

## DANIELLE CLAIRE ZACHERL

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### EDUCATION

- 1995-2002 University of California, Santa Barbara. Ph.D. Ecology, Evolution and Marine Biology. Advisor: Dr. Steven Gaines
- Spring 1996 Friday Harbor Laboratories, University of Washington. Comparative Invertebrate Embryology semester program. Professor: Dr. Richard Strathmann
- 1985-1989 Brown University. B.A. Biology. Sigma Xi Honor Society.

### RESEARCH AND TEACHING EXPERIENCE

- Assistant Professor California State University Fullerton, CA. 2003-present.  
Instructor for Marine Ecology; Invertebrate Zoology; Evolution and Biodiversity; Problems in Environmental Biology; Marine Biology for non-majors; Graduate seminar: Classic Readings in Ecology; Graduate seminar: Dispersal in Marine and Terrestrial Systems
- Postdoctoral Research University of California, Los Angeles, CA. 2002- 2003.  
Worked on a project entitled "Larval pathways and population connectivity in near shore marine organisms" funded by a two year grant from the Coastal Environmental Quality Initiative (CEQI). Examined metal uptake into calcified structures of molluscs.
- Ph.D. Research University of California, Santa Barbara, CA. 1995-2002.  
Developed analytical techniques to identify source populations of marine invertebrates using natural chemical tags in larval calcified structures. Explored the biogeography and ecology of a marine gastropod, *Kelletia kelletii*, which experienced a recent northward range expansion. Examined predator-prey relationships of kelp forest invertebrates as a function of temperature and season.
- Teaching Assistant University of California, Santa Barbara, CA. Fall 1999 and 2000.  
Laboratory instructor for Invertebrate Zoology; Winter 1996 and 1997, discussion section instructor for Applied Marine Ecology.
- Research Assistant Darling Marine Lab, Walpole, ME. Summer 1989.  
Used field survey techniques and SCUBA to assist Dr. Phillip Yund and Dr. Steven Gaines in rocky intertidal and subtidal ecological research. Examined aspects of fertilization success in hydroids and the role of thermal stress in determining local distributional patterns in whelks and mussels.

Teaching Assistant            Brown University, Providence, RI. Spring 1989.  
Led weekly discussion section for Evolutionary Biology.

Teacher                            Isidore Newman School, New Orleans, LA. 1991- 1995.  
Developed curricula and taught courses in Environmental Science (senior elective), and Life Science (middle school). Taught Freshman Biology. Worked as outdoor instructor on Newman's mountaineering program for high school students (Colorado Alpine Adventures). Coached cross-country running.

Teacher                            Friends Academy, Locust Valley, NY. 1990 -1991.  
Developed curriculum and taught course in Environmental Science (senior elective). Taught Freshman Biology. Supervised work program, Advised Environmental Committee. Freshman Advisor.

#### AWARDS

2009                            CSU Special Fund for Research, Scholarship, and Creative Activity, \$5,000, 'Do Olympia oysters, *Ostrea lurida*, settle and reproduce at their birth location?

2008                            Outstanding Untenured Faculty Member, College of Natural Sciences and Mathematics, CSU Fullerton

2008                            California Sea Grant Program Development Award, \$28,853, Can California Grunion Otoliths Act as Natal Tags to Determine Population Connectivity?

2007                            Nomination by the Department of Biological Science for the College of NSM Award for Outstanding Untenured Faculty Member

2007                            CSU Fullerton General Faculty Research Award, \$2,667, 'Factors influencing population persistence of the Olympia oyster, *Ostrea conchaphila*'

2007                            CSU Fullerton Faculty-Undergraduate Student Support Initiative: Research and Creative Activity Grant, \$500, 'Larval vertical migration behavior in the marine snail *Kelletia kelletii* in the laboratory and field.'

2006                            CSU Special Fund for Research, Scholarship, and Creative Activity, \$5,000, 'Assessing population connectivity of the west coast native oyster, *Ostrea conchaphila*'

2005                            CSU Fullerton Faculty-Undergraduate Student Support Initiative: Research and Creative Activity Grant, \$1,000, 'Effect of Conspecific Density and Season on Settlement of the Native Oyster, *Ostrea conchaphila*'

2004-2008                    National Science Foundation Award #OCE-0351860, \$232,778, 'Collaborative Research: Tracking Larval Invertebrate Dispersal Trajectories Using Calcified Structures'

2003-2004                    CSU Special Fund for Research, Scholarship, and Creative Activity, \$4,500, 'Tracking invertebrate larval dispersal pathways using calcified structures'

2001                            Best Student Paper, 82<sup>nd</sup> meeting of Western Society of Naturalists, Ventura, CA

2001                            University of California, Santa Barbara, Ecology, Evolution, and Marine Biology Departmental Block Grant – Winter 2001

