

Organic Priority Substances in Comunitat Valenciana Coastal Waters

Contaminantes orgánicos prioritarios en aguas costeras de la Comunitat Valenciana

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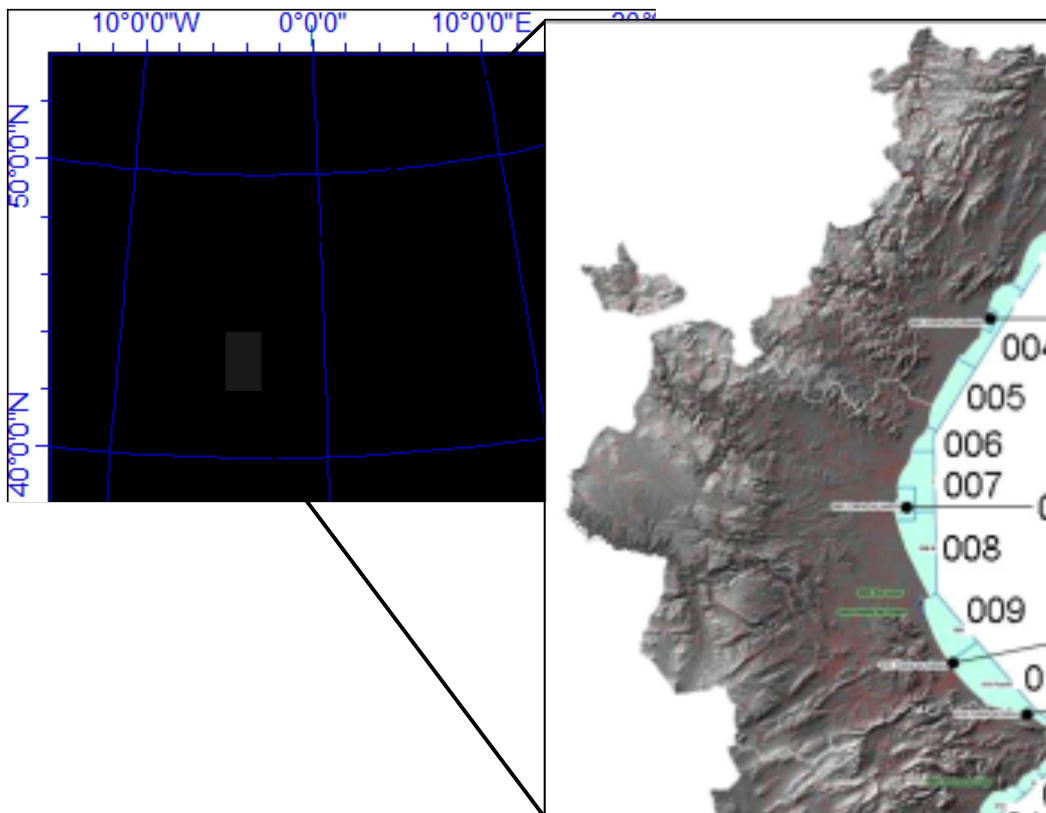
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➤ **Results from the implementation of the Water Framework Directive 2000/60/EC (WFD)**

- **Coastal waters of the Comunitat Valenciana region**
- **Study from 2008-2015 financially supported by Generalitat Valenciana**
- **Organic priority pollutants listed in Annex X of WFD and in Annex II of Real Decreto 60/2011**



- **24 water bodies**
- 18 coastal waters
 - **6 heavily modified water bodies (affected by ports)**

- **Results from the implementation of the Water Framework Directive 2000/60/EC (WFD)**
 - **Coastal waters of Comunitat Valenciana region**
 - **Study from 2008-2015 financially supported by Generalitat Valenciana**
 - **Organic priority pollutants listed in Annex X of WFD**

- **24 water bodies (WB)**
 - **Matrices studied**
 - **Water**
 - **Biota**
 - **Sediment**

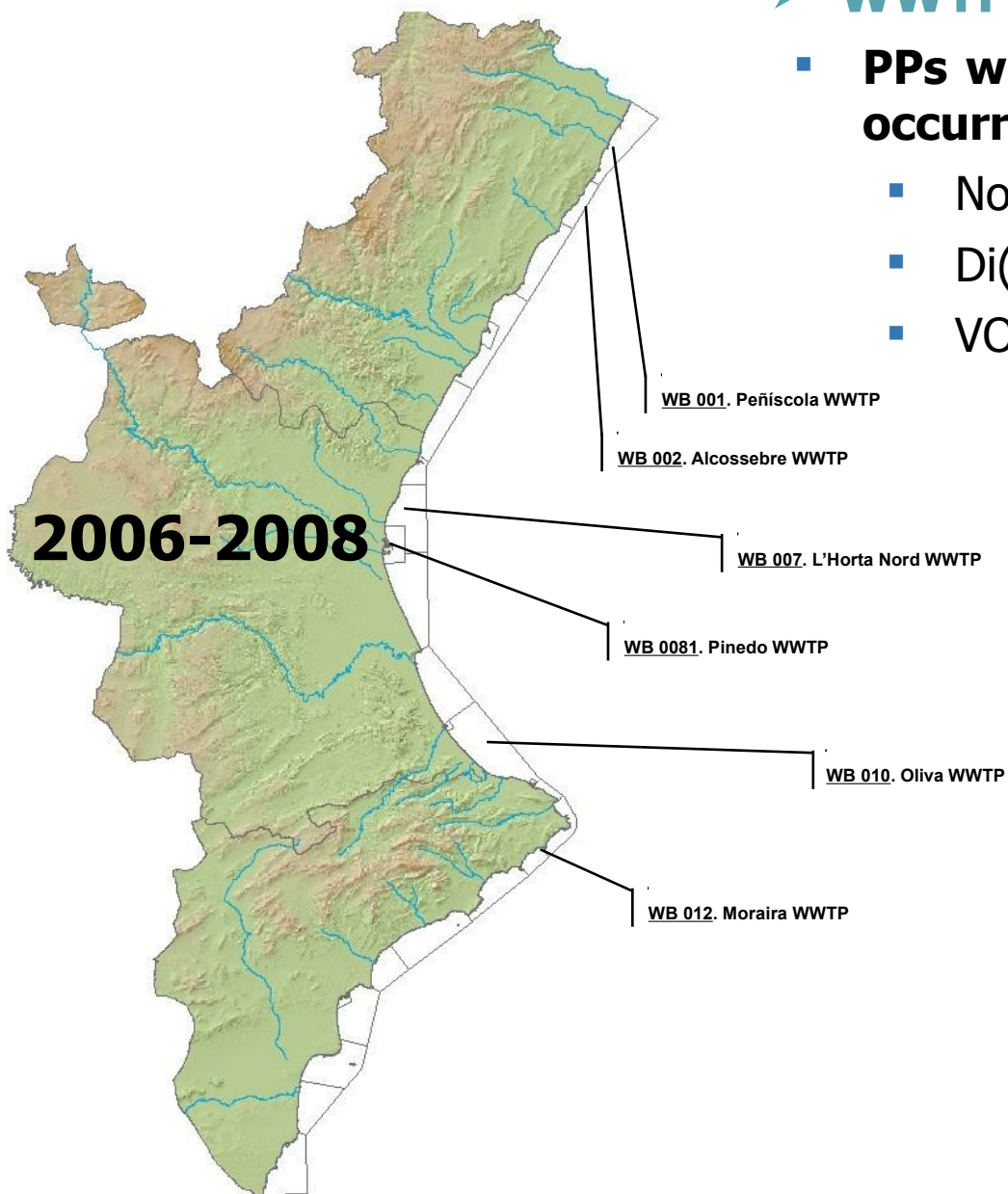
- **Objectives**
 - **Inventory of emissions**
 - **Surveillance monitoring programme**
 - **Operational monitoring programme**

