

SMR 1550 - 13

WORKSHOP ON THE USE OF RECEPTOR BINDING ASSAY (RBA)

1 - 5 September 2003

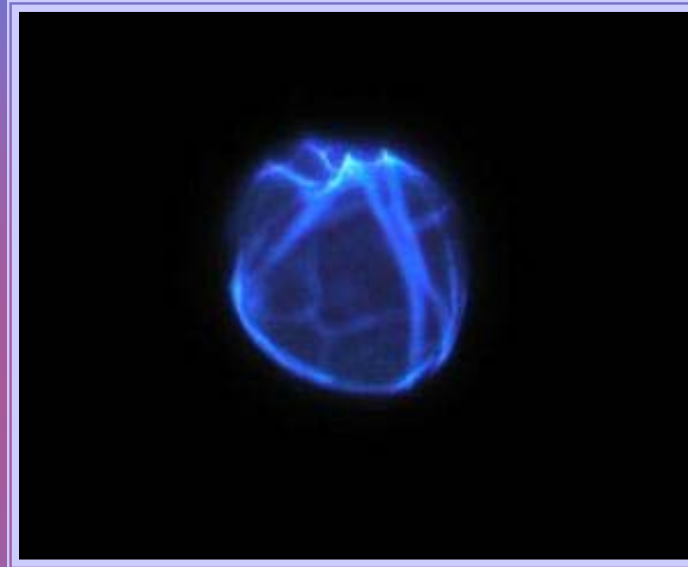
Co-organized by the International Atomic Energy Agency (I.A.E.A.)

HAB Species Distributions and Biototoxicity in the Gulf of Trieste

