

EDUCATION

PhD in Environmental Science and Management (September 2017 – Current)

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

Advisors: Steven Gaines & Christopher Costello

Committee: Fiorenza Micheli & Kyle Meng

Master of Environmental Science and Management. 2017

Coastal Marine Resources Management Specialization

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

Thesis: A general approach and tool to evaluate the effectiveness of no-take marine reserves

Advisor: Christopher Costello

Bachelor of Science in Oceanography, *Honors*. 2015

Facultad de Ciencias Marinas – Universidad Autónoma de Baja California (UABC)

Thesis: Latitudinal differences in size-structure of fish populations along the Pacific coast of Baja California

Advisor: Arturo Ramírez-Valdez

FUNDING

Scholarships and Fellowships (Total \$219,000 USD)

2017 *CONACyT International Student's Doctoral Fellowship (2017 – 2021)* (\$146,619 USD)

2017 *UC Mexus-CONACyT Doctoral Fellowship (2017 – 2022)*

2017 *Latin American Fisheries Fellowship Doctoral Fellowship (2017 – 2019)* (\$14,352 USD)

2015 *CONACyT International Student's Masters Fellowship.* (\$64,946 USD)

2015 *Latin American Fisheries Fellowship. Masters Fellowship* (\$42,000 USD)

2013 *Fellowship by Asociación Nacional de Oceanólogos (ASOCEAN).* To perform a research internship at SQUALUS (NGO), Cali, Colombia (\$2,000 USD)

Grants and Awards (Total \$23,100 USD)

2019 Mohamed bin Zayed Species Conservation Fund: *Unveiling the Ecology of Giant Sea Bass (Stereolepis gigas): Generating knowledge to inform management of a critically endangered fish species.* With Arturo Ramírez-Valdez and Kyla Blincow (\$11,500 USD)

2018 H William Kuni Bren Research Award: *The proliferation of Fish Aggregating Devices (FADs) in the Caribbean Sea.* With Molly Wilson, Julia Lawson, and Ignacia Rivera (\$15,000 USD)

2017 PADI Foundation Research Grant. Natural history of the giant sea bass (*Stereolepis gigas*) in Mexican waters. With A. Ramírez-Valdez and P. Sgarlatta. (\$6,600 USD)

