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Research interests

Ocean Remote Sensing, Biological Oceanography, Fisheries, Population Modeling, Biogeography, Bayesian Analysis

Education

- PhD in Oceanography, University of Oviedo (*Magna Cum Laude*), 2014
- M.Sc. in Ecology, University of Oviedo (*Magna Cum Laude*), 2005
- B.Sc. in Biological Sciences, University of Oviedo (average grade 7.9/10.0), 2003

Career history

- 2022- María Zambrano Researcher, Marine Ecology & Biogeochemistry Group, University of Oviedo
- 2021-2022: Senior Researcher at AZTI, Basque Research & Technology Alliance (BRTA)
- 2018-2021: Associate Research Scholar and [Nereus Fellow](#) at the Atmospheric & Oceanic Sciences Program, Princeton University
- 2014-2017: Postdoctoral Research Associate, Atmospheric & Ocean Sciences Program, Princeton University
- 2009-2014: Graduate Teaching Assistant, Department of Biology of Organisms and Systems, University of Oviedo
- 2006-2008: Doctoral Fellow (FICYT), Department of Biology of Organisms and Systems, University of Oviedo
- 2004-2005: Graduate Research Assistant, Institute for Natural Resources and Territorial Planning (Indurot), University of Oviedo
- 2003-2003: Graduate Research Assistant, Spanish Institute of Oceanography, Oceanographic Center of Gijón, Spain

Publications

Refereed articles (includes ISI journal rankings and the number of citations recorded in WOS at Feb 6th, 2023)

- 1 **González Taboada F.**, J.Y. Park, B.A. Muhling, D. Tommasi, K.R. Tanaka, R.R. Rykaczewski, C.A. Stock, J.L. Sarmiento. 2023. Anticipating fluctuations in bigeye tuna in the Pacific Ocean from three-dimensional ocean biogeochemistry. *Journal of Applied Ecology* 00: 1-17, doi: [10.1111/1365-2664.14346](#)
- 2 Chust, G., **F. González Taboada**, P. Álvarez, U. Cotano, L. Ibaibarriaga. 2023. Trade-offs between poleward shifts and phenological adjustments in marine species. *Ecological Indicators* 146: 109752. doi: [10.1016/j.ecolind.2022.109752](#)
- 3 Pino-Cortés, E. K. Gómez, **F. González Taboada**, J. Fu, A. Saiz-López, J. Höfer. 2022. Processing methodology of marine halogens and DMS emissions from CAMS for air quality modeling. *Air Quality, Atmosphere & Health* ##: 1-9, doi: [10.1007/s11869-022-01301-0](#)
- 4 Izquierdo-Muruais, P., J.M. Rico, **F. González Taboada**, R. González Gil, J. Arrontes. 2022. Characterization of marine heatwaves in the Cantabrian Sea, SW Bay of Biscay. *Estuarine, Coastal and Shelf Science* 274: 107923. doi: [10.1016/j.ecss.2022.107923](#)
- 5 Cael, B.B., C. B. Demeaux, S. Henson, C.A. Stock, **F. González Taboada**, J.J. John, A.D. Barton. 2022. Marine ecosystem changepoints spread under ocean warming in an Earth System Model. *Journal of Geophysical Research Biogeosciences* 127: e2021JGoo6571 (11 pp.). doi: [10.1029/2021JGoo6571](#)
- 6 Izquierdo-Muruais, P., **F. González Taboada**, R. González Gil, J. Arrontes, J.M. Rico. 2022. Alongshore upwelling modulates the intensity of marine heatwaves in a temperate coastal sea. *Science of the Total Environment* 835: 155478 (11 pp.). doi: [10.1016/j.scitotenv.2022.155478](#)
- 7 Petrik, C., **F. González Taboada**, C.A. Stock, J.L. Sarmiento. 2021. An updated life history scheme for marine fishes predicts recruitment variability and sensitivity to exploitation. *Global Ecology and Biogeography* 30(4): 870-882, doi: [10.1111/geb.13260](#)
- 8 Barton, A.D., **F. González Taboada**, A. Atkinson, C.E. Widdicombe, Ch. Stock. 2020. Integration of environmental variation by the marine plankton community. *Marine Ecology Progress Series*. 647: 1-16, doi: [10.3354/meps13432](#)
- 9 **González Taboada F.**, C.A. Stock, S. Griffies, J. Dunne, J.G. John, R.J. Small, H. Tsujino. 2019. Surface winds from atmospheric reanalysis lead to contrasting oceanic forcing and coastal upwelling patterns. *Ocean Modelling* 133: 79-111, doi: [10.1016/j.ocemod.2018.11.003](#)
- 10 **González Taboada F.**, A. Barton, C.A. Stock, J. Dunne, J.G. John. 2019. Seasonal to interannual predictability of oceanic net primary production inferred from satellite observations. *Progress in Oceanography* 170: 28-39, doi: [10.1016/j.poccean.2018.10.010](#)
- 11 González-Gil, R., **F. González Taboada**, C. Cáceres, J. Largier, R. Anadón. 2018. Winter mixing preconditioning of the spring phytoplankton bloom in the Bay of Biscay. *Limnology & Oceanography* 63(3): 1264-1282, doi: [10.1002/lno.10769](#)

