Cairngorms National Park Partnership Plan, SEA scoping

Baseline information

Topic 3 – Water

Contents

Questions for consultation authorities

1. Is there anything missing from the Topic baseline?

2. Are there any errors in what is presented?

3. Are there any new initiatives, research projects, plans, programmes or strategies or other things that will be reporting / implemented over the next 12-18 months that are relevant to the Topic, which may need to be included as the SEA progresses?

Context

The Cairngorms National Park encompasses the headwaters of three of Scotland's major rivers, the Tay, Dee and Spey, as well as many smaller ones (figure 1).

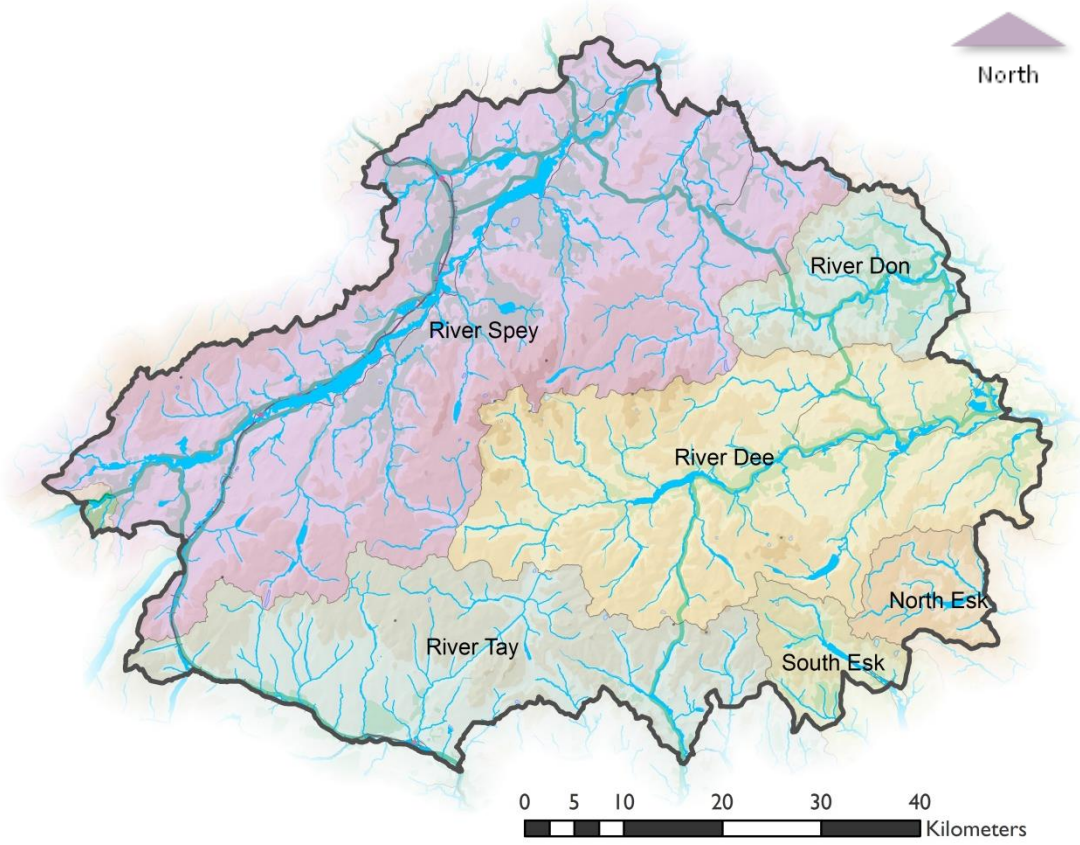

Figure 1- river catchments within the Park

Three of the rivers are subject to catchment management plans, the Dee, the Esk and the Spey. These plans aim to protect water quality, direct the use of the rivers as resources, protect against flooding, enhance biodiversity, and promote responsible access and economic development.

Many of the rivers and their tributaries, as well as the lochs and wetlands connected to them, are internationally and nationally important areas protected for nature conservation. The rivers are also important, providing water for business and people within and outwith the Park, as they flow downstream towards the sea.

