



Current legislative requirements and future developments

David Wall

*Teagasc, Johnstown Castle,
Co Wexford, Ireland*

*Water Quality Conference
7th February 2024*

Ireland's farming systems

Characteristics

- landscape diversity/biodiversity benefits
- grasslands (& tillage soils) high levels of soil organic carbon
- feed self-sufficiency (including protein)
- high levels of animal welfare
- high potential for manure recycling
- lower GHG emissions per unit output

But trade-offs also present!

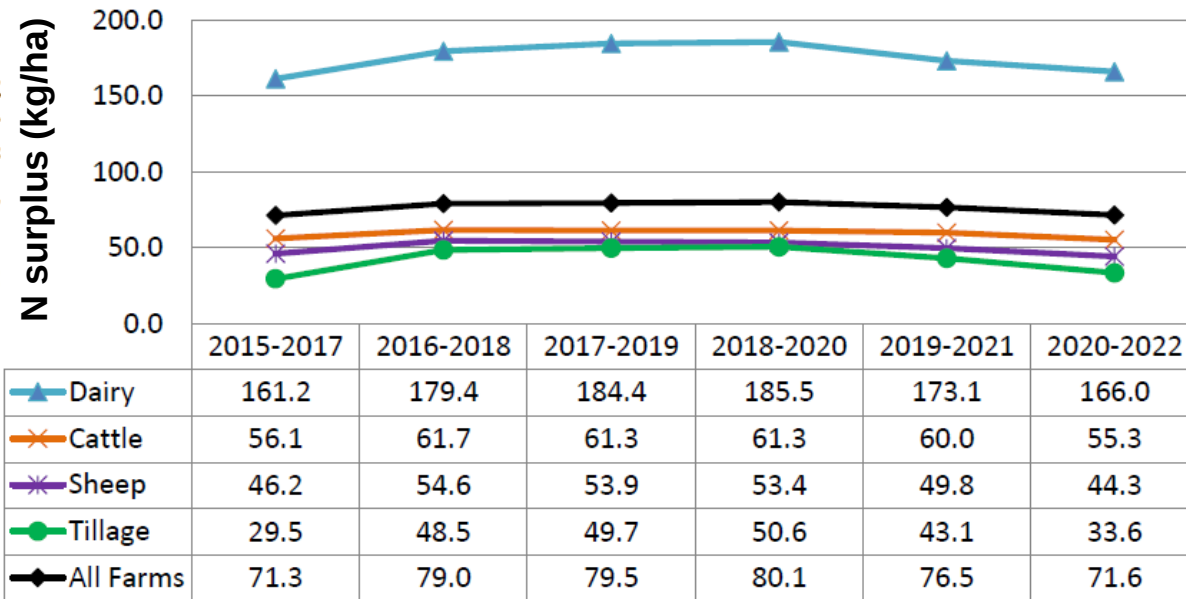
- Important to retain our pasture-based and tillage farming systems, which are predominantly family farms and achieve highest environmental standards.

