

Patrick C. Daniel

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Education

2021 – Present: University of California, Santa Cruz – Santa Cruz, CA, USA

PhD Candidate – Department of Ocean Science (4.0 GPA)

Moss Landing Marine Labs – Moss Landing, CA, USA

M.S. Marine Science - Physical Oceanography Lab (3.96 GPA)

University of San Francisco – San Francisco, CA, USA

B.S. Biology, Minor in Chemistry

Relevant Experience

Research Specialist, CeNCOOS

Monterey Bay Aquarium Institute (MBARI)

July 2026 – Present

Graduate Student Researcher, Kudela Lab

University of California Santa Cruz

September 2021 – Present

Thesis research: Observing and modeling changes in the phytoplankton diversity and abundance at high timescales using machine learning to classify images collected through an automated underwater microscope deployed in Monterey Bay, exploring spatial cohesion across Monterey Bay in phytoplankton community structure, and estimating growth and loss terms over diel cycles.

Oceanographic Data Manager, CeNCOOS

Monterey Bay Aquarium Research Institute (MBARI)

January 2018 – September 2021

Directed Data Management and Cyberinfrastructure (DMAC) for the Central and Northern California Ocean Observing System. Worked with IOOS and Axiom Data Sciences to develop data management plans for RICE certification. Worked with instrument technicians to implement QARTOD, a centralized quality assurance protocol. Created rapid prototyping and graphics development for reports and grant application. Curating and maintained several biological and ecological survey datasets, from effort-based beach surveys to zooplankton trawls.

Research Technician, Gilly Lab

Hopkins Marine Station of Stanford University

July 2011 – January 2018

Ran CTD deck operations on several cruises and repeat surveys in Baja Sur, Mexico. Maintained an archive of CTD casts spanning 15 years. Managed chemical inventory and designated safety officer for lab space. Responsible for designing, ordering, and constructing life-support systems for cephalopods for neurophysiological experiments. Maintained compliance records for animal care.

Awards

Ocean Sciences Outstanding TA Award (Fall 2024, Spring 2025)

Packard Award – IMS UCSC (2023)

Myers Oceanographic & Marine Biology Trust (2017)

Project: Nutrient flux and geostrophic flow across the Guaymas Basin, Gulf of California.

MLML Student Scholar Award (2017)

Teaching Experience

Teaching Assistant

Spring 2025 – UC Santa Cruz – EART119: Introduction to Scientific Computing

Spring 2024 - UC Santa Cruz – OCEA130: Biological Oceanography

Fall 2022 – UC Santa Cruz – EART119: Introduction to Scientific Computing

Spring 2017 – Moss Landing Marine Labs - MS263: Data Analysis Techniques in Oceanography

Fall 2017 – Moss Landing Marine Labs - MS142: Physical Oceanography

Volunteer Outreach

Monterey County Science Fair Judge (2024)

ROV Competition Judge – MATE (2019, 2023, 2025)

WATCH Science Mentor - Monterey Bay Aquarium (2017 – 2020)

Helped high school students from Watsonville, California, develop and execute a field experiment in Elkhorn Slough and then advised on statistical and scientific analysis.

Squids-4-Kids Coordinator - Hopkins Marine Station of Stanford University

Led dissection in dozens of classrooms and public outreach events using Humboldt squid to teach concepts in Ocean Literacy.

Invited Presentation

Ocean Sciences Meeting – 2026/02

NSF/OOIFB IFCB User group Workshop – 2025/06

Monterey Bay GIS Users Annual Meeting – 2024/05

Eastern Pacific Oceanography Conference - 2023/07

NOAA IOOS Federal Advising Committee – 2023/06

Wave Energy Group, MBARI – 2022/11

Publications

Capone, D., Daniel, P.C., *et al.* Extreme wildfire conditions shift coastal phytoplankton community structure in California. *Limnol. Oceanogr.* **71**, (2026).

