I.S.RIVERS
LYON 2015

Spatio-temporal monitoring of the Rhone river fish community

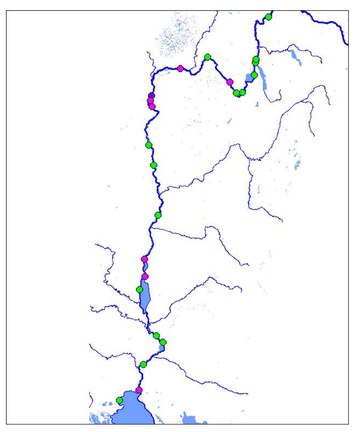
CONTEXT AND OBJECTIVES

- **The Rhone river fish community has been studied since the middle of the 90s**
- **In 2007, the WFD requirements lead to modify the survey network, by increasing the nb. of sampling sites and modifying sampling methods**
- **The aim of this study is to :**
  - describe spatial pattern of fish community through the recent WFD surveillance program
  - examine temporal evolution of fish community with special focus on the impact of methodological changes

MATERIAL AND METHODS

2 survey networks

- **RHP**



- Annual – long term
- 6 sites from 1990s to…
- Electrofishing (+ Gillnets)
- Sampling meth. change in 2007 : Ambiance => Point Abund. Sampling

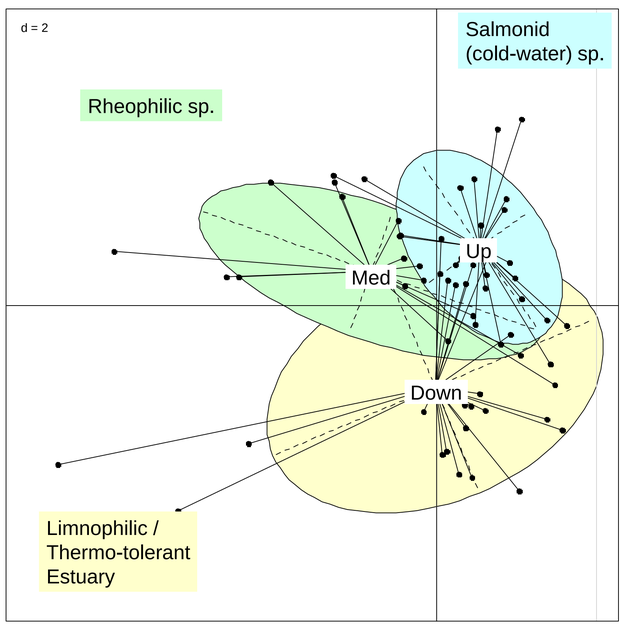
- **WFD-surveillance (RCS)**

- Bi-annual
- 21 sites between 2007-2013
- Electrofishing = Point Abund. Sampling

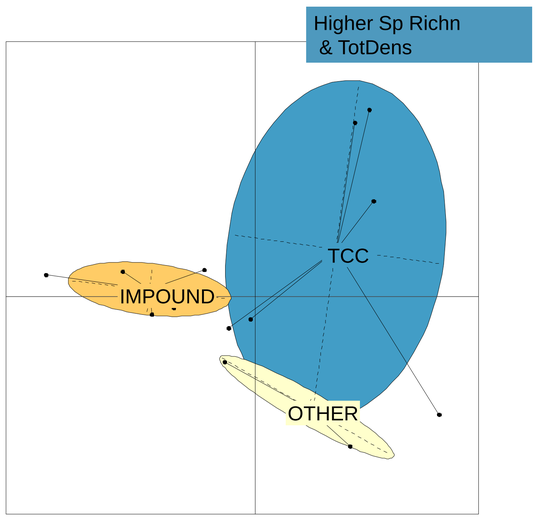
RESULTS

Spatial (RCS)

nPCA of species abundance (log(X+1))
21 sites / 3 samples (years) grouped by type