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These are preliminary lecture notes, intended only for distribution to participants.

HAB SPECIES DISTRIBUTIONS AND BIOTOXICITY IN THE GULF OF TRIESTE



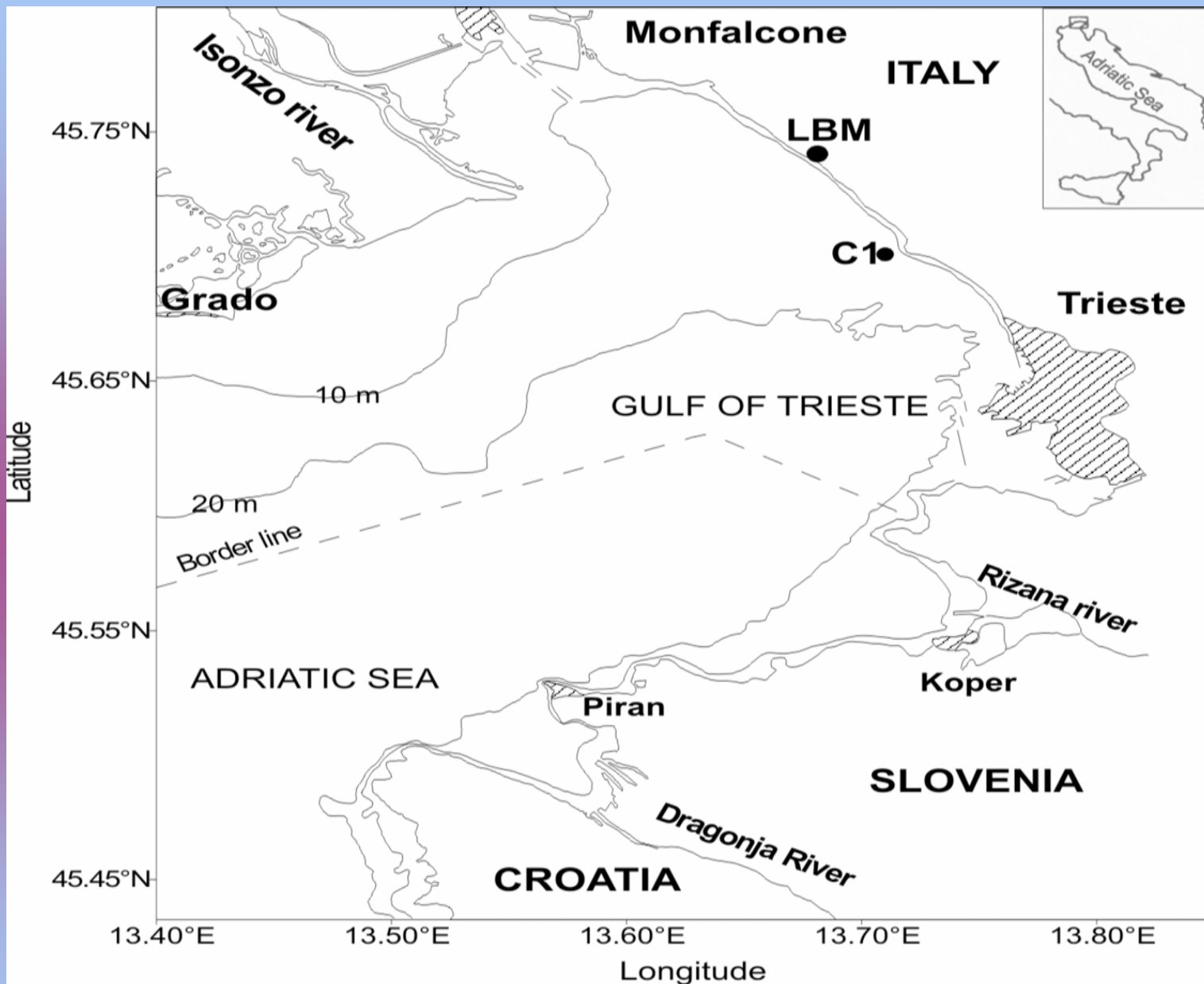
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Mussels Annual Production:
~6000 ton



