

# EU Policy and Management of Hydromorphological pressures

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# Outline

- **Hydromorphology and key EU policy**
- **Reference condition and classification**
- **Status of Scottish rivers**
- **Ecological assessment of hydromorphological pressures**
- **Policy and science – integrating our efforts**

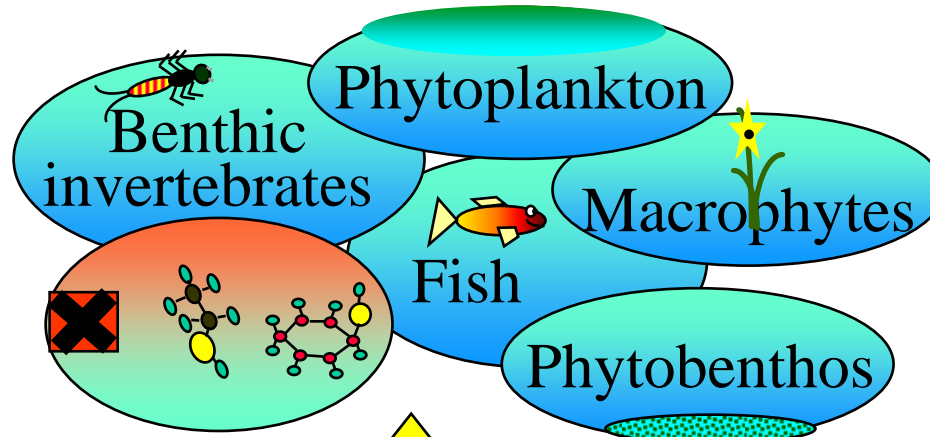
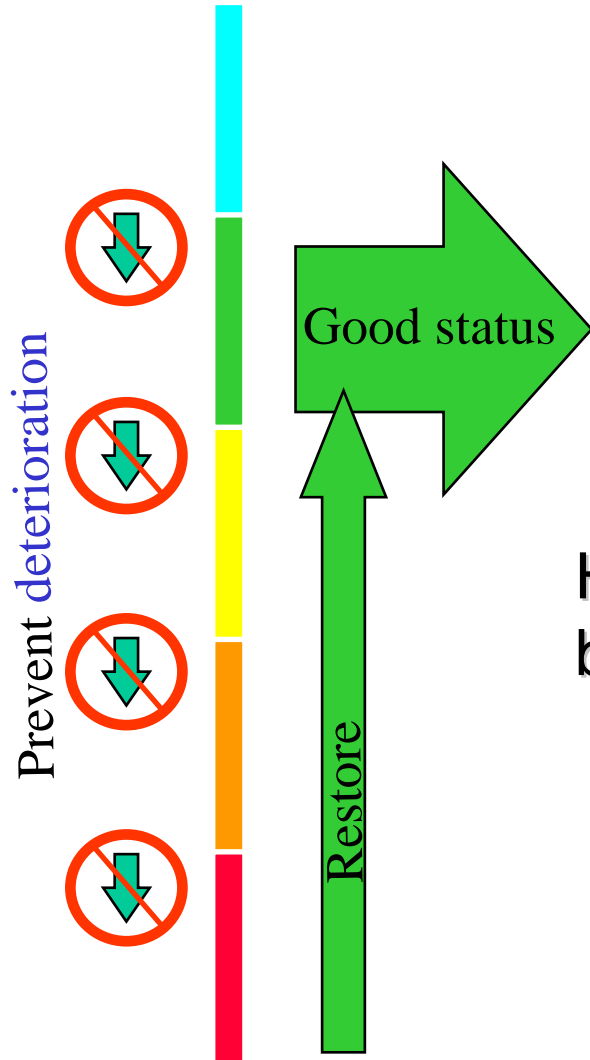
# Water Framework Directive

## Main ambitions for surface waters:

- **Protect, enhance and restore surface water bodies to good ecological status**
- **Prevent deterioration of status**
- **Promote sustainable development**
- **Protect interests of other water users**
- **Manage flood risk**

