

## JEFFREY A. CROOKS

Tijuana River National Estuarine Research Reserve  
and the  
Southwest Wetlands Interpretive Association  
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### EDUCATION

**Scripps Institution of Oceanography, University of California, San Diego, 1992-1998**  
Ph.D., Oceanography.  
**San Diego State University, 1988-1992**  
M.S., Biology.  
**Colorado State University, 1984-1987**  
B.S., Zoology.

### RESEARCH EXPERIENCE

**Research Coordinator:** Tijuana River National Estuarine Research Reserve, 2002 - present

- Assessing the effects and management of invasive species in a Marine Protected Area.
- Implementing the reserve's research, monitoring, and restoration program.

**Workgroup member:** National Center for Ecological Analysis and Synthesis, 2004-present

- Characterizing and modeling the impacts of invasive ecosystem engineers

**Visiting Scientist:** Romberg Tiburon Center, San Francisco State University, 2000-2002

- Analyzed invasion patterns in San Francisco Bay fouling communities, with comparisons to systems on the East and West coasts of the United States and Australia.
- Tested the effects of copper on invasibility of fouling communities.

**Postdoctoral Fellow:** Smithsonian Environmental Research Center, 1999-2002 (advisor: Dr. G. Ruiz)

- Analyzed patterns and effects of species invasions in Chesapeake Bay fouling communities.
- Reviewed of the role of introduced ecosystem engineers.

**Sea Grant Trainee:** Scripps Institution of Oceanography, 1998 (supervisor: Dr. L. Levin)

- Conducted field research assessing the effects of the exotic salt-marsh burrowing isopod *Sphaeroma quoyanum* in California wetlands.

**Doctoral Research:** Scripps Institution of Oceanography, 1992-1998 (advisor: Dr. L. Levin)

- Examined the role of exotic species, with emphasis on the effects of habitat modification by the introduced mussel, *Musculista senhousia*, in intertidal and subtidal habitats.
- Examined the causes and consequences of lag times in explosions of exotics.

**Research Assistant:** Scripps Institution of Oceanography, 1992-1997 (supervisor: Dr. L. Levin)

- Conducted lab and field research on salt marsh ecosystems.
- Participated in oceanographic cruises examining continental slope benthic communities

**Research Associate:** Pacific Estuarine Research Laboratory, 1989-1992 (supervisor: Dr. J. Zedler)

- Conducted field and lab research on salt marsh invertebrate and fish populations.

**Master's Research:** San Diego State University, 1988-1992 (advisor: Dr. D. Dexter)

- Conducted field and lab research on the population biology of the introduced mussel, *Musculista senhousia*, in Mission Bay.

### TEACHING EXPERIENCE

**Part-Time Faculty:** Oceanography (with laboratory), University of San Francisco, 2001-2002  
**Guest Lecturer:** Ecology and oceanography courses at Scripps Institution of Oceanography, Point Loma Nazarene University, and Mira Costa College, 1992 - present  
**Co-organizer:** Graduate seminar in Experimental Design, Scripps Institution of Oceanography, 1996  
**Teaching Assistant and Guest Lecturer:** Marine Ecology, University of California, San Diego, 1993  
**Teaching Assistant:** Evolution and Diversity of Animals Lab, San Diego State University, 1990-1991  
**Teaching Assistant:** General Biology Lab, San Diego State University, 1988-1990

## SUPERVISORY EXPERIENCE

**Graduate Student Committees:** San Diego State University, 2004 - present

**Supervisor:** Tijuana River National Estuarine Research Reserve, 2002 - present

- Supervision of research assistants, student interns, and volunteers

**Supervisor:** Romberg Tiburon Center, 2000 - 2002

- Supervision of full-time research assistant, student interns, and volunteers

**Diploma Thesis Co-Advisor:** 1998-1999

- Co-advised Thesis project for a student at Eidgenössische Technische Hochschule, Switzerland.

**Supervisor:** Scripps Institution of Oceanography and San Diego State University, 1992-1998

- Supervised undergraduate students conducting for-credit Independent Research projects.

## MANAGEMENT AND POLICY EXPERIENCE

**Research Coordinator:** Tijuana River National Estuarine Research Reserve, 2002 – present

- Includes participation in numerous workgroups and technical advisory committees

**Member:** Ballast Outreach Advisory Team, 2000 - 2002

**Invited Participant:** National Invasive Species Act Reauthorization Conference, 2001

**Boardmember, City of San Diego Wetlands Advisory Board (Mayoral Appointment):** 1997-1999

**Invited Participant:** U.S. Fish and Wildlife Workshop on Marine Bioinvasions, 1998

**Invited Participant:** National Forum on Species Invasions in U.S. Marine and Fresh Waters, 1996

## PROFESSIONAL SERVICES

**Proposal Review:** 1994-present

- National Science Foundation and Sea Grant.

