



A cross discipline and cross border integrated project on coastal eutrophication offering information, education and science to stakeholders and the public at large in the Interreg 2 Seas Zone (Belgium, England, France and the Netherlands).

Why does the sea foam?









Have you ever come across this phenomenon on the beach?

1 - Yes

2 - No



What do you think about this foam?

Could it smell?

1 - Yes

2 - No



Does it look dirty?

1 - Yes

2 - No



Do you think it is beautiful?

1 - Yes

2 - No



Could it pollute the water we swim in?

1 - Yes

2 - No



Scum and foam, what is the difference?



The scum is deposited on the beach when the sea is rough

> ... but disappears immediately.

The foam can remain on the beach for several hours.



How can we explain this phenomenon? 7

Could this be a natural phenomenon?

1 - Yes

2 - No



Do you think it is caused by detergents?

1 - Yes

2 - No



Is this phenomenon due to climate change?

1 - Yes

2 - No



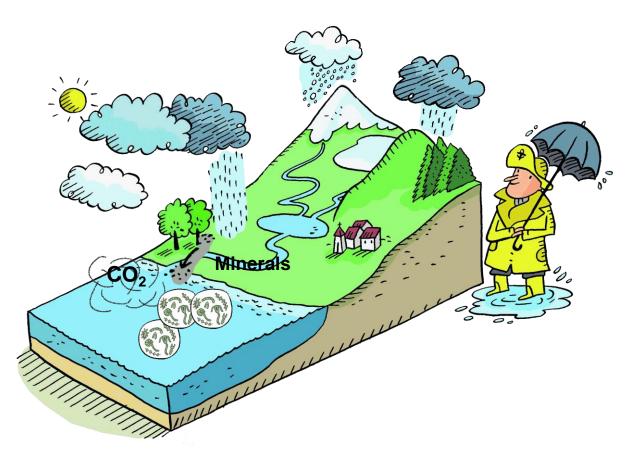
Is this phenomenon due to the overuse of fertilizers?

1 - Yes

2 - No



Minerals are naturally present in seawater (phosphorus, nitrogen and silica ...)

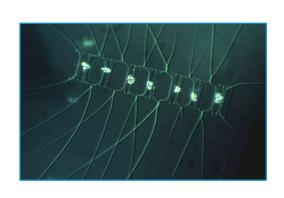


These nutrients are used by plants but also by microalgae (phytoplankton) which feed on them in order to grow and develop.

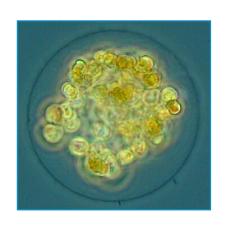
In spring, days are longer and there is more available light.



Coccolithophorid



Diatom



Phaeocystis

The phytoplankton starts blooming!

« Phaeocystis »

Proliferation of initially solitary free swimming cells of *Phaeocystis* when nutrients are abundant.



Cells congregate together to form large colonies.



Each colony is encased in a gelatinous membrane and secretes mucus to protect itself.



When colonies die, they fall apart (lysis).



When the sea is rough remnants of dying colonies are whipped up by the waves forming foam.



Is the *Phaeocystis* bloom or foam a phenomenon observed in:

1 - January?

2 - May?

3 - June ?



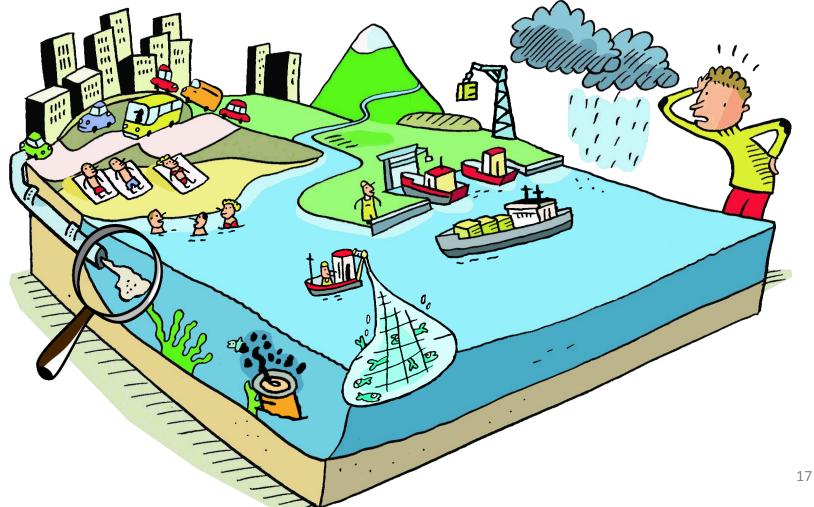
Scientists who have been observing the foam tell us that it is increasing in both time and space.

Human activities would amplify the phenomenon,

Which ones?

