

# Christian Briseño-Avena, PhD

## Curriculum Vitae

### Professional Interests:

I am a biological oceanographer and plankton ecologist, who uses novel *in situ* optical and acoustical technologies and computational methods to study predator-prey interactions and their response to physical forcing, at wide spatio-temporal scales and levels of organization (from individuals to ecosystems). I am interested in applying optical methods to study cryptic phenomena in the plankton and to understand species phenological changes via long-term time series and applying “big data” techniques. I am also an educator, with interest in applying proved and cutting-edge pedagogical techniques at undergraduate and graduate levels.

**Department of Environmental  
and Ocean Sciences  
University of San Diego**

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### EDUCATION

**PhD in Biological Oceanography.** 2009-2015. Scripps Institution of Oceanography. University of California San Diego. La Jolla, California, U.S.A.

**Master of Science.** 2006-2009. Department of Oceanography and Coastal Sciences. Louisiana State University. Baton Rouge, Louisiana, U.S.A.

**Bachelor of Science – General Biology.** 1999-2004. Department of Ecology. Universidad de Guadalajara. Guadalajara, Jalisco, México.

### APPOINTMENTS

Postdoctoral Fellow. June 2019 - Present. Department of Environmental and Ocean Sciences. University of San Diego, San Diego, CA. Collaborating with Dr. Jennifer C. Prairie. I am currently supporting laboratory-based experiments to investigate marine snow-zooplankton interactions. I am also an instructor of record supporting the teaching needs of the department.

Postdoctoral Scholar. October 2015- May 2019. Oregon State University. Hatfield Marine Science Center. Working in collaboration with Dr. Bob Cowen and Dr. Su Sponaugle. I was responsible for collecting, processing, and analyzing data collected with the *In Situ* Ichthyoplankton Imaging System (ISIIS) during CONCORDE research cruises in the Northern Gulf of Mexico. The CONSortium for COastal River Dominated Ecosystem is funded through the Gulf of Mexico Research Initiative (GOMRI). In addition, I supported laboratory and field research needs and contributed to successful grant proposals for NSF, BELMONT and MBON for research in the northern California Current Ecosystem.

Research Assistant. 2004-2005. Under supervision of Dr. Aaron Rodríguez-Contreras. Institute of Botany, University of Guadalajara (IBUG). Department of Botany and Zoology. I assisted in field expeditions collecting specimens mainly of the families Iridaceae, Solanaceae, Amaryllidaceae, and Anthericaceae. I curated specimens to be included in the Botany Collection and drew scientific illustrations (ink) for newly described species. University of Guadalajara.

Laboratory Technician. 2002-2003. Aquatic Ecosystems and Aquaculture Laboratory. Department of Ecology, University of Guadalajara, Mexico. My duties were to conduct fieldwork collecting zooplankton, as well as laboratory post-processing identifying zooplankton from the Eastern Tropical Pacific.

Student Worker. 2001-2002. Neurosciences Laboratory. Supervisor: Dr. Carlos Beas Zárate. Centro de Investigación Biomédica de Occidente (CIBO), Instituto Mexicano del Seguro Social (IMSS). Guadalajara, Mexico. I was in charge of brain dissections of laboratory rats, and preparing and processing samples for RNA extraction, PCR, and Electrophoresis essays.

