Roma - 29th February – 1st March 2012 - National Research Council (CNR)

First JERICO Fixed Platforms (FP) workshop

Contributing to the activities of Workpackages 3 and 4

Session 3: Maintenance methods: biofouling (WP4 - T4.2)

Biofouling Questionnaire: preliminary analysis

M. Faimali; L. Trentin (ISMAR-CNR) G. Petihakis (HCMR)

Session 3: Maintenance methods: biofouling (WP4 - T4.2)

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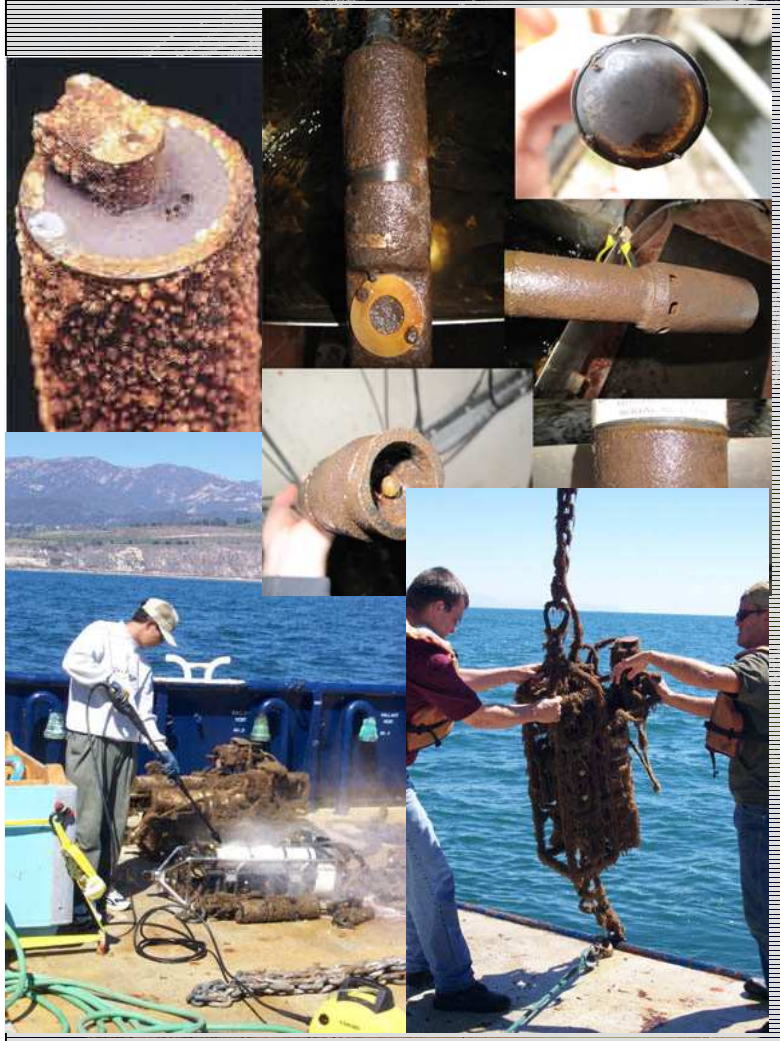
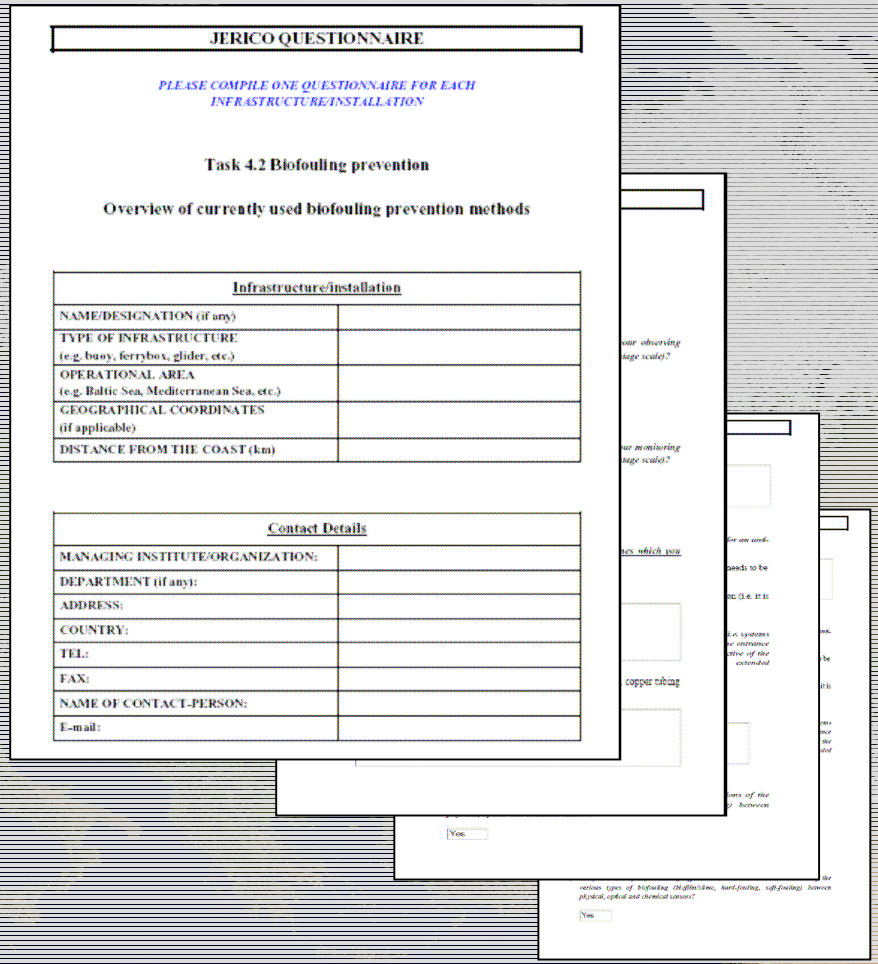




JERICO QUESTIONNAIRE

PLEASE COMPILE ONE QUESTIONNAIRE FOR EACH INFRASTRUCTURE/INSTALLATION

Task 4.2 Biofouling prevention

Overview of currently used biofouling prevention methods

Infrastructure/installation	
NAME/DESIGNATION (if any)	
TYPE OF INFRASTRUCTURE (e.g. buoy, ferrybox, glider, etc.)	
OPERATIONAL AREA (e.g. Baltic Sea, Mediterranean Sea, etc.)	
GEOGRAPHICAL COORDINATES (if applicable)	
DISTANCE FROM THE COAST (km)	

Contact Details	
MANAGING INSTITUTE/ORGANIZATION:	
DEPARTMENT (if any):	
ADDRESS:	
COUNTRY:	
TEL.:	
FAX:	
NAME OF CONTACT-PERSON:	
E-mail:	

Session 3: Maintenance methods: biofouling (WP4 - T4.2)

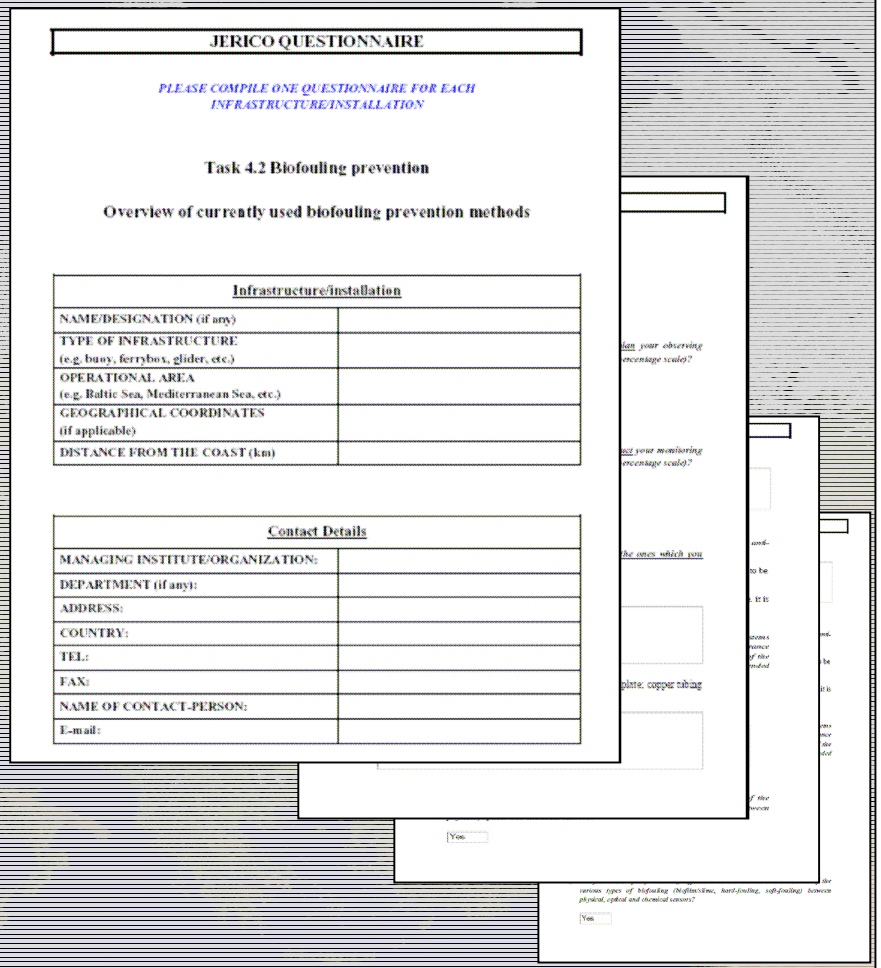
Biofouling Questionnaire: preliminary analysis

Results

Only sixteen of the eighteen partners have completed the BQ (Part A)

(it is still two!!)

.....for a total of 52 questionnaires (according to the different sensors used by the partners – Part B)



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TEL:	
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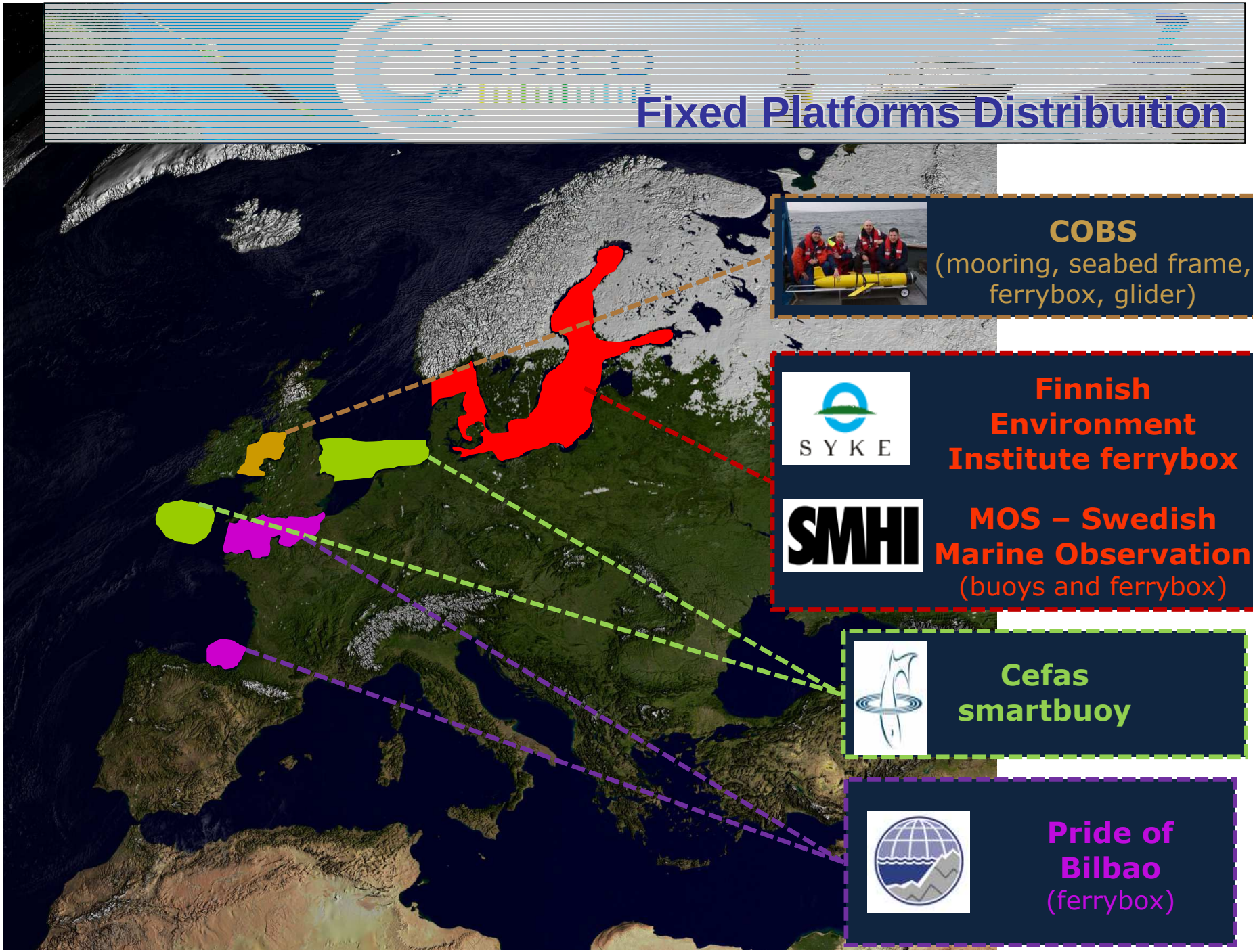
E-mail:	

Fixed Platforms Distribuition



COBS
(mooring, seabed frame, ferrybox, glider)