Environmental sustainability indicators

Irish farming systems

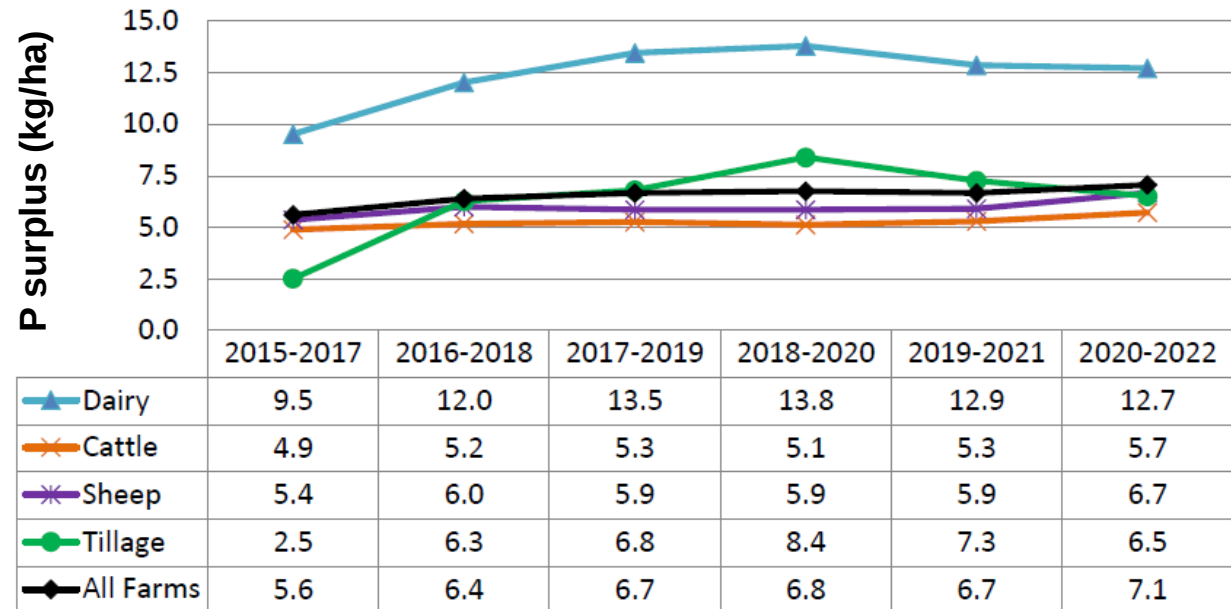
Nitrogen Balance

- ✓ Relatively low N balances
- ✓ Spatial distribution across farms needs more attention!

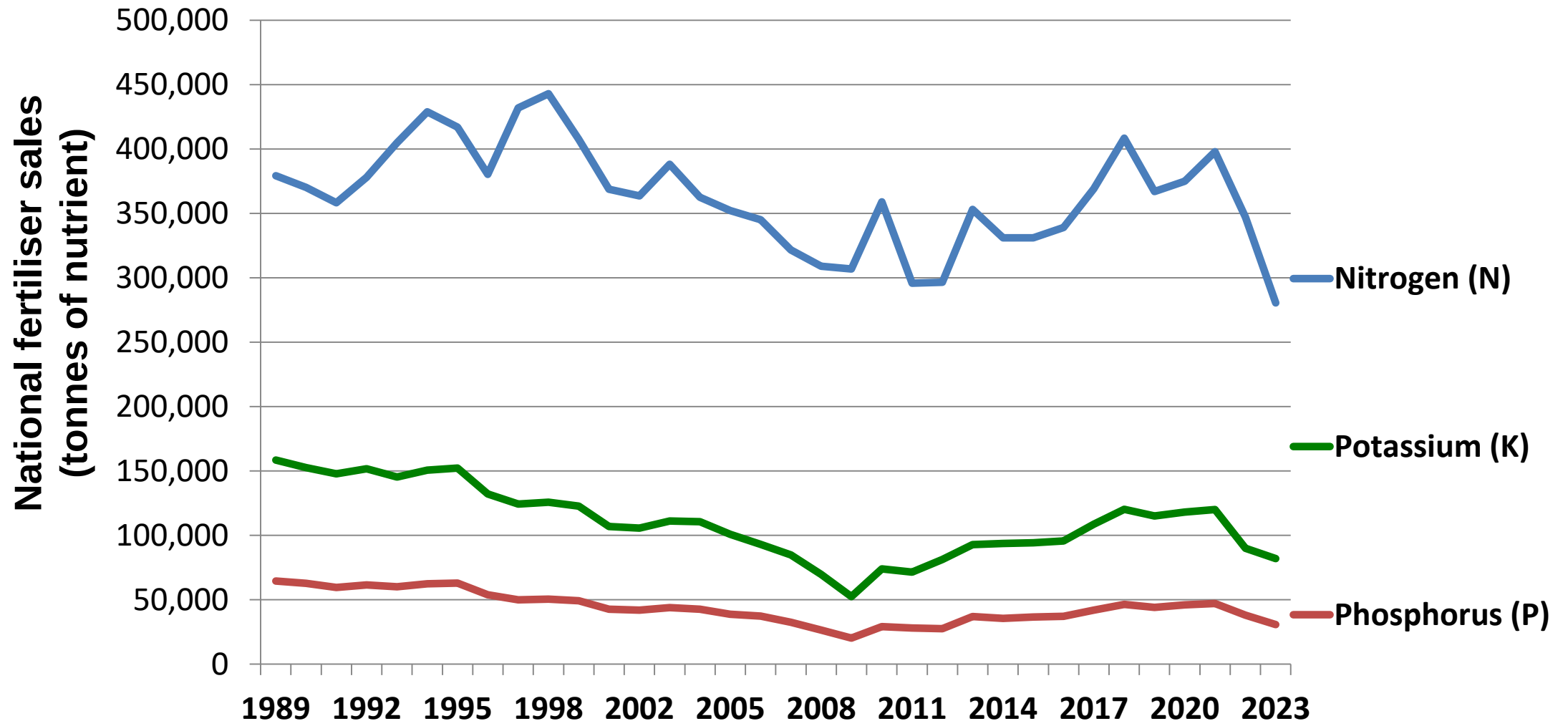


Phosphorus Balance

- ✓ Need to account for soil P fertility status
- ✓ ~ 50 kg P surplus required to increase 1 mg/l STP



