



Water Quality Indicators and the Evidence Base

Mary Gurrie, Programme Manager

EPA Water Conference, June 2023

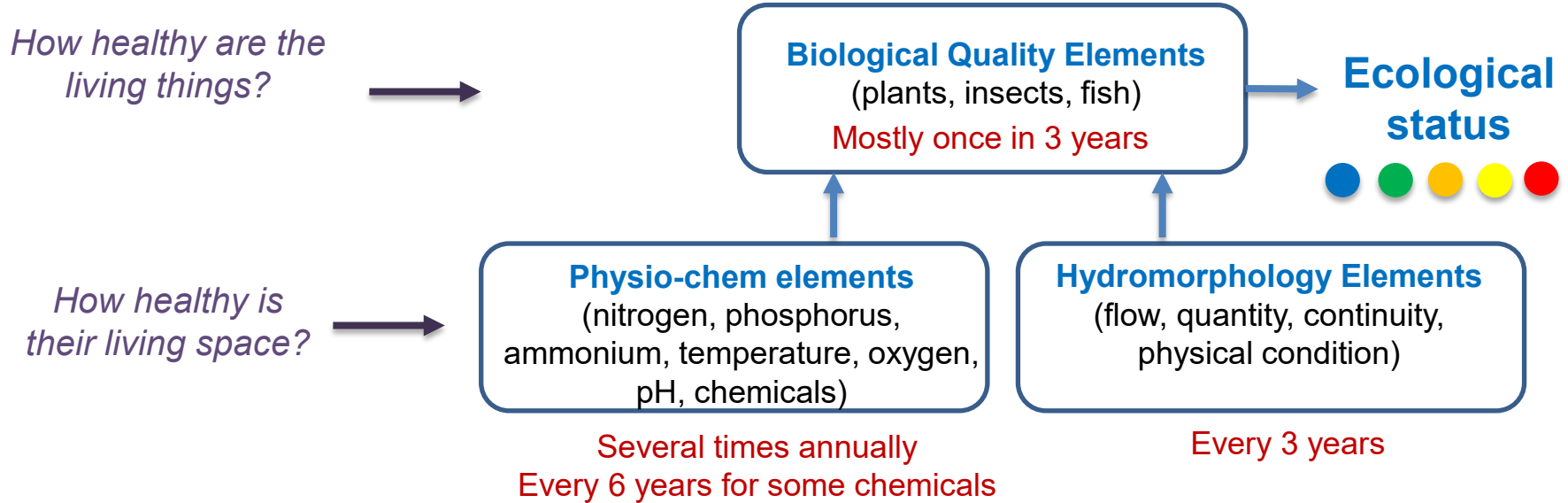
Introduction



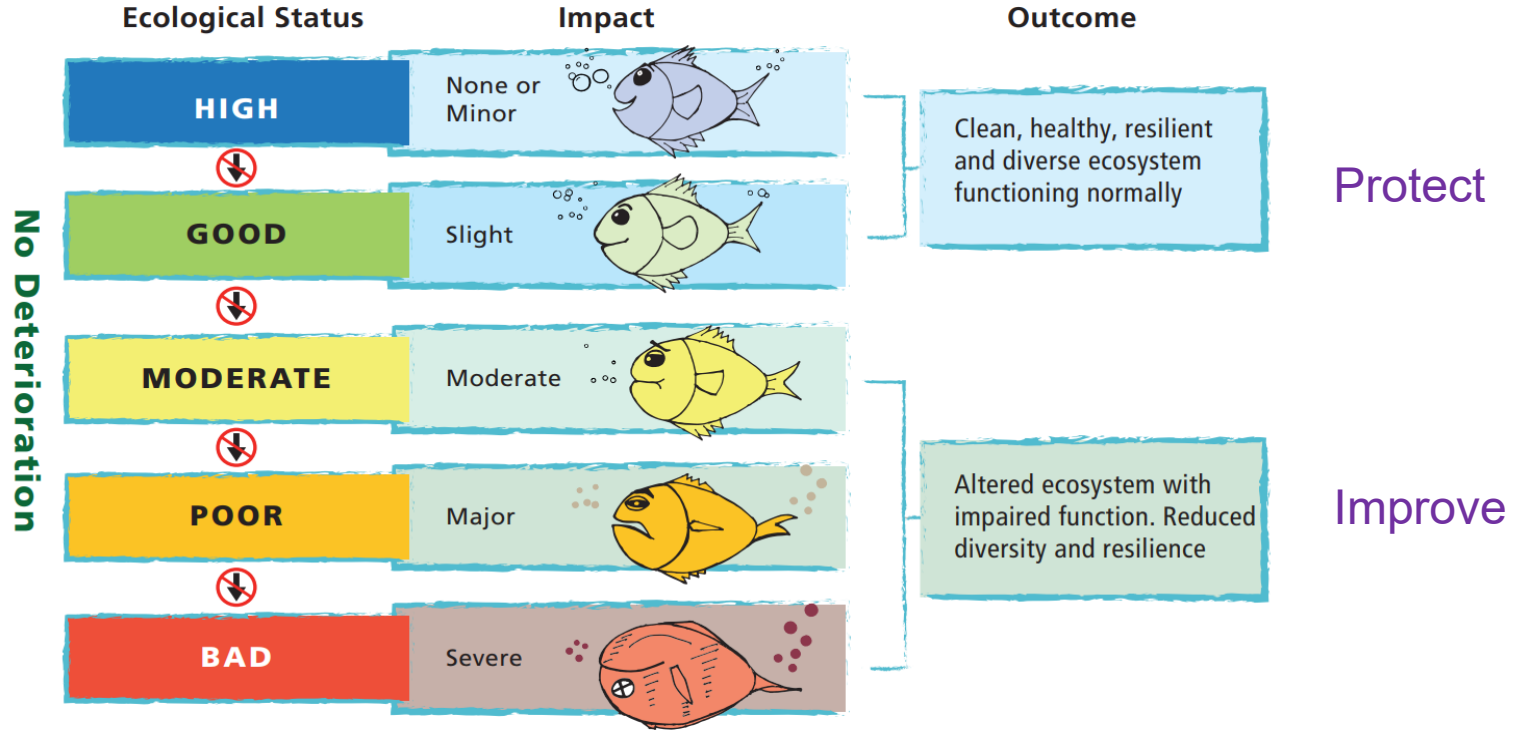
- What is water quality?
- How is water quality in Ireland?
 - overall status
 - latest data: 2022 Indicators
- Pressures on water quality and the evidence base
- Action needed



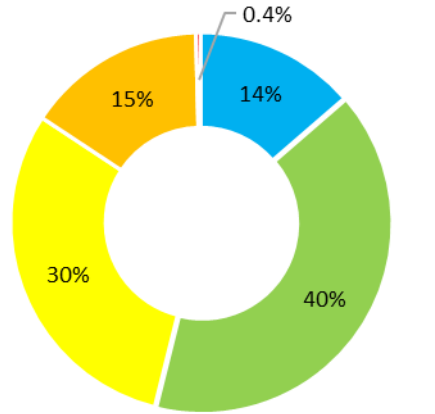
What I talk about when I talk about water quality...



