

# Daniel A. Ovando

School of Aquatic & Fishery Sciences – University of Washington

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## RESEARCH PROGRAM

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- Marine Conservation
- Fisheries Science
- Environmental Data Science
- Natural Resource Economics
- Policy Evaluation
- Predictive Modeling
- Bayesian Inference

## EDUCATION

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### Ph.D. Environmental Science and Management (2018)

Bren School of Environmental Science & Management – University of California, Santa Barbara

Dissertation: [Of Fish and Fishermen: Using Human Behavior to Improve Marine Resource Management](#)

Advisors: Dr. Christopher Costello and Dr. Steven Gaines

### Master of Environmental Science and Management (2010)

#### Coastal Marine Resources Management Specialization

Bren School of Environmental Science & Management – University of California, Santa Barbara

Thesis: Economic Viability and Sustainable Management of a Red Abalone Fishing Cooperative

### Bachelor of Science in Ecosystem Science and Policy, Biology (2007)

University of Miami, Coral Gables, Florida

Majors: Ecosystem Science & Policy, Biology

## PUBLICATIONS

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**Ovando, D.**, Curry Cunningham, Kuriyama, P., Hilborn, R., Boatright, C., In Review. Identifying Frontiers in Ecological Forecasting with Modern Computational Tools 11479037 Bytes.

<https://doi.org/10.6084/m9.figshare.12991466.v6>

**Ovando, D.**, Caselle, J.E., Costello, C., Deschenes, O., Gaines, S.D., Hilborn, R., Liu, O., In Review. Assessing the Population-level Conservation Effects of Marine Protected Areas. Conservation Biology.

<https://doi.org/10.6084/m9.figshare.12715409.v1>

**Ovando, D.**, Hilborn, R., Monnahan, C., Rudd, M., Rishi Sharma, Thorson, J., Rousseau, Y., Yimin Ye, 2020. Global Assessments of Fishery Status need Better Data more than Better Models 84041677 Bytes.

<https://doi.org/10.6084/M9.FIGSHARE.13070627.V2>

**Ovando, D.**, Libecap, Gary, Millage, K.D., Thomas, L., In Press. Coasean Approaches to Address Overfishing: Bigeye Tuna Conservation in the Western and Central Pacific Ocean. Marine Resource Economics.

[https://www.nber.org/papers/w27801?utm\\_campaign=ntwh&utm\\_medium=email&utm\\_source=ntwg7](https://www.nber.org/papers/w27801?utm_campaign=ntwh&utm_medium=email&utm_source=ntwg7)

**Ovando, D.**, Dougherty, D., Wilson, J.R., 2016. Market and design solutions to the short-term economic impacts of marine reserves. Fish and Fisheries 17, 939–954. <https://doi.org/10.1111/faf.12153>

