



Rialtas na hÉireann
Government of Ireland

Significant Water Management Issues in Ireland

Public Consultation Submissions
Part 5

Prepared by the Department of Housing, Local Government and Heritage
gov.ie/housing

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From: Nigel de Haas [REDACTED]
Sent: Tuesday 4 August 2020 13:30
To: rbmp
Subject: Private Nigel de Haas
Attachments: Submission on draft SWMI Report.pdf

SWMI Consultation
Water Advisory Unit
Department of Housing Planning and Local Government
Custom House
Dublin 1
D01 W6X0

A Chara,

Attached please find my submission on the draft SWMI report and the vital issues that need to be addressed in the period 2022 – 2027.

Mise le meas,

Nigel de Haas

Public Consultation

Draft Significant Water Management Issues (SWMI) Report

Submission by Nigel de Haas

4th August 2020

A Chara,

I am pleased to make the following observations on the draft SWMI report:

1. An evaluation of the efficacy at catchment and waterbody scale of national initiatives presented as solutions in the 2nd River Basin Management Plan must be presented to the public in order to provide the information and evidence base for decision making around their continuation and an assessment of the need for additional supplementary measures.

The approach to implementing the Water Framework Directive whereby certain areas, Priority Areas for Action are selected for targeted measures and others are left to basic regulations is completely unsatisfactory. I am concerned that the draft now proposes “to continue with this approach for the third cycle River Basin Management Plan.”

This will result in the majority of waterbodies which are currently failing Water Framework Directive’ standards (or ‘at risk’ of doing so) NOT being targeted with specific measures during the 3rd River Basin Management Plan and so continuing to fail. There is a clear political commitment in the Programme for Government to ‘ensure that the State complies with the EU Water Framework Directive’. The approach being proposed in the draft report clearly runs counter to this.

2. The prioritisation approach does not follow the procedure set out in the directive for exemptions from the achievement of Water Framework Directive objectives and thus is not compliant with the directive. The most recent report from the Environmental Protection Agency states that more than half our rivers, lakes and estuaries (47%; 49.5%; and 62% respectively) are not in a healthy state i.e. they are failing Water Framework Directive mandatory standards of ‘good ecological status’ and river water quality has declined by 5.5%.

All of these are subject to basic national legislation, demonstrating the fact that basic measures are not adequate. In order to secure the necessary resources to implement action for all our waters, the River Basin Management Plan should clearly state what objectively needs to be done. In order to apply exemptions in relation to disproportionate cost the mandatory economic analysis required by the Water Framework Directive must be conducted.

3. The Water Framework Directive requires inter alia:

- “Estimation and identification of significant water abstraction for urban, industrial, agricultural and other uses, including seasonal variations and total annual demand ...”;
- The establishment of “controls over the abstraction of fresh surface water and groundwater, and impoundment of fresh surface water, including a register or registers of water abstractions and a requirement of prior authorisation for abstraction...” (Art. 11.3(e))

While Member States ‘can exempt from these controls, abstractions or impoundments which have no significant impact on water status’ it is impossible to assess the significance or otherwise of an abstraction, especially in the context of cumulative impacts in the catchments of groundwater-dependent terrestrial ecosystems unless one knows of their location and volume.

Detailed understanding of abstraction pressures in Ireland or their interaction with spatially heterogeneous impacts of climate change has yet to be developed, especially cumulative impacts of unmonitored abstractions on potentially vulnerable and / or high status waters . In order to secure this, a full picture of abstractions in state, is necessary, hence to requirement for a comprehensive National Abstraction Register.

It not appropriate to remove abstraction as a specific significant water management issues because:

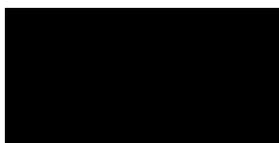
- Impacts of abstraction tend to be localised and can take time to materialise and may not be detected by high level EPA monitoring and characterisation ;
- Abstraction has been identified as a Significant Water Management Issues in the previous two cycles of the River Basin Management and I am not aware of any new material that has emerged to support removing it;
- According to the draft report, abstraction has been identified as one of the ‘top five pressures reported for water dependent habitats’ under the Habitats Directive;
- With 84% of water-dependent habitats in unfavourable conservation status and many of these related to catchments of high status waterbodies whose protection and restoration is a stated priority, any pressure on these must be treated with the utmost seriousness and identified as a significant issue.

Thanking you for your attention.

Mise le meas,



Nigel de Haas



From: Vincent Dwyer [REDACTED]
Sent: Friday 7 August 2020 10:02
To: rbmp
Cc: [REDACTED]
Subject: Leitrim County Council
Attachments: 2020 Significant Water Management Issues in Ireland (SWMI) - LCC Environment Department .docx

Hi,
I enclose submission for consideration

Regards

Vincent Dwyer
Head of Finance, Water, Environment, Climate Action and Emergency Services
Leitrim County Council, Aras An Chontae, Carrick on Shannon

[REDACTED]
(Designated Public Official under the Regulation of Lobbying Act 2015)



6th August 2020

Significant Water Management Issues in Ireland Consultation

Water Advisory Unit

Department of Housing, Planning,
and Local Government

Custom House

Dublin 1.

DO1 W6XO

Dear Sir/Madam

Leitrim County Council welcomes the Public Consultation opportunity on the "*Significant Water Management Issues in Ireland*" Document produced by the Department of Housing, Planning Community and Local Government.

County Leitrim "Lovely Leitrim" is largely dependent on tourism and the natural beauty of the County to promote tourism and to generate much needed economic spend in the County and wider border regions. Sustainability for Leitrim is extremely important in protecting our natural water resources and the environment.

Leitrim County Council working on behalf of Co. Leitrim has a number of observations to make in relation to the 'Significant Water Management Issues in Ireland' which should be addressed in the planning process for the next 2022-2027 River Basin Management Plan; these are as follows:

1. There are a number of Waste Water Pump Stations (WWPS) in the County servicing estates which have not been taken in charge. In light of potential risk to water quality, Irish Water should be given responsibility for such WWPS, to ensure they have power connected and are fit for purpose and discharging to the public sewer network which forms part of the Irish Water infrastructure. This will immediately improve water quality, prevent major pollution incidents and allow all associated health and safety risks at these stations to be managed by Irish Water. Irish Water should be in control of their "Drainage Area Plans" and all foul infrastructure within these areas, including the gravity

foul sewer and the foul rising mains with associated foul water pump stations. Irish Water should have a duty of care with regard to all foul network connections from private estates to their public foul sewers. Irish Water is the responsible body that grants and approves the connections to their foul sewers and they should have responsibility and appropriate funding to deal with such “legacy” issues.

2. Irish Water is responsible for all other Waste Water Treatment Plants WWTPs in Co. Leitrim. It must be noted that more than 50% of these are sized at <500p.e and only require an EPA Certificate of Authorisation for their final discharge. The monitoring data for these smaller WWTPs is not recorded in the monthly databook that Local Authorities return to Irish Water. Such WWTPs are only monitored 2 x per year and the limits are BOD 25mg/l, SS 35mg/l and COD 125mg/. The nutrients Ammonia and Phosphorous in the final effluents discharged from these WWTPs to surface waters is not monitored. The Certificates of Authorisation have not been reviewed since they were granted or there is no Certificate available for the WWTP. This situation is most likely not unique to Co. Leitrim. The Surface Waters Regulations requires that the assimilative capacity of the receiving waters is calculated for every discharge and all of these existing Certificates should be reviewed by Irish Water as the licensee during the 3rd cycle of the RBMPs in conjunction with the EPA.

There are a number of the <500 p.e. WWTPs in Co. Leitrim which are part of a “Design, Build and Operate” (DBO) bundle of schemes. The DBO Contract was tendered before the Surface Water Regulations were commenced and therefore the Contract Limits for the DBO Operator have been agreed without consideration of the assimilative capacity of the receiving waters. These schemes have a 30 (thirty) year operate period and contractually it will be complicated to carry out refurbishment works, but this is a matter which Irish Water should be required to undertake during the 3rd RBMP cycle.

The significance of the impact of the nutrients in the point source discharges from these <500 p.e. WWTPs should be quantified, the nutrients should be monitored and any adverse impact on water quality can be addressed. Irish Water may not be fully aware in all circumstances of the potential problems these <500 p.e. WWTPs are causing.

Currently the monthly databook that Local Authorities have to return to Irish Water only requires reporting for WWTPs > 2000p.e. and there is no requirement to prepare an Annual Environmental Report for the EPA for WWTPs <500 p.e. with a Certificate of Authorisation. Irish Water should have access to funding to carry out the necessary

capital replacement and upgrade works required once the impact of the nutrients in the discharge is quantified.

Of additional significance is the aged sewer networks connected to these Certificate WWTPs, which all have combined storm overflows (CSOs) and storm water overflows (SWOs) all of which are unquantified potential pathways for the discharge of nutrients to waters.

3. Typically smaller <500p.e. WWTPs do not have any inlet controls or storm water holding tanks and quickly become inundated with the increased volume of water/wastewater arriving during periods of heavy rainfall. Incidents arising in this regard should be reportable to the EPA. In between these periods of heavy rainfall the WWTP has to re-establish the efficiency of the treatment process, it takes time for the bacteria to re-establish themselves before there is optimum treatment. Irish Water should be provided with the necessary funding to improve and upgrade these smaller <500 p.e. WWTPs to provide greater process control and storm water control. It would be beneficial for water quality improvement if Irish Water could be directed during the 3rd RBMP Cycle to continue to develop drainage area plans for the small towns and villages where leaking sewers, misconnections and poorly constructed combined sewers exist; especially if these are located within Priority Areas for Action. The storm water from sewered areas should have independent storm water drainage systems where possible.
4. Climate change and the associated increased rainfall amounts and changing seasonal weather patterns are also producing another problem of 'flooding' in the sewer networks. This is affecting pump stations which are located adjacent to rivers; the water levels in these adjacent rivers will rise especially during the winter months, when this level rises above the emergency overflow levels of the pump stations. The pump stations start to become inundated because the river water flows in the overflow. The river water flows into the pump station via the emergency overflow causing the water/sewerage level in the pump stations to rise. The pumps have to pump continuously in this situation, to try and keep the level down in the WWPS. This leads to the retention of sewerage in the sewer network, it leads to settlement and odour issues, this back pressure on the network causes manholes to lift, problems with internal plumbing in houses at low levels and creates a serious public health issue. It also means

there is a 'diluted' continuous influent being pumped forward for treatment which causes an imbalance at the WWTP and can lead to bacterial die-off in the treatment process; and a partially treated final effluent discharge to waters. Irish Water must get the necessary capital investment funding to address the deficit in networks as well as waste water treatment plants.

5. Land-Use planning is a significant water management issue, planning and environment sections should be working together with 'joined up' national policies which incorporates the objectives of the River Basin Management Plans (RBMP). This will help to strengthen the 'Protect' objective of the RBMPs and align with County Development Plans. Water Quality should not be seen as being in conflict or versus development as this leads to poor decisions being made which won't be based on the integrated 'planning policy & WFD' priorities in the decision-making process.

There is a lack of cost-effective solutions for Domestic Waste Water Treatment Systems (DWWTS) on low permeability soils and for existing sites with site restriction issues; protecting water quality should not be incompatible with rural development. Practical guidance which can be used to carry out a WFD check, to assess the impact, the assimilative capacity, which provides guidance on the cumulative impacts on water quality is required. There is a concern with regard to the quality of the technical reports being submitted for DWWTS. A Regulatory Body such as the EPA should have a Register of Site Assessors with associated regulation. The Site Assessor could be included on the Register through the payment of an annual membership fee and the continuance of ongoing training (equivalent to Continuing Professional Development). The EPA's National Inspection Plan (NIP) inspection which the Environment Department carry out in Co. Leitrim has a high failure rate for these NIP inspections with issues relating to poor installation, incomplete installation and a lack of maintenance being the most common.

6. The Department has recently announced changes to the existing grant scheme for Domestic Waste Water Treatment Systems (DWWTS) under the EPA's National Inspection Plan; with the removal of the income threshold and the increase in the grant from €4000 to €5000 (85%). In addition 2 (two) further new grant schemes are being introduced, namely:
 - a. New grant scheme for domestic waste water treatment systems under the EPA's National Inspection Plan in a Prioritised Area for Action

- b. New grant scheme for domestic waste water treatment systems under the EPA's National Inspection Plan in a High Status Objective Catchment Area.

These are welcome schemes and mutually beneficial to the householder and to water quality. However, it may be a missed opportunity as the qualifying criteria for each grant scheme requires that the DWWTS was registered before the 1st February 2013 or after if the system was installed since then. This criteria should be removed as it will leave a number of affected people with deficient DWWTS ineligible to apply for the grant scheme. It would be better if the criteria required the DWWTS to be registered as a condition of receiving the grant and prior to payment of the grant.

The Department should allow people outside of these areas to apply for a grant to improve/upgrade their DWWTS, instead of the current situation (outside of the Priority Areas for Action and the High Status Objective Catchments) whereby the grant scheme can only be availed of if you fail an Inspection under the National Inspection Plan (NIP) Programme 2018 – 2021 and your DWWTS was registered prior to 1st February 2013. This would open up the applications to a much wider range of homeowners and would provide an important financial incentive to carry out a higher standard of remediation. This would be a significant far reaching Measure that would ensure Ireland meets EU targets for implementation, it would be a very important Public Health initiative, for sites with poorly performing DWWTS. Improving public health for all, particularly for people using domestic wells located on such sites would have an associated direct improvement on their water quality. In Co. Leitrim the EPA's National Inspection Plan (NIP) has identified that typically the DWWTS that fail the NIP inspection require very expensive remediation works. Due to the high level of investment required by the homeowner for the remediation; progress is typically slow and difficult, particularly if their DWWTS wasn't registered by 1st February 2013 and they are ineligible for the grant scheme. A lack of regulation, licensing of the area of site suitability is also a significant problem. The Competent Site Assessor and Assigned Certifier should have adequate professional indemnity insurance and should be fully responsible for the design of the DWWTS. They should certify its design and supervise the installation/construction and commissioning with a sign off for each stage. Upon final completion a Certificate should be required to certify the final Design/Installation/Construction and Commissioning of the DWWTS; with an Operational bond/guarantee for the DWWTS for a minimum 5 – 10 year operational period. The Site Assessor is a fundamental part of these improvement works and the associated impact on water quality.

7. Forestry has been identified as the fourth most prevalent significant pressure impacting water quality (Catchments Newsletter Issue No.9 Winter 2018). This is a substantial issue in Co. Leitrim where there is a huge amount of existing forestry plantations and an ever increasing amount of lands being purchased by forestry developers. It would be beneficial for Co. Leitrim if forestry locations could be managed as part of a national land management plan in a more integrated manner, especially as Ireland is relying on Forestry plantations to help meet its EU Carbon reduction targets. Forestry applications should be assessed using a common integrated methodology applied for all Counties, incorporating a pre- afforestation water quality check and proactive biology and chemistry monitoring during all forestry activities. Concerns have been raised regarding the existing system where the appeals system is adjudicated by the same department as the afforestation applications. Many of these forests are located in highland areas on peat on naturally acidic soils and in locations that should never have been planted. Forestry is a significant pressure on water quality due to nutrient and sediment loss to waters, the impacts on biodiversity and acidification of waters. Mitigation solutions have been identified depending on the water quality impact; related to sediment loss, related to herbicide impacts, related to physical alterations of habitats. Herbicides are used to manage vegetation competition on some sites and further research into the mobilisation of such small quantities of herbicides is required. Particularly the herbicides attachment to fine sediment into waters is required; due to the significant impact on water quality (especially drinking water sources) and the significant distances that such particles remain prevalent. The Forest Service needs to play a more proactive role in controlling Contractors etc and buffer zone distances should be increased to protect water quality. In some of the forests that were planted some 20-30 years ago there will be significant challenges when felling because no buffer zone, no riparian margin exists. Forestry guidelines from publications such as the *“Forestry and Water: Achieving the Objectives and Priorities under Ireland’s River Basin Management Plan 2018-2021”* need to be provided to the forestry owners, the Contractors with their felling licences and these guidelines should be strictly policed by the Forest Services staff on the ground during felling/thinning activities. The Forest Service should be carrying out regular inspections to make sure that forestry activities are in compliance with planting & felling licences and no activities should be allowed between 1st March and the end of August each year, in compliance with the Wildlife (Amendment) Act 2000 and the Heritage Act 2018. There should be major penalties imposed if water

quality is under threat/affected by forestry activities. Leitrim County Council working closely with the IFI has issued Section 12 Notices on Forestry Companies in breach of the “*Forestry and Water Quality Guidelines*” and the Water Pollution Acts.

8. The issue of Pesticides in Drinking Water is alarming. The Environment Department continues to play a role in delivering and notifying landowners of their responsibilities and distributes the Department of Agriculture leaflets. The Environment Department developed its own pesticide flyer which condenses all the necessary information into a concise flyer. We are working with community groups, Tidy Towns, Hotels, Ianrod Eireann (Pesticide Spray Train) to promote best practice guidance and awareness on this issue. The EPA selected this flyer for display at its annual National Water Event this year; making this leaflet available nationally for all the attendees at the conference. MCPA in our opinion needs to be banned by the Department thus completely eliminating the risk of these pesticides. Further research is required to understand the mobilisation of pesticides in fine sediments, the chemical attractions/mobilisation in fine sediment particularly in poorly drained acidic soils and runoff to the nearest stream/river/lake.

9. Invasive Alien Species – Currently the National Biodiversity Data Centre records the presence of Invasive Alien Species. The Department of Culture, Heritage and the Gaeltacht and the Heritage Council funds the National Biodiversity Data Centre so it can collate and disseminate surveillance information. Much more work is required and a National dataset needs to be compiled with a Lead Authority such as Inland Fisheries Ireland (IFI) or the National Parks and Wildlife Service with responsibility and access to funding for the engagement of specialist contractors who should be ‘licensed’ by the Lead Authority to treat, eradicate and dispose of the Invasive Alien Species (IAS) appropriately. The general public don’t know who to report the presence of Invasive Alien Species to, a clear message identifying the Lead Authority with responsibility is needed. To support greater public awareness to locate, identify and to stop the spread of the IAS, an “IAS - App” or GIS tool for the public to identify/record the location of the IAS should be developed; IFI, angling clubs, the Catchment Assessment Teams, Rivers Trusts all have a role to play here. Especially the occurrences of *Japanese Knotweed* and *Himalayan Balsam* which pose the greatest threat to aquatic ecosystems when present in the riparian zones. Potentially, Invasive Alien Species may be posing a much greater

problem and having a much greater impact on existing water quality but information is limited.

10. Slurry spreading provides a diffuse source of potentially very polluting material which if applied inappropriately tends to find an overland pathway to surface water receptors. The soil type/capacity/suitability/weather conditions usually mean that the slurry can only be spread on the land at the back end of the growing season with very little agricultural benefit gained. It would be a very beneficial initiative for protecting water quality in the West of Ireland if anaerobic digesters could be used instead; possibly an incentivised public private partnership model could be used. Such anaerobic digesters could be set up in partnership between the interested parties such as the ESB, Bord na Mona (the power generating companies), Irish Water (who has responsibility for massive tonnages of sewage sludge), the Agricultural slurry/sludge generating Companies e.g IPPC licensed pig and poultry suppliers, and other organic sludge producers such as dairy farmers on a regional basis. A vacuum tanker could collect the slurry from the farmer's slatted shed for the digester. The anaerobic digester would create energy as a by-product for use in the electricity grid and thereby increasing the amount of power created from renewable resources assisting with Ireland's EU Carbon reduction targets. The pelletised end product could be credited back to the farmer based on the volume of slurry supplied as a fertiliser product. This seems to be a model which is working in other European countries and which Ireland should try to advance, even on a pilot scheme basis.

Increasing awareness and training for farmers should remain a mandatory part of any DAFM scheme. Particularly in regard to the GAP Regulations, set back distances, the benefits of fencing along waters, setting up proper drinkers for drinking animals, herbicide, pesticide and sheep dip use, farmyard manure storage, planting the riparian zone to break the pathway of slurry. These are all common activities which will benefit water quality when carried out properly and is a message that the DAFM can help to communicate to and with the continuing education of farmers. It is important to highlight the synergy between farming activities, farming practices and water quality.

All future agricultural schemes offered by the DAFM should be "tailored" depending on geographical location/soil type/water quality status/annual rainfall, with a minimum acceptance criteria that soil tests are carried out and nutrient management plans are prepared. Future national schemes cannot proceed on a "one size fits all" approach if we

want to strengthen the 'protect' objective of the RBMPs. Nitrates Derogation determinations by DAFM should take account of source (drinking water) protection, and include a methodology for assessment of the impact on water quality and the RBMP objectives. Nutrient management is critical for the protection of water quality on EPA licensed intensive agriculture sites; the outlets for manure can change post grant of planning and issues arise for the Local Authorities with tracking manure movements. The controls used at such EPA licensed agricultural sites for manure management should take account of water protection.

11. The Stakeholder engagement already commenced during the 2nd RBMP cycle by LAWPRO and the ASSAP advisers and LAWCO is playing a pivotal role in engagement with our communities. Creating an environment of education and awareness and assisting with the setting up of river trusts within all our river catchment areas. The continuation of this work is important during the 3rd RBMP cycle, to continue to increase public engagement, participation and consultation with communities and stakeholders.
12. Inland Fisheries Ireland (IFI) staff are very well placed to protect fish stocks and ensure water quality is not impacted by potential pollution risks and ensuring no works are taking place which could be detrimental to water quality or will impact on fish, while also protecting the angling tourism product.
13. Landslides cause hydromorphological modifications to flow, to the channel depth and width, to the riparian zone adjacent to the river. This leads to an impact on the physical habitat, on fish life, the drainage, increasing the sediment load in the water bodies and is a significant pressure on water quality. Tighter control measures and greater penalties need to be imposed on developers or industries found to have contributed to such events. It takes years for the water quality of rivers and lakes to recover from the effect of these hydromorphological changes.
14. All Waste Facility permitted sites or Certificate of Registration sites especially for C&D waste disposal need to be carefully managed and monitored to avoid any pollution threat on water quality in lakes and rivers. Prominence to the water quality message is very important in this sector. These Facilities should be policed regularly and an Environmental Liability bond should be a mandatory requirement. This bond should be

maintained by the operator and if an operator goes out of business it should cover the cost of the remediation for the site, thus avoiding the risk of major pollution such as oil contamination etc.

15. The ongoing Capital Programme for the regeneration of towns and villages and the investment programme under the Floods Directive and CFRAM programme must be aligned with the River Basin Management plans for the country.

16. Surface water drainage in towns and villages which relies on a piped network with an end of pipe discharge to an adjacent water body can place a significant pressure on water quality. Better planning for attenuation measures which incorporate Sustainable Urban Drainage Schemes (SUDs) should be mandatory for developers. As highlighted at the recent EPA national Water Event 2020 there should be more focus by designers on “Blue-Green Infrastructure” to attenuate and manage surface water in our towns and villages. Such works would offer the opportunity for improved landscaping to enhance biodiversity through appropriate planting improving the overall aesthetics of our towns and villages. Properly designed SUDs schemes provides multiple benefits not just to water quality and for reducing sediment loss to waters but will enhance the appearance of the open and urban areas where they are used. Alongside this appropriately located oil/petrol and grit interception should be included to support such systems. These type of SUDs schemes should be designed around green infrastructure, biodiversity and climate change to provide an improved mechanism to manage the increasing rainfall and heavy downpours; national guidance on SUDs should be provided. To compliment the increased use of SUDs and focus on biodiversity it is also time for an obligatory phasing out of the current level of phosphates and ammonia in household cleaning products; this will require a high-level industry agreement to ensure a level platform for all suppliers of such products. A voluntary agreement will not work to eliminate these chemicals from these products and the removal/reduction of these chemicals will directly lead to an improvement in water quality.

17. The public are seeking to increase their leisure usage of our inland lakes and are expressing an interest in having such lakes designated as “Bathing Water Sites”. During the 3rd RBMP cycle 2022-2027 as we achieve the objective of “Good” status in our water quality more of our inland lakes may be suitable as bathing water locations. There is

huge work involved in determining if a Bathing Water site is suitable for designation as a bathing water location. It requires careful site assessment, and scientific assessment to establish the baseline water quality “Status” data. Maintaining the status of these designated Bathing Waters and seeking adequate funding for any infrastructural developments at such sites is an ongoing challenge. The possibility for designating more bathing water sites is a positive consequence of water quality improvements. This will also promote tourism, health and well-being for all and will create an associated economic opportunity in the regions.

18. Significant change took place during the 2nd RBMP Cycle with the introduction of the Local Authorities Water Programme Catchment Assessment Team (LAWPRO) also known as the Catchment Assessment Team. LAWPRO is a sister organisation to the Local Authorities Waters & Communities Office (LAWCO). LAWPRO and LAWCO are part of the Local Authorities Waters Programme Office which is led by Kilkenny & Tipperary County Councils. There are 5 no. regional Catchment Assessment Teams, with 1no. Senior Catchment Scientist and 6 no. support staff in each region. We work in close collaboration with the Catchment Assessment Teams covering the Border and the West Regions who are working in each of the 10 no. Priority Areas for Action in Co. Leitrim to carry out further characterisation locally to identify the activities causing the problem for each individual water body which is identified as ‘At Risk’ of not meeting their water quality objectives. We are working in close collaboration with the Team to answer queries from the desk top study stage, providing the local knowledge, attending community meetings and we work with them on follow up measures as they arise. In addition, we work on an extensive EPA WFD sampling programme on the Lakes and Rivers in Co. Leitrim. In 2020 this program requires 509 samples to be collected throughout the year. However, Local Authorities face an ongoing challenge to support and appropriately resource the ongoing work programme and collaborations outlined earlier, particularly where follow up actions including potential enforcement will be required from the work of the Catchment Teams. The resourcing of Local Government in this regard must be reviewed, particularly in the context of the current staff grading structures when compared with those of the LAWPRO and LAWCO structures.
19. In the planning for the 3rd River Basin Management Plan Cycle 2022-2027; the targets are ambitious and there is a significant amount of improvement required by 2027. Significant water quality pressures have been identified and the new Resource Model

(LAWPRO) that was introduced during the 2nd RBMP cycle will be continued into the 3rd cycle, with these staff continuing to carry out local investigative assessments to identify where the problem areas are in the catchments. It remains a bit unclear what happens after this process and what is the role of the Resource Model (LAWPRO) staff; will they have enforcement powers under the Lead Authority (Kilkenny & Tipperary County Council). Time will march quickly towards the 2027 deadline for the 3rd RBMP cycle. If enforcement action is to be taken by the existing Local Authority staff instead of LAWPRO then there is a huge resourcing deficit. The Local Authority's staff resources are currently under huge pressure and challenge to deliver their existing work programmes and have no spare capacity for additional enforcement work. It would appear very ambitious to have all the status improvements in all the water bodies completed by 2027. There is considerable work already to "fix" the water quality significant pressures that have been identified. However, it must be remembered that there are other water bodies where the Local Catchment Assessment work is yet to start. To restore the water quality of the water bodies where the significant pressures have been identified is dependent on funding and time. The availability of funding from various schemes such as Capital schemes, grant schemes, rural environmental protection schemes is essential. Also, such improvement works are time dependant, and the recovery time that it will take for the water quality status to be restored to 'Good' is too variable to predict. As a result, there will be many improvements achieved in water quality but this may not meet the final 2027 deadline for the 3rd Cycle of the River Basin Management Plans.

Finally we would like to express our sincere thanks to our colleagues in the different Government Departments, the Environment Protection Agency, the Catchment Assessment Unit, and also the LAWCO and LAWPRO staff working with us on this project.

Yours Sincerely

A handwritten signature in black ink, appearing to be 'Vincent Dwyer', written over a horizontal line.

Vincent Dwyer,

Head of Finance,

Finance, Water, Environment, Climate Action and Emergency Services

From: Eamonn Farrell [REDACTED]
Sent: Thursday 6 August 2020 19:39
To: rbmp
Subject: ICOS - Irish Co-operative Organisation Society.
Attachments: 07.08.20 SWMII Consultation_ICOS_Final.pdf

Dear Sir/Madam:

Please find attached a response to the Significant Water Management Issues in Ireland Public Consultation by the Irish Co-operative Organisation Society.

Kind Regards,

Eamonn Farrell
Agri Food Policy Executive
Irish Co-operative Organisation Society Ltd

&

Secretary,
Milk Quality Ireland Co-operative Society Ltd

[REDACTED]

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SWMI Consultation,
Water Advisory Unit,
Department of Housing, Planning and Local Government,
Custom House,
Dublin 1,
D01 W6X0
rbmp@housing.gov.ie

7th of August 2020

Re: Significant Water Management Issues in Ireland

To whom it may concern,

The Irish Co-operative Organisation Society (ICOS) is pleased to contribute to this important public consultation on water quality management in Ireland.

ICOS is the umbrella body for over 130 co-operatives in Ireland – including the Irish dairy processing & milk purchasing co-operatives and livestock marts – whose associated businesses have a combined turnover in the region of €14 billion, with some 150,000 individual members, employing 12,000 people in Ireland, and a further 24,000 people overseas.

The ICOS submission will focus on the three questions related to the agriculture chapter in the public consultation document “Significant Water Management Issues in Ireland”.

How can the agricultural sector contribute towards improving water quality?

The Irish agri-food sector is responsible for annual exports worth over €14.5 billion, with dairy sector exports valued at €4.4 billion and livestock exports valued at €3.9 billion. The agri-food sector is Ireland’s largest indigenous industry responsible for the creation of sustainable jobs and employment across the rural economy. As integral members of Ireland’s export led economy, ICOS members are acutely aware of the importance of sustainability and the challenges that face the sector. Our members are founders of Origin Green, Bord Bia’s pioneering food and drink sustainability programme. Our members are food processors, operating in extremely competitive global markets with international customers increasingly focused on sustainability, in addition to ensuring the highest quality and safety standards. Ireland has successfully built a reputation for a producer of sustainably produced dairy and meat production. The agri-food sector has a vested interest to ensure Ireland’s water quality is improved to the highest possible standard. We believe that it is in everyone’s interest to work together to improve Ireland’s water quality and the dairy sector in particular is committed to working closely with farmers and with Government in a collaborative manner to protect water quality and our reputation as sustainable and safe producers of high-quality food.

ICOS members are key stakeholders and funders of the Agricultural Sustainability Support and Advisory Programme (ASSAP). ICOS as a representative body participates at the Farmer Consultative Group of ASSAP chaired by Teagasc. The ASSAP programme is an important new approach that enables farmers to engage positively in seeking solutions to local water quality issues with the support of a confidential advisory service. The main dairy processing co-ops have employed an ASSAP advisor

to compliment the scientific work carried out by the LAWPRO team. The co-op ASSAP advisor provides a free, confidential and voluntary advisory service to farmers in the Priority Areas of Action. The co-op ASSAP advisors provide farm specific assessments and plans to prevent the loss of nutrients and sediment from entering waters. The co-op ASSAP advisors also play a key role in disseminating key water quality messages to their wider member suppliers through farmer meetings, newsletters, text messages, social media platforms, videos and webinars.

The dairy processing co-ops also run joint programmes with Teagasc, with some in operation for more than 20 years. The joint programmes are farm development programmes, which seeks to address technical improvement, with environmental stewardship now central pillars of each programme. The co-ops also run a series of pilot farms under the dairy sustainability initiative to demonstrate best practice to their suppliers in the area of soil health, soil pH, nutrient management, farmyard management, slurry management and application.

These are practical examples of measures the agriculture sector and the co-op sector in particular are contributing to better water quality. The co-op sector as businesses owned and controlled by farmer members have demonstrated a strong commitment to their supplier base by supporting a range of technical programmes including ASSAP. This commitment will continue into the future across all aspects of environmental sustainability including water quality. We emphasise the importance of addressing issues such as water quality in a collaborative, whole of government and whole of sector approach. This method will deliver greater environmental outcomes, while sustaining economic activity in rural Ireland.

