



# Update to the river basin management plans in England

## National Evidence and Data Report

Updated December 2015

## **Purpose**

This national evidence and data report provides a summary of the main data taken from individual river basin management plans, aggregated for England. For explanations of terms such as ecological status, the difference between outcomes and objectives, please refer to the river basin management plan Part 1 and Part 2 documents where there is additional supportive information.

## **Content and format**

The following statistics are for the water body network used to classify the water environment in the update to the river basin management plans for England (this excludes water body information from the Dee & Severn river basin management plans that are in Wales and waterbody information from the Solway Tweed river basin management plan that are in Scotland).

## **Headlines for updated plans**

### ***Current Status***

- 17% of surface water bodies in England are at good or better ecological status or potential now.
- 79% of the elements that define surface water ecological status are at good or better now.
- 53% of groundwater water bodies in England are at good chemical status now.
- 98% of the elements that define groundwater chemical status are at good status now.
- 69% of groundwater water bodies in England are at good quantitative status now.
- 88% of the elements that define groundwater quantitative status are at good status now.

### ***Objectives***

- 75% of surface water bodies in England have an objective of good ecological status or potential
- 87% of groundwater bodies in England have an objective of good chemical status and 82% have an objective of good quantitative status
- 94% of the elements that define ecological status have an objective of good status

### ***Predicted improvements by 2021***

- 295 surface water bodies (6.3%) in England are predicted to improve by at least one ecological status class by 2021. Of these 168 (4%) are predicted to improve to good or better ecological status by 2021
- 860 ecological status elements (2.6%) are predicted to improve by at least one status class by 2021. Of these 511 are predicted to improve to good or better ecological status by 2021
- 8,600 km of rivers, canals and surface water transfers in England are predicted to improve by at least one ecological status class by 2021
- 680 surface water bodies (14.5%) in England are predicted to have at least one ecological status element improve by at least one status class by 2021
- 137,000 ha of lakes, estuaries and coast in England are predicted to have at least one ecological status element improve by at least 1 status class by 2021

## **Summary data summaries for the updated plans**

The following sections use section and table numbers from Part 1 of the river basin management plan. This is to enable easy reference to the background text in the Part 1 documents.

### **1.4. Significant water management issues**

The significant water management issues are the main issues that limit the uses and potential benefits of managing the water environment in the river basin district in a sustainable way. They have been identified based on the results of public consultation and assessments of the pressures caused by people now, in the past, and predicted in the future.

Many of these issues arise from current activities that provide a wide range of benefits. It may therefore not be possible or desirable to fully resolve the issues.

#### **Physical modifications** - affecting 39% of water bodies in England

People have made many physical changes to rivers, lakes and estuaries, for example, flood defences and weirs, and changes to the size and shape of natural river channels for land drainage and navigation. These modifications alter natural flow levels, cause excessive build up of sediment in surface water bodies and the loss of habitats and recreational uses. In many cases the uses and associated physical modifications need to be maintained. In these circumstances it may not be possible to achieve good ecological status.

#### **Pollution from waste water** - affecting 35% of water bodies in England

Waste water, or sewage, can contain large amounts of nutrients (such as phosphorus and nitrates), ammonia, bacteria, harmful chemicals and other damaging substances. It can enter water bodies where sewage treatment technology to remove enough of the phosphorus and harmful chemicals doesn't exist, from leakages from privately owned septic tanks and, in wet weather, storm overflows can discharge untreated sewage having a significant impact on bathing waters. Population growth and changes in rainfall patterns are increasing the pressure on the sewer network.

#### **Pollution from towns, cities and transport** – affecting 11% of water bodies in England

Rainwater draining from roofs, roads and pavements carries pollutants, including grit, bacteria, oils, metals, vehicle emissions, detergent and road salt drains to surface water, including estuaries and coastal waters. Many homes and workplaces have 'misconnected' drains, meaning that dirty water often enters surface waters and groundwater rather than foul sewer drains.

