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Symposium Organizers

Dr. Anthony Oliver-Smith – Department of Anthropology, UF

Dr. Simone Athayde – Center for Latin American Studies, UF

Dr. Stephanie Bohlman – School of Forestry Resources and Conservation, UF

Ms. Kathleen McKee – Water Institute, UF



INTRODUCTION

The Brazilian Amazon is one of the most important natural environments in the world, playing a key role in global climate dynamics. In that regard, understanding the role of the Brazilian Amazon in hemispheric and global climate conditions will be essential if appropriate mitigation and adaptation policies are to be developed. Currently, the Brazilian government has over 80 large dams planned which will impact water resources, forests and land cover, and resident populations, many of whom are indigenous. Considerable research has been done on dams in Brazil, but very little of it has attempted to integrate climate, hydrology, forests and people in the assessment of their effects. Although dams have recently been touted as a carbon neutral energy source, there is considerable evidence to the contrary. With the dynamics of increasing climate change, the need for this kind of integrative research becomes urgent.

This three day Symposium will include the participation of UF and Brazilian Scholars, as well as invited guests. There will be one day of presentations and roundtables, one day of integrative research exercises and one day for group work on the proposal, with research team participants.

This Symposium is part of the *Amazon Dams Program Initiative*, an effort to build a bi-national research program on the multiple social and environmental effects of dams involving, four rivers and three Universities in the Brazilian Amazon, working collaboratively with UF and other US faculty, students and researchers. Currently, this effort includes 14 UF faculty, post-docs and PhD students; 14 professors and professionals from Brazil, and 2 collaborators from other American institutions.

For this Symposium, we will explore three main themes:

- **Dams and River Systems** – including hydrology, geomorphology, fish and fisheries.
- **Dams and Social Systems** – including political ecology, indigenous peoples and struggles against dams in the Amazon, long-term effects of Dams on social groups in Costa Rica, and socio-economic benefits of electrification.
- **Dams and Climate Change** – including land-use and land-cover change, with a focus on the Brazilian Amazon.

The main outcomes to be achieved from this Symposium are sharing knowledge within and across disciplines, formation of the research team and advance proposal development.

January 23, day 1 Reitz Union, room 361-363	Open to the public, no registration required Presentations and Discussion
January 24, day 2	Workshop format
January 25, day 3	Program development and proposal writing

SYMPOSIUM PROGRAM

JANUARY 23, 2012 - FIRST DAY CONTEXT		
Time	Theme	Speaker
AM 9:00 – 9:15 Welcome	Welcome and Opening	Dr. Philip J. Williams , Director, Center for Latin American Studies, UF Dr. Bette Loisel , Director, Tropical Conservation and Development Program, UF Dr. Wendy Graham – Director, Water Institute, UF
9:15-9:20 Objectives and Agenda	Symposium Coordinator	Dr. Anthony Oliver-Smith , Department of Anthropology, UF
9:20-10:15 Keynote Speaker	Dams and Climate Change in the Brazilian Amazon	Dr. Philip Fearnside , Research Professor, National Institute for Research in Amazonia (INPA), Brazil
10:15-10:30	Break	

Time	Theme	Speaker
AM 10:30-12:00	SOCIAL SCIENCE CLUSTER	Moderator: Dr. Marianne Schmink , Center for Latin American Studies, UF
10:30-11:00	The Social Impacts of Dams Construction and Operation	Dr. Anthony Oliver-Smith , Department of Anthropology, UF
11:00-11:30	Politics of Water and Social Movements	Dr. Katrina Schwartz , Department of Political Science, UF
11:30- 12:00	Linking Short-Term and Long-Term Models to Evaluate Success in Dam-Induced Resettlement Projects	MS Gabriela Stocks , Department of Anthropology, UF
12:00 – 1:30 PM	Lunch	