SYKE

Finnish Environment Institute ferrybox

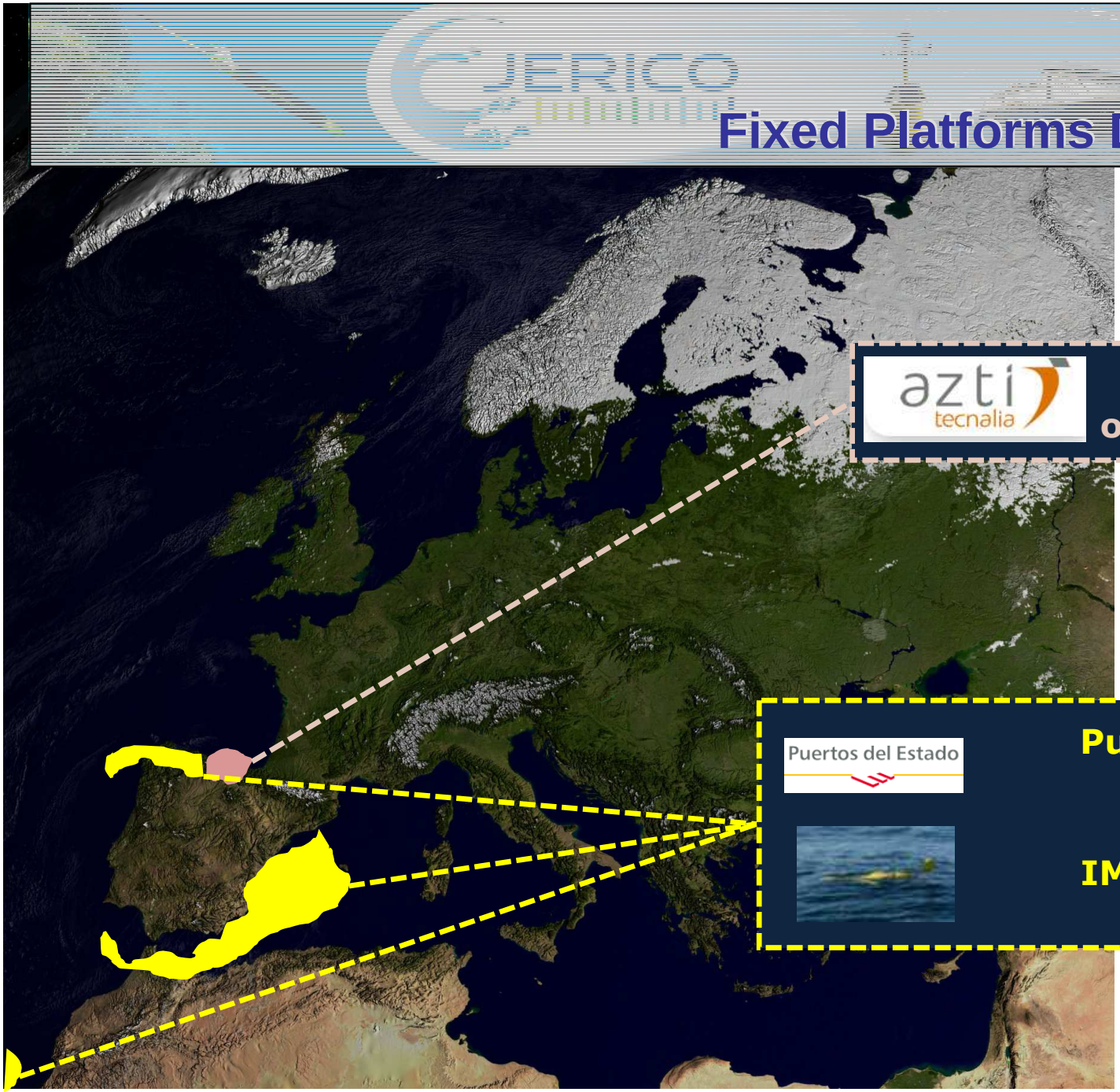
SMHI

MOS – Swedish Marine Observation
(buoys and ferrybox)

Cefas smartbuoy

Pride of Bilbao
(ferrybox)

Fixed Platforms Distribuition



azti tecnalia

Euskalmet offshore buoys

Puertos del Estado

Puertos del Estado Buoys networks

IMEDEA Glider Lab

Fixed Platforms Distribution

EOL
(buoy profiler)

OGS – North Adriatic Coastal Observatory

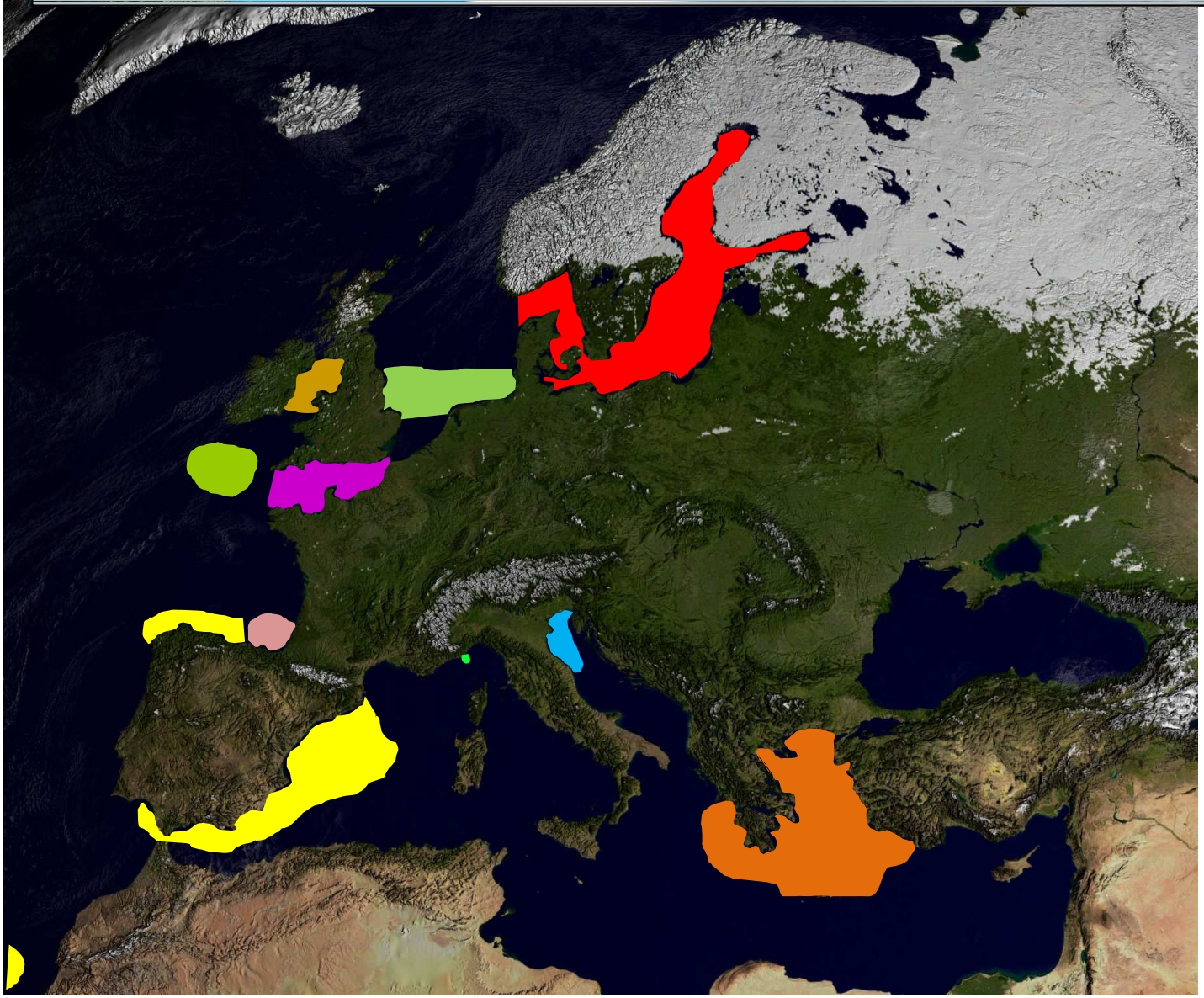
E1 & S1 buoys
(meteo-oceanographic multiparametric buoys)

Acqua Alta
(oceanographic tower)

Senigallia Pylon

Poseidon Network
(seawatch & wavescan buoys)

Fixed Platforms Distribution



Fixed Platforms Distribution

In the list of sensors below, please indicate only the ones that you are currently using on your infrastructures/installations

Physical

(Temperature, Conductivity (Salinity), Dissolved oxygen, Water Currents, Pressure, ecc)

Optical

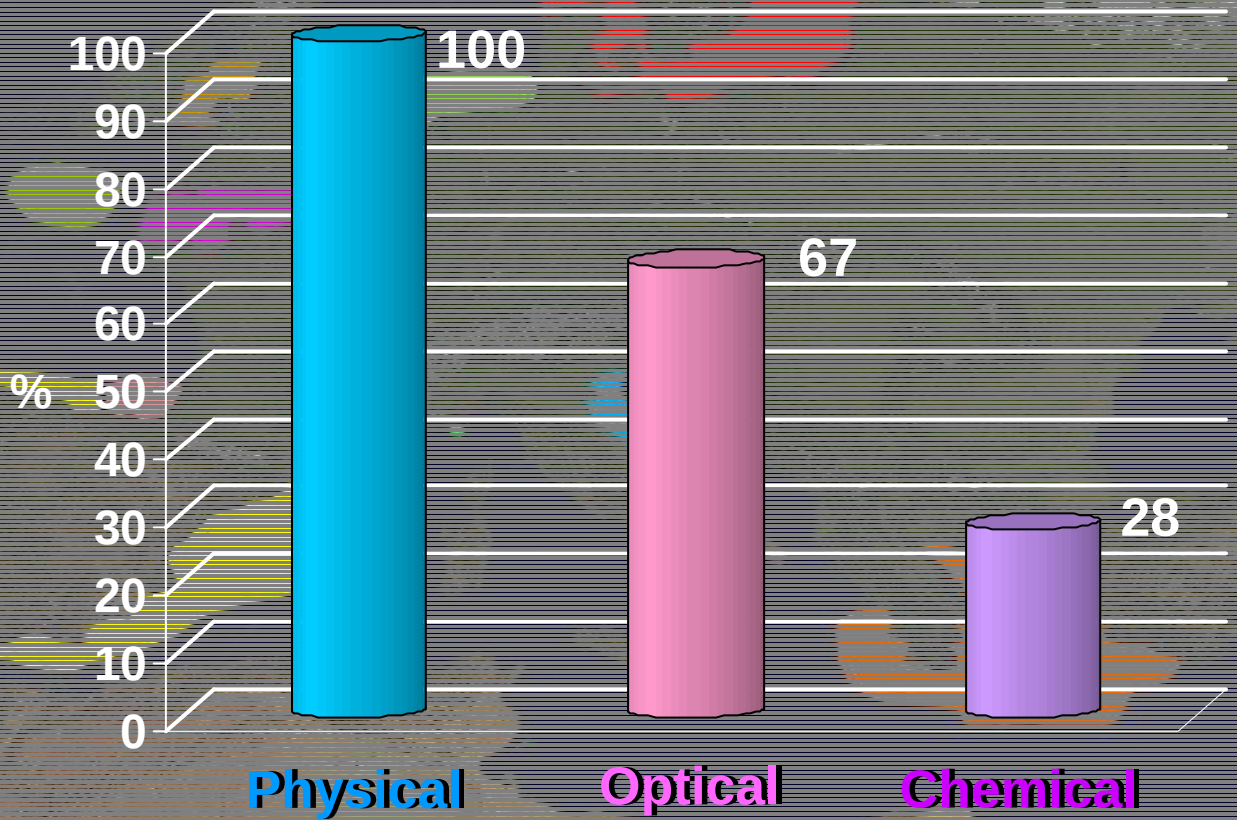
(Chlorophyll a,Turbidity, Photosynthetically Active Radiation (PAR), ecc)

Chemical

(Phosphates, Silicates, Nitrates, Nitrites, Ammonia, Dissolved oxygen, pH, Total alkalinity, Total carbon dioxide, Dissolved organic carbon, Total organic carbon, ecc)

Fixed Platforms Distribution

In the list of sensors below, please indicate only the ones that you are currently using on your infrastructures/installations



Fixed Platforms Distribution

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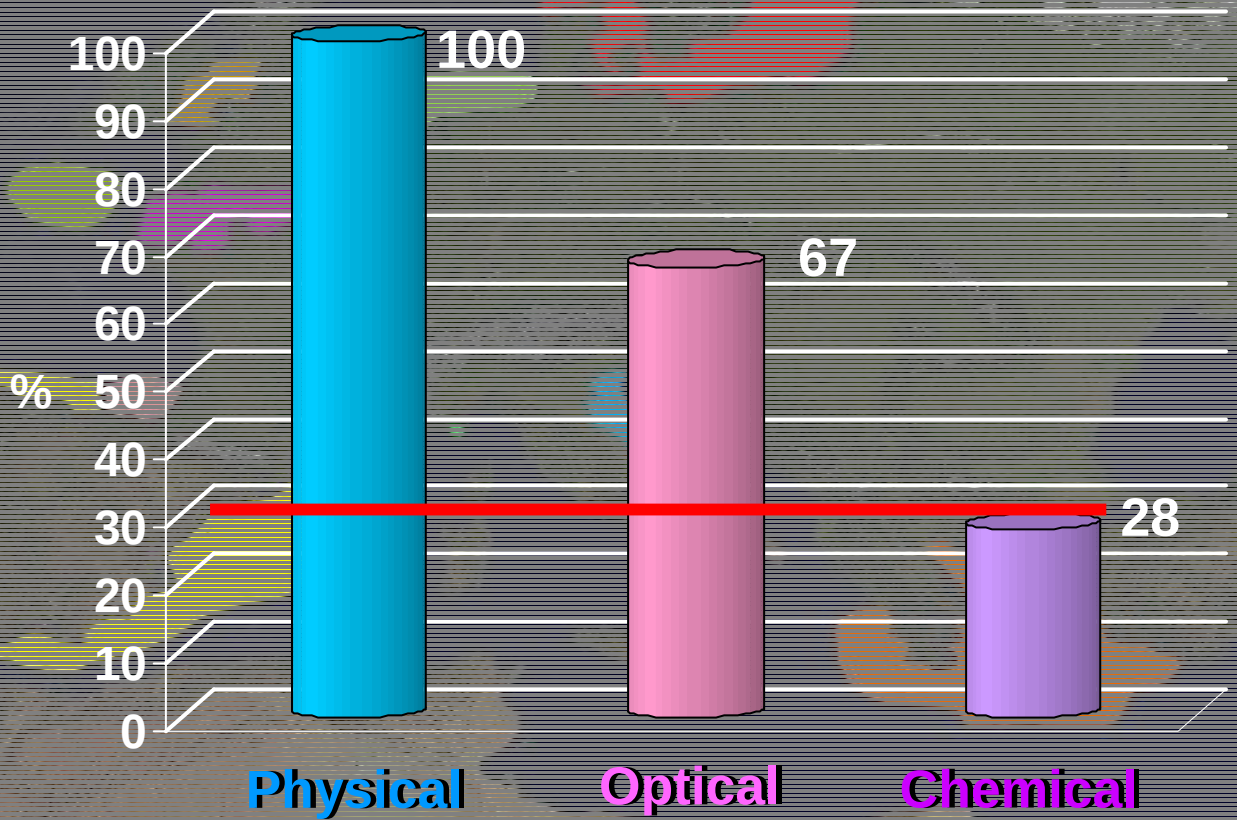
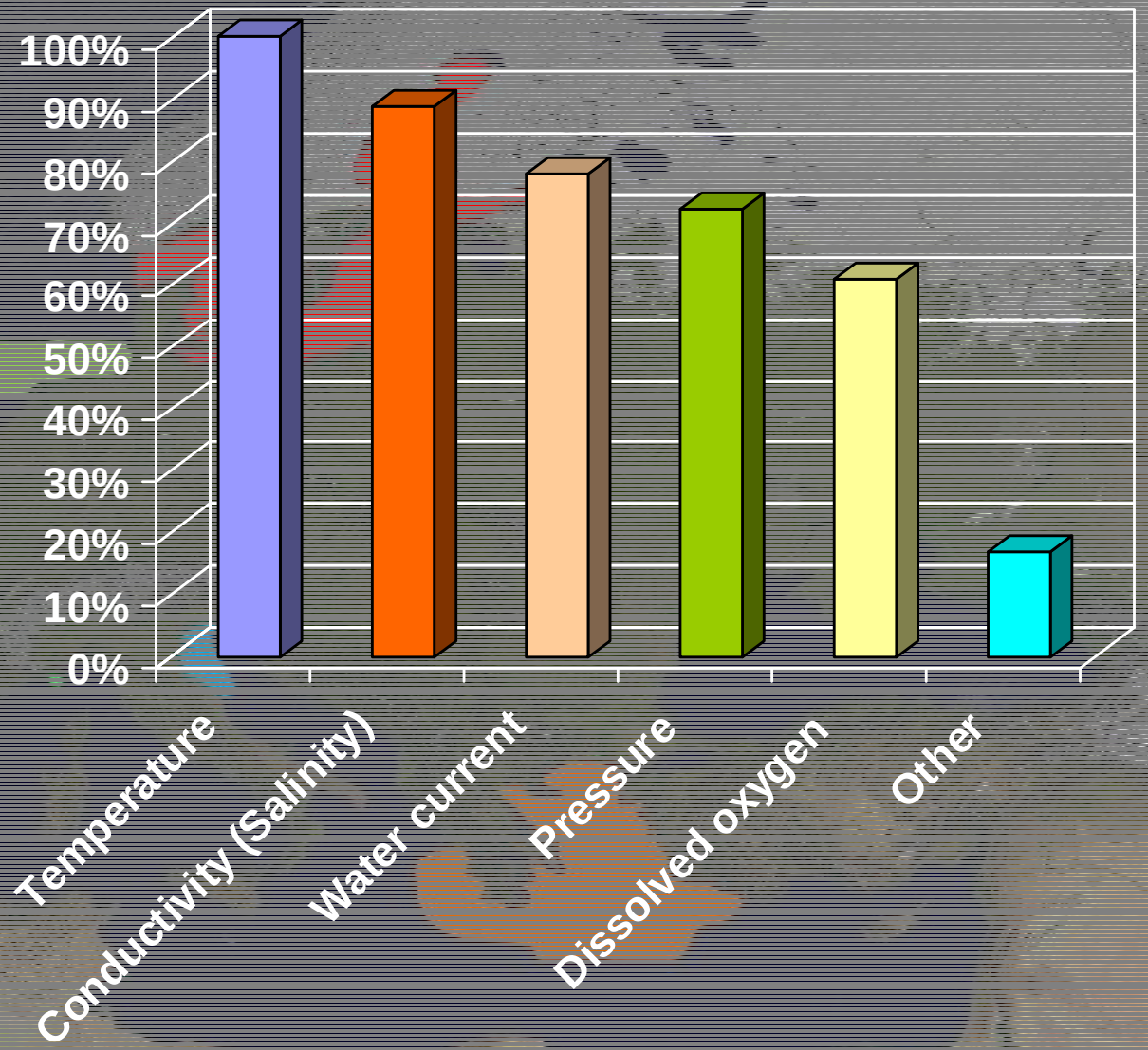


