



**Part A. PERSONAL INFORMATION**

<b>CV date</b>	25/01/2023
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First name	David		
Family name	Villegas Rios		
Gender (*)	Male	Date of Birth (dd/mm/yyyy)	10/07/1983
Social Security, Passport, ID number	53117692C		
e-mail	chirleu@gmail.com	URL Web	www.villegasrios.wordpress.com
Open Researcher and Contributor ID (ORCID) (*)	0000-0001-5660-5322		

(\*) *Mandatory*

**A.1. Current position**

Position	Ramón y Cajal Researcher		
Initial date	01/01/2023		
Institution	Instituto de Investigaciones Marinas (CSIC)		
Department/Centre	Marine Ecology and Resources		
Country	Spain	Phone number	986231930
Keywords	Marine ecosystem; Ecology (environment, fisheries and aquaculture interactions); Conservation biology; Marine ecosystem management; Selectivity (fisheries science)		

**A.2. Previous positions (research activity interruptions)**

Period	Position/Institution/Country/Cause of the interruption
2022-2022	Postdoctoral Researcher (Talento Senior) / Instituto de Investigaciones Marinas
2020 - 2022	IF-ERC Postdoctoral Researcher / Consejo Superior de Investigaciones Científicas
2018 - 2020	Marie Curie Postdoctoral Fellow / Institut Mediterrani d'Estudis Avançats
2017 - 2018	Biologist / Cofradia de Pescadores San Martiño de Bueu
2017 - 2018	Fisheries Consultant / Sustainable Fisheries Partnership
2014 - 2017	Marie Curie Postdoctoral Fellow / Institute of Marine Research of Norway
2012 - 2013	Biologist (high degree) / Instituto de Investigaciones Marinas
2008 - 2012	Predocctoral student / Instituto de Investigaciones Marinas
2007 - 2007	Internship / Universidade dos Azores
2005 - 2005	Internship / Instituto de Investigaciones Marinas

**A.3. Education**

PhD, Graduate Degree	University/Country	Year
PhD Marine Biology	University of Vigo	2013
Diploma de Estudios Avanzados (MSc Equivalent)	University of Vigo	2009
Licenciado en Biología Especialidad Biología Marina	University of Santiago de Compostela	2006

**Part B. CV SUMMARY** (*max. 5000 characters, including spaces*)

My scientific and technical contributions include 43 scientific papers (first and corresponding author in 17 of them) and 4 technical reports. I have written primary research, reviews, concept papers and methods papers. I have participated in 20 communications at 15 international conferences. My research is high impact, with 29 scientific papers in the first quartile (Q1) and 15 in the first decile (D1). I routinely publish in the best journals of my field (eg. Fish and Fisheries, Global Change



Biology). I have co-organized 2 international workshops and 1 international conference, and participated in 14 research projects. My work has been cited >800 times with a H factor of 16. I have supervised 3 MSc international students. I've reviewed papers for 16 journals, and I was member of the jury of 1 PhD thesis. I applied 3 times to the Marie-Sklodowska Curie fellowships: 2 proposals were funded and the third got the Seal of Excellence by the EU Commission. My research has been directly applied into fish conservation and management by impacting the decision-making process in a small MPA in Norway, and by being considered to prepare an exemption to the landing obligation for coastal elasmobranchs.

I have demonstrated my commitment to make my results available and understandable to the non-scientific community. I have a personal website ([www.villegasrios.wordpress.com](http://www.villegasrios.wordpress.com)) with frequent updates about my research. I have also maintained websites for my main projects, e.g. [www.befishproject.wordpress.com](http://www.befishproject.wordpress.com). I have a Twitter handle (@David\_chirleu) with >4000 impressions on a regular basis. I also have a Youtube channel where I share videos of my work. I have written popular science articles for the Methods Blog (the official blog of the journal Methods in Ecology and Evolution), the EU Research Magazine (the official journal of the EU funded projects) or articles in the Marine Biology Magazine (from the Journal of the Marine Biological Association of the UK). I have been interviewed by radio shows and newspapers in Spain, Portugal and Norway and I have been featured in several TV shows in Spain. My PhD research was the topic on a documentary ("Tagged for survival") that got the first prize at the San Sebastian International Underwater Film Festival. I have participated in Science Festivals (Ponteciencia 2019) and visited schools. I'm the co-founder of the scientific blog Blue Ecology ([www.ecologiaazul.com](http://www.ecologiaazul.com)) with >100K visits per year.

