

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

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
- Millage K., **Villaseñor-Derbez J.C.**, Bradley D., Burgess M., Lenihan H., Costello C. (*in prep.*). Self-Financed Marine Protected Areas.
- In review Halpern B., Tuholske C., Blasco G., **Villaseñor-Derbez J.C.**, Frazier M., Caylor K.K. (*in review*). Mapping global inputs and impacts from of human sewage in coastal ecosystem. *PNAS*
- 2020 Wilson, M. W., Lawson, J. M., Rivera-Hechem, M. I., **Villaseñor-Derbez, J. C.**, & Gaines, S. D. (2020). Status and trends of moored fish aggregating device (MFAD) fisheries in the Caribbean and Bermuda. *Marine Policy*, 121, 104148.
- Lynham J., Nikolaev A., Rainor, J., Vilela T., **Villaseñor-Derbez J.C.** (*in press*). Economic Impact of Two of the Largest Protected Areas on Earth. *Nature Communications*. <https://doi.org/10.1038/s41467-020-14588-3>
- Villaseñor-Derbez J.C.**, Lynham J., Costello C. (2020). Environmental Market Design for Large-Scale Marine Conservation. *Nature Sustainability*. <https://doi.org/10.1038/s41893-019-0459-z>
- 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>
- 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>
- 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>
- 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 leucurus*, 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*

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 Assistantships

- 2020 ESM 206 – Introduction to Environmental Data Science & Statistics (100 + students)
- 2020 ESM 201 – Ecology of Managed Ecosystems with Professor David Tilman (86 students)
- 2019 ESM 201 – Ecology of Managed Ecosystems with Professor David Tilman (82 students)

External Advisor and PhD Mentor for Master Group Theses

- 2020 Project: Marine Extractive Reserve performance in Brazil
Students: Peyton Moore, Ruben Sanchez-Ramirez, Dylan Glave, Elliott
- 2019 Project: Assessing Brazil's Marine Aquaculture Potential
Students: Caio Della Colleta Vianna, Eva Marrero, Kirby Bartlett, Anna Calle, Sandra Fogg
- 2018 Project: 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

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*

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

SCIENCE COMMUNICATION

- 2020 **Villaseñor-Derbez, J.C.** El Pez León invasor en el Caribe Mexicano. (2020). *Biodiversitas* 149: 2- 6
- 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. *Mediterraneus*. 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>
- 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.
- 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 Moye 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>

AFFILIATIONS TO ORGANIZATIONS

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

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
 - 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
- **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 Mexican Caribbean
 - Mooring deployment for oceanographic instruments