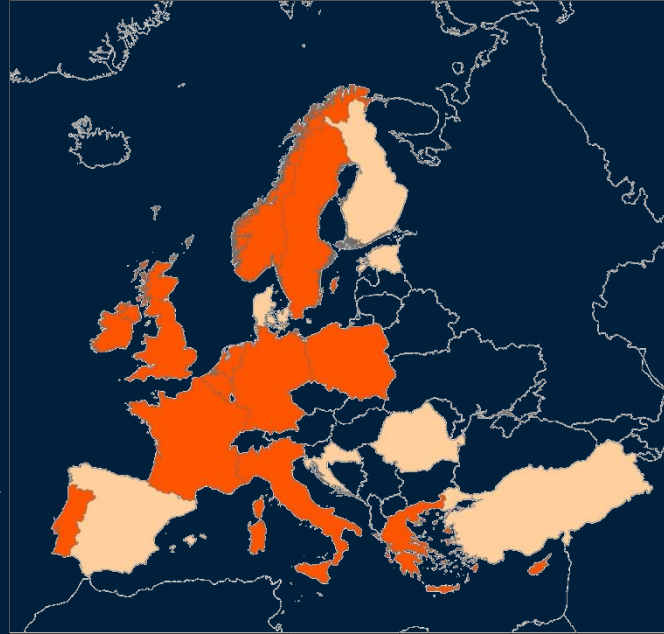


# Sharing Marine Science with the Public



# European Marine Board Communications Panel (EMBCP)

*...an open-ended  
operational  
pan-European network  
of science  
communicators  
focused on marine  
science  
communication,  
education and  
outreach, and  
facilitated by the  
European Marine  
Board Secretariat.*



12 countries  
16 representatives





# European Marine Board Communications Panel (EMBCP)

## Main objectives & activities

- Mutually assist its members in promoting and communicating marine science across Europe and **exchanging ideas on events, communication methods and best practices = shared with many others...**
- Be (re)present(ed) at major **European (marine) science events**
- Communicate **MB-products & activities** at the **national level**
- Popularize marine science by advocating more **Ocean Literacy**



