Lough Leane & Kerry Lakes – Road to the Present

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Thanks To :

- David Lenihan
- Staff of Kerry County Council Laboratory & Environment Department
- NPWS

Iconic Lake System –
Lough Leane, Muckross Lake, Upper Lakes, Lough Guitane.

- Tourism
- Ecology
- Fisheries
- Water Supply


R563
N22
Aghadoe
Beaufort
N72
Kilgobnet
Mahony's
Point
Killarney
Dunloe
Lissivigeen
N72
N71
Kate Kearney's
Cottage
Lough Leane
Muckross
CLOGHEREEN
Gap of Dunloe
Killarney
National Park
N22
auntoohil
Killarney
National Park
Killarney Road
Blackvalley
N71

Lough Leane Catchment Monitoring & Management System

Context :

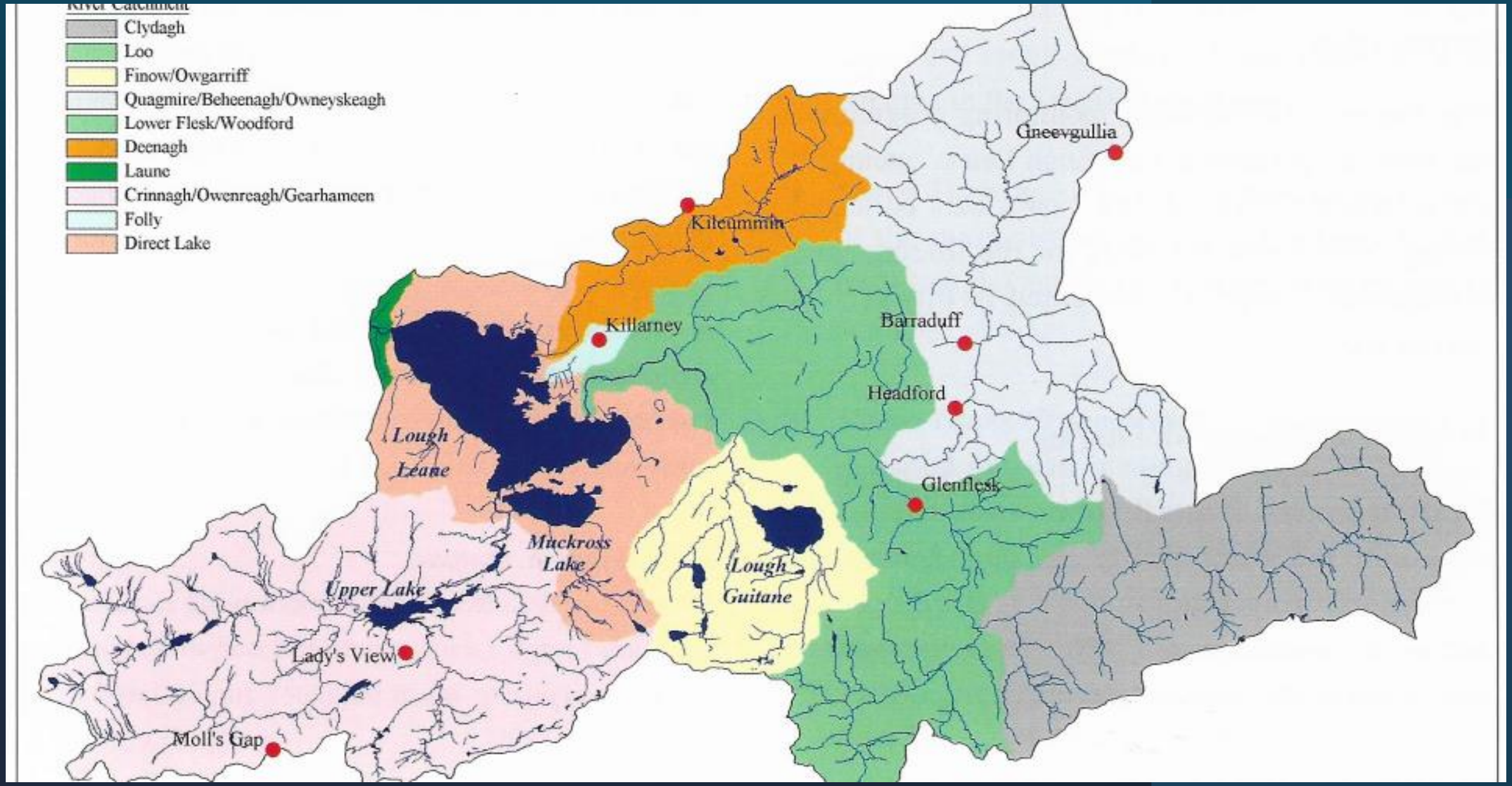
Significant algal bloom in Lough Leane in 1997 (hypertrophic)