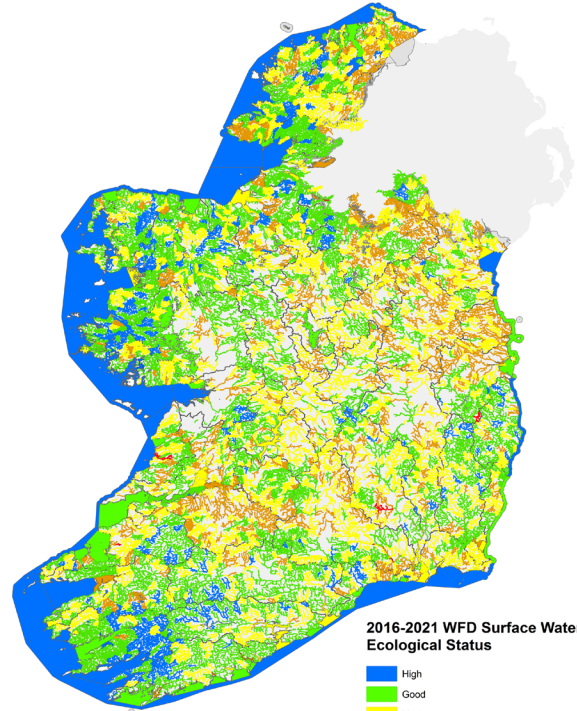
Water quality objectives



How is water quality in Ireland?



■ High ■ Good ■ Moderate ■ Poor ■ Bad



2016-2021 WFD Surface Waters Ecological Status

■ High
■ Good
■ Moderate
■ Poor
■ Bad

Ecological Status 2016-2021 (rivers, lakes, estuaries & coastal)

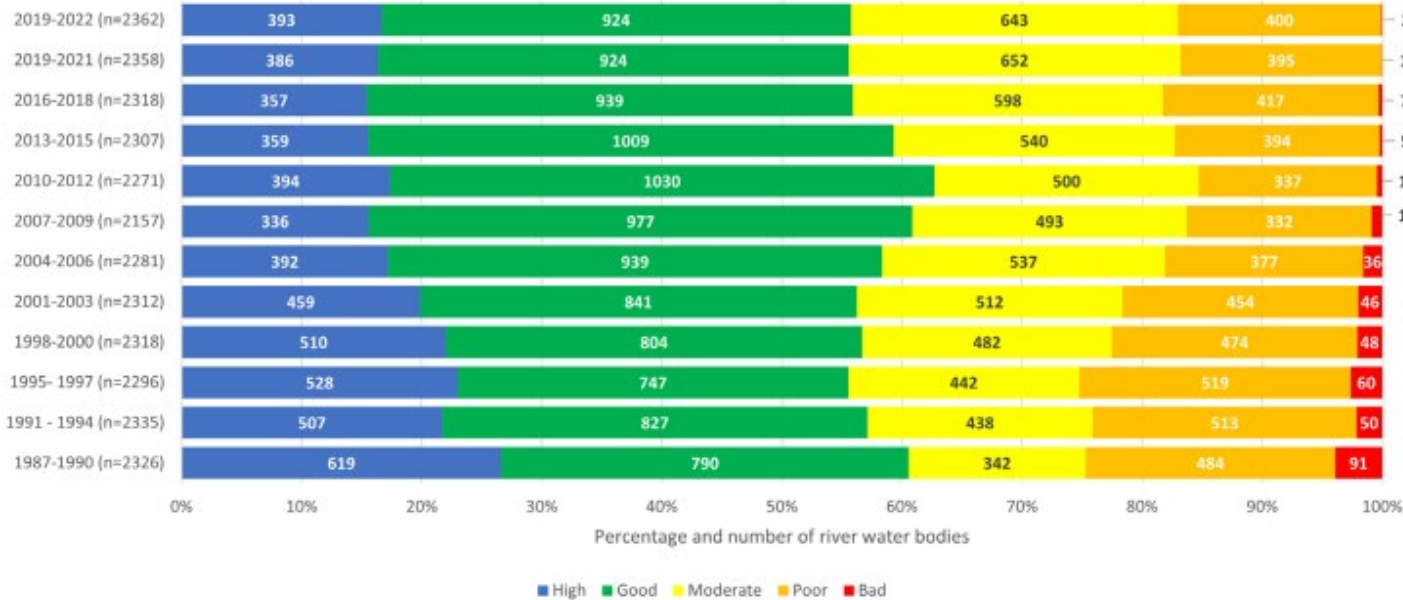
54% of surface waters in good or high ecological status (satisfactory)

46% in moderate, poor or bad status (unsatisfactory)