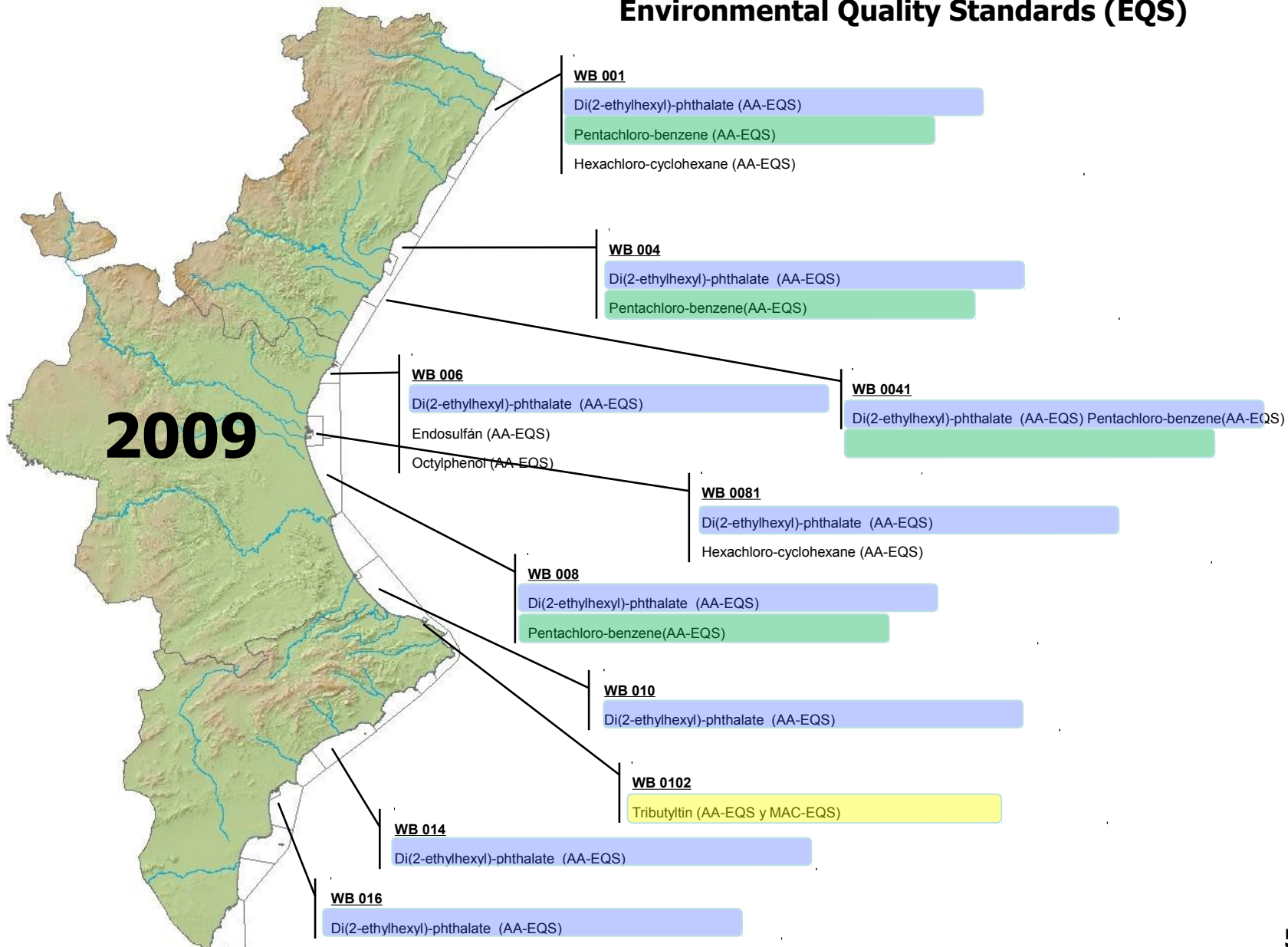
➤ Coastal waters

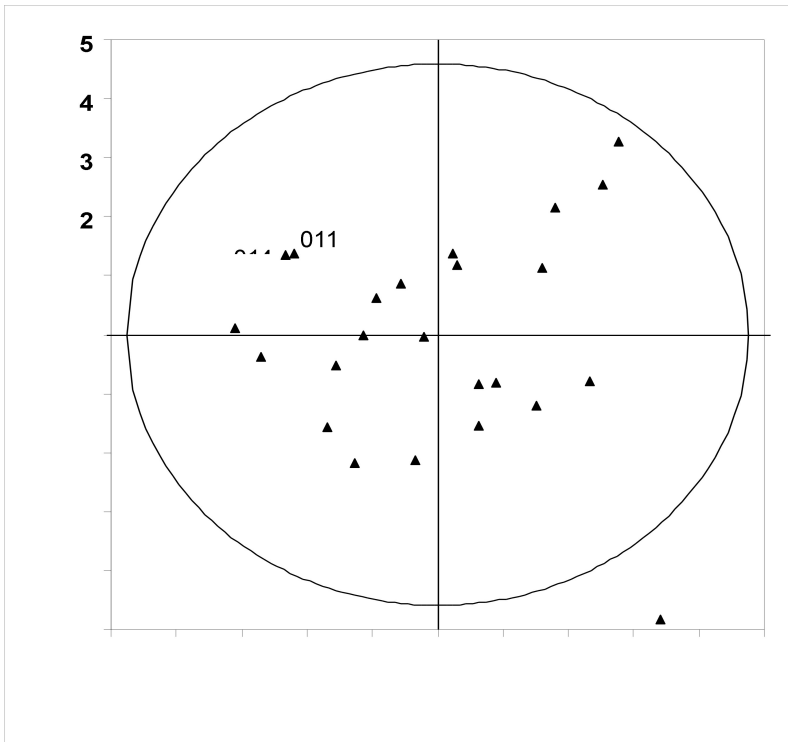
Inventory of emissions

➤ WWTP effluents

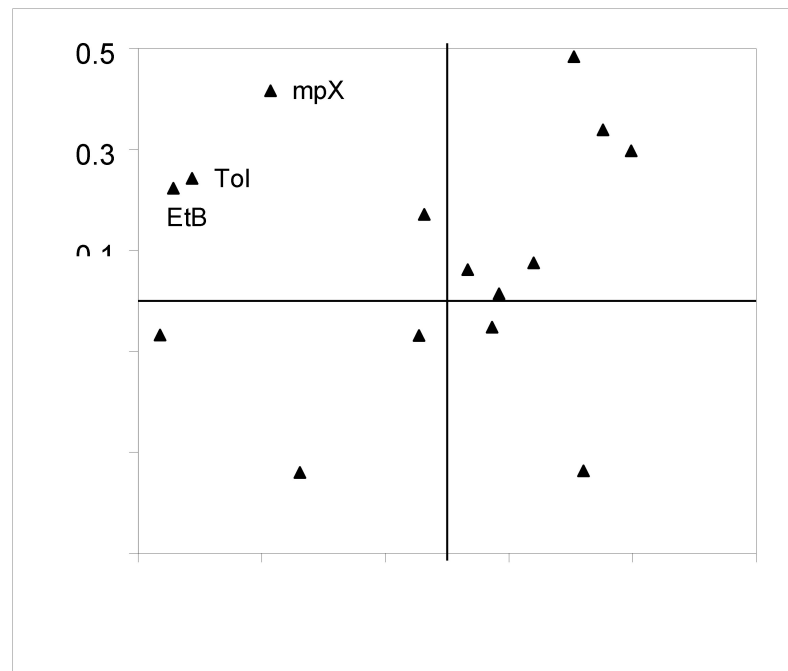
- PPs with the highest frequency of occurrence
 - Nonylphenol & Octylphenol
 - Di(2-ethylhexyl)-phthalate (DEHP)
 - VOCs