JANUARY 23, 2012 - FIRST DAY CONTEXT		
Time	Theme	Speaker
PM 1:30 – 3:30	NATURAL SCIENCE CLUSTER	Moderator: Dr. Bette Loielle , Tropical Conservation and Development Program, UF
1:30-2:00	Long Term Multidisciplinary Research on Dams: The Glen Canyon Dam Project, USA	Dr. William (Bill) Pine - Wildlife Ecology and Conservation, UF, and Dr. Theodore Melis , USGS Glen Canyon Program
2:00-2:30	Effects of Dams on River Geomorphology: A Global and Local Perspective	Dr. Joann Mossa , Department of Geography, UF
2:30-3:00	Dams and Fisheries in the Amazon Across Tocantins and Madeira Watersheds	Dr. Elaineide Marques , Federal University of Tocantins (UFT), Brazil, and Dr. Carolina Doria , Federal University of Rondônia (UNIR), Brazil
3:00-3:30	Forests, Land Use and Land Cover Change Processes Related to Dams	Dr. Michael Binford , Chair, Department of Geography, UF, and Dr. Stephanie Bohlman , School of Forest Resources and Conservation, UF
3:30-3:45	Break	

Time	Theme	Speaker
PM 3:45-5:00	POLICY CLUSTER	Moderator: Dr. Stephanie Bohlman , UF School of Forest Resources and Conservation
3:45-4:15	Energy, Society, the Economy, and Ecology: Academic Disciplines and Conflict Resolution	Dr. Sanford Berg , Director of Water Studies for the Public Utility Research Center (PURC), UF
4:15-4:45	Dam Licensing in the United States	Dr. Christine A. Klein , Chesterfield Smith Professor of Law and Director, LL.M. Program in Environmental & Land Use Law, UF Levin College of Law
4:45-5:15	Discussion and closure	Participants and audience

JANUARY 24, 2012 - SECOND DAY WORKSHOP FORMAT		
Time	Theme	Format
AM 8:30-9:00	Self-introductions of participants	Map and circle
9:00 -9:45 Interactive presentation	Stages of Dams Implementation in Brazil: Stakeholders and Decision-making	Dr. Simone Athayde , Center for Latin American Studies/UF, Dr. Walterlina Brasil , Federal University of Rondônia (UNIR), and Dr. Elineide Marques , Federal University of Tocantins (UFT)
9:45 – 10:00	Sharing of Survey Results	Kathleen McKee , Research Coordinator, Water Institute, UF
10:00 – 10:15	Break	
10:15 – 11:15	Disciplinary break out groups to develop framework and research questions	Groups formed within social and natural sciences disciplines
11:15 – 12:15	Report and discussion of break out groups results	Plenary
12:15 – 1:45 PM	Lunch	
PM 1:45-2:45 Integrative research on dams	The Challenge of Integrative Research on Dams	Dr. Anthony Oliver-Smith Presentation and discussion
2:45 – 4:15	Interdisciplinary break out groups for developing integrative research questions, frameworks and methods	Groups formed according to previously defined integrative themes
4:15 – 4:30	Break	
4:30- 5:30	Report and discussion of break out groups results	Plenary
January 25, 2012 THIRD DAY	This day is closed for public participation, and reserved for group work on project development.	Program participants, Brazilian collaborators and guests

ABSTRACTS OF PRESENTATIONS

Dams and Climate Change in the Brazilian Amazon

Philip Fearnside - Keynote Speaker
National Institute for Research in Amazonia (INPA), Brazil

Tropical dams emit significant amounts of greenhouse gases despite the image of “clean energy” that is strongly promoted by the hydroelectric industry. In Amazonia, dams often emit more than generating the same energy from fossil fuels for many years. Dams emit greenhouse gases in different forms. First, the trees killed by flooding of the forest frequently project above of the surface of the water and release carbon dioxide (CO₂) as they decay. This emission constitutes a net contribution to the greenhouse effect, in contrast to CO₂ emitted from the water in the reservoir from decay of plants that they grow after the dam is built. The amount of CO₂ that these plants absorb from the atmosphere while they grow is the same as what they release when they die and decompose. However, much of the plant matter that decomposes in the reservoir does not release its carbon in the form of CO₂, but rather as methane (CH₄). This occurs because the water at the bottom of the reservoir has virtually no oxygen, and the oxygen necessary to form CO₂ is therefore not available. This vegetation includes aquatic plants that grow in the reservoir and the grasses and herbaceous weeds that grow in the drawdown zone around the edges of the reservoir (the area that is exposed when the water level is low and is flooded when the reservoir fills again). The methane released as the vegetation decays underwater has a much greater impact on global warming than would release of the carbon as CO₂. The impact of each ton of methane is equivalent the 25 tons of CO₂ over a 100-year period according to the 2007 report of the Intergovernmental Panel on Climate Change (IPCC). However, more recent analyses that include indirect effects indicate that the impact of methane is 34 times greater than CO₂ for the same period. The main pathway for emission of the methane is the water that passes through the turbines and the spillways.