### PEER-REVIEWED PUBLICATIONS

- Orenstein, E.C., Ratelle, D., **Briseño-Avena, C.**, Carter, M., Franks, P.J.S., Jaffe, J.S., Roberts, P.L.D. (In production). The Scripps Plankton Camera system: a framework and platform for *in situ* microscopy. *Limnology & Oceanography: Methods*. <http://dx.doi.org/10.1002/lom3.10394>
- Briseño-Avena, C.**, Schmid, M.S., Swieca, K., Sponaugle, S., Brodeur, R.D., and Cowen, R.K. 2020. Three-dimensional cross-shelf zooplankton distributions off the Central Oregon Coast during anomalous oceanographic conditions. *Progress in Oceanography*. <https://doi.org/10.1016/j.pocean.2020.102436>
- \*Axler, K.E., Sponaugle, S., **Briseño-Avena, C.**, Hernandez Jr., F. Warner, S.J., Dzwonkowski, B., Dykstra, S., and Cowen, R.K. 2020. Fine-scale larval fish distributions and predator-prey dynamics in a coastal river-dominated ecosystem. *Marine Ecology Progress Series*. <https://doi.org/10.3354/meps13397>
- Briseño-Avena, C.**, Prairie, J.C., Jaffe, J.S., and Franks, P.J.S. 2020. Comparing Vertical Distributions of Chl-a Fluorescence, Marine Snow, and Taxon-Specific Zooplankton in Relation to Density Using High Resolution Optical Measurements. *Frontiers in Marine Science*. <https://doi.org/10.3389/fmars.2020.00602>
- \*\*Swieca, K., Sponaugle, S., **Briseño-Avena, C.**, Schmid, M.S., Brodeur, R.D., and Cowen, R.K. 2020. Changing with the tides: fine-scale larval fish prey availability and predation pressure near a tidally modulated river plume. *Marine Ecology Progress Series*. <https://doi.org/10.3354/meps13367>
- Greer, A.T., Boyette, A.D., Cambazoglu, M.K., Cruz, V.J., Chiaverano, L.M., Pan, C., Dykstra, S.L., Dzwonkowski, B., **Briseño-Avena, C.**, Cowen, R.K., and Wiggert, J.D. 2020. Contrasting fine-scale distributional patterns of zooplankton driven by the formation of a diatom dominated thin layer on a river-influenced shelf ecosystem. *Limnology and Oceanography*. <https://doi.org/10.1002/lno.11450>
- Schmid, M.S., Cowen, R.K., Robinson, K., Luo, J., **Briseño-Avena, C.**, Sponaugle, S. 2020. Prey and predator overlap at the edge of a mesoscale eddy: fine-scale, in-situ distributions to inform our understanding of oceanographic processes. *Scientific Reports* **10**, 921. <https://doi.org/10.1038/s41598-020-57879-x>
- Spanbauer, T.L., **Briseño-Avena, C.**, Pitz, K.J., Suter, E. 2019. Salty Sensors, Fresh Ideas: The use of molecular and imaging sensors in understanding plankton dynamics across marine and freshwater ecosystems. *Limnology and Oceanography: Letters*, **5**: 169-184. <https://doi.org/10.1002/lol2.10128>
- Lombard, F., Boss, E., Waite, A.M., Uitz, J., Stemann, L., Sosik, H.M., Schulz, J., Romagnan, J.-B., Picheral, M., Pearlman, J., Ohman, M.D., Niehoff, B., Möller, K.O., Miloslavich, P., Lara-Lopez, A., Kudela, R.M., Mendez Lopes, R., Karp-Boss, L., Kiko, R., Jaffe, J.S., Iversen, M.H., Irisson, J.-O., Hauss, H., Guidi, L., Gorsky, G., Giering, S.L.C., Gaube, P., Gallager, S., Dubelaar, G., Cowen, R.K., Carlotti, F., **Briseño-Avena, C.**, Berline, L., Benoit-Bird, K.J., Bax, N.J., Batten, S.D., Ayata, S.-D., Appeltans, W. (2019). Globally consistent quantitative observations of planktonic ecosystems. *Frontiers in Marine Science*. **6**: 196. <https://doi.org/10.3389/fmars.2019.00196>
- Briseño-Avena, C.**, Franks, P.J.S., Roberts, P.L.D., and Jaffe, J.S. 2018. A diverse group of *echogenic* particles observed with a broadband, high frequency echosounder. *ICES Journal of Marine Science* **75**: 471-482. <https://doi.org/10.1093/icesjms/fsx171>
- Greer, A.T., A.M. Shiller, E.E. Hofmann, J.D. Wiggert, S.J. Warner, S.M. Parra, C. Pan, J.W. Book, D. Joung, S. Dykstra, J.W. Krause, B. Dzwonkowski, I.M. Soto, M.K. Cambazoglu, A.L. Deary, **C. Briseño-Avena**, A.D. Boyette, J.A. Kastler, V. Sanial, L. Hode, U. Nwankwo, L.M. Chiaverano, S.J. O'Brien, P.J. Fitzpatrick, Y.H. Lau, M.S. Dinniman, K.M. Martin, P. Ho, A.K. Mojziz, S.D. Howden, F.J. Hernandez, I. Church, T.N. Miles, S. Sponaugle, J.N. Moum, R.A. Arnone, R.K. Cowen, G.A. Jacobs, O. Schofield, and W.M. Graham. 2018. Functioning of coastal river-dominated ecosystems and implications for oil spill response: From observations to mechanisms and models. *Oceanography* **31**(3), <https://doi.org/10.5670/oceanog.2018.302>

