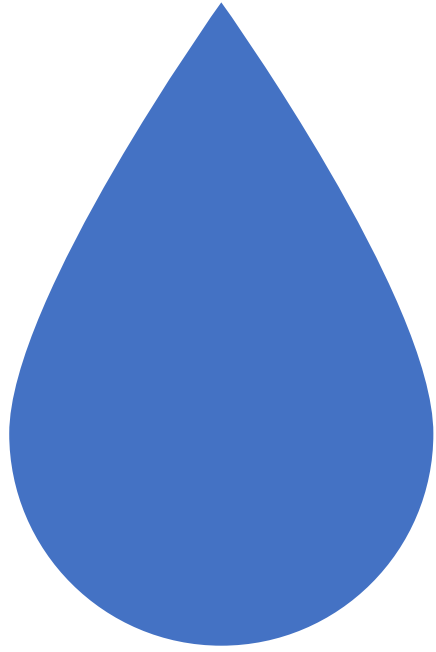




THE WATER ENVIRONMENT

THE REGULATORY REGIME

JOHN BATES

Old Square Chambers

OVERVIEW

Water Framework Directive

Point Source Pollution

- Environmental Protection Regulations
 - Sewers – urban waste-water treatment
 - Highway Drains

Diffuse Pollution

- Agriculture

Monitoring Regime



The Common Law

CIVIL ACTION TO PREVENT POLLUTION

Riparian owners have the right to have a natural stream come to them in its natural state in flow, quantity and quality and to go from them without obstruction.

Can bring a civil action to prevent pollution of their waters.

Can also be an action by fishery interests to protect fish in their waters from pollution.

THE WATER FRAMEWORK DIRECTIVE

Dir. 2000/60/EC



EFFECT OF BREXIT

- WFD is **not** retained EU law under the European Union (Withdrawal) Act 2018.
- Implemented mainly by Water Environment (Water Framework Directive) (E&W) Regs. 2017. EU derived legislation – higher courts should rarely depart from European Court decisions before Brexit on the WFD.
- Modifications are made to the 2017 Regs. to deal with Brexit – SI 2019/558.
- For chemicals, changes to WFD Regs will be made by regulations – Environment Act 2021, s.89 (E), 90 (W)

PURPOSE (Art.1)



Prevent further deterioration of waters



Protect and enhance status of aquatic ecosystems



Specific measures for reduction of presence of priority substances – e.g. lead



Remove priority hazardous substances – e.g. cadmium.

WATER BODIES



SURFACE WATERS



Rivers



Lakes



Transitional waters – partly saline but with freshwater flows



Coastal Waters



GROUNDWATER

CLASSIFICATION S



Surface Water Status – determined by the poorer of its ecological status and its chemical status.



Good Surface Water Status – ecological and chemical status = good.



Groundwater Status – determined by the poorer of its quantitative and chemical status. Quantitative = as affected by abstraction.

GOOD ECOLOGICAL STATUS

“The values of the biological quality elements for the surface water body type show low levels of distortion resulting from human activity, but deviate only slightly from those normally associated with the surface water body type under undisturbed conditions.”

Measured by composition and abundance of phytoplankton, fish etc.. as well as hydromorphological quality - like condition of the channel - and chemical elements.

A photograph of concentric ripples on a calm body of water, transitioning from a light blue-green at the top to a darker teal at the bottom. The ripples are centered in the upper left quadrant of the image.

GOOD CHEMICAL STATUS

For surface waters, good chemical status means that no concentrations of priority substances exceed the relevant EQS established in the Environmental Quality Standards Directive 2008/105/EC (as amended by the Priority Substances Directive 2013/39/EU).

EQS aim to protect the most sensitive species from direct toxicity, including predators and humans via secondary poisoning.