Do you believe that CAP will have a positive or negative impact on water quality in Ireland?

The Common Agricultural Policy (CAP) has played a positive role in improving water quality in Ireland. The European Commission's evaluation of the CAP's impact on water quality published in 2019 concluded that the CAP has participated in raising awareness on water issues and put the topic of water higher on the agenda.

In Ireland, the CAP has supported improved water quality through environmental and investment programmes under rural development measures. The Green Low Carbon Agri-Environment Scheme (GLAS) is a targeted agri-environment scheme under the Rural Development Programme. Prioritisation of farms within vulnerable catchments and 'high-status' waterbodies is a key feature with 45% of GLAS actions benefiting water quality.

The Targeted Agricultural Modernisation Scheme and its predecessors has been instrumental in supporting on-farm investment in new slurry storage, farm buildings and novel machinery such as trailing shoe technology. Specifically, there are two TAMS schemes benefiting the protection of water: The Animal Welfare, Safety and Nutrient Storage Scheme and the Low Emission Slurry Spreading Scheme. These investment schemes have undoubtedly contributed to improved environmental and water quality outcomes. The continuation of a well-funded TAMS programme under the next financial period from 2021-2027 is critically important to ensure continued improvement and outcomes at farm level.

In addition, the cross-compliance framework includes statutory requirements related to water protection and management arising from the implementation of the groundwater directive and nitrates directive, as well as GAEC standards.

The CAP Reform process for the period 2021-2027 is still under negotiation with at least a two-year transition period envisaged. However, it is evident that the new CAP framework will result in an even greater emphasis on the environment. Under Pillar 1 of the new CAP, Member States will have to design eco-schemes, which is a new requirement. The development of eco-schemes should operate in conjunction and compliment new agri-environmental and investment schemes under Pillar 2.

We emphasise the importance of developing a new environmental scheme under Pillar 2 that will encourage greater participation by dairy farmers with a focus on measures that will have co-benefits for climate, water, soil and air. We also emphasise that the CAP cannot do everything. The CAP provides vital income support to thousands of farm families, underpinning food security and the provision of positive public goods. However, the CAP is one of the most important tools to bring targeted change. A good environmental scheme, supplemented by practical, well designed, farmer friendly eco-schemes will be important.

Finally, the new CAP must continue to support productivity and efficiency at farm level. Ireland's grass based, sustainable production system is key to our efficiency and low-cost production. The TAMS programme is key to supporting farm investment, environmental improvement, animal welfare and health & safety and must be continued under the new CAP.

Do you think CAP measures to protect water quality should be retained at a national scale or become more locally targeted?

The best approach will involve national measures combined with locally targeted measures. The Agricultural Catchments Programme (ACP) has a cumulative 10 years of water quality monitoring set up to assess compliance with the nitrate's directive. The ACP involves 320 farmers across 6 catchments. Each catchment has different soil and farm types with P loss a greater issue on heavy clay soils and N loss a greater issue on free draining soils. N & P contrast significantly with mitigation measures different as a consequence. In summary, soil type, weather and farm practice will all have a bearing on water quality so the more targeted the measure can be, the better the likely outcome.

The ASSAP programme is an example of a locally targeted approach, with individual farm assessments carried out under three categories: land management, nutrient management and farmyard management. The ASSAP programme through scientific work conducted by LAWPRO has identified the main pressures on water quality in each PAA. This information can be used as a basis for preparing mitigation plans for farmers designed to help improve water quality. The scientific work conducted by LAWPRO has concluded that sediment loss is a greater pressure on water quality than previously considered, which is an important learning.

The combined approach between national and locally targeted measures could be provided for under the new CAP eco-schemes, with ICOS proposing that farmers should be provided a menu of options with mitigation measures appropriate depending on the water quality pressure at local level, whether

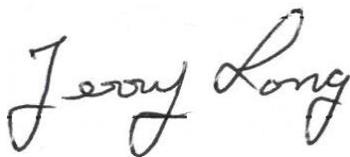
it's P, N or sediment. This is the approach we have supported at the CAP consultative committee established by the Department of Agriculture, Food and the Marine.

The ASSAP programme has identified a range of mitigation options with the ASSAP Interim Report published in 2020 highlighting 20 mitigation actions for farmers including preventing P loss through overland flow, NMP planning, buffers, drinking & stream fencing, organic manure location and method etc. These options are discussed with the farmer and appropriate action is selected. These 20 mitigation measures should be examined including barriers to their adoption. The CAP should provide appropriate support to farmers involved in implementing these mitigation measures, especially measures where cost is a barrier.

We look forward to engaging constructively and positively with both the Department of Housing, Planning and Local Government and the Department of Agriculture, Food and the Marine on the important issue of water quality. We re-emphasise that it is in everyone's interest to work together to improve Ireland's water quality. The dairy sector is committed to working closely with farmers and with Government in a collaborative manner to protect water quality and our image as sustainable and safe producers of high-quality food.

Yours sincerely,

Mr. Jerry Long



President,
Irish Co-operative Organisation Society

From: Mary Gurrie [REDACTED]
Sent: Thursday 6 August 2020 12:17
To: rbmp
Subject: EPA
Attachments: SWMI_submission_EPA_Aug2020.pdf

Hello Mick
Please find attached the EPA's submission on the SWMI consultation.
Kind regards
Mary

From: rbmp <rbmp@housing.gov.ie>
Sent: Friday 20 December 2019 17:04

Subject: Consultation on the Significant Water Management Issues now live
Importance: High

Dear all,

I am pleased to announce that the consultation on the Significant Water Management Issues (SWMI) for Ireland has now been published on the Departments website at <https://www.housing.gov.ie/water/water-quality/water-framework-directive/public-consultation-significant-water-management>

While a formal launch and further media activities/advertising is planned for the new year, please feel free to circulate to any interested parties.

Thanks and enjoy the Christmas break.

Regards,
Mick

Michael McBride
Water Advisory Unit

An Roinn Tithíochta, Pleanála agus Rialtais Áitiúil
Department of Housing, Planning and Local Government

Teach an Chustaim, Baile Átha Cliath 1, D01 W6X0
Custom House, Dublin 1, D01 W6X0



<http://www.housing.gov.ie>

Is faoi rún agus chun úsáide an té nó an aonán atá luaite leis, a sheoltar an ríomhphost seo agus aon comhad atá nasctha leis. Má bhfuair tú an ríomhphost seo trí earráid, déan teagmháil le bhainisteoir an chórais.

Deimhnítear leis an bhfo-nóta seo freisin go bhfuil an teachtaireacht ríomhphoist seo scuabtha le bogearraí frithvíorais chun víorais ríomhaire a aimsiú.

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SWMI Consultation
Water Advisory Unit
Department of Housing Planning and Local Government
Custom House
Dublin 1
D01 W6X0

06 August 2020

Re: EPA Submission on the Significant Water Management Issues in Ireland Consultation

Dear Sir/Madam

The Environmental Protection Agency (EPA) welcomes the opportunity to comment on the Significant Water Management Issues in Ireland (SWMI) Public Consultation Document. As you know the EPA has a specific role under legislation in providing scientific and technical assistance to the Minister in developing the programme of measures and this work is on-going to support the preparation of the draft River Basin Management Plan 2022-2027. The EPA also has a role in advocating that the key environmental challenges facing Ireland are addressed and it is in this context that this submission is made.

We welcome the publication of the SWMI in line with the 3rd cycle planning timeframes and the opportunity for public engagement which is a key component of the Water Framework Directive. We welcome also the recognition that all sectors must play their part in protecting and improving Ireland's water resources, and that ensuring consistent policy integration across the River Basin Management Planning Process with other national and local plans is a key priority.

The EPA's Water Quality in Ireland Report 2013-2018, published in December 2019, found that water quality had declined after a period of relative stability and improvement. Only 53% of surface water bodies are in satisfactory ecological condition. We reported an increase in the number of the most polluted river sites, and an increase in the number of rivers in poor ecological health. Positive trends reported previously by the EPA had reversed. Not only have we failed to improve overall water quality, we are also failing to prevent further deterioration of our rivers. The Water Quality Report made clear the challenges that face Ireland in achieving good water quality status. While there have been improvements, an additional 400 water bodies are now not meeting their targets. It is essential that we halt both the declines in water quality and continue to prioritise work to restore waters to at least good status.

It is widely accepted that the first River Basin Management Plan (2009-2015) did not deliver the projected improvements in water quality. It appears at this stage that the second River Basin Management Plan (2018-2021) will also not deliver the scale of improvements required. It is therefore essential that this next River Basin Management Plan delivers on real and sustained water quality improvements.

Notwithstanding the water quality results, the EPA notes that substantial progress has been made under the second cycle in establishing the new governance structures, the LAWPRO/ASSAP programme and the Community Development Fund. We need to build on this progress to further embed the integrated catchment management approach, and to expand and target the programmes of measures developed for the second cycle plan. Progress has also been made in areas such as forestry, peat rehabilitation and in developing the evidence base on hydromorphology. We hope and expect that these measures will soon start to deliver in terms of actual improvements in water quality.

Some areas however require urgent and increased attention and action; the increasing nutrient levels particularly nitrogen from agriculture, the rate of delivery of the required wastewater infrastructure, impacts from drainage works, addressing and mitigating the impacts of climate change, and the on-going declines in our high status objective (HSO) water bodies.

Agriculture

Agriculture is the sector with the most widespread impact on water quality in Ireland, impacting on almost 800 waterbodies at risk of not achieving their WFD objectives. The water quality issues arising from agriculture include excess nutrients, the loss of fine sediment, chemicals (pesticides and herbicides) and microbiological pathogens (e.g. VTEC) from animal faeces entering waters causing a risk to aquatic life and human health.

The scale of the challenge ahead for the agriculture sector is significant; the environmental indicators for water quality, air quality, greenhouse gases and biodiversity demonstrate that we are not meeting our environmental targets, and that the trends are all going in the wrong direction at present. It is essential that we take the steps needed to halt the current declines and begin to reverse the trends.

A significant number of plans and strategies have recently been published, or are in development, which point towards the need for changes in farming practices to meet our environmental targets. These include the Farm to Fork strategy, the EU biodiversity Strategy, the CAP strategic plan, the 5th Nitrates Action programme, the 2030 Agri-food strategy and the Climate Action Plan. An opportunity now exists to align these policies and strategies to ensure that any measures to address water quality can deliver multiple benefits including reductions in greenhouse gas and air pollutant emissions, and enhanced biodiversity. Additional benefits may also include natural flood mitigation and amenity values that can support improved health and wellbeing.

Nutrient pollution from agriculture is the most prevalent water quality issue. The manner in which nitrogen and phosphorus emissions to water arise, and their impact in the water environment, varies with catchment, soil type and farming activity. This means the messaging, supports and policy responses for achieving water quality improvements need to become more targeted and specific to the local environmental issues and setting, and we need to find ways to better support and engage farmers to embrace and implement the practice change that is needed. The principle of 'the right measure in the right place' should be further emphasised in the 3rd cycle plan. In addition, there needs to be an emphasis on ensuring optimum use of organic manures as per Teagasc advice, and an overall reduction in the use of mineral fertilisers, as called for recently in the Farm to Fork strategy.

Wastewater

Waste water (urban and domestic) is the second most prevalent significant pressure impacting on water quality generally, and the most significant pressure impacting on bathing waters and shellfish waters. The serious challenges facing Ireland's water environment and water/wastewater treatment infrastructure are reported extensively in our most recent Drinking Water, Urban Waste Water Treatment and Water Quality Reports. Irish Water will not now deliver on the targets set out in the second cycle and unsatisfactory progress has been made to date, particularly in addressing sole significant pressures.

Establishment of, and infrastructural and operational improvement to, waste water facilities must be progressed at a much faster pace. Continued investment is also needed in the upgrade of combined drainage systems, storm water overflow devices and extending collecting systems. Funding and investment in water services should be aligned with the specific priorities of the RBMP nationally and within the Priority Areas for Action.

Climate

Climate change is a significant threat to water quality, water quantity and water services. These challenges are clearly set out in the Climate Change Sectoral Adaptation Plan for the Water Quality and Water Services Infrastructure Sectors. The national attention and focus on climate mitigation and adaptation presents an opportunity to achieve benefits for water quality and water resources and conversely water quality measures under the RBMP can be key climate measures.

The potential role of climate to interact with all the significant pressures needs to be considered and all measures under the plan should be climate proofed. Funding of research on the interface between water and climate should continue to be supported and funded.

With climate change, and a growing population placing increased pressure on water resources the implementation of an effective regulatory regime for abstractions is essential to manage these risks. The two significant periods of dry weather in 2018 and 2020 have highlighted the importance of this measure. We recommend the proposed legislation should be progressed without further delay.

Physical changes to rivers

The evidence base from the characterisation process and the work of LAWPRO illustrates that hydromorphological pressures have a widespread and significant impact on the condition of our waters, yet they are currently poorly managed. Key pressures include land drainage, channel maintenance and dredging, removal of riparian vegetation, excessive use of hard engineering, and barriers which restrict flow, fish migration and sediment transport.

The 3rd cycle plan should strive to develop and implement better management and enforcement of appropriate measures to restore and improve the hydromorphological condition of waters. The work being carried out by the Department to develop guidance for bringing the WFD into the planning framework should be progressed and implemented as a matter of urgency. This work needs to be widely disseminated and appropriately resourced so that it can be implemented in full. Strong leadership will be required to improve cooperation across the range of public bodies that are involved, and to accelerate and drive the work forward.

The links between the objectives of the Floods Directive and the WFD need to be strengthened in the 3rd cycle plan. A greater emphasis should be placed on reducing potential impacts of flood defence works on hydromorphology and ecology. Implementing natural water retention measures throughout whole catchments ('slowing the flow') should play an important role as these measures can reduce flooding, prevent sediment and nutrients reaching waters, and can provide wetland habitats for a range of species thereby improving biodiversity.

High status water bodies

Only 20 of our highest quality river sites now remain and the trend is going in the wrong direction. Securing funding for the Waters of LIFE project has been a success under the current cycle however by its nature it will be limited in the number of water bodies which will benefit. The establishment of the Blue Dots Programme is also welcome however in order to be in a position to make any substantial improvements and to halt the declines this programme will need to be adequately resourced. High status waters are particularly sensitive, so prevention is better than cure. There should be an increased and urgent focus in the third cycle plan on protecting the remaining high status waters. Sediment losses from forestry operations in upland catchments is the most significant pressure impacting on our high status waters. There needs to be on-going focus on ensuring the full implementation and enforcement of the environmental requirements for afforestation and an increase in the level of oversight when operations are planned in high status catchments.

The outcome of the EU WFD fitness check is that the Directive is fit for purpose and that the focus should be on improving implementation. The 2027 deadline for achieving at least good status in all waterbodies is an extremely ambitious target which will be very challenging to meet. It is nevertheless an important target that is needed to underpin a sustainable, vibrant, healthy economy into the future. Primary legislation to fully implement the directive is required to put attainment of the objectives on a firm legal standing and should be prioritised in this cycle.

Achieving our Water Framework Directive objectives will require leadership, ambition, investment, and an integration of policy across departments and sectors. Significant progress has been made in the second cycle in establishing structures which promote knowledge sharing and collaboration. Collaboration between the public and private sectors, and greater engagement and involvement of communities will be essential. The EPA is committed to working with the Department and stakeholders within the governance framework and will play its part in contributing to achieving this important goal.

We have included specific comments in relation to some of the other SWMI issues and suggestions for potential measures in Appendix 1 below.

Yours sincerely



Dr Micheál Lehane

Director, Office of Evidence and Assessment

Appendix 1

Prioritisation

There are early indications that we are achieving improvements in water quality in the Priority Areas for Action (PAA). The EPA therefore supports the continuation of the prioritised approach for restoration of water bodies. The gains being made in PAAs however were offset by sometimes significant deteriorations in water quality in other areas and that needs to stop. A key objective of the WFD is to prevent deterioration and the basic measures in place do not appear to be achieving this. There is a need to greatly enhance the protect function under the next RBMP so that the investment and effort in securing improvements in PAAs delivers on a national scale and to cease or mitigate activities that are causing the declines.

There is also a need to scale up learnings made in funded projects, pilots and schemes to a national level. There is potential to optimise the resources involved and maximise the outcomes by better integrating, coordinating and consolidating the efforts being made by implementing bodies, communities, research and other funded programmes, to protect and improve water quality in each catchment.

In selecting measures, priority should be given to actions that achieve multiple benefits for as many of our environmental assets as possible (i.e. air quality, greenhouse gases, biodiversity, natural flood mitigation and water quality), as well as supporting our economic and social goals.

Public Participation

The EPA welcomes the significant improvements in the level of public engagement in water related activities in the current cycle and the efforts and resources put in place to encourage public and community participation. There are a number of areas which should be developed further or supported to continue to build on the progress made. The role of An Foram Uisce in raising public awareness and engagement could be enhanced. Further opportunities could be sought to establish and support Rivers Trusts and other community groups to help put themselves on a solid foundation. Learnings from the experiences of the Maigne and Inishowen Rivers Trusts in the coming years will provide valuable insights in this regard.

Citizen science is an effective way of both engaging and educating the public and communities and in producing valuable scientific data. Consideration should be given to supporting the development and rollout of a National Citizen Science Programme or Strategy for Water which integrates and delivers a range of tools suited to all levels. An accompanying plan should also be put in place to allow for the safe collection, storage and dissemination of these data, as a valuable source of knowledge to support the wider aim of protecting and maintaining our waters.

We have made significant progress during the 2nd cycle plan in sharing data, knowledge and experiences widely and this should be continued over the course of the new plan. The public interest in environmental issues, particularly in the younger generations, is continuing to grow. Opportunities to increase awareness of the integrated catchment management approach and the value of good water quality, through community education programmes, professional development courses and academic institutions should be explored.

Planning

Effective and coherent planning at local, regional and national levels is key to delivering the environmental improvements required in both water, climate, air and biodiversity and to optimise the potential for multiple benefits from any measures taken.

The planning system should be used to ensure the delivery of nature-based and natural water retention measures as solutions for flood protection, the wide spread role out of green and blue infrastructure and sustainable urban development schemes and the protection of water resources through implementation of water efficiency measures. We agree with the statement in the SMWI that future infrastructure needs to be 'WFD-proofed'.

Domestic Wastewater

The recent extension of the Domestic Waste Water Grant Scheme is welcome. The findings of the National Inspection Plan Implementation Report 2019 that over half of DWWTS inspected fail to meet the necessary standard and that 27% of systems that failed during 2013–2019 had not been fixed is a concern given these inspections are targeted at areas where DWWTS are most likely to impact on water quality. More action is needed to ensure that householders fix systems that fail inspections and to improve overall public awareness to encourage good practice.

Public Health / Drinking water quality

Water is vital for life but also can present a threat to health from exposure to contaminated drinking water, bathing water and shellfish. Issues such as microbial and nitrate contamination of groundwater, the incidence of VTEC in Ireland and the continuing detection of pesticides in waterbodies are of concern.

In the recent report on Drinking Water Quality in Public Supplies in 2019, the EPA highlighted the need to take a drinking water safety plan approach to assess risks to drinking water and to prioritise action to address the greatest risks. As the application of such a risk-based approach is likely to be included in the revised Drinking Water Directive, the next River Basin Management Plan should integrate drinking water safety planning into its application of the Integration Catchment Management approach and progress measures on drinking water source protection. Private water supplies continue to lag behind public supplies in terms of compliance and addressing private supplies should be considered in the programme of measures under the next RBMP.

The EPA agrees that all the measures identified in this section of the SWMI document are required. It is essential that enough resources are provided to progress these. The resilience of water supplies to extreme weather events also needs to be improved.

We need to continue to build our knowledge and evidence base in relation to public health aspects of water protection in areas such as VTEC, anti-microbial resistance, and combined effects of chemicals. A study on the economics of source protection versus treatment should be carried out. The EPA is completing its review of Nutrient Sensitive Areas as required by the Urban Waste Water Treatment Directive. These areas need to be placed on a statutory footing to ensure a high level of protection.

The benefits to health of improving water quality as well as access to blue spaces for wellbeing could be highlighted more and measures to promote and develop this aspect should be considered.

Invasive Alien Species

Invasive alien species are a threat to Ireland's water quality, protected habitats and biodiversity and a cost to the economy. The National Biodiversity Action Plan highlights that the occurrence and spread of invasive alien species in Ireland is increasing, and that the impact of invasive species on Ireland's protected species is expected to increase over the next decade. Several of the invasive species of concern are aquatic species or colonise riparian habitats. Invasive species impact ecosystems and may out-compete native species, leading to a loss of biodiversity.

An interim review of the National Biodiversity Action Plan 2017-2021 published in 2020 highlighted that there has been limited progress in tackling invasive species. The EPA agrees with the call in the SWMI for a strategic approach to this issue and that a coordinated approach among public bodies and stakeholders is required. An action plan is needed that is adequately resourced and supported. Strong leadership will be required to progress the relevant actions in an integrated way. Opportunities for engaging citizens through citizen science initiatives should be explored.

Hazardous Chemicals

While the overall chemical status of our water bodies is relatively good (when the ubiquitous substances such as mercury and polycyclic aromatic hydrocarbons or PAHs are excluded) the growing range and increasing levels of hazardous chemicals being detected in waterbodies is a significant concern from both an ecological and human health perspective.

The regulation on the manufacture, use and disposal of chemicals across all sectors (healthcare, animal health, agriculture, personal care products etc) is, by its nature, fragmented. Coordination in the development and implementation of plans and measures between the relevant authorities and organisations should be strongly promoted. The establishment of the National Aquatic Environmental Chemistry Group is a positive step in this regard and should continue to be supported. Similarly the National Pesticides in Drinking Water Action Group should continue to be supported.

There are several strategies and action plans which have recently or will shortly be published and which should be considered/implemented in terms of measures. The EU Biodiversity and Farm to Fork Strategies set out ambitious targets for reductions in pesticide usage. Ireland's National Action Plan (INAP) on antimicrobial resistance is currently being prepared for the period 2021 to 2024. The proposed EU Strategy on the Sustainable use of Chemicals will likely include measures to increase awareness and influence behaviours in terms of chemical management (including medicines). The European Union Strategic Approach to Pharmaceuticals in the Environment (COM(2019) 128) provides a useful overview of the sources and potential measures which could be taken, many of which could be applied to the broader range of chemicals such as awareness raising, producer responsibility initiatives, and improved management of waste. In addition, the European

Commission has recently launched a review of the directive which regulates the use of sewage sludge in agriculture. This review identifies that the directive fails to regulate a range of potential pollutants in sludges which can impact on soil and waters when spread on land. The outcome of this process will be relevant in terms of introducing additional measures to reduce the impacts of chemicals.

Monitoring for priority substances and priority hazardous substances is expensive. Additional monitoring is needed but it is important that it is targeted to ensure best use of resources. Opportunities should be explored to capture where the sale, use and disposal of pesticides and animal health products is taking place, so that they can be linked to local water quality impacts, so that we can improve our risk assessment processes. The findings and recommendations from the Disposal of Unused Medicinal Products (DUMP) Study should be examined and consideration given to the setting up of a PRI scheme to address the lack of a clear disposal route for unused pharmaceuticals. Investment into research on the risks and treatment technologies for hazardous substance should be supported to continue to inform policy and identify solutions.

Urban Pressures

Urban aquatic environments in our cities and rural towns are frequently characterised by unsatisfactory water quality. The types of pressures in these environments include runoff from paved surfaces, leaks and spills, misconnections where domestic discharges are piped straight to the river, unlicensed discharges, storm water overflows, and hydromorphological pressures such as culverts, barriers, modifications to the riparian zones, ports and harbours. These pressures can have impacts on ecological status, on the quality of waters used for industrial and drinking water purposes, and on bathing waters. Urban issues are typically challenging to disentangle and costly to mitigate.

Irish Water are currently progressing development of a number of drainage area plans which will map and assess the condition of the existing drainage network in 44 urban areas. Progress with this work is time consuming and slow. Significant future investment will be needed to implement the mitigation measures identified in those plans.

Consideration should also be given through the planning framework to how green and blue infrastructure can be retrospectively integrated into the existing urban environment, and progressively embedded in future in conjunction with new development applications. Although this is being progressed in some local authorities, opportunities should be explored for leadership and sharing of knowledge and experiences throughout the Local Authority sector. A strategic approach to river restoration in urban areas will likely be needed to ensure that multiple benefits are being targeted, so the best return on the investment is being achieved. As well as environmental benefits the potential public health and wellbeing value of green and blue spaces in urban environments has been highlighted in recent research by the Economic and Social Research Institute.

The issue of domestic misconnections is significant as addressing them retrospectively is very resource intensive, time consuming and costly. Creative mechanisms should be identified for preventing the problem at source, for example through an information, education and awareness program for landholders and contractors, a certification scheme, planning enforcement, or by other means. The learnings from the Dublin Urban Rivers LIFE project may be helpful in this regard.

Any further comments

The EPA is aware of concerns arising in relation to topics such as aquaculture, commercial sea-weed harvesting, anti-microbial resistance, microplastics etc. It is important that the risks and impacts of activities, whether existing or new, are identified, assessed and communicated and that we continue to both build the evidence base in relation to such topics and scan for future issues or topics which may be of concern.

From: Dungarvan Shellfish Ltd <dsf-oysters@hotmail.com>
Sent: Wednesday 5 August 2020 12:57
To: rbmp
Subject: Dungarvan Shellfish Ltd
Attachments: SWMI Submission.docx

Hi,

I hope you are well, please find attached our submission. Also, can you acknowledge receipt of our submission.

Many thanks,

Ita Harty



The world's first national
food sustainability programme



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IASC SLIOGAGH DUNGHARBAIN TEO.

████████████████████ *Dungarvan, Co. Waterford, Ireland.*

Telephone: ██████████

Email: dsf-oysters@hotmail.com (General)

Re: Significant Water Management Issues (SWMI) public consultation document

To whom it Concerns,

We would like to add the below submission to the consultation process.

Shellfish growing areas were previously protected under **The Shellfish Waters Directive** which was subsequently subsumed into the Water Framework Directive (WFD) whereupon the guideline microbiological (fecal coliforms) value in shellfish growing waters was dropped altogether.

Thus, the WFD which Shellfish producers rely upon for protection does not protect against pollution by sewage from humans and agriculture which has a negative impact on the receiving environment and in particular to shellfish producers.

A mandatory value (upper limit) for E. coli in the shellfish growing waters should be established to protect shellfish producers akin to protecting humans in bathing waters. E coli would be the most relevant as Shellfish Production areas are classified based on E coli in shellfish flesh.

Adherence to a mandatory value would also have the added benefit of reducing norovirus (human sewage derived) levels present in the water column allowing for easier depuration of shellfish (oysters) and indeed longer periods of the year when oysters are naturally Norovirus free. A further benefit of adhering to an E. coli water limit by reducing human and agricultural discharges is that nutrient inputs are reduced also (Nitrogen and Phosphorus come with the E. coli in these discharges). Norovirus legislation is imminent and is a crucial parameter for the shellfish industry and the shellfish industry should be protected from high levels of norovirus input from human sewage discharges under the Water Framework Directive.

This is a significant water management issue that is not addressed by this consultation draft. Microbiological standards in waterbodies need to be enshrined in the water framework directive for the good of the shellfish industry, the public using waterbodies and the ecosystem. Pollution Reduction Programme's which were developed for Shellfish Designated Waterbodies seem to have halted in their development. Why is this so?

Furthermore, the WFD does not monitor all the necessary parameters to protect the ecosystem in Transitional and Coastal Water bodies. An example of this would be the largescale and widespread use of chlorine-based bleaches e.g. Sodium Hypochlorite such as used to control biofouling in power stations using seawater intake for their cooling systems, in agricultural practices (cleaning out of tanks), food processing businesses and potentially in sewage networks, sewage holding tanks and treatment plants. The input of bleaches such as Sodium

Hypochlorite into the marine environment leads to complex chemical reactions which can lead to the formation of Chlorine Produced Oxidants (CPO's) e.g. hypobromous acid, hypobromous ions and bromamines and ultimately to longer lasting Trihalomethanes e.g. Bromoform in the marine environment which can impact on phytoplankton production and other marine life (lethal and sub lethal effects). The recognition that CPO's are damaging to marine life and ecosystems has meant that CPO threshold values have been set in countries e.g. South Africa, Canada and the USA with levels set at 2-10micrograms/L of seawater. The Water Framework Directive does not appear to address these parameters or their effects on the ecosystem in the marine environment.

However, one can see in this consultation document that there are procedures in place and bodies tasked with addressing these shortcomings:

- *The National Aquatic Environmental Chemistry Group (NAECG) was established to bring together national expertise on hazardous chemicals in the aquatic environment, and to bring a new smarter strategic approach to the management of hazardous chemicals in the aquatic environment into the future*
- *A national monitoring programme for priority and specific substances has been established.*

The programme is evolving to accommodate new compounds, which may be added at either EU or national level.

- *The EPA will continue to review and develop its analytical capabilities for assessing hazardous chemicals in Irish water bodies to take account of any new priority and priority hazardous substances specified by the Commission or new specific pollutants identified specifically for Ireland*

So, it would seem that the way is clear to address the monitoring and impact of bleach and bleach derived intermediates and end products in the marine environment. Indeed, the insecticide cypermethrin was recently added to the WFD monitoring programme in Ireland (as stated in the consultation document).

- *More recently, a scoping study carried out by the EPA in 2017 – 2018 detected the presence of the insecticide Cypermethrin in rivers at multiple locations across Ireland and this substance has recently been added to the national monitoring programme.*

The emphasis in the Water Framework Directive is to avoid unnaturally high levels of phytoplankton in transitional and coastal waterbodies (eutrophication) which is very important but suppression of phytoplankton production unnaturally by anthropogenic chemicals such as sodium hypochlorite is also important to avoid as all of the ecosystem is dependent on phytoplankton for sustaining healthy and stable marine life populations and services. This is particularly important for shellfish producers who are dependent on phytoplankton levels reasonable enough to sustain growth and health of stock to market size.

The draft consultation paper states that there are concerns regarding aquaculture and needs to be investigated further and for shellfish farming:

- *In relation to shellfish farming the main concern related to the potential for contamination of shellfish arising from land-based activities, particularly wastewater discharges.*

This is worded as to present the shellfish as the problem rather than the land-based activity which is truly remarkable for all the wrong reasons given the largescale and widespread discharges entering transitional and coastal waterbodies and given the very long-standing presence of a sustainable world class shellfish industry in the southeast of Ireland.

Shellfish farming is unique in that it is the only marine/land-based activity that actively supports the ecosystem by driving the ecosystem away from eutrophication thus supporting biodiversity and sustainability and keeping the ecosystem functioning and providing the benefits and services that it provides. This is done by removal of nutrients (Nitrogen, Phosphorus and Carbon) from the ecosystem by way of feeding on phytoplankton (top down control), harvesting of stock and increased nitrogen removal as N₂ gas through benthic-pelagic coupling (enhanced bacterial denitrification) in sediments below shellfish. Shellfish farmers do not get paid for this valuable ecosystem service e.g. nutrient removal which is valued at 30.93 Euro/kg for Nitrogen and 93.63 euro/kg for phosphorus (Hernandez-Sancho et al. (2010)) as stated in Valuing Ireland Blue Ecosystem Services published by SEMRU author Norton, D et al 2018. The biological and economic cost of avoiding ecosystem collapse by way of eutrophication induced anoxia is an immensely high value. Think of the loss of biodiversity, tourist activity, recreational value and ecosystem services that a widespread anoxic event caused by eutrophication could cause in a bay.

