

Michael O. Navarro, Ph.D.

Asst. Professor of Marine Fisheries, UAS

11200 Glacier Highway • University of Alaska Southeast • Juneau, AK 99801

Phone: (907) 796-6293 • Fax: (907) 796-6647 • E-Mail: monavarro@alaska.edu

PROFILE

Fisheries oceanographer with specialties in climate change, seafloor geomorphology, fisheries management, and benthic ecology.

EDUCATION

University of California San Diego, Scripps Institution of Oceanography 2014

Doctor of Philosophy in Oceanography La Jolla, USA

• Chair: LA Levin • Committee: PE Parnell, U Send, A Koslow, S Belongie, M Tresguerres

• **Dissertation:** Consequences of environmental variability for spawning and embryo development of inshore market squid *Doryteuthis opalescens*

California State University Fullerton 2009

Master of Science in Biological Science Fullerton, USA

• Chair: DC Zacherl • Committee: S Murray, M Horn, LA Levin

• **Thesis:** Linking the statolith chemistry of the sea hare to watershed runoff along the open coast.

University of California Los Angeles 2000

Bachelor of Science in Biology, concentration in Marine Biology Los Angeles, USA

PROFESSIONAL POSITIONS

Asst. Professor of Marine Fisheries, Natural Sciences Biology and Marine Biology, UA Southeast	Current
Research focus on invertebrate and benthic species fisheries and ecology. Courses taught include Biological Oceanography, Introduction to Marine Fisheries, Fundamentals of Biology, and Genetics.	
Postdoctoral Researcher, NSF Geosciences, Host: Marine Landscape Ecology Lab, CSU Monterey Bay	2014-2016
Principle Investigator for the Geomorphology Project providing training for five undergraduate researchers.	
Faculty Instructor, UCSD Academic Connections, Course: Marine Invertebrates, La Jolla, CA	Sum 2011
Developed and taught a 120 hrs of course work and supervised two TAs. The course was well-reviewed.	
Science Education Program Coordinator, Focus on the Future Program, Scripps Director's Office, La Jolla, CA	Sum 2010
Coordinated the inaugural program to provide 20 underrepresented pre-college students exposure to Scripps.	
Biologist, Marine Region, California Department of Fish and Wildlife, Santa Barbara, CA	2007-2008
Led several projects focused on market squid including projects for stock identification and fishery impacts.	
Research Associate, Ocean Conservation Society, Marina Del Rey, CA	2006-2007
Collaboration with Dr. Maddalena Bearzi, researching population structure of offshore and inshore of <i>Tursiops truncatus</i> and other cetaceans and association with watershed discharge plumes in Santa Monica Bay, CA.	
Educational Program Coordinator, Ocean Institute, Dana Point, CA	2002-2004
On-site supervisor of college degreed instructional staff at the Lazy W Camp in Cleveland National Forest, CA.	

PEER-REVIEWED PUBLICATIONS (*italics = mentee*)

Navarro MO, Kwan G, Batalov O, Choi C, Pierce NT, Levin LA (2016) Embryonic market squid, *Doryteuthis opalescens*, can develop through chronic exposure to low environmental pH and [O₂]. PLoS One, 11:e0167461.

Takeshita Y, Frieder CA, Martz TR, Ballard JR, Feely RA, Kram S, Nam S, Navarro MO, Price NN, Smith JE (2015) Including high frequency variability in coastal ocean acidification projections. Biogeosciences, 12:5853-5870.

Navarro MO, Bockmon EE, Frieder CA, Gonzelez J, Levin LA (2014) Development of geochemical proxies for embryonic squid statolith exposure to low O₂ and pH. Water, Special Issue: Impact of Ocean Acidification on Marine Organisms- Unifying Principles and New Paradigms, 6:2233-2254.

Robin JP, Roberts M, Zeidberg L, Bloor I, Rodriguez A, Briceño F, Downey N, Mascaró M, Navarro MO, et al. (2014) Transitions during cephalopod life history: the role of habitat, environment, functional morphology & behaviour.

Advances in Marine Biology: Advances in Cephalopod Science: Biology, Ecology, Cultivation and Fisheries, 67C:361-437.

