

## Mauro Lepore

Building open software and passionately sharing resources to ensure successful, reproducible research

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I build R packages, learn best practices in data science, and passionately share ideas and resources with researchers and higher-education students. My goal is to ensure that the people I support are wildly successful with the available open source tools, including the packages I custom-build for them.

## EXPERIENCE

### Software engineer, data science consultant

2017-08 - present

ForestGEO

National Museum of Natural History, Smithsonian Institution, Washington DC, USA

My official title is “IT specialist - R-package developer”. In practice, I build software, learn best practices in data science, and share ideas and resources with researchers and higher-education students to help them work in an efficient, transparent, and reproducible way. I spend most of my time building R packages or teaching R, Git, GitHub, sometimes in person but mostly remotely.

### Data science instructor (volunteer)

The Carpentries

2018 - present

- Texas A&M University-Kingsville
- National Museum of Natural History, Smithsonian Institution
- Smithsonian Environmental Research Center, Smithsonian Institution

As a certified instructor of The Carpentries, I occasionally teach and help teach foundational coding and data science skills to researchers (e.g. Excel, OpenRefine, SQL, R).

### Postdoctoral research fellow

2016-02 to 2017-06

O’Dea Lab: Change and Variation in Tropical Seas

Smithsonian Tropical Research Institute, Panama City, Panama

I researched how coral reefs varied and changed through time, before and since human impacts. I supervised two wonderful interns (one undergraduate and one postgraduate student).

### Teaching university students

Smithsonian Tropical Research Institute

2016-12

Smithsonian Tropical Research Institute, Bocas del Toro Research Station, Panama

Teaching assistant for university students from Texas A&M University (GEOS405) during a five-days long field-based research. Responsible for delivering lectures, mentoring research projects, boating and snorkeling safety, logistics in English and Spanish.

## **Teaching university students**

The University of Queensland  
2012-04 - 2014-11

- St Lucia, Brisbane, Australia
- Moreton Bay Research Station, North Stradbroke Island, Australia
- Heron Island Research Station, Heron Island, Australia

Teaching assistant for university students, including classroom-based courses (MARS2014), and field-based research for resident students of The University of Queensland (MARS2005), and for international students from Stanford University and the University of California. Responsible for delivering lectures, mentoring research projects, marking assignments, boating and snorkeling safety, logistics.

## **Teaching high school students**

The University of Queensland  
2011-04 - 2015-06

- Moreton Bay Research Station, North Stradbroke Island, Australia
- St Lucia, Brisbane, Australia

Lecturer and demonstrator during science camps for high school students doing lab- and field-based research. Also responsible for liaising with school teachers and training less experienced tutors.

## **Customer satisfaction and sales (freelance photographer)**

Foto Paleo, Concepto RD, Tropical Pictures, Black & White, eventphotography.com, and more  
1999 - 2016  
Argentina, Dominican Republic, Spain, Australia

During most of my adult life I have been a freelance photographer, mostly of people. As a tourists photographer I learned to be persuasive, and to consolidate sales of intangible products which cost is difficult to measure. And as a weddings photographer I learned to build trusted relationships and a deep understanding of my customers' needs. Also I learned to be a good problem-solver in stressful conditions, and very patient with difficult customers.

## **Community service (life guard)**

Municipalidad del Partido de la Costa  
1999 - 2010  
Santa Teresita, Buenos Aires, Argentina

For about a decade I spent my summers working as a life guard. On this job I learned the importance of community service. I also learned to invest in strong relationships with my colleagues, to ask for help, and to be reliable.

## **Outreach**

2003-07 - 2003-12 and 2004-04 - 2004-08  
Museo Argentino de Ciencias Naturales, Argentina  
Parque Centenario, Buenos Aires, Argentina

Responsible for explaining the exhibition at the national museum of natural history in Buenos Aires, Argentina, to engage the general public, from kids to adults, and primary school groups.

## EDUCATION

### The University of Queensland, Australia

PhD, Ecology, Environmental Sciences, Geochemistry  
2011-2015

School of Biological Sciences, ARC Center of Excellence for Coral Reef Studies

Thesis: “Long term dynamics of coral reefs in the inshore southern Great Barrier Reef”.

