

# Characterising catchments from source to sea

*Progress to date*

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WFD Integration and Coordination Unit

# 'We' need to...

- **Manage likely impacts of population increases**
- **Manage likely impacts of increases in agricultural production**
- **Maintain our green credentials**
- **Contribute to a healthy Ireland**
- **Satisfy WFD objectives**



# Respective roles

## Tier 1: National Management & Oversight

- Led by DECLG
- Policy, regulations and resources
- Sign-off of River Basin Management Plans

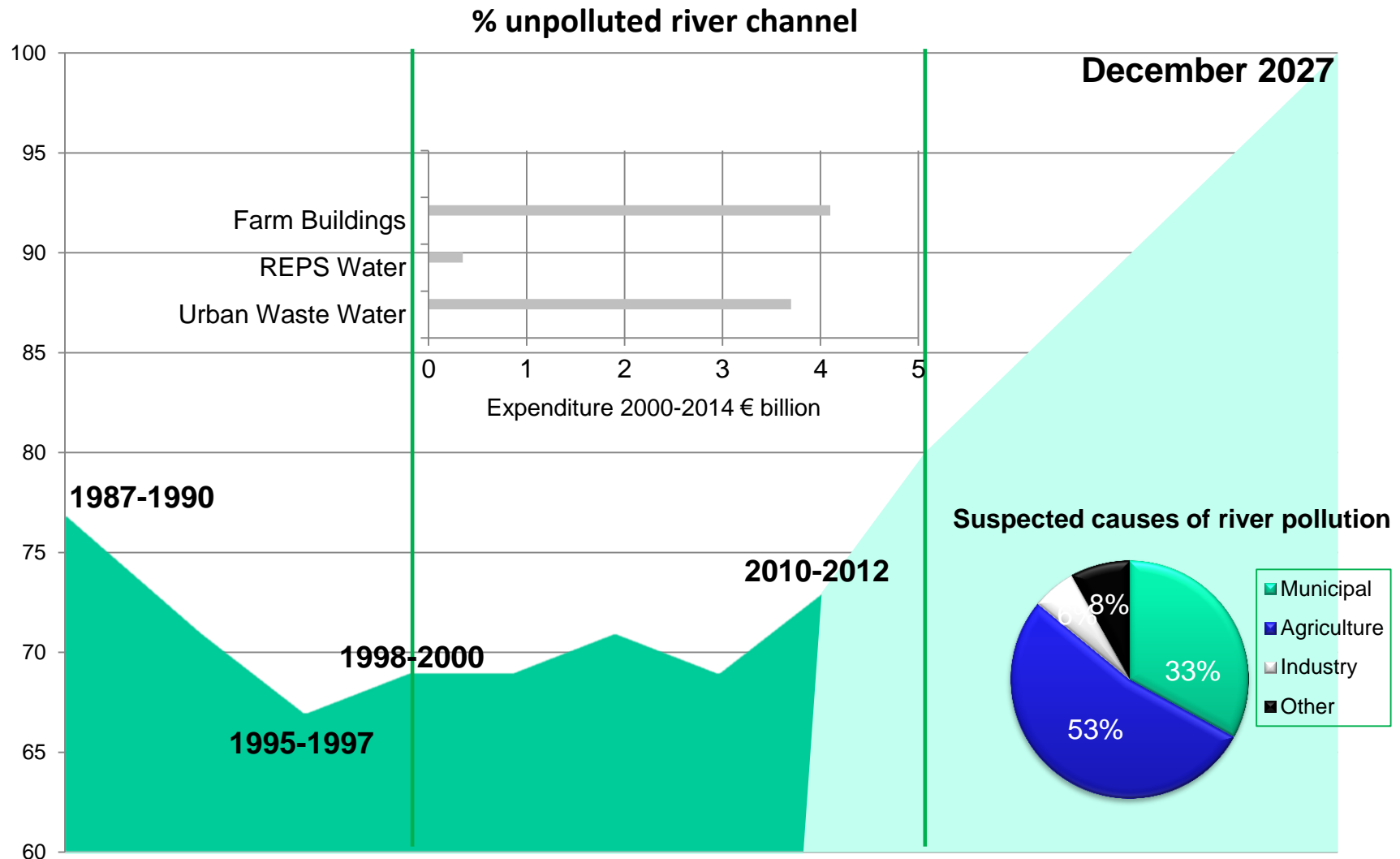
## Tier 2: National Technical Implementation and Reporting

- Led by EPA
- Monitoring, assessment and reporting
- Evaluation and Implementation of measures
- Template for River Basin Management Plans
- Monitoring of enforcement tasks and environmental outcomes

## Tier 3: Regional Implementation via Water Networks

- Led by the lead Coordinating Authority
- Local authority monitoring, licensing and enforcement actions
- Detailed River Basin Management Plans
- Implementation of Programme of Measures by relevant public bodies, tracking and reporting, in consultation with EPA

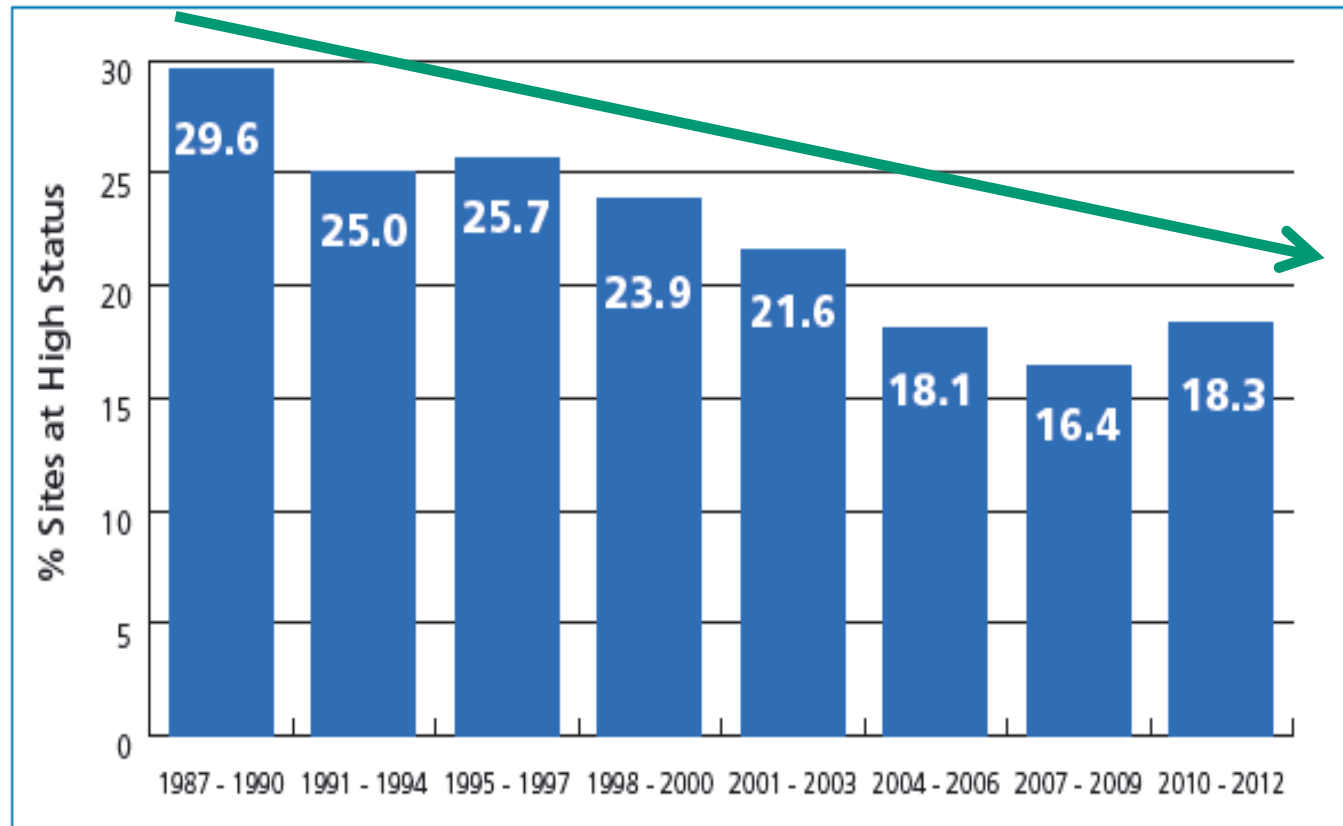
# River water quality – past, present, future?