- 12 Martínez, I., **F. González Taboada**, J. Naves, A. Fernandez, T. Wiegand. 2016. Decline and recovery of a large carnivore: environmental change and long-term trends in an endangered brown bear population. *Proceedings of the Royal Society B* 283: 20161832, doi: [10.1098/rspb.2016.1832](https://doi.org/10.1098/rspb.2016.1832)
- 13 García, F.C., E. García-Martín, **F. González Taboada**, S. Sal Bregua, P. Serret, Á. López-Urrutia. 2016. The allometry of the smallest: superlinear scaling of microbial metabolic rates in the Atlantic Ocean. *ISME Journal* 10(5): 1029-1036, doi: [10.1038/ismej.2015.203](https://doi.org/10.1038/ismej.2015.203)
- 14 **González Taboada, F.**, R. Anadón 2016 Determining the causes behind the collapse of a small pelagic fishery using Bayesian population modeling. *Ecological Applications* 26(3): 886-898, doi: [10.1890/15-0006](https://doi.org/10.1890/15-0006)
- 15 González-Gil, R., **F. González Taboada**, J. Höfer, R. Anadón. 2015. Winter mixing and coastal upwelling drive long-term changes in zooplankton in the Bay of Biscay (1993-2010). *Journal of Plankton Research* 37(2): 337-351, doi: [10.1093/plankt/fbv001](https://doi.org/10.1093/plankt/fbv001)
- 16 Bruggeman, D.J., T. Wiegand, J.R. Walters, **F. González Taboada**. 2014. Contrasting the ability of data to make inferences regarding dispersal for the Red-cockaded woodpecker (*Picoides borealis*). *Landscape Ecology* 29(4): 639-653, doi: [10.1007/s10980-014-0011-5](https://doi.org/10.1007/s10980-014-0011-5)
- 17 **González Taboada, F.**, R. Anadón. 2014. Seasonality of North Atlantic phytoplankton from space: trends and changes in environmental conditions (1998-2012). *Global Change Biology* 20(3): 698-712, doi: [10.1111/gcb.12352](https://doi.org/10.1111/gcb.12352)
- 18 Cáceres, C., **F. González Taboada**, J. Höfer, R. Anadón. 2013. Phytoplankton growth and microzooplankton grazing in the Subtropical Northeast Atlantic. *PLoS One* 8(7): e69159, doi: [10.1371/journal.pone.0069159](https://doi.org/10.1371/journal.pone.0069159)
- 19 Martínez, I., **F. González Taboada**, T. Wiegand, J.R. Obeso. 2013. Spatial patterns of seedling-adult associations in a temperate forest community. *Forest Ecology and Management* 296: 74-80, doi: [10.1016/j.foreco.2013.02.005](https://doi.org/10.1016/j.foreco.2013.02.005)
- 20 **González Taboada, F.**, R. Anadón. 2012. Patterns of change on sea surface temperature in the North Atlantic during the last three decades: beyond mean trends. *Climatic Change* 117(2): 419-431, doi: [10.1007/s10584-012-0485-6](https://doi.org/10.1007/s10584-012-0485-6).
- 21 Martínez, I., **F. González Taboada**, T. Wiegand, J.J. Camarero, E. Gutiérrez. 2012. Dispersal limitation and spatial scale affect model based projections of *Pinus uncinata* response to climate change in the Pyrenees. *Global Change Biology* 18(5): 1714-1724, doi: [10.1111/j.1365-2486.2012.02660.x](https://doi.org/10.1111/j.1365-2486.2012.02660.x).
- 22 **González Taboada, F.**, R. Anadón. 2010. Critique of the methods used to project global sea-level rise from global temperature. *Proceedings of the National Academy of Sciences U.S.A.* 107(29): E116-E117, doi: [10.1073/pnas.0914942107](https://doi.org/10.1073/pnas.0914942107). [Comment to Vermeer and Rahmstorf 2010, doi: [10.1073/pnas.0907765106](https://doi.org/10.1073/pnas.0907765106); see associated supporting materials and codes in my [ResearchGate profile](#)]
- 23 Martínez, I., T. Wiegand, **F. González Taboada**, J.R. Obeso. 2010. Spatial associations among tree species in a temperate forest community in North-western Spain. *Forest Ecology and Management* 260(4): 456-465, doi: [10.1016/j.foreco.2010.04.039](https://doi.org/10.1016/j.foreco.2010.04.039)
- 24 Acuña, J.L., M. López Álvarez, E. Nogueira, **F. González Taboada**. 2010. Diatom flotation at the onset of the spring phytoplankton bloom. *Marine Ecology Progress Series* 400: 115-125, doi: [10.3354/meps08405](https://doi.org/10.3354/meps08405)
- 25 **González Taboada, F.**, R. González-Gil, J. Höfer, S. González, R. Anadón. 2010. *Trichodesmium* spp. population structure in the eastern North Atlantic subtropical gyre. *Deep Sea Research I: Oceanographic Research Papers* 57(1): 65-77, doi: [10.1016/j.dsr.2009.09.005](https://doi.org/10.1016/j.dsr.2009.09.005)
- 26 Martínez, I., **F. González Taboada**. 2009. Seed dispersal patterns during a mast event: performance of alternative dispersal kernels. *Oecologia* 159(2): 389-400, doi: [10.1007/s00442-008-1218-4](https://doi.org/10.1007/s00442-008-1218-4)
- 27 **González Taboada, F.**, C. Nores, M.A. Álvarez. 2007. Breeding bird species richness in Spain: assessing diversity hypothesis at various scales. *Ecography* 30(2): 241-250, doi: [10.1111/j.0906-7590.2007.04824.x](https://doi.org/10.1111/j.0906-7590.2007.04824.x)

