



Workshop STARECAPMED 10-12 avril 2018. Calvi-Corse

Contamination par les éléments traces en Méditerranée occidentale, focus sur la baie de Calvi et la Corse. Bilan et perspectives.

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Vanina PASQUALINI Jonathan RICHIR Sonia TERNENGO Michel MARENKO



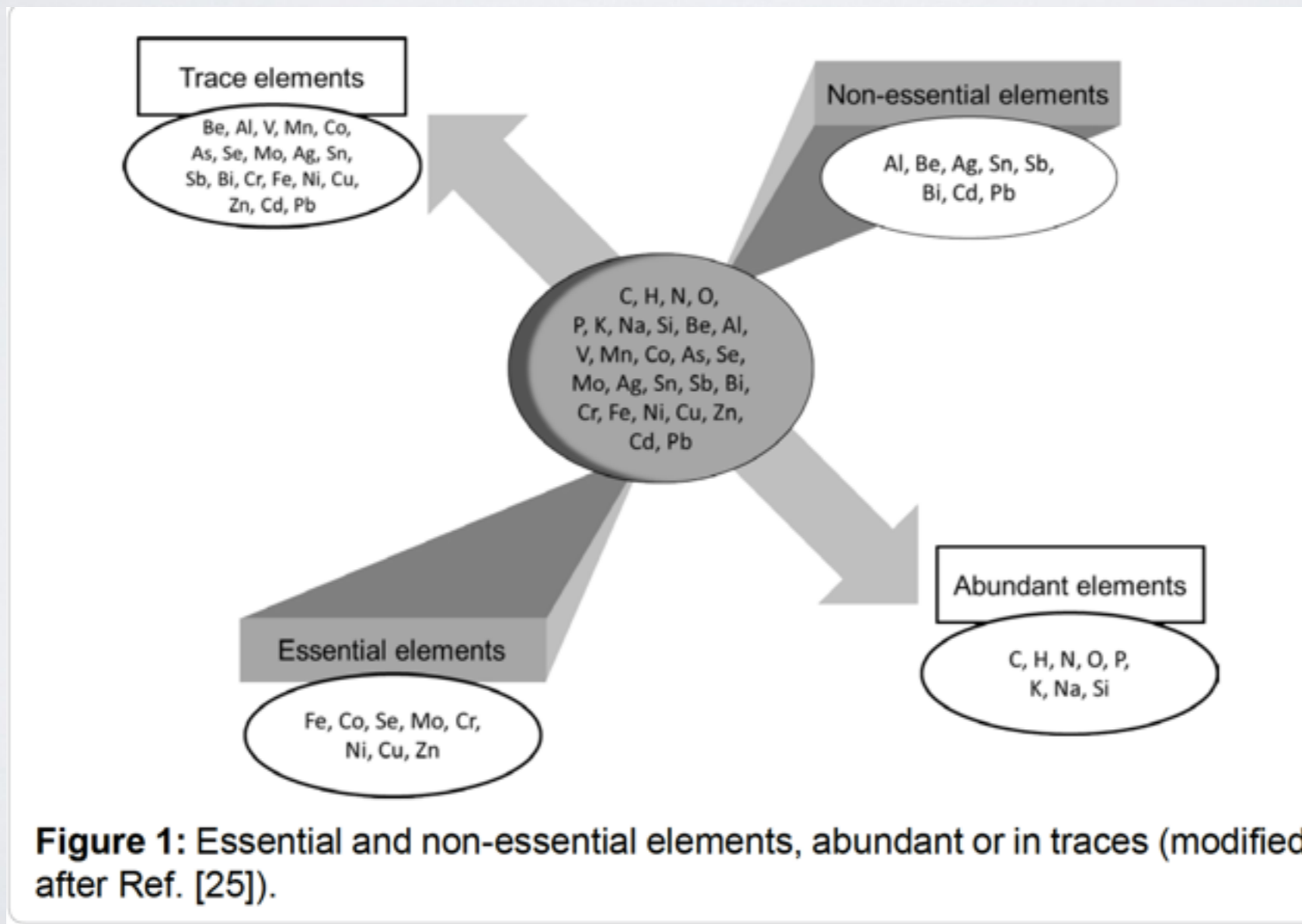
STELLA MARE



I. Rappels

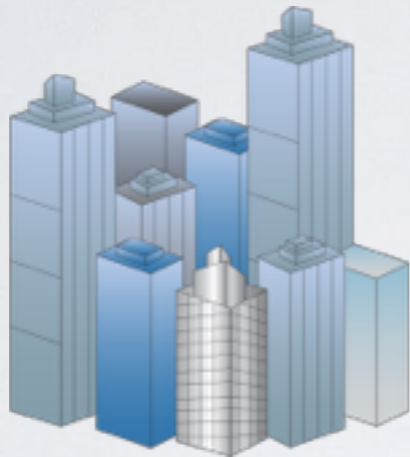
I. Eléments étudiés

Ag, Al, As, Ba, Bi, Cd, Cr, Cu, Fe, Hg, Li, Mn, Mo, Pb, Sb, Se, Sn, U, V, Zn...