# Key WFD Objectives

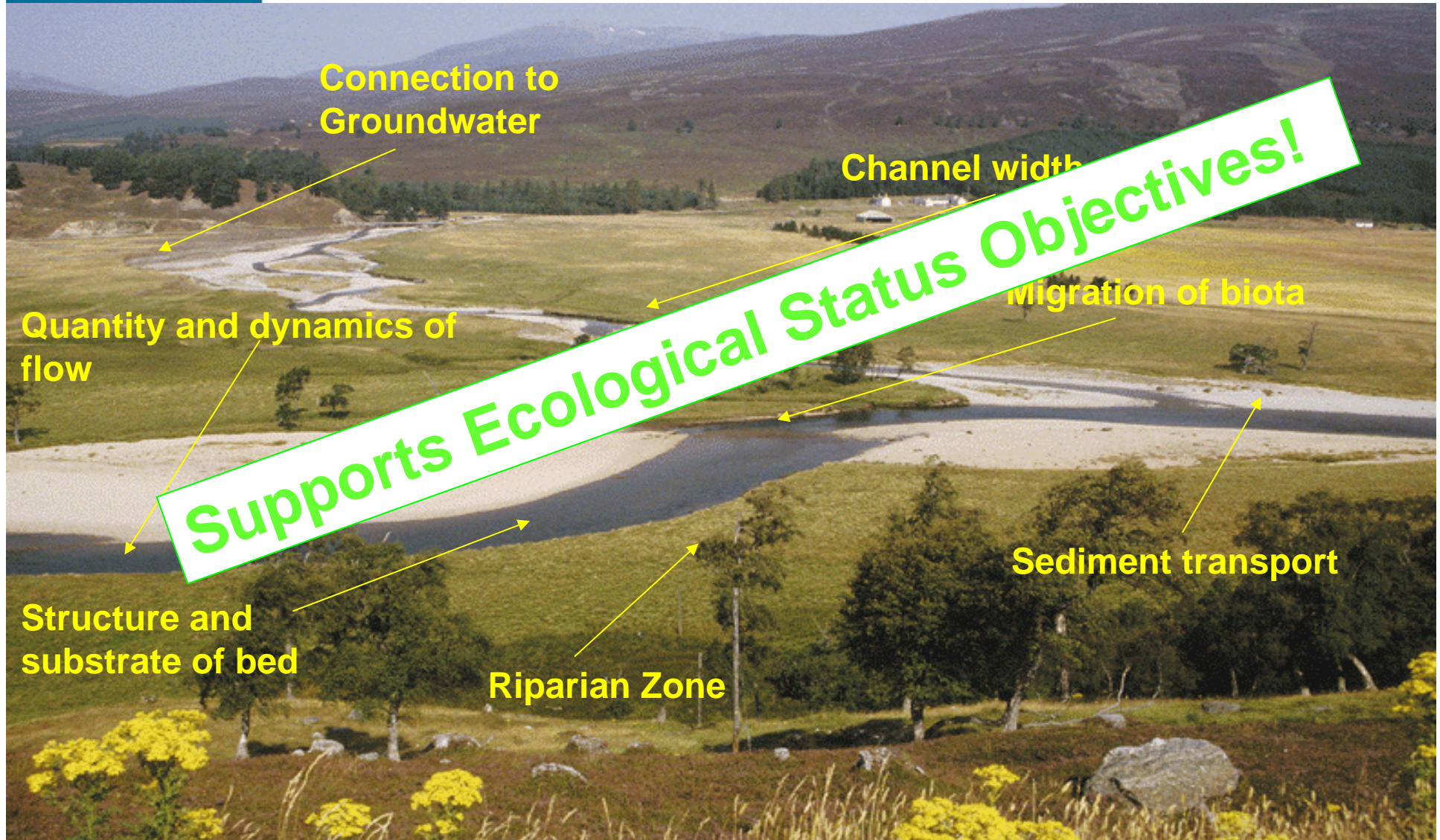
Ecological status objectives



Hydromorphological conditions support biological quality at good status



# Hydromorphological Quality Elements in WFD



# Reference Conditions and High Ecological status



# Reference Conditions and High Ecological status

## Annex II:

Establish type-specific hydro-morphological reference conditions supporting High Ecological status

**Key policy need: determine the hydromorphological conditions that reflect biological reference conditions**

Establish informative Definitions

**High Status:**

There are no (or very minor) anthropogenic alterations to the values of the hydromorphological quality elements for that water body type

