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**KIRK SATO**

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Ph.D. Student - Biological Oceanography

(925) 381-8098

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**EDUCATION****Date**

Ph.D. Candidate in Biological Oceanography (Advisor: Dr. Lisa Levin)

09/2011 – Present

*Advanced to Candidacy: May 30, 2014*

GPA: 3.8

Scripps Institution of Oceanography, University of California, San Diego

**Response of Echinoids to Shoaling Hypoxia and Low pH in the Southern CA Bight**

This dissertation will first investigate temporal trends in megafaunal community and species depth distributions from environmental monitoring surveys conducted over the last 20 years. Further in-depth analyses and experiments will determine biomechanical responses of shelf and deep-margin echinoids to multiple environmental stressors in the Southern CA Bight. Finally, the potential for a deep-sea urchin species as an economically viable future fishery will be investigated. These chapter topics emphasize an interdisciplinary approach to climate change biology that includes biogeochemistry, bioengineering, ecology, and fisheries.

M.S. in Marine Biology (Advisor: Dr. Lisa Levin)

12/2013

Scripps Institution of Oceanography, University of California, San Diego

B.S. in Evolution, Ecology, and Biodiversity (with Honors)

06/2008

University of California, Davis; Regents Scholar

GPA: 3.61

University of Stellenbosch, South Africa

Winter Quarter 2007

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**RESEARCH EXPERIENCE****Special Project Participant**

10/2013 – Present

Northwest Fisheries Science Center, Fishery Resource Analysis and Monitoring Division (FRAMD)

- Collected echinoderms on U.S. West Coast Groundfish Bottom Trawl Surveys in Southern CA.

**Special Studies Participant**

07/2013 – Present

Southern California Coastal Water Research Project (SCCWRP) – Bight '13 Survey

- Analyzed time-series data for shifts in echinoderm species depth distributions.
- Collected echinoderms in the Southern CA Bight with various state water quality agencies.

**San Diego Coastal Expedition Student Researcher**

07/2012 &amp; 12/2012

UC Ship Funds Student Cruise - (<http://bit.ly/sdcoastex>)

- Multidisciplinary cruise studying seasonal variation in deep-sea carbonate chemistry and fauna.
- Co-led ROV surveys and the sampling of benthic megafauna with otter trawls.
- Developed a website for the cruise and conducted significant outreach *via* various social media.

**Research Scientist**

07/2012

Greenpeace USA, Bering Sea, Alaska

- Conducted one dive in a Deep Worker submersible (Nuytco Inc.) to 300 m in Pribilof Canyon.
- Collected biological samples to be catalogued in the Scripps Benthic Invertebrates Collection.

**Graduate Student Course – Ocean Acidification**

07/2011 – 08/2011

Friday Harbor Laboratories, University of Washington

- Proficient knowledge of the carbonate chemistry master variables (DIC, TA, pH).
- Led a team of interdisciplinary graduate students to quantify the spatial and temporal variability of the carbonate chemistry in the San Juan Archipelago, WA.

**Deep Sea Research Cruise Volunteer**

08/2011 – 09/2011

R/V *Atlantis*, Dr. Lisa Levin, Scripps Institution of Oceanography**Research Assistant for Drs. Eric Sanford & Brian Gaylord**

10/2008 – 10/2010

UC Davis Bodega Marine Laboratory, UC Natural Reserve System

- Assisted with studies on Local Adaptation in populations of F1 generation intertidal gastropods.

- Assisted with design and maintenance of Ocean Acidification experiments on mollusk larvae.

**Research Assistant for PhD Candidate, Morgan Kelly (Professor at Louisiana State)** 03/2008 – 06/2008

Richard K. Grosberg Lab, UC Davis, CA

- Sexed, counted, and handled populations of *Tigriopus californicus* copepods.
- Tested thermal tolerance thresholds of populations across species latitudinal range.

**Independent Student Research**

06/2007 – 08/2007

Summer Course, Bodega Marine Laboratory, UC Davis

**Research Assistant**

01/2005 – 06/2005

Arnold Bloom Lab, Department of Vegetable Crops, UC Davis, CA

**TEACHING EXPERIENCE**

**Graduate Student Mentor:**

- Stephanie Luong (UCSD Undergraduate; Biochemistry & Cell Biology) 01/2014 – 03/2015
- Allison Prange (SIO Masters of Advanced Studies) 08/2013 – 12/2015
- Kieu Tran (Unity College Undergraduate; Summer REU student) Summer 2014
- Yuzo Yanagitsuru (UCSD Undergraduate; Earth Sciences) 08/2012 – 06/2014
- Daniel Jio (UCSD Undergraduate Regents Scholar; Biology) Fall Quarter 2013

**Teaching Assistant:**

- UCSD, Introduction to Biological Oceanography (SIO136) Winter Quarter 2015
- UCSD, Life and Climate on Earth (SIO40) Fall Quarter 2013, 2014
- UCSD/CMBC, Marine Biodiversity, Conservation & Global Change Summer 2013

**Outdoor Lead Instructor, Camp Galileo, Grades K-5**

Summer 2008

**PUBLICATIONS**

Hettinger, A, E Sanford, TM Hill, AD Russell, **KN Sato**, J Huey, M Forsch, H Page and B Gaylord. 2012. Persistent carry-over effects of planktonic exposure to ocean acidification in the Olympia oyster. *Ecology*. 93:2758–2768. <http://dx.doi.org/10.1890/12-0567.1>.

Bagulayan, A, JN Bartlett, AC Carter, B Inman, E Keen, EC Orenstein, N Patin, **KN Sato**, *et al.* 2012. Journey to the Center of the Gyre: A Lagrangian perspective on the fate of the Tohoku tsunami debris field. *Oceanography*. 25: 200–207. <http://dx.doi.org/10.5670/oceanog.2012.55>.

Gaylord, B, TM Hill, E Sanford, EA Lenz, LA Jacobs, **KN Sato**, AD Russell, A Hettinger. 2011. Functional impacts of ocean acidification in an ecologically critical foundation species. *Journal of Experimental Biology*. 214: 2586-2594. doi: 10.1242/jeb.055939.

**PRESENTATIONS**

**Sato, K**, M Navarro, S Nam, Y Takeshita, J Ballard, *et al.* Temporal responses of echinoids in persistent hypoxic and hypercapnic environments along San Diego’s continental margin. November 5, 2013. *Coastal and Estuarine Research Federation Meeting*. San Diego, CA. **Poster**.

**Sato, KNS**, L Levin, and J Hocevar. Biological and Cultural Conservation: Protecting Bering Sea Canyons with Submersible Science. September 20, 2012. *Center for Marine Biodiversity and Conservation* Brown Bag Lunch seminar. **Oral talk**. Available online at: <http://prezi.com/lg6jzx7yned3/biological-and-cultural-conservation-protecting-bering-sea-canyons-with-submersible-science/>.

**VOLUNTEER WORK**

G.D.A.W.G. (Grassroots Diversity Action Working Group) 09/2011 – Present

Camping in the Sierras - Counselor, High school students Summer 2007 – 2013

Ocean Discovery! - Non-profit marine science education outreach program 2008 – 2010

Disaster Service Worker Volunteer, 11/2007

South African National Biodiversity Institute (SANBI) 01/2007 – 03/2007