Macra na Feirme

Submission from Macra na Feirme in relation to Issues surrounding Water Quality and Supply

Introduction

Chairman and Committee Members,

On behalf of Macra na Feirme I would like to thank you for the opportunity to provide a written submission on the topic of water quality and supply. We also look forward to future engagements with the committee on the topic and welcome any opportunity to provide written submissions and physical evidence at a committee meeting. The overarching ambition is set out in the aim of the EU Water Framework Directive which is to achieve good status in both surface and groundwater bodies and the prevention of deterioration in water bodies that are already in good or better status. Surface waters include rivers, lakes, transitional waters and coastal waters.

The importance of protecting and enhancing water quality in all locations is critical for many reasons,

1. Support our National Economy in relation to tourism and transport
2. Support biodiversity and protection of water-based organisms
3. Safe and constant supply of drinking water
4. Drainage feature of the landscape
5. Supply for many agricultural activities
6. Protection for endangered species
7. Recreational amenity

Given the important role water plays in our everyday lives it is crucial that the protection of the structure, form and factors affecting water quality are understood and that targeted supports and interventions are in place to alleviate the pressures on our water bodies. To this end Macra na Feirme recognise that significant improvement is needed in some areas while a greater scientific understanding of the factors affecting water quality in certain areas is required. When considering water quality in the round it is important to recognise the areas that performing well and learning lessons from the good practices that are adopted in these areas. It is also important to consider the financial investment by The State in many instances to resolve some issues in relation to water.

The diverse and disparate nature of the Irish landscape means that a one size fits all approach will not resolve issues at a local level. Ireland has more than 73,000 km of river channels. If placed end-to-end, they could encircle the Earth almost twice. Three-quarters of these channels are very small streams that typically flow into larger rivers. With regards to Lakes Ireland has more than 12,000 lakes. The EPA currently reports on the ecological health of over 200 lakes. This information helps us understand and manage this freshwater resource. Lake water quality in Ireland is better than the European average. The water quality at almost half of our monitored lakes is categorised as being at 'moderate' or worse status.

There is also consideration to be given to groundwater, groundwater in Ireland is assigned, assessed and managed within 514 groundwater bodies, which range in size from under 1 km^2 to 1,887 km^2. The EPA's national monitoring network is made up of approximately 330 groundwater monitoring stations.

Groundwater quality is measured at 270 of these monitoring sites to determine the water quality status of the groundwater bodies. At around 150 sites, groundwater levels are monitored.

In the context of Irelands water network, it is important to also consider the Coast and Estuaries. Ireland has 7,500 km of coast and one of the largest sea areas in the EU. Ireland has a seabed territory of about 880,000 km^2. This is more than 10 times the size of the island of Ireland itself. Also, our tidal waters cover more than 14,000 km.

Macra na Feirme understands that the various water bodies, sources and waterways will require different actions to maintain water quality and in some cases to improve water quality. There is also an understanding that ensuring supply for drinking, industry and agriculture will form an essential part of considerations when we speak about water supply.

Macra na Feirme will below outline the basis of its understanding in relation to the four areas relating to water quality below. In this there is an effort to demonstrate an understanding of the current state of various water bodies while also highlighting ways that are being done to alleviate pressures. There is also significant work and thought given to the actions that can be taken in the short and long term to remove some of the pressures on water quality.

Rivers

The national rivers monitoring programme is run by the EPA and focuses on the main river channels, rather than smaller streams. The programme includes more than 2,800 sites sampled for biology. Almost half of these are also sampled for physical (e.g., oxygen content) and chemical (e.g., nitrogen and phosphorus) parameters. The biological monitoring assesses:

- Invertebrates (animals without a backbone, such as mayflies or worms)
- Aquatic plants
- Diatoms (a type of algae)
- Fish (monitored by Inland Fisheries Ireland)

The physical and chemical parameters measured in the field and laboratory include:

- Dissolved oxygen
- Nutrients, such as nitrogen and phosphorus
- Hazardous substances
- Temperature
- pH (acidity)

The biology is monitored once every three years, while the physical and chemical parameters are measured several times a year. The water quality at over half (53%) of the monitored river water bodies in Ireland is categorised as being at 'good' and 'high' ecological status – while the remainder are at less than good (47%). Of this 28% is in moderate status with the remaining 19% in poor or bad quality.