2022 Indicator: river biology



River biology – Q values



2022
 671 monitored
 84 improved
 77 declined

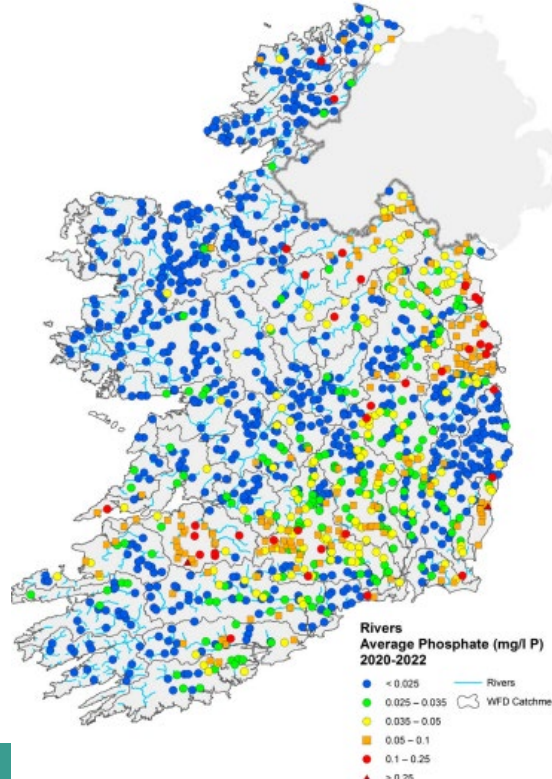
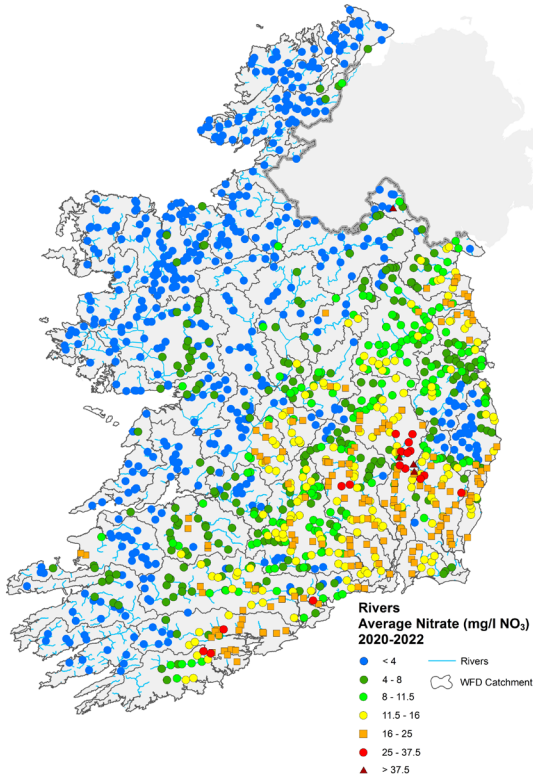
No major change

3 more Q5 sites
 (now 35)

