

# BENJAMIN D. BEST, PHD

## Environmental Data Scientist

Currently working on automation and visualization of environmental data and scientific workflows. Seeking to continue promulgating these technical skills for solving pressing environmental problems.

### EDUCATION

- 2016
- **Ph.D. in Marine Science and Conservation**  
Nicholas School of the Environment, DukeDurham, NC

Dissertation: [Data to Decision in a Dynamic Ocean: Robust Species Distribution Models and Spatial Decision Frameworks](#)
- 2007
- **M.S. in Environmental Sciences**  
Nicholas School of the Environment, DukeDurham, NC

Thesis: Geospatial Modeling of Habitat and Connectivity
- 1998
- **B.A. in Geography, B.S. in Aquatic Biology**  
University of California Santa Barbara (UCSB)Santa Barbara, CA

### PROFESSIONAL EXPERIENCE

- 2016  
|  
present
- **Environmental Data Scientist & Founder**  
EcoQuants, LLCSanta Barbara, CA
- 202  
|  
2022
- **Lecturer (part-time)**  
Masters in Environmental Data Science, University of CaliforniaSanta Barbara, CA
- 2014 –  
2016
- **Lecturer (part-time)**  
Bren School of Env. Sci. & Mgmt., UCSBSanta Barbara, CA
- 2014 –  
2016
- **Senior Analyst, Ocean Health Index**  
National Center for Ecological Analysis & Synthesis, UCSBSanta Barbara, CA
- 2002 –  
2008
- **Research Associate, Marine Geospatial Ecology Lab**  
Nicholas School of the Environment, DukeDurham, NC
- 2000 –  
2002
- **Computer & Network Technologist**  
Bren School of Env. Sci. & Mgmt., UCSBSanta Barbara, CA
- 1998 –  
1999
- **Database Developer & IT Consultant**  
European Human Rights FoundationBrussels, Belgium
- 1997 –  
1998
- **Lab and Scuba Diving Research Assistant**  
Marine Biogeography Lab of Dr. Steven Gaines, UCSBSanta Barbara, CA



### CONTACT INFO

- [ben@ecoquants.com](mailto:ben@ecoquants.com)
- [github.com/bbest](https://github.com/bbest)
- +1 805-705-9770

### SKILLS

Instructor, trained with Software and Data Carpentry, developing webinars, 2-day workshops and semester courses in environmental data science.

Spatial ecologist expert in commercial ArcGIS and open-source R and Python techniques for environmental problem solving.

Full stack developer from system administration, cloud computing, relational database design and front-end web development.

Experienced in statistical analysis, species distribution modeling, ecological indicator development and machine learning.

Last updated: 2024-08-20



## TEACHING EXPERIENCE

- 2022 • **Machine Learning in Environmental Science**  
Masters in Environmental Data Science, University of California  
📍 Santa Barbara, CA
- 2021 • **Team Science, Collaborative Analysis and Project Management**  
Masters in Environmental Data Science, University of California  
📍 Santa Barbara, CA
- 2020 • **Geographic Information Systems (GIS)**  
Cal State Channel Islands 📍 Camarillo, CA
- 2019 • **GIS**  
Environmental Studies, UCSB 📍 Santa Barbara, CA
- 2016 • **GIS**  
Bren School of Env. Sci. & Mgmt., UCSB 📍 Santa Barbara, CA
- 2016 • **Environmental Informatics**  
Bren School of Env. Sci. & Mgmt., UCSB 📍 Santa Barbara, CA
- 2015 • **Landscape Ecology**  
Bren School of Env. Sci. & Mgmt., UCSB 📍 Santa Barbara, CA
- 2014, 2015 • **Advanced Topics in GIS**  
Bren School of Env. Sci. & Mgmt., UCSB 📍 Santa Barbara, CA
- 2012 • **Marine GIS**  
Nicholas School of the Env., Duke 📍 Durham, NC



## AWARDS

- 2017 • **NOPP Excellence in Partnering Award**  
Project: [Marine Biodiversity Observation Network](#) (EcoQuants)  
📍 Santa Barbara, CA
- 2012 • **Special Achievement in GIS**  
Software: [Marine Geospatial Ecology Tools](#) (Duke). Award presented by Jack Dangermond at Esri International User Conference.  
📍 Durham, NC
- 2008 • **Strategic Environmental Research and Development Program Project of the Year in Sustainable Infrastructure**  
Project: [Mapping Cetacean Habitat](#) (Duke) 📍 Durham, NC
- 1998 • **Audrey Lynn Copeland Memorial Award for Excellence in Ecology Evolution and Marine Biology**  
Nominated by Dr. Steven Gaines (UCSB) 📍 Santa Barbara, CA
- 1997 • **President's Undergraduate Research Fellowship**  
Proposed evaluating genetic distance of continental versus island samples to test rafting on kelp holdfasts by brooding sea cucumbers (UCSB)  
📍 Santa Barbara, CA

