



Studying drivers of marine biodiversity in natural laboratories

2016 - 2020

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Motivation

To answer remaining questions in marine ecology and evolution (how does biodiversity arise and how is it maintained?) there is a need for a well-defined system to test hypotheses. Marine lakes provide such a system, they can be viewed as 'islands of sea'. Here, we use them to explore how physical isolation and diverse environmental conditions affect population connectivity and species communities.

Aims and Objectives

- Study population connectivity and possible incipient speciation in marine lakes
- Asses the relative importance of competition and chance in the assembly of species communities
- Unveil how species communities of benthic invertebrate differ over gradients of isolation and environmental conditions
- Unravel food webs of marine lakes through isotope analysis to understand (differences in) ecosystem functioning under varying environmental conditions.

Method

We will explore marine lakes unknown to science and measure water characteristics and the connection to the sea. In these lakes, as well as in the surrounding see, we will use photo transects and tissue sampling of mollusks and sponges to assess species communities. The ubiquitous mussel *Brachidontes* sp. will be sampled to study population connectivity and incipient speciation. Tissue samples will be taken of all species and food sources for a subset of lakes to unveil food web structures through isotope analysis.



Marine lake in Raja Ampat, West-Papua.



Photo transect line in a connected lake

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