Postdoctoral Scholar on incorporating fish in Earth system predictions

The Integrative Oceanography Division of the Scripps Institution of Oceanography (SIO) at the University of California, San Diego invites applications for a postdoctoral researcher to examine the top-down effects of fish on plankton dynamics and biogeochemical cycling as a participant in a NOAA-funded project. Our project objective is to extend Earth system model (ESM) predictions to include fish explicitly by coupling an existing Fisheries Size and Functional Type model (FEISTY) to the MOM6 ocean general circulation model to allow two-way feedback (online coupling). The research associated with this position will not only enable direct simulation and prediction of potential fish catch, fish distributions, and food web structure with applications for fisheries management, but also will advance our understanding of the dependencies and interactions between higher and lower trophic levels represented in the models with potential implications on the biological pump.

The position will enable the postdoctoral scholar the opportunity to collaborate with the NOAA MAPP Marine Ecosystems Task Force associated with the project funding as well as two other closely related projects led by Drs. Matt Long and Samantha Siedlecki pertaining to modeling feedbacks between fish and biogeochemistry in ESMs. The successful candidate will have a working knowledge of ocean biogeochemical cycling and plankton food-web dynamics in the context of fisheries oceanography, and expertise in programming, large data set analysis, and model evaluation. The position will be located at the SIO campus in La Jolla working predominately with the laboratory of Dr. Colleen Petrik, with opportunities to travel to NCAR in Boulder, Colorado to work with the project co-PIs. In addition to your research training, UC San Diego Office of Postdoctoral Scholar Affairs offers professional development and career training opportunities to ensure you achieve the highest level of academic and research excellence. Additional information is on the UCSD postdoctoral website.

Minimum qualifications

- Doctoral degree in Oceanography, or a closely related field (e.g. Physics, Earth Sciences, Ecology);
- Proficient in scientific programming (Python, Matlab, or similar);
- Understanding of ocean biogeochemical cycling and plankton food-web dynamics in the context of fisheries oceanography;
- Strong quantitative skills;
- Ability to collaborate effectively in a team environment;
- Excellent written and oral communication skills;
- Publications in peer-reviewed journals related to the minimum qualifications;
- Ability to pursue research independently.

Preferred qualifications

- Experience with analyzing large biogeochemical and/or fisheries observational data sets to inform modeling;
- Experience with developing, analyzing, and evaluating coupled physical-biological models;
- Familiarity with code repositories (e.g. git) and Pangeo tools (e.g. JupyterLab, Xarray, Dask, netCDF);
- Demonstrated experience mentoring graduate or undergraduate students;

- Ability to travel to NCAR for a minimum of one week per year.

Duties and Responsibilities

- Design and run model simulation experiments;
- Perform sensitivity analyses to inform model parameterization and structure;
- Analyze model output and assess model performance using observational data;
- Evaluate regional and temporal impacts on the marine environment of two-way vs. one-way coupling between lower and higher trophic levels;
- Publish research in peer-reviewed journals and present results at national and international conferences.

Appointment terms and conditions: The initial appointment is for one year, renewable for a second year, subject to performance and availability of funding. Salary commensurate with qualifications and experience. This Postdoctoral Scholar position is contingent upon evidence of a doctoral degree, stated research qualifications, and documentation of employment eligibility in compliance with the Immigration Reform and Control Act of 1986. Becoming a member of the UC San Diego community, you will be responsible for reviewing, understanding and following campus policies, guidelines, appointment expectations, collective bargaining agreement and research regulations. The university is an Equal Opportunity/Affirmative Action employer and is committed to maintaining an atmosphere that is free from all forms of discrimination, harassment, and exploitation.

To Apply: email (cpetrik@ucsd.edu) a SINGLE PDF with a cover letter, CV, and contact information for 3 references with the subject: "online zooplankton-fish postdoc". Applicant screening will begin immediately and continue until the position is filled.