- Ovando, D.**, Deacon, R.T., Lester, S.E., Costello, C., Van Leuvan, T., McIlwain, K., Strauss, K.C., Arbuckle, M., Fujita, R., Gelcich, S., Uchida, H., 2013. Conservation incentives and collective choices in cooperative fisheries. *Marine Policy* 37, 132–140. <https://doi.org/10.1016/j.marpol.2012.03.012>
- Ovando, D.**, Poon, S., Costello, C., 2017. Opportunities and precautions for integrating cooperation and individual transferable quotas with territorial use rights in fisheries. *Bulletin of Marine Science* 93, 101–115. <https://doi.org/10.5343/bms.2016.1081>
- Hilborn, R., **Ovando, D.**, 2014. Reflections on the success of traditional fisheries management. *ICES J. Mar. Sci.* 71, 1040–1046. <https://doi.org/10.1093/icesjms/fsu034>
- Anderson, S.C., Cooper, A.B., Jensen, O.P., Minto, C., Thorson, J.T., Walsh, J.C., Afflerbach, J., Dickey-Collas, M., Kleisner, K.M., Longo, C., Osio, G.C., **Ovando, D.**, Mosqueira, I., Rosenberg, A.A., Selig, E.R., 2017. Improving estimates of population status and trend with superensemble models. *Fish and Fisheries* 18, 732–741. <https://doi.org/10.1111/faf.12200>
- Burgess, M.G., McDermott, G.R., Owashi, B., Reeves, L.E.P., Clavelle, T., **Ovando, D.**, Wallace, B.P., Lewison, R.L., Gaines, S.D., Costello, C., 2018. Protecting marine mammals, turtles, and birds by rebuilding global fisheries. *Science* 359, 1255–1258. <https://doi.org/10.1126/science.aao4248>
- Costello, C., **Ovando, D.**, 2019. Status, Institutions, and Prospects for Global Capture Fisheries. *Annual Review of Environment and Resources* 44, 177–200. <https://doi.org/10.1146/annurev-environ-101718-033310>
- Costello, C., **Ovando, D.**, Clavelle, T., Strauss, C.K., Hilborn, R., Melnychuk, M.C., Branch, T.A., Gaines, S.D., Szuwalski, C.S., Cabral, R.B., Rader, D.N., Leland, A., 2016. Global fishery prospects under contrasting management regimes. *PNAS* 113, 5125–5129. <https://doi.org/10.1073/pnas.1520420113>
- Costello, C., **Ovando, D.**, Hilborn, R., Gaines, S.D., Deschenes, O., Lester, S.E., 2012. Status and Solutions for the World's Unassessed Fisheries. *Science* 338, 517–520. <https://doi.org/10.1126/science.1223389>
- Dowling, N., Wilson, J., Rudd, M., Babcock, E., Caillaux, M., Cope, J., Dougherty, D., Fujita, R., Gedamke, T., Gleason, M., Guttierrez, M., Hordyk, A., Maina, G., Mous, P., **Ovando, D.**, Parma, A., Prince, J., Revenga, C., Rude, J., Szuwalski, C., Valencia, S., Victor, S., 2016. FishPath: A Decision Support System for Assessing and Managing Data- and Capacity- Limited Fisheries, in: Quinn II, T., Armstrong, J., Baker, M., Heifetz, J., Witherell, D. (Eds.), *Assessing and Managing Data-Limited Fish Stocks*. Alaska Sea Grant, University of Alaska Fairbanks.
- Fogarty, M.J., Rosenberg, A.A., Cooper, A.B., Dickey-Collas, M., Fulton, E.A., Gutiérrez, N.L., Hyde, K.J.W., Kleisner, K.M., Kristiansen, T., Longo, C., Minto-Vera, C.V., Minto, C., Mosqueira, I., Osio, G.C., **Ovando, D.**, Selig, E.R., Thorson, J.T., Ye, Y., 2016. Fishery production potential of large marine ecosystems: A prototype analysis. *Environmental Development, SI:Ecosystem-based LME Mgt* 17, Supplement 1, 211–219. <https://doi.org/10.1016/j.envdev.2016.02.001>
- Hammerschlag, N., **Ovando, D.**, Serafy, J.E., 2010. Seasonal diet and feeding habits of juvenile fishes foraging along a subtropical marine ecotone. *Aquatic Biology* 9, 279–290.
- Gaines, S.D., Costello, C., Owashi, B., Mangin, T., Bone, J., Molinos, J.G., Burden, M., Dennis, H., Halpern, B.S., Kappel, C.V., Kleisner, K.M., **Ovando, D.**, 2018. Improved fisheries management could offset many negative effects of climate change. *Science Advances* 4, eaao1378. <https://doi.org/10.1126/sciadv.aao1378>
- Rahimi, S., Gaines, S.D., Gelcich, S., Deacon, R., **Ovando, D.**, 2016. Factors driving the implementation of fishery reforms. *Marine Policy* 71, 222–228. <https://doi.org/10.1016/j.marpol.2016.06.005>
- Rosenberg, A.A., Kleisner, K.M., Afflerbach, J., Anderson, S.C., Dickey-Collas, M., Cooper, A.B., Fogarty, M.J., Fulton, E.A., Gutiérrez, N.L., Hyde, K.J.W., Jardim, E., Jensen, O.P., Kristiansen, T., Longo, C., Minto-Vera, C.V., Minto, C., Mosqueira, I., Osio, G.C., **Ovando, D.**, Selig, E.R., Thorson, J.T., Walsh, J.C., Ye, Y., 2018. Applying a