# European seas - connecting people

## Portugal & Flanders?



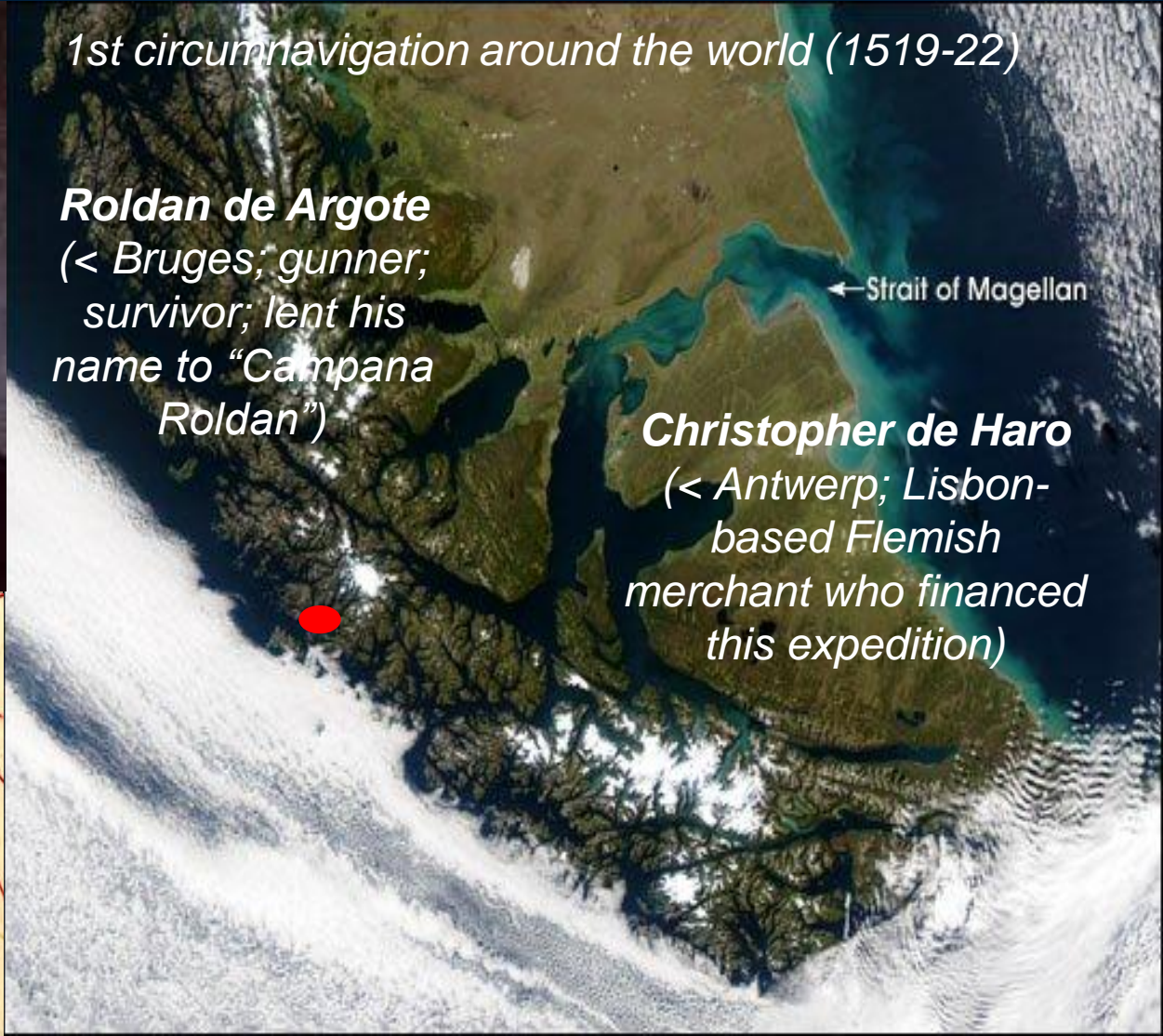
**Ferdinand Magellan**



*1st circumnavigation around the world (1519-22)*

**Roldan de Argote**  
(*< Bruges; gunner;  
survivor; lent his  
name to "Campana  
Roldan"*)

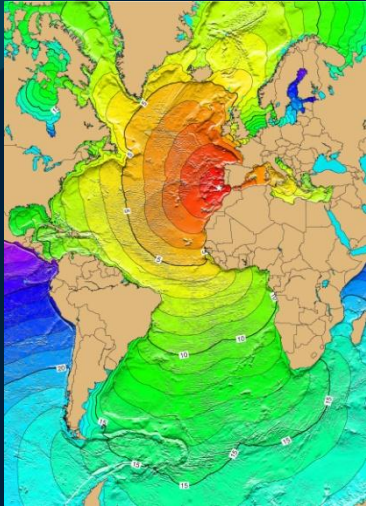
**Christopher de Haro**  
(*< Antwerp; Lisbon-  
based Flemish  
merchant who financed  
this expedition*)





# European seas - connecting people

## Portugal & Flanders?



## Lisbon tsunami (1755)

***Théodore-Augustin Mann*** (1735-1809)

= “Flemish” pioneer in marine sciences

\* “European avant-la-lettre” [°**England**; **Paris**; **Barcelona** (*military engineer*); **Flanders** (*abbot/self-teaching + advisor* **British** government & count of Brabant & **Austrian** empress Maria Theresa); **Prague**]

\* “sustainable fisheries” + **mentions** ***Lisbon tsunami as one possible cause of the impoverished fish-stocks...***



# **SHaring OCean Knowledge**

**- therapy**

*A public that is more  
informed/aware of the  
importance of the  
seas and ocean for  
human health and  
well-being*

*is essential to advance  
global ocean stewardship  
and for the succesful  
implementation of  
international conventions on  
sustainable development*





# SHaring OCean Knowledge

Diversity in languages,  
educational systems & ways of  
living with the sea across  
Europe (“Vasco”, Norway,  
“Cousteau-effect”,...)

A satellite map of Europe with several stars marking locations. There are eight white stars: one in Ireland, one in the British Isles, one in France, one in Germany, one in Poland, one in Italy, one in Spain, and one in the Netherlands. A red star is located in the North Sea, west of Germany. A grey star is located in the Mediterranean Sea, south of Italy. A red 'X' is located in the Atlantic Ocean, west of Spain.