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- Dzwonkowski, B., Greer, A.T., **Briseño-Avena, C.**, Krause, J.W., Soto, I.M., Hernandez, F.J., Deary, A.L., Wiggert, J.D., Joung, D., Fitzpatrick, P.J., O'Brien, S.J., Dykstra, S.L., Lau, Y., Cambazougle, M.K., Lockridge, G., Howden, S.D., Shiller, A.M., and Graham, W.M. 2017. Estuarine influence on biogeochemical properties of the Alabama shelf during the fall season. *Continental Shelf Research*, **140**: 96-109. <https://doi.org/10.1016/j.csr.2017.05.001>
- Greer, A.T., **Briseño-Avena, C.**, Deary, A.L., Cowen, R.K., Hernandez, F.J., and Graham, W.M. 2017. Associations between lobster phyllosoma and gelatinous zooplankton in relation to oceanographic properties in the northern Gulf of Mexico. *Fisheries Oceanography*, **26**: 693-704. <https://doi.org/10.1111/fog.12228>
- Kelly, P.T., Bell, T., Reisinger, A.J., Spanbauer, T.L., Bortolotti, L.E., Brentrup, J.A., **Briseño-Avena, C.**, Dong, X., Flanagan, A., Follet, E.M., Grosse, J., Guy-Haim, T., Holgerson, M.A., Hovel, R.A., Luo, J.Y., Millette, N.C., Mine, A., Muscarella, M.E., Oliver, S.K., and Smith, H.J. 2017. Aquatic sciences: An effective networking and professional development opportunity for early career scientists. *Limnology and Oceanography Bulletin*, **26**: 25-30. <https://doi.org/10.1002/lob.10180>
- Briseño-Avena, C.**, Roberts, P.L.D., Franks, P.J.S., and Jaffe, J.S. 2015. ZOOPS-O<sup>2</sup>: An Underwater Wide-band Sonar with Simultaneous Stereo-optic Imaging for Observing Plankton. *Methods in Oceanography*. **12**: 36-54. <https://doi.org/10.1016/j.mio.2015.07.001>

Graduate Student Paper: \*Masters; \*\*PhD

### BOOK CHAPTERS

- Jaffe, J.S., Franks, P.J.S., **Briseño-Avena, C.**, Roberts, P.L.D., & Laxton, B. 2013. Advances in underwater fluorometry: from bulk fluorescence to planar laser imaging. *In Subsea Optics and Imaging*, 1<sup>st</sup> Edn, pp. 536-549. Ed. by Watson, J. & Zieliski, O. Woodhead Publishing Series in Electronic and Optical Materials, Woodhead Publishing. <https://doi.org/10.1533/9780857093523.3.536>

### CONFERENCE PROCEEDINGS

- Briseño-Avena, C.**, Jaffe, J.S., Roberts, P.L.D., and Franks, P.J.S., 2013. *In situ* measurement of the individual target strength of crustacean zooplankton with concurrent optical identification. *POMA*, 19, 005024. <https://doi.org/10.1121/1.4800720>

### PEER REVIEW PARTICIPATION

#### Journal Peer-review Service:

*Limnology and Oceanography: Methods*  
*ICES Journal of Marine Science*  
*Methods in Oceanography*  
*Progress in Oceanography*  
*Marine and Freshwater Research*

#### Grant Proposal Peer-review Service:

*OER-FFO- NOAA* (mail review and panelist)  
 GRP of the U.S. National Academies of Sciences, Engineering and Medicine (mail review)

## **TEACHING EXPERIENCE AND CONTINUING EDUCATION**

- Instructor of Record. EOSC220: Introduction to Atmospheric and Ocean Sciences, Lab Sections. Fall Semester, 2019 & Spring Semester 2020. Department of Environmental and Ocean Sciences, University of San Diego.
- Certificate of Completion. “Developing and Teaching an Online Course”. 2020 Summer Enrichment Session 2. Magna Publications.
- Invited Lecturer. Biological Oceanography course taught by Dr. Darcy Taniguchi. UC San Marcos. Fall 2019. I gave a lecture on “In Situ Methods to study Pelagic Metazooplankton: why spatial and temporal scales matter.”
- Certificate of Completion. “Building Your Toolkit for Student-Centered Course Design Series”. Center for Educational Excellence, Summer, 2019. University of San Diego.
- Invited Lecturer. Marine Biology (BI 450) course taught by Su Sponaugle, PhD. Spring Quarter, 2017. Oregon State University. I lectured on Plankton Ecology.
- Invited Lecturer. Zooplankton Ecology course taught by Jennifer C. Prairie, PhD. Spring Semester 2015. University of San Diego. I gave a lecture titled “Pelagic Zooplankton Sampling Methods: Why spatial and temporal scales matter.”
- Teaching Assistant. SIO 189 – Statistical Methods in Marine Biology, taught by Brice Semmens. Full responsibility running computer lab sessions. Fall Quarter 2014. University of California, San Diego.
- Invited Lecturer. SIO 280 – Biological Oceanography, taught by Peter J.S. Franks. Fall Quarter 2013. University of California, San Diego. I lectured on Metazoan Zooplankton.