2. Source

Activité anthropique



Agriculture



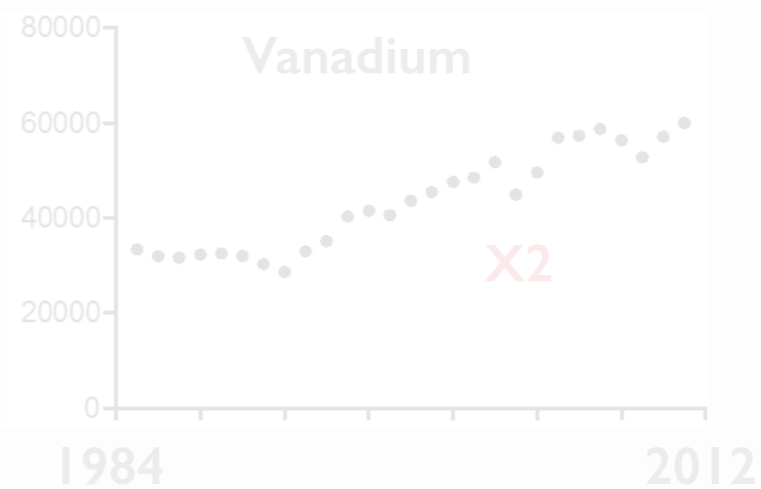
Industrie



Atmosphérique, aquatique, terrestre



Usage et exploitation croissants



Actuel



éléphones, conducteur... Batteries ,T

2. Source

Activité anthropique



Agriculture



Industrie

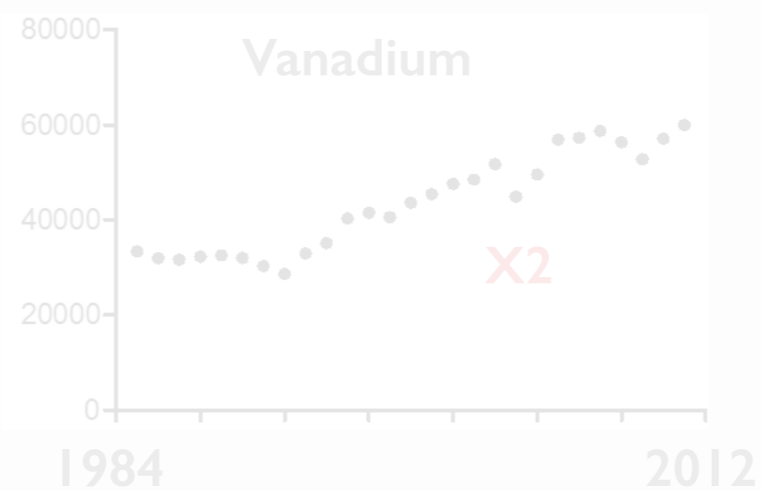


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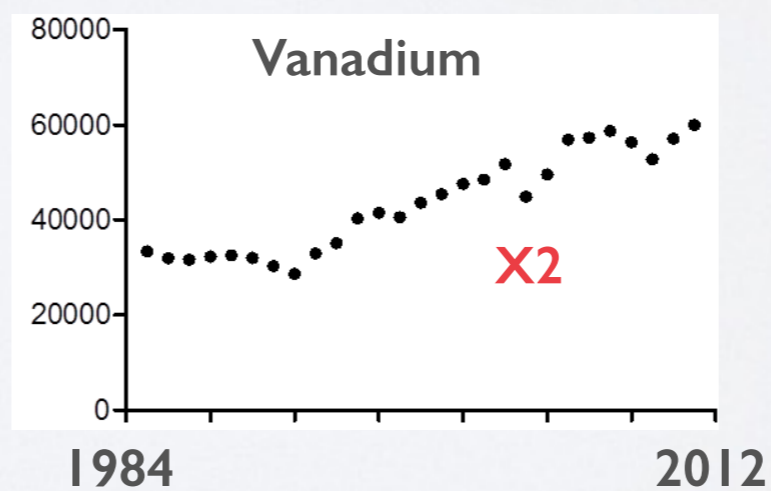


Atmosphérique, aquatique, terrestre



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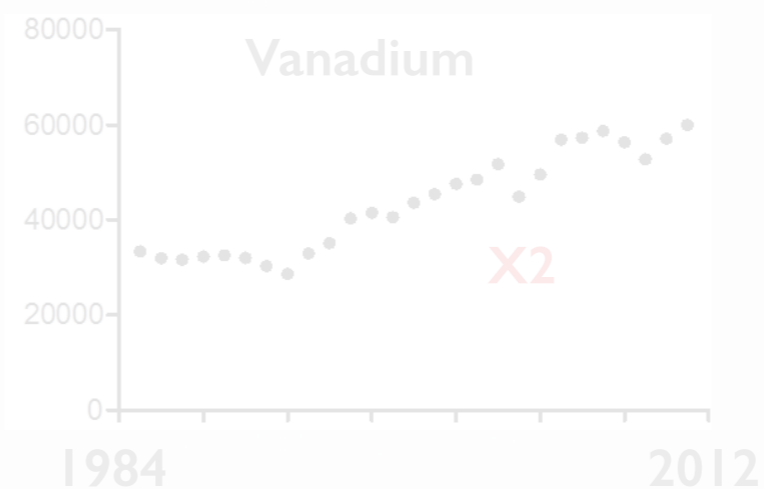


Atmosphérique, aquatique, terrestre



**Problématique d'actualité:
quantité rejetée**

Usage et exploitation croissants

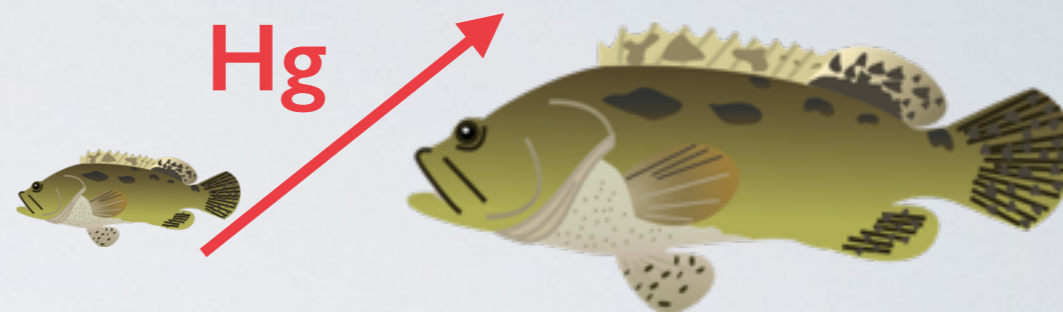


Actuel



éléphones, conducteur... Batteries , T

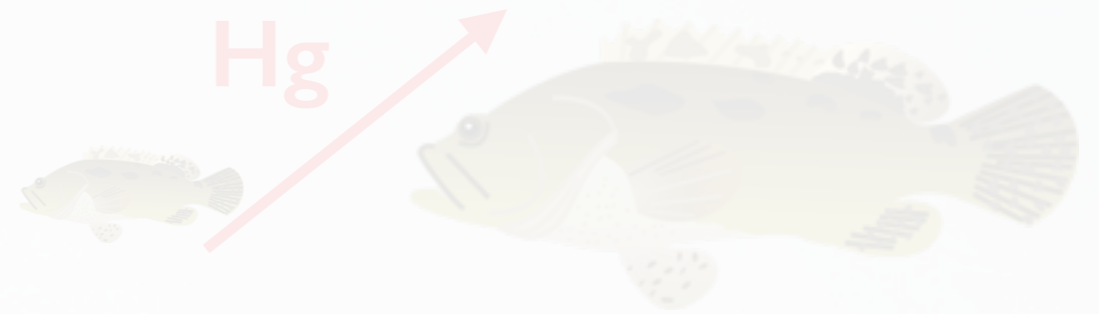
3. Impact



Accumulé au cours de la vie de l'organisme
Accumulé le long des chaînes trophiques
Altération des écosystèmes
Risques pour la santé humaine



3. Impact



Accumulé au cours de la vie de l'organisme

Accum

Altérat

Risques pour la santé humaine

**Problématique d'actualité:
risques pour les écosystèmes et la santé humaine**



II. Comment nous procédons?



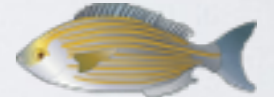
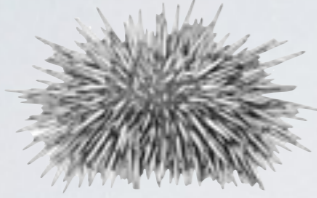
Nos actions dans le cadre de STARECAPMED

De la Baie de Calvi à La Méditerranée, des milliers de données



Points pression

Du mètre aux milliers de km



Accumulateur passif-actif

Monitoring

Saisons

Inter-annuels

Contaminations *in situ*

Organes

Sexes

Chaînes trophiques (sédiment-prédateur)

III. Des résultats

A.