#### **Changes to the natural flow and level of water** - affecting 6% of water bodies in England

Reduced flow and water levels in rivers and groundwater caused by human activity (such as abstraction) or less rainfall than usual can mean that there is not enough water for people to use and wildlife might not be able to survive. Reduced flow affects the health of fish and exaggerates the impacts of barriers such as weirs. Climate change research shows that by 2050 England can expect significant seasonal variations, with higher winter and lower summer flows, and a reduction in flow overall. In the long term, there will be less water available to abstract for drinking, industry and irrigating crops.

### **Negative effects of non-native invasive species** - affecting 2% of water bodies in England

Non-native invasive species can have significant economic impacts. The cost of controlling invasive species to make sure that flood defences and the natural environment are not compromised is rising. American Signal Crayfish are becoming widespread and affect animals such as fish and invertebrates. Other species such as mitten crabs destroy habitats like reed beds and can cause banks to collapse by burrowing into them. Climate change is thought to drive certain species northwards, increasing their frequency and variety in the future and affecting the condition of water bodies.

### **Pollution from rural areas** - affecting 35% of water bodies in England

Some approaches to land management have increased the amount of soils and sediment that are being washed off the land carrying phosphorus into waters which can cause excessive algae growth called 'eutrophication'. A changing climate means that more intense rainfall is likely to occur, increasing the risk of impacts further. Nitrate from fertilisers has built up in groundwater over decades and will take a long time to reduce. Sedimentation from erosion, forestry practices, saturated and compacted fields and livestock trampling on river banks has affected river ecology by smothering fish spawning grounds. Other impacts include bacteriological contaminants from animal faeces, pesticides from farming, forestry, golf courses and parks and inappropriately storing and applying livestock slurry on land. These contaminants pose a particular threat to bathing waters, shellfish waters and drinking water.

### **Pollution from abandoned mines** - affecting 3% of water bodies in England

Minewater is water that has naturally entered the mine workings. When the mines were operating the minewater was drained or pumped to keep it away from working areas. After mines close, mine workings flood. This results in both surface waters and groundwater being contaminated with dissolved metals such as iron, lead, copper, zinc or cadmium. In addition, impacts from the leaching of metals due to ore crushing and settlement lagoons can be a real concern because the resulting spoil heaps are often large and close to water.

### **Taking account of climate change**

The climate is changing as a result of greenhouse gas emissions caused by human activity. Latest UK climate projections show that temperatures will continue to rise, with increased winter rainfall and more rain falling in intense storms and continuing sea level rise. The impact on river flows, water quality and ecosystems is less clear. Studies to learn more about the effects of climate change on the river basin district are underway. In the meantime, it makes sense to implement measures that are flexible or increase resilience to extreme weather events and future warming.

### **Risk assessments**

Risk assessments are used to help identify significant water management issues by identifying where pressures could change in the future, potentially leading to a deterioration or reducing the effectiveness of measures to meet their objectives. The Environment Agency has reviewed and updated, where necessary, the risk assessments since the 2009 plan.

The risk assessments forecast risk up to 2027. Because of the relatively short timescale, the specific risks from climate change have been considered mainly in the faecal indicator organisms risk assessment and the abstraction-flow risk assessment.

## 2.1 Current state of the environment

### Water bodies and catchments

In England there are:

- 117 management catchments of which:
  - 90 are river & lake management catchments
  - 10 are groundwater management catchments
  - 9 are estuary and coastal water management catchments
  - 8 are artificial water body management catchments
- 489 surface water operational catchments
- 4950 water bodies of which:
  - 4679 are surface water bodies
  - 271 are groundwater water bodies

**Table 5: Number of water bodies in England**

Water body categories	Natural	Artificial	Heavily modified	Total
Rivers, canals and surface water transfers	2,549	268	1,107	3,924
Lake	93	171	325	589
Coastal	34	2	26	62
Estuarine	24	11	69	104
<b>Surface water Total</b>	<b>2,700</b>	<b>452</b>	<b>1,527</b>	<b>4,679</b>
Groundwater	271	0	0	271
<b>Grand Total</b>	<b>2,971</b>	<b>452</b>	<b>1,527</b>	<b>4,950</b>