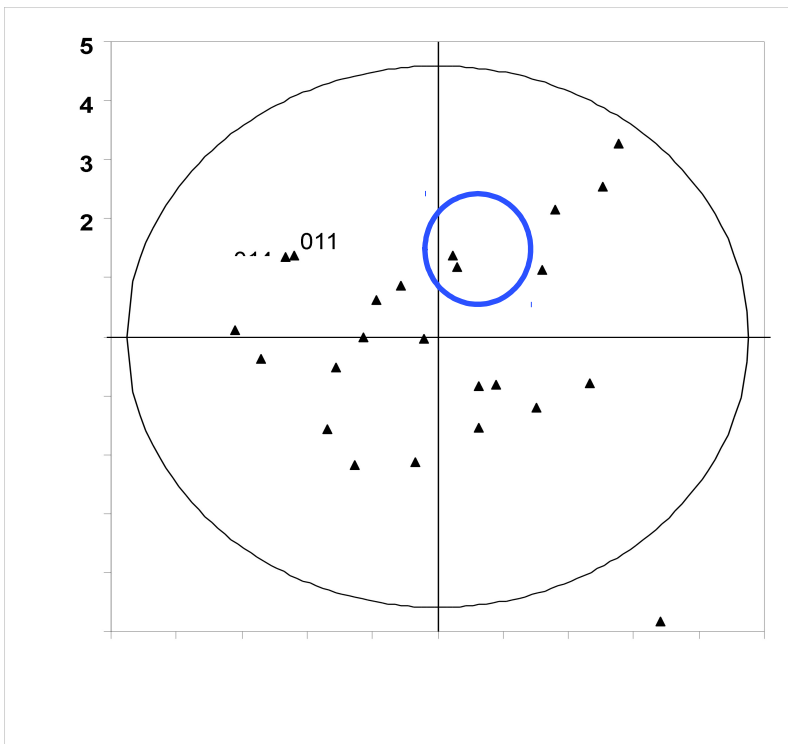




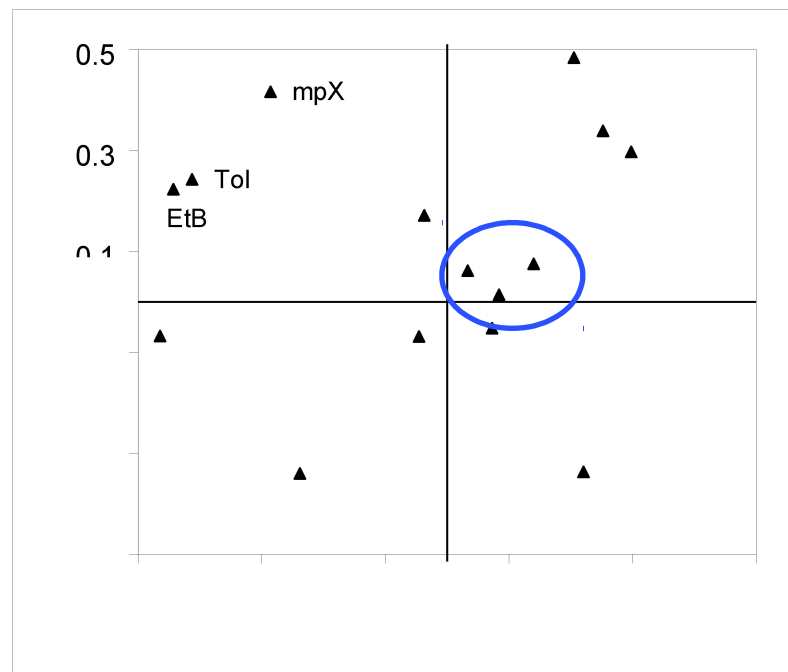
PCA-scores



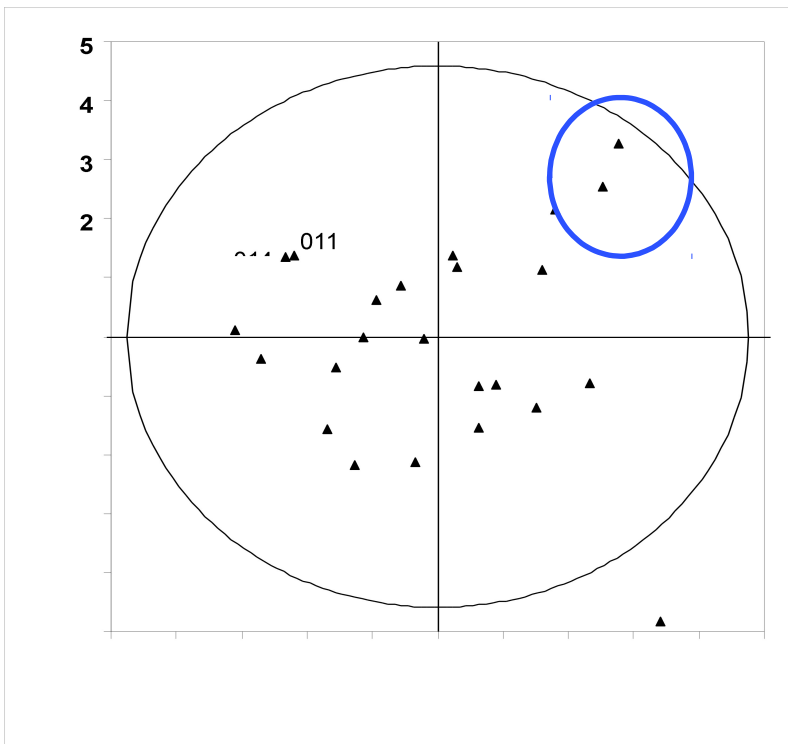
Loadings for the multivariate analysis



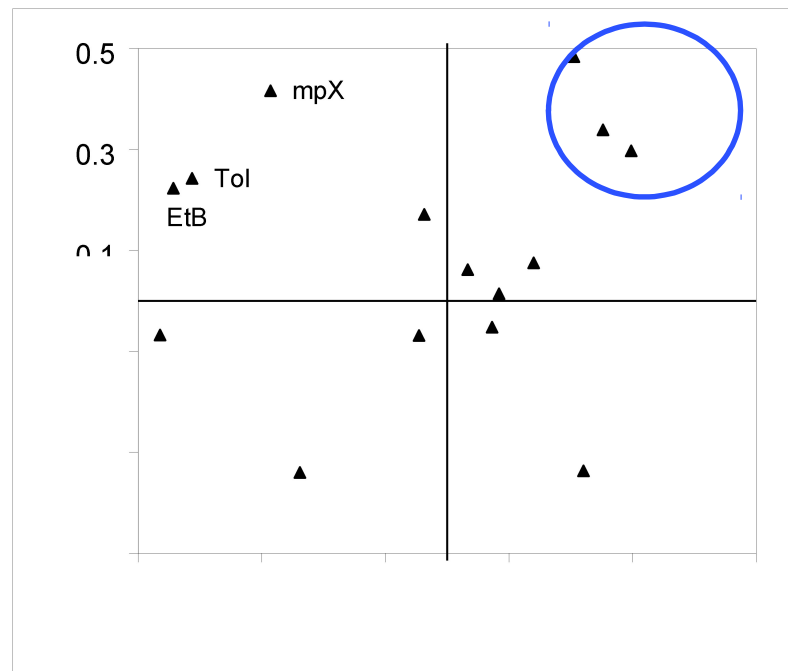
PCA-scores



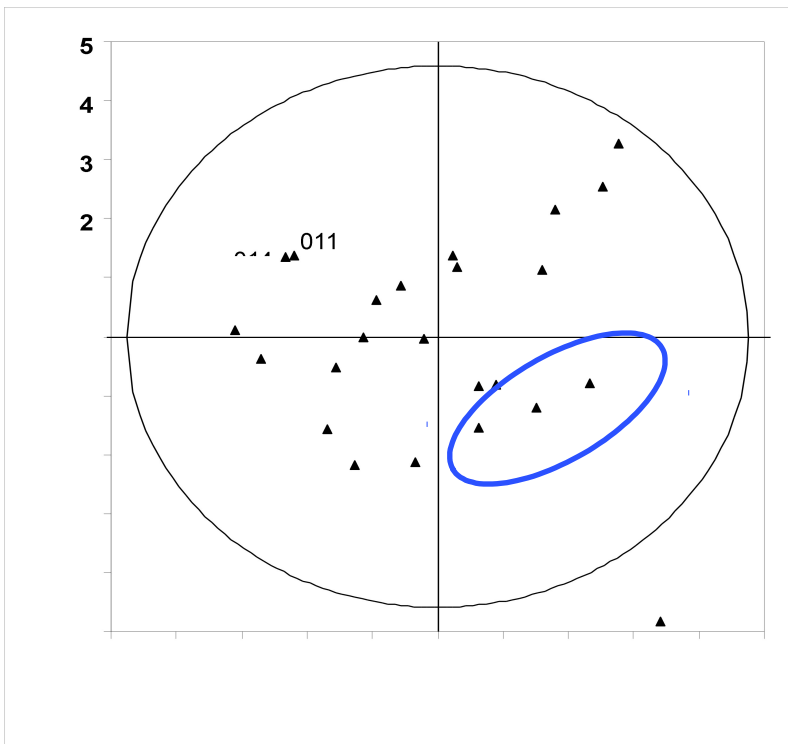
Loadings for the multivariate analysis



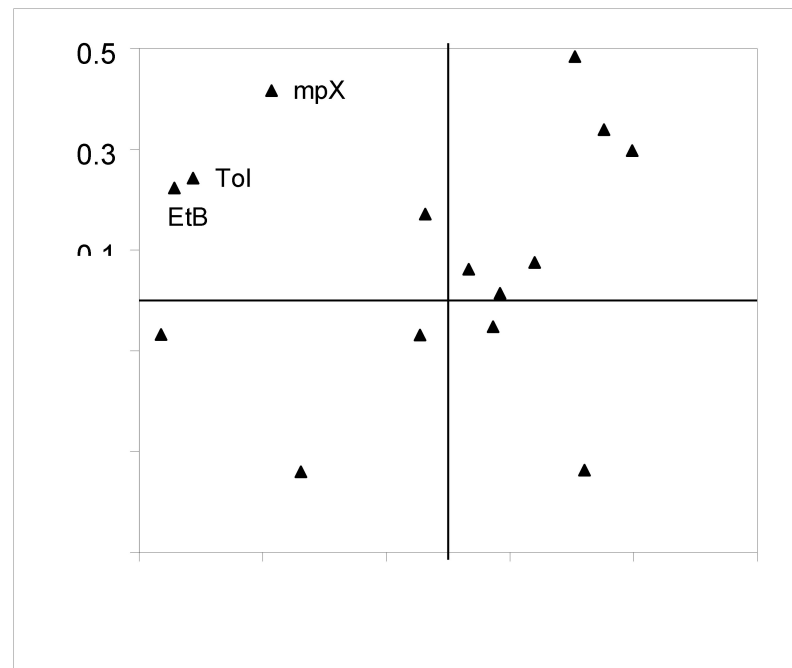
PCA-scores



Loadings for the multivariate analysis



PCA-scores



Loadings for the multivariate analysis

Marine Pollution Bulletin 62 (2011) 615–625