La baie de Calvi (et plus largement la Corse): zone de référence

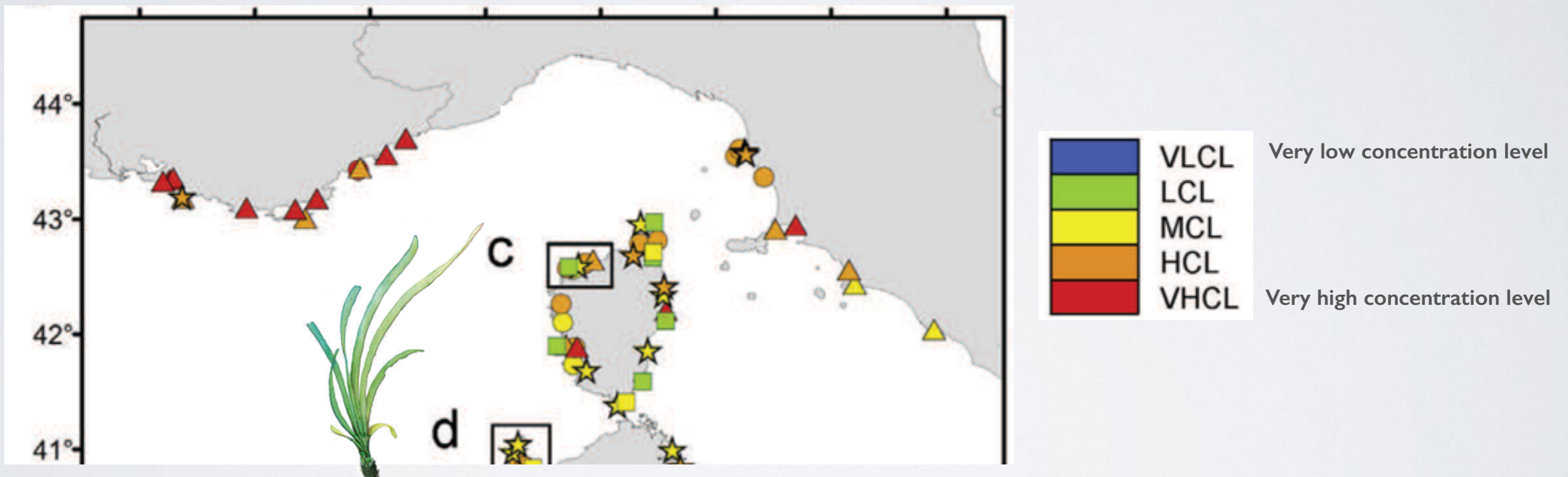
valeurs dans « bruits de fond »
signal « naturel »



110 sites sur le pourtour méditerranéen

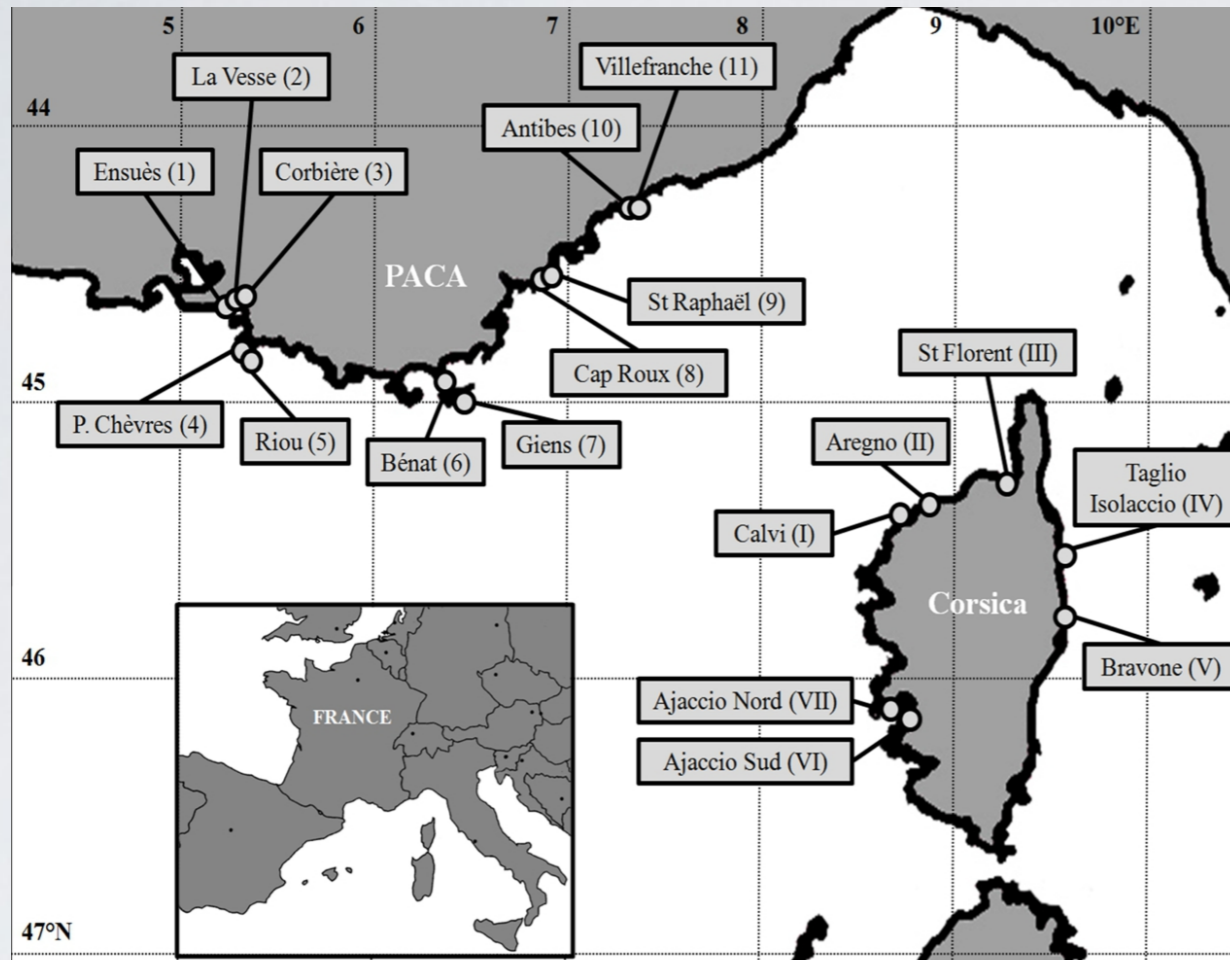
Focus sur les côtes françaises et italiennes