### Water body current status

**Table 6: Ecological and chemical 2015 classification for surface waters**

No. of water bodies	Ecological status or potential					Chemical status	
	Bad	Poor	Mod	Good	High	Fail	Good
4,679	136	765	2,966	805	7	137	4,542

**Table 7: Chemical and quantitative 2015 classification for groundwaters**

No. of water bodies	Quantitative status		Chemical status	
	Poor	Good	Poor	Good
271	84	187	128	143

## 2.4 Protected area compliance and objectives

**Table 8: Drinking water protected areas current status and at risk**

Water body type	Total number of drinking water protected areas	Number 'at risk'	Number at poor chemical status for drinking water protected area objectives
Surface water	486	202	Does not apply to surface waters
Groundwater	271	127	72

**Table 9: Shellfish water protected areas current status and objectives**

Total number of shellfish waters	Objective	Number currently achieving objective	Achieving objective by 2015	Achieving objective by 2021	Achieving objective by 2027
96 <sup>1</sup>	<300 E.coli/100ml in the shellfish flesh and intravalvular fluid	11	19	20	57

<sup>1</sup> 12 shellfish waters are unmonitored or with insufficient monitoring to assess compliance during 2014 due to the lack of commercial harvesting activity

**Table 10: Bathing water protected areas current status and objectives**

Total number of bathing waters in 2015	Objective	Number which met at least the sufficient classification in 2014*	Number we expect to achieve at least sufficient in 2015	Number at risk of not achieving sufficient in 2015
417	At least sufficient classification	393	392	25

\* This is the number that would have met at least the sufficient class if the new 2015 standards had been in force

**Table 11: Nitrate vulnerable zone protected areas extent:**

Reason for designation	Total number of NVZs designated for each reason	Land area(ha) covered by NVZ type	% of Land area (ha) in England covered by NVZ type
High nitrate in surface water	458	5,941,005	46%
High nitrate in groundwater	113	3,211,279	25%
Eutrophication in lakes or reservoirs	34	113,001	1%
Eutrophication in estuaries or coastal waters	13	520,500	4%

NB An NVZ can be designated for more than one reason. For further information on NVZs visit the [NVZ web pages](https://www.gov.uk/nitrate-vulnerable-zones) (<https://www.gov.uk/nitrate-vulnerable-zones>)

**Table 12: Urban Waste Water Treatment Directive protected areas type and extent**

Reason for designation	Total number of sensitive areas	Length (km) / Area (km <sup>2</sup> ) designated
Eutrophication in rivers	112	4,591km
Eutrophication in canals	6	225km
Eutrophication in lakes / reservoirs	37	77km <sup>2</sup>
Eutrophication in estuaries or coastal waters	11	143km <sup>2</sup>
High nitrate in surface fresh water	8	600km

**Table 13: Natura 2000 water dependent protected areas current condition and objectives:**

Current condition	Area of SSSI underpinning Natura 2000 sites (Ha)			
WFD - favourable	291,225			
WFD - unfavourable recovering	229,791			
WFD - unfavourable no change	13,417			
WFD - unfavourable declining	6,924			
WFD - destroyed/partially destroyed	57			
Total areas	541,414			
Objective	Number of protected areas			
	By 2015	By 2021	By 2027	Total
Achieve conservation objectives	87	56	98	<b>241</b>

## **2.5 Water body objectives**

Please read section “2.5 Water body objectives” in the Part 1 document and section “5.2 Reviewing and updating water body status objectives” and section “5.4 Alternative objectives” in the Part 2 document, for a more detailed explanation of water body objectives.

Tables 14 and 15 summarise the objectives for water bodies in England in the updated river basin management plans. For example, table 14 shows the number of water bodies in England that have a good by 2015, a good by 2021 or a good by 2027 objective.

**Table 14: Summary of ecological status or potential and chemical status objectives for surface water bodies (number of water bodies) including those with less stringent objectives and extended deadlines (blue shaded cells)**

	Ecological status or potential						Chemical status			
	Bad	Poor	Mod	Good	High	Total	Fail	Good	Total	
By 2015	19	107	841	806	7	1,780	14	4,542	4,556	Extended deadline
By 2021	0	2	30	166	0	198	0	1	1	
By 2027	0	12	162	2,525	0	2,699	0	122	122	
Beyond 2027	0	0	0	2	0	2	0	0	0	
<b>Total</b>	19	121	1,033	3,499	7	4,679	14	4,665	4,679	
	Less Stringent						Less Stringent			

Numbers are a count of the number of water bodies set each objective in the updated plans.

