

# How to optimize awareness from the public?

*needs for specific derived biological data products  
for information and educational purposes*



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**ESF/Marine Board  
Communication Panel (MBCP)**

**News & Information group  
Partnership for the Observation  
of the Global Oceans (POGO)**

# Questions to be asked in terms of marine biodiversity knowledge transfer

## (1) The public at large/the educational « field »:

- \* *What do they associate with seas/oceans?*
- \* *What do they know about...?*
- \* *What do they want to know about...?*
- \* *What should they know about...?*

## (2) Scientists, EU, policy-makers:

- \* *What dataproducts can EMODnet provide them with?*



# What does the public associate with seas/coasts?



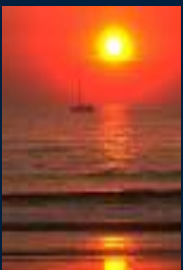
« I associate the sea with...: »  
(Survey of 1250 Belgian students/senior people)



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



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



Infinity, freedom, sunsets... (5%)





# What do they want to know?



## In terms of content:

**Iconic** species (cuddly, dangerous,...)

“**Story**-tellers” (linking to daily life,..)

**Record**-breakers (largest, deepest,...)

## In terms of format:

**Visuals**!! (movies, pictures, ...)

**Funny** things (cf “*Nemo*” characters,...)

**Interaction**! (“*I hear and I forget, I see and I remember, I do and I understand*”)

« *Porpoises and dolphins ... in pursuit of schooling fish ... were joined by sharks; the large porbeagle, blue, mako, and tresher sharks were common hunters of European seas and were occasionally accompanied by great white sharks... reports in 18th and 19th century literature... suggest sizes of 8-9 metres were not uncommon ('The Unnatural History of the Sea')* »

# What do they know about marine biodiversity?

## We don't really know.... (cf. compilation of polls – Marine Board)

Q: Difference between marine mammals (eg. whales) & fish (eg. sharks)?

(a) *Fish don't eat plankton, marine mammals do*

(b) *Fish have dorsal fins, marine mammals don't*

(c) *Marine mammals have to surface to breathe, fish don't*

[cf. Belgian survey of 1250 respondees]

= 70% well answered, although “basic question”

## Two major sources of information for the public at large:

\* the **media** = not always relying on good science...

