

CURRICULUM VITAE

Dr. rer. nat. Jorge Rafael Bermúdez Monsalve

Personal information

Birth date: 10th September 1984
Birth place: Cuenca, Ecuador
Citizenship: Ecuador
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Current Position

2017-today: Senior Researcher at Galapagos Marine Research and Exploration, GMaRE (www.gmare.org). A joint Escuela Superior Politécnica del Litoral-Charles Darwin Foundation program. Santa Cruz island, Galapagos - Ecuador.

2014-today: Assistant Professor and Researcher at FIMCM | Facultad de Ingeniería Marítima y Ciencias del Mar. ESPOL | Escuela Superior Politécnica del Litoral Campus Gustavo Galindo Guayaquil - Ecuador.

Education

2011-2014: Doctoral degree (**Magna Cum Laude**) at the GEOMAR | Helmholtz Centre for Ocean Research in Kiel, Germany. Supervision by Dr. Ulf Riebesell and Dr. Monika Winder. Thesis: "Primary producers and future ocean scenarios: Effect of environmental variation on its macromolecular composition and consequences for higher trophic levels".

2008-2010: Master of Sciences, mention in Biological Oceanography at the GEOMAR | Helmholtz Centre for Ocean Research in Kiel, Germany. Thesis: "C:N:P ratios and fatty acids in diatoms and its influence on copepods development"

2006-2007: Professional title in Marine Biology (**Faculty Award for the best 2007 graduate student**), University of Concepción, Chile. Thesis: "Primary productivity and autotrophic biomass in relation with inorganic nutrients and river inputs in the Concepción upwelling system, central Chile".

2003-2006: Bachelor degree in Marine Biology; University of Concepción, Chile.

Professional Appointments

- Coordinator of the Galapagos Marine Research and Exploration, GMaRE (www.gmare.org). A joint Escuela Superior Politécnica del Litoral-Charles Darwin Foundation program. Santa Cruz island, Galapagos - Ecuador.
- Director of the Plankton Laboratory, Facultad de Ingeniería Marítima y Ciencias del Mar. ESPOL | Escuela Superior Politécnica del Litoral Campus Gustavo Galindo Guayaquil - Ecuador

