BREN SEMINAR

DAMMING THE AMAZON:
EVALUATING TRADEOFFS BETWEEN HYDROPOWER AND ECOSYSTEM SERVICES

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Monday, October 29, 2018 11:00 – 12:00
Bren Hall 1414
Watch live at https://ucsb.zoom.us/j/872828887

"Alex Flecker, visiting the Bren School on sabbatical leave from Cornell University, is tackling the critical environmental issue of dam construction in the Amazon basin by using advanced computational methods to evaluate cumulative impacts in an innovative approach to regional development. His analyses are relevant to the full spectrum of interests within the Bren School and across campus." — John Melack, Professor, Bren School

ABSTRACT The rapid expansion of hydropower is a pressing issue confronting the world's most biodiverse river systems. For example, in the Amazon Basin, the largest river system on earth, some 165 dams have been built and nearly 300 new dams have been proposed. While environmental assessments have considered individual dams, little attention has been paid to evaluating tradeoffs between energy generation and portfolios of ecosystem services for different network configurations of proposed Amazon dams. Assessing tradeoffs and cumulative effects of numerous dams in regions such as the Amazon is especially challenged by the scarcity of structured data, as well as the need to develop computational tools for basin-scale analyses. In this talk, I will introduce the scope of proposed Amazon dam development and discuss our approach evaluating tradeoffs, working with computer scientists in the emerging field of computational sustainability. In our analysis of all Amazon sub-basins and the entire Amazon combined, we find that understanding tradeoffs between hydropower and a suite of environmental objectives provides a framework for strategic dam planning. I will address the importance of scale and some of the potential benefits of integrated basin planning with respect to environmental and energy outcomes.

BIO Dr. Alexander S. Flecker is a Professor of Ecology and Evolutionary Biology at Cornell University, and a faculty fellow of the Cornell Atkinson Center for a Sustainable Future. His research utilizes field based studies and large-scale data syntheses to understand human-driven environmental change and its impacts on the structure and function of aquatic ecosystems. He has long worked on the ecology and conservation of tropical rivers, and is currently focusing on ecosystem consequences of biodiversity loss and species invasions, vulnerability of species and ecosystems to climate change, and analyses of tradeoffs involving hydropower production and ecosystem services.

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