Shellfish aquaculture also enhances water quality also through filtration of particulates from the water column thus increasing transmission of light through the water column, removal of bacteria and viruses through filter feeding. Structures used in oyster farming enhance biodiversity (provision of shelter and substrate) and allow for even more filter feeders to be present in the ecosystem which enhances nutrient removal and provides a food source for other marine life. Some important bird species e.g. Brent Geese benefit from oyster farming by feeding on macroalgae growing on the top of oyster bags. Other bird species e.g. oyster catcher feed on the oysters directly. It provides valuable jobs to coastal communities and has the potential to support regional and local maritime festivals and food trails.

Thus, shellfish aquaculture is a marine activity that fits very comfortably into the three Harnessing Our Ocean Wealth (HOOW) Goals perfectly:

- Goal 1 a Thriving Marine Economy,
- Goal 2 Healthy Ecosystems and
- Goal 3 Strengthening engagement with the sea

Shellfish farms thrive in environments with Good Environmental Status (GES) but under the current Water Framework Directive monitoring programme there is scope for adding important parameters (Environmental Quality Standards EQS) for testing to give a better picture of the status of the environment and better protection to the shellfish industry which depends wholly on good water quality. It is disappointing to see that only 30% of transitional water bodies (where a lot of shellfish production occurs) are in good/high status and there may be a need for the Water Framework Directive to focus a bit more on these areas which after all are areas where economic, social, aesthetic, ecosystem services and natural capital are higher than many other parts of the catchment.

Kind Regards,

Ita Harty

From: Cornelia Wahli [REDACTED]
Sent: Wednesday 5 August 2020 12:21
To: rbmp
Subject: Private Cornelia Wahli
Attachments: C Wahli - Water - Public Consultation Contribution.pdf

Dear Sir / Madam,

Please find enclosed my 5 point contribution for above.

I would also like to know - who monitors water quality and polluters?

Kind regards,

Cornelia Wahli
[REDACTED]

For the Protection of Surface and Ground Water
and
**For the Improvement of Bathing Water, Drinking Water, Shellfish Water and
Aquatic Fauna and Flora Habitat**
the following is proposed:

1. **Pesticides, Herbicides and Fungicides Ban:** any small and large scale application of such products in/on:
 - private ornamental garden including aquatics
 - commercial/professional ornamental garden both large and small scale including aquatics
 - private food production including aquatics
 - commercial/professional food production both large and small scale including aquatics
 - private animal husbandry including aquatics
 - commercial/professional animal husbandry both large and small scale including aquatics
 - private roadways
 - public roadways

2. **Fertilizers Ban:** any large scale application of such products in/on (except natural, biodegradable, non-run-off products such as compost, mulch etc.)
 - private ornamental garden including aquatics
 - commercial/professional ornamental garden both large and small scale including aquatics
 - private food production including aquatics
 - commercial/professional food production both large and small scale including aquatics
 - private animal husbandry including aquatics
 - commercial/professional animal husbandry both large and small scale including aquatics
 - private roadways
 - public roadways

3. **Monoculture Ban**
 - Monoculture systems applied in private gardens/properties/forestry/aquatics etc which are harmful to water in general but also to a diverse ecosystem and biodiversity and which contribute to climate change and climate change challenges.
 - Monoculture systems applied in commercial/professional gardens/properties/forestry/fish farms/aquatics etc which are harmful to water in general but also to a diverse ecosystem and biodiversity and which contribute to climate change and climate change challenges.
 - Monoculture to be replaced with polyculture.

4. **Wide Scale information and education on the three points mentioned above**

5. **Wide Scale information and education on life-style choices, their impacts and alternative options**

From: Bernadette Connolly [REDACTED]
Sent: Friday 7 August 2020 13:03
To: rbmp
Subject: Cork Environmental Forum CEF
Attachments: CEF Submission to the SWMI.docx

Dear Sir/ Madam,
Please find attached our submission to the Significant Water Management Issues.

We thank you for the opportunity to comment on this draft.

Yours sincerely,

Bernie Connolly

Development Coordinator

[REDACTED]
**Cork
Environmental
Forum**
www.cef.ie



Workdays - Monday, Wednesday & Thursday

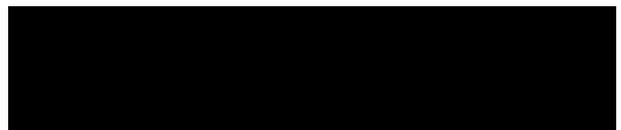


7th August 2020

Response to the Public Consultation on the Significant Water Management Issues



Bernadette Connolly
Development Coordinator
Cork Environmental Forum



Introduction

Cork Environmental Forum (CEF) was established as a non-profit organisation in 1995, inspired by the Earth Summit of 1992 in Rio de Janeiro. We believe that a sustainable world will be one which prioritises and protects environmental quality, habitats and biodiversity, where consumption and economics take cognisance of the limitations of our one planet and where there is a fairer and more equitable share of the earth's resources.

We are involved in stimulating and sustaining active environmental awareness, concern, care and activity among sectoral interests and individuals in Cork (City & County) and beyond the region.

We work from a collaborative approach with many organisations and in relation to water issues are an active member of the Sustainable Water Network (SWAN), act as regional coordinator for the Coastwatch survey in County Cork and contribute to the National Water Forum stakeholder group.

Summary Response

Cork Environmental Forum welcomes the opportunity to submit our comments with regard to the Significant Water Management Issues.

As a long-term member of SWAN and having attended the SWMI Workshop with the Department in March and the SWAN-IEN webinar in July we fully endorse the more comprehensive submission by SWAN on behalf of all its members.

However, we wish to reiterate a few of the key points, expand on some and include some additional considerations such as Management itself and the need to broaden national measurements from solely GDP to include Well-being Indicators including social and environmental indicators that would better reflect progress on issues such as protection of our waters.

We demonstrate the efforts of one of our member's long-term engagement in the protection of water quality in rivers and the RBMP, and how the issues on his local river reflect the countrywide reality of the impact of ongoing poor water governance.

Reiteration of Key Points

1. **Consideration of Submissions** - it is impossible to evaluate the influence and consideration our submissions make, as referenced SWAN has made 18 formal submissions relating to the WFD. CEF has been engaged in the process since the onset and have made a significant number of submissions, however, we do not see how our inputs are reflected or valued. We would welcome a more transparent and meaningful inclusion of our time and efforts.
2. **Data and Information Gaps** - we are being asked to submit to a process for which we lack crucial data, the actions and impacts of the 2nd RBMP have not been evaluated fully to date to better inform this consultation on the SWMIs.
3. **Systemic Failure** - Ireland is about to prepare its 3rd RBMP, aside from a few recent positive steps in the right direction, including the work of the EPA on the characterization of water bodies and the establishment of LAWPRO and the NWF, we have had a systemic failure by Departments and agencies of the state and the political system to protect our waters despite the legal requirement under the WFD.

4. **Prioritisation** – this is not so much a SWMI as an overall strategy, we wish to emphasise that this methodology is flawed as it only focuses on a fraction of our waterbodies. All of our water bodies are required to be in good ecological status by 2027.
5. **Time-line** - we have a very short window of 6 years under the 3rd RBMP this requires radical transformative efforts in protecting our waters to deliver on the WFD requirements.
6. **Policy coherence** – this is a key enabler for delivery of positive results and will achieve co-benefits for climate and biodiversity. This requires cross-departmental and whole of Government leadership not just one Department.

In our last submission in 2015 we highlighted the contradiction then of the suite of Governmental Strategic Documents including Food Wise 2025, the Forestry Programme, Marine Harvest 2020, and the Sustainable Aquaculture Programme which were **“proposing to solve our water quality, ecosystem health, biodiversity loss, antibiotic resistance, and climate change problems by aggressively increasing the causes of these problems.”**. If we do not address the inconsistencies and contradictory strategies across sectors then we are just wasting time, resources and on a misguided pathway that doing the same thing is going to result in a different outcome.

Expanded Notes on some of the SWMIs

i. **Land Use Planning**

We note little reference to the National Planning Framework, Regional Spatial and Economic Strategies and the Local Authority Development Plans (out for initial consultation currently). All of these plans predict high levels of population growth which will be an added pressure and makes land-use and planning a key consideration with regard to water quality. The following is an extract from the CEF submission to the Cork County Development Plan in July in respect of protection of water:

“There are some acute issues in some areas with regard to provision of services such as water, both potable water and waste water treatment. Creating an unsustainable practice of water being tankered from one area to another and where waste from East Cork is transported to North Cork for disposal.

No additional housing or planning should get approval in the following circumstances:

- **Where capacity issues exist in the supply of essential services such as water and in the treatment of waste water.**
- **On flood plains (coastal and terrestrial) – the OPW CFRAMS maps are available to show the potential for flooding.**
- **In Natura designated areas and areas adjacent where building will impact on the protection status.”**

Landfills

Location of landfills, many now no longer active, are a legacy of land-use planning. There is a growing issue of sites being exposed on coastal areas, waste material being washed out to sea, as well as a risk of leachate to water sources near rivers which should be a consideration.

We note within the SWMI consultations document the plans to amend legislation, training for planning authorities and decision making support tools. Whilst late in the day it is welcome to see these plans and we would like to see time-lines on these. Local Authority Managers need to be champions of water quality within their areas of remit and the planned training should be mandatory for all elected representatives including local Councillors.

ii. Management/ Water Governance

After so many years good management or good water governance should have resulted in good ecological status of our water. Management of our waters is spread across so many agencies and bodies at all levels that no one is actually held responsible for deterioration of our water quality. There are little or no consequences to any individual, agency or department for impacts, for lack of action, late delivery and there is always some excuse, mostly resources, notwithstanding that this is a factor the level of action and ambition to date is unacceptable.

There is a consequence which is a fine from Europe that the citizens will pay for.

We need systemic change and policy coherence if we are to successfully address the issues that are impacting on our water quality. We know what they are and sadly we also know the solutions but as a country have not been prepared to date to address the pressures on water as they conflict with current land-use and economically driven policies as already referenced above.

The Programme for Government gives a commitment to implementation of the Water Framework Directive and there is also the commitment for 25% organic farming. There is hope for some positive changes with the new CAP/ Farm to Fork Strategy and the Biodiversity Strategy. However, with report after report showing continuing declines there needs to be a much more robust, transparent and accountable system of water governance applied.

The SWMIs impact locally and solutions need to be implemented locally, however, there is a sense of abdication of responsibility for non-prioritised waterbodies within local authorities and other agencies with the responsibility perceived to rest with LAWPRO and Irish Water.

CEF has no idea what the regional committees are doing, in fact there are a host of different "expert" groups referenced in the consultation document and in the interests of the public and public participation at a minimum all minutes of all meetings and a list of representatives on each committee should be publically available and easily accessible.

iii. Public Participation

There has been a failure to communicate and raise awareness of water issues in the public arena. After the fiasco of the attempt to introduce water charges, which was regrettable as CEF agrees with charging for this vital resource, there has been a retreat from any form of a national communication strategy with regard to water. Irish Water did produce a recent documentary on the issue that helped raise some awareness.

The notion of public participation seems to present an ongoing challenge to statutory bodies. Seen as a necessity to adhere to legislation rather than an opportunity for real collaboration. The public are invited, from time to time, at the behest of the state agencies, to input into a consultation such as this, to give validity to work of agencies and participate in soft measures like information days, educational events etc. However, when the public do engage by reporting pollution and other issues negatively impacting our waters the manner in which such issues are dealt with and responses received leave an impression that far from being valued for caring about water quality and trying to contribute to protecting it that such reports are a cause of extra work. It often requires multiple follow-up contacts from the person reporting the issue (on a voluntary basis – see below demonstrable case) rather than timely and active communication from the person employed to address the issue.

We demonstrate this by one of our members and the most amazing aspect is that his commitment to try to help the ecology of his river provides insurmountable motivation despite so many setbacks and being fully aware of the flaws throughout the system that augurs against improvements in water quality and a failure to respond and deliver on the RBMP.

It is not that people do not wish to engage it is the inequitable manner of engagement. There are power and resource imbalances and an inherent bias in favour of the “expert” which ignores or lacks full appreciation of the local knowledge and commitment. A more blended approach that appreciates the very necessary scientific and expert knowledge with the in-depth local familiarity and awareness of how the catchment works.

It is an opportune time right now to capture the renewed engagement of the public with their local water sources during lock-down through recreation and as a source of solace.. This could be deepened and developed through a more collaborative public participation strategy. The benefits to our physical and mental health of activities in and near water are well documented and people have really experienced this first hand in the past few months.

Citizen science is increasingly popular and a great means of engaging people meaningfully in becoming more aware of their local water body, we see this through the Coastwatch Autumn Survey. We are disappointed, despite highlighting on a number of occasions the need for a similar “Riverwatch”, that this has not been developed to date, this could be complemented with training provided from the very useful Streamscapes programme.

This would be a great way to engage people and as we see with Coastwatch once people are hooked they remain committed to surveying and keeping an eye on their shore on an ongoing basis. There is the added benefit of ongoing learning and growing awareness e.g. you don’t just want to record brown or red seaweed you want to know the name of the seaweeds you see, this goes for all aspects of nature.

As mentioned under Management/ Water Governance there are a lot of expert groups and varying levels of water governance but where is the possibility for public access, are NGOs and the public participating in these structures and even then whom and how are they selected?

iv. Coastal and Transitional Waters

Coastal and Transitional issues have to be included as a SWMI, with over 7,000km of coastline these are really vital water bodies and we know that the status of our transitional waters and estuaries are in decline. We see very little action and work being done to date on this area.

Just this week we saw the closure of four beaches in Co. Clare due to unsafe levels of E-coli suspected from agricultural run off in the catchment and the need for further investment in Waste Water Facilities. This is yet another example of the failure of the department to manage Ireland's waters.

Ireland seems set to not only fail to meet the 10% target for Marine Protected Areas by the end of 2020 but is set on a trajectory to fail to deliver on any of the four goals with a timeline of 2020 under SDG14.

Marine Protected Areas can provide a framework to underpin active involvement by the community in the management of valued marine, coastal and island seascapes and the natural habitats, flora and fauna and the cultural heritage that they contain. Marine Protected Areas have the potential to deliver exponential social, economic and environmental benefits and help address the existential crises of our times.

The impacts of shipping and port operations, including dredging, need to be addressed within this section in addition to the other aspects referenced in the SWAN submission.

Citizen opinions, from threats, or frequency of pollution incidents to what is special about their shores which is included in the Coastwatch Autumn Survey 'what is special about my survey unit' is useful information that can also flag public reaction to near shore development like wind turbines and should be captured.

There is an urgent need for Ireland to transpose some of the Conventions such as the Landscape Convention, that includes Seascapes, into the regulatory framework.

Other

Wellbeing Indicators

The last decade has seen major advances in the measurement of wellbeing in national statistics often involving extensive public consultation processes. Incorporating these metrics and frameworks into policy decision-making has often involved the passing of new wellbeing legislation. Most countries are also working to align their wellbeing statistics with the **United Nations Sustainable Development Goals (SDGs)**. Many countries have already put in place frameworks to incorporate such measurements as well as tools such as dashboards to show real time progress. We advocate for such an approach in Ireland and reflection of progress under the WFD and SDG 14 and SDG 6 could be incorporated.

The CSO has been working on expanding its work in this area in recent years and has provided a number of key reports including its **Environmental Indicators Ireland 2019** report which includes a section on water - <https://www.cso.ie/en/releasesandpublications/ep/p-eii/eii19/water/>.

Case Study - David Lee and the Farrahy River

David Lee is a founding member of Cork Environmental Forum (CEF) with a lifelong passion for angling. It is from his angling activities that he has developed a long-term concern and care for water quality, freshwater ecology and the wider nature it supports. David has spent over 30 years on the rivers of Munster reporting issues of environmental concern. He is the first point of contact for many members of his community who report pollution issues threatening the local rivers, as they know he will report the issues to the relevant authority.

David has been very active with supporting the implementation of the Water Framework Directive, initially through representation on the Advisory Group for the South West River Basin Management Plan. He is the CEF representative on the Sustainable Water Network (SWAN) and actively engaged at a local and national level on water policy issues.

David, in conjunction with his local group, has been working, with support from LAWPRO, with local farmers to keep effluent out of the **River Farrahy**, his local river, a spawning stream for trout and salmon which has seen a huge deterioration in quality over the last number of years. Whilst the efforts on the lower reaches are going well with lots more riparian planting and measures to protect the river, there are 3 major issues (effectively SWMIs for that river) upstream at the headwaters which have led to a significant drop in water quality affecting the ecology, especially notable since 2015:

1. An **auto-grass race track** development which involved clearing a stretch of land next to the river and from which very fine silt leaches into the river and stays in suspension on a regular basis. The site is located adjacent to an SAC.
2. **Coillte** has been clear felling a mature forest, the latest felling licence in 2019 led to the development of a 2km roadway with no remediation to stop silt and nutrients entering the river.
3. There are 7 old **landfills** in the area, 6 unlined and one is beginning to emit leachate to the river (see previous note on landfills).

These are impacts from poor land-use and planning decisions, they are issues that local people cannot address on their own. However, when it comes to water everyone and no one is responsible. In spite of years of David reporting these issues to various state organisations and agencies and in organising meetings with relevant stakeholders, adequate action has not been taken and these issues persist, further threatening the water quality and counteracting the positive work being undertaken downstream.

This of course is far from unique and rivers continue to decline due to the many pressures of which poor planning compounded by poor enforcement is just one.

The SWMI asks a question regarding engaging the public, whilst as outlined (Pg. 4) it is far from satisfactory, there is the issue of people such as David who are very engaged. Engaged local community members such as David need to be given the respect, support, and means of fully participating in the co-design of managing the catchment and helping to restore their local river that they care for, are deeply connected to and are often far more knowledgeable about the river system than specialists with sole decision making powers. It is crucial there is a re-balancing of expertise with local knowledge and more resources channelled to support the work of such local groups who are taking real and concrete positive action in protecting water bodies, engaging their communities and having a lasting positive impact.

Conclusion

There is a need in not just identifying the most significant water issues, we have known from the scientific evidence that agriculture is the largest pressure, but a commitment to take the decisions and steps necessary to protect all waters by changing intensive land use and intensive fishing and aquaculture. This would have the best results for water and deliver co-benefits for biodiversity, climate and peoples wellbeing.

The Supreme Court has recognised that Irish People have a right to a healthy environment, this includes our very life giving resource of water and that right is being breached.

From: Breian Carroll [REDACTED]
Sent: Friday 7 August 2020 16:38
To: rbmp
Subject: Agricultural Consultants Association ACA
Attachments: ACA Submission WM issues 3rd cycle RBM plan for Ireland.docx

Dear Jim,

Please find attached the ACA submission in response to your call on papers for the River Basin Management Plan for Ireland 2022 – 2027.

Please contact me if anything further is required.

Thank you,
Breian

Breian Carroll MBS, B.Agr.Sc., M.A.C.A | General Secretary ACA | [REDACTED]
[REDACTED]



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Public Consultation on the Significant Water Management Issues for the third cycle River Basin Management Plan for Ireland 2022-2027

6th August 2020

Enquiries to be directed to Mr. Breian Carroll, General Secretary ACA



1. Background

The Agricultural Consultants Association (ACA) are the sole representative body for private agricultural consultants and advisors in Ireland. Currently the **ACA** have **160 member offices** in Ireland which employ **270 Agricultural and Environmental graduates and professionals** and a further 121 employed as administration and technical staff. 11 members are Forestry Consultants.

The latest Department of Agriculture, Food and the Marine (DAFM) statistics in 2019/2020 indicate that our members provide **independent** advisory support services and knowledge transfer to **over 55,000 Irish farmers** across a wide range of programmes and schemes. The **DAFM** have confirmed our current market share over a range of Agricultural Schemes is as follows:

1. TAMS – 80% of applications completed.
2. Nutrient Management Plans and Nitrates Derogation applications – 76%.
3. DAFM Knowledge Transfer Programme – 52% of groups in Ireland were facilitated by ACA members.
4. Basic Payment Scheme applications – 58%.

The majority of **our members support Irish farmers with technical farm advice in all sectors** across farming including **dairy, beef, tillage, sheep, pigs, poultry, horticulture and the environment**. Additionally, many members specialise and provide enhanced services in the areas outlined in Figure 1 below.

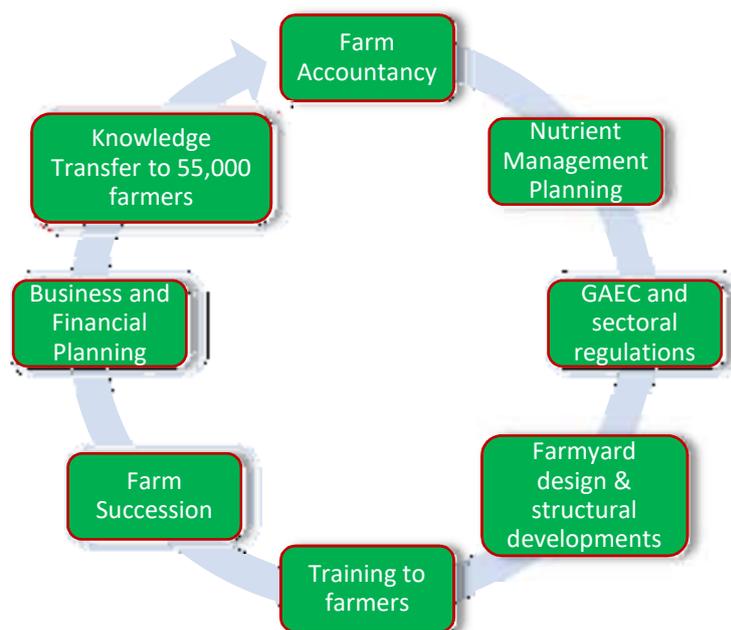


Figure 1: Additional extension services (outside of core farm sectoral advice) provided by ACA farm consultants/advisors

ACA members provide all of these services at no cost to the Irish Exchequer. Our colleagues in **Teagasc** in their Advisory Section (their Research and Education Units are not being discussed here) **receive significant Irish state supports to provide the same services** to Irish farmers and they also collect fees from their customers, although below market rates.

2. Structure of the Farm Advisory Service and current training model

In the period October to December 2019, ACA conducted a comprehensive assessment of the current Farm Advisory System (FAS) in Ireland, which is a register of all farm advisors in Ireland, public and private. The following data was established as a result of this review and is shown on figure 2 below:

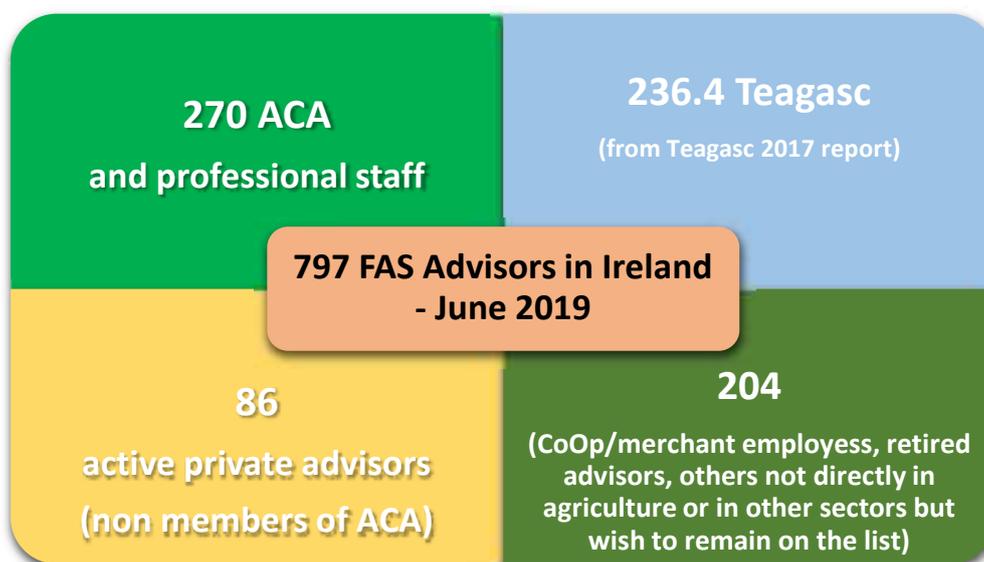


Figure 2: Analysis of the FAS 2019 list in Ireland

Although the FAS training is in place in Ireland, it falls far short of what could be achieved through a revamped and modern training programme. The current situation is inequitable, in which the majority of training funding is given to the public advisory service, which continue to advise only 32% of the entire farming sector (43,000 farmers out of a total of 137,000 Irish farmers). This anomaly needs to be corrected if our sector is serious about meeting any future targets in the CAP as the farm advisor is one of the key influencers in farmers' decisions.

ACA members complete in the region of 80% of all private advisory work. DAFM figures state that ACA members facilitated over 50% of the farmer groups in the Knowledge Transfer programme. **The map at Annex 2 shows the number of ACA member offices in Ireland which currently is 160. There are over three times more ACA offices in Ireland today than the 49 Teagasc offices as shown in Annex 3.** The structure, client base and the proportional workload of the private farm advisory service in Ireland is outlined in Annex 1, which is significantly greater than Teagasc¹.

The Private Advisory Service receives training from the DAFM through the Farm Advisory System (FAS) annually, which has amounted to one or two days on average in recent years. **Private Advisors must receive the same training supports as the public advisory service to ensure equality for all advisors and to also meet the new challenges within the sector and ensure the objectives of CAP are clearly disseminated to farmer clients. ACA estimate that over €9,000 per annum is invested in upskilling every public farm advisor (Teagasc) in Ireland.**

¹ Teagasc Annual report 2017 – Knowledge Transfer Advisory Activities and Outputs 2017 – page 32

Public Consultation on the Significant Water Management Issues for the third cycle River Basin Management Plan for Ireland 2022-2027

ACA contribution/recommendations

ACA welcome the opportunity to contribute to this very important consultation process. As our field of expertise is in farm and land management and related agricultural environmental matters, we are outlining below our views on this subject.

Key to achieving the ambitious 2030 environmental targets for Ireland is the development of **sustainable** agricultural systems. The three key components of Sustainable Agriculture are:

1. **Commercially viability** - capable of delivering a realistic income for farmers and their families. Farmers must be rewarded for their efforts to address Climate Change and protect and enhance water quality through a combination of higher prices for their products and additional supports that rewards their contribution to the Public Good.
2. **Environmental protection** – all actions undertaken on farms must contribute to environmental protection and enhancement in their area.
3. **Socially beneficial** – must provide a good life/work balance, safe working environment and contribute to addressing the issues of social isolation for the farming community. This will help to enhance generational succession in farm businesses.

While trends over the last 30 years are worrying in terms of Water Quality, there is still time and a number of ways that these trends can be reversed. We must build on the positives in agriculture to bring about improvements in water quality. Such positives include farmer's awareness of their obligations to protect the environment in which they operate. The majority of farmers manage their farming operations in a responsible way to protect water quality and their local environment.

Although, **Irish farmers** interact with their feed and agri-merchants, co-ops and other agencies, **73% retain either a private or public farm consultant/advisor annually** to provide advisory services. Immediate progress can be made in the short time to engage with clients of ACA and Teagasc with any existing and new targets for the sector. To have almost 3 out of every 4 farmers engaging with either advisory provider is very significant positive position for Ireland and should be concentrated on immediately to assist in the knowledge exchange of public policy initiatives. The entire focus of water and environmental policy in relation to agriculture must include ACA and the private sector as there are **94,000 farmers in Ireland who do not avail of Teagasc services**.

Key Agricultural Pressures affecting Water Quality

1. Phosphorous loss on lands with impeded drainage and steep slopes.
2. Nitrogen loss on free draining soils.
3. Sediment loss - can be associated with bound Phosphorus, thus a factor in eutrophication. Sediment can damage freshwater habitats and its sources include overland flow from pasture, farm roadways, poached and ploughed areas, forestry activities, drainage and channel maintenance, development works and bank erosion, cattle access and trampling of banks. However, it must be remembered that not all sources of sediment in waters are from agriculture.
4. Chemical residues from herbicide use and improper disposal of chemical containers.

Current Regulation and Supports in Agriculture

Water quality and environmental issues are not new. Agriculture is regulated and/or supported through a range of measures but we have seen a deterioration in water quality and loss of biodiversity, caused in part, by pressures from agricultural sources over the last 30 years. Over the same period, farm incomes have declined, in real terms, especially in the beef sector. ***The key existing regulatory instruments include:***

- Code of Good Agricultural Practice
- Nitrate Regulations
- Designation of Natura Areas, SAC's, NHA's etc.,
- Planning Regulations, supported by data from agencies such as the E.P.A.

The key existing Support measures include:

- Environmental schemes such as GLAS,
- TAMS providing support for waste storage, animal housing and handling facilities.

Roadmap to Protection and Enhancement of Water Quality and Biodiversity

1. *Need to eliminate the conflicts in existing agricultural support policies and programmes*

The basis for current farmers support is centred on eligible land area declared on their Basic Payment Scheme (BPS) applications. As habitats and scrub areas are regarded as non-grazable areas, farmers currently receive no supports under any Department of Agriculture schemes for these areas. Farmers, in effect, are penalised where natural vegetation develops, which can have significant biodiversity and water quality protection value. Farmers as a result are forced to remove such areas to protect their payments.

2. *Definitive policy on Nitrate Regulations*

The lack of clarity on the future of the Nitrate Derogations is leading to uncertainty among farmers operating highly stocked farms. There is a strong correlation between such highly stocked farms and Nitrate loss to waterbodies. Clear direction must be given on the future of derogations and proposed regulations to be applied to reduce such nutrient losses on such farms in the future. Farmers must be allowed time to adjust their stocking rates and farming systems to comply with future regulations. The future for such intensive farm businesses remains challenging until this clarity is provided.

3. *The role of the advisory service providers in delivering improved water quality*

If Ireland is to achieve the ambitious environmental and water quality targets, we need to achieve mind-set and behavioural changes among farmers. The role of the advisory services in Ireland is recognised by all stakeholders as being key to achieving this. In Ireland, the advisory services are composed of private (primarily ACA members) and public sector (Teagasc), advisors. 55,000 farmers in Ireland use private sector advisors with 43,000 engaging with public sector advisors. However, the focus in addressing water quality issues has been mostly through the public advisory services. Critically, as the major advisory support service providers, private sector agricultural advisors must be involved in delivery of solutions to address water quality issues.

4. *Advisory support service providers must be supported by, and have access to, the most relevant and up to date research data on environmental and water protection issues*

ACA must have some formal lines of communication in assisting public policy through proper dissemination of publically funded research and information. Many ACA members have exceptional skills and knowledge and must be part of focus groups and or committees set up by government agencies and Departments.

5. *Advisory support services, both public and private must be given the resources to delivery an effective extension service that will ensure farmers adopt mitigation measures that will improve water quality*

Our advisory services must be fit for future purpose. The process of informing and training of all advisory providers must start now.

As outlined above, the current Farm Advisory System (FAS) accreditation must be replaced with a comprehensive, accredited and strategically focused Continuous Professional Development (CPD) programme for advisory staff. ACA recommend the following actions:

- (a) Immediate rollout of CPD training to ACA members and their professional staff on sustainable farming models, with a clear focus on reducing emissions and improving water quality at individual farm level,
- (b) Ongoing long-term CPD training of ACA advisors, provided on an annual basis and supported by a dedicated budget from CAP funding.

6. *Integrated approach to assessing farms*

ACA recommend a whole farm approach/assessment must be conducted immediately to collate the required individual farm measurements that the sector and country requires. This would entail a full audit by the farmers existing advisor of environmental assets, soil fertility, pollution control facilities, proximity to vulnerable water /catchment areas and other measurements on all Irish farms. Such an audit would establish accurate baseline measurements at individual farm level. Data from such audits will provide the basis for targeted recommendations for actions to be undertaken at individual farm level to address water quality and other environmental issues identified on these farms. The baseline survey would ensure accuracy in measuring the effectiveness of the recommended actions in the future. This is critical for the country of Ireland to complete immediately.

