

## **Climate Change and the future state of our freshwaters**

December 4, 2015 – (Paris) The interactions of climate change and water have important implications for human poverty alleviation and sustainable development. Water is a key medium through which climate change affects human and non-human lives. Climatically-altered precipitation patterns, extreme weather events (and ensuing floods and droughts), and shifting water temperatures all contribute to alterations in the quality and quantity of freshwater available to humans, plants and animals in ecosystems around the world.

In particular, water scarcity is already posing threats to human livelihoods and freshwater biodiversity.

For [MARS](#) leader Daniel Hering, strong governmental commitments to limiting future climate change in Paris are important for ensuring the health and diversity of global freshwater ecosystems:

*"The Intended Nationally Determined Contributions are unlikely to be sufficient for the 2°C target. Any further step in this direction would be a success. However, it is quite obvious that we will have to live with global warming of more 2°C that will greatly affect freshwater quality and quantity.*

*A bundle of measures to minimise the effects of climate change on freshwater ecosystems are required. In particular, this concerns agricultural practices. For instance, nutrients affect warmer freshwater ecosystems more strongly, so nutrient standards will need to be stronger. River water temperature can effectively be mitigated with woody riparian vegetation, so buffer strips are a key to enhance freshwater ecosystem quality in a warmer world. And agricultural practices saving water will be crucial in arid areas."*

Similarly, MARS scientist Steve Ormerod emphasises the importance of tackling linked climate and water systems during the Paris negotiations. Ormerod, Professor of Ecology at Cardiff University and Chair of Council of the RSPB, describes that whilst encouraging steps are being made, the negotiations face key challenges in promoting resilient and adaptive ecosystems under climate change:

*"All the evidence we have is that freshwater ecosystems are among the most sensitive of all to climate change: we know that they are warming, that their patterns of floods and droughts are changing, and that their organisms are being affected. In the end, this is bad news for people - because freshwaters are the ecosystems that we depend on more than any other.*

*I'm very glad there is at least some emphasis on freshwater at #COP21 - for example the Paris Pact on Water and Climate Change Adaptation focused on making our freshwater ecosystems more resilient across very large areas of the world.*

*Conservation organisations such as the IUCN are pushing for the protection of "natural infrastructure" in river catchments and riparian zones as a means of making freshwaters more resilient. These concepts are supported by our own evidence - for example showing how riparian woodlands in temperate areas can 'climate-proof' rivers against future change.*

*But we should have no illusions about the magnitude of the challenge ahead. We are entering an epoch where pressures on freshwaters for water supply and for food production have never been greater. Sound, science-based management will become more critical here than anywhere, and we can only prevent catastrophe if scientists, policy makers and stakeholder engage fully in solving the problems of water - potentially our greatest problems of all."*

**Notes from [thefreshwaterblog](#)**

References:

[Prof. Dr. Daniel Hering](#), University of Duisburg-Essen

[Professor Steve Ormerod](#), Cardiff University