Publications

- Iriarte JL, Vargas CA, Tapia FJ, **Bermúdez JR**, Urrutia RE (2012). Primary production and plankton carbon biomass in a river-influenced upwelling area off Concepción, Chile. *Progress In Oceanography*, 92: 97-109.
- Rossoll D*, **Bermúdez JR***, Hauss H, Schulz KG, Riebesell U, Sommer U, Winder M (2012). Ocean Acidification-Induced Food Quality Deterioration Constrains Trophic Transfer. *PLoS ONE* 7(4): e34737. doi:10.1371/journal.pone.0034737. (*Equal Contribution)
- **Bermúdez R**, Feng Y, Roleda MY, Tatters AO, Hutchins DA, Larsen T, et al. (2015) Long-Term Conditioning to Elevated pCO₂ and Warming Influences the Fatty and Amino Acid Composition of the Diatom *Cylindrotheca fusiformis*. *PLoS ONE* 10 (5): e0123945. doi:10.1371/journal.pone.0123945
- **Bermúdez JR**, Riebesell U, Larsen A, Winder M (2016). Ocean acidification reduces transfer of essential biomolecules in a natural plankton community. *Scientific Reports*, 6, 27749; doi: 10.1038/srep27749.
- **Bermúdez, J. R.**, Winder, M., Stuhr, A., Almén, A. K., Engström-Öst, J., and Riebesell, U. (2016). Effect of ocean acidification on the structure and fatty acid composition of a natural plankton community in the Baltic Sea, *Biogeosciences*, 13, 6625-6635, doi:10.5194/bg-13-6625-2016.
- Spilling, K., Schulz, K. G., Paul, A. J., Boxhammer, T., Achterberg, E. P., Hornick, T., Lischka, S., Stuhr, A., **Bermúdez, R.**, Czerny, J., Crawford, K., Brussaard, C. P. D., Grossart, H.-P., and Riebesell, U. (2016) Effects of ocean acidification on pelagic carbon fluxes in a mesocosm experiment, *Biogeosciences*, 13, 6081-6093, doi:10.5194/bg-13-6081-2016.
- Spilling, K., Paul, A. J., Virkkala, N., Hastings, T., Lischka, S., Stuhr, A., **Bermudez, R.**, Czerny, J., Boxhammer, T., Schulz, K. G., Ludwig, A., and Riebesell, U. (2016) Ocean acidification decreases plankton respiration: evidence from a mesocosm experiment, *Biogeosciences*, 13, 4707-4719, doi:10.5194/bg-13-4707-2016.
- Almén, A.-K., Vehmaa, A., Brutemark, A., Bach, L., Lischka, S., Stuhr, A., Furuhausen, S., Paul, A., **Bermúdez, J. R.**, Riebesell, U., and Engström-Öst, J. (2016) Negligible effects of ocean acidification on *Eurytemora affinis* (Copepoda) offspring production, *Biogeosciences*, 13, 1037-1048, doi:10.5194/bg-13-1037-2016.
- Riebesell U., Bach L.T., Bellerby R. G. J., **Bermúdez J. R.**, Boxhammer T., Czerny J., Larsen A., Ludwig A., Schulz K.G. (2017) Competitive fitness of a predominant pelagic calcifier impaired by ocean acidification. *Nature Geoscience* 10, 19–23 doi:10.1038/ngeo2854
- Winder, M., Bouquet J. M., **Bermúdez J. R.**, Berger S. A., Hansen T., Brandes J., Sazhin A. F., Nejstgaard J. N., Båmstedt U., Jakobsen H. H., Dutz J., Frischer M. E., Troedsson C. E., Thompson E. M. (2017) Increased appendicularian zooplankton alter carbon cycling under warmer more acidified ocean conditions. *Limnology and Oceanography*. doi: 10.1002/lno.10516
- Schulz K.G., Bach L.T., Bellerby R., **Bermudez R.**, Buedenbender J., Boxhammer T., Czerny J., Engel A., Ludwig A., Meyerhoefer M., Larsen A., Paul A., Sswat M. and Riebesell U. (2017). Phytoplankton blooms at increasing levels of atmospheric carbon dioxide: experimental evidence for negative effects on prymnesiophytes and positive on small picoeukaryotes. *Frontiers in Marine Sciences* 4:64. doi: 10.3389/fmars.2017.00064
- Izurieta A., Delgado B., Moity N., Calvopiña M., Cedeño I., Banda-Cruz G., Cruz E., Aguas M., Arroba F., Astudillo I., Bazurto D., Soria M., Banks S., Bayas Steve, Belli S., **Bermúdez R.**, et al. (2018) A collaboratively derived environmental research agenda for Galápagos. *Pacific Conservation Biology*. doi.org/10.1071/PC17053.
- Aray-Andrade MM, Uyaguari-Diaz MI, **Bermúdez JR**. (2018) Short-term deleterious effects of standard isolation and cultivation methods on new tropical freshwater microalgae strains. *PeerJ* 6:e5143 <https://doi.org/10.7717/peerj.5143>

- Alfaro A., **Bermudez J.** (2018) The scientific problem of plastic pollution: an ocean of reports with little standardization of procedures. *Revista Bionatura*. <https://www.revistabionatura.com/>
- Borbor-Cordova Mercy J., Torres Gladys, Mantilla-Saltos Gabriel, Casierra-Tomala Ashley, **Bermúdez J. Rafael**, Renteria Wellington, Bayot Bonny. (2019) Oceanography of Harmful Algal Blooms on the Ecuadorian Coast (1997–2017): Integrating Remote Sensing and Biological Data. *Frontiers in Marine Science* 6.
- Wout Van Echelpoel, Marie Anne Eurie Forio, Christine Van der heyden, **Rafael Bermúdez**, Long Ho, Andrea M. Rosado Moncayo, Rebeca N. Parra Narea, Luis E. Dominguez Granda, Danny Sanchez, Peter L. M. Goethals (2019) Spatial characteristics and temporal evolution of chemical and biological freshwater status as baseline assessment on the tropical island San Cristóbal (Galapagos, Ecuador). *Water — Open Access Journal*, in press.