7. *Mandatory annual CPD training for farmers*

The management of farms is constantly evolving with the introduction of new technologies and management practices. Unlike other professions, farmers receive miniscule structured vocational training to effectively adopt these technologies and innovative practices on their farms.

An annual CPD programme with a clear focus on sustainable agriculture, to improve profitability, protect and enhance their local environment and achieve a better life/work balance for farmers is urgently needed.

This annual programme could be delivered through a variety of mechanisms:

(a) A revised Knowledge Transfer Programme

The Knowledge Transfer programme that operated under the 2015-2019 CAP reform programme proved to be highly effective in the dissemination of information to farmers and achieving behavioural change among programme participants. A revised, less bureaucratic and more practical programme would improve the effectiveness of the programme. Participants would have to adopt targeted actions, identified from baseline audits to address issues on their farms.

ACA recommends that a reformed, enhanced and expanded KT in the next CAP must be an essential component in the delivery and success of knowledge exchange and such a programme, along with the ongoing one to one consultations in the delivery of farm advice, will greatly assist with sectoral objectives including water quality. The social interaction of such events and meetings should not be underestimated as a key component to assisting rural isolation and farmer health and wellbeing and exchange of farmer knowledge.

ACA recommend that such a training programme must commence immediately and in advance of the proposed new CAP in 2023. This will ensure framers understand the new challenges for their sector and what is required of them and their successors in line with EU policy for Climate Action up to 2050.

(b) Agri-Environmental Scheme training

The current Agri-environmental scheme, GLAS, required participants to attend a one day training course to provide information and instruction on the environmental options they had selected to implement on their farms as part of the programme. The training proved to be very successful in providing participants with information and improving the quality of environmental measures delivered in the scheme. Such training, provided to scheme participants on an annual basis, for the proposed Agri Environmental scheme for 2023-2027 would further enhance the effectiveness of such a scheme. It would also provide the opportunity to focus on protection waterbodies with practical demonstrations on farms.

An opportunity to trial the effectiveness of such annual training will be presented with the introduction of an interim pilot environmental scheme, proposed for 2021 and 2022.

(c) Basic Payment Scheme Support

The primary support mechanism for farm incomes in Ireland is the Basic Payment System (BPS) based on an annual declaration of the eligible areas farmed. 44% of this payment is made up of a greening element. To qualify for this entire payment farmers must comply with the regulations set down in the Code of Good Agricultural Practice.

From 2023, the Basic Payment system is to be replaced with a new support system called Basic Income Support System (BISS). An optional Eco Scheme element may contribute up to 30% of this proposed payment. Participation by farmers in a one day annual CPD programme on sustainable farming must be introduced to secure this payment. This would ensure that farmers, currently not utilising advisory support services, are provided with the most up to date information on protection of water quality. Farmers already participating in annual training through the Knowledge Transfer Programme, environmental scheme and EIP's would automatically qualify for this payment.

(d) European Innovation Partnership (EIP)

These programmes have proven to be highly effective model and complementary to GLAS, the current national agri environment scheme. These programmes target specific issues in local areas/regions such as the Burren Project, BRIDE Project, Pearl Mussel and Hen Harrier. Annual training for participants provided through these programmes, have proven to be highly effective in achieving positive and measurable outcomes.

(e) Future Environmental Schemes in Agriculture must be targeted and Results Based

Farmers participating in proposed Agri-Environmental schemes must be required to select environmental actions in the programme that address environmental issues identified on their farms from initial farm audits – the proposed baseline measurement assessment. The effectiveness of these actions can be measured on an annual basis and adjusted if required following consultations with their farm advisor, to ensure the planned outcomes are achieved. Such Agri environmental schemes must build on the successes of actions undertaken in previous environmental schemes and include innovative measures that will deliver significant environmental dividends. Payments must be provided through these schemes to reward farmers for protection and enhancement of high value bio diversity areas and measures undertaken to protect water quality.

Thank you for taking the time to read the Agricultural Consultants Association submission

Annex 1

Analysis of the Private Farm Advisory Service activities in Ireland in 2018 (unless stated)

	ACA members	Total Private Sector
Total Clients 2018	55,000	70,000
Advisors	270	498
BPS submitted	43,072	53,840
Derogation applications	2,560	3,201
TAMS	14,656	18,320
GLAS annual visits	27,180	33,974
KT Programme		
KT Groups	665	832
Farmers in groups	11,036	13,795
KT Farm Improvement Plans and profit monitors	11,036	13,795
Other		
GLAS training – since 2017	27,180	33,974
NMPs – GLAS and Derogations (2017, 2018 & 2019)	47,936 (GLAS 36,080 and Derogations 11,856)	59,920
Farmer Consultations 2018: BPS, GLAS, Derogation, TAMS and KT	115,920 ¹	132,400

1. Total number of one to one consultations by ACA members with their clients in 2018. It includes a minimum of 3 consultations in relation to the KT programme and does not include the actual contact at the KT meetings. It includes 10,000 consultations for TAMS – initial contact, farm visits, applications for grant aid and payments.

Annex 2 – 160 ACA member offices in Ireland

List of all 160 members is available on www.aca.ie



Annex 3 – Teagasc offices in Ireland (Source www.teagasc.ie)



From: Alec Rolston [REDACTED]
Sent: Thursday 6 August 2020 13:38
To: rbmp
Cc: [REDACTED]
Subject: An Fóram Uisce | The Water Forum
Attachments: An Fóram Uisce_SWMI Submission.pdf

A Chara,

Please find attached the submission from [An Fóram Uisce | The Water Forum](#) as a whole in regard to the Significant Water Management Issues public consultation.

An Fóram Uisce welcomes further engagement in the process for the development of the 3rd River Basin Management Plan.

I would appreciate if you would acknowledge receipt of this submission.

Thank You

Alec Rolston

pp Donal Purcell
Senior Executive Officer
An Fóram Uisce

Dr Alec Rolston

Research Lead

An Fóram Uisce | The Water Forum



[REDACTED]



www.thewaterforum.ie





SUBMISSION TO THE DEPARTMENT FOR HOUSING, LOCAL GOVERNMENT AND HERITAGE

PUBLIC CONSULTATION ON THE SIGNIFICANT WATER MANAGEMENT ISSUES IN IRELAND

5 August 2020

Introduction to An Fóram Uisce

An Fóram Uisce | The Water Forum was established in June 2018 in accordance with the provisions of Part 5 of the Water Services Act 2017, and is the only statutory body representative of all stakeholders with an interest in the quality of Ireland's water bodies. An Fóram Uisce consists of 26 members including representatives from a wide range of organisations with direct connections to issues relating to water quality and also public water consumers. Approximately 50 different organisations were involved in the nomination of members. Further information can be found at www.thewaterforum.ie.

Summary of Submission

1. An Fóram Uisce welcomes the opportunity to respond to the public consultation on the Significant Water Management Issues (SWMI) in Ireland.
2. The wide scope of work undertaken by the Department to develop the SWMI public consultation document is recognised.
3. This document represents an agreed submission of An Fóram Uisce as a whole.
4. The submission is presented in three parts:

PART ONE outlines the background information upon which this submission is based. It details an overview of implementation of Integrated Catchment Management (ICM) in the 2nd cycle RBMP, providing recommendations for the improvement of each of the core components of ICM. This review of ICM implementation has been undertaken by An Fóram Uisce as a means of considering whether it is a strategic issue requiring further progress during the next cycle. A total of 18 recommendations are provided for improving ICM implementation in Ireland.

Part One also introduces a new Framework for Land and Landscape Management (FILLM) which provides An Fóram Uisce's position for progressing the concept of ICM in respect of the recommendations made for improving ICM delivery. The FILLM broadens ICM to include all

the components of the natural environment (air, water, ecosystems, soils, rocks, land, landscape) which are interrelated and interlinked, while retaining the catchment as the appropriate landscape unit for management. By using the FILLM as the underpinning concept for water management, it is possible to re-examine how Significant Water Management Issues can be identified and mitigated to further protect and enhance Ireland's water resources through the river basin management planning process

PART TWO provides this re-examination through overarching comment on the Significant Water Management Issues (SWMIs) described in the SWMI public consultation document, with six components of water management addressed. Part Two also reconceptualises Ireland's Significant Water Management Issues by introducing the sector-pressure-stressor approach as an alternative for understanding and managing Ireland's Significant Water Management Issues. Underpinned by the FILLM, the focus of this approach is to identify the environmental *stressors* which manifest through water quality and WFD status. By examining the linkages between stressors, pressures and the sectors through which they are delivered, it is possible to take an integrated, holistic approach to developing and implementing mitigation measures which can also produce co-benefits for climate change and biodiversity.

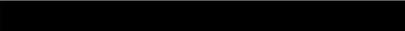
PART THREE directly responds to the SWMI questions provided in the public consultation document through the prisms of Parts One and Two. It also provides brief comment on seven components that were not included in the SWMI public consultation document but which are considered by An Fóram Uisce to be of vital importance to be addressed in the 3rd RBMP to improve the integrated management of Ireland's waters as required under the Water Framework Directive.

5. An Fóram Uisce considers the SWMI public consultation document questions to be overly technical, consequently creating barriers and inequity for non-expert engagement in the consultation process.
6. A total of 82 key points are outlined in response to the questions provided in the SWMI public consultation document.
7. By taking the approaches outlined in Parts One, Two and Three of this submission, An Fóram Uisce presents its position on the future management of Ireland's water resources both through the river basin management planning cycle, and through the interlinked legislation and policies associated with water management.
8. Further engagement in relation to the content of this submission, the FILLM and the 3rd cycle RBMP planning process is warmly welcomed.

End

Please address any correspondence as follows:

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County Tipperary*

Email: 

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EXECUTIVE SUMMARY

This document represents an agreed submission from An Fóram Uisce as a whole to the public consultation on the Significant Water Management Issues for the third cycle River Basin Management Plan (RBMP) for Ireland 2022-2027.

The submission is comprised of three parts. **Part One** outlines the background information upon which this submission is based. It details an overview of implementation of Integrated Catchment Management (ICM) in the 2nd cycle RBMP, providing recommendations for the improvement of each of the core components of ICM. This review of ICM implementation has been undertaken by An Fóram Uisce as a means of considering whether it is a strategic issue requiring further progress during the next cycle. The review covers each of the nine components of the ICM toolkit: 1) Public engagement; 2) Developing a shared vision; 3) Characterisation at catchment scale; 4) Characterisation at local scale; 5) Programmes of measures; 6) Environmental policy and regulations; 7) Incentives; 8) New/upgrading infrastructure; and 9) Inspections.

Successful implementation of ICM is based on actions for each of these 9 components of ICM in a cohesive, interwoven manner. A total of 18 recommendations are provided for improving these nine components.

Part One also introduces a new Framework for Land and Landscape Management (FILLM) which provides An Fóram Uisce's position for progressing the concept of ICM in respect of the recommendations made for improving ICM delivery. The FILLM broadens ICM to include all the components of the natural environment (air, water, ecosystems, soils, rocks, land, landscape) which are interrelated and interlinked, while retaining the catchment as the appropriate landscape unit for management.

By doing this, the FILLM becomes the overarching framework for environmental management as a means of connecting legislation and policies such as the Water Framework Directive, the Urban Waste Water Treatment Directive, the Habitats Directive, the Floods Directive, the Drinking Water Directive, climate change adaptation and mitigation, soil conservation, spatial planning and sustainable food and timber production. In addition, it is a means for achieving the Sustainable Development Goals for 2030.

Taking such a whole-of-system approach requires a multi-disciplinary, multi-objective and multi-stakeholder process which can link the environmental components and human activities within a catchment to optimise water quality returns while also delivering co-benefits for biodiversity and climate change.

By using the FILLM as the underpinning concept for water management, it is possible to re-examine how Significant Water Management Issues can be identified and mitigated to further protect and enhance Ireland's water resources through the river basin management planning process. **Part Two** provides this re-examination through overarching comment on the Significant Water Management Issues (SWMIs) described in the SWMI public consultation document, with six components of water management addressed: Governance; Public and stakeholder engagement and awareness; Legislation and policy coherence; RBMP monitoring and evaluation; Time lags and timescales for achieving WFD status objective; and Climate change. Some of these components are listed as SWMIs in the public consultation document, but in this submission these are not considered to be SWMIs as they can 1)

Be mechanisms through which improvements in water management governance, water quality and Water Framework Directive (WFD) status can be made, for example Prioritisation and Public Participation; or 2) Manifest other water management issues.

Part Two also reconceptualises Ireland’s Significant Water Management Issues by introducing the sector-pressure-stressor approach as an alternative for understanding and managing Ireland’s Significant Water Management Issues. Underpinned by the FILLM, the focus of this approach is to identify the environmental *stressors* which manifest through water quality and WFD status. By examining the linkages between stressors, pressures and the sectors through which they are delivered, it is possible to take an integrated, holistic approach to developing and implementing mitigation measures which can also produce co-benefits for climate change and biodiversity.

Following an examination of the 2nd RBMP and the SWMI public consultation document and the international literature, eight stressors are identified: sediment, nutrients (nitrogen, in terms of nitrate and ammonium, and phosphorus), microbes (bacteria, viruses and parasites), chemicals, organic matter, microplastics, water level and flow, and temperature. This list of stressors and their linked pressures and sectors may not be exhaustive, but are used to highlight that by focusing on the linkages of each of these environmental stressors with the pressures and sectors through which they are manifested, it is possible to create a more holistic picture of the complex interactions acting on Ireland’s waters.

While Parts One and Two review ICM implementation and introduce the FILLM as a new environmental management framework, and the sector-pressure-stressor approach as an alternative for identifying and addressing SWMIs, **Part Three** directly responds to the SWMI questions provided in the public consultation document through the prisms of Parts One and Two. A summary of the key points addressed through answering these questions are provided below.

SWMI	Summary of Points
Prioritisation	<ul style="list-style-type: none"> • While it is recognised that limited resources must be sparingly shared, An Fóram Uisce considers that the prioritisation of measures into 190 sub-catchment Priority Areas for Action (PAAs) undertaken in the 2nd RBMP contravenes Ireland’s obligations under Articles 3 and 4 of the Water Framework Directive. • Prioritisation of resources to PAAs can make it difficult to address water quality deterioration in non-prioritised areas. • Investment in <i>protection</i> and <i>restoration</i> of water quality is needed. • Prioritising PAAs in the 2nd RBMP failed to fully implement ICM by taking a sub-catchment approach to prioritisation. • There is currently a lack of quantitative evidence to support claims of improvements in water quality in PAAs as a direct result of LAWPRO and ASSAP actions. • Resources provided to Local Authorities to protect and improve water quality outside of PAAs are insufficient. • Current resources available to Local Authorities for water quality protect and improve measures outside of PAAs may be redirected to other non-water areas as a result of a perception that LAWPRO is undertaking the necessary work.

	<ul style="list-style-type: none"> • Any revision to the PAAs in the 3rd RBMP should prioritise catchments which are used as drinking water sources to provide co-benefits of measures for drinking water quality and public health. • Commitments to improve urban wastewater infrastructure as part of the 2nd RBMP should be urgently progressed. • Transparent reporting of progress of wastewater treatment infrastructure improvements should be a priority for the 3rd RBMP. • Improvements in the monitoring, evaluation and reporting of RBMP measures and actions is an essential priority. • Agencies and bodies with responsibility for undertaking RBMP actions must be required to report on metrics aligned with the RBMP actions.
Public participation	<ul style="list-style-type: none"> • The SWMI public consultation document questions are overly technical, creating barriers and inequity for non-expert engagement in the consultation process. • People are given the opportunity to <i>respond</i> to the way our waters are managed, with little transparency as to whether any responses are incorporated into decision making. • The FILLM outlined in Part One explicitly requires public engagement at all stages. • Recommendations from An Fóram Uisce’s briefing note on public engagement in water management should be incorporated into the 3rd RBMP actions. • Pilot engagement catchments should be implemented in the 3rd RBMP to incorporate social science expertise into public engagement, and to trial engagement and monitoring and evaluation methodologies. • Co-designed catchment management plans can be developed with local communities and stakeholders to raise awareness of issues and incorporate local knowledge and expertise. These could be trialled in the pilot engagement catchments. • Given its statutory role in water management, it is proposed that An Fóram Uisce is appointed as a champion body for the delivery of the SDGs and their water-related actions.
Land-use planning	<ul style="list-style-type: none"> • The FILLM provides an overarching framework for environmental management which connects multiple legislative instruments and incorporates spatial planning. • Currently, there is no planning guidance for Local Authorities regarding WFD concerns meaning decisions are being made within a knowledge deficit. • WFD-relevant planning guidelines for Local Authorities are required, along with training for relevant staff and decision makers involved in planning and WFD implementation. • The commitments to land-use planning in the Programme for Government are welcomed and An Fóram Uisce looks forward to working with the relevant Departments to achieve them.
Agriculture	<ul style="list-style-type: none"> • Agriculture is considered in this submission as a sector, the functions of which act as pressures impacting the stressors of water bodies. • Some historical policies have reduced the social values associated with water and landscape; and the FILLM provides the framework for increasing such social value.

	<ul style="list-style-type: none"> • Farming for Nature projects, Results-Based Agri-Environmental Schemes and EIPs must be further encouraged and their results widely disseminated. • Providing public money for public goods can provide support to farmers based on the environmental services they provide as part of their farming. • The recommendations of a new OECD report regarding managing water quantity and risks under climate change and reducing pollution from agriculture should be heeded. • Further action is required to address nitrate pollution of waters following the recent EPA report on Water Quality 2013-2018. • Results from agricultural research projects such as SmartBufferz, Slowwaters and Watermarke should inform agricultural measures included in the 3rd RBMP. • An Fóram Uisce has commissioned a research project to investigate water quality returns from the reform of the CAP. The final report is due in September 2020 and its findings should be used to inform the 3rd RBMP planning. • A combination of national and locally targeted CAP measures and approaches will be necessary to protect <i>and improve</i> water quality.
Climate change	<ul style="list-style-type: none"> • In this submission, climate change is considered a direct driver of change rather than a specific SWMI. • The visibility of water within climate mitigation and adaptation measures must be increased to improve the linkages between climate policy and water policy. • Knowledge gaps exist surrounding abstractions below the threshold for registration, and their cumulative effect within catchments and how this may be exacerbated by climate change.
Pollution of waters (phosphorus and nitrogen)	<ul style="list-style-type: none"> • Urgent progress on the commitments to improving national wastewater treatment infrastructure made in the 2nd RBMP is essential. • The 3rd RBMP should include statements on the progress made to date on 2nd RBMP UWWTP commitments, reasons for lack of progress, updates on compliance and non-compliance of individual WWTPs, projected timeframes for achieving compliance where needed, and an action plan for achieving commitments regarding WWTP infrastructure improvements made in the 3rd RBMP. • It is not acceptable that 36 agglomerations are without wastewater treatment systems with untreated wastewater being discharged to receiving waters. • Funding should be made available to review the current data availability on combined sewer overflows and storm water overflows in Ireland, with the view to creating a publicly-accessible information hub for locations of discharges, discharge times, rates and volumes. • The recently announced grant system for domestic wastewater treatment systems is welcomed and must be carried over into the 3rd RBMP. • Monitoring and evaluation metrics for bodies and agencies charged with implementing RBMP actions must be aligned to RBMP reporting mechanisms. • Further research into the efficacy of contaminant removal from wastewater sludge for recycling is necessary as are measures and policy

	<p>to further encourage the recovery and recycling of nutrients from wastewater.</p> <ul style="list-style-type: none"> • Pathway interception measures should be prioritised for mitigating impacts from phosphate. • Source reduction and mobilisation control measures should be prioritised for mitigating impacts from nitrate. • Soft engineering options such as Integrated Constructed Wetlands should be included as management options for reducing nutrient pollution at the catchment scale rather than relying solely on WWTP engineered solutions.
Physical changes to water bodies/ Hydromorphology (including barriers to fish migration)	<ul style="list-style-type: none"> • Barriers to facilitating river restoration works, such as planning requirements, should be examined to improve ease of implementation. • Guidelines for assessing hydromorphological impacts on waters in the planning process should be introduced. • Natural water retention measures must be incorporated as options for catchment-scale flood mitigation measures and habitat restoration measures, using international best practice guiding principles. • Rivers where migratory fish populations are in crisis compared to historical figures should be prioritised for action where barriers have been found to be a significant contributory factor to the population decline. • Lessons learned and knowledge gaps identified from the implementation of the National Biodiversity Action Plan 2017-2021 should be used to inform the actions required through the 3rd RBMP to help achieve the National Biodiversity Action Plan.
Siltation	<ul style="list-style-type: none"> • Local co-designed catchment management plans developed within the supporting framework of the FILLM would raise awareness of local issues and incorporate local knowledge and solutions for mitigation. • Pathway interception measures are important for the management of siltation.
Public health/ Drinking water quality	<ul style="list-style-type: none"> • Greater ambition to reduce leakage to below 38% nationally is required post 2021. • A whole-of-catchment cumulative approach to abstraction licencing should be undertaken, with due consideration to the impact of abstractions on ecological character and flow and water level regimes. • A collaborative approach to drinking water source protection is essential to deliver Integrated Catchment Management through the FILLM. Such a collaborative approach can only be fostered through clear and strong governance, defined roles for action, and appropriate resourcing. • Key lessons can be drawn from the Phase I and Phase II Drinking Water Source Protection Projects delivered by the National Federation of Group Water Schemes. • Clarity is needed as to how the National Water Resources Plan and the Drinking Water Safety Plans in development by Irish Water link to the 3rd RBMP and catchment-scale objectives. • A greater focus on improving water quality in Small Private Supplies is needed and the National Federation of Group Water Schemes Framework for Drinking Water Source Protection would assist this. In addition, greater awareness of the importance of drinking water source protection within the Small Private Supplies sector is necessary.

	<ul style="list-style-type: none"> • The National Federation of Group Water Schemes Framework for Drinking Water Source Protection is recommended to deliver co-benefits for climate and biodiversity through drinking water source protection measures. • A national peatlands rewetting strategy would improve drinking water quality by reducing sediment entering water courses and reducing dissolved organic carbon concentrations (leading to fewer lower concentrations disinfection by-products, such as Trihalomethanes, in drinking water supplies), while providing co-benefits for flood alleviation (by slowing the flow), carbon sequestration, and biodiversity through peatland rehabilitation.
Invasive Alien Species	<ul style="list-style-type: none"> • Clear and transparent governance structures for invasive species management are essential. • Priority should be given to addressing management actions required to reduce the likelihood of introduction and spread of those Invasive Alien Species identified as being of greatest concern through the Horizon Scanning approach undertaken and published by IT Sligo. • Easily accessible funding could be provided to local community groups, such as River Trusts and Catchment Partnerships and Associations to map riparian invasive species presence within their catchment and to develop invasive species management plans to implement the appropriate management measures to reduce their prevalence and potential to spread. • Active engagement measures to raise awareness of local IAS issues, preventative measures and activities associated with the spread of IAS are required. • The content of An Fóram Uisce’s submission under the public consultation for the National Marine Planning Framework under the Descriptor Non-Native Invasive Species is highly relevant to RBMP measures to address IAS and highlights the necessary policy coherence required to deliver integrated management of IAS in Ireland. • Local community and sporting groups should be engaged through a national campaign to raise awareness of local IAS issues, preventative measures and activities associated with the spread of IAS.
Hazardous chemicals	<ul style="list-style-type: none"> • Public awareness campaigns and labelling information are important to address behaviour around hazardous chemicals, and lessons can be learned from other water-related campaigns such as <i>Think before you Flush</i>. • Policy and legislation are important to drive consumer choice, as has been observed regarding microplastics/microbeads in personal care products.
Urban pressures	<ul style="list-style-type: none"> • Lessons can be learned from international best practice to create and deliver guidance on design and implementation of green infrastructure and sustainable drainage systems. • Policy and resources need to be devoted by Local Authorities to further install such green infrastructure in urban areas to slow the flow while creating co-benefits for biodiversity and society. • Catchment-scale flood alleviation requires a greater focus on natural water retention measures to be used in combination with harder engineering flood alleviation measures where deemed appropriate and subject to the required legislative environmental assessments.

	<ul style="list-style-type: none"> • Ireland’s building regulations need revision to facilitate national-scale action to reduce water consumption. Opportunities for retrofitting also need to be pursued. • There is little stimulus for the general public to initiate domestic water conservation measures or install domestic green infrastructure which could help to both slow the flow and improve water quality. • Where possible, opportunities to create green and blue spaces around water courses that would create environmental and societal co-benefits should be prioritised ahead of culverting or other hard engineering solutions. • Irish-focused research on green-blue infrastructure should be used in combination with lessons from international case studies of successful delivery of such infrastructure to inform recommendations for its delivery through the 3rd RBMP in Ireland. • It is essential for the appropriate funding to be delivered to ensure no impairments of Irish Water’s ability to meet their commitments on upgrading urban wastewater treatment infrastructure.
Aquaculture	<ul style="list-style-type: none"> • The content of An Fóram Uisce’s response to the public consultation on the draft National Marine Planning Framework is highly relevant to RBMP measures and highlights the necessary policy coherence required to deliver integrated management through the FILLM. • An Fóram Uisce expresses concerns that many aquaculture operations were able to continue operating without a licence due to a loophole in the Fisheries Amendment Act which allows continued operation once a licence renewal has been applied for. In addition, the speedy process at which the backlog was eliminated provided local communities with little opportunity to take part in the public participation process. • Regarding nutrient inputs from aquaculture, it is highlighted that pseudofaeces, faeces and silt from shellfish aquaculture can have detrimental impacts on the local environment through anoxia and reduction in faunal abundance and diversity.
Antimicrobial resistance (AMR) bacteria in waste water	<ul style="list-style-type: none"> • Further understanding is needed on the prevalence of AMR bacteria in wastewater in addition to the pathways through which they can present a public health threat – e.g. contamination of drinking water, bathing/recreational waters, etc. • A One Health approach is required to reduce both water contamination risk from wastewater treatment discharge and public health risk from contact with contaminated waters.

Finally in Part Three, brief comment is provided on seven components that were not included in the SWMI public consultation document but which are considered by An Fóram Uisce to be of vital importance to be addressed in the 3rd RBMP to improve the integrated management of Ireland’s waters as required under the WFD: 1) Governance; 2) Coastal issues; 3) Forestry; 4) Microplastics; 5) Water level and water availability; 6) Peat extraction; and 7) Unregulated wetland/peatland drainage.

INTRODUCTION

The vision of An Fóram Uisce is that Ireland has *clean and healthy waters, capable of supporting biodiversity and providing the basis for a productive and healthy economic and cultural life*. The Forum's mission is to ensure that all stakeholders are regularly reminded of this vision and their role in achieving and supporting it.

This document represents the submission of An Fóram Uisce to the public consultation on the Significant Water Management Issues for the third cycle River Basin Management Plan for Ireland 2022-2027.

The submission is comprised of three parts. Part One outlines the background information upon which this submission is based. It details an overview of implementation of Integrated Catchment Management (ICM) in the 2nd cycle River Basin Management Plan, providing recommendations for the improvement of each of the core components of ICM.

Part One also introduces a new Framework for Land and Landscape Management (FILLM)¹ which provides An Fóram Uisce's position for progressing the concept of ICM. The FILLM broadens ICM to include all the components of the natural environment (air, water, ecosystems, soils, rocks, land, landscape) which are interrelated and interlinked, while retaining the catchment as the appropriate landscape unit for management.

Using the FILLM as the underpinning concept, Part Two provides overarching comment on the Significant Water Management Issues (SWMIs) described in the SWMI public consultation document. Six overarching components of water management are addressed. Some of these overarching components are listed as SWMIs in the public consultation document, but in this submission these are not considered to be SWMIs as they can 1) Be mechanisms through which improvements in water management governance, water quality and Water Framework Directive (WFD) status can be made, for example Prioritisation and Public Participation; or 2) Manifest other water management issues.

Part Two reconceptualises Ireland's Significant Water Management Issues by introducing the sector-pressure-stressor approach as an alternative for understanding and managing the SWMIs which impact on Ireland's aquatic environments. Underpinned by the FILLM, the focus of this approach is to identify the environmental *stressors* which manifest through water quality and WFD status. By examining the linkages between stressors, pressures and the sectors through which they are delivered, it is possible to take an integrated, holistic approach to developing and implementing mitigation measures which can also produce co-benefits for climate change and biodiversity.

Part Three directly responds to the SWMI questions provided in the public consultation document through the prisms of the FILLM and the sector-pressure-stressor approach described in Parts One and Two respectively.

By taking these approaches, An Fóram Uisce outlines its position on the future management of Ireland's water resources, both through the river basin management planning cycle, and through the interlinked legislation and policies associated with water management. Further engagement in

¹ An Fóram Uisce (2020). Protecting and enhancing our environment: A Framework for Integrated Land and Landscape Management. Available from: https://thewaterforum.ie/app/uploads/2020/07/An-Fóram-Uisce_Framework-for-Integrated-Land-and-Landscape-Management.pdf

relation to the content of this submission, the FILLM and the 3rd cycle RBMP planning process is welcome.

PART ONE: TOWARDS A FRAMEWORK FOR LAND AND LANDSCAPE MANAGEMENT (FILLM)

1.1 An overview of implementation of Integrated Catchment Management in the 2nd cycle RBMP

The central concept to the Water Framework Directive (WFD) is integration as this is seen as key to the management and protection of water within river basin districts. This includes integration of, for instance: i) all water resources combining fresh surface water and groundwater, wetlands, coastal water resources at the catchment scale; ii) environmental objectives for water bodies; iii) water uses, functions and values; iv) disciplines and expertise; v) stakeholders and civil society; vi) measures to achieve the objectives; and vii) the different decision-making levels (local, regional and national) that influence water management. The Integrated Catchment Management (ICM) approach was developed as the means of enabling the required integration. This is acknowledged in the River Basin Management Plan (RBMP) for Ireland 2018-2021² as follows: *“A new approach to implementation known as ‘integrated catchment management’ is being used to support the development and implementation of the RBMP, using the catchment (an area that contributes water to a river and its tributaries, with all water ultimately running to a single outlet) as the means to bring together all public bodies, communities and businesses.”*

A review of the implementation of ICM has been undertaken by An Fóram Uisce as a means of considering whether it is a strategic issue requiring further progress during the next cycle.

The ICM components or ‘toolkit’, outlined in Table 1 is used as the basis for considering the use of ICM to-date and for making recommendations for the next RBMP in the final section.

It is recognised that a number of evaluative studies are currently underway, and these are awaited with interest. The overall sense, however, is that the public body that applies the ICM approach most consistently in its work is LAWPRO in collaboration with ASSAP farm advisors (primarily Teagasc). Specific units, e.g. EPA Catchment Science & Management Unit, and individuals in EPA and local authorities also use the approach as the basis for their work. It is considered that this uneven implementation of ICM is unsatisfactory and is hindering progress towards achieving WFD objectives.

² <https://www.housing.gov.ie/water/water-quality/river-basin-management-plans/river-basin-management-plan-2018-2021>

Table 1: The Integrated Catchment Management Toolkit³

'Tools in the toolkit'
1. Public engagement
2. Developing a shared vision
3. Characterisation at catchment scale
4. Characterisation at local scale
5. Programmes of measures
6. Environmental Policy & Regulations
7. Incentives
8. New/upgrading infrastructure
9. Inspections

1.1.1 Public engagement

The current measures – establishment of An Fóram Uisce, work of LAWPRO together with ASSAP farm advisors, communications via the website www.catchments.ie, and the input and support of the Rivers Trusts – represent significant progress on public and stakeholder engagement during the 2nd RBMP cycle.