The Social Impacts of Dams Construction and Operation

Anthony Oliver-Smith
Department of Anthropology, University of Florida

This presentation will summarize the major social impacts of dam construction and operation as documented over the past half century. The social impacts of dams are the result of the major changes enacted by dam construction and operation on the natural environment as well as the effects of displacement and, possibly, resettlement of the affected population. The distribution of impacts is often unbalanced with some positive effects created for selected groups in affected populations in terms of access to irrigation water, communication systems, and employment. Negative effects include diminished welfare due to changes in resource access, livelihoods, market access, social organization, social networks, political power and

belief systems. There are also significant impacts on psychological and physical health. Theories and concepts useful for the analysis of displacement and resettlement will also be briefly discussed.

Dams and Social Movements

Katrina Schwartz

Department of Political Science, University of Florida

Large dams have long been the target of oppositional mobilization, particularly since the 1980s. Why have dams provoked such powerful resistance? Where has it been most successful in halting or delaying dam construction, and why? This presentation will provide an historical overview of national and transnational anti-dam movements, placing the case of Brazil in comparative context.

Linking Short-Term and Long-Term Models to Evaluate Success in Development-Forced Resettlement Projects

Gabriela Stocks

Department of Anthropology, University of Florida

This presentation addresses the long-term outcomes of the resettlement of Nuevo Arenal, Costa Rica, which occurred as a consequence of the Arenal Hydroelectric Project in 1977. Because resettlement creates long-term impacts, assessing the success of resettlement projects on the basis of information gathered only a few years post-resettlement is premature. Nevertheless, the project evaluation cycle normally requires an assessment of success at a term of three to five years. The study presented here takes a different approach by analyzing the evolution of Nuevo Arenal in the 33 years after relocation. By combining Michael Cernea's Impoverishment Risks and Reconstruction Model with Thayer Scudder's four-stage framework for successful involuntary resettlement, we can attempt to connect project planning to long-term outcomes in resettled communities. Ultimately, the goal of this study is to identify whether this Arenal project can be considered a rare example of successful resettlement, and which elements of the resettlement project design contributed to or hindered successful community reconstruction post-resettlement.

Long Term Multidisciplinary Research on Dams: Lessons Learned From Glen Canyon Dam, Colorado River, USA

William (Bill) Pine,

Department of Wildlife Ecology and Conservation, University of Florida

Theodore Melis

USGS Glen Canyon Program

The Colorado River ecosystem including the Grand Canyon reach of the Colorado River below Glen Canyon Dam, Arizona is currently managed under an adaptive management framework that is designed to meet operational obligations of Glen Canyon Dam while protecting natural resources of Grand Canyon and the Colorado River. This framework assumes that the ecosystem responses to dam operations and various management policies are complex and rarely predictable. To aid in protecting natural resources given this uncertainty the Glen Canyon Dam Adaptive Management Program uses long-term monitoring data of key resources including native fish and sand resources coupled with predictive modeling exercises and large-scale (ecosystem level) experiments to assess restoration options for key biological and abiotic resources. In this framework research continuously provides information to resource managers that updates and modifies previous conclusions about ecosystem responses to dam operations and experiments to aid in making future decisions by addressing key uncertainties.

Effects of Dams in River Geomorphology

Joann Mossa

Department of Geography, UF

Globally, more than 6000 km³ of water is held in reservoirs behind large dams. This volume is so large that some suggest that reservoirs have reduced rate of sea level rise. The magnitude, duration, frequency and timing of high and low flows have been markedly changed by dams and reservoirs, trending towards “homogenization”. Both homogenization and fragmentation are processes that tend to decrease landscape diversity and biodiversity. Reservoirs are also holding back about 20% of the global sediment load. Amazon provides 8% of global sediment flux, so the building more reservoirs there will have a global impact. Locally, reservoirs affect processes upstream (drowning of lands and tributaries, sediment trapping, increased slope instability) and downstream (degradation, decreased lateral migration, decreased sand bar area). These affect people, biota, water distribution, landforms and more. Magnitude and types of effects depend on dam size, purpose, operation and environmental setting. Concerns not fully considered are that the reservoir lifetime is finite, and that there could be unanticipated effects, such as a collapse from a variety of causes that results in a catastrophic flood. These also warrant review when evaluating large projects.