1995–2000                    National Science Foundation Graduate Research Training Fellowship (GRT)

1998, 1999                    Houston Underwater Club Research Scholarship, \$3,000

1998                            Lerner Gray Fund for Marine Research, \$1,000

1998                            Sigma Xi Grants in Aid of Research, \$600

1997, 1998                    Wrigley Institute for Environmental Studies Graduate Summer Scholarship

1996                            Friday Harbor Laboratories (University of Washington) Training Scholarship

## INVITED PRESENTATIONS

2007	Departmental Seminar, Hopkins Marine Station, Stanford
2006	Departmental Seminar, Biology, University of Southern California
2006	Biol 422 guest lecture, CSU Fullerton
2006	ENST 500 guest lecture, CSU Fullerton
2004	Departmental Seminar, Marine Biology, Scripps Institute of Oceanography
2004	Departmental Seminar, Biology, San Diego State University
2004	Invited speaker, CEA CREST, (NSF Funded Centers of Research Excellence in Science and Technology), CSU Los Angeles
2003	Invited speaker, CEA CREST, CSU Los Angeles
2003	Symposium speaker, Western Society of Malacologists
2003	Departmental Seminar, Biological Science, California State University Fullerton
2003	Departmental Seminar, Ecology and Evolutionary Biology, University of Los Angeles

## PUBLICATIONS (**BOLD** INDICATES STUDENT FIRST AUTHOR)

**Polson M** and DC Zacherl. 2009. Current geographic distribution and intertidal population status for the Olympia oyster, *Ostrea lurida*, from Alaska, USA to Baja California, Mexico. *Journal of Shellfish Research* 28 (in press)

**Polson M**, Hewson WE, Eernisse DJ, Baker PK and DC Zacherl. 2009. You say *conchaphila*, I say *lurida*: Molecular evidence for restricting the Olympia oyster to temperate western North America. *Journal of Shellfish Research* 28 (in press)

**Seale E** and DC Zacherl. 2009. Seasonal settlement of *Ostrea lurida* larvae in southern California estuaries. *Journal of Shellfish Research* 28 (in press)

Zacherl DC, Morgan SG, Swearer SE, Warner RR. 2009. A shell of its former self. Can *Ostrea lurida* larval shells reveal information about a recruit's natal source? *Journal of Shellfish Research* 28 (in press)

**Lloyd DC**, Zacherl DC, Paradis G, Sheehy M, and RR Warner. 2008. Effects of temperature, natal site and seawater chemistry on statolith element incorporation in *Kelletia kelletii* larvae. *Marine Ecology Progress Series* 353: 115-130.

Thorrold S, Zacherl DC, and L Levin. 2007. Quantifying population connectivity via larval dispersal in benthic marine populations using geochemical signatures in calcified structures. *Oceanography* 20(3): 32-41.

Zacherl DC. 2007. Measurement of Dispersal In: *Encyclopedia of Tide Pools*, M. W. Denny and S. D. Gaines editors. Pp. 183-186.

Zacherl DC. 2005. Spatial and temporal variation in statolith and protoconch trace elements as natural tags to track larval dispersal. *Marine Ecology Progress Series* 290: 145-163.

Zacherl DC, Manríquez PH, Paradis G, Day RW, Castilla JC, Warner RR, Lea DW, Gaines SG. 2003. Trace elemental fingerprinting of gastropod statoliths to study larval dispersal trajectories. *Marine Ecology Progress Series* 248: 297-303.

Zacherl DC, Paradis G, Lea DW. 2003. Barium and strontium uptake in larval protoconch and statolith of the marine neogastropod *Kelletia kelletii*. *Geochimica et Cosmochimica Acta* 67: 4091-4099.

Zacherl DC, Gaines S, Lonhart S. 2003. The limits to biogeographical distributions: Insights from the northward range extension of the marine snail, *Kelletia kelletii* (Forbes, 1852) *Journal of Biogeography* 30:913-924.

**MANUSCRIPTS IN REVIEW (BOLD INDICATES STUDENT FIRST AUTHOR)**

White C, Watson J, Siegel DA, Selcoe KA, Zacherl DC and Toonen RJ (in review for *Marine Ecology Progress Series*) Seascape genetics reveals pattern beneath the chaos.