Response :

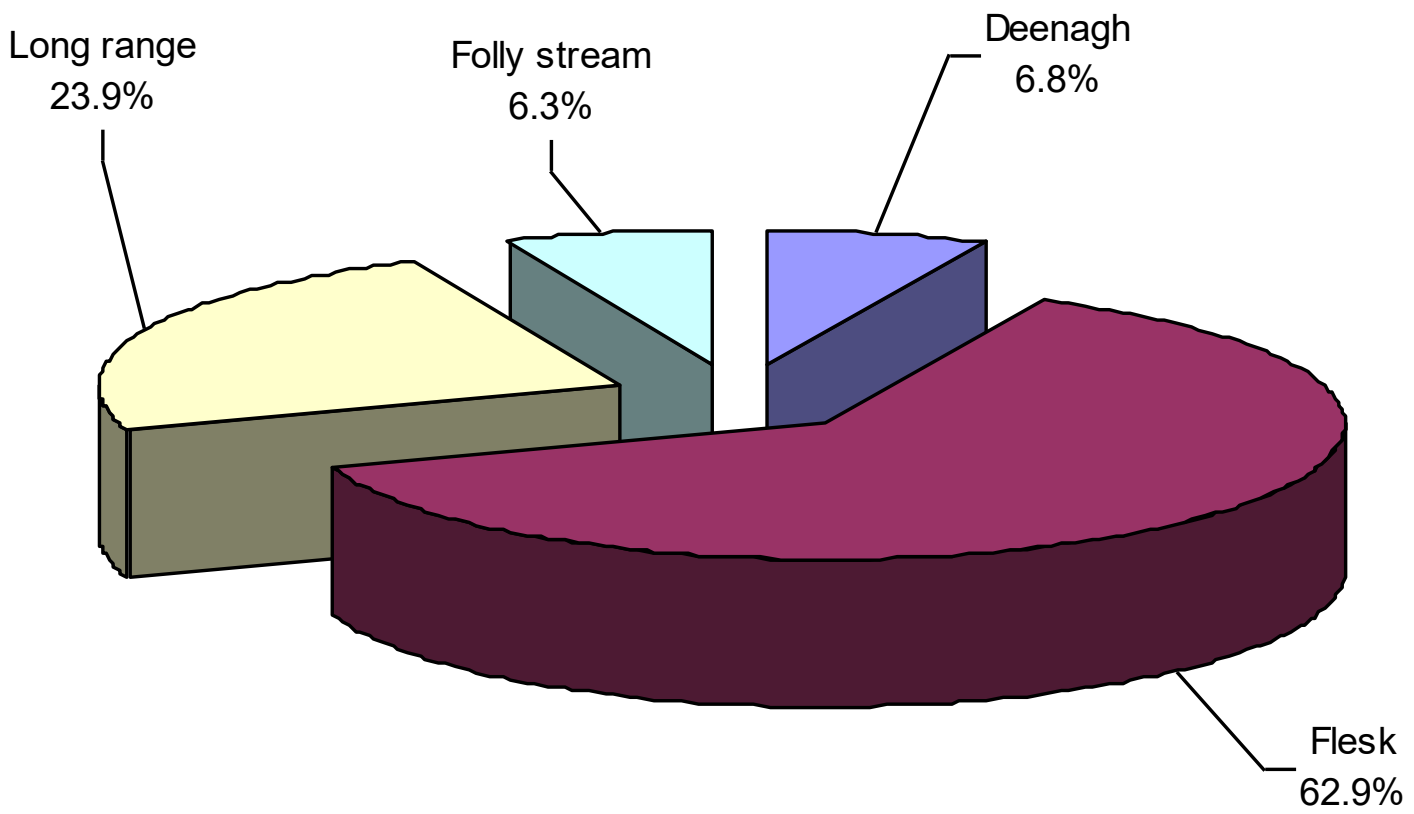
- Government Funded Project (1998-2002)
- Kirk McClure Morton & Pettits in conjunction with Kerry County Council
- Lough Leane Working Group : Representative of main sectoral groups active and operating within the catchment (tourism & trade, farming, forestry, NGOs, state agencies)

