Lough Sheelin Data Buoy

Climate Change Mitigation Research Programme & OPW Climate Resilience Project

Iascach Intíre Éireann
Inland Fisheries Ireland

Inland Fisheries Ireland Research Factsheet

Background

Inland Fisheries Ireland (IFI) initiated a research programme to bridge a knowledge gap related to the impacts of climate change on Ireland's fish species and their habitats in 2019. The scope of the project was widened in late 2020 to include drained catchments through a collaboration with Office of Public Works (OPW). The purpose of the monitoring network is to document changes in freshwater ecosystems that occur in response to different landuse and climate change related pressures. It will provide information to assist both IFI and OPW to support management of habitat and resource prioritisation for climate change amelioration to protect fish populations.

Lakes and Climate Change

Globally, lakes are warming and losing dissolved oxygen. As sensitive indicators of catchment modification and changing climatic conditions, it is important that lakes are included as part of the monitoring network. Temperature and oxygen are critical to freshwater ecosystems, and fish are extremely vulnerable to small changes in temperature and oxygen.

Why Lough Sheelin?

The data buoy represents an investment in Lough Sheelin, a lake which has a legacy of scientific appraisals, has an important recreational fishery and system which is sensitive to environmental issues. Installation of this data buoy will initialise a new generation of monitoring, establishing Lough Sheelin as a sentinel of climate and environmental change for Irish lakes and their fish populations.

The Lough Sheelin data buoy will form the focal point of a large-scale monitoring network throughout the Inny catchment. Scientists on IFI's Climate Change programmes are strategically installing additional sensors in rivers and streams as part of a full catchment-scale observational project. The overall objective is to identify vulnerable fish habitat along the stream-lake network continuum in the context of the changing climate and examine potential mitigation measures.

Benefits of a Data Buoy

The newly installed monitoring buoy will constantly monitor water temperature throughout the Sheelin water column. This secure platform will allow IFI scientists to safely examine how the lake responds during climatic events such as heatwaves, droughts, storms and floods and the effects on fish thermal habitat. Capturing the impacts of such events as they occur is difficult using traditional monitoring methods.

What is the data buoy measuring?

Temperature, Underwater Light & Dissolved Oxygen.

Research outputs

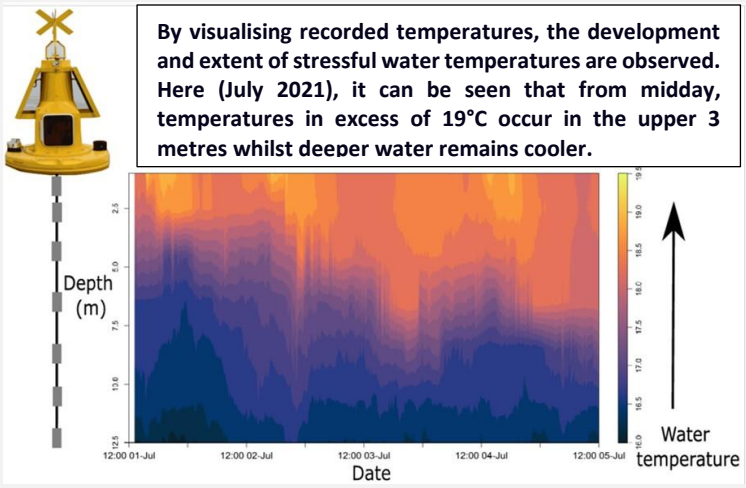
- The new automated data buoy system will allow the effects of climate events on water temperature and dissolved oxygen to be monitored and inform when resident fish populations are most vulnerable.
- The monitoring platform will serve as the foundation for further studies on the fish populations of Sheelin, specifically the combined stress of water quality decline and warmer water temperatures.

OPW
Oifig na nOibreacha Poiblí
Office of Public Works

Where is the Data Buoy located?

What does it look like?

Data Output



By visualising recorded temperatures, the development and extent of stressful water temperatures are observed. Here (July 2021), it can be seen that from midday, temperatures in excess of 19°C occur in the upper 3 metres whilst deeper water remains cooler.

Contact Dr. Fiona Kelly, IFI, for more information (Fiona.Kelly@fisheriesireland.ie)

https://www.fisheriesireland.ie/Projects/climate-change-mitigation-research-programme.html

This is part of a collaborative strategic project between Inland Fisheries Ireland and Office of Public Works in 3 drained catchments.