

<b>Which document(s) are you commenting on?</b>	Main Issues Report	<input type="checkbox"/>
	Draft Proposed Aberdeenshire Local Development Plan	<input type="checkbox"/>
	Strategic Environmental Assessment Interim Environmental Assessment	<input type="checkbox"/>
	Other	<input type="checkbox"/>

## Your comments

### Value of the Rivers

The Don DSFB is the statutory body tasked with protecting and enhancing stocks of salmon and sea trout across its district which includes all inland waters which drain directly or indirectly to the sea between NJ 954 071 to the south and NJ 999 223 to the north and extending seaward for 5km.

The Don is Scotland's 6th largest river draining a catchment of 1312km squared. Home to a range of freshwater species, which include Salmon, Sea trout, Eels and Lamprey, with its specimen Brown Trout. Salmon are protected under the EC Habitats Directive. All lamprey species are protected under the EC Habitats Directive whilst river and sea lampreys are additionally protected under the UKBAP priority list. Eels are a UKBAP priority species, critically endangered under the IUCN red list and protected under CITES. Trout have conservation value particularly in situations where their (freshwater and saltwater) migration has been prevented, as isolated conditions leads to genetically and phenotypically distinct populations. As a rod & line fishery it attracts visiting anglers from the UK and beyond. The Don is of international importance as a fishery and is managed with the twin aims of conserving these populations and supporting a thriving economic fishery.

The Don DSFB represents, co-ordinates and promotes the interests of salmon and sea trout fisheries within its district and generally undertake such steps as may be desirable for the protection, preservation and development of these fisheries whilst having regard for the environment and other fauna and flora.

### Impacts to the Rivers

The main impacts that can accrue to the watercourses within the Don District because of development can be summarised as causing the following impacts:

1. Increased demand on Waste Water Treatment
2. Increase in surface water discharge
3. Flood Risk
4. Increased sediment loading during construction
5. Loss or reduction of habitat complexity and biodiversity
6. Prevention of fish migration in certain areas due to inappropriate culvert construction or high levels of lighting on watercourses.

## **1. Increased demand on Waste Water Treatment**

The majority of towns and villages in the Don District discharge treated domestic sewage to watercourses, either directly into the Don or one of its tributaries. Although in general these effluents are well treated, the Don DSFB regularly reports problems from WWTP and private septic tanks. The main problems are at Inverurie WWTP and within the River Urie Catchment where several private septic tanks systems have also had system failures resulting in poorly or untreated effluent entering the Don.

Much of the wastewater network has combined surface water and foul water systems, which in periods of high rainfall discharge undiluted effluent into the Don, although diluted by the volume of water in the Don this is still a matter of concern for the ecological health of the river and its protected species. The discharge of organic matter and its nutrients (e.g. nitrates and phosphates) can enrich surface waters enabling excessive growth of aquatic plant life such as the non-native water crowfoot which has become established and widespread on the Don in the last 20 years. Particularly high densities of this plant can be found from Alford downstream on the River Don and throughout the River Urie catchment downstream of Inch. In severe instances discharge of organic matter can cause oxygen levels to drop to such an extent that the watercourse can no longer support fish and other aquatic life. Sewage also contains toxic substances such as Ammonia, hydrocarbons and heavy metals which can also have a harmful affect and are difficult to treat and remove at the treatment plant.

There must be continued and increased investment in upgrading WWTP's throughout Aberdeenshire. All new development must be planned sustainably such that the sewerage network capacity is not exceeded. 95% of household water goes down the drain, greater separation systems should be implemented to avoid expensive treatments and overloading sewage treatment works.

Predicted reduction in precipitation during the summer and an increase in water consumption from industrial and residential development will put increased pressure on water recourses. Water quality within a catchment is directly related to the quantity of water within it. During low flows pollutants entering the river are more concentrated affecting the water quality.