Fertiliser use in Ireland 1989 to 2023



Solutions to improving N use efficiency

Increasing practice adoption rates on Irish farms



Soil testing

Balanced soil fertility
(pH, N, P, K & S)
Increased N use efficiency

Liming

Reduce N₂O emissions
Reduce N required by 60kgN/ha

LESS

SP to LESS
Reduce N required by 20kgN/ha
Reduce costs by €45/ha

Protected Urea

Reduce rate by 10%
Reduce N costs by ~25%

Clover / MSS

Fix 50 - 150kgN/ha/yr
Reduce N costs by ~€60-180/ha

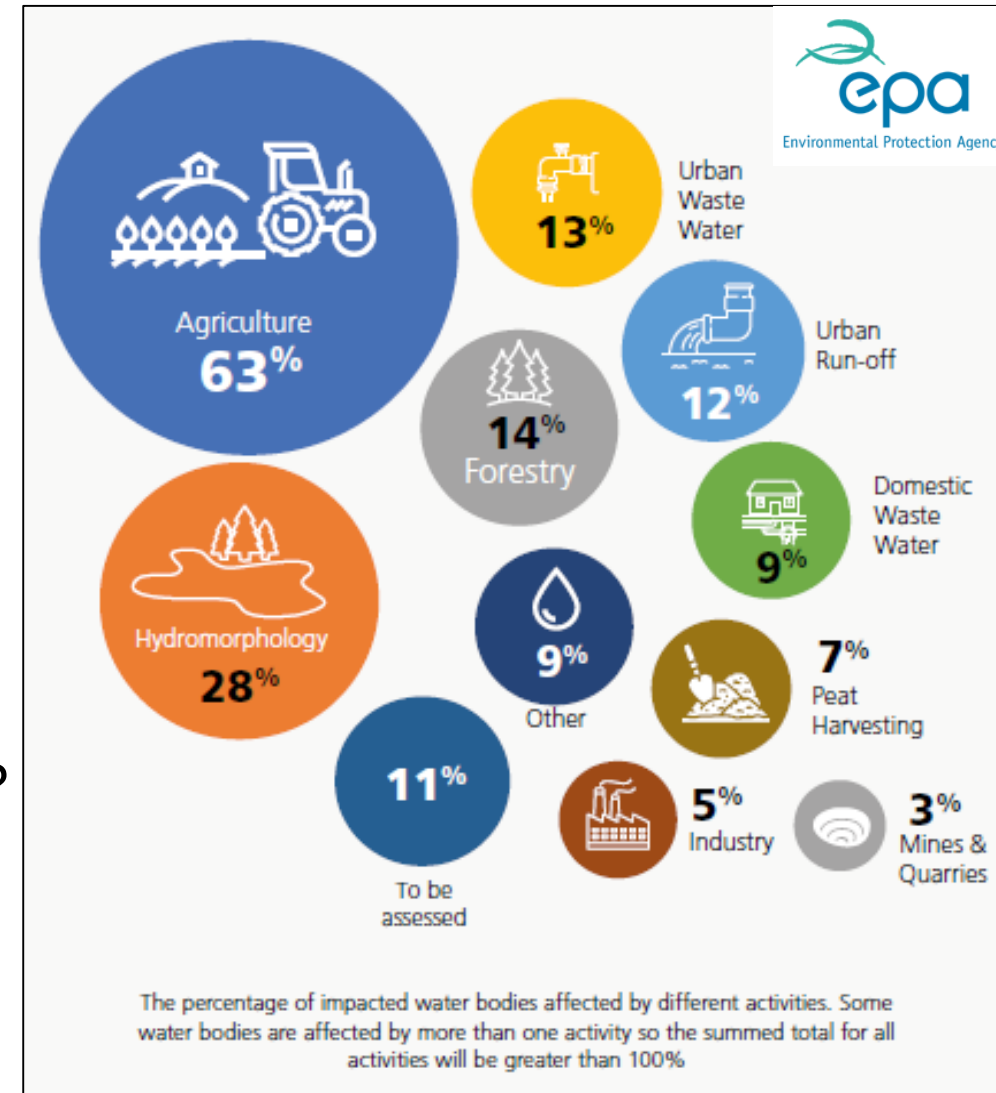
Factors influencing nutrient losses to water

The basics!