Fixed Platforms Distribution

Categories

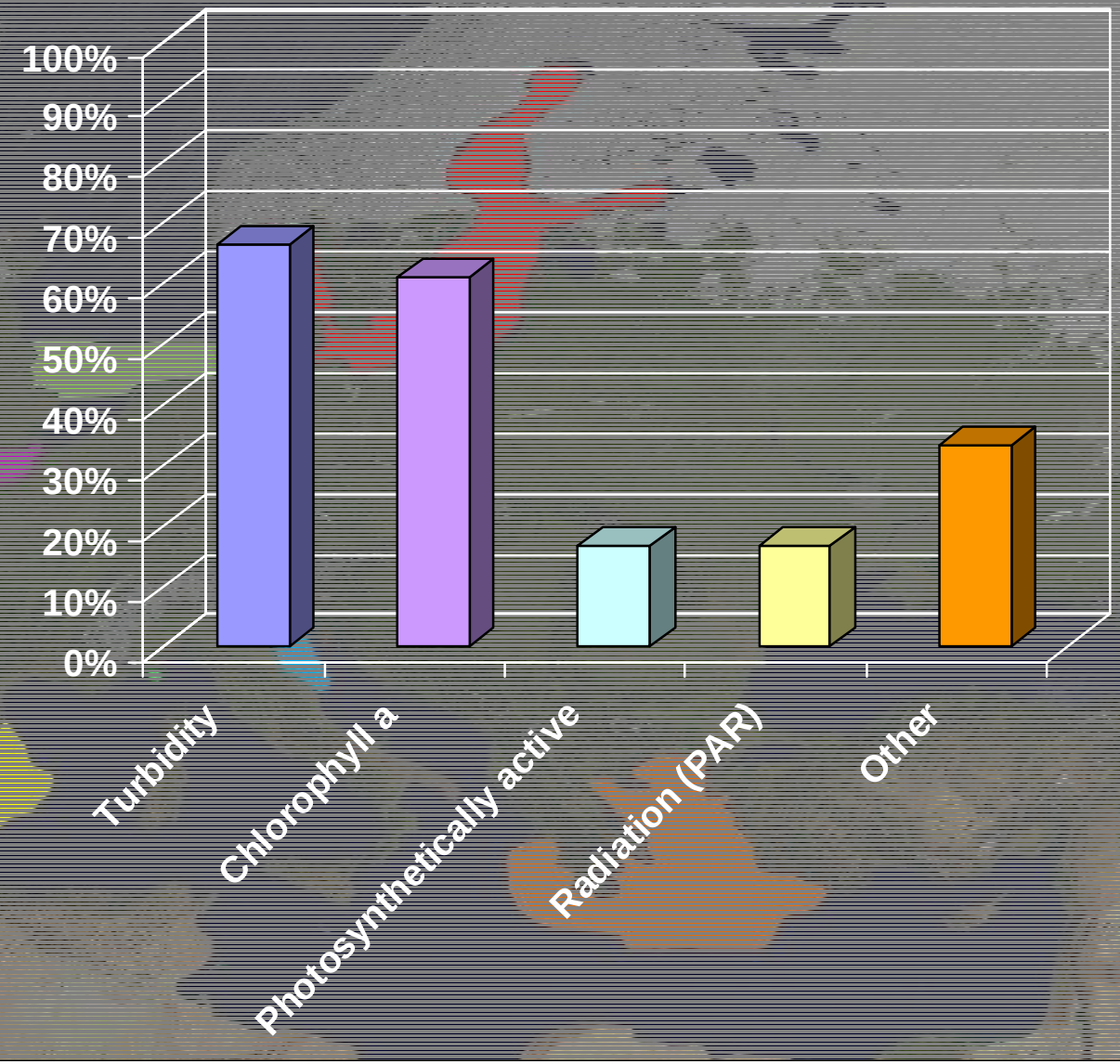
Physical sensors



Fixed Platforms Distribuition

Categories

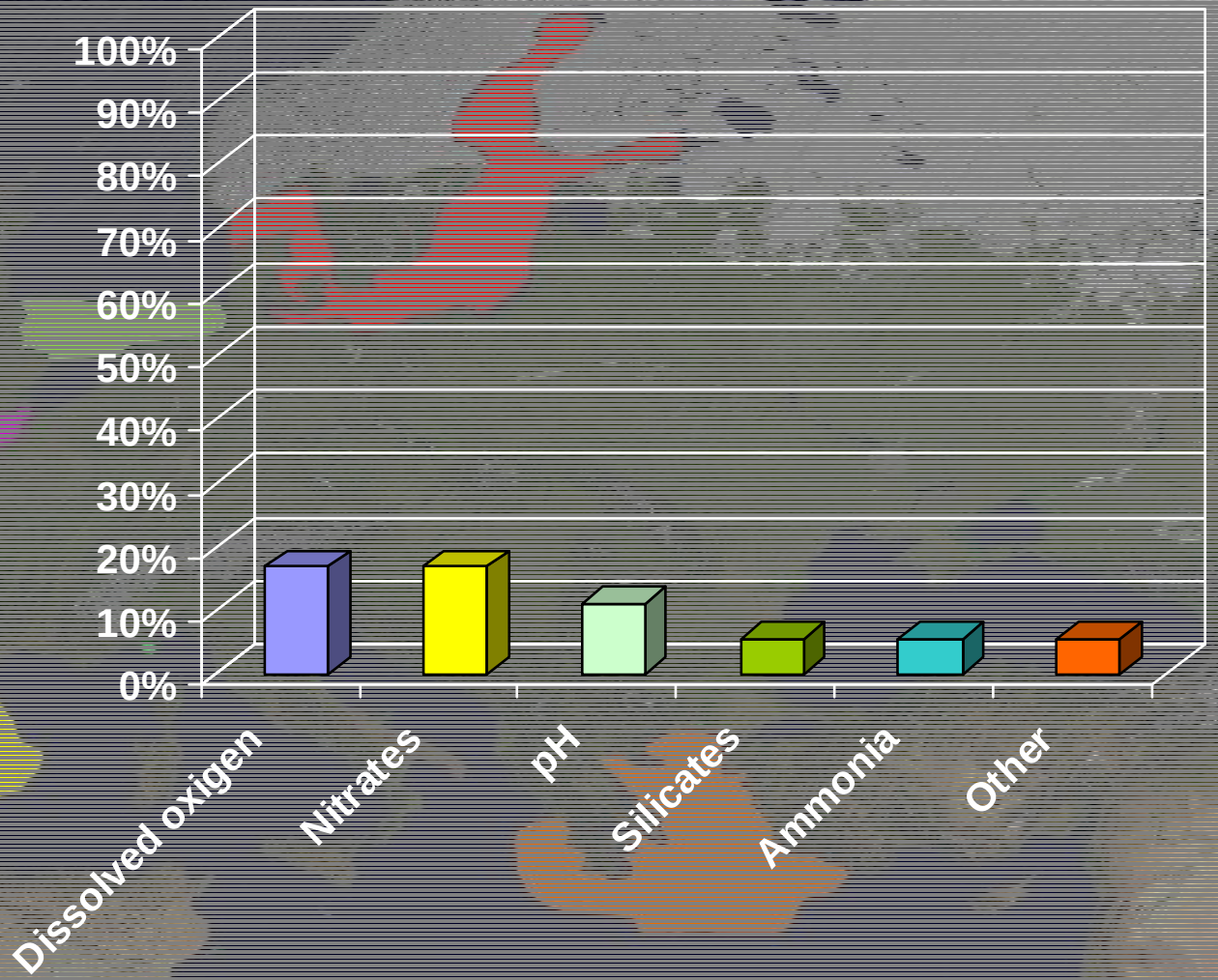
Optical sensors



Fixed Platforms Distribution

Categories

Chemical sensors



Biofouling Questionnaire: preliminary analysis

Is biofouling a problem in your observing activity?

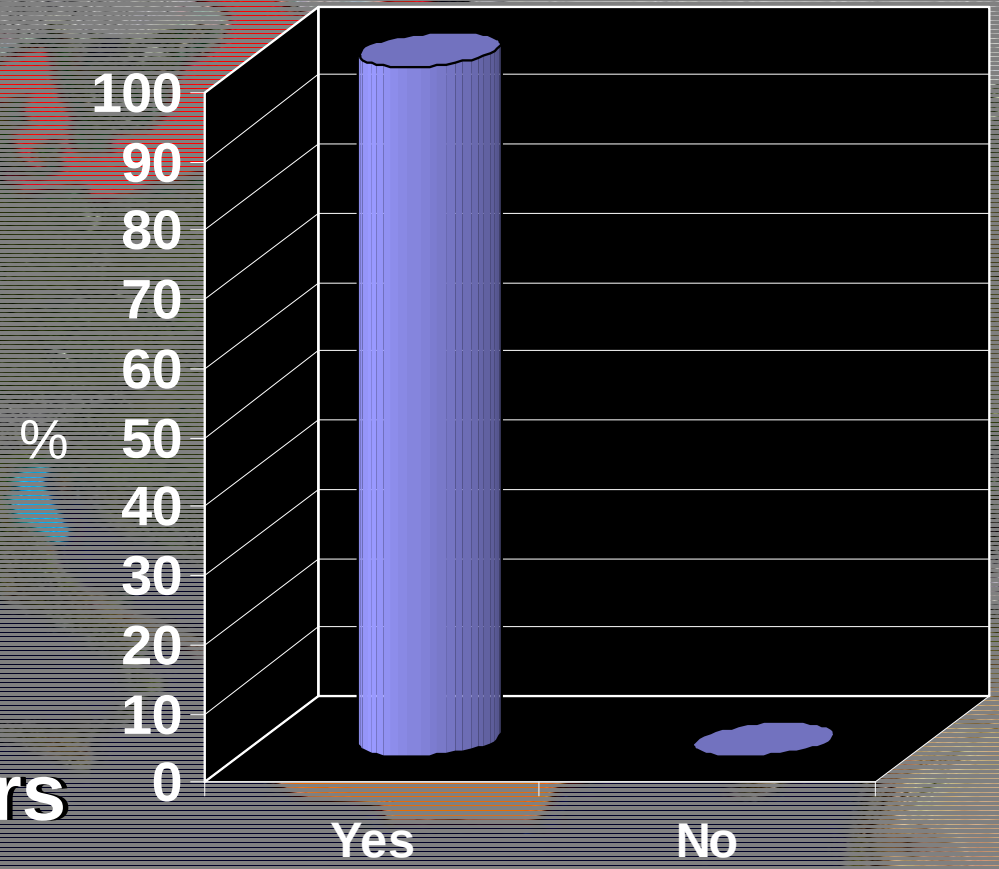
Yes or Not ?

Biofouling Questionnaire: preliminary analysis

Is biofouling a problem in your observing activity?