New Ensemble Approach to Estimating Stock Status of Marine Fisheries around the World. *Conservation Letters* 11, e12363. <https://doi.org/10.1111/conl.12363>

Szuwalski, C.S., Castrejon, M., **Ovando, D.**, Chasco, B., 2016. An integrated stock assessment for red spiny lobster (*Panulirus penicillatus*) from the Galapagos Marine Reserve. *Fisheries Research* 177, 82–94. <https://doi.org/10.1016/j.fishres.2016.01.002>

Tallis, H.M., Hawthorne, P.L., Polasky, S., Reid, J., Beck, M.W., Brauman, K., Bielicki, J.M., Binder, S., Burgess, M.G., Cassidy, E., Clark, A., Fargione, J., Game, E.T., Gerber, J., Isbell, F., Kiesecker, J., McDonald, R., Metian, M., Molnar, J.L., Mueller, N.D., O’Connell, C., **Ovando, D.**, Troell, M., Boucher, T.M., McPeck, B., 2018. An attainable global vision for conservation and human well-being. *Frontiers in Ecology and the Environment* 0. <https://doi.org/10.1002/fee.1965>

#### **SELECTED TEACHING AND OUTREACH**

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#### **Lead Instructor and Organizer – [FSH 507 Super-Advanced R](#)**

*School of Aquatic and Fisheries Sciences – University of Washington Fall 2019*

#### **[Introduction to Machine Learning with R](#)**

*FSH 507 Super Advanced R – University of Washington 2020*

#### **[Making Science Reproducible](#)**

*NOAA Survey-Centric R Group – University of Washington 2020*

#### **Introduction to Data-Limited Fisheries Assessment**

*Indonesian Minister of Maritime Affairs and Fisheries – Bogor, Indonesia 2020*

#### **[Fitting Bayesian Models using Stan and R](#)**

*eco-data-science Learning Session / [Personal blog](#) – UC Santa Barbara October 2019*

#### **[A Practical Introduction to purr](#)**

*eco-data-science Learning Session – UC Santa Barbara May 2018*

#### **Teaching Assistant – Applied Econometrics**

*UC Santa Barbara 2014-2017*

#### **Introduction to Catch-Per-Unit-Effort Standardization**

*IMARPE – LIMA Peru November 2017*

#### **Introduction to Length-Based Data Limited Assessments**

*IMARPE – LIMA Peru November 2016*

**DATA SCIENCE SKILLS**

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Expert in general reproducible workflows in R, Bayesian inference, machine learning, and simulation modeling

- Expert R user and instructor (emphasis on machine learning tools, open and reproducible science, Bayesian inference, and simulation modeling)
- Highly skilled in C++, Stan, Template Model Builder, Git
- Proficient with MATLAB, Stata, Python, ADMB, SQL, JAGS, big data interfaces such as Google BigQuery

**PROFESSIONAL EXPERIENCE**

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**Postdoctoral Researcher**, University of Washington, Seattle **(2018-Present)**

*Research Scientist and Engineer*

- Produce novel research and publications in the field of fisheries management and assessment
- Lead development of novel statistical tool for estimating the status of global fishery resources
- Develop research exploring the potential for machine learning applications in salmon run forecasting
- Conduct theoretical and empirical studies on the effects of Marine Protected Areas

**Fisheries & Data Science Consultant (2010-Present)**

- Development of interactive web applications for data exploration (UN FAO)
- Lead international training workshops in fisheries science and scientific computing (TNC)
- Running and communicating data-limited stock assessments (TNC)
- Assessing economic consequences of fisheries reform strategies (Catch Invest)

**Sustainable Fisheries Group**, University of California, Santa Barbara **(2009-2018)**

*Project Researcher and Manager*

- Produce novel research and publications in the field of fisheries management and assessment
- Support and lead individual projects and broader research goals of the Sustainable Fisheries Group
- Create tools for application and advancement of data-poor stock assessment models
- Construct and apply bio-economic models and marine spatial planning tools to inform decision making in applied projects around the world
- Manage collaborations and research in field projects around the world
- Mentor and advise students interested in fisheries

