

*“Development and application of Novel, Integrated Tools for  
monitoring and managing Catchments”*

# INTCATCH 2020

*Creating a paradigm shift in  
water quality monitoring*

## Innovative Monitoring Strategies & Decision Support Workshop

Supported by Horizon 2020 Framework Programme of the European Union This project has received funding from the European Unions Horizon 2020 research & Innovation programme under grant agreement no 689341-2





# Welcome

- Domestics
- Purpose of the workshop
- Who is in the room
- Workshop Plan
- Introduction to IntCatch

*Creating a paradigm shift in water quality monitoring*

**Innovative Monitoring Strategies & Decision Support Workshop**





# Purpose of today's 'expert' workshop

## *Innovative Monitoring Strategies & Decision Support*

To work with catchment stakeholders to generate a broad set of current and future requirements or desirables, for monitoring and managing the catchment which frame decision support needs

Based on an 'empirical assessment' of how best to assess the problems we are facing on our river systems.

Opportunity to engage with new technologies and expertise

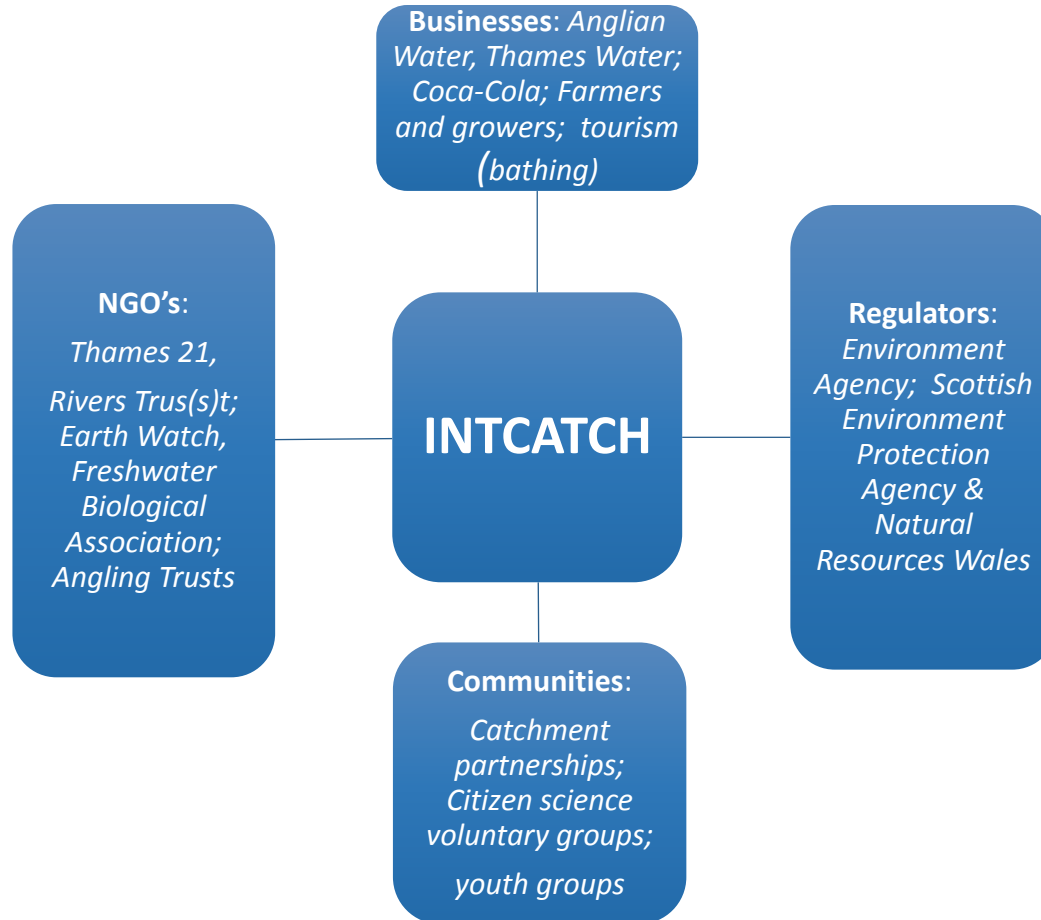
Identify 'problem sites' in the CamEO that we will come back and test the new tools on, and work community groups to work with IntCatch demonstration