Catchment Monitoring System

- Surface Water Quality (lake bodies, inputs and outputs)
- Groundwater Quality
- Ecological/Biological
- Hydrometric
- Sediment
- Effluents
- Weather


River Catchment
Clydagh
Loo
Finow/Owgarriff
Quagmire/Beheenagh/Owneyskeagh
Lower Flesk/Woodford
Deenagh
Laune
Crinnagh/Owenreagh/Gearhameen
Folly
Direct Lake
Gneevgullia
Kilcummin
Killarney
Barraduff
Headford
Glenflesk
Lough Leane
Muckross Lake
Upper Lake
Lough Guitane
Lady's View
Moll's Gap

Tot Phosphorous % contribution 2010



Main Findings

- Study confirmed that the high phosphorus levels in the bloom years of 1997 and 1998 were due to a rising trend in phosphorus inputs from the general catchment.
- Extensive blooms are unlikely to occur unless there is a sufficient level of phosphorus in the lake (ie. in excess of 20ug/l TP), in combination with weather conditions favourable to algal blooms.

Management System (Interim Report, 2000)

- Management System - Based on the Findings of the Monitoring System
- Programme of Management Measures covering main sectors (Interim Report, 2000):
  - Local Authority – Upgrade to Killarney WWTP, Introduction of Agriculture Bye-Laws, etc.
  - Agriculture – Upgrading of farmyard facilities, improved management of farmyard facilities and of slurry spreading activities, etc.
  - Domestic Wastewater Treatment Systems – Planning application assessment regime, compliance inspection regime.
  - Forestry – Upgraded regime for assessment of pre-planting, felling and fertilisation proposals etc.
- Sector-Led Implementation
- Algal Alert Protocol