The number of water bodies at 'bad' ecological status has more than halved since 2007-2009. This is because serious pollution from industrial and urban wastewater has been addressed along with improvements in agricultural awareness and management. While river water quality in Ireland compares favourably to that in Europe, there are significant actions that need to be taken to improve

our understanding of the factors affecting water quality but also measures that can be taken to improve water quality.

The Role of Agriculture

Agriculture is just one of a number of human activities that can put pressure on water quality. Other activities impacting water quality include hydromorphology (physical changes to waters), urban and domestic waste water, forestry, peat extraction, industry and roads. Climate change is also impacting water quality.

Agriculture is the largest pressure on water quality in Ireland as it is the largest land use in the country. Modern farming practices and food production utilise the soil to grow grass for dairy, beef and sheep farming and crops, vegetables and fruit for the tillage and horticulture sectors. This utilisation of the soil and addition of fertilisers and can lead to losses of nutrients and sediment to waters.

Nutrients such as N and P can play a significant role in the water quality of a river. The rates and timing of N and P fertiliser applications are set out in the Good Agricultural Practices Regulations 2017. The regulations outline the maximum limits of N and P that can be applied. These are based on stocking rate and soil fertility levels on farms. The times of year that these can be applied is based on what county the farm is located.

Diffuse P Loss

Phosphorus (P) loss typically occurs on soils that have low permeability. These are 'heavy,' poorly draining soils with high clay content and get quickly saturated with rainfall. When there is heavy rainfall on these saturated soils this leads to the water staying on the surface of the soil. This in turns leads to overland flow of water, particularly on fields with slopes.

Diffuse N Loss

Nitrogen (N) loss typically occurs on soils that have high permeability. These are 'light' free draining soils with a high sand content and water can quickly permeate through these soils. This is an issue in soils that are farmed under grassland but also farmed for tillage.

Drinking Water for Animals

In some areas livestock are entering water courses to drink or for crossing between land parcels. In a huge number of farms this practice has stopped, and watercourse are fenced off. On that farms that have no alternative water source for drinking for livestock investment will be required to upgrade facilities on these farms.

What can be done

Macra na Feirme firmly believe that with targeted investment and support significant improvements can be made in terms of water quality across the country, but a recognition is needed that measures taken today may take a number of months or indeed years before the results are seen in water quality.

Actions

1. National role out of the ASSAP and Lawpro programmes
2. National Farmyard survey and analysis to determine potential point sources
3. Ensuring that adequate storage facilities are on farm for manure and slurry
4. National Campaign for good farmyard management ahead of the winter months
5. Minimisation of soiled water created at farm level
6. Improved nutrient use efficiency at farm level (see signpost programme results)
7. Flow breaks on slopes leading to open waterways
8. Soil structure affect on nutrient flows and losses
9. Improved grant aid for solar power water pumps for livestock drinkers
10. Increase in grants for storage of slurry during closed period given the extensions predicted
11. Greater research into Nutrient use efficiency at farm level with a particular focus on chemical versus organic
12. Greater enforcement of regulations regarding closed periods by DAFM

Groundwater

Groundwater originates as rainfall, or snow melt, which soaks through the soil to the underlying subsoil and bedrock. It flows through interconnected spaces or fractures in the subsoil or bedrock towards the streams, rivers, lakes or estuaries. During periods when there is little or no rain, almost all the water flowing in streams and rivers originates from groundwater. Groundwater bodies are categorised as being either at 'good' or 'poor' status. The decision is based on five chemical tests and four quantitative tests. If one test fails, the overall groundwater status will be classed as 'poor.' The proportion of samples with low volumes of nitrates (less than 5 mg/l NO_3 milligrams per litre of nitrates) in groundwater increased from an average annual 16% in 1995-1997 to 29% in 2016, before falling to 20% in 2019. There are many factors that also impact on this including land type, flow rate and the weather has the biggest determinant on the pressures on various groundwater bodies.