# EU Intercalibration Work





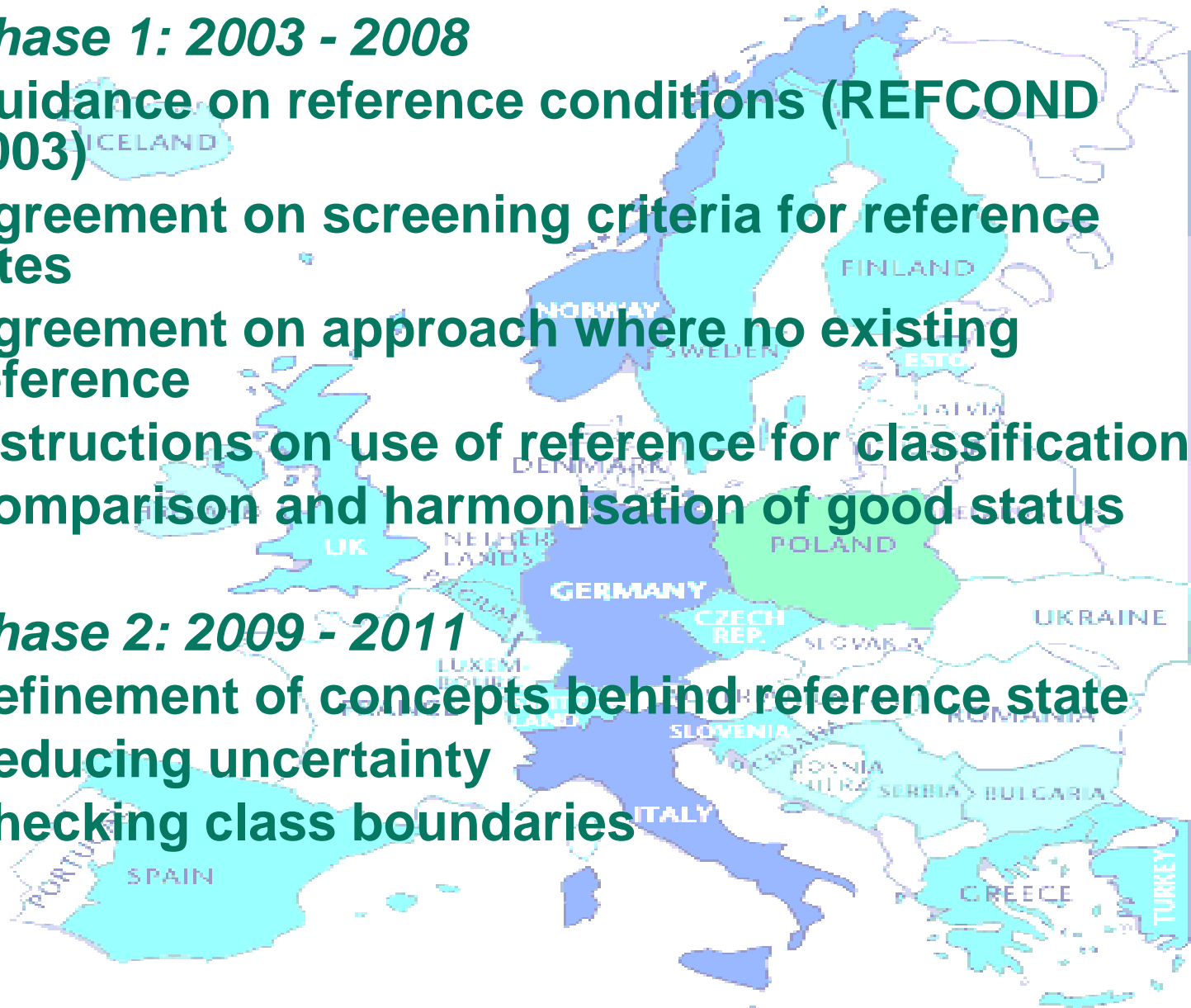
# EU Intercalibration Work

## *Phase 1: 2003 - 2008*

- **Guidance on reference conditions (REFCOND 2003)**
- **Agreement on screening criteria for reference sites**
- **Agreement on approach where no existing reference**
- **Instructions on use of reference for classification**
- **Comparison and harmonisation of good status**

## *Phase 2: 2009 - 2011*

- **Refinement of concepts behind reference state**