Dams and Fisheries in the Amazon across Tocantins and Madeira Watersheds

Elineide Marques,

Federal University of Tocantins (UFT)

Carolina Doria,

Federal University of Rondônia (UNIR)

Brazil

It has been more than thirty years since the first Amazon dam was built. Currently, about thirteen dams are being constructed, and a dozen of them are planned for the region. The Tocantins and the Madeira river watersheds are rapidly changing in response to impacts caused by dams. In this presentation, we present and discuss results of long-term research and monitoring activities done about the fish fauna in these two watersheds. The highly turbid waters and rapids of the upper Madeira River represent a single type of environment in the Brazilian Amazon. The implementation and operation of two hydroelectric dams in the upper river Madeira will lead to change in the composition of fish communities in the dammed area, which, therefore, will affect the fishing activity conducted in the river. One of the expected impacts is on the reophilic species, with the interruption of migration routes, especially of large migratory fish, which can change the fishing communities of the two reservoirs and upstream and downstream areas. Long-term knowledge about the diversity of patterns that structure communities, species biology, and fishing, is essential for understanding and mitigating the impact of these development projects. The challenge ahead is to understand how the fish fauna is changing in Amazonian rivers and what we can learn from other experiences in order to improve the conservation process of the fish fauna and associated communities.

Forests, Land Use and Land Cover Change Processes Related to Dams

Michael Binford,

Department of Geography, University of Florida

Stephanie Bohlman,

School of Forest Resources and Conservation, University of Florida

The land use and forest cover of a river's watershed influences the hydrology and biogeochemistry of the river. Dam construction alters land use and forest cover both directly (reservoirs flood forests, altered hydrology impacts riparian forest) and indirectly (changed demography and livelihoods cause urban development, agricultural shifts and deforestation), which then create feedbacks on the river system and dam operation. The indirect effects can only be predicted by understanding human's response to the dam's effects, such as displacement of communities, altered livelihoods from depleted fish stocks, population migration to the dam construction site, etc. Thus, to predict and quantify impacts of dams on forest and land use, an integrated socio-environmental framework is necessary.

Energy, Society, the Economy, and Ecology: Academic Disciplines and Conflict Resolution

Sanford Berg,

Public Utility Research Center (PURC),
Warrington College of Business Administration,
Department of Economics, University of Florida

Each academic discipline sheds light on the issues associated with constructing and operating dams. The relevant paradigms enable researchers to focus on key issues; we frame the issues being addressed. Integrative analyses are required for the evaluation of policy options, drawing upon engineering, hydrology, political science, economics, land use planning, law, anthropology, and ethics. Evidence-based public policy suggests that “Seeing is believing.” However, to some extent, “Believing is seeing.” So we need to be fully aware of the biases and limitations each discipline brings to the discussion of public policy, including energy sources. This presentation examines how four sources of conflict can be addressed through technical studies and adaptive work. Authority conflicts arise due to a lack of clarity of roles and responsibilities. Cognitive (factual) conflicts represent disagreements regarding current or historical facts and causal linkages. Value Conflicts occur due to conflicting priorities and different weights on outcomes. Electrification for regional economic development, environmental stewardship, and limiting impacts on indigenous peoples illustrate potential (conflicting) goals. Finally, interest conflicts stem from stakeholders benefiting differentially from decisions. When the costs are imposed on one group and the benefits on another, clear interest conflicts emerge. The presentation concludes with a discussion of the major drivers of public policy in infrastructure.

Dam Licensing in the United States

Christine A. Klein,

LL.M. Program in Environmental & Land Use Law,
University of Florida Levin College of Law

This presentation will discuss the licensing and other legal requirements applicable to both public and private dams. It will also consider the issues of license renewal, the imposition of environmentally protective conditions, and the legal issues surrounding the removal of dams.

