

**RUSSELL J. SCHMITT**  
**Curriculum Vitae**  
**January 2007**

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**Education**

B.A. (Environmental Biology); University of Colorado, Boulder, Colorado; 1972  
M.S. (Marine Science); University of the Pacific, Stockton, California; 1975  
(Advisor: S. Obrebski).  
Ph.D. (Biology); University of California, Los Angeles, California; 1979  
(Advisor: R.R. Vance)  
Post-Doctoral Fellow; University of California, Santa Barbara, California; 1979-80  
(Advisor: J.H. Connell)

**Academic Employment**

Professional Researcher, Marine Science Institute, UC Santa Barbara; 1981 - 93  
Associate Professor, Department of Ecology, Evolution & Marine Biology, UC Santa  
Barbara; 1993 - 95  
Professor, Department of Ecology, Evolution and Marine Biology, UC Santa Barbara;  
1995 - present

**Current Administrative Positions**

Director, Coastal Research Center, Marine Science Institute, UCSB; 1987 - present  
Program Director, Minerals Management Service - University of California Coastal  
Marine Institute Program; 1994 - present  
Program Director, Coastal Toxicological Lead Program, UC Toxic Substances Teaching  
& Research Program; 1991-2007  
Lead PI; Moorea Coral Reef Long Term Ecological Research Program; 2004 - present

**Honors, Awards**

UC Santa Barbara Academic Senate Distinguish Teaching Award; 2004  
Eminent Visiting Ecologist, Kellogg Biological Station, Michigan State University; 1991  
George Mercer Award, Ecological Society of America; 1989

**Teaching Assignments**

Applied Marine Ecology (EEMB / ES 152; Winter Quarter annually)  
Aquatic Community Ecology (EEMB 142 A; Fall Quarter annually)  
Methods in Community Ecology (EEMB 142 AL; Fall Quarter annually)  
Ecological Toxicology (EEMB 595 ET; 2 quarters annually)  
Ecological Research Reviews (EEMB 595 RR; two quarters annually)

**Students Mentored** (since 1994)

*Post-Doctoral:* 7

*Ph.D.:* Number graduated: 5; Current number: 2

*M.A.:* Number graduated: 5; Current number: 1

## **Extramural Research Grants**

### ***Current Research Awards:***

#### *Principal Investigator on:*

National Science Foundation Moorea Coral Reef LTER (OCE-04-17412; Lead PI) 2004-2010

National Science Foundation (OCE-99-10677; PI with S.J. Holbrook) 2000 – 2007

National Science Foundation (OCE-05-1556; PI with S.J. Holbrook) 2005-2007

W.M. Keck Foundation (PI with E. Hu) 2002-2007

Gordon and Betty Moore Foundation (PI with S.J. Holbrook) 2004-2007

#### *Associate Investigator on:*

National Science Foundation Santa Barbara Coastal LTER (OCE-06-20276; 1 of 16 associate investigators) 2006-2012

### ***Current Research & Research Training Programs Administered as PI:***

MMS/UC Coastal Marine Institute Program; 1995 - 2007

MMS Biotechnology Award, 2000-2007

Coastal Toxicology Lead Component, UC Toxic Substances Program; 1987 - 2008

## **UC Committees** (current)

### ***UC Systemwide***

Chair, UCOP California Sea Grant Oversight Committee (2000-present; chair since 2002)

### ***UCSB Campus***

Chancellor's Committee for North Campus Development (1999-present)

Member, Interdisciplinary search committee for Biological Systems Engineering Endowed Chairs (2004-2006)

### ***Department of Ecology, Evolution and Marine Biology***

EEMB Building Renovation Committee (Chair, 2000-present)

Resources Committee (Chair, 2004-present)

### ***Marine Science Institute***

MSI Advisory Committee (Ex-Officio)

Member, UCSB Council on Biomolecular Engineering Science and Technology

## **Professional Activities**

*Scientific Advisor / Consultant for:* US Department of Justice; Energy Division, Department of Resource Management, County of Santa Barbara; California Coastal Commission's Marine Review Committee; Scientific Advisory Panel (SAP) of the California Coastal Commission San Onofre Nuclear Generating Station Mitigation Program; National Resource Defense Council