PEER-REVIEWED PUBLICATIONS

- In prep. Ramírez-Valdez, A., Montaña-Moctezuma G. **Villaseñor-Derbez J.C.**, Torres-Moye G. (*in prep.*). The forgotten forests: Fish communities in the southern limit of the giant kelp forest in the Northwestern Pacific
- In prep. **Villaseñor-Derbez J.C.**, Lynham J., Costello C. (*in prep.*). Well-Designed Environmental Markets Enable Large-Scale Marine Conservation. *Nature*
- R&R Lynham J., Nikolaev A., Vilela T., **Villaseñor-Derbez J.C.** (*in review*). Economic Impact of Two of the Largest Protected Areas on Earth. *Nature Communications*.
- 2019 **Villaseñor-Derbez, J.C.**, Aceves-Bueno E., Fulton, S., Suarez-Castillo, A., Hernández-Velasco, A., Torre, J., Micheli, F. (2019). An interdisciplinary evaluation of community-based TURF-reserves. *PLoS ONE*. <https://doi.org/10.1371/journal.pone.0221660>
- 2019 O'Hara, C. **Villaseñor-Derbez, J.C.** Ralph, G., Halpern, B. (2019). Mapping status and conservation of global at-risk marine biodiversity. *Conservation Letters*. <https://doi.org/10.1111/conl.12651>
- 2019 **Villaseñor-Derbez, J.C.** Fitzgerald S. (2019). Spatial variation in allometric growth of invasive lionfish has management implications. *PeerJ*. <https://doi.org/10.7717/peerj.6667>
- 2018 Paeke, J., Bogdanoff, A.K., Layman, C.A., Castillo, B., Chapman, J., Dahl, K., Patterson, W., Eddy, C., Ellis, R., Faletti, M., Higgs, N., Johnston, M., Muñoz, R., Sandel, V., **Villaseñor-Derbez, J.C.**, Morris Jr., J.A. (2018). Feeding ecology of invasive lionfish (*Pterois volitans* and *Pterois miles*) in the temperate and tropical western Atlantic. *Biological Invasions*. <https://doi.org/10.1007/s10530-018-1720-5>
- 2018 **Villaseñor-Derbez, J.C.** Faro, C., Wright, M., Martínez, J., Fitzgerald, S., Fulton, S., Mancha-Cisneros, M.M., McDonald, G., Micheli, F., Suárez, A., Torre, J., Costello, C. (2018). A user-friendly tool to evaluate the effectiveness of no-take marine reserves. *PLoS ONE*. <https://doi.org/10.1371/journal.pone.0191821>
- 2016 Hernández-Velasco, A.J., Fernández-Rivera Melo, F.J., Melo-Merino, S.M., **Villaseñor-Derbez, J.C.** (2016). Occurrence of *Holacanthus clarionensis* (Pomacanthidae), *Stegastes leucorus*, and *S. acapulcoensis* (Pomacentridae) at Isla Magdalena B.C.S., Mexico. *Marine Biodiversity Records*. <http://dx.doi.org/10.1186/s41200-016-0062-1>
- 2015 Ramírez-Valdez, A., Dominguez-Guerrero, I., Palacios-Salgado, D.S., Cota-Nieto J.J., Hinojosa-Arango G., Correa-Sandoval, F., Reyes-Bonilla, H., **Villaseñor-Derbez, J.C.**, Hernandez, A., Aburto-Oropeza, O. (2015). The nearshore fishes of the Cedros archipelago and their biogeographic affinities, northeastern Pacific. *CalCOFI Reports*
- 2015 Dreyfus M., Mejía-Trejo A., **Villaseñor-Derbez J.C.** (2015). Analysis of null sets (no catch) made by the Mexican tuna seine fleet (2000-2013). *Ciencias Marinas*. <http://dx.doi.org/10.7773/cm.v41i2.2471>
- 2014 **Villaseñor-Derbez J.C.** & Herrera-Pérez R. (2014). Brief description of prey selectivity and ontogenetic changes in the diet of the invasive lionfish *Pterois volitans* (Actinopterygii, Scorpaenidae) in the Mexican Caribbean. *Pan-American Journal of Aquatic Sciences*, 8(2):131-135

TEACHING AND MENTORING

Teaching

2019 ESM 201 – Ecology of Managed Ecosystems with Professor David Tilman

External Advisor and PhD Mentor for Master Group Theses

2019 Project: Assessing Brazil’s Marine Aquaculture Potential
Students: Caio Della Colleta Vianna, Eva Marrero, Kirby Bartlett, Anna Calle, Sandra Fogg

2018 Project: Procrastination thermometer: Economic quantification of delaying management in the Midriff Islands, Mexico
Students: Edaysi Bucio, Seleni Cruz, Vienna Saccomanno, Juliette Verstaen, Valeria Tamayo

2018 Project: Insurance instruments to leverage natural infrastructure for climate change resilience
Students: Mario Colon, Daniel Elkin, Lauren Kaapcke, Madison Meltzer, Casey Moorhead

UCSB Summer Research Mentorship Program

2018 Project: Optimal marine reserve design to maximize economic and conservation benefits
Student: Joseph Sausville

2018 Project: Ontogenetic habitat shifts in invasive lionfish
Student: Alisha Naidu

2018 Project: Small-scale variation in the diet of invasive lionfish
Student: Alex Ruelbach

Workshops ([link](#))

GitHub for Collaboration (March, 2019):

- Audience of ~35 people
- Part of the Eco-data-science workshops series
- Hour-long workshop on how to use GitHub for collaboration with more than one user

Evaluation of Marine Reserves in Mexico (July 2017, November 2018, March 2019)

- Total of 45 participants
- Members from NGOs and government agencies from 7+ countries
- Taught causal inference methods used to evaluate conservation interventions
- Introduced participants to the use of the Marine Reserve Evaluation Application (MAREA)

Introduction to R Markdown (October 2017)

- Audience of ~35 people
- Part of the Eco-data-science workshops series
- Hour-long workshop on the basics of R Markdown to promote transparent research and generate reproducible reports

REEFCheck California monitoring techniques (July 2015)

- Co-taught with Megan Wehrenberg (REEFCheck California) and Arturo Hernández (COBI)
- Instructed members from two fishing communities on scientific diving techniques and species identification in the Kelp Forests of Baja California

REFEREE SERVICE

- Ecological Modelling (2)