Although 25% of water bodies have a less stringent objective for ecological status or potential, only 6% of ecological elements have a similar objective. The difference is because the overall objective's status is determined by the lowest of the element level objectives.

**Table 15: Summary of quantitative and chemical status objectives for groundwater (number of water bodies) including those with less stringent objectives and extended deadlines (blue shaded cells)**

	Quantitative status			Chemical status			
	Poor	Good	Total	Poor	Good	Total	
By 2015	48	187	235	35	143	178	Extended deadline
By 2021	0	16	16	0	9	9	
By 2027	0	20	20	0	79	79	
Beyond 2027	0	0	0	0	5	5	
<b>Total</b>	48	223	271	35	236	271	
	Less Stringent			Less Stringent			

Numbers are a count of the number of water bodies set each objective in the updated plans

Table 16 shows how many times the different reasons for justifying the setting of alternative objectives (extended deadlines and less stringent objectives) were used across all water bodies (surface water and groundwater) in England. More than one reason may have been used to justify the alternative objective for any particular water body and therefore the numbers in the table do not equal the total number of water bodies.

The table also shows the reasons why extended deadlines have been set for some shellfish waters and Natura 2000 protected areas.



**Table 16: Summary of the justifications for alternative objectives for water bodies, shellfish waters and Natura 2000 protected areas**

Alternative objective reason	Sub-reason (more than one reason can be applied to a water body)	Number of water bodies or protected areas where reason has been used		
		Water bodies	Natura 2000	Shellfish waters
<b>Technically infeasible</b>	No known technical solution is available	541	32	0
	Cause of adverse impact unknown	974	55	0
	Practical constraints of a technical nature	34	79	41
	Number of water bodies or protected areas where technically infeasible has been used as one of the reasons	1,439	97	41
<b>Disproportionately expensive</b>	Unfavourable balance of costs and benefits	745	0	16
	Disproportionate burdens	2,933	40	0
	Number of water bodies or protected areas where disproportionately expensive has been used as one of the reasons	3,255	40	16
<b>Natural conditions</b>	Ecological recovery time	281	0	0
	Groundwater status recovery time	16	0	0
	Background conditions	120	1	0
	Number of water bodies or protected areas where natural conditions has been used as one of the reasons	402	1	0
	Total number of water bodies or protected areas with an alternative objective (extended deadline and/or less stringent status objective)	3,851	98	57

## **2.8 Environmental Outcomes for 2021**

Please read section “2.8 Environmental Outcomes for 2021” in the Part 1 document for a more detailed explanation of environmental outcomes.

To help determine water body status objectives, a prediction was made about what the status of each element will be in 2021. Predicted improvements in status are based on measures where there is confidence that the:

- measures will happen by 2021
- location of the measures and the water bodies that will benefit are known
- change in element status will occur as a result of the measures

For some measures, although there is confidence that the measure will happen by 2021, there is not enough confidence about the location or the scale of improvement to be able to predict outcomes for specific elements in specific water bodies.

These additional 2021 outcomes, which are not included in the tables below, are detailed in section 3 of Part 1 of each river basin management plan.

**Table 17: Current and predicted 2021 ecological and chemical status of surface water bodies (number of surface water bodies)**

	Ecological status or potential			Chemical status		
	Bad	Poor	Moderate	Good or better	Fail	Good
<b>Current</b>	136	765	2,966	812	137	4,542
<b>Predicted 2021</b>	113	661	2,926	979	136	4,543
<b>Predicted Change</b>	-23	-104	-40	167	-1	1

**Table 18: Current and predicted 2021 quantitative and chemical status of groundwater bodies (number of groundwater bodies)**