**CONTRIBUTED PRESENTATIONS (BOLD INDICATES STUDENT AUTHOR)**

2008        **Sam LA** and DC Zacherl. Settlement of *Ostrea conchaphila* as a Function of Tidal Height. Southern California Academy of Sciences, Dominguez Hills, CA, contributed talk

**Walker K**, Hoese, BJ, and DC Zacherl. The light's on but nobody's home: Negative phototactic response of *Kelletia kelletii* larvae to light intensity and wavelength. Southern California Academy of Sciences, Dominguez Hills, CA, poster

2007        **Kelley SL**, Cortez, CJ, Walker, KM, Zacherl, DC, and BJ Hoese. Effects of light and column height on diel vertical migration of the marine gastropod *Kelletia kelletii*. Western Society of Naturalists, Ventura, CA, poster

**Koch SE**, Paradis G, Gaines SD, Warner RR, and DC Zacherl. Immigration in the ocean: statoliths as larval passports. Southern California Academy of Sciences, Fullerton, CA, contributed talk

**Polson MP**, **Hewson WE**, Eernisse DJ, Baker PK and DC Zacherl. You say *conchaphila*, I say *lurida*. West Coast Native Oyster Workshop, Shelton, WA, contributed talk

**Raith MR** and DC Zacherl. Feeding preferences of the marine gastropod *Aplysia vaccaria*. Southern California Academy of Sciences, Fullerton, CA, poster

**Raith MR** and DC Zacherl. Feeding preferences of the marine gastropod *Aplysia vacarria*. Western Society of Naturalists, Ventura, CA, poster

**Raith MR** and DC Zacherl. Feeding preferences of the marine gastropod *Aplysia vacarria*. Southern California Animal Behavior Symposium, Long Beach CA, contributed talk

**Sam LA** and DC Zacherl. Settlement of *Ostrea conchaphila* as a Function of Tidal Height. Western Society of Naturalists. Ventura, Ca, poster

**Sam, LA** and DC Zacherl. Temporal and spatial variation in settlement of *Ostrea conchaphila* in Newport Bay, CA. Southern California Academy of Sciences, Fullerton, CA, poster

**Seale E** and DC Zacherl. To settle or not to settle: seasonal settlement of oyster larvae, *Ostrea conchaphila*, in two southern California estuaries. Southern California Academy of Sciences, Fullerton, CA, contributed talk, **received Best Student Paper Award in Ecology and Evolution**

**Walker K**, Hoese, BJ, and DC Zacherl. The light's on but nobody's home: Negative phototactic response of *Kelletia kelletii* larvae to light intensity and wavelength. Western Society of Naturalists. Ventura, Ca, poster

Zacherl DC, **Lloyd DC**, **Koch SE**, Paradis GL, and RR Warner. Destination Unknown? What invertebrate calcified structures can tell us about where larvae go. American Fisheries Society, San Francisco, CA, contributed talk

Zacherl DC. Destination Unknown: Explorations of Larval Dispersal. American Society of Limnologists and Oceanographers, Santa Fe, NM, contributed talk

2006 **Lloyd DC**, Zacherl DC, Paradis G, Sheehy M, and RR Warner. 'But you can't take the country out of the larva': site effects in calcified structures useful for larval tracking studies. Southern California Academy of Sciences, Malibu, CA, contributed talk

**Lloyd DC**, Zacherl DC, Paradis G, Sheehy M, and RR Warner. 'But you can't take the country out of the larva': site effects in calcified structures useful for larval tracking studies. 7th International Temperate Reef Symposium. Santa Barbara, CA, contributed talk

**Navarro MN**, Paradis G, Sheehy M, Warner R, and DC Zacherl. Linking statolith chemistry of *Aplysia californica* to watershed discharge plumes in the Southern California Bight. Southern California Academy of Sciences, Malibu, CA, poster

**Polson MP** and DC Zacherl. Current geographic distribution and intertidal population status for the native West Coast oyster, *Ostrea conchaphila*, from Alaska to Baja. West Coast Native Oyster Workshop, San Rafael, CA, contributed talk

**Romero, M** and DC Zacherl. Temperature effects on growth rate and diel vertical migration of *Kelletia kelletii* larvae. Society for Advancement of Chicanos and Native Americans in Science, Tampa, FL, **received Outstanding Student Poster Award in Marine Biology**

**Seale E** and DC Zacherl. Seasonal settlement of native West Coast oyster larvae (*Ostrea conchaphila*) in two California estuaries. West Coast Native Oyster Workshop, San Rafael, CA, poster

**Seale E** and DC Zacherl. Seasonal settlement of the native West Coast oyster (*Ostrea conchaphila*). Southern California Academy of Sciences, Malibu, CA, poster

**Seale E** and DC Zacherl. Seasonal settlement of native West Coast oyster larvae (*Ostrea conchaphila*) in two California estuaries. Society for Advancement of Chicanos and Native Americans in Science, Tampa, FL, **received Outstanding Student Poster Award in Ecology**

Zacherl DC, Morgan SG, Swearer SE and RR Warner. A Shell of its Former Self. Can *Ostrea conchaphila* Larval Shells Reveal Information About a Recruit's Birth Location? West Coast Native Oyster Workshop, San Rafael, CA, contributed talk

Zacherl DC, Morgan SG, Swearer SE and RR Warner. Can Bivalve and Gastropod Larval Shells and Statoliths Reveal Information About a Recruit's Natal Source? Ocean Sciences Meeting, Honolulu, Hawaii, contributed talk