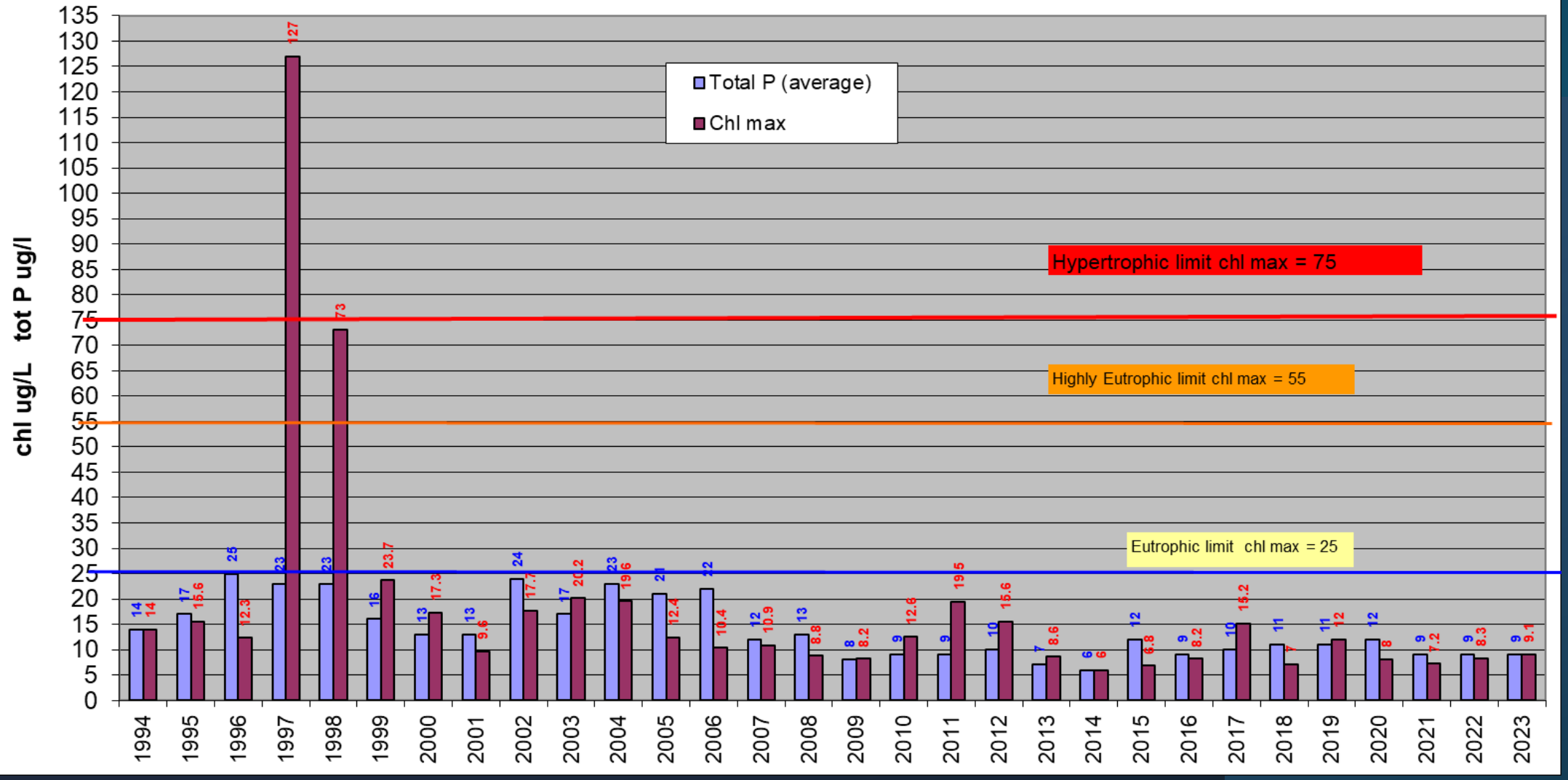
Management System - Implementation

Much-Changed Operational and Regulatory Landscape (2025) :

- Establishment of Uisce Eireann
- New legislation on Farm Practices etc.
- Significant investment in infrastructure by the farming community
- Establishment of a national inspection and funding regime for Domestic Wastewater Treatment Systems
- Water Framework Directive