Source: Pat Duggan (amended)

# % High status WBs 1987-2008

**30%**



**18%**

**1987-90**

**2010-12**

# What is characterisation?

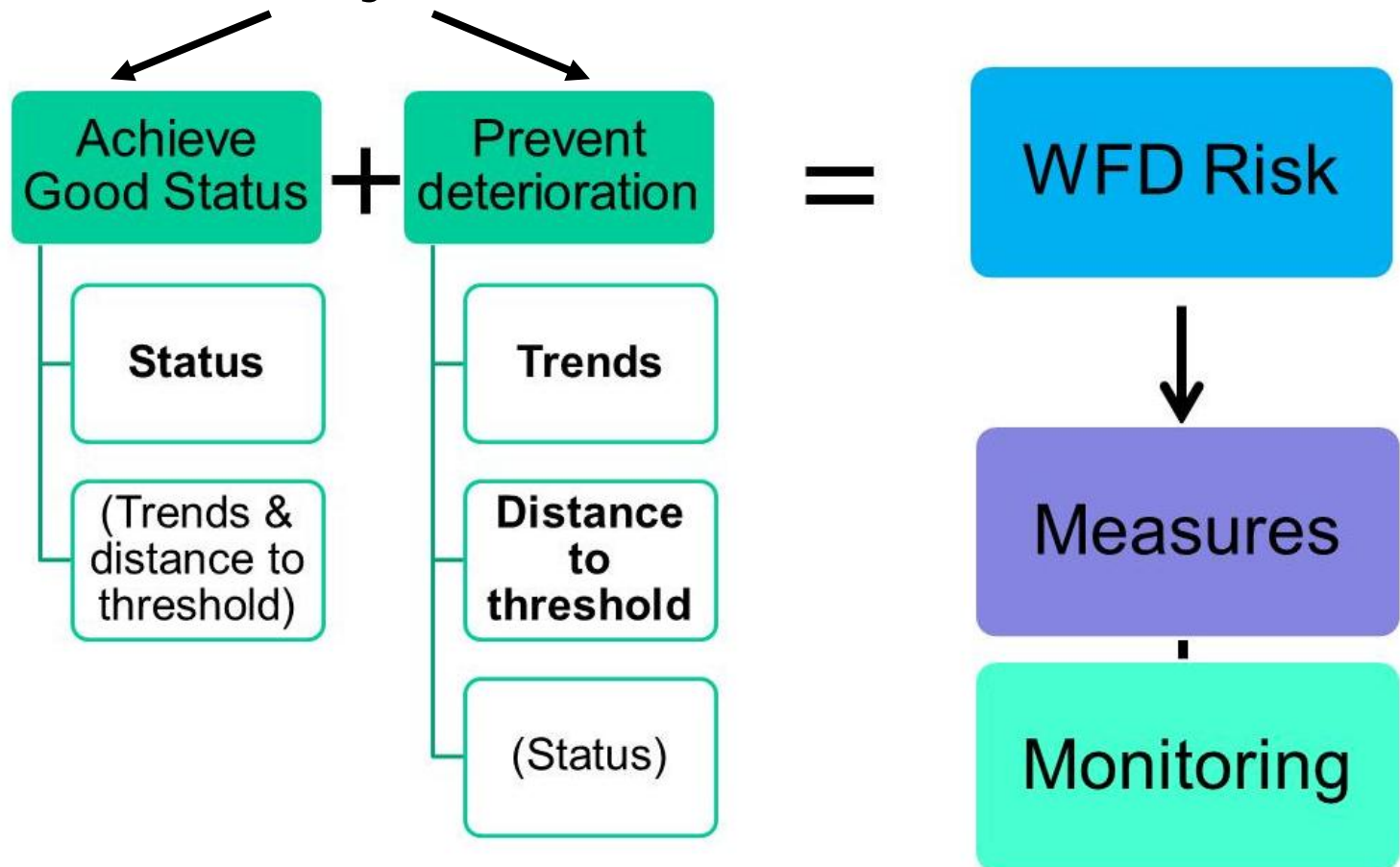
## 1. Understanding water bodies

- Physical, chemical and biological aspects
- Functioning, 'Source-pathway-receptor'
- Linkages with other water bodies
- Impacts of human activities

2. Assigning the level of risk (of not meeting WFD objectives), for the purposes of prioritising and targeting measures, and informing the monitoring programme