Stages of Dams Implementation in Brazil: Stakeholders and Decision-making

Simone Athayde,

Center for Latin American Studies, University of Florida

Walterlina Brasil,

Federal University of Rondônia (UNIR), Brazil

Elineide Marques,

Federal University of Tocantins (UFT), Brazil

In this interactive presentation, we will present and discuss the stages of licensing and implementing hydroelectric power plants in Brazil. We divide the process in three phases, named planning, constructing and mitigating. For each stage, we identify the main actors involved and the roles they play in decision-making, including governmental institutions, private companies, banks, public ministry, environmental agencies, society and people directly and indirectly affected by a given dam. Each actor has a position, an interest and a role in the process. We present information on the requirements for obtaining each type of license by the enterprise building the dam, which are the provisory license (LP), the installation license (LI) and the operation license (LO). We discuss the gaps and vulnerability of the different stages, and conclude with some models that help to understand the transformation of the system in longitudinal (temporal) and vertical (geopolitical and hierarchical) scales.

The Challenge of Integrated Research on Dams

Anthony Oliver-Smith

Department of Anthropology, University of Florida

There is a huge literature on dams, from almost every aspect in the natural, social, engineering and policy sciences. However the vast majority of this literature is confined to silos, each insulated from contact or reference with others. There have been relatively few systematic examinations of dams from interdisciplinary perspective, thereby missing important synergistic linkages between ecological, social and policy oriented variables. This presentation will discuss the emerging need for integrative research in general and its application for dams. Dams require an integrative approach for three main reasons. First, large dams are transformative interventions and enact like few other phenomena the alteration of virtually every aspect of local environments and societies. Second, dams are frequently perceived as the clearest expression of the western, technologically driven form of development and thus acquire major political significance. Third, dams are expensive. They require enormous investments of capital that usually must be obtained by diverting resources from other forms of consumption and incurring indebtedness to multilateral, public and private sources. Thus, their modernist cultural centrality and their physical and economic dimensions and impacts have placed dams at the center of debates about development, society and environment.

SYMPOSIUM PARTICIPANTS

Listed by alphabetic order

<p>Athayde, Simone</p>  <p>E-mail: simonea@ufl.edu</p>	<p>Simone is an environmental anthropologist and a Postdoctoral Research Associate for both the Amazon Conservation Leadership Initiative (ACLI) and the Tropical Conservation and Development Program (TCD), in the Center for Latin American Studies, University of Florida. She is also a Research Associate for Instituto Socioambiental – ISA, a Brazilian NGO. In the last several years, her work has been recognized with awards from the Center for Latin American Studies and TCD Programs and from the Center for Entrepreneurship and Innovation (CEI) at the University of Florida; from the Ministry of Culture in Brazil, and from the International Society of Ethnobiology. She has worked for roughly 20 years in the fields of environmental education, conservation and development of the Atlantic Forest and Amazonian regions in Brazil, with a focus on indigenous knowledge systems and collaborative management of socio-ecological systems in the Amazon.</p>
<p>Bartels, Wendy-Lin</p>  <p>E-mail: wendylin@ufl.edu</p>	<p>Wendy-Lin has a PhD in interdisciplinary ecology with a concentration in tropical conservation and development, a Master’s in science communication, and Bachelor of Science in botany and molecular genetics. Prior to her current position, Wendy-Lin conducted research in Latin America and Africa. In Brazil, she studied partnership building within a multi-stakeholder land-use planning process. Specifically, this research revealed how small-scale producers, social movement representatives, and government agencies understood their role in the sustained provision of environmental services. In Eritrea, Wendy-Lin conducted similar stakeholder-related research for CARE International to determine the feasibility of alternative fuel sources for low-income citizens.</p>

Berg, Sanford (Sandy)



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Sandy has a B.A. from the University of Washington and a Ph.D. in Economics from Yale University. Serving as Director of the Public Utility Research Center from 1980 to 2004, his publications include two books and over ninety articles on infrastructure, including innovation, governance, benchmarking, and incentives. He has been honored with a number of awards, including University Teacher/Scholar of the Year. As Co-Director of the PURC/World Bank International Training Program on Utility Regulation and Strategy, he has trained over 2,500 regulators and managers from 148 nations. Currently, he is adding material on energy efficiency and renewables to www.regulationbodyofknowledge.org.