TEPI: Trace Element Pollution Index: un indice de contamination globale

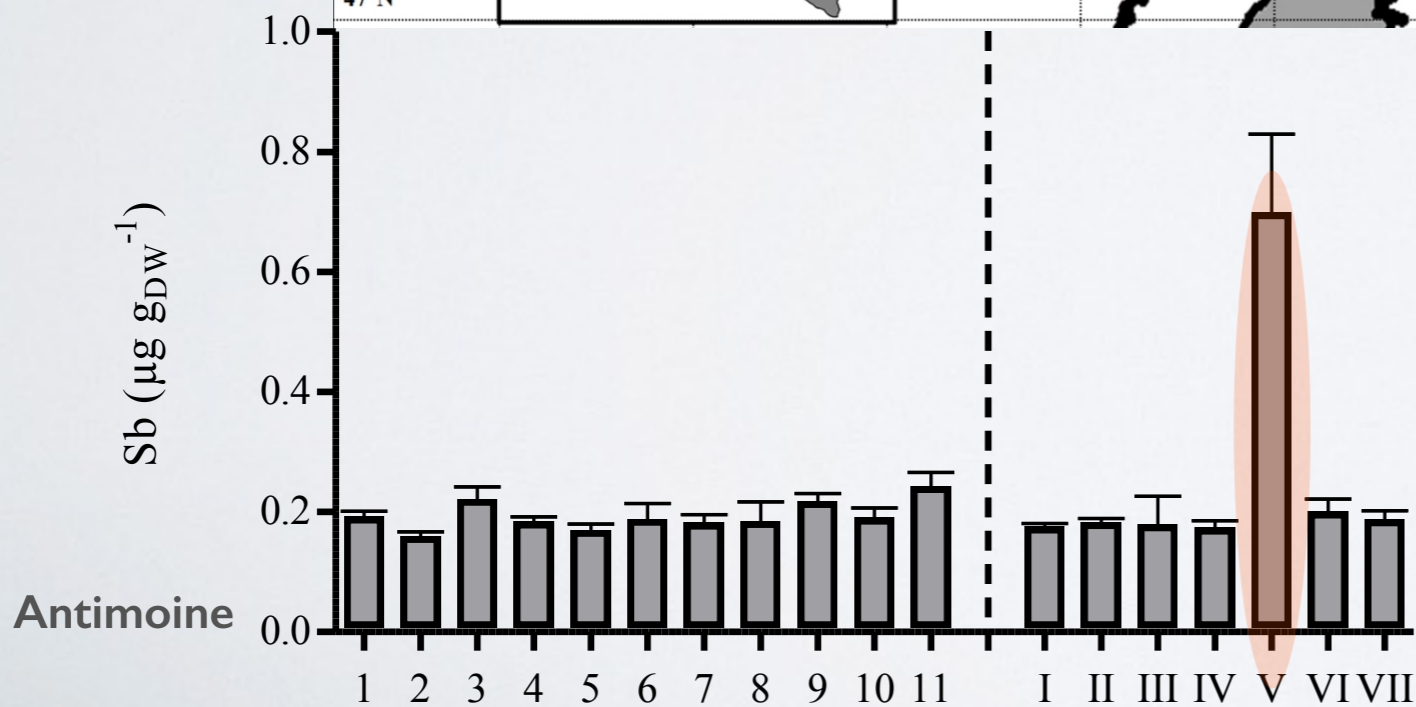


B.

Des sources ponctuelles de pollution identifiées



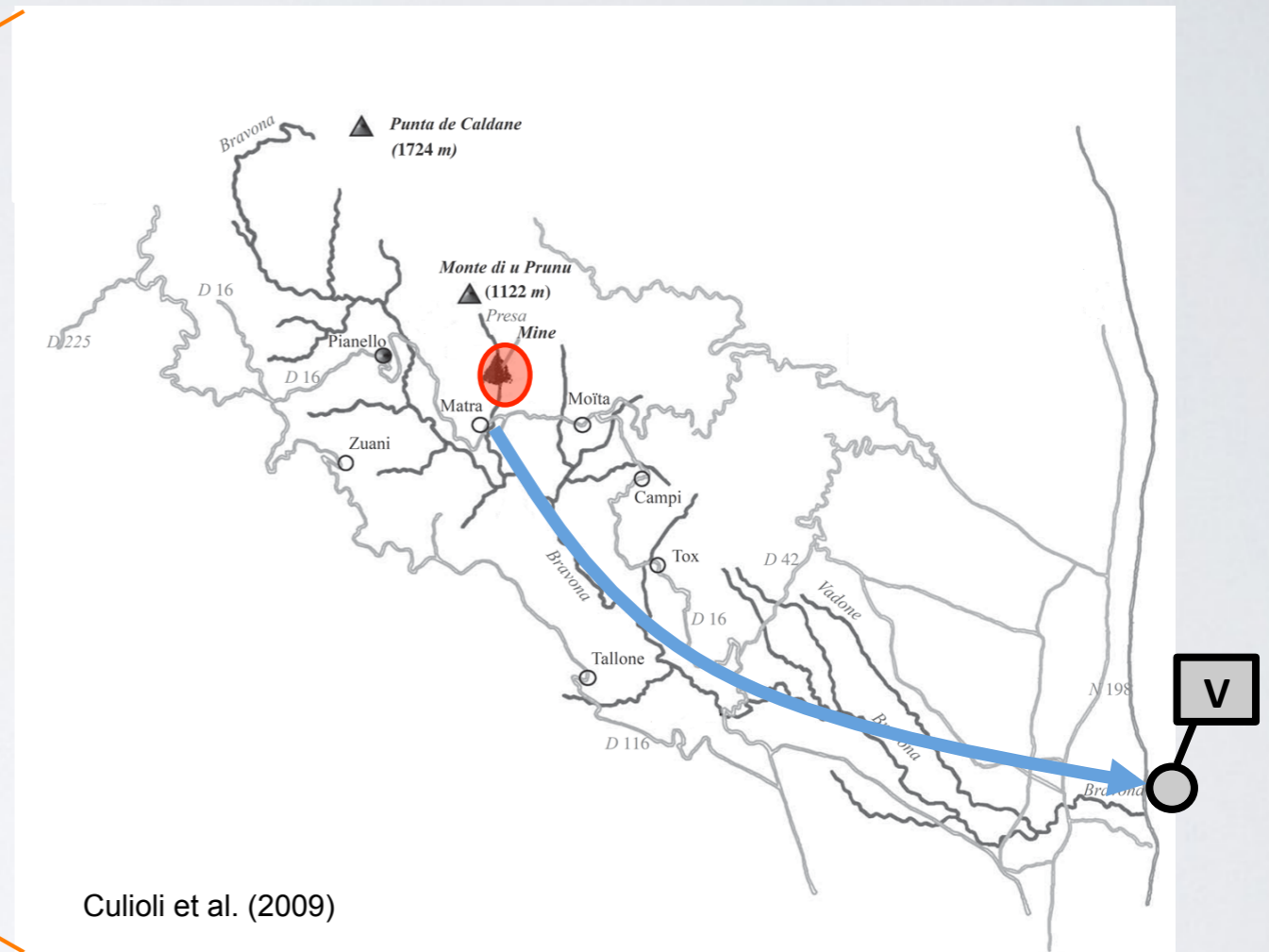
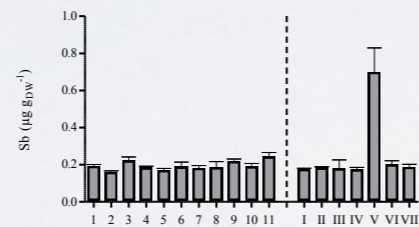
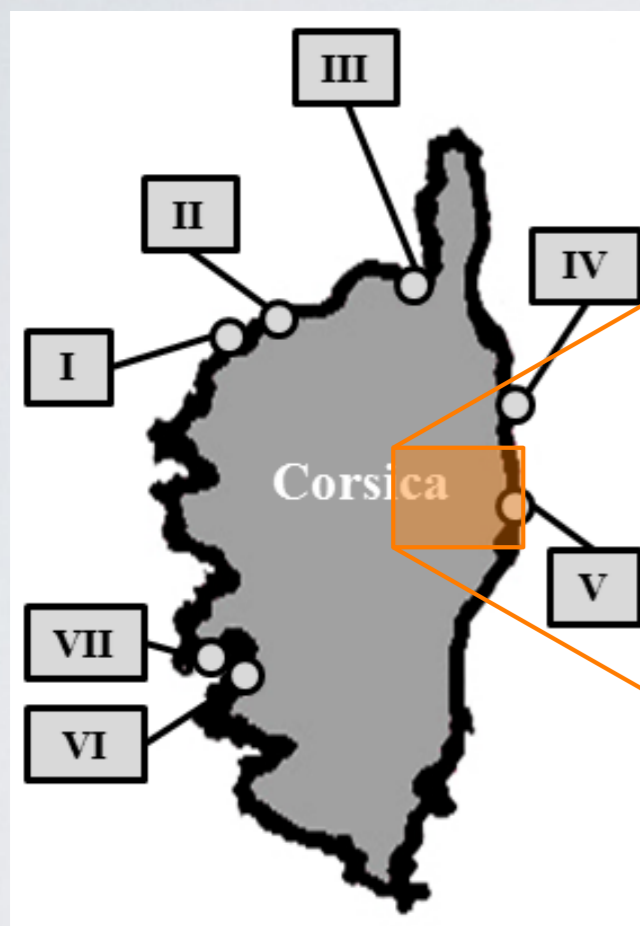
Mesures



B.