# Characterisation?

## WFD objectives



# Characterisation Approach

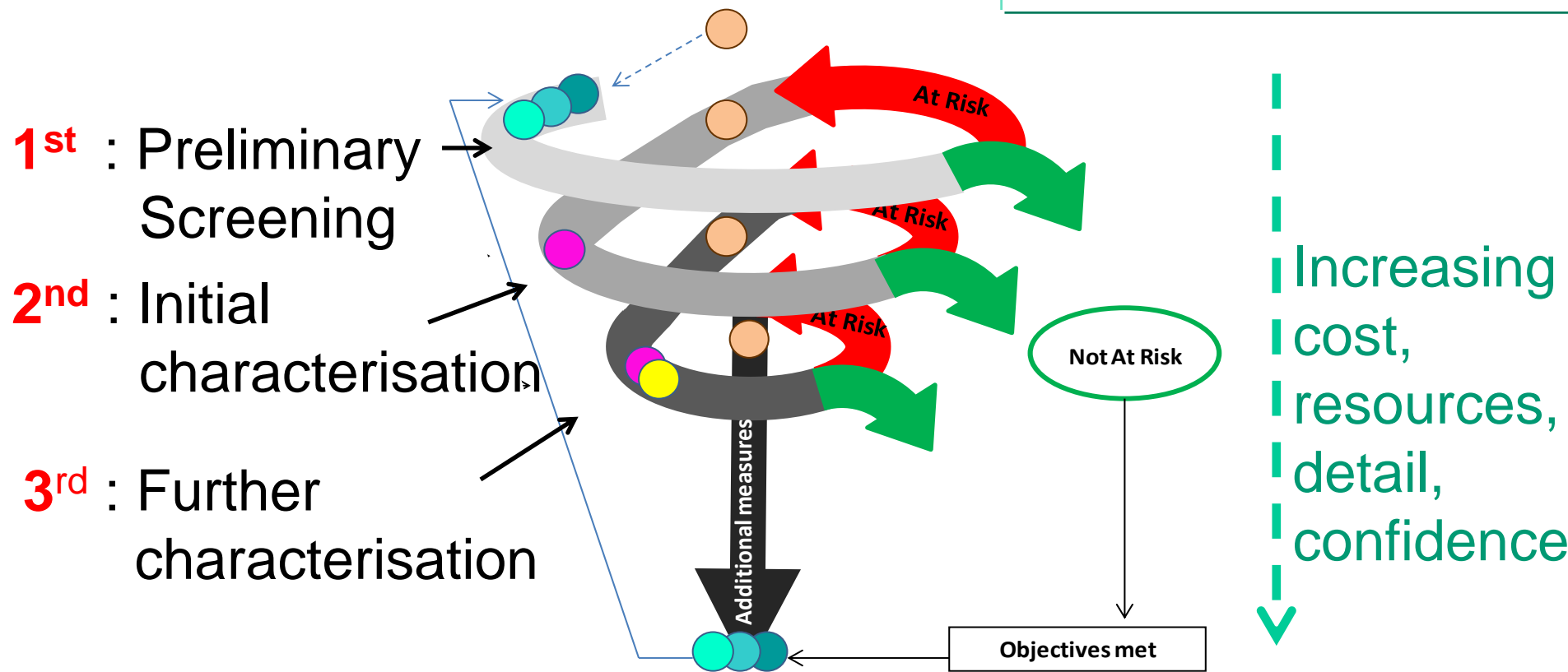
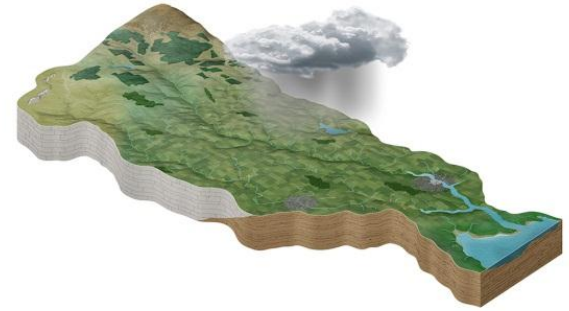
## Three **TIERS** of risk characterisation

so that the level of assessment is  
commensurate with the risk posed

- 1: Preliminary risk screening
- 2: Initial characterisation
- 3: Further characterisation



# WFD Characterisation Tiers



# What have we done so far?

1. Developed the first phase of the **WFD Application**
2. Completed the automated **Preliminary risk** screening at waterbody scale
3. Waterbody, subcatchment and catchment **boundary** delineation – due end June
4. Drawn up a template and structure for initial characterisation work at **subcatchment** scale. Work commencing shortly on prioritisation