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Michael Binford is Professor and Chair of the Geography Department at UF. His research expertise and interests include landscape dynamics and land-water interactions; influence of human activities on landscape hydrological and biogeochemical processes, vegetation, sediment flux, and lake eutrophication; and remote sensing of water quality. He has conducted research in Southern Africa, East Africa, Southeast Asia, and in the Southeastern U.S. Coastal Plain region.

<p>Bohlman, Stephanie</p>  <p>E-mail: sbohlman@ufl.edu</p>	<p>I'm an Assistant Professor at the School of Forest Resources and Conservation at UF. My overall research interests are to understand how species/functional group composition and forest structure will respond to climate change and the effects of these responses on ecosystem functioning. I am particularly interested in landscape level patterns, which has led me to use remote sensing data extensively. Because I am interested in tying remote sensing interpretation to field observations, I have focused on high resolution remote sensing as a bridge between field data and coarse scale satellite data. My work has focused primarily on tropical forests, which has critical gaps in knowledge about carbon uptake and response to climate change.</p>
<p>Brasil, Walterlina</p>  <p>E-mail: walbrasil@hotmail.com</p>	<p>Walterlina holds a bachelor's degree in Pedagogy from Federal University of Rondônia in Brazil, a master's degree in Graduate Education from the Nuevo León Autonomous University in Mexico, and a doctoral degree in Socio-environmental Sciences from the "Núcleo de Altos Estudos da Amazônia," Federal University of Pará, Brazil. Currently, she is a professor at Federal University of Rondônia (UNIR) in Brazil. She has extensive experience in Education, with an emphasis in Graduate Education in the Brazilian Amazon. Her research interests include graduate education, science and technology and conservation and development of the Amazonian region.</p>

<p>Buschbacher, Robert</p>  <p>E-mail: rbusch@ufl.edu</p>	<p>Dr. Robert Buschbacher is Program Coordinator at the University of Florida, of the Amazon Conservation Leadership Initiative (ACLI), in the Tropical Conservation and Development Program (TCD). Dr. Buschbacher is formerly the Conservation Program Director of WWF-Brazil and established and directed the Tropical Forestry Program at World Wildlife Fund US. His main interest is in applied conservation biology and its interface with socio-economic development. In addition to teaching, Buschbacher is an active consultant in the design and evaluation of conservation programs.</p>
<p>Doria, Carolina</p>  <p>E-mail: carolinarcdoria@uol.com.br</p>	<p>Carolina R.C. Doria is a Biologist with a doctoral in Interdisciplinary Socio-environmental Science. Since 1998, she is a professor at Rondônia Federal University, coordinating the Laboratory of Ictiology and Fisheries. She is also a member of the Ação Ecológica Guaporé (Brazilian NGO). She has worked for around 15 years in the fields of environmental conservation and development of the Amazonian region in Brazil. Her research interests include fish ecology and management, community-based management of natural resources, fisheries and traditional knowledge systems, environmental impacts of dams and resilience of socio-ecological systems in the Amazon.</p>
<p>Fearnside, Philip</p>  <p>E-mail: philip.fearnside@gmail.com</p>	<p>Philip M. Fearnside is a Research Professor at the National Institute for Research in the Amazon (INPA) in Manaus, Amazonas, Brazil since 1978. He holds a PhD in Biological Sciences from the University of Michigan, Ann Arbor, Michigan, U.S.A. Author of over 450 publications (http://philip.inpa.gov.br), honors include Brazil's National Ecology Prize, the UN Global 500 award, the Conrad Wessel, Chico Mendes and Benchimol prizes, the Scopus prize (from Elsevier & CAPES) and membership in the Brazilian Academy of Sciences. In 2006 he was identified by Thompson-ISI as the world's second most-cited scientist on the subject of global warming.</p>

Graham, Wendy



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Wendy Graham is the Carl S. Swisher Eminent Scholar in Water Resources in the Department of Agricultural and Biological Engineering at the University of Florida and Director of the University of Florida Water Institute. She graduated from the University of Florida with a Bachelor's degree in Environmental Engineering. Her PhD is in Civil Engineering from the Massachusetts Institute of Technology. She conducts research in the areas of coupled hydrologic-water quality-ecosystem modeling; water resources evaluation and remediation; evaluation of impacts of agricultural production on surface and groundwater quality; and evaluation of impacts of climate variability and climate change on water resources. She has served as PI or co-PI on over \$13 million in grants and contracts, has supervised 30 doctoral and master's thesis committees and has served on more than 45 additional graduate student committees. She currently serves on the National Academy of Sciences Committee that is reviewing *EPA's Economic Analysis of Final Water Quality Standards for Nutrients for Lakes and Flowing Waters in Florida*, and the National Academy of Sciences Committee conducting an *Independent Scientific Review of Everglades Restoration Progress*.