## **MENTORING**

- Rhonda Papp. Undergraduate Summer Research Student. University of San Diego. I guided Rhonda through the research development steps, from background research, hypothesis writing, data processing and final presentation at the 2020 Summer Undergraduate Research Colloquium. Rhonda presented her poster at the 2020 Society for Advancement of Chicanos/Hispanics & Native Americans in Science (SACNAS).
- Leah Ring. Student Undergraduate Research Experience (SURE) fellow. University of San Diego. Co-advised by Dr. Jennifer Prairie. We guided Leah through the research development steps, from background research, hypothesis writing, data processing and final presentation at the 2020 Summer Undergraduate Research Colloquium. Leah presented her poster at the 2020 Society for Advancement of Chicanos/Hispanics & Native Americans in Science (SACNAS).
- Hennessy Martinez (high school student). 2019 Summer Research Scholar Program “Bridging the Gap”. In collaboration with Dr. Jennifer Prairie. University of San Diego.
- Michaela Buchanan (undergraduate, OSU). 2018. In collaboration with Christopher Sullivan of the Center for Genome Research and Biocomputing (CGRB), I worked with Michaela to port our existing imaging processing pipeline over to two important high throughput cloud computing platforms: Xsede (NSF-funded) and NimbleX (commercial). Michaela presented a poster of her work at the 2018 Annual CGRB Fall conference and won first place student award for her work.
- Meghan Angelina (undergraduate; currently Master’s student at Clemson University). 2016 NOAA-NGI Diversity Internship. University of Southern Mississippi, Gulf Coast Research Laboratory. I taught Meghan to process and analyze mesozooplankton gut fluorescence (a proxy for grazing) samples. I was also involved mentoring her during the data analysis and provided feedback on the final presentation for the program summit, where she presented her work. Meghan is now pursuing a M.S. at Clemson University.
- Olivia Blondeheim (undergraduate, Drew University). 2016 Oregon State University Summer Research Experiences for Undergraduates (REU) program. Olivia presented a poster from her work at HMSC at the 2016 Western Society of Naturalists conference.

## AWARDS

Eco-DAS 2016. I was selected to attend the XII Ecological Dissertation in Aquatic Sciences workshop.

Sponsored by the National Science Foundation and the Association for the Sciences of Limnology and Oceanography. Hosted by the Center for Microbial Oceanography (CMORE) University of Hawaii at Manoa, Honolulu, Hawaii, U.S.A. October 23-29.

Teaching Assistant Excellence Award. Fall Quarter 2014. University of California, San Diego.

Arts Proceeds Award. Spring Quarter 2014. SIO Graduate School Fellowship to support PhD research.

Shirley Boyd Memorial Fellowship Award. 2013-2014. SIO Graduate School Fellowship funds to support PhD research.

Mexican Marine Science Scholars Fellowship (William T. Hammond) Award. 2013-2014. SIO Graduate School Fellowship funds to support PhD research.

CONACyT-UCMEXUS PhD Fellowship. Granted for the period September 2009- September 2014.

## PRESENTATIONS AND SCIENTIFIC MEETINGS

### 2020

Invited Seminar Speaker. **Briseño-Avena, C.** Small-Scale Dynamics in Zooplankton Ecology: Lessons from Field and Laboratory Experiments. Department of Plankton of Marine Ecology, Centro Interdisciplinario de Ciencias Marinas (CICIMAR), Instituto Politécnico Nacional (IPN). October 28, 2020.

Session Co-chair. Schmid, M.S., Orenstein, E.C., **Briseño-Avena, C.**, Davies, E. Artificial Intelligence Systems for Advancing the Study of Aquatic Ecosystems (Oral & Poster sessions). 2020 Ocean Sciences Meeting (OSM), San Diego, CA, U.S.A.