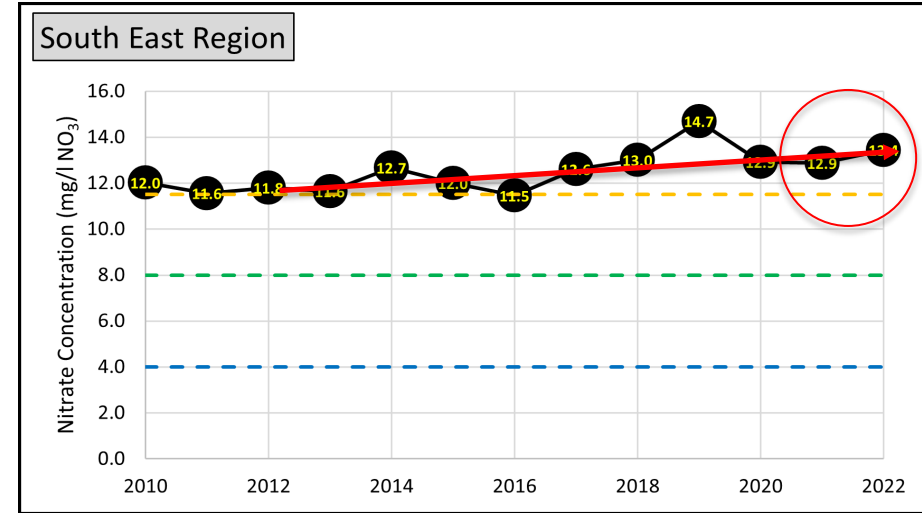
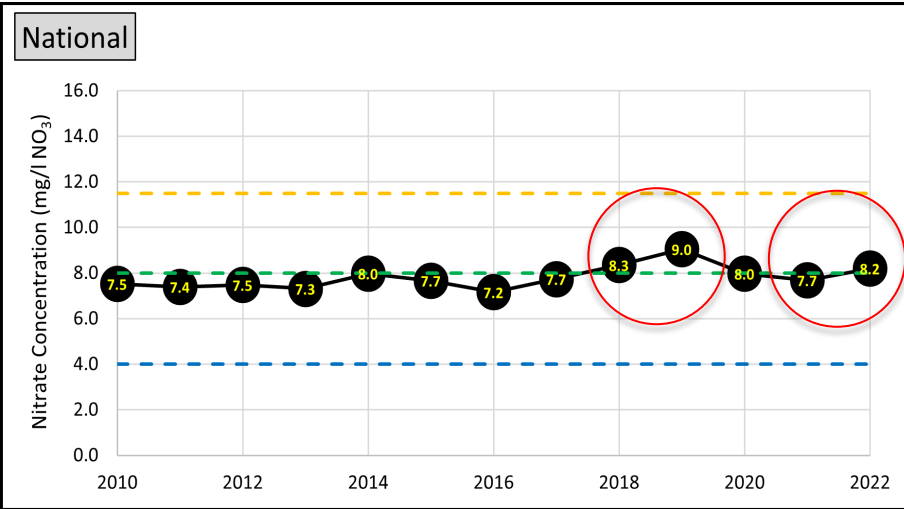
2022 Indicators: N and P in Rivers

2020-2022
40% of sites have
unsatisfactory nitrate
levels
(above 8mg/l NO₃)

28% of sites have
unsatisfactory phosphate
(above 0.035mg/l P)



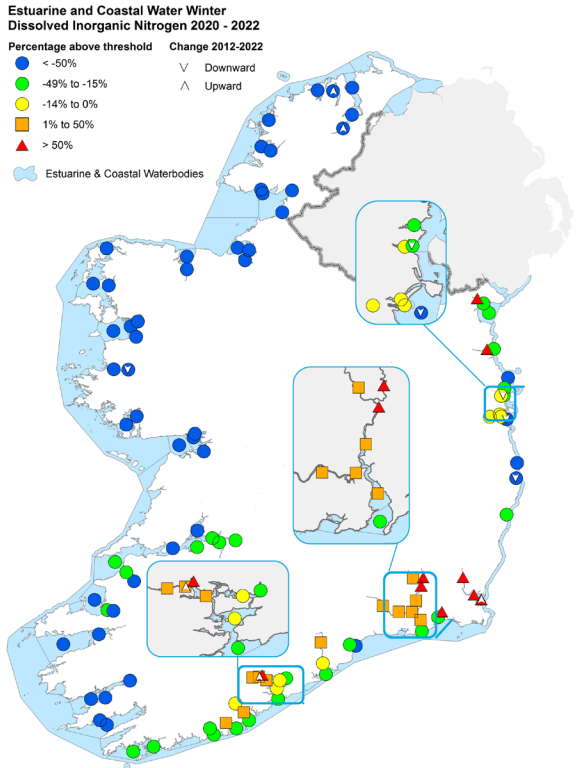
Nitrates in rivers - regional view



- — — Level to maintain high river water quality
- — — Level to maintain good river water quality
- — — Level to maintain good water quality in marine waters

Levels in the southeast are too high
Nitrates increased between 2021 and 2022

2022 Indicator: N in Estuaries and Coastal



2020-2022

20% of water bodies unsatisfactory for nitrogen

Majority of water bodies with nitrogen issues are in south and south east.