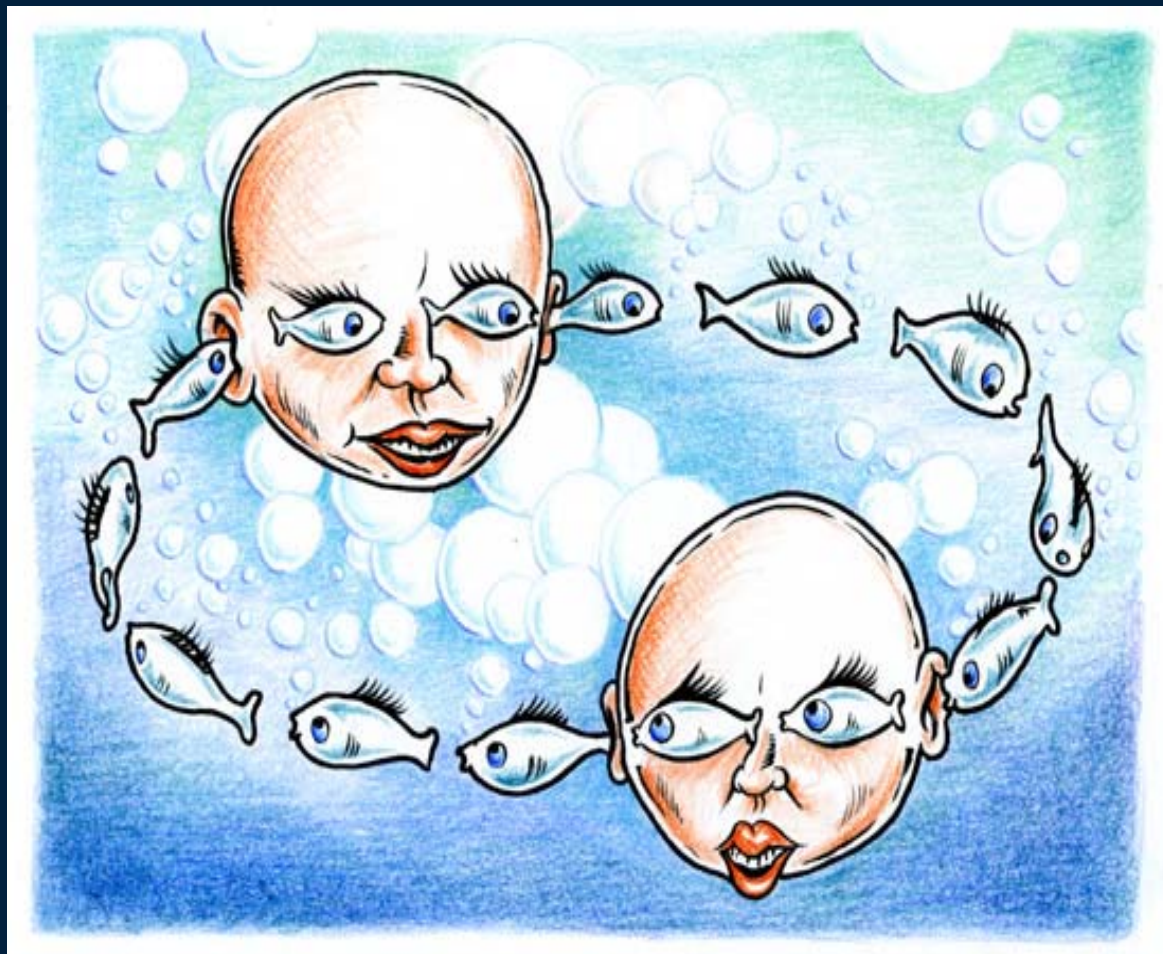
\* formal **education** = «Oceans are not mentioned much if at all in national science standards, and is not taught much in schools»



# What do they know about marine biodiversity?

**Lack of 'Ocean Literacy'**

**Need to « marinate » the educational curricula**



*“It is hard to imagine how Europe will underpin a maritime policy, when one does not know what European citizens know about the oceans, what they want to know and what they should know to be called 'ocean literate'”.*

similar activities  
internationally  
(e.g. USA, Asia, ...)

“it pays back: more literacy means more public support, means more investment in marine science...”





# What should they know about marine biodiversity?

## Basic concepts of:

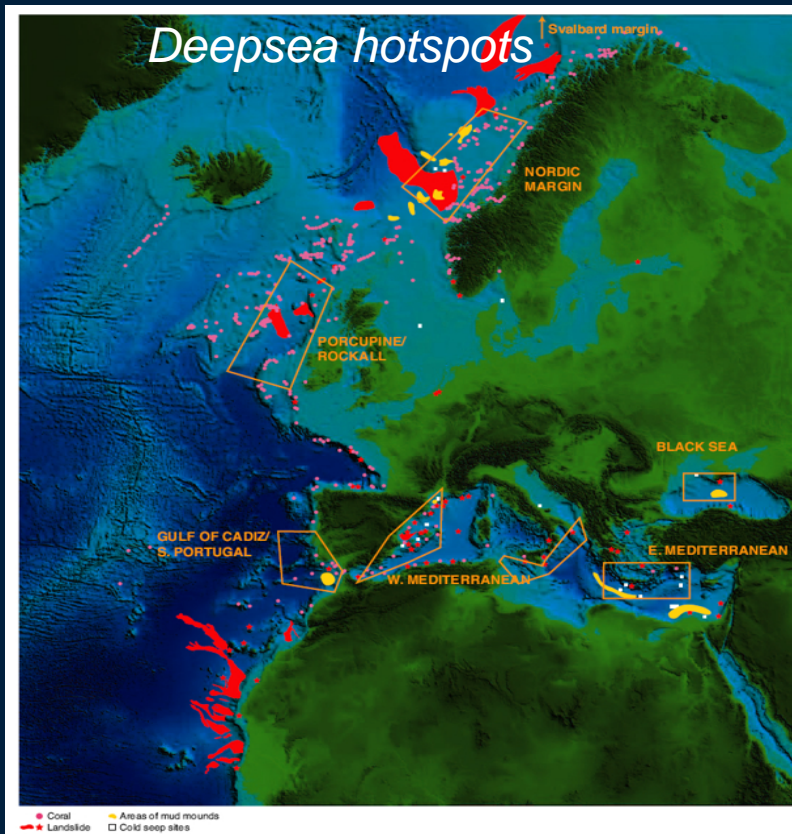
- \* **Biological richness of the sea**  
(*“biodiversity”, “morphology”, “evolution”, ...*)
- \* **Ecosystem functioning**  
(*“food webs”, “adaptations”, “ecosystem services”, ...*)
- \* **Human impacts/need for sustainable management of natural resources**  
(*“indicators”, “monitoring”, ...*)