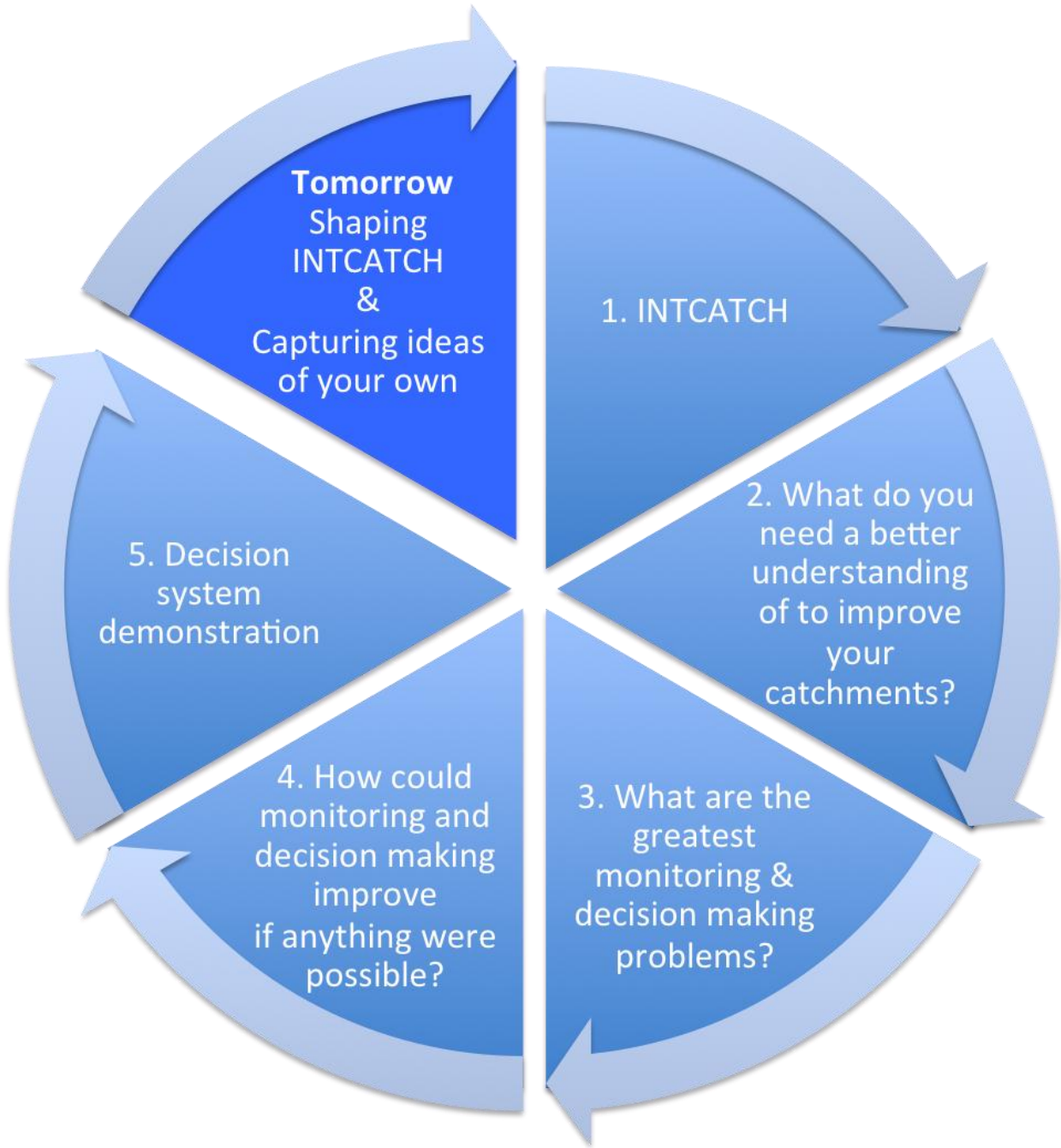
The conversation continues after the workshop....