- **Reducing uncertainty**
- **Checking class boundaries**

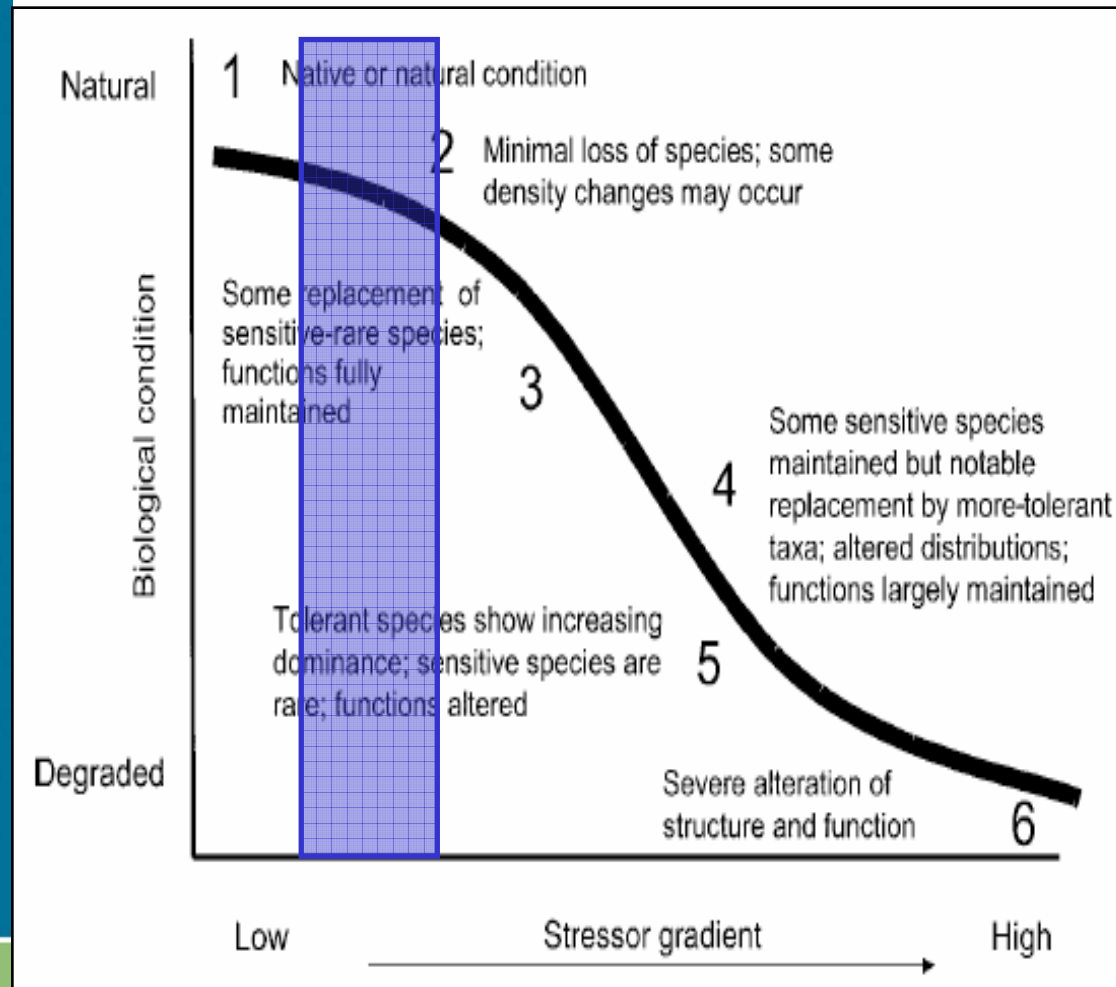


# No-impact threshold : is there a conceptual model ?

## THE BIOLOGICAL CONDITION GRADIENT: A DESCRIPTIVE MODEL FOR INTERPRETING CHANGE IN AQUATIC ECOSYSTEMS

SUSAN P. DAVIES<sup>1,3</sup> AND SUSAN K. JACKSON<sup>2</sup>

*Ecological Applications*, 16(4), 2006, pp. 1251–1266  
© 2006 by the the Ecological Society of America

