JÉRÉMY T. CARLOT

Postdoctoral Fellow in marine functional diversity

+33 659 915 659 or +34 640 627 439 jay.crlt02@gmail.com https://jaycrlt.github.io JayCrlt

PROFILE

Born on the French west coast, my childhood connection to the ocean fueled my dedication to marine environments. During my bachelor's degree, I had the opportunity to visit reef island ecosystems, where I sadly witnessed their vulnerability to climate change. In this context, I decided to pursue a Ph.D. on coastal protection in French Polynesia, focusing on benthic functionality and communities. My work involves a combination of fieldwork, experiments, and advanced statistical modelling across local and large spatial scales. In addition to my research pursuits, I possess a profound affection for data analysis and visualization, finding immense satisfaction in transforming complex datasets into impactful visual representations.

PROFESSIONAL EXPERIENCE

2022. Research Fellow. Marine Functional diversity in the face of the climate change at the Laboratoire d'Océanographie de Villefranche (LOV) & the Marine Ecological Data Analysis and Synthesis (MEDAS) Centre, France & Italy – CURRENT POSITION

2021. Research Fellow. Spatio-temporal variability of coral reefs at the global scale: causalities, idiosyncrasies and implications for ecological indicators at Fondation pour la Recherche sur la Biodiversité (FRB), France

2017. Marine litter quantification and water quality Investigator at Surfrider Foundation Europe (SFE), France

2014. Coastal warden at Conservatoire de l'Espace Littoral et des Rivages Lacustres (CELRL), France

EDUCATION

2021. Ph.D. on coral reefs accretion, sea-level rise and waves energy in the face of global changes at Centre de Recherches Insulaires et Observatoire de l'Environnement (CRIOBE), French Polynesia and France

2016. MSc in Biodiversity, Management and Environment on Coral Reefs with *great honours*, rank: 6/17
Ecole Pratique des Hautes Etudes, Paris, France
Main subjects: Coral reef biodiversity, Biodiversity of evolution, fishery & coral reef management

2015. MSc in Ecosystem Approach in Fisheries with *great honours*, rank : 5/23
Ecole Nationale Supérieure d'Agrocampus-Ouest (*top school*), Rennes, France
Main subjects: Marine biology, Fisheries management, Bayesian statistics

SCHOLARSHIPS

- Study of the fish distribution in French Polynesia - Societé Française d'Ichtyologie scholarship *http://sfi-cybium.fr/fr/sfi-infos-n°-78-79-juin-septembre-2016* – Marseille, France - May 26th and 27th, 2016
  Grant: 500€

SPECIALIZED SKILLS

- Fieldwork and Laboratory
  - Coral growth measures by staining (*in situ*), by alkalinity anomaly method (ex situ)
  - Benthic complexity definition (chain-tape method and photogrammetry)
  - Coral underwater identification (genus level for coral, family level for reef fishes)
  - Benthic metabolism incubation experiments (photosynthesis, calcification, respiration, nutrient cycling)
  - Reef fish capture thanks to clove oil technics
- Statistics (R software)
  - Bayesian, frequentist and descriptive statistics
  - Huge database management, homogenization and use of GitHub and GitLab for better reproducibility
  - Advanced knowledge in modelling (General Linear Model, General Additive Models, Mixt Models) and multivariate analysis (NMDS, PCA, CA, PCoA, RDA, GPA)

- Cartography (ArcGIS & QGIS softwares)
  - Spatial analysis
- Image analysis (Agisoft Photoscan and ImageJ softwares)
  - Photogrammetry (*e.g.*, Transect or species)
  - Measures of precision (*i.e.*, length, volume and surface definition)
- Languages
  - French: mother tongue
  - English: Fluent speaking, reading, and writing.
  - Spanish: Fluent speaking, reading, and writing.
- Diving and driving diplomas
  - Diver Class 1B (French working diploma, revised in 2022), N3 FFESSM (> 800 accounted dives in total)
  - Driving and Boat Licenses.

LECTURES AND SUPERVISION (33 HOURS)

- *University Lecturer of 2 Tutorials and 1 course CNRS/CESAB (Reproducible Science)*
  - How to do reproducible science? The GitHub endeavour (4 hours) — Lab on-demand (2023)
  - A fully reproducible workflow for meta-analyses in R (4 hours) — Lab on-demand (2023)
  - Preliminary results from a meta-analysis using natural analogs (1 hour) — CESAB Formation (2023)
- *University Lecturer of 5 courses EPHE (Coral Reefs)*
  - Coral growth and Coastal protection in Corals Reefs (4 hours) — MSc class (2020-2021)
  - Diversity-Habitat Relationship in Corals Reefs (8 hours) — MSc class (2019)
  - Functional ecology in Corals Reefs (4 hours) — MSc class (2020-2021)
  - Fish distribution in French Polynesia (MOOC) — MSc class (2016-2023)
  - Coastal protection and reef functioning (MOOC) — MSc class (2021-2023)
- *Supervision of 5 students:*
  - Hmeniko Tourancheau — (MSc. Student) 2019
  - Martin Alessandrini — (MSc. Student) 2019
  - Cyril Hautecoeur — (MSc. Student) 2021
  - Torchy Romane — (MSc. Student) 2023
  - Hernandez Abril — (MSc. Student) 2024