**NOAA Southeast Fisheries Science Center**, Miami, FL **(2008)**

*Program Coordinator and Lab Manager*

- Researched connectivity of larval fish populations in the Caribbean
- Developed digital photomicrography techniques
- Conducted fieldwork operations in the South Florida region

**South Florida Student Shark Program**, Rosenstiel School of Marine and Atmospheric Science, University of Miami **(2007-2008)**

*Program Coordinator and Lab Manager*

- Developed and communicated scientific research on shark conservation
- Led fieldwork operations studying South Florida shark populations
- Managed budgets and oversaw interns

**SKILLS & CERTIFICATIONS**

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**Language Skills:** Native Spanish speaker (fluent in spoken Spanish and proficient in written Spanish)

**Certifications:** AAUS Scientific Diver, NAUI Rescue Diver, Department of the Interior MOCC Boat Crew Chief

**Activities and Interests:** Surfing; Data Science; Music; The Great Outdoors; Rugby

**FUNDING & AWARDS**

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**Western Pacific Regional Fishery Management Council:** *Effort displacement and performance of Hawaii longline fisheries due to a time-varying area closure inside Hawaii's Exclusive Economic Zone.* 2020 (\$21,500)

**The Pew Charitable Trusts.** *Research Needs for Blue-Water Marine Protected Areas.* 2020 (\$22,915)

**Packard Foundation.** *Research Needs for Blue-Water Marine Protected Areas.* 2020 (\$22,915)

**Waitt Foundation.** *The Roll of MPAs in Blue-Water Bycatch Reduction.* 2020 (\$49,583)

**Bristol Bay Regional Seafood Development Association.** *Applications of Machine Learning for Salmon Forecasting.* 2019-2020 (\$59,300)

**Food and Agricultural Organization of the United Nations:** *Development and testing of a new methodology of stock status classification for the use of global assessment.* 2018-2020 (\$90,000)

**National Marine Fisheries Service Population and Ecosystem Dynamics Fellowship:** *A Bayesian Framework for Utilizing Fishery Independent Marine Protected Area Monitoring Data in Stock Assessments.* 2016-2018 (\$75,000)

**Daniel and Dianne Vapnek Fisheries Management Fellowship.** 2014 (\$15,000),

**Conservation International:** *Marine Spatial Planning and Lobster Fishery Reform for the Galapagos.* 2013-2015 (\$200k).

**Doris Duke Conservation Fellow.** 2009-2010 (\$20,000)

**PRESENTATIONS**

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**International Marine Conservation Congress 6**

Kiel, Germany (Remote, August 2020)

Presentation: The Population Effects of Marine Protected Areas

**Hatfield Marine Science Center Research Seminar**

Remote (July 2020)

Presentation: The Regional Effects of Marine Protected Areas

**Food and Agriculture Organization of the United Nations**

Rome, Italy (February 2019)

Presentation: Updated Methods for the Assessment of Global Fisheries

**SAFS Departmental Seminar**

School of Aquatic and Fishery Sciences, University of Washington (April 2019)

Presentation: The Regional Effects of Marine Protected Areas

**Curriculum Vitae**

**California MPA Technology Workshop**

Scripps Institution of Oceanography (May 2018)

Presentation: Models and Data for MPAs and Fisheries

**IIFET**

Aberdeen, Scotland (2016)

Presentation: A Bargain for Tuna – Coasean Solutions to Bigeye Bycatch

**ICES ASC Meeting**

Riga, Latvia (2016)

Presentation: The Future of Fisheries under Climate Change

**Bloomberg Philanthropies Coral Convening**

New York, NY (August 2016)

Presentation: The Role of Sustainable Fisheries in Coral Conservation

**American Fisheries Society Annual Meeting**

Portland, OR (August 2015)

Presentation: Solutions to the Short-Term Economic Impacts of Marine Reserves

**30<sup>th</sup> Lowell Wakefield Fisheries Symposium: Tools and Strategies for Assessment and Management of Data-Limited Fish Stocks**