# What (data)products can we offer them?

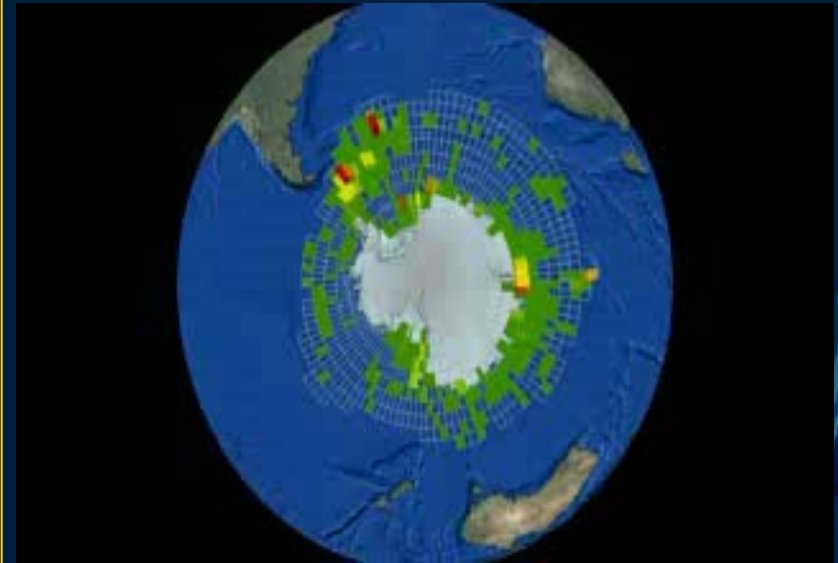
## (1) « Classic » descriptive visuals/info: distribution in relation to...

Density/biomass/species richness, etc.: spatial distribution



HERMES: [www.eu-hermes.net](http://www.eu-hermes.net)

## *Benthic diversity Antarctica*



BAS/SCAR-MarBIN:  
[www.youtube.com/watch?v=oBU6DINn7F0](http://www.youtube.com/watch?v=oBU6DINn7F0)