**Commenced engagement**

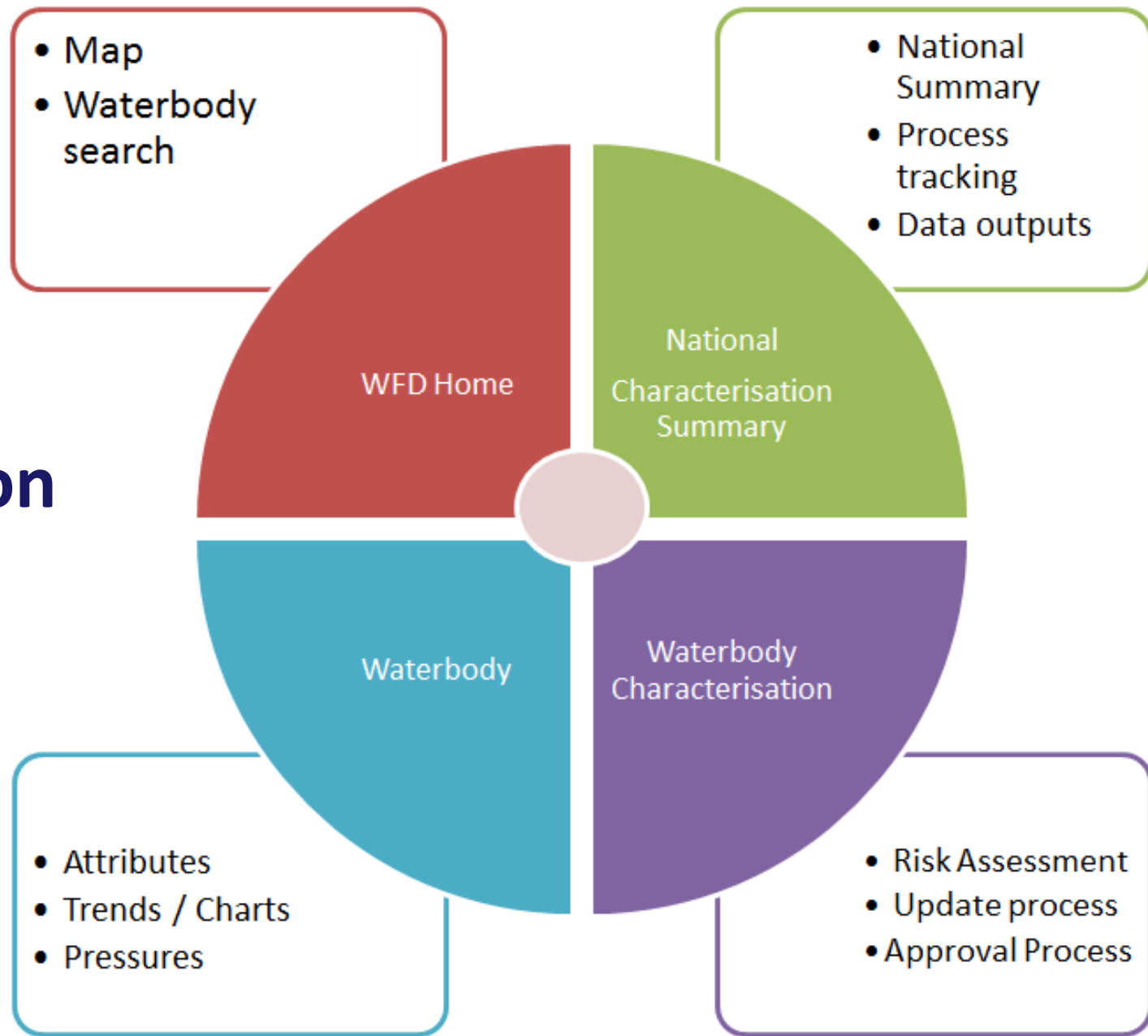
WFD App

Preliminary risk

Boundaries

Subcatchments

# WFD Application (Phase 1)



# Water body information (Status)

## Status Details - SW 2007-2009

➤ Ecological Status or Potential

Moderate



## Status Details - SW 2010-2012

▼ Ecological Status or Potential	Moderate	
▼ Biological Status or Potential	Moderate	
Phytoplankton Status or Potential	Moderate	
Fish Status or Potential	Good	
Hydromorphological Conditions	Good	
▼ Supporting Chemistry Conditions	Good	
▼ General Conditions	Good	
➤ Oxygenation Conditions	Good	
▼ Nutrient Conditions	High	
Molybdate reactive phosphorous	High	
Other determinand for nutrient conditions	Moderate	

## Charts

Chlorophyll

Chlorophyll

Chlorophyll

Chlorophyll

Dissolved Inorganic Nitrogen (as N)

Dissolved Inorganic Nitrogen (as N)

Dissolved Oxygen

Dissolved Oxygen

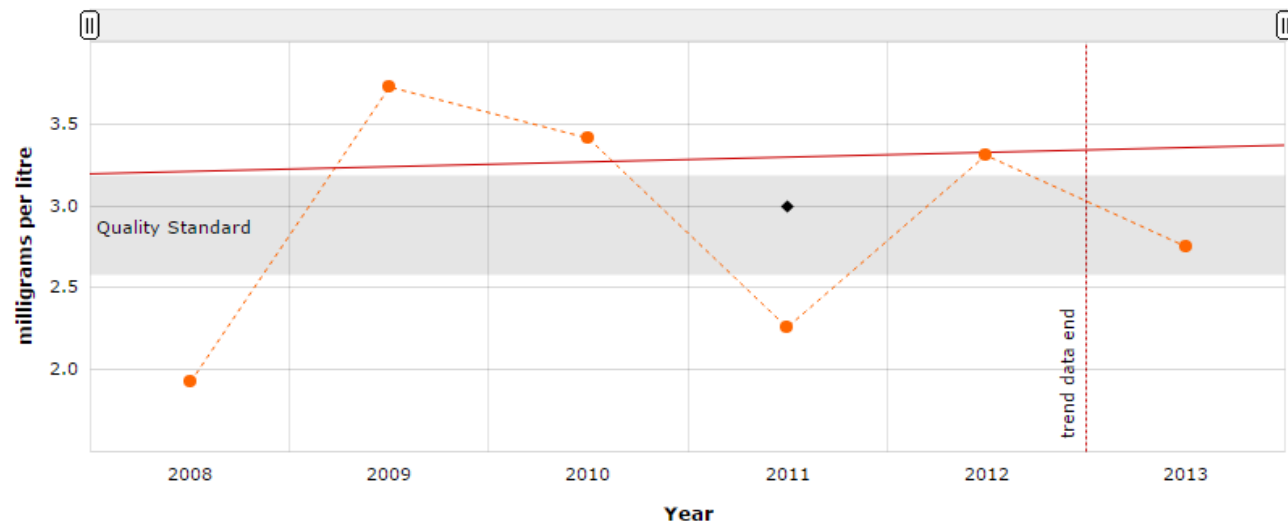
Dissolved Oxygen

Dissolved Oxygen

ortho-Phosphate (as P) - unspecified

ortho-Phosphate (as P) - unspecified

## Trend Chart: IE\_SE\_100\_0600 Upper Suir Estuary



## Trend Data



Parameter	Dissolved Inorganic Nitrogen (as N)	Unit of Measure	milligrams per litre
Status	Moderate	Trend	None
Statistically Significant	No	Environmentally Significant	No
Sens Slope	0.029	Sens P Value	1.000
Distance to Threshold	Far	Median Salinity	0.250

# Water body information (Trends)

## Characterisation Preliminary Risk Assessment

Code **IE\_SE\_100\_0600**

Authority

Tipperary County Council

Name **Upper Suir Estuary**

Category

Transitional

Cycle 1 RBD **South Eastern**Ecological Status or  
Potential (SW 2010-2012)**Moderate**

### Tier 1 - Risk Calculation



Parameter	Aggregation Type	Period	Status	Significant Trend	Dist To Threshold	Risk Assessment		
						Achieve Good Status	No Deterioration	Combined Objectives
Chlorophyll	Median (50%ile)	Winter	High	None	Far	Not at risk	Not at risk	Not at risk
ortho-Phosphate (as P) - unspecified	Median (50%ile)	Winter	High	None	Near	Not at risk	Review	Review
Dissolved Inorganic Nitrogen (as N)	Median (50%ile)	Winter	Moderate	None	Far	At risk	Not at risk	At risk
Chlorophyll	90 %ile	Winter	High	None	Far	Not at risk	Not at risk	Not at risk
Chlorophyll	Median (50%ile)	Summer	High	None	Far	Not at risk	Not at risk	Not at risk
ortho-Phosphate (as P) - unspecified	Median (50%ile)	Summer	High	None	Far	Not at risk	Not at risk	Not at risk
Dissolved Inorganic Nitrogen (as N)	Median (50%ile)	Summer	Good	None	Near	Not at risk	Review	Review
Chlorophyll	90 %ile	Summer	High	None	Far	Not at risk	Not at risk	Not at risk

