

Future projections for water scarcity in Scotland: Impacts on Intensive Livestock



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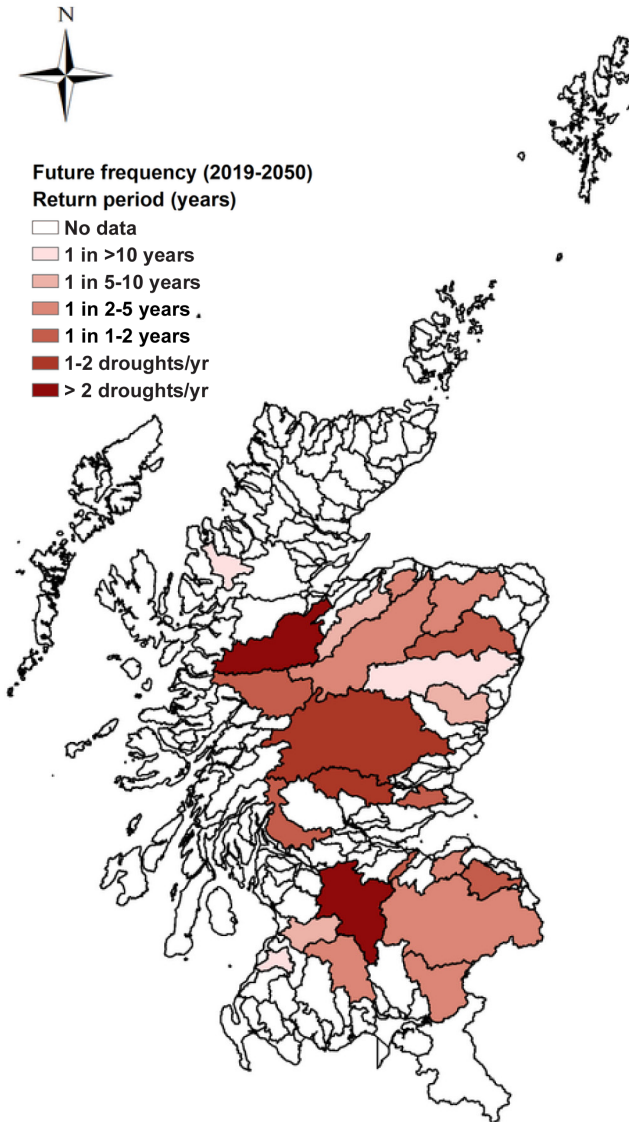
What are the future projections?

Projections to 2050 indicate that the frequency and duration of surface water droughts will double. Some catchments, such as the Deveron, are projected to experience a drought every two years (Figure 1).

In Eastern and Central Scotland, groundwater recharge during spring, summer and autumn is projected to decrease by up to 50% in the far future (2050-2079), making aquifers more vulnerable to long-term depletion. Abstractions from high-storage aquifers will be more resilient to projected increases in the frequency and duration of drought (Figure 2).