AFFILIATIONS TO ORGANIZATIONS

- Association of Environmental and Resource Economists
- Society for Conservation Biology
- Asociación de Oceanólogos de México

SCIENCE COMMUNICATION

- 2018 Hernández-Velasco A., Beas-Luna, R., **Villaseñor-Derbez, J.C.**, Domínguez-Guerrero I., Precoma de la Mora, M., Gómez, A. (2018). Los Bosques Sumergidos de México. *Biodiversitas* 137: 2 - 6
- 2017 Ramírez-Valdez A., Sgarlatta M.P., **Villaseñor-Derbez J.C.**, Rowell T.J., Erisman B., Hernández A. (2017). Buscando al gigante de los bosques de kelp en las aguas de Baja California: el mero gigante. *Mediterranews*. [DOI 10.13140/RG.2.2.17855.82082](https://doi.org/10.13140/RG.2.2.17855.82082)
- 2016 Dreyfus, M., Robles, H., **Villaseñor-Derbez, J.C.** (2016). Distribución espacial de tallas del atún aleta amarilla (*Thunnus albacares*) capturado por la flota atunera mexicana durante el 2001 y 2014. *El Vigía*, 20(43), 5:8.
- 2015 **Villaseñor-Derbez J.C.**, Hernández-Velasco, A, Erauskin, M., Fulton, S., Cota-Nieto, J.J., Torre-Cosío, J., Herzka-Llona, S., Aburto-Oropeza, A. (2015). Effects of short-term marine reserves on grouper and bass populations. *DataMares. Interactive Resource*. <http://dx.doi.org/10.13022/M33K52>
- 2015 Hernández-Velasco, A., **Villaseñor-Derbez, J.C.**, Suárez Castillo, A., Torre Cosío, A., Espinoza, A. (2015). Isla Natividad en la Reserva del Vizcaíno. *Espacio Profundo*, 136: 34-40.
- 2015 Robles H., Dreyfus M., **Villaseñor-Derbez J.C.** (2015). Descargas de la flota atunera mexicana en el Pacífico Oriental en 2014 y su comparación con el período 1992-2013. *El Vigía*, 19(42), 3:5.
- 2014 Ramírez Valdez A., Montaña Moctezuma G., Torres Moya G., **Villaseñor Derbez J.C.**, Aburto-Oropeza O. (2014). Counting fish in the Kelp forests of Baja California. *DataMares. Interactive Resource*. <http://dx.doi.org/10.13022/M3BC7X>

ACADEMIC AWARDS

- 2014 Pedro Mercado Sánchez National Oceanography Award
- 2014 Distinguished Student of the Oceanography program
- 2013 1st Place for the best undergraduate presentation. 1st State Meeting of Young Researchers
- 2013 1st Place for the best undergraduate presentation. XXI Student Conference at the Facultad de Ciencias Marinas
- 2012 Distinguished Student of the Oceanography program

CONFERENCE PRESENTATIONS (*Indicates awarded)