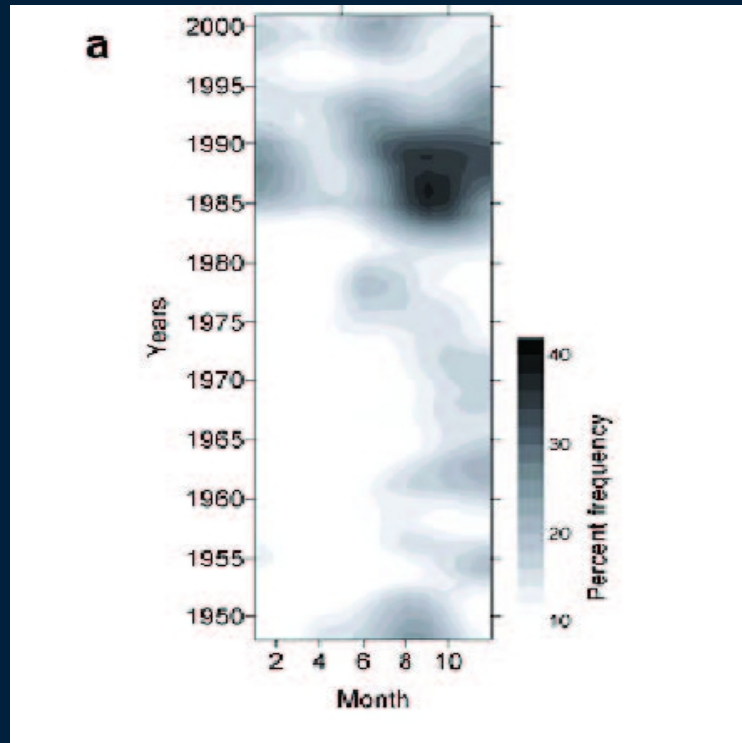


# What (data)products can we offer them?

## (1) « Classic » descriptive visuals/info: distribution in relation to...

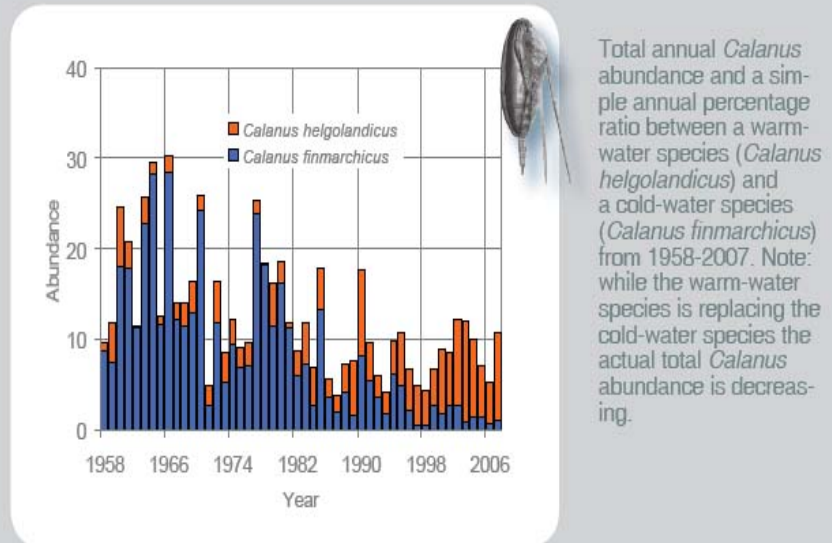
Density/biomass/species richness, etc.: temporal distribution