**THE NETHERLANDS  
LEAST WORRIED  
ABOUT SEA-LEVEL RISE**

*FP7-CLAMER survey (CEFAS)*



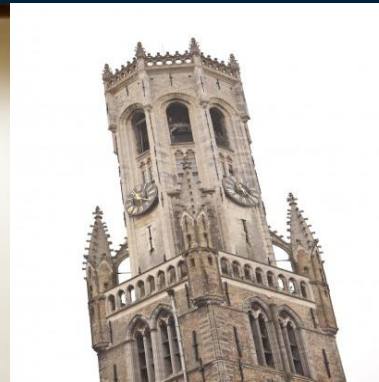
# SHaring OCean Knowledge

## First Conference on OCEAN LITERACY in Europe (12 October 2012, Bruges):



110 participants (13 countries)

timely event (Horizon 2020)



[www.emsea.eu/conference-2012-bruges](http://www.emsea.eu/conference-2012-bruges)



# SHaring OCean Knowledge

## Is “OCEAN LITERACY” a new concept?

Some best practices in Europe



Black Sea cruise (Bulgaria)



Kids Festival (Germany)



H2O-Q & students (Portugal)



E-learning (Belgium)



'Real map' (Ireland)



# SHaring OCean Knowledge

## Is “OCEAN LITERACY” a new concept?

Some best practices in Europe

*Marine newspaper (Belgium)*



*Marine life Talks (UK)*



*“Science-to-public” houses  
(Portugal)*



*Aquarium campaign*



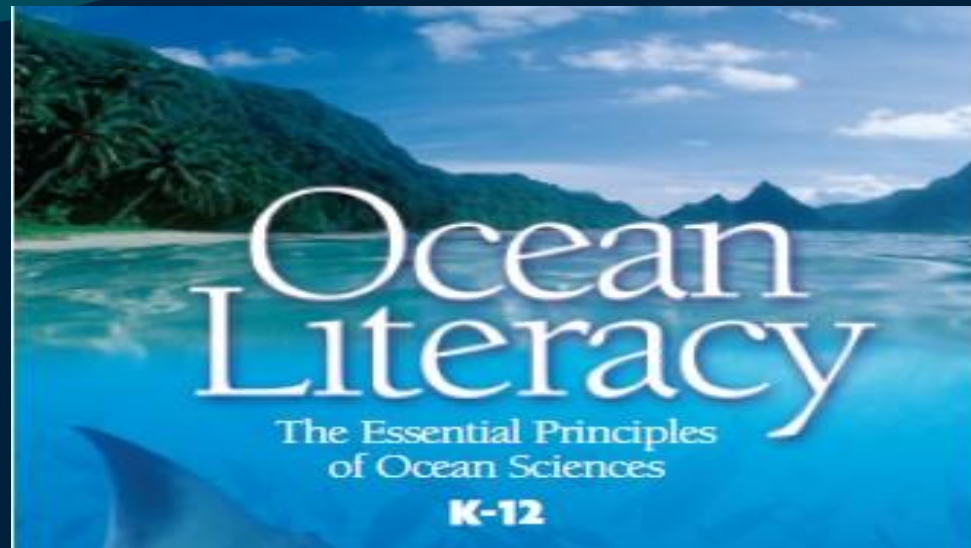
*Marine Tech & media  
(Germany)*



# How to get more ocean stewardship?

## 1. Identify and implement “essential principles” of ocean sciences

US-movement on Ocean Literacy  
(+ Japan, Chili, China, Australia,...)



The seven essential principles about the way the ocean works are:

1. The Earth has one big ocean with many features.
2. The ocean and life in the ocean shape the features of Earth.
3. The ocean is a major influence on weather and climate.
4. The ocean makes the Earth habitable.
5. The ocean supports a great diversity of life and ecosystems.
6. The ocean and humans are inextricably interconnected.
7. The ocean is largely unexplored.

These can be reviewed in full at [www.coexploration.org/oceanliteracy](http://www.coexploration.org/oceanliteracy). The Center includes these principles throughout its mix of hands-on, minds-on programs and engaging exhibits.