Water quality

Pollution leading to the deterioration of water quality can originate from one of two sources, point and diffuse. Point source discharge means a release of effluent or other matter to the water environment or land, via a pipe or outlet.

Examples include (but are not limited to) waste water and trade effluent from industrial activities, and surface water collected then discharged in urban areas.

Diffuse pollution is the release of potential pollutants from a range of activities that, individually, may have no effect on the water environment, but, at the scale of a catchment, can have a significant cumulative effect. Activities associated with diffuse pollution are varied and include (but are not limited to) run-off from roads, sediment and other matter released during agricultural and forestry activities, and yard run-off from industrial activities.

Government regulation has been extremely successful in reducing instances of point source pollution and therefore diffuse pollution is now the focus of attention. Diffuse sources of water pollution can have a significant effect on biodiversity and human health. The effects include (but are not limited to) contamination of water supplies, nutrient enrichment of water bodies leading to changes in habitats and the species that rely on them, oxygen depletion and smothering of substrates and habitats relied on by fish and other wildlife for key stages in their lifecycles.

The European Union Water Framework Directive (2000/60/EC) (WFD, sets out the objectives for water protection in Scotland. The WFD sets out a number of objectives to improve the quality of water and water bodies:

- general protection of the aquatic ecology
- specific protection of unique and valuable habitats
- protection of drinking water resources
- protection of bathing water

All these objectives must be integrated for each river basin. SEPA are responsible for monitoring water quality in Scotland to the requirements set out by the WFD. The Directive requires all water features above a certain size threshold to be classified using a system of five quality classes – high, good, moderate, poor and bad, with groundwater classified as good or poor. In general, the classification of water bodies describes by how much their condition or status differs from near natural conditions. Water bodies in a near natural condition are at high status, while those whose quality has been severely damaged are classed as being in bad status

From the available information, between 2013 and 2017 the number of waterbodies in the Park in high status have increased slightly, the number in good and moderate status have declined, while the number in poor status have increased four-fold (figure 2). The main reasons for waterbodies not achieving overall good status is the presence of a large number of barriers to fish and poor morphology (this covers catchment/land use matters such inputs of fine sediments or impacts to hydrology and direct impacts such as through engineering or condition of riparian corridor).

