

NICOLE L. CRANE: Biographical Sketch**Address:** Cabrillo College, 6500 Soquel Ave, Aptos CA 95003**Phone/e-mail:** (831) 479-5094 nicrane@cabrillo.edu**Education**

Degree	Institution	Major	Date
M.A. R	University of California, Santa Cruz	Science Education (Research)	2003
M.S	Moss Landing Marine Labs and San Francisco State University	Marine Science	1991
B.A	University of California, Santa Cruz	Biology	1986

Teaching and work experience**Current position: Cabrillo College, since 2005**

Faculty: Natural and Applied Sciences (marine and environmental science, biology)

Other:

2001-2009: Adjunct faculty California State University Monterey Bay/SEA Lab: Director of experiential learning programs for youth: science focus

1995-present: Faculty, Wildlands studies (currently under auspices of California State Univ. Monterey Bay)

1988-present: Biologist/Naturalist/Program Coordinator, Oceanic Society Expeditions

1996-2005: Faculty, Monterey Peninsula College, Biology Department

1997-2003 Founder/Director/ Principal Investigator: Marine Advanced Technology Education Center (National Science Foundation), Monterey Peninsula College

1996-1997: Diving Safety Officer, University of California, Berkeley

1990-1996: Marine Life Refuge Manager/Diving Director, Hopkins Marine Station, Stanford University.

1991-1995: Biologist, Pacific States Marine Fisheries Commission

1988-1991: Scuba Program Coordinator/Instructor, US Army, Fort Ord, CA

Research/program development interests

- Recruitment and retention of underrepresented youth in the sciences (elementary, middle school and college)
- Efficacy of intervention programs to enhance youth interest in sciences
- Role of experiential education in recruitment and retention in the sciences
- Coral reef monitoring and sustainability – community based conservation
- Fish phylogenetics

Professional activities

1998-present: serve on review panels for numerous agencies (National Science Foundation, Dept. of Ed, National Oceanic Atmospheric Administration, Sea Grant and others)

1997-present: workshop participant in several science education/research related workshops aimed at developing and/or improving national and regional programs (Interventions (NIH), IODP education, NSF, NOAA OE and others)

1997-present: Explorers Club:, Fellow National

1999-2003 Advisory board, Monterey Academy of Oceanographic Sciences (high school program)

1993-1999 Board of Directors, Pacific Reef Education Through Research Foundation

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1993-2000 Scientific Advisory Committee, Save the Whales (501 C-3).
1993-1998 UC Berkeley Diving Safety Program review committee and Diving Control Board
1993-1997 Board of Directors, American Academy of Underwater Sciences (AAUS).

Selected grants, awards, and honors received

National Science Foundation. 2008-2010 (Co-PI). Funds to develop a science track for the Digital Bridge Academy, designed for under-prepared college students (community college initiative).

NOAA Ocean Literacy. 2006-2010 (PI). Funds to implement experiential science learning programs tied to National Ocean Literacy Principles (3rd-8th grade initiative). Focus on underrepresented youth

California Sea Grant. 2004-2009 (PI). Funds to implement experiential marine science camps for schools (3rd-8th grade initiative).

National Science Foundation. 2003-2007 (PI). Funds to develop and assess (through hypothesis driven research) experiential learning programs for underrepresented youth (OEDG) (3rd-8th grade initiative).

David and Lucile Packard Foundation. 2003-2005 (PI). Funds to develop and implement activity-based marine science youth programs (3rd-8th grade initiative).

Department of Education. 2002 (PI) Funds to develop experiential learning programs for underrepresented youth

Guest expert on oceans and education: White House, June 2000. Attended an event at the request of President and Mrs. Clinton and the Office of Science and Technology Policy. My focus was on the importance of community colleges to technical (marine science) education and workforce preparation

National Science Foundation (DUE/ATE) 2001 (PI). Funds to implement a training program using new equipment. (community college initiative).

National Science Foundation (DUE/ATE) . 1997-2003 (PI) Marine Advanced Technology Education Center. Funding to develop marine technician training and education programs (National Center of Excellence). (community college initiative).

National Science Foundation (DUE/Ocean Sciences) . 1999 (PI). Marine Advanced Technology Education Center. Supplemental Funding to develop a national internship program. (community college initiative).

Pew Charitable Trusts 1995. Nomination for achievement in marine conservation and education projects.