Oral presentation. **Briseño-Avena, C.**, Greer, A.T., Chiaverano, L., Graham, W.M., Sponaugle, S., Cowen, R.K. The relationship between water column stratification, pelagic habitat heterogeneity and plankton diversity in a neritic, river-dominated environment. 2020 OSM, San Diego, CA, U.S.A.

Poster. Schmid, M.S., Cowen, R.K., Robinson, K.L., Luo, J.Y., **Briseño-Avena, C.**, Sponaugle, S. Prey and predator overlap at the edge of a mesoscale eddy: fine-scale, in-situ distributions to inform our understanding of oceanographic processes. 2020 OSM, San Diego, CA, U.S.A.

Poster. Orenstein, E.C., **Briseño-Avena, C.**, Roberts, P.L.D., Jaffe, J.S., Franks, P.J.S. High-temporal resolution in situ imaging learning to observe copepod-parasite interactions. 2020 OSM, San Diego, CA., U.S.A.

Undergraduate Poster. Drake, T., Prairie, J.C., Martinez, H., **Briseño-Avena, C.** Quantifying reactions of copepods to marine snow through image analysis. 2020 OSM, San Diego, CA, U.S.A.

Highschool Poster. Martinez, H., Prairie, J.C., Drake, T., **Briseño-Avena, C.** Observing interactions between marine snow and tethered and free-swimming copepods. 2020 OSM, San Diego, CA, U.S.A.

### 2018

Oral presentation. **Briseño-Avena, C.**, Muñoz, I., Robinson, K.L., McCall, M.C., Luo, J.Y., Sponaugle, S., Cowen, R.K., Sullivan, C.M. From Raw Image to Classified Data: A Coming of Change Big Data Challenge for Biological Oceanography. 2018 Ocean Sciences Meeting, Portland, OR. U.S.A.

Oral presentation. **Briseño-Avena, C.**, Muñoz, I., Robinson, K.L., McCall, M.C., Luo, J.Y., Sponaugle, S., Cowen, R.K., Sullivan, C.M. From Raw Image to Classified Data: A Coming of Change Big Data Challenge for Biological Oceanography. 2018 Ocean Sciences Meeting, Portland, OR. U.S.A.

Oral presentation. Swieca, K., Sponaugle, S., **Briseño-Avena, C.**, Cowen, R.K., Brodeur, R. 2018. Fine-scale horizontal and vertical distribution of larval fishes, their prey, and their predators in the tidally modulated Columbia River Plume. 42<sup>nd</sup> Annual Larval Fish Conference. Victoria, BC, Canada.

Poster. Axler, K., Sponaugle, S., Hernandez, F., **Briseño-Avena, C.**, and Cowen, R.K. 2018. Variability in ichthyoplankton distributions and growth across river plumes in the northern Gulf of Mexico. 42<sup>nd</sup> Annual Larval Fish Conference. Victoria, BC, Canada.

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### 2017

- Invited Speaker. **Briseño-Avena, C.**, Warner, S.J., Greer, A.T., Soto-Ramos, I., Parra, S.M., Deary, A.L., Hernandez, F.J., Graham, M., Moum, J.N., Cowen, R.K., Weidemann A.D., and Book, J.W. Turbulence Microstructure in Coastal River Plumes: Measuring the *In Situ* Effects on Plankton. 2017 Gulf of Mexico Oil Spill & Ecosystem Science Conference. February 6-9. New Orleans, LA, U.S.A.
- Oral presentation. Warner, S.J., Parra, S.M., Book, J.W., **Briseño-Avena, C.**, and Moum, J.N. The impact of River Plumes and Variable Winds on Cross-Isopycnal Transport in the Northern Gulf of Mexico. 2017 Gulf of Mexico Oil Spill & Ecosystem Science Conference. February 6-9. New Orleans, LA, U.S.A.
- Oral presentation. Greer, A.T., Church, I., Chiaverano, L.M., Williamson, M.H., **Briseño-Avena, C.**, Cowen, R.K. Combining Multibeam Acoustics and In Situ Imaging to Resolve Patch Structure of Shrimp Aggregations and Gelatinous Zooplankton in Relation to Hypoxia. 2017 Gulf of Mexico Oil Spill & Ecosystem Science Conference. February 6-9. New Orleans, LA, U.S.A.
- Poster. Chaplin, A., Krause, J.W., Pickering, R.A., **Briseño-Avena, C.**, Deary, A.L., and Hernandez Jr., F.J. Magnitude and Spatial Variability of Large Siliceous Particles on the Mississippi-Alabama Shelf During Spring. 2017 Gulf of Mexico Oil Spill & Ecosystem Science Conference. February 6-9. New Orleans, LA, U.S.A.