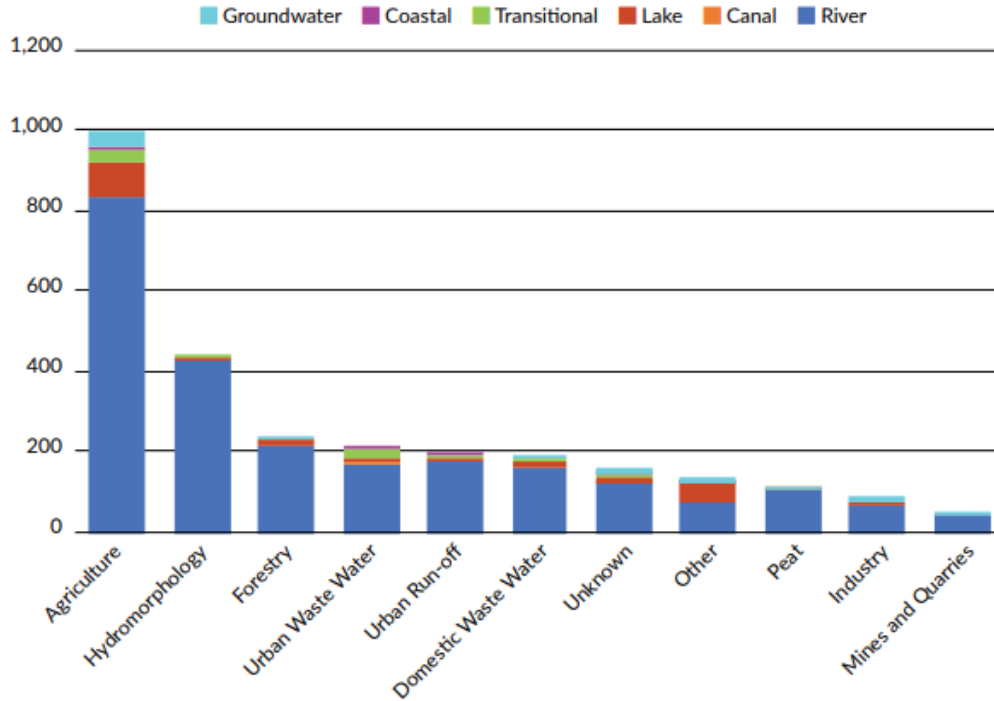


Summary of 2022 indicators



- No significant change in river or lake biology
- Nitrate concentrations are unsatisfactory in 40% of rivers and 20% of estuaries
- Nitrate concentrations in rivers and groundwaters increased between 2021 and 2022
- Phosphate concentrations are too high in 28% of rivers and 36% of lakes - but are generally stable in recent years
- Nitrogen and phosphorus loadings to the marine were higher in 2022 than 2021

Pressures on water quality



Pressure assessment is based on monitoring results and knowledge of the types of activities, soils, geology etc