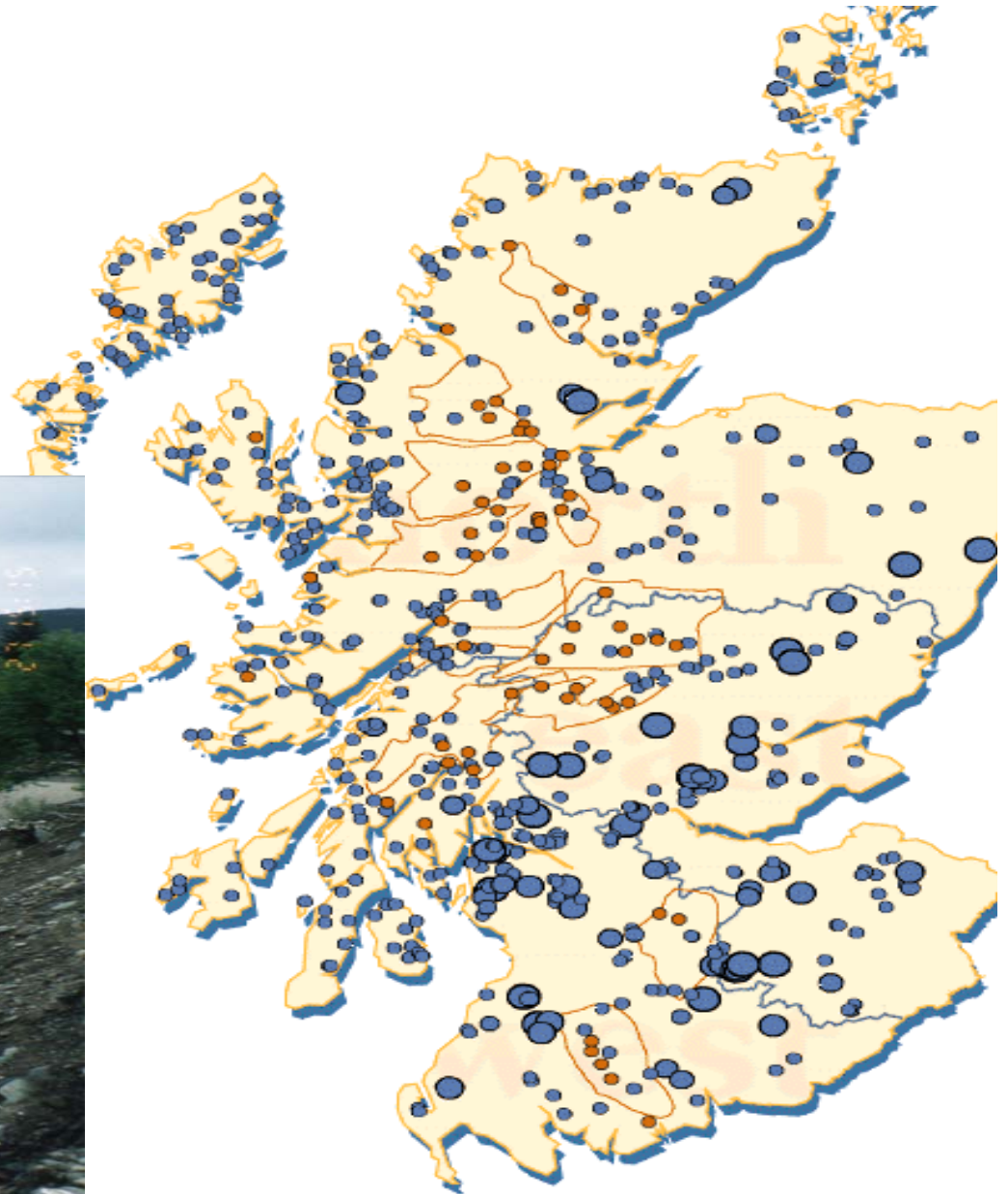


**About 100 experts..**  
*Allan, Barbour, Cormier,  
 Gerritsen, Hawkins,  
 Hughes, Karr, Larsen,  
 McCormick, McIntyre, Rankin,  
 Wang, Yoder...*

# EU standards (CEN)

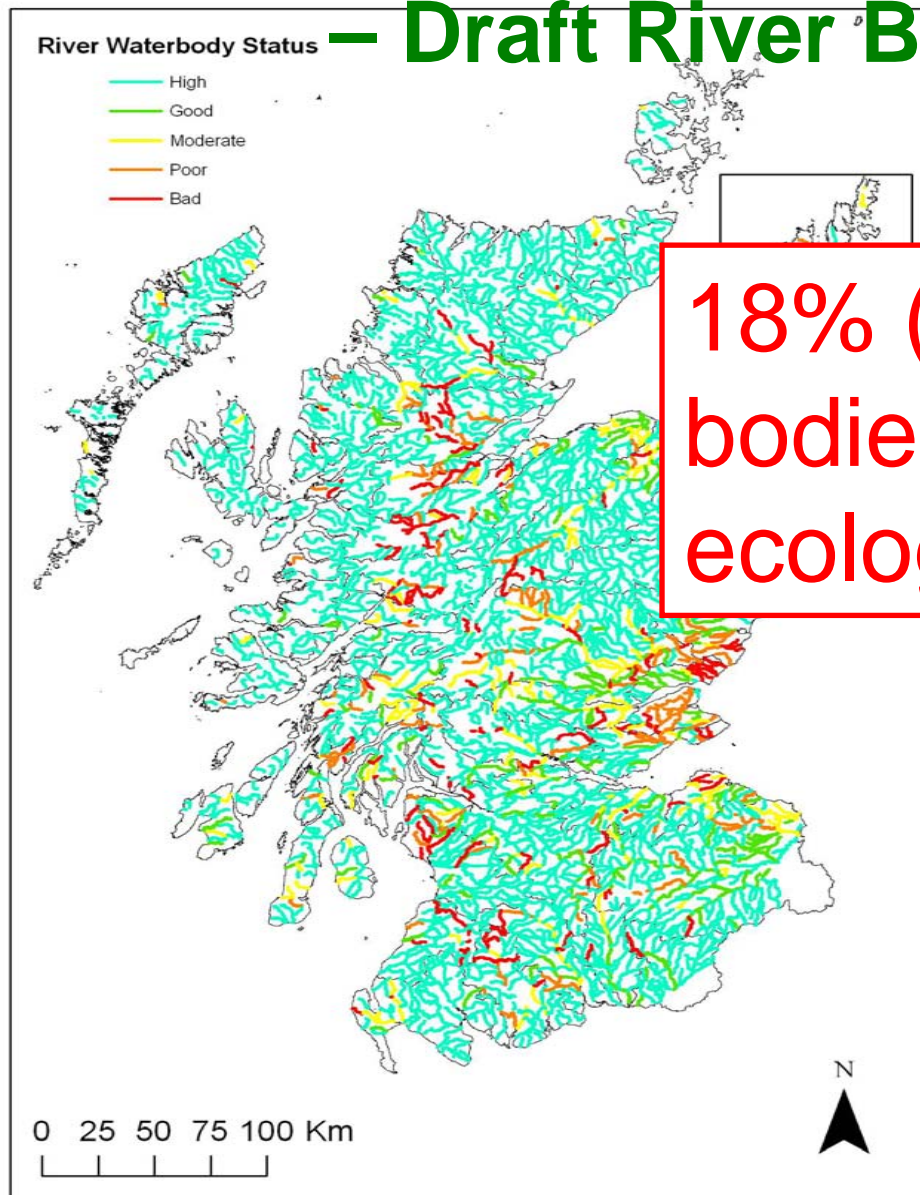
- WFD: “*Methods shall comply with international standards or equivalent scientific quality and comparability*”
- European guidance standard published in 2004 on assessing the hydromorphological **features** of rivers (EN 14614)
- Draft standard for assessing the degree of hydromorphological **modification** in rivers – public consultation stage recently completed
- Work on lake hydromorphology well under way – standard likely to go to public consultation later this year
- Work on hydromorphology of transitional waters – to begin at CEN meeting, May 2009

