

Kielder Release Scheme

March 2014

This document summarises the operating arrangements for the release of water from Kielder Reservoir.

Overview

Kielder reservoir is the largest man-made lake in Northern Europe. It is situated at the top of the North Tyne and provides both a water resource and recreational facility.

The release of water from the reservoir is carefully managed to reflect the many and varied demands on the water. These demands range from providing water and green energy to North East England, to supporting and maintaining fish stocks.

Water entering Kielder reservoir needs to be released downstream in a regulated way. The release of water is controlled through the Kielder Operating Agreement, which takes into account both the demands for the water and the ecology of the river. The Agreement, as well as satisfying user demands, adopts a principle of maintaining river flows in as near natural conditions as possible. This is designed for the overall benefit of the river, including all the life stages of fish and other wildlife.

Kielder Operating Agreement

The primary objective of the Agreement is to secure the proper use of water resources. This is done by storing water in the reservoir so that it can be released when needed to support major drinking water abstractions and to generate renewable energy through two hydroelectricity turbines. Additional available water in the reservoir is released in line with a number of constraints and requirements.

These include:

- supporting a minimum (compensation) flow into the River North Tyne, to maintain river flows and support river abstractions;
- reducing the risk of downstream flooding caused by the reservoir over-topping;
- releasing water in November to aid: the passage of adult salmon and sea trout returning to the North Tyne to spawn, the collection of hatchery broodstock salmon and any scheduled canoeing events;
- encouraging fish migration in specific circumstances (such as poor estuarine water quality conditions in warm summers);
- varying releases to best reflect natural and seasonal changes in weather and the environment;

- varying the start dates, times and sizes of releases to provide a range of optimum conditions for recreational river users throughout the North Tyne and further downstream.

Responsibilities

The three parties responsible for the management of water at Kielder Reservoir are:-

- **Environment Agency** – regulator of Kielder releases, which includes restrictions on how the hydropower scheme operates. They have a responsibility to consider the needs of all river and reservoir users, as well as an over-riding environmental responsibility;
- **Northumbrian Water Limited** - responsible for the operation of the dam, scheduling the releases ahead of time and releasing the water;
- **RWE Innogy UK Limited** - responsible for the operation of the hydro power station.

Current water release management

The hydropower operation is based on determining how much water is available for energy generation and releasing this in a way that maximises revenue. The release tables that determine how much water is available at different times of the year have been adjusted for the benefit of the river's fisheries and ecology.

The changes include reducing the likelihood of releases in May when the contrast between reservoir release temperature and river temperature is normally greatest. From June to October more water is released than enters the reservoir to support the ecology and fishery of the North Tyne at a time of potential stress.

Schedule of releases

At the end of each calendar year the Environment Agency draws up the annual release schedule for the following year.

Releases are made according to this schedule ONLY when water is available to be released (judged according to reservoir level, time of year and current weather patterns). These factors are incorporated into the release tables which indicate the timing and duration of reservoir releases.

This information is then provided in the form of a two weekly programme. The releases for the first week are confirmed and are based on the current reservoir level and month of the year. The releases for the second week are an estimate, based on expected inflows and may therefore be adjusted in the following week in response to changes in weather and inflows.

The water level in Kielder reservoir is recorded daily and the Wednesday reading is compared to the release tables described above. Northumbrian Water review and send the selected release schedule to the Environment Agency to check and finalise before distributing the information. River levels are monitored daily at Ugly Dub, a river flow gauging station just downstream of Kielder Dam, to ensure that releases are made as programmed.

Every effort is made to ensure that the information available to the public is up to date, but changes for operational reasons or public safety may be made with little or no notice.

Releases to encourage fish migration

The Environment Agency use a simple mathematical model based on river flow and temperature to predict water quality conditions in the estuary. The model indicates when conditions may become critical for salmon. When it predicts poor conditions and neither rain nor a normal hydropower release is expected, an additional release is requested with the aim of encouraging fish to move from the estuary before they start to die. Such releases will be repeated at intervals until conditions in the estuary improve, usually as a result of rain. These releases may not be according to the annual release schedule but will generally appear in the published two week release programme.

Further Information

- **Two Week Programme and Annual Release Schedule:** visit the Tyne Rivers Trust website and type 'Kielder releases' in the search box in the top right hand corner. <http://tyneriverstrust.org/>
- **Current river level** at Ugly Dub: visit the Environment Agency website and type 'Ugly Dub' in the search box in the top right hand corner. <http://www.environment-agency.gov.uk/> **Please note:** the Environment Agency's web content is moving to GOV.UK in spring 2014.
- **Rivercall:** For up-to-date information on water levels for a range of gauging stations on the Tyne and other local rivers call our Rivercall service for the North East Region on **0906 619 7722**. Please note this is a chargeable service, with calls to 0906 numbers costing 61p per minute at all times (BT premium rate). Please also note Payphones and non-BT network providers charges may vary.