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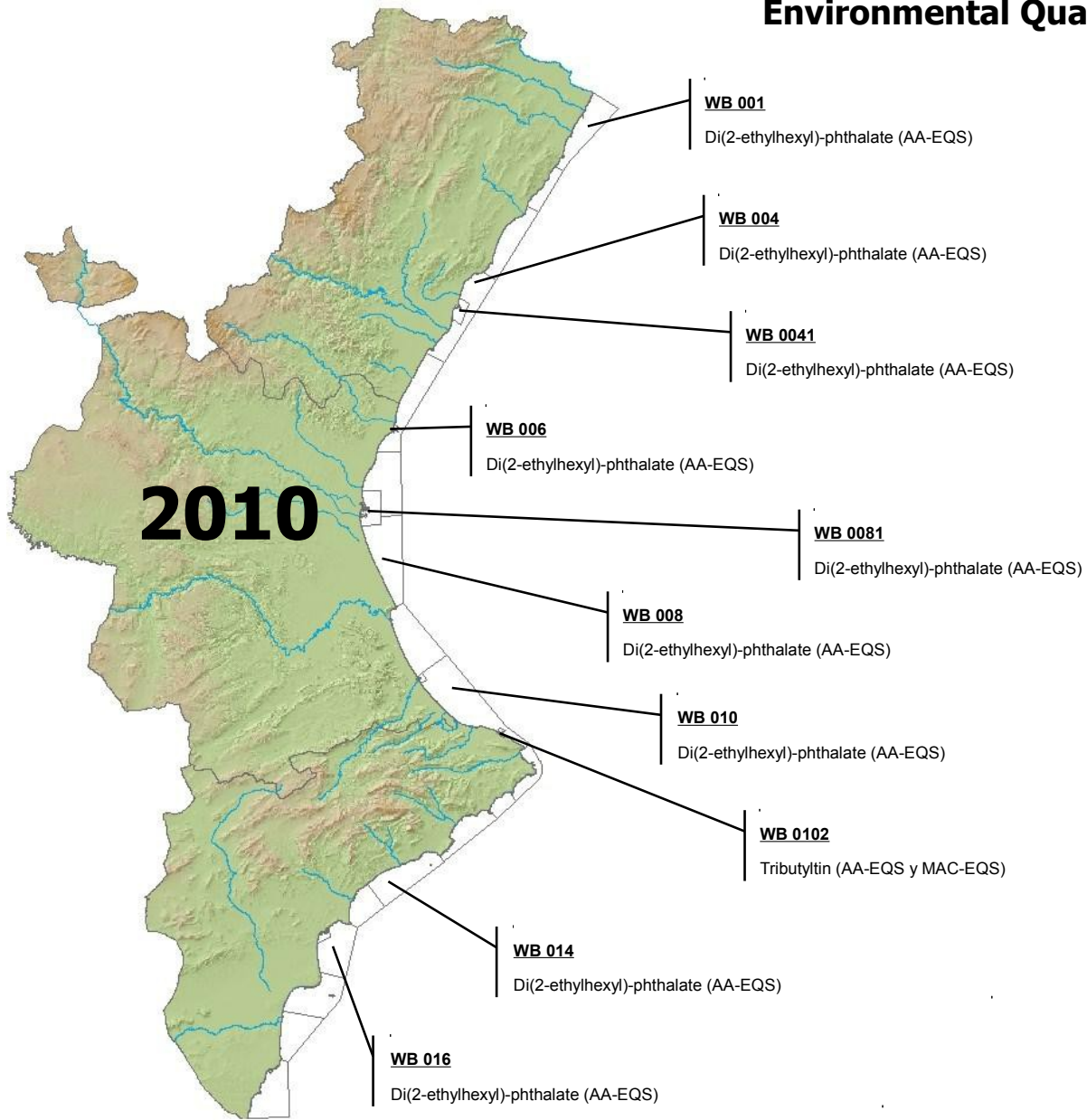
Marine Pollution Bulletin

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



Occurrence of priority pollutants in WWTP effluents and Mediterranean coastal waters of Spain

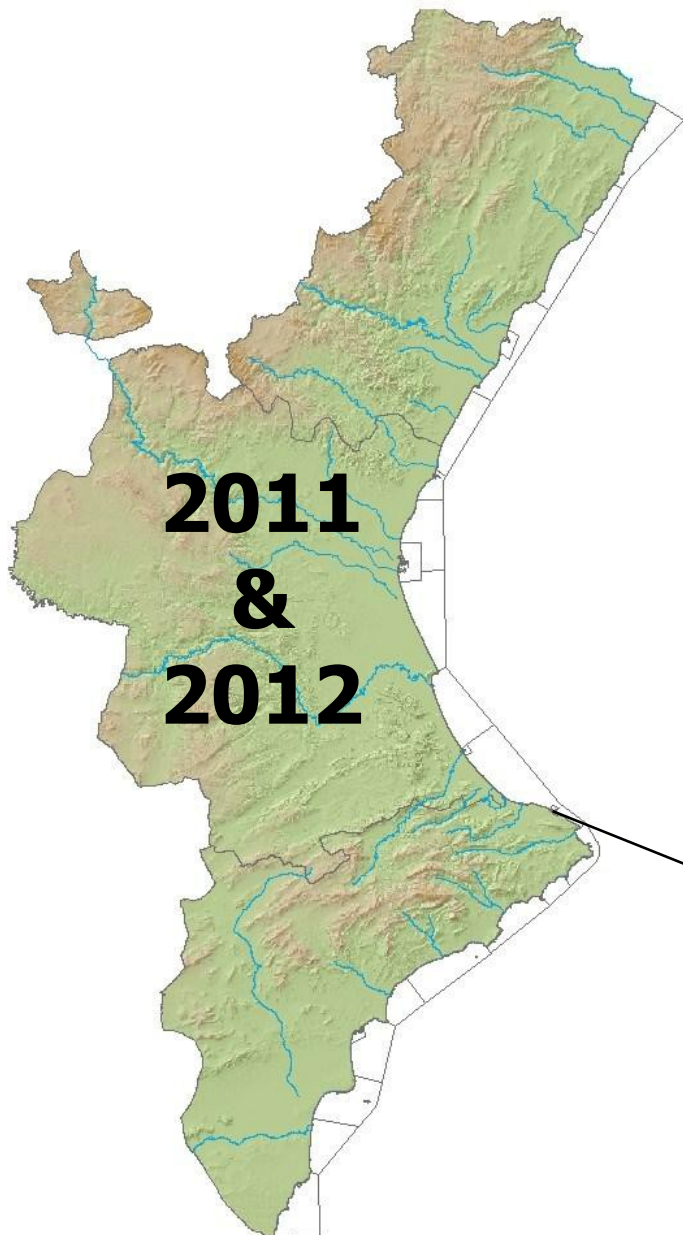
N. Martí^{a,*}, D. Aguado^b, L. Segovia-Martínez^a, A. Bouzas^a, A. Seco^a



➤ Coastal waters

Operational monitoring - Water

Water bodies exceeding
Environmental Quality Standards (EQS)



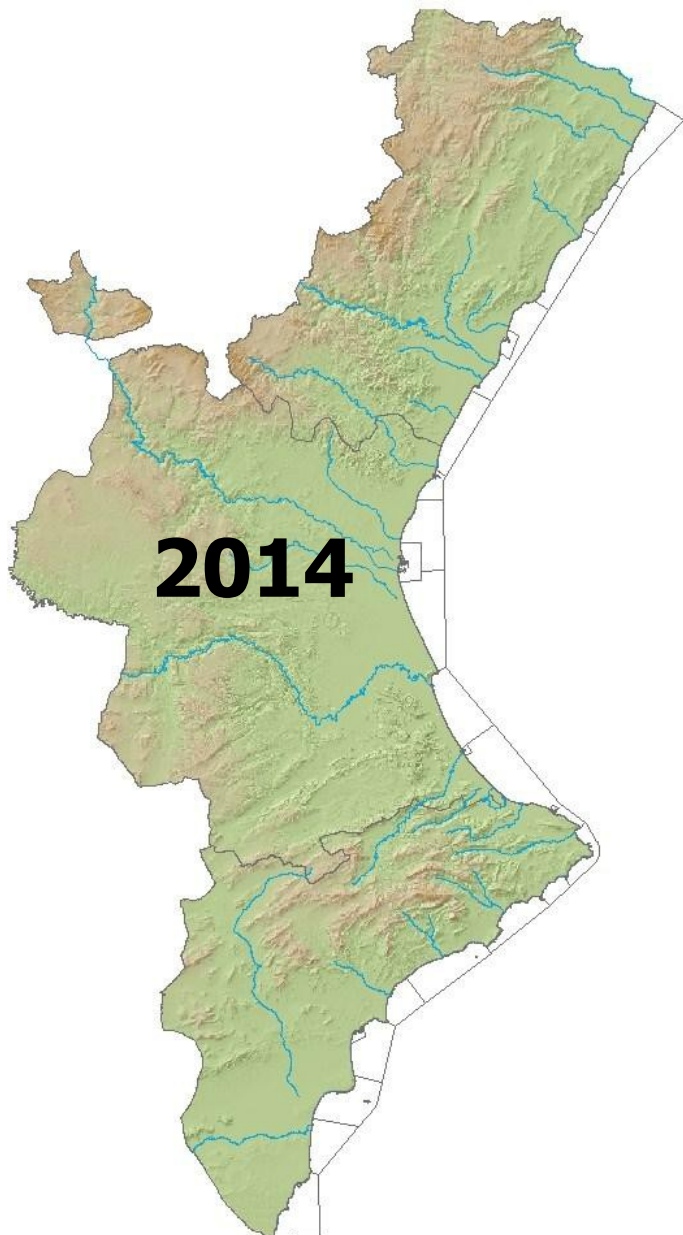
WB 0102

Tributyltin (AA-EQS y MAC-EQS)