1996



### Howard Hughes Medical Internship

Worked with Dr. Peter Collins manipulating hormonal levels of fish in lab and slicing the brains to evaluate efficacy for mariculture purposes (UCSB)

📍 Santa Barbara, CA



## PUBLICATIONS

2024



### 45. CStories: Digital Tools to Facilitate Community Participation in Offshore Wind Planning and Development

*2024 AGU Ocean Sciences Meeting*

Chang G, **BD Best**, S Kramer

2024



### 44. SanctSound: Building Data Systems for Sound Decisions

*in The Effects of Noise on Aquatic Life: Principles and Practical Considerations*

Hatch, L., J Barkowski, S Baumann-Pickering, CW Bell, **BD Best**, J Brown, A DeAngelis, J Joseph, E Kim, D Kitchen, A Kok, A Kügler, A Kumar, M Lammers, T Margolina, M McKenna, K Merkens, LP Reeves, TJ Rowell, ... E Zang

2023



### 43. Empowering Communities to Participate in Marine Energy Planning and Development

*Proceedings of the European Wave and Tidal Energy Conference*

Chang G, **BD Best**, S Kramer

2023



### 42. Empowering Communities with a Multi-Use Decision Support Dashboard to Participate in Marine Renewable Energy (MRE) Planning and Development

*USDOE EERE Technical Report*

Chang G, **BD Best**, S Kramer

2022



### 41. Novel Marine Energy Environmental Compliance Reporting Application Summarizes Disparate Content by Tags and Location

*Offshore Technology Conference*

Barr ZW, **BD Best**, WJ Peplinski, C Jones, G Chang, JD Roberts, S Kramer

2022



### 40. Marine Energy Environmental Toolkit for Permitting and Licensing

*USDOE EERE Technical Report*

West A, Z Barr, C Jones, G Chang, S Kramer, J Roberts, W Peplinski, **BD Best**, N Johnson, M Caspard

- 2021 ● **39. Webenizing Condition Reports: Communicating Data-Driven Ecosystem Indicators in a Visually Engaging and Interactive Online Platform**  
*National Marine Sanctuaries Conservation Series*  
Spector P, **BD Best**, J Ranganathan, T Murray, JA Brown, C Caldow, G Canonico, A DeVogelaere
- 2021 ● **38. Reef-Fish Abundance, Biomass, and Biodiversity Inside and Outside No-Take Marine Zones in the Florida Keys National Marine Sanctuary: 1999–2018**  
*Oceanography*  
Medina M, C Estes, **BD Best**, C Stallings, E Montes, L McEachron, F Muller-Karger
- 2021 ● **37. tbeptools: An R package for synthesizing estuarine data for environmental research**  
*Journal of Open Source Software*  
Beck MW, MN Schrandt, MR Wessel, ET Sherwood, GE Raulerson, AA Budihal, **BD Best**
- 2021 ● **36. Improving the IEA approach using principles of open data science**  
*Coastal Management*  
Bastille K, S Hardison, L DeWitt, J Brown, J Samhour, S Gaichas, S Lucey, K Kearney, **BD Best**, S Cross, S Large, E Spooner
- 2020 ● **35. Data-driven approach for highlighting priority areas for protection in marine areas beyond national jurisdiction**  
*Marine Policy*  
**Best BD**, ME Visalli\*, RB Cabral, W Cheung, N Clark, C Garilao, K Kaschner, ..., DJ McCauley  
\* shared first authorship
- 2019 ● **34. A Marine Biodiversity Observation Network (MBON) Pole-to-Pole of the Americas in Support of Conservation and Sustainable Use of Living Resources in the Sea**  
*AGU Fall Meeting Abstracts*  
Montes, E, G Canonico, MT Kavanaugh, P Miloslavich, E Klein, **BD Best**, S Habtes, EG Escobar-Briones, G Bigatti, and M Di Domenico
- 2019 ● **33. Submarine Cable Analysis for U.S. Marine Renewable Energy Development**  
*NREL Technical Report*  
**Best BD**, L Kilcher
- 2019 ● **32. Competing Use Analysis for Offshore Renewables and Subsea Cables**  
*MHKDR Dataset*  
**Best BD**, L Kilcher