Tier 1 Preliminary Risk

**At risk**

Calculation Basis

Calculated

Donor Waterbody

Not applicable

# Water body information (Risk)

# Water body information (Pressures)

## Details

WFD Category Agglomeration

Name Carrick-on-Suir

WFD Sub Category PE of 2,001 to 10,000

Organisation Tipperary County Council

## Pathways

Show 10 entries

Code ▲	Type ◆	Category ◆	Receiving Water ◆
TPEFF2900D0148SW001	Point	Primary Discharge Point	IE_SE_100_0600
TPEFF2900D0148SW002	Point	Storm Water Overflow	IE_SE_100_0600
TPEFF2900D0148SW003	Point	Storm Water Overflow	IE_SE_100_0600
TPEFF2900D0148SW004	Point	Storm Water Overflow	IE_SE_100_0600
TPEFF2900D0148SW005	Point	Storm Water Overflow	IE_SE_16_4197
TPEFF2900D0148SW006	Point	Storm Water Overflow	IE_SE_100_0600
TPEFF2900D0148SW007	Point	Storm Water Overflow	IE_SE_100_0600

Showing 1 to 7 of 7 entries

Previous

1

Next

## Impacts and Receptors

### Observed Impacts

Reduced River Quality	No
Water Quality Inadequate	Yes
Bathing Quality Inadequate	No
Priority Substance Detected	No

### Downstream Receptors

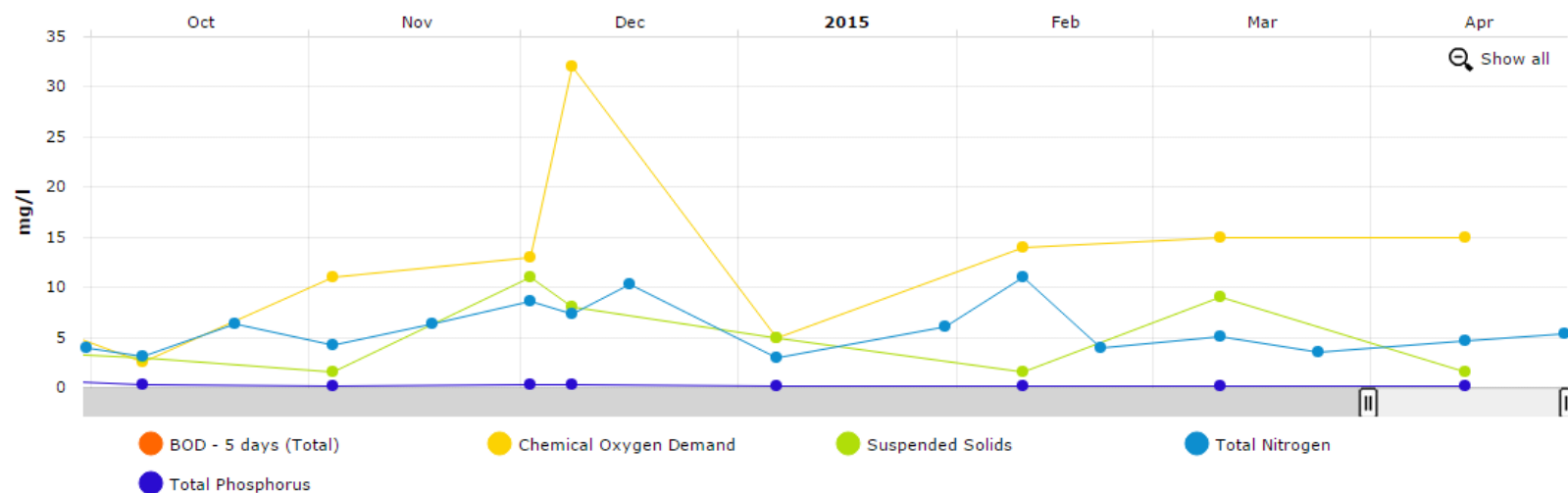
Drinking Abstraction ( $\leq 10\text{km}$ )	Yes
Shellfish ( $\leq 5\text{km}$ )	No
Bathing Water ( $\leq 5\text{km}$ )	No
High Quality River Site	No
Margaritifera ( $\leq 1\text{km}$ )	No

### Direct Receptors

Sensitive Area	Yes
National Heritage Area	Yes
Special Area of Conservation	Yes
Special Protection Area	No
Salmonid Water	No