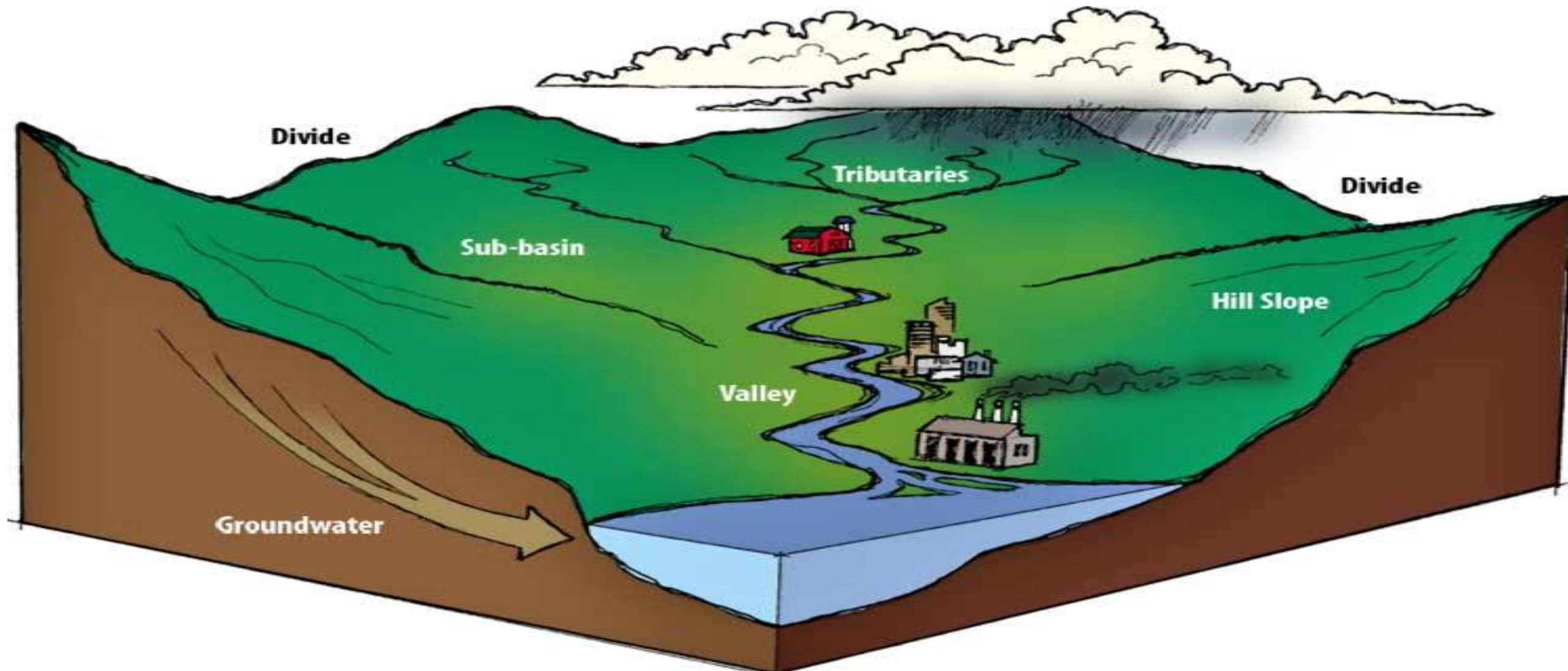
Substances are listed in the EQS Directive with an average and / or maximum limit over a year.

TIMETABLE

- Initial – Good surface and groundwater status by 2015
- December 2021 - 2017 Regs.
- 2027 – extensions under art. 4(4).

After 2027, the possibilities for exemptions are reduced, as time extensions under Article 4(4) can only be authorised in cases where all the measures have been put in place but the natural conditions are such that the objectives cannot be achieved by 2027

RIVER BASIN CATCHMENTS



RIVER BASIN MANAGEMENT PLANS

The environmental objectives covered by the plans are:

- preventing deterioration of the status of waters
- achieving objectives and standards for protected areas
- aiming to achieve good status for all water bodies
- reversing any significant and sustained upward trends in pollutant concentrations in groundwater
- Stopping entry of priority **hazardous** substances like cadmium into surface waters
- progressively reducing the pollution of groundwater



PROGRAMME OF MEASURES

The on-the-ground actions - for example, improving a sewage treatment works - and

The mechanisms to ensure the actions are delivered - for example, regulatory permit conditions to discharge sewage effluent and the associated water industry price review process to fund the improvement.

Water and Metal Mines Programme

AREAS REQUIRING SPECIAL PROTECTION



Water Abstraction



Fisheries / shellfisheries



Recreational waters



Nutrient sensitive areas



Protection of habitats and species



POINT SOURCE POLLUTION

ENVIRONMENTAL PERMITTING REGULATIONS 2016

Makes it an offence to cause or knowingly permit

a water discharge activity or

a groundwater activity

except under and to the extent authorised by an environmental
permit

WATER DISCHARGE ACTIVITY

Discharge or entry into relevant waters of any

poisonous, noxious or polluting matter

waste matter

trade effluent or sewage effluent

GROUNDWATER ACTIVITIES

Discharge of a pollutant that results in:
direct input of it, or
might lead to an indirect input of it
into groundwater.

Any other discharge that might lead to the direct or indirect input of a pollutant to groundwater.



URBAN WASTE WATER TREATMENT

- Urban Waste Water Treatment Directive 1991 – not retained EU legislation.
- Urban Waste Water Treatment (E&W) Regulations 1994 – EU derived legislation

SEWAGE COLLECTION SYSTEMS

- Take into account waste water treatment requirements
- Use best technical knowledge – not entailing excessive cost – in their design, construction and maintenance.

TRADE EFFLUENT

- Sewerage undertaker gives consent for discharge into sewers under section 118, Water Industry Act 1991.
- Pre-treatment in compliance with Sch. 4 of UWWT Regs 1994:
 - Protect health of sewer workers,
 - Prevent damage to plant
 - Ensure system can work properly
 - Ensure discharges do not:
 - Adversely affect the environment, or
 - Prevent receiving waters from complying with other retained EU law



SEWAGE DISCHARGES

Most discharges from STWs now must have secondary treatment

Limits on :

Biological Oxygen Demand

Chemical Oxygen Demand

May be more stringent requirements to meet other retained EU law.