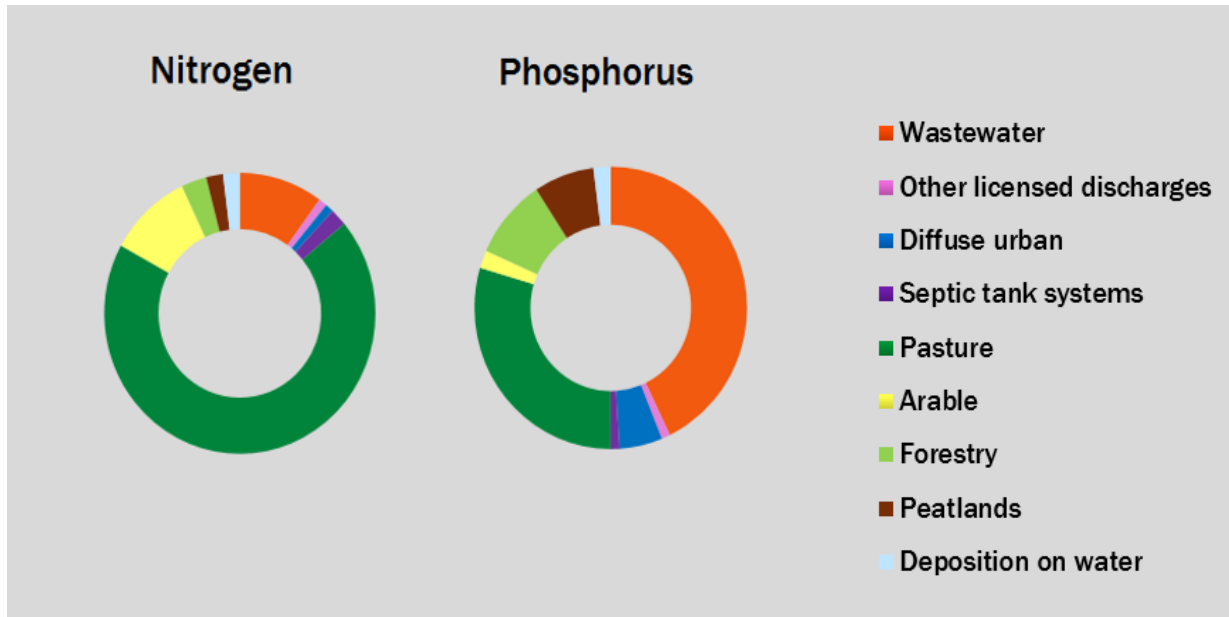
Water quality is impacted by a range of human activities

A waterbody can be impacted by one or more pressure type

Where do the nutrients come from?



Source Load Apportionment Model (SLAM)

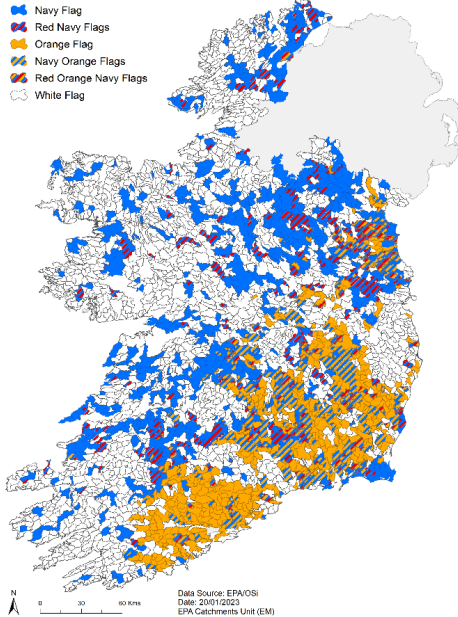


- estimates the nutrient load from various sectors
- most N comes from agriculture
- most P comes from agriculture and wastewater

