

Spatial patterns of PAHs in bivalves of Galicia after of Prestige Oil spill: comparison of contaminant levels among areas and species.

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Spatial patterns of PAHs in bivalves of Galicia > 2

Material & methods

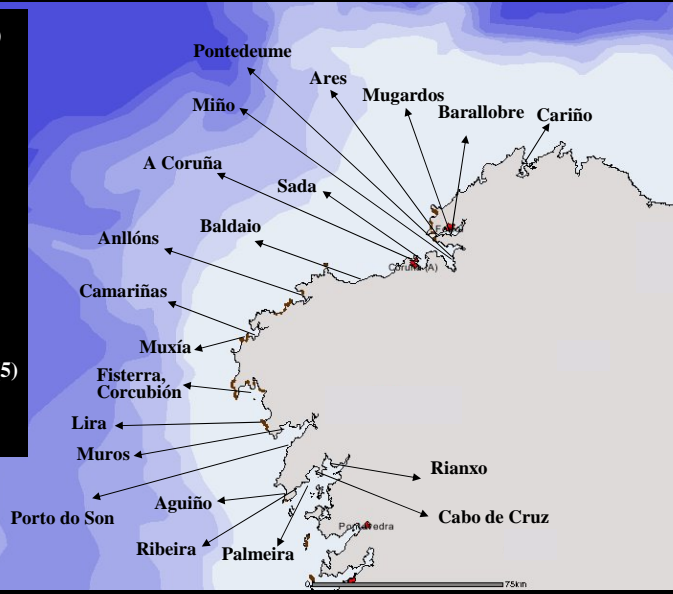
Study area

22 Cofradías (A Coruña)

47 fishing grounds

10 Species

- Cerastoderma edule* (25)
- Venerupis pullastra* (20)
- Venerupis decussata* (19)
- Venerupis aurea* (3)
- Venerupis rhomboides* (3)
- Dosinia exoleta* (5)
- Donax trunculus* (4)
- Ruditapes philippinarum* (5)
- Ensis sp.* (7)



Mapa creado por CSGA

Sampling process

1 Organisms



Biological processing

Catches: Feb/Mar/Apr 2003 by fishers of each cofradía under supervision of members of research team

1 Sample per ground = pool of 10 individuals

Lab → Body size, external evidence of fuel

Analytical processing

Freeze-drying → Homogenization → Conservation (-30°C)

Analyses of PAHs (15 EPA)

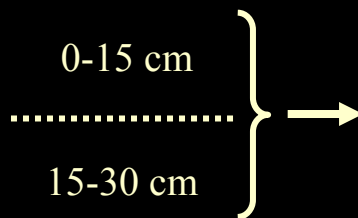
GCMS
SXAIN - UDC

HPLC
IASA - USC

PAH	Ring n°	Molecular Weight	Carcinogenicity	UDC Fuel A Coruña 06/02/03 µg/g
Naphthalene	2	128.2	NC	43.5
Acenaphthene	3	154.2	NC	13.0
Fluorene	3	166.2	NC	0.3
Phenanthrene	3	178.2	NC	30.6
Anthracene	3	178.2	NC	236.0
Fluoranthene	4	202.3	NC	14.5
Pyrene	4	202.3	NC	111.5
Benz(a)anthracene	4	228.3	C	27.6
Chrysene	4	228.3	WC	7.5
Benzo(b)fluoranthene+Benzo(j)fluoranthene	5	252.3	C	13.5
Benzo(k)fluoranthene	5	252.3	—	38.9
Benzo(a)pyrene	5	252.3	SC	29.8
Benzo(ghi)perylene	6	276.3	NC	4.7
Dibenz(a,h)anthracene	5	278.3	C	22.7
Indeno(1,2,3-cd)pyrene	6	276.3	C	22.0

