



Federica Costantini

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Education

2006

Ph.D. in Environmental Science.
University of Bologna, Ravenna, Italy.

2001

University Laurea degree (equivalent of Msc) in Environmental Science
University of Bologna, Ravenna, Italy.

Professional experience¹

29/11/2019-

Associate Professor, University of Bologna, Italy
Department of Biological, Geological and Environmental Science (BiGeA), University of Bologna, -UOS Ravenna, Italy
SSD: 05/C1 (BIO/07 – Ecologia).

29/11/2016-28/11/2019

Senior Researcher (RTDb) University of Bologna, Italy
Department of Biological, Geological and Environmental Science (BiGeA), University of Bologna, -UOS Ravenna, Italy
SSD: 05/C1 (BIO/07 – Ecologia). “Rad sequencing and connectivity in marine invertebrates”

29/11/2013-29/11/2016

Junior Researcher (RTDa) University of Bologna, Italy
Department of Biological, Geological and Environmental Science (BiGeA), University of Bologna, -UOS Ravenna, Italy,
SSD: 05/C1 (BIO/07 – Ecologia). “Rad sequencing and connectivity in marine invertebrates”

From 2009 to 2016

Postdoctoral Fellow (Assegno di ricerca), University of Bologna, ItalyCIRSA,
University of Bologna, Italy.
Post - Doctoral research fellow

Research interest

My research interests focus on population genetics and molecular systematic of coastal marine invertebrates for biodiversity conservation and management purposes. I am interested on the impact of changes in connectivity related to the alteration of coastal seascape (e.g. introduction of artificial habitats; aquaculture; urban waterfronts) among populations of marine and coastal invertebrates. Moreover, in the last year I more focus on marine benthic biodiversity conservation using integrative taxonomy approaches and metabarcoding techniques. My final goal is to at strengthen research at the interface between ecology, management, and environmental conservation to ensure that knowledge of marine processes and anthropogenic impacts is widespread in society and acquires an increasingly greater role in decision-making processes.

National and International advisory committees

2022-

Scientific Consultant at FAO-GFCM Working Group on red coral (WGREDCORAL)

2022-

Member of the Scientific Committee of the Interuniversity Center for Marine Biology and Applied Ecology “G. Bacci” of Livorno (CIBM) and UNIBO representative for the Boards of Directors

2022-

UNIBO representative of the European Marine Research Network EUROMARINE

¹ Since 2008, I had 10 months interruption for maternity leave (5 months in 2008 and 5 months in 2010-2011)

Participation to European Network

- EUROMARINE European Marine Research Network
- European Reference Genome Atlas (ERGA) initiative
- European ARMS programme (ARMS-MBON)
- Marine Biodiversity Observation Network for genetic monitoring of hard-bottom communities (MBON)
- Member of Management Committee EU COST Action CA20102 - Marine Animal Forest of the World (MAF WORLD)
- Member of Management Committee EU COST Action CA19107 - Unifying Approaches to Marine Connectivity for improved Resource Management for the Seas (SEA-UNICORN) and WP leader on “Promoting awareness on Marine Functional Connectivity and its ecological and economic importance”

Projects (last 5 years)

2024-2026

Principal Investigator of the ITALIA-VIETNAM joint research projects for scientific and technological cooperation between Italy and Vietnam for the three-year period 2024-2026 “Integrative approaches to monitor biodiversity changes for the conservation of urbanized areas along the South-Central Vietnam coasts”

2023-2026

WP2 leader of the HORIZON-MISS-2021-OCEAN-02 Project OCEAN CITIZEN “Marine forest coastal restoration: an underwater gardening socio-ecological plan”

2023 – 2026

European LIFE22-NAT-IT: “LIFE NatuReef Nature-based reef solution for coastal protection and marine biodiversity enhancement”, GA 101113742

2023-

Project “Ecosystem for Sustainable Transition in Emilia-Romagna” (ECOSISTER, Code: ECS_00000033 - CUP: B33D21019790006; Mission 04 Education and research - Component 2 From research to business Investment 1.5 - NextGenerationEU)

