

INTERREG IVA 2 Seas Project : 'Information System on the Eutrophication of our Coastal Areas ' (ISECA)

D1.3: Public Perception on Eutrophication. Final report.

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Executive summary: An important activity in the ISECA project was to determine the perception on eutrophication by the public at large. The manifestation of the eutrophication phenomenon is mainly through the foam resulting from the decomposition of the *Phaeocystis* bloom. Within ISECA two surveys were organized, a face-to-face survey focusing on the public perception on eutrophication and a second online survey where the previous one was expanded with socio-economical and socio-professional criteria. Both surveys can give a clear view on the general perception and knowledge of eutrophication and reflect the need to communicate towards the public at large. This report outlines the most important results focusing on the perception and knowledge of general public.

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1. Introduction

1.1 Objectives

The general objective of ISECA was to contribute to the description of the eutrophication and to propose tools for monitoring and predicting it. The description comprises the scientific evaluation but also its perception. The way that the eutrophication is perceived and understood is important at different levels. The information on the environmental issues is mandated by the European Commission. A good understanding of the problem may result in changes in the practices in different domains: private or professional. The perception may be different from one country to another simply because the environmental culture or sensibility is not the same or simply because eutrophication events are less frequent. This is the general case for the North Sea and the English Channel.

1.2 Literature

At our best knowledge, the first initiative in France on the perception of eutrophication was reported by Lefebvre and Delpech (2004). Following the Ifremer mission, the survey was oriented towards the professional sectors: fisheries and conchyliculture. In this area, the major event is a spring bloom of *Phaeocystis*. The degradation of the bloom provokes the appearance of white foam brought by the tide on the beach.

Despite an important effort to inform on eutrophication using different media and an active collect through direct contact with professional only 30 responses were collected. But if we keep in mind the relative small number of professionals in the sector, two major points can be raised: (i) the origin of the bloom is in majority natural and attributed to the increase of the sea temperature early spring and (ii) the ecological impact is minor (Lefebvre and Delpech, 2004).

Another study focused on the impact of eutrophication on fishing activities in Belgian coastal waters (Rousseau *et al*, 2004). Most of the fishing grounds are located relatively close to the coast. Fishermen were familiar with the occurrence of algal blooms but generally did not perceive them as a major nuisance. Some of them acknowledge however that algal blooms impact their fishery activities by clogging of nets and consequently a more frequent net raising during bloom periods. This study suggests that *Phaeocystis* blooms are not perceived as a nuisance and would induce only very limited economic losses (Rousseau *et al.*, 2004).

1.3 Questionnaires

Within ISECA two surveys were organized, a face-to-face survey focusing on the public perception on eutrophication (**Annex 1**) and a second online survey extended with socio-economic and socio-professional questions (<http://www.iseca.eu/en/science-for-all/what-do-you-know-about-eutrophication>).

2. First questionnaire : general perception on eutrophication

2.1 Aim of the questionnaire

The most important questions are summarized below :

- Have people ever observed foam on the beach ?
- How do people feel and think about the foam ?

- Does the general public know the eutrophication phenomenon ?

This survey should provide insight in the need to communicate towards general public on the topic of eutrophication.

2.2 Elaboration

ADRINORD created a questionnaire towards the general public. It was reviewed by VLIZ during the summer of 2011 and then Nausicaá tested its relevancy towards general public. Nausicaá also provided an adapted version for the UK (**Annex 2**). Coastal eutrophication in the United Kingdom is not as spectacular as in France, Belgium and the Netherlands and the ecological manifestation is quite different. Indeed, the appearance of foam is less usual and that is why the questionnaire has been adapted focusing on the green algae phenomenon.

2.3 Diffusion

The ISECA project started at the beginning of July 2011. The summer period was a good opportunity to collect responses both in France and Belgium. Questionnaires were made available at the reception desks of tourism offices (along the “Côte d’Opale”). Many people were interested by the subject but no responses were collected in this way. This made it clear that collecting responses should be an active approach.

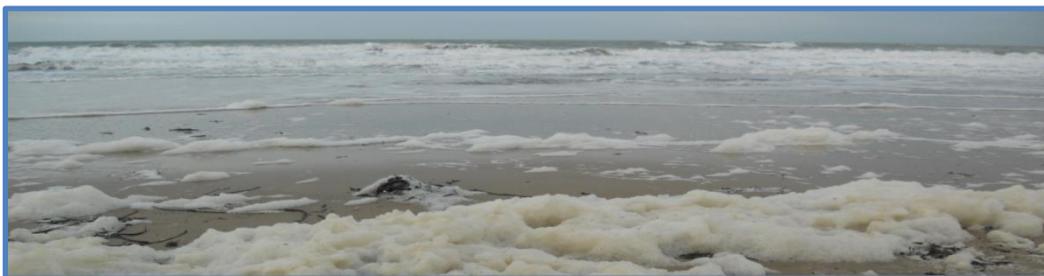
From August to December 2011 Nausicaá directly questioned 213 visitors of the aquarium. VLIZ questioned visitors of the Sealife’s aquarium through a face to face field survey (31st October and 01st November 2011).

This survey resulted in 300 personal answers, which was relevant enough to get an idea of the perception of a general public at large concerning eutrophication and water quality. In this phase of the project no detailed analysis was done because of the lack of time so this first questionnaire was mainly to identify the general public perception on the foam phenomenon.

2.4 Analysis and results

Data collection and analysis of the first survey was done by Elise Chiroutre from Nausicaá and presented during internal ISECA meetings in 2012. Results are in **annex 3**. A visual representation of the most important results was done by Carolien Knockaert (VLIZ) and presented on the ISECA final conference (30th June and 01st July) in Nausicaá, Boulogne-Sur-Mer (France).