2. Sediments

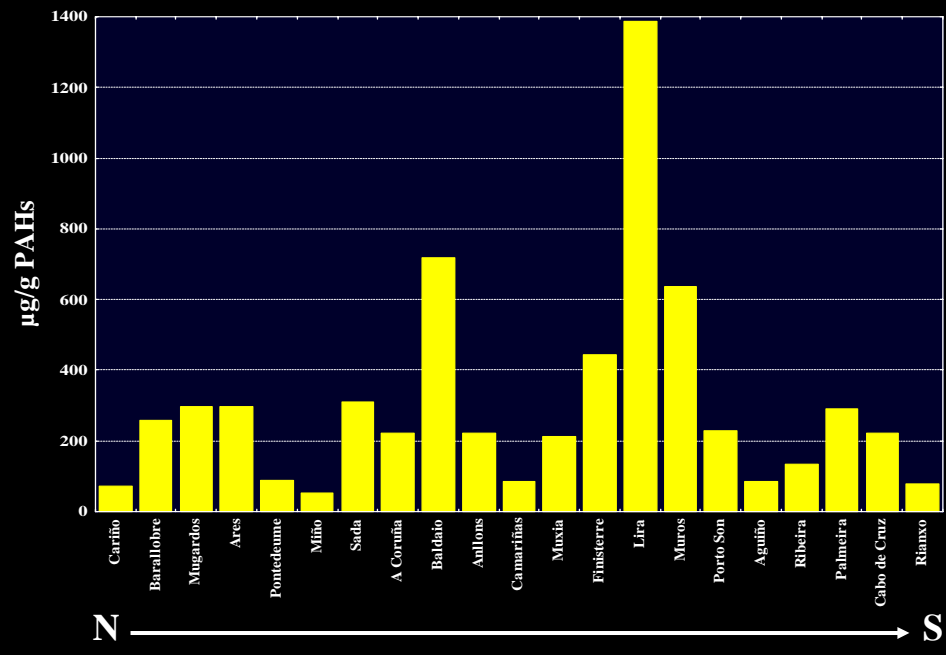
Corers (3 / ground)



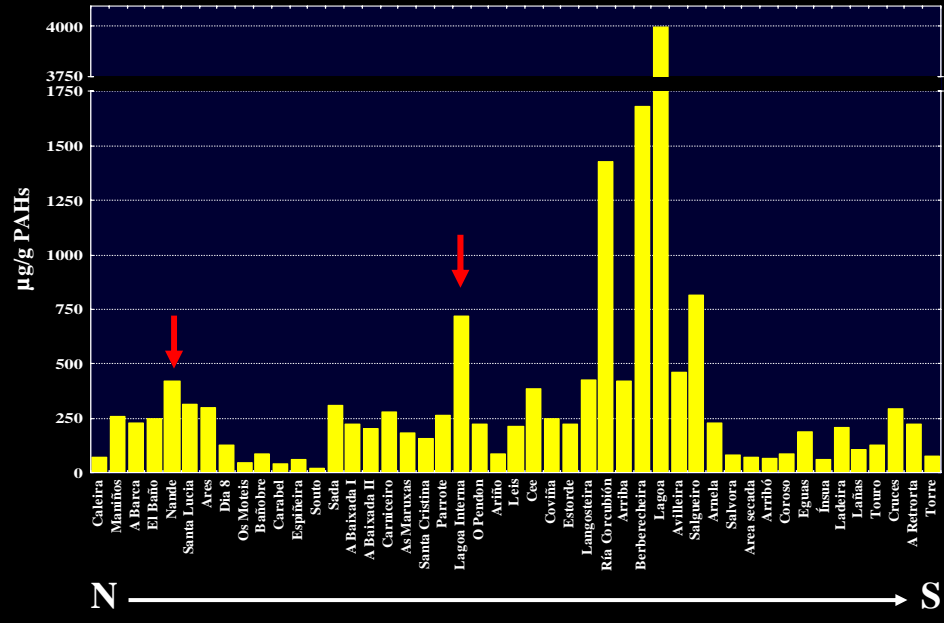
Granulometry
(>1000µ, 1000-500µ, <500µ)
% organic matter
Total HC (SXAIN-UDC)

