

# How marine parasites pick their host?



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**Larval development and settlement patterns in parasitic barnacles: effects of environmental drivers, inter- and intra-population differences, and host specificity**

## Background and motivation

Prompted by the human population's dependency on the ocean, I've always wanted to contribute to the better and more sustainable management of marine ecosystems. I am interested in how ecosystems, organisms, and human society are being impacted by climate change. As a specialist in marine ecology with an interdisciplinary background, I have several years of experience working with a variety of marine organisms. Crustaceans are my primary research focus, and I am particularly interested in how parasitic crustaceans affect marine ecosystems and aquaculture. I aspire to identify novel concepts and technologically sustainable solutions that can make a positive environmental impact in the research and aquaculture industry.

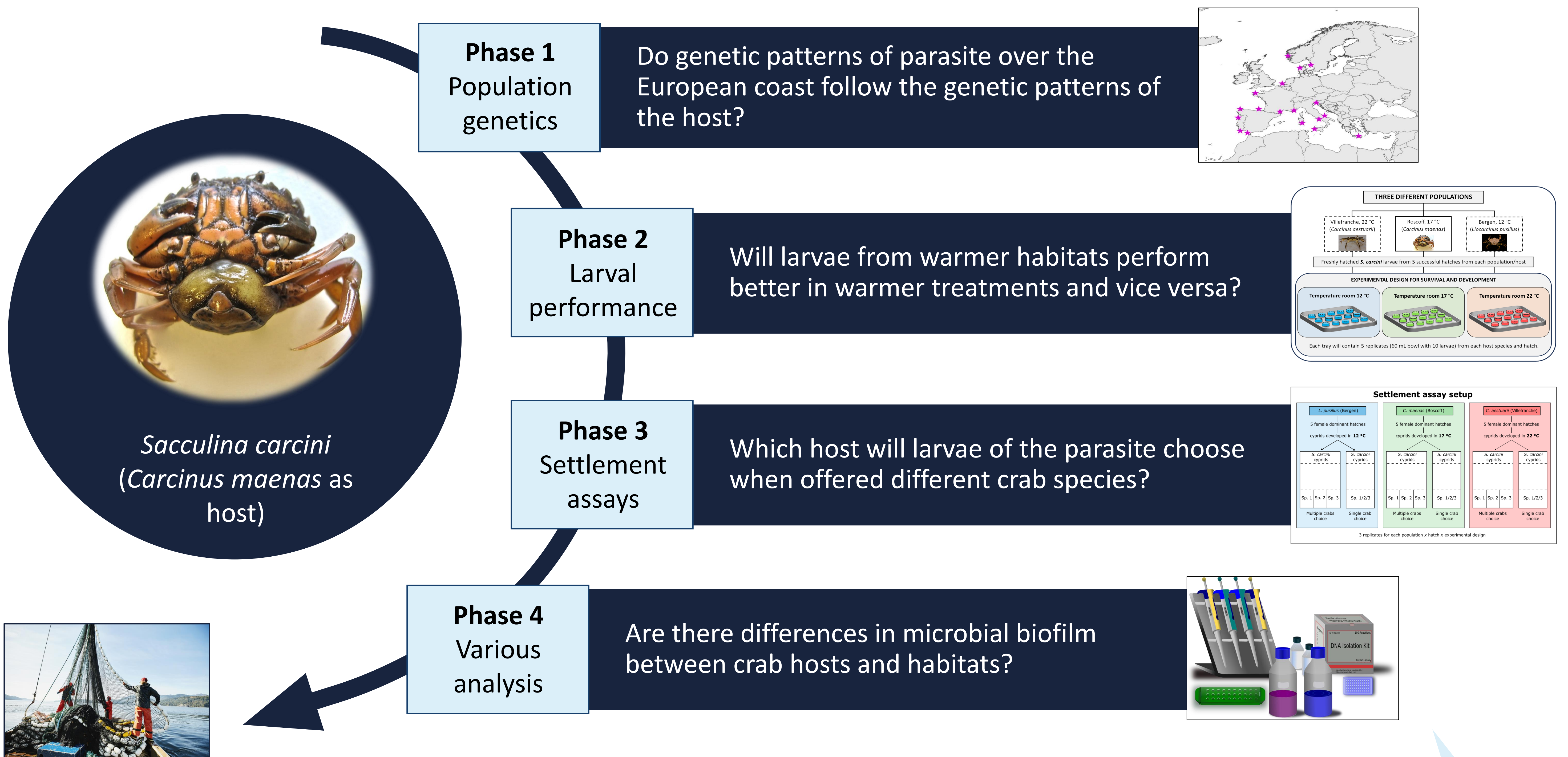


*Anelasma squalicola*

## Project description

In Europe, decapod crabs are economically and ecologically important animals in coastal habitats, while fjords and their deep-sea benthic communities are still understudied. Understanding the impact of parasites on these ecosystems and how climate change may affect them is crucial for future marine management. Parasites have a significant impact on marine ecosystems and can cause major issues in fisheries and aquaculture. Their larval stages are crucial for settlement and dispersal, while adult forms are known to sterilize their host and can significantly affect the populations of many commercially important species. This multidisciplinary study investigates the larval development and settlement of two parasitic barnacles, *Sacculina carcini* and *Anelasma squalicola*. *S. carcini* is a well-known barnacle that infects numerous European crab species, while *A.*

*squalicola* is a unique barnacle that has recently made the first known transition into the parasite mode of feeding on vertebrate species, such as deep-sea sharks. This interdisciplinary research will combine field and laboratory experiments with various classical, molecular, and genetic analyses. By using multiple population common garden setup and settlement assays to test the host specificity, we will investigate the larval performance under different environmental treatments and their host choices for settlement. The project's objective is to explore parasites' ecology and crab host preference, examine their potential to infect new fish species, and define drivers that regulate infection patterns in different coastal regions.



## Marine sustainability

*Sacculina carcini* is a parasite that can cause major losses in aquaculture and fisheries via the sterilization of crabs. Knowledge about how *S. carcini* chooses crab host species for infection and which drivers regulate their individual choices will provide crucial information for the aquaculture industry. Since *Anelasma squalicola* is the only known barnacle that parasitizes vertebrate species and has multiple hosts recorded around the world, there is a concern that this species may infect new fish in the future and cause changes in marine ecosystems. Findings from this project will help in future assessments of marine habitats and resources and provide input for safer manipulation of invasive marine species by parasite-based biological control.

## Planned activities and collaborations

- Research cruise to Sognefjord
- Collaborations and field work via the EMBRC network in Europe
- Collaborations with different institutes, companies, and fisheries

## Supervisory team

- Prof. Henrik Glenner, University of Bergen, Department of Biological Sciences

Ask me for more details!



SCAN ME



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