Current Situation

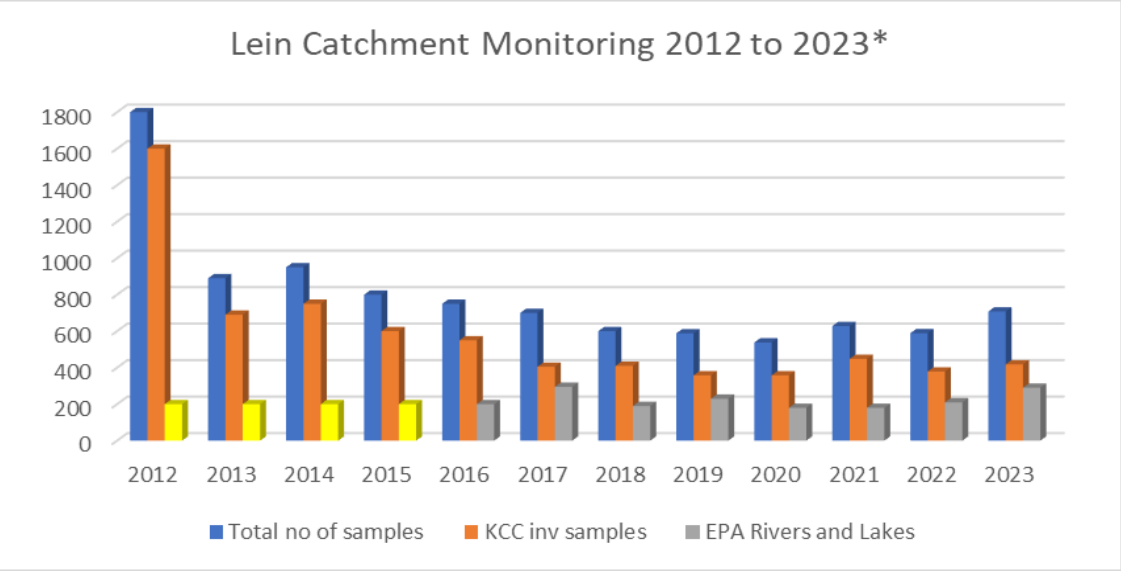
APP 1: L Lein: tot P and Chl max 1997 -2023



On-Going Monitoring :

- Monitoring of Phytoplankton in L. Leane both in open water and on shorelines by KCC laboratory staff on a routine basis – weekly at designated shoreline locations, and monthly at mid-point location.

- On-going sampling and analysis within the catchment by KCC Laboratory :
  - WFP sampling – average of 4 times per year (L.Leane) and 6 times per year (Upper Lakes & Muckross)
  - KCC sampling & Analysis – monthly : lakes, inputs and outputs



Biological Monitoring of the Killarney Lakes - Results of the 2024 Investigations

Lough Leane

The assessment of the profundal fauna of Lough Leane in 2024 continues to indicate a satisfactory period of several years of stable mesotrophic (moderately productive) conditions up to and including 2023. These findings, while encouraging, leave no room for complacency. Lough Leane has experienced severe algal blooms in the past, most recently in 1997. The 1997 bloom was not the culmination of a series of years with increasing algae; in 1997 the mean chlorophyll (May – Sept) was four times the level in the previous year. Heavy rain causing spates with high phosphorus concentrations in the River Flesk, followed by calm warm weather, could still potentially generate substantial algal blooms. Managing the catchment to minimise phosphorus runoff in spate conditions remains vital. (Twomey *et al*, 1998; de Eyto *et al*, 2024)

Muckross Lake:

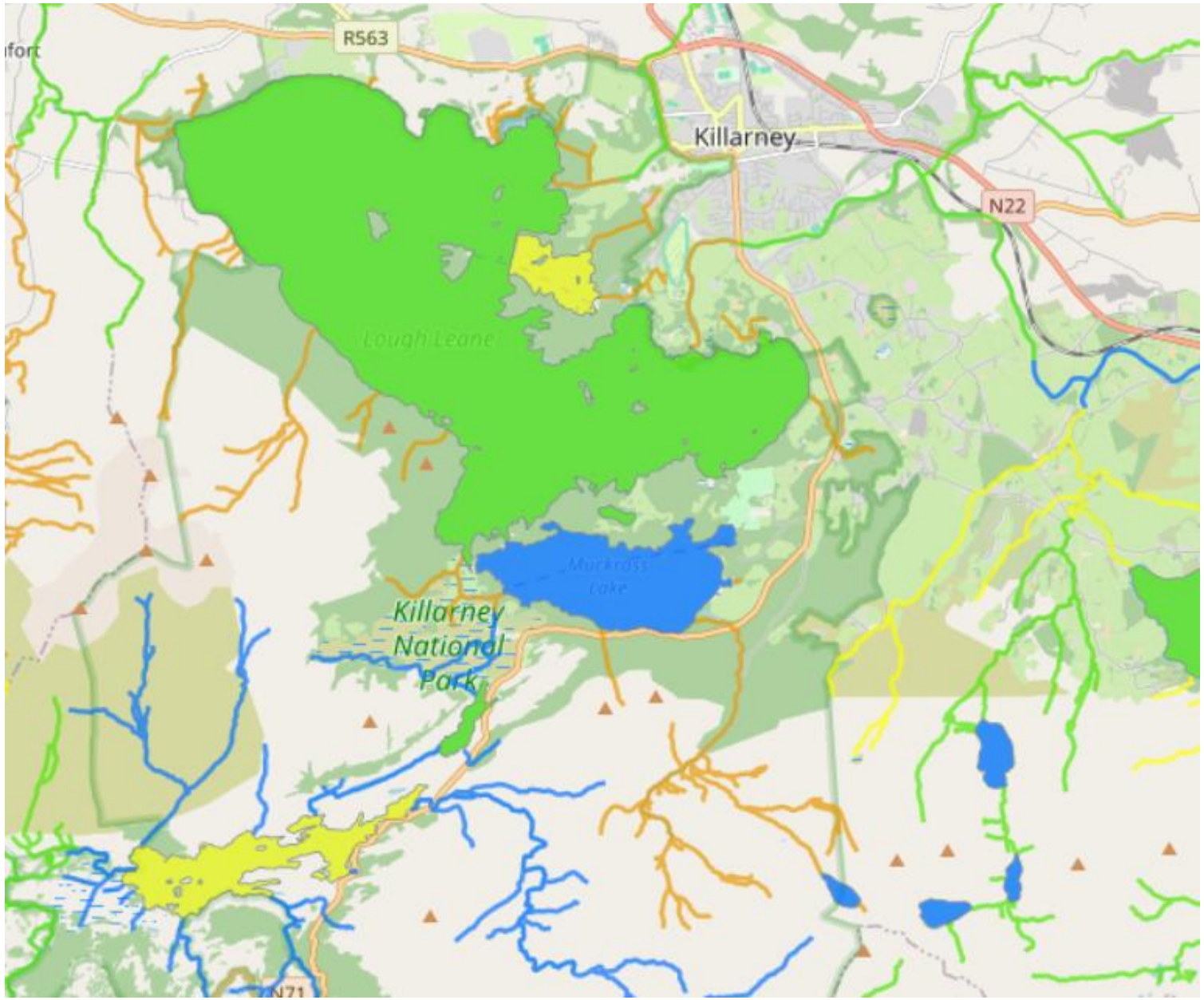
The assessment of the profundal fauna of Muckross Lake in 2024 continues to indicate an oligotrophic (unproductive) lake of high ecological quality up to and including 2023.