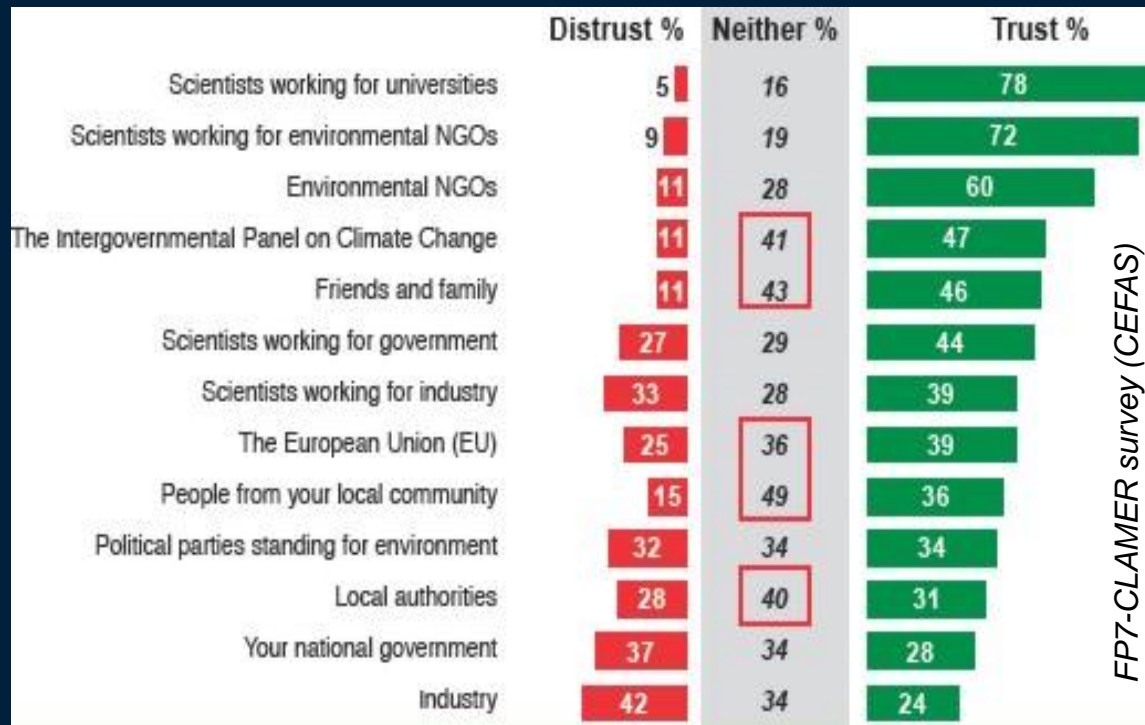


# How to get more ocean stewardship?

## 2. Make it a holistic & inclusive process

- \* both formal education and informal ways of learning
- \* requiring a more effective collaboration between educators, scientists, industry, public authorities, NGOs, the public, etc...

### SCIENTISTS



*Science heroes as ambassadors*

*“The issue for marine scientists is less to train them on communicating marine sciences than to give them incentives to communicate on their work, which in the current system might be a distraction of their career”*



# How to get more ocean stewardship?

## 2. Make it a holistic & inclusive process

### EDUCATORS

*Inspiring teachers is the quickest route to **inspiring pupils***





# How to get more ocean stewardship?

## 2. Make it a holistic & inclusive process



THE PUBLIC (e.g. "MarineArt" project)





# How to get more ocean stewardship?

## 3. Strategic plan & reflection on how to make outreach effective and respond to societal needs (Horizon 2020)

Outreach activities of 64 EU & national research projects on marine climate change examined in terms of 'good practice' (FP7 CLAMER – CEFAS)

Conclusion: *in most cases **outreach did not extend beyond one-way imparting of knowledge** through project websites, brochures, scientific papers or conferences with little or no attempt to involve members of the public and stakeholders directly. A few exceptions:*