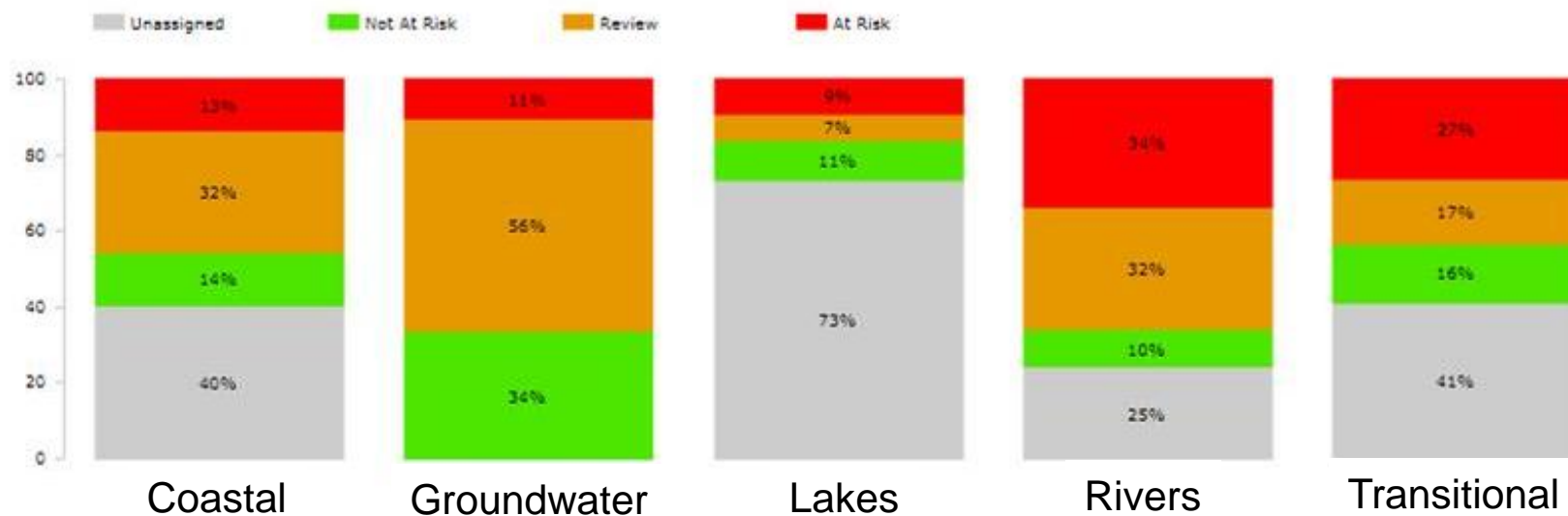
## Monitoring Results

Emission Point TPEFF2900D0148SW001





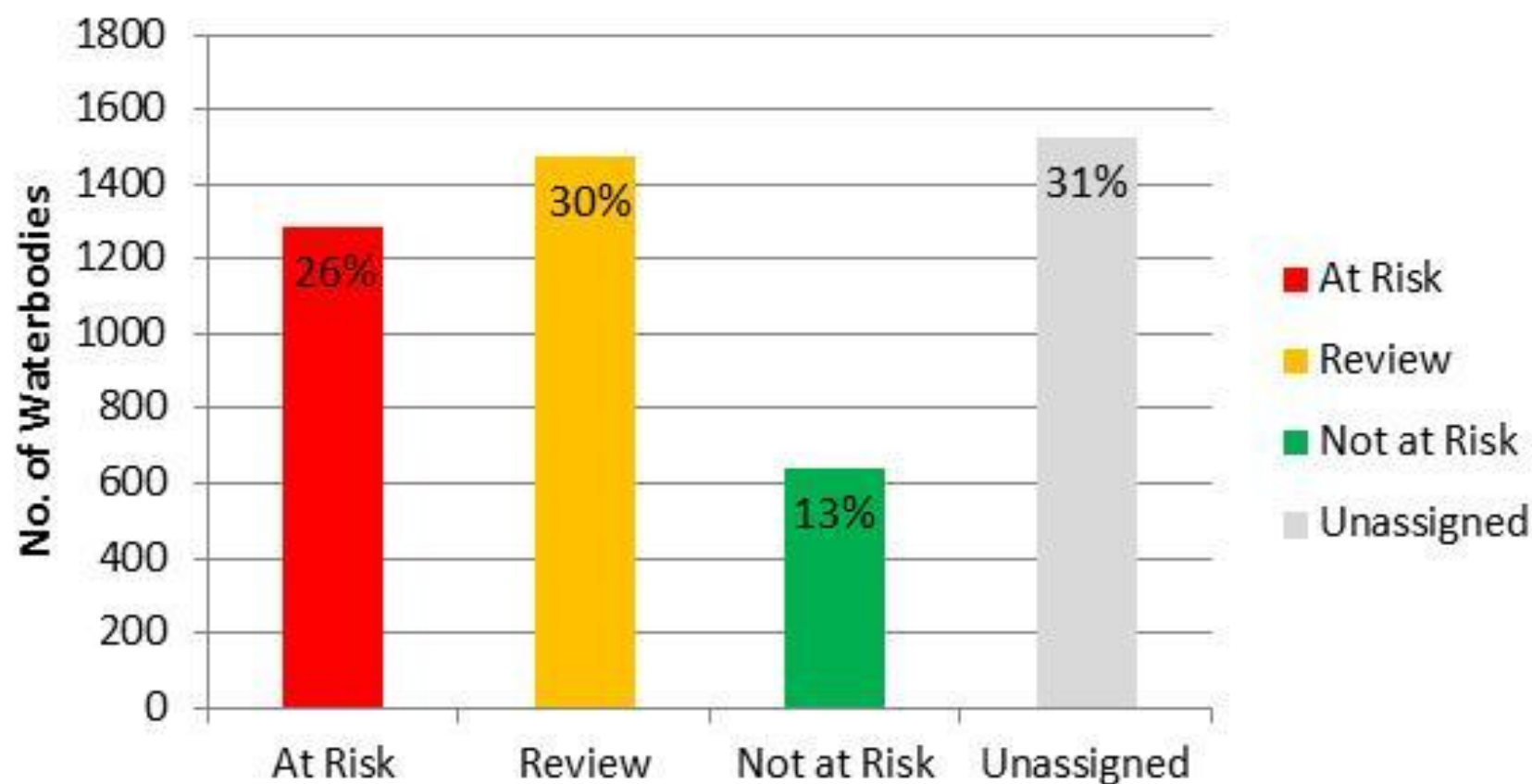
## Characterisation Risk Waterbody Summary