### 2016

- Poster. **Briseño-Avena, C.**, Franks, P.J.S., Prairie, J.C., Jaffe, J.S. *In Situ* High-resolution Optical Measurements of Taxon-specific Plankton Vertical Distributions: Evidence for Regulation by Water Density and Large Fluorescent Particles. 2016 Ocean Sciences Meeting. February 21-26, 2016. New Orleans, LA, U.S.A.
- Poster. Cowen, R.K., Graham, W.M., Hernandez, F.J. Jr., Krause, J.W., Howden, S.D., Church, I., **Briseño-Avena, C.\***, Greer, A.T., and Deary, A. CONCORDE: Measurement of Fine- to Sub-Mesoscale Processes Driving Autumn Plankton Distributions and Transport in the Highly Dynamic Coastal Shelf System of the Northern Gulf of Mexico. 2016 Gulf of Mexico Oil Spill & Ecosystem Science Conference. February 1-4, 2016. Tampa, FL, U.S.A. **\*Presenter.**
- Seminar Speaker. Fine-scale spatial and temporal plankton distributions in the Southern California Bight: lessons from in situ microscopes and broadband echosounders. Hatfield Marine Science Center. January 14, 2016.

### 2015

- Invited speaker. “Insights of environmental knowledge gained using plankton imaging systems. Geisel Library. April 20, 2015.

### 2014

- Poster. **Briseño-Avena, C.**, Roberts, P.L.D., Jaffe, J.S., and Franks, P.J.S. Diverse acoustically reflective targets identified with simultaneous stereographic optical imaging. 2014 Ocean Sciences Meeting. February 23-28. Honolulu, Hawaii, U.S.A.
- Oral presentation. **Briseño-Avena, C.**, Jaffe, J.S., Roberts, P.L.D., and Franks, P.J.S. Combining optics and acoustics to determine in situ properties of zooplankton and marine snow. Working Group on Fisheries, Acoustics, Science and Technology (WGFAST). May 6-9. New Bedford, Massachusetts, U.S.A.

### 2013

- Oral Presentation. **Briseño-Avena, C.**, Jaffe, J.S., Roberts, P.L.D., and Franks, P.J.S. *In situ* measurement of the individual target strength of crustacean zooplankton with concurrent optical identification. 21<sup>st</sup> International Congress on Acoustics. June, 2-7, Montréal, Canada.

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Oral Presentation. **Briseño-Avena, C.**, Franks, P.J.S., Jaffe, J.S., and Roberts, P.L.D. Exploring phytoplankton aggregations-zooplankton interactions using two camera systems: FIDO-Φ and O-Cam. ASLO Winter Meeting, February 17-22, New Orleans, Louisiana, U.S.A.

### 2011

Poster. **Briseño-Avena, C.**, Jaffe, J.S., Ohman, M.D., and Roberts, P.L.D. Dormancy in *Calanus pacificus californicus*: Are copepods safe from predators while overwintering? 5<sup>th</sup> International Zooplankton Production Symposium. March 14-18, 2011, Pucón, Chile.

### 2008

Oral Presentation. **Briseño-Avena, C.**, Benfield, M. C., Wiebe, P. H., and Greene, C. H. Fine- to basin-scale distributions of *Calanus finmarchicus* and its predators in Wilkinson Basin, Gulf of Maine during December 1998 and 1999 from VPR data. 2008 Ocean Sciences Meeting. March 2-7, Orlando, Florida.

Oral Presentation. **Briseño-Avena, C.** Investigating Plankton Distributions Using Video Plankton Recorder Data Collected in Wilkinson Basin, Gulf of Maine in Early Winter 1998. Graduate Student Symposium. February 22-24, LUMCON, Cocodrie, Louisiana, U.S.A.

Invited Graduate Student. Scientific Council for Oceanographic Research (SCOR) Working Group 130. May 7-9. University of São Paulo, São Paulo, Brazil.

### 2007

Invited Graduate Student. GLOBEC N/W Atlantic, Georges Bank Study PI Meeting. I presented the results of the manual processing of Video Plankton Recorder Imagery for GLOBEC cruises OC334 and EN331. Bigelow, Maine, U.S.A.

### 2003

Documentary Demo and Oral Presentation. **Briseño-Avena, C.** Coastal Marine Zooplankton. V Zoology Symposium. Department of Botany and Zoology, University of Guadalajara. November 26-28, Zapopan, Jalisco, Mexico.