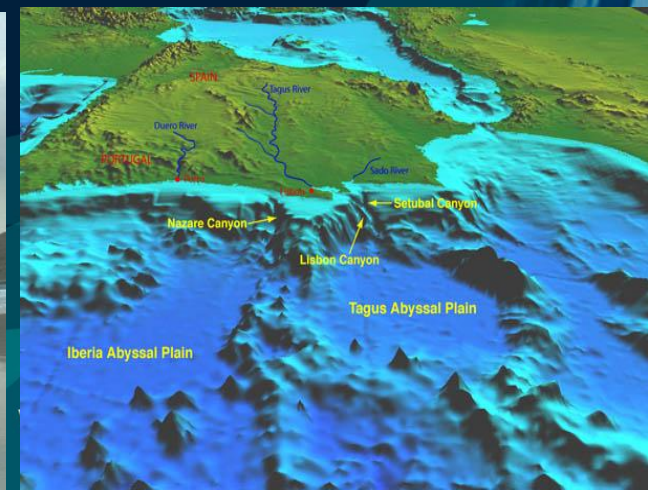
### CAPE FAREWELL

The Cultural Response to Climate Change  
([www.capefarewell.com](http://www.capefarewell.com))



### HERMES

Hotspot Ecosystems Research at the Margin of European Seas ([www.eu-hermes.net](http://www.eu-hermes.net))



## How to get more ocean stewardship?

**4. Aquaria, museums & science centra should be supported in their efforts to incorporate more science into their programmes and activities**





# How to get more ocean stewardship?

## 5. Baseline studies on ocean knowledge, on how people feel about the seas & on what they want to know

Poll on what the Belgian public knows and wants to know about the seas (1250 students/seniors); 14 multiple choice questions: score = **52%**

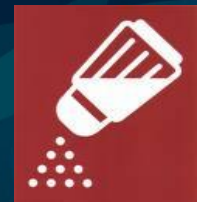
\* (Pretty) **well** answered (62-80%):

- Tides (80%)
- Most important commercial fish (71%)



\* (Rather) **badly** answered (13-44%):

- Groynes (13%)
- *Seawater freezing (28%)*



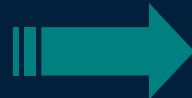
# How to get more ocean stewardship?



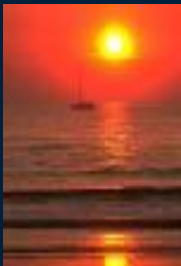
« If you think about the ocean, what pops up in your mind? »



*Ice-cream, leisure, sun/beach (70-90%)*



*Dunes, fresh air, gulls/fish... (10-25%)*



*Inspiration, infinity, freedom, sunsets... (<5%)*





# How to get more ocean stewardship?

## Ocean science vs the public: pros & cons



- *not aware of all the ecosystem services*
- *invisible & hostile environment*
- *considered as a place for leisure only*



- *spectacular new findings (& technology)*
- *all inspired by the ocean*
- *aquaria as ambassadors*

# How to get more ocean stewardship?

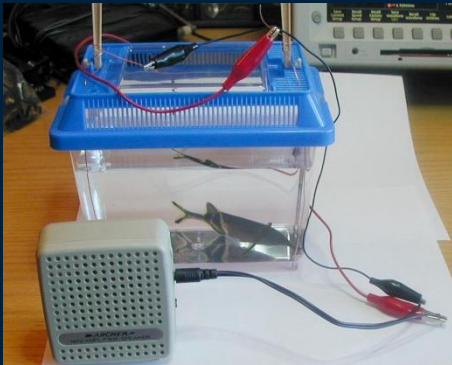
**6. Use ocean documentaries and other visuals as very strong instruments in making people understand the ocean (and feel responsible)**