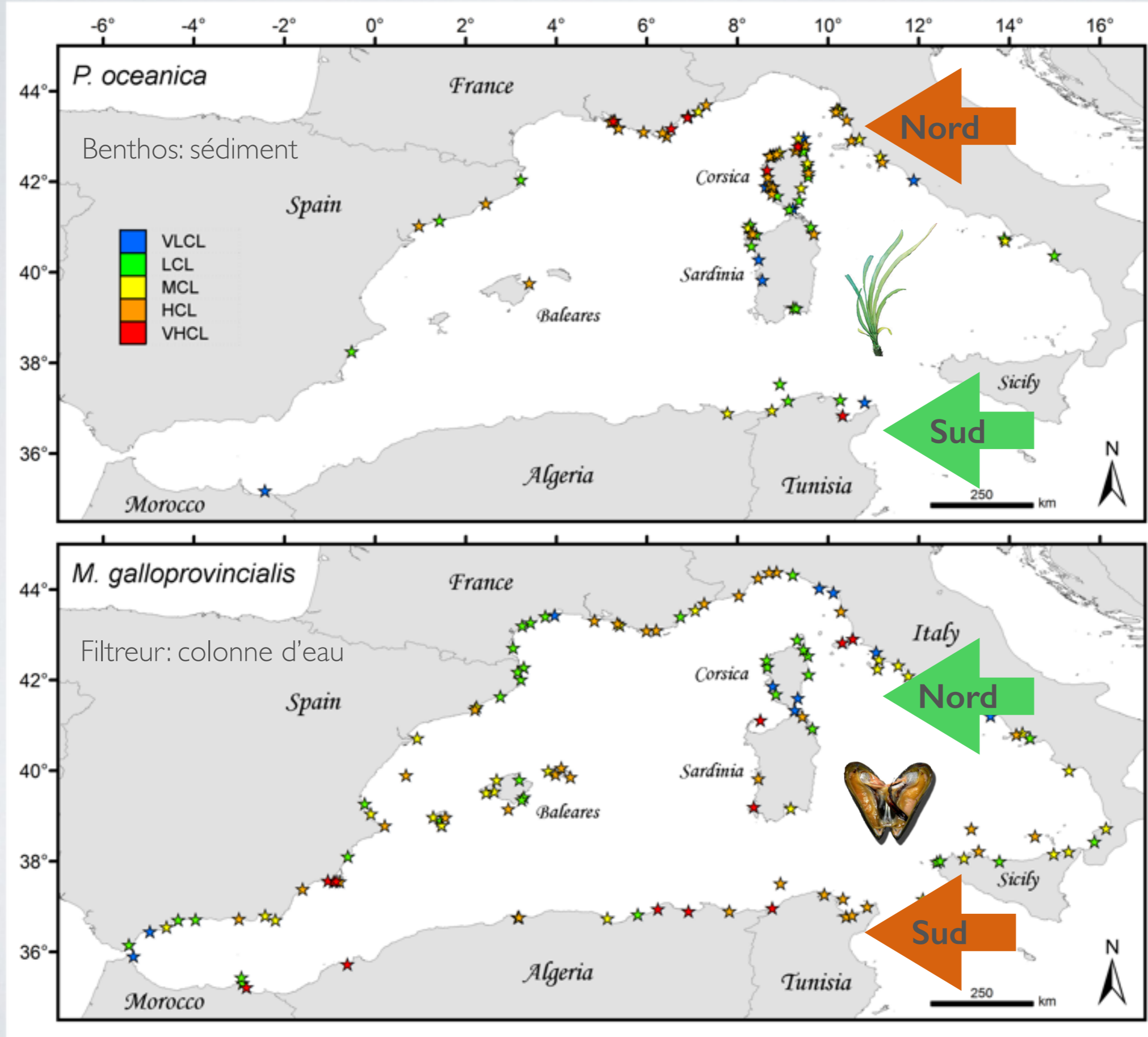
Des sources ponctuelles de pollution identifiées

Hypothèses



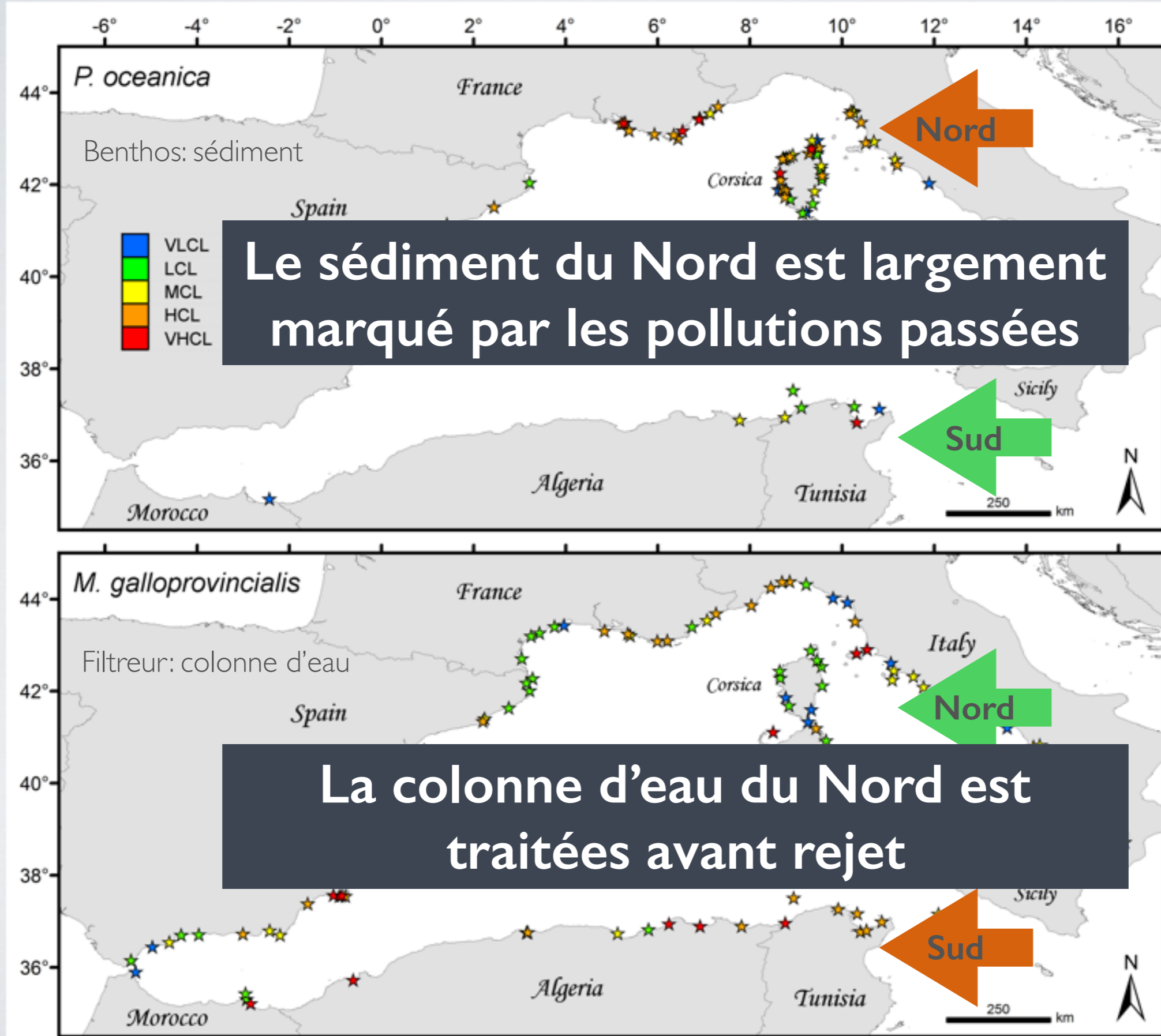
The Sb levels detected only at Bravone can be attributed to the Sb deposit at Matra. This mine, which closed in 1946, is crossed by the Presa River, a tributary of the Bravone River which flows into the open sea close to the city of the same name (Bravone).

