

CARLOS MARTIN CAÑAS, PhD.

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Av. Roca y Boloña 291. Dpto. 303.
Miraflores, Lima. Peru

EDUCATION

Ph.D. 2012

Hydroclimatology and Freshwater Ecosystems
Department of Geography. University of Florida.

M.S. 2007

River Hydrology and Fish Migrations
Department of Geography. University of Florida.

B.S. 1997

Fish Biology and Fisheries
Facultad de Ciencias Biológicas. Universidad Nacional Mayor de San Marcos.

PROFESSIONAL EXPERIENCE

Water Research and Technology Center (CITA) at the University of Engineering and Technology (UTEC) **March 2019 - present**
(Lima, Peru)

- Take part and give support to CITA research team with aquatic ecology and hydrologic aspects of Amazonian rivers.
- Guide and give technical support to junior researchers at CITA on the design and publication of research papers and scientific articles resulting from investigations of Peruvian Amazon rivers.
- Create and sole lecturer of the course Ecology and Natural Resources (AM0004), required discipline in the Department of Environmental Engineering at UTEC. Semester 2019-I.

Wildlife Conservation Society (Lima, Peru) **August 2013 - December 2018**
Peru Coordinator of The Amazon Waters Initiative

- Led, represented, and conducted activities with the Amazon Waters Initiative in Peru and served as the liaison between Peru and Andes-Amazonia-Orinoquia Regional Program of WCS.
- Developed capacity building with local and national stakeholders to promote fisheries management with a river basin approach, and promoted long-term citizen participation in monitoring actions of fishing resources and wetlands in the Peruvian Amazon.
- Participated in the design and elaboration of research proposals to obtain financial funding in the fields of data collection and systematization, natural resources and infrastructure development, and conservation of freshwater resources.
- Coordinated with national and sub-national government agencies in the development of science-based policy to improve the environmental impact assessment for infrastructure development in the Peruvian Amazon.
- Supervised research team of fish biologists in charge of monitoring biological aspects of commercial fish species of considerable importance in the Peruvian Amazon, and coordinated closely with specialists hired to develop investigations about food security, fishery commercial chains, and the effects of climate change on fishing resources.

Wildlife Conservation Society (Gainesville, USA)
Consultant

April 2013 - July 2013

- Carried out search, systematization and edition of data on infrastructure, fisheries,

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and wetlands for the project: A science-driven policy framework for environmental mitigation for infrastructure development in the Andes-Amazon region.

- Generation of spatial river basin data on the basis of drainage delineation and river level categorization of Andean-Amazon rivers of Peru.

University of Florida (Gainesville, USA)

Department of Geography

Graduate Teaching Assistant

August 2007 – July 2012

- Sole Lecturer for Physical Geography (GEO2200), required course for Bachelor Degree in Geography and General Education of Physical Science. Six Semesters.

University of Florida (Gainesville, USA / Puerto Maldonado, Peru)

Andean-Amazon Headwaters Program

Graduate Research Assistant / Field Coordinator

August 2005 – July 2007

- Investigated the role of flow regime on reproduction of migratory catfish in Madre de Dios Basin. Published two articles after Thesis of Master of Science.
- Conducted exploratory larval sampling in Madre de Dios River during 2004-2005, and trained a five-fisherman crew to carry on a systematic larval sampling and monitoring between 2005 and 2006.
- Built and put in use system of board gauges to measure water level of Madre de Dios River. Obtained 2 years and 2 months of daily records, river flow information first time ever recorded in southeastern Peru.

Amazon Conservation Association (Puerto Maldonado, Peru)

Amazon Rivers Program

Field Site Coordinator

August 2001 – July 2005

- Implemented and directed field research site (office, lab) in Puerto Maldonado and conducted limnology surveys along the elevation gradient of the Madre de Dios Basin (up to 4,000 m asl).
- Designed and participated in expeditions to investigate main aquatic habitats around ACA's Los Amigos Research Center.
- Conducted investigations about reproductive aspects of two giant migratory catfishes of importance in regional commercial fisheries.
- Develop workshops with local authorities and fishermen unions about the role of Madre de Dios Basin as fish spawning grounds. Worked with members of fishermen unions to develop a monitoring program of fishing resources.