Upper Lake

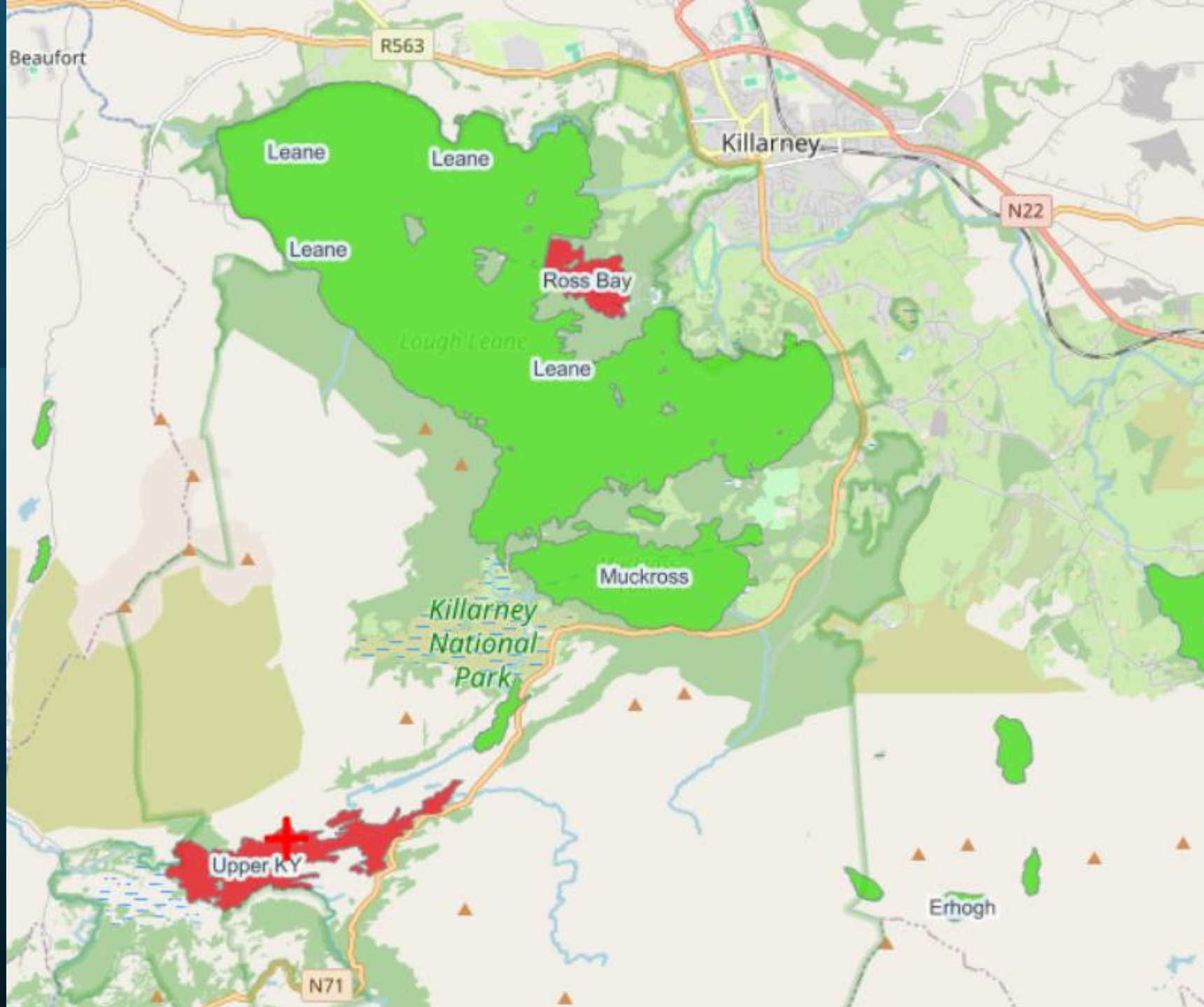
The assessment of the profundal fauna of the Upper Lake in 2024 continues to indicate more productive conditions than pertained in 1983. The profundal fauna is indicative of borderline oligotrophic/mesotrophic conditions up to and including 2023.

(***Ref. Conservation Services, 2025)***

Lake Waterbody – WFD Status



WFD Risk – 3rd Cycle



Learnings :

- Multi-Disciplinary approach
- Local buy-in
- The more I know the more I realise how little I know

Challenges :

- Climate change
- Fragmented nature of the natural waters management systems – multiple agencies
- Water Framework Directive
- Resources
- Loss of Corporate Memory
- Complacency/Maintaining Momentum

Thank You