- Nitrogen vs Phosphorus
- Different mobilisation & loss pathways

Main factors influencing losses

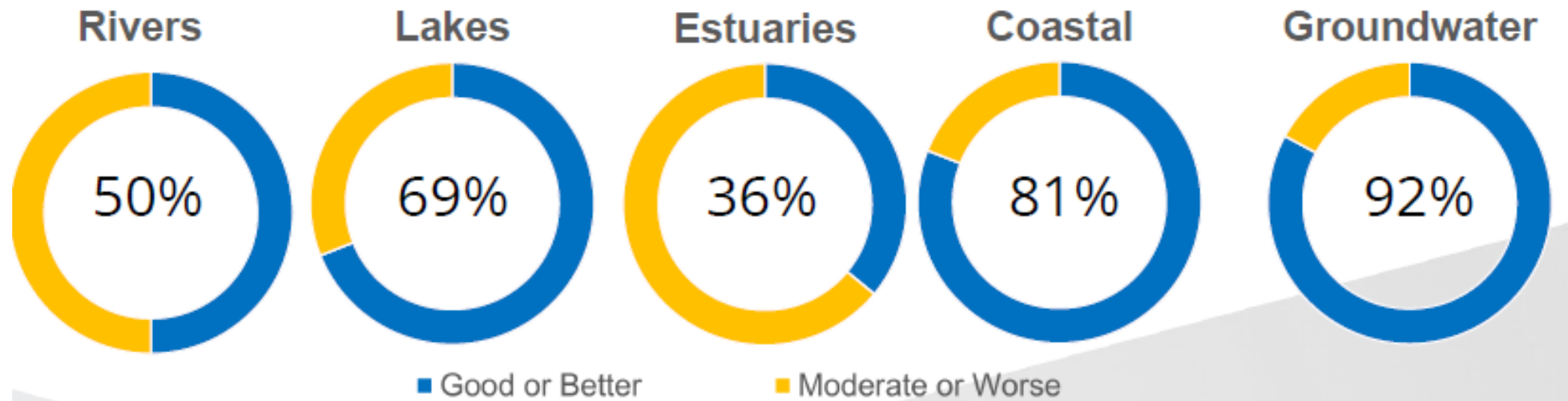
- Soil type (incl. drainage status) & topography
- Climate/weather – rainfall & season
- Source load – magnitude vs crop demand?
- Farm management – nutrient timing & distribution?



How healthy are Irish waters?



