

New Research Model Improves Lobster Population Forecasting

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(PhysOrg.com) -- Managing the Gulf of Maine's \$300 million lobster industry has been a practice mostly reliant upon the physical size of adult stocks, a system called stock assessment and one that's made policymaking largely reactive with little environmental input.

Now, a research team from the University of Maine School of Marine Sciences is developing a more science-based stock assessment model that can ingest information on lucrative lobster settlement areas and years, based on current patterns and density of drifting lobster larvae. The oceanographers have added real-time [sea surface temperatures](#), detected by satellites, to the settlement assessment process.

Working with a two-year, \$430,000 grant from NASA, a team led by researcher Andrew Thomas, the associate director in the School of Marine Sciences, says the new lobster stock assessment model will allow fisheries managers to include varying ocean environmental information in their forecasting. The result is greater accuracy in determining which years and locations will likely be good or bad for lobstering.

Satellite surface temperatures not only help drive the [circulation model](#), but [water temperatures](#) affect larval growth rate, which influences where they settle, Thomas says. Knowing the annual density of larval drift, currents, winds and water temperature enables researchers to create a model on which to base, for the first time, maps showing predictable [lobster](#) settlement locations.

“Every year the little guys settle out of the plankton down to the bottom. If we get a handle on how many of them are settling, and where, that’s vital information we can put into our recruitment model,” he says. “This part of their life cycle depends on the oceanography. So different aspects of wind patterns, circulation patterns and temperature are going to affect where these guys end up and which parts of the coast are going to have good settlement years or not good settlement years.”

Other researchers on the team are School of Marine Science professors Yong Chen, Huijie Xue, Rick Wahle and Andrew Pershing and graduate students Jui-Han Chang and Mahima Jaini. Also involved are the NOAA Northeast Fisheries Science Center, the ASFMC and Maine Department of Marine Resources.

Provided by University of Maine

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