Yes

The biofouling is a problem for all partners



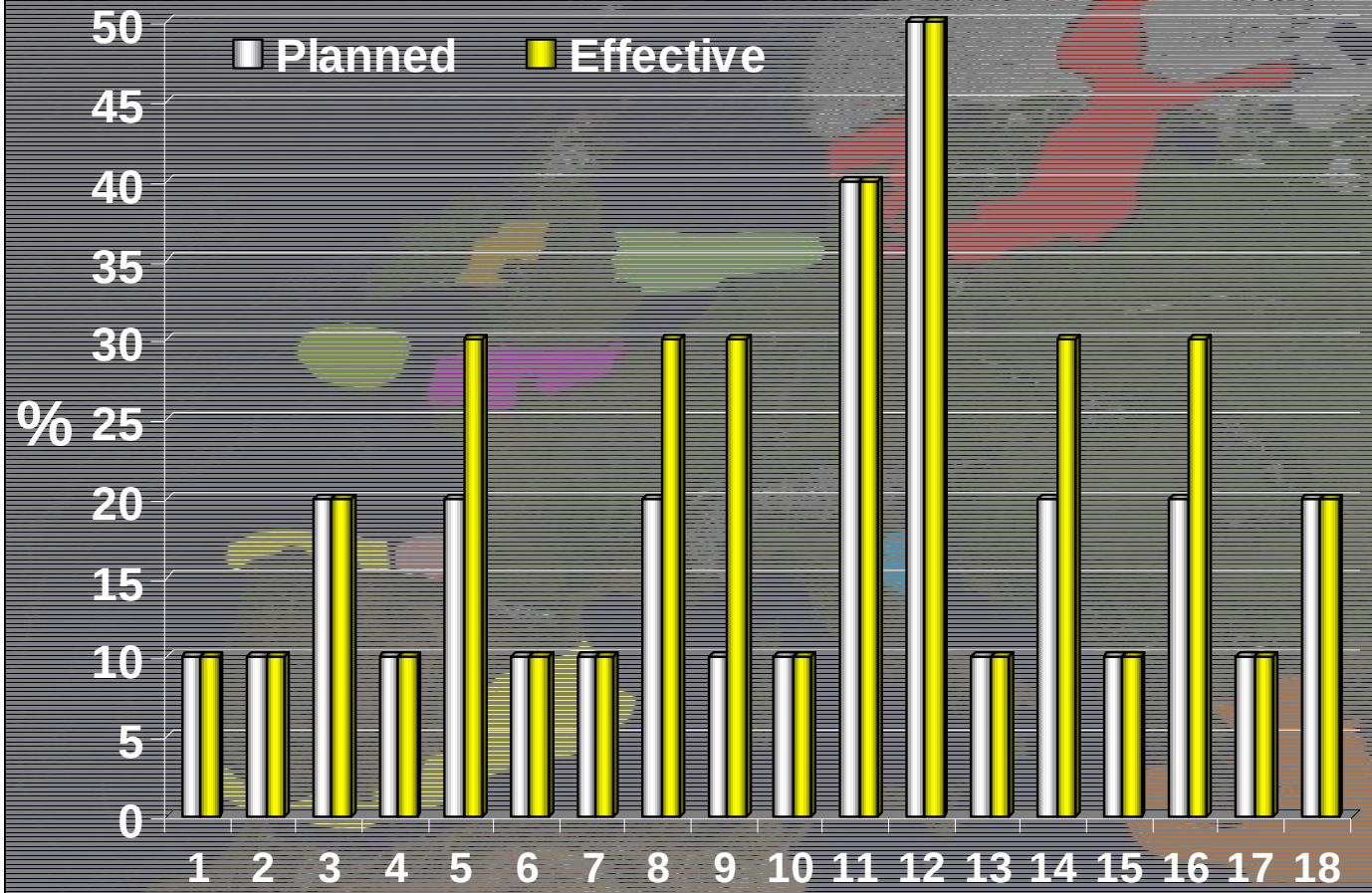
Biofouling Questionnaire: preliminary analysis

How much does biofouling influence the way in which you plan and conduct your observing activities ?

(as a fraction of the total money and time invested on a percentage scale)?

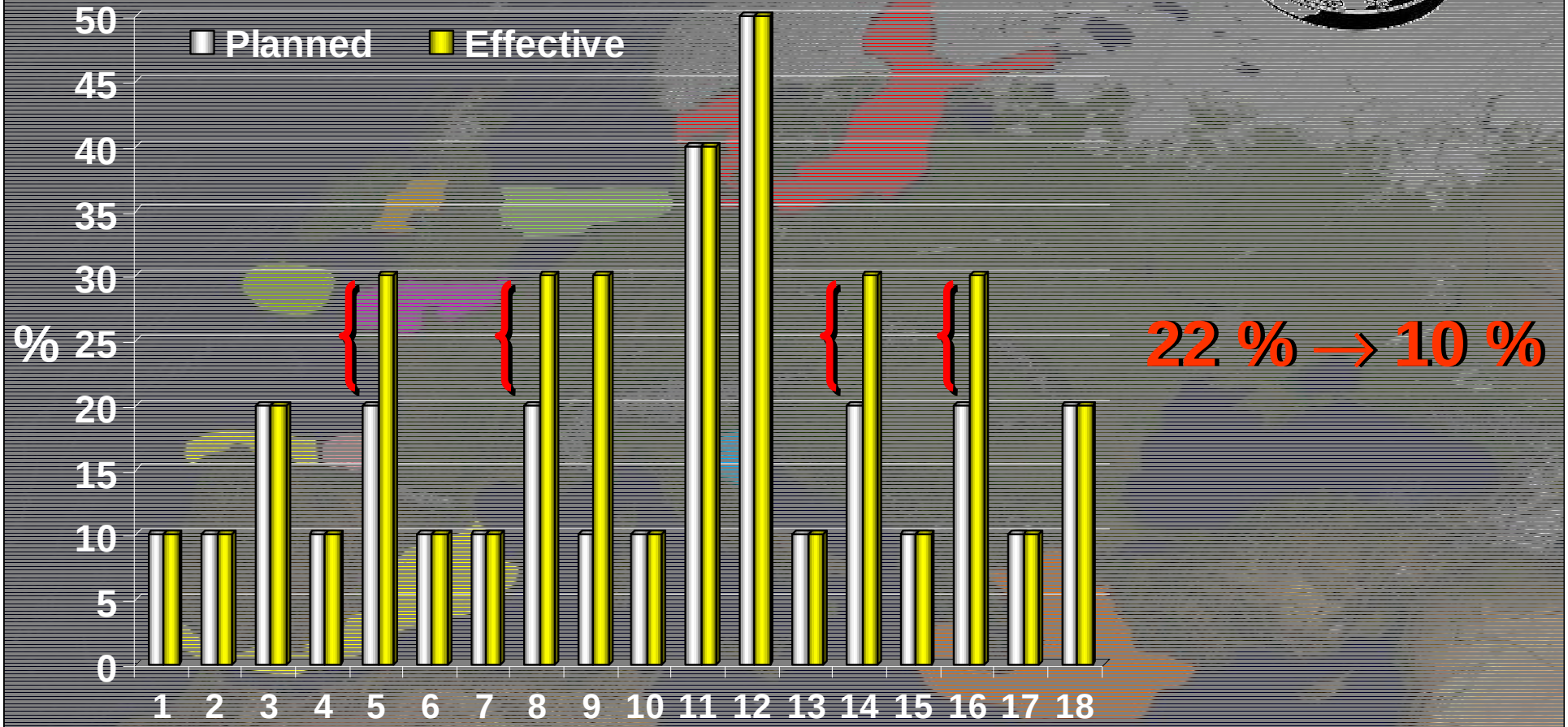
Biofouling Questionnaire: preliminary analysis

Money



Biofouling Questionnaire: preliminary analysis

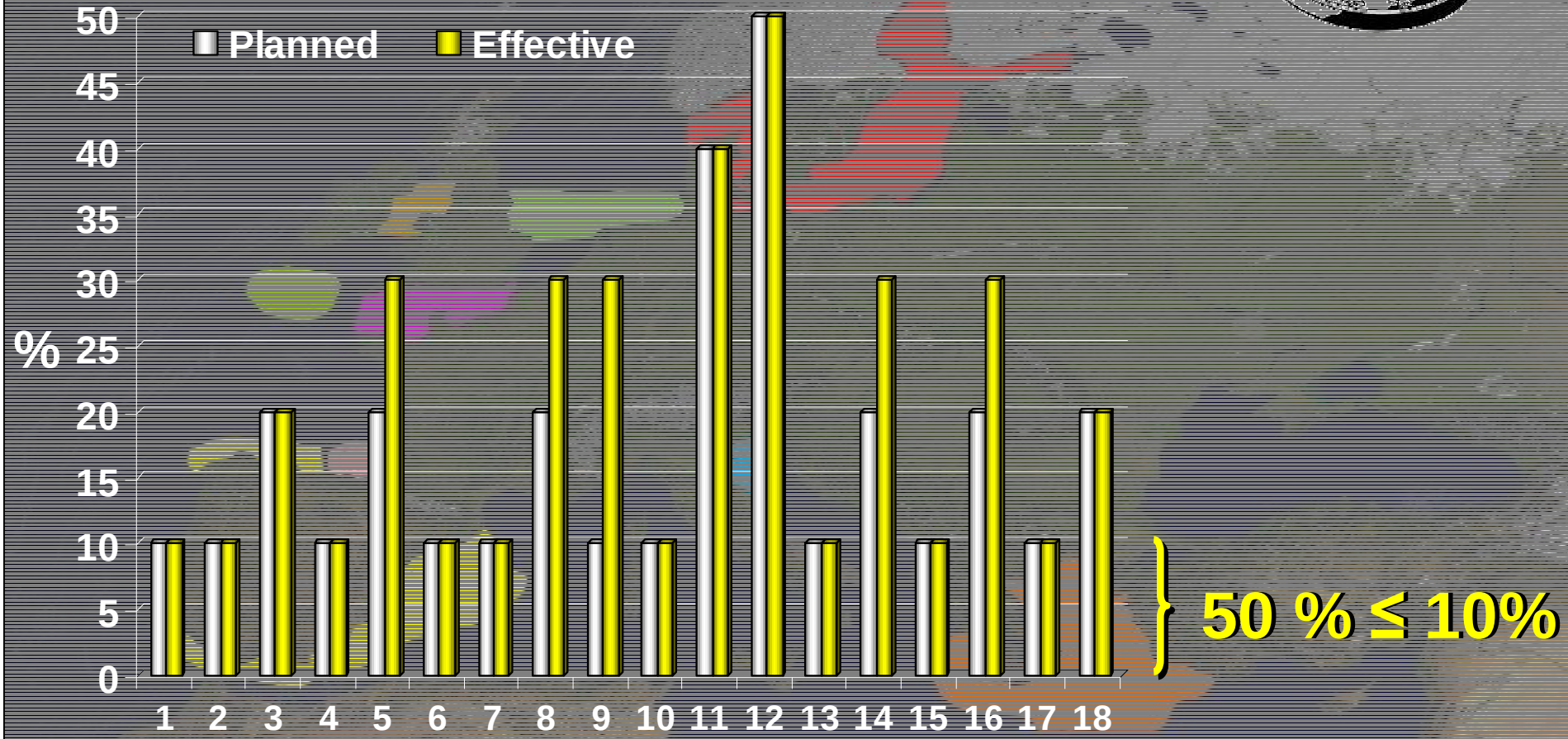
Money



22 % → 10 %

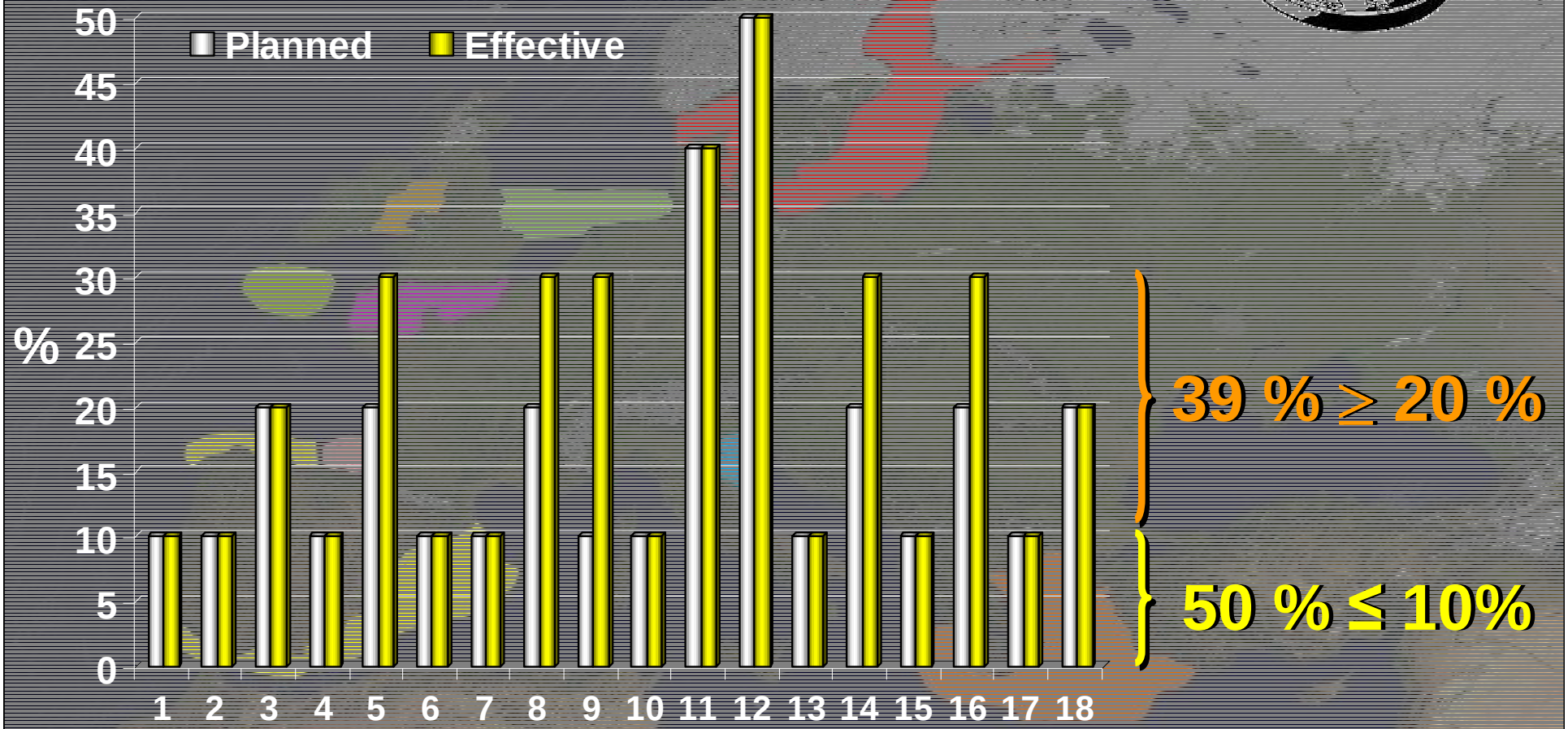
Biofouling Questionnaire: preliminary analysis

Money



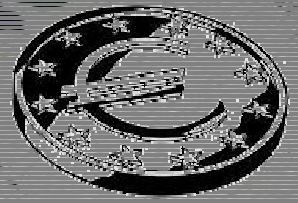
Biofouling Questionnaire: preliminary analysis