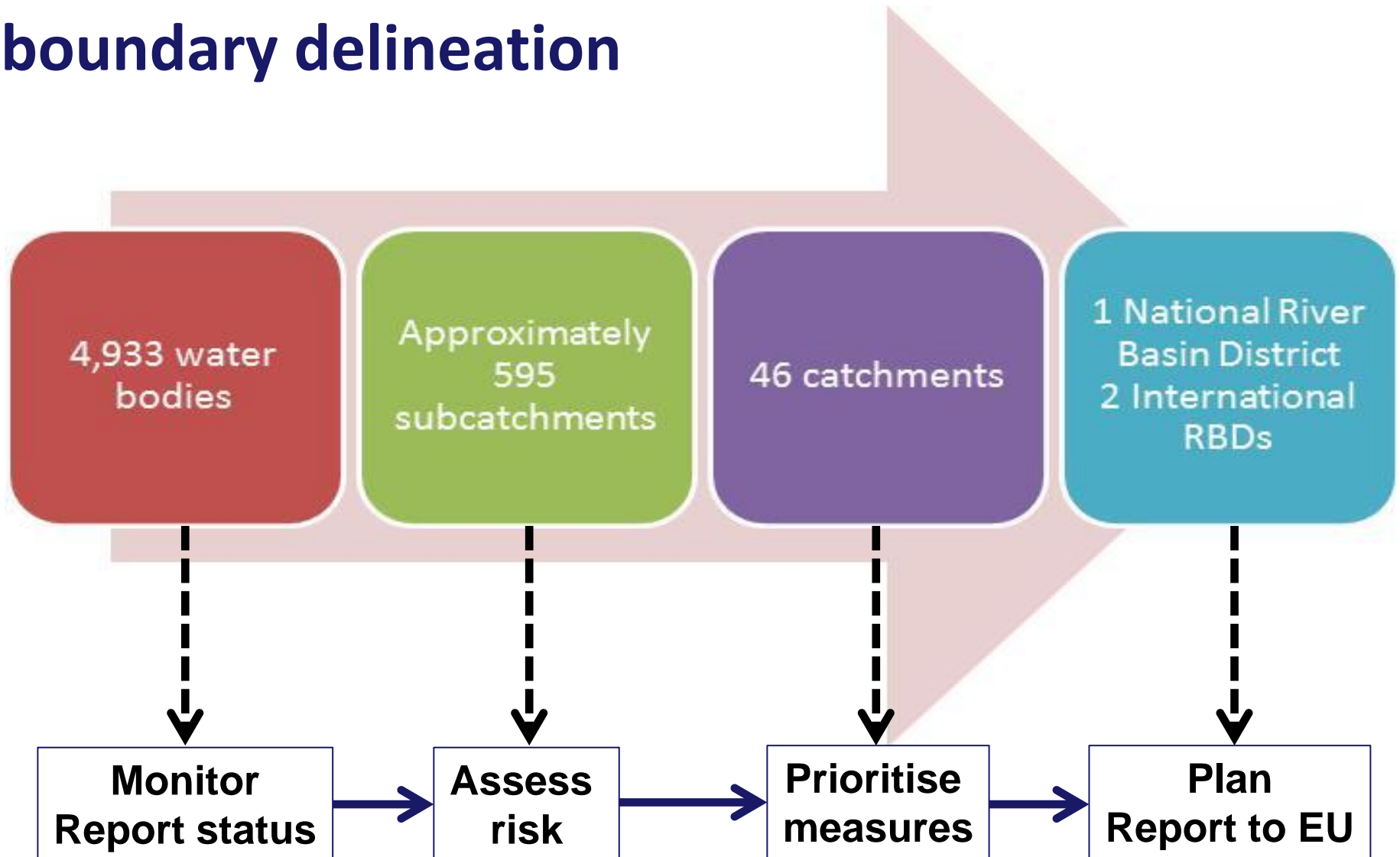
## Waterbodies

Type	Total	At Risk	Review	Not At Risk	Unassigned	Tier 1 Risk Progress		
						Draft	Updated	Approved
Coastal	127	17	41	18	51	127	0	0
Groundwater	578	61	321	196	0	578	0	0
Lake	836	79	57	89	611	836	0	0
River	3192	1077	1024	308	783	3192	0	0
Transitional	200	53	34	31	82	200	0	0