# Drinking water abstraction power generation in Scotland



# Hydrological Pressures in Scotland

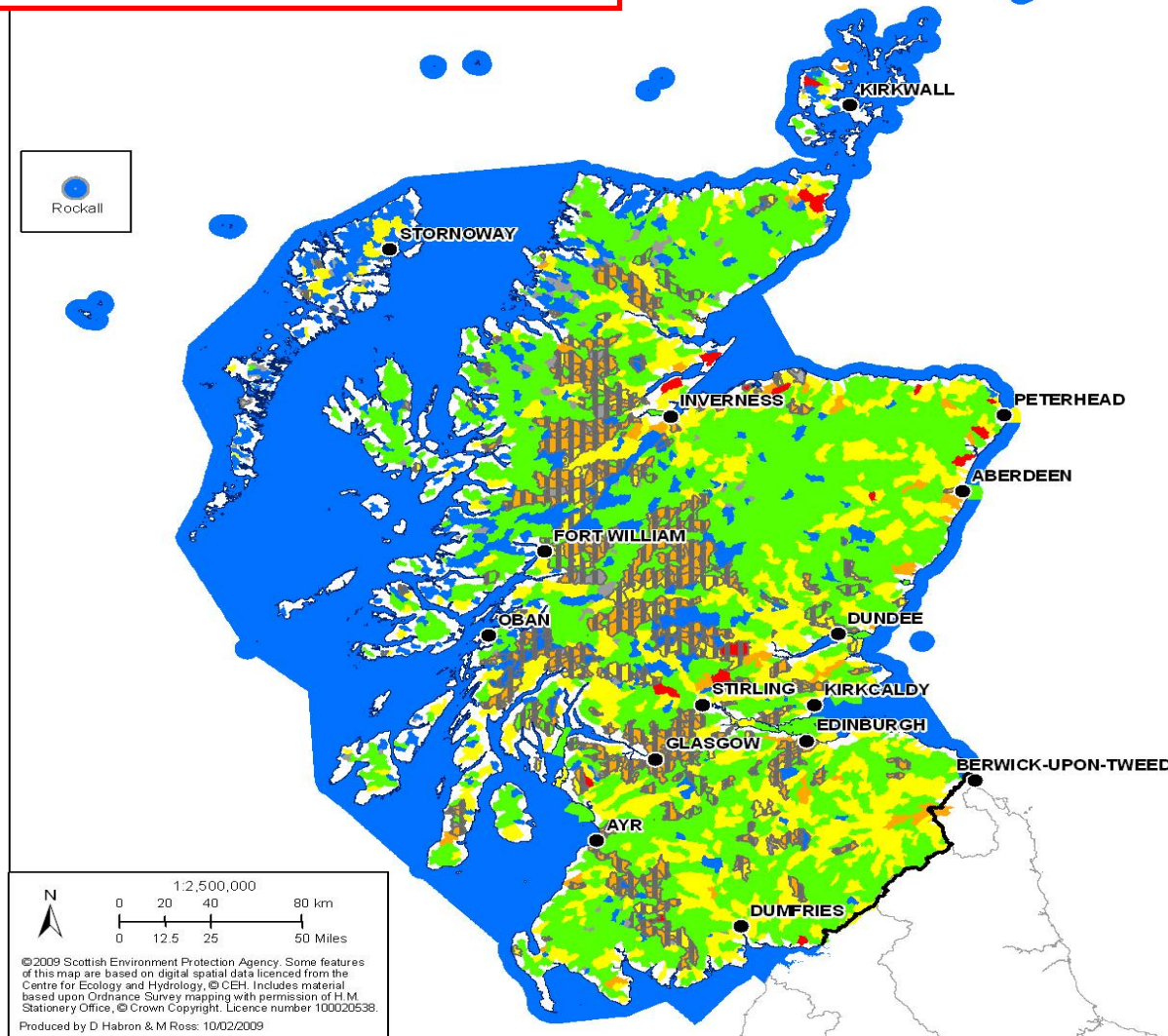
## – Draft River Basin Plan 2008



18% (381) river water bodies failing good ecological status

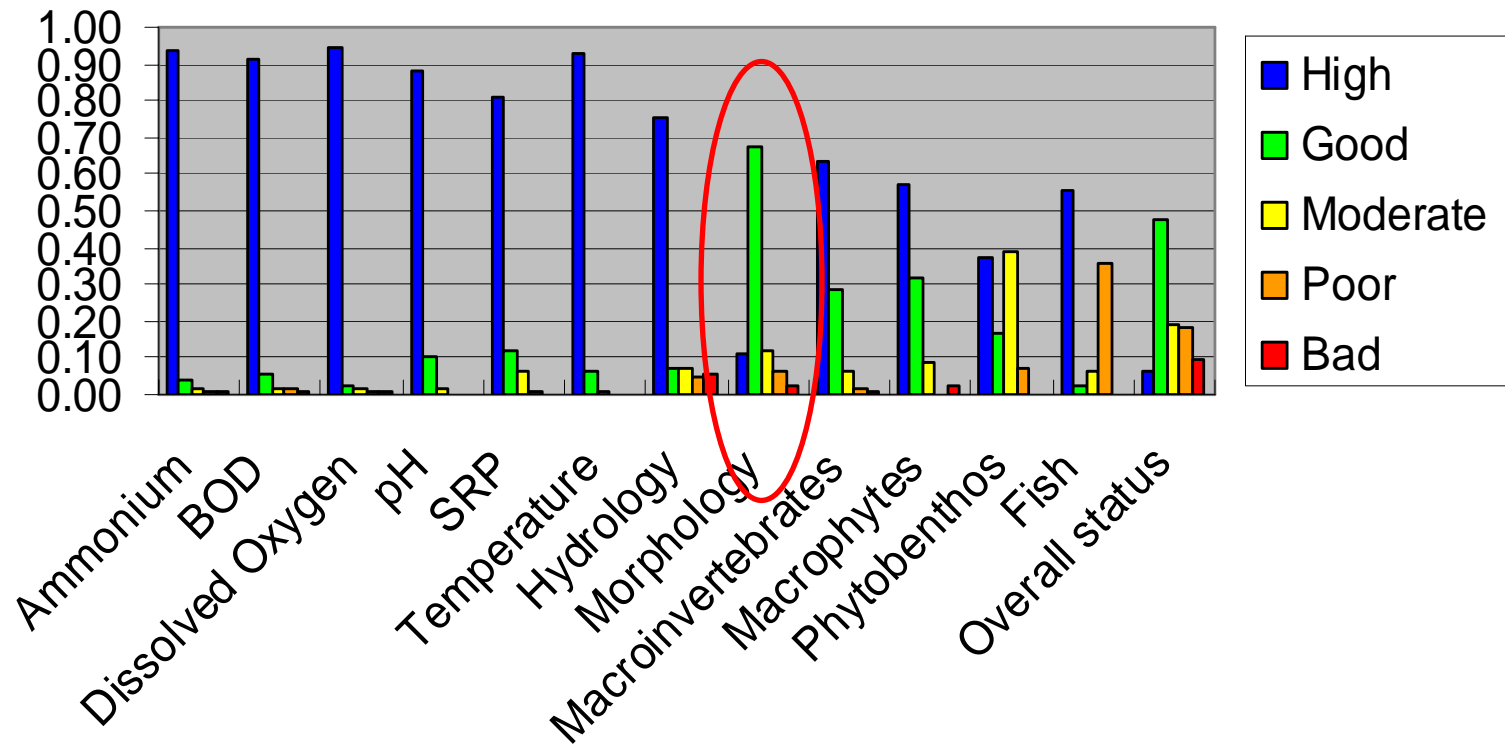
Good	83.19%
Moderate	6.81%
Poor	5.08%
Bad	6.05%
<b>Grand Total</b>	<b>100.00%</b>