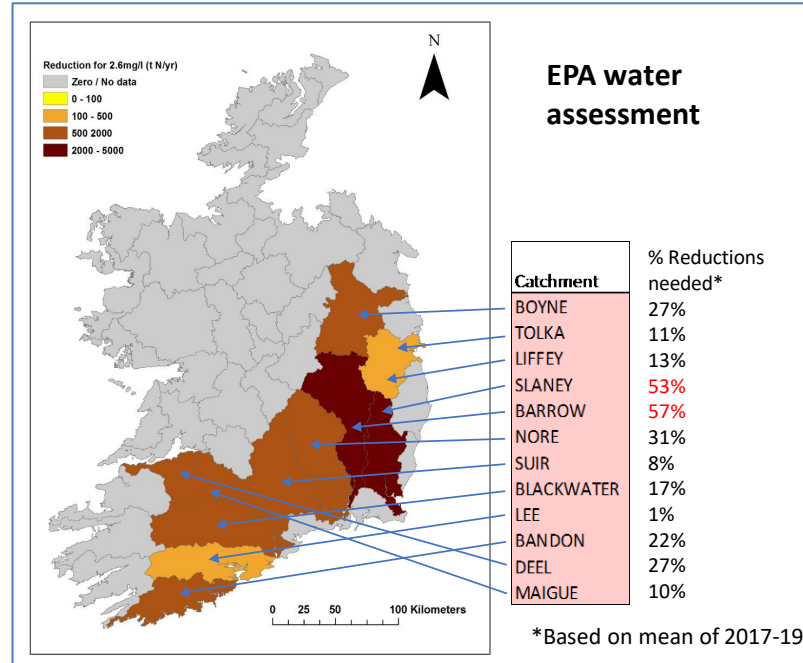
Targetting measures

Agricultural measures

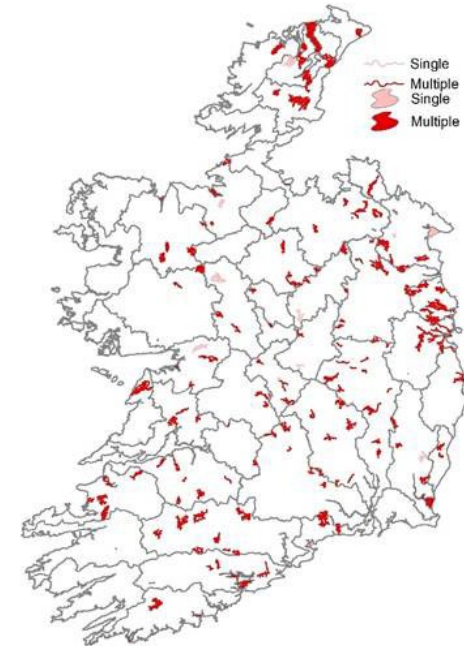
Targetting Ag Measure 2023



Nitrogen reduction needed

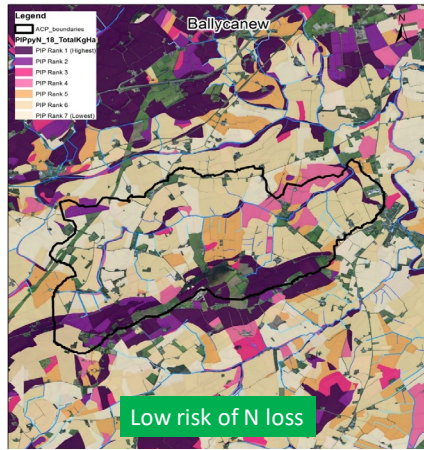
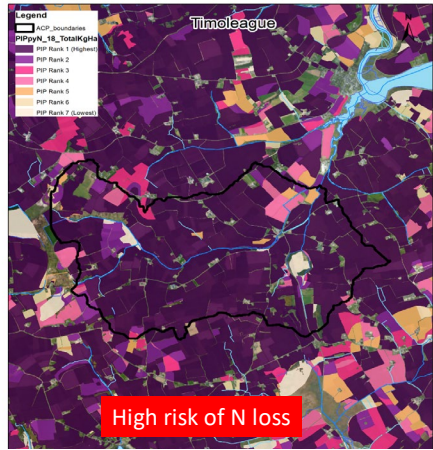


Wastewater measures



Targetting agricultural measures

PIP maps



Flowpath and delivery points



What needs to happen?



- Nutrient levels in our waters need to decrease
- Measures need to be targeted in the right place to make improvements
- Need full implementation of Nitrates Action Programme with additional targeted measures
- Uisce Éireann must prioritise investment in areas where wastewater is impacting on water quality
- River Basin Management Plan 2022-2027 must provide a comprehensive plan to address all the pressures on our water environment

Thanks for listening



Water Quality Reports available on
www.epa.ie

Water quality data available on
www.catchments.ie