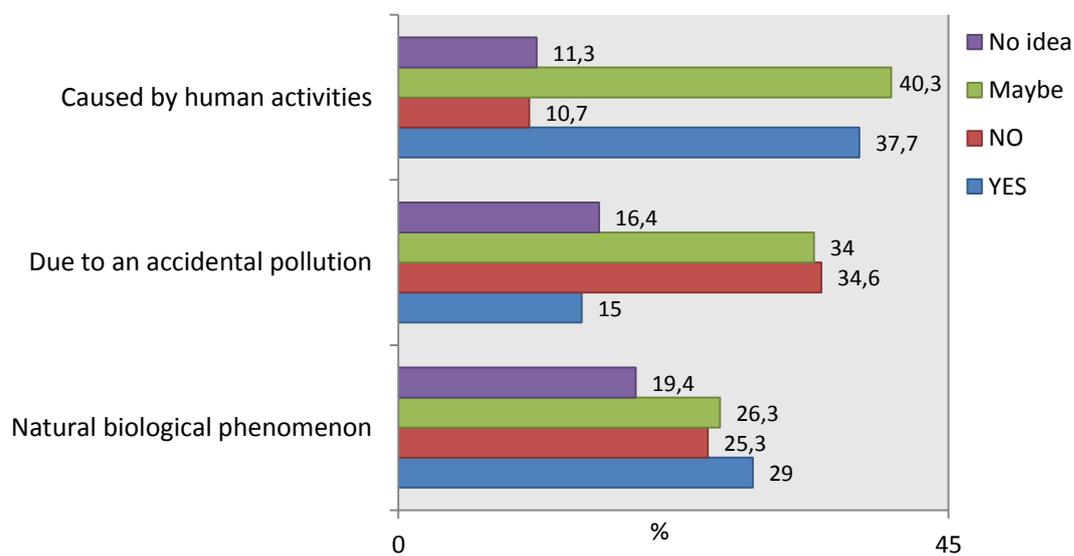
2.4.1 Foam on the beach





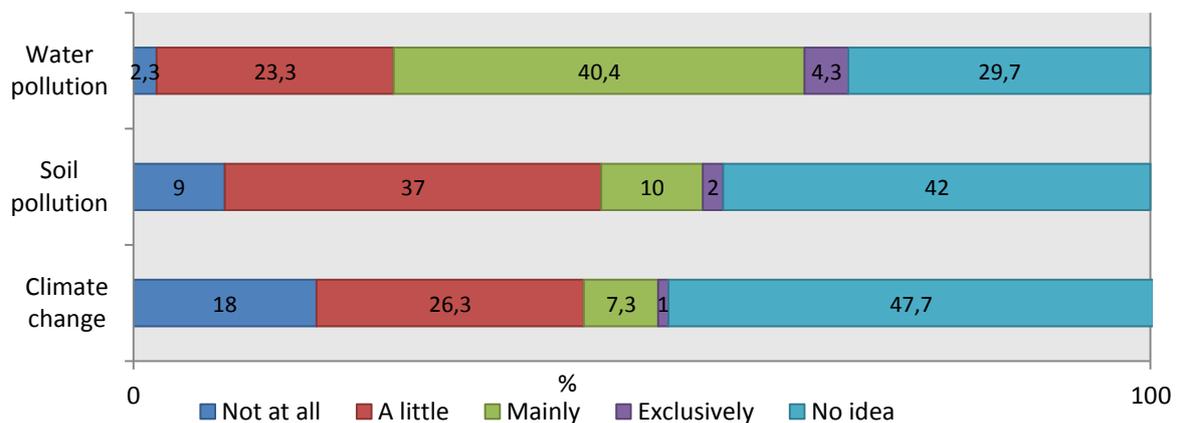
61 % of respondents had ever seen foam on the beach.

2.4.2 Cause of the foam



A little more than half (55.3 %) said or suspected it to be a natural biological phenomenon. 49 % thought it could be due to an accidental pollution (for example an oil pollution or an accident at sea). Finally, 78 % said or suspected the foam must be caused by human activities.

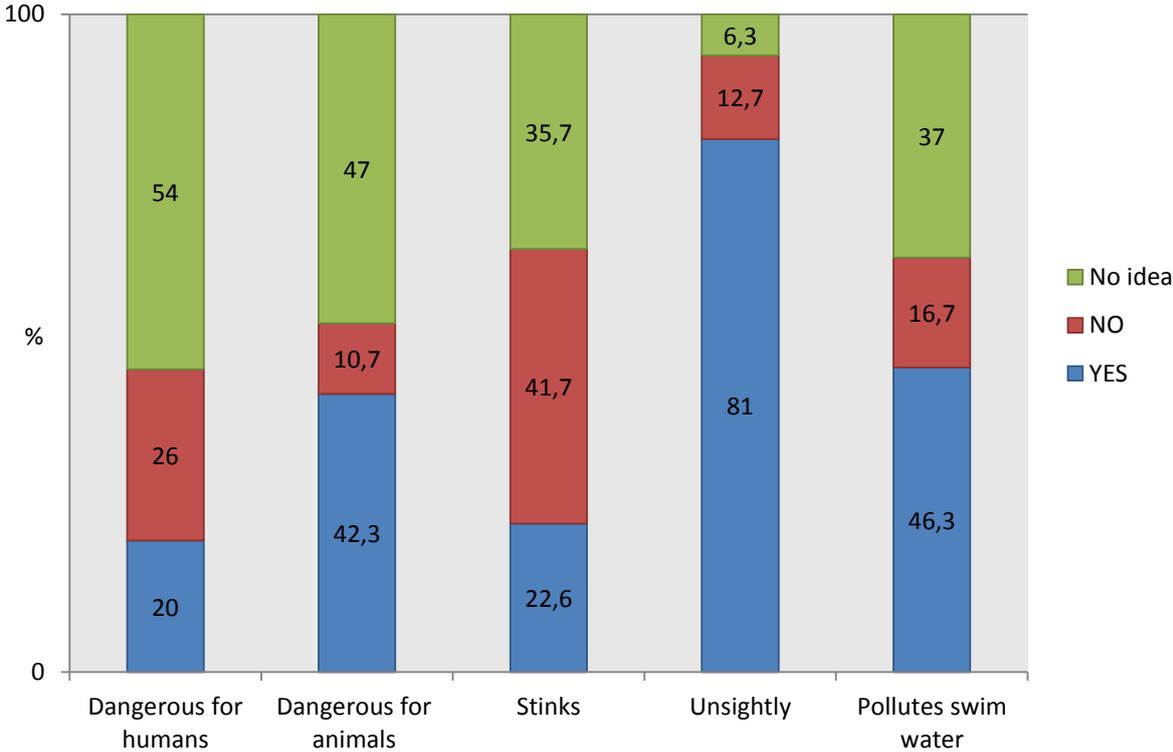
If the foam was caused by human activities, then it would be related to:



We could see that some people had no idea of the origin or cause of the foam phenomenon. Among those who had an idea, most of respondents thought that water pollution, soil pollution and climate change were all a little involved in causing the foam but none of these activities was exclusively responsible for the foam at the beach.