Project “RETURN” Extended Partnership and received funding from the European Union Next-GenerationEU (National Recovery and Resilience Plan – NRRP, Mission 4, Component 2, Investment 1.3 – D.D. 1243 2/8/2022, PE0000005)

2022-2025

Agence Nationale De La Recherche (ANR) – France “PopNCo Multiscale analysis of past and future temporal variability of marine population connectivity”

2021-

MC member of the EU COST Action CA20102, Marine Animal Forest of the world (MAF-WORLD)

2020-

WP leader on “Promoting awareness on Marine Functional Connectivity and its ecological and economic importance” of the EU COST Action CA19107 - Unifying Approaches to Marine Connectivity for improved Resource Management for the Seas (SEA-UNICORN)

2020-2023

Interreg V-A Italy-Croatia CBC Programme 2014-2020 CASCADE “CoAStal and marine watersintegrated monitoring systems for ecosystems proteCtion AnD management”

2019-2021

POR-FESR EMILIA ROMAGNA 2014-2020 TAO – Tecnologie per il monitorAggio cOstiero

2018-2021

European Project Martera – Era-Net Cofund “SEAMoBB - Solutions for sEmi-Automated Monitoring of Benthic Biodiversity”. Coordinator leader for theUniversity of Bologna

2016-2019

Italian Project PRIN 2015

“Resistance and resilience of Adriatic mesophotic biogenic habitats to human and climate change threats” - Task leader for the University of Bologna of the WP3: Genetic diversity and connectivity

Supervising Experience

7 Post Doc, 6 PhD students, 3 research assistants and more than 60 Master thesis supervisions and more than 30 Bachelor thesis (Environmental Science, Natural Sciences, Marine Biology, Biological Science, WACOMA)

Other professional and research activities

November 2022

Invited speaker on “Sustainable Blue Economy through the COST Action SEA-UNICORN (Unifying approaches to Marine Connectivity for Improved Resource Management for the Seas)” at Italy-South Africa bilateral workshop on “Green solutions and marine biodiversity for a sustainable blue growth”, South Africa

February 2022

Invited speaker on “Conserve and sustainably use the oceans, seas and marine resources for sustainable development” at Sustainable Futures: a STEAM approach – Eurasia Foundation. Pillar 3. Climate change, life under water and life on land (<https://www.ucm.es/siim/eurasia-foundation-complutense-2022-lectures-webinars>)

September 2021

Organizing Workshop EUROMARINE “Coral ecology and conservation in mesophotic temperate ecosystems (EComEs)”, Banyuls sur Mer, France

12 February 2019

Organizing Workshop EUROMARINE “Census of Marine Mediterranean Benthic Biodiversity: an integrative metabarcoding approach (CoMBoMed)”, Ravenna, Italy

Publications² (last 5 years)

Agiadi, K., Caswell, B. A., Almeida, R., Becheker, A., Blanco, A., Brito, C., **Costantini F.** ... & Darnaude, A. M. (2024). Geohistorical insights into marine functional connectivity. *ICES Journal of Marine Science*, fsae117.

Nozarpour, R., Shojaei, M. G., Chiarucci, A., Naderloo, R., Mikac, B., Colangelo, M. A., & **Costantini, F.** (2024). Functional diversity of the macrofauna communities in arid mangroves of the Persian Gulf and Gulf of Oman. *Regional Studies in Marine Science*, 74, 103534.

Gauff, R. P. M., Mugnai, F., Mancuso, F. P., Porri, F., **Costantini, F.**, & Airoidi, L. (2024). Distribution of native and non-indigenous bivalves and their settlers along an urban gradient. *Frontiers in Marine Science*, 11, 1401552

Innangi, S., Di Febbraro, M., Innangi, M., Grasselli, F., Belfiore, A.M., **Costantini, F.**, Romagnoli, C., Tonielli, R. (2024) Habitat suitability modelling to predict the distribution of deep coral ecosystems: The case of Linosa Island (southern Mediterranean Sea, Italy). *Marine Environmental Research*, 200, 106656.

