

sDiv sabbatical project report

**“ Community response to changing temperatures
across marine, freshwater, and terrestrial realms”**

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The sabbatical was hosted primarily at iDiv within the Theory group and sDiv but co-hosted by the Helmholtz Institute for Functional Marine Biodiversity (HIFMB) in Oldenburg. This proved to be a very productive environment for investigating questions of community change through time. In collaboration with the Biodiversity Synthesis group, we compiled a global dataset measuring temporal community turnover and a null model for investigating the impacts of community structure. With the Theory and Macroecology groups and with HIFMB, we compiled environmental and species covariates for understanding differences in rates of temporal turnover. The analyses are being finalized and the publication from this is in prep. The trait databases compiled for this are also being made available as a contribution to sTreTra working group.

In addition, two related analyses explored biodiversity responses to global change. The first tested the benefits and costs of conservation planning efforts that account for climate-change-driven shifts in species distributions. The conclusion is that there are strong benefits and relatively few tradeoffs. The publication from this is in review. The second analysis used genomic data to test for fisheries induced evolution in Atlantic cod. The conclusion is that strong evolutionary sweeps indicative of evolution is not present, and that recovery of previous phenotypes is therefore possible. The publication from this is in final stages of preparation.

Finally, the sabbatical led to one funded postdoc project (*“Life on the edge: A new bioinformatic toolbox to conserve wildlife populations under threat from global change”* led by Chris Barratt), to ongoing collaborations with members of the Theory group to predict global patterns of species biomass, and to an interactive sDiv workshop on communicating science to journalists and policymakers.