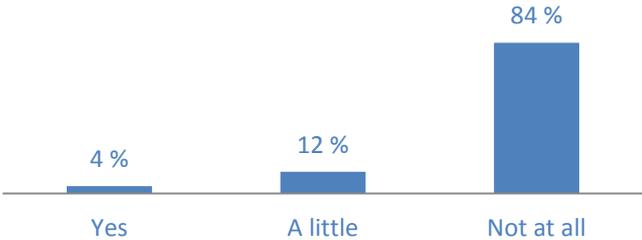
We can conclude that almost all respondents think the foam is caused by a combination of human activities but mainly due to water pollution.

2.4.3 Perception : How do people feel and think about the foam ?



Here again, we remark that many people did not know. Besides, 81 % said foam is unsightly to watch when walking at the beach, 46.3 % thought it pollutes swim water and 22.6 % of respondents said the foam stinks. This might indicate a potential impact on the tourism and the water sports sector. 42.3 % thought it is dangerous for animals that are in close contact with the water or living in the water and even 20 % said it is dangerous for humans.

2.4.4 Knowledge of eutrophication in our coastal areas



Only 4 % of respondents had already heard about eutrophication in our coastal areas but...
84 % of respondents didn't know at all the eutrophication phenomenon !

2.5 Conclusions

- 61 % of respondents had already seen foam on the beach
- 55.3 % supposed it is a natural phenomenon but amplified with human activities (78 %)
- 84.7 % was incommoded by the presence of foam (see **annex 4**)
- 54 % did not know it if is dangerous
- 84 % was not aware of the eutrophication phenomenon !

Communication in the ISECA project was necessary to inform people on the eutrophication phenomenon in general ! This was done by the design of an ISECA online web portal : the Web Information Server, short WIS and the creation of educational tools and communication tools to raise awareness on the topic of eutrophication. During the project several communication events were organized such as for example info days where several experts were invited to give a more scientific approach considering causes and consequences of eutrophication.

2.6 Further steps on the first questionnaire : link with the A1.4 activity and origin of the second questionnaire

CEMARE underlined that the results of the A1.3 questionnaire could be useful for the A1.4 part if only the socio-professional category of the respondents could be added. Then, CEMARE sent the questionnaire concerning the socio-economic study (Solent survey) to Nausicaá. The educational team found it very interesting because it went further than collecting the public's perception. Indeed, it also suggested ways of remediation and questioned the public about their willingness to get involved in this issue (for example, people are asked if they are ready to pay a tax to increase water quality). Thus, Nausicaá created another questionnaire mostly inspired from the CEMARE one inserting the social and professional identity of the respondents added with elements of the first questionnaire and the "Why does the sea foam?" activity created by Nausicaá (available on the website). Eventually three versions were designed (Belgium, France and the United Kingdom).

3. Second questionnaire : socio-economic perception on eutrophication

3.1 Aim of the questionnaire

In the socio-economic questionnaire the most important questions to ask our respondents were the following :

- Is the perception in the United Kingdom, Belgium, France and the Netherlands the same ?
- Are they willing to address or get involved in solving the eutrophication problem ?

Thanks to these questions we wanted to formulate an answer on following questions : Do we need to change the management and policy on eutrophication (and water quality in general) ? Is further communication towards general public necessary ?

3.2 Elaboration

Collaboration between CEMARE and Nausicaá was done to design a new questionnaire with integration of the socio-economic and socio-professional criteria. Next to this information a big part of the questionnaire was dedicated to the willingness to pay of respondents to improve the water quality and other ways of remediation such as encouraging organic agriculture. Because the resulting algae blooms may differ according the environment and type of algae the United Kingdom version was expanded with the occurrence of green algae on the beach (same as for the first survey).

3.3 Diffusion

ISECA partners decided to launch the questionnaire as an online survey for several reasons: it is an easy and extra way to promote the ISECA web portal, collecting responses in a face to face manner would take too long and would be a difficult task to process afterwards, it is also a way to collect responses from the United Kingdom which we lacked in the first questionnaire. Other advantages of an online questionnaire are that ISECA partners can invite people to access the questionnaire in the WIS if they do not do it by themselves, people can answer directly on the web and it only takes 5 minutes to complete the online survey.

VLIZ made the questionnaire online available via the free software of google docs (google.docs.com) which is an easy tool to use as well as for design as for statistical analysis afterwards. The new questionnaire was available online starting from the 17th April 2013 and was available in three languages :

- French
<http://www.iseca.eu/fr/2012-10-23-07-54-45/que-savez-vous-a-propos-de-l-eutrophisation>
- Dutch
<http://www.iseca.eu/nl/2012-09-20-09-08-30/wat-weet-ijj-over-eutrofiering>
- English
<http://www.iseca.eu/en/science-for-all/what-do-you-know-about-eutrophication>

The 17th of April we also launched an invitation email (questionnaire@iseca.eu) and this for the whole ISECA contact list (yellow and white pages). The homepage of the ISECA web portal contained a direct link to the questionnaire. Next to this several other channels were used to gain respondents such as Facebook pages (personal, VLIZ Simon Stevin, ECOVER, EMSEA, Nausicaá) and newsletters (ISECA, PDT, Nausicaá) but we also contacted several persons and commercial institutes by email. In parallel to this passive way we also put an invitation flyer in the project leaflets and made them available in Sea Life Blankenberge in summer 2013. During the VLIZ Young Marine Scientist Day the questionnaire was put in the map of the conference participants and also field surveys were carried out in non-scientific environments (sport clubs, quiz, private). Each time Nausicaá dealt with water quality and eutrophication (during educational workshops with schools and general public in house,

communication events such as Science Day, World Water Day, World Ocean Day, nature festival, ISECA info days, etc...) the questionnaire was promoted. VLIZ and Nausicaá did a final call via the VLIZINE (VLIZ e-newsletter), farmers and industrials (CCI) and via both institutes homepage. Invitations were also spread through the networks of both VLIZ and Nausicaá.