Anchorage, Alaska USA (May 2015)

Presentation: *The Potential of Collaborative Research in Data-Limited Fisheries*

**3<sup>rd</sup> International Marine Protected Areas Congress**

Marseille, France (Oct 2013)

Presentation: *Timeline to Fishery Benefits from Marine-Protected Areas*

**26<sup>th</sup> International Congress for Conservation Biology**

Baltimore, MD (July 2013)

Presentation: *Measuring Benefits to Food Security and Conservation from Reforming Data-Poor Fisheries*

**Primer Congreso Ecuatoriano de Conciencia Marítima**

Guayaquil, Ecuador (Sep 2012)

Presentation: *Lines in the Sea; Using Models to Inform Marine Spatial Planning*

**FAO/Conservation International Fisheries Working Group**

Washington, D.C. (June 2012)

Presentation: *Status and Solutions for the World's Unassessed Fisheries*

**North American Association of Fisheries Economists Conference**

Honolulu, Hawaii (May 2011)

Presentation: *Why Bother? Case Studies in the Cooperative Fisheries Management*

**Fisheries and Marine Ecosystems Conference**

Port Moody, British Columbia, Canada (April 2010)

Presentation: *Bioeconomic analysis of a Proposed Red Abalone Fishing Cooperative*

**Abalone Symposium**

Santa Barbara, California (February 2010)

Presentation: *Cooperative Management of Common Pool Resources*

**ACADEMIC INVOLVEMENT**

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**Graduate Research Fellowship Program Mentor***School of Aquatic and Fisheries Science, University of Washington (2018-2020)***Co-Advisor for Bren School Master's Thesis Project***Title: A Greater Gray: A Larval Connectivity Assessment of Gray's Reef National Marine Sanctuary (2016-2017)***External Advisor for Bren School Master's Thesis Project***Title: Biological and Social Tradeoffs of Implementing Fair Trade USA in Small-Scale Fisheries: A Case Study of Costa Rican Snapper (2015-2016)***External Advisor and Proposal Coordinator for Bren School Master's Thesis Project***Title: Mapping the value of marine conservation: A spatial economic analysis of tourism and fisheries revenues in the Galápagos Marine Reserve. 2014-2016***External Advisor and Proposal Coordinator for Bren School Master's Thesis Project***Title: Analysis and Feasibility of Innovative Management Strategies in the Galápagos Lobster Fishery. 2012-2013***Moderator for Eco-Entrepreneurship Idea Generation Panel***Themes: Recovering the World's Fisheries (2012) & Opportunities in Wild Fisheries and Aquaculture (2013).***Bren Master's Thesis Proposal Co-Author***Title: Economic Viability and Sustainable Management of a Red Abalone Fishing Cooperative (2009)***Elected Representative- Bren Master's Group Project Selection Committee**

2009

**Co-organizer, Doris Duke Fellows Public Speaking and Communications Workshop**

2010

**EDITORIAL RESPONSIBILITIES**

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**Reviewer***Nature, Nature Communications, Marine Ecological Progress Series, PLOS ONE, Ecological Economics, Canadian Journal of Fisheries and Aquatic Science, Fisheries Research, Conservation Letters, Natural Resource Modeling, Environmental Modeling and Software, Annals of the New York Academy of Sciences, Ecology and Society, World Development, ICES Journal of Marine Science, Conservation Biology, Global Environmental Change, Catch Share Design Manual, Volume 2.: Cooperative Catch Shares (Poon et al. 2013).***WORKING GROUPS**

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**Use of Multi-Indicator Frameworks in Data-Limited Fisheries Management (2019-Present)****Developing a Shared Research Agenda for Blue Water MPAs (2019-Present)****SNAP Working Group: [Data-Limited Fisheries](#) (2014-2016)***Developing tools and training for the implementation of science-based fisheries management in data-limited contexts***Conservation International Data Poor Fisheries Group (2013-2015)***Implementing tools for comparing and utilizing multiple catch-only data-limited assessments***FAO/Conservation International Data Poor Fisheries Group (2012-2013)***Developing tools for comparing and utilizing multiple catch-only data-limited assessments*