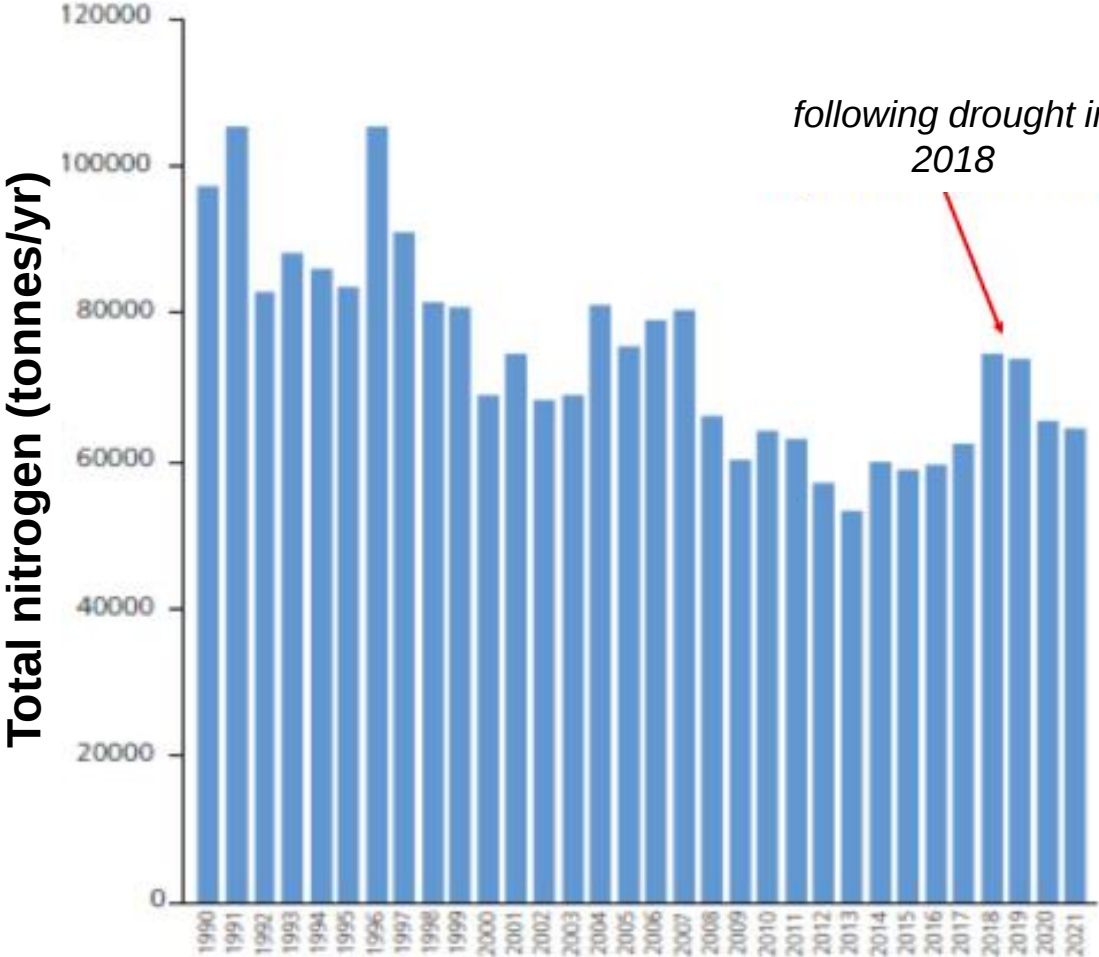
Status of Irish waters 2016 - 2021



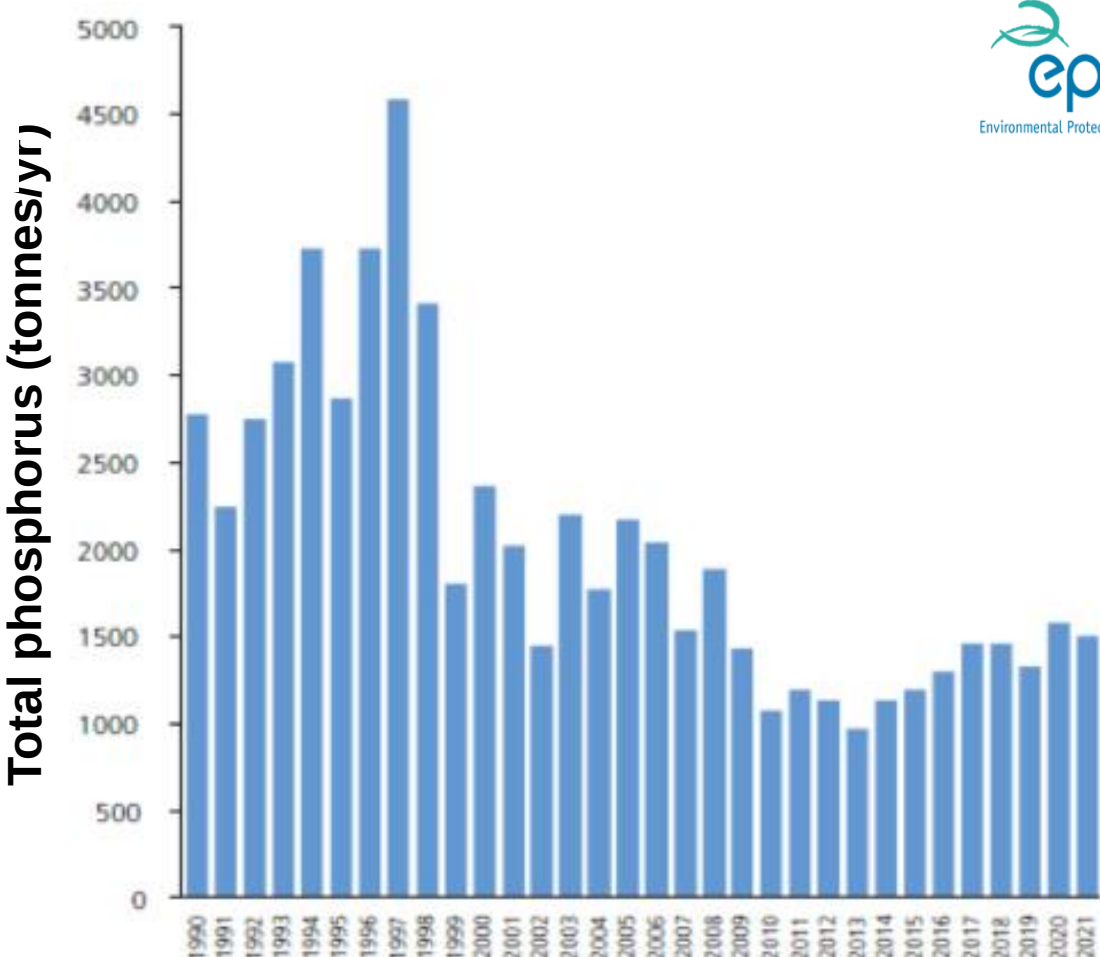
https://www.epa.ie/publications/monitoring--assessment/freshwater--marine/EPA_WaterQualityReport2016_2021.pdf

Nutrient loss load to the marine environment 1990 - 2021

Total N load



Total P load



Ireland's Nitrates Action Programme

Ireland's first **Nitrates Action Programme (NAP)** came into operation in 2006

- ✓ All Island approach (*compared to NVZ's in other Member States*)
- ✓ Nitrogen and Phosphorus
- ✓ Impacts on water differ regionally and by nutrient.