The questionnaire remained online until the 31th of May in order to collect enough responses and to have enough time to analyze it before the ISECA final conference. Note : the questionnaire is still online so participation is still possible.

3.4 Analysis

The whole analysis was done by Carolien Knockaert (VLIZ). Because an important activity in the ISECA project is to inform general public we specially focused on the results important for and to general public.

3.5 General profiles of respondents

590 respondents participated to the ISECA survey. 70 of these respondents did not belong to the Interreg 2Seas Region (see figure).



For the 2Seas Region we collected a total of 520 respondents:



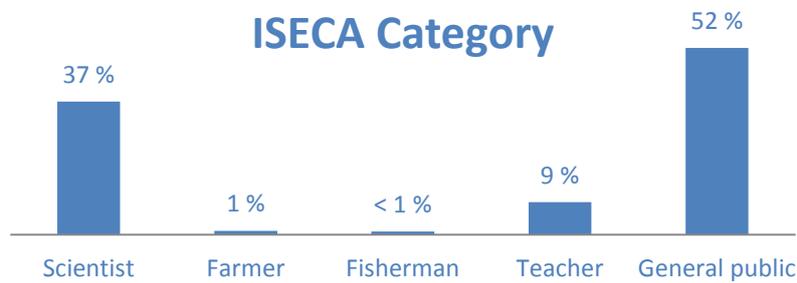
Sex : 52 % male, 48 % female, 57 % of respondents has children.

Age category : 46 % (26-40 yr.), 31 % (41-60 yr.), 12 % (<25 yr.) and 11 % (>60 yr.).

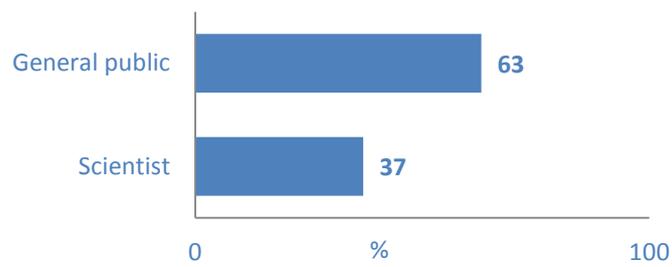
Professional category : Working class (80 %), retired (9 %), non-working class (11 %)

Annual households : Low (35 %), average (50 %), high (15 %)

Within ISECA five categories were created which may have a different knowledge and perception on eutrophication and which may differ in willingness to pay :

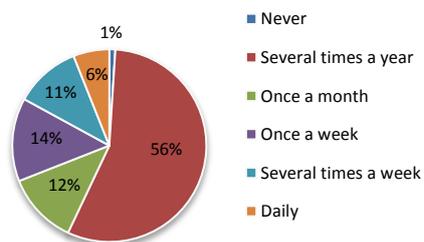


Unfortunately the number of fisherman, farmers and teachers who participated in the questionnaire was too low to be representative so it was decided to create two important categories :

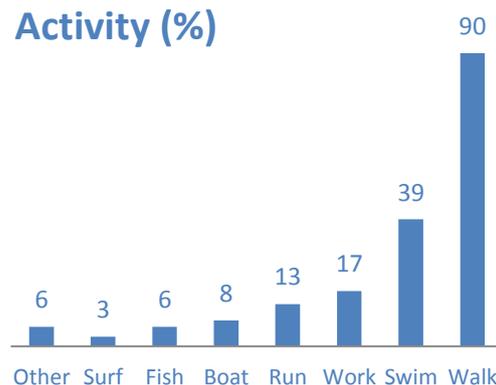


Another important issue which may have an impact on the willingness to pay is the frequency and activity of beach visits :

Frequency



Activity (%)

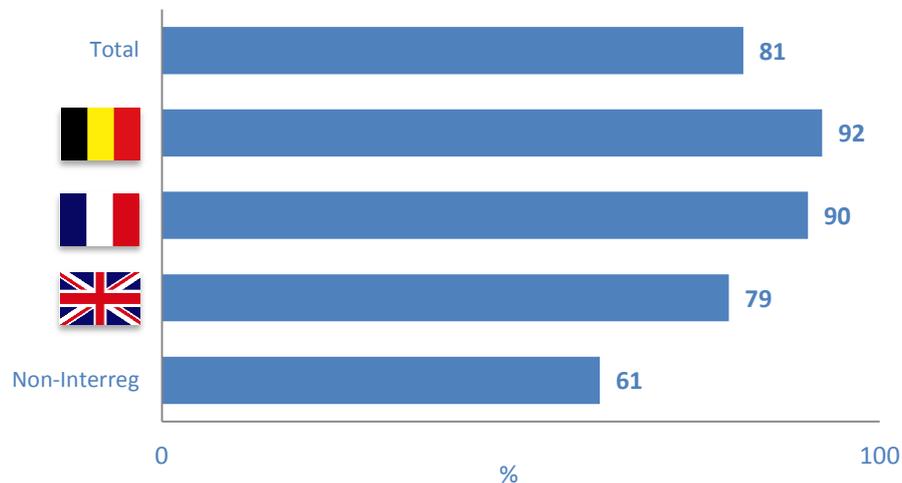


More than half of respondents (56 %) visited the beach several times a year. Almost all respondents (90 %) enjoyed the beach for a walk. 39 % loved to swim in the sea when visiting the beach and even 17 % worked on the beach. This could be explained by taking into account that a lot of responses were gained through the marine networks of ISECA partners and thus were marine scientists.