Sampling site C1 at the border of the Marine Reserve of Miramare

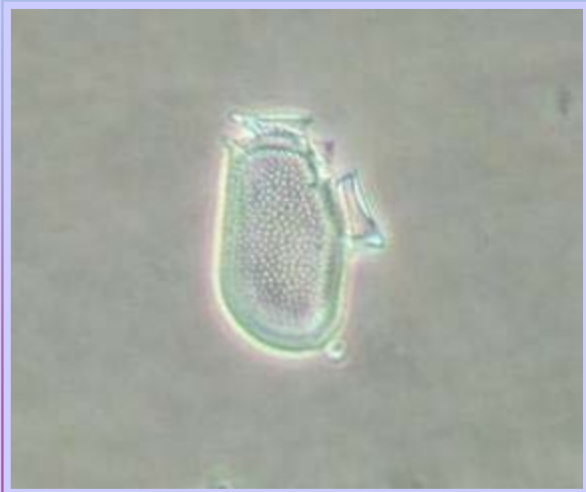
What are the responsible HAB species?

-Dinophysis species

-Pseudo-nitzschia species

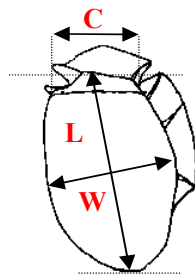
-Alexandrium species

Dinophysis species

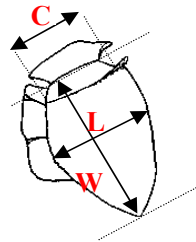


Dinophysis species

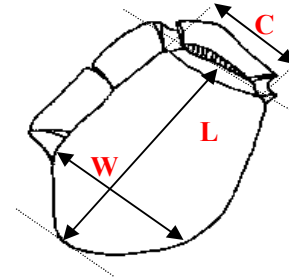