- 2019 ● **31. Global Observational Needs and Resources for Marine Biodiversity**  
*Frontiers in Marine Science*  
Canonico G, PL Buttigieg, E Montes, CA Stepien, D Wright, ..., **BD Best**, ... BJ Murton
- 2019 ● **30. Minimizing wildlife impacts for offshore wind energy development: Winning tradeoffs for birds in space and cetaceans in time**  
*PLoS ONE*  
Best **BD**, PN Halpin
- 2018 ● **29. A Global Database of Intentionally Deployed Wrecks to Serve as Artificial Reefs**  
*Data in Brief*  
Ilieva I, L Jouvet, L Seidelin, **BD Best**, S Aldabet, R da Silva, D Amor A Ovando
- 2018 ● **28. Advancing Marine Biological Observations linking the Essential Ocean Variables (EOVs) and Essential Biodiversity Variables (EBVs) Frameworks**  
*Frontiers in Marine Science*  
Muller-Karger FE, P Miloslavich, NJ Bax, S Simmons, MJ Costello, IS Pinto, G Canonico, W Turner, M Gill, E Montes, **BD Best**, J Pearlman, P Halpin, ..., G Geller
- 2018 ● **27. Satellite sensor requirements for monitoring essential biodiversity variables of coastal ecosystems**  
*Ecological Applications*  
Muller-Karger FE, E Hestir, C Ade, K Turpie, D Roberts, D Siegel, R Miller, ..., F Davis, **BD Best**, ...
- 2017 ● **26. Our path to better science in less time using open data science tools**  
*Nature Ecology & Evolution*  
Lowndes JS, **BD Best**, C Scarborough, JC Afflerbach, MR Frazier, CC O'Hara, N Jiang, BS Halpern
- 2016 ● **25. Habitat-based cetacean density models for the U.S. Atlantic and Gulf of Mexico**  
*Scientific Reports*  
Roberts JJ, **BD Best**, L Mannocci, E Fujioka, PN Halpin, DL Palka, LP Garrison, KD Mullin, TVN Cole, CB Khan, WA McLellan, DA Pabst, GG Lockhart
- 2015 ● **24. Best practices for assessing ocean health in multiple contexts using tailorable frameworks**  
*PeerJ*  
Lowndes, JSS, EJ Pacheco, **BD Best**, C Scarborough, C Longo, SK Katona, BS Halpern

- 2015 ● **23. Updated marine mammal distribution and abundance estimates in coastal British Columbia**  
*Journal of Cetacean Research and Management*  
**Best BD**, CH Fox, R Williams, PN Halpin, PC Paquet
- 2015 ● **22. Patterns and Emerging Trends in Global Ocean Health**  
*PLoS ONE*  
 Halpern BS, CL Longo, JSS Lowndes, **BD Best**, M Frazie, SK Katona, ...  
 ER Selig
- 2014 ● **21. Assessing the health of the U.S. west coast with a regional-scale application of the Ocean Health Index**  
*PLoS ONE*  
 Halpern BS, CL Longo, C Scarborough, D Hardy, **BD Best**, S Doney, S Katona, K McLeod, A Rosenberg, J Samhour
- 2014 ● **20. Data Integration for Conservation: Leveraging Multiple Data Types to Advance Ecological**  
*journal*  
 Fujioka E, CY Kot, BP Wallace, **BD Best**, J Moxley, J Cleary, B Donnelly, PN Halpin
- 2014 ● **19. A Regional-Scale Ocean Health Index for Brazil**  
*PLoS ONE*  
 Elfes CT, CL Longo, BS Halpern, D Hardy, C Scarborough, **BD Best**, T Pinheiro, G Dutra
- 2013 ● **18. Habitat-specific larval dispersal and marine connectivity: Implications for reserve design**  
*Ecosphere*  
 Anadón JD, M del Mar Mancha-Cisneros, **BD Best**, LR Gerber
- 2013 ● **17. Assessing global marine biodiversity status within a coupled socio-ecological perspective**  
*PLoS One*  
 Selig ER, CL Longo, BS Halpern, **BD Best**, D Hardy, CT Elfes, C Scarborough, KM Kleisner, SK Katona
- 2012 ● **16. An index to assess the health and benefits of the global ocean**  
*Nature*  
 Halpern BS, C Longo, D Hardy, KL McLeod, JF Samhour, SK Katona, K Kleisner, SE Lester, J O'Leary, M Ranelletti, AA Rosenberg, C Scarborough, ER Selig, **BD Best**, DR Brumbaugh, FS Chapin III, LB Crowder, KL Daly, SC Doney, C Elfes, MJ Fogarty, SD Gaines, K Jacobsen, LB Karrer, HM Leslie, E Neeley, D Pauly, S Polasky, B Ris, K St. Martin, GS Stone, UR Sumaila, D Zeller

