Woods Hole Oceanographic Institution

Biology Department Seminar

Thursday, September 12, 2013
Redfield Auditorium – 12:00 Noon

Thinking big and thinking small: How satellites are driving a penguin ecology renaissance

Dr. Heather J. Lynch

Assistant Professor of Ecology & Evolution at Stony Brook University

In the last few years, high resolution (sub-meter) commercial satellite imagery has emerged as a disruptive technology that breaks the historical trade-off between spatial resolution and spatial extent faced by polar biologists. By providing a cost effective means to census, map, and monitor penguin populations on spatial scales that range from individual nest sites to entire continents, high resolution commercial satellites are precipitating a renaissance for penguin ecology and conservation. I will present some early results demonstrating how high resolution imagery allows us to answer long-standing questions in penguin ecology (How many Adélie penguins are there?) as well as questions we never thought to ask before. In fact, I will argue that high resolution satellite imagery makes Antarctic penguins a model system in which to study the spatial ecology of colonial seabirds. Future progress in these areas will require a synthesis of biology, mathematics, and high performance computing; open areas for development and challenges presented by this 'brave new world' will be discussed.