D. acuminata



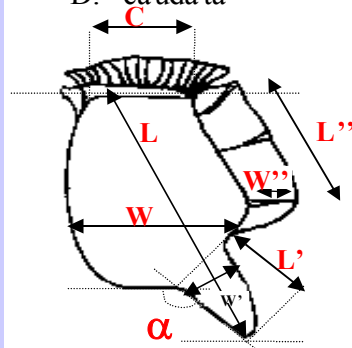
D. skagii



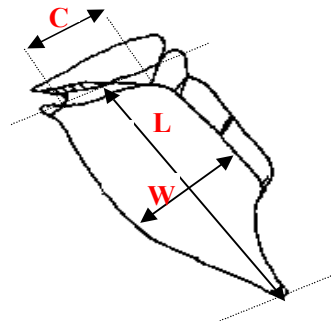
D. acuta



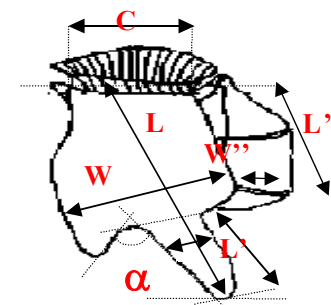
D. caudata



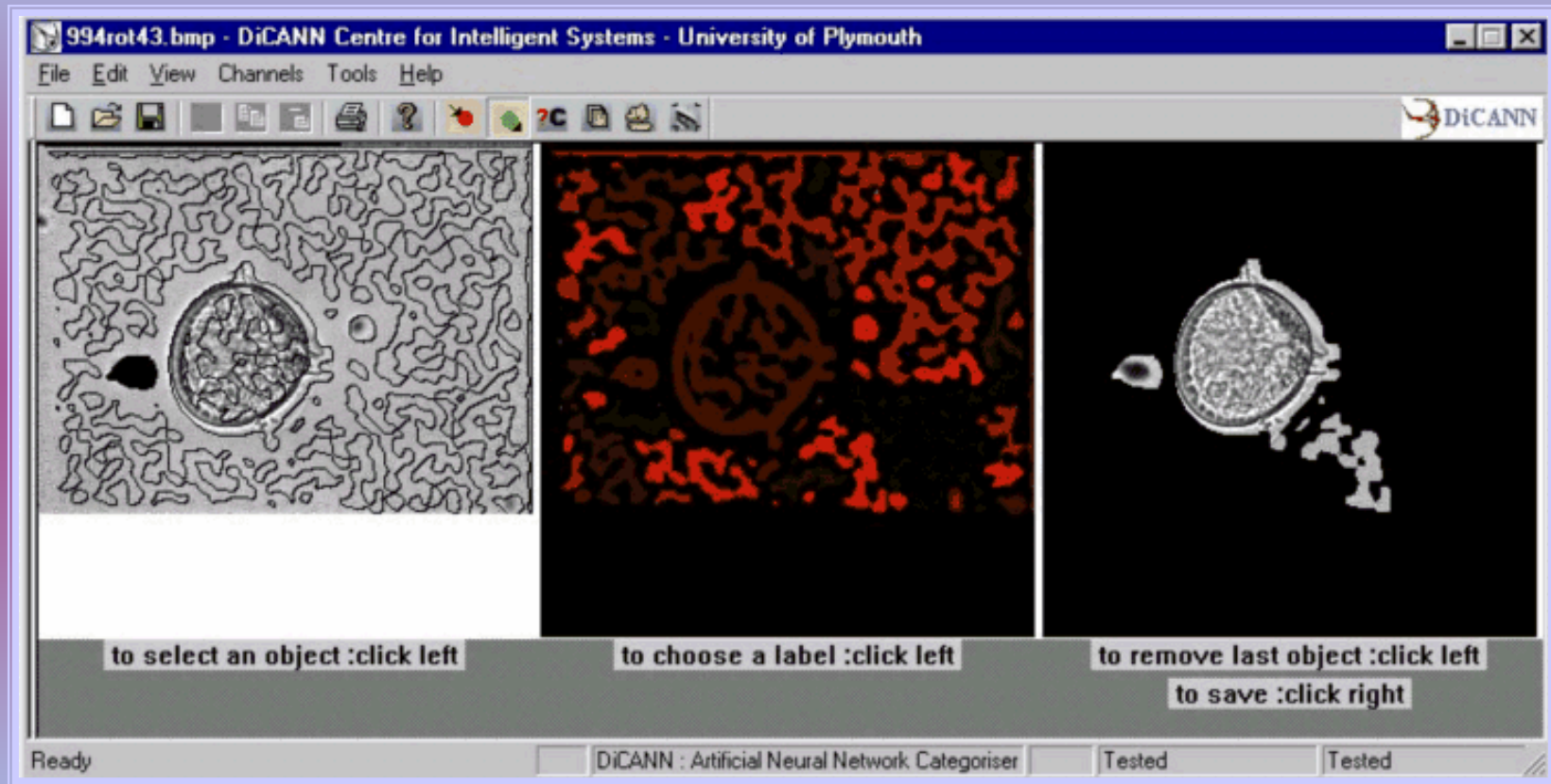
D. diegensis



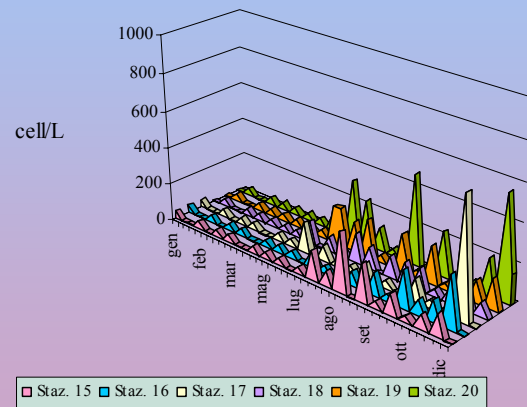
D. tripos



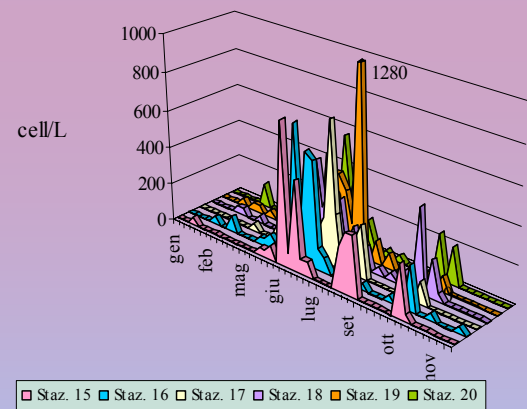
Images processing and storing for recognition