The actions that must be taken

1. Improve Nutrient use efficiency
2. Improve waste water treatment facilities across the country
3. Improve individual septic tanks treatment
4. Groundwater recharge
5. Reducing overland flows of nutrients
6. Research into the mitigation of nutrients accessing groundwater

Coast/Estuaries (Bathing sites)

Currently, 80 transitional waters (estuaries) and 46 coastal waters are included in the national monitoring programme. Both the plants and animals (biological communities) as well as chemical measurements are monitored in each water body.
The biological communities that are monitored include:

- Tiny free-floating plants
- Animals without a backbone living in the bottom muds (benthic invertebrates)
- Fish
- Opportunistic seaweeds (seaweeds that grow very quickly when environmental conditions suit, causing large accumulations of plant matter such as sea lettuce)
- Rocky shore seaweeds
- Seagrass (the only true marine plant found in Irish waters)
- Saltmarsh (a community of salt tolerant plants that form a band along the upper tidal limit of water bodies)

The monitoring programme also measures:

- Dissolved oxygen
- Nutrients, including nitrogen and phosphorus
- Specific chemical pollutants

Over three-quarters of monitored coastal water bodies and just under one-third of monitored transitional waters are at 'high' or 'good' ecological status. This means that a quarter of coastal waters and two-thirds of transitional waters need action to achieve the objectives of the Water Framework Directive (WFD).

The Actions that must be taken

1. Implementation of riverside forest/tree breaks to act as interception points
2. Fixing/Removal of the 2,000 -7,000 identified riverside/waterway structures/barriers
3. Huge increase in investment in waste water treatment and also in on farm infrastructure to aid improvements in water quality
4. Cross policy support and objectives that facilitate farmers to adopt and change practices
5. Address issues from point source pollution from waste water treatment facilities and their capacity at times of flooding
6. An issue at bathing areas has also been dog fouling, this is a cross cutting measure to provide dog wardens for monitoring this activity but also when considering sheep worrying

Ongoing work

Within the agriculture sector significant work is ongoing to address the challenges around water quality. As young farmers we in Macra na Feirme are acutely aware of the importance to protect water quality not just to meet the demands of the WFD but also to protect our social license. The consumers of today and the future consumers of tomorrow will demand action from farmers to improve water quality. In this context it is important to outline the ongoing work in the area,

- ASSAP and LAWPRO Programmes at catchment level
- Huge body of research ongoing in Teagasc
- Signpost programme and its extension through the advisory service
- Research into the effect soil structure and profile has on nutrient loss
- On farm investment in Slurry Storage, soil water storage and LESS equipment
- Creation of flow breaks on farm
- Set aside areas along watercourse
- Sloping of roadways away from watercourse
- Fencing of waterways on farm
- Investment in solar powered pumps to prevent entry to water ways for livestock
- N use efficiency programmes
- Role of protected UREA and Protected
- Creation of Buffer Zones along waterways

Investment needed

In the past number of years, we have seen huge investment by the state in waste water treatment facilities. However there still remains issues with a large number of these facilities as the majority are only primarily treating waste water. Some plants are not treating waste water at all and there are also a significant number or point sources across the country. The level of investment committed to improving these facilities must also be committed to the same degree to agriculture to help the sector in meeting the targets under the WFD. The maintenance of Irelands Derogation is critical to many farmers and every effort is needed to ensure that this is maintained and protected given our pasture-based food system of production. There are many catchments in which many farmers are in derogation and there are no issues with water quality. This is evident across many regions and soil types it is therefore necessary to understand why in these areas there are no issues with water quality. There is also evidence in the ASSAP programme that catchments with low livestock densities have higher nutrient loads in waterways than some catchments with higher livestock densities.

Macra na Feirme reiterates its commitment to improving water quality and the members within the organisation are committed to ensuring that it is maintained and improved. Many of our members are taking specific actions to address the topic. We would welcome the opportunity to engage further with the committee and hope that the submissions adds to the committees considerations.