- 2019* **Villaseñor-Derbez J.C.**, Lynham J., Costello C. Change in behavior and effort redistribution after implementation of Large Scale Marine Protected Areas. *Future Oceans2*
- 2018 **Villaseñor-Derbez, J.C.**, Aceves-Bueno E., Fulton, S., Suarez-Castillo, A., Hernández-Velasco, A., Torre, J., Micheli, F. Effectiveness of community-based marine reserves in small-scale fisheries. *3rd World Small-Scale Fisheries Conference*
- 2017 **J.C. Villaseñor-Derbez**, C. Faro, M. Wright, J. Martínez, C. Costello. A general approach and tool to evaluate the effectiveness of no take marine reserves. *28th International Congress for Conservation Biology*.
- 2014 **J.C. Villaseñor-Derbez**, A. Ramírez-Valdez, G. Montaña-Moctezuma, G. Torres-Moye. Because size matters: Differences in size structure of exploited and unexploited fish populations along the coasts of Baja California, Mexico. *XIV National Ichthyology Meeting and III Latin-American Ichthyology Symposium*.
- 2014 Ramírez-Valdez A., Montaña-Moctezuma G., Torres-Moye G., Aburto-Oropeza O., **Villaseñor-Derbez J.C.** Biogeographic relationships of fish communities associated to Kelp Forests off the coasts of Baja California, Mexico. *XIV National Ichthyology Meeting and III Latin-American Ichthyology Symposium*.
- 2014* **J.C. Villaseñor-Derbez**, A. Ramírez-Valdez, G. Montaña-Moctezuma, G. Torres-Moye. Effects of recreational fisheries over sizes and biomasses of fish associated to Kelp Forests. *2nd State Meeting of Young Researchers*.
- 2014* **J.C. Villaseñor-Derbez**, A. Ramírez-Valdez, G. Montaña-Moctezuma, G. Torres-Moye. Latitudinal distribution of sizes of fish associated to Kelp Forests off the coasts of Baja California, Mexico. *XVIII National Oceanography Conference*.
- 2014* **J.C. Villaseñor-Derbez**, A. Ramírez-Valdez, G. Montaña-Moctezuma, G. Torres-Moye. Latitudinal distribution of sizes of fish associated to Kelp Forests off the coasts of Baja California, Mexico. *XXII Student Conference at the Marine Sciences School and 1st National Student Conference on Marine and Environmental Sciences*.
- 2014 **J.C. Villaseñor-Derbez**. Description of feeding habits and ontogenetic changes in the invasive lion fish *Pterois volitans* (Linnaeus, 1758) diet off the coasts of Playa del Carmen, Quintana Roo. *1st Student Conference of Biological Sciences*.
- 2013 **J.C. Villaseñor-Derbez**, G. Montaña-Moctezuma, G. Torres-Moye y A. Ramírez-Valdez. Community relationships of fish associated to Kelp Forests off the coasts of Baja California, Mexico. *1st State Meeting of Young Researchers*
- 2013 **J.C. Villaseñor-Derbez**, G. Montaña-Moctezuma, G. Torres-Moye y A. Ramírez-Valdez. Community relationships of fish associated to Kelp Forests off the coasts of Baja California, Mexico. *XXI Student Conference at the Marine Sciences School*
- 2012 **J.C. Villaseñor-Derbez**. Contribution to knowledge of diet and biometrics of the invasive lionfish [*Pterois volitans* (Linnaeus 1758)] off the coasts of Playa del Carmen, Quintana Roo, Mexico. *XIII National Ichthyology Meeting and 1st Latin-American Ichthyology Symposium*

2012* **J.C. Villaseñor-Derbez.** Contribution to knowledge of diet and biometrics of the invasive lion fish [*Pterois volitans* (Linnaeus 1758)] off the coasts of Playa del Carmen, Quintana Roo, Mexico. *XX Student Conference at the Marine Sciences School*

ATTENDED COURSES

BigData (January 2018)

Rstudio::conf(2018L), San Diego, CA

BigData analysis and workflow in R and RStudio, by developer Edgar Ruiz

Telemetry tracking technologies for wildlife management and conservation (July 2017)

International Conference for Conservation Biology, Cartagena, Colombia

Basic introduction to telemetry techniques, by Robin Poches

A Primer to Causal Inference for Conservation Biologists (July 2017)

International Conference for Conservation Biology, Cartagena Colombia

Causal inference methods and theory for Conservation Biology, by Dr. Achaz von Hardenberg

Advanced Shiny (January 2017)

Rstudio::conf(2017L), Orlando, FL

Advanced techniques for the development of Shiny Apps with R and R Studio, by developer Joe Cheng

Marine Spatial Planning. (March 2016)

Ecosystem-Based Management Tools Training Event by NatureServe, San Juan, Puerto Rico

Introduction to SeaSketch, a software for collaborative marine spatial planning, by Grace Goldberg

Scientific Monitoring of Fishes Associated to Kelp Forests of *Macrocystis pyrifera* (October 2013)

Instituto de Investigaciones Oceanológicas (IIO), Facultad de Ciencias Marinas (FCM), Universidad Autónoma de Baja California (UABC), Ensenada, Baja California, Mexico

Training on methodology for scientific diving, north oriental Pacific fish species identification, abundance, and length estimations, macroalgae and heterogeneity of substrata. Lecturer: M. Sc. Arturo Ramírez

Marine Conservation Biology Course (Scholarship) (March 2013)

Comunidad y Biodiversidad, Isla Magdalena, Baja California Sur, Mexico.