EUTROPHICATION

- Discharges to areas subject to eutrophication must limit:
 - Total phosphorus
 - Total nitrogen

HIGHWAY DRAINS



HIGHWAY OUTFALLS

The strategic road network has developed over 60 years to road design standards that were current at the time each major roads were constructed or improved. Understanding of, and concern about, pollution of water from road run-off was lower during much of this time and as a result many of the drains and outfalls have little or no measures to mitigate the risk of road run-off carrying pollutants into watercourses.

HIGHWAY DISCHARGES

Only need an environmental permit if:

Operating a highway drain that
might lead to a polluting discharge and,

EA / NRW serve notice requiring a
permit for the discharge

EPR 2016, Sch. 21, para. 4.





DIFFUSE POLLUTION

WFD Article 11 (3) (h) – basic measure for sources of diffuse pollution:

- Measures to prevent entry into waters
- Measures for prior authorisation
- Registration under general binding rules



AGRICULTURAL POLLUTION

- NITRATES
- MANURE AND FERTILISERS
- STORAGE OF POLLUTING SUBSTANCES



NITRATES

Nitrates Directive

Nitrate Pollution Prevention Regulations 2015 (E)

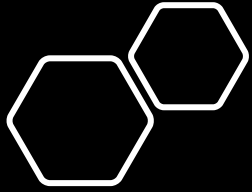
Nitrate Vulnerable Zones

Application of organic manure

Nitrogen fertiliser plans

Spreading of nitrogen fertiliser





REDUCTION
AND
PREVENTION
OF
AGRICULTURAL
DIFFUSE
POLLUTION
(ENGLAND)
REGULATIONS
2018



Apply to all agricultural land in England

A land manager must ensure that organic manure or manufactured fertiliser is not applied to agricultural land if—

- (a) the soil is waterlogged, flooded or snow covered, or
- (b) the soil has been frozen for more than 12 hours in the previous 24 hours. (reg.3)

REASONABLE PRECAUTIONS

The land manager must ensure that reasonable precautions are taken to prevent agricultural diffuse pollution resulting from land management and cultivation practices on agricultural land.

e.g: establishing crops early in autumn months, and during dry conditions



STORAGE OF POLLUTING SUBSTANCES

- Silage
- Slurry
- Agricultural fuel oil
SI 2010/639
- Organic manure
SI 2018/151

DIFFUSE WATER POLLUTION PLANS

Diffuse Water Pollution (DWP) Plans are a joint Natural England and Environment Agency tool used to plan and agree strategic action in relation to diffuse pollution at the catchment-scale. They are the most frequently identified mechanism for improving water quality on Natura 2000.

Non-Statutory – inform regulatory action

MEASURES TO IMPLEMENT A PLAN

- Water Protection Zones – WRA 1991, s. 93
- Anti-pollution works notices - WRA 1991, s. 161 – 161ZB
- Farming Rules for Water - Ag. Diffuse Pollution Regs 2018.
- Cross-compliance – e.g. buffer strips – for Basic Payment Scheme.





The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015

The Appropriate Agency must classify—

- (a) the ecological status of a body of surface water (other than one designated as artificial or heavily modified)
- (b) the ecological potential of a body of surface water designated as artificial or heavily modified
- (c) the chemical status of a body of surface water and
- (d) the chemical and quantitative status of a body of groundwater

CHEMICAL STATUS

To classify the chemical status of a body of surface water the Appropriate Agency must:

(a) using monitoring or modelling, estimate the concentrations in the water body of all the appropriate substances listed in Part 3 of Schedule 3; and

(b) compare those concentrations with the applicable standards in that Part.

MONITORING REQUIREMENT

The Appropriate Agency must,

- in order to ensure that the classification results reflect any impact on the ecological quality of the water environment that is of sufficient spatial extent to affect ecological status,
- ensure, as far as reasonably possible,
- that the monitoring data and modelling results it uses in classification are representative of the water body as a whole

STANDARDS FOR SURFACE WATER

- categorise the water body, by type, in accordance with Schedule 2;
- apply physico-chemical standards in accordance with Part 1 of Schedule 3;
- apply the environmental quality standards specified for specific pollutants in accordance with Part 2 of Schedule 3;
- apply the environmental quality standards specified for priority substances and other pollutants in accordance with Part 3 of Schedule 3; and
- apply the biological element status boundary values in accordance with Part 4 of Schedule 3

To determine the dissolved oxygen, biochemical oxygen and ammonia standards for rivers... or part of one:

CATEGORISATION OF RIVERS

Categorise by:

- Height of river – more or less than 80 metres
- Alkalinity (as mg/1 CaCO_3 (Chalk)) –
 - less than 10 = Type 1
 - Over 200 = Type 7

STANDARDS FOR SPECIFIC POLLUTANTS

Divided into standards for fresh or salt water

Dissolved concentration $\mu\text{g/l}$ – microgrammes per litre

	Fresh water	
	Long term (mean)	Short term (95 percentile)
Phenol	7.7	46

Individual pollutants – not mixtures of them.