Within the Strategic Environmental Assessment documents for the Don catchment it has been recorded that the WTW capacity is unknown for several of the preferred sites, Furthermore, most of the preferred developments will require an upgrade to an adoptable standard of WTW. It's also acknowledged that these developments will result in localised impacts on watercourses during the development phase of the sites i.e. change in water table, stream flows, site water budgets, silt deposition and water-borne pollution. Its suggested that the impact is likely to be short term however we would like the Council to ensure that any development, no matter the scale be fully risk assessed and appropriate mitigation put in place before, during and post development.

## **2. Increase in surface water discharge**

Impermeable hard surfaces typically associated with the built environment prevent water seeping into land and drainage is usually carried out by a system of gullies and surface water pipes. An average roof collects 85,000 litres of rain water per year. In the past this has contributed to increases in waterflows during rainfall increasing the risk of flooding, bank erosion, and sediment input. Numerous pollutants can be picked up as surface water runs off of industrial estates, residential areas roads etc. and directly discharged to a watercourse. If this surface runoff is directed into a combined sewerage system this leads to increased instances of discharge of undiluted effluent into the Don.

The Water Environment Controlled Activities Scotland Regulations 2005 (CAR), which transposed the EU Water Framework Directive (2002), requires all surface water from new development to be treated by a sustainable drainage system (SuDS) before it is discharged into the water environment, unless it is for single houses or where the discharge will be into coastal water. CAR also requires all waste water discharges to be authorised through registration or licence. However problems frequently occur in the adoption of SuDS and it is recommended that a reasonable approach would be for the Council to state that checks are carried out at the design stage and when SuDS are implemented. The drainage network should be checked and maintained during the operational phase of the development to ensure efficiency of pollutant removal techniques. Monitoring of water quality, sedimentation and/or ecological conditions downstream of large development outfalls should be undertaken to provide an indication for problems should they arise. SuDS should be designed where possible not only to improve water quality but also to reduce flood risk and provide wildlife habitat and attractive green space in the built environment.

### **3. Flood Risk**

Climate change models predict that flooding events will become heavier and more frequent in the future. Demand for building land in recent decades has resulted in extensive development on flood plains in the Don catchment. In recent years flooding has occurred more frequently on the River Don particularly in the communities of Inverurie, Kintore, Kemnay and Port Elphinstone. Inappropriate engineering solutions can exacerbate flooding problems. Although the LDP policies prevent new developments on active flood plains, except where it is essential, neither "active flood plain" or "essential development" are adequately defined. Work must be carried out to properly identify flood sensitive areas so that they are ruled out for future development. Planning policy and guidance must be comprehensive and robust with respect to flooding issues.

Effective SuDS systems must be put in place, checked and maintained at prescribed intervals as a condition of planning consent. Ensure a catchment wide approach implementing flood alleviation schemes not at the point of flooding to developments but throughout the catchment, where possible emphasis should be placed on removing inappropriate flood engineering works and allow the natural flood plains to function properly to store flood waters.

The Council should seek to improve implementation of current water policy by making full use of the opportunities provided by the current laws. For example, increasing the take-up of natural water retention measures such as the restoration of riparian woodlands, wetlands and floodplains

### **4. Increased sediment loading during construction**

During the construction phase of any development, increased sediment loading to adjacent watercourses could occur in the absence of suitable mitigation. Suspended solids can result from excavations, run-off from stockpiles, plant and wheel washing, run-off from site roads, run-off during embankment construction, earthworks and landscaping. Changes in water velocities resulting from temporary stream diversions during construction can also affect sediment transport.

Sediments can cause damage to aquatic invertebrates and fish through deposition resulting in a smothering effect, reducing microhabitat availability or by interference with feeding and respiratory apparatus. Salmonids have a suspended solids tolerance of around 30mg/L (see Freshwater Survey Report, Appendix A25.9 for more details). Alabaster and Lloyd (1982) summarise that long term levels of suspended sediment below 25mg/L-1 will have no harmful effects on fish. Levels of 25-80mg/L-1 are generally acceptable while, 80-400mg/L-1 are unlikely to support good fisheries and levels over 400mg/L-1 generally will not support substantial fish populations.