C. La « preuve » d'une gestion



C. La « preuve » d'une gestion

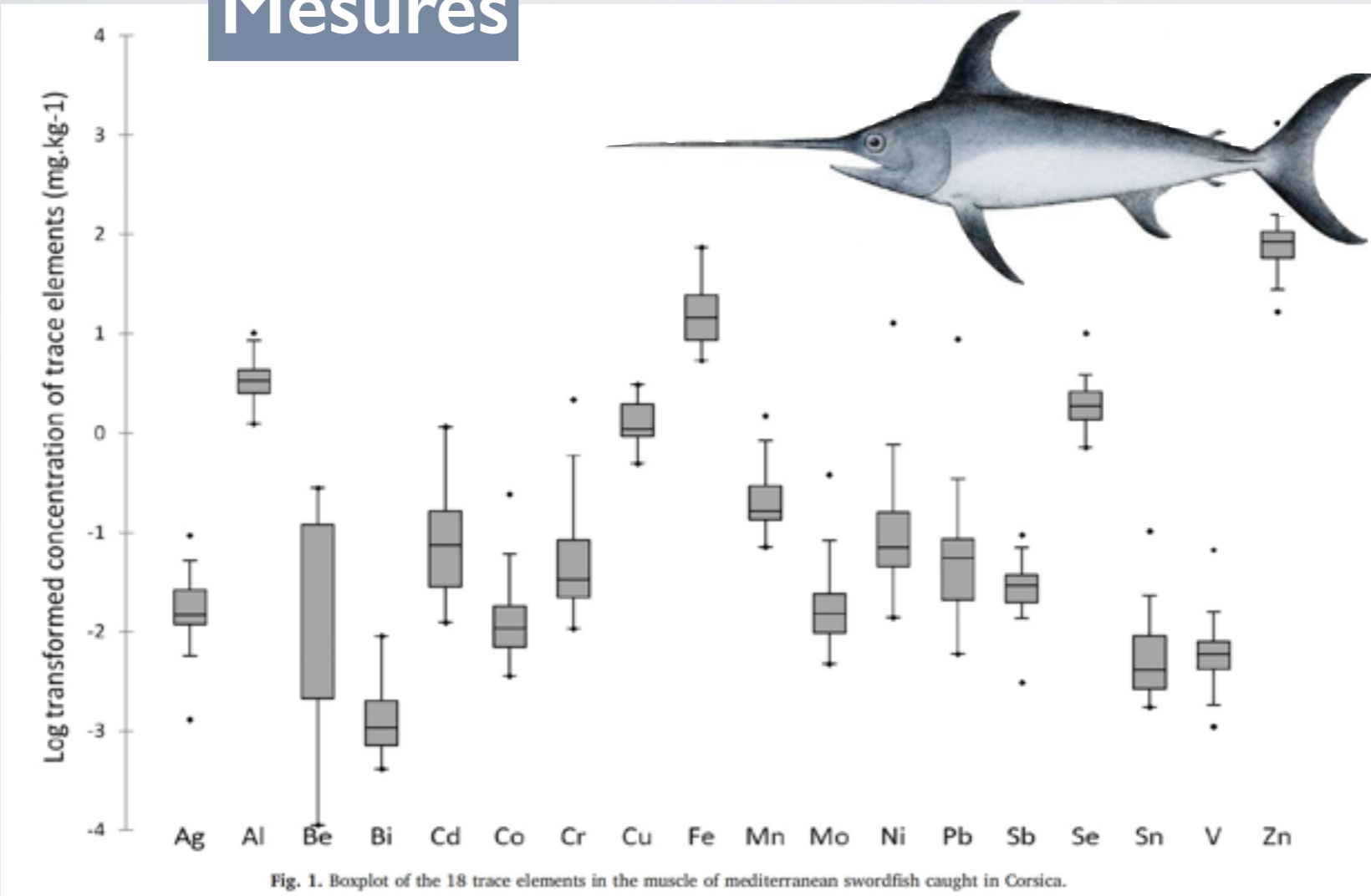
Hypothèses



IV. Des perspectives

Number of individual	Total length (cm)	Body weight range (kg)
33 (23 ♂, 10 ♀)	114 ± 31 (70-160)	18 ± 7 (4-30)