# UK Stakeholders – who is in The Club?







# The INTCATCH Vision

## Monitoring and managing the water environment for 2020 – 2050.

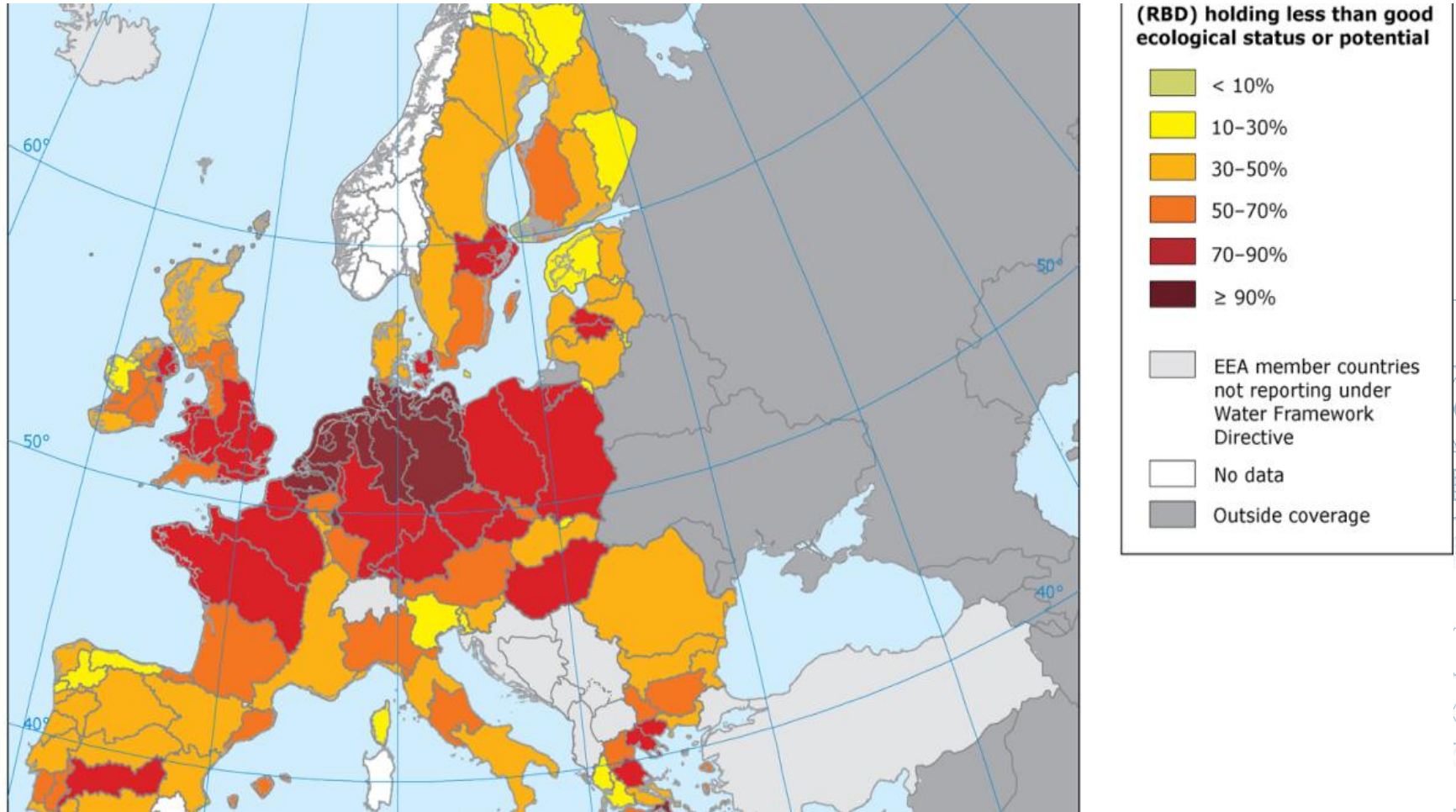
- We will deliver SMART water environments that use digital technologies, innovative low-cost tools and presents real-time information that:
  - protects and enhances the quality and value of those environments by enabling effective management of pollution;
  - reduces costs; broadens and enables uptake,
  - engages more effectively and actively with citizens.
- [www.intcatch.eu](http://www.intcatch.eu)



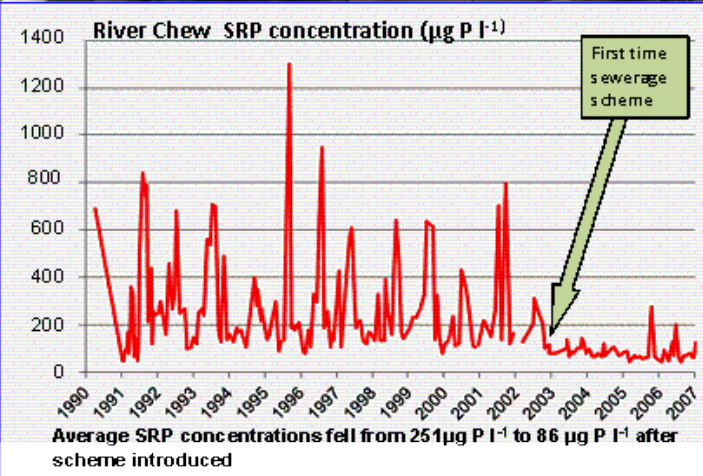
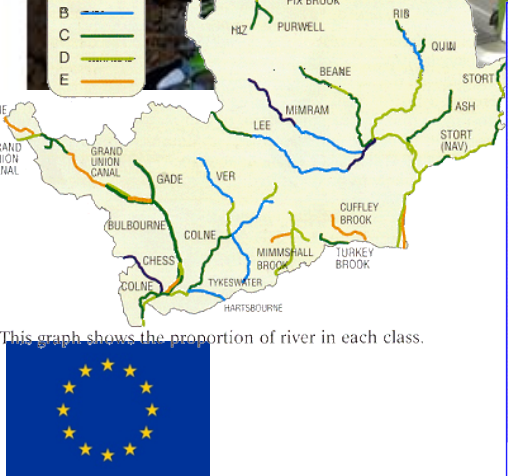




# Our ambition: to change the state of the water environment in Europe



The current WQ monitoring approach is retrospective, lacking resolution, specialist, costly and focused on classification