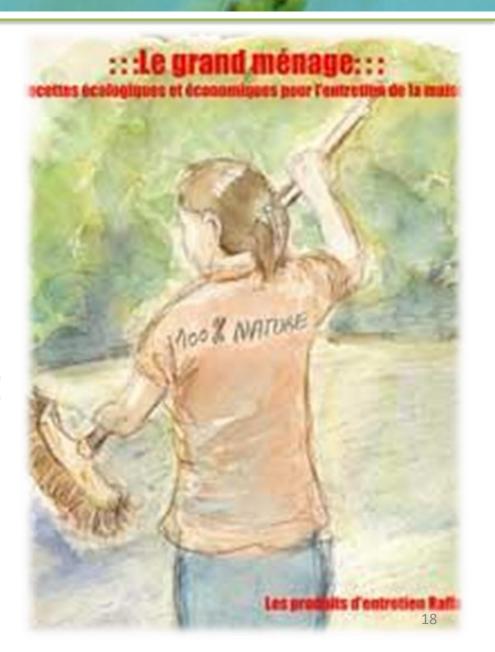
The hardest things to remove in wastewater treatment are

the products we use to clean

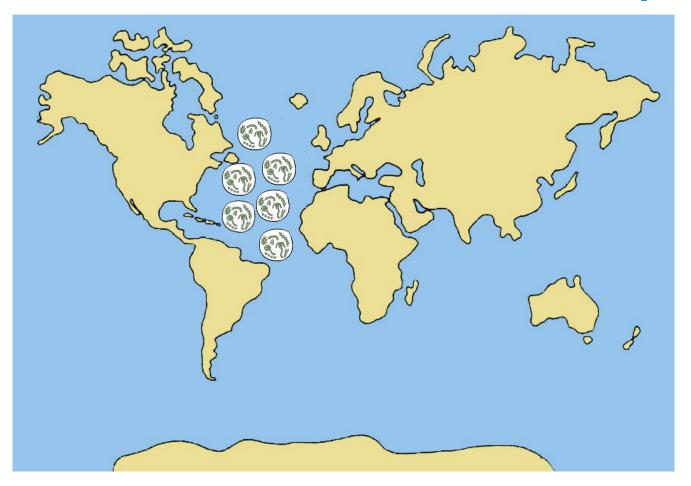


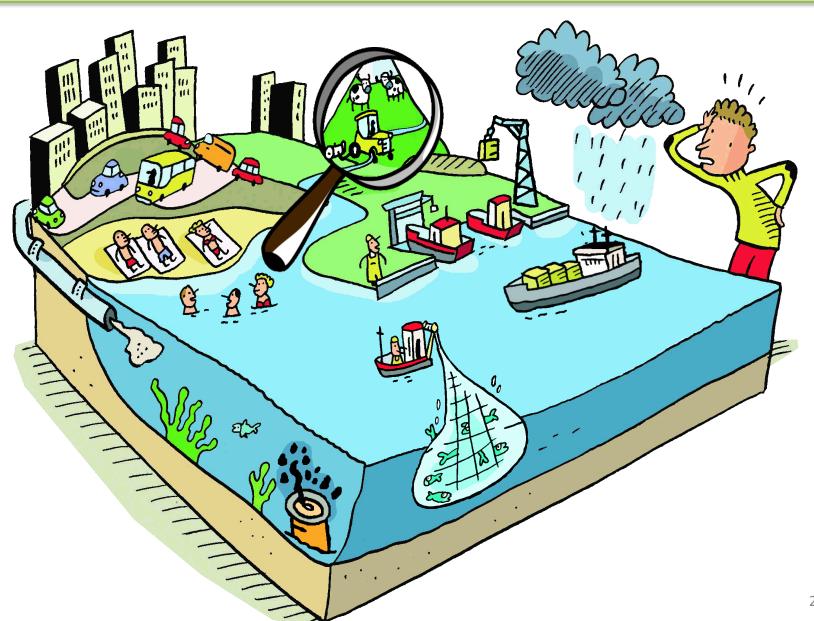
A lot of work is done by the development of phosphate-free detergents.

Let's continue this effort!



Scientists monitoring the state of the sea also measure an increase in the sea water temperature





Imbalance of nutrient discharge in the sea can cause these algal blooms

One of the solutions is to encourage environmentally friendly farming

by reducing the amount of fertilizers we use in agriculture and in gardens



Is the foam a problem?

1 - Yes

2 - No

Consequences of the *Phaeocystis* bloom

 The viscous *Phaeocystis* mucus accumulates in the gills of molluscs and fishes.



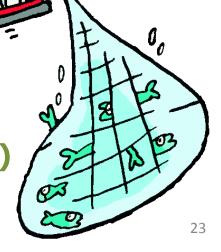
 The proliferation of the algae prevents the light from penetrating the water.





Economic activities are also impacted (tourism, recreation, fishing industry...)





With everything we have learned, what would be your priority action?

1 - Reduce my use of detergents.

2 - Eat products grown with less fertilizers.

3 - Reduce my consumption of fossil energies.

Remember:

All our activities on the land have an impact on the sea!









Invest in our future

Thank you for your participation

For further information: www.iseca.eu/en/

This activity was created by the educational team from Nausicaá, French National Sea Center.

www.nausicaa.fr

