*Testimony Presented to:* U.S. House of Representatives Subcommittee on Coast Guard and Navigation (once); Presidential Taskforce on Outer Continental Shelf Oil and Gas Development (once); California State Lands Commission (six times); Santa Barbara Board of Supervisors (four times); California State Assembly Select Committee on Oil Spill Prevention and Response Preparedness (once)

*Scientific Workshops / Symposia Organized:* Effects of Offshore Oil and Gas Operations on Hard Substrate Benthic Communities, for MMS and California State Lands Commission; Status and Effects of Toxicants in Coastal Waters of California, for Southern California Academy of Sciences; Marine Birds and Mammals of Southern California: Strategies and Methods for Population Surveys, for MMS; Design of Environmental Impact Assessment Studies, for 2nd Ecology of Temperate Reefs Conference; Abandonment and Removal of Offshore Oil Platforms, for MMS and California State Lands Committee; Decommissioning of Oil and Gas Facilities Offshore California: Recent Experiences and Future Deepwater Challenges, for MMS and State Lands Commission; Restoring and Sustaining Diversity of Tropical Pacific Coral Reef Fish Communities: Social Goals and

Scientific Constraints, for CRIOBE & Gump Research Station, UC Berkeley; Moorea, FP.  
*Ad Hoc Subject Editor for:* Ecology / Ecological Monographs (1998-2000)  
*NSF Panel Member:* Biological Oceanography, National Science Foundation (1994, 1996, 1998)

### Publications

1. Vance, R.R. and R.J. Schmitt. 1979. The effect of the predator-avoidance behavior of the sea urchin, *Centrostephanus coronatus*, on the breadth of its diet. *Oecologia* 44: 21-25.
2. Schmitt, R.J. 1979. Mechanisms and timing of egg capsule release by the littoral fringe periwinkle *Littorina planaxis* (Gastropoda: Prosobranchia). *Marine Biology* 50: 359-366.
3. Tegner, M.J., J.H. Connell, R.W. Day, R.J. Schmitt, S. Schroeter and J. Richards. 1980. Experimental abalone enhancement program. Pp. 114-118. In: California Sea Grant Report No. R-CSGCP-004.
4. Schmitt, R.J. 1981. Contrasting anti-predator defenses of sympatric marine gastropods (Trochidae). *Journal of Experimental Marine Biology and Ecology* 54: 251-263.
5. Schmitt, R.J. 1982. Consequences of dissimilar defenses against predation in a subtidal marine community. *Ecology* 63: 1588-1601.
6. Schmitt, R.J. and J.A. Coyer. 1982. The foraging ecology of sympatric marine fish in the genus *Embiotoca* (Embiotocidae): importance of foraging behavior in prey size selection. *Oecologia* 55: 369-378.
7. Schmitt, R.J. and S.W. Strand. 1982. Cooperative foraging by yellowtail, *Seriola lalandei*, on two species of fish prey. *Copeia* 1982: 714-717.
8. Schmitt, R.J. and J.H. Connell. 1982. Field evaluation of a test planting of juvenile red abalone: performance two years after outplanting. Pp. 172-176. In: California Sea Grant Report no. R-CSGCP-013.
9. Schmitt, R.J. and J.A. Coyer. 1983. Variation in surfperch diets between allopatry and sympatry: circumstantial evidence for competition. *Oecologia* 58: 402-410.
10. Schmitt, R.J., C.W. Osenberg and M.G. Bercovitch. 1983. Mechanisms and consequences of shell fouling in the kelp snail, *Norrisia norrisi* (Sowerby)(Trochidae): indirect effects of octopus drilling. *Journal of Experimental Marine Biology and Ecology* 69: 267-281.
11. Holbrook, S.J. and R.J. Schmitt. 1984. Experimental analyses of patch selection by foraging black surfperch (*Embiotoca jacksoni* Agassiz). *Journal of Experimental Marine Biology and Ecology* 79: 39-64.
12. Schmitt, R.J. and S.J. Holbrook. 1984. Gape-limitation, foraging tactics and prey size selectivity of two microcarnivorous species of fish. *Oecologia* 63: 6-12.
13. Schmitt, R.J. and S.J. Holbrook. 1984. Ontogeny of prey selection by black surfperch, *Embiotoca jacksoni* (Pisces: Embiotocidae): the roles of fish morphology, foraging behavior, and patch selection. *Marine Ecology, Progress Series* 18: 225-239.
14. Schmitt, R.J. and S.J. Holbrook. 1985. Patch selection by juvenile black surfperch (Embiotocidae) under variable risk: interactive influence of food quality and structural complexity. *Journal of Experimental Marine Biology and Ecology* 85: 269-285.
15. Schmitt, R.J. 1985. Competitive interactions of two mobile species of prey in a patchy environment. *Ecology* 66: 950-958.
16. Holbrook, S.J., R.J. Schmitt, and J.A. Coyer. 1985. Size-related dietary patterns of sympatric adult surfperch (Embiotocidae). *Copeia* 1985: 986-994.

