Characterization of Cr. gigas oysters mortalities according to the French Ifremer/REMORA monitoring network ; with complements from phytoplankton and meteorological data

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1) Distribution of the mortalities

Average mortality = **10-20% /year**
Importance of
Spring + Summer mortality

Year-class and Sites :

🔥 Juveniles mortalities occure in Marennes and several sites of Brittany.

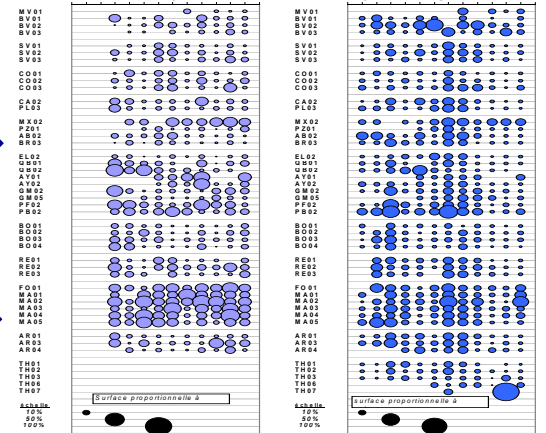💣 2-year-oysters mortalities occur in same sites + baie des Veys with more differences according to years
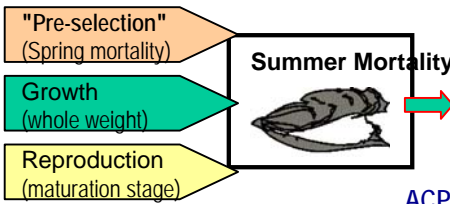
Spring+Summer mortalities

Juvenile oysters   2-years oysters

Baie des Veys →

Brittany →

Marennes →

2) Internal (physiological) factors ?

"Pre-selection"
(Spring mortality)

Growth
(whole weight)

Reproduction
(maturation stage)

→ Summer Mortality → ACP
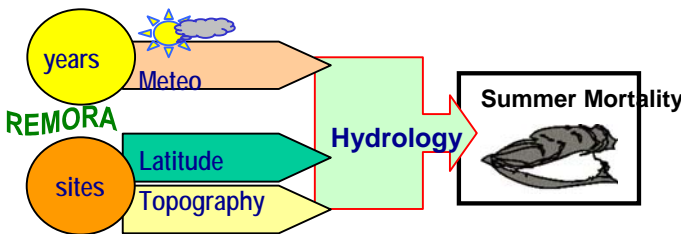
Legend of ACP :
MO: mortality rate ; IMA : maturation rate ; CR : growth
J : juvenile oysters ; A : 2-years oysters
1 : Spring – 2 : Summer – 3 : Autumn

**Mortalities appears connected to Spring growth and gonad maturation.**

Axes F1 et F2 (39 %)

Axes F1 et F3 (32 %)

3) External (environnemental) factors ?

years → Meteo

REMORA

sites → Latitude / Topography

→ **Hydrology** → Summer Mortality
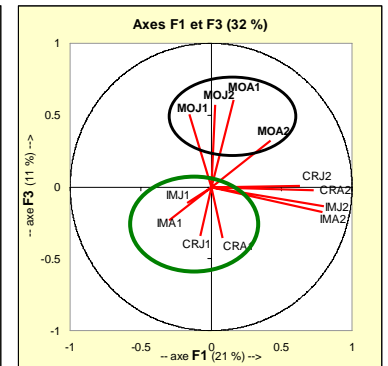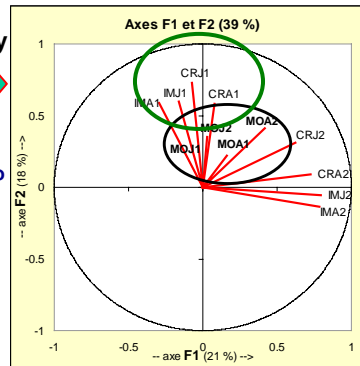
ANOVAs of transformed data : **-log (M+0.5%)**

Differences between the 2 year-classes:
- **1-year : mainly SITE effect (geography)**
  = 51% of sum of variances
- **2-years : mainly YEAR effect (meteo)**
  = 74% of sum of variances
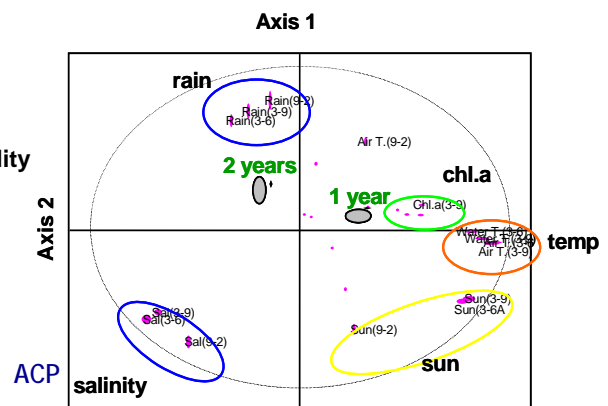
ACP → Differences between the 2 year-classes :
- **1-year : Food and temperature effect (Site dependent)**
- **2-years : Rain effect (Year dependent)**

4) General conclusion

Causes of mortality may be somewhat different between juvenile (geographical factors) and 2-years old oysters (meteorological factors).

Ref. : Soletchnick P., Ropert M., Mazurié J., Fleury P.G. & Le Coz F., 2007. Relationships between oyster mortality patterns and environmental data from monitoring networks along the coasts of France. *Aquaculture* **271,1-4**: 384-400

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