ZC14 : 20000101 to 20020430 : Selected 270 of 270

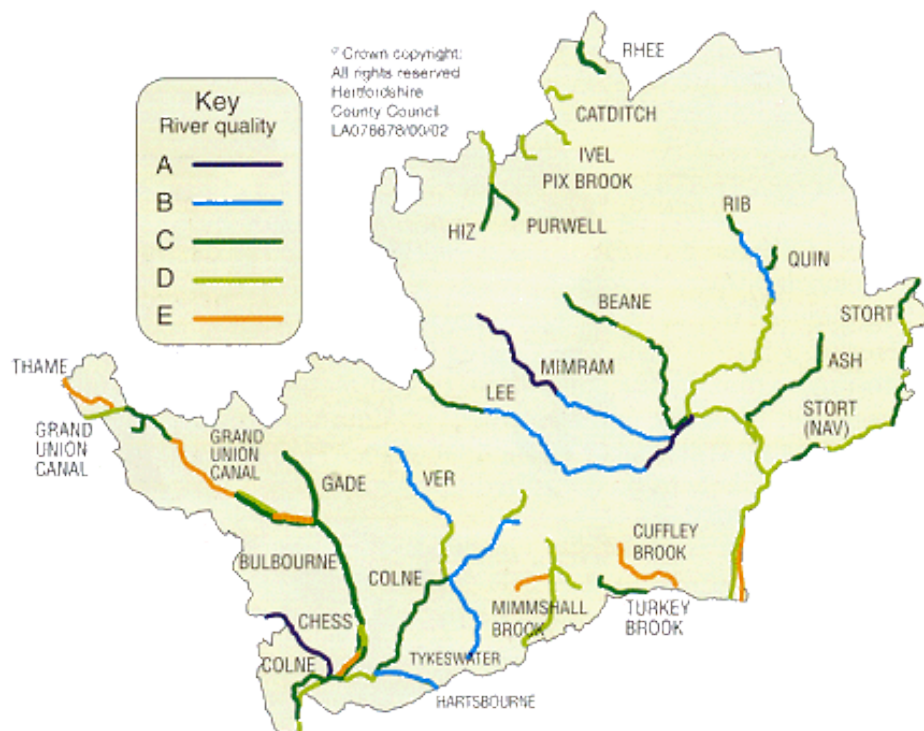
	A Al2O3 AL2O3 %	B CaO CAO %	C Cd CD %	D Cu CU %	E Ni NI %	F Pb PB %
1	20020424 0924	< 0.01	0.20	45	9.4	0.10
2	20020423 0933	< 0.01	0.12	46	10.4	0.10
3	20020422 0922	< 0.01	0.15	41	10.4	< 0.01
4	20020421 0921	< 0.01	0.07	42	10.7	0.12
5	20020421 0920	< 0.01	0.08	43	11.3	0.14
6	20020419 0916	< 0.01	0.07	42	9.4	0.10
7	20020415 0910	0.11	0.11	47	8.8	0.11
8	20020415 0909	0.10	0.11	51	10.1	0.12
9	20020413 0908	< 0.01	0.18	44	9.4	0.10
10	20020412 0907	< 0.01	0.16	49	11.4	0.10
11	20020412 0906	< 0.01	0.10	48	11.1	0.10
12	20020412 0905	< 0.01	0.11	49	11.4	0.10
13	20020411 0904	< 0.01	0.03	51	10.9	0.10
14	20020410 0902	< 0.01	0.09	52	10.3	0.12

