



Research Brief

Validation of Computer-Generated Models



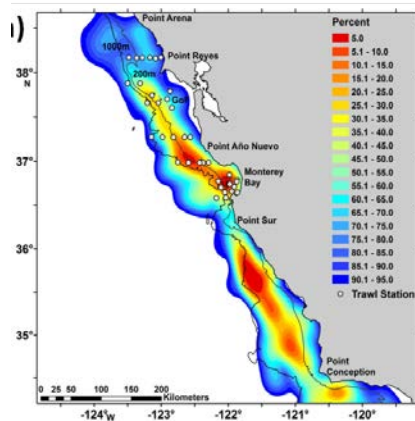
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What are the models?

In marine ecology, modeling is a key part of the scientific process. Computer models use observed data to make predictions and forecasts about alternative conditions or changes through time. Models can take a variety of forms, but the goal is always the same: to visually represent scientific predictions. Models are essential to bridging the gap between abstraction and visualization.

Are the models applicable to reality?

In modern science, it is a constant challenge to produce models that accurately represent the complex interaction between climate change and the intricate biological processes that characterize the natural world. Model predictions are validated using observations made in the field.



What did we do?

We considered the predictions of a model used in previous studies and assessed this model's ability to foresee zooplankton's actual spatial distribution, abundance over time, and interaction with organisms higher up on the food chain (chiefly seabirds) off the coast of central California. Zooplankton was an ideal subject due to the extremely important role this species plays in marine food webs.

What did we conclude?

In all three aspects of the model that we studied, we determined that the model predictions correlated strongly with actual measures. This study speaks to the necessity of synchronously analyzing mathematical simulations with observations from ships in order to mitigate the imperfections of each method on its own. Validation of zooplankton modeling is crucial to providing the scientific basis for marine management and fisheries services because its value lies in predicting accurately.

Caveat

Measuring abundance in both field samples and models proves difficult because of limited sampling and models that do not necessarily show abundance.

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