17. Schmitt, R.J. and S.J. Holbrook. 1986. Seasonally fluctuating resources and temporal variability of interspecific competition. *Oecologia* 69: 1-11.
18. <sup>a</sup>Holbrook, S.J. and R.J. Schmitt. 1986. Food acquisition by competing surfperch on a patchy environmental gradient. *Environmental Biology of Fishes* 16: 135-146.
19. <sup>b</sup>Schmitt, R.J. 1987. Indirect interactions between prey: apparent competition, predator aggregation and habitat segregation. *Ecology* 68: 1887-1897.
20. Holbrook, S.J. and R.J. Schmitt. 1988. The combined effects of predation risk and food reward on patch selection. *Ecology* 69: 125-134.
21. Holbrook, S.J. and R.J. Schmitt. 1988. Effects of predation risk on forager behavior: mechanisms altering patch choice. *Journal of Experimental Marine Biology and Ecology* 121: 151-163.
22. Holbrook, S.J. and R.J. Schmitt. 1989. Resource overlap, prey dynamics and the strength of interspecific competition. *Ecology* 70: 1943-1953.
23. Ebeling, A.W., S.J. Holbrook and R.J. Schmitt. 1990. Temporally concordant structure of a fish assemblage: bound or determined? *American Naturalist* 135: 63-73.
24. Schmitt, R.J. and S.J. Holbrook. 1990. Density compensation by surfperch released from competition. *Ecology* 71: 1653-1665.
25. Holbrook, S.J., M.H. Carr, R.J. Schmitt and J.A. Coyer. 1990. The effect of giant kelp on local abundance of demersal fishes: the importance of ontogenetic resource requirements. *Bulletin of Marine Science* 47: 104-114.
26. Schmitt, R.J. and S.J. Holbrook. 1990. Contrasting effects of giant kelp on dynamics of surfperch populations. *Oecologia* 84: 419-429.
27. <sup>c</sup>Holbrook, S.J., R.J. Schmitt and R.F. Ambrose. 1990. Biogenic habitat structure and characteristics of temperate reef fish assemblages. *Australian Journal of Ecology* 15: 489-503.
28. Holbrook, S.J. and R.J. Schmitt. 1992. Causes and consequences of dietary specialization in surfperch: patch choice and intraspecific competition. *Ecology* 73: 402-412.
29. Osenberg, C.W., S.J. Holbrook and R.J. Schmitt. 1992. Implications for the design of environmental assessment studies. Pp. 75-89 In: P.M. Grifman and S.E. Yoder (eds.), *Perspectives on the Marine Environment*. USC Sea Grant Pub. No. USCSG-TR-01-92.
30. Raimondi, P.R. and R.J. Schmitt. 1992. Effects of produced water on settlement of larvae: field tests using red abalone. Pp. 415-430 In: J. Ray and F.R. Englehardt (eds.), *Produced Water: Technological / Environmental Issues and Solutions*, Plenum Press.
31. Krause, P.R., C.W. Osenberg and R.J. Schmitt. 1992. Effects of produced water on early life stages of a sea urchin: stage-specific responses and delayed expression. Pp. 431-444 In: J. Ray and F.R. Englehardt (eds.), *Produced Water: Technological / Environmental Issues and Solutions*. Plenum Press, New York.