Conservation International-Peru (Puerto Maldonado, Peru)

Subsistence Fisheries in Bajo Madre de Dios

Consultant

April 2001 – December 2001

- Designed and developed investigation of subsistence fishing along the Bajo Madre de Dios River.

Sociedad Peruana de Derecho Ambiental –SPDA (Lima and Iquitos, Peru)

Programa APGEP-SENREM

Consultant

November 1999 – March 2000

- Developed mid-term evaluation of project “Sustainable Management of natural water bodies in Amazon Lowlands”, carried out by CARE-Peru and local fishers in the Tamshiyacu Tahuayo Communal Reserve, Loreto (Peru).

Conservation International-Peru (Puerto Maldonado, Peru)

PRODESCOT

Research Coordinator on Regional Fisheries

April 1996 – July 1999

- Explored rivers and lakes carrying out systematic fish and fisheries sampling

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across the entire Madre de Dios Basin in southeastern Peru.

- Developed a Management Plan for regional Fisheries in Madre de Dios in close coordination with fisheries authorities and fisher's unions of southeastern Peru.
- In close coordination with *Dirección Regional de Pesquería de Madre de Dios* developed a monitoring plan of commercial fish captures in southeastern Peru.

LANGUAGES

Spanish: Mother tongue

English: Read, Speak, Write, and Understand. Fluency: Excellent.

Portuguese: Read, Speak, Write, and Understand. Fluency: Excellent.

PUBLICATIONS

Refereed Journal Articles

- Goulding M, Venticinque E, Ribeiro MLdeB, Barthem R, Leite RG, Forsberg B, Petry P, da Silva-Júnior UL, Ferraz PS, **Cañas C**. 2019. **Ecosystem-based management of Amazon fisheries and wetlands**. *Fish and Fisheries*, 20:138-158.
- Anderson EP, Jenkins CN, Heilpern S, Maldonado-Ocampo JA, Carvajal-Vallejos FM, Encalada AC, Rivadeneira JF, Hidalgo M, **Cañas C**, Ortega H, Salcedo N, Maldonado M, Tedesco PA. 2018. **Fragmentation of Andes-to-Amazon connectivity by hydropower dams**. *Science Advances*, 4(1):eaa01642. DOI: 10.1126/sciadv.aao1642.
- Barthem RB, Goulding M, Leite, RG, **Cañas C**, Forsberg B, Venticinque E, Petry P, Ribeiro MLdB, Chuctaya J, Mercado A. 2017. **Goliath catfish spawning in the far western Amazon confirmed by the distribution of mature adults, drifting larvae and migrating juvenile**. *Scientific Reports*, 7:41748. DOI 10.1038.
- Venticinque E, Forsberg B, Barthem RB, Petry P, Hess L, Mercado A, **Cañas C**, Montoya M, Durigan C, and Goulding M. 2016. **An explicit GIS-based river basin framework for aquatic ecosystem conservation in the Amazon**. *Earth Syst. Sci. Data* 8, 651-661.
- **Cañas C**, Waylen P. 2011. **Modeling Production of migratory catfish larvae (Pimelodidae) on the basis of regional hydro-climatology features of the Madre de Dios Basin in southeastern Peru**. *Hydrological Processes*, 26:996-1007
- **Cañas C**, Pine WE III. 2011. **Documentation of Temporal and Spatial Patterns of Pimelodidae Catfish Spawning and Larvae Dispersion in the Madre de Dios River (Peru): Insights for Conservation in the Andean-Amazon Headwaters**. *River Research and Applications*. 27: 602-611.