I examined three issues:

1. The potential of a reef system to constitute a refuge for coral reefs from global warming.
2. The accretion rate of the reef flat and reef slope environment through time.
3. Changes in coral community structure through time, and the mechanisms of community assembly.

I supervised three students and 20 volunteers, both in the field and lab.

### Universidad de Buenos Aires, Argentina

Licentiate degree, Biological Sciences, Marine Ecology  
1999-2008

Faculty of Natural Sciences

Thesis: “Estudio del crecimiento de la almeja amarilla Argentina *Mesodesma mactroides* por marcaje fluorescente in situ y comparación con el método de análisis de distribuciones de frecuencias de tallas”.

I compared a novel and traditional method to study the growth rate of a clam.

## CERTIFICATIONS

### Instructor of The Carpentries

The Carpentries

2018-06

Credential <http://bit.ly/2TRE8M5>

## SKILLS

### Industry knowledge

Computer software, higher education, data science, statistics, teaching, research.

### Tools & technologies

- R programming for data science (e.g. tidyverse packages, rmarkdown, shiny), Q&A (e.g. testthat), and software engineering (e.g. usethis, rlang, devtools, roxygen2), using both functional programming and object-oriented (e.g. S3) paradigms.
- Bash and Git for version control
- GitHub for collaboration and project management (e.g. scrum, kanban)
- TravisCI for continuous integration, and for automatically building and deploying websites and R packages

## LANGUAGES

English (full professional) and Spanish (native).

## PROJECTS

### **tor: Import Multiple Files From a Single Directory at Once**

2019-01 - present

URL <https://CRAN.R-project.org/package=tor>

The goal of tor (to-R) is to help you to import multiple files from a single directory at once, and to do so as quickly, flexibly, and simply as possible.

### **fgeo: Analyze Forest Diversity and Dynamics**

2017-08 - present

URL <https://forestgeo.github.io/fgeo/>

‘fgeo’ is a collection of R packages to analyze forest diversity and dynamics. It includes packages to manipulate and plot ForestGEO data, and to do common analyses including abundance, demography, and species-habitats associations.

## PEER-REVIEWED PUBLICATIONS

2017

Look to the past for an optimistic future  
A O’dea, EM Dillon, AH Altieri, ML Lepore  
Conservation Biology 31 (6), 1221-1222

2015

Long-Term Dynamics of Coral Reefs in the Inshore Southern Great Barrier Reef  
ML Lepore (supervisors: J Pandolfi and JX Zhao)  
PhD thesis. School of Biological Sciences, The University of Queensland

2011

Population structure, growth and production of the yellow clam *Mesodesma mactroides* (Bivalvia: Mesodesmatidae) from a high-energy, temperate beach in northern Argentina  
M Herrmann, JEF Alfaya, ML Lepore, PE Penchaszadeh, WE Arntz.  
Helgoland Marine Research 65 (3), 285

2009

Aplicación de calceína para la estimación del crecimiento de la almeja amarilla *Mesodesma mactroides* Reeve, 1854  
ML Lepore, PE Penchaszadeh, F Alfaya, E José, M Herrmann  
Revista de biología marina y oceanografía 44 (3), 767-774

2009

Growth estimations of the Argentinean wedge clam *Donax hanleyanus*: A comparison between length-frequency distribution and size-increment analysis  
M Herrmann, ML Lepore, J Laudien, WE Arntz, PE Penchaszadeh  
Journal of Experimental Marine Biology and Ecology 379 (1-2), 8-15

2009

Reproductive cycle and gonad development of the Northern Argentinean *Mesodesma mactroides* (Bivalvia:

Mesodesmatidae)

M Herrmann, JEF Alfaya, ML Lepore, PE Penchaszadeh, J Laudien  
Helgoland Marine Research 63 (3), 207

2008

Estudio del crecimiento de la almeja amarilla argentina *Mesodesma mactroides* por marcaje fluorescente in situ y comparación con el método de análisis de distribuciones de frecuencias de tallas

ML Lepore (supervisors: M Herrmann, PE Penchaszadeh)

Licentiate thesis. Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires