, Lyle Rapp^U, Andrew Rhyne, and **Karen D. Crow**. 2014. Reproduction, larviculture, and early development of the Bluebanded goby, *Lythrypnus dalli*, an emerging model organism for studies in evolutionary developmental biology and sexual plasticity. **Aquaculture Research**. doi:10.1111/are.12648.
- Kelcie Chiquillo^U, David A. Ebert, Christina Slager, **Karen D. Crow**. 2014. The secret of the mermaid's purse: Phylogenetic affinities within the Rajidae and the evolution of a novel reproductive strategy in skates. **Molecular Phylogenetics and Evolution**. 75 (2014) 245-251.

Jessica M. Maxfield^G, James L. Van Tassell, Colette M. St. Mary, Jean-Christophe Joyeux, and **Karen D. Crow**. 2012. Extreme gender flexibility: Using a phylogenetic framework to infer the evolution of variation in sex allocation, phylogeography, and speciation in a genus of bidirectional sex changing fishes (*Lythrypnus*, Gobiidae). **Molecular Phylogenetics and Evolution**. 64 (2012), pp. 416-427.

Crow, Karen D., Hiroyuki Munehara, and Giacomo Bernardi. 2010. Sympatric speciation in a genus of marine reef fishes (*with cover photo and perspective written by Kathryn Elmer & Axel Meyer*). **Molecular Ecology**. 19(10): 2089-2105.

Publications on the role of Hox gene evolution:

Shannon Barry^G, **Karen D. Crow**. 2017. *HoxA13* and *HoxA11* are associated with specification of novel morphological features in batoids. **EvoDevo** 8:24

Sophie Archambeault^G, Julia Taylor^G, **Karen D. Crow**. 2014 *HoxA* and *HoxD* expression in a variety of vertebrate body plan features reveals an ancient origin for the reverse collinear expression pattern. **EvoDevo**. 5:44 (19 November 2014).

Crow, Karen D., Christopher D. Smith, Jan-Fang Cheng, Günter P. Wagner and Chris T. Amemiya. 2012. An independent genome duplication inferred from *Hox* paralogs in the American paddlefish—a representative basal ray-finned fish and important comparative reference. **Genome Biology and Evolution**. 4(9):825-841.

Crow, Karen D., Chris Amemiya, Jutta Roth and Günter P. Wagner. 2009. Hypermutability of *HoxA13a* and functional divergence from its paralog are associated with the origin of a novel developmental feature in zebrafish and related taxa (Cypriniformes). **Evolution**. 63(6): 1574-1592.

Crow, Karen D., Peter F. Stadler, Vincent J. Lynch, Chris Amemiya, and Günter P. Wagner. 2006. The “fish specific” *Hox* cluster duplication is coincident with the origin of teleosts. **Molecular Biology and Evolution**. 23(1): 121-136.

Metscher, B. D., K. Takahashi, **K. D. Crow**, C. Amemiya, D. F. Nonaka, and G. P. Wagner. 2005. Expression of *Hoxa-11* and *Hoxa-13* in the pectoral fin of a basal ray finned fish, *Polyodon spathula*: implications for the origin of tetrapod limbs. **Evolution and Development**. 7:186-195.

Synergistic Activities

- **Review Editor** for *Frontiers in Ecology and Evolution-Evolutionary Developmental Biology*.
- **Faculty Director** “Margaret Bradbury Memorial Fish Collection (housing over 2000 jars of specimens). Responsibilities include organization, cataloguing, and implementation of an electronic record keeping system. The collection is used to support laboratory and lecture curricula for upper division courses and original research at SFSU, 2007-present.
- **Panelist**: National Science Foundation, IOS Development panel 2016, 2014, 2013, 2012, 2011, REU Biology Directorate 2009, International Division-East Asia programs 2001.
- **Symposium organizer**: *Evolution and morphological diversification of vertebrate appendages* International Congress for Vertebrate Morphology in Prague, Cech Republic, July 2019.
- **Participant**: SFSU Science Education Partnership and Assessment Laboratory (SEPAL) workshop on Biology Education Reform following the guidelines of “Vision and Change in Biology Undergraduate Education-A Call to Action, 2013-2014.
- **Mentor**: Six REU undergraduate participants in the SFSU-BREED program (2009-2014), NSF-RUI supplement for Postdoctoral Fellow Yvette Alva 2012-2013, NIH-IRACDA Scholars in Science (ISIS) Postdoctoral Scholar Betty Booker Fall 2013, Aaron Hardin Fall 2017.