Sediment and pollution control measures must remain effective at all times. Strict adherence to CIRIA's SuDS manual and to SEPA's Pollution Prevention Guidelines (PPG's) for construction near

watercourses is required. All temporary detention ponds, swales and other pollution prevention measures must be checked and maintained on a regular basis particularly if periods of rain are forecast and be designed to attenuate at least 1 in 20 year flood event. No adverse impact on the water quality of the River Don should be permitted. Stronger implementation of the "polluter pays" principle should be enforced where environmental damage has occurred.

#### **5. Loss or reduction of habitat complexity and biodiversity**

Development can lead to a loss of bankside habitats due to culverting or grey bank protection, inappropriate management and removal of bankside habitats and increased lighting of areas. This can impact on a number of habitats and species including riparian woodland, water vole, Daubentons bat and aquatic species. Furthermore predicted climate change scenarios indicate that parts of the Don catchment will become less suitable for salmonids later this century, in June 2018 river temperatures in the upper Dee catchment reached 27.5°C, close to the lethal limit for juvenile salmon, its assumed that similar temperatures were experienced on the Don owing to the proximity and similarity of the upper catchments. An ecologically functioning riparian zone with native tree cover has been found to decrease maximum water temperatures by up to 7°C. Any reduction in riparian zone tree cover resulting from development activities could contribute to an increase in local stream temperatures and the combination of various developments could result in a significant impact.

Cumulative impacts of development can result in a reduction in biodiversity from loss of greenspaces and wildlife corridors. Links to existing corridors should be maintained and new wildlife corridors created. There is a need to enhance and augment habitats to avoid their decline both within and out with settlements. Appropriate native species should be promoted in new development schemes to enhance existing biodiversity and preventing the spread of non-native species. Developers should contribute to improvements to the wider environment, not just the promotion of green networks "connecting areas of green space and habitats such as parks, paths and woodlands within and on the edge of our villages and towns" River corridors, wetlands and wet woodlands are ideal green networks and should be specifically targeted for enhancement as part of the Developers contributions.

#### **6. Prevention of fish migration in certain areas due to inappropriate culvert construction or high levels of lighting on watercourses.**

Unless culverts are designed appropriately they can form partial or complete barriers to fish migration. Culverts should be designed so that they are passable to all fish species, even if some fish species are not present as the culvert could affect future measures to improve passage in the catchment. Fish need to migrate for many reasons, including to increase feeding opportunities, find suitable habitat for a particular life stage or to spawn. Habitat fragmentation is particularly relevant to salmonid fish (i.e. salmon and trout), which need to migrate upstream to breed, and downstream to reach the sea or larger areas of river. The migration of fish may be hindered or prevented through the formation of a physical barrier, a psychological barrier or by significantly increasing water velocities or reducing water depth. All culverts proposed for watercourses ordinarily likely to contain salmonids, eels or lampreys should be designed appropriately to ensure that they do not become barriers to migration. Box culverts should maintain the natural river bed level, width and slope. Ensure adequate water depth and velocity and include resting pools below and above the culvert. Box culverts with wide flat floors should be avoided on fish migration routes if low flow depths occur unless a low-flow channel is provided. Culverts can also become blocked with debris leading to increased risk of flooding and causing a barrier to fish migration. All culverts to comply with CIRIA, Culvert Design and Operations Guide: SERAD, River Crossings and Migratory Fish: Design Guidance and SEPA, River Crossings good practice guide.

Light pollution from riverside developments can potentially alter the behaviour of salmonid fish in terms of migration, feeding and predator avoidance. Typically these altered behavioural patterns result in a negative impact on the welfare of the fish populations. The threshold light level that causes

these changes is 0.2 lux. The validity of this threshold value has been tested in court with the ruling in favour of Stonehaven Angling Association versus Stonehaven Recreation Ground Trustees and Stonehaven Tennis Club (Court Reference A189/95, Stonehaven Sheriff Court). As such all developments must ensure that light levels on watercourses which support migratory fish do not exceed 0.2 lux.

**Your comments (continued)**