Book and book chapters

- Chust, G., **F. González Taboada**, J.A. Fernández-Salvador, W. Cheung, M. Coll. in press. *Climate Change Impacts on Marine Fish Ecology and Fisheries*. chapter (#19, pages 40?) in the book: *Ecology of Marine Fish*, Cabral, H., M. LePage, J. Lobry and O. LePage (eds.). Elsevier.
- **González Taboada, F.** 2019. *Understanding variability in marine fisheries: importance of environmental forcing*. Invited chapter (#15, pages 149-163) in the book: *Predicting Future Oceans*, Cisneros-Montemayor, A., W.L. Cheung, Y. Ota and A. (eds.). Elsevier, ISBN 978-01-281-7945-1, doi: [10.1016/B978-0-12-817945-1.00014-9](https://doi.org/10.1016/B978-0-12-817945-1.00014-9)
- **González Taboada, F.**, R. Anadón. 2011. *Análisis de Escenarios de Cambio Climático en Asturias*. Gobierno del Principado de Asturias, Consejería de Medio Ambiente, Ordenación del Territorio e Infraestructuras, Oficina para la Sostenibilidad, el Cambio Climático y la Participación, 128 pp. ISBN 978-84-694-2848-1. [in Spanish]

We also developed the accompanying website *Atlas del Cambio Climático en Asturias* to further disseminate the main results. The website includes summary texts, interactive maps and graphs highlighting the main results, and provides instruction to interrogate a geospatial database (WMS and WCS) to enable open access to the data. The webpage was active between 2011 and 2018 and received ~200 unique visits per month (please contact me if you have interest on the Atlas data; a copy with limited functionality can be accessed at "Internet Archive" through the "Wayback Machine", URL: <http://web.archive.org/web/20171102004150/http://idebos.bio.uniovi.es/GeoPortal/Atlas>).

Other publications

- European Commission, Directorate-General for Research and Innovation. 2022. *Marine biodiversity modelling study*, Publications Office of the European Union, doi: <https://data.europa.eu/doi/10.2777/213731>.
- Savina-Rolland M., A. Rindorf, J.E. Brown, S. Neuenfeldt, M. Van Deurs, P. Carbonara, M.T. Spedicato, A. Pierrucci, G. Chust, D. Garcia, L. Ibaibarriaga, **Taboada F.**, J. Depestele, K. Sys, L. Vansteenbrugge, H. Einberg, H. Ojaveer, J. Fincham, R. Girardin, G. Halouani, C. Lebigre, C. Munsch, P. Petitgas, M. Woillez, J.L. Zambonino Infante, P. Melià, B. O'connor, D. Reid, S. Uhlmann, G. Papantoniou, D. Politikos, K. Tsagarakis, V. Valavanis, C. Vassilopoulou, A.