3.6 Results

3.6.1 Perception

3.6.1.1 Foam or green algae (UK) on the beach



81 % of all respondents had already observed foam at the beach but there was a difference when living inside or outside the 2Seas Zone. Only 61 % of people outside the 2Seas Zone had already observed foam and 87 % of habitants living in the 2Seas Zone had already been confronted with the foam. So the occurrence of foam seemed to be a bigger problem in the 2Seas Region. A second observation was the difference inside the 2Seas Region. In Belgium and France the percentage was almost the same (92 % and 90 %), meaning that almost all habitants from this two countries had observed the foam. The percentage is far lower for the United Kingdom (79%) meaning that the foam was not a pronounced phenomenon there.

ISECA was a project that focused on the 2Seas Region that is why we only counted for this respondents in the questions that follow. As mentioned before an important target group in the ISECA project was the public at large so results for the perception and knowledge of eutrophication of general public will be shown below.

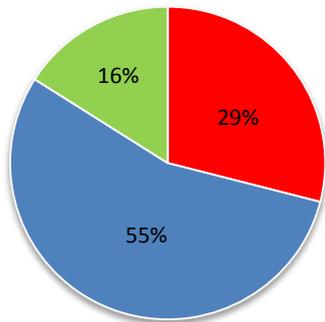
3.6.1.2 Cause of the foam: focus on general public

Country	%
Total	50
Belgium	50
France	48
United Kingdom	55

1 out of 2 or 50 % of general public did not know what is causing the foam on the beach. This was more or less the same trend for France, Belgium and the United Kingdom.

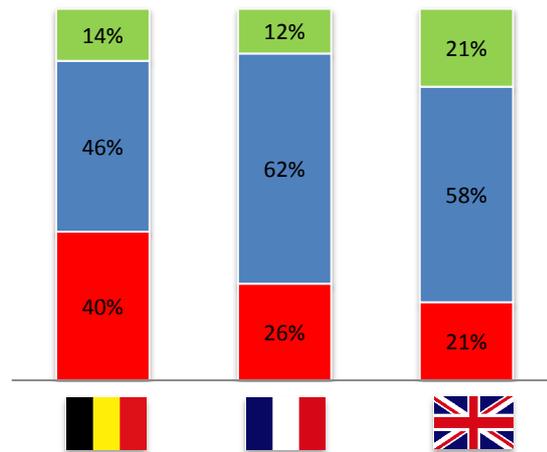
3.6.1.3 Knowledge of eutrophication within general public

Total general public



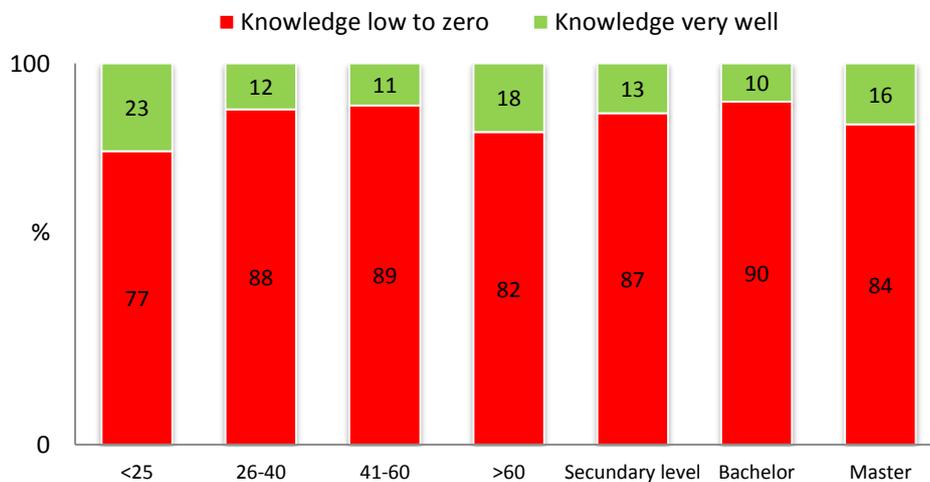
Per country

- Not at all
- A little
- Very well



84 % of general public in the 2Seas region was not or almost not aware of the eutrophication phenomenon! There was also a difference between the countries. The percentage of respondents that absolutely did not know the eutrophication phenomenon was highest in Belgium (40%) and lowest in the United Kingdom (21 %). On the other hand, the percentage that were very well informed on eutrophication was highest in the United Kingdom (21 %) and more or less the same in France (12 %) and Belgium (14 %).

3.6.1.4 Relationship between knowledge on eutrophication and age or education level



There seemed to be no pronounced difference in knowledge on eutrophication between age and educational level of general public. This means that communication on eutrophication stays an important task and general public needs to be further informed despite of their age and education level.

3.6.2 Willingness to pay

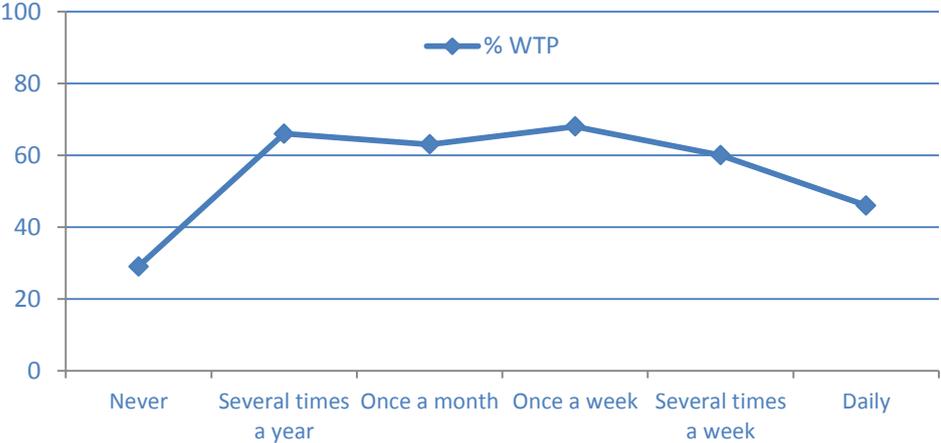
In the second part of the questionnaire we tried to identify the willingness to pay of all public (scientists and public at large) because this willingness to pay does not differ for scientists and general public.