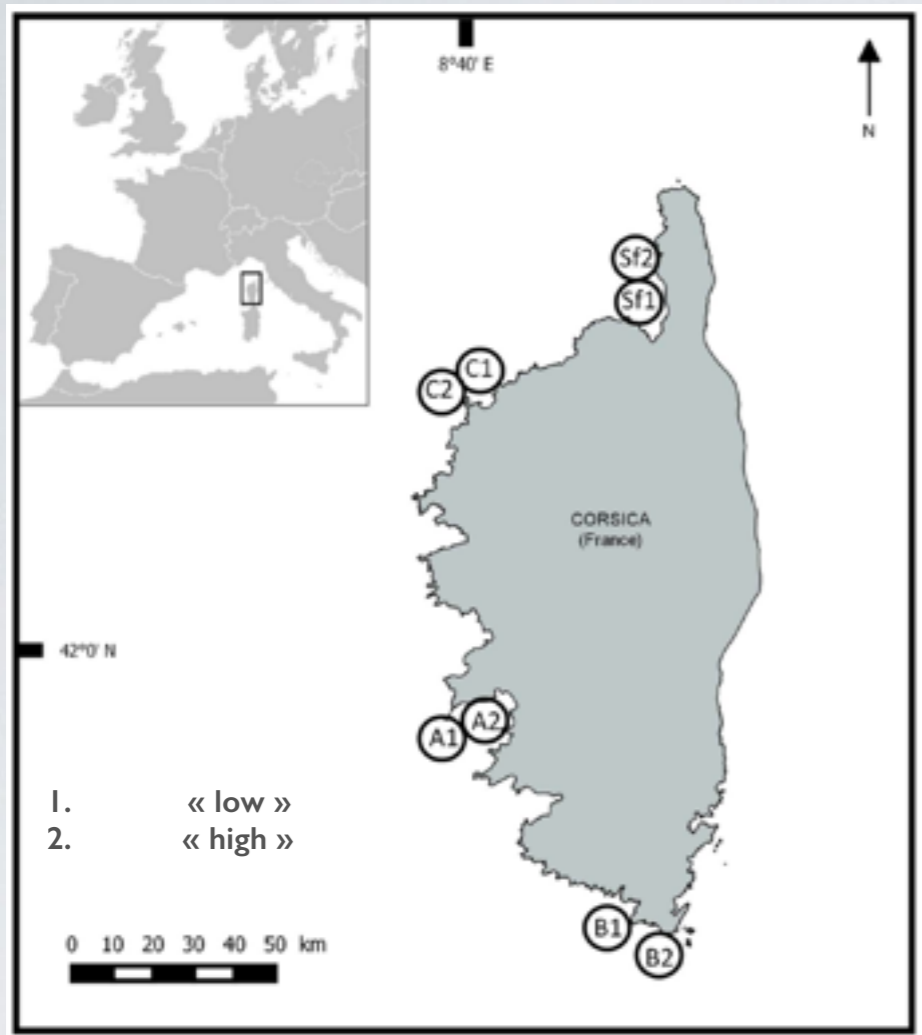
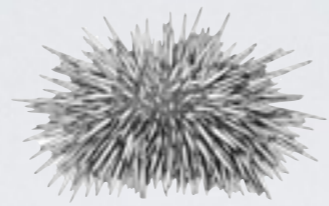
Mesures



Conclusions

Pas de risque de consommation pour la population humaine (!pas de mesures du Hg!)

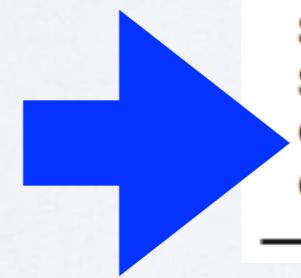
Mars 2017, fifteen individuals/at each station

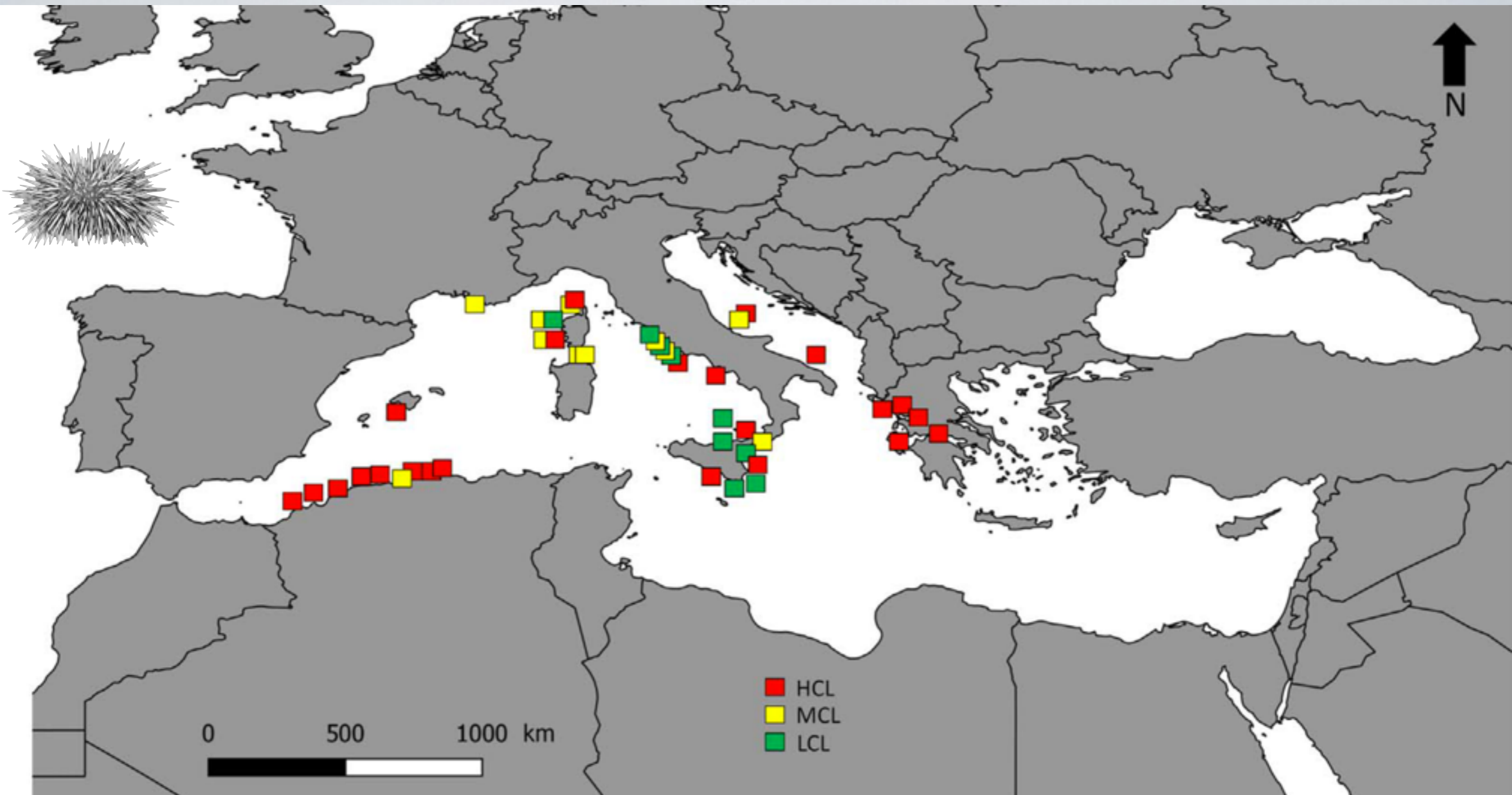


Résultats

Trace Element Pollution Index (TEPI) of sea urchin *P. lividus* collected from 8 stations in Corsica Island.