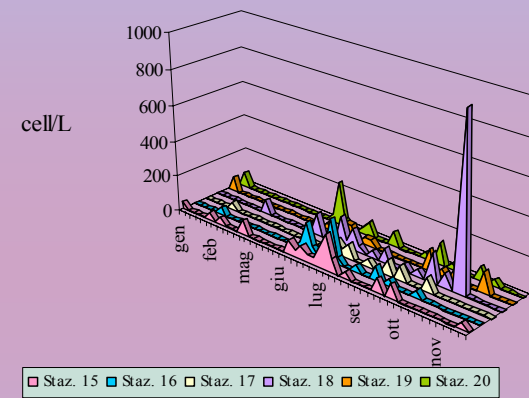
Dinophysis spp 2000



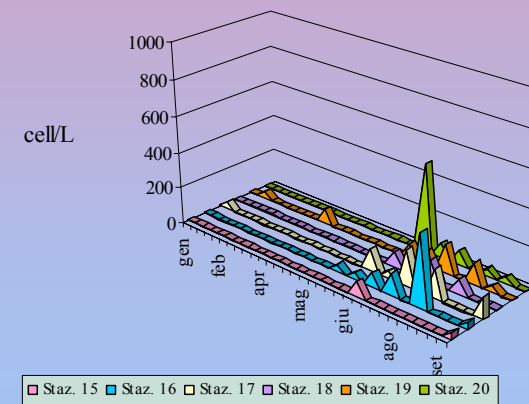
Dinophysis spp 2001



Dinophysis spp 2002



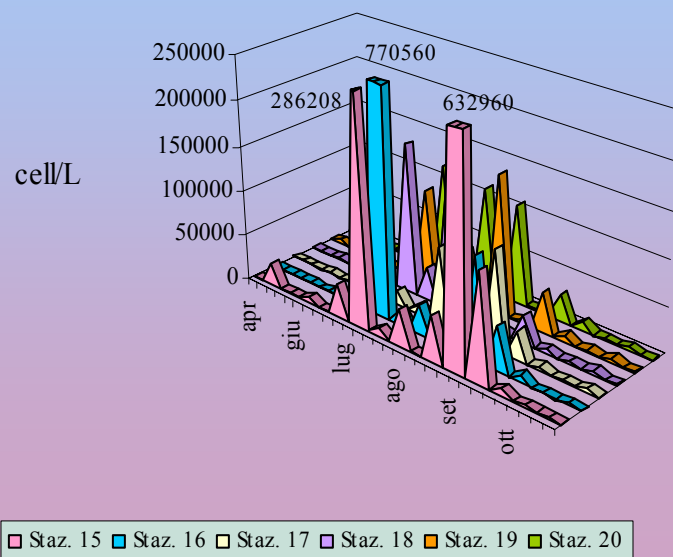
Dinophysis spp 2003



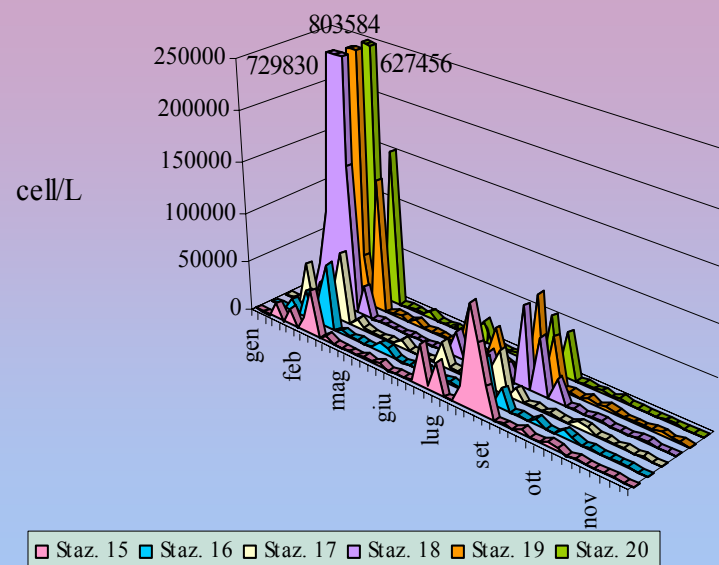
Pseudo-nitzschia species