**Journal Article Review:** 1994-present

- Includes Biological Invasions, Bulletin of Marine Science, Diversity and Distributions, Ecological Applications, Estuaries, Estuarine Coastal & Shelf Science, Journal of the Marine Biological Association of the UK, Marine Ecology Progress Series, and Sarsia

**Curricular Group Student Representative:** Scripps Institution of Oceanography, 1994-1997

## GRANTS, AWARDS, AND FELLOWSHIPS

**Restoration of High Salt Marsh and Upland Transition Zone in the Tijuana River Estuary:** Southern California Wetlands Recovery Project: (\$20,000), 2004-2005

**The Invasion and Impacts of Tamarisk in Tijuana Estuary Salt Marshes and Ecosystem Recovery After its Removal:** California Sea Grant, with D. Talley and L. Levin (\$190,000), 2004-2006

**Broad-Scale Non-Indigenous Species Monitoring along the West Coast in National Marine Sanctuaries and National Estuarine Research Reserves:** National Fish and Wildlife Foundation, with G. Ruiz et al. (\$189,000), 2003-2005

**Quantitative Analysis of Spatial Patterns of Marine Invasions for North America - Establishing a National Baseline & Database:** National Sea Grant (\$300,000; with G. Ruiz, A. Hines, A.W. Miller), 2003 - 2005

**Experimental Eradication of an Invasive Snail in San Francisco Bay:** NOAA, with G. Ruiz, A.W. Miller, R. Bellmer, J. Brown (\$90,000), 2001 - 2002

**Ballast Water and Fouling Community Study:** Port of Oakland, with G. Ruiz (\$200,000), 2000 - 2002

**Understanding Patterns and Effects of Nonindigenous Species on Multiple Spatial Scales - A Quantitative and Comparative Approach:** National Sea Grant, with G. Ruiz, J. Carlton, A. Hines (\$300,000), 2000 - 2002

**Contrasting Effects of Ecosystem Alteration by Two Exotic Wetland Invertebrates:** National Sea Grant; with L. Levin, T. Talley (\$147,000), 1998-2000

**Smithsonian Institution Post-Doctoral Fellowship:** 1999

**Smithsonian Marine Station Post-Doctoral Fellowship:** (declined), 1999

**E.W. Scripps Fellowship:** Scripps Institution of Oceanography, 1996

**Japan Society for the Promotion of Science:** Short-Term Invitational Fellowship, 1996

**PADI Foundation Fellowship:** (\$3,000), 1993

**Mildred Mathias Grant:** University of California Natural Reserve System (\$2,000), 1992

**Mabel Myers Scholarship:** San Diego State University (\$500), 1992

**President's Scholarship:** Colorado State University (\$500), 1984

## RESEARCH INTERESTS

Wetlands ecology, invasion biology, historical ecology of urbanized systems, experimental design and statistics

## SELECTED PRESENTATIONS

- 2005 Ecological Society of America
- 2004 International Conference on Assessment and Control of Bioinvasion Risks (Invited)
- 2004 Ecological Society of America (Invited)
- 2004 California Estuarine Research Society (Invited)
- 2003 California Estuarine Research Society (Invited)
- 2003 Scripps Institution Seminar Series (Invited)
- 2003 Marine Bioinvasions Conference
- 2002 Southern California Academy of Sciences (Invited)
- 2002 Invasion Symposium – Japan Ecological Society Kanto Division (Invited)
- 2001 National Invasive Species Act Reauthorization Conference (Invited)
- 2001 Marine Conservation Biology Meeting
- 2000 Benthic Ecology Meeting
- 2000 Institute for Ecosystem Studies Seminar Series
- 2000 Romberg Tiburon Center Seminar Series
- 1999 American Society of Limnology and Oceanography Meeting
- 1999 Western Society of Malacologists Meeting (Invited)
- 1999 Society for Conservation Biology Meeting
- 1999 Marine Bioinvasions Conference
- 1998 United States Fish & Wildlife Forum (Invited)
- 1998 University of Tokyo Ocean Research Institute Seminar Series (Invited)
- 1998 Western Society of Naturalists Meeting
- 1997 American Fisheries Society Meeting (Invited)
- 1997 American Society of Limnology and Oceanography Meeting
- 1997 Benthic Ecology Meeting
- 1997 Western Society of Naturalists Meeting
- 1997 Society for Conservation Biology Meeting
- 1996 American Society of Limnology and Oceanography / American Geophysical Union Meeting
- 1996 Ecological Society of America Meeting
- 1996 Western Society of Naturalists Meeting
- 1995 Benthic Ecology Meeting
- 1991 Western Society of Naturalists Meeting