CONTRIBUTED TALKS (4 CONTRIBUTIONS)

- Palmisciano., M. et al. *Exploring the mechanisms of emergent community shifts along a CO_2 gradient*
  Western Society of Naturalists Conference (WSNC) (Monterey, California) – November 2023
- Boada., J. et al. *From macrophyte collapses to global environmental change mitigation agents*
  International Temperate Reefs Symposium (ITRS) (Hobart, Tasmania) – July 2023
- **Carlot., J.** et al. *Coral structural complexity loss highly threatens the coastline*
  International Coral Reef Symposium (ICRS) (Bremen, Germany) – July 2022
- **Carlot., J.** et al. *Coral carbonate production from juveniles assists coral reef recovery*
  International Coral Reef Symposium (ICRS) (Bremen, Germany) – July 2021

INVITED TALKS (3 PRESENTATIONS)

- *Benthic Functioning in the face of global changes*
  Centre Marine Ecological Data Analysis and Synthesis (MEDAS) (Ischia, Italy) – October 2022
  Centre de Recherches Insulaires et Observatoire de l'Environnement (CRIOBE) (Perpignan, France) – November 2022

- *Coastal protection: How to define scenarios of coastal protection for a reef island*
  Instituto Español Océanograficó (IEO) de los Baleares (Palma, Spain) – January 2020

REVIEWING CONTRIBUTION (21 REVIEWS)

Global Change Biology (2), Communications Earth & Environment (1), Functional Ecology (1), Coral Reefs (5), Scientific Reports (1), PeerJ (1), Marine Ecology Progress Series (2), Egusphere (2), Marine Biology (3), Journal of Experimental Marine Biology and Ecology (1), Hydrobiologia (1), Restoration Ecology (1)

PUBLICATIONS (13 PUBLICATIONS)

Peer-reviewed articles

13. Teixidó, N., **Carlot, J.**, Alliouane, S., Ballesteros, E., Gambi, M C., Gattuso, J. P., Kroeker, K., Micheli, F., Mirasole, A., De Vittor, C., Parravacini, V., Villéger, S. (2024) Functional changes across marine habitats due to ocean acidification. Global Change Biology. https://doi.org/10.1111/gcb.17105
12. Cornwall, C. E., **Carlot, J.**, Branson, O., Courtney, T. A., Harvey, B. P., Perry, C. T., Andersson, A. J., Diaz-Pulido, G., Johnson, M. D., Kennedy, E., Krieger, E. C., Mallela, J., McCoy, S. J., Nugues, M. M., Quinter, E., Ross, C. L., Ryan, E., Saderne, V., Comeau, S. (2023) Crustose coralline algae can contribute more than corals to coral reef carbonate production. Communications Earth & Environment. https://www-nature-com.insu.bib.cnrs.fr/articles/s43247-023-00766-w
11. Jouval, F., Adjeroud, M., Bigot, L., Bureau, S., Chabanet, P., Obura, D., Parravicini, V., Guilhaumon, F., Brandl, S., J., **Carlot, J.,** Penin, L. (2023) Recovery potential of coral reefs in the South-Western Indian Ocean. Ecological Indicators. https://doi.org/10.1016/j.ecolind.2023.109952
10. **Carlot, J.,** Vousdoukas, M., Karambas, T., Rovere, A., Lenihan, H., S., Kayal, M., Adjeroud, M., Hedouin, L., Parravicini V. (2023) Coral reef structural complexity loss exposes coastlines to waves. Scientific Reports. https://doi.org/10.1038/s41598-023-28945-x
9. Pérez-Rosales, G., Hernández-Agreda A., Bongaerts, P., Rouzé, H., Pichon, M., **Carlot, J.**, Torda, G., UTP consortium, Parravicini, V., Hédouin, L. (2022) Mesophotic depths hide high coral cover communities in French Polynesia. Science of the Total Environment. http://dx.doi.org/10.1016/j.scitotenv.2022.157049
8. Pérez-Rosales, G., Pichon, M., Rouzé, H., Villeger, S., Torda, G., Bongaerts, P., **Carlot J.,** UTP Consortium, Parravicini, V., Hédouin, L. (2022) Mesophotic coral ecosystems of French Polynesia are hotspots of alpha and beta generic diversity for scleractinian assemblages. Diversity and Distributions. https://doi.org/10.1111/ddi.13549
7. **Carlot, J.**, Rouzé, H., Barneche, D., Merciere, A., Espiau, B., Cardini, U., Brandl, S. J., Casey, J. M., Pérez-Rosales, G., Adjeroud, M., Hédouin, L., Parravicini, V. (2022) Scaling up calcification, respiration, and photosynthesis rates of six prominent coral taxa. Ecology & Evolution. https://doi.org/10.1002/ece3.8613
6. **Carlot, J.**, Kayal, M., Brandl, S. J., Casey, J. M., Lenihan, H. S., Adjeroud, M., Cardini, U., Merciere, A., Barneche, D., Rovere, A., Hedouin, L. & Parravicini, V. (2021) Juvenile corals underpin coral reef carbonate production after disturbance. Global Change Biology. https://doi.org/10.1111/gcb.15610
5. Morat, F., Wicquart, J., Schiettekatte, N., De Sinéty, G., Bienvenu, J., Casey, J., Brandl, S., **Carlot, J.**, Degregori, S., Mercière, A., Fey, P., Galzin, R., Letourneur, Y., Sasal, P., Vii, J. & Parravicini, V. (2020) Individual back-calculated size-at-age based on otoliths from Pacific coral reef fish species. Scientific data. https://doi.org/10.1038/s41597-020-00711-y
4. Parravicini, V., Casey, J., Schiettekatte, N., Brandl, S., Pozas-Schacre, C., **Carlot, J.**, Edgar, G., Graham, N. A. J., Harmelin-Vivien, M., Kulbicki, M., Strona, G. & Stuart-Smith, R. D. (2020) Delineating reef fish trophic guilds with global gut content data synthesis and phylogeny. Plos Biology. https://doi.org/10.1101/2020.03.04.977116
3. **Carlot, J.**, Rovere, A., Casella, E., Harris, D., Grellet-Munoz, C., Chancerelle, Y., Dormy, E., Hedouin, L., & Parravicini, V. (2020) Community composition predicts photogrammetry-based structural complexity on coral reefs. Coral Reefs. https://doi.org/10.1007/s00338-020-01916-8