# How to get more ocean stewardship?

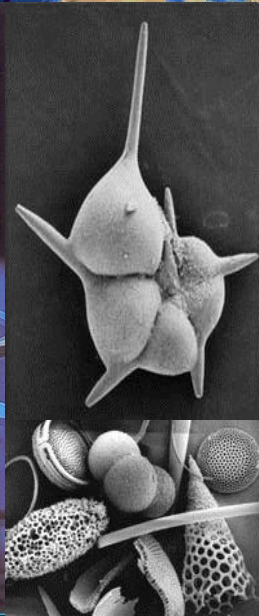
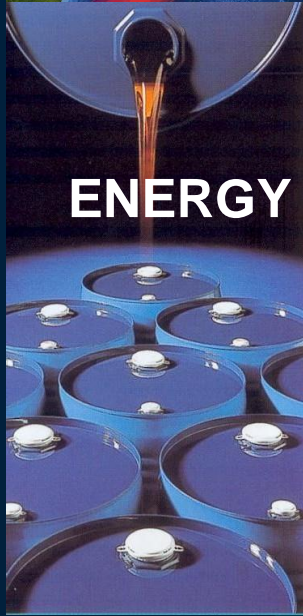
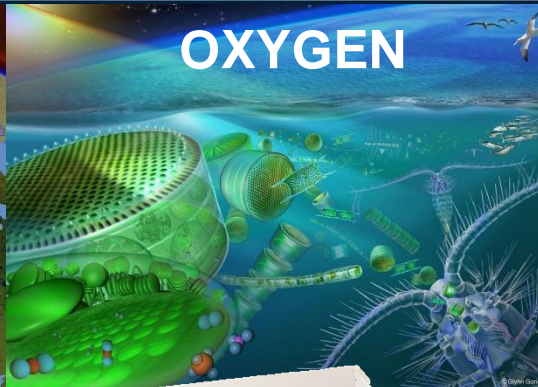
## 6. ... and don't forget the other senses (smell, taste, touch,...)





# How to get more ocean stewardship?

## 7. Make the public understand the relevance of the ocean in their daily life activities





# How to get more ocean stewardship?

## 7. Make the public understand the relevance of the ocean in their daily life activities

What does the public want to know about the ocean?  
(poll with 1250 Belgians)

Ecosystem protection & policy  
Weather forecasts Offshore windparks  
**Marine pollution**  
Animals & plants Food security  
Oil disasters Dangers for beach tourists  
**Climate change**  
Coastal floods/defense



# How to get more ocean stewardship?

## 8. Use new technologies where appropriate

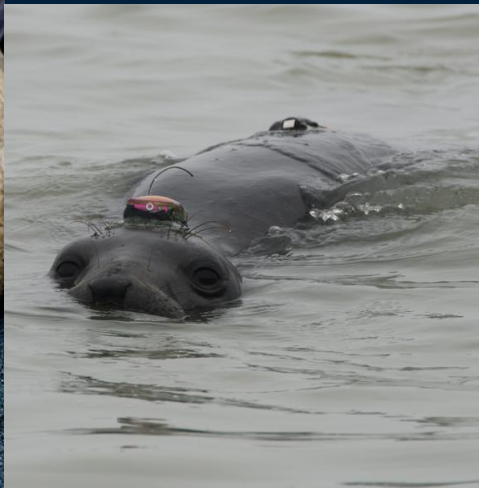


New media, cabled observatories, forecasts based on remote sensing, HD-cameras, « smart sensors », ARGO-floats, tagging, ...



# How to get more ocean stewardship?

## 8. Use new technologies where appropriate



### Living ARGO

#### Data-gathering seals

*Scientists in Australia have recruited elephant seals to help track changes in the climate*