**28% (593) river water  
bodies failing good  
ecological status**



# Morphology – relative impact in Scotland

Proportion of Waterbodies in Each Status Class by Element



# Classification of River Morphology





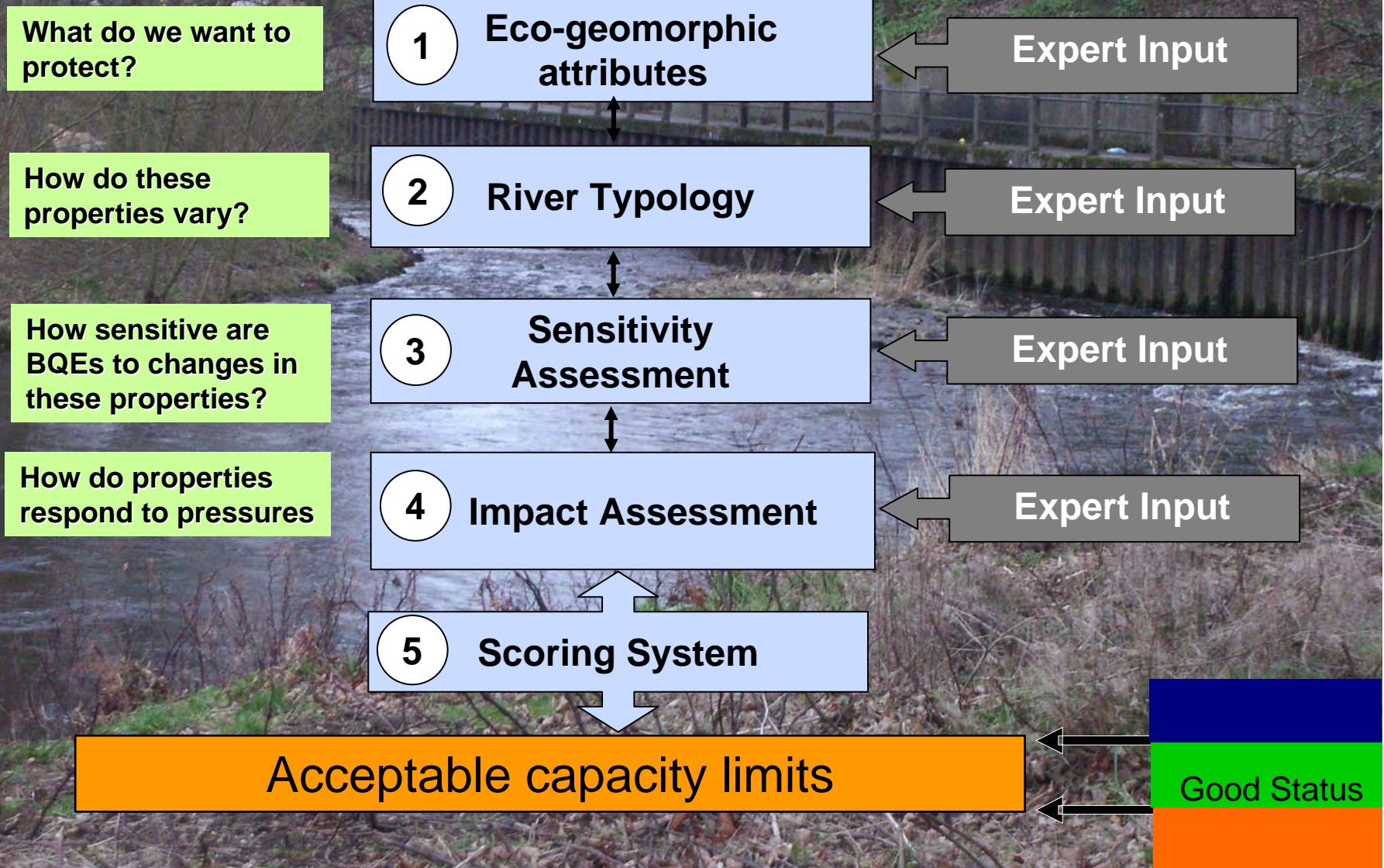
# Classification of River Morphology

## River MImAS

(**M**orphological **I**mpact **A**ssessment **S**ystem)

- **First national classification of river morphology in Scotland**
- **Surrogate for robust ecological assessment methods**
- **Risk-assessment tool based on best available expert judgment**
- **Provides assessment against standards**
- **Provides a consistent regulatory tool**

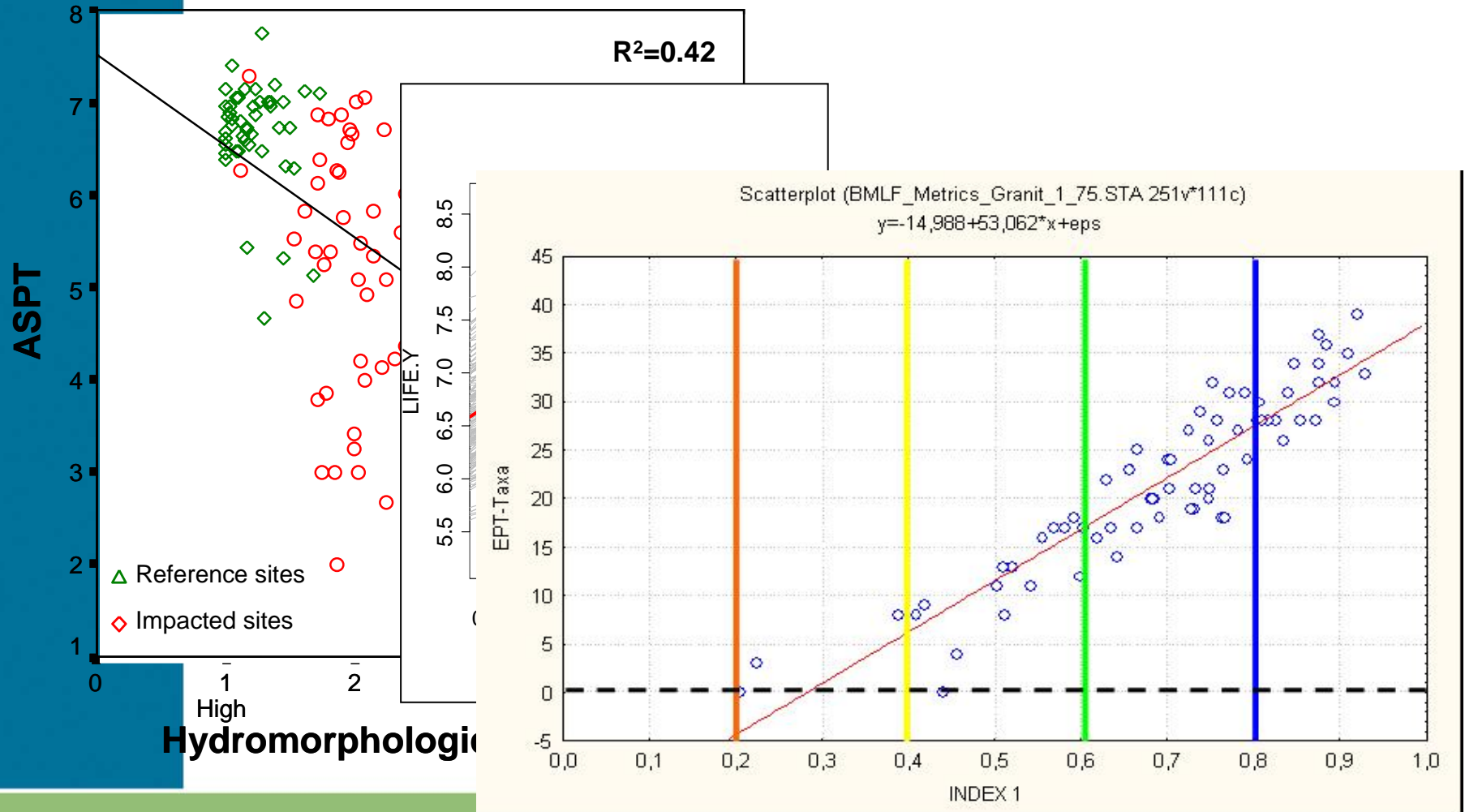
# Morphological Impact Assessment System