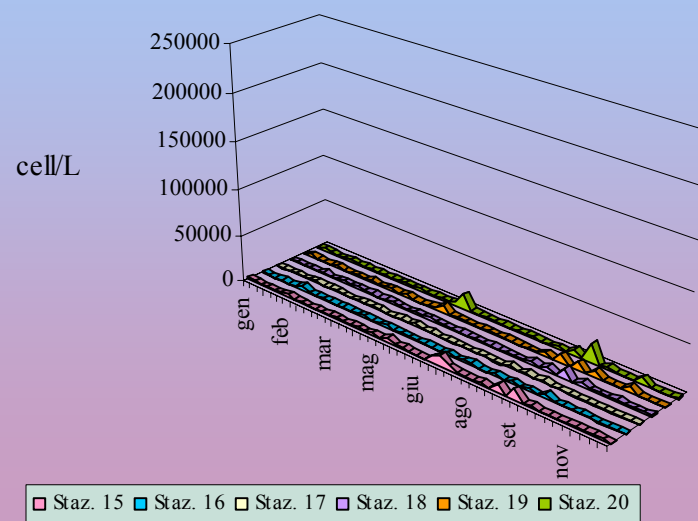
Pseudo-nitzschia spp 2000



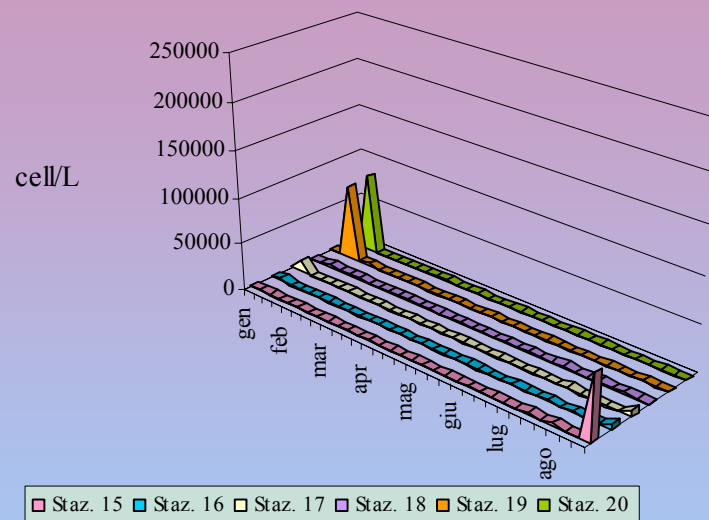
Pseudo-nitzschia spp 2001



Pseudo-nitzschia spp 2002



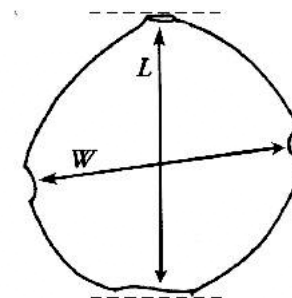
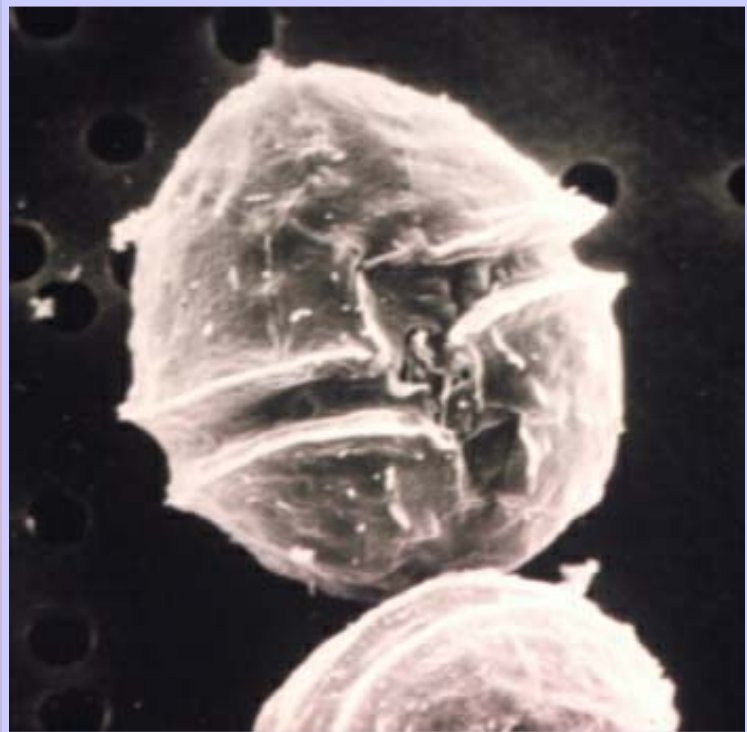
Pseudo-nitzschia spp 2003