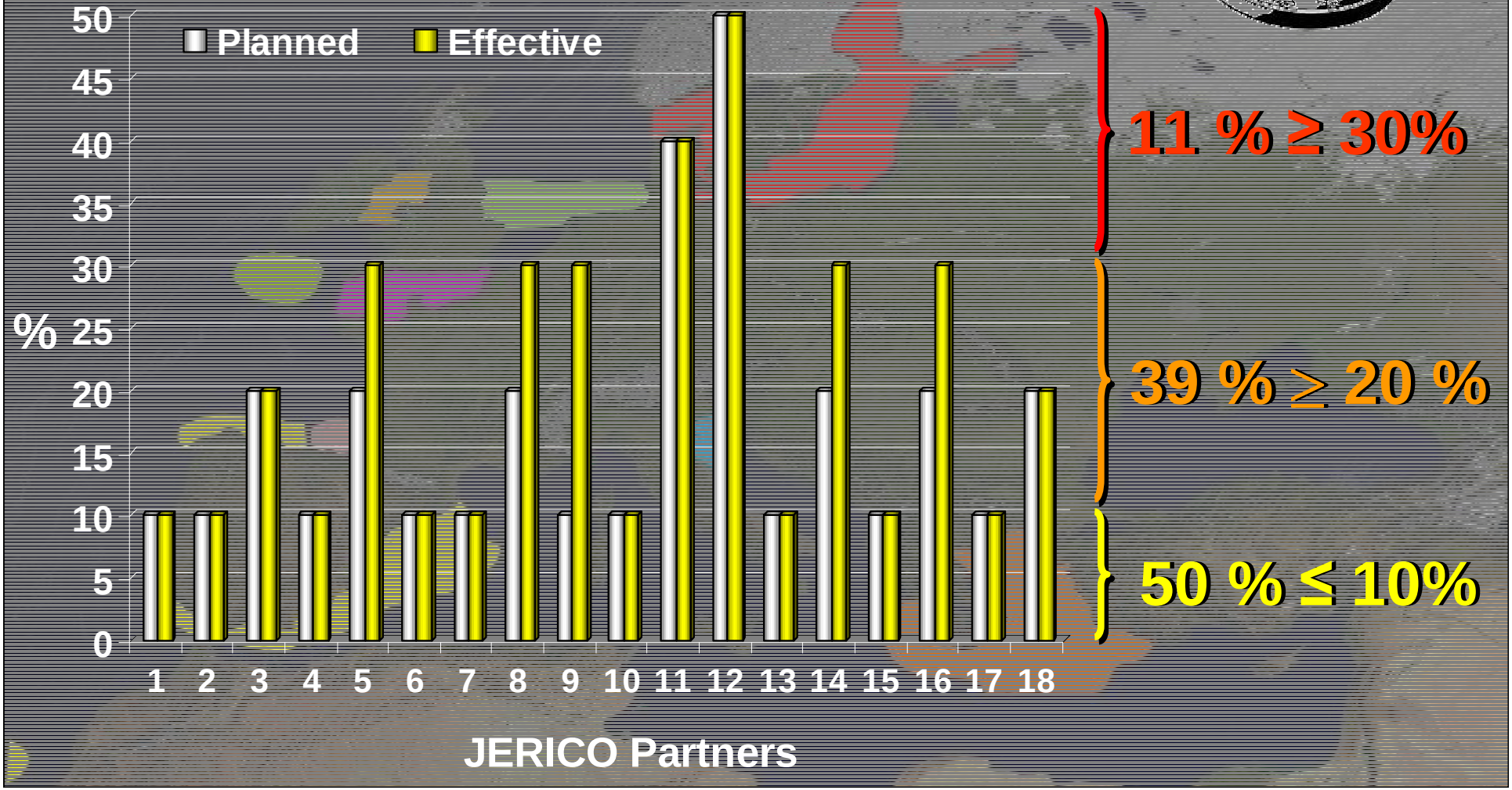
Money



Biofouling Questionnaire: preliminary analysis

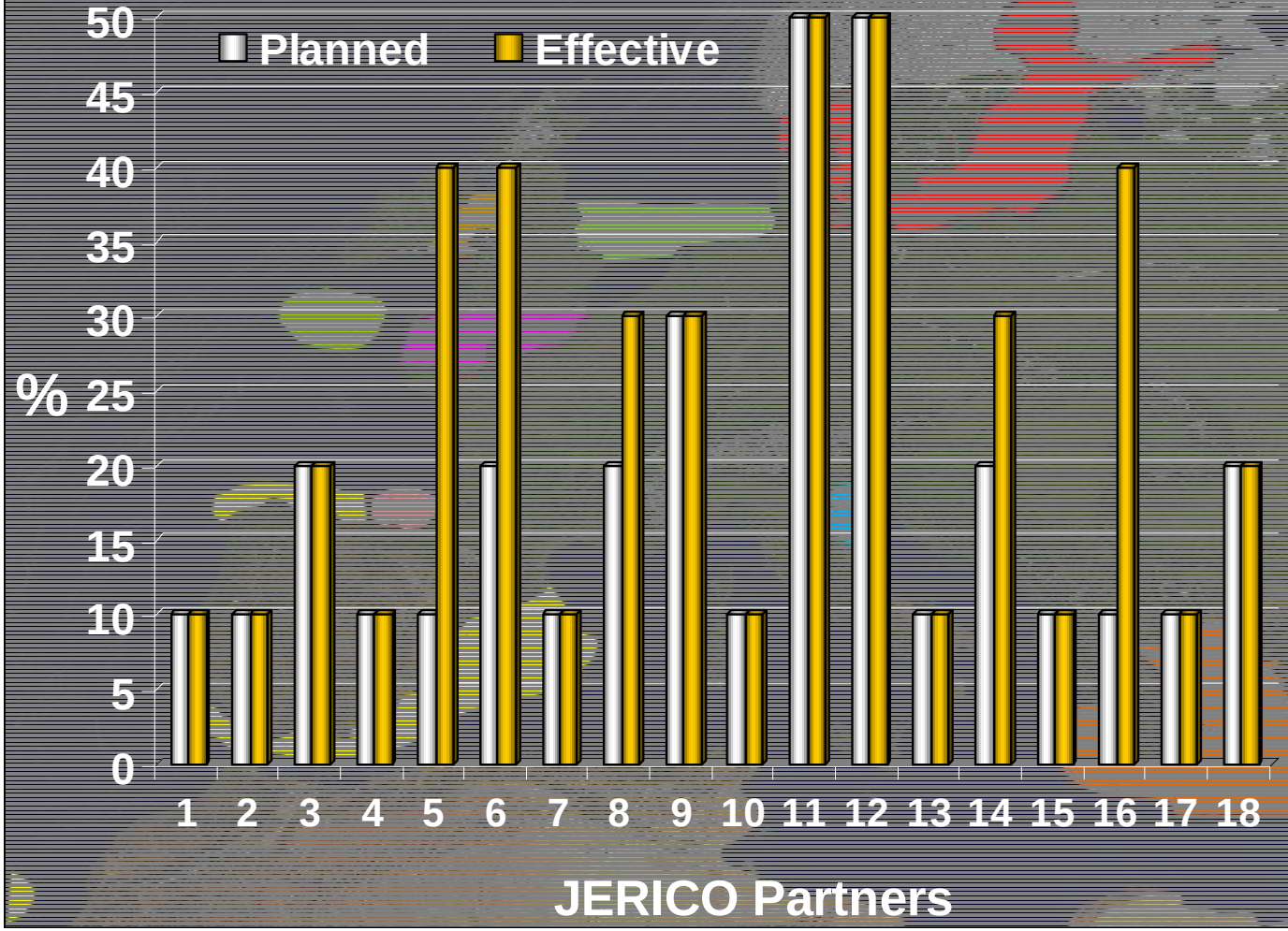
Money





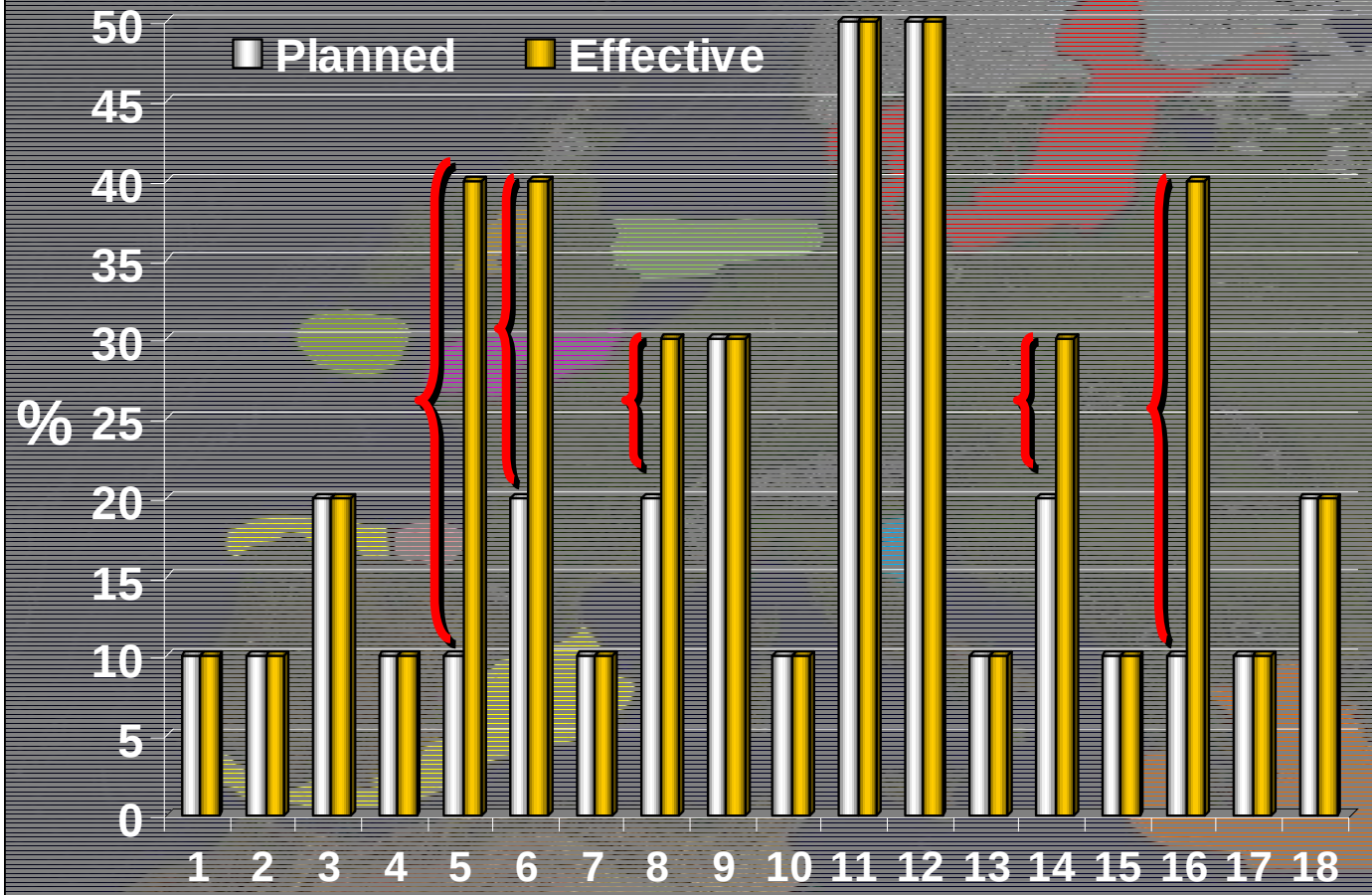
Biofouling Questionnaire: preliminary analysis