## Developing tools to link hydromorphological condition and ecological status

- Proving difficult for individual EU Member States but programmes underway
- MS need to regulate abstractions, river engineering and other HM pressures under WFD
- Need to be able to determine High and Good Ecological Status
- **OPPORTUNITY to use 1<sup>st</sup> RBP (2008-2014) monitoring to collect better data:  
BUT must agree data specification/collection protocols**

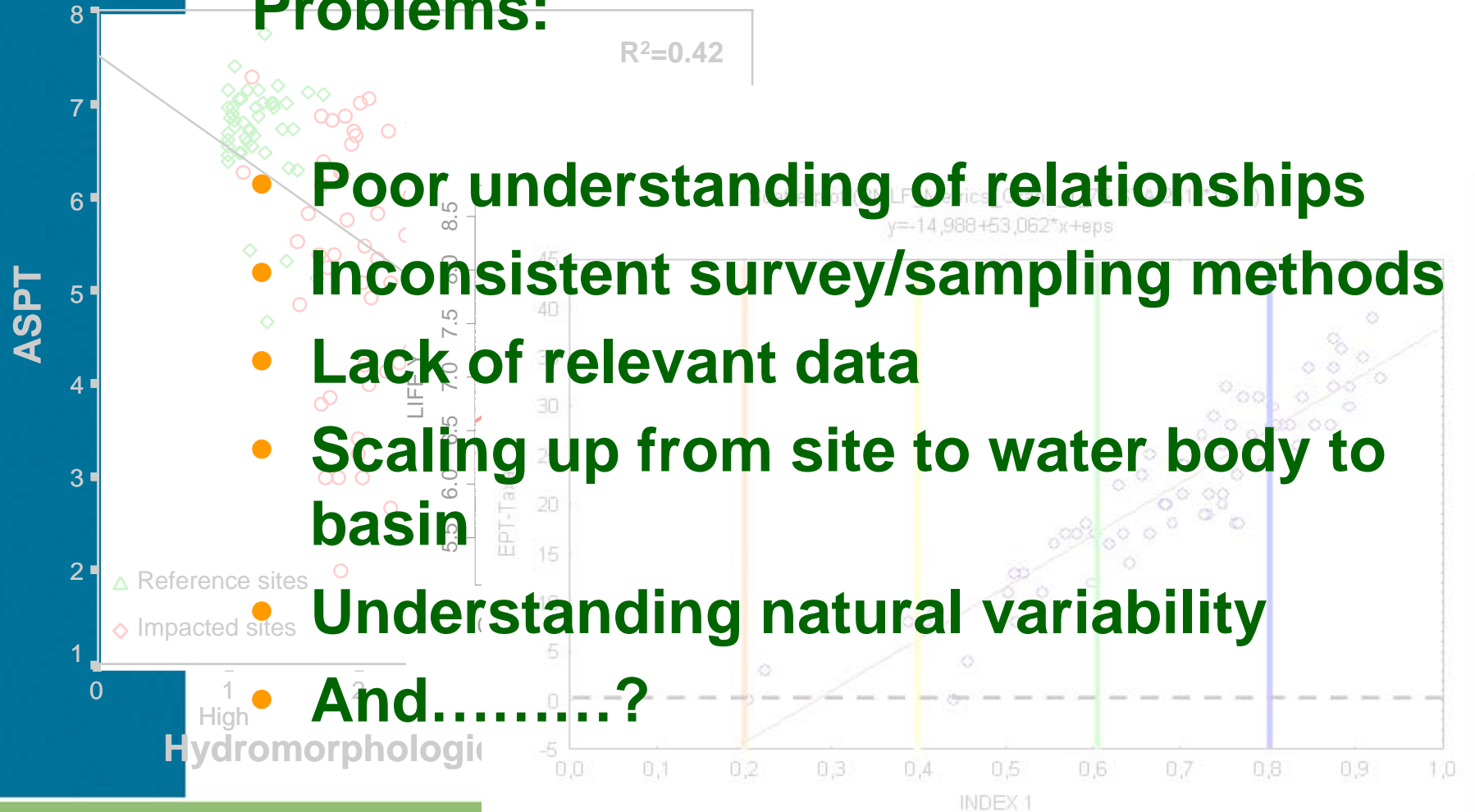
# Hydromorphological condition and ecological status



# Hydromorphological condition and ecological status

## Problems:

- Poor understanding of relationships
- Inconsistent survey/sampling methods
- Lack of relevant data
- Scaling up from site to water body to basin
- Understanding natural variability
- And.....?



# Regulation and standards



# Regulation and standards

- **Linking hydromorphological condition to ecological status only the first problem**
- **Need for regulatory standards**
- **Standards must support ecological status**
- **Standards must be robust to drive restoration measures**
- **Cost-effective and practical compliance methods**

# Key Issues





# Key Issues

## Reference condition

- What is hydromorphological reference condition?
- Can **ecological** reference condition be different?

## Ecological assessment of hydromorph pressures

- What tools are available now for regulation and restoration measures?
- What can we develop in the next 2/3 years?
- What long-term research is required?

## Integration of policy and science

- Can we be more effective in delivering policy-relevant methods?