	Quantitative status		Chemical status	
	Poor	Good	Poor	Good
<b>Current</b>	84	187	128	143
<b>Predicted 2021</b>	68	203	119	152
<b>Predicted Change</b>	-16	16	-9	9

**Table 19: Current and predicted 2021 status of ecological and chemical elements (number of elements in surface water bodies)**

	Ecological Elements (Status)				Chemical Elements (status)	
	Bad	Poor	Moderate	Good or better	Fail	Good
<b>Current</b>	509	2,287	4,336	26,173	169	7,985
<b>Predicted 2021</b>	431	1,935	4,222	26,684	168	7,986
<b>Predicted Change</b>	-78	-352	-114	511	-1	1

Note the difference in the total number of ecological elements between current and 2021 is due to the classification process. See section 4.2.3 “Assessment of water body status” in the Part 2 document for further details.

**Table 20: Current and predicted 2021 status for biological elements in rivers (number of times element assessed)**

		Element Status			
		Bad	Poor	Moderate	Good or better
Fish	Current	120	456	494	774
	Predicted 2021	102	406	484	852
	Predicted Change	-18	-50	-10	78
Invertebrates	Current	94	226	633	2,603
	Predicted 2021	83	217	611	2,645
	Predicted Change	-11	-9	-22	42
Plants (Macrophytes & Phytobenthos)	Current	10	371	1,111	1,308
	Predicted 2021	9	310	1,068	1,380
	Predicted Change	-1	-61	-43	72

Note the difference in the total number of “plants” between current and 2021 is due to the classification process and specifically relates to heavily modified water bodies. See section “4.2.3 Assessment of water body status” in the Part 2 document for further details.

## **4.2. Measures implemented**

### **Planned measures implemented since 2009**

Most of the measures (over 98%) summarised in the river basin management plans published in 2009 have been completed.

A few measures have not been completed for the following reasons:

- 28 measures have been reassessed and are no longer needed or considered effective
- 19 not funded (i.e. funding withdrawn)
- 7 there was no mechanism to deliver the measure

### **Additional measures implemented since 2009**

In addition to the measures in the 2009 plans, a significant number of other measures have been implemented. For instance in England, the government provided £90 million between 2010 and 2015 for additional measures to improve the physical water environment, reduce pollution, and reduce the impact of invasive non-native species.

It is estimated that the additional measures in England represent a further investment of at least £118 million. Table 25 gives a summary of the issues addressed and an indication of the scale of additional measures.

**Table 25 – Summary of additional measures in England**

Significant water management issue	Number of Measures	Cost (£million)	Number of water bodies affected
Physical modifications	666	68	1,525
Pollution from rural areas	132	21	581
Pollution from town, cities and transport	77	11	211
Pollution from abandoned mines	2	8	3
Non-native invasive	53	2	148
Other	59	8	178
<b>Total</b>	<b>989</b>	<b>118</b>	<b>2,646</b>

#### **4.3 Progress towards achieving the environmental objectives in the 2009 plan**

This section is about the water body network used to classify the water environment in the 2009 plans.

##### **Deterioration of overall water body status (2009 to 2015)**

To assess compliance with the WFD objective of preventing deterioration, 2015 classifications results (based on data up to the end of 2014) using the standards and classification tools used in 2009, were compared with the 2009 classification baseline. The assessment considered whether the water body had deteriorated from one status class in 2009 to a lower one in 2015. This was applied to a water body's overall status and to the status of each element used in classification.

**Table 27: Water bodies that have deteriorated (at >75% confidence)**

Water bodies	Number	Percentage
Surface water ecological status	143	2%
Surface water chemical status	9	<1%
Groundwater quantitative status	0	0%
Groundwater chemical status	0	0%

143 (2%) of **surface water bodies** have deteriorated (at >75% certainty).

Of the 1,438 **surface water elements** classified in these water bodies:

- 163 (11%) deteriorated in status (at > 75% certainty)
- 1099 (76.5%) maintained their status
- 35 (2.5%) improved in status (at > 75% certainty)

Note: The assessment of which elements have changed in status, used data from 2009 and 2015. Statistical analysis is used to determine which changes in class have occurred with >75% certainty.

