INTRODUCING THE ISSUE #01

SFG CLIMATE CHANGE FACTSHEET

This document has been produced by the SFG climate action team with the help of the SFG membership. It aims to support decision making by providing quick access to the existing evidence-base for some of the climate related challenges facing freshwaters in Scotland. This includes current evidence on climate change impacts and solutions in the Scottish context.

Facts and figures about the impact of climate change on Scotland's freshwaters have been collated in one place

Evidence submitted by the Scottish Freshwater Group membership

Headline facts clearly presented and easily understood

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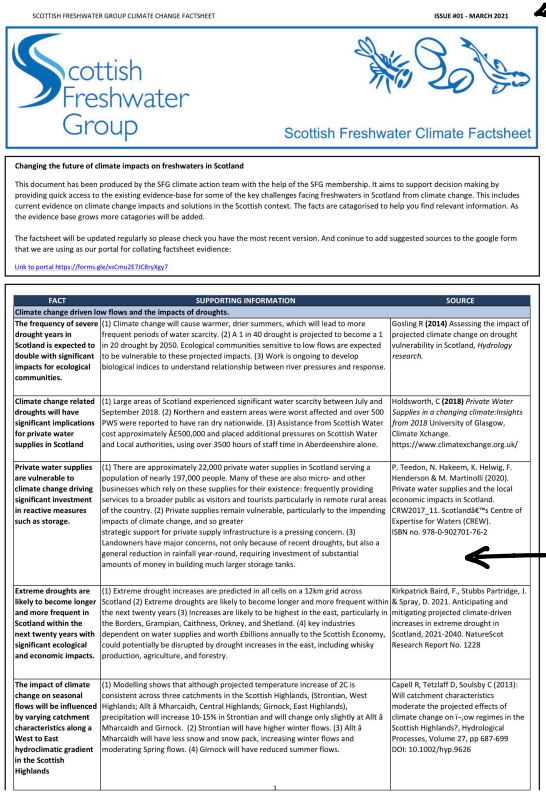

SCOTTISH FRESHWATER GROUP CLIMATE CHANGE FACTSHEET ISSUE #01 - MARCH 2021

Scottish Freshwater Group

Scottish Freshwater Climate Factsheet

Changing the future of climate impacts on freshwaters in Scotland

This document has been produced by the SFG climate action team with the help of the SFG membership. It aims to support decision making by providing quick access to the existing evidence-base for some of the key challenges facing freshwaters in Scotland from climate change. This includes current evidence on climate change impacts and solutions in the Scottish context. The facts are catagorised to help you find relevant information. As the evidence base grows more catagories will be added.

The factsheet will be updated regularly so please check you have the most recent version. And coninue to add suggested sources to the google form that we are using as our portal for collating factsheet evidience:

Link to portal https://forms.gle/xsCmu2E7JCBryXgy7

FACT	SUPPORTING INFORMATION	SOURCE
Climate change driven low flows and the impacts of droughts.		
The frequency of severe drought years in Scotland is expected to double with significant impacts for ecological communities.	(1) Climate change will cause warmer, drier summers, which will lead to more frequent periods of water scarcity. (2) A 1 in 40 drought is projected to become a 1 in 20 drought by 2050. Ecological communities sensitive to low flows are expected to be vulnerable to these projected impacts. (3) Work is ongoing to develop biological indices to understand relationship between river pressures and response.	Gosling R **(2014)** Assessing the impact of projected climate change on drought vulnerability in Scotland, *Hydrology research.*
Climate change related droughts will have significant implications for private water supplies in Scotland	(1) Large areas of Scotland experienced significant water scarcity between July and September 2018. (2) Northern and eastern areas were worst affected and over 500 PWS were reported to have ran dry nationwide. (3) Assistance from Scottish Water cost approximately Â£500,000 and placed additional pressures on Scottish Water and Local authorities, using over 3500 hours of staff time in Aberdeenshire alone.	Holdsworth, C **(2018)** *Private Water Supplies in a changing climate:Insights from 2018* University of Glasgow, Climate Xchange. https://www.climatexchange.org.uk/
Private water supplies are vulnerable to climate change driving significant investment in reactive measures such as storage.	(1) There are approximately 22,000 private water supplies in Scotland serving a population of nearly 197,000 people. Many of these are also micro- and other businesses which rely on these supplies for their existence: frequently providing services to a broader public as visitors and tourists particularly in remote rural areas of the country. (2) Private supplies remain vulnerable, particularly to the impending impacts of climate change, and so greater strategic support for private supply infrastructure is a pressing concern. (3) Landowners have major concerns, not only because of recent droughts, but also a general reduction in rainfall year-round, requiring investment of substantial amounts of money in building much larger storage tanks.	P. Teedon, N. Hakeem, K. Helwig, F. Henderson & M. Martinolli (2020). Private water supplies and the local economic impacts in Scotland. CRW2017_11. Scotland's Centre of Expertise for Waters (CREW). ISBN no. 978-0-902701-76-2
Extreme droughts are likely to become longer and more frequent in Scotland within the next twenty years with significant ecological and economic impacts.	(1) Extreme drought increases are predicted in all cells on a 12km grid across Scotland (2) Extreme droughts are likely to become longer and more frequent within the next twenty years (3) Increases are likely to be highest in the east, particularly in the Borders, Grampian, Caithness, Orkney, and Shetland. (4) key industries dependent on water supplies and worth £billions annually to the Scottish Economy, could potentially be disrupted by drought increases in the east, including whisky production, agriculture, and forestry.	Kirkpatrick Baird, F., Stubbs Partridge, J. & Spray, D. 2021. Anticipating and mitigating projected climate-driven increases in extreme drought in Scotland, 2021-2040. NatureScot Research Report No. 1228
The impact of climate change on seasonal flows will be influenced by varying catchment characteristics along a West to East hydroclimatic gradient in the Scottish Highlands	(1) Modelling shows that although projected temperature increase of 2C is consistent across three catchments in the Scottish Highlands, (Strontian, West Highlands; Allt á Mharcaidh, Central Highlands; Girnock, East Highlands), precipitation will increase 10-15% in Strontian and will change only slightly at Allt á Mharcaidh and Girnock. (2) Strontian will have higher winter flows. (3) Allt á Mharcaidh will have less snow and snow pack, increasing winter flows and moderating Spring flows. (4) Girnock will have reduced summer flows.	Capell R, Tetzlaff D, Soulsby C (2013): Will catchment characteristics moderate the projected effects of climate change on r.-ow regimes in the Scottish Highlands?, Hydrological Processes, Volume 27, pp 687-699 DOI: 10.1002/hyp.9626

Regular updates as new information and research is submitted, reviewed and incorporated

Evidence conveniently categorised into evidence of impact and adaption

Clearly referenced source for each fact with links

Key bullets points provide a little more detail

Know of some relevant facts? Use the online form to submit evidence for the next update

View the factsheet https://bit.ly/sfgclimatefactsheet

Submit a fact https://bit.ly/sfgclimateform

You can get in touch with the SFG climate action team by emailing sfgclimate@gmail.com