*jellyfish North Sea*



*Calanus North Sea*

Climate change indicator 2007: *biogeography*



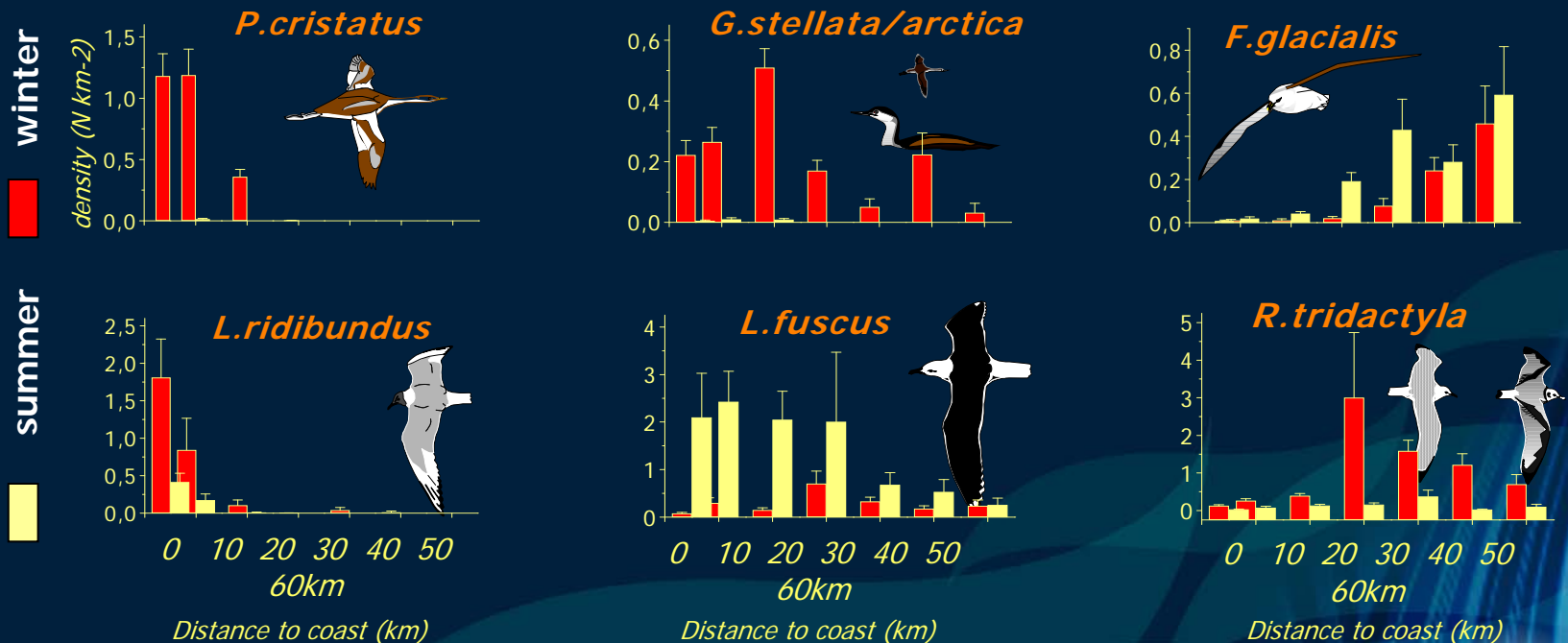
# What (data)products can we offer them?

## (1) « Classic » descriptive visuals/info: distribution in relation to...

### Distribution patterns vs. abiotic environment

seabirds offshore-inshore North Sea

ESAS: [www.jncc.gov.uk/page-4469](http://www.jncc.gov.uk/page-4469)







# What (data)products can we offer them?

## (2) Derived products

Interactive habitats/touchable species (+ info)



# What (data)products can we offer them?

## (2) Derived products

Simulations/games, etc....

**potvis**  
De potvis is de grootste tandwalvis en ook de grootste vleeseter op aarde. Hij heeft het absolute record van diepste duiker op zijn naam staan. Potvissen kunnen zowel in de epi-, de meso- and de bathypelagische zone voorkomen.

Je vindt me in de epi-, de meso-, en de bathypelagische zone.

