



# The Laboratory for Oceanology

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Chef de Travaux



<http://www.ulg.ac.be/oceanbio/>



- One academic
- Five permanent scientists
- One post-doctoral fellow
- Ten PhD students
- Around 10 Master students per year



C,N,P  
cycle  
Food Web

**Marine  
ecology**

Seagrass, Marine  
vertebrate,  
invertebrate, plankton

Mediterranean,  
Atlantic, North  
sea,...

**Marine  
ecotox**

Trace  
elements  
Pollutants...

Modelling

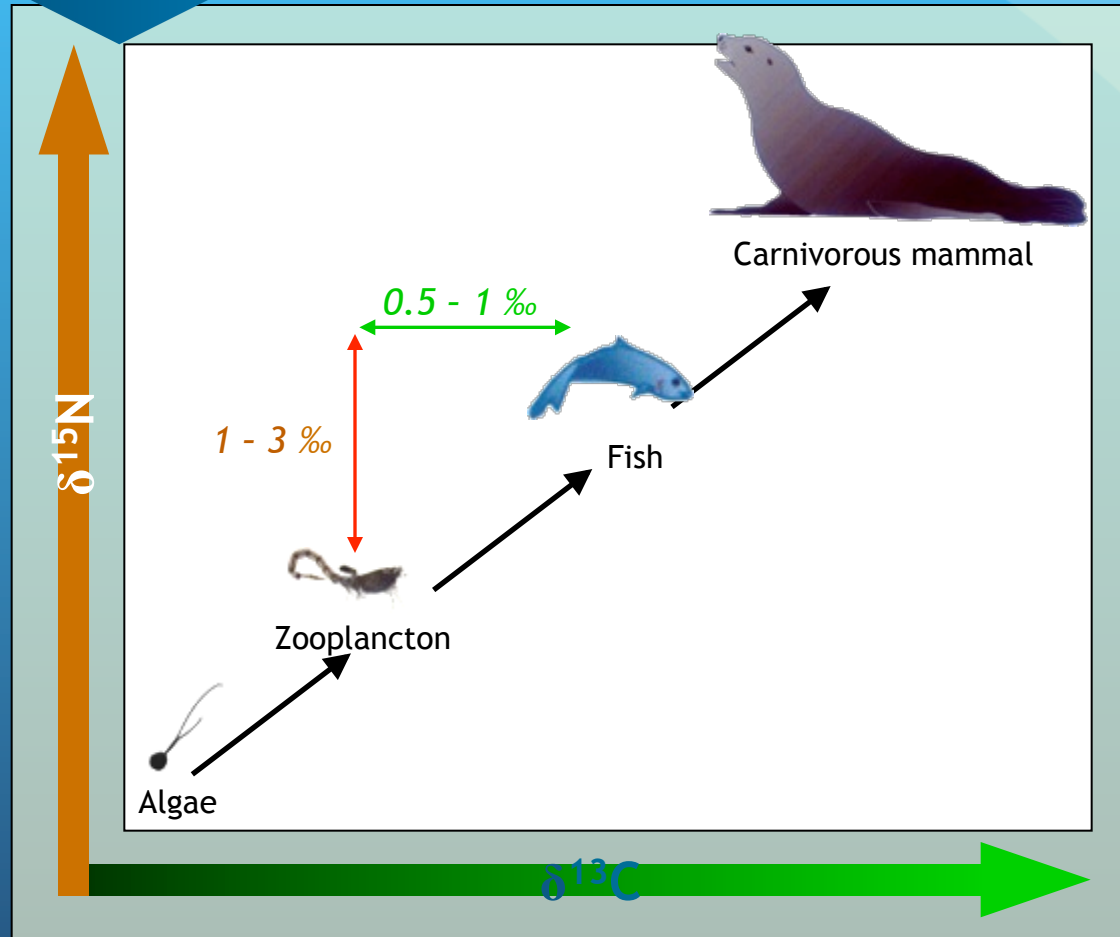


C,N,P  
cycle  
Food Web

Marine  
ecology

The ratio of the two stable isotopes in natural materials varies during: physical, chemical and biological processes