Books and Book Chapters

- **Cañas, C**. 2018. **Impacto de la Deforestación sobre las aguas y las poblaciones de peces en la Amazonia peruana** (English Title: "Deforestation Impacts on freshwaters and fish populations of the Peruvian Amazon"), Chirif, A. [ed.] Deforestación en Tiempos de Cambio Climático. Tarea Asociación Gráfica Educativa, pp. 115-125.
- Barthem R, Calle I, **Cañas C**, Castillo O, Forsberg B, Goulding M, Heck C, Montoya M, Mora C, Venticinque E. 2016. **INAMBARI Towards an integrated approach to river basin management**. Edited by Elizabeth Anderson. Wildlife Conservation Society. Lima. Peru.
- Goulding M, Barthem R, **Cañas C**, Hidalgo M, Ortega H. 2010. **La Cuenca del Río Inambari. Ambientes acuáticos, biodiversidad y represas**. (English Title "The Inambari River Basin. Aquatic ecosystems, biodiversity and dams"). Gráfica Biblos, Lima.
- Leite RG, **Cañas C**, Forsberg B, Barthem R, Goulding M. 2007. **Larvas dos Grandes Bagres Migradores/Larvas de los Grandes Bagres Migratorios**. (English Title "Larvae of large migratory catfishes"). Gráfica Biblos, Lima.
- Goulding M, **Cañas C**, Barthem R, Forsberg B, Ortega H. 2003. **Amazon Headwaters. Rivers, Wildlife and Conservation in Southeastern Peru**. Gráfica Biblos, Lima.
- Goulding M, Barthem R, Forsberg B, **Cañas C**, Ortega H. 2003. **Aquatic Ecology of the Rio Madre de Dios. Scientific Bases for Andes-Amazon Headwaters Conservation**. Gráfica Biblos, Lima.

- **Cañas C. 2000. Evaluación de los Recursos Pesqueros en la provincia de Tambopata, Madre Dios.** (English Title: "Assessment of Fishing Resources in Tambopata Province, Madre de Dios"). Gráfica Biblos, Lima.
- **Cañas CM. 2000. La pesca en la provincia de Tambopata: Monitoreo y Ordenamiento Pesquero en el Sureste Peruano.** (English Title: "The fishing in the province of Tambopata: Monitoring and Fishing Management in southeastern Peru"). *El Manu y Otras Experiencias de Investigación y Manejo de Bosques Neotropicales* (ed. by L.O. Rodríguez), pp 178-186. PROMANU, Lima.

TEACHING EXPERIENCE

- **Guest Lecturer. October 2017.**
River, fishes, and fisheries in the Peruvian Amazon: Biodiversity and Management of freshwater resources.
Diplomate of Biodiversity Management. San Marcos University.
- **Field Course Instructor. 2015 and 2016**
Aquatic Ecology of Amazonia: Fundamentals of River Ecology, Fish Migrations and Connectivity of river basins in the Amazon System
Center for Research and Education of the Amazon Rainforest (CREAR)
- **Graduate Teaching Assistant. 2011 and 2012**
Sole Lecturer for Physical Geography (GEO2200), required course for Bachelor Degree in Geography and General Education of Physical Science. Two Semesters.
Department of Geography. University of Florida.
- **Graduate Teaching Assistant. 2007, 2008, and 2009**
Sole Lecturer for Physical Geography (GEO2200), required course for Bachelor Degree in Geography and General Education of Physical Science. Four Semesters.
Department of Geography. University of Florida
- **Field Course Instructor. 1998 and 1999**
Aquatic Ecology and Field Research Methods. Given to Markham College High School Senior Class.
Rainforest Expeditions-Environmental Education Program
- **Field Course Instructor. 1997 and 1998**
Fish, Aquatic Environments and Field Research Methods. Given to Environmental interpreters and researchers. Tambopata Research Center and Posada Amazonas Lodge Rainforest Expeditions-Environmental Education Program