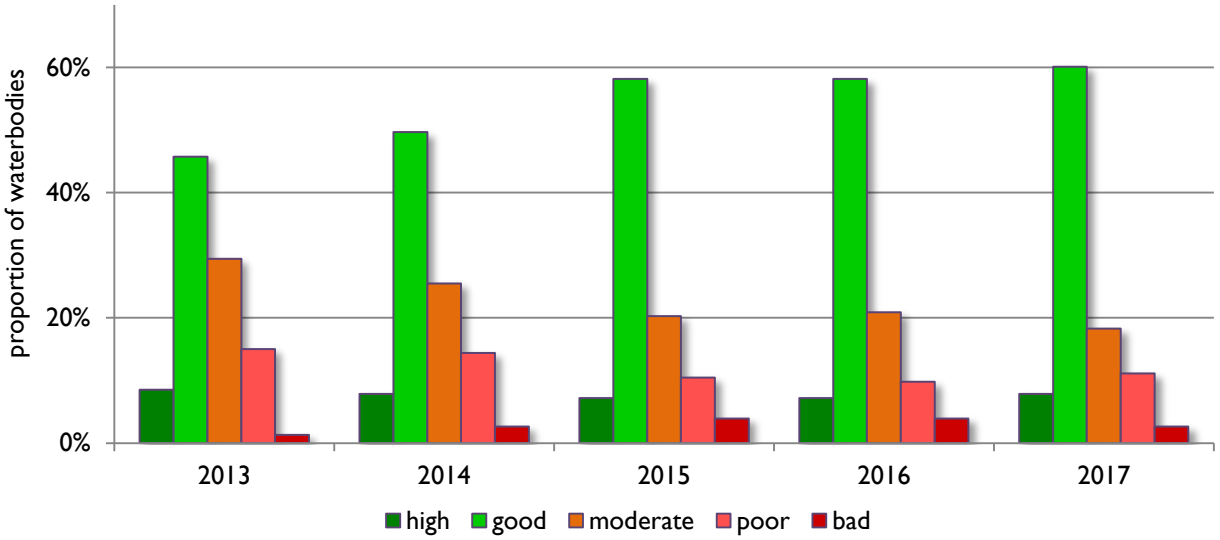

Figure 2 – proportion of waterbodies by status in the Park, 2013 - 2017

SEPA predict that more waterbodies in the Park will move into the good/moderate category by 2027 (figure 3).

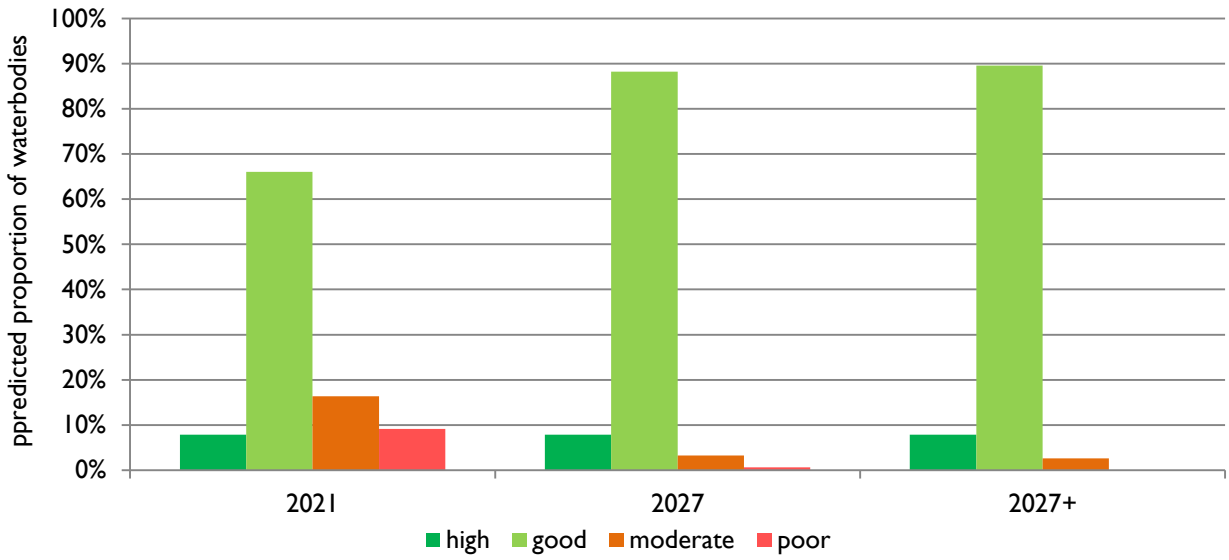

Figure 3 – predicted proportion of waterbodies by status in the Park, 2021 - 2027

The shift to a greater proportion having an improved status is likely to be a result of remediation works on historical engineering and barriers to fish passage.

Water quantity

In order to provide information for the management of water resources, SEPA monitor water levels at 20 sites within the Park, as well as at a number of locations just outside the Park boundary. Water levels are converted to flow at most river gauging stations.

The trends can be used as an indicator of climate change or as an identifier of potential risks such as flooding. Figures 4 and 5 represent the series of maximum instantaneous peak flows within a given water year (October to September) for monitoring stations on the River Spey and the River Dee (data was not available for the River Dee from 2015 -2018).