My career has always had a strong international component. As Bachelor student, I did 2 stays (1.5 months in total) at the Station Biologique de Roscoff (France). As a recently graduated, I spent 6 months doing research at the University of Azores (Portugal). During my PhD I did a 3-months research stay at the Florida Fish and Wildlife Research Institute (USA) with a FPU mobility grants. As a postdoc researcher, I spent 2.5 yr at the Institute of Marine Research of Norway with a Marie-Sklodowska Curie fellowship. I have been PI of two European projects (BEMAR and BEFISH), and I participated in several national competitive projects in countries like Portugal (PICOBEL), USA (Reddrum and Snook) and Norway (Croscen; see full list below). As a result of all this international activity, I have co-authored papers with more than 90 authors from 17 countries. I'm also a regular collaborator with the international organisation Sustainable Fisheries Partnership. I have applied to the Starting and Consolidator Grants from the ERC (without success) which shows my commitment with international and high-impact science.

I have shown a great leadership ability and independence. The fact that 81% of my articles do not include my PhD supervisors (95% as postdoc) is clear indication of my ability to create my own network of collaborators. I have been funded by highly competitive grants > 85% of my career. For instance, my MSc was funded by 2 competitive fellowships: one from a private entity (success rate=25%) and one from the Galician Government (success rate ~20%). My PhD was funded by a FPU fellowship (success rate= 20%). As a PhD student, I conceptualized, wrote and led the project that funded my research (Artevigo). My first and second postdocs were funded by 2 Marie-Sklodowska Curie projects by the EU (success ratio=11%): BEMAR and BEFISH, granted with >400,000 €. Managing BEMAR and BEFISH involved taking decisions, coordinating teams of people, organizing meetings and events and managing a budget. Having been granted two Marie-Sklodowska Curie postdoctoral fellowships is the best evidence of my ability of independent thinking, as they fund cutting-edge research. My third postdoc was funded by an excellence MSCA IF-ERC fellowship from the CSIC (success ratio=40%). After having completed 8.5 years of postdoctoral research, and having published some pioneering papers at the interaction between behavioural ecology and fisheries, I'm now a lead scientist in the field.

## Part C. RELEVANT MERITS

### C.1. Publications (\* denotes corresponding author)

1. **\*Villegas-Ríos, D.**; Carla Freitas; Even Moland; Esben Olsen. (2022). Eco-evolutionary dynamics of Atlantic cod spatial behaviour after the implementation of a marine reserve *Evolutionary Applications* 15 (11), 1846-1858. (IF 4.9; 0 cites). *In this recent paper we provide evidence, for the first time in aquatic animals, of the effect of protection granted by marine reserves in the behaviour of aquatic populations.*
2. **\*Villegas-Ríos, D.**, Jacoby, D., Mourier, J. (2022). Social networks and the conservation of fish. *Communications biology*, 5 (1), 178 (IF 6.3; 5 cites). *This is a Perspective paper in*



which I and my co-authors analysed the potential of social network analysis to address broad fish conservation themes, such as fisheries, eco-tourism, aquaculture or biological invasions. We also review how these aspects can be addressed with current technology and identify research opportunities.