Successful, *integrated* catchment management must be based on social acceptability by local communities as well as on protection and rehabilitation measures. This requires effective public engagement based on mutual respect and an understanding of community values and aspirations. It brings the social (including political), wellbeing (physical and mental), cultural and economic dimensions to catchment management. In essence, ICM requires scientists and policy makers to find ways to walk alongside the people who live and work in the catchment. An Fóram Uisce believes that significant further progress is needed in this area during the next RBMP cycle as a priority and that clear proposals to enable this be included in the RBMP.

A truly collaborative approach to ICM would include stakeholders from the earliest possible stage. Local expertise must be engaged, not at some later point in the ICM process, but from the very beginning and it should be allowed meaningful impact in decision-making and actions undertaken⁴. The delay in timelines on the implementation of the 2nd RBMP meant that LAWPRO Community Water Officers were appointed in late 2016 and the publication of the draft RBMP in April 2017 resulted in

³ <http://lawaters.ie/technical-resources/>

⁴Bresnihan, P and Hesse, A. (2019). Public engagement in water governance. Report to An Fóram Uisce. Available from: https://thewaterforum.ie/app/uploads/2020/03/Water-Forum_Public-Participation_Bresnihan-and-Hesse_2019.pdf

there not being enough time for such meaningful early engagement with the public in the planning process for the 2nd cycle.

Since then however, significant progress is being made. Targeted community engagement has led to a growing number of Rivers Trusts and Catchment Associations across the country. DHLGH is currently supporting a Rivers Trusts Resilience Pilot project whereby the Inishowen and Maigue Rivers Trusts are funded to employ a project officer to deliver their objectives over the next 3 years. Rivers Trusts are community led and driven, their objectives are designed by the community and all encompass water quality, ecological integrity, biodiversity protection, addressing alien species as well as education and training programmes and most have an aspect related to local economic development and tourism.

Some communities have facilitated community development ‘visioning’ approaches to define their objectives and action plan for their local river catchments. As these visioning workshops are open to and targeted at all members of the community, all age groups and backgrounds, a wide range of interests and perspectives are represented. This community development approach initiated and developed by the Rivers trusts in the UK has been undertaken in a number of catchments including the Nore river catchment and Dundalk Bay catchment, amongst others. Through this RIPPLE⁵ process the community identifies actions that they would like to see happen in their catchment, they consider how these actions might be delivered and who might take the lead in the delivery of each action, and in this way they create a plan for their catchment⁶. At further meetings, this plan is ratified and turned into a ‘vision’ for their catchment. To date, these community plans, whilst pertaining to local river catchments do not only include actions for water quality but also for biodiversity, climate, heritage, education and tourism, an outcome that might be expected when ‘all of the community’ have an input to the plan⁷. The aim of promoting a ‘visioning’ exercise within a catchment is to encourage thinking and networking that might initiate the development of a catchment association or rivers trust to lead on the implementation of the community catchment plan.

1.1.2 Developing a shared vision

Developing a collective vision and strategy in a multi-stakeholder catchment situation, while challenging, is critical to establishing priorities and encouraging practice change where needed as a means of dealing successfully with certain of the environmental stressors and pressures. This is particularly important with regard to the Statutory Agencies each of whom has a particular and distinctive role but who need to work and communicate more closely with one another in formulating a joint agenda. Realising this vision requires an engagement process based on the principles such as trust, respect and open communication. The strategy must be locally meaningful as well as nested in the broader scale objectives.

1.1.3 Characterisation at catchment scale

Catchment characterisation is undertaken by the EPA Catchments Unit in collaboration with public bodies such as local authorities, IFI and Irish Water. A comprehensive integrated assessment of all

⁵ Ballinderry River Trust and WWF (Undated). RIPPLE: A river action plan for the Ballinderry. Available from: http://assets.wwf.org.uk/downloads/wwf_ripple_brochure_final_layout_1.pdf

⁶ <https://fliphtml5.com/dabkz/rmnn/basic>

⁷ <https://www.catchments.ie/creating-vision-dundalk-bay-rivers/>

relevant scientific aspects of catchments and sub-catchments is undertaken. The relevance and quality of this work is acknowledged, and An Fóram Uisce supports its continuation.

1.1.4 Characterisation at local scale

The application of ICM is already happening as part of the new Governance structures set up as part of the 2nd RBMP cycle. The development of these structures resulted from learnings from the first RBMP and aimed to ensure a more co-ordinated approach to the development and implementation of 2nd cycle measures, ‘the right measure in the right place’.

LAWPRO is a Local Authority shared service with responsibility for managing this ICM approach on a national basis with significant support from the EPA Catchments Unit. Five Regional Management Committees consisting of Local Authority Directors of Service with direct responsibility for staff delivering against RBMP actions, chaired by a Local Authority CEO, report back to the National Co-ordination and Management Committee. There are 5 Regional Operational committees comprising staff from all the Agencies delivering actions to address the requirements of the RBMP Priority Action Areas and this committee is supported primarily by the LAWPRO Science teams, the EPA Catchments Unit and Chaired by a Local Authority Director of Service. Both Committees meet on a regular basis to discuss progress on the implementation of the RBMP, fieldwork results and potential measures within the Priority Areas of Actions.

A key part of the deliverables in the 2nd Cycle was the appointment in late 2016 of 12 Community Water Officers whose role it is to ‘engage local communities’ in the management of their local water bodies. Supported by initiatives such as the ‘Community Water Development Fund’ they engage with communities and support them to take actions to improve water quality, as well as raise awareness and build capacity through training programmes. An internal evaluation of LAWPRO work has recently been completed.

1.1.5 Programme of measures

Progress has been made in undertaking measures to achieve WFD objectives. However, the continuing deterioration of our water quality⁸ indicates that the measures being implemented are not adequate or have yet to achieve environmental outcomes. Currently there is an information deficit on progress updates through the RBMP monitoring and evaluation process (described further in Section 2.1.4), in particular in relation to the effectiveness of measures in addressing specific pressures and impacts, and due to this deficiency it is hard to be definitive on progress of RBMP measures.

1.1.6 Environmental policy and regulations

While regulations alone will not enable environmental objectives to be met, they are nevertheless a critically important ‘tool in the toolkit’. The high standard of many of the environmental regulations, such as the Good Agricultural Practices Regulations are recognised. However, they tend to be ‘one size fits all’ and a number of policy gaps are evident.

For instance, payments under the current CAP Pillar 1, farmers’ remuneration is based on land under agriculture and therefore if measures for water quality and biodiversity are implemented, such as

⁸ EPA (2019). Water Quality in Ireland 2013-2018. Available from: <https://www.epa.ie/pubs/reports/water/waterqua/waterqualityinireland2013-2018.html>

wide riparian buffer strips, those payments are lost. In addition, certain categories of 'unworked', low productivity farmland with environmental benefits (such as scrub, woods and bare rock) are ineligible for payments leading to some farmers converting these areas to farmland so that they may be eligible for subsidies. For farmers within the 2nd RBMP Priority Areas for Action (PAAs), this issue has been addressed in that they no longer lose CAP payments for lands given over to achieving environmental benefits. There is a strong case for this measure to be made available to all farmers, not just those located within PAAs.

1.1.7 Incentives

While An Fóram Uisce supports compliance with the regulations as a requirement, a policy of targeted incentives to enable land-use change, for instance, on high risk land or where large environmental benefits are feasible should be utilised as a means of achieving environmental objectives.

1.1.8 New/upgrading infrastructure

Over half of urban wastewater is not meeting EU standards⁹ and the Water Advisory Body has noted that Ireland is not addressing the deficiencies in its wastewater treatment at a fast-enough pace¹⁰. Expediting urban wastewater treatment infrastructure upgrades is critical to achieve RBMP objectives. Of immediate priority are the 36 towns where raw sewage is being released untreated into local receiving waters.

Obtaining progress updates on wastewater infrastructure improvements remains challenging, particularly with regards to measures identified in the 2nd RBMP. This is in part due to reporting structures and mechanisms that are not aligned to RBMP objectives and KPIs. A revision of progress reporting, monitoring and evaluation, and provision/availability of information is required for the 3rd RBMP cycle.

1.1.9 Inspections and enforcement of the regulations

Engagement and collaboration should be prioritised as the means of enabling both practice change where needed and social acceptability for environmental protection actions over compliance checking and sanctions, which can often cause alienation towards environmental protection. Nevertheless, enforcement of regulations is essential as a means of enabling compliance and indicating to those that are complying that the system is being applied in a fair manner. However, inspections are not always incorporated adequately with the other ICM 'tools in the toolkit' and therefore their cost-effectiveness and efficiency in achieving environmental outcomes could be improved.

1.1.10 Recommendations

Successful implementation of ICM is based on actions for **each** of the components in a cohesive, interwoven manner. Recommendations for the components listed in Table 1 are outlined below.

ICM Component	Recommendations
Public engagement	1. That local communities and individuals be involved in social learning and decision-making by means of implementation of a participatory process at catchment and/or sub-catchment level in <u>all</u> catchments, i.e. not only those with an 'improvement' objective, but also those with a 'protection'

⁹EPA (2019). Urban Waste Water Treatment in 2018. Available from: <https://www.epa.ie/water/uww/wwater/>

¹⁰ Water Advisory Body (2019). Quarterly Report No.1 October 2019. Available from: <https://wateradvisorybody.ie/quarterly-reports/>

	<p>objective. Account should be taken of the An Fóram Uisce Briefing Note on public engagement and the experience and expertise of LAWPRO and the River Trusts.</p> <p>2. As farm advisors are at the forefront of liaising with farmers and the public on environmental issues arising from farming, relevant training on environmental aspects such as water quality and ecology, climate change and biodiversity should be part of undergraduate agriculture courses and ongoing education. All agricultural trainers and educators should themselves be trained in the best practices of water quality, climate change and biodiversity protection.</p>
Developing a shared vision	<p>3. That developing a shared vision be a component of the public engagement.</p> <p>4. That a shared vision (including of the role and importance of the ICM approach) is developed among all the relevant public body stakeholders, such as NPWS, OPW, IFI, local authority Environment and Planning Sections, LAWPRO, Irish Water and EPA, within the existing governance and co-ordination structures.</p>
Characterisation at catchment scale	<p>5. That the multidisciplinary approach and collaboration with relevant public bodies continue.</p>
Characterisation at local scale	<p>6. That the approach used by LAWPRO should be applied in all remaining catchments and sub-catchments during the next cycle, including not only the Areas for Improvement in Priority Areas for Action (PAAs) as currently, but also the Areas for Protection.</p> <p>7. That training of local authority staff on local scale characterisation be initiated as a means of following the ‘right measure in the right place’ philosophy in dealing with diffuse and small point sources.</p> <p>8. That greater input from communities in catchments be facilitated.</p> <p>9. That consideration be given to dealing with whole catchment areas in an integrated manner rather than the current practice of dealing with sub-catchments in PAAs.</p>
Programmes of measures	<p>10. Greater transparency in the monitoring and evaluation of principal actions identified in the RBMP and, the publication of interim reports would achieve greater transparency and assist in the evaluation of progress.</p> <p>11. More ambitious programmes in wastewater treatment and leakage and mains replacement should be undertaken.</p>
Environmental policy & Regulations	<p>12. That a review of possible policy/regulatory gaps be undertaken.</p> <p>13. That the ‘area for eligibility’ under Pillar 1 of CAP be modified to take account of Pillar 2 requirements and be applied countrywide, rather than just in PAAs as is the situation currently.</p>

	14. That the development and implementation of County Development Plans (CDP) and Local Economic and Community Plans (LECP) for each local authority area build upon local community catchment and neighbourhood planning processes using a collaborative, consultative and participative approach in doing so.
Incentives	15. That, with regard to payments to farmers, while Pillar 2 payments (or whatever equivalent payments in the new CAP are called) incentivise environmental protection, consideration should be given to the means of making additional resources available. 16. That consideration be given to ‘public money for public goods’ as a principle and to utilising ‘results-based payments’ as a means of achieving environmental outcomes.
New/upgrading infrastructure	17. That a review of the adequacy of slurry storage be undertaken and, if considered necessary, grant aid is provided for increasing storage facilities.
Inspections	18. Where this is not already the situation, the approach to inspections should, in so far as is practicable, not be ‘stand-alone’ but should be part of an ICM process and should be based on and take account of the characterisation results.

1.2 An overview of the Framework for Land and Landscape Management (FILLM)

In the context of Section 1.1, above, a position paper is presented by An Fóram Uisce, available [here](#), which outlines a Framework for Land and Landscape Management (FILLM).

The FILLM builds on the ICM approach detailed in Section 1.1. and broadens it to include all the components of the natural environment (air, water, ecosystems, soils, rocks, land, landscape) which are interrelated and interlinked, while retaining the catchment as the appropriate landscape unit for management. By doing this, the FILLM becomes the overarching framework for environmental management as a means of connecting legislation and policies such as the Water Framework Directive, the Urban Waste Water Treatment Directive, the Habitats Directive, the Floods Directive, the Drinking Water Directive, climate change adaptation and mitigation, soil conservation, spatial planning and sustainable food and timber production. In addition, it is a means of achieving the UN Sustainable Development Goals (SDGs) for 2030.

Taking such a whole-of-system approach requires a multi-disciplinary, multi-objective and multi-stakeholder approach which can link the environmental components and human activities within a catchment to optimise water quality returns while also delivering co-benefits for biodiversity and climate change.

By using the FILLM as the underpinning concept for water management, it is possible to re-examine how Significant Water Management Issues can be identified and mitigated to further protect and enhance Ireland’s water resources through the river basin management planning process.

Part Two of this submission provides this re-examination of SWMIs, firstly through an overarching comment on the Significant Water Management Issues as presented in the SWMI public consultation document; and secondly by outlining the sector-pressure-stressor approach as an alternative for identifying and managing Ireland's SWMIs.

PART TWO: OVERARCHING COMMENT ON THE SIGNIFICANT WATER MANAGEMENT ISSUES IN IRELAND PUBLIC CONSULTATION

2.1 Overarching Components of Significant Water Management Issues

The SWMI public consultation document identifies 12 Significant Water Management Issues and two ‘other Issues’ which are impacting on Ireland’s water environment. It is considered that, rather than being specific SWMIs, some of these identified issues are higher level, overarching components of water management which can:

1. Be mechanisms through which improvements in water management governance, water quality and WFD status can be made, for example Prioritisation and Public Participation. Or
2. Manifest other water management issues. For example, climate change is a *direct driver*¹¹ of changes in ecosystems, for instance with regards to water availability, water quality and biodiversity.

Below, An Fóram outlines six of these overarching components and details rationale surrounding aspects of each that can be improved for the 3rd river basin management planning cycle.

2.1.1 Governance

The revisions to the broader governance structure implemented in the 2nd RBMP were welcome and it is recognised that they represent improvements on the previous governance structures for water management in Ireland.

Many difficulties that present themselves in the management of water can be a result, solely or in part, of water governance structures and differences in perceptions as to what ‘governance’ means. “For some, governance is an instrument, a means to achieve certain ends, an administrative and technical toolkit that can be used in different contexts to reach a given objective, such as enforcing a particular water policy. For others, governance is a process involving not the implementation of decisions taken by experts and powerholders, but rather the debate of alternative, often rival projects of societal development, and the definition of the ends and means that must be pursued by society, through a process of substantive democratic participation”¹².

It is considered that many perceptions of governance focus primarily on governance as a process to implement decision by experts and powerholders. Recognising that governance can also be implemented through improved public and stakeholder participation is essential for participative water governance in Ireland and this topic is the subject of a briefing note detailed further in Section 2.1.2 of this submission.

¹¹ A driver is any natural or human-induced factor that directly or indirectly causes a change in an ecosystem. A *direct driver* unequivocally influences ecosystem processes. An *indirect driver* operates more diffusely by altering one or more direct drivers. Climate variability and change has been identified as a direct driver of ecosystem change. Millennium Ecosystem Assessment (2005). Scenarios Assessment. Chapter 7: Drivers of change in ecosystem condition and services. <https://www.millenniumassessment.org/documents/document.331.aspx.pdf>

¹² Castro, J.E. (2007). Water governance in the 21st Century. *Ambiente and Sociedade* 10. <http://dx.doi.org/10.1590/S1414-753X2007000200007>.

The following aspects of Ireland's governance in water management can be improved:

- Transparency of each of the relevant bodies within the RBMP governance structure in terms of
 - Publication of meeting minutes
 - Visibility of membership of all bodies
 - Visibility of reporting by all bodies
 - Provision of information as requested
 - Linkages and communication between relevant bodies for shared and collaborative approaches to water management
 - Visibility and publication of progress towards achieving RBMP targets, goals and KPIs (see Section 2.1.4 for further information on monitoring and evaluation)
- Recognition that the focus of water governance is not solely to implement decision-making processes undertaken by experts and powerholders.
- Incorporating public and stakeholder engagement through the core principles of engagement as outlined in Section 2.1.2.

Participation in the recently initiated IPA-EPA research programme on Experimental Governance and the receipt of the project recommendations is welcomed. Clear and transparent processes as to how any recommendations provided by the research project can be incorporated into the 3rd RBMP cycle should be clearly communicated, particularly as the results and recommendations from the research project may not be available until after implementation of the 3rd cycle RBMP has begun.

2.1.2 Public and Stakeholder Engagement and Awareness

Public and stakeholder engagement is critical for the successful management of Ireland's water resources through the river basin management planning process, and public engagement is a legal requirement of the Water Framework Directive and is included in the Dublin Principles (1992)¹³ and as a core component of the Aarhus convention¹⁴. Stakeholder engagement is a principle of good water governance, incentivised in a broader context of a bottom-up call for open government and society¹⁵.

It is recognised that improvements in public and stakeholder engagement have been introduced through the governance structures as part of the 2nd RBMP, including the establishment of An Fóram Uisce itself as well as the Local Authority Waters Programme (LAWPRO) and the Agricultural Sustainability Support Programme (ASSAP).

There is concern regarding the monitoring and evaluation processes undertaken on engagement actions being delivered as part of the second river basin management planning cycle. This issue is addressed under Section 2.1.4 of this response. In addition, there has been a distinct lack of both qualitative and quantitative assessments of changes in public awareness of water management issues as a result of the structures established in the 2nd RBMP. Such assessments are necessary to inform the success or otherwise of these structures and to inform improvements in engagement practices into the future.

¹³ The Dublin Statement on Water and Sustainable Development. <http://www.un-documents.net/h2o-dub.htm>

¹⁴ Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters. <https://ec.europa.eu/environment/aarhus/>

¹⁵ International Network of Basin Organisations (INBO) (2014). Stakeholder engagement for inclusive water governance. INBO, Paris.

In early 2020, An Fóram Uisce issued a briefing note on *Public Engagement in Managing Ireland's Waters* to the then DHPLG. The note made four high level recommendations for the improvement of public engagement processes:

1. **Introduce and support public participation processes which incorporate the three key principles of effective public engagement:**
 - address inequity and power imbalances between different individuals and stakeholder groups
 - incorporate various forms of knowledge/expertise to recognise the value of lay knowledge as well as scientific expertise
 - address issues of scale e.g. how pressures and processes that operate at national levels circumscribe local decision-making regarding water management.
2. **Conduct an evaluation of current engagement initiatives** based on the above principles. This should also include an **assessment of wider water governance** for compliance with good governance principles: accountability, transparency, equity, inclusiveness, responsiveness, effectiveness, and efficiency. This is because such governance is necessary to support public engagement¹⁶.
3. **Include communities and individuals in procedures and decision-making around water resources from the beginning.** This recognises the value of their knowledge early in the catchment management process. It also elicits concerns, connections, and expertise early on and, vitally, it builds trust.
4. **Support medium/long-term interdisciplinary research on public engagement** including in the form of pilot projects. These should trial a range of approaches, while integrating multiple forms of expertise (e.g. biological; sociological; lay) into scientific research in ways that produce meaningful public engagement. Because this kind of participatory research involves time to establish relations of trust between stakeholders and across disciplines and expertise, medium/long-term institutional and financial supports are essential.

In particular, strong improvements can be made regarding the monitoring, evaluation, review and implementation of engagement practices to learn lessons of what works well and what can be improved to inform future actions.

In developing the FILLM approach, An Fóram Uisce was particularly concerned to ensure that public engagement should be a requirement at all stages, and this has been included in the approach.

2.1.3 Legislation and Policy Coherence

As the overarching national management plan associated with water management in Ireland, the River Basin Management Plan is inherently linked with multiple EU legislation and national policies. These linkages are all the more explicit when examined within the FILLM. The SWMI public consultation document references the linkages with other EU Directives and the importance of consistent policy integration, tying the third cycle RBMP to Climate Adaptation Plans, Marine Spatial Planning, Flood

¹⁶ An Fóram recognises and welcomes the newly initiated IPA_EPA research project on Experimental Governance which has the potential to review and address deficiencies in the current governance structures.

Risk Management Plans, and Biodiversity Action Plans, for example (SWMI public consultation document, p. 7).

An Fóram welcomes the recognition of these interlinkages between RBMP actions and other legislation, policy and plans. In the development of the actions for the 3rd RBMP following the closing of the SWMI public consultation period and the collation and responses to submissions, it is proposed that the linkages for each action to achieving initiatives in other relevant plans and policy are explicitly stated.

It is also proposed that explicit linkages are made between the actions of the 3rd RBMP and achieving the UN Sustainable Development Goals¹⁷ in Ireland. Research being undertaken by University of College Cork¹⁸ is focussing on SDG17: Partnerships for the Goals, and in particular Target 17.4 Enhance policy coherence for sustainable development. The research identifies the linkages between the RBMP and other policies towards achieving the SDGs and the 3rd RBMP should expand on these.

Ireland is lagging behind other countries in its integration of the SDGs into water-related management planning and implementation. For example, Sweden has incorporated the SDGs and the 2030 Agenda into governance and decision-making processes and measures, and the SDGs are reflected in the activities of all government ministries. A summary as to how Sweden plans to achieve SDG6 Clean Water and Sanitation highlights that good governance lies at the heart of implementation¹⁹.

In 2019, then Minister for Communications, Climate Action and Environment, Richard Bruton, appointed 12 leaders to drive forward Ireland's progress towards the SDGs. Water underpins *all* of the SDGs, yet there is no designated champion for delivering water-related actions to achieve the SDGs. Given its statutory role in water management, it is proposed that An Fóram Uisce is appointed as a champion body for the delivery of the SDGs and their water-related actions.

As well as the RBMP examining its synergies with other policies and plans, it is equally essential that those policies and plans recognise the importance of their linkages with the RBMP. In its submissions under the DHPLG public consultations on the Marine Strategy Framework Directive and the National Marine Planning Framework, An Fóram Uisce expressed its concern that responsibility for implementing actions relating to the near shore environment may simply be deferred to another legislative process (e.g. the WFD and RBMP for transitional waters) without overarching governance to undertake an integrated approach to managing Ireland's river catchments, transitional waters and coastal waters. Simply deferring responsibility to another legislative process reinforces governance silos, limits mitigating actions and restricts the *integrated and collaborative approach* needed to address the environmental status of Ireland's near shore environment. The SWMI public consultation document minimally identifies the linkages between the identified SWMIs and near coastal and transitional water issues despite the latter being core components of RBMPs to achieve the WFD.

DHLGH is strongly encouraged to ensure that robust policy coherence, transparency of action and integrated and collaborative governance and management is implemented in the 3rd cycle RBMP.

¹⁷ <https://www.un.org/sustainabledevelopment/>

¹⁸ Identifying Interactions for SDG Implementation in Ireland: SDG4I. www.sd4i.ie

¹⁹ <https://www.government.se/49f47b/contentassets/3bef47b49ed64a75bcd56ff053ccea6/6---clean-water-and-sanitation.pdf>

2.1.4 River Basin Management Plan Monitoring and Evaluation

Monitoring and evaluation is an essential component of an adaptive management process which facilitates learning from previous actions to deliver improved actions in the future. There are several types of monitoring and evaluation, including:

- Process monitoring, where data is collected and analysed to establish whether actions are being delivered as required to achieve the intended results.
- Financial monitoring, where program expenditure is monitored to ensure adherence to financial budgets.
- Impact monitoring, which assesses whether an action is achieving the desired impact or benefits.

For successful monitoring and evaluation, the data collected must be analysed against a set of predetermined indicators, for example Key Performance Indicators (KPIs), against which progress can be tracked.

The 2nd RBMP states that (2nd RBMP, p.126):

- Responsibility for monitoring and evaluation of the RBMP is the responsibility of the National Technical Implementation Group (NTIG, with support of the regional structures).
- Oversight of national implementation measures given by the National Coordination Management Committee (NCMC).
- Regional Integrated Catchment Management Programmes will set out details of planned interventions which can be monitored over time.
- The implementation of measures in the regional work programmes must be continuously monitored and evaluated.
- Each regional committee will, therefore, produce a concise annual report that will provide an update on implementation progress and evaluation of measures implemented.
- This reporting will be integrated with the WFD web-based application insofar as possible (accessible only to EPA staff, and other public agencies and local authorities engaged in WFD-work).
- The website www.catchments.ie will be a valuable source of up-to-date river basin management plan information for the general public.

In addition, with regards to monitoring progress for ‘Further Assessment of Areas’, the 2nd RBMP states that “suitable performance indicators for tracking progress will be designed. The Key performance Indicators (KPIs) will be monitored and used to track progress” (2nd RBMP, p.122).

It is considered that the monitoring and evaluation undertaken for the 2nd RBMP must be improved for the 3rd RBMP cycle regarding:

1. Unclear monitoring and evaluation processes being undertaken
2. Transparency and availability of KPIs against which performance can be tracked.
3. Availability of data against which progress of the 2nd RBMP can be tracked.
4. Transparency and availability of monitoring and evaluation actions undertaken by each body within the revised 2nd RBMP governance structure.
5. Transparency and availability of the annual reports produced by each regional committee showing progress on implementation and evaluation of measures.

6. A lack of a coherent 'mid-term review' process of the 2nd RBMP to inform progress, adapt measures if necessary, and inform the 3rd RBMP cycle.
7. A clear and transparent process of how the monitoring and evaluation evidence generated during the 2nd RBMP timeframe is used to inform the identification of SWMIs for public consultation and to inform the 3rd RBMP planning cycle.

The recent review of LAWPRO, and the EPA-IPA research project on Experimental Governance that will review the governance processes introduced in the 2nd RBMP are both welcomed. An Fóram Uisce will be undertaking a review of its own process later in 2020 to identify avenues for improving its own functioning, both internal and external to the Forum.

In providing these recommendations on monitoring and evaluation, it is recognised that for certain aspects of 2nd cycle RBMP implementation, time delays are apparent as to when improvements in status or results of measures may be observed. Further details on these time lags and timescales for achieving WFD Status Objectives are provided in Section 2.1.5.

2.1.5 Time Lags and Timescales for Achieving WFD Status Objectives

It is considered that for water bodies that have not achieved their WFD status objectives, clarity and transparency on the progress projected during the next cycle should be a component of the 3rd RBMP. This has arisen from a concern within the membership of An Fóram Uisce regarding the lack of information on and monitoring and evaluation of progress on the principal actions of the current RBMP.

It is understood and accepted that time delays for improvements in water quality are often unavoidable. However, an analysis of and an estimation of these time delays is essential not only for communication purposes, but also to assist work and resource planning and to enable projections on dates for restoration to the required water body status.

2.1.5.1 Factors determining time delays for improvement

The factors considered relevant to estimating time delays are illustrated in Figure 1 below.

To provide further information on these factors, An Fóram Uisce has developed a Briefing Note on *Achieving Water Framework Directives: The issue of time delays – How long will it take for improvements to occur?* This briefing note is available at: https://thewaterforum.ie/app/uploads/2020/06/Time-Delays_May2020.pdf.

The Briefing Note provides a means of estimating time delays for improvement for water bodies impacted by two *significant issues* – phosphate and nitrate. The Briefing Note provides a systematic approach for determining time delays and projected dates for achieving the WFD status objectives for *At Risk* water bodies, which can either be used directly or in an amended form.

To account for time delays in communicating progress on the 2nd RBMP and for implementation of the 3rd RBMP, the following recommendations are made for monitoring, evaluation and reporting:

- An analysis of the likely time delays for improvement in the water quality of water bodies that have not achieved their status objectives by 2021 be undertaken.
- The projected date for achievement of the of status objective for each water body should be provided together with reasoning for this projected date.

- Trend analyses are undertaken as an indicator of improvements that can then be reported to bodies such as An Fóram Uisce during the next cycle.
- If necessary, appropriate additional monitoring is carried out to assess the effectiveness of mitigation measures and actions so that adjustments can be made if the projected improvements are not occurring.

Implementing the above recommendations would assist in supporting the development and implementation of SMART objectives for planning and particularly resource allocation with regards to the 3rd RBMP cycle.

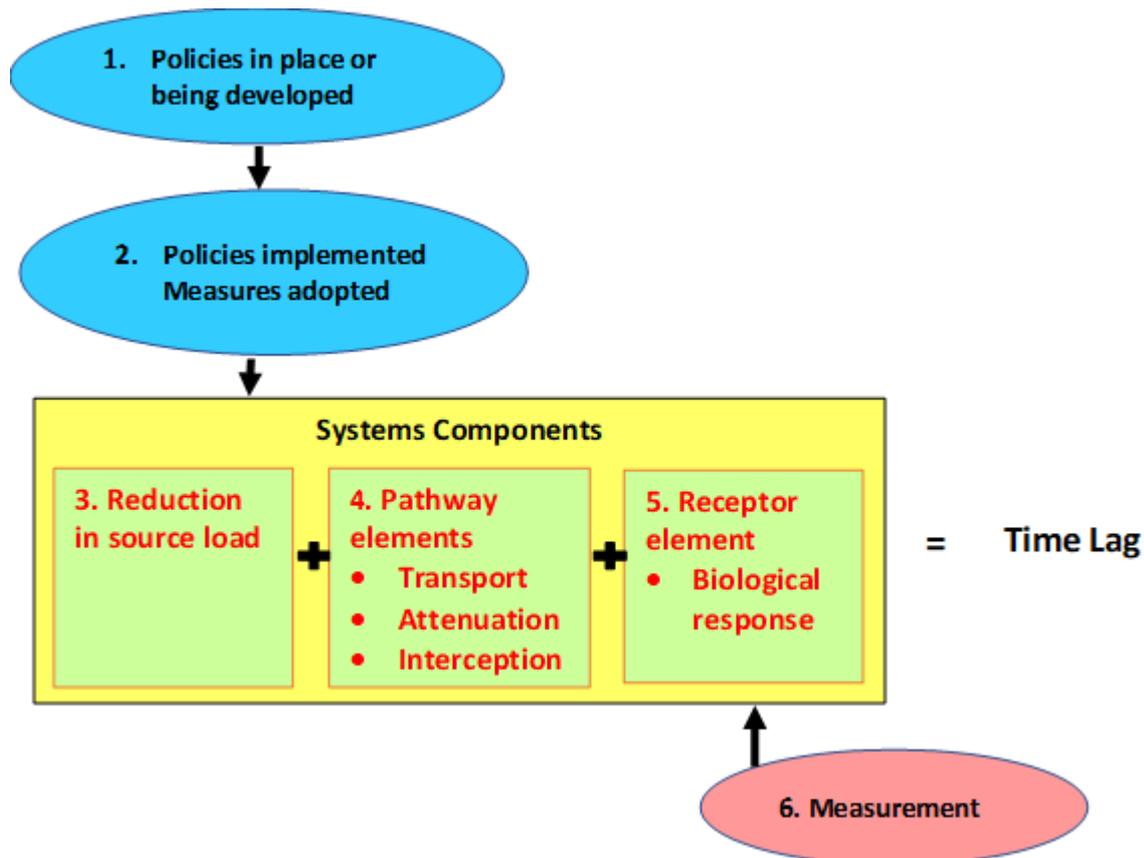


Figure 1: Schematic showing the major elements of the potential time delay for water quality improvement, including policy development and implementation component, catchment time lag components and the time needed to undertake monitoring.

