

Current environmental baseline and trends for water - SCOTLAND

Sub-topic	Current environmental baseline	Trends
Overall	<ul style="list-style-type: none"> • Overall Scotland's water environment is in a good condition but a wide range of problems exist at local levels. The Water Framework Directive sets out environmental standards against which the impacts summarised here will be assessed. Approximately 40% of Scottish water bodies are at risk of failing to meet these environmental standards. • Transitional waters are most at risk followed by lochs, groundwaters and rivers. • Quality of coastal waters is high and improving further. 	<ul style="list-style-type: none"> • Risks to transitional waters need close attention as they relate closely to the changes in impacts to water bodies. • In most cases the risks to water quality are declining, the exception being groundwater. • Local circumstances create local trends- a case in point being upland lochs, which are particularly sensitive to environmental changes. • The most important trends are the sources of effects. Environmental effects from industry are declining, whereas effects from urban development and intensification are increasing.
Water quality	<ul style="list-style-type: none"> • Overall the quality of Scotland's water bodies is good and has exceeded the targets set in 2000. • Drinking water: Drinking water quality in Scotland is of a high standard and over 95% of homes are supplied with water that exceeds the relevant standards. • Bathing waters: The quality of Scotland's bathing waters is amongst the highest in the EU, reflecting the high quality of Scottish coastal waters. In 2007, 54 of the 61 identified bathing waters in Scotland met the EU mandatory standards. • Nitrate Vulnerable Zones: Four areas have been designated based on concentrations of nitrates in surface waters and groundwater in Scotland: <ul style="list-style-type: none"> ○ Nithsdale ○ Edinburgh, East Lothian and Borders ○ Strathmore and Fife ○ Aberdeenshire, Banff, Buchan and Moray. 	<ul style="list-style-type: none"> • Drinking water quality has been improving since 1998. • Targets for rivers and coastal waters set for 2006 were exceeded. • Transitional water quality has also improved. • Significant improvements in coastal water quality, although high levels of diffuse bacterial pollution remain.

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<p>Water pollution – Diffuse sources</p>	<ul style="list-style-type: none"> • Agriculture: Diffuse pollution from agriculture affects about 50% of water bodies at risk. It is the most significant source of river pollution. • Forestry: Impacts from forestry are low due to less intensive use of fertilisers and pesticides; of main concern are the release of phosphate during forestry operations into highly sensitive upland lochs and the effects of acidification. • Urban development: Urban development poses significant risks to rivers, transitional and coastal water quality, from older drainage systems and surface water runoff. • Sea and coastal water transport: Impacts largely restricted to transitional and coastal waters around major ports. Discharges and leakage, as well as litter lost overboard are the main concerns. • Atmospheric deposition: Attention has been focused on reducing emissions of sulphur dioxide and oxides of nitrogen. There have been significant reductions in sulphur dioxide emissions within both Scotland and the UK, but the reductions are somewhat less for oxides of nitrogen. Other (more diffuse) sources such as ammonia are becoming increasingly important. Atmospheric deposition and acidification are also linked to forestry through the scavenging effects of trees. 	<ul style="list-style-type: none"> • Agriculture: Scotland's large agricultural sector and increasing intensification of farming is resulting in increasing pressure on water bodies from the impacts of agriculture. • Forestry: The best management practice through the implementation of the Forest & Water Guidelines has significantly reduced the adverse environment impacts of land management. • Urban development: New local authority development plans require Sustainable Urban Drainage Systems (SUDS) but the growth in urban areas poses serious problems for water quality. • Sea and coastal water transport: All ships painted with tributyl tin, a source of pollution, are now banned from all European ports. This is leading to significant improvements in water quality. More effort is needed to reduce litter.

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Water pollution – Point sources	<ul style="list-style-type: none"> • Sewage: Pollution from inadequate sewage treatment causes river, transitional and coastal water pollution. • Industrial manufacturing: Since the decline in Scotland's heavy industry the chemicals and food and drink sectors are the main sources of pollution from manufacturing. • Freshwater aquaculture: Input of nutrient to sensitive ecosystems in freshwater lochs an issue. 20% of the freshwater lochs are affected by pollution from fish farms. • Marine aquaculture: There are problems from pollution from farms in sheltered locations. • Refuse disposal: Mainly a historical problem limited to localised pollution of groundwater and transitional water from landfills. • Mining and quarrying: Abandoned coal mines are a significant source of groundwater and surface water pollution. 	<ul style="list-style-type: none"> • Sewage: Over the past 10 years increased investment has produced significant improvements in those water bodies most affected by sewage pollution. • Industrial manufacturing: Pollution from manufacturing has decreased dramatically over the last 40 years. • Freshwater aquaculture: Pre-existing farms may still pollute some freshwater lochs. Modelling is used to ensure that the size of fish farms is limited so as not to impact water quality. • Marine aquaculture: Pollution from marine fish farms and their impacts on wild fish is decreasing. • Refuse disposal: No new landfills have been identified as risks to groundwater or transitional waters. • Mining and quarrying: Improvements (i.e. remediation) are limited due to lack of funding.
Water resources	<ul style="list-style-type: none"> • Public water supplies: Abstraction of water for public supplies is placing an increasing burden on water resources, particularly during the summer. • Electricity generation: The primary issues associated with electricity generation are those of water abstraction and obstruction to the movement of fish, but these are limited to rivers and lochs. • Agriculture: Abstraction for agriculture is a localised problem, particularly during dry weather. 	<ul style="list-style-type: none"> • All hydropower schemes are now licensed by SEPA and those that pre-date licensing can be upgraded to the new standards. • Public demand for water is increasing the stress on rivers and lochs, although some of this is offset by the falling demand from industry. Groundwater abstraction is growing. • Demand for irrigation has increased over the last 20 years, necessitating high level water resource planning. • Potential for future summer droughts, as a result of climate change projections.

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Hydromorphology	<ul style="list-style-type: none"> • Historical engineering and urban development: Over 30% of water bodies at risk are affected by these impacts, in particular rivers and transitional waters. • Agriculture: Impacts on hydromorphology are generally restricted to rivers. • Land claim: A significant problem for transitional waters and coastal waters, affecting over half of those at risk. Loss of sensitive intertidal ecosystems such as salt marshes and mudflats has serious impact on ecology, fish stocks, sediment transport and flooding. • Forestry: The impact of historical planting of conifer plantations to the banks of water bodies has been identified as a significant issue. 	<ul style="list-style-type: none"> • Impacts from engineering are declining whilst risks and impacts from urban development are growing significantly. • Impacts from agriculture are limited and addressing them requires trade-offs to be made between environmental protection and economic sustainability. • Demand for reclaimed land is increasing from industry, urban development, energy generation and ports and marinas.
Flooding	<ul style="list-style-type: none"> • Almost 100,000 properties are built on fluvial or coastal flood zones in Scotland. Glasgow City has, potentially, the most properties at risk in the fluvial or river flood zone, with 11,500 dwellings and 250 commercial sites. Falkirk is most at risk from coastal flooding with more than 6,000 dwellings in risk locations. 	<ul style="list-style-type: none"> • Urban development is placing greater demands on urban drainage systems. • Flooding due to loss of floodplains from agriculture is manageable under current and new policies. • An increase in frequency and severity of flooding due to climate change is likely.

Sources:

- Defra, e-Digest Statistics about Inland Water Quality and Use.
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