NATIONAL AND INTERNATIONAL CONFERENCE PRESENTATIONS

- **Special Session: Damming the Amazon-hydropower proliferation in the world's largest river system.**
What if Manseriche Dam (Peru) is built? Effects on features, fish diversity, and fish consumption in the Marañón River.
Annual Meeting. Society for Freshwater Science. Detroit, US. 2018. May 20-24.
- **I Bolivian Congress of Ichthyology. From fishes to fisheries management.**
Spatializing the fisheries of Loreto and its benefits in the management of fishing resources of the Peruvian Amazon.
FAUNAGUA, World Fisheries Trust, Museum of Natural History Alcide d'Orbigny, ULRA. Cochabamba, Bolivia. 2017. October 26-28.
- **Symposium: Challenges for conservation of freshwater ecosystems in Amazonia.**
Fisheries and its importance in local livelihoods in the area of Manseriche Gorge in the Marañón Basin.
World Wildlife Fund. Lima, Peru. 2017. August 22
- **Forum: Environmental, Social, and Economic Sustainability of the Fisheries in the Loreto Region**
The Fisheries of Loreto: a fundamental freshwater ecosystem service strongly related to

wetlands and climate dynamics.

The Regional Directorate of Fisheries in Loreto. Iquitos, Peru. 2017. June 27-28

➤ **Amazon Waters International Conference.**

Applying a geospatial framework of river basins to Fisheries Management in Loreto, Peru

Wildlife Conservation Society. Lima, Peru. 2016. June, 26-27

➤ **International Seminar: Community Management and Collaborative Governance of Fisheries in the Amazon Basin.**

Fish and Fisheries in the Madre de Dios Basin, Peru

Instituto del Bien Común. Iquitos, Peru. 2011. September 1-2

➤ **Special Session in Biogeosciences: Andean-Amazon, bridging upper and lower basins. American Geophysical Union.**

Modeling Hydro-Climatology of Madre de Dios Basin and Production of Migratory Catfish in Southeastern Peru

AGU-Meeting of the Americas. Foz do Iguaçu, Brazil. 2010. August 8-12

➤ **International Symposium: Fluvial Systems and Dams: Biodiversity, Conservation and Environmental Impacts.**

Ecology and Conservation of Migratory Catfishes in Madre de Dios and Ucayali rivers

World Wildlife Fund & Universidad Ricardo Palma. Lima, Peru. 2010. March 17-18

➤ **International Symposium Sustainable Hydroelectric Development in the Amazon: The Case of Madeira River (Bolivia, Brazil, Peru)**

Impacts of Dams and Hydroelectric Power on the fish fauna of the Upper Madeira Basin

The Whitney Fund for Nature, World Wildlife Fund & Universidad Peruana Cayetano Heredia. Lima, Peru. 2009. August 25-26

➤ **Special Session: Latin America Landscapes: Physical Dimensions. American Association of Geographers.**

Relating Hydro-climatology to Catfish Larvae Drifting in the Madre de Dios River, Peru

AAG. Las Vegas, USA. 2009. March 22-27

➤ **Florida Society of Geographers. Annual Meeting.**

Temporal and Spatial Patterns of dispersion of Catfish Larvae in the Madre de Dios River

FSG. Miami, USA. 2008. January 25-27

➤ **Southeastern Division of the Association of American Geographers. Annual Meeting. Flooding the Amazon with life: a hydrologic approach to understand catfish larvae drifting in the Madre de Dios River**

AGU. Charleston, USA. 2007. November 18-20

AWARDS and SCHOLARSHIPS

- **2012. Dissertation Writing Award**
Graduate School. University of Florida
- **2007-2011. Alumni Graduate Fellowship**
Department of Geography. University of Florida.
- **2011. Graduate Teaching Assistantship**
Department of Geography. University of Florida.
- **2009. Excellence in Graduate Teaching**
Department of Geography. University of Florida.
- **2008. Summer Field Research Grant**
Department of Geography. University of Florida.
- **2008. Graduate Best Paper Presentation**
Annual Meeting. Florida Society of Geographers.
- **2008. Excellence in Graduate Teaching**
Department of Geography. University of Florida.

SERVICES

Peer Reviewer: *Ecohydrology, Journal of Fish Biology.*