**3.6.2.1 Would you accept an increase in the annual water bill to improve water quality?
What is the amount you are willing to pay (WTP)?**

Country	WTP (%)	20 € (in %)	35 € (in %)
Total	64	95	46
Belgium	67	95	45
France	55	94	40
United Kingdom	67	100	61

67 % of all respondents in the United Kingdom and Belgium was willing to pay, for France this percentage was 55 %. If people were willing to pay almost everyone was accepting to pay 20 € but when this amount raised to 35 € the percentage dropped below 50 % for France (40 %) and Belgium (45 %) but stayed quite high for the United Kingdom (61 %).

3.6.2.2 Willingness to pay and frequency of beach visits



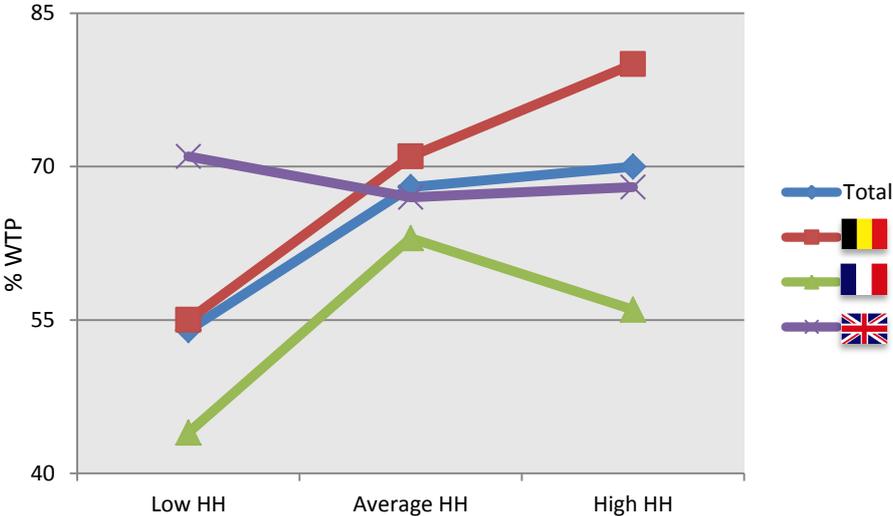
The WTP seemed not to be increasing with the number of visits to the beach, and seemed even a little lower for people that visit the beach more than once a week. This may indicate that these people are more familiar with the phenomenon (locals vs tourists) or can better estimate the real risks involved. It may also indicate that they care less about a few days of foam at the beach, as they know they will have plenty of days without foam.

3.6.2.3 Willingness to pay and activity on the beach or in the sea



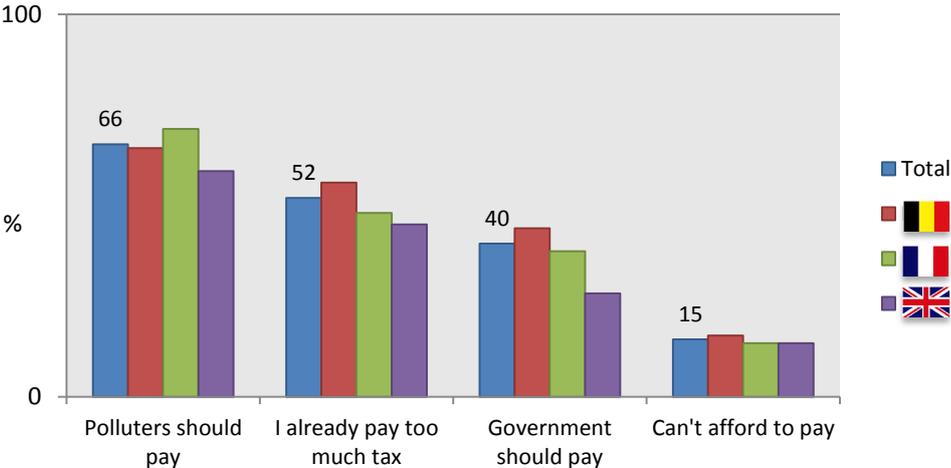
Respondents that performed beach activities with that involved more contact with the water (swimming, surfing), had a higher willingness to pay compared to respondents that walk along the beach.

3.6.2.4 Willingness to pay and household



If we looked to the different countries we saw for Belgium that there was a good linear relationship between willingness to pay and average household. For the United Kingdom we could not see this difference. Willingness to pay was not really dependent on English households. For France the situation was quite different. Here we saw that the willingness to pay was higher for people with an average household compared to those with a high household. On average, respondents with a higher income had a higher willingness to pay.

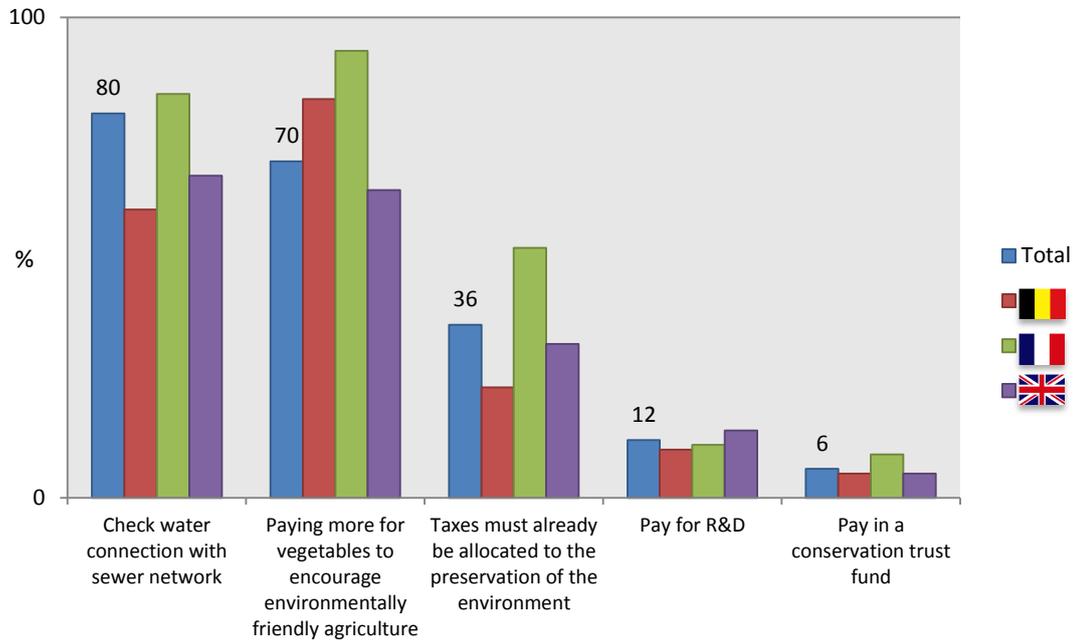
3.6.2.5 Main reasons people are not willing to pay



We saw that the percentages of the main reasons people were not willing to pay, which represent 36 % of all respondents, were the same for the United Kingdom, France and Belgium. In general, 66 % wanted polluters to pay. 52 % said they already paid too much tax.