## Preliminary risk outcomes - all WBs



# Water management unit scales and boundary delineation



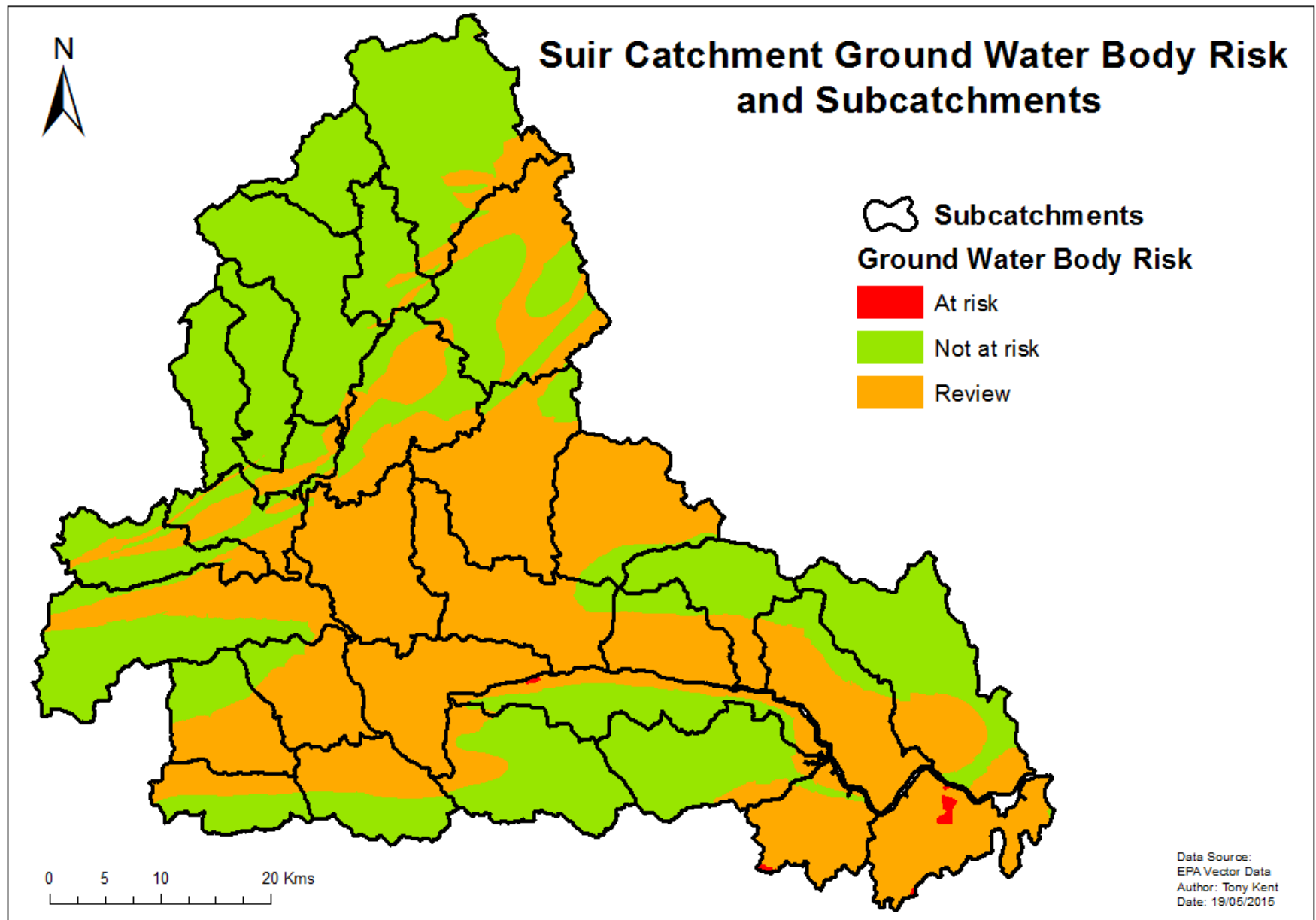
# Subcatchment reports

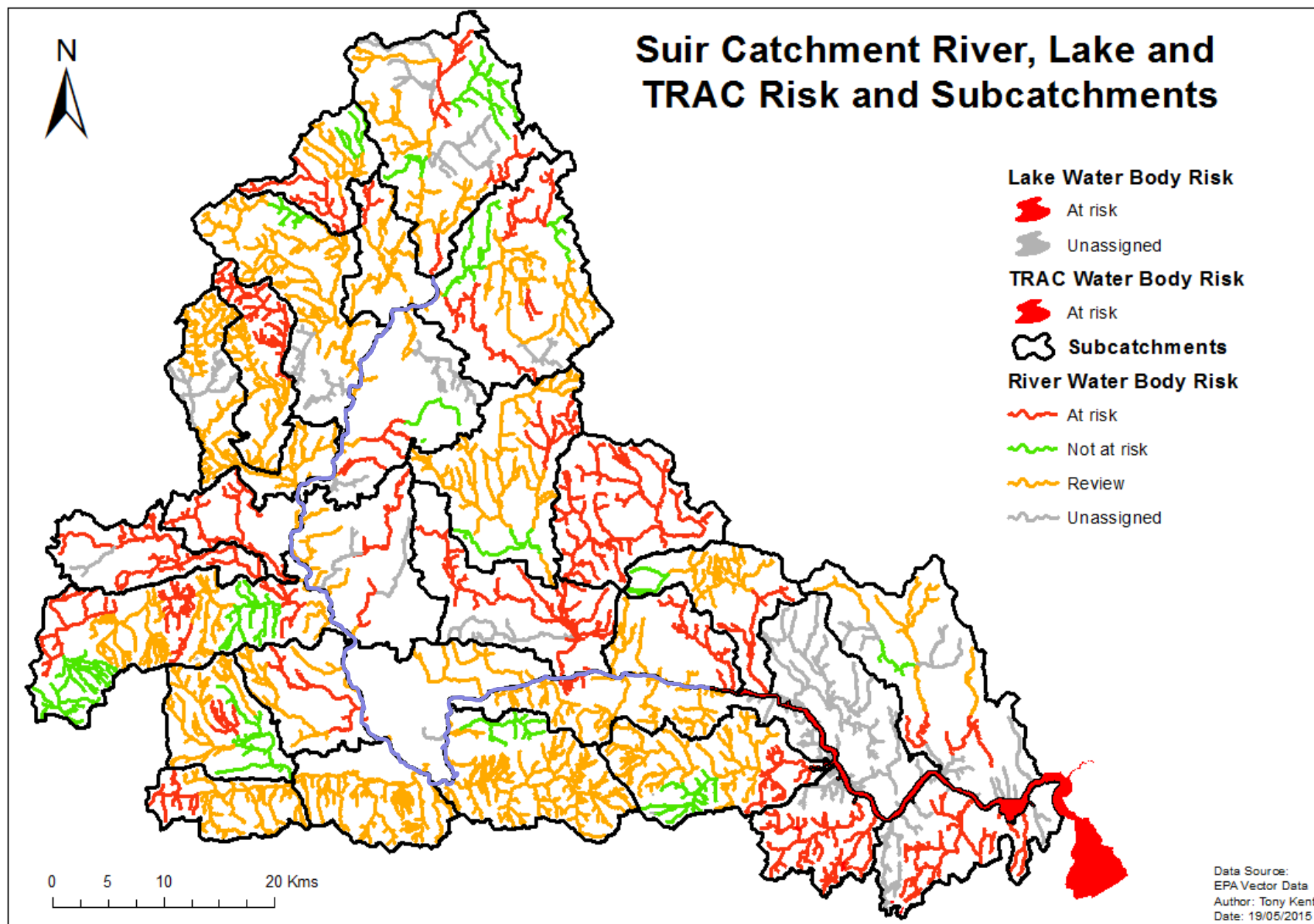
Preliminary

Initial

Further

Subcatchment report structure		High Priority	Medium Priority	Low Priority
Preliminary	<b>Preliminary risk screening</b> <ul style="list-style-type: none"> <li>Water quality summary</li> <li>Nutrient risk</li> <li>Other risks</li> <li>Risk outcomes</li> </ul>	✓	✓	✓
	<b>Initial subcatchment characterisation</b> <ul style="list-style-type: none"> <li>Physical setting</li> <li>Detailed ecological assessment</li> <li>Subcatchment activities and pressures</li> <li>Information from other agencies</li> <li>Subcatchment nutrient risk assessment</li> <li>Subcatchment other risk assessments</li> <li>Evaluation of priority issues</li> </ul>	✓	Ecological assessment + some of the other elements	
	<b>Further characterisation</b> <ul style="list-style-type: none"> <li>Local/specific knowledge</li> <li>Investigative monitoring</li> <li>Scenario modelling</li> </ul>	✓		
Potential measures (subcatchment)		Specific	Specific	Basic only



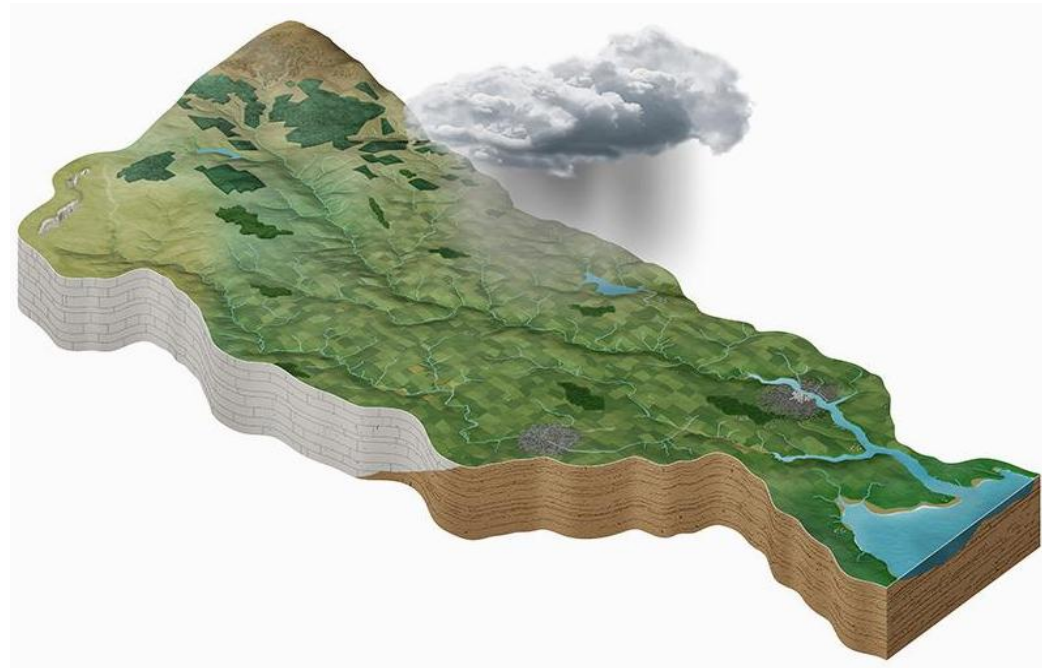


## Next steps: EPA + others

- Consultants being appointed
- Subcatchment prioritisation and ranking process
- Subcatchment initial characterisation
- **Build on engagement with others to contribute**
- Commencement of further characterisation in selected areas
- Further development of the WFD Application

# Next steps: Others + EPA

- Catchment scale prioritisation of measures
- Draft river basin management plan





# Conclusions

- Weight of evidence, risk based, pragmatic approach
- Focus measures and prioritise resources
- New data products & systems to support us
- Fantastic opportunity
- **Cannot do it alone...**



**We need you to join us!**