### 2001

Oral presentation. **Briseño-Avena, C.** and García-Mendoza, E., 2001. Accessory Pigments inter-conversion in the centric diatom *Thalassiosira* sp. using HPLC techniques". National Meeting of the VI Verano de la Investigación Científica del Pacífico, August 29-31, Acapulco, Guerrero, Mexico. (Similar to NSF's REU program).

## OTHER CERTIFICATIONS

SIO Scientific Diving – 2010. NAUI Open Water EANX, ADV, and Scuba Rescue Diver certifications.

Diploma –English-Spanish Translation. 2005. Organización Mexicana de Traductores (OMT). Guadalajara, Jalisco, Mexico.

## SKILLS AND LANGUAGES

Proficient in Matlab

Statistical software: SAS, JMP

Basic knowledge on Python, Jupyter Notebooks, SQL (relational databases)

Zooplankton sampling using MOCNESS, Bongo, and conical nets.



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Zooplankton sample processing, curation and identification to major taxa levels and species based on first-hand experience on the Eastern Tropical Pacific, Gulf of Maine, Gulf of Mexico, Southern California Bight, northern California Current.

ZOOSCAN: I am well versed using this instrument to sort and process plankton samples. I am knowledgeable in building training sets for image sorting and identification.

Languages: English (ESL), Spanish (Native), Italian (Basic conversational)

### PRESENCE ON THE MEDIA

2020 <https://www.facebook.com/1001839903318504/posts/1745527122283108?sfn=mo>

2018 <http://ceos.oregonstate.edu/features/microscopes/>

2018 <https://www.zdnet.com/article/how-edge-computing-transformed-marine-biology-research-at-oregon-state-university/>

2018 <https://developer.ibm.com/linuxonpower/2018/09/10/using-gpus-classify-oceans-data/>

2017 <https://youtu.be/DHnR0kFin80>

### OUTREACH AND SERVICE ACTIVITIES

2020 UC San Diego's Alumni 101: Student Success Coaching – Figuring Out What's Next. Invited panelist to discuss First Generation Graduate experiences and challenges in STEM and Academia.

2020 SACNAS Mentor Judge of Undergraduate Research Poster Presentations; Mentor Judge & Moderator of Graduate Student Presentations in the Session “Life Sciences: Biology and Animal Sciences/Zoology”.

2020 FUTURE FACES OF STEM. Invited Panelist in LGBTQ+ & Latinx in STEM discussion groups.

2017 MATE ROV Oregon regional competition. I was a Ranger (highest category-high school) Task Judge for the Marine Advance Technology Education Oregon regional competition. April 29, 2017.

2017 HMSC Marine Science Day. I participated in this one day-long open house outreach activity were, along with other lab teams at Hatfield Marine Science Center we shared our research with the general public. April 8, 2017.

2017 Oregon Coast Renewable Energy Challenge. I was a task judge for solar powered devices built by 3<sup>rd</sup>-12<sup>th</sup> grade students. Hosted by Hatfield Marine Science Center. February 28, 2017.

Using 3D Imaging to Shed Light on the Unseen Beauty Beneath the Sea. Outreach and art collaboration project with UCSD undergraduate student Elizabeth Stringer. As part of the program I gave a talk on the insights of environmental knowledge I've gained using plankton imaging systems. Geisel Library. April 20, 2015.

Exploring Ocean STEM Careers. Invited scientist to a careers event to talk to middle through high school students interested in STEM careers. April 14, 2015.

Plankton Power! Invited scientist at the Birch Aquarium's SEA Days outreach program, September, 2014. <https://aquarium.ucsd.edu/blog/sea-days-plankton-power/>

SCOPE –SIO outreach program. Active volunteer to give tours aimed at middle and high school students and teachers interested in learning about the research being conducted at SIO.

Birch Aquarium Pier Full Moon Walks. Active volunteer to talk to the general public interested in the research activities at SIO, specifically in relation to zooplankton ecology and the instrumentation developed in house to observe these organisms.

Program Coordinator. Tutoring Program for under-represented minorities in collaboration with Rosa Parks Elementary School. I also tutored 4-7 graders during both academic years. The project was an outreach component of the Team for Inclusion and Diversity in Engineering and Science (TIDES) at Scripps Institution of Oceanography. 2011-2013

Ocean Commotion 2007 and 2008. Organized by the Louisiana Sea Grant College Program. An annual outreach event where laboratories in the School of the Coast and Environment at LSU presents to the general public the research being conducted.