Stations	TEPI	Local quality scale
Ajaccio1	0.548	Low contamination level
Ajaccio2	0.701	High contamination level
Bonifacio1	0.622	Medium contamination level
Bonifacio2	0.590	Medium contamination level
Saint Florent1	0.621	Medium contamination level
Saint Florent2	1.033	High contamination level
Calvi1	0.440	Low contamination level
Calvi2	0.638	High contamination level





Corse: Low to middle levels mais nos données datent de 2017, une seule saison, pas de données Hg

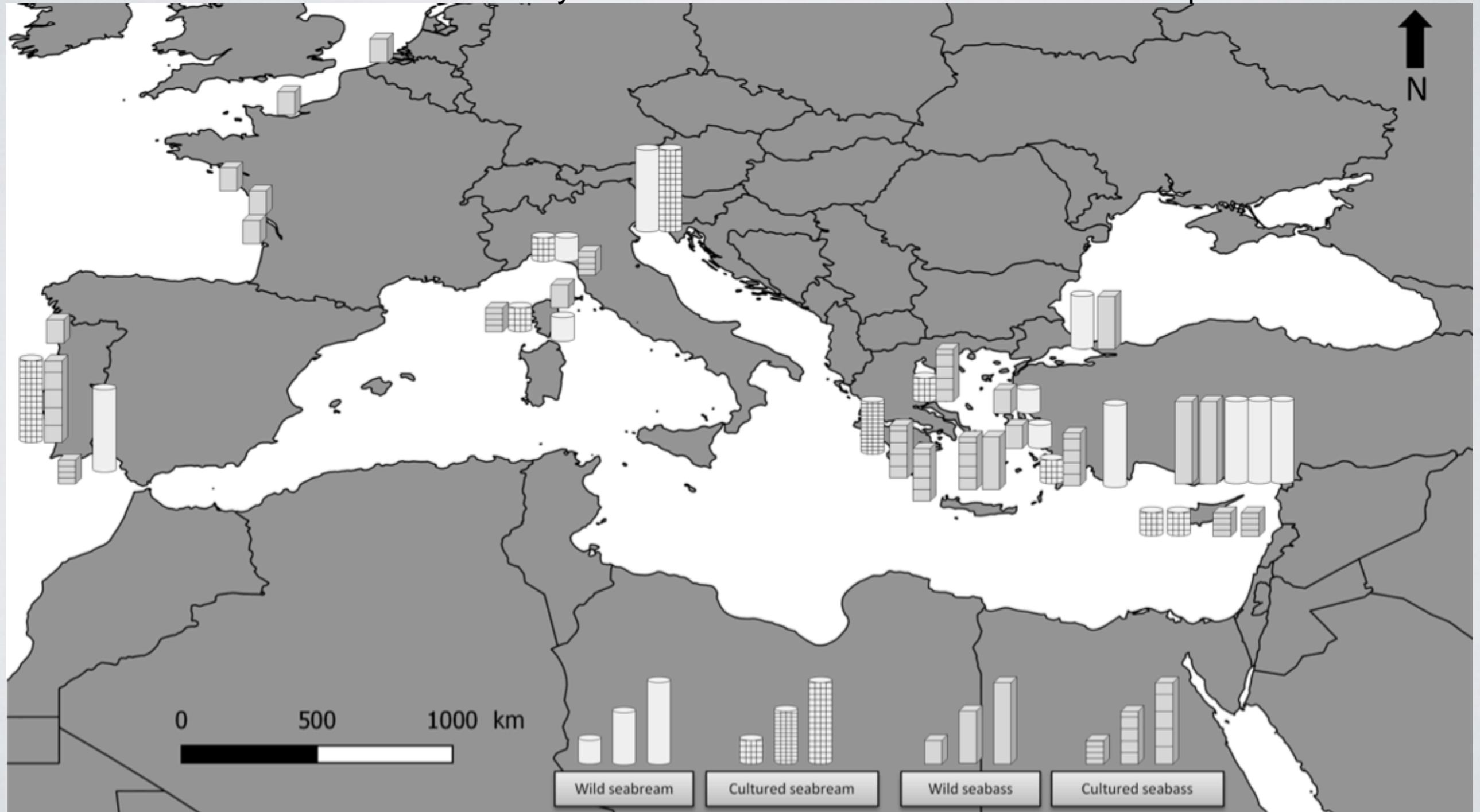
Sparus aurata (Linnaeus 1758)

Dicentrarchus labrax (Linnaeus 1758)



Differences between wild and cultured fish

TEs were still below the standard safety values for fish intended for human consumption



En cours

STARESO- Corte- Stella Mare-Liège

in the framework of the **STARECAPMED** projet

Post Doc Michel Marengo

poissons d'élevage-sauvage

Mérou

Denti

Projets

STARESO-UCorte-Stella Mare-ULiège

...in the framework of the **STARECAPMED** projet

Les Mitchs: poissons-pêche, un stage+un TFE

Thèse L Lefebvre (faisceau fleuri)

Post Doc J Richir Cu

TFE O El Idrissi

Conclusions

Suivi long Terme observatoire Lien Etat pression Interdisciplinarité

Contents lists available at ScienceDirect

Marine Pollution Bulletin

journal homepage: www.elsevier.com/locate/marpolbul

A reassessment of the use of *Posidonia oceanica* and *Mytilus galloprovincialis* to biomonitor the coastal pollution of trace elements: New tools and tips

J. Richir^a, S. Gobert

Contents lists available at SciVerse ScienceDirect

Ecological Indicators

journal homepage: www.elsevier.com/locate/ecolind



Environmental & Analytical
Toxicology

Richir and Gobert, J Environ Anal Toxicol 2016, 6:1
<http://dx.doi.org/10.4172/2161-0525.1000349>

Review Article Open Access

Trace Elements in Marine Environments: Occurrence, Threats and Monitoring with Special Focus on the Coastal Mediterranean

Jonathan Richir^{a,*} and Sylvie Gobert^b

^aNumerical & ^bLaboratory

Journal of Environmental Management 150 (2015) 1–14

Chemical contamination along the Mediterranean French coast using *Posidonia oceanica* (L.) Delile above-ground tissues: a multiple trace element study

Nicolas Luy^{a,*}, Sylvie Gobert^a, Stéphane Sartoretto^b, Renzo Biondo^a, Jean-Marie Bouquegneau^a, Jonathan Richir^a

Contents lists available at ScienceDirect

Marine Pollution Bulletin

journal homepage: www.elsevier.com/locate/marpolbul

Contents lists available at ScienceDirect

Journal of Environmental Management

journal homepage: www.elsevier.com/locate/jenvman

Bioassessment of trace element contamination of Mediterranean coastal waters using the seagrass *Posidonia oceanica*

J. Richir^{a,b,*}, M. Salivas-Decaux^c, C. Lafabrie^{c,d}, C. Lopez y Royo^c, S. Gobert^a, G. Pergent^c, C. Pergent-Martini^c

Baseline

Trace element concentrations in the apex predator swordfish (*Xiphias gladius*) from a Mediterranean fishery and risk assessment for consumers

S. Gobert^a, V. Pasqualini^{b,c}, J. Dijoux^b, P. Lejeune^d, E.D.H. Durieux^{b,c}, M. Marengo^{a,b,e}

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Baseline

Spatial variations in trace element concentrations of the sea urchin, *Paracentrotus lividus*, a first reference study in the Mediterranean Sea

Ternengo S.^{a,b,e}, Marengo M.^{a,c}, El Idrissi O.^{a,b}, Yepka J.^c, Pasqualini V.^{a,b}, Gobert S.^{c,d}

Original article

The effect of size, weight, body compartment, sex and reproductive status on the bioaccumulation of 19 trace elements in rope-grown *Mytilus galloprovincialis*

J. Richir^a, S. Gobert

Comparison of elemental composition in two wild and cultured marine fish and potential human health risks

Michel Marengo^{a,b*}; Eric Dominique Henry Durieux^{b,c}; Sonia

Ternengo^b Pierre Lejeune^d; Elise Degrange^a; Vanina

Pasqualini^{b,c}; Sylvie Gobert^a