2.1.6 Climate Change

The impacts of climate change on Ireland’s water resources may be multi-factorial as drought magnitude and duration may increase in the future, and Ireland has been identified as one of six European countries where the impact of a +2°C global warming will be most extreme²⁰. Weather extremes and climate variability directly impact the hydrological cycle, potentially resulting in

²⁰ Roudier, P., Andersson, J.C.M., Donnelly, C., Feyen, L., Greuell, W. and Ludwig, F. (2016). Projections of future floods and hydrological droughts in Europe under a +2°C global warming. *Climatic Change* 135: 341-355. doi: 10.1007/s10584-015-1570-4.

consequences for both social and economic factors²¹. Future climate change projections for Ireland include: an increase of mean annual temperatures of 1-1.6°C; an average increase in the growing season by over 35 days per year by the mid-21st Century; significant decreases in average precipitation amounts in spring and summer months as well as over the full year; an increase in heavy precipitation events; and a substantial increase in the number of extended dry periods²². Water resources have been identified as being vulnerable to future climate change scenarios for Ireland²³, and a number of hydrological changes (such as reduced soil moisture storage; lower groundwater recharge for longer, sustained periods; and changes in streamflow) are predicted to manifest through the increased frequency of major high and low river flow events²⁴.

The SWMI public consultation document correctly identifies climate change as impacting on the quality of Ireland's water resources, but climate change itself is not considered by this response to be a SWMI. Rather, it is a direct driver of ecosystem change¹¹ which will also have socio-economic consequences which themselves may manifest through changes in water quality and water availability.

Understanding of the effects of social shifts and economic impacts associated with water resources management is needed in addition to understanding the future impacts of climate change²⁵. Ensuring policy coherence of the 3rd RBMP with wider climate-related policies and plans is essential for RBMP measures to increase resilience in Ireland's water resources and their management (including management of water and wastewater services), and improve public awareness and involvement in water and climate measures.

2.2 Reconceptualising Ireland's Significant Water Management Issues from an Integrated Land and Landscape Management Perspective

This section introduces the sector-pressure-stressor approach as an alternative for understanding and managing the Significant Water Management issues which impact on Ireland's aquatic environments. Underpinned by the FILLM (Section 1.2), the focus of this approach is to identify the environmental *stressors* which manifest through water quality and WFD status. It is these environmental stressors which can be considered Significant Water Management Issues. Industry and social *sectors* contribute to changes in water quality and WFD status through introducing *pressures* which act on the waters and ecosystems within catchments. These pressures can influence the levels of environmental stressors which, acting either singularly or in multiplicity with other stressors, can result in changes in water quality, ecosystem function, the sequestration of carbon, biodiversity and WFD status.

²¹ Mehan, S., Kannan, N., Neupane, R., McDaniel, R. and Kumar, S. (2016). Climate change impacts on the hydrological processes of a small agricultural watershed. *Climate*. 4. Doi:10.3390/cli4040056.

²² Nolan, P. (2015). Ensemble of regional climate model projections for Ireland. Report to the Environmental Protection Agency for Ireland.

https://www.epa.ie/pubs/reports/research/climate/EPA%20159_Ensemble%20of%20regional%20climate%20model%20projections%20for%20Ireland.pdf

²³ Coll, J. and Sweeney, J. (2013). Current and future vulnerabilities to climate change in Ireland. Report to the Environmental Protection Agency of Ireland.

²⁴ Sweeney, J., Albanito, F., Brereton, A., Caffarra, A., Charlton, R., Donnelly, A., Fealy, R., Fitzgerald, J., Holden, N., Jones, M. and Murphy, C. (2008). Climate change – Refining the impacts for Ireland. Report for the Environmental Protection Agency of Ireland.

²⁵ Rolston, A. (2016). Water management: Social changes affect water quality too. *Nature* **536**: 396. doi:10.1038/536396b.

How stressors interact is often dependent on the type of aquatic system in which the stressors are present²⁶. As an example, nutrient pollution is typically the overriding stressor in lake systems. Yet, for rivers, the effects of nutrient pollution may depend on the combination of different stressors as well as how the impact of these stressor combinations is measured. Consequently, lakes and rivers can require different conservation and management processes²⁶. For lakes, the traditional approach of reducing nutrient use and discharge across catchments is key. However, for rivers, more bespoke management approaches are needed which consider the different stressors acting on the system, and how these stressors interact²⁶.

By examining the linkages between stressors, pressures and the sectors through which they are delivered, it is possible to take an integrated, holistic approach to developing and implementing mitigation measures which can also produce co-benefits for climate change and biodiversity.

2.2.1 Examining Sectors, Pressures and Stressors as an Alternative Approach to Addressing Significant Water Management Issues

2.2.1.1 Identifying and managing SWMIs within the Framework for Integrated Land and Landscape Management

The FILLM (Section 1.2) is the underpinning framework for this proposal of using the stressor-pressure-sector model approach to identify and manage Ireland's Significant Water Management Issues. It enables the management of SWMIs to be broadened to include components of our natural and social environments that may not be included in mitigation efforts through alternative SWMI management approaches. In addition, it enables the policy coherence required for the 3rd RBMP by connecting the various international and national legislative instruments and policies.

The SWMI public consultation document identifies 12 Significant Water Management Issues and two 'other Issues' which are impacting on Ireland's water environment. Some of these Issues can be considered higher level aspects of water resources management that manifest through various mechanisms and functions to affect water quality and WFD status rather than as specific SWMIs. For example, rather than being SWMIs, Prioritisation and Public Participation (identified as Issue 1 and 2 respectively in the public consultation document) are mechanisms through which improvements in water management governance, water quality and WFD status can be made. Climate Change (Issue 5 in the public consultation document) is an overarching driver of water availability, water quality and biodiversity (as discussed in Section 2.1.6). Addressing climate change within the FILLM requires action for both adaptation and mitigation measures to deliver a resilient landscape.

2.2.1.2 An example of a sectoral contribution within the sector-pressure-stressor approach

Increasing landscape resilience through the FILLM requires an examination of the contributions of different sectors within an Integrated Catchment Management context. To illustrate this proposed

²⁶ Birk, S. *et al.* (2020). Impacts of multiple stressors on freshwater biota across spatial scales and ecosystems. *Nature Ecology and Evolution* <https://doi.org/10.1038/s41559-020-1216-4>

alternative approach to addressing SWMIs, agriculture is used here as an example of identifying sectoral contributions which have implications for land and water management.

Agriculture has featured prominently in previous RBMPs and EPA reports as a pressure acting on our water resources; and agriculture is named in the public consultation document as a SWMI (Issue 4 in the public consultation document). Addressing the agriculture as an individual SWMI creates inherent challenges due to the complexity of the different forms of agriculture, and how they and their different management actions interact with the water environment.

Within the sector-pressure-stressor approach, it is proposed that with regards to water resources management, agriculture should be examined as a sector, the *functions* of which can manifest as multiple pressures. For example, functions of agriculture include land management, run-off, hydromorphological modifications, water abstraction and wetland degradation. Each of these can be considered as pressures which impact on water quality.

Within the FILLM however, tackling any one pressure should be approached from a perspective of optimising outcomes over a series of pressures.

2.2.1.3 Significant Water Management Issues within the sector-pressure-stressor approach

Examining the SWMI public consultation document and the 2nd RBMP, five environmental stressors can be identified which, either singularly or acting in multiplicity, can result in unsatisfactory water quality and WFD status. These environmental stressors are Sediment, Nutrients (nitrogen, in terms of nitrate and ammonium, and phosphorus), Microbes (bacteria, viruses and parasites), Chemicals and Organic Matter. For some of these stressors there may also be public health impacts associated with their presence in waters.

Three more environmental stressors are considered here to be of importance which are not addressed through the 2nd RBMP and the current SWMI public consultation paper, but which impact on one or more aspects of water quality, WFD status and public health: Microplastics; Water Level and Flow; and Temperature.

Background information and rationale for inclusion of the eight stressors in this proposed approach is included in Appendix 1.

By focusing on the **linkages** of each of these environmental stressors with the pressures and sectors through which they are manifested, it is possible to create a more holistic picture of the complex interactions acting on Ireland's waters.²⁷

²⁷It is recognised that these eight environmental stressors may not be exhaustive, and they may act in combination with other stressors which are not included in this description of this alternative approach to SWMIs. For example, chemicals, sediment, nutrients, microbes, organic matter, water level and flow and temperature all interact with an additional environmental stressor which can have a deleterious impact on water quality and WFD status: dissolved oxygen. In our description of this alternative approach to SWMIs, dissolved oxygen is not included as an environmental stressor as it is not a direct consequence of the pressures identified. Rather, it is a consequence of the interactions of more than one of the eight environmental stressors.

A conceptual diagram of these linkages is provided in Figure 2. The eight environmental stressors are shown at the bottom of the diagram, and each has a defined connection to one or more of ten identified pressures. Each pressure is intrinsically linked to one or more of six sectors. The stressors, pressures and sectors included in this example may not be exhaustive, but are being used as an example as to how, by focussing on the stressors and examining their linkages to pressures and sectors, a more holistic approach to managing Significant Water Management Issues can be developed. The linkages shown in Figure 2 do not attempt to weight the interactions between sectors, pressures and stressors.

Having identified the overarching linkages between all stressors, pressures and sectors, the linkages for singular stressors can be examined (Figure 3). For example, the environmental stressor Nutrients (NO_3 , P, NH_4) is influenced by eight pressures: Wetland degradation, Urban WWTP, Domestic WWTP, Hydromorphological modifications, Run-off (urban and agricultural), Industrial discharges, Land management, and Invasive Alien Species. To manage nutrient concentrations in Ireland's waters, the FILLM provides a holistic approach to mitigating each of these stressors through integrated management within and between the sectors which influence each of these pressures.

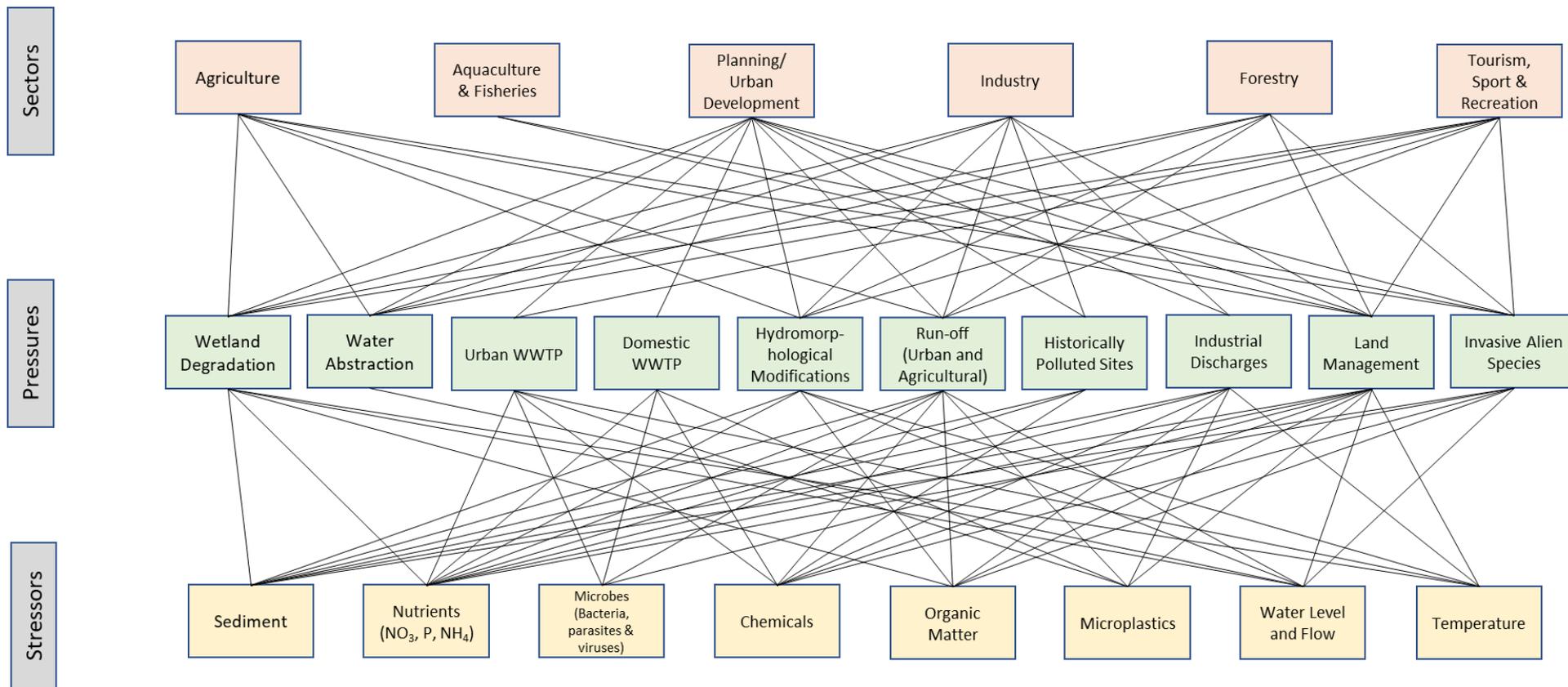


Figure 2: Conceptual diagram of the interactions between environmental stressors, pressures and sectors which, in combination, manifest in water quality and WFD status.

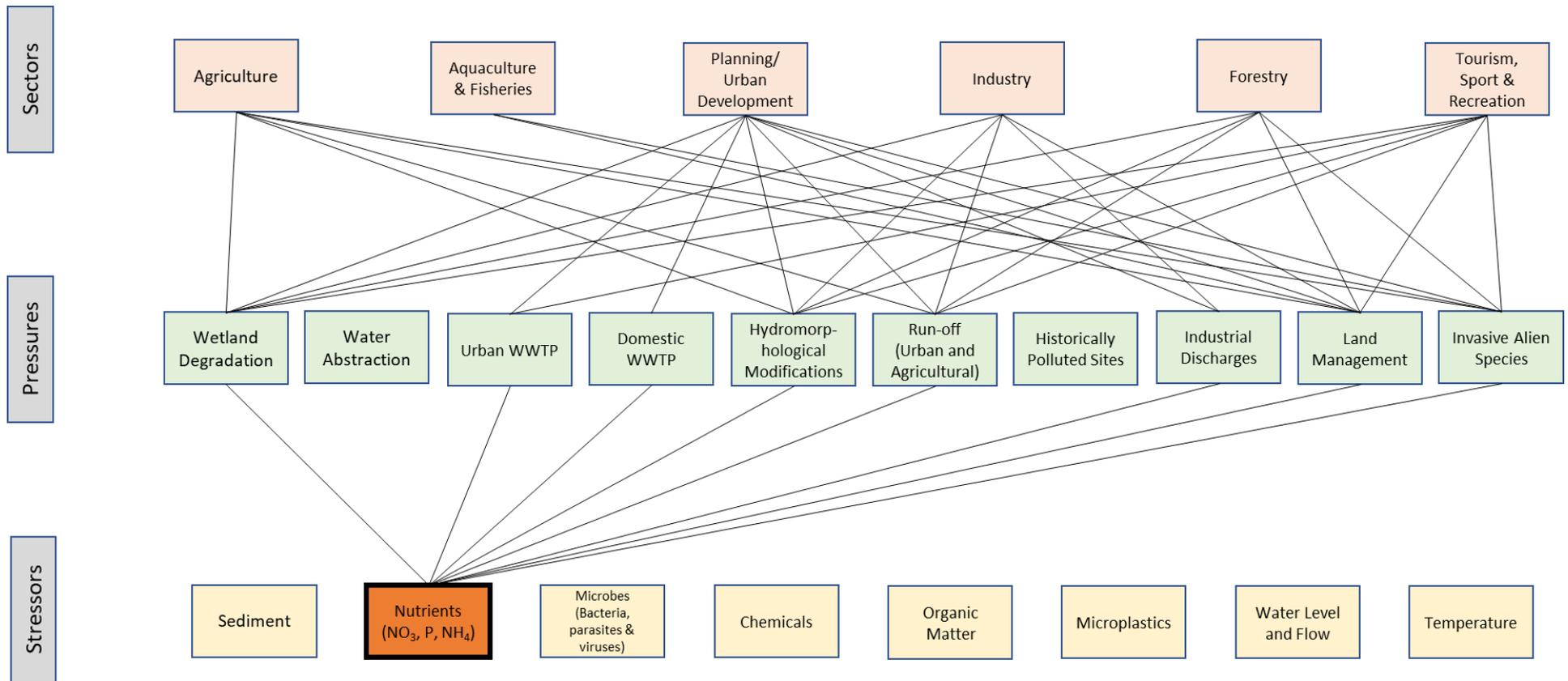


Figure 3: Conceptual diagram of the interactions between the environmental stressor, Nutrients (NO_3 , P, NH_4), and the pressures through which it is manifested, and the sectors which contribute to the pressure.

PART THREE: SIGNIFICANT WATER MANAGEMENT ISSUES IDENTIFIED IN THE PUBLIC CONSULTATION DOCUMENT

3.1. Addressing the SWMIs Identified in the Public Consultation Document

The SWMI public consultation document identifies 12 SWMIs and two 'other issues' with a number of questions provided for response for each issue. These questions are addressed below within the prism of the FILLM and the sector-pressure-stressor approach presented in Parts One and Two of this response respectively.

3.1.1 Prioritisation

Q: Of the current priorities in the RBMP, which do you consider to be the most relevant?

The Water Framework Directive (WFD) requires all water bodies to achieve good status. As stated in Articles 3 and 4 of the WFD, Member states have an obligation to coordinate programmes of measures for the whole of the river basin district, and that measures should be implemented to prevent deterioration of the status of all bodies of surface water [emphasis added by An Fóram Uisce]. Therefore, the prioritisation of measures into 190 sub-catchment Priority Areas for Action (PAAs) undertaken in the 2nd RBMP contravenes Ireland's obligations under the WFD.

It is recognised that limited resources must be sparingly shared. However, in addition to the contravention of the WFD, the PAA prioritisation process immediately restricted the true implementation of Integrated Catchment Management, so widely championed in the 2nd RBMP. The PAA process failed to take a whole-of catchment approach, instead prioritising areas for action at the sub-catchment scale.

LAWPRO, ASSAP and the DHLGH have recently communicated that some improvements have been observed in water quality and WFD objectives within the PAAs. However, An Fóram Uisce is unaware of any definitive quantitative evidence to show that these improvements are a direct result of the engagement activities and measures implemented in the PAAs. This is partly due to the limited monitoring and evaluation of these engagement activities and measures. An Fóram Uisce expresses concern that public statements are being made by multiple bodies claiming successes that the LAWPRO and ASSAP programmes are achieving in the PAAs without the evidence available to support such claims.

The EPA have reported⁸ that water quality overall has continued to decline nationally. Therefore, to adhere to Ireland's WFD obligations, there is an inherent need to *restore* water bodies in need; and *protect* those water bodies that are achieving their WFD objectives.

Local Authorities have responsibility for *protecting* water quality where it is deemed to be satisfactory. Where water quality is unsatisfactory, LAWPRO are the main public body with responsibility for improving water quality at a local level within PAAs. Therefore, Local Authorities have responsibilities for improving water quality outside of PAAs.

An Fóram Uisce expresses concern that the resources allocated to and by Local Authorities to undertake their responsibilities for protecting water quality and improving water quality outside of PAAs are not sufficient to produce the required results. A lack of appropriate training for Local Authority staff accompanies the lack of resource allocation, resulting in the Local Authorities function for protecting water quality being diminished. Consequently, as highlighted by the EPA's Water Quality Report 2013-2018²⁸, water quality is continuing to deteriorate at the national scale.

In addition, An Fóram Uisce is concerned about the potential for Local Authorities to appropriate the resources they do have towards issues unrelated to water quality improvements due to a perception that LAWPRO is already undertaking that body of work.

All eight stressors identified in the sector-pressure-stressor approach described in Section 2.2 are linked to drinking water quality. Catchment management measures aimed at mitigating these stressors and their associated pressures will therefore have the additional benefit of drinking water source protection and public health. Consequently, if a revised PAA selection process is to be introduced in the 3rd RBMP, prioritisation should be given to catchments which are used as drinking water sources; and any actions which provide co-benefits for climate change and biodiversity.

Q: Are there any additional priorities you think should be included in this RBMP?

Taking a whole-of-catchment approach to land and landscape management as advocated by the FILLM should be included as a priority in the 3rd RBMP.

Urgently progressing commitments made in the 2nd RBMP, as well as any new commitments introduced in the 3rd RBMP, to improve urban wastewater treatment infrastructure is essential. Including transparent reporting of such progress should also be a priority in the 3rd RBMP. See Section 3.1.12 for further detail.

Q: Would you amend any of the existing priorities?

It is difficult to address this question without clear and timely monitoring and evaluation of 2nd RBMP actions. Therefore, the monitoring and evaluation of 1) the actions outlined in the RBMP; and 2) the methods used to achieve these actions should be improved. As mentioned above, a focus on catchments which are used as drinking water sources can maximise co-benefits of ICM and the FILLM approach for drinking water source protection, public health, climate change and biodiversity.

Q: Are there any external factors you think should be considered in setting priorities for this RBMP cycle?

It is unclear what is meant by external factors in this question. Approaching this question from the perspective of factors external to WFD implementation, the integrated approach to land and landscape management as proposed by the FILLM comes sharply in to focus. In order to address the stressors and pressures outlined in Part Two of this submission, the integrated and holistic approach of the FILLM is essential to engage the different sectors that link with the pressures and stressors. Engaging the different sectors will inherently require coordination and collaboration across multiple Government Departments, Agencies, and bodies.

In addition, transparent reporting of progress on the RBMP (i.e. monitoring, evaluation and reporting) should be undertaken for all actions stated in the RBMP; and it should be ensured that all bodies with responsibility for undertaking actions are required to report on metrics aligned with the RBMP actions.

3.1.2 Public Participation

Q: Do you feel people are given the opportunity to engage in the way our waters are managed? Please provide examples to support your answer including ways this may be improved.

People are given the opportunity to *respond* to the way our waters are managed with little transparency as to whether any responses are incorporated into decision making. *Engagement* is a two-way process that allows for knowledge sharing and the incorporation of alternative viewpoints into the decision-making process. The way in which water management-related engagement is undertaken, and who is engaged, must be improved, and the FILLM approach explicitly requires public engagement and input at all stages. An Fóram Uisce has produced a briefing note on public engagement in water management based on commissioned research on this topic: <https://thewaterforum.ie/briefing-note-on-public-participation/>. The key recommendations from this briefing note are:

1. **Introduce and support public participation processes which incorporate the three key principles of effective public engagement:**
 - address inequity and power imbalances between different individuals and stakeholder groups
 - incorporate various forms of knowledge/expertise, in particular to recognise the value of lay knowledge as well as scientific expertise
 - address issues of scale e.g. how pressures and processes that operate at national levels circumscribe local decision-making regarding water management.
2. **Conduct an evaluation of current engagement initiatives** based on the above principles. This should also include an **assessment of wider water governance** for compliance with good governance principles: accountability, transparency, equity, inclusiveness, responsiveness, effectiveness, and efficiency. This is because such governance is necessary to support public engagement.
3. **Include communities and individuals in procedures and decision-making around water resources from the beginning.** This recognises the value of their knowledge early in the catchment management process. It also elicits concerns, connections, and expertise early on and vitally, it builds trust.
4. **Support medium/long-term interdisciplinary research on public engagement** including in the form of pilot projects. These should trial a range of approaches, while integrating multiple forms of expertise (e.g. biological; sociological; lay) into scientific research in ways that produce meaningful public engagement. Because this kind of participatory research involves time to establish relations of trust between stakeholders and across disciplines and expertise, medium/long-term institutional and financial supports are essential.

Incorporating social science methodologies and social science expertise to assist in the delivery of water-related engagement is an important factor to improve engagement actions and their monitoring and evaluation. Recognising that resources are limited, there is the opportunity to develop ‘pilot engagement catchments’ where a range of engagement, monitoring and evaluation methodologies are undertaken across different scenarios to understand what engagement practices are successful and which can be improved. Lessons derived from national and international public participation approaches in water resources management can be trialled within these pilot engagement catchments to assess what methods and approaches work or do not work within an Irish context.

Co-designed catchment management plans developed in collaboration with local communities and stakeholders provide an opportunity to help raise awareness of issues occurring within local catchments as well as incorporating local knowledge and solutions into the plans. Such inclusive, co-design processes could be trialled in the ‘pilot engagement catchments’ proposed above, incorporating lessons from international case studies where co-design has been implemented in water-resource management projects, for example in the Netherlands and the UK.

Commenting on the content of the SWMI public consultation, An Fóram Uisce has significant concerns regarding the technical nature of the questions to which responses have been directed to answer. These questions frequently require detailed environmental knowledge around water management and the individual SWMIs to which the individual questions are addressed. This creates challenges for lay persons to respond to the SWMI public consultation, particularly as preference is stated for responses to be submitted via the online survey portal through which these questions can be answered. Little consideration is given to citizens with limited knowledge of the river basin management planning process or water management in general, but who wish to partake in the public consultation process. This creates an inequity in the public consultation process and it has the potential to reduce the likelihood that less expert citizens will submit a response. This inequity, and the lack of incorporation of lay, non-expert knowledge, are addressed within the recommendations of An Fóram Uisce’s briefing note on public participation, detailed above.

As discussed in section 2.1.3, given its statutory role in water management, it is proposed that An Fóram Uisce is appointed as a champion body for the delivery of the SDGs and their water-related actions.

3.1.3 Land-use Planning

Q: How can the planning system be further improved to contribute effectively to the protection and improvement of water resources in Ireland?

The FILLM is an overarching framework for environmental management which connects multiple legislative instruments and incorporates spatial planning. As stated in the FILLM, a spatial planning system is needed that takes account of all environmental components in a holistic and cohesive manner. Reduced compartmentalisation of planning and actions within the various environmental

components is needed, as cross-component planning can deliver benefits in terms of cost-efficiency and environmental effectiveness.

Currently, there is no planning guidance for Local Authorities regarding Water Framework Directive concerns and consequently decisions are being made within a knowledge deficit. Planning guidelines for Local Authorities are required, along with training for relevant staff and decision makers involved in planning and WFD implementation.

The recent Programme for Government states multiple commitments relating to land use which are directly applicable to the FILLM, including:

- Undertaking a national land use review including farmland, forests, and peatlands so that optimal land use options inform all relevant government decisions.
- Promoting an all-Ireland approach to land use planning and river basin management plans to stop cross-border pollution.
- Evaluating the potential for contributions towards our climate ambition from land use improvements within 24 months of government formation, and to set in train the development of a land use plan based on this evaluation.

An Fóram Uisce welcomes these commitments in the Programme for Government and looks forward to working with the relevant Departments to achieve them.

3.1.4 Agriculture

Q: How can the agricultural sector contribute towards improving water quality?

As described in Section 2.2 of this submission, agriculture has typically been described in previous RBMPs and the SWMI public consultation document as a pressure acting on water bodies. Through the sector-pressure-stressor approach, agriculture is viewed as a sector, the functions of which act as pressures. Delineating the pressures delivered through sectors such as agriculture enables a more targeted approach to reducing the impact of stressors on the water environment.

It is recognised that Irish farmers are required to meet, and through participation in voluntary programmes and agri-environmental schemes often go beyond, EU requirements to maintain farms in Good Agricultural and Environmental Conditions including compliance obligations regarding the management of soils, hedgerows, water courses and fertiliser usage. Yet, it can be argued that some historical policies have resulted in a reduction in the social values associated with water and landscape. The FILLM provides the overarching framework through which action can be taken to ensure that greater value is attributed to water and water-related ecosystems. For farmers currently in receipt of CAP payments, financial rewards are often given for actions which can be detrimental to water-related ecosystems and water quality. Providing incentives that reward the protection and enhancement of water quality and water-related ecosystems will go a long way towards restoring their social and economic value among, not just farmers, but the wider community. Farming for Nature Projects, Results Based Agri-environmental Payment Schemes and EIPs are showing some promising results and such programmes must be further encouraged. Providing public money for public goods

can provide support to farmers based on the environmental services they provide as part of their farming.

The EU Green Deal, the EU Biodiversity Strategy for 2030, the EU Farm2Fork Strategy and the reform of the Common Agricultural Policy all provide high level opportunities to revitalise the social and economic value of water quality, water-related ecosystems and the ecosystem services that they provide.

New research²⁸ has identified that Ireland lies 35th out of 38 countries for aligning policy changes with relevant sections of the OECD Council Recommendation on Water and the 2017 G20 Agriculture Ministerial Action Plan on water and food security (Figure 4). The report recommends that relatively water abundant countries such as Ireland should “*pay attention to their approach to manage water quantity and risks under climate change, [and] all countries should consider improving their policies to reduce pollution from agriculture*”. Ireland should heed this recommendation across water quantity, climate change risks and pollution reduction and the FILLM and the sector-pressure-stressor approaches provide the holistic support necessary to deliver on this recommendation.

The EPA Report on Water Quality in Ireland 2013-2018⁸ identifies that nitrates are increasing in both surface and groundwaters, particularly in the south and southeast of the country. In its submission to DAFM on the Nitrates Derogation Review in May 2019, An Fóram Uisce made the following general recommendations for water bodies where nitrate is identified as a significant issue:

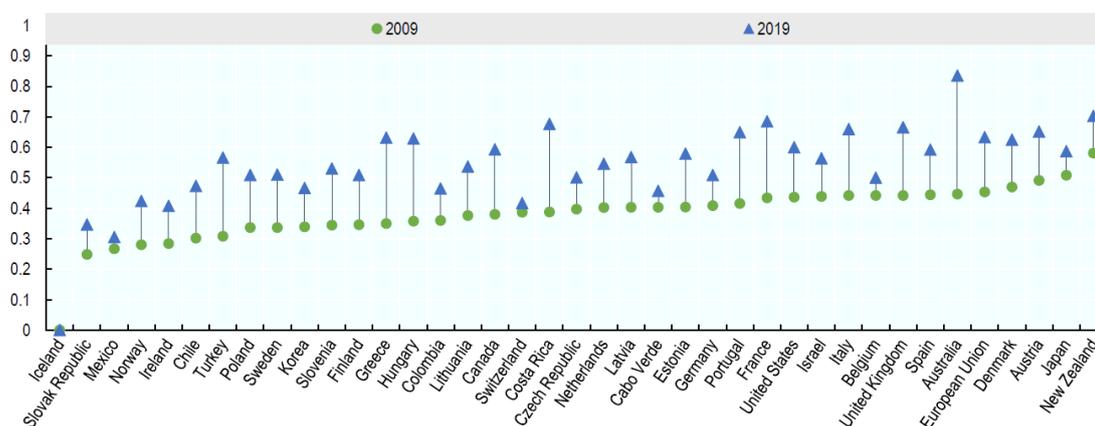
- Source control and mobilisation control measures need to have priority in this situation.
- Examples for consideration include:
 - i) Use of protected urea.
 - ii) Use of clover and over-sowing clover. (While there is evidence that this can be effective both in terms of grass production and reduction of inorganic N fertilizers, it requires more management of the grass sward and of the animals (due to the danger of bloat).)
 - iii) Applying N fertilizer ‘little and often’ to facilitate N usage.
 - iv) Introducing incentives for farmers to use slow release fertilizer, e.g. nitrogen inhibitors.
 - v) Enabling an increase of areas that have environmental services as their objective as a means of diluting nitrate concentrations, while at the same time increasing biodiversity and carbon sequestration.

The Nitrates Action Plan is due for public consultation in 2020 and An Fóram Uisce looks forward to engaging with the relevant Departments as part of the NAP consultation process.