*Trophic  
position*



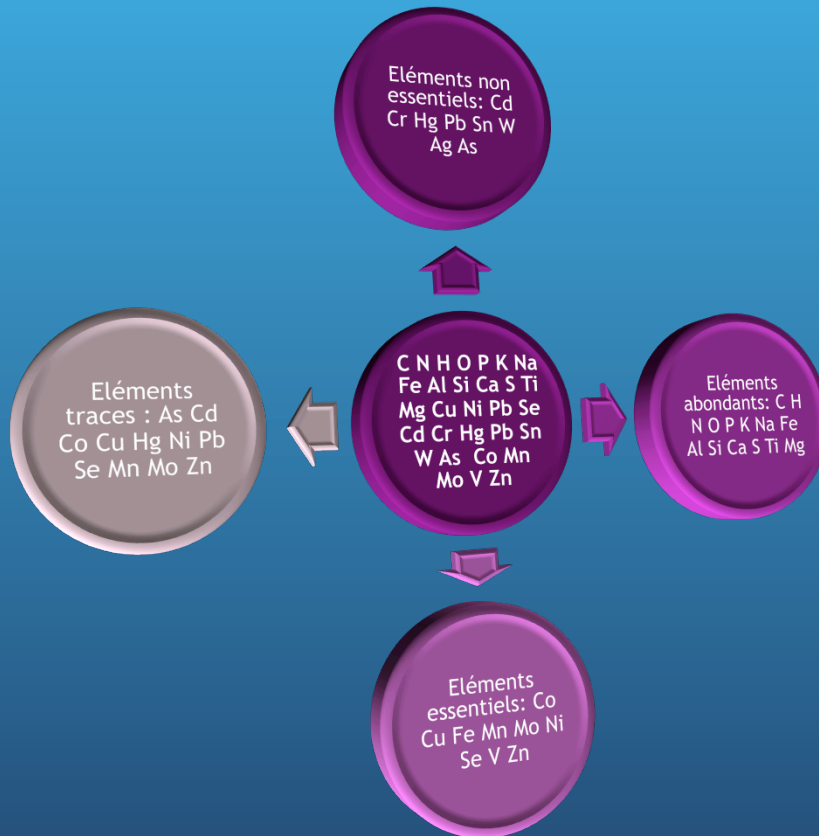
*indicator of primary productivity*

Marine  
ecotox

Trace  
elements  
Pollutants...

# Trace elements

Définition :  
Eléments chimiques en faibles quantités  
dans les sols, les plantes, les animaux et  
l'homme



## PREMIER GROUPE

Eléments traces classiques  
Cd, Ni, Cu, Zn, Cr, Pb, Fe

## DEUXIEME GROUPE

Eléments traces « émergents »  
Be, Al, V, Mn, Sb, As, Bi, Se, Mo, Ag,  
Sn

C,N,P  
cycle  
Food Web

An isotopic ratio mass spectrometer (Optima, Micromass, UK) coupled to a C-N-S elemental analyser (Carlo Erba, Italy).

Spectromètre de masse (IRMS) (DELTA V advantage)  
Chromatographe en phase gazeuse (GC)(GC IsoLink for C and N)  
Interface GC- IRMS (ConFLO IV Universal Interface)



Inductively coupled plasma mass spectrometry ICP-MS  
ICP-MS ELAN DRC II, Perkin Elmer

Be, Al, V, Mn, Co, As, Se, Mo, Ag, Sn, Sb,  
Bi Cr, Fe, Ni, Cu, Zn, Cd Pb...