Results

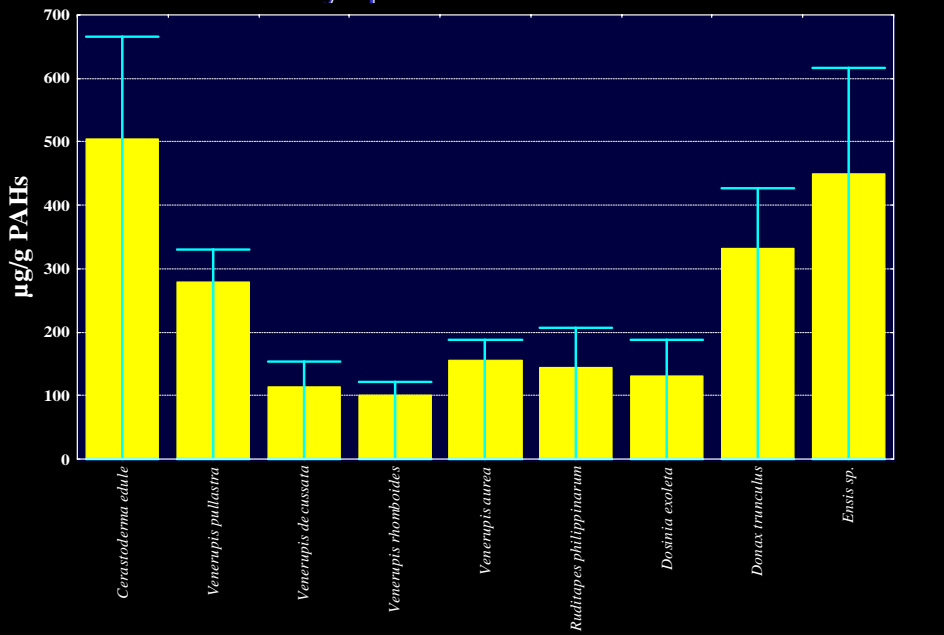
Organism PAHs by cofradía



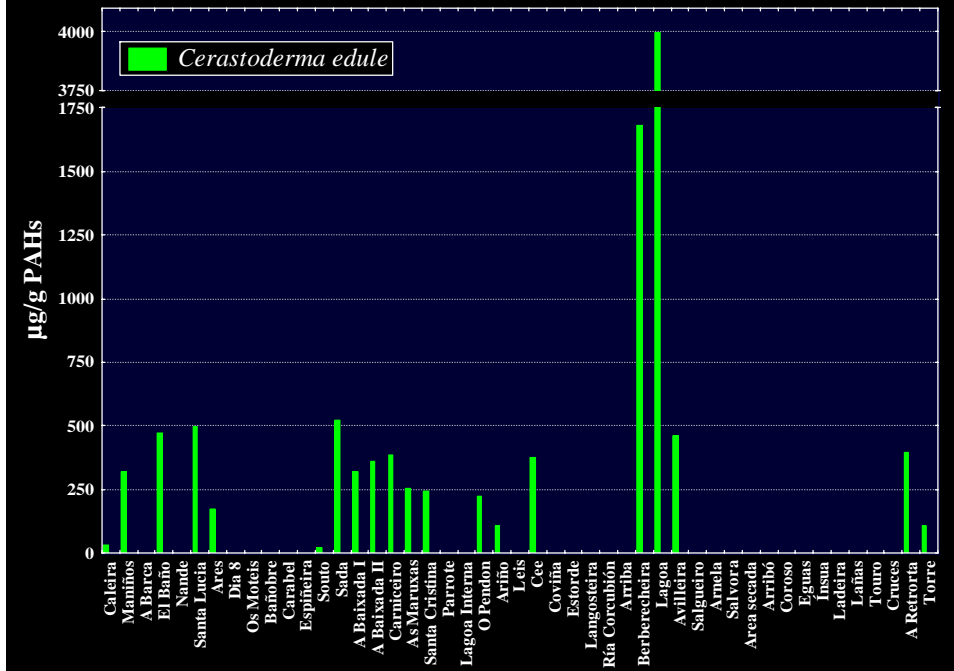
Organism PAHs by fishing ground