Klein, Christine



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Christine A. Klein is a water law scholar with expertise in both the eastern and western doctrines. She began her career as a water rights litigator in the Colorado Office of the Attorney General. Klein joined the Florida faculty in 2003, where she teaches water law, natural resources law, and property. She is the author of a natural resources law casebook (with Cheever and Birdsong, Aspen Publishers), and her articles have appeared in numerous law journals. Klein is currently a member of the National Academy of Sciences, National Research Council, Committee on Sustainable Water and Environmental Management in the California Bay-Delta. She received an LL.M. degree from Columbia University; a J.D. degree from the University of Colorado; and a B.A. degree from Middlebury College (Vermont).

<p>Loiselle, Bette</p>  <p>E-mail: BLoiselle@latam.ufl.edu</p>	<p>Loiselle holds a joint appointment as Director of the Tropical Conservation and Development Program and Professor in Department of Wildlife Ecology and Conservation. Loiselle’s research focuses on understanding the importance of biodiversity in tropical systems, especially the ecological role of animals as seed dispersers, and the potential consequences of global change on distribution of plants and animals. She is also investigating the evolutionary ecology of lek-mating systems in birds and how the spatial ecology of females influences mate choice decisions and male reproductive strategies. Loiselle received her MS at the University of Illinois-Champaign and her Ph.D. at the University of Wisconsin-Madison.</p>
<p>Marques, Elineide</p>  <p>E-mail: emarques@mail.uft.edu.br</p>	<p>Elineide Marques is a biologist with bachelor and master’s degrees in Biological Sciences, and a Phd in Aquatic Ecology of Continental Systems from the State University of Maringá. She is currently a professor at the Federal University of Tocantins. She has around thirteen years of experience on research and monitoring activities related to impacts of dams in the fish fauna of the Tocantins River.</p>
<p>McKee, Kathleen</p>  <p>E-mail: katmckee@ufl.edu</p>	<p>Kathleen earned her M.S. degree in Soil and Water Science at the University of Florida in 2004 modeling wetland soil phosphorous in cattle pastures near Lake Okeechobee and gained knowledge in land use analysis, nutrient dynamics, geographic information systems, remote sensing and watershed management. She has major roles in the Suwannee Hydrologic Observatory testbed in the Santa Fe basin, the new EPA Center of Excellence for Watershed Management, and on the program initiation fund projects. She manages hydrologic databases for multiple projects and is a data manager for the CUAHSI Hydrologic Information System development effort funded by the National Science Foundation.</p>

Oliver-Smith, Anthony



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Anthony Oliver-Smith is Professor Emeritus of Anthropology at the University of Florida. He has held the Munich Foundation Chair on Social Vulnerability at the United Nations University Institute on Environment and Human Security in Bonn, Germany (2007). He has done anthropological research and consultation on issues relating to development forced displacement and resettlement as well as disasters and involuntary resettlement in Peru, Honduras, India, Brazil, Jamaica, Mexico, Japan, and the United States. His work on involuntary resettlement has focused on the impacts of displacement, place attachment, resistance movements, and resettlement project analysis. He has authored, edited or co-edited 8 books and over 70 journal articles and book chapters.

Sampaio, Patrícia



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Patrícia previously served as Assistant Director of the Biological Dynamics of Forest Fragments Project in Manaus, Brazil and has worked as a Biological Scientist at the UF School of Forest Resources and Conservation. Her background includes field research in tropical forest ecology and conservation, as well as undergraduate and graduate education related to tropical conservation and development. She holds an MS in Ecology from Universidade de Sao Paulo and a BA in Biology from the Universidade Federal do Rio de Janeiro. She is a native speaker of Brazilian Portuguese.