Awards

- 2017: Escuela Superior Politécnica del Litoral, ESPOL. Award to the best researcher of the year 2017.
- 2007: University of Concepción, Chile. “Faculty of Natural Sciences and Oceanography Award” for achieving the highest academic performance of the 2007 Marine Biology promotion.

Project grants

- 2013: Integrate School of Ocean Sciences (ISOS), PhD. Miniproposals scheme: Project number D20/97.1. “Phytoplankton food quality responses after long-term exposure to high carbon dioxide levels”.
- 2015: ESPOL Research Grants. Project G1-DI-2015 “Propuesta de un diseño integral para la generación de productos algales con valor añadido a partir de aguas residuales domésticas”.
- 2016: IAEA Fellowship Grants. Project G1-DI-2015 “Propuesta de un diseño integral para la generación de productos algales con valor añadido a partir de aguas residuales domésticas”.
- 2017: Escuela Superior Politécnica del Litoral. Institutional Grant for the Galapagos Marine Research and Exploration program GMaRE.
- 2018: OA-ICC Grant for the Galapagos Ocean Acidification School CO₂ Vents a at Roca Redonda, Galapagos Islands: A Natural Laboratory for Long-Term Multidisciplinary Ocean Acidification Experiments and Capacity Building
- 2018: The Ocean Foundation Grant for the Ocean Acidification Monitoring Program in Galapagos.
- 2019: SY Acadia Grant for the Ocean Acidification Monitoring Program in Galapagos.

Services to profession

- 2013: Reviewer for *Biogeosciences*: www.biogeosciences.net
- 2014: Reviewer for *Marine Biotechnology*: <http://www.springer.com/life+sciences/ecology/journal/10126>

Courses Participation

- 01/2019: Latin American and Caribbean Regional Workshop on Ocean Acidification. Santa Marta Colombia.

- 05/2015: MaCuMBA SUMMER SCHOOL, Sampling, Isolation & Cultivation of Marine Microorganisms. Texel, the Netherlands.
- 11/2012-04/2013: Internship at the Department of Ecology, Environment and Plant Sciences, Stockholm University, Stockholm, Sweden.
- 09/2013: Sino-German Summer School: "Dynamics in Atmosphere and Ocean Coupling" Chinesisch-Deutsches Zentrum für Wissenschaftsförderung. Qingdao, China.
- 03/2011: Register at the Integrate School of Ocean Sciences (ISOS), Kiel, and participated in diverse postgraduate level courses.
- 01/2008: Course "Ecology and Diversity of Marine Microorganisms V", involved in the "Austral Summer Institute VIII", Organized by the University Of Concepción and the Woods Hole Oceanographic Institution. Dichato, Chile.
- 07/2008: Course "Microbial Oceanography" at the Bermuda Institute of Ocean Sciences, Bermuda Island, UK.
- 03/2006: Mecesup international course, UVA 0205 "Taxonomy and ecology of phytoplankton with emphasis in harmful species" University of Valparaíso, Chile.

Courses Organization

- 08/2018: Organizer and host of the 2018 Galapagos Ocean Acidification School CO₂ Vents a at Roca Redonda, Galapagos Islands: A Natural Laboratory for Long-Term Multidisciplinary Ocean Acidification Experiments and Capacity Building. Puerto Ayora, Galapagos

Teaching experience

- 2014-today: Supervised 10 undergraduate, 4 Master and 1 PhD student thesis.
- 2014-today: Lecturer of Biology, Biological Oceanography, Aquatic Ecology and Fisheries Oceanography at FIMCM | Facultad de Ingeniería Marítima y Ciencias del Mar. ESPOL | Escuela Superior Politécnica del Litoral.

Languages

- Spanish (native speaker)
- English (fluent)
- German (fluent)

Skills

- Organizer and leader of several **research expeditions** to the Galapagos and Mainland Ecuador.
- Scientific Diver.
- Proficiency in big data Statistical analysis, specially multivariate analysis in R Software.
- Leadership and organizational skills.