Data Sheet / Samples

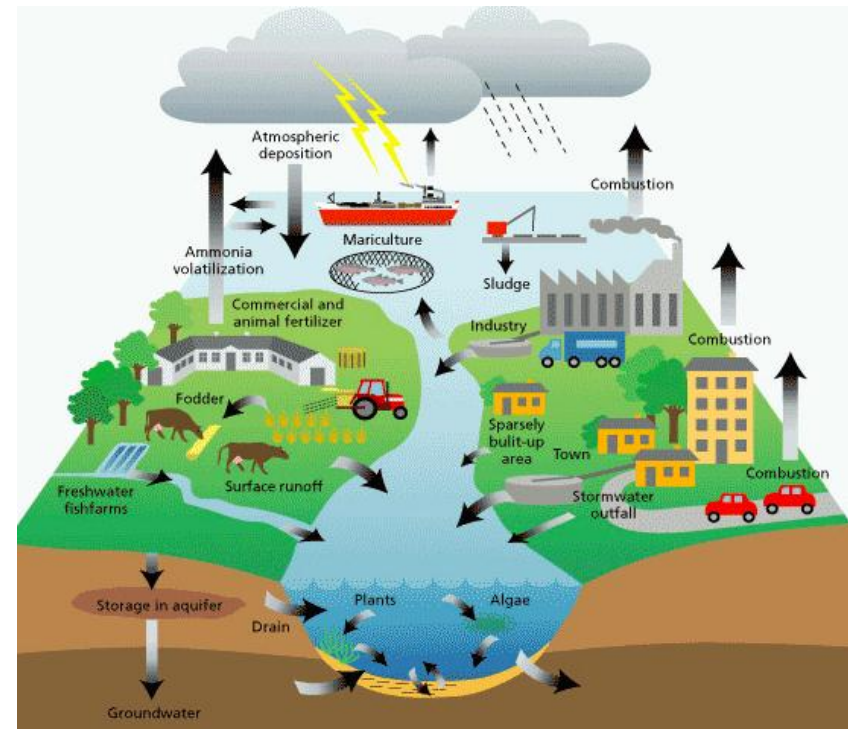




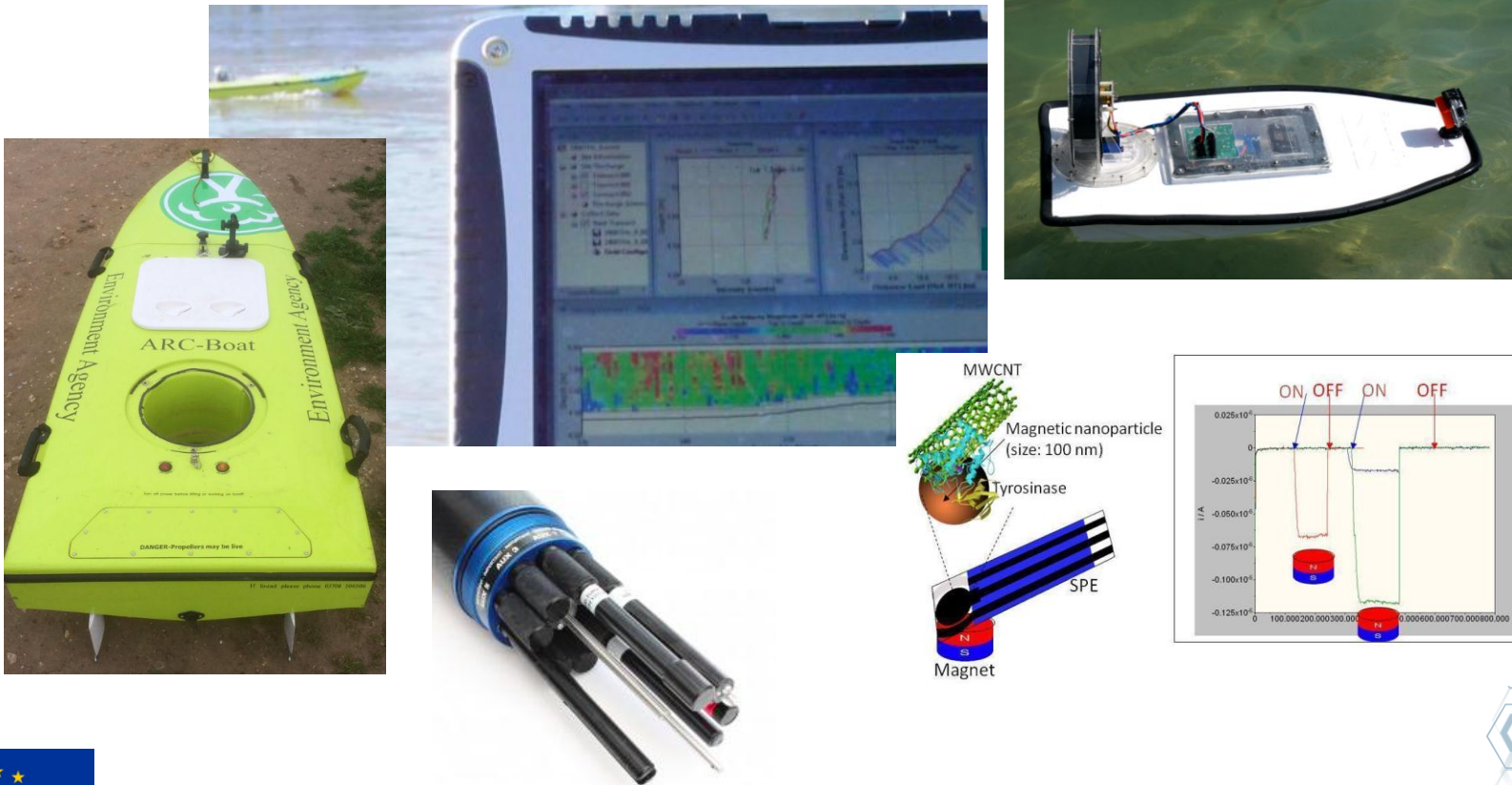
Because the WQ monitoring strategies are not identifying how improvements can be achieved



This graph shows the proportion of river in each class.



Because the new tools and technologies do not sit comfortably within the 'state' monitoring strategies: barrier to innovation