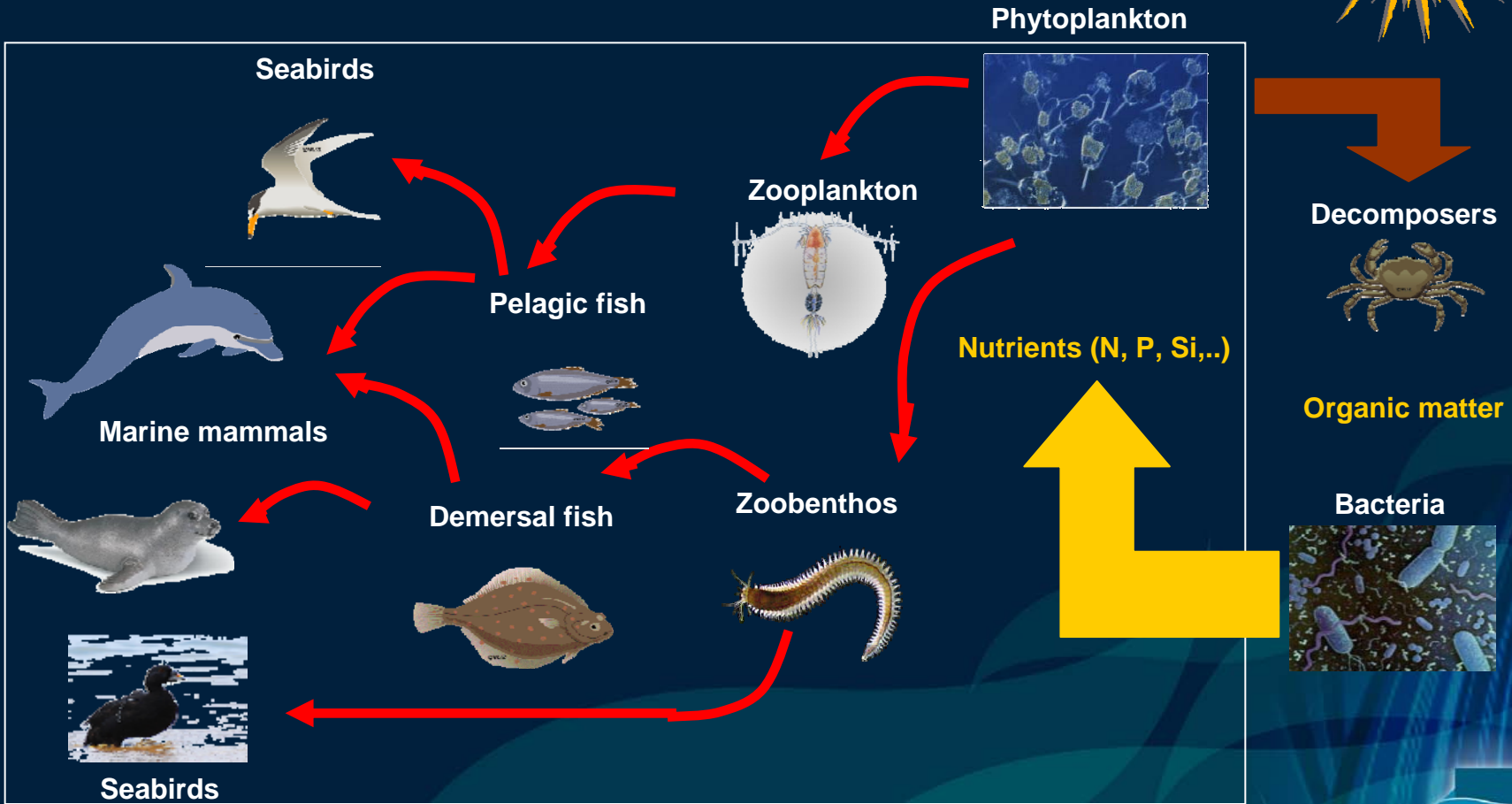
Ziezo, om terug te keren naar module D1 Schimmen uit de diepzee, sluit dit venster. Wil je nog eens proberen? Klik dan hier onder.  
-<< nog eens proberen?  
-<< terug naar module

200  
1000  
2000  
3000  
4000  
5000  
6000

# What (data)products can we offer them?

## (3) Food web/ecosystem functioning tools

Challenge students to work with marine food webs (using aggregate data of trophic groups)





# What (data)products can we offer them?

## (4) Linking to exciting marine animal migration (high-tech) info

### 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

Source: PNAS/CSIRO 120808 AFP

'Ocean Obs', TOPP, CoML

### WHITE SHARK CAFE A FILM BY SEAN ARONSON

WATCH THE TRAILER

OFFICIAL SELECTION  
WILD & SCENIC  
ENVIRONMENTAL  
FILM FESTIVAL

OFFICIAL SELECTION  
SANTA BARBARA  
OCEAN  
FILM FESTIVAL

Synopsis | Filmmaker | Trailer | Credits | Contact

White Shark Cafe tells the curious history of great white shark research - from Jaws to Facebook.