Those with >75% certainty are reported as a deterioration or improvement. About 10% of water body elements either improved or deteriorated in class at <75% certainty.

### Change to the state of the environment (2009 to 2015)

If an element changes to a lower status but this does not affect the **overall water body status** these changes are not reported in the assessment of compliance with the objective to prevent deterioration. This means more water body elements have changed in status than described above.

Between 2009 and 2015, out of 34,320 monitored **surface water elements**<sup>[1]</sup>:

- 1,658 (4.8%) elements have a lower status
- 27,481 (80.1%) elements maintained their status
- 4,142 (12.1%) elements improved their status
- 1,039 (3%) elements moved from High to Good status

These values include all changes in element status, not just those with greater than 75% certainty. They represents a 7.24% net improvement (2.06% net improvement at >75% certainty) in the status of surface water body elements.

Where deterioration of status has occurred, the cause needs to be identified and measures to restore the water body to its previous status put in place as soon as possible.

**Table 29: Comparison of 2009 baseline with 2015 predicted and actual results (using the water body network, standards and classification tools used in 2009)**

Water bodies	Percentage of water bodies at good or better status		
	2009	2015 predicted	2015 actual
Surface water ecological status	26%	30%	21%
Surface water chemical status	8%	9%	14%
Groundwater quantitative status	61%	61%	72%
Groundwater chemical status	58%	59%	53%
Overall status	26%	30%	22%

<sup>[1]</sup> Includes ecological (Biological Quality Elements, Physico-Chemical Quality Elements, Other Substances and Specific Pollutants) and chemical elements (Other Pollutants, Priority Substances and Priority Hazardous Substances)

## 5 Summary statistics for the updated river basin management plans

Table 30: Summary statistics for England: Water bodies

	Rivers, Canals and SWTs	Lakes	Estuaries	Coastal	Surface Waters Combined	Groundwater	All Water Categories
% of water bodies at good or better ecological status/potential now	17%	16%	21%	47%	17%		
% of water bodies predicted to be at good ecological status/potential or better by 2021	21%	19%	25%	53%	21%		
% of water bodies with an objective of good ecological status/potential or better	75%	80%	59%	73%	75%		
<b>Chemical status</b>							
% of water bodies at good chemical status now	97%	100%	94%	92%	97%		
% of water bodies predicted to be at good chemical status by 2021	97%	100%	94%	92%	97%		
% of water bodies with an objective of good chemical status	>99%	100%	99%	98%	>99%		
<b>Groundwater status</b>							
% of water bodies at good chemical (GW) status now						53%	
% of water bodies predicted to be at good chemical (GW) status by 2021						56%	
% of water bodies with an objective of good chemical (GW) status						87%	
<b>Quantitative status</b>							
% of water bodies at good quantitative status now						69%	
% of water bodies predicted to be at good quantitative status by 2021						75%	
% of water bodies with an objective of good quantitative status						82%	
<b>Overall status</b>							
% of water bodies at good or better overall status now	17%	16%	21%	44%	17%	42%	19%
% of water bodies predicted to be at good or better overall status by 2021	20%	19%	25%	48%	21%	48%	22%
% of water bodies with an objective of good or better overall status	74%	80%	58%	71%	75%	72%	75%

Note the changes in % of water bodies at good or better overall status will reflect the one-out-all-out approach to classification when compared to the % of water bodies at good or better ecological status and good chemical status

