



# Corso di Dottorato di Ricerca in Scienze della Vita e dell'Ambiente - Ciclo XXXVII

**Bioerosion: Which effects on habitat complexity and local biodiversity?**  
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**Laboratorio Zoologia, DiSVA**

### 1. State of art

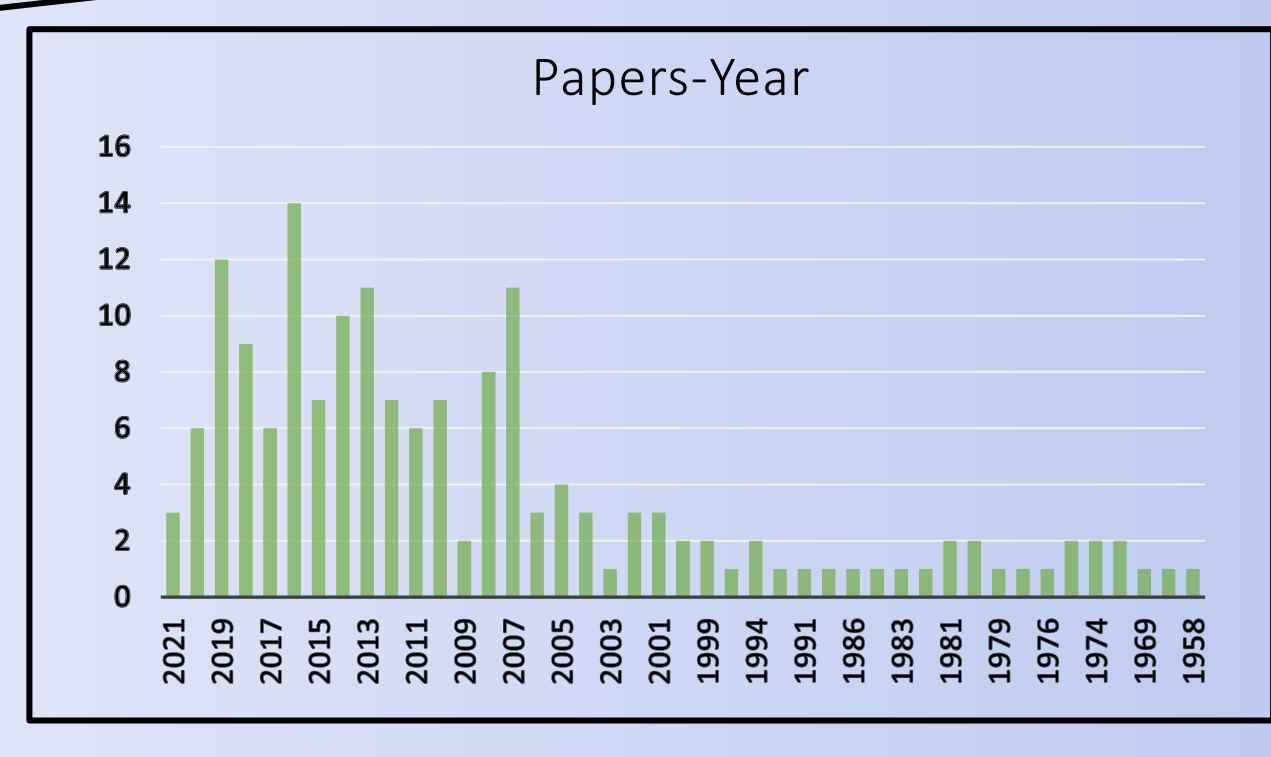
Scopus Clarivate Analytics

1950 2021

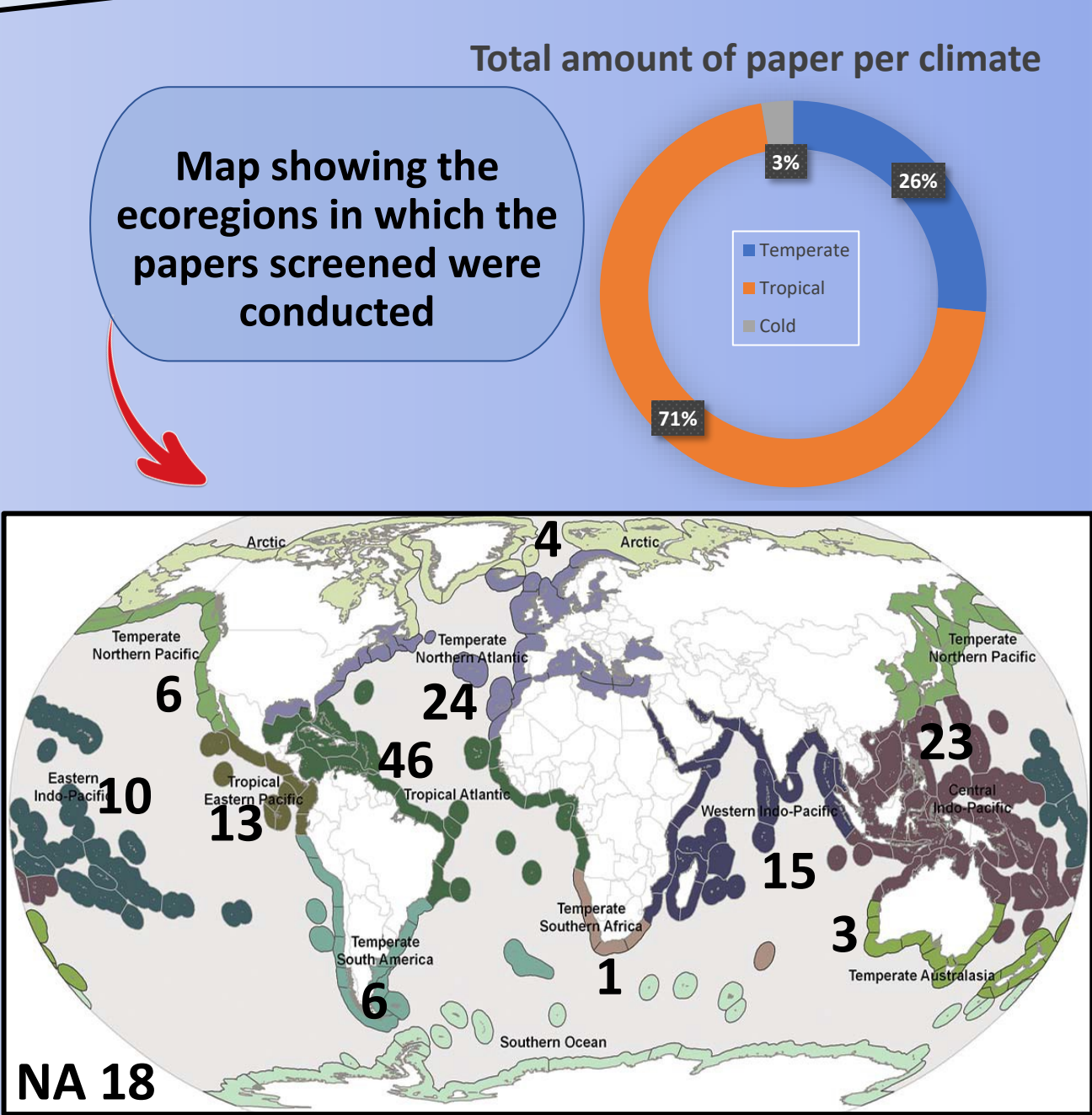
166

Ecoregion  
Phylum  
Bioerosion effects

Examined articles topic



Most of the study are conducted in tropical zones, with a major sampling effort between 2007 and 2019



### 2. Assessing *Lithophaga lithophaga* (L.) distribution at local scale

Field transect → Digital transect

3D Model

Why the date mussel

- Allogenic engineer
- Deeply influences the substrate
- Illegal fishing destroy the substrate to collect *L. lithophaga*

Biotic alterations

*L. lithophaga* distribution assessment in order to evaluate its abundance along the coast Merging the data available from standard quadrats and digital transect will allow us to compare the classical methodology and the modern one and the biodiversity of the associated boreholes community. The organisms inhabiting the holes could be impacted by the illegal fishing of *L. lithophaga*

### Identifying the extension of *L. lithophaga* in Mediterranean basin

Gather additional information on *L. lithophaga* distribution

Distributional model of along the Mediterranean coastline ?

Merging physico-chemical data and coastal carbonatic outcrops distribution inside a Maxent Species distributional model aiming to assess suitable substrate for *L. lithophaga*