➤ Coastal waters

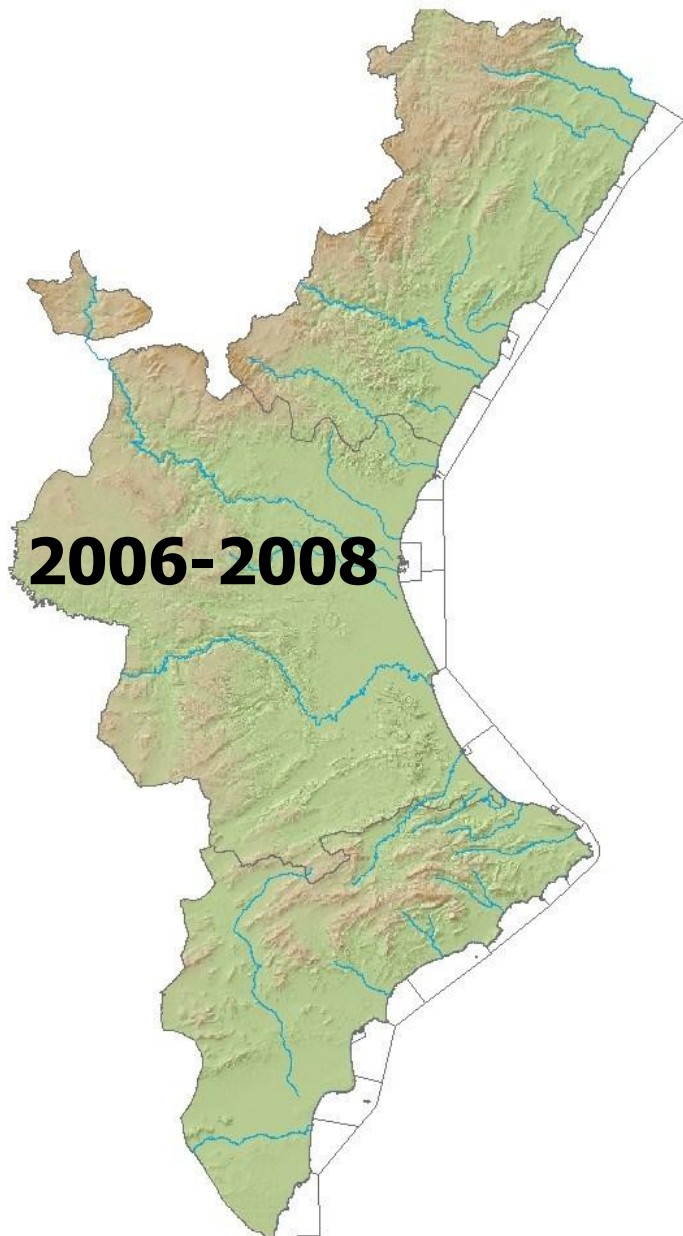
Operational monitoring - Water

Water bodies exceeding
Environmental Quality Standards (EQS)



All water bodies fulfilled
the EQS requirements

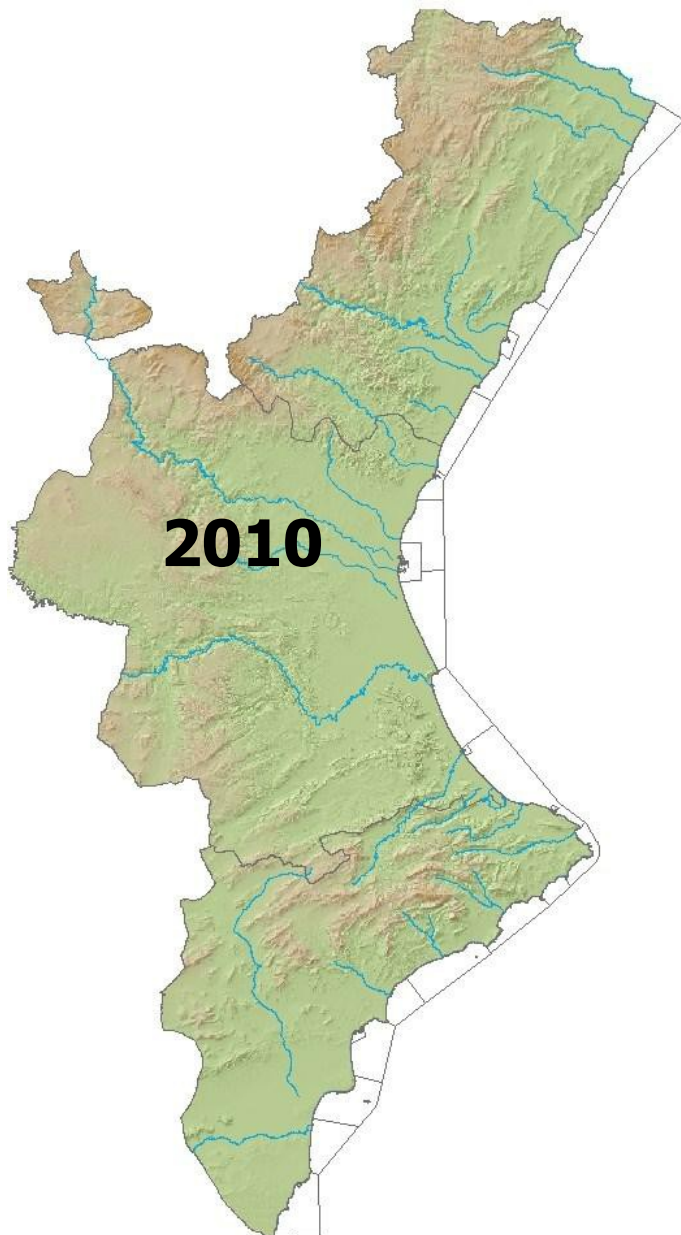
➤ Coastal waters



Surveillance monitoring - Biota

- Analysis of PPs that tend to accumulate in biota
 - Nonylphenol & Octylphenol
 - 8 PAHs
 - 4 Organochlorinated pesticides
 - DEPH, TBT, BDE, chloroalkanes
- **Bivalves sampled along 14 WB**
 - Mussels and Clams

➤ Coastal waters



Surveillance monitoring - Biota

- Analysis of PPs that tend to accumulate in biota
 - t-Nonylphenol & Octylphenol
 - 8 PAHs
 - 4 Organochlorinated pesticides
 - DEPH, TBT, BDE, chloroalkanes
- Bivalves sampled along 14 WB
 - Mussels and Clams

Operational monitoring - Biota

- Analysis of PPs that tend to accumulate in biota
 - t-Nonylphenol & Octylphenol
 - 8 PAHs
 - 4 Organochlorinated pesticides
 - DEPH, TBT, BDE, chloroalkanes
- Bivalves sampled along 7 WB with high occurrence of PPs
 - Mussels and Clams

➤ Coastal waters

Surveillance monitoring - Biota

➤ The most frequent PPs in biota

- t-Nonylphenol & Octylphenol
- PAHs
- TBT

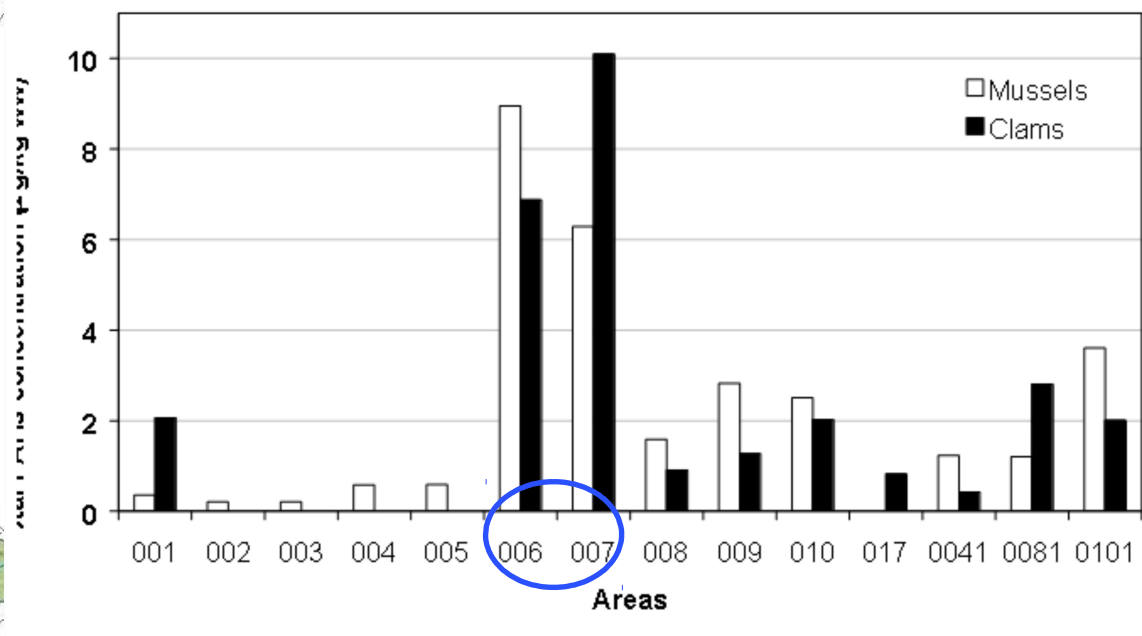
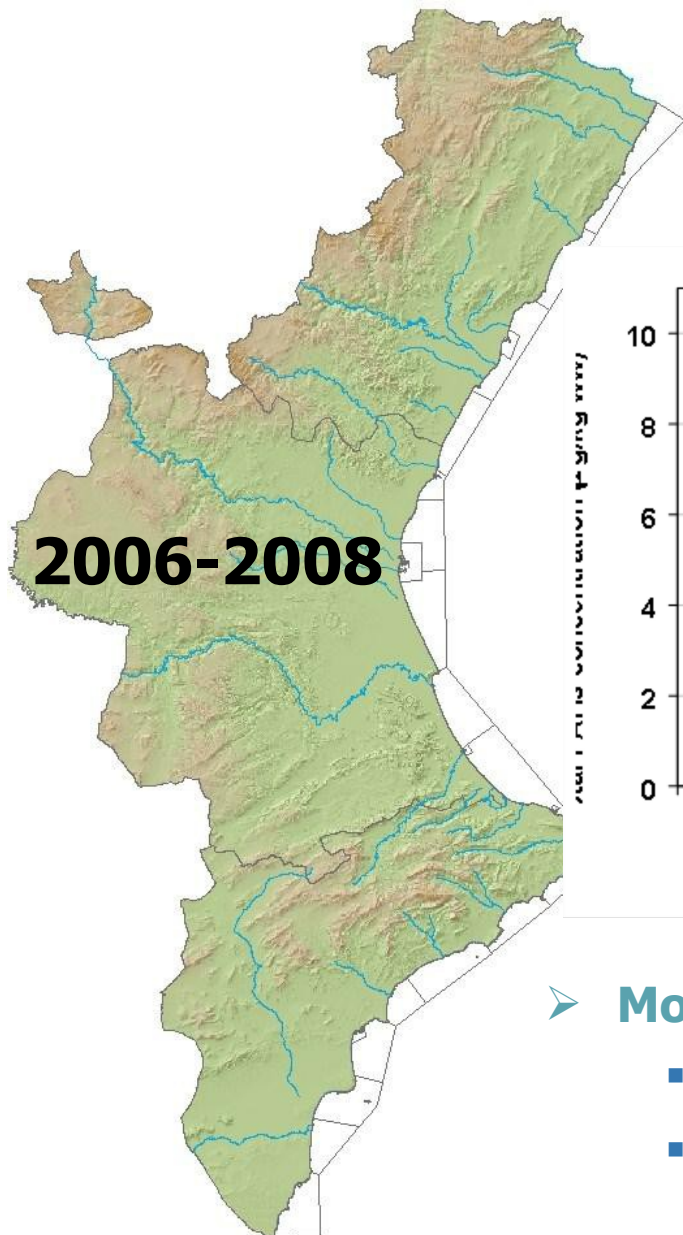