Putelli, E., Costantini, F., & Tirelli, V. (2024). A first molecular insight into the invasive ctenophore *Mnemiopsis leidyi* in the northern Adriatic Sea. *Hydrobiologia*, 1-14.

Terzin, M., Villamor, A., Marincich, L., Matterson, K., Paletta, M. G., Bertuccio, V., ... & **Costantini, F.** (2024). 2bRAD reveals fine-scale genetic structuring among populations within the Mediterranean zoanthid *Parazoanthus axinellae* (Schmidt, 1862). *Coral Reefs*, 43(2), 357-370.

Darnaude, A. M., Tanner, S. E., Hunter, E., & **Costantini, F.** (2024). Advancing research in marine functional connectivity for improved policy and management. *Marine Ecology Progress Series*, 731, 1-8.

Mugnai, F., Mikac, B., Colangelo, M. A., Matterson, K. O., Abbiati, M., & **Costantini, F.** (2023). Integrative taxonomy approach to detect spatial and temporal variability of the Mediterranean benthic communities through artificial substrate units (ASUs). *Frontiers in Marine Science*, 10, 1113322.

Tagliabue, A., Matterson, K. O., Ponti, M., Turicchia, E., Abbiati, M., & **Costantini, F.** (2023). Sediment and bottom water eDNA metabarcoding to support coastal management. *Ocean & Coastal Management*, 244, 106785.

Thomassdotter, A., Shum, P., Mugnai, F., Vingiani, M., Dubut, V., Marschal, F., ... & **Costantini, F.** (2023). Spineless and overlooked: DNA metabarcoding of autonomous reef monitoring structures reveals intra- and interspecific genetic diversity in Mediterranean invertebrates. *Molecular Ecology Resources*, 23(7), 1689-1705.

Gianni F, Turicchia E, Abbiati M, Calcinaì B, Caragnano A, Ciriaco S, ... Falace A (2023) Spatial patterns and drivers of benthic community structure on the northern Adriatic biogenic reefs. *Biodiversity and Conservation*, 1-24.

Küçükağa Y, Facchin A, Stefanelli V, **Costantini F**, Kara S, Torri C (2023) Innovative char-sparger for improving volatile fatty acids (VFA) production in homoacetogenic fermentation of H₂/CO₂ with microbial mixed cultures (MMC). *Chemical Engineering Journal*, 144165.

Morello B, Bo M, Betti F, Bavestrello G, Abbiati M, **Costantini F** (2023) Spatial and temporal genetic structure of *Velella velella* (Hydrozoa, Porpitidae) and its predator *Janthina pallida* (Gastropoda, Epitoniidae). *Hydrobiologia*, 850(8), 1751-1762.

Piazzi L, Turicchia E, Rindi F, Falace A, Gennaro P, Abbiati M, ... Ponti M (2023) NUMBER: A biotic index for assessing the ecological quality of mesophotic biogenic reefs in the northern Adriatic Sea. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 33(3), 298-311.

Mugnai F, **Costantini F**, Chenuil A, Leduc M, Ortega J M G, Megléc E (2023) Be positive: customized reference databases and new, local barcodes balance false taxonomic assignments in metabarcoding studies. *PeerJ*, 11, e14616.

Timoncini A, **Costantini F**, Bernardi E, Martini C, Mugnai F, Mancuso F P, ...Chiavari C (2022) Insight on bacteria communities in outdoor bronze and marble artefacts in a changing environment. *Science of The Total Environment*, 850, 157804.

Poliseno A, Terzin M, Costantini F, Trainito E, Mačić V, Boavida J, ... Reimer J D (2022) Genome-wide SNPs data provides new insights into the population structure of the Atlantic-Mediterranean gold coral *Savalia savaglia* (Zoantharia: Parazoanthidae). *Ecological Genetics and Genomics*, 25, 100135.

