Opening Statement, Shane Herlihy, ERS 19.07.23

Opening Statement by Shane Herlihy, Independent Advisor to IFA on Water Quality, to the Joint Oireachtas Committee on Agriculture, Food and the Marine

Water Quality Monitoring Report on Nitrogen and Phosphorous Concentrations in Irish Waters 2022
Wednesday, 19th of July 2023

My name is Shane Herlihy, and I am a hydrogeologist and environmental consultant with 27 years consulting experience serving private and public sector clients in Ireland, the EU, UK and Australia. In that time I have gained considerable experience on how water quality can be affected by a wide range of activities and how these present a risk to the environment. I was engaged by the IFA to independently review EPA water quality reports, Teagasc research and the Nitrates Action Programme.

In Ireland, the role of agriculture has been constantly portrayed as the most significant cause of nitrate in our waters. Agricultural land use occupies the largest proportion of our land area, so its potential impacts upon water quality are therefore worthy of consideration in how we achieve the very ambitious goals established within the Water Framework Directive[1]. Teagasc are worthy of due recognition and praise for the excellent research work that has been completed over the last 15 years on the Agricultural Catchments Programme[2], which has provided insight into the complex factors (soil, geological, meteorological and farm management) that cause nitrate mobilisation to our waters. It is clear to me that this research has been put to good use in developing the Nitrates Action Plan[3] and Good Agricultural Practice Regulations[4].

A key natural factor that has been missing from the debate about water quality and agricultural land use is time lag. This is very concerning due to the tight timeframes being sought at policy level to achieve Good Water Quality Status. All our waters are linked together in the hydrological cycle, and groundwater moves slowly taking years \ decades to reach surface water bodies depending on the hydrogeological conditions and distances to be covered. This is particularly the case in the southeast of the country, which is highlighted by the EPA as a region of the most concern.

Due to the natural slow rate of groundwater flow and nitrate transport, the water quality being measured and reported by the EPA, particularly groundwater and surface water quality in summer and dry periods, represents the impacts of historic land use practice, rather than recent changes that have been implemented in response to increased environmental regulation. Surface water quality monitoring in the wetter winter months is more likely to represent impacts from current \ recent farm management practice, which makes the specific measures to control land spreading of slurry and provision

[1] 2000/60/EC
[2] Agricultural Catchments - Teagasc | Agriculture and Food Development Authority
[3] gov.ie - Fifth Nitrates Action Programme 2022-2025 (www.gov.ie)
[4] S.I. No. 113/2022

of adequate storage facilities particularly important. Other measures that will reduce the amount of nitrate being released to groundwater will take significant time (decades), to manifest in lower groundwater and summer\dry surface water concentrations.

The EPA's Water quality monitoring report on nitrogen and phosphorus concentrations in Irish waters 2022[5] presents a highly conservative picture of the quality of Ireland's waters and the measures required to improve them. Of note:

1. The EPA concludes that average nitrate concentrations have increased since 2012/2013 in all water types, however this is not supported by the data. EPA figures illustrate stable conditions. The EPA have not provided any statistical evidence to demonstrate that trends are increasing.

2. The EPA uses a highly conservative value of 25mg/l nitrate in groundwater to describe it as a cause for concern to drinking water quality when the drinking water limit is established in the drinking water regulations[6] at a value double that (50mg/l).

3. Only 6% of the groundwater monitoring sites monitored by the EPA exceeded the Threshold Value of 37.5mg/l nitrate in groundwater established to protect groundwater resources in the Groundwater Regulations[7].

4. The EPA only report on Dissolved Inorganic Nitrogen (DIN) values for estuarine and coastal water bodies in the winter months using the rationale that "DIN is expected to be at its highest in winter because of the absence of any significant plant or algal growth at that time of year; therefore less nitrogen is used up and remains in the water." This differs to the Agency's approach to report all inland freshwater (rivers & lakes) as an annual mean. It stands to reason that a consistent approach should be applied so that the necessary policy measures can be developed and implemented.

5. The EPA exclude all reference to other sources of nutrients in our waters other than agriculture. The EPA's focus upon reporting only winter monitoring results from estuaries and coasts is particularly concerning as this data will also include potentially significant overflows from urban Waste Water Treatment Plants unable to cope with winter rainfall.

6. The EPA concludes that targeted measures are required in nitrate critical source areas, which have been mapped in great detail. This stands in marked contrast to the "Interim Water Quality Review" map prepared in response to European Commission in Article 12 of Commission implementing decision (EU) 2022/696.

[5] https://www.epa.ie/publications/monitoring--assessment/freshwater-- marine/EPA_NItrogenandPhosporous_Concentrations_2022_Final.pdf
[6] S.I. No. 99/2023 - European Union (Drinking Water) Regulations 2023
[7] S.I. No. 366/2016 - European Union Environmental Objectives (Groundwater) (Amendment) Regulations 2016

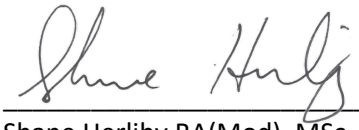
7. The EPA's Interim water quality review (contained in Annex 1 of the EPA report) appears to have implemented the Commission's Article 12 requirements more onerously than was required in developing a map of areas where additional measures are required. For example:

    - Article 12 states at 1.(a) *The competent authorities shall submit … 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*;

    - Whereas, the EPA have implemented test "Criterion":
        - *Criterion A1: Test A1 Description: Water bodies that have a station with an average nitrate concentration > 50 mg/l NO3 over the 3-year period from 1 January 2020 to 31 December 2022.*
        - *Criterion A2: Test A2 Description: Water bodies that have a station with a higher average nitrate concentration in 2022 compared to the average nitrate concentration in 2021. A higher average concentration means there is a difference of >1 mg/l NO3 between the average nitrate concentrations for the two individual years.*

In conclusion, it is very clear from Teagasc's research that nitrate losses to water are caused by a multitude of factors and is not simply linked to herd size. Strong controls have been enacted with existing regulations, which will take time to take effect. A balanced analysis of water quality data is required to formulate national policy.

Yours sincerely,



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