²⁸ Gruère, G. *et al.*, (2020). Agriculture and water policy changes: Stocktaking and alignment with PECD and G20 recommendations. OECD Food, Agriculture and Fisheries Paper No. 144. https://www.oecd-ilibrary.org/agriculture-and-food/agriculture-and-water-policy-changes_f35e64af-en

An Fóram Uisce also welcomes the research projects introduced during the course of the second RBMP, such as the SmartBufferz, Slowwaters and Watermarke projects; and looks forward to seeing the results of these projects being used to inform 3rd RBMP measures.

(A) Ordered by status in 2009 to highlight changes



(B) Ordered by 2019 status

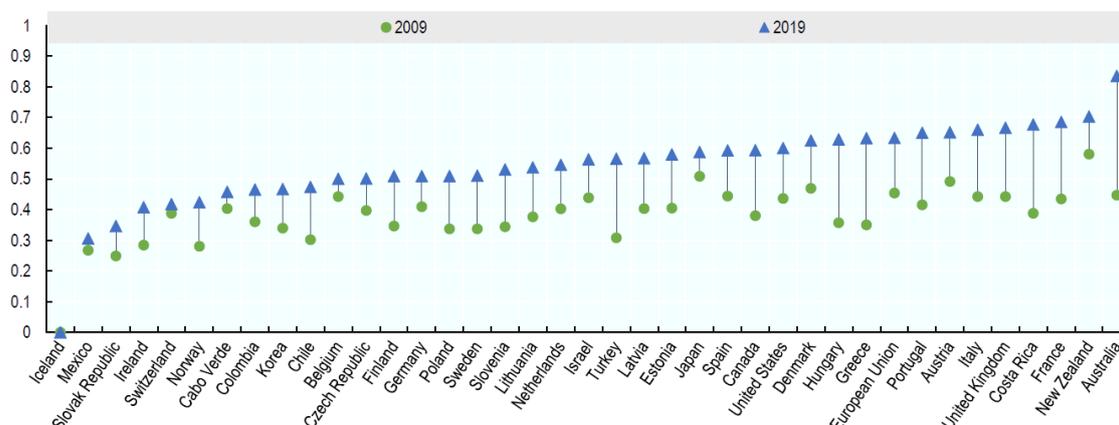


Figure 4: Average alignment of agriculture and water policies with the Council Recommendation on Water by country for (A) ordered by status in 2009; and (B) ordered by status in 2019. Indices range from 0 to 1 with higher indices indicating a higher alignment of policies²⁹.

Q: Do you believe that CAP will have a positive or negative impact on water quality in Ireland?

An Fóram Uisce has commissioned a research project entitled “Optimising water quality returns from the reform of the Common Agricultural Policy”. The final report will be available in September 2020 and will provide strong policy analysis around CAP reform and its potential impact on water quality.

As mentioned in the previous question, historical agricultural policies, such as the CAP, have resulted in a reduction in the social and economic value of water and its associated ecosystems, as well significantly contributing to the continued decline in overall national water quality. CAP reform has the opportunity to redress this by providing incentives to maintain, protect and improve agricultural

management of water and water related ecosystems while providing important co-benefits for climate and biodiversity. The FILLM provides the overarching framework as to how this can be achieved in a holistic and integrated manner.

Q: Do you think CAP measures to protect water quality should be retained at a national scale or become more locally targeted?

There is no one-size fits all approach to protecting *and improving* water quality. Agriculture, facilitated by policy, has been identified as a significant pressure acting on water quality nationally. A combination of national and locally targeted approaches will be necessary. National guidance is important, but an opportunity exists for locally targeted approaches in which farmers can decide on which is the best approach to use on their land through knowledge-sharing and co-design principles.

3.1.5 Climate Change

Q: Do you believe the links between climate change policy and water quality can be improved, and if so, have you any suggested on how they could be improved?

Water is often missing from the climate change conversation despite the inherent linkages between the changing climate, water quality and water availability. Increasing the visibility of water within climate mitigation and adaptation measures is an initial step to improving the links between climate change policy and water quality.

As climate change becomes more apparent in Ireland, water availability will become a more frequent issue, as highlighted by two droughts in two years between 2018-2020. Knowledge gaps surrounding abstractions in agriculture, and their cumulative effect within catchments, create difficulties for implementing abstraction legislation into the future. As noted in An Fóram Uisce's submission in October 2018 to the DHPLG on the consultation process in relation to the Water Environment (Abstractions) Bill 2018 General Scheme, the cumulative impact of abstractions below the threshold for registration is unknown.

Q: Do you consider climate change to be a significant threat to water quality in Ireland?

This submission addresses the impact of climate change on water resources under Section 2.16 and Appendix 1.

3.1.6 Pollution of Waters (phosphorus and nitrogen)

Q: Investing in urban waste water infrastructure and providing free agricultural advisory services are two targeted ways that the last RBMP aimed to reduce nutrient losses to surface waters. What other kinds of measures could be targeted and how?

Progress on the urban wastewater infrastructure commitments made in the 2nd RBMP has been slow, and urgent progress on these commitments is essential to reduce nutrient pollution of our waters. The 3rd RBMP should include statements on the progress made to date on the 2nd RBMP commitments to improving wastewater infrastructure, providing reasons for any lack of progress. This should include updates on compliance and non-compliance of individual WWTPs, projected timeframes for achieving compliance where needed, and an action plan for achieving any 2027 wastewater infrastructure upgrades committed to in the 3rd RBMP. It is not acceptable that 36 agglomerations are without wastewater treatment systems. Urgent action is needed to address this and to ensure that Ireland

complies with the UWWT Directive. Currently 58% of the population's wastewater does not meet EU wastewater treatment standards. Greater innovation is needed to address wastewater in urban areas under 500pe and sustainable urban drainage should be further implemented.

Soft engineering options, such as integrated constructed wetlands, for example, should be included as management options for reducing nutrient pollution at the catchment scale rather than solely relying on WWTP engineered solutions.

Data gaps exist regarding the number of combined sewer overflows and storm water overflows present nationally, their locations, discharge rates and discharge volumes²⁹. The UK Rivers Trust has recently published mapping for all known CSOs and storm water overflows in England³⁰. Funding should be provided to review the current data available for CSOs and SWOs in Ireland with the aim of developing a similar publicly available data-hub to that produced by the Rivers Trust.

The implementation of the recently announced grant system for domestic wastewater treatment systems is welcomed, along with the online interactive map for households to identify if they are eligible for the grant. But An Fóram Uisce notes the delay in the implementation of this grant system since its inclusion in the 2nd RBMP in 2018. The grant system must be continued into the 3rd RBMP.

Greater transparency in reporting of progress against RBMP measures and actions is necessary. In communications with An Fóram Uisce, Irish Water have confirmed that their monitoring and evaluation and reporting metrics regarding wastewater infrastructure are not aligned to the 2nd RBMP. This impedes the monitoring and evaluation of the RBMP and inhibits transparency on progress on commitments made.

Nutrient recovery from wastewater and its recycling into agriculture has the potential to both reduce nutrient pollution of water bodies and reduce use of, for example, mineral phosphorus as land fertiliser. Further research into the efficacy and contaminant removal from wastewater sludge for recycling is necessary as are measures and policy to further encourage the recovery and recycling of nutrients from wastewater³¹.

In addition, further research into alternative waste recovery and recycling methods are required, with consideration given to revision to Part H of the Building Regulations to facilitate domestic urine separation and toilet composting where feasible and appropriate.

The initiation of EPA-funded research projects, such as the SLAM Project regarding load apportionment, are welcomed and the results of such research must be used to inform the

²⁹ Morgan, D., Xiao, L. and McNabola, A. (2018). Technologies for monitoring, detecting and treating overflows from urban wastewater networks. Report to the Environmental Protection Agency of Ireland. Available from:

http://www.epa.ie/pubs/reports/research/water/Research_Report_240.pdf

³⁰<https://www.arcgis.com/apps/webappviewer/index.html?id=a6dd42e3bc264fc28134c64c00db4a5b&extent=146436.9576%2C27590.8012%2C854242.0922%2C563326.0668%2C27700>

³¹ Ryan, M.P., Boyce, A. and Walsh, G. (2016). Identification and evaluation of phosphorus recovery technologies in an Irish context. Report to the Environmental protection Agency of Ireland.

<https://www.epa.ie/researchandeducation/research/researchpublications/researchreports/EPA%20RR%20189%20final%20web.pdf>

development of the 3rd RBMP. Further such research must be prioritised to increase the evidence base around nutrient pollution.

An Fóram Uisce recommends that while nutrient management planning is an important means for reducing nutrient losses from land, pathway interception measures should be prioritised for mitigating impacts from phosphate, and source reduction and mobilisation control measures should be prioritised for mitigating impacts from nitrate.

3.1.7 Physical Changes to Surface Waters/Hydromorphology (including barriers to fish migration)

Q: How can natural processes in waters be protected and restored?

Physical changes to surface waters have often been implemented due to previous legislation, such as the Arterial Drainage Act 1947, policies and incentives for undertaking bodies of work. To redress some of the physical changes made, consideration needs to be given to the mechanisms through which incentives can be applied to deliver the changes required. Other barriers to facilitating restoration works also need to be examined, for example the planning process for undertaking river restoration works.

In addition, there are no guidelines for assessing hydromorphological impacts on waters in the planning process, and these should be introduced.

Q: Do you think that natural water retention measures, i.e. slowing the flow, should be explored further? How could these types of measures be implemented?

Yes, natural water retention measures must be, not just explored further, but incorporated as options for catchment-scale flood mitigation measures and habitat restoration measures. The FILLM provides the holistic framework for environmental management, connecting legislation including the Floods Directive. Inter-agency collaboration is necessary for the design and implementation of these types of measures, along with shared and coordinated policies.

Lessons from international best practice and case studies of successful implementation of natural water retention measures should be incorporated into any plans for delivering such measures. Examples of best practice include the Scottish Environmental Protection Agency Natural Flood Management Handbook³² and successful implementation of such measures include those presented at the EPA Water Conference 2020 by Hamish Moir of the Rivers and Lochs Institute, University of the Highlands and Islands, Scotland; and Mary-Liz Walshe of Dublin City Council³³.

Q: How should existing barriers to fish migration be prioritised for mitigation (either removal or modification to improve fish migration and natural processes)?

Those rivers where migratory fish populations are in crisis in comparison to historical figures and where barriers to fish migration have been found to be a significant contributory factor to the population declines should be prioritised for action.

³² <https://www.sepa.org.uk/media/163560/sepa-natural-flood-management-handbook1.pdf>

³³ <https://www.catchments.ie/2020-epa-water-conference-watch-online-now/>

Progress on the actions stated in Ireland's National Biodiversity Action Plan 2017-2021³⁴ should be reviewed and lessons learned, and knowledge gaps identified to inform the actions required through the 3rd RBMP to help achieve the Biodiversity Action Plan.

3.1.8 Siltation

Q: Would you consider source control measures, such as catch crops for tillage and appropriate riparian margins, to prevent soil loss (silt and nutrients) from land and increase biodiversity?

These measures could be included as part of individual catchment management plans for each RBMP catchment where appropriate. Developing such catchment management plans in collaboration with local communities and stakeholders would help raise awareness of issues occurring within the catchment as well as incorporating local knowledge and solutions into the plans. The FILLM provides the supporting framework for the integrated development of catchment management plans.

Pathway interception measures are important for the management of siltation in addition to being important for nutrient management as stated under section 3.1.6. A targeted approach to pathway mitigation is likely to achieve greater results than a one-size-fits all approach.

Q: Would you consider developing a land management plan to reduce silt and nutrient losses to waters? This could include measures such as drainage towards naturally wet low-lying areas; the use of drain blocks/silt traps?

As for the previous question, these measures could be included as part of a catchment management plan co-developed by the local communities and stakeholders for each individual catchment, for which the FILLM provides the supporting framework.

Q: What else should we consider?

Sediment is identified in this submission as a stressor (see Section 2.2 and Appendix 1). Using the sector-pressure-stressor approach as advocated in this submission enables the issue of siltation to be addressed in a holistic and integrated manner within the context of the FILLM.

3.1.9 Public Health/Drinking Water Quality

Q: What can we do to improve the resilience of our drinking water supplies and their associated ecosystems? How can climate change impact on this resilience?

The vulnerability of the drinking water supply for the Greater Dublin area was highlighted by the outages at the Liffey water treatment plant which affected 600,000 on two separate occasions in 2019. Increasing the diversity of supply to the Dublin area is essential as are infrastructure upgrades to increase headroom in water treatment plants.

Irish Water's preferred option for diversifying supply is the Eastern and Midlands Supply Project. If the project is approved to proceed, it may take more than 10 years to be completed. In the meantime, it is feasible that the country will face further water shortages following two droughts in two years. An

³⁴<https://www.npws.ie/sites/default/files/publications/pdf/National%20Biodiversity%20Action%20Plan%20English.pdf>

Fóram Uisce provided a submission to the CRU on the proposed Eastern and Midlands Supply Project in June 2019.

Irish Water is aiming to reduce leakage from the current 43% to 38% in 2021 following a €500 million investment. Recognising that further resources and time are necessary to reduce leakage rates further, An Fóram Uisce presses for greater ambition to reduce leakage below 38% post 2021. Given the wide range of infrastructure upgrades required nationally, the regional population growth projections and the expenditure controls applied by the CRU for the period 2020-2024, An Fóram Uisce has concerns regarding achieving further ambitious targets to increase the resilience of drinking water supplies. Leakage reduction will reduce water demand, but will not, on its own, address the issue of water security and water resilience.

Climate change will undoubtedly impact on the resilience of Ireland's water supplies, directly through water availability (both high and low flow scenarios), water quality; and indirectly, for example, as projected temperature increases in surface waters are expected to increase the potential for disinfection by-products such as Trihalomethanes³⁵. Comment on climate change in the context of the SWMI public consultation document, the sector-pressure-stressor approach and the FILLM is provided in Section 2.1.6 of this submission.

The resilience of ecosystems which are used as drinking water supplies is dependent on their ecological character and, in the case of surface water supplies, the maintenance of flow and water level regimes. A whole-of-catchment cumulative approach to abstraction licencing should be undertaken, with due consideration to the impact of abstractions on ecological character and flow and water level regimes.

Q: Who should implement drinking water source protection? How can a collaborative approach in the catchments be fostered? How can we engage with landowners and the wider public?

A collaborative approach to drinking water source protection is essential to deliver Integrated Catchment Management through the FILLM. Such a collaborative approach can only be fostered through clear and strong governance, defined roles for action, and appropriate resourcing. Key lessons can be drawn from the two Drinking Water Phase II Source Protection Pilot Projects implemented by the National Federation of Group Water Schemes, as well as the large body of work undertaken by the NFGWS to deliver Phase I drinking water source protection assessments for all Group Water Schemes.

Irish Water has a defined role in developing the National Water Resources Plan and in implementing Drinking Water Safety Plans. The utility has recently begun the process of implementing source protection pilot projects across a small number of catchments, and this is welcomed. Clarity is needed as to how the National Water Resources Plan and the Drinking Water Safety Plans in development by Irish Water link to the 3rd RBMP and catchment-scale objectives.

³⁵ Valvidia-Garcia, M. *et al.* (2020). Predicted impact of climate change on trihalomethane formation in drinking water treatment. *Nature Scientific Reports* 9. <https://www.nature.com/articles/s41598-019-46238-0>

Engagement with landowners and the general public on water related matters is currently the role of LAWPRO and ASSAP, and these two bodies seem to be collaborating well. Yet, deficiencies in the monitoring and evaluation of engagement actions mean that it is difficult to identify the true impacts and results of engagement actions undertaken to date. As advocated in Section 3.1.2 of this submission, there is the opportunity to develop ‘pilot engagement catchments’ which incorporate social science expertise and methodologies to deliver Integrated Catchment Management within the FILLM.

Small Private Supplies are consistently shown to have lower drinking water quality than public supplies, publicly-sourced Group Water Scheme supplies and privately-sourced Group Water Scheme supplies. A greater focus on improving water quality in Small Private Supplies is needed and the National Federation of Group Water Schemes Framework for Drinking Water Source Protection³⁶ would assist this. In addition, greater awareness of the importance of drinking water source protection within the Small Private Supplies sector is necessary.

Q: How can we realise co-benefits from source protection including for biodiversity and climate?

Many aspects of the FILLM and consequently Integrated Catchment Management can be achieved through drinking water source protection actions. In particular, An Fóram Uisce recommends adopting the National Federation of Group Water Schemes Framework for Drinking Water Source Protection³⁶, which emphasises the importance of co-benefits in protecting drinking water sources, and which applies the FILLM approach to source protection.

Within the sector-pressure-stressor approach of Section 2.2 of this submission, all of the stressors have a direct link to drinking water quality; and drinking water source protection measures aimed at mitigating the pressures acting on the stressors could also provide co-benefits for biodiversity and climate. For example, a national peatlands rewetting strategy would reduce sediment entering water courses and reduce dissolved organic carbon concentrations (leading to fewer lower concentrations disinfection by-products, such as Trihalomethanes, in drinking water supplies), while providing co-benefits for flood alleviation (by slowing the flow), carbon sequestration, and biodiversity through peatland rehabilitation.

Q: How would you describe our attitudes to water usage and the value of water? How could we develop this area?

This is a key component of An Fóram Uisce’s role and is incorporated into its Strategic Plan. An Fóram Uisce is committed to working with all stakeholders to increase the social value of water and to help raise awareness to create water-wise communities. A number of awareness and engagement initiatives are being planned by An Fóram Uisce and collaboration with the DHLGH and other stakeholders in the delivery of these initiatives would be warmly welcomed.

³⁶ <https://nfgws.ie/a-framework-for-drinking-water-source-protection-2/>

3.1.10 Invasive Alien Species

Q: In your opinion, what invasive species are the biggest concern in Ireland?

For species that have yet to arrive in Ireland, recent horizon-scanning research³⁷ has identified the invasive species of greatest concern to experts and stakeholders working in invasive species management. Priority should be given to addressing management actions required to reduce the likelihood of introduction and spread of those species identified in this research (Appendix 1).

Q: What more could be done to help prevent the introduction and spread of riparian invasive species at a national level and a local level?

At a local level, easily accessible funding could be provided to local community groups, such as River Trusts and Catchment Partnerships and Associations to map riparian invasive species presence within their catchments and to develop invasive species management plans to implement the appropriate management measures to reduce their prevalence and potential to spread.

At the national level, clear and transparent governance structures for invasive species management are necessary. This needs to be combined with active engagement measures to raise awareness of local IAS issues, preventative measures and activities associated with the spread of IAS.

An Fóram provided the following in its submission under the public consultation for the National Marine Planning Framework under the Descriptor Non-Native Invasive Species. The content is highly relevant to RBMP measures to address IAS and highlights the necessary policy coherence required to deliver integrated management of IAS in Ireland:

Minimising the introduction and spread of NIS is key to achieving and maintaining Good Environmental Status. Public consultation and awareness raising is a key component of this, and An Fóram Uisce proposes a targeted information campaign across all relevant stakeholders highlighting the actions necessary to minimise introduction opportunities and spread of NIS.

In order to coordinate such a public awareness campaign, clear and transparent governance structures are required for NIS management and to assist in the implementation of actions outlined in the National Biodiversity Action Plan. Such governance structures should include

1. An overarching lead authority/body/agency for the management of NIS in marine, transitional and freshwater environments (recognising that the National Biodiversity Action Plan identifies Inland Fisheries Ireland as the lead agency for aquatic invasive species).
2. Clearly defined roles for all agencies and management working groups/taskforces within the governance structure.
3. Realistic, integrated national action plans aim to minimise the introduction and spread of NIS in marine, transitional and freshwater environments.

³⁷ Lucy, F. et al. (2020). Horizon scan of invasive alien species for the island of Ireland. *Management of Biological Invasions. International Journal of Applied Research on Biological Invasions* 11: 155-177.
https://www.reabic.net/journals/mbi/2020/2/MBI_2020_Lucy_et.al.pdf

4. Strong policy coherence and integrated management across marine, transitional and freshwater environments.

To support the actions undertaken within this governance structure, greater scientific understanding is required to inform public awareness campaigns in terms of:

- The prevalence, distribution and risk of spread of established NIS present in marine waters (with the same information available for transitional and freshwater NIS also, delivered through the governance structure and policy coherence recommended above).
- The prevalence, distribution and risk of spread of newly introduced NIS.
- An assessment of risk of introduction of NIS not yet present in Irish marine/transitional/freshwater environments, and mitigating actions to prevent their introduction and spread.

The non-native species risk assessments undertaken by IFI and the National Biodiversity Data Centre (<http://nonnativespecies.ie/risk-assessments/>) should be frequently updated, and expanded beyond those undertaken for non-native species which are subject to trade or potentially subject to trade.

Ensuring direct legal provision in Ireland of the Ballast Water Convention should be undertaken as a matter of urgency.

The European Commission Council Regulation 708/2007 concerning the use of alien and locally absent species in aquaculture should be strictly enforced.

Addressing the above items through the FILLM enables an integrated approach to be undertaken in collaboration with the sectors identified in Part Two of this submission which contribute to the IAS pressures acting on water bodies, and consequently addressing the stressors which IAS influence.

Q: How can the awareness of invasive species at a local level be improved?

Local community and sporting groups could be engaged through a national campaign to raise awareness of local IAS issues, preventative measures and activities associated with the spread of IAS. This can be facilitated through new, improved governance structures and appropriate resourcing as outlined above.

3.1.11 Hazardous Chemicals

Q: How can information on current sectoral pesticide usage statistics (Agriculture, local authorities, forestry, amenities and domestic (home and garden)) be improved to help in assessing risks to water in catchment areas?

It is not possible to fully answer this question without being aware of the current sectoral pesticide usage statistics and how they are communicated. To assess risks to water in catchment areas requires a detailed understanding of, for example, land use, topography, soil type, geology, field and drain connections to waters in addition to the likelihood of pesticide application and amount of pesticide to be applied. Even if a catchment pesticide risk map to waters can be established for catchments, it doesn't account for human behaviour actions, for example where an individual rinses out a pesticide

container in a local drain or stream resulting in wide-spread contamination of waters in that catchment.

Q: How can citizen's behaviour regarding the safe disposal of medication be influenced and changed? What other measures can be taken to prevent medications from ending up in wastewater treatment plants?

Influencing behavioural change is only likely to be achieved if there is an understanding of risk to and by the user or target population. Therefore, public awareness campaigns and labelling information are important, and lessons can be learned from other campaigns such as *Think before you Flush*.

Q: How can consumer choice be better guided towards choosing personal care products that don't impact negatively on the water environment?

Public awareness campaigns and effective labelling are important for influencing consumer choice, but price is the over-riding factor. If personal care products which impact negatively on the water environment were more expensive, for example due to a levy, then it would help drive consumer choice to those products that cause less negative impact. Policy and legislation are also important, as has been observed regarding microplastics/microbeads in personal care products (Appendix 1).

3.1.12 Urban Pressures

Q: How can Green infrastructure be best applied in Ireland to benefit water quality and the alleviation of flooding in towns and cities?

Lessons can be learned from international best practice to create and deliver guidance on design and implementation of green infrastructure and sustainable drainage systems, such as that recently produced by the RSPB and Wildfowl and Wetlands Trust in the UK³⁸. Policy and resources need to be devoted by Local Authorities to further install such green infrastructure in urban areas to slow the flow while creating co-benefits for biodiversity and society.

Catchment-scale flood alleviation requires a greater focus on natural water retention measures to be used in combination with harder engineering flood alleviation measures where deemed appropriate and subject to the required legislative environmental assessments.

At the individual householder scale, the opportunity for increasing rainwater harvesting and greywater recycling exist. But Ireland's building regulations need revision to facilitate national-scale action to reduce water consumption. Opportunities for retrofitting also need to be pursued. In the UK, current building regulations state that all new homes should be built to a water consumption standard of 125 litres per person per day, with an optional requirement of 110 litres per person per day in water stressed areas where there is a clear need. In Ireland, the average person uses 129 litres of water per day and encouragement is needed to increase water conservation measures.

In 2015, the €100 Water Conservation Grant for all households registered with Irish Water, promoted household expenditure on water conservation measures. No audits were held regarding the use of this grant which was suspended in 2016, and no further grants to enable domestic water conservation

³⁸ <https://www.rspb.org.uk/globalassets/downloads/documents/positions/planning/sustainable-drainage-systems.pdf>

measures have been introduced since. Consequently, there is little stimulus for the general public to initiate domestic water conservation measures or install domestic green infrastructure which could help to both slow the flow and improve water quality.

Q: What are the particular issues associated with river restoration in urban rivers, and are we applying appropriate actions?

Where possible, opportunities to create green and blue spaces around water courses that would create environmental and societal co-benefits should be prioritised ahead of culverting or other hard engineering solutions. Such spaces have been shown to promote mental and physical health, and reduce morbidity and mortality by providing psychological relaxation and stress alleviation, simulating social cohesion, supporting physical activity and reducing exposure to air pollutants, noise and excessive heat³⁹. Irish-focused research on green-blue infrastructure⁴⁰ should be used in combination with lessons from international case studies⁴¹ ⁴² which successfully delivered such infrastructure should be used to inform recommendations for its delivery through the 3rd RBMP in Ireland.

Q: Are there any additional concerns in relation to urban pressures that are currently not being considered in Ireland?

The economic impact of the COVID-19 pandemic on funding availability for Irish Water to urgently progress and complete their commitments on upgrading urban wastewater treatment infrastructure needs clarification. An Fóram Uisce considers it essential for the appropriate funding to be delivered to ensure no impairments of Irish Water's ability to meet their commitments on this matter.

Q: What other actions do you think could be put in place to reduce the pollution of waters caused by urban pressures?

As mentioned above, revision of the Building Regulations to encourage increased rainwater harvesting and greywater recycling is necessary. Further actions are necessary, including:

- Ambitious standards for water consumption for new build houses, with consideration for stricter standards in current and future water-stressed areas.
- Adoption of water quality standards for water recovered from waste streams for reuse, addressing the different purposes for reuse rather than a single standard for all recovered water.
- Implementation of a water conservation scheme for houses in addition to or incorporated into the Building Energy Rating (BER) Scheme.
- More stringent standards under Technical Guidance Document G, Section 2.2 to encourage installation of water conserving fittings and water saving appliances particularly for current and future water-stressed areas.

³⁹ <https://www.euro.who.int/en/health-topics/environment-and-health/urban-health/publications/2016/urban-green-spaces-and-health-a-review-of-evidence-2016>

⁴⁰ http://www.epa.ie/pubs/reports/research/health/Research_Report_264.pdf

⁴¹ Well, F. and Ludwig, F. (2020). Blue-green architecture: A case study analysis considering the synergetic effects of water and vegetation. *Frontiers of Architectural Research* 9: 191-202.

<https://www.sciencedirect.com/science/article/pii/S2095263519300822>

⁴² O'Connell, E.C. *et al.* (2017). Recognising barriers to implementation of blue-green infrastructure: A Newcastle case study. *Urban Water Journal* 14: 964-971 <https://www.tandfonline.com/doi/full/10.1080/1573062X.2017.1279190>

- Administering grant aid for retrofitting water conservation measures for existing housing, including rainwater harvesting systems and grey water reuse systems, with consideration for additional aid in current and future water-stressed areas.
- Developing a national programme across multiple stakeholders for identifying domestic misconnections where household wastewater ends up in the surface drainage system rather than in sewers. Learning from the experiences of the UK Rivers Trusts, for example through their 'Outfall Safari'⁴³ programme could be beneficial.

3.1.13 Other Issues – Aquaculture

An Fóram Uisce recognises that aquaculture is an important component of the Irish coastal economy, providing multiple socio-economic benefits, and aquaculture and fisheries are included as a sector in the sector-pressure-stressor approach outlined in Section 2.2 of this submission.

The following was provided in An Fóram Uisce's response to the public consultation on the draft National Marine Planning Framework (dNMPF). As stated for Invasive Alien Species, the content is highly relevant to RBMP measures and highlights the necessary policy coherence required to deliver integrated management through the FILLM.

The dNMPF states that increased intensity of storms and the frequency of storm surge 'will result in damage to vessels and infrastructure including gear loss in inshore and coastal sector of fisheries and aquaculture' (dNMPF, p. 62). Evidence from Coastwatch shows that aquaculture is becoming an increasing source of marine litter in the Irish environment, yet the OSPAR litter monitoring activities undertaken for the MSFD do not assess litter present in estuarine/transitional waters and no OSPAR marine litter survey locations are close to areas where aquaculture is present. Therefore, the formal reporting of marine litter under the MSFD significantly underestimates the contribution of the aquaculture sector to marine litter.

In addition, aquaculture represents a significant threat to native species – not only, for example, through escaping farmed fish impacting on wild populations; but also through nutrient impacts, disease, marine litter, and the introduction and spread of NIS. The Pacific oyster is a NIS commonly cultivated for aquaculture and despite assurances that this species will not become a problem invasive species in Ireland due to low water temperature, it has already become naturalised in Irish waters (for example, in Lough Foyle). Therefore, cumulative impact of aquaculture should be included in the aquaculture licencing system and the aquaculture planning application process. An Fóram welcomes the proposed ecosystem-based approach to the assessment of proposals, but guiding clarification for this approach is necessary.

The focus of the Department on elimination of the aquaculture licencing backlog following recommendations from the 2016 Review of the Aquaculture Licencing Process is understandable, 'having an immediate beneficial effect on every individual aquaculture operator' (dNMPF, p.92). This elimination process should not be undertaken to the detriment of the environment, and all

⁴³ <https://www.riverstrust.org/2019/07/18/drain-misconnections/>

relevant legislation and enforcement should be adhered to. Again, An Fóram Uisce considers that a cumulative impact assessment in the licencing process is essential.

Aquaculture appears to not be included in the draft Marine Planning and Development Bill and therefore it is unclear how the NMPF, including provisions regarding aquaculture, will be fully implemented through the Bill.

The dNMPF states that ‘Eutrophication can have an adverse impact on aquaculture...’ with land-based sources identified as the causes of this eutrophication. It should also be recognised that aquaculture can be a source of nutrients entering the local environment with, for example, uneaten feed and fish wastes from finfish farms being a source of organic nutrients.

Addressing the above items through the FILLM enables an integrated approach to be undertaken to mitigate the pressures acting on water bodies through the aquaculture and fisheries sector and consequently addressing the stressors which this sector influences.

Regarding the clearance of the aquaculture licencing backlog, An Fóram Uisce expresses concerns that many aquaculture operations were able to continue operating without a licence due to a loophole in the Fisheries Amendment Act which allows continued operation once a licence renewal has been applied for. In addition, the speedy process at which the backlog was eliminated provided local communities with little opportunity to take part in the public participation process.

Regarding nutrient inputs from aquaculture, An Fóram Uisce highlights that pseudofaeces, faeces and silt from shellfish aquaculture can also have detrimental impacts on the local environment through anoxia and reduction in faunal abundance and diversity.

3.1.14 Other Issues – Antimicrobial Resistance (AMR) Bacteria in Waste Water

Further understanding is needed on the prevalence of AMR bacteria in wastewater in addition to the pathways through which they can present a public health threat – e.g. contamination of drinking water, bathing/recreational waters, etc. A One Health approach⁴⁴ is required to reduce both water contamination risk from wastewater treatment discharge and public health risk from contact with contaminated waters. Both the One Health approach and the FILLM require multidisciplinary, integrated cooperation of multiple stakeholders across human and animal health sectors, agriculture, environmental management and water and wastewater services.