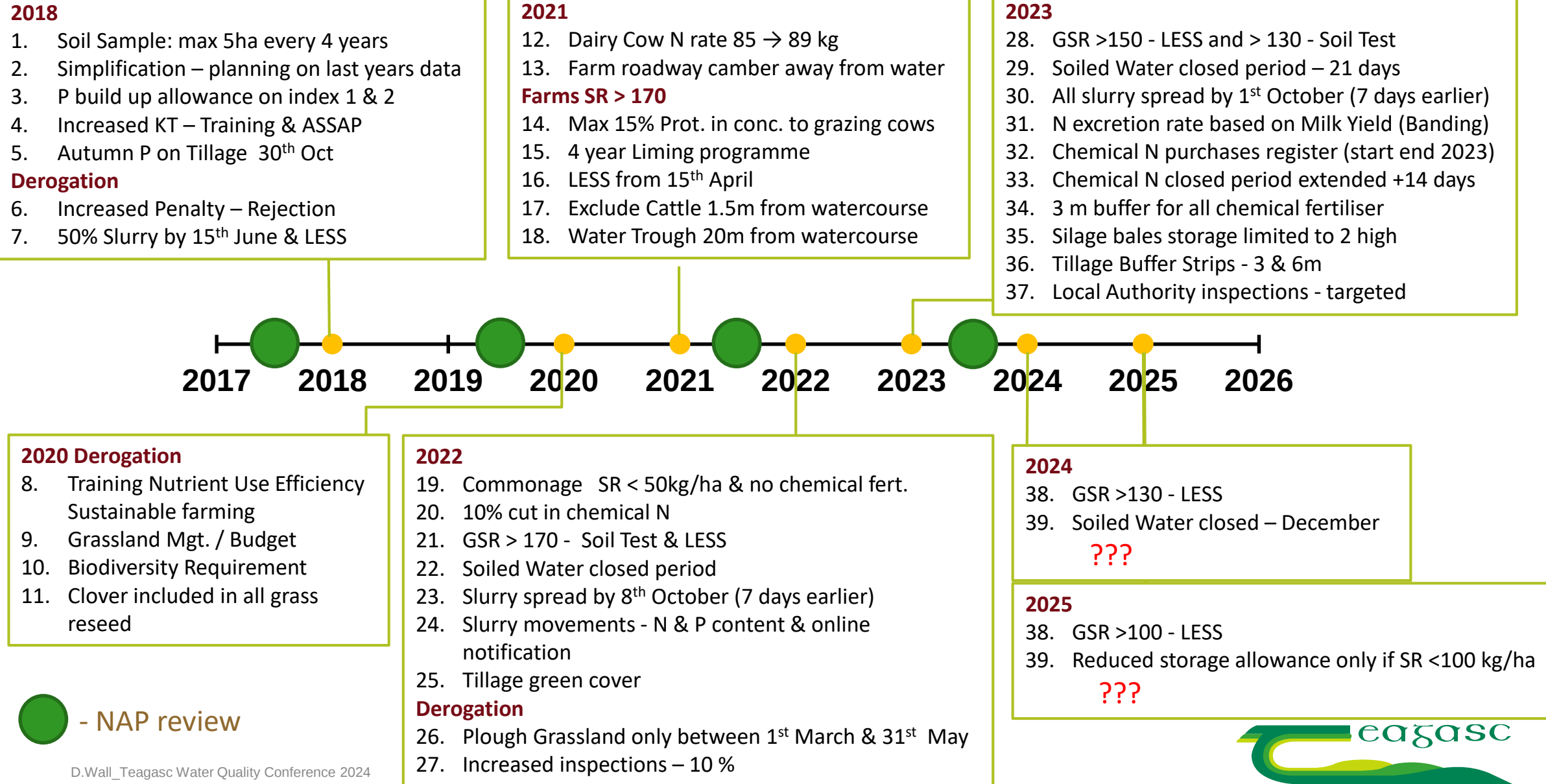
NAP reviewed every 4 years –2010, 2013, 2017 and 20212025

Derogation Criteria:

- Long Growing season
- Crops with High Nitrogen requirement
- Denitrifying soils