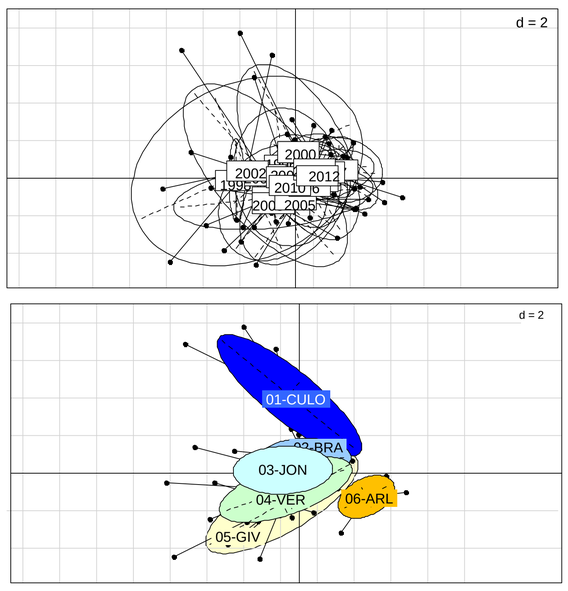
nPCA of species abundance (log(X+1))
Ex. : Median sites



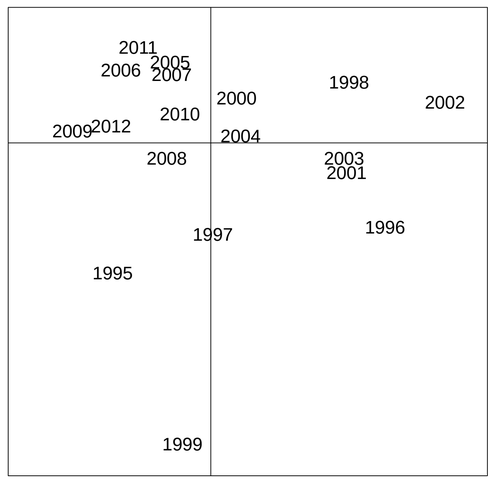
- General description: 42 species caught => 6 to 26 sp. / fishing occasion (mean=17) CHE is the most frequent species, followed by GOU (96), GAR (92%) and ABL (90%) ; few species <5% (BBG, TOX, OBR, LPP, LOU, ATH)
- Longitudinal structure of fish communities :
  - sites Upstream Lyon characterized by occurrences of salmonid type species
  - sites in the Median part characterized by rheophilic cyprinids
  - sites Downstream characterized by more tolerant/limnophilic species (+ T°…)
- In each longitudinal type, fish community structure reflects the level of anthropisation : Higher Rsp, TotDensity and indicator species in TCC / Impounded

Temporal (RHP)

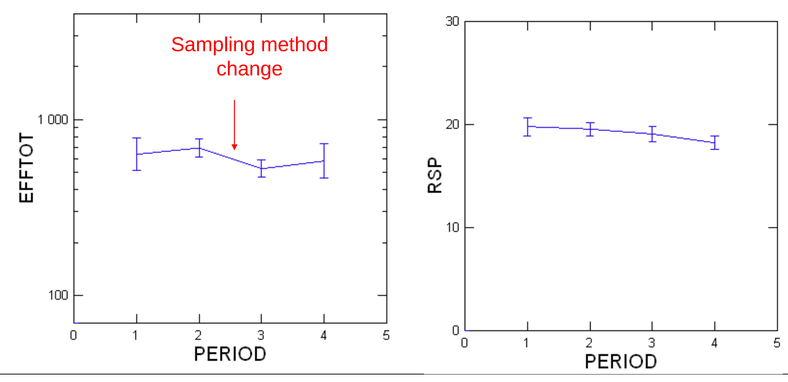
nPCA of species abundance (log(X+1))



nPCA of species abundance (log(X+1))
Example of Jons station



- General description: spatial structure is stronger than temporal one (typology)
- For each site : high variability of fish communities between year
- The temporal evolution is different between sites (cf ex.), but some years / periods are particular :
  - before 2000
  - from 2000 to 2006
  - after 2007 : strong influence of sampling method on TotDens (but not RSp)



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