**Table 31: Summary statistics for England: Elements (Percentages of assessed elements in each water category)**

	Rivers, Canals and SWTs	Lakes	Estuaries	Coastal	Surface Waters Combined	Groundwater	All Water Categories
% of ecological elements at good or better status now (biological, physico-chemical and specific pollutants)	79%	67%	78%	89%	79%		
% of ecological elements predicted to be at good status or better by 2021 (biological, physico-chemical and specific pollutants)	81%	68%	80%	91%	80%		
% of ecological elements with an objective of good status or better (biological, physico-chemical and specific pollutants)	94%	90%	92%	94%	94%		
<b>Chemical elements</b>							
% of chemical <sup>1</sup> elements at good status now	98%	>99%	99%	98%	98%		
% of chemical elements predicted to be at good status by 2021	98%	>99%	99%	98%	98%		
% of chemical elements with an objective of good	>99%	100%	>99%	>99%	>99%		
<b>Groundwater chemical elements</b>							
% of groundwater chemical elements at good status now						86%	
% of groundwater chemical elements predicted to be at good status by 2021						87%	
% of groundwater chemical elements with an objective of good						97%	
<b>Groundwater quantitative elements</b>							
% of groundwater quantitative elements at good status now						88%	
% of groundwater quantitative elements predicted to be at good by 2021						90%	
% of groundwater quantitative elements with an objective of good						94%	
<b>Overall status</b>							
% of elements at good or better status now <sup>2</sup>	83%	75%	87%	92%	82%	87%	83%
% of elements predicted to be at good or better overall status by 2021	84%	76%	88%	93%	84%	88%	84%
% of elements with an objective of good or better overall status	95%	92%	95%	96%	95%	96%	95%

<sup>1</sup> Chemical elements include: All substances under the banner of Priority Substances, Priority Hazardous Substances and Other Pollutants.

<sup>2</sup> Does NOT include Hydromorphological Supporting Elements (i.e. Hydrological Regime, Mitigation Measures Assessment or Morphology), Surface Water Supporting elements (i.e. Expert Judgement, Override) or Groundwater Supporting elements (i.e. Trend Assessment)

**Table 32: Pressures preventing waters reaching good status and the sectors identified as contributing to the impact (reasons for not achieving good status) in England**

Note: 'Other' is used for sectors in addition to those specifically listed; 'No sector responsible' applies where the pressure is not related to the activities of a particular sector and so no sector can be assigned; 'sector under investigation' applies where work continues to identify the relevant sector responsible for the pressure

Pressure	Agriculture and rural land management	Industry	Mining and quarrying	Navigation	Urban and transport	Water Industry	Local & central government	Domestic general public	Recreation	Waste treatment and disposal	Other	No sector responsible	Sector under investigation	Total
<b>Abstraction and flow</b>	81	29	2	9	7	257	8	0	2	0	29	86	46	556
<b>Chemicals</b>	146	45	349	3	46	43	0	11	1	2	30	60	279	1,015
<b>Biochemical oxygen demand</b>	8	11	0	0	22	87	0	5	0	1	0	1	2	137
<b>Dissolved oxygen</b>	240	31	3	6	122	233	21	26	2	4	28	108	55	879
<b>Ammonia</b>	102	47	6	0	177	378	1	24	2	6	9	3	40	795
<b>Fine sediment</b>	487	11	11	2	73	11	5	2	1	0	16	24	10	653
<b>Invasive non native species</b>	0	0	0	0	0	0	0	0	0	0	0	84	0	84
<b>Nitrate</b>	41	2	0	0	5	24	0	0	0	1	12	0	36	121
<b>Phosphate</b>	2,480	109	0	0	629	2,346	12	160	5	6	100	106	138	6,091
<b>Physical modification</b>	681	89	4	78	710	489	751	8	143	0	202	60	365	3,580



**Table 33: Significant water management issues preventing waters reaching good status and the sectors identified as contributing to the impact (reasons for not achieving good status) in England**

Note: 'Other' is used for sectors in addition to those specifically listed; 'No sector responsible' applies where the SWMI is not related to the activities of a particular sector and so no sector can be assigned; 'sector under investigation' applies where work continues to identify the relevant sector responsible for the pressure

Significant water management issue	Agriculture and rural land management	Industry	Mining and quarrying	Navigation	Urban and transport	Water Industry	Local & central government	Domestic general public	Recreation	Waste treatment and disposal	Other	No sector responsible	Sector under investigation	Total
<b>Physical modifications</b>	749	89	4	84	762	521	802	10	148	0	235	2	371	3,777
<b>Pollution from waste water</b>	24	184	3	1	152	3,140	10	249	9	19	66	5	10	3,872
<b>Pollution from towns, cities and transport</b>	3	86	1	0	974	34	0	0	1	0	62	0	13	1,174
<b>Changes to the natural flow and level of water</b>	112	32	1	11	5	272	11	0	2	0	38	0	9	493
<b>Non-native invasive species</b>	0	0	0	0	0	0	0	0	0	0	0	95	0	95
<b>Pollution from rural areas</b>	3,495	0	0	0	0	0	0	0	0	0	16	0	0	3,511
<b>Pollution from abandoned mines</b>	0	0	383	0	0	0	0	0	0	0	6	0	0	389