Interim review of Derogation - 2019 and 2023

Timeline of NAP Regulation Changes



Other initiatives to protect & enhance water quality

Extension and expansion of Agricultural Sustainability Support and Advisory Programme (ASSAP) – industry commitment trebled

Outside the NAP

- CAP Strategic Plan
- Water EIP €60m over 5 years
- Accelerated Capital Allowances
- Fertiliser register
- Industry sustainability schemes

EU Commission - implementing decision

Tests of Water Quality that Ireland had to complete

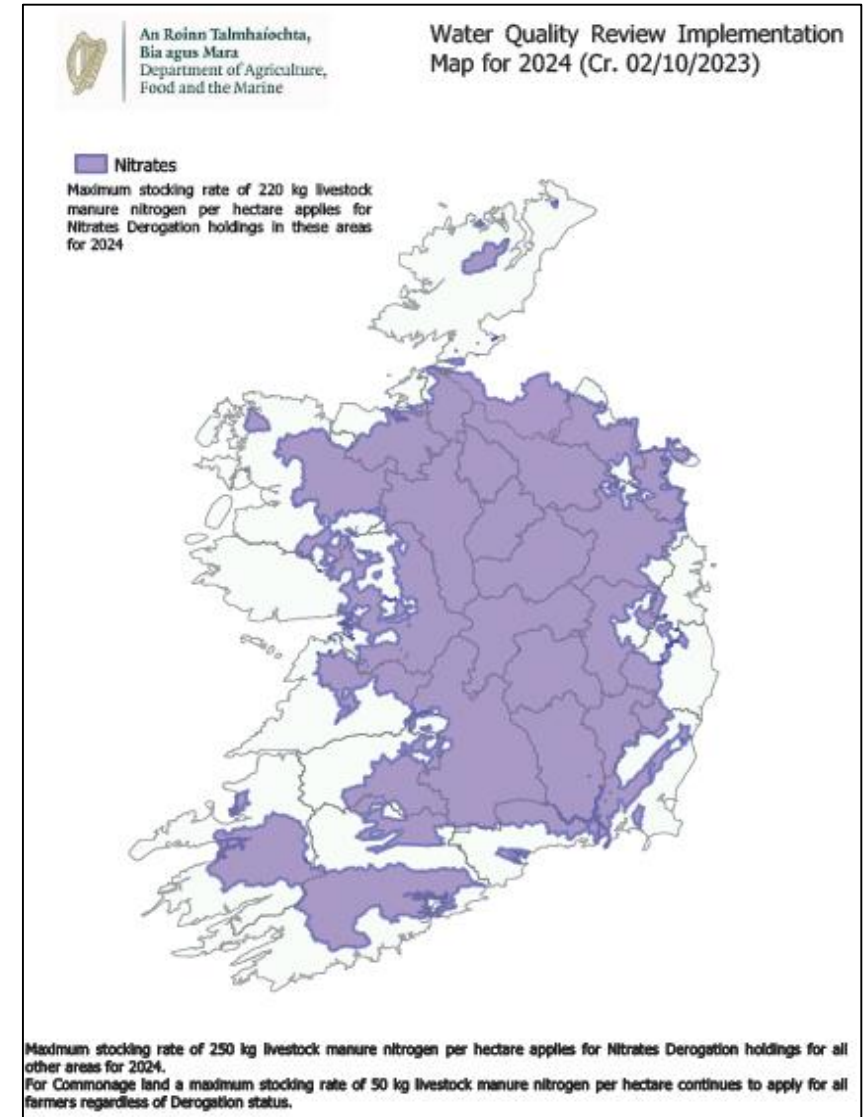
Article 12

Two-year review

1. The competent authorities shall submit, by 30 June 2023, with the report described in Article 13, corresponding to the year 2022, an annex containing the results of monitoring as regards the nitrates concentrations of groundwater and surface waters and the trophic status of surface water bodies, based on the monitoring network and requirements of the Nitrates Directive 91/676/EEC and including at least maps showing those areas draining into waters where monitoring data reveal:

- (a) average values of nitrate concentrations above 50 mg/l or increasing trends of nitrates concentration compared to 2021;
- (b) “*Eutrophic*” status or “*could become eutrophic*” status with a stable or worsening trend compared to 2021.

Waters identified by either point (a) or (b) of the first subparagraph shall be considered as polluted, at risk of pollution or showing worsening trends. The data for the estimation of the average values shall cover the period from 1 January 2020 to 31 December 2022. For the assessment of trends, the data from 2021 and 2022 shall be compared.