Kempf, M. Taylor, D. Ustups, R. Voss. 2022. *SEAwise. Report on the key drivers of stock productivity and future environmental scenarios*. WP3 Deliverable 3.1, doi: [10.11583/DTU.21269295](https://doi.org/10.11583/DTU.21269295).

- **González Taboada, F.** 2014. *Application of Satellite Oceanography to the Study of Global Change Impacts on North Atlantic Pelagic Ecosystems*. PhD Thesis, Universidad de Oviedo. Available at the [Teseo repository](#) (ref. #1087782).
- Anadón, R., **González Taboada, F.** 2013. Cambéu climáticu n'Asturies. *Ciencias. Cartafueyos Asturianos de Ciencia y Teunoloxía: Revista de la Academia de la Llingua Asturiana* 3: 4-47. Available at the [Academia de la Llingua website](#) [in Bable].
- **González Taboada, F.**, J. Höfer, R. Anadón, F. Álvarez-Marqués. 2008. A new automatic routine for zooplankton counting, measurement and identification, in Worcester, T., L. Bajona y B. Branton, Proceedings of a Conference on Ocean Biodiversity Informatics, Canadian Science Advisory Secretariat Proceedings Series 2008/024. Available at the [OBI 2007 website](#).
- Álvarez Pardo, E., Á. Fernández López, **F. González Taboada**, J. Höfer, P. Gómez Gómez. 2008. Mortalidad en los concejos de Oviedo, Gijón y Avilés durante la epidemia de gripe de 1918. *Magister: Revista Miscelánea de Investigación* 22, pp. 93 - 105. ISSN 0212-6796. Available through [Dialnet](#) [in Spanish].

Data sets

- **González Taboada F.**, J.Y. Park, B.A. Muhling, D. Tommasi, K.R. Tanaka, R.R. Rykaczewski, C.A. Stock, J.L. Sarmiento. 2022. Anticipating fluctuations in bigeye tuna in the Pacific Ocean from three-dimensional ocean biogeochemistry. *Dryad, Dataset*, doi: [10.5061/dryad.x3ffbg7p9](https://doi.org/10.5061/dryad.x3ffbg7p9).

Participation in research projects

- "Plataforma Atlántica Interterritorial para un Crecimiento Azul Sostenible – PLÁTICAS". Ministerio de Agricultura, Pesca y Alimentación. Role: participation.
- "Marine Biodiversity Modelling Study" – European Commission Public Contract RTD/2021/MV/10, PI: Dr. Guillem Chust [AZTI]. Role: participation.
- "Urban Klima 2050 - Systemic implementation of the CC action in the Basque Country for increased urban resilience as full territory enabler". Funding: LIFE Grant agreement n°: LIFE18 IPC/ES/000001, PI: Dr. Guillem Chust [AZTI]. Role: participation.
- "SEAwise: Shapping ecosystem-based fisheries management". EU H2020 – Consortium of 24 European marine research institutions including AZTI. Project coordinator: Anna Rindorf [Technical University of Denmark (DTU)]. Role: participation.
- "Dynamic management of living marine resources from ocean biogeochemical observations and models", Princeton University Cooperative Institute for Modeling the Earth System (CIMES), National Oceanic and Atmospheric Administration (NOAA), U.S. Department of Commerce, PI: Dr. Fernando González Taboada [AWD 1005828]
- "The Southern Ocean as a natural laboratory to study Ocean-Atmosphere interactions: improving modeling outputs using SouthTRAC data", Chile CONICYT-DFG Germany-SouthTRAC Initiative, CONICYT FONDEQUIP Program, PI: Dr. D. Juan Höfer [DFG190001].
- "Nereus Program", The Nippon Foundation-University of British Columbia [consortium of six universities]. PI at Princeton University: Prof. Jorge Sarmiento.
- "Projecting Climate Impacts in Chesapeake Bay", National Oceanic and Atmospheric Administration (NOAA) Integrated Ecosystem Assessment (IEA) and National Centers for Coastal Ocean Sciences (NCCOS), U.S. Department of Commerce, Princeton University Cooperative Institute for Modeling the Earth System (CIMES), PI: Dr. D. Charles A. Stock
- "NOAA Marine Ecosystem Tipping Points Initiative", National Oceanic and Atmospheric Administration (NOAA), US Department of Commerce, PI: Dr. Charles Stock.
- "Development and inclusion within the Spatial Data Infrastructure of Asturias Government of regional climate change scenarios", Asturias Government, PIs: Dr. Ricardo Anadón Álvarez and Fernando González Taboada [CN-10-043]
- "Effects of global climate change on the biodiversity and sustainable development of rural areas of Asturias", Asturias Government, PIs: Dr. Ricardo Anadón Álvarez and Fernando González Taboada [CN-10-032]
- "Marine Biodiversity and Conservation", Master Erasmus Mundus, "Marine Biodiversity and Ecosystem Functioning EU Network of Excellence". (2007-2013, 2016)
- "DOS MARES. deep sea canyons and slopes in the Mediterranean and Cantabrian Seas: from synchrony in external forcing to natural resources-BIOCANT", Spanish Government, PI: Dr. D. Ricardo Anadón Álvarez/José Luis Acuña Fernández [MICINN-10-CTM2010-21810-Co3-02]
- "Larval retention fronts in Cudillero", Asturias Government. PI: Dr. D. José Luis Acuña [FC-08-IB08-120]
- "Characterization and modeling of spatiotemporal patterns of variation in coastal communities in Asturias", Spanish Government. PI: Dr. D. José Luis Acuña [CTM2006-05588/MAR]
- "Plankton carbon fluxes in Subtropical oligotrophic environments: a Lagrangian approach", Spanish Government. PI: Dr. D. Ricardo Anadón. [REN2003-09532-Co3-03]
- "Long-term monitoring of chemical and biological conditions in the Asturian shelf (Cudillero transect)", Spanish Institute of Oceanography-Universidad de Oviedo. Part of Project RADIALES. PI: Dr. D. Ricardo Anadón.
- "Spatial information system for the coastal and marine environments of Asturias", Asturias Government. PI: Dr. D. Miguel Ángel Álvarez. [CN-04-187]
- "Spatial information system of flooding areas in Asturias", 112 Asturias. PI: Dr. D. Miguel Ángel Álvarez. [CN-03-103]
- "Environmental and landscape analysis for the development of a natural reserve system in central area of Asturias", Asturias Government, IP: Dr. D. Miguel Ángel Álvarez.