Hg

Milestone DMA-80 Direct Mercury Analyzer





powder



EA-IRMS



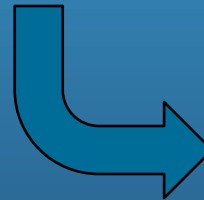
Ethos D



Microwave assisted digestion

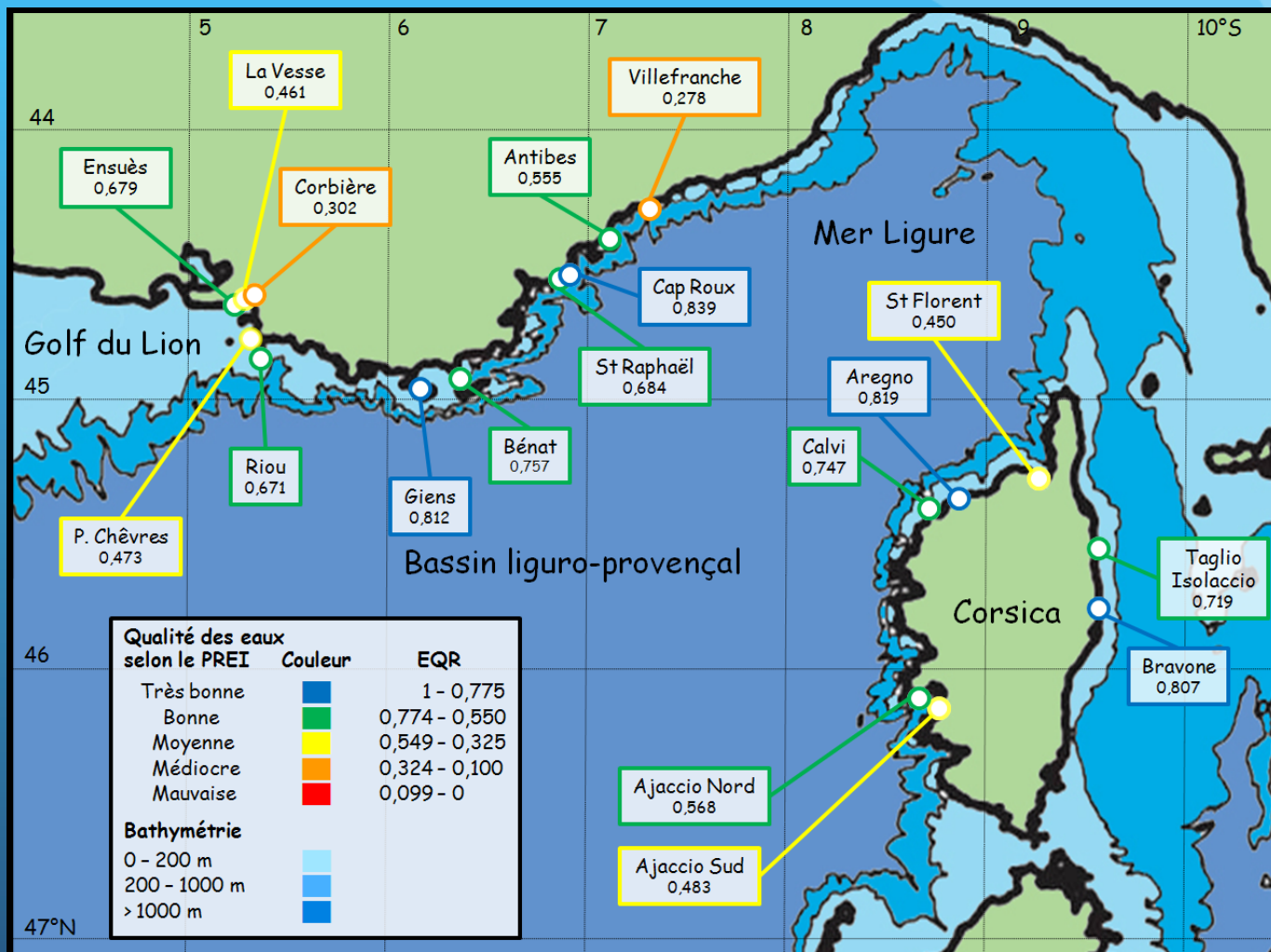


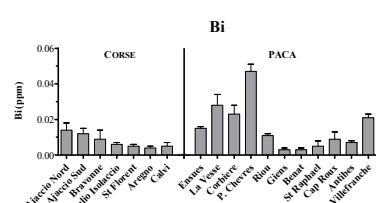
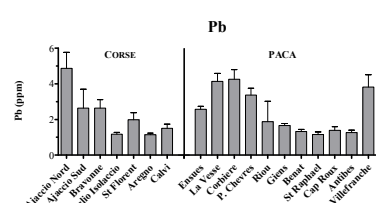
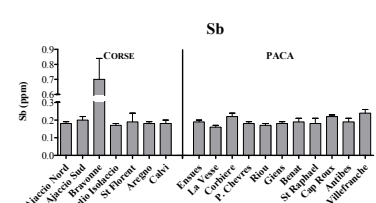
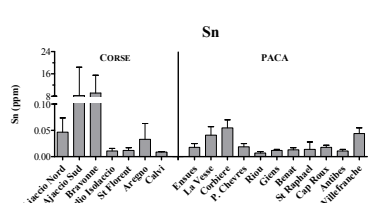
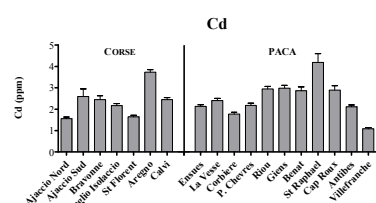
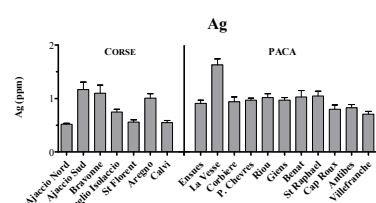
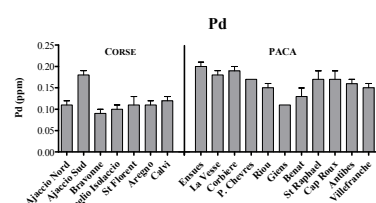
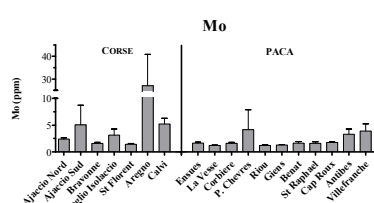
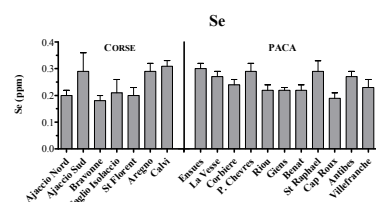
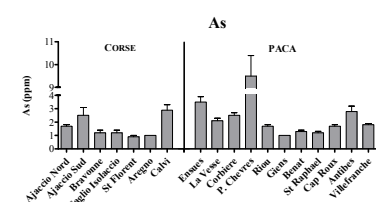
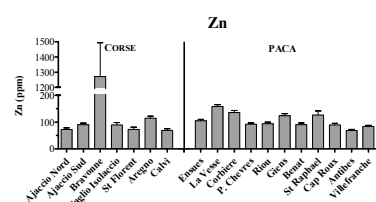
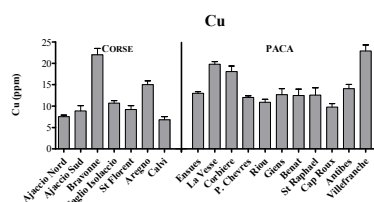
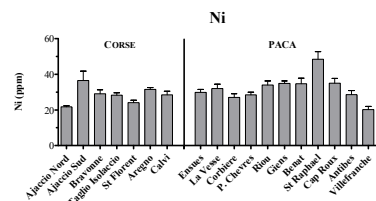
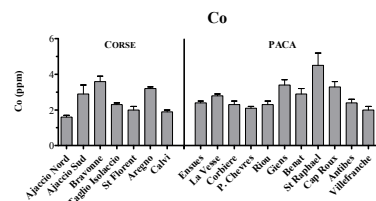
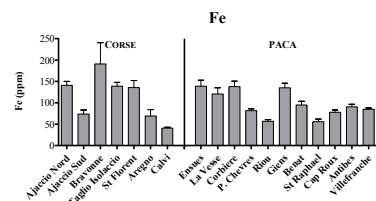
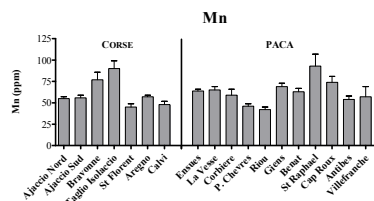
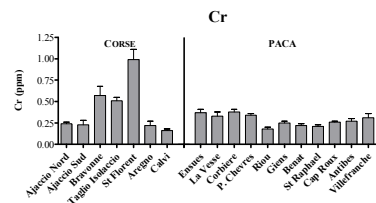
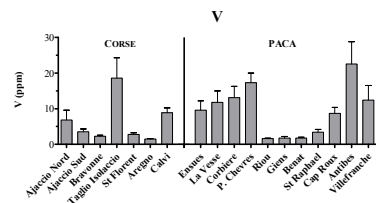
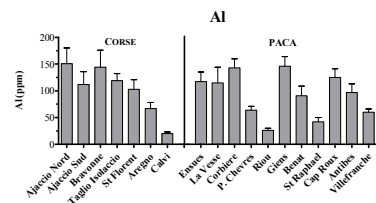
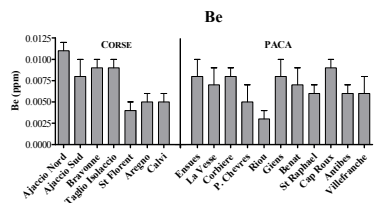
Direct Mercury analyzer



ELAN DRCII







# Pollutant impact

- Environmental contamination
- Diet ( $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$ )

Northern Elephant seal *Mirounga angustirostris*

~ 25 days

x 1/3



x 4



- But also **key-period**
  - Migration
  - Gestation
  - Lactation
  - Spawning
  - Fasting (linked to lactation, molting, migration)

# Research projects

- DISCRIMINATION OF MERCURY SOURCES IN MARINE VERTEBRATES
- STATION of Reference and RESEARCH on Change of local and global Anthropogenic Pressures on Mediterranean Ecosystems Drifts
- Rapid Assessment of the Marine Coastal Environment
- Définition précoce de la pollution en milieu marin
- Implications of Posidonia litter accumulations, and their associated microbial and detritivorous communities, in the carbon cycle of an oligotrophic marine coastal area.
- MedSea : Mediterranean Sea Acidification in a changing climate

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