



## MESTECH Research Project



### Project Title:

Study of hypoxic and anoxic conditions in stratified marine lake

### Project Researcher:

Dr. Timothy Sullivan

### Funding Body:

Beaufort Marine Awards

### Project Summary:

While hypoxic and anoxic environments have existed throughout geological time, their frequency of occurrence in shallow coastal and estuarine areas appears to be increasing. However, few data are available on the physicochemical cond

itions at the boundary between anoxic and normoxic layers, including the conditions required for both formation and dissipation of stratification. Advances in autonomous environmental sensing technology have produced robust sensors capable of detailed measurements under inhospitable conditions created in such environments. This project uses an autonomous sensor approach which is then used to compare the water column properties above and below the stratification before during and after dissipation of the stratification. Lough Hyne, is a seasonally stratified temperate marine lake so provides favourable conditions for this study as well as the pH data from as far back as 1952 available for comparison against current results giving a greater knowledge of the chemistry within the water.

### Key Outputs:

- Baseline time series of water chemistry including, dissolved oxygen, temperature, pH
- An understanding of factors contributing to hypoxic and anoxic conditions in this location
- Data contributing to the understanding and potential impacts of the reserve and the biology of the reserve

- A long term monitoring programme
- Publication of scientific papers and attending of scientific conferences
- Increased public awareness to the effects of climate change and coastal eutrophication