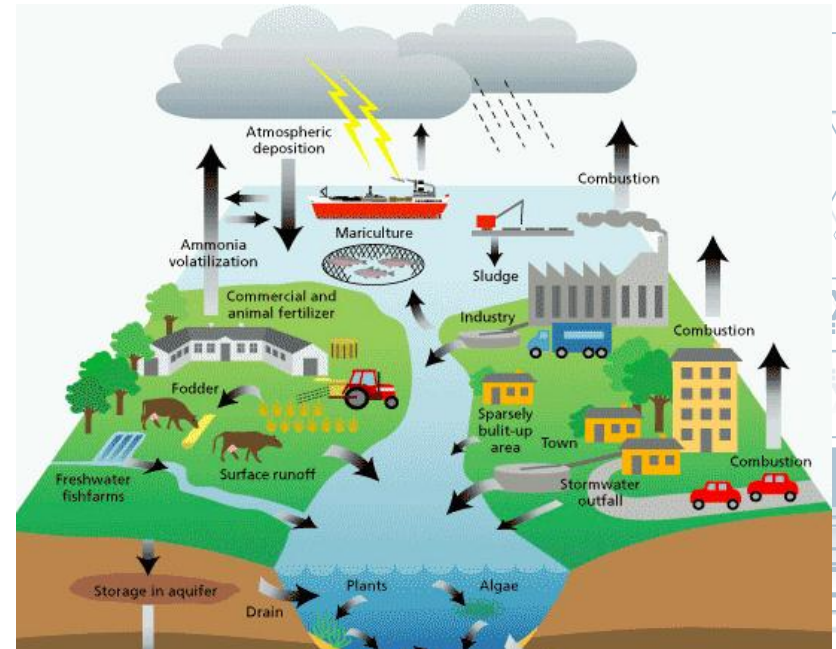


# What data do stakeholders need? How do they connect with the data

- Regulators – compliance
- Water companies - supply
- Farmers – for crop health
- Local businesses – bathing water quality
- Angling/biodiversity – protect ecological health