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<sup>a</sup> Reprinted as a book chapter in: *Contemporary Studies on Fish Feeding*. 1986. C.A. Simenstad and G.M. Cailliet (eds.), Junk Publishers, Boston

<sup>b</sup> Presented 1989 Mercer Award for Research Excellence in the field of Ecology by the Ecological Society of America

<sup>c</sup> Reprinted as book chapter in: *Ecology of Temperate Reefs*. 1991. M.J. Keough, G. Quinn and A. King (eds.), Blackwell Scientific Publications, Melbourne

32. Osenberg, C.W., R.J. Schmitt, S.J. Holbrook and D. Canestro. 1992. Spatial scale of ecological effects associated with an open coast discharge of produced water. Pp. 387-402 In: J. Ray and F.R. Englehardt (eds.), *Produced Water: Technological / Environmental Issues and Solutions*, Plenum Press, New York.
33. Schmitt, R.J. 1993. Geographic variation in population characteristics of an intertidal gastropod: demographic differences or settlement history? Pp. 257-271 In: F.E. Hochberg (ed.), *Proceedings of the Third Channel Islands Symposium*, Santa Barbara Museum of Natural History.
34. Holbrook, S.J., S.L. Swarbrick, R.J. Schmitt and R.F. Ambrose. 1993. Reef architecture and reef fish: correlates of population densities with attributes of subtidal rocky environments. Pp. 99-106 In: C.N. Battershill, D.R. Shiel, G.P. Jones, R.G. Creese and A.B. MacDiarmid (eds.), *Proceedings of the Second Temperate Reef Ecology Symposium*, Conservation Sciences Publication, Department of Conservation, Wellington, New Zealand.
35. Osenberg, C.W. and R.J. Schmitt. 1994. Detecting human impacts in marine habitats. *Ecological Applications* 4: 1-2.
36. <sup>d</sup>Osenberg, C.W., R.J. Schmitt, S.J. Holbrook, K.E. Abu-Saba and A.R. Flegal. 1994. Detection of environmental impacts: natural variability, effect size and power analysis. *Ecological Applications* 4: 16-30.
37. Holbrook, S.J., M.J. Kingsford, R.J. Schmitt and J.S. Stephens Jr. 1994. Spatial and temporal patterns in assemblages of marine reef fish. *American Zoologist* 34: 463-475.
38. Holbrook, S.J. and R.J. Schmitt. 1995. Compensation in resource use by foragers released from interspecific competition. *Journal of Experimental Marine Biology and Ecology* 185: 219-233.
39. Schmitt, R.J. and C.W. Osenberg. 1996. *Detecting Ecological Impacts: Concepts and Applications in Coastal Habitats*. Academic Press, San Diego. 401 pp.
40. Osenberg, C.W. and R.J. Schmitt. 1996. Detecting ecological impacts caused by human activities. Pp. 3-16 In: R.J. Schmitt and C.W. Osenberg (eds.), *Detecting Ecological Impacts: Concepts and Applications in Coastal Habitats*. Academic Press, San Diego.
41. Osenberg, C.W., R.J. Schmitt, S.J. Holbrook, K.E. Abu-Saba and A.R. Flegal. 1994. Detection of environmental impacts: natural variability, effect size and power analysis. Pp. 83-108 In: R.J. Schmitt and C.W. Osenberg (eds.), *Detecting Ecological Impacts: Concepts and Applications in Coastal Habitats*. Academic Press, San Diego.
42. Schmitt, R.J., C.W. Osenberg, W.J. Douros and J. Chesson. 1996. The art and science of administrative environmental impact assessment. Pp. 281-293 In: R.J. Schmitt and C.W. Osenberg (eds.), *Detecting Ecological Impacts: Concepts and Applications in Coastal Habitats*. Academic Press, San Diego.
43. Ambrose, R.F., R.J. Schmitt and C.W. Osenberg. 1996. Environmental impacts predicted and observed: can we foretell ecological change? Pp. 345-369 In: R.J. Schmitt and C.W. Osenberg (eds.), *Detecting Ecological Impacts: Concepts and Applications in Coastal Habitats*. Academic Press, San Diego.