3. Laura Casas; Pablo Sanz-Agudelo; **Villegas-Ríos, D.**; Xabier Irigoien; Fran Saborido-Rey. (2021). Genomic landscape of geographically structured color polymorphism in a temperate marine fish *Molecular Ecology*. 30, pp.1281-1296. (IF 6.6; 7 cites). *Using genomic tools, we provide evidence of an incipient geographically-structured speciation process in a small coastal fish characterized by two main morphotypes.*
4. **\*Villegas-Ríos, D.**, Claudet, J., Freitas, C., Moland, E., Thorbjørnsen, S.H., Alonso-Fernández, A., Olsen, E. (2021). Time at risk: individual spatial behaviour drives effectiveness of marine protected areas and fitness. *Biological Conservation*, 263: 109333 (IF 5.9; 8 cites). *This paper investigated how individual variation in spatial behaviour determines the degree of protection granted by a marine reserve to individuals of a fish community. This is a key paper because it is the first that provides a quantification of the fitness benefits of the different behavioural strategies. In other words, it reveals how and why individual behaviour needs to be considered when designing and implementing marine reserves around the globe.*
5. **\*Villegas-Ríos, D.**, Freitas, C., Thorbjørnsen, S., Moland, E. Olsen, E.M. (2020). Inferring individual fate from acoustic telemetry data. *Methods in Ecology and Evolution*, 11 (10): 1186-1198 (IF 6.5; 30 cites; Featured in the cover). *This is a methods paper in which we describe a new method to infer fate (survival, fishing mortality, natural mortality, dispersal) from acoustic telemetry records of individuals moving in their natural environment. Determining fate in the wild is key to link it to behavioural traits displayed in the wild too. By doing so, researchers have now a means to calculate selection gradients in a non-lethal way opening up the range of eco-evolutionary questions that can be addressed with telemetry data.*
6. Barth, JMI, **Villegas-Ríos, D.**, Freitas, ... Jentoft, S. (2019). Disentangling structural genomic and behavioural barriers in a sea of connectivity. *Molecular Ecology*, 28: 1394-1411 (IF 6.2; 63 cites). *In this study we investigated the broad impact of behavioural vs. genetic barriers in structuring local populations of Atlantic cod. This paper has been widely cited so far because it was amongst the first to show that ecotypes can coexist in the same area but still reproduce in isolation. Our results provided the first insights into a complex interplay of genomic and behavioural isolating barriers in Atlantic cod and establish a new model system towards an understanding of the role of genomic structural variants in adaptation and diversification.*
7. **\*Villegas-Ríos, D.**; Denis Reale; Freitas Carla; Even Moland; Esben Olsen. (2018). Personalities predict spatial responses to environmental fluctuations and survival in wild fish *Journal of Animal Ecology*. 87-5, pp.1309-1319. (IF 5.6; 60 cites). *This paper was the first to investigate the ecological meaning of fish personalities showing how personality along the proactive-reactive continuum, as measured in the laboratory, was related to plasticity to environmental variation in the wild.*
8. **\*Villegas-Ríos, D.**, Reale, D., Freitas, C., Moland, E. Olsen, E.M. (2017) Individual-level consistency and correlations of fish spatial behaviour assessed from aquatic animal telemetry. *Animal behaviour*. 124: 83-94 (IF 3.2; 49 cites). *This study provided the first evidence of consistent and correlated behavioural traits in marine fish. It was the first to show that spatial ecology traits such as home range size and diel vertical migration were repeatable and therefore personality traits.*
9. **\*Villegas-Ríos, D.**, Moland, E. Olsen, E.M. (2017). Potential of contemporary evolution to erode fisheries benefit from marine reserves. *Fish and Fisheries*. 18(3): 571-577 (IF 7.6; 30 cites). *This opinion paper described for the first time the potential of marine reserves to select for individuals with little mobility and coined the term protection-induced selection. It provided the theoretical framework to understand why and how individual variation in behaviour matters for fish conservation.*
10. **\*Villegas-Ríos, D.**, Alós, J., March, D., Palmer, M., Mucientes, G., & Saborido-Rey, F. (2013). Home range and diel behavior of the ballan wrasse, *Labrus bergylta*, determined by acoustic telemetry. *Journal of Sea Research*, 80, 61-71. (IF 2.0; 92 cites). *This paper represented, by the time it was published, one neat example about the use of acoustic*



*telemetry to investigate spatial behaviour of reef fish. This one of the most cited papers on its kind as it set the basis to develop studies on spatial behaviour on marine fish.*