The annual roundtrip of the Arctic tern is app. 71,000 km. As Arctic terns can live for over 30 years, the total distance flown in a tern's lifetime may exceed 2.4 million km. That's equivalent to around 3 return journeys to the Moon! Not bad for a bird with a mass of a little over 100 grams.

light sensor  
Mk14

**Link to attractive side-information  
as appetizers for dataportal**



# What (data)products can we offer them?

## (5) « Seawatch » engaging the public at large

### Mobilize the public/schools in data collection

The screenshot shows the MarLIN website interface. At the top, there is a navigation bar with links for 'Biodiversity & Conservation', 'Learning Zone', 'Recording Marine Life', 'Marine Life Data', and 'Publications & products'. A search bar is also present. The main content area is titled 'Recording Marine Life' and includes a 'Record your sightings' form, a 'Login or register' section, and a 'View all the sightings' link. A list of 'Latest sightings' is displayed on the right, including species like *Maja squinado*, *Tursiops truncatus*, *Physalia physalis*, and *Leptosammia pruvoti*. An image of two people on a boat is also visible.

\* anglers/beach fishermen (B)

\* “garden bird/butterfly census by the public”

\* marine mammal spotting (pleasure cruising)



# What (data)products can we offer them?

**(5) « Seawatch » engaging the public at large: support/awareness!!**

**Organize a European “seawatch” day (World Ocean Day – 8 June)**



**Data collection by sailors,  
seamen, port authorities,  
etc. (bioluminescence,  