➤ Coastal waters

Surveillance monitoring - Biota

➤ The most frequent PPs in biota

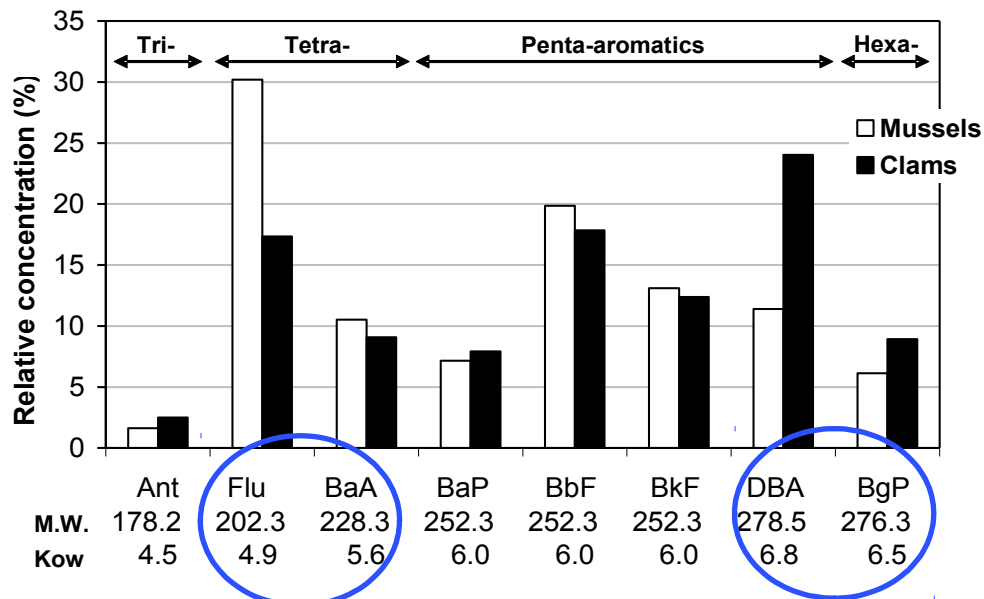
- t-Nonylphenol & Octylphenol
- **PAHs**
- TBT



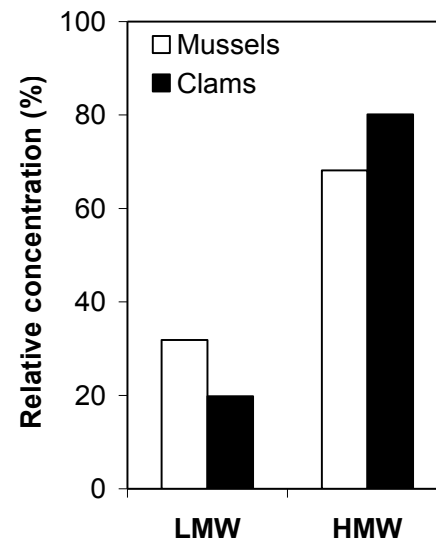
➤ Most affected areas by PAHs:

- WB surrounding the Port of Sagunto (006)
- WB in the north coast of Valencia city (007)

WB 007 PAHs pattern



Relative concentration of PAHs (a)

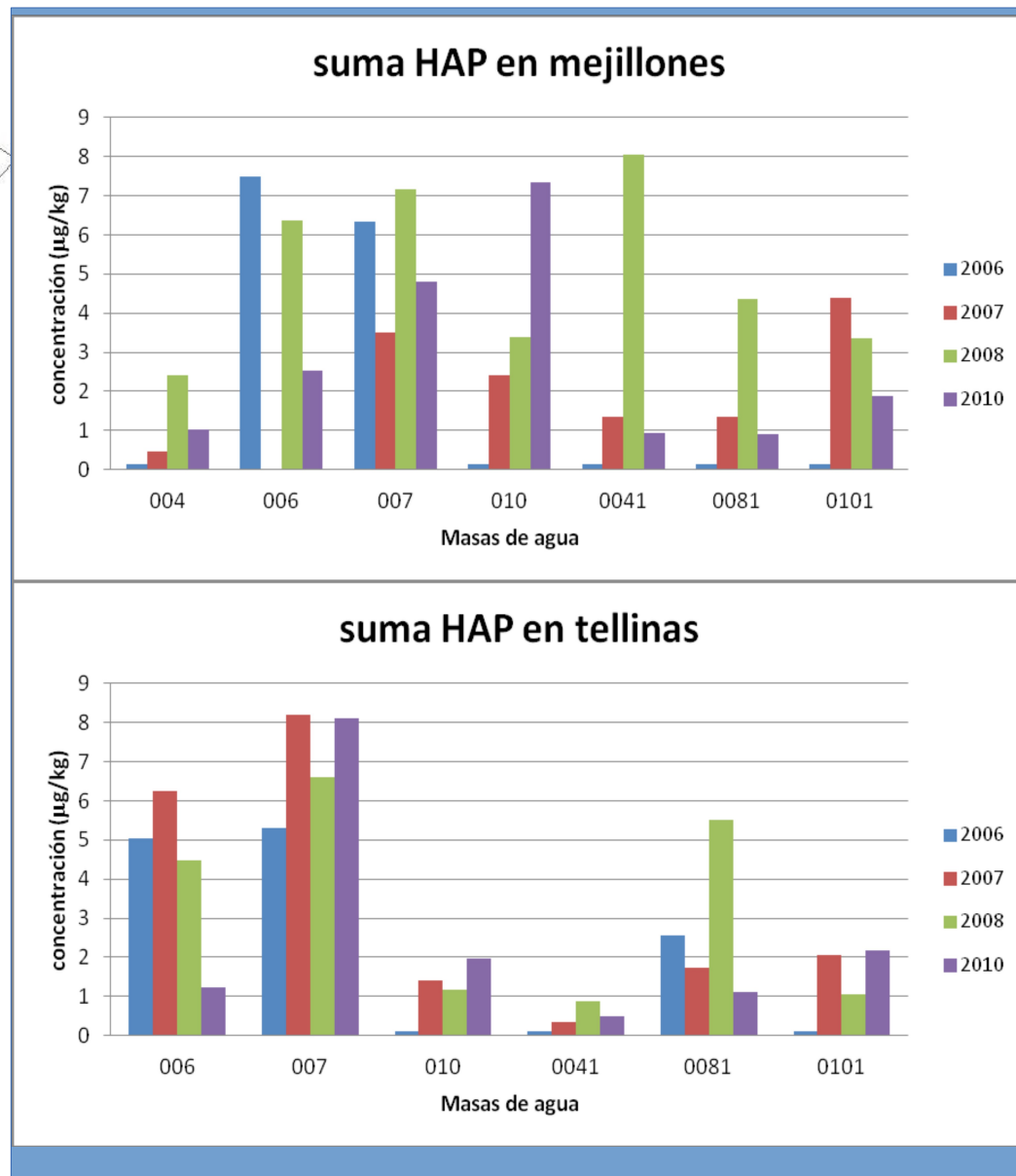
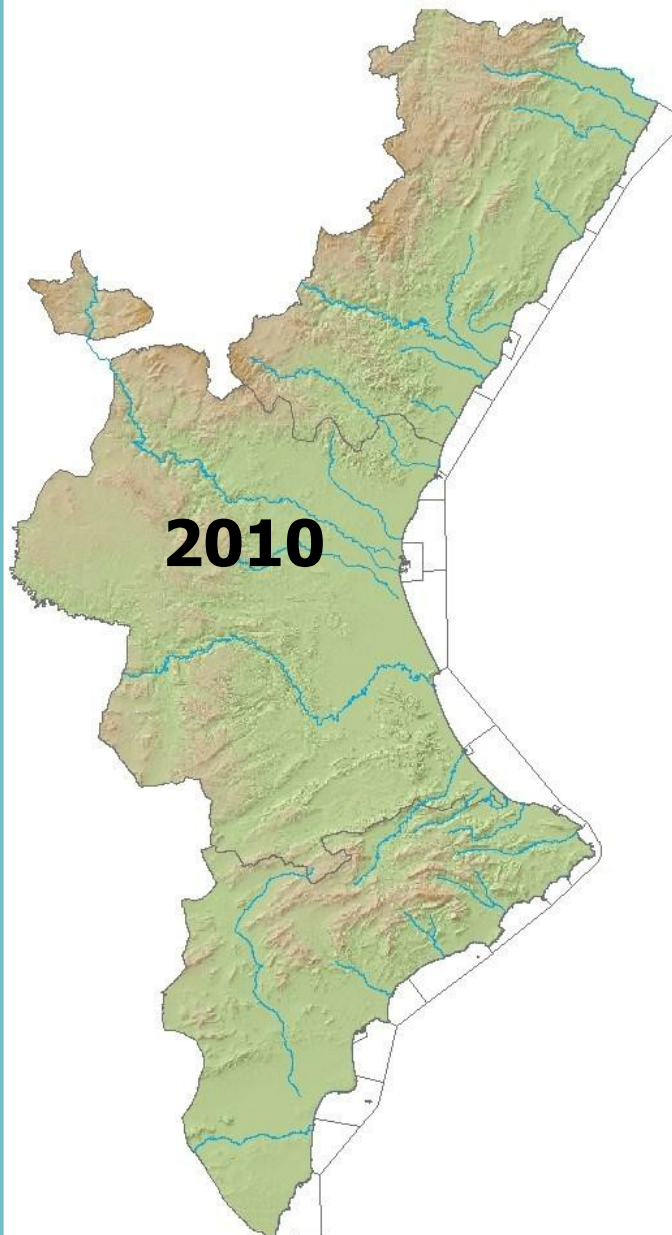