- Frieder CA, Gonzalez JP, Bockmon EE, **Navarro MO**, Levin LA (2014) Semidiurnal pH variability and oxygen influence on acidification outcomes for mussel larvae. *Global Change Biology*, 20:754-764.
- Bockmon EE, Frieder CA, **Navarro MO**, White-Kershek LA, Dickson AG (2013) Technical Note: Controlled experimental aquarium system for multistressor investigation of carbonate chemistry, oxygen saturation, and temperature. *Biogeosciences*, 10:5967-5975.
- Navarro MO** (2008) California market squid IN: *Review of Some California Fisheries for 2007*. Sweetnam D (ed.) California Cooperative Oceanic Fisheries Investigations (CalCOFI) 2008 Report, 49:19-21.
- Navarro MO**, Bearzi M (2007) Effects of marine mammals on the sport fishery in Santa Monica Bay, CA. *Southern California Academy of Sciences Bulletin*, 106:215-217.

CURRENT PROJECTS (*italics = mentee*)

- Navarro MO**, Parnell EP, Levin LA (in advanced pre) Environmental forcing and variability of essential market squid (*Doryteuthis opalescens*) embryo habitat: A baseline for anticipated ocean climate change.
- Pierce, NT, **Navarro MO**, Burton, RS, Gaasterland T (in advanced prep) Developmental resilience to chronic low pH and low O₂ exposure in a loliginid squid.
- Navarro MO**, Collins JM, Barbour N, Garza C (in prep) Geomorphology limits the fundamental niche for market squid egg-bed habitat. *Fisheries Oceanography*
- Collins JM, Barbour N, **Navarro MO**, Garza C (in prep) Rippled scour depressions and the impact of seafloor structure on a dominant marine organism of the continental shelf in Monterey Bay, CA.
- Barbour N, Collins JM, **Navarro MO**, Garza C (in prep) Spatial and Temporal Variability of a Biological Guild on the Monterey Bay Sandy Continental Shelf During the 2015-2016 El Niño.

SELECT PRESENTATIONS (* = invited speaker, *italics = mentee*)

- Barbour N, **Navarro MO**. Spatial and temporal variability of a biological guild on the Monterey Bay sandy continental shelf during the 2015-2016 El Niño. Oral session presented at: Western Society of Naturalists Conference; 2016 Nov. 10-13, Monterey, USA.
- Navarro MO**, Collins JM, Burgess C, Barbour N, Garza C. Tracking geomorphological processes of the sandy seafloor and their associated effects on the spatial patterns of inhabitants (including market squid, *Doryteuthis opalescens*). Oral session presented at: California Cooperative Oceanic Fisheries Investigation Conference; 2015 Dec. 14-16, Moss Landing, USA.
- Collins JM, **Navarro MO**, Garza C. Rippled scour depressions (RSDs) and their impacts on a dominant marine organism of the continental shelf. Poster presented at: California Cooperative Oceanic Fisheries Investigation Conference; 2015 Dec. 14-16, Moss Landing, USA.
- Navarro MO**, Parnell PE, Levin LA, Garza C. Essential embryo habitat of the market squid, *Doryteuthis opalescens* (including the first direct and continuous measurements of pH and O₂). Oral session presented at: The Cephalopod International Advisory Council Conference; 2015 Nov. 10-14, Hakodate, Japan.
- ***Navarro MO**. Market squid. Panel Speaker: At: Ocean to Table Seafood Event. Hosted by the Center for Marine Conservation and Biodiversity at Scripps Institution of Oceanography and the Southwest Fisheries Science Center, 5 August 2015, La Jolla, USA.
- ***Navarro MO**. Natural history as a compass to direct research testing on the effects of a changing environment on marine ecology. Ecology seminar: California State University Monterey Bay, Div. of Science and Environmental Policy, 26 January 2015, Seaside, USA.
- ***Navarro MO**. Squid, statoliths, and sustainable fisheries management through climate change. Biology Seminar presented at: California State University Fullerton, Dept. of Biological Science, 29 January 2014, Fullerton, USA.
- ***Navarro MO**, Sato K, *et al.* Habitat use, site fidelity, and migration of San Diegan fisheries in response to a changing climate. Oral session presented at: Oceans 13 International Conference, 2013, San Diego, USA.
- Navarro MO**. Year-round spawning of the market squid, *Doryteuthis opalescens*, and associated critical habitat along an upwelling margin. Oral session presented at the Coastal and Estuarine Research Federation Biennial Conference, 2013, 3-7 November, San Diego, USA.
- Kwan GT, **Navarro MO**, Levin LA. Response of embryonic market squid, *Doryteuthis opalescens*, to oxygen, pH and pCO₂ from upwelling margin environments. Oral session presented at the Coastal and Estuarine Research Federation Biennial Conference, 2013, 3-7 November, San Diego, USA. *Kwan won 2nd place among all undergraduate student presentations.*
- Navarro MO et al.** Low-level pH and O₂ effects on embryonic squid, *Doryteuthis opalescens*: Morphology and proxies. Oral session presented at: The Ocean in a high CO₂ world International Conference, 2012, Monterey, USA.
- Navarro MO**, Zacherl DC, Paradis G, Nezlin N, Warner RR (2008) Linking statolith chemistry of *Aplysia californica* to watershed runoff. Oral session presented at: SACNAS National Conference, 2008, Salt Lake City, USA. **Best Oral**