- 2012 ● **15. Online Cetacean Habitat Modeling System for the U.S. East Coast and Gulf of Mexico**  
*Endangered Species Research*  
Best BD, PN Halpin, AJ Read, E Fujioka, CP Good, EA LaBrecque, RS Schick, JJ Roberts, LJ Hazen, SS Qian, DL Palka, LP Garrison, WA McLellan
- 2011 ● **14. Community structure in pelagic marine mammals at large spatial scales**  
*Marine Ecology Progress Series*  
Schick RS, PN Halpin, AJ Read, DL Urban, **BD Best**, CP Good, JJ Roberts, EA LaBrecque, DL Palka, H Whitehead, WA McClellan, DA Pabst, C Dunn
- 2011 ● **13. Dynamic habitat models: a new perspective in analyzing fisheries bycatch**  
*Ecology Letters*  
Zydelis R, RL Lewison, SA Shaffer, JE Moore, AM Boustany, JJ Roberts, M Sims, DC Dunn, **BD Best**, Y Tremblay, MA Kappes, PN Halpin, DP Costa, LB Crowder
- 2010 ● **12. Are all seeds equal? Spatially explicit comparisons of seed fall and sapling recruitment in a tropical forest**  
*Ecology Letters*  
Swamy V, J Terborgh, KG Dexter, **BD Best**, P Alvarez, F Cornejo
- 2010 ● **11. Spatio-temporal gap analysis of OBIS-SEAMAP project data: Assessment and way forward**  
*PLoS ONE*  
Kot CY, E Fujioka, LJ Hazen LJ, **BD Best**, AJ Read, PN Halpin
- 2010 ● **10. Marine Geospatial Ecology Tools: an integrated framework for ecological geoprocessing with ArcGIS, Python, R, MATLAB, and C++**  
*Ecosystem Modeling & Software*  
Roberts JJ, **BD Best**, DC Dunn, EA Trembl, PN Halpin
- 2010 ● **9. Program Design: Developing a Comprehensive Data Strategy**  
Chapter 11 in *Integrating and Applying Science: A handbook for effective coastal ecosystem assessment*. IAN press.  
Lookingbill T, MT Trice, S Carter, G Sanders G, **BD Best**, BJ Longstaff, JM Hawkey
- 2010 ● **8. Near bottom current direction inferred from comatulid crinoid feeding postures on the Terre Adélie and George V shelf, East Antarctica**  
*Deep Sea Research Part II: Topical Studies in Oceanography*  
Eléaume M, RJ Beaman, HJ Griffiths, **BD Best**, MK Riddle, V Wadley, SR Rintoul, LG Hemery, N Améziane

- 2009 ● **7. Predictive Marine Mammal Modeling for Queen Charlotte Basin, British Columbia**  
Technical Report for Raincoast Conservation Foundation. 120 p.  
**Best BD**, PN Halpin
- 2009 ● **6. Striking the right balance in right whale conservation**  
*Canadian Journal of Fisheries and Aquatic Sciences*  
Schick RS, PN Halpin, AJ Read, CK Slay, SD Kraus, BR Mate, MF Baumgartner, JJ Roberts, **BD Best**, CP Good, SR Loarie, JS Clark
- 2009 ● **5. OBIS-SEAMAP: The world data center for marine mammal, sea bird and sea turtle distributions**  
*Oceanography*  
Halpin PN, AJ Read, E Fujioka, **BD Best**, B Donnelly, LJ Hazen, C Kot, K Urian, E LaBrecque, C Good, LB Crowder, KD Hyrenbach
- 2008 ● **4. Understanding movement data and movement processes: current and emerging directions**  
*Ecology Letters*  
Schick RS, SR Loarie, F Colchero, **BD Best**, A Boustany, DA Conde, PN Halpin, LN Joppa, CM McClellan, JS Clark
- 2007 ● **3. Geospatial web services within a scientific workflow: Predicting marine mammal habitats in a dynamic environment**  
*Ecological Informatics*  
**Best BD**, PN Halpin, E Fujioka, AJ Read, SS Qian, LJ Hazen, RS Schick
- 2007 ● **2. Marine Animal Data Applications**  
Chapter 4 in *ArcMarine: GIS for a Blue Planet*  
Halpin PN, E Fujioka, MS Coyne, **BD Best**
- 2006 ● **1. OBIS-SEAMAP: developing a biogeographic research data commons for the ecological studies of marine mammals, seabirds, and sea turtles**  
*Marine Ecology Progress Series*  
Halpin PN, AJ Read, BD Best, KD Hyrenbach KD, E Fujioka, MS Coyne, LB Crowder, SA Freeman, C Spoerri