Time



Biofouling Questionnaire: preliminary analysis

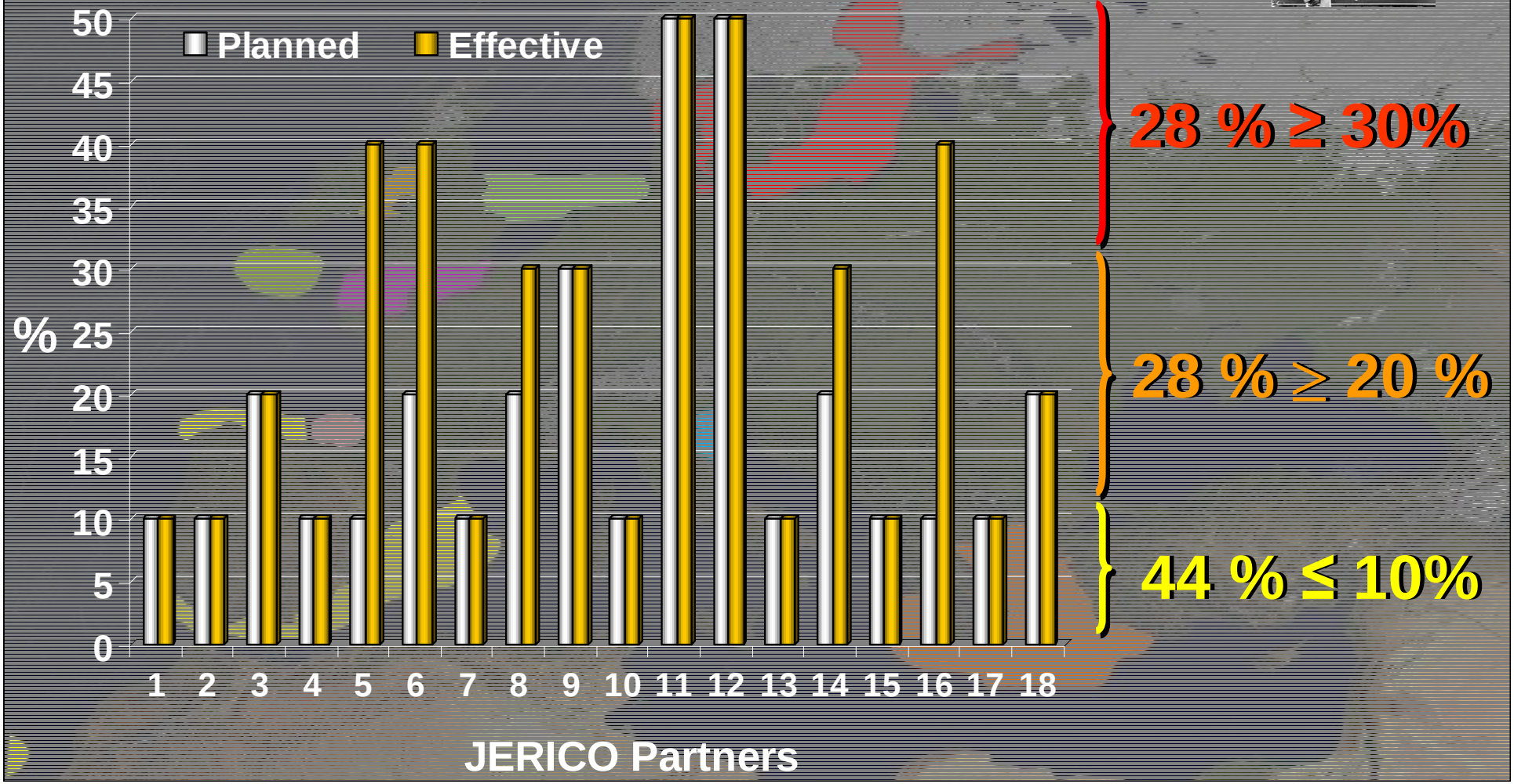
Time



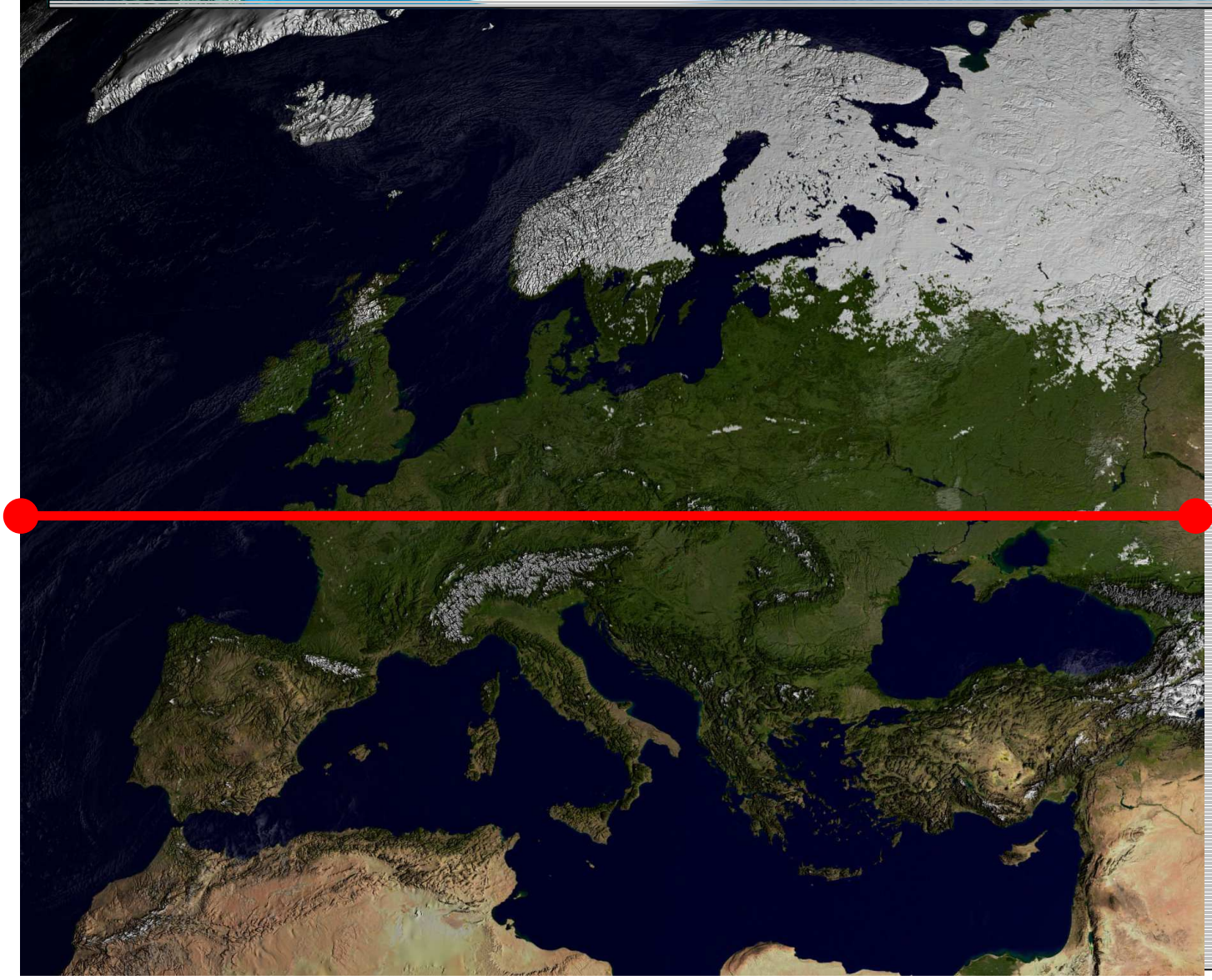
27% → 30 %

Biofouling Questionnaire: preliminary analysis

Time



Fixed Platforms Distribution

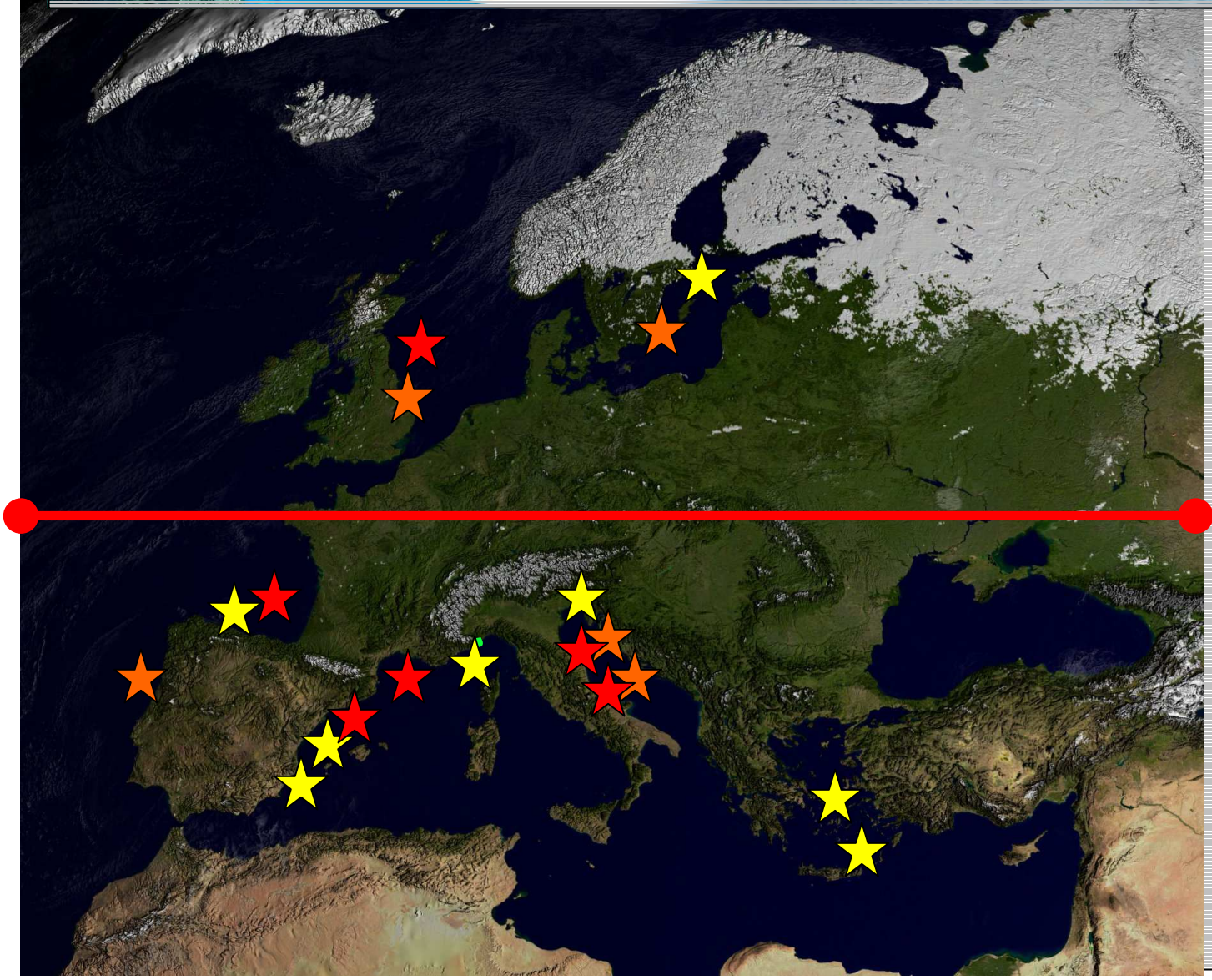


★ : ≥ 30%

★ : ≥ 20 %

★ : ≤ 10%

Fixed Platforms Distribution



★ : ≥ 30%

★ : ≥ 20 %

★ : ≤ 10%

Biofouling Questionnaire: preliminary analysis

Which of the following modes of action would be preferable for an anti-biofouling system?

Active

The system requires a power supply in order to function

(i.e. it needs to be energized to work, and possibly could be turned on and off)

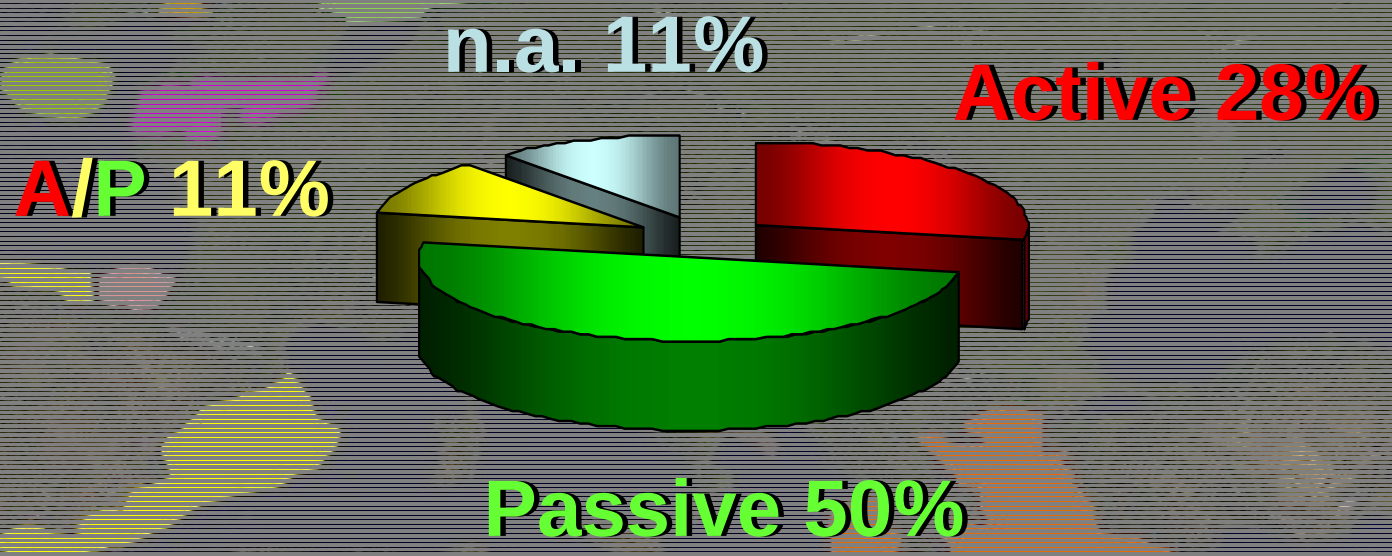
Passive

The system does not require a power supply in order to function

(i.e. it is always working, and cannot be turned off).

Biofouling Questionnaire: preliminary analysis

Which of the following modes of action would be preferable for an anti-biofouling system?



Biofouling Questionnaire: preliminary analysis

In the list of anti-biofouling techniques below, please indicate the ones which you currently use, which you think are the most effective and which you think are the promise for the future?

Mechanical device

(wipers or scrapers)

Uncontrolled biocide generation system

(e.g cupronickel endplate; copper tubing systems; copper shutters)

Biofouling Questionnaire: preliminary analysis

In the list of anti-biofouling techniques below, please indicate the ones which you currently use, which you think are the most effective and which you think are the promise for the future?

Controlled biocide generation system

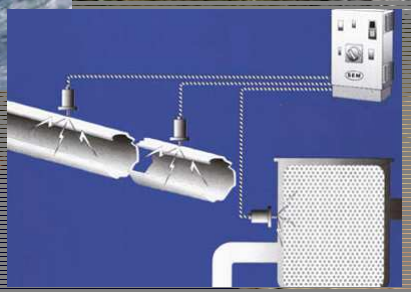
(e.g. chlorination, electrolysis chlorination)

Irradiation system

(e.g. UV; US;)