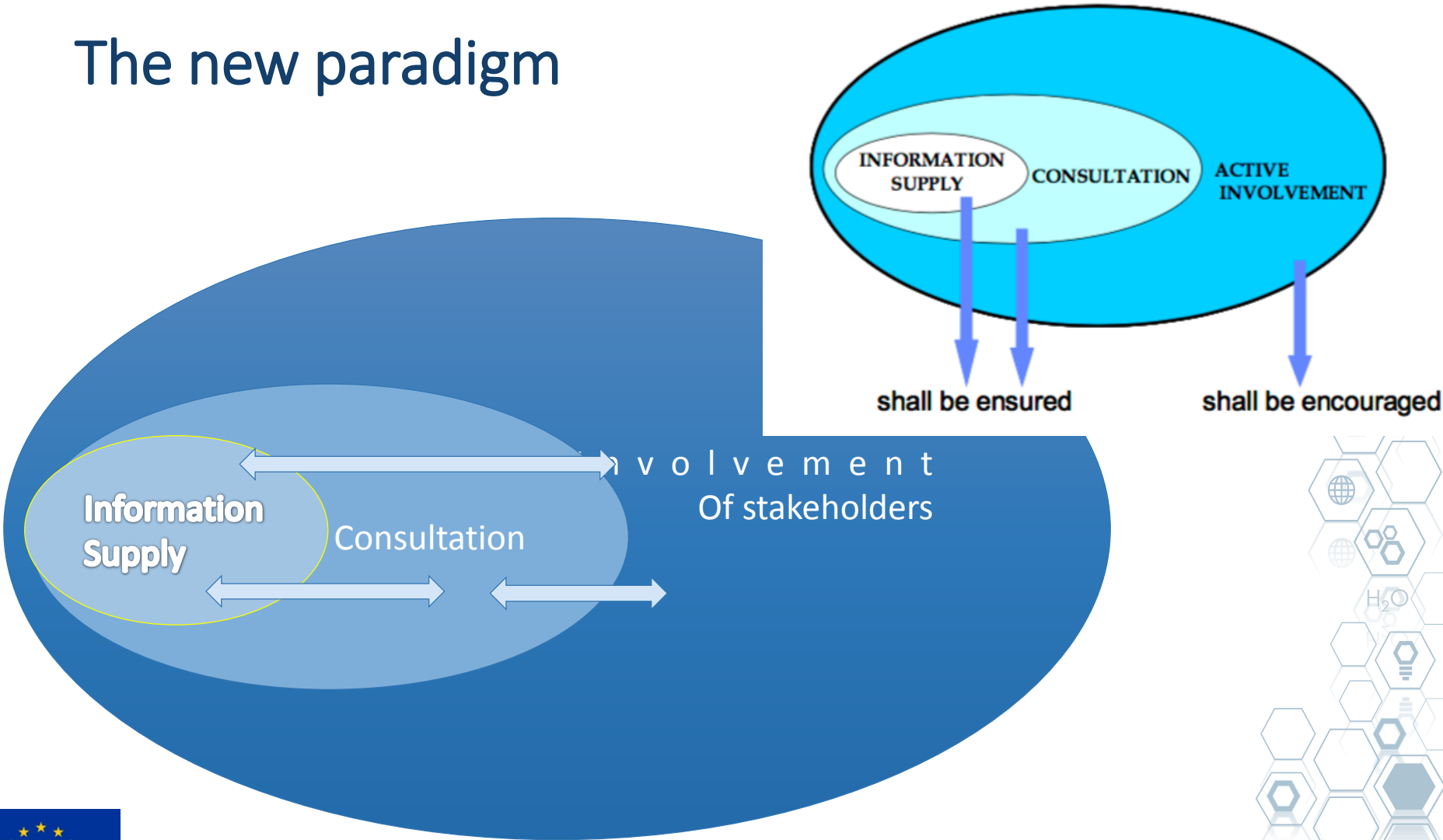


*Who else could be monitoring?*





# The new paradigm

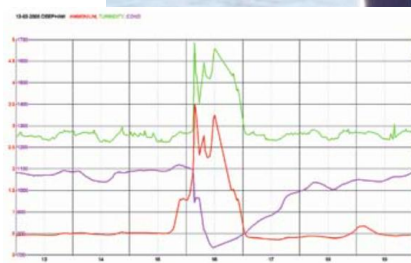




2020

# Paradigm shift towards a SMART water environment

- Combinations of water quality sensors on different 'platforms' - boats; fixed points.
- WQ Sensors to be deployed – right place, right time, real time in surveillance and investigations monitoring strategies.
- WQ and ACDP – flow/bathymetry/chemistry
- Identify inputs, sources, loads, dynamics
- Data captured and shared with other stakeholders for analysis – *Community & Citizen Science*
- Enables effective decision making and management of local 'diffuse' pollution





## Work package 2: Setting the strategy

- Assess current approaches to water quality investigations / monitoring in rivers & lakes.
- Understand how people & communities can, and do interact with the water environment.
- Develop innovative approaches to water quality monitoring.
  - Identify and bring forward new tools.
  - Develop Innovative monitoring strategies
  - Enable non-specialists – citizens scientists
- Informing the Decision Support system