- "Analysis of the natural reserve network of Asturias", Asturias Government, PI: Dr. D. Miguel Ángel Álvarez. [SV-PA-07-07].

Oceanographic cruises

- "RADIALES Program", R.V. José Rioja, Gijón transect (summer 2003) and Cudillero transect (regularly 2006-2013). Physical, chemical and biological sampling for the long-term monitoring of water conditions in the Cantabrian Sea.
- "BIOCANT-1" and "BIOCANT-2", R.V. Sarmiento de Gamboa (Gijón, 12 – 19 Mar 2012; Gijón, 30 Sep – 7 Oct, 2012). Sampling planktonic and benthic communities for the functional characterization of the Aviles Canyon (included zooplankton vertical profiles using MOCNESS).
- "COSTAS", R.V. García del Cid (Gijón, 4 Jul – Llanes, 14 Jul, 2008). Zooplankton sampling along the Asturian coast to analyze the impact of coastal morphology and fronts on plankton abundance (included alongshore transects using a LHPR).
- "CARPOS-06", R.V. Hespérides (La Coruña, 11 Oct - Cartagena, 30 Nov, 2006). Sediment traps, dilution experiments and plankton sampling to analyze the biological carbon pump in the NE Atlantic Subtropical Gyre.

Relevant scientific techniques and skills

Computing and software:

- Programming languages: *R* and *C/C++/C#*, also proficient with *Matlab*, *Python*, *Julia* and *Fortran (F90)*
- Statistical software: *R*, *Stan*, *Bugs*
- GIS: *Quantum GIS*, *ESRI ArcGis* and *ArctInfo [UNIX]*, *ENVI IDL*, *MapWindowGIS*, *Bilko*, *Brat*
- Office automation: *LaTeX*, *Office*, *Database management*
- Operating Systems: *Windows*, *Unix/Linux*
- Web sites and applications: *HTML & CSS*, *GeoServer*, *OpenLayers*

Modelling skills:

- *Bayesian Analysis; experience in spatiotemporal analysis, mixed models and Markov Chain Monte Carlo methods (including Sequential Monte Carlo and Particle Filters)*
- *Population Modeling; age structured and individual based population models, food web modeling*
- *Satellite data processing; experience with semi-analytical ocean color algorithms, and in the characterization of mesoscale structures using satellite altimetry data (eddy detection algorithms, including Lagrangian methods)*



Oviedo, February 1st 2023