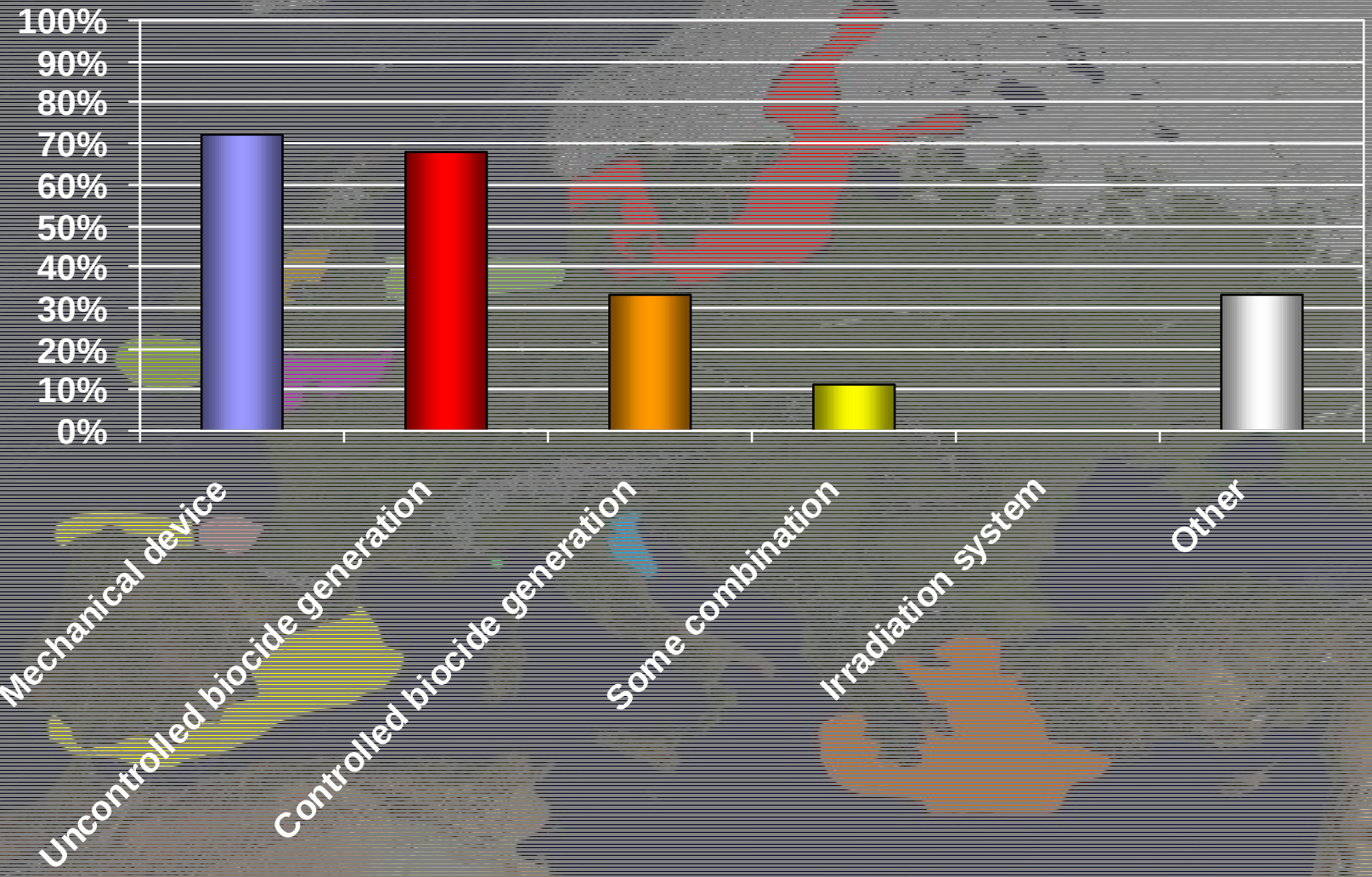
Some combination of the above

Other system



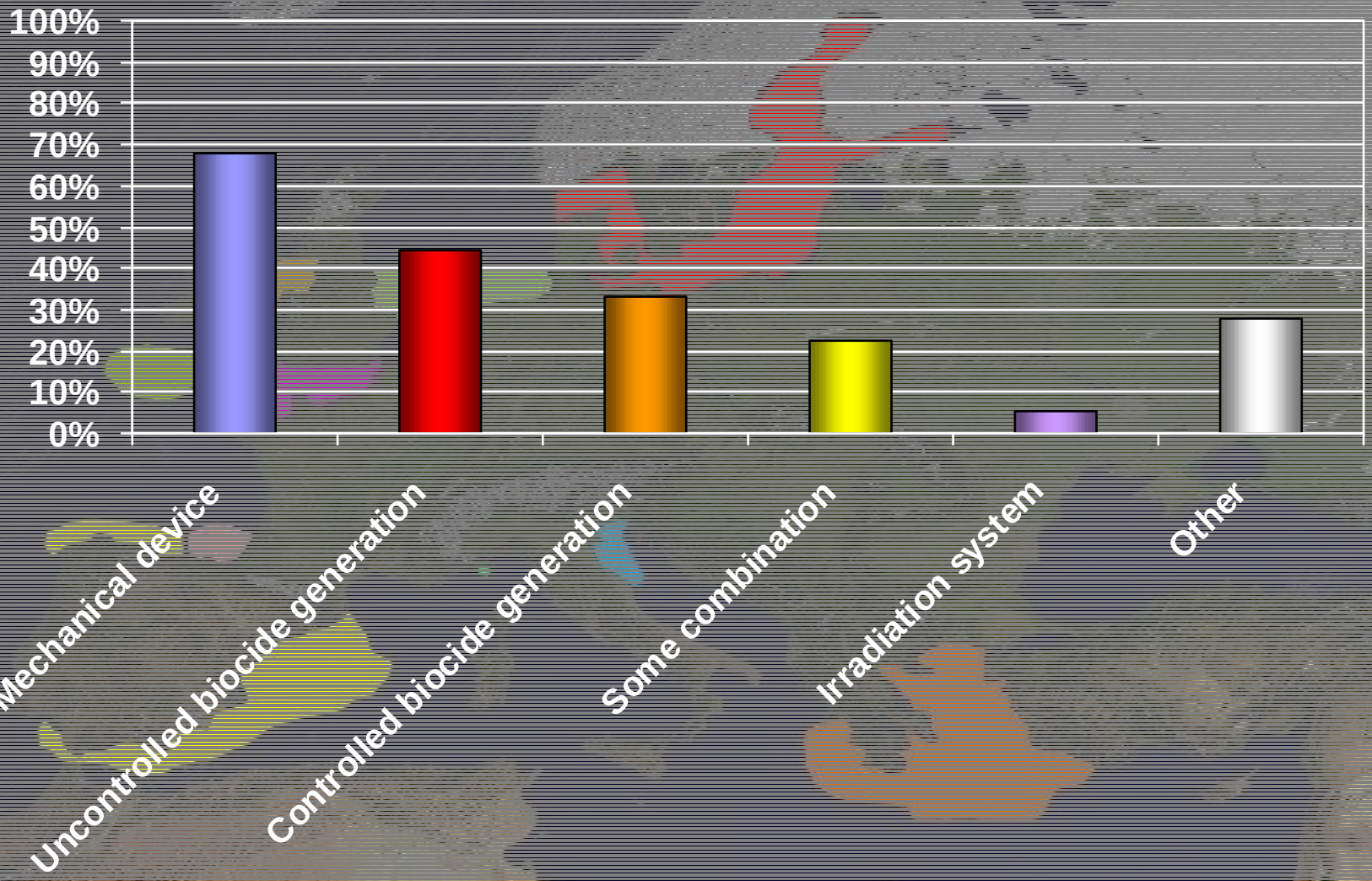
Biofouling Questionnaire: preliminary analysis

Currently Used



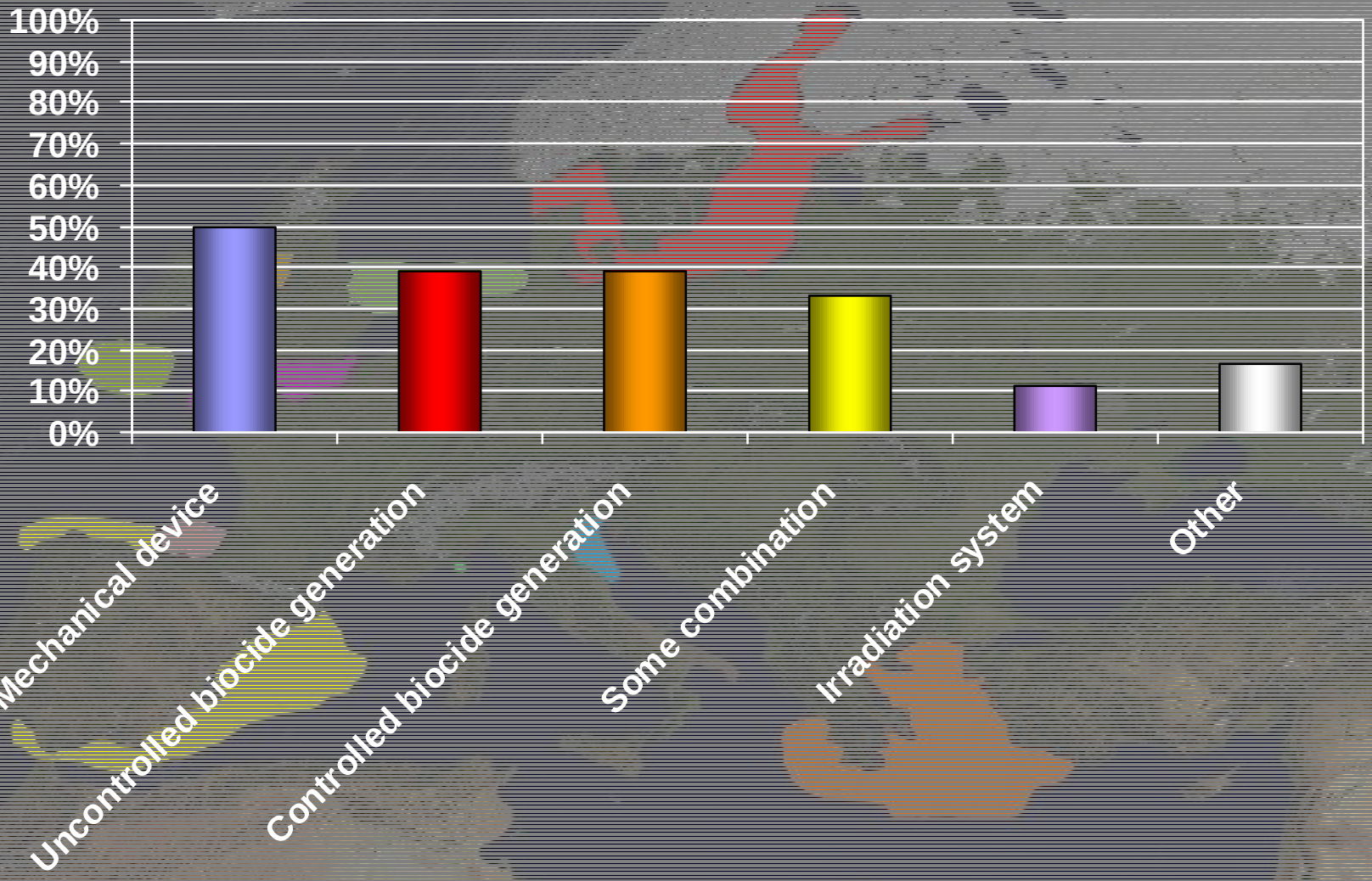
Biofouling Questionnaire: preliminary analysis

Most Effective



Biofouling Questionnaire: preliminary analysis

Promise for the future



Biofouling Questionnaire: preliminary analysis

In your view, is there any advantage to using closed-path sensor systems over open-path ones from the perspective of the biofouling problem ?

Yes or Not ?

Closed-path systems

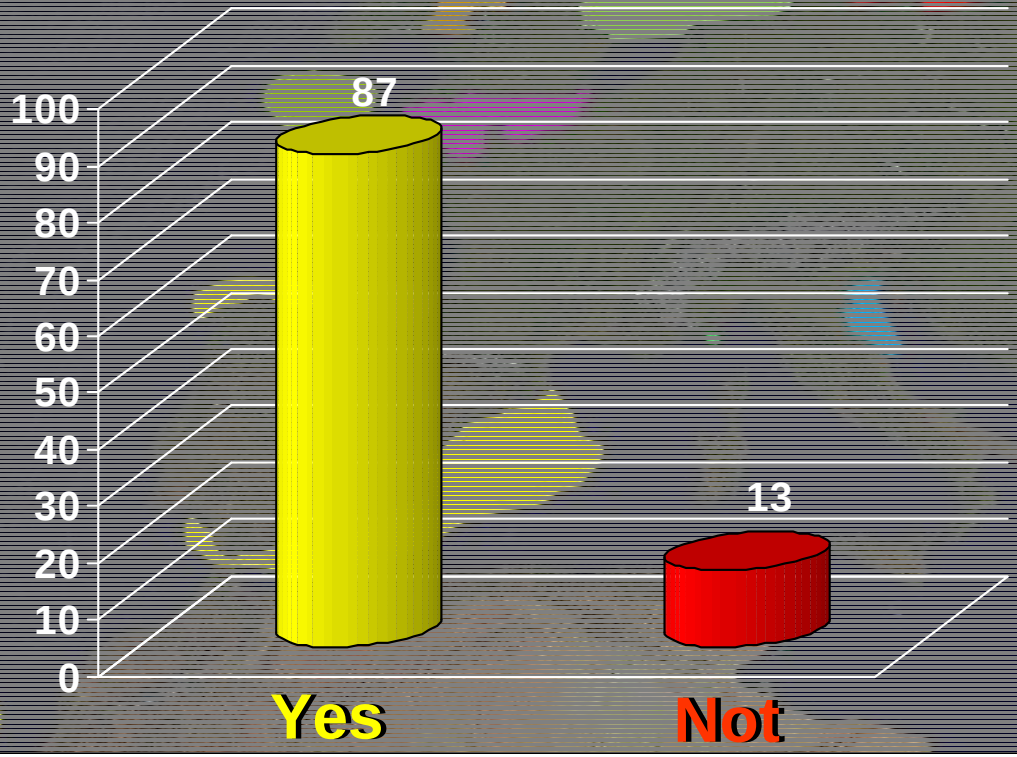
(i.e. systems where sensors are served by a single, closed hydraulic circuit with just one entrance and one exit for a sample stream)

Open-path systems

(i.e. systems where sensors are not served by a closed hydraulic circuit)

Biofouling Questionnaire: preliminary analysis

In your view, is there any advantage to using closed-path sensor systems over open-path ones from the perspective of the biofouling problem ?



Because closed-path systems are better?

- Easier maintenances
- More efficient protection
- No light < Biofouling

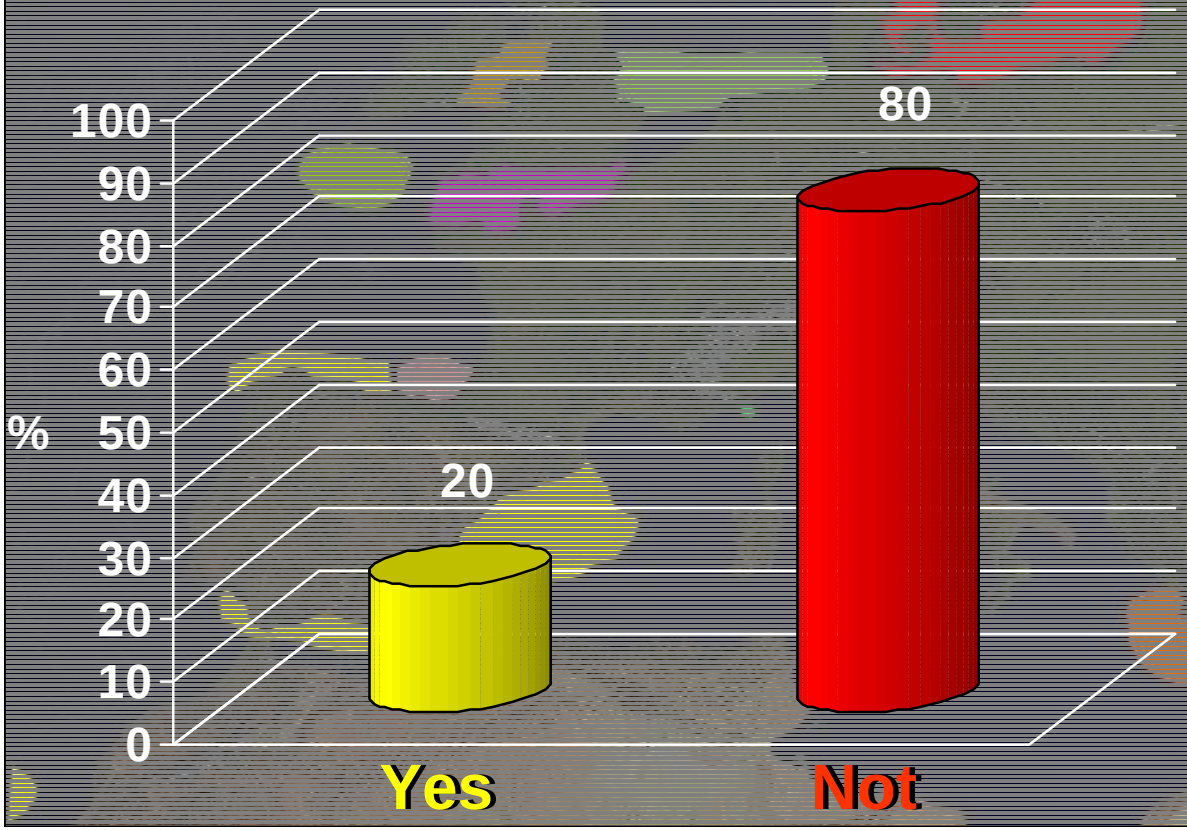
Biofouling Questionnaire: preliminary analysis

There are differences in extension/distribution of the various types of biofouling between physical, optical and chemical sensors?

Yes or Not ?

