Founding Partners

IIAP, Instituto de Investigaciones de la Amazonia Peruana, Pérou

UAGRM, Universidad Autonoma Gabriel René Moreno, Bolivie

UMR BOREA, IRD, French National Research institute for Sustainable Development, France

Formation

The LMI-EDIA participates to the development of the Master in: "Biological basis for sustainable fisheries and aquaculture" from the UAGRM (Santa Cruz, Bolivia). The LMI-EDIA is involved, through the UMR-BOREA, in supervising students from the Doctoral school MNHN/UPMC ED 227 "Sciences de la nature et de l’homme: Evolution et écologie" (Paris-France).

LMI's Co-Directors

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Map: in red, the three institutions (IIAP, UAGRM, BOREA) partners of the LMI EDIA in its second phase (2016-2020); in blue, main external collaborators of the LMI and members of the RIIA network; and in orange, others essential collaborations. The double red arrow shows the South-South alliance within the LMI EDIA.
The International Mixed Laboratory-EDIA is committed to studying the Evolution and the Domestication of the Amazonian Ichthyofauna.

The core partnership of the LMI EDIA is now centered on a North-South-South cooperation axis between the IIAP in Peru, the UAGRM in Bolivia, and the IRD - UMR BOREA in France (www.borea.mnhn.fr). The LMI-EDIA also participates to the RIIA network activities, which foster multiple collaborations in all the scientific areas required for the development of the LMI’s research axis.

**Objectives of the LMI-EDIA:**

1) a better understanding of the evolutionary (speciation, dispersal, extinction, and adaptation) and ecological (life history traits, environmental variations) processes involved in the exceptional diversity of Amazonian fish species

2) to provide the biological basis for improving fisheries management and conservation

3) to contribute to sustainable aquaculture development of native fish species

4) to develop a predictive approach about the impacts of global changes (natural and anthropogenic causes) on the diversity of Amazonian fish species

Using an approach of integrative biology, the scientific project develops a synergy between three research axis:

**AXIS 1:** Past, present and future dynamic of biodiversity

**AXIS 2:** Variability of life history strategies between species and their populations

**AXIS 3:** Biological basis and socio-economical approach for a sustainable aquaculture

The main applied outcomes of the LMI-EDIA will be the prediction of global change effects on fish species and communities at the scale of the hydrographical sub-basin (loss of richness and functionality, genetic erosion) and the elaboration of the biological basis for sustainable fisheries management and aquaculture development.

**EDIA’s scientific actions for the period between 2016 - 2020**

- Improving the comprehension of evolutionary and ecological processes (speciation, dispersal, extinction and life history strategies) of Amazonian fish diversity

- Study of colonization dynamics and adaptive capabilities to adapt to new habitats in invasive species: *Arapaima gigas* (paiche) as a model

- Influence of the environmental variations and perturbations on the recruitment of fish early life history stages (larvae and juveniles) : the metabarcoding approach (NGS)

- Understanding the reproductive mechanisms in the paiche, *Arapaima gigas*, and its African sister species *Heterotis niloticus*

- Replacement of fishmeal by local alternative protein sources

- Mastering the life cycle of the doncella, *Pseudoplatystoma punctifer*, in a recirculation circuit with the finality to increase the number of reproductions per season

- Digestive physiology and nutritional necessities of the LMI’s flag species in aquaculture: *Pseudoplatystoma punctifer*, *Osteoglossum bicirrhosum*, *Arapaima gigas*, *Calophysus macropterus* y *Colossoma macropomum*

- Test of the adaptive capacities of fish in face of environmental changes (temperature, oxygen, etc.)

- Socio-economic analysis of the aquaculture sector of Peru and Bolivia

- Effects of the allopatric fragmentation during the Holocene on speciation using *Apistogramma* as a biological model

- Effects of anthropogenic impacts such as hydroelectric dams, on life history strategies of highly migratory species (*Brachyplatystoma*) and species using the floodplain (*Arapaima*)

- Interdisciplinary study of population genetics, life history strategies and the biological basis for the aquaculture of an omnivorous species, the mota / blanquillo, *Calophysus macropterus*