Alexandrium species

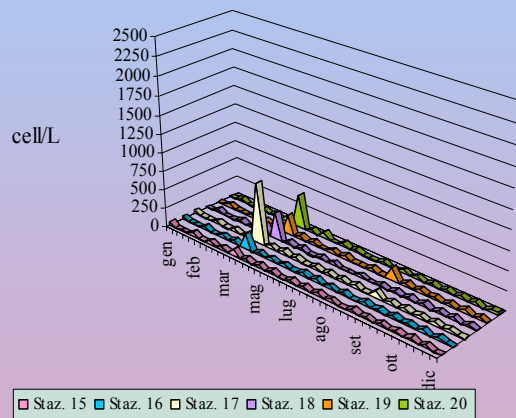


Alexandrium species

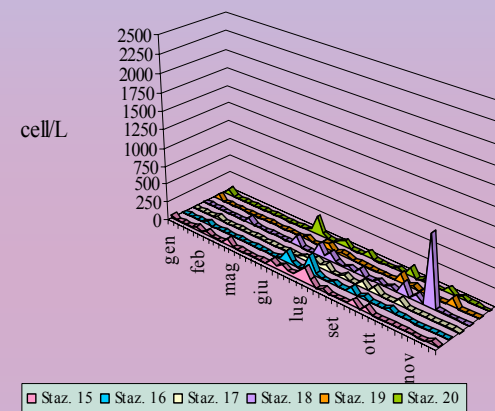


L: Maximal length
W: Maximal width

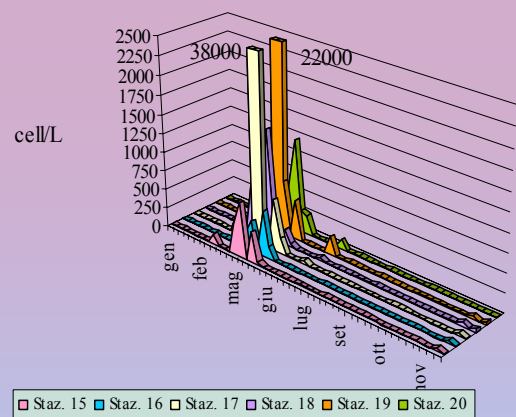
Alexandrium spp 2000



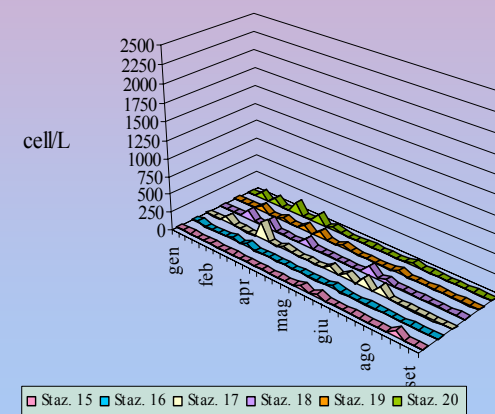
Alexandrium spp 2002



Alexandrium spp 2001



Alexandrium spp 2003



Seasonal presence of three *Alexandrium* spp determined by identification of cultures successfully isolated from the sampling sites.

	1996					1997											
site	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	
<i>Alexandrium minutum</i>																	
A0							x		x								
C1																	
D0									x								
LBM																	
<i>A. cf. tamarense</i>																	
A0							x	x	x							x	
C1						x	x										
D0								x									
LBM							x		x	x						x	
<i>A. pseudogonyaulax</i>																	
A0									x		x		x	x	x	x	
C1											x	x	x	x	x	x	
D0														x			
LBM											x						

(a) PST toxins of *Alexandrium minutum* strains isolated in May 1997 at site A0; (b) PST toxin content of 100g hepatopancreas of *Mytilus*

a)		Mol% PST toxins					
	total PST fMol/cell	GTX1	GTX2	GTX3	GTX4	B2	C2
AL8T	2,6	4,6	0,6	2,1	74,0	9,5	9,2
AL1V	7,8	5,7	0,6	3,5	90,3		
b)		total PST	%PST toxins				
site	date	µg/100g	GTX1	GTX2	GTX3	GTX4	
D0	April 1997	6,7	13,4		3	83,6	
A0	April 1997	38,5	48,8	11,9	6,2	33	
A0	May 1997	32,4	44,4	6,8	5,6	43,2	

ON GOING ACTIVITIES

- Application of automatic categorisation systems for DST and other HAB species
- Application of RBA assay and/or other rapid and accurate tests for biotoxins
- Selection of mussel sites unfavourable for HAB species
- Collaboration between researchers and public institutions in order to apply the best prevention protocols