



Universität Potsdam · Am Neuen Palais 10 · 14469 Potsdam

**Mathematisch-Naturwissenschaftliche
Fakultät**

Institut für Biologie und Biochemie
Ökologie und Ökosystem-Modellierung
Prof. Dr. Ursula Gaedke

Maulbeerallee 2 · 14469 Potsdam

Telefon: 0331 / 977 -1900

Telefax: 0331 / 977 -1948

E-mail: gaedke@uni-potsdam.de

<https://www.uni-potsdam.de/de/ibb-ecology/index>

Datum: 14. Juni 2023

To whom it may concern

Referee statement for the dissertation of Samuel Dijoux

**„Stability and dynamics of size-structured freshwater communities
along environmental gradients“**

It is with great pleasure that I evaluate the PhD-thesis of Samuel Dijoux. It starts with a skillful introduction into the overall topic, describing systematically the state-of-the-art of our knowledge e.g. on potential effects of warming and eutrophication on the individual, population and community level, the potential of complex food web models to contribute to open questions in this fields, and mechanisms underlying species coexistence and responses to temperature changes depending on organismal size. This introduction provides valuable background information for the understanding of the subsequent three chapters, each representing an independent manuscript. A final short chapter provides a summary of the three previous chapters and briefly sketches future research directions. One of the manuscripts is published in an out-standing peer-

reviewed journal, one is under review with the same high ranked journal and one is to be submitted.

I consider the results obtained in this thesis of very high quality at the forefront of science for several reasons. The work covers in a skillful and efficient way a broad scale, ranging from individual physiology to the community level. It is based on modern approaches, e.g. by using traits and (partly) considering the life history and different types of connected habitats in more details than often done in freshwater ecology, and it is very well founded in a broad range of up-to-date ecological concepts. This was partly achieved by using already established models, which were adjusted and extended to address new questions. On the one hand, this is a very efficient way to proceed but on the other it may imply the risk to propagate short comings of these models into the most recent research. This thesis true contributes important new insights of general interest to the field, which is reflected by being able to publish Chapter 2 in such a competitive journal as Ecology Letters (and having Chapter 1 also under review there).

The writing of the thesis is clear and of high quality, which makes it easy to read and furthermore indicates that Samuel Dijoux is a really competent young researcher who knows his field well. He is able to abstract from the situation, focus on the most important processes and to generalize but there are a number of occasions where I would have worded the statements a bit more cautiously, e.g. by adding "may". That is, I think there are exceptions where they don't hold.

The thesis fully meets the requirements of a PhD thesis at the Faculty of Science of the University of South Bohemia in České Budějovice and I am very happy to recommend Samuel Dijoux for the award of a PhD based on this thesis.