Natural resource management, social research, society-nature interactions. Lecturers: Dr. Andrea Sáenz-Arroyo, Dr. Larry Crowder, Dr. Elena Finkbeiner

Coastal Ecology Course (Scholarship) (June 2011)

School for Field Studies (SFS) and Center for Coastal Studies

Puerto San Carlos, Baja California Sur, Mexico

Natural resource management, social research, society-nature interactions. Field work on marine ecology projects answering to local issues with different species (e.g. scallop, octopus, sea-lions, sea turtles, mangroves). Director: Dr. Gustavo Hinojosa

WORK EXPERIENCE

Independent Consultant – Comunidad y Biodiversidad (COBI) (06/17 – 03/19)

- Developed a web-based application to calculate operational costs of implementing community-based marine reserves.
- Prepared a course and materials to teach marine reserve evaluation methods to environmental managers and NGO members.
- Performed a national-level evaluation of marine reserves in Mexico with case studies from the Gulf of California, Pacific and Caribbean.

Field Assistant & Data Manager – Comunidad y Biodiversidad (COBI), La Paz, Mexico (03/15 - 07/15)

- Coordinated fieldwork to evaluate voluntarily-established marine reserves along Baja California
- Maintained a database with fish, invertebrate, and algae abundances derived from the underwater ecological surveys performed in the marine reserves
- Enabled communication among fishing community leaders, NGOs, and universities
- Wrote a protocol on how to operate oceanographic instruments used by fishers and staff. Produced 3 brochures, 1 interactive visualization and a peer-reviewed article on occurrences of tropical fish in temperate regions

Independent Consultant – Mexican Tuna Purse Seine Fleet Research Trust (02/2015 – 06/2015)

- Managed a database with information on tuna biometrics and landings from by the Mexican tuna fleet between 1992 and 2014.
- Maintained accurate records for reference by decision makers using the data to regulate fishing quotas and inform policy and management decisions.

Research Intern – Kelp Forest Ecology Research Group, Ensenada, Mexico (12/2011 – 12/2014)

- Performed SCUBA dives for *in situ* fish community sampling and video-transects for in-lab processing.
- Conducted algae sampling to determine habitat complexity and heterogeneity.
- Supervised dive safety
- Created a MATLAB-based software to capture information from the ecological surveys
- Maintained a database with the group's ecological data of fish species, used in different analyses
- Communicated the group's results to audiences of 20-50 people at local, national, and international scientific conferences

Research Intern - Fundación para el Estudio y Conservación de Condrictios, SQUALUS (06/13 - 08/13)

- Performed studies on sexual maturity, reproduction, and trophic ecology of six elasmobranch species.

On-board scientific observer – CICESE (9/13)

- Scientific observer on recreational vessels for white shark observation.
- Taking information on efforts of the activity, social perspective, and etology.

Intern - Facultad de Ciencias Marinas, Universidad Autónoma de Baja California (08/11 – 07/12)

- Field work on collecting water samples for Trace metals, Chlorophylls, Dissolved Organic Carbon, Salinity and Oxygen.
- Lab work analyzing water samples with spectrophotometers, oxygen titration (Winkler's Method) and preparing equipment for future sampling campaigns.

Oceanographic Cruise Intern - CICESE (3/12)

- In charge of performing CTD/LADCP casts and keeping track of navigation logbook.
- Spent 28 days at sea

SKILLS

Languages

- **Spanish** (Native)
- **English** (Fully fluent; TOEFL iBT: 102)
- **French** (Semi-fluent; DELF A2)

Computing and Software

- **R and RStudio:**
 - Package development
 - ShinyApp framework
 - R Markdown
 - Machine learning
 - Spatial analyses (vector and raster)
 - Numerical simulation
- **Git / GitHub:**
<https://github.com/jcvdav/>
- **MATLAB**
- **Google Cloud**
 - BigQuery (Standard SQL)
 - ComputeEngine

SCUBA

- **PADI (2200 + Dives):**
 - OpenWater Diver - 2007
 - Advanced OpenWater Diver - 2007
 - Rescue Diver - 2008
 - Dive Master - 2014
- **TDI:**
 - Sidemount Diver - 2016
- **Scientific Diving (200 + Dives)**
 - UABC Scientific Diver - 2013
 - Underwater ecological transects and quadrats
 - Identification of fish and invertebrates from the temperate Mexican Pacific and Caribbean
 - Moorings for oceanographic instruments