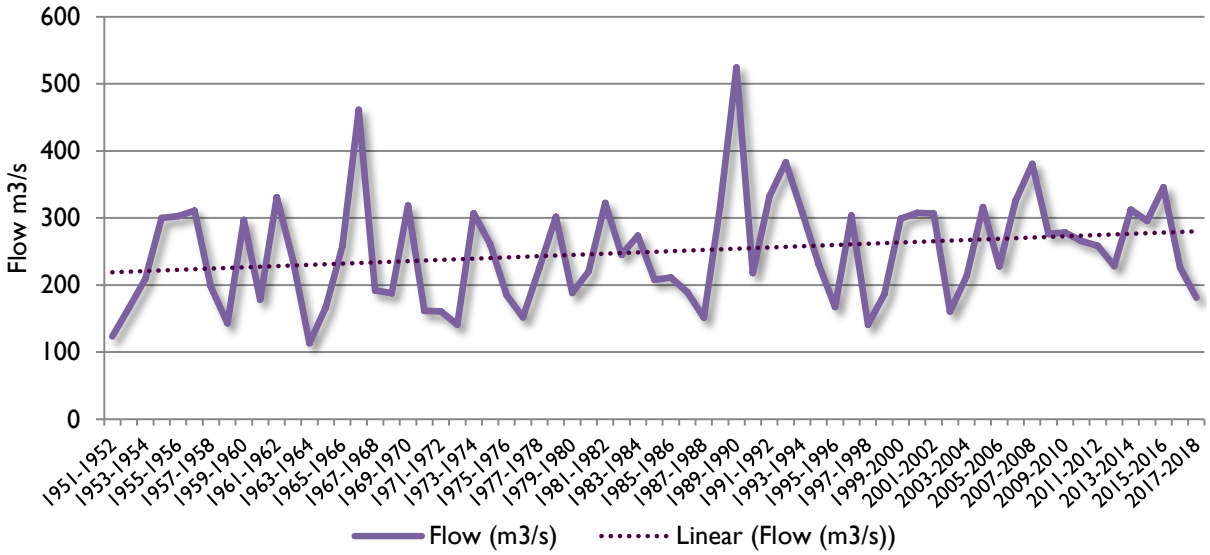

Figure 4 – SEPA annual maximum (AMAX) flow and trend for the River Spey from the Grantown-on-Spey monitoring station (8010) between 1951 and 2018

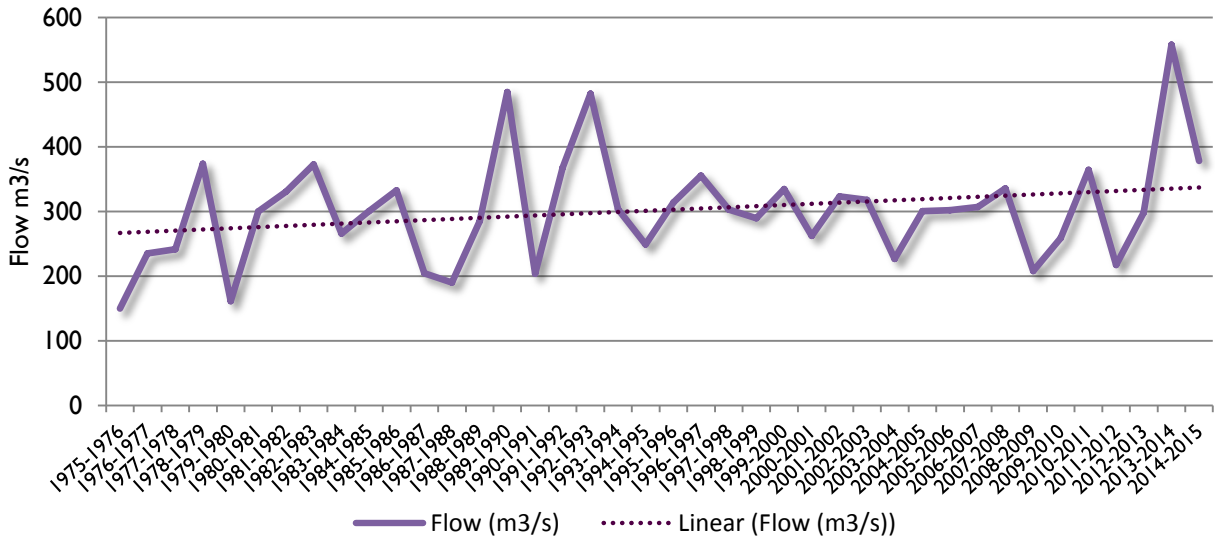

Figure 5 – SEPA annual maximum (AMAX) flow and trend for the River Dee at Polhollick, near Ballater (monitoring station 12003) between 1975 and 2015

The data from both stations shows a general trend for higher annual maximums during the monitoring period, although the exact causes of this are uncertain.

