

## 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 review. **Villaseñor-Derbez J.C.**, Lynham J., Costello C. (*in review*). Well-Designed Fishery Markets Enable Large-Scale Marine Conservation. *Science*
- In review **Villaseñor-Derbez, J.C.**, Aceves-Bueno E., Fulton, S., Suarez-Castillo, A., Hernández-Velasco, A., Torre, J., Micheli, F. (*in prep.*). Effectiveness of community-based TURF-reserves in Mexican small-scale fisheries. *PLoS ONE*
- In review 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        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 Assistance

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

- In press Villaseñor-Derbez, J.C. El pez león invasor en el caribe mexicano. *In press*. Biodiversitas
- 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 1<sup>st</sup> Place for the best undergraduate presentation. 1<sup>st</sup> State Meeting of Young Researchers
- 2013 1<sup>st</sup> 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. *3<sup>rd</sup> 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. *28<sup>th</sup> 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 JC**. 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. *2<sup>nd</sup> 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 1<sup>st</sup> 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. *1<sup>st</sup> 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. *1<sup>st</sup> 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 lion fish [*Pterois volitans* (Linnaeus 1758)] off the coasts of Playa del Carmen, Quintana Roo, Mexico. *XIII National Ichthyology Meeting and 1<sup>st</sup> 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/jcvday/>
- **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