

Diana E. LaScala-Gruenewald

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EDUCATION

Ph.D.: Biology, Stanford University, Hopkins Marine Station. (2017)

B.Sc.: Biological Engineering, Scientific Writing (minor), Massachusetts Institute of Technology. (2011)

PROFESSIONAL SKILLS

- Languages: Python, R, SQL, MATLAB
- Data and metadata formats and standards: FAIR, Darwin Core, EML, ISO, netCDF, CF
- Data-relevant procedures and technologies: ERDDAP, QARTOD, CeNCOOS DMAC
- Extensive research background studying quantitative approaches to movement ecology
- Expert-level statistical analysis and data visualization
- Verbal and written communication, including science journalism and data storytelling

RESEARCH AND WORK EXPERIENCE

CeNCOOS Data Scientist, MBARI (Moss Landing, CA | Mar 2020 – present)

- Serve as the *data and information manager* for the Central and Northern California Ocean Observing System (CeNCOOS), responsible for data management and cyberinfrastructure (DMAC)
- Ensure the quality control and quality assurance of data streams ingested and archived by CeNCOOS and that data streams are compliant with the standards currently set by IOOS
- Develop and periodically reevaluate data stream plans, work with data providers to improve operating procedures, and maintain the CeNCOOS webpage

Data Science Fellow, Insight (San Francisco, CA | Sep 2019 – Mar 2020)

- Undertook self-guided study of machine learning algorithms, statistics, SQL, and computer science
- Developed TakeNote, an audio analysis app that provides musical instrument learners with individualized feedback
- Created a pipeline to obtain tone quality data from audio recordings of amateur and professional players
- Trained a binary classification model to predict whether each 0.3-second segment of a user-submitted audio track had a professional sound with 94% accuracy
- Highlighted sections of the track where the user could most improve

Postdoctoral Research Fellow, University of Auckland (Leigh, New Zealand | Jun 2017 – Jun 2019)

- Led a team of researchers and graduate students studying how animal movement patterns can inform ecology, conservation, and Marine Protected Area (MPA) design
- Aggregated, cleaned, analyzed and visualized lobster demographic data from multiple research teams showing declining populations in protected areas throughout northeastern New Zealand
- Tracked movements of 60 lobsters over 2 years using acoustic telemetry; cleaned, analyzed and visualized resulting spatial and temporal data using R and QGIS
- Used demographic and tracking data to inform a policy push to extend protected area boundaries

Doctoral student, Stanford University (Monterey, CA | Sep 2011 – Jun 2017)

- Employed a model system (intertidal snails) to elucidate how animals adapt their movement to search for food in complex and variable environments
- Designed and built computer vision model in MATLAB and waterproof, infrared cameras to obtain unstructured location data for more than 100 marine snails every minute for 6 months
- Employed mixed modeling and Hidden Markov Modeling in R to interpret the resulting data set

- Hindcasted temperatures experienced by intertidal communities every 10 minutes over 12 years and employed multivariate and Bayesian approaches to evaluate the effects of these temperatures on community composition
- Developed agent-based model in Python to explore trade-offs between animal foraging behavior and range of sensory perception

PUBLICATIONS

- LaScala-Gruenewald, D.E.**, Grace, R.V., Haggitt, T.R., Hanns, B.J., Kelly, S., MacDiarmid, A. and Shears, N.T. (2021) "Small marine reserves do not provide a safeguard against overfishing." *Conservation Science and Practice* 3:e362.
- LaScala-Gruenewald, D.E.** and M.W. Denny. (2020) "Long-term mechanistic hindcasts predict the structure of experimentally-warmed intertidal communities." *Oikos* 129(11):1645-1656.
- LaScala-Gruenewald, D.E.**, Mehta, R.S., Liu, Y. and M.W. Denny. (2019) "Sensory perception plays a larger role in foraging efficiency than heavy-tailed movement strategies." *Ecological Modelling* 404:69-82.
- LaScala-Gruenewald, D.E.**, Miller, L.P., Bracken, M., Allen, B.J. and M.W. Denny. (2016) Quantifying the top-down effects of grazers on a rocky shore: selective grazing and the potential for competition. *Marine Ecology Progress Series* 553:49-66.

SELECTED RESEARCH PRESENTATIONS

Invited Presentations

LaScala-Gruenewald, D.E. "The roles of competition, behavioral plasticity and sensory perception in the foraging behavior of an intertidal limpet." Moss Landing Marine Laboratory Spring Seminar Series, Moss Landing, CA. (2017)

Conference Presentations

- LaScala-Gruenewald, D.E., Grace, R.V., Haggitt, T.R., Hanns, B.J., Kelly, S., MacDiarmid, A. and Shears, N.T. "Marine reserves do not prevent overfishing during seasonal migration in the lobster *Jasus edwardsii*." Movement Ecology, Pisa, Italy. (2019)
- LaScala-Gruenewald, D.E. and M.W. Denny. "Suboptimal Limpet Foraging in a Patchy Environment." The Society for Integrative and Comparative Biology, New Orleans, LA. (2017)
- LaScala-Gruenewald, D.E. and M.W. Denny. "Suboptimal Limpet Foraging in a Patchy Environment." Animal Behavior Society, Anchorage, AK. (2015)
- LaScala-Gruenewald, D.E. and M.W. Denny. "Long-term Effects of Thermal Variability on Intertidal Communities." The Society for Integrative and Comparative Biology, West Palm Beach, FL. (2015)

SELECTED TEACHING EXPERIENCE

- Instructor/Course Developer, Science Communication, University of Auckland (2019). Designed and co-taught masters-level course using workshop-based format to teach oral and written communication skills to marine scientists.
- Co-instructor, Marine Ecology, University of Auckland (2018). Taught lectures, led seminar discussions, and wrote and graded homework and tests for classes on movement ecology.
- Co-instructor/Teaching Assistant, Invertebrate Biology, Stanford University (2013). Assisted with animal collection for weekly labs, and taught lophophorate, cephalochordate and gastropod lectures and labs in professor's absence.

OTHER PROFESSIONAL EXPERIENCE

Deep Learning Consultant, LookDeep Inc (Oakland, CA | Mar 2020 – Jun 2020)

- Refined deep learning model for small tech startup seeking to improve patient monitoring in hospitals
- Used transfer learning based on the Inception-v3 image recognition neural network to predict whether a hospital bed was occupied or not
- Tuned model parameters to determine highest possible model accuracy given limited and messy data