Certifications

National Association of Underwater Instructors (NAUI) Instructor Trainer
NITROX mixed gas
BLS/CPR Instructor (American Heart Association),
DAN Oxygen Administration Instructor
FAA Private pilot-solo rating

Additional Research Experience

- Informal science learning and the effects on student's attitudes towards science, K-12 and college. 2001-present.
- Fish phylogenetics (1998-present)
- Oceanic Society Expeditions. 1989-1998: Project Director and Principal Investigator for Belize, Honduras and Monterey Bay long-term reef monitoring projects. Scientist on a Longterm photo-identification and behavioral study of Atlantic spotted dolphins, *Stenella frontalis*. Bahamas.
- Population and movement study of prickly sharks, *Echinorhinus cookei*, in the Monterey Submarine Canyon. June 1990-1998. Scientist
- Aquarius Underwater Laboratory (NOAA/NURC). October 1994. Scientist, Aquanaut.
- U.S Fish and Wildlife Service. Subtidal surveys aboard the RV Alpha Helix in the Aleutian Islands, Alaska. May-June 1993. Scientist/technician.
- Gray whale (*Eschrichtius robustus*) sound production in relation to migration patterns and subtidal topography. California coast. 1988-1992. Scientist.
- USAID (U.S. Agency for International Development). Conducted field research for *Leucaena* reforestation in Haiti. June-October 1983. Research Assistant.
- USAID. Designed and tested an oral re-hydration program for malnourished infants, Port-au-Prince, Haiti. June-October 1982. Research Assistant.

Selected papers and technical reports

Crane, N.L and Charlotte Nolan Reyes. In Prep. Factors that enhance recruitment and retention in the sciences: the importance of experiential learning.

Crane, N.L and Charlotte N. Reyes, Understanding Interventions That Promote Recruitment Into the Sciences: The Role of Experiential Science Programs for Youth. Abstract in: 2nd annual conference on Understanding Interventions that Encourage Minorities to Pursue research Careers. May 2-4, 2008 (NIH/ASCB)

Rauri C.K. Bowie, Sophie von der Heyden, Kim Prochazka, Paulette Bloomer, **Nicole Crane**, and Giacomo Bernardi. In Prep (Proceedings of the Royal Society of London). Phylogeographic patterns and cryptic speciation across biogeographic boundaries: The case of South African intertidal klipfishes.

Bernardi, G., Holbrook, S.J., Schmitt, R.J., and **Crane, N.L.** 2003. Genetic evidence for two distinct clades in a French Polynesian population of the coral reef three-spot damselfish *Dascyllus trimaculatus*. Marine Biology 143: 485-490

Bernardi, G., Holbrook, S.J., Schmitt, R.J., **Crane, N.L.**, and DeMartini, E. 2002. Species boundaries, populations, and colour morphs in the coral reef three-spot damselfish (*Dascyllus trimaculatus*) species-complex. Proc. Royal. Soc. London 269:599-605.

Crane N. L, DE Sullivan, J Hall, J Zande (2000). Marine Advanced Technology Education Center: Education and Preparation for careers in ocean science and technology. Proc. Off Shore Technology conf. Conference, Houston TX, May 2000. OTC# 12180.

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Bernardi G.B, and **N.L Crane** (1999). Molecular Phylogeny of the Humbug Damselfishes inferred from mtDNA sequences. *Journal of Fish Biology*, 1999. Vol 54 pg 1210-1217.

Crane N. L et al. 1997. *Critical Issues in Marine Technology Education*. Heritage Press.

Crane N.L. and K Lashkari (1996). Sound production of gray whales along their migration route, a new approach to signal classification. *Journal Acoust. Society Am. (JASA)* 9-96..

Crane N.L and M Paddack (1995). Results of a study on fishery reserves, and establishment of a long-term monitoring project of nearshore reefs in the Monterey Bay National Marine Sanctuary. Report to David and Lucile Packard Foundation and the Monterey Bay National Marine Sanctuary, July 1995.

Dudzinski K.M, T.G Frohoff and **N.L Crane** (1995). Occurrence and behavior of a lone, sociable, female dolphin, *T. truncatus*, off the coast of Belize, C.A. *Aquatic Mammals journal* 21-2, pgs 149-153.

Heine J.N. and **N.L Crane**. (1993) Editors. *Proc. of the 1993 AAUS Symposium, Diving for Science*.

Crane N.L and J.N Heine. (1993). Subtidal observations of the prickly shark, *Echinorhinus cookei*, in Monterey Bay. *Calif. Fish and Game* 78:(4) 166-168.