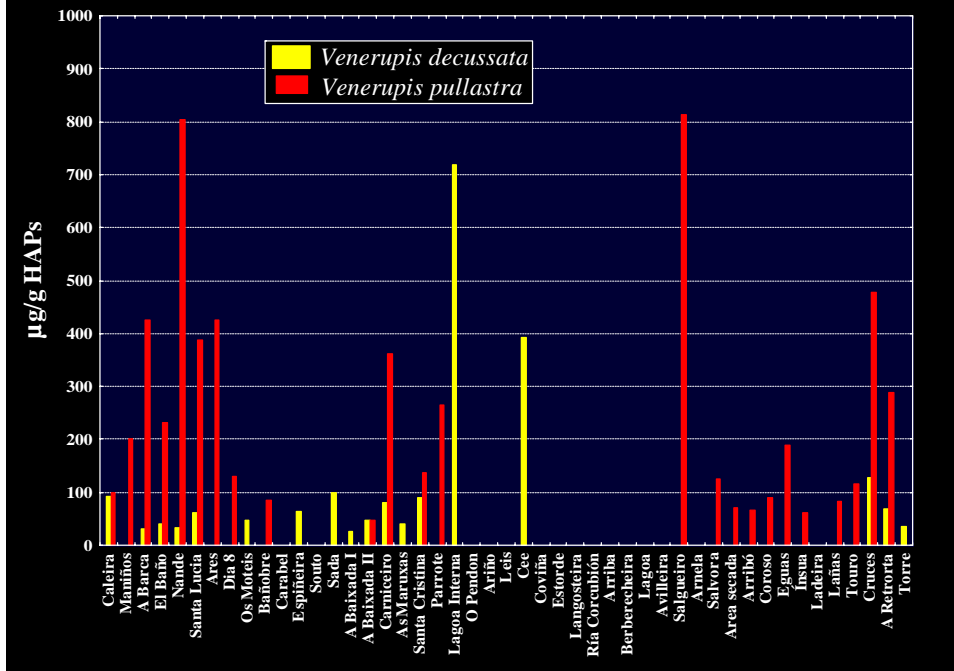
PAHs levels by species



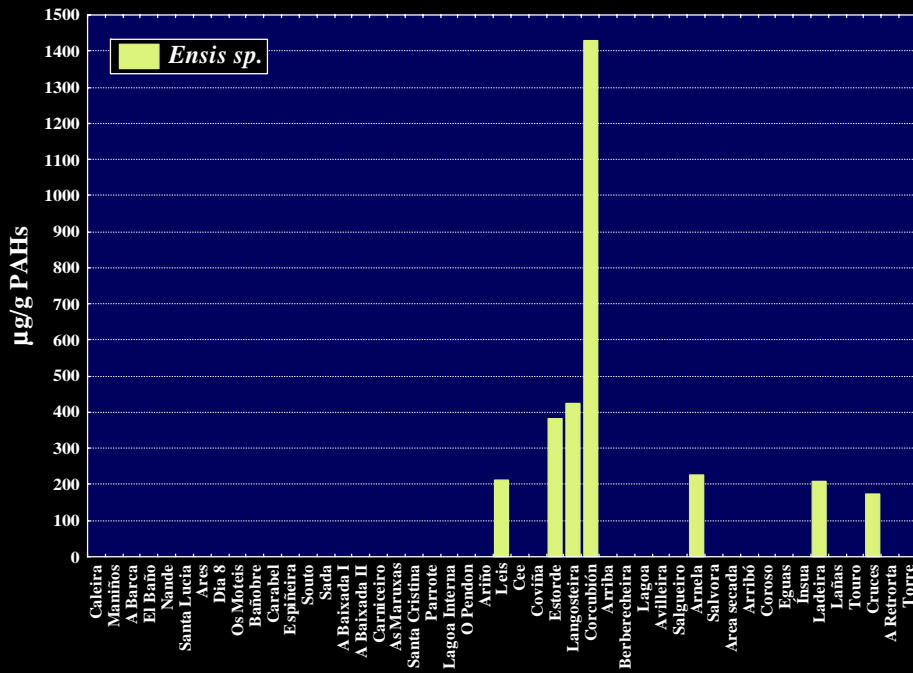
Spatial patterns of PAHs in bivalves of Galicia > 11