Conforti S, **Costantini F** (2022) Potential crypticity within two decapod (Crustacea) genera: *Galathea Fabricius*, 1793 and *Eualus Thallwitz*, 1891 suggested by integrative taxonomic approach. *Mediterranean Marine Science*, 23(3).

² Underlined is when I am corresponding author

- Stankiewicz K H, Vasquez Kuntz K L, Coral Microsatellite Group, Baums I B (2022) The impact of estimator choice: Disagreement in clustering solutions across K estimators for Bayesian analysis of population genetic structure across a wide range of empirical data sets. *Molecular Ecology Resources*, 22(3), 1135-1148.
- Lendvay B, Cartier L E, **Costantini F**, Iwasaki N, Everett M V, Krzemnicki M S, ... & Morf N V (2022) Coral-ID: A forensically validated genetic test to identify precious coral material and its application to objects seized from illegal traffic. *Forensic Science International: Genetics*, 58, 102663.
- Darnaude A, Arnaud-Haond S, Hunter E, Gaggiotti O, Sturrock A, Beger M, ... & **Costantini F** (2022) Unifying approaches to Functional Marine Connectivity for improved marine resource management: the European SEA-UNICORN COST Action. *Research Ideas and Outcomes*, 8.
- Darnaude A M, Seker Y T, **Costantini F**, Tanner S, Sturrock A, López-López L, ... & Hunter E (2022) The SEA-UNICORN European COST Action: Advancing Knowledge on Marine Connectivity to Support Transition to a Sustainable Blue Economy. *Marine Technology Society Journal*, 56(3), 134-135.
- Mugnai F, Megléc E, Abbiati M, Bavestrello G, Bertasi F, Bo M, ... & **Costantini F** (2021) Are well-studied marine biodiversity hotspots still blackspots for animal barcoding?. *Global Ecology and Conservation*, 32, e01909
- Mikac B, Tarullo A, Colangelo M A, Abbiati M, **Costantini F** (2021). Shell infestation of the farmed Pacific oyster *Magallana gigas* by the endolith bivalve *Rocellaria dubia*. *Diversity*, 13(11), 526.
- Terzin M, Paletta M G, Matterson K, Coppari M, Bavestrello G, Abbiati M, ... & **Costantini F** (2021) Population genomic structure of the black coral *Antipathella subpinnata* in Mediterranean Vulnerable Marine Ecosystems. *Coral Reefs*, 40(3), 751-766.
- Romagnoli B, Grasselli F, **Costantini F**, Abbiati M, Romagnoli C, Innangi S, ... & Tonielli R (2021) Evaluating the distribution of priority benthic habitats through a remotely operated vehicle to support conservation measures off Linosa Island (Sicily Channel, Mediterranean Sea). *Aquatic Conservation: Marine and Freshwater Ecosystems*, 31(7), 1686-1699.
- Villamor A, Signorini L F, **Costantini F**, Terzin M, Abbiati M (2020) Evidence of genetic isolation between two Mediterranean morphotypes of *Parazoanthus axinellae*. *Scientific Reports*, 10, 1- 11
- Zelli E, Quéré G, Lago N, Di Franco G, **Costantini F**, Rossi S, Bramanti L (2020) Settlement dynamics and recruitment responses of Mediterranean gorgonians larvae to different crustose coralline algae species. *Journal of Experimental Marine Biology and Ecology* 530, 151427
- de Oliveira Soares M, de Araújo J T, Ferreira S M C, Santos B A, Boavida J R H, **Costantini F**, Rossi S (2020). Why do mesophotic coral ecosystems have to be protected?. *Science of The Total Environment*, 138456.
- Paletta M G, Grinyó J, Gili J M, Díaz D, Muñoz A, Garrabou J, ..., **Costantini F** (2019) Exploring the genetic diversity and the population structure of the mesophotic *Paramuricea macropinna* in the Menorca Channel. *Estuarine, Coastal and Shelf Science*, 219, 444-452.
- Ricolleau A, Floquet N, Devidal J L, Bodnar R J, Perrin J, Garrabou J, **Costantini F**, Vielzeuf D (2019) Lead (Pb) profiles in red coral skeletons as high resolution records of pollution in the Mediterranean Sea. *Chemical Geology*, 525, 112-124.
- Boscari E, Abbiati M, Badalamenti F, Bavestrello G, Benedetti-Cecchi L, Cannas R, **Costantini F**, ..., Frascchetti S (2019) A population genomics insight by 2b- RAD reveals populations' uniqueness along the Italian coastline in *Leptopsammia pruvoti* (Scleractinia, Dendrophylliidae). *Diversity and Distributions*, 25(7), 1101-1117.
- Bertuccio V, **Costantini F**, Angelini V, Furi G, Gobic K, Abbiati M (2019) Haplotype and biometric patterns in loggerhead turtles from the Adriatic foraging ground. *Journal of Sea Research*, 147, 1-9.
- Book chapters**
- Turner J A, Andradi-Brown D A, Gori A, Bongaerts P, Burdett H L, Ferrier-Pagès C, **Costantini F**, ... Gress E (2019) Key questions for research and conservation of mesophotic coral ecosystems and temperate mesophotic ecosystems. In *Mesophotic coral ecosystems* (pp. 989-1003). Springer, Cham.
- Costantini F**, Addamo AM, Machordom A, Abbiati M (2017) Genetic connectivity and conservation of habitat-forming corals in temperate deep seas. *Marine Animal Forests. The Ecology of Benthic Biodiversity Hotspots*. Editors: Sergio Rossi, Lorenzo Bramanti, Andrea Gori, Covadonga Orejas Saco del Valle, Springer
- Costantini F**, Aurelle D, Ledoux J-B, Abbiati M (2016) Population genetic structure of *Corallium rubrum* in the Mediterranean Sea: diversity, phylogeography, and bathymetric patterns. In: Goffredo S, Dubinsky Z (eds) *The Cnidaria, past, present and future. The world of Medusa and her sisters*. Springer International Publishing, Cham pp 717-728
- Ledoux JB, Antunes A, Haguenaer A, Pratlong M, **Costantini F**, Abbiati M, Aurelle D (2016) Molecular forensics into the sea: how molecular markers can help to struggle against poaching and illegal trade in precious corals? In: Goffredo S, Dubinsky Z (eds) *The Cnidaria, past, present and future. The world of Medusa and her sisters*. Springer International Publishing, Cham pp 729-746