# Chosen Catchments

## 1. Lake Garda (Italy)



## 2. Thames Tributaries (UK)



## 3. River Great Ouse (UK)



## 4. River Ter (Spain)



## 5. Lake Yliki (Greece)



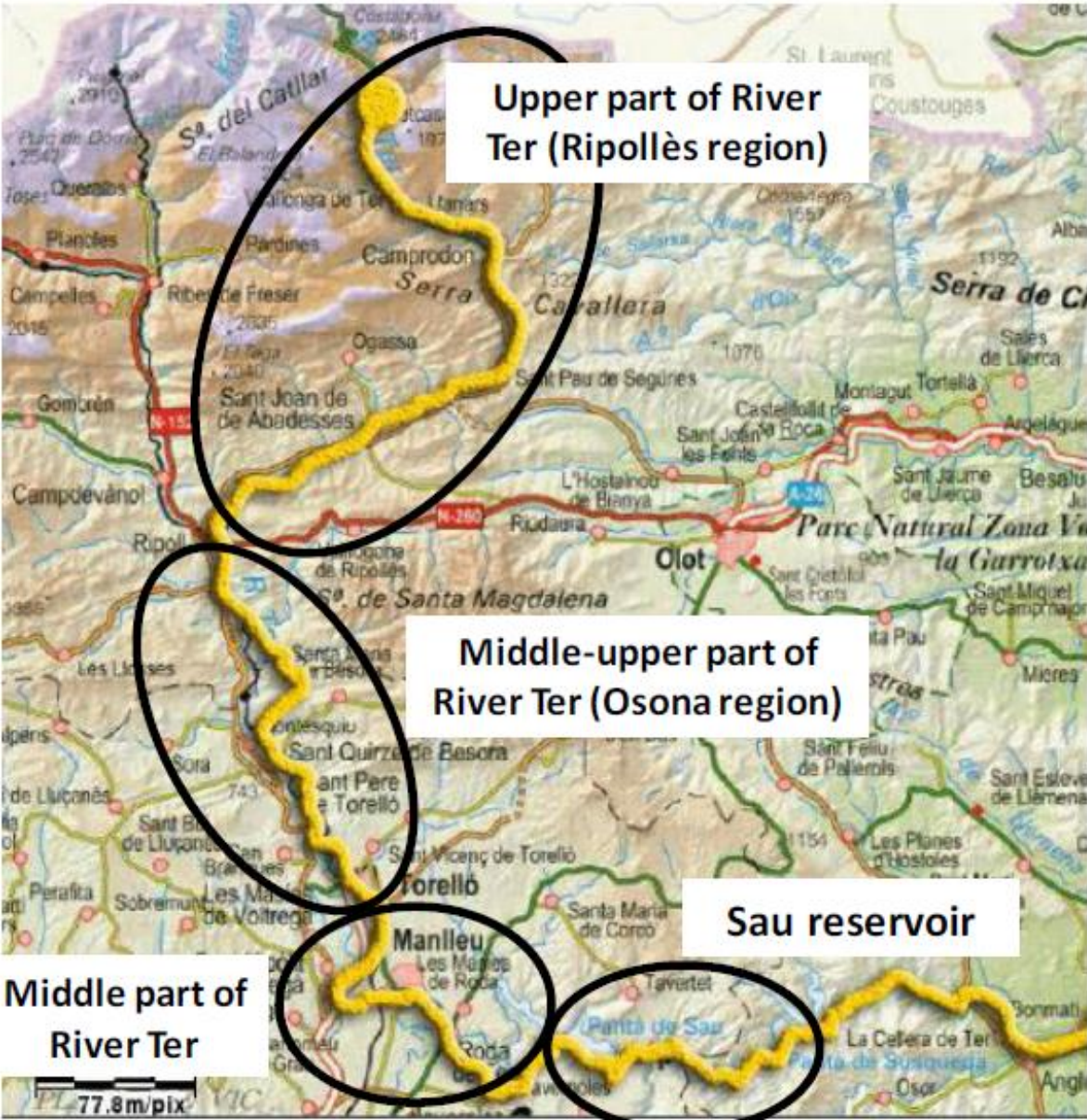


## River Ter – October 2016

- Catalonia – Spain 75,000 population & 1 million pigs.
- River flows from the Pyrennes into the mediterranean sea.
- Have issues with low and high flows depending upon seasons.
- Seasonal Geosmin problems made the water taste horrid!!
- 208km river – 30 + weirs. (one every 0.8km)
- Primary uses – Hydro power and Drinking water abstraction.
- Strong political control may prevent some solutions.







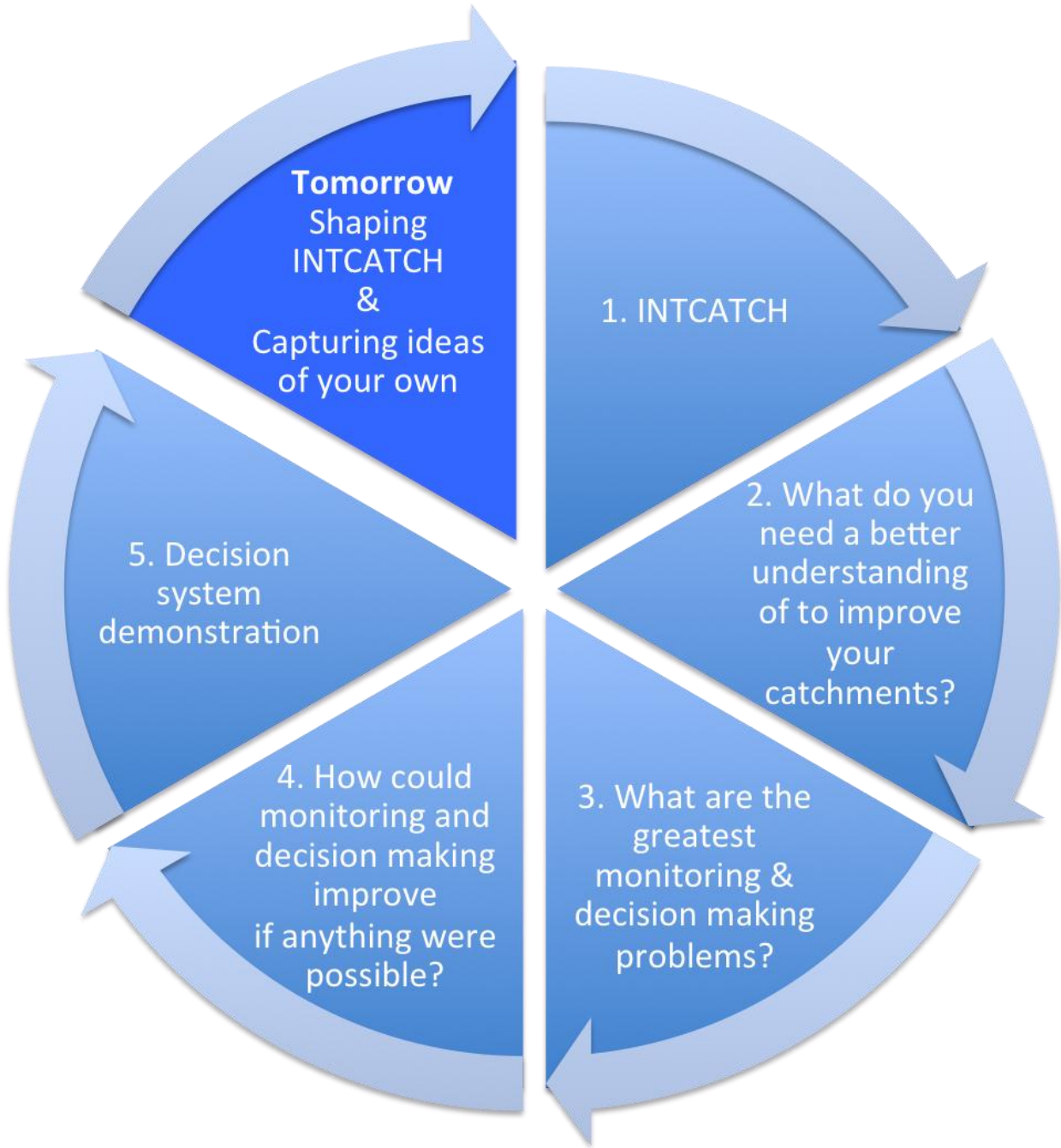














2. What do you need a better understanding of to improve your catchments?





3. What are the  
greatest  
monitoring &  
decision making  
problems?





# Lunch







4. How could  
monitoring and  
decision making  
improve  
if anything were  
possible?

