EVALUATION AND CHARACTERIZATION OF FISH NURSERY HABITATS IN FRENCH GUIANA TROPICAL COASTAL HABITATS

Pernak[1]*, M., Tagliarolo[2], M., Rousseau[2], Y.

*michele.pernak@cnrs.fr

1 : CNRS UAR LEEISA (CNRS, UG, IFREMER)   2 : IFREMER UAR LEEISA (CNRS, UG, IFREMER)

Mangroves are one of the most productive estuarine habitats. With the high abundance of food and refuge from predation, mangroves are a suitable habitat for many fish species that spend all or part of their life cycle there. Despite the high socio-economic importance of the fishery species associated to mangroves, very little is still known about the nursery role of the different near-shore habitats in French Guiana.
This study aims to investigate habitat preference as well as community assemblages and the effect of anthropogenic pressure on early life stages of fish.
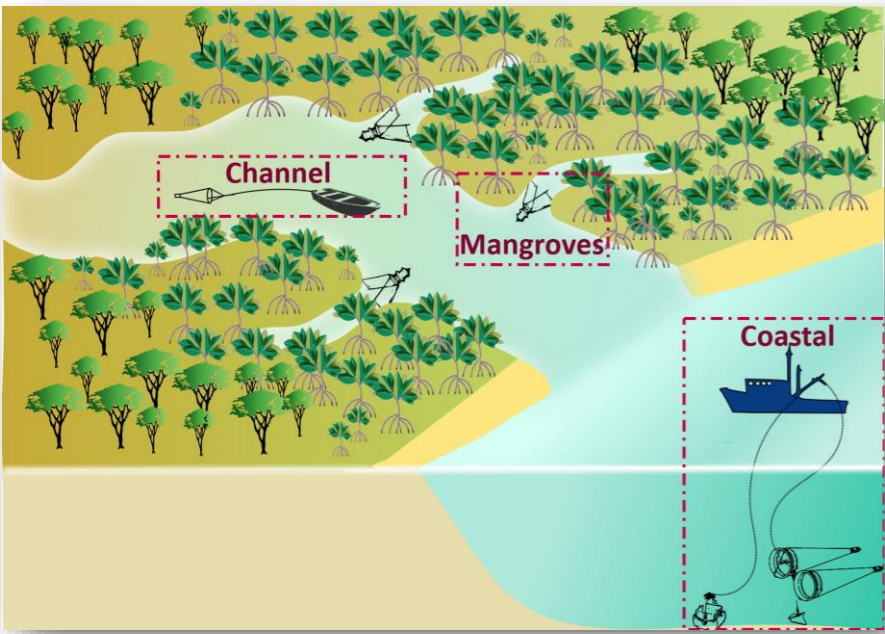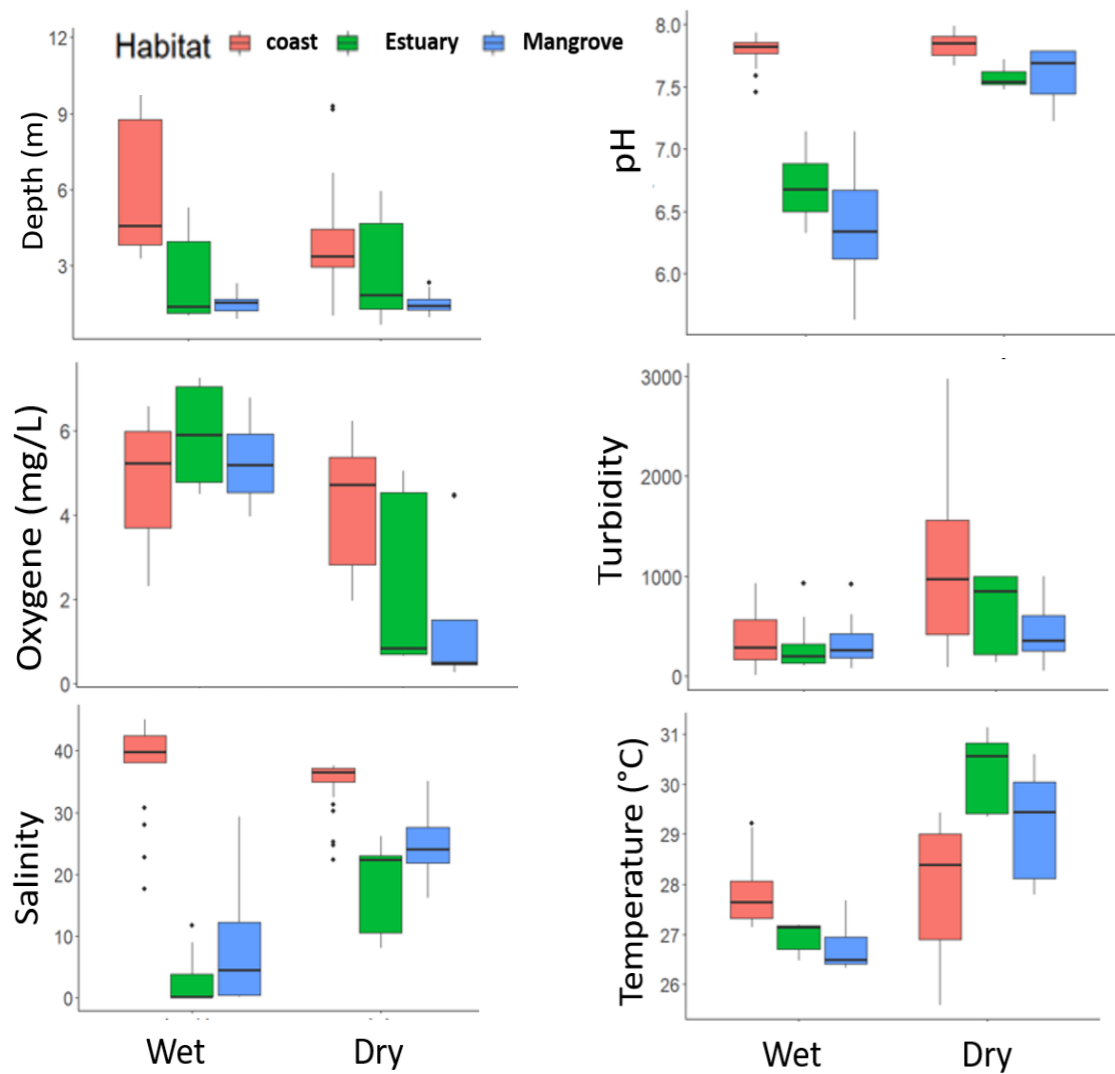
METHODS
- 2 sampling seasons (dry 2021 & wet 2022)
- 11 sampling sites (estuarine channel, mangrove, coastal areas)
- 4 sampling methods (plankton nets, bongo nets, epibenthic sleds and fyke nets)
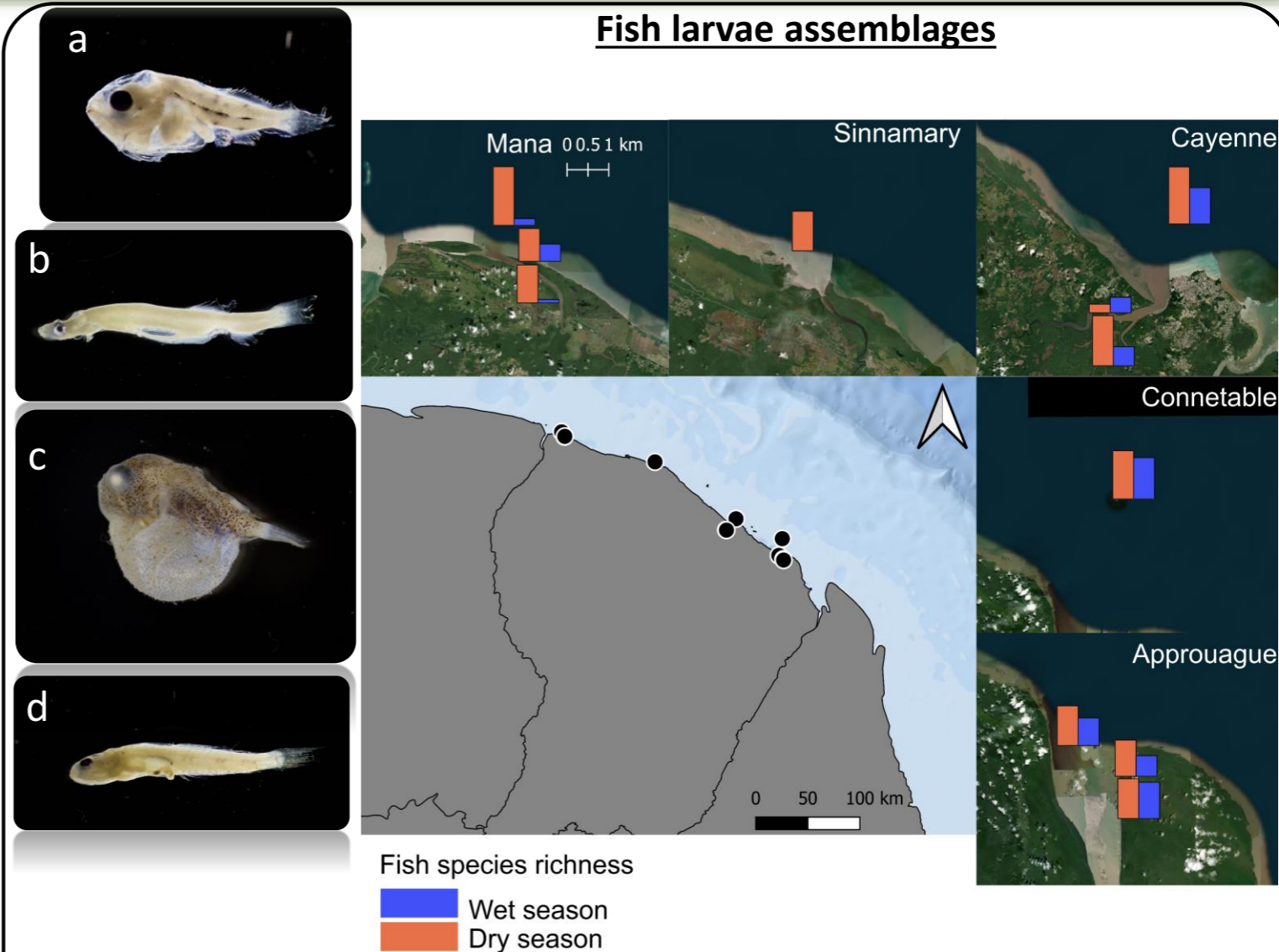- 12 environmental parameters (physico-chemical, heavy metals, nutrients, chl *a*)
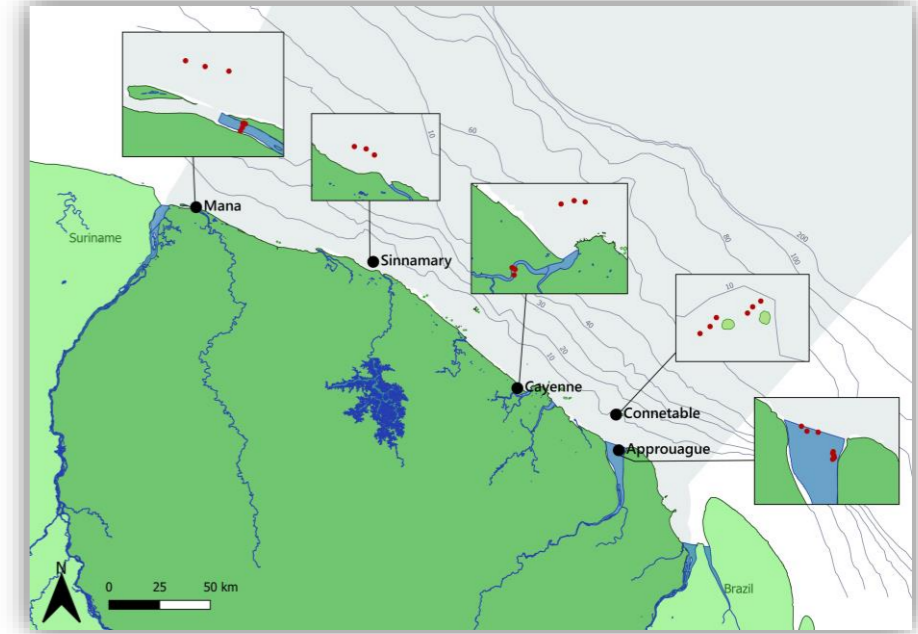