- Dugenne, M. *et al.* First release of the Pelagic Size Structure database: global datasets of marine size spectra obtained from plankton imaging devices. *Earth Syst. Sci. Data* **16**, 2971–2999 (2024).
- Ruhl, H. *et al.* Integrating Biodiversity and Environmental Observations in Support of National Marine Sanctuary and Large Marine Ecosystem Assessments. *Oceanography* **34**, 142–155 (2021).
- Gilly, W, Markaida, U., Daniel, PC, Frawley, T., Robinson, C., Gómez-Gutiérrez, J., ... Rosenzweig, L. (2022). Long-term hydrographic changes in the Gulf of California and ecological impacts: A crack in the World's Aquarium? *Progress in Oceanography*, 206 (December 2021), 102857. <https://doi.org/10.1016/j.pocean.2022.102857>
- Ruhl HA, Bahr FL, Henson SA., Hosking WB, Espinola B, Kahru M., Daniel PC, Drake P, Edwards CA. (2020). Understanding the remote influences of ocean weather on the episodic pulses of particulate organic carbon flux. *Deep-Sea Research Part II: Topical Studies in Oceanography*, 173(January), 104741. <https://doi.org/10.1016/j.dsr2.2020.104741>
- Daniel, PC, Contribution of wind- and wave-induced transport to nearshore phytoplankton variability in Northern California, (2019). MS Thesis, Moss Landing Marine Laboratories
- Frawley TH, Briscoe DK, Daniel PC, Britten GL, Crowder LB, Robinson CJ, Gilly WF. (2019). Impacts of a shift to a warm-water regime in the Gulf of California on jumbo squid (*Dosidicus gigas*). *ICES Journal of Marine Science*. <https://doi.org/10.1093/icesjms/fsz133>
- Berkenpas EJ, Henning BS, Shepard CM, Turchik AJ, Robinson CJ, Portner EJ, Li DH, Daniel PC, Gilly WF. (2017). A Buoyancy-Controlled Lagrangian Camera Platform for In Situ Imaging of Marine Organisms in Midwater Scattering Layers. *IEEE Journal of Oceanic Engineering*, 1–13. <https://doi.org/10.1109/JOE.2017.2736138>
- Hoving HJ, Gilly WF, Markaida U, Benoit-Bird KJ, Brown ZW, Daniel PC, Campos B (2013). Extreme plasticity in life-history strategy allows a migratory predator (jumbo squid) to cope with a changing climate. *Global Change Biology*, 19, 2089–2103. doi:10.1111/gcb.12198.

Technical Skills

Highly experienced in Python for spatial and timeseries data analysis, particle trajectory modelling, hardware control, image classification, convolutional neural networks, and web frameworks. Proficient with MATLAB, HTML/CSS, JavaScript, git (github.com/patcdaniel), Arduino, and Ocean Data View.

Field Experience

- **R/V *Bip XII*** (CIBNOR, Mexico) – February 2011 – 10 days in the Gulf of California
- **F/V *Sandman*** (National Geographic) – May 2011 – 10 days in the Gulf of California
- **R/V *New Horizon*** (NSF) – June 2011 – 21 days in the Gulf of California

- **R/V *Kilo Moana*** (ONR) – June 2012 – 10 days in Hawaii
- **R/V *Meteor*** (GEOMAR, Germany) – November 2012 – 32 days offshore of the EEZ of Peru
- **R/V *Bip XII*** (CIBNOR, Mexico) – February 2014 – 10 days in the Gulf of California
- **R/V *Shana Rae*** (HMS) – November 2013 – 7 days in Monterey Bay
- **R/V *IMARPE V*** (IMARPE, Peru) – November 2014 – 12 days offshore of Piata, Peru
- **R/V *Puma*** (UNAM, Mexico) – June 2016 – 22 days in the Gulf of California
- **R/V *Puma*** (UNAM, Mexico) – June 2017 – 24 days in the Gulf of California