EU Commission - implementing decision

3. As from 1 January 2024, in areas draining into polluted or at-risk-of-pollution waters or presenting worsening trends, additional measures shall be applied under the Nitrates Action Programme. For farms that have been granted an authorisation pursuant to this Decision and located in such areas, the amount of manure that may be applied to the land shall not exceed 220 kg nitrogen/ha per year.

Clarification from the EU Commission

- Areas with moderate or less WQ status need to show improvement
- Areas with good or high WQ status need to at least remain stable

Note: some additional areas, currently remaining at 250 kg/ha Org. N, will likely be included in the map and be subject to max of 220 kg/ha Org. N potentially from next year

Derogation - experience in the Netherlands

Applied for new derogation in 2021. Decision is that derogation to be phased out – all farms at 170 kg Org N by 2026

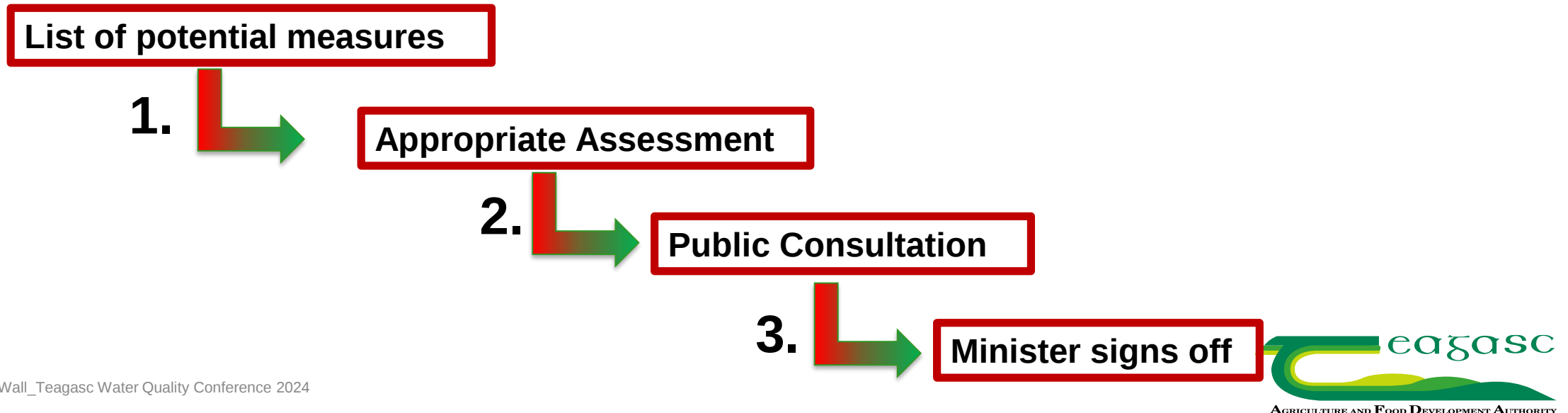
Key factors why derogation was not extended:

- Reducing water quality was a key factor in the failure to secure derogation; since 2017 water quality had reduced further and was linked to the very dry summers over recent years;
- The issue of increased ammonia levels and its impact on nature conservation
- The decision not to grant Derogation was very much political as well as scientific issue; the commission had a big say.
- The reduction in water quality is associated with non-grassland farming (maize) more so than grassland farming

Ireland's response & timeline

e.g. Ag Water Quality Working Group Recommendations

1. Reducing nutrient load/loses
2. Sustainability measures with other environmental benefits
3. Improving Compliance and Enforcement
4. Advisory support and nutrient use efficiency
5. Research / policy development



Study - Soiled Water and Slurry Production (WASP)

Monitoring programme to assess Dairy Soiled Water & Slurry volumes on 100 dairy farms

- 2.5 year Project October 1st 2022 - April 1st 2025
- Nationwide, with a range of herd sizes

Current Rate	Litres/cow/day	m ³ /cow/week	Rainfall
Soil water	30	0.21	+ uncovered area & county-by-county rainfall
Slurry	48	0.33	

Monitoring programme:

- All tank dimensions
- Stock numbers/management
- Parlour details/washing routine
- Uncovered areas/runoff/silage effluent
- Import/Export
- Nutrient analysis - pH, N, P, K, DM%



Key messages

- ✓ Protecting the family farm model is important
 - Ireland's environmental policy must not lead to perverse outcomes!
- ✓ All farming systems have a role to play for protecting WQ
- ✓ Need to reduce and stabilise nutrient (& sediment) losses to water
- ✓ Water quality trends will be critical during negotiations with EC in future!
- ✓ Significant step up in action-both within regulation & voluntary/industry initiatives
- ✓ Significant & immediate engagement by all stakeholders is required!