Relative concentration of high and low molecular weight PAHs (b)

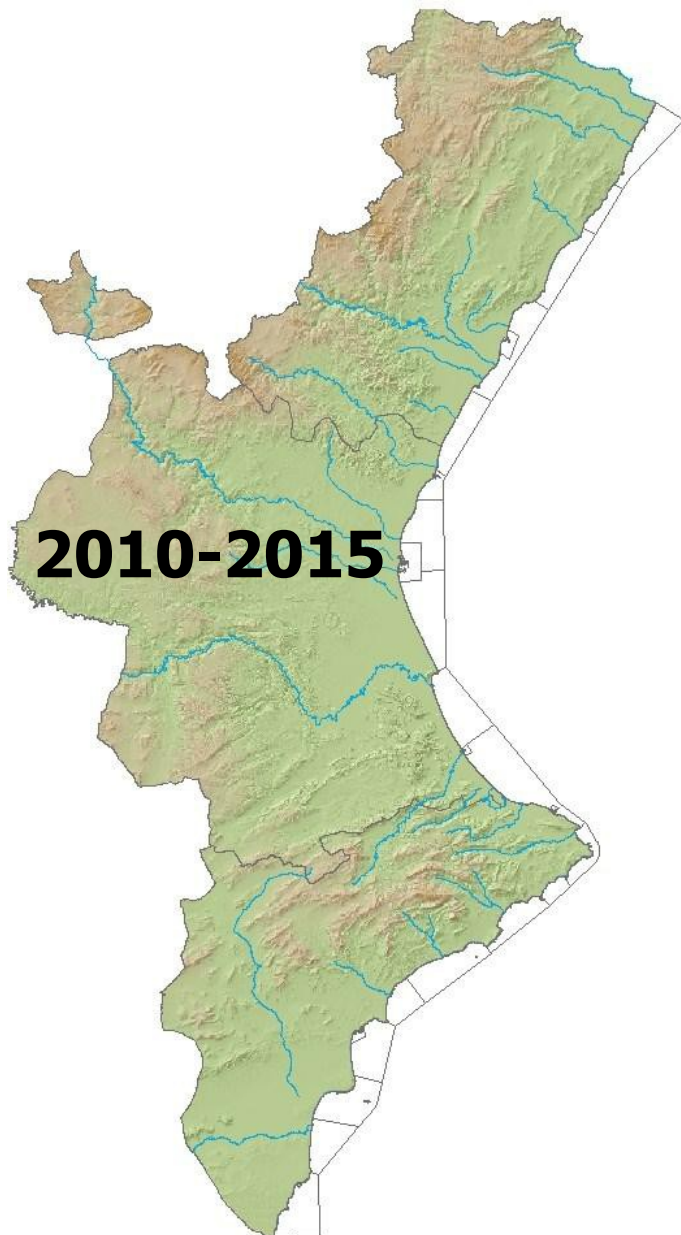
Environ Monit Assess (2011) 176:169–181
 DOI 10.1007/s10661-010-1574-5

Alkylphenols and polycyclic aromatic hydrocarbons in eastern Mediterranean Spanish coastal marine bivalves

Alberto Bouzas · Daniel Aguado · Nuria Martí ·
 José Manuel Pastor · Rosa Herráez ·
 Pilar Campins · Aurora Seco



➤ Coastal waters



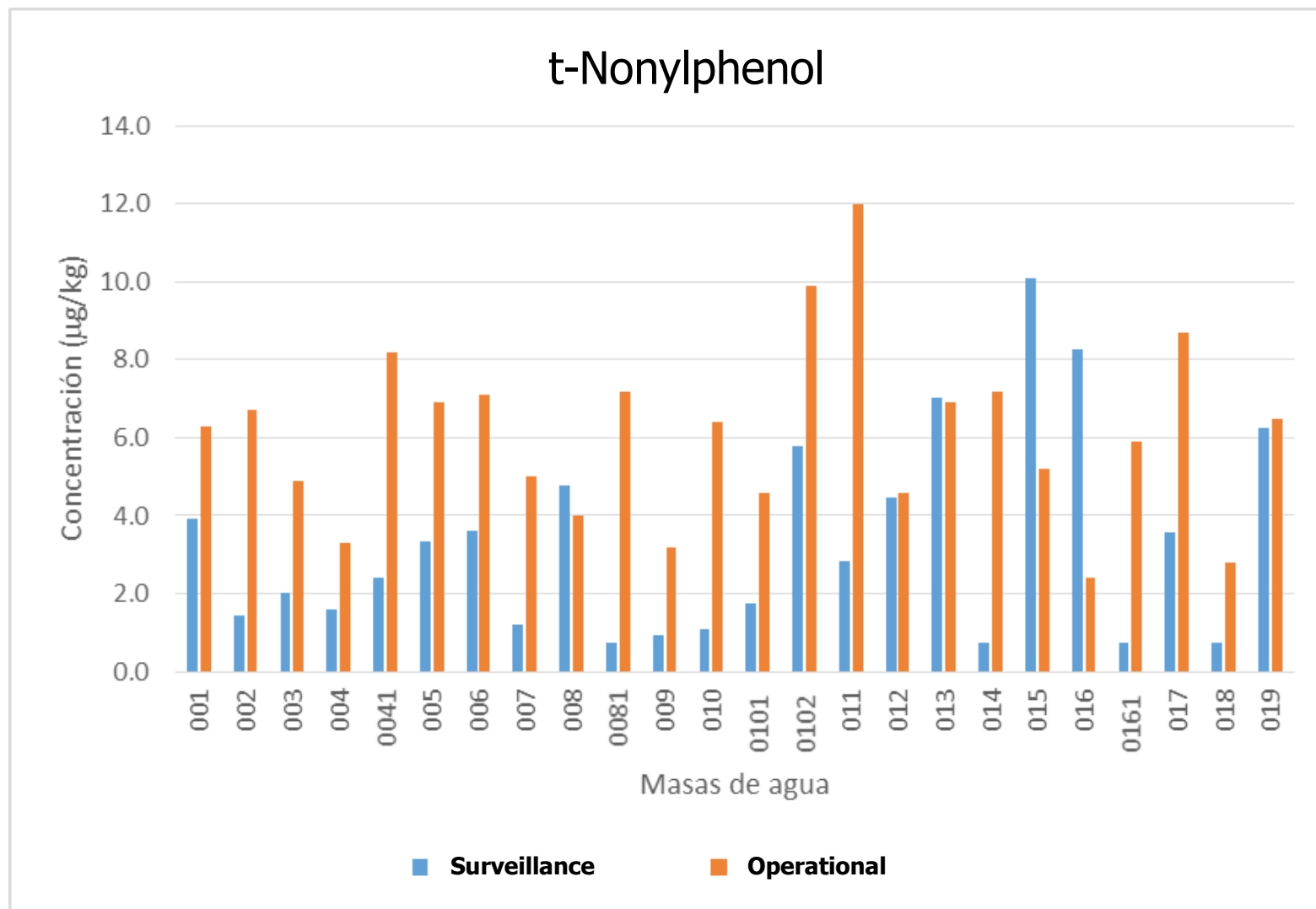
Surveillance monitoring - Sediment

- Analysis of PPs that tend to accumulate in sediment
 - t-Nonylphenol & Octylphenol
 - 8 PAHs
 - 4 Organochlorinated pesticides
 - DEPH, TBT, BDE, chloroalkanes
- **24 WB**