Spatial patterns of PAHs in bivalves of Galicia > 12

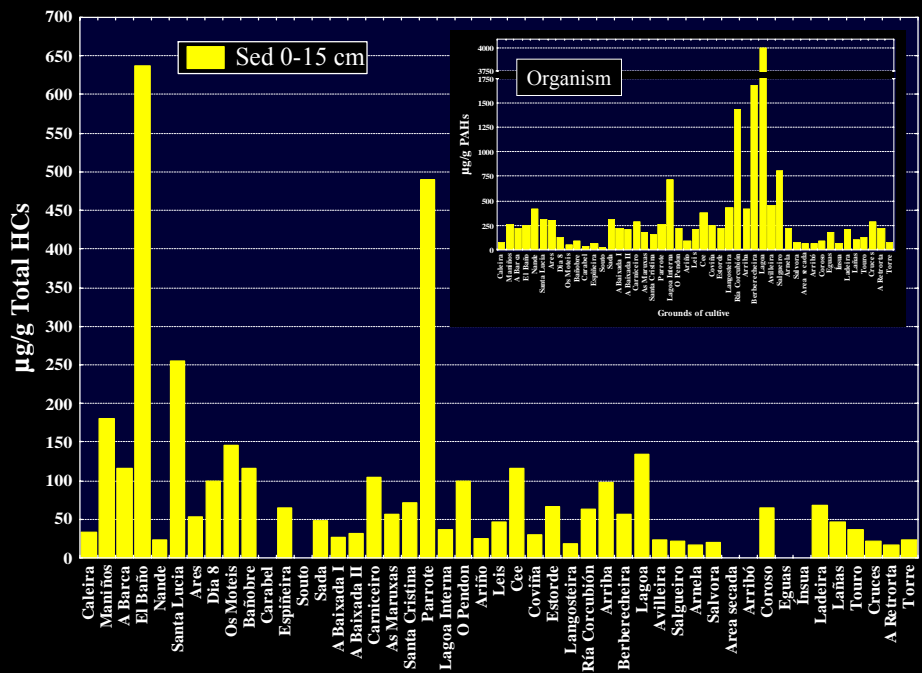


Spatial patterns of PAHs in bivalves of Galicia > 13



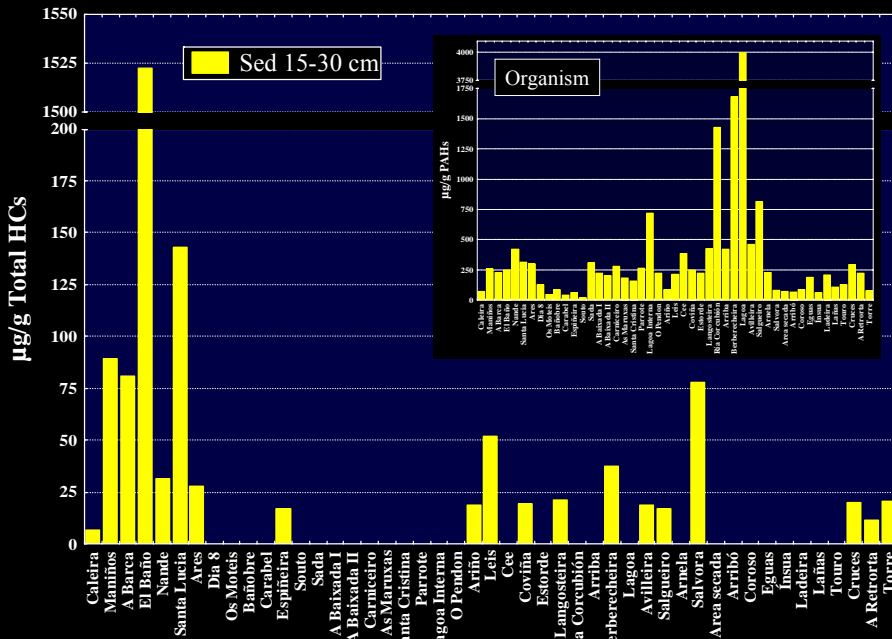
Total HCs levels in sediments

Spatial patterns of PAHs in bivalves of Galicia > 14



Total HCs levels in sediments

Spatial patterns of PAHs in bivalves of Galicia > 15



Spatial patterns of PAHs in bivalves of Galicia > 16

Correlations

	PAHs Organism	Sediment		Granulometry			Organic matter	
		0-15 cm	15-30 cm	>1000µ	500-1000µ	<500µ	0-15 cm	15-30cm
Sediment	0-15 cm	-0.01	1.00					
	15-30 cm	-0.04	0.87	1.00				
Granulometry	>1000µ	-0.11	0.10	0.08	1.00			
	500-1000µ	-0.18	-0.32	-0.25	0.30	1.00		
	<500µ	0.15	-0.01	-0.01	-0.97	-0.53	1.00	
Organic matter	0-15 cm	-0.30	0.36	0.26	-0.19	-0.53	0.30	1.00
	15-30 cm	-0.25	0.30	0.22	-0.07	-0.41	0.16	0.66

Marked correlations (red) are significant at p < 0.05