Water infrastructure

The current capacity status of the water and waste treatment works provided by Scottish Water that serve the settlements in the Park is shown in table 1.

Table 1 – Scottish Water information on water and waste treatment capacity in the Park, July 2015

Local Authority area in the Park	Settlement	Water Treatment Works	Capacity (housing units)	Waste treatment Works	Capacity (housing units)
Aberdeen-shire	Ballater	Ballater	93	Ballater	93
	Braemar	Braemar	315	Braemar	63
	Dinnet	Ballater	93	Dinnet	<10
	Strathdon	Lumsden	<10	Private	N/A
Angus	Angus Glens	Private	N/A	Private	N/A
Highland	An Camas Mòr	Aviemore	966	Aviemore	60
	Aviemore	Aviemore	966	Aviemore	60
	Boat of Garten	Aviemore	966	Boat of Garten	96
	Carr Bridge	Aviemore	966	Carr Bridge	87
	Cromdale & Advie	Aviemore	966	Cromdale	105
	Dalwhinnie	Dalwhinnie	20	Dalwhinnie	<10
	Dulnain Bridge	Aviemore	966	Dulnain Bridge	24
	Glenmore	Private	N/A	Glenmore	<10
	Grantown of Spey	Aviemore	966	Grantown	197
	Insh	Aviemore	966	Insh	<10
	Inverdruie, Coylumbridge	Aviemore	966	Aviemore	60
	Kincraig	Aviemore	966	Kincraig	52
	Kingussie	Aviemore	966	Kingussie	327
	Laggan	Laggan Bridge	<10	Laggan Bridge ST	<10
	Nethy Bridge	Aviemore	966	Nethy Bridge	70
	Newtonmore	Aviemore	966	Newtonmore	208
Moray	Glenlivet	Tomnavoulin	<10	Private	N/A
	Tomintoul	Blairnamarrow	65	Tomintoul	46
Perth & Kinross	Blair Atholl	Killiecrankie	2000+	Blair Atholl	16
	Bruar & Pittagowan	Killiecrankie	2000+	Private	N/A
	Calvine	Killiecrankie	2000+	Private	N/A
	Glenshee	Private	N/A	Private	N/A
	Killiecrankie	Killiecrankie	2000+	Killiecrankie	<10

Including all planned and committed development proposals, capacity exists at most of the Scottish Water treatment works serving settlements in the Park. However the reported current (2015) capacity of many waste treatment works serving the Park is a constraint to development. For example, the Aviemore treatment works, which serves the town and much of the surrounding area, including An Camas Mòr, only has capacity for a further 60 units. Investment in both water and waste treatment works will be necessary for the permitted and projected growth in the Park to be met. (Where there is no public water supply network within the vicinity, a private water treatment system or new water infrastructure connecting to the existing public network would be required.)

Flooding

All of the rivers and watercourses in the Park have the potential to flood to some degree. When the main rivers break their banks, they often cause damage to land, building and infrastructure, resulting in economic cost. Small watercourses also represent a risk but are often poorly understood with respect to the severity of the flood hazard that can be generated on a catchment scale. In some areas surface water flooding is also a significant risk.

The River Spey is the seventh largest river in Britain, with a catchment area of over 3,000 km^2, and a stream network length of about 36,500 km, of which the main river comprises 157 km. There is a long history of flooding within the Spey catchment area, with a notable event, known as the Great Muckle Spate, destroying several bridges in 1829. The River Spey and its tributaries continue to flood regularly, with heavy rains and melting snows increasing the volumes of water in the catchment. These floods have damaged properties in Newtonmore, Aviemore and Carrbridge on a number of occasions. A significant number of properties remain at risk of future flooding in these and other settlements identified as Potentially Vulnerable Areas (PVAs) in the Park (figure 6).