## PUBLICATIONS

- Crooks, J.A. 1996. The population ecology of an exotic mussel, *Musculista senhousia*, in a southern California bay. *Estuaries* 19(1): 42-50.
- Levin, L., J. Gage, P. Lamont, L. Cammidge, C. Martin, A. Patience, and J. Crooks. 1997. Infaunal community structure in a low oxygen, organic-rich habitat on the Oman continental slope, NW Arabian Sea. Pages 223-230 in *Responses of Marine Organisms to Their Environments*. Proceedings of the 30th Marine Biology Symposium.
- Crooks, J.A. 1998. Habitat alteration and community-level effects of an exotic mussel, *Musculista senhousia*. *Marine Ecology Progress Series* 162: 137-152.
- Crooks, J.A. and M.E. Soulé. 1999. Lag times in population explosions of invasive species: Causes and implications. Pages 103-125 in O.T. Sandlund, P.J. Schei, and A. Viken (editors). *Invasive Species and Biodiversity Management*, Kluwer Academic Publishers, The Netherlands.
- Crooks, J.A. and H.S. Khim. 1999. Architectural vs. biological effects of a habitat-altering, exotic mussel, *Musculista senhousia*. *Journal of Experimental Marine Biology and Ecology* 240: 53-75.
- Crooks, J.A. 2000. Scale-dependent effects of an introduced, habitat-modifying mussel in an urbanized wetland. Pages 154-156 in J. Pederson (editor). *Proceedings of the 1<sup>st</sup> National Conference on Marine Bioinvasions*.
- Dexter, D.M. and J.A. Crooks. 2000. Subtidal benthic communities and the invasion of an exotic mussel in an urbanized southern California bay: A long-term history. *Bulletin of the Southern California Academy of Sciences* 99: 128-146.
- Crooks, J.A. 2001. Assessing invader effects within changing ecosystems: Historical and experimental perspectives on the role of an exotic mussel in an urbanized lagoon. *Biological Invasions* 3:23-36.

- Crooks, J.A. 2001. Oh what a tangled web ... The invasion of the mussel *Musculista senhousia* into marine ecosystems. *Dreissena* 11: 1-5.
- Ruiz, G.M. and J.A. Crooks. 2001. Marine invaders: Patterns, effects, and management of non-indigenous species. Pages 3-17 in P. Gallagher and L. Bendell-Young (editors). *Waters in Peril*, Kluwer Academic Publishers.
- Talley, T.S., J.A. Crooks and L.A. Levin. 2001. Habitat utilization and alteration by the burrowing isopod, *Sphaeroma quoyanum*, in California salt marshes. *Marine Biology* 138: 561-573.
- Crooks, J.A. 2002. Characterizing the consequences of invasions: The role of introduced ecosystem engineers. *Oikos* 97: 153-166.
- Crooks, J.A. 2002. Predators of the invasive mussel, *Musculista senhousia*. *Pacific Science* 56: 49-56.
- Crooks, J.A. 2002. The process of biological invasion: The arrival, establishment, and integration of exotic species into ecosystems. *Bulletin of the Japan Ecological Society, Kanto Division* 50: 15-22.
- Crooks, J.A. 2003. Restoration of the tidal wetlands at the Tijuana River National Estuarine Research Reserve. *Bight Bulletin* 6: 4-8.
- Crooks, J.A. 2005. Lag times and exotic species: the ecology and management of biological invasions in slow motion. *Ecoscience* 12: 316-329.
- Crooks, J.A. in press. *Musculista senhousia*. in P. D. Boersma, S. Reichard, A. Van Buren (editors). *100 Invasives of the Pacific Northwest*.
- Crooks, J. A. and A. Suarez, in press. Hyperconnectivity, invasive species, and the breakdown of natural barriers to dispersal. in K. R. Crooks & M. A. Sanjayan (eds.). *Connectivity conservation: Maintaining connections for nature*.
- Crooks, J.A. in press. The arrival, establishment, and integration of an invasive marine mussel into foreign ecosystems. in the *Proceedings of the International Conference on Assessment and Control of Invasion Risks*. IUCN Press.
- Crooks, J.A. submitted. Ecosystem-level effects: invaders as ecosystem engineers. In G. Rilov and J.A. Crooks (editors). *Marine Bioinvasions: Ecological, Conservation, and Management Perspectives*. Springer.
- Rilov, G. and J.A. Crooks. In prep. *Marine Bioinvasions: Ecological, Conservation, and Management Perspectives*. Springer.