



# Freshwater Ecologist

## Nora Washbourne - Principal Ecologist

### ● Which career path did you follow to get to where you are today?

I started my career as a fisheries biologist with a consultancy based in Denver, Colorado, USA, where I spent a few years monitoring impacts of active and decommissioned mine sites on freshwater communities in the Rocky Mountains. After moving to Scotland, I spent several years with the Scottish Environment Protection Agency (SEPA) before returning to consulting, where I've worked on project on renewable energy, linear infrastructure and flood management.

### ● What does a typical job for you look like?

My role involves the whole lifespan of a project, including baseline surveying, input into design, delivering ecological impact assessments, making recommendations for mitigation, and overseeing construction activities. Recently, I completed baseline fish and freshwater pearl mussel habitat assessments for a wind farm in the Scottish Highlands. Using the information collected during the surveys, I can review the proposed layout and advise on potential impacts to the freshwater environment. For example, if any watercourse crossings are planned, I'll advise on the design requirements for the crossing so that fish migration is maintained and micro-site turbine locations away from sensitive areas.

### ● What are our biggest climate challenges?

Climate change and biodiversity loss are two of the planet's greatest threats and are inextricably linked. Globally, freshwater ecosystems host as much as 10 times the biodiversity per area than terrestrial or marine ecosystems, and freshwater vertebrate populations are declining at an alarming rate as our lakes and rivers are changing.

Within Scotland, Atlantic salmon and freshwater pearl mussel populations are declining rapidly, with climate change identified as one of the drivers of these declines. Both of these keystone species are hugely influential to the natural structure and function of rivers and streams, and Atlantic salmon are a bellwether for environmental change.

### ● What opportunities, threats and challenges lie ahead for freshwater ecology?

Freshwater ecosystems face a variety of threats including pollution, habitat loss and competition from invasive non-native species, many of which contribute to biodiversity loss and are exacerbated by climate change.

Restoring the natural functioning of our freshwaters is a key challenge but can help address multiple threats to freshwater ecosystems while providing both societal and environmental benefits. Planting trees along riverbanks is a simple way to provide long-lasting benefits as the shade they provide regulates river temperatures, their leaf litter is a key food resource for aquatic macroinvertebrates and they help minimise bank erosion and overland water runoff.



I have always wanted to have a career with a **positive impact on the environment**, and my work allows me to directly influence the design and implementation stages of projects in a way that **protects sensitive species and habitats**.