2. Bruge, A., Barreau, C., **Carlot, J.**, Collin, H., Moreno, C., & Maison, P. (2018) Monitoring Litter Inputs from the Adour River (Southwest France) to the Marine Environment. Journal of Marine Science and Engineering. https://doi.org/10.3390/jmse6010024

1. Siu, G., Bacchet, P., Bernardi, G., Brooks, A. J., **Carlot, J.**, Causse, R., Claudet, J., Clua, E., Delrieu-Trottin, E., Espiau, B., Harmelin-Vivien, M., Keith, P., Lecchini, D., Maddi-Moussa, R., Parravicini, V., Planes, S., Ponsonnet, C., Randall, J. E., Sasal, P., Taquet, M., Williams, J., & Galzin, R. (2017) Shore fishes of French Polynesia. Cybium. https://doi.org/10.26028/cybium/2017-413-003

Non-Peer-reviewed publications

1. Étonnants récifs - Les écosystèmes coralliens | Les derniers gardiens de la côte – CNRS Éditions. EAN: 9782271139092. **Carlot, J.,** Rovere, A., Dormy, E., Biausque, M., Parravicini, V. Les derniers gardiens de la côte.

Submitted articles

2. Karkarey, R., Maire, E., Graham, N. A. J., Parravicini, V., Brandl, S. J., **Carlot, J.**, Keith, S. Community asynchrony stabilizes mesopredatory coral reef fish abundance in the face of global change
Journal targeted: Ecology Letters

1. Brandl, S. J., **Carlot, J.**, Graham, N. A. J, Stuart-Smith R. D., Donovan, M. K., Keith, S. A., Edgar, G. J., Wicquart, J., Guilhaumon, F., Bigot, L., Job, S., Maréchal, J. P., Wickel J., Wilson S., Karkarey R., Arthur, R., Baird, A., Hoey A. S., Arias-Gonzalez, J. E., Mouillot, D., Adjeroud, M., Parravicini, V. Spatial context-dependency and system-wide state shifts over time characterize global coral reef regimes in the 21st century
Journal targeted: Global Ecology and Biogeography

MAIN COLLABORATORS

– **Valeriano Parravicini,**	Professor (CRIOBE, France)	valeriano.parravicini@ephe.psl.eu
– **Núria Teixidó,**	Ph.D. (SZN, Italy)	nuria.teixido@szn.it
– **Nicolas Casajus,**	Data scientist (CESAB, France)	nicolas.casajus@fondationbiodiversite.fr
– **Mehdi Adjeroud,**	Professor (IRD, France)	mehdi.adjeroud@ird.fr
– **Simon J. Brandl,**	Assoc. Professor (Austin, Texas)	simon.brandl@austin.utexas.edu
– **Jordan M. Casey,**	Assoc. Professor (Austin, Texas)	jordan.casey@austin.utexas.edu
– **Diego R. Barneche,**	Ph.D. (AIMS, Australia)	d.barneche@aims.gov.au
– **Alessio Rovere,**	Professor (MARUM, Germany)	arovere@marum.de
– **Ulisse Cardini,**	Ph.D. (SZN, Italy)	ulisse.cardini@szn.it
– **Hunter S. Lenihan,**	Professor (UCSB, California)	hlenihan@ucsb.edu
– **Mohsen Kayal,**	Assoc. Professor (IRD, Noumea)	mohsen.kayal@ird.fr
– **Laetitia Hédouin,**	Ph.D. (CRIOBE, French Polynesia)	laetitia.hedouin@criobe.pf