According 40 % the Government should address this topic of paying. Only 15 % of people said they cannot afford to pay...

3.6.2.6 What other measures would people take when not willing to pay ?



Despite the fact that 36 % was not willing to pay for an increase in their water bill, 80 % would check their water connection to prevent that strongly polluted water is mixed with clean water and coming in our rivers. 70 % would pay more for their vegetables to encourage and promote environmentally friendly agriculture. An interesting fact was that only 12 % would pay for research and development. Here we saw almost the same percentages for the United Kingdom and Belgium but a different and higher percentage for France where people have chosen environmentally friendly agriculture as their most important investment improving water quality.

3.7 Conclusions of the second questionnaire

3.7.1 Foam and eutrophication

- 81 % of all respondents had already observed foam on the beach but it is more likely to appear in the 2Seas Region (87 % vs 61 % outside the 2seas Area)
- Only 50 % of general public had an idea on the cause of the foam
- 84 % of general public in the 2Seas region was not informed on the eutrophication of our coastal areas !

3.7.2 Willingness to pay

- 64 % of all respondents was willing to accept an increase in their water bill to prevent or limit eutrophication: 95 % was willing to pay 20 € / year, less than half (46 %) was willing to pay 35 € per year.

- The main reason respondents did not want to pay is that polluters should pay (66 %), they already pay too much tax (52 %) and the Government should pay (40 %) to obtain a better water quality.
- If people did not want to pay, they do wanted to take other measures to improve water quality: check their sewer (80 %) and pay for environmentally friendly agriculture, however... only 12 % would pay for R&D.

4 General conclusions

The manifestation of the eutrophication in the Belgium and French coast line is through the occurrence of the *Phaeocystis* bloom and the resulting foam along the beach. This environmental problem is not as critical that for example the decomposition of the green algae on the beaches of the French Brittany or the occurrences of toxic algae blooms or a severe increase of the fish mortality. These events are deeply reported by the media.

The occurrence of the *Phaeocystis* bloom is seasonal (mainly in May) and very well known of the coastal populations, mainly in Belgium. Therefore, the majority attributes that to a natural phenomenon. Implicitly, the fact to collect their opinion results in a suspicion on anthropogenic causes. One key conclusion of this survey was the interest of the people to be informed on this environmental issue and the fact that people did want to pay to improve water quality. In addition to know what is the perception of the public at large, the first questionnaire was the basis of an educative tool and the results of the study were of a great interest for orienting the communication activities.

5 References

- Lefebvre A. and Delpech (2004). Le bloom de *Phaeocystis* en Manche orientale Nuisances socio-économiques et / ou écologiques ? Publication IFREMER, septembre 2004 - R.INT.DEL/ BL / RST / 04 / 11.
- Rousseau, V.; Breton, E.; De Wachter, B.; Beji, A.; Deconinck, M.; Huijgh, J.; Bolsens, T.; Leroy, D.; Jans, S.; Lancelot, C. (2004). Identification of Belgian maritime zones affected by eutrophication (IZEUT): towards the establishment of ecological criteria for the implementation of the OSPAR Common Procedure to combat eutrophication. *Scientific Support Plan for a Sustainable Development Policy (SPSD I): Programme "Sustainable Management of the North Sea" = Plan voor wetenschappelijke ondersteuning van een beleid gericht op duurzame ontwikkeling (PODO I): Programma "Duurzaam beheer van de Noordzee".* Federaal Wetenschapsbeleid = Belgian Science Policy = Politique Scientifique Fédérale: Brussel. 78 pp.

« The ISECA consortium thanks everyone that participated in the survey »



ENQUETE d'intérêt public :

Que pensez-vous de la présence de mousses sur nos rivages ?



Nom de l'Enquêteur :

Date de l'enquête (jj/mm/2011) :/...../2011

Lieu de l'enquête :

Région : Nord-Pas de Calais

Modalité de l'enquête : face à face téléphone internet à disposition dans Office de Tourisme

1) Personne interrogée : Sexe : H / F âge : ans nationalité : secteur professionnel :

2) Fréquentez-vous les plages du Nord-Pas de Calais ?

régulièrement occasionnellement exceptionnellement

3a) Dans quel cadre ?

Pour vous promener : oui non

Pour vos vacances : oui non

Pour vous soigner (Thalasso...) : oui non

Pour travailler : oui non Quel métier ?

3 b) Allez-vous dans l'eau ? (sports nautiques / baignade/ pêche à pied) : oui non

4) La présence de mousses en bordure de rivage vous est-elle familière ? oui non

Si oui quand l'avez-vous observée ?

5) Regardez les photos ci jointes. **Selon vous** ce phénomène est-il :

Un phénomène naturel biologique ? oui non peut être aucune idée

Un phénomène lié à une pollution accidentelle ? oui non peut être aucune idée

Un phénomène causé par les activités humaines ? oui non peut être aucune idée

- Qui résulterait plutôt de la pollution des sols (pesticides, engrais par exemple)
un peu surtout exclusivement pas du tout ne sais pas

- Qui résulterait plutôt de la pollution des eaux ? (détergents industriels ou domestiques)
un peu surtout exclusivement pas du tout ne sais pas

- Qui résulterait plutôt du changement climatique ? (variation des températures)
un peu surtout exclusivement pas du tout ne sais pas

6) Cette présence de mousses en bordure de rivage vous incommode-t-elle ?

un peu assez beaucoup pas du tout seulement si.....