mammals, ...)**



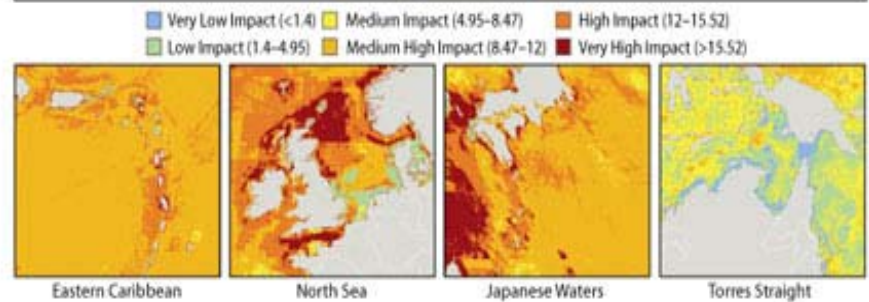
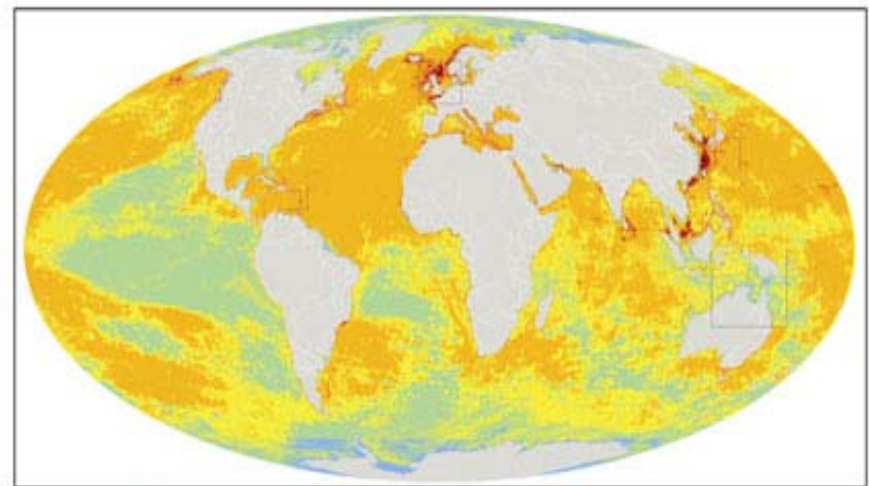
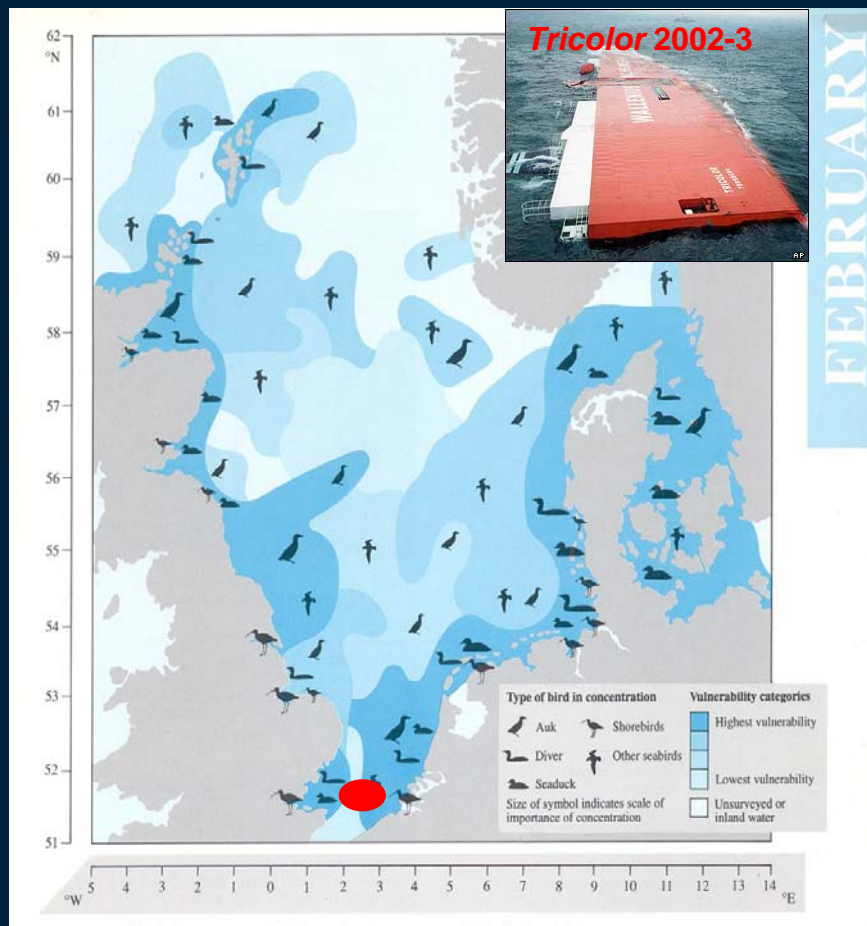


# What (data)products can we offer them?

## (6) Policy relevant derived data, interesting for the public/schools

Integrated indices of oil vulnerability, shipping disturbance impact, etc...

Overall analysis of “human impact” (study Halpern *et al.* 2008)



# What (data)products can we offer them?

## **(6) Policy relevant derived data, interesting for the public/schools**

Time for a “*Dow Jones index of European Marine Biodiversity*”?

*Dow Jones Industrial  
Average (the ‘Dow’) °1896*

- \* “quantifying” the ‘Panics/recessions’ and ‘heights/gains’ of the American stock market, based upon economic reports, political events, natural disasters,...
- \* results of 30 big American companies
- \* cumulative evaluation by shareholders
- \* daily index

*“EUMARECO” index*

- \* “quantifying” the ‘Panics’ and ‘heights’ of the European marine ecosystems & biodiversity, based upon scientific papers, new data, ...
- \* data/literature on 30 state variables indicator species
- \* cumulative evaluation by scientists
- \* monthly index?



## IN CONCLUSION:



(1) **Natural interest** for marine biodiversity and ecosystems

(2) Problems with '**Ocean Literacy**'

(3) Look for **public support**:

- *provide exciting, visual data/derived products*
- *engage the public (volunteers,...)*
- *keep it simple (aggregate data, indices)*

(4) Challenge the public opinion?  
(**"Dow Jones"** of European seas)





END

