# Scottish distilleries embrace nature-based solutions to tackle water shortages amid climate change



Scottish distilleries are increasingly turning to scientific innovation in response to unprecedented water shortages that are jeopardising their production capabilities. As climate conditions shift, particularly during one of Scotland's driest starts to the year, firms are recognising the vital importance of sustainable water management. This growing concern prompted the University of Aberdeen to embark on pioneering research, funded by the whisky business Chivas Brothers, to develop nature-based solutions aimed at alleviating water scarcity issues.

In recent weeks, the Scottish Environment Protection Agency (SEPA) issued nationwide alerts regarding low water levels, alarming distillers, especially in key regions such as Speyside, home to half of Scotland's malt distillers. These conditions necessitate continuous access to water—the lifeblood of whisky production. The innovative project led by scientists from the University of Aberdeen and the James Hutton Institute seeks to broaden research initiatives, building on previous successes, such as those at The Glenlivet distillery, where small leaky dams were installed to capture water during wet periods for use during droughts.

Dr Josie Geris, a hydrology lecturer at the University of Aberdeen and project lead, emphasised the importance of understanding local hydrological characteristics. "We will take a comprehensive look at data gathered from across Speyside," she stated. This research aims not only to benefit the whisky industry but also to safeguard the water supply for the three per cent of the Scottish population reliant on vulnerable private water sources.

The team is exploring various nature-based solutions for water management, such as enhancing soil and vegetation, which could yield benefits beyond the distilleries. These efforts are essential, especially considering the anticipated increase in heatwaves due to climate change, which threaten water availability. By focusing on hydrological models, they plan to determine which measures are most effective in different environments.

PhD student Jennifer Pirie noted the diversity of environments across Speyside and the need for tailored approaches. "What works best where will depend on local site characteristics," she explained. This level of detail is crucial for developing solutions that can effectively mitigate water scarcity while also addressing flooding and improving carbon storage and biodiversity. Such initiatives are indicative of the whisky sector's commitment to tackling climate change.

The River Within, a broader programme associated with this research, aims to restore and enhance river ecosystems in northeast Scotland. Collaborating with multiple river trusts, the initiative includes habitat restoration projects designed to protect and improve the health of Scotland's rivers and waterways. According to Dr Ronald Daalmans of Chivas Brothers, this partnership not only supports whisky production but crucially addresses the pressing challenges posed by climate change.

Chivas Brothers exemplifies a commitment to sustainability within the whisky industry. Their Dalmunach Distillery has employed energy-efficient measures that significantly reduce environmental impact, achieving substantial savings in energy, greenhouse gas emissions, and water consumption over nearly a decade. Additionally, their exploration of biogas production from distillery waste represents a forward-thinking approach to waste management and energy use.

As the whisky industry navigates these challenging environmental conditions, the interconnection between academic research and practical applications illustrates a proactive response to climate challenges. The collaboration among scientists, distilleries, and environmental organisations heralds a new chapter in whisky production—one that harmonizes tradition with innovation, ensuring the sector's resilience amidst evolving climate realities.

In a world increasingly affected by climate-related demands, the lessons learned in Speyside could serve as a model for other industries grappling with similar sustainability challenges. As project insights and strategies are developed, they promise not only to sustain whisky production but also to enrich Scotland’s environmental landscape for generations to come.

## Reference Map:

* Paragraph 1 – [[1]](https://www.dailyrecord.co.uk/scotland-now/scottish-whisky-distilleries-turn-science-35301077), [[2]](https://www.abdn.ac.uk/news/16226/)
* Paragraph 2 – [[1]](https://www.dailyrecord.co.uk/scotland-now/scottish-whisky-distilleries-turn-science-35301077), [[4]](https://www.chivasbrothers.com/sustainability/the-river-within/)
* Paragraph 3 – [[2]](https://www.abdn.ac.uk/news/16226/), [[5]](https://www.abdn.ac.uk/news/11689/)
* Paragraph 4 – [[3]](https://www.vibes.org.uk/case-studies/2019/chivas-brothers-ltd), [[6]](https://www.scottishwater.co.uk/About-Us/News-and-Views/2022/04/070422-Nigg-co-digestion)
* Paragraph 5 – [[4]](https://www.chivasbrothers.com/sustainability/the-river-within/), [[7]](https://www.chivasbrothers.com/2023/07/chivas-brothers-makes-its-carbon-cutting-successes-open-source-to-help-the-scotch-whisky-industry-reach-net-zero-goals/)