## C.2. Congresses (all selected contributions correspond to international conferences).

1. **Villegas-Ríos, D.**, Freitas, C., Moland, E. and Olsen, E. Contrasting strategies to cope with thermal variation in a wild fish community (poster). Wildlife Research and Conservation Conference. Berlin (Germany). 30 September-2 October 2019.
2. **Villegas-Ríos, D.**, Freitas, C., Thorbjørnsen, S., Moland, E. and Olsen, E. Inferring fate from acoustic telemetry records: challenges and opportunities (poster). 5th International Conference on Fish Telemetry. Arendal (Norway). 24-28 June 2019.
3. **Villegas-Ríos, D.**, Claudet, J., Freitas, C., Thorbjørnsen, S., Moland, E. and Olsen, E. Individual differences in time spent inside a marine reserve: drivers and eco-evolutionary consequences (oral). 5th International Conference on Fish Telemetry. Arendal (Norway). 24-28 June 2019.
4. Olsen, E., **Villegas-Ríos, D.**, Freitas, C. and Moland, E. Behavioural responses of Atlantic cod (*Gadus morhua*) to temperature change (oral). ASLO Aquatic Sciences Meeting. Honolulu (Hawaii). 26th February-3rd March 2017.
5. **Villegas-Ríos, D.**, Freitas, C., Moland, E. and Olsen, E. Personality and behavioural syndromes of wild Atlantic cod (oral). 3rd International Conference on Fish Telemetry. Halifax (Canada). 14-16 July 2015.
6. **Villegas-Ríos, D.**, Alós, J., Palmer, M., Alonso-Fernández, A., Lowerre-Barbieri, S.K. and Saborido-Rey, F. Seasonal behaviour of a marine coastal fish: drivers and implications for vulnerability (oral). 2nd International Conference on Fish Telemetry. Grahamstown (South Africa). 13-20 July 2013.
7. **Villegas-Ríos, D.**, Fabeiro, M., Domínguez-Petit, R. and Saborido-Rey, F. Reproductive traits and growth of *Labrus bergylta* in Galician waters (oral). Fresh-Fish Reproduction and Fisheries. Vigo (Spain). 16-20 May 2011.

## C.3. Research projects (selection)

1. **MOVE: Movescapes, connectivity hotspots and eco-evolutionary dynamics: protecting the functional role of predatory coastal fishes.** 173 700€. Biodiversa+ project. PCI2022-134970-2. National PI: Alexandre Alonso-Fernández. 1<sup>st</sup> January 2023 to 31<sup>st</sup> December 2026. **Member of the Scientific team (Postdoctoral researcher).**
2. **BEMAR: Protection-induced selection and evolution of behavior within marine reserves and the impact on fisheries sustainability.** Funder: European Union. Call: H2020 Marie Skłodowska Curie project (grant ID 793627). PI: David Villegas Ríos from the Mediterranean Institute for Advanced Sciences (Spain). 1<sup>st</sup> September 2018 to 6<sup>th</sup> December 2020. 170,121.80 €. **Principal Investigator.**
3. **CROSCON. Crossing the line: understanding connectivity between marine protected areas and fished areas.** Funder: Agder County (Norway). Call: Regional Research Fund. PI: Even Moland from the Institute of Marine Research of Norway. 1<sup>st</sup> September 2015 to 31<sup>st</sup> August 2017. 123.223 €. **Member of the Scientific team (Postdoctoral researcher).**
4. **ETN: European Tracking Network.** Funder: European Union. Call: COST actions (grant ID 18102). PI: Jan Reubens from the Flanders Institute (Belgium). 22<sup>nd</sup> March 2019 to 21<sup>st</sup> March 2023. 650,000 €. **Member of the Managing Committee.**
5. **BEFISH: Pace of life syndromes in coastal fish and the role of marine reserves.** Funder: European Union. Call: 7<sup>th</sup> Framework Programme Marie Skłodowska Curie project (grant ID 625852). PI: David Villegas Ríos from the Institute of Marine Research of Norway. 1<sup>st</sup> May 2014 to 30<sup>th</sup> April 2016. 230,943.60 €. **Principal Investigator.**
6. **ARTEVIGO. Biología y ecología de las especies pescadas por la flota artesanal de la Ría de Vigo** Funder: Xunta de Galicia (Spain). Call: Proxectos de Investigación (grant ID 09MMA022402PR). PI: Fran Saborido Rey from the Institute of Marine Research of Vigo (Spain). 1<sup>st</sup> September 2009 to 31<sup>st</sup> August 2012. 99,943.60 €. **Member of the Scientific team (PhD student).**