7) Pour vous la présence de mousses sur la plage et/ou sur l'eau :

Cela sent mauvais oui non ne sais pas

Cela salit oui non ne sais pas

Cela ne fait pas joli oui non ne sais pas

Cela pollue l'eau de baignade oui non ne sais pas

- C est potentiellement dangereux

Pour l'homme ? oui non ne sais pas

Pour l'animal (chien, mouette, poisson, mollusque...)? oui non ne sais pas

8) Dans quelle proportion ce phénomène gênerait il vos activités (récréative, sportive ou économique) sur le littoral ?

Présence de mousses jusqu'à : Plante du pied Cheville Genou Hanche Haut du corps

Etendue de mousses sur l'eau : taches éparses quelques mètres centaines de mètres

9) Dans quelle proportion ce phénomène vous amènerait il à ne plus fréquenter cette plage ?

Présence de mousses jusqu'à : Plante du pied Cheville Genou Hanche Haut du corps

Etendue de mousses sur l'eau : taches éparses quelques mètres centaines de mètres

10) Connaissez-vous le phénomène d'eutrophisation des eaux côtières ? un peu bien très bien pas du tout



Source: www.chtipecheur.com Lieu: Boulonnais 05/2006



Source: www.chtipecheur.com Lieu: Wimereux 04/2002



Source : www.platier.free.fr/ Lieu : Côte d'Opale



Source : Journée de l'Agence de l'eau du 24 nov. 2009

SURVEY of public interest:
 what do you think about the presence of foam or green algae
 on your seashores?



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RESULTS FROM THE QUESTIONNAIRE 1:
What do you think about the presence of foam on your seashores? (public perception on eutrophication)

300 persons answered to the survey in 2011 (August to December). There were visiting the sea centers Sealife (Belgium) and Nausicaa (France). Here are the results:

1) Respondents: 213 respondents from Nausicaa, 87 from Sealife aquarium

Sex: 50% women et 50% men **Age:** from 17 to 73 y.o
Nationality: Belgian and French in majority **professional sector:** all categories

2) Do you frequent the beach...?

Regularly: 83 pax, that to say **27.7%**
Occasionally: 134 pax, **44.6%**
Exceptionally: 83 pax, **27.7%**

3) a) What for ? (Several answers possible)

	YES	NO
For a walk :	263 pax, 87.6%	37 pax, 12.4%
For holidays :	190 pax, 63.3%	110 pax, 36.7%
For curing (Thalasso...) :	8 pax, 2.6%	292 pax, 97.4%
To work :	18 pax, 6%	282 pax, 94%

b) Do you engage yourself in the water? (water sports/swimming/fishing on foot) :

yes : 195 pax, **65%**
no : 105 pax, **35%**

4) Have you ever seen large spread of foam on the seashore?

yes : 183 pax, **61%**
no : 117 pax, **39%**

5) Have a look at the pictures. To you, is this phenomenon...? :

	YES	NO	MAYBE	NO IDEA
a natural biological phenomenon ?	87 pax, 29%	76 pax, 25.3%	79 pax, 26.3%	58 pax, 19.4%
a phenomenon linked to an accidental pollution ?	45 pax, 15%	104 pax, 34.6%	102 pax, 34%	49 pax, 16.4%
a phenomenon caused by human activities ?	113pax, 37.7%	32 pax, 10.7%	121 pax, 40.3%	34 pax, 11.3%
... that would result from soil pollution (pesticides, fertilizers for instance)	A little	mainly	exclusively	Not at all
	111 pax, 37%	30 pax, 10%	6 pax, 2%	27 pax, 9%
...from water pollution? (industrial or domestic detergents)	70 pax, 23.3%	121 pax, 40.4%	13 pax, 4.3%	7 pax, 2.3%
... from climate change?	79 pax, 26.3%	22 pax, 7.3%	3 pax, 1%	54 pax, 18%
				143pax, 47.7%

RESULTS FROM THE QUESTIONNAIRE 1:
What do you think about the presence of foam on your
seashores? (public perception on eutrophication)

6) Does the presence of foam incommode you?

A little : 99 pax, **33 %**
rather : 96 pax, **32 %**
a lot : 59 pax, **19.7%**
not at all : 46 pax, **15.3%**

7) To you :

	YES	NO	NO IDEA
It stinks	68 pax, 22.6%	125 pax, 41.7%	107 pax, 35.7%
It is dirty	120 pax, 40%	108 pax, 36%	72 pax, 24%
It is unsightly	243 pax, 81%	38 pax, 12.7%	19 pax, 6.3%
It pollutes swimwater	139pax, 46.3%	50 pax, 16.7%	111 pax, 37%
It is potentially dangerous for :			
- Man ?	60 pax, 20%	78 pax, 26%	162 pax, 54%
- animals (dogs, seagulls, molluscs...)?	127pax, 42.3%	32 pax, 10.7%	141 pax, 47%

8) In what degree would this phenomenon be an obstacle for your activities (entertaining, sportive or economic) on the beach? Presence of foam until the:

foot: 111 pax, **37%**
ankle : 97 pax, **32.4%**
knee: 64 pax, **21.3%**
tight: 19 pax, **6.3%**
top of the body : 9 pax, **3%**

Spread of foam on the beach:

Spared spots: 91 pax, **30.3%**
A few meters: 159 pax, **53%**
A hundred of meters: 50 pax, **16.7%**

9) In what degree would this phenomenon prevent you from coming back on the beach?

Presence of foam until the:

foot : 64 pax, **21.3%**
ankle : 69 pax, **23%**
knee : 101 pax, **33.7%**
tight : 40 pax, **13.3%**
top of the body : 26 pax, **8.7%**

Spread of foam on the beach:

spared spots: 49 pax, **16.3%**
A few meters: 134 pax, **44.7%**
A hundred of meters: 117 pax, **39%**

10) Do you know the phenomenon of eutrophication on coastal areas?

A little: 35 pax, **11.7%**
well: 11 pax, **3.6%**
very well: 2 pax, **0.7%**
not at all: 252 pax, **84%**