Source: [Noah Wire Services](https://www.noahwire.com)

## Bibliography

1. <https://www.dailyrecord.co.uk/scotland-now/scottish-whisky-distilleries-turn-science-35301077> - Please view link - unable to able to access data
2. <https://www.abdn.ac.uk/news/16226/> - Researchers from the University of Aberdeen and the James Hutton Institute have collaborated with The Glenlivet distillery to implement nature-based solutions addressing water scarcity. Small dams have been installed in the landscape supplying the distillery, designed to capture water during wet periods and make it available during dry spells. This initiative aims to prevent distillery closures during heatwaves, which are predicted to become more frequent due to climate change. The project is led by PhD student Jessica Fennell, who has had a special 'Fennell Reserve' whisky created by The Glenlivet in her honour.
3. <https://www.vibes.org.uk/case-studies/2019/chivas-brothers-ltd> - Chivas Brothers Ltd, the Scotch whisky business of the Pernod Ricard group, has demonstrated significant environmental achievements. Their Dalmunach Distillery is notably energy efficient, using only 5.3kWh per litre of alcohol, 38% less than the industry average for similar-sized sites. Between 2009 and 2018, the company achieved per litre savings of 20% in energy, 37% in greenhouse gases, and 15% in water consumption across distilling, with 98% recycling or reuse. These efforts highlight Chivas Brothers' commitment to sustainability and environmental responsibility in the whisky industry.
4. <https://www.chivasbrothers.com/sustainability/the-river-within/> - Chivas Brothers, the Scotch whisky business of Pernod Ricard, is actively working to preserve and protect Scotland's rivers and waterways through 'The River Within' initiative. In partnership with three charitable trusts—the Deveron, Bogie and Isla Rivers Charitable Trust; Findhorn, Nairn and Lossie Rivers Trust; and the Spey Catchment Initiative—the company is implementing projects such as fluvial audits, riparian planting, woodland restoration, and fencing to promote natural regeneration. These efforts aim to mitigate the impact of climate change, increase biodiversity, and improve the overall health of river ecosystems in Scotland.
5. <https://www.abdn.ac.uk/news/11689/> - PhD student Jessica Fennell from the University of Aberdeen is collaborating with Chivas Brothers on a research project aimed at combating the effects of climate change on distillery water resources. The project focuses on identifying natural solutions to manage water scarcity and rising water temperatures during prolonged warm and dry periods. Jessica will conduct field research at The Glenlivet distillery in Moray, studying water catchment areas and developing hydrological models to determine the most effective nature-based solutions, such as ponds, wetlands, or tree planting, to ensure sustainable water resources for distilleries.
6. <https://www.scottishwater.co.uk/About-Us/News-and-Views/2022/04/070422-Nigg-co-digestion> - An innovative project involving Scottish Water, SEPA, and Chivas Brothers has successfully trialled the co-digestion of distillery residues with sewage sludge at Aberdeen's Nigg Waste Water Treatment Works. This process produces biogas, an alternative fuel used to run the site's boilers and Combined Heat and Power (CHP) engines. Since October 2021, the trial has increased biogas production, demonstrating a sustainable method to manage distillery waste and contribute to a circular economy and a net-zero society.
7. <https://www.chivasbrothers.com/2023/07/chivas-brothers-makes-its-carbon-cutting-successes-open-source-to-help-the-scotch-whisky-industry-reach-net-zero-goals/> - Chivas Brothers has made its successful integration of enhanced heat recovery technologies 'open source' to assist the Scotch whisky industry in achieving net-zero goals. The application of these technologies at the Glentauchers distillery has resulted in a 53% reduction in carbon emissions, equivalent to powering 4,979 average UK homes for a year. By sharing their design process and implementation insights, Chivas Brothers aims to encourage collaboration across the industry to create a sustainable future for Scotch whisky.