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<sup>d</sup> Reprinted as book chapter in: *Detecting Ecological Impacts: Concepts and Application In Coastal Habitats*. 1996. R.J. Schmitt and C.W. Osenberg (eds.), Academic Press, San Diego

44. Canestro, D., P.T. Raimondi, D.C. Reed, R.J. Schmitt and S.J. Holbrook. 1996. A study of methods and techniques for detecting ecological impacts. Pp. 53-76 In: *Methods and Techniques of Underwater Research*. Proceedings of the American Academy of Underwater Scientists Symposium, Nahant, MA.
45. Schmitt, R.J. and S.J. Holbrook. 1996. Local-scale patterns of larval settlement in a planktivorous damselfish - do they predict recruitment? *Journal of Marine and Freshwater Research* 47: 449-463.
46. Holbrook, S.J. and R.J. Schmitt. 1996. On the dynamics and structure of reef fish communities: are resources tracked? Pp. 9-48 In: M.L. Cody and J.A. Smallwood (eds.) *Long-term Studies of Vertebrate Communities*. Academic Press, Inc.
47. Schmitt, R.J. 1996. Exploitation competition in mobile grazers: trade-offs in use of a limited resource. *Ecology* 77: 407-425.
48. Holbrook, S.J. and R.J. Schmitt. 1997. Settlement patterns and process in a coral reef damselfish: *in situ* nocturnal observations using infrared video. *Proceedings of the VIIIth International Coral Reef Symposium 2*: 1143-1148.
49. Holbrook, S.J. and R.J. Schmitt. 1998. Have field experiments aided in the understanding of abundance and dynamics of reef fishes? Pp.152-169 In: W.J. Resetarits and J. Bernado (eds.) *Experimental Ecology: Issues and Perspectives*. Oxford University Press.
50. Holbrook, S.J., R.J. Schmitt and J.S. Stephens Jr. 1997. Changes in an assemblage of temperate reef fishes associated with a climate shift. *Ecological Applications* 7: 1299-1310.
51. Schmitt, R.J. and S.J. Holbrook. 1999. Temporal patterns of settlement of three species of damselfish of the genus *Dascyllus* (Pomacentridae) in the coral reefs of French Polynesia. Pp. 537-551 In: B. Séret and J.-Y. Sire (eds.) *Proceedings of the 5th Indo-Pacific Fish Conference, Nouméa, 1997*. Paris: Soc. Fr. Ichtyol.
52. Holbrook, S.J. and R.J. Schmitt. 1999. *In situ* nocturnal observations of reef fishes using infrared video. Pp. 805-812 In: B. Séret and J.-Y. Sire (eds.) *Proceedings of the 5th Indo-Pacific Fish Conference, Nouméa, 1997*. Paris: Soc. Fr. Ichtyol.
53. Schmitt, R.J. and S.J. Holbrook. 1999. Settlement and recruitment of three damselfish species: larval delivery and competition for shelter space. *Oecologia* 118: 76-86.
54. Schmitt, R.J. and S.J. Holbrook. 1999. Mortality of juvenile damselfish: implications for assessing processes that determine abundance. *Ecology* 80: 35-50.
55. Schmitt, R.J., S.J. Holbrook and C.W. Osenberg. 1999. Quantifying the effects of multiple processes on local abundance: a cohort approach for open populations. *Ecology Letters* 2: 294-303.
56. Wilson, W.G., C.W. Osenberg, R.J. Schmitt and R. Nisbet. 1999. Complementary foraging behavior allows coexistence of two grazers. *Ecology* 80: 2358-2372.
57. Holbrook, S.J., G.E. Forrester and R.J. Schmitt. 2000. Spatial patterns in abundance of a damselfish reflect availability of suitable habitat. *Oecologia* 122: 109-120.
58. Schmitt, R.J. and S.J. Holbrook. 2000. Habitat-limited recruitment of coral reef damselfish. *Ecology* 81: 3479-3494.
59. Bernardi, G., S.J. Holbrook and R.J. Schmitt. 2001. Gene flow in the coral reef three-spot dascyllus, *Dascyllus trimaculatus*, at three spatial scales. *Marine Biology* 138: 457-465.
60. Schmitt, R.J. and S.J. Holbrook. 2002. Correlates of spatial variation in settlement of two tropical damselfishes. *Marine and Freshwater Research* 53: 329-337.