### 3. Time-lapse installation plan

Time-lapse installation to monitor feeding activity, pseudo-faeces production and settlement event of target organisms

### 4. *Lithophaga* artificial substrates

Artificial substrates installation to evaluate the succession and diversity of community inhabiting the *L. lithophaga* boreholes

### Career development plan

Task	1st Year 2021-2022				2nd Year 2022-2023				3rd Year 2023-2024											
	Nov.	Jan.	Mar.	May	Jul.	Aug.	Oct.	Nov.	Jan.	Mar.	May	Jul.	Aug.	Oct.	Nov.	Jan.	Mar.	May	Jul.	Aug.
Literature and dataset reviews	█				█				█				█							
Field activities (Artificial substrate & Time-lapse)	█				█				█				█							
Data sampling on Nursery & endo-epibiotic community	█				█				█				█							
PhD final report	█				█				█				█							

### Research questions & hypothesis

- What is the current knowledge on effects of bioerosion? → Is expected to find a lack of knowledge in temperate ecosystems
- What is the distribution of *L. lithophaga* along the Mediterranean coasts? → Is expected to find *L. lithophaga* populations strongly associated with carbonate substrates
- What are the feeding and settlement behaviour? What is the frequency of pseudo-faeces production? → Unraveling the ecological behaviour of target species of which the knowledge is currently scant
- What are the species inhabiting the *L. Lithophaga* boreholes and how they succeed each other? → Identify the associated biodiversity of boreholes-type substrates exploring species' successional stage