RESULTS

Environmental conditions

- Strong **seasonal effect** with important **oxygen, turbidity** and **salinity** changes
- Presence of a **spatial environmental gradient** from the mangrove/estuary to the coasts/islands

Fish larvae assemblages

- **Great diversity: 64 species – 11 orders – 26 families**
- **Higher species richness** during the **dry season**
- The **eastern** sites were the **most diverse**
- 97% of all individuals belong to families:
  (**Sciaenidae** (a), **Engraulidae** (b), **Tetraodontidae** (c), **Gobiidae** (d))

ReDundancy Analysis (RDA) showing relationship between the environmental parameters and the presence/absence of fish larvae
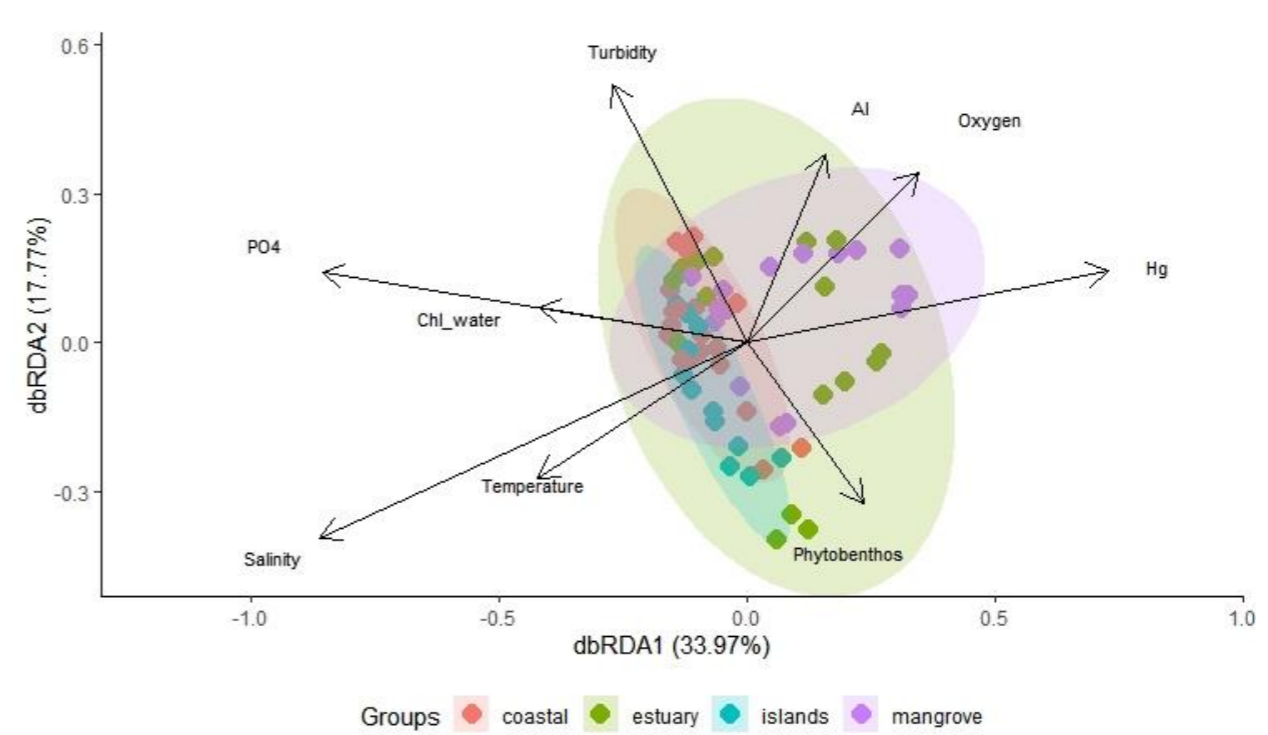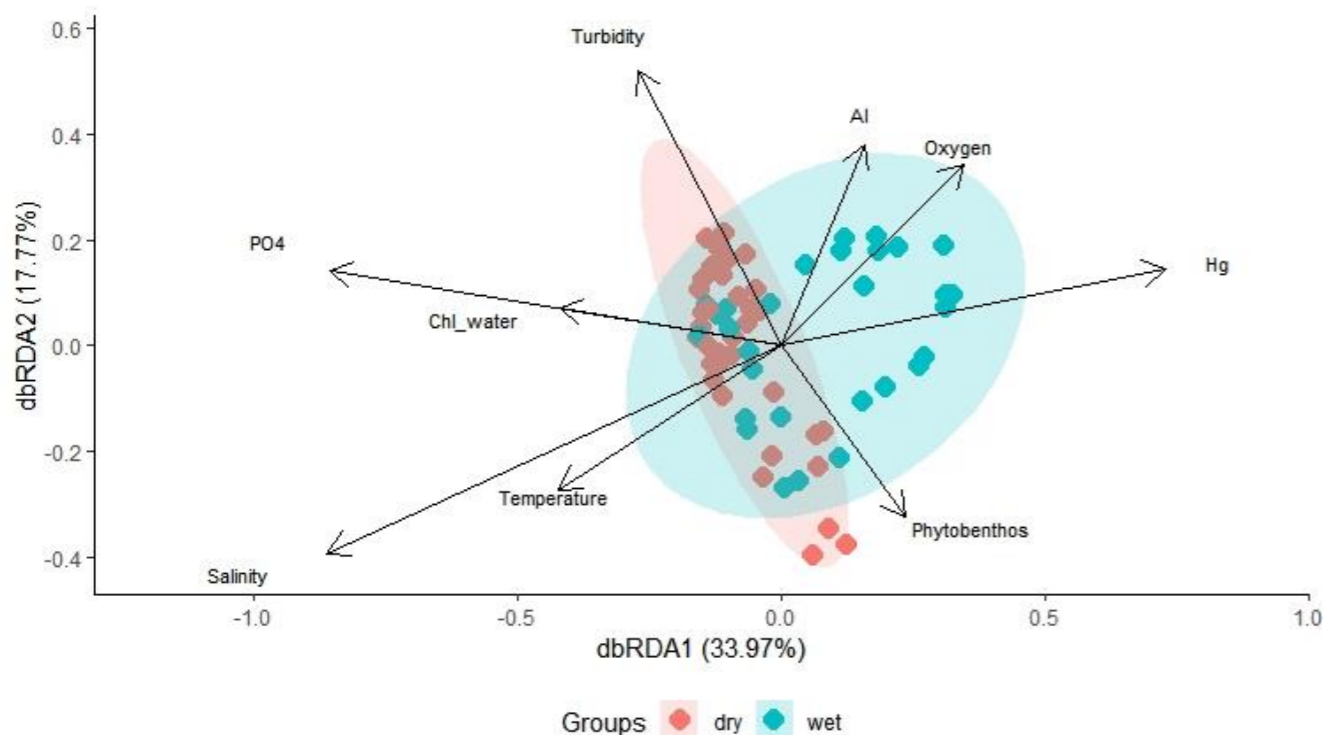
- **Fish larvae assemblages** are mostly **driven by salinity** changes.
- Oxygen, **aluminium** and **phosphate** concentrations are between the **most significant** parameters affecting both **seasonal and spatial community changes.**
- **Estuaries** and **mangroves** showed a **higher seasonal variability** than the **coastal areas.**

CONCLUSIONS
Results show that the diversity of early life stages of fish varies between sites and seasons depending on the environmental factors. Nutrients and heavy metal concentrations are significantly affecting the communities suggesting that anthropogenic pollutions needs to be monitored to avoid habitats degradations. Few species such as *P.nodosus* et *C.pscittacus* and some Sciaenidae seems depending on particular habitats conditions for reproduction. Conversely, other species such as *Cynoscion acoupa* and *Anchoviella lepidentostole* are present in all habitats. This study can therefore constitute the bases for the development of an integrated ecosystem-based