Schmink, Marianne



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Marianne Schmink is Professor of Latin American Studies and Anthropology, and Distinguished Teaching Scholar, at the University of Florida, where she served Director of the Tropical Conservation and Development (TCD) program from 1988-2010. She has co-authored (with Charles H. Wood) Contested Frontiers in Amazonia (Columbia University Press, 1992), and (with Mâncio Lima Cordeiro) Rio Branco: A Cidade da Florestania (2008, UFPa/UFAC), in addition to three edited books, and over fifty articles, book chapters, and reports. She has worked on issues related to gender, development and community-based conservation in the Amazon region of Brazil for over thirty-five years.

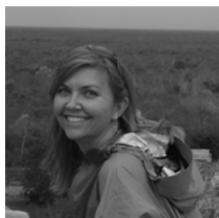
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SPONSORING ORGANIZATIONS AT UNIVERSITY OF FLORIDA

[UF Center for Latin American Studies](#)

The Center's mission is to advance knowledge about Latin America and the Caribbean and its peoples throughout the Hemisphere, and to enhance the scope and quality of research, teaching, and outreach in Latin American, Caribbean and Latino Studies at the University of Florida.

[Tropical Conservation and Development \(TCD\) Program](#)

TCD's mission is to ***bridge theory and practice to advance biodiversity conservation, sustainable resource use, and human well-being in the tropics***. TCD's main goals are:

- To *train graduate-level professionals*, particularly those from developing countries, to bridge theory and practice and learn across disciplines;
- To *promote cross-national, integrative, comparative problem-centered research*;
- To *strengthen and expand learning and action networks*.

At the heart of TCD is an innovative learning and action platform (see diagram below), where students, faculty and collaborators interact to address multi-scalar and multi-disciplinary challenges. TCD's approach builds on traditional disciplinary foundations, integrates past and present student experiences, and embraces collaborative learning and action with partners involved in the day-to-day realities of conservation and development. TCD encourages research and training activities developed in close collaboration with host-country partners.

[Amazon Conservation Leadership Initiative \(ACLI\)](#)

The University of Florida (UF) Amazon Conservation Leadership Initiative (ACLI) works to build capacity for science and conservation in the Andes-Amazon region. The program has

complementary goals of training individuals at UF, and building in-country capacity. It is supported by a generous grant from the [Gordon and Betty Moore Foundation](#).

The geographic scope of the program includes the nine Amazon Basin countries of French Guyana, Suriname, Guyana, Venezuela, Colombia, Ecuador, Peru, Bolivia and Brazil. The program seeks to strengthen regional conservation by enhancing the leadership capacity and effectiveness of regional NGOs, government agencies, and university programs to engage critical conservation issues and improve conservation practice.

[UF Water Institute](#)

The UF Water Institute brings together talent from throughout the University and builds internal and external partnerships needed to address relevant and urgent research challenges, implement innovative interdisciplinary training programs for promising students, and provide state-of-the-art expert assistance and knowledge transfer programs for external stakeholders.

Interdisciplinary UF Water Institute Teams, comprised of leading water researchers, educators and students, develop new scientific breakthroughs; creative engineering; policy and legal solutions; and pioneering educational programs that are renowned for addressing state, national, and global water problems.

[Florida Climate Institute \(FCI\)](#)

The Florida Climate Institute (FCI), founded by the University of Florida and the Florida State University, brings together excellence in multi-disciplinary research and technology to achieve a better understanding of climate variability and change. Integrated research, teaching, and outreach programs and scientifically sound decision support systems are developed to improve management practices and reduce climate risks to communities, the economy and natural resources. The FCI provides a forum for a growing network of scientists, representatives from international organizations, local governments, and industry all joined by the vision to develop a sustainable future.



INTERNATIONAL SYMPOSIUM

Water, Forests and People: Towards Integrative Research on Dams, Natural Resources and Society in the Amazon

<http://www.tcd.ufl.edu/conferences.shtml>

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Amazon Conservation Leadership Initiative (ACLI) - <http://www.sfrc.ufl.edu/ACLI/>

UF Water Institute - <http://waterinstitute.ufl.edu/>

Florida Climate Institute (FCI) - <http://www.floridaclimateinstitute.org/>

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