##### Head gear

Glued to back of the head, falls off at next moult

Temperature sensor

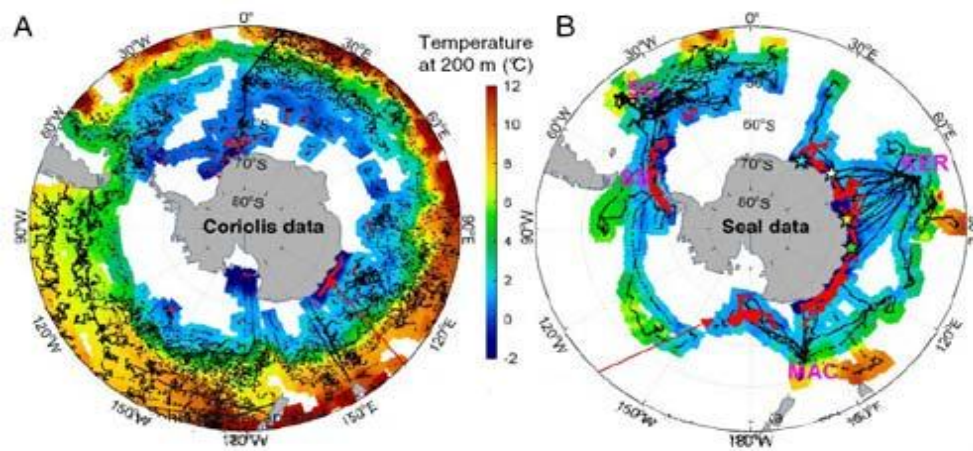
Pressure sensor

Battery

Antenna  
Transmits to satellite when seal surfaces

*Elephant seals can swim up to 65 kilometres a day and dive to nearly 2 km*

Salinity sensor  
Measure of salinity helps calculate annual freeze of sea

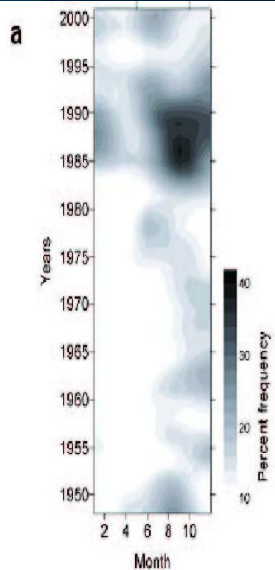


# How to get more ocean stewardship?

## 9. Citizen science, the ultimate goal?

**TEST!**

**TEACH**



*“Towards a society where oceans, remote as they are from our day-to-day life, are constantly brought back in the picture by feedback mechanisms between ocean observation, knowledge & public discussion”*

**TASTE**



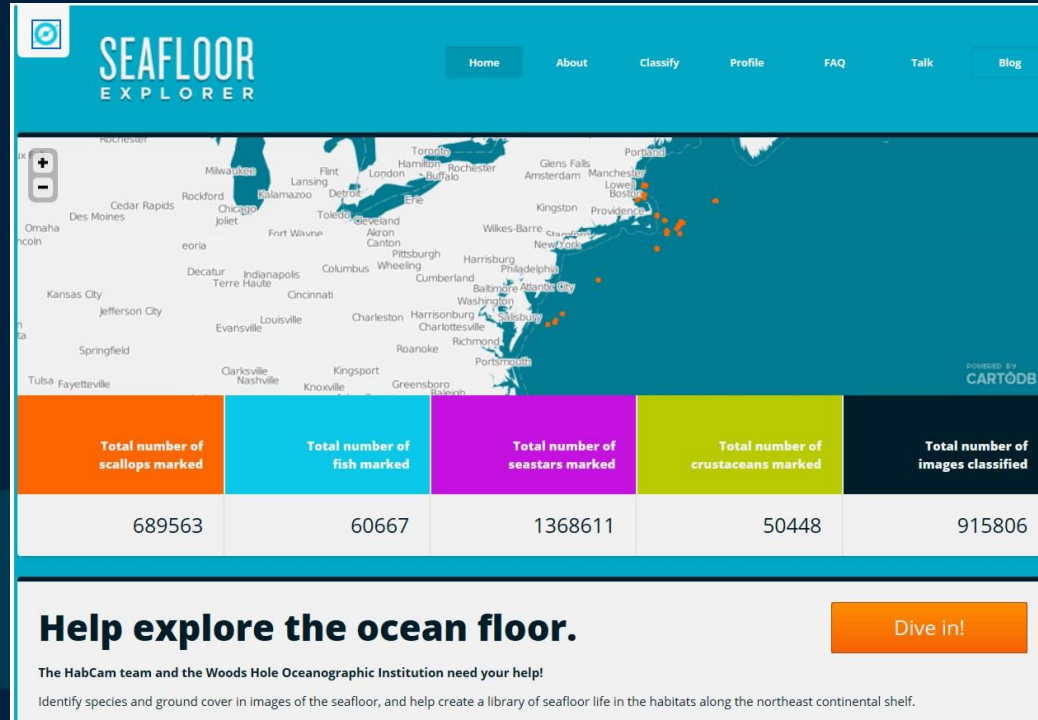


# How to get more ocean stewardship?

## 9. Citizen science, the ultimate goal?



« I hear and I forget.  
I see and I remember.  
I do and I understand »  
(Chinese saying)





END