Beach Sweep 2008. Organized by the Lake Pontchartrain Basin Foundation. September 20, 2008.

Invited Speaker by the Elementary Spanish Teachers from the LSU Lab School. March 31, 2008.



Briseño-Avena C.V.

St. Jean Vianney School. Visited junior high students and taught them the concept of food webs based using actual examples drawn from Louisiana ecosystems; Spring 2006.

### OCEANOGRAPHIC CRUISES AND FIELD EXPEDITIONS

MEZCAL Cruises (NSF) – Winter and Summer of 2018; Winter of 2019, aboard R/V Sikuliaq and R/V Sally Ride, respectively. Roles: cruise preparation, planning, loading and unloading for the Plankton Ecology Lab. Primarily in charge of the imaging system.

PTS03 – CONCORDE Summer Cruise –R/V *Point Sur*, July 22-31, 2016. Roles during cruise: **Chief Scientist**.

SHIMADA Summer Cruise – NOAA Ship *Bell S. Shimada*, June 12-26, 2016. Roles: cruise preparation, planning, loading and unloading for the Plankton Ecology Lab. I was in charge of the imaging system.

PTS02 – CONCORDE Spring Cruise –R/V *Point Sur*, March 29-April 11, 2016. Roles during cruise: Same as in PTS01.

PTS01 – CONCORDE Fall Cruise –R/V *Point Sur*, October 27- November 5, 2015. Roles during cruise: co-responsible of deploying and operating the In Situ Ichthyoplankton Imaging System (ISIIS) and coordinating the collection of mesozooplankton size-fractionated samples taken from MiniNESS tows to be used in dry mass and gut fluorescence analyses.

NH1203 –ZOOOPS-O<sup>2</sup> cruise –R/V *New Horizon*, March 27-29, 2012 (3 days). Role during cruise: test and perform optic-acoustic profiles to obtain *in situ* Wideband Target Strength (WTS) measurements of simultaneously optically identified zooplankton and other particles.

Moss Landing Flow Grazing experiment. –August-September, 2011. Role in experiment: scuba-dived to deploy, maintain and retrieve two benthic array versions of ZOOOPS-O, specially designed in the Jaffe laboratory for underwater imaging for this type of experiments. PI's: Jules S. Jaffe (SIO); Amatzia Genin (Hebrew University of Jerusalem), Stephen G. Monismith (Stanford).

AC2011 – FIDO-Φ/ZOOOPS-O cruise –R/V *New Horizon*, August 18-23, 2011 (6 days). Role during cruise: support during the deployment of the Free-falling platform.

P1106 –CCE LTER Process cruise –R/V *Melville*, June 18- July17, 2011 (30 days). Southern California Bight. Role during cruise: Responsible for Underwater Video Profiler (UVP5) deployment, trouble shooting the instrument, and image data quality control. I also supported MOCNESS and Bongo zooplankton net tows.

CalEchoes –Student-led cruise. Exploring California's Ecological Changes and Historical Origins. R/V *Melville*, September 25 – October 3, 2010 (8 days). Santa Barbara Basin. Role during cruise: I was in charge of MOCNESS zooplankton tows to ground truth a newly developed underwater camera system to observe zooplankton (O-Cam) developed in Jules Jaffe's lab at SIO.

CLIVAR P-18 –R/V *Ronald H. Brown*, December 14, 2007-January 18, 2008 (27 days). From San Diego, California, U.S.A. to Easter Island, Chile. Role during cruise: CTD operator and taking water samples for oxygen and rare gasses. I helped deploying ARGO floats and XBT's.

LOCO (Layered Organization of the Coastal Ocean) cruise. R/V *Thomas G. Thompson*. Monterey, CA., July 2006 (approx. one month). Role during cruise: I was in charge of ZOOVIS-SC (Zooplankton Visualization System-Self-contained) deployments. I assisted Mark Benfield (LSU) during assembling of the system, so I was put in charge of trouble-shooting the instrument since he did not partake in the cruise.

IMECOCAL 0301/02 (Investigaciones Mexicanas de la Corriente de California –Mexican Research on the the California Current). R/V *Francisco de Ulloa*. January 30 –February 22 2003 (23 days). Ensenada, Baja California to San Carlos, Baja California Sur, Mexico. Role during cruise: assisted with Bongo oblique tows, water sampling, and determination of oxygen content using the micro Winkler oxygen titration method on board.