Operational monitoring - Sediment

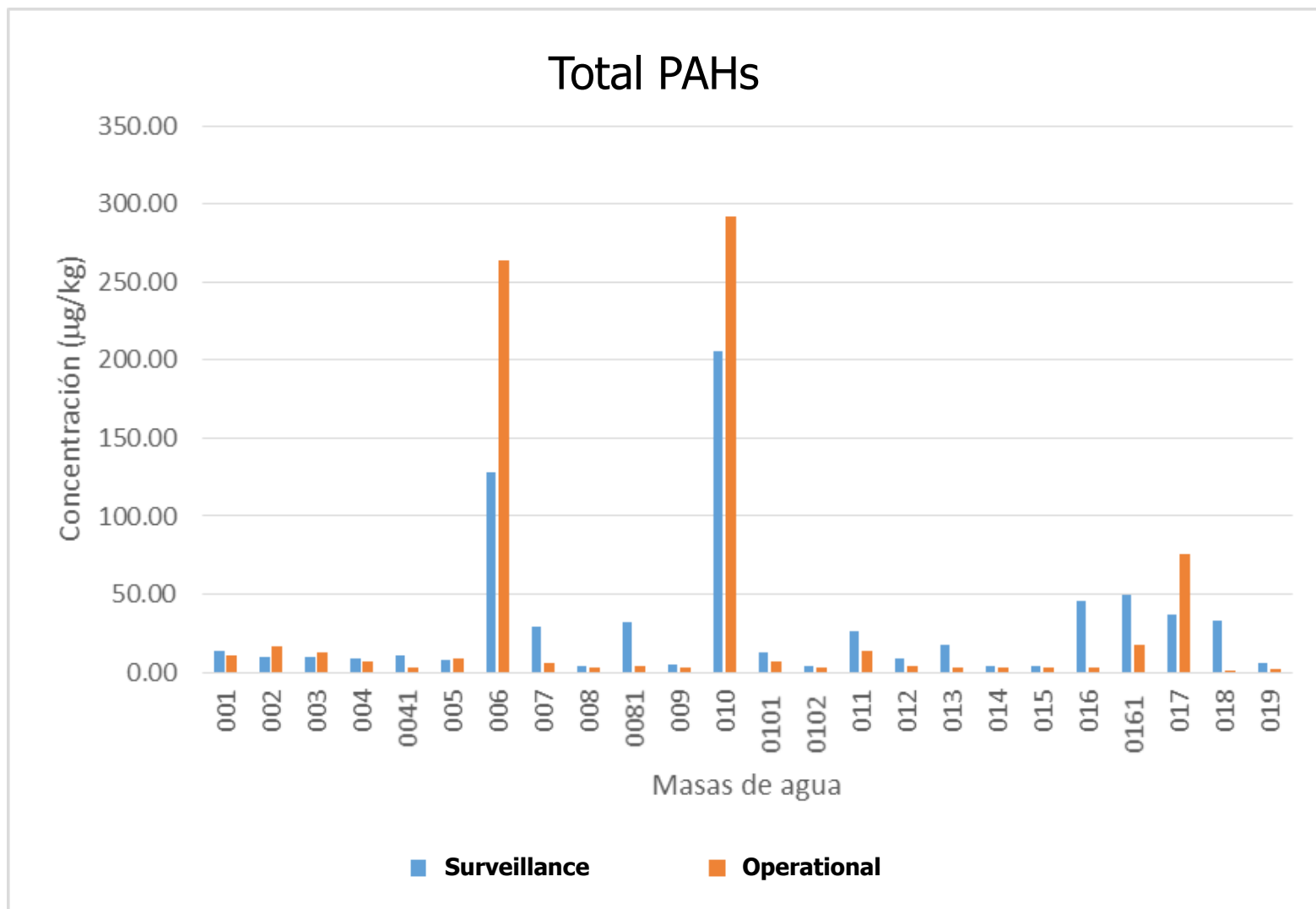
- Analysis of PPs that tend to accumulate in sediment
 - t-Nonylphenol & Octylphenol
 - 8 PAHs
 - 4 Organochlorinated pesticides
 - DEPH, TBT, BDE, chloroalkanes
- **24 WB**

Surveillance and operational monitoring - Sediment



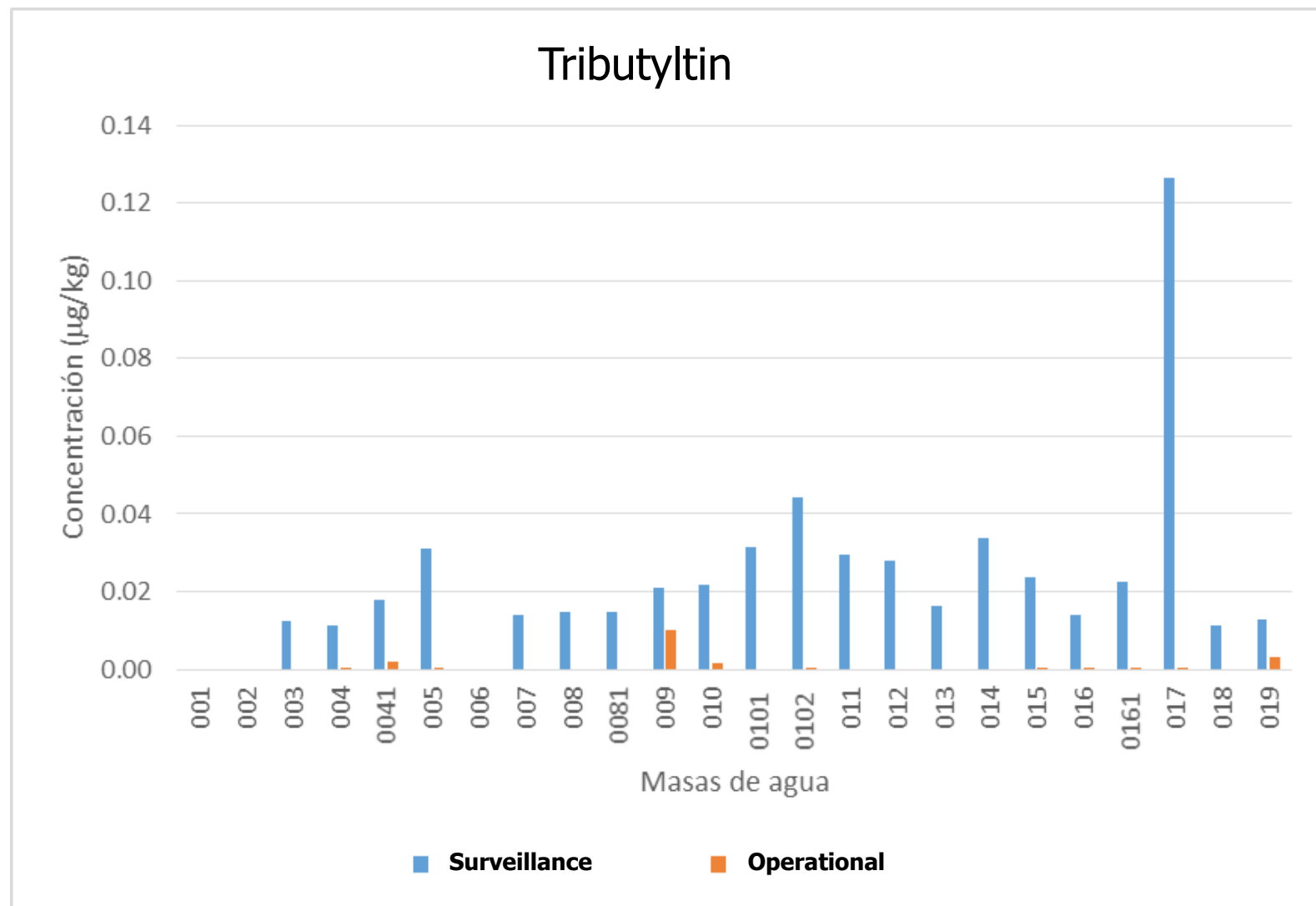
➤ Coastal waters

Surveillance and operational monitoring - Sediment



➤ Coastal waters

Surveillance and operational monitoring - Sediment



➤ Conclusions

- Di(2-ethylhexyl)-phthalate and Tributyltin exceeded EQS in water in several WB and occasions.
- A gradual decrease in the PPs concentrations detected in water was observed.
- The most common PPs detected in biota: PAHs, phenols and TBT.
- The highest molecular weight PAHs are accumulated in a greater extent in clams than in mussels and vice versa.
- PAHs and t-Nonylphenol tend to be accumulated in the sediments analysed.
- **At the end of the operational monitoring all WB fulfilled the EQS for organic PPs.**

Thank you for your attention!!

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