2005 **Lloyd DC**, Zacherl DC, Paradis G, Sheehy M, and RR Warner. Effects of temperature, natal site and seawater chemistry on statolith element incorporation in *Kelletia kelletii* larvae. Western Society of Naturalists (WSN), Monterey, CA, poster

**Navarro MN**, Paradis G, Sheehy M, Warner R, and DC Zacherl. Linking statolith chemistry of *Aplysia californica* to watershed discharge plumes in the Southern California Bight. Western Society of Naturalists, Monterey, CA, poster

**Polson MP** and DC Zacherl. The biogeography and phylogeography of the native West Coast oyster, *Ostrea conchaphila*. Western Society of Naturalists, Monterey, CA, poster

**Romero, M** and DC Zacherl. Temperature effects on growth rate and diel vertical migration of *Kelletia kelletii* larvae. Western Society of Naturalists, Monterey, CA, poster

**Seale E** and DC Zacherl. The effects of conspecific density and season on settlement of the native oyster, *Ostrea conchaphila*. Western Society of Naturalists, Monterey, CA, poster

2004 Zacherl DC, Morgan SG, Swearer SE and RR Warner. A shell of its former self. Can a bivalve or gastropod larval shell reveal information about a recruit's natal source? Benthic Ecology Meeting, contributed talk

2003 Zacherl DC, Morgan SG, Swearer SE and RR Warner. A shell of its former self. Can a bivalve or gastropod larval shell reveal information about a recruit's birth location? Western Society of Naturalists, Long Beach, CA, contributed talk

2002 Zacherl DC. Where does the escargot? Tracking marine gastropod larvae using statolith and protoconch. American Society of Limnology and Oceanography, Victoria, B.C., contributed talk

Zacherl DC, Manriquez PH, Paradis G, Day RW, Castilla JC, Warner RR, Lea DW, and SD Gaines. Dispersal of Larval Gastropods. Could statoliths open a window on the past? XXII Congreso de Ciencias del Mar, Valdivia, Chile, contributed talk

2001 Zacherl DC, Gaines SG, Lea DW, and G Paradis. Where does the escargot? Tracking marine gastropod larvae using statolith and protoconch. Western Society of Naturalists, Ventura, CA, contributed talk

2000 Zacherl DC. A new tool for marine biogeographers? Identifying source populations using statolith microchemistry. Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO), Corvallis, OR, contributed talk

Zacherl DC. A new tool for marine biogeographers? Identifying source populations using statolith microchemistry. Western Society of Naturalists, Portland, OR, contributed talk

1999 Zacherl DC, Krenz C and SD Gaines. Seasonally variable impacts of the Kellet's Whelk in California kelp forest communities. Benthic Ecology Meetings, Baton Rouge, LA, contributed talk

Zacherl DC, Krenz C and SD Gaines. The impact of Kellet's whelk on California kelp forest communities. A large scale experimental manipulation. Western Society of Naturalists, San Diego, CA, contributed talk

1997 Zacherl DC and SD Gaines. The Kellet's whelk: Indicator of biogeographic change? Western Society of Naturalists, Monterey, CA, contributed talk

### **SYNERGISTIC ACTIVITIES**

Reviewer - NSF Biological Oceanography Program, Marine Ecology Progress Series, Canadian Journal of Fisheries and Aquatic Sciences, Ecology, Geochimica et Cosmochimica Acta, Limnology and Oceanography

Mentor – supervising research projects of four graduate students, supervising three undergraduate students completing independent research projects funded by Southern California Environmental Research Program (SCERP, California State University Fullerton), and supervising three additional undergraduate students completing independent research projects

Committee member – Undergraduate Advancement Committee, Cell Biology Search Committee, Curriculum Committee, Vehicle Committee, Ocean Science Institute (OSI) Board, OSI Dive Control Board

### **COLLABORATORS (PAST 5 YEARS AND CURRENT)**

Karen Martin, Pepperdine University

Steven Gaines, Univ. of California, Santa Barbara

Bob Warner, Univ. of California, Santa Barbara

Steven Morgan, Univ. of California, Davis

Steve Swearer, Univ. of Melbourne, Australia

Juan Carlos Castilla, Pontificia Universidad Católica de Chile

Steve Lonhart, Sanctuary Integrated Monitoring Network (SIMoN)

Patricio Manríquez, Universidad Austral de Chile, Valdivia

David Lea, Univ. Of California, Santa Barbara

Georges Paradis, Univ. Of California, Santa Barbara

Crow White, Univ. Of California, Santa Barbara

Rob Toonen, University of Hawaii

### **OTHER EXPERIENCE**

PADI Open Water and AAUS Research Diver SCUBA certifications, California State University and University of California boat captain, recreational hiking and wilderness camping