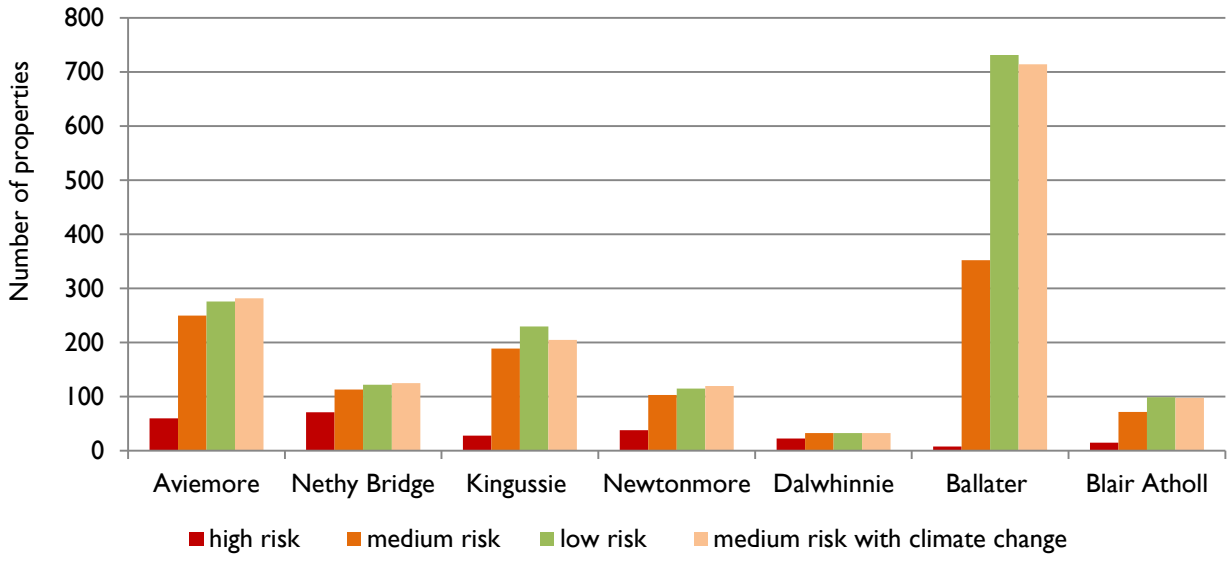

Figure 6 – number of properties at risk of flooding by selected settlement in the Park

Like the Spey, the Dee suffers from flooding related to heavy rain and melting snows. Major floods have been recorded in 1769, 1829 (the Great Muckle Spate), 1920 and 1956 (the Cairngorm Flood). More recently, in 2014 the caravan park and a number of roads were closed due to flooding, and in December 2015 / January 2016, the Dee experienced widespread flooding, which caused significant damage to property and transport infrastructure. Ballater has a significant number of properties at risk of flooding (figure 6).

The River Tay has the largest catchment area and is the longest river in Scotland, with many of its headwaters lying within the Cairngorms National Park. More water flows through the River Tay than any other river in the United Kingdom. The Tay catchment contains one PVA that falls across the National Park boundary at Blair Atholl. A number of historical river floods have been recorded in this area, including July 1916 and June 1931 when the railway was affected and evacuation was required as River Garry flooded near Blair Atholl. There continues to be a risk of flooding at Blair Atholl from the Garry Burn and from surface water (figure 6).

Proposed SEA objectives

SEA main objective	Sub-objective
3a: Maintain and improve the quality of water resources and to protect and enhance the state of the water environment	Will there be an effect on the water quality of rivers, lochs and ground-water from diffuse and point source pollution?
	Will there be an effect on the ability of river catchments to store water and the natural flood management services they provide?
	Will there be an effect on public water supplies?
3b: Reduce demand for water and minimise unnecessary water use	Will there be an effect on demand for water from development (residential and business)?
	Will there be an effect on sustainable use of water resources?
3c: To reduce the impact of invasive non-native species on the water environment	Will there be an effect on the water environment from invasive non-native species?