Biofouling Questionnaire: preliminary analysis

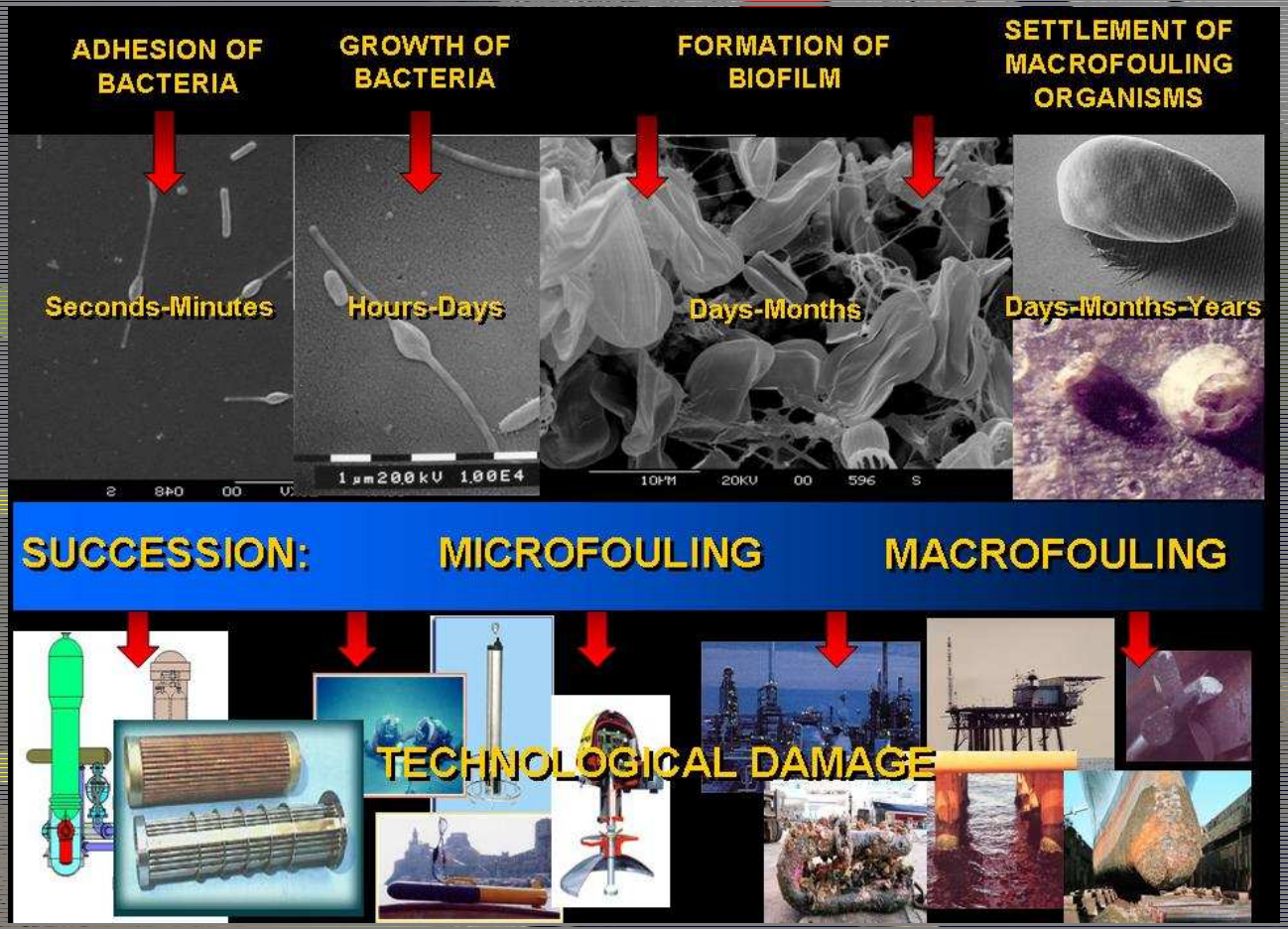
There are differences in extension/distribution of the various types of biofouling between physical, optical and chemical sensors?



?????

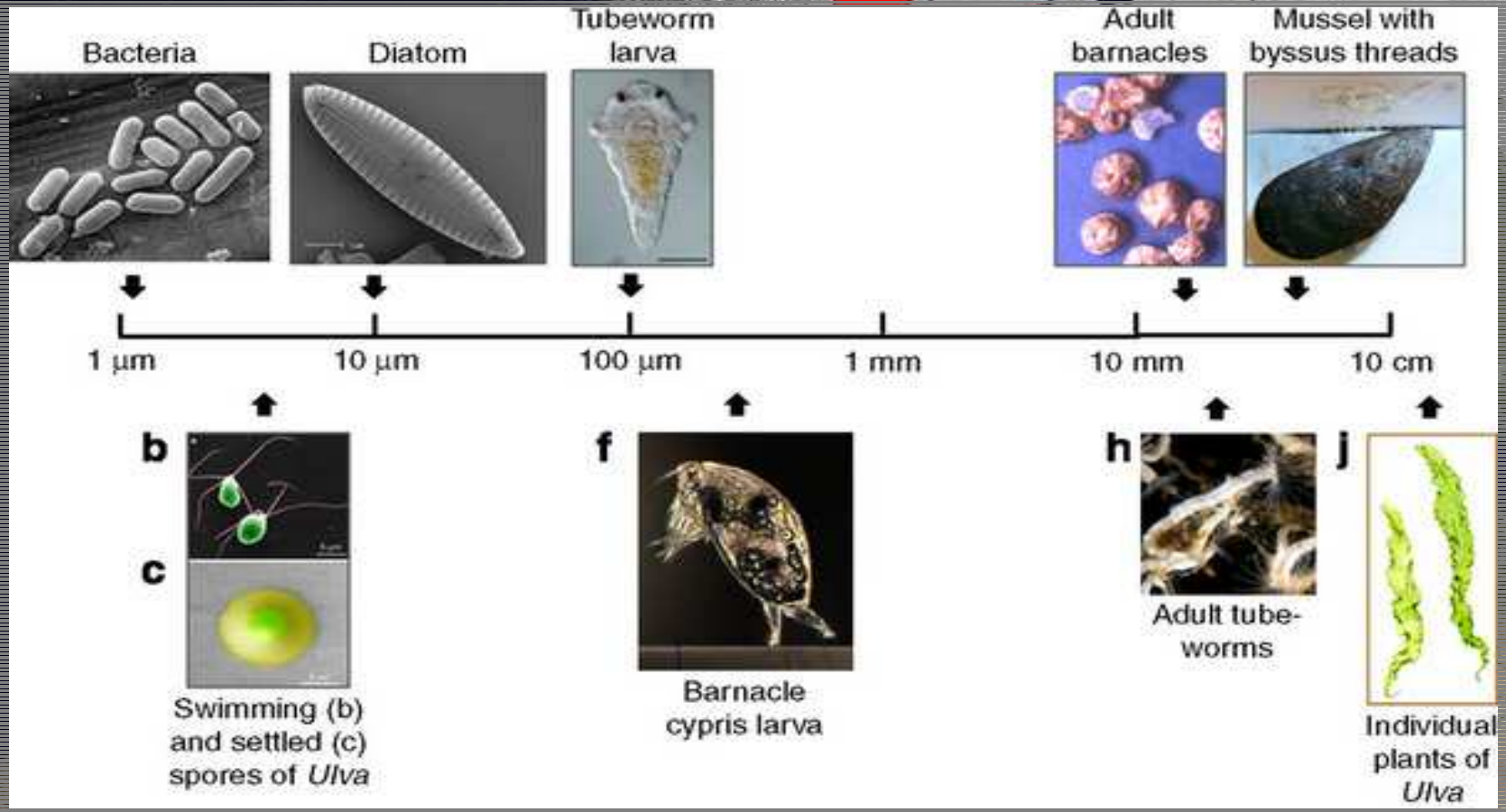
Biofouling Questionnaire: preliminary analysis

No differences in biofouling composition between physical, optical and chemical sensors?



Biofouling Questionnaire: preliminary analysis

No differences in biofouling composition between physical, optical and chemical sensors?



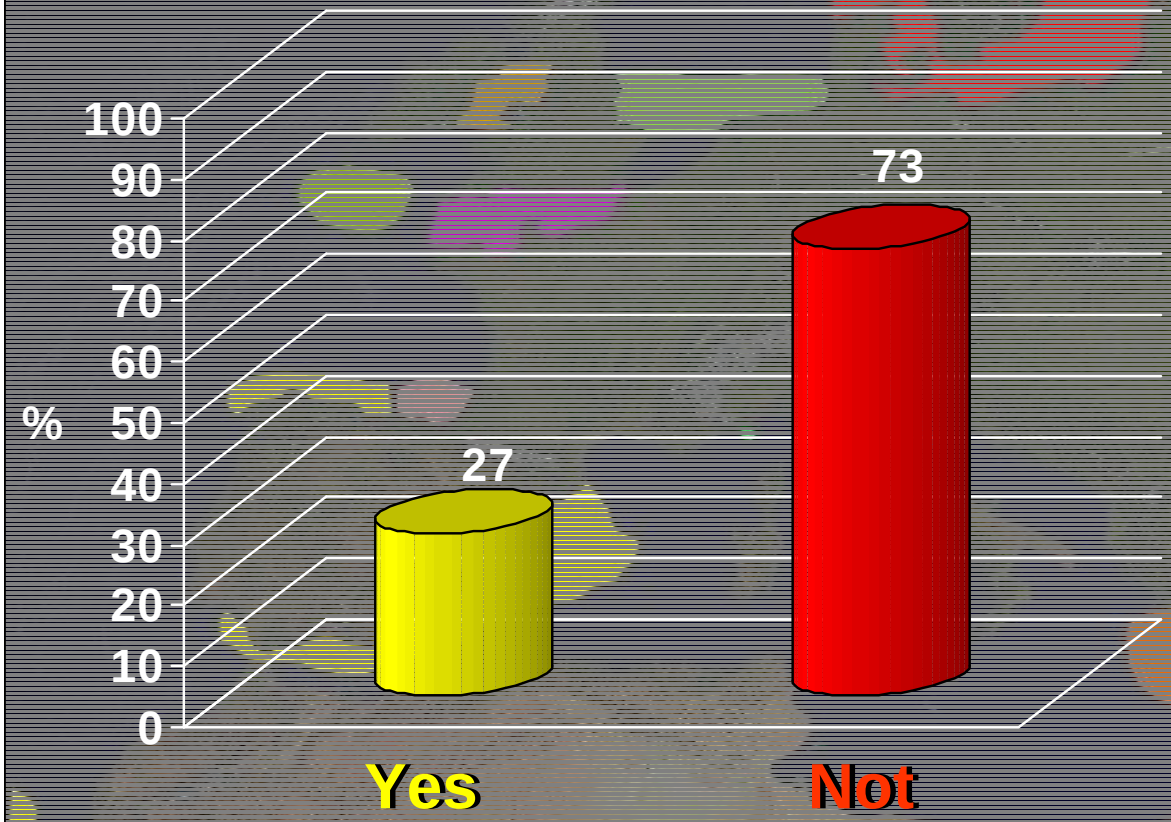
Biofouling Questionnaire: preliminary analysis

Do you have any suggestions for choosing/promoting / developing new antifouling systems specific for sensors ?

Yes or Not ?

Biofouling Questionnaire: preliminary analysis

Do you have any suggestions for choosing/promoting / developing new antifouling systems specific for sensors ?



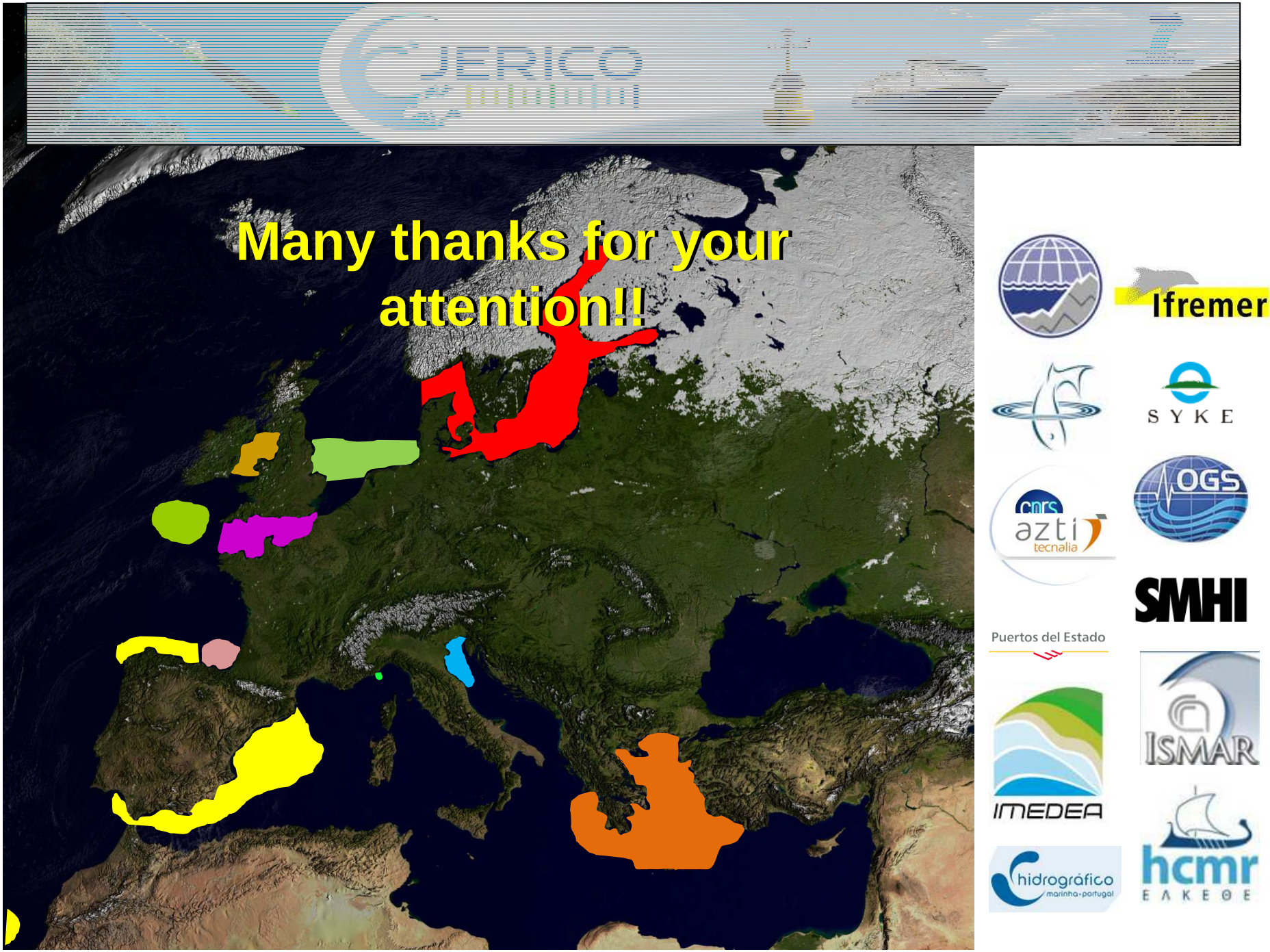
Biofouling Questionnaire: preliminary analysis

Some suggestions from partners

- New energized bubble system for cleaning

- Keep sensor in deep water when not used

- New engineered non-toxic AF paint


Many thanks for your attention!!
Ifremer
SYKE
OGS
azti
tecnalia
SMHI
Puertos del Estado
ISMAR
IMEDEA
hidrográfico
marinha·portugal
hcmr
ΕΛΚΕΘΕ

Many thanks for your attention!!

...on our instruments!