AWARDS AND HONORS

- [Distinguish Young Scientist, Kavli Frontiers of Science](#), National Academy of Sciences, Irvine, UAS 2017
- [Deep-Submergence Science \(DeSSC\) Leader](#), Univ.-National Oceanographic Lab. Syst., Woods Hole, USA 2016
- [Marine Geosciences Leader, Marine GS NSF](#), Washington D.C., USA 2015
- [National Science Foundation, OCE PRF](#), Hosted by CSUMB 2014-2016
- [California SeaGrant California Fellowship](#), Scripps Institution of Oceanography 2011, 2012-2014
- [National Science Foundation Fellowship](#), IGERT, Scripps Institution of Oceanography 2008-2010, 2012
- [Bouchet Graduate Honor Society Member](#), Yale University 2012
- [Scripps Vice-Chancellor Review Committee](#), Chancellor's Office, UC San Diego 2011
- [Chief Scientist, R/V Robert Gordon Sproul](#), Scripps Institution of Oceanography July 17, 2010
- [UCSD Chancellor's Outstanding Diversity Outreach Awards \(3\)](#), UC San Diego 2008, 2010 (2)
- [National Institute of Health Fellowship](#), Bridges and MSD Program, CSU Fullerton 2004-2007
- [Donald Gardner Scholarship](#), "Outstanding teacher," CSU Fullerton 2005

TEACHING

- Fundamental in Biology, UAS BIOL 105
- Introduction to Marine Fisheries, UAS BIOL 193
- Genetics, UAS BIOL 362
- Global Trends in Fisheries, UAS BIOL 375
- Invertebrate Zoology, UC San Diego Academic Connections and Scripps Institution of Oceanography
- Undergraduate Oceanography Independent Research, UC San Diego 199

ACADEMIC MENTORING

Demonstrated experience mentoring students at the high school, undergraduate, and at the master's level including as a mentor for students in the 1) Monterey Regional REU, 2) CSUMB UROC, 3) [Focus on the Future Program](#), 4) [Scripps Undergraduate Research Fellowship \(SURF\)](#), 5) undergraduate independent research course (Levin, SIO 199), 6) [Levin lab](#) research assistants (volunteer), 7) [Master of Advanced Studies Program at Scripps](#), and 8) in association with the [Ocean Discovery Institute](#) develop curricula designed for unrepresented communities.

• Former Mentees: John Taylor, Michael Hang, Nicole Barbour, Jesirae Collins, Chelsea Burgess, Madison Heard, Veronica Larwood, Elena Perez, Brittany Jellison, Olga Batalov, Jesse Andrews, Ernesto Villasenor, Garfield Kwan, Shannon Walker, Mary McCormick, Mayra Paz

COMMUNITY SERVICE

- [SACNAS Chapter at CSUMB](#), Club Advisor, Seaside, CA 2015-2016
- [UC Affirmative Action and Diversity Committee](#), UC Office of the President, Oakland, CA 2012-2013
- SIO Director Review Committee, Student Member, UCSD Office of the Chancellor, La Jolla, CA 2013
- SIO Diversity Leadership Team Member, SIO Director's Office, La Jolla, CA 2011-2014
- [Grassroots Diversity Action Working Group Member](#), SIO, La Jolla, CA 2008-2014

SPECIAL SKILLS

Skilled in research design, implementation and analysis with six years of experience conducting oceanographic study in the field utilizing [ADCPs](#), [CTDs](#), [SeapHOxs](#), and in the lab using [MSEAS](#), [LA-ICP-MS](#), [Winkler titration](#), and photo-microscopy. Deep-sea diver with two dives in the [HOV ALVIN](#) (2010, 2016). Certified small boat operator and [scientific diver](#) to 100 ft depth. Collaborators in Republic of South Africa, Argentina, England, Japan, Republica Dominicana, and Ecuador. Former [Orange County Register](#) photographer with over 100 published photos.