61. Holbrook, S.J., A. Brooks and R.J. Schmitt. 2002. Predictability of fish assemblages on coral patch reefs. *Marine and Freshwater Research* 53: 181-188.
62. Brooks, A.J., R.J. Schmitt and S.J. Holbrook. 2002. Declines in regional fish populations: have species responded similarly to environmental change? *Marine and Freshwater Research* 53: 189-198.
63. Schmitt, R.J. and S.J. Holbrook. 2002. Spatial variation in concurrent settlement of three damselfishes: relationships with near-field current flow. *Oecologia* 131: 391-401.
64. Bernardi, G., S.J. Holbrook, R.J. Schmitt, N.L. Crane and E. DeMartini. 2002. Species boundaries, populations, and color morphs in the coral reef three-spot damselfish (*Dascyllus trimaculatus*) species-complex. *Proceedings of the Royal Society of London B* 269: 599-605.
65. Bolker, B.M., C.M. St. Mary, C.W. Osenberg, R.J. Schmitt and S.J. Holbrook. 2002. Management at a different scale: marine ornamentals and local processes. *Bulletin of Marine Science* 70: 733-748.
66. Osenberg, C.W., C.M. St. Mary, R.J. Schmitt, S.J. Holbrook, P. Chesson and B. Byrne. 2002. Rethinking ecological inference: density-dependence in reef fishes. *Ecology Letters* 5: 715-721.
67. Holbrook, S.J. and R.J. Schmitt. 2002. Competition for shelter space causes density-dependent predation mortality in damselfishes. *Ecology* 83: 2855-2868.
68. Holbrook, S.J., A.J. Brooks, and R.J. Schmitt. 2002. Variation in structural attributes of patch-forming corals and in patterns of abundance of associated fishes. *Marine and Freshwater Research* 53: 1045-1053.
69. Holbrook, S.J. and R.J. Schmitt. 2003. Spatial and temporal variation in mortality of newly settled damselfishes: patterns, causes and co-variation with settlement. *Oecologia* 135: 532-541.
70. Bernardi, G., S.J. Holbrook, R.J. Schmitt and N.L. Crane. 2003. Long-distance dispersal in an edge population of the coral reef three-spot damselfish *Dascyllus trimaculatus*. *Marine Biology* 143: 485-490.
71. Schmitt, R.J. and S.J. Holbrook. 2003. Mutualism can mediate competition and promote coexistence. *Ecology Letters* 6: 898-902.
72. Holbrook, S.J. and R.J. Schmitt. 2004. Population dynamics of a damselfish: effects of a competitor that also is an indirect mutualist. *Ecology* 85: 979-985.
73. Holbrook, S.J. and R.J. Schmitt. 2005. Growth, reproduction and survival of a tropical sea anemone (Actiniaria): benefits of hosting anemonefish. *Coral Reefs* 24: 67-73.
74. Holbrook, S.J., A.J. Brooks and R.J. Schmitt. 2006. Relationships between live coral cover and reef fishes: implications for predicting effects on environmental disturbances. *Proceedings of the 10th International Coral Reef Symposium*, 241-249.
75. Schmitt, R.J. and S.J. Holbrook. 2006. Developmental delays, recruitment storage and adult attrition rates in local populations of a tropical damselfish. *Proceedings of the 10th International Coral Reef Symposium*, 232-240.
76. Stewart, H.L., S.J. Holbrook, R.J. Schmitt and A.J. Brooks. 2006. Symbiotic crabs maintain coral health by clearing sediments. *Coral Reefs* 25: 609-615.
77. Thompson, A.R., R.M. Nisbet and R.J. Schmitt. 2006. Dynamics of mutualist populations that are demographically open. *Journal of Animal Ecology* 75: 1239-1251.

78. Brooks, A.J., S.J. Holbrook and R.J. Schmitt. 2007. Patterns of microhabitat use by fishes in the patch-forming coral *Porites rus*. *Raffles Bulletin of Zoology* S14: 227-236.
79. Schmitt, R.J. and S.J. Holbrook. 2007. Predicting the magnitude of temporal variation in young-of-year class strength of surfperch (Teleostei: Embiotocidae). *Raffles Bulletin of Zoology* S14: 145-150.
80. Schmitt, R.J. and S.J. Holbrook. 2007. The scale and cause of spatial heterogeneity in strength of temporal density dependence. *Ecology* in press.