**Table 34: Reasons for deterioration by one or more status class between 2009 and 2015 and the sectors identified as contributing to the impact in England**

Note: 'Other' is used for sectors in addition to those specifically listed; 'No sector responsible' applies where the pressure is not related to the activities of a particular sector and so no sector can be assigned; 'sector under investigation' applies where work continues to identify the relevant sector responsible for the pressure

Pressure causing deterioration	Agriculture and rural land management	Industry	Mining and quarrying	Navigation	Urban and transport	Water Industry	Local & central government	Domestic general public	Recreation	Waste treatment and disposal	Other	No sector responsible	Sector under investigation	Total
Abstraction & Flow	6	0	0	0	0	2	0	0	0	0	0	2	1	11
Chemicals	1	3	3	3	0	1	0	0	0	0	1	5	8	25
Biochemical oxygen demand	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dissolved Oxygen	18	1	0	0	1	17	1	2	0	1	0	18	43	102
Ammonia	17	3	2	0	5	36	0	0	0	1	1	1	15	81
Fine sediment	18	1	0	0	1	0	1	0	0	0	1	1	1	24
Invasive non native species	0	0	0	0	0	0	0	0	0	0	0	11	0	11
Nitrate	2	0	0	0	0	0	0	0	0	0	0	0	0	2
Phosphate	31	1	0	0	2	46	0	6	0	1	2	0	31	120
Physical Modification	19	2	0	1	6	2	5	1	1	0	8	1	2	48

### Artificial and heavily modified water bodies

The tables A1 and A2 show the specified uses that have led to the designation of water bodies in England as artificial or heavily modified.

Each water body can be designated for more than one specified use. The largest use resulting in the designation of water bodies as artificial or heavily modified waters is flood protection.

**Table A1: Designation of freshwater artificial and heavily modified water bodies**

Specified uses for designation	Freshwaters				Total uses
	River	Lake	Canal	Surface Water Transfer	
Wider Environment	91	162	6	0	259
Navigation	51	10	111	2	174
Recreation	106	128	35	1	270
Drinking Water Supply (water storage)	130	416	1	2	549
Power Generation	30	21	0	2	53
Irrigation	29	0	1	0	30
Water Regulation (strategic transfer)	91	30	2	12	135
Water Regulation (impoundment release)	179	117	0	0	296
Flood Protection	718	15	3	1	737
Land Drainage	502	8	2	1	513
Urbanisation	479	7	3	4	493
Other Human Sustainable Development	18	13	1	0	32

**Table A2: Designation of estuarine and coastal artificial and heavily modified water bodies**

Specified uses for designation	Estuaries and coastal waters		Total uses
	Estuary	Coastal	
Flood Protection (TraC)	70	15	85
Navigation (TraC)	43	10	53
Coastal Protection	33	23	56
Shell Fisheries	5	1	6
Fin Fisheries	1	3	4

For further information on modified waters please follow this link <https://ea.sharefile.com/d-s68d152d0d2e4bb09>

**Would you like to find out more about us  
or about your environment?**

**Then call us on**

**03708 506 506** (Monday to Friday, 8am to 6pm)

**email**

**[enquiries@environment-agency.gov.uk](mailto:enquiries@environment-agency.gov.uk)**

**or visit our website**

**[www.gov.uk/environment-agency](http://www.gov.uk/environment-agency)**

**incident hotline 0800 807060** (24 hours)

**floodline 0345 988 1188** (24 hours)

Find out about call charges: [www.gov.uk/call-charges](http://www.gov.uk/call-charges)



Environment first: Are you viewing this on screen? Please consider the environment and only print if absolutely necessary. If you are reading a paper copy, please don't forget to reuse and recycle if possible.