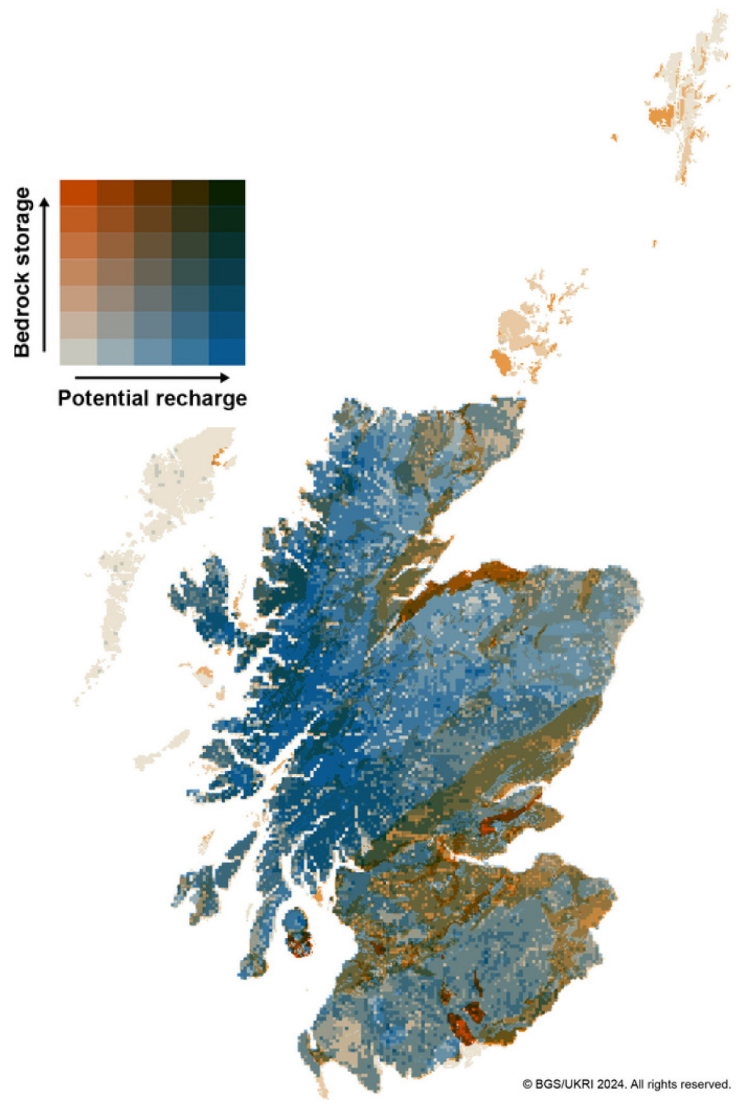
SURFACE WATER

Figure 1: Projected future (2019-2050) number of droughts in a sample of 23 catchments in Scotland. Darker colours indicate more drought events. Catchments in white were not included in the analysis.



GROUNDWATER

Figure 2: Groundwater security: areas with high groundwater storage and potential recharge (darker colours) will be more water secure; areas with low storage and recharge (paler colours), e.g. parts of Aberdeenshire, will be more vulnerable to future water scarcity.



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How is water used by the sector?

Intensive livestock production includes systems such as dairy, pigs and poultry enterprises.

Intensive livestock production systems are mainly reliant on surface water and groundwater for livestock health and hygiene.

Grass and arable crop yields are important for fodder, cereals and bedding.

What are the future risks?

Reduced surface and groundwater availability could lead to limitations on abstracted water sources and the drying up of private supplies.

Limited water availability could lead to stresses on animal health, wellbeing and reduced production e.g. reduced daily live weight gain and milk yield.

Drier summers may have indirect impacts on grass and arable yields, increasing the cost of forage, cereals and bedding.

What are the adaptation options?

Understanding water demand and measuring water use can help identify areas for improved water use efficiency and increase resilience.

Harvesting rainwater from farm buildings can provide water supplies during water scarcity events for livestock drinking and cleaning purposes.

A simple 10,000 litre storage tank costs ~£1,000, while larger rainwater harvesting system tanks can cost ~£2,600 ([see ref](#)).

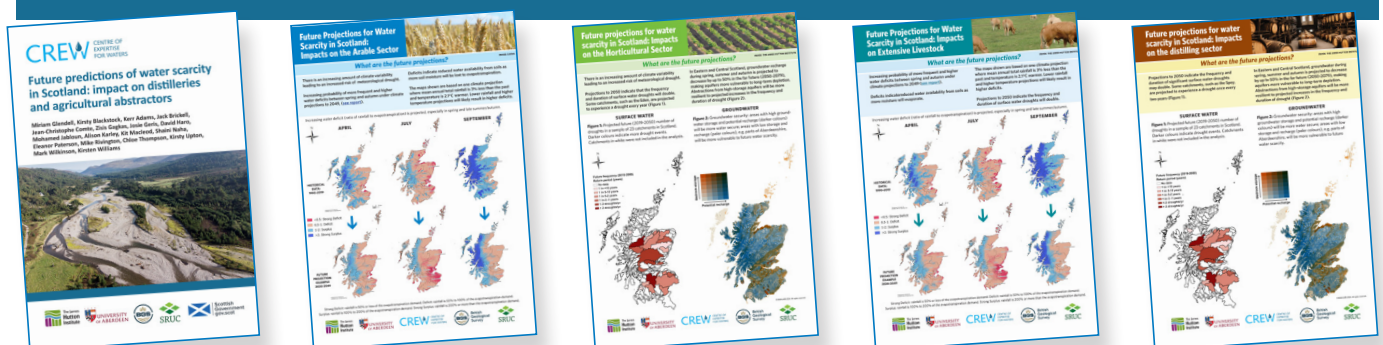
Sector	Measuring water use	Rainwater harvesting
Intensive Livestock	●	●

● High adoption potential

Extensive livestock adaption options might also be relevant

Other adaptation measures may be available. Uptake potential will vary from farm to farm.

More Information



PROJECT MAIN REPORT



ARABLE INFOGRAPHIC



HORTICULTURE INFOGRAPHIC



EXTENSIVE LIVESTOCK INFOGRAPHIC



DISTILLERY INFOGRAPHIC

To access all project outputs please visit: www.crew.ac.uk/publication/water-scarcity-impacts-distilleries-agricultural