Collaborations:

Dr. Scott France (Department of Biology, The University of Louisiana at Lafayette, Lafayette, Louisiana, USA), Prof. M. Taviani (CNR, Bologna), Prof Josep Maria Gili (CSIC, Barcellona, Spagna), Dott. Cecile Fauvelot (Institute of Research for Development, Villefranche sur Mer, France), Dott. Aurelle Didier (Université de la Méditerranée / Centre d'Océanologie

de Marseille, Francia), Dott. Katell Guizien (Observatoire Oceanologique de Banyuls/mer, France), Dr. Lorenzo Bramanti (Observatoire Oceanologique de Banyuls/mer, France), Dr. Andrea Gori (CSIC, Barcellona, Spagna), Dr. Carlo Cerrano (Università Politecnica delle Marche, Ancona, Italy), Prof. Giorgio Bavestrello (DISTAV, Università degli Studi di Genova, Genova), Prof. Lorenzo Zane (Università degli studi di Padova, Padova, Italia); Dr. Jean-Baptiste Ledoux (Interdisciplinary Centre of Marine and Environmental Research (CIIMAR) in Porto, Portugal, Dr Sergio Rossi (Institut de Ciència i Tecnologia Ambientals-UAB, Barcelona, Spain), Prof. P. J. Lopez-Gonzalez (Biodiversidad y Ecología de Invertebrados Marinos, Facultad de Biología, Universidad de Sevilla, Sevilla, Spain), Prof. Annie Machordom (Museo Nacional de Ciencias Naturales, Madrid, Spain

Ravenna, 19.09.2024

Federica Costantini