3.2. SWMIs Not Identified in the Public Consultation Document

It is considered that some important items are omitted from the SWMI public consultation document:

1. **Governance.** Delivering water resources management through clear, transparent and integrated governance is essential. Section 2.1.1 of this submission briefly details how aspects of governance can be improved for the 3rd RBMP. Considering that the 2nd RBMP introduced a new governance structure, and that a current review of governance is being undertaken by

⁴⁴ <https://www.who.int/news-room/q-a-detail/one-health>

the IPA-EPA Experimental Governance project, it is surprising that governance did not feature prominently within the SWMI public consultation document. The FILLM provides a governance approach to land and landscape management through broadening Integrated Catchment Management. And this should be incorporated into the 3rd RBMP.

2. **Coastal Issues.** The WFD includes transitional and coastal waters to one nautical mile, yet coastal issues are poorly represented within the SWMI public document. The non-land-based pressures on our coastal zone in particular need to be addressed.
3. **Forestry.** Page 17 of the SWMI public consultation document identifies Forestry as a pressure acting on Ireland's waters, yet linkages to this pressure are limited throughout the document. Forestry is included as a sector in the sector-pressure-stressor approach described in Section 2.2 of this submission (Appendix 1).
4. **Microplastics.** There is mounting evidence that our river catchments and transitional and coastal waters are heavily impacted by microplastic pollution from a number of sources including wastewater treatment plants, road run-off, industry, agriculture, aquaculture and domestic appliances. Yet there is no reference to this issue in the SWMI public consultation documents. Microplastics are included as a stressor in the sector-pressure-stressor approach described in Section 2.2 of this submission (Appendix 1).
5. **Water level and water availability.** These are likely to be impacted by factors such as climate change and abstraction and will in combination manifest issues in relation to water quality, ecological status, drinking water quality and availability, irrigation and flooding. Water level and water availability are included as a stressors in the sector-pressure-stressor approach described in Section 2.2 of this submission (Appendix 1).
6. **Peat extraction.** The extraction of peat is detrimental to the ecosystem functioning of peatland environments and can impact on a number of aquatic stressors as identified in section 2.2, including sediment and organic matter. These stressors have implications for environmental condition of aquatic ecosystems as well as for drinking water treatment processes and drinking water quality, and consequently public health.
7. **Unregulated wetland/peatland drainage.** Planning permission is required to drain or reclaim a wetland for the purpose of agriculture where the impacted area exceeds 0.1 hectares or the works may have a significant effect on the environment. The drainage or reclamation of wetlands below the planning threshold at not addressed in the SWMI public consultation document.

Appendix 1: Background information and justification for selection of stressors

Section 2.2 of this SWMI submission provides a reconceptualization of Ireland's SWMIs within the Framework for Integrated Land and Landscape Management (FILLM) presented in PART ONE. This reconceptualization identifies the sector-pressure-stressor approach as an alternative to addressing Significant Water Management Issues, identifying eight stressors which, either singularly or acting in multiplicity, can result in unsatisfactory water quality and WFD status.

The information on, and the rationale for selecting each of these eight stressors is provided below.

Sediment

Work being carried out by LAWPRO during the 2nd RBMP Cycle has identified sediment in streams as a significant stressor on the water environment. Sediment is derived from weathering and erosion of bedrock and stream banks. Sedimentation impacts on the biodiversity of the river by reducing habitat diversity within the stream channel and preventing the establishment or persistence of sensitive macro-invertebrate species, resulting in an overall reduced ecological status.

Pressures acting on water resources which can result in increases in sediment include wetland degradation, hydro-morphological modification, run-off from agriculture and urban areas, historically polluted sites, industrial discharge, land management and non-indigenous species.

Sediment fingerprinting research undertaken by Teagasc, as outlined in the SWMI public consultation document, has identified the primary sources of sediment as being channel banks, roads, and runoff from agricultural land. Additional sources of sediment include poorly managed forests, peat extraction, and land management actions such as livestock poaching, riverbank erosion and runoff from ploughed fields. Management of poorly drained land is also important with regards to sediment loading in water as land drainage and channelization can be responsible for 86% of hydro-morphological pressures.

Land management practice is therefore key to reducing sediment loading in waters, with management actions such as planting deeper-rooted grasses, fencing and riparian buffer strips and planting hedgerows helping to intercept the pathway for sediment entering water courses. Some land management actions, such as the establishment of wetlands, can also provide additional co-benefits to reducing sediment loads, such as carbon sequestration and increasing biodiversity.

Recent EPA research projects such as (COSAIN, DETECT, and SILTFLUX) will help identify potential actions to minimise sedimentation pressures on water bodies. ASSAP and Teagasc advice to farmers to manage sedimentation issues will be important as part of the third cycle RBMP.

Nutrients (NO₃, P, NH₄)

Excess nutrients in waterways result in eutrophication of ecosystems resulting in the growth of algae and plants that can lead to a reduction of oxygen levels in the water. Nutrient enrichment is also a potential human health indicator in drinking water. Nutrient enrichment impacts negatively on fish and macroinvertebrates that could otherwise potentially thrive. Macro-invertebrates as an individual element or in combination with others are responsible for determining ecological status in 91% of monitored river waterbodies. This assessment method (Q-value) is most sensitive to ecological changes caused by organic pollution and nutrient enrichment. As shown in Figure 5 of the EPA Water Quality Report 2013-2018⁸, nutrient conditions, phosphorous and nitrogen were responsible for moderate or less water quality (unsatisfactory) in a significant number of monitored waterbodies. For Phosphorus, 45.8% of monitored sites (260 rivers) were less than satisfactory, and for N 42.8% of monitored sites (239 rivers) were less than satisfactory.

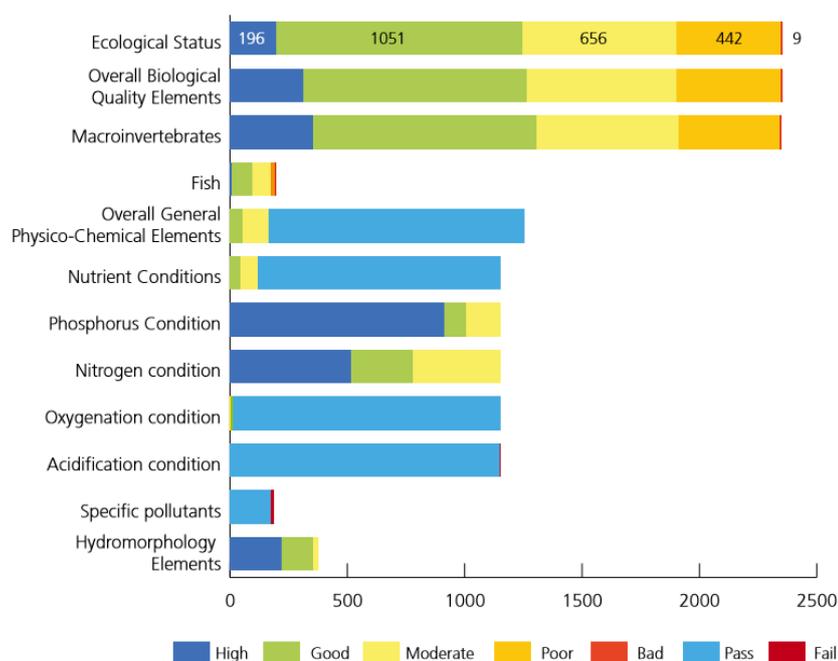


Figure 2.3: Ecological status and condition of individual biological quality elements, physico-chemical elements and hydromorphological quality elements in river water bodies in 2013-2018. The hydromorphological element is broken down at site level.

Figure 5: Nutrient conditions, phosphorus and nitrogen were responsible for less than satisfactory ecological condition for a large number of monitored water bodies⁸.

Pressure acting on water resources which can result in excess nutrients include diffuse sources from agriculture (overland flow and leaching), and point sources including urban and domestic wastewater treatment plants. Diffuse-source pressures are not uniform across the country as a result of being associated with soil type and topography. For example, nitrogen levels are a particular issue for water bodies in the south east of Ireland; whereas phosphorous is more of an issue in the north-midlands where soils are more clay-rich.

Excess nutrients in rivers also impact on coastal areas causing enrichment in transitional zones.

Wastewater treatment systems (domestic and urban) can release nutrients into our waterways and continued investment in wastewater treatment systems and networks is required to mitigate this issue.

An additional long term goal to help achieve the Circular Economy and to help address the limited global supply of rock phosphorus, is for measures and legislation to encourage the recovery, and recycling of nitrogen and phosphorus from wastewater back to agriculture without the presence of toxic metals or pharmaceuticals.

Microbes, Bacteria, Parasites and viruses

Pathogens microbes such as bacteria, parasites and viruses are organisms capable of causing infection or disease in other organisms, including humans, wild and domestic animals, and plants. Several pathogens naturally occur in livestock and poultry manure and under certain circumstances may pose a risk to human health. Many water-borne parasites are often present in animal manure, such as *Cryptosporidium*, and *Giardia*.

Contamination of drinking water supplies by microbes, parasites and bacteria is a risk to human health. Bacteria such as *E. coli* can cause illness, and in a small number of cases it can result in severe and long-term kidney failure with older people and young children being particularly vulnerable to infection. Reported cases of VTEC1, a dangerous form of *E. coli*, increased in 2018. Public water supplies are regulated for such contaminants but one million people in Ireland obtain their water from private supplies many of which are unregulated and unmonitored. Of these supplies that are monitored private supplies have the lowest adherence to drinking water regulations compared to public water supplies and publicly-sourced and privately-sourced Group Water Schemes.

In 2018, commercial businesses (e.g. hotel, B&B, pub), or public buildings (e.g. schools, crèches, campsites) that obtain their water from a well or other private source are at greater risk of being contaminated than public water supplies⁴⁵. More than 60 of these private supplies were found to be contaminated with human or animal waste at least once during 2018. Cases of VTEC infection – which can be contracted due to consuming water contaminated by animal waste – has continued to rise with over 1,000 reported cases in 2018. Ireland continues to have the highest incidence of VTEC infection in Europe.

Recent research by NUI Galway⁴⁶ suggests that current monitoring programmes need to be expanded to include other substances and parameters. Of 75 tested samples from recreational bathing areas (seawater, lakes and rivers), 65% were positive for genetic markers for pathogenic *E. coli* (STEC) that can cause severe intestinal infection and potentially renal failure. River samples recorded the highest

⁴⁵ <http://erc.epa.ie/safer/resourcelisting.jsp?oID=10206&username=EPA%20Drinki%20Water>

⁴⁶ <https://www.nuigalway.ie/about-us/news-and-events/news-archive/2020/april/study-detects-presence-of-disease-causing-ecoli-in-recreational-waters-including-in-bathing-waters-rated-excellent-und-1.html>

prevalence of 93% of samples (14/15 samples) contaminated with STEC at. All bathing waters monitored in this NUI Galway study had been identified as being of high or good ecological status. The research highlighted the ‘limitations of only assessing the total number of *E.coli* as an indicator of water quality without taking into consideration the pathogenicity of some variants’.

Manure management to reduce pathogen populations: Pathogens are most likely to be transported to water through surface runoff and erosion or by direct animal access to surface water⁴⁷. Streams and lakes used for drinking water supply and recreational purposes provide the greatest opportunity for transporting these pathogens to humans. Pathogens usually do not move through soil profiles and reach groundwater because of the filtering capabilities of soil. Exceptions to this occur adjacent to poorly maintained well casings.

Most human pathogens do not multiply outside their host but can survive from a few days to several months depending upon environmental factors including temperature, moisture, pH, and oxygen. Composting livestock manure for several weeks prior to application to the land significantly reduces the risk of exposure to these pathogens.

Chemicals

Good chemical status means that no concentrations of priority substances exceed the relevant Environmental Quality Standards (EQS) established in the Environmental Quality Standards Directive 2008/105/EC. EQS aim to protect the most sensitive species from direct toxicity, including predators and humans via secondary poisoning. Under the WFD, losses, discharges and emissions to water of a particularly harmful subset of these, priority hazardous substances, should be completely phased out within 20 years, and uses of these substances have been significantly restricted.

Chemical pollutants are or have been emitted into water bodies through a range of pathways and from a variety of sources, including industry, agriculture, transport, mining and waste disposal, as well as from homes. Significant levels of some priority substances have built up from historical use and this legacy pollution may persist in water bodies long after pollutant discharges and inputs have ended.

Of the thousands of chemicals in daily use, relatively few are reported under the WFD⁴⁸. There is a gap in knowledge at European level over whether any of these other substances present a significant risk to or via the aquatic environment, either individually or in combination with other substances. In addition, information on the sources and emissions of many pollutants remains incomplete, limiting the scope for identifying and targeting appropriate measures.

The main pressures leading to failure to achieve good chemical status are atmospheric deposition and discharges from urban wastewater treatment plants. Reducing hazardous substances in water requires implementation of the current legislation but also adopting more sustainable production and use of chemicals⁴⁷.

⁴⁷ <https://water.unl.edu/understanding-water-quality-issues-pathogens-and-organic-matter>

⁴⁸ European Waters Assessment of status and pressures 2018 <https://www.eea.europa.eu/themes/water/european-waters/water-quality-and-water-assessment/water-assessments/pressures-and-impacts-of-water-bodies>

The National Aquatic Environmental Chemistry Group (NAECG) are reviewing hazardous chemicals in the aquatic environment and are identifying new monitoring programmes for new compounds and a more strategic approach to the management of hazardous chemicals.

Chemicals such as pesticides are impacting our aquatic plants and wildlife and are contaminating our drinking water supplies. The EU Biodiversity Strategy has identified that pesticide use will be reduced by 50% by 2030. The herbicide MCPA, used to kill weeds and rushes, has been detected by the EPA in over half of all rivers monitored. In 2018, MCPA was responsible for three quarters of drinking water quality standard failures due to pesticides. As it is very difficult to remove MCPA from water it is a priority that its use is reduced or eliminated.

The National Pesticides in Drinking Water Action Group are a collaborative group set up to address the issue of Pesticides in Drinking water however more widespread targets are needed to achieve the Biodiversity Strategy goal of a minimum 50% reduction in use by 2030.

In addition to the training and registration of professional users of pesticides, guidance is needed for retailers including more detailed labelling to address use and storage requirements.

A public information and awareness campaign is recommended for the wider public on the labelling, identification and impact of hazardous chemicals to the aquatic environment, water quality and biodiversity.

Invasive Alien Species

Invasive Alien Species (IAS) are one of the top five threats to the natural environment worldwide. IAS are species that have moved outside of their natural range and negatively affect native biodiversity, ecosystem services and public health, through predation, competition or by transmitting disease⁴⁹.

A project funded by the EPA Research Programme⁵⁰, identified 40 species likely to arrive, establish, spread and cause impacts to biodiversity on the island of Ireland and of these top 40 species, 18 were freshwater species, 7 of which were placed in the top 10 for impact (Table 2). Pathways of introduction were also identified to inform on biosecurity strategies. The recommended biosecurity actions include effective risk assessment, improved detection, recording and inspection at ports and airports, full implementation of the Habitats Regulation in the ROI and the Wildlife and Natural Environment Act (Northern Ireland), to include management of trade including internet trade.

⁴⁹ <https://www.researchgate.net/project/Prevention-control-and-eradication-of-invasive-species/update/5e99c7ef4f9a520001e07f67>

⁵⁰ <https://www.researchgate.net/publication/298559361>

Table 2: Horizon Scanning for Invasive Alien Species in Ireland⁵¹



Horizon scan of invasive alien species for the island of Ireland

Table 1. Top 40 species emerging from horizon scan for Ireland. Species were scored according to their likelihood of arrival (A), their likelihood of establishing in the wild (B), and their impact on biodiversity (C). They were then ranked according to the product of those scores, taking uncertainty (UNCERT) into consideration. Prioritisation of species was based on the highest scoring paired with the highest uncertainty. For full list of Pathway Codes, see Table 2.

Rank	Species	Common name	Taxonomic Group	Functional Group	Environment	Native Range	Pathway of Arrival	A	B	C	PROD	UNCERT
1	<i>Pacifastacus leniusculus</i>	Signal crayfish	Crustacean	Omnivore	Freshwater	North America	M/E/FB; M/E/A; V/T/S/FE	5	5	5	125	Low
2	<i>Capreolus capreolus</i>	Roe deer	Mammal	Herbivore	Terrestrial	Europe, Middle East	M/R/HW	5	4	5	100	Low
3	<i>Dikerogammarus villosus</i>	Killer shrimp	Crustacean	Predator	Freshwater	Ponto-caspian	V/T/S/FE	5	4	5	100	Low
4	<i>Gyrodactylus salaris</i>	Salmon fluke	Monogenean	Parasite	Freshwater	Baltic Sea	V/T/S/FE	4	5	5	100	Low
5	<i>Hesperibalanus fallax</i>	Warm-water barnacle	Crustacean	Filter feeder	Marine	Atlantic coast of tropical Africa	V/T/S/BW; V/T/S/HF	5	5	4	100	Medium
6	<i>Hydrocotyle ranunculoides</i>	Floating pennywort	Plant	Primary producer	Freshwater	North and South America, Africa	V/T/S/S	5	5	4	100	High
7	<i>Dreissena rostriformis bugensis</i>	Quagga mussel	Mollusc	Filter feeder	Freshwater	Ponto Caspian	V/T/S/S	4	4	5	80	Low
8	<i>Caulacanthus okamurae</i>	Pom-pom weed	Alga	Primary producer	Marine	Japan, NW Pacific	M/E/A	5	5	3	75	Low
9	<i>Eriocheir sinensis</i>	Chinese mitten crab	Crustacean	Predator	Freshwater	Eastern Asia	V/T/S/S	5	3	5	75	Low
10	<i>Pseudorasbora parva</i>	Topmouth gudgeon; Stone moroko	Fish	Predator	Freshwater	NW Pacific	V/T/S/FE	3	5	5	75	Medium
	<i>Omelatza</i>					North						

A recent UK House of Commons Environmental Audit estimated the cost of INNS poses to the British economy at £1.3 billion a year; £125 million in Wales and £250 million in Scotland⁵¹. The report also stated that it is immeasurably more cost effective to prevent the establishment of INNS through biosecurity measures such as closing arrival pathways than through eradication programmes once they become established³⁸. Public awareness campaigns are key to prevent the introduction of INNS and the Environment Committee propose training approximately 2% of the UK population as biosecurity volunteers (1.3million people) to help eradicate priority invasive species⁵¹.

Codes of practice for pathways and INNS, similar to Check-Clean-Dry, need to be developed and promoted, and more training and citizen science events are needed to reach all ages and sectors in society. The UK recommendations include that emergency funds are made available to tackle and control pathogens once they are identified.

⁵¹ House of Commons Environment Audit Committee Invasive Species
<https://publications.parliament.uk/pa/cm201919/cmselect/cmenvaud/88/88.pdf>

Microplastics

Plastic production has increased exponentially since the early 1950s and reached 322 million tonnes in 2015, this figure does not include synthetic fibres which accounted for an additional 61 million tonnes in 2015⁵² It is expected that production of plastics will continue to increase in the foreseeable future and production levels are likely to double by 2025⁵³. Inadequate management of plastic waste has led to increased contamination of freshwater, estuarine and marine environments.

Microplastics are usually defined as plastic items which measure less than 5 mm in their longest dimension, this definition includes also nanoplastics which are particles less than 100 nanometres (nm) in their longest dimension. Microplastics are largely resistant to biological degradation and may also act as vectors for bacteria and viruses as well as persistent, bio-accumulative and toxic contaminants (PBTs) from the environment.

Microplastics can be directly emitted by land-based sources to the aquatic environment but may also result from poor waste management or the degradation of larger plastic waste (littering). Directly emitted microplastics can be primary microplastics, such as from personal care products (also called 'microbeads'), industrial abrasives, paints and coatings and detergents, or secondary microplastics originating mainly from tyres, road markings, textiles and building paints, and/or pre-production pellets unintentionally emitted through accidental spills. On the European scale, a UK based research consultancy, Eunomia, estimates direct secondary microplastics emissions from land-based sources to the environment at about one million tonnes per year, with about half of it stemming from automotive tyre abrasion. It is also estimated that 28% of all microplastics released from products may end up in surface waters⁵⁴.

A University College Cork research project estimates that the island of Ireland emits 5,700 kg of microplastics per year through industry, landfill, waste water, domestic sources and road surfaces. These microplastics often make their way into our waters, entering the food chain and also our drinking water⁵⁵.

With regard to the impact of microplastics on freshwater ecology, some studies already indicate their detrimental impact on fish productivity and physiological processes for fisheries and aquaculture.

Microplastics contain a mixture of chemicals added during manufacture and efficiently sorb (adsorb or absorb) persistent, bioaccumulative and toxic contaminants (PBTs) from the environment. The ingestion of microplastics by aquatic organisms and the accumulation of PBTs have been central to the perceived hazard and risk of microplastics in the marine environment.

⁵² Microplastics and the water sector Briefing Note EurEau <http://www.eureau.org/resources/briefing-notes>

⁵³ Food and Agriculture Organisation of the United Nations Microplastics in fisheries and agriculture Technical paper 615 <http://www.fao.org/3/a-i7677e.pdf>

⁵⁴ Investigating options for reducing the release to the aquatic environment of microplastics emitted by products https://www.eunomia.co.uk/case_study/measuring-impacts-of-microplastics/

⁵⁵ UCC Project Impacts of microplastics on the freshwater environment <https://ecotoxicology.ucc.ie/microplastics/>

Microplastics are widespread in the air we breathe, in some of the food we eat (shellfish, honey, salt), and liquids we drink⁵². The potential impact of microplastics on public health and ecosystems is a growing public concern and has been high on the agenda of decision makers for some time⁵². With growing global use of (micro-)plastics, their release to the environment is expected to increase and microplastic contamination of aquatic environments will continue to increase for the foreseeable future.

Organic Matter

The term “natural organic matter” (NOM) refers to a wide spectrum of carbon-based compounds that result from natural processes in the environment. It originates from living and dead plants, animals and microorganisms and from the degradation products of these sources⁵⁶. The presence of NOM causes many problems in drinking water treatment processes, in addition to aesthetic problems such as colour, taste and odour, it contributes to the fouling of membranes and serves as a precursor for the formation of disinfectant by-products (DBPs).

NOM rich in aromatic structures has been found to be highly reactive with chlorine, with a higher potential to form DBPs³⁵. Large molecular hydrophobic humic substances are enriched with aromatic structures and are easily removed by conventional drinking water treatment consisting of coagulation, flocculation, clarification (CFC) and filtration.

However, non-aromatic NOM can also form trihalomethanes (THMs). Low molecular weight hydrophilic and less aromatic NOM is more problematic to remove and is a major contributor of easily biodegradable organic carbon, which promotes microbiological regrowth in the distribution system. An understanding of the behaviour of different fractions or constituents of NOM present in water is crucial to understanding their fate and impact during water treatment and in water distribution systems. Therefore, accurate characterisation of NOM in raw water and along the treatment process would be an important basis for the selection of water treatment processes, monitoring of the performance of different treatment steps, and assessing distribution system water quality.

Successive Environmental Protection Agency (EPA) reports⁵⁷ have shown that Ireland has an unacceptably high number of drinking water supplies exceeding the parametric value of 100 µg L⁻¹ for average total trihalomethanes (TTHMs). Guidance issued by the HSE⁵⁸ states that THMs ‘are possibly carcinogenic to humans’. In 2010, Ireland had the highest non-compliance with respect to TTHMs in drinking water across the 27 EU Member States (Figure 6).

⁵⁶ O’Driscoll, C. *et al.* An assessment of Natural Organic Matter and Ptaquiloside in Irish waters and references within http://www.epa.ie/researchandeducation/research/researchpublications/researchreports/EPA%20RR%20231_web.pdf

⁵⁷ Drinking water quality in public supplies 2018 http://www.epa.ie/pubs/reports/water/drinking/EPA%20DW%20Public%20Supplies_web.pdf

⁵⁸ Health Service Executive (2016). Trihalomethanes in drinking water. Information for consumers. <https://www.hse.ie/eng/health/hl/water/drinkingwater/information-for-consumers-trihalomethanes-in-drinking-water.pdf>

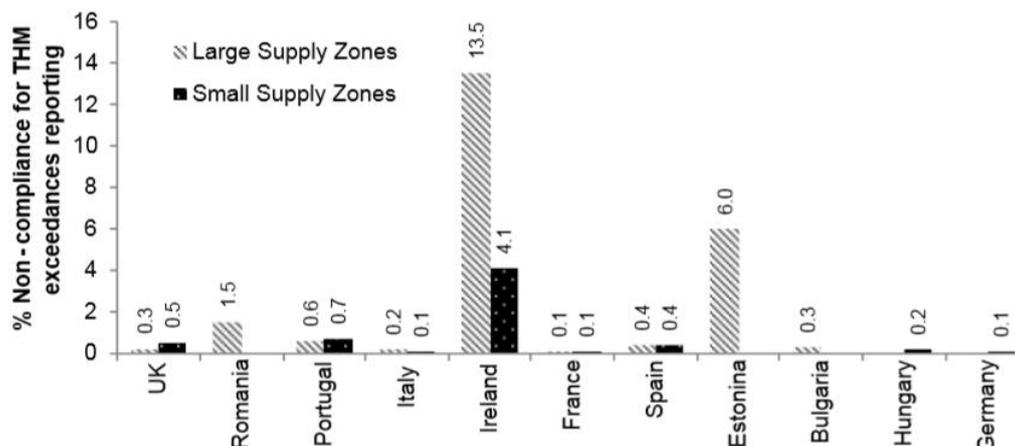


Figure 6: Non-compliance for THM exceedances in EU Member States reporting $\geq 0.1\%$ compliance for 2010. Large water supply zones refer to zones supplying more than 5000 people and small supply zones to those supplying fewer than 5000⁴⁵.

On 14 May 2020, the European Commission provided a reasoned opinion to Ireland regarding its failure to fulfil its obligations under the Drinking Water Directive with regards to Trihalomethane (THM) levels in drinking water supply zones and schemes⁵⁹. This follows on from an infringement case brought against Ireland by the EU in August 2018 for persistent exceedance of THMs in drinking water.

The majority of THM failures identified by the EPA were caused by either the absence of adequate treatment to remove organic matter or the presence of treatment that is incapable of removing high levels of organic matter⁶⁰.

Increases in NOM from peaty catchments have been attributed to global warming³⁵ and changes in land management practices, such as peat harvesting, peatland forestry and agriculture can change aquatic NOM quantity and character⁶¹.

With Ireland struggling to adhere to the Drinking Water Directive as a result of its persistent high levels of THMs in its drinking waters over the past 20 years, there are significant implications of future climate change on the potential for THM formation in Irish drinking water supplies.

Water Level and Flow

Flow levels in are influenced by climatic factors: precipitation, temperature, evapotranspiration; by non-climatic factors such as land use, urbanisation, water withdrawals, industry; and catchment

⁵⁹ https://ec.europa.eu/commission/presscorner/detail/en/inf_20_859

⁶⁰ EPA Drinking water report for public supplies
http://www.epa.ie/pubs/reports/water/drinking/2015%20DW%20Report%20Public%20Supplies_web.pdf

⁶¹ Jones et al., 2001. Global Biogeochemical Cycles 1: p863-87

storage capacity (geology and soil type). Climate change can negatively impact on freshwater ecosystems by changing streamflow and water quality.

Mean annual temperatures in Ireland have increased by 0.7°C over the past century (Figure 7)⁶². Winter rainfall is projected to increase by 10% with summer reductions of 12%-17% with the most extreme reductions in the south and east⁶³. Changes in the frequency of extreme events is also to be expected. Hydrological modelling shows that catchments dependent on groundwater are most vulnerable to longer soil moisture deficits; slower groundwater recharge; and increased risk of drought when a dry summer follows a dry winter. In catchments where surface run-off is more dominant changes in summer flow levels are more pronounced. Significant changes in stream flows are also projected with up to 20% increases in springtime and significant reductions in summer and autumn⁶³.

In terms of high flows, the 10-year flood is expected to become a 3-7 year event⁶³. Increases in the magnitude and frequency of flood events are likely to impact on water quality. Flooding increases sedimentation and suspended loads that are problematic for aquatic life and can overwhelm foul sewer systems and the effective functioning of water treatment plants adding suspended solids and nutrient loads to rivers.

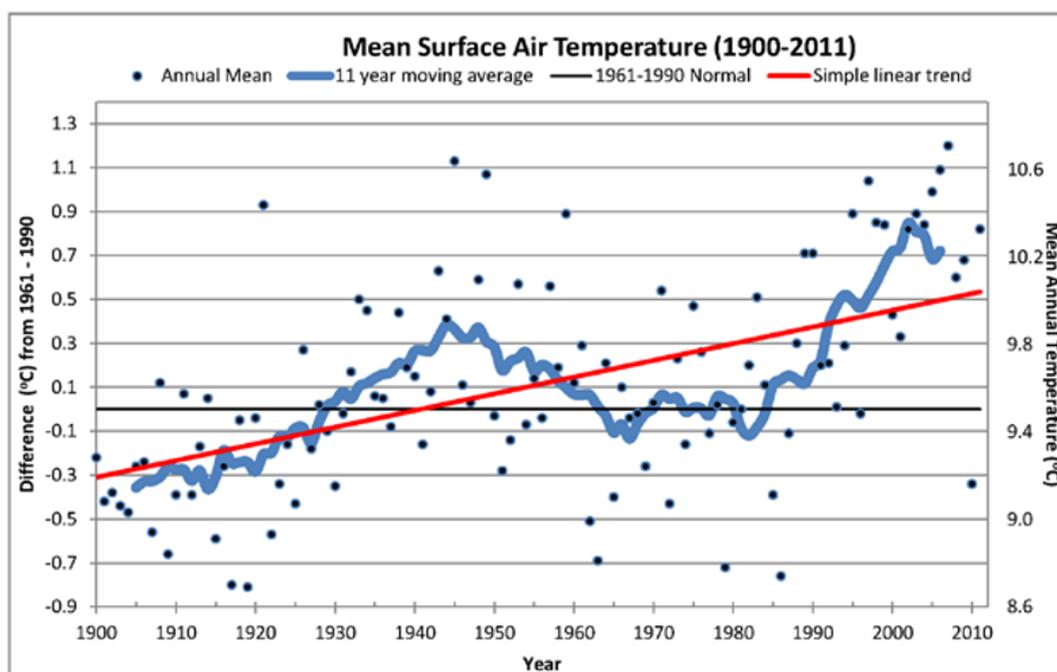


Figure 7: Annual mean surface air temperature (1900-2011)⁶²

⁶² Dwyer, N. (2012). The status of Ireland's Climate, 2012. Report for the Environmental Protection Agency of Ireland, Wexford, Ireland.

<http://www.epa.ie/pubs/reports/research/climate/CCRP26%20-%20Status%20of%20Ireland%27s%20Climate%202012.pdf>

⁶³ Sweeney, J et al. 2001 Climate Change, Refining the impacts for Ireland

Climate change is projected to reduce raw water quality, posing risks to drinking water quality even with conventional treatment⁶⁴. The sources of the risks are increased temperature, increases in sediment, nutrient and pollutant loadings due to heavy rainfall, reduced dilution of pollutants during droughts, and disruption of treatment facilities during floods⁶⁴. Anthropogenic impacts such as increased abstractions and wastewater discharges also put further stress on the system particularly in low flow conditions.

Predicted changes in flow levels and regional variations in water availability and demand poses challenges for the management of water resources in particular matching supply and demand across the island. The Greater Dublin area is the most susceptible to drier conditions in the future yet has the greatest projected anthropogenic demands owing to projected population growth.

Drought management is an essential element of water resource policy and strategies. Drought management plans, based on the characterisation of possible droughts in a catchment, their effect, and possible mitigation measures, should be prepared on a river catchment scale and before emergency schemes need to be applied. Drought management plans, by promoting sustainable water use, are closely linked with the WFD objectives.

Land management and land use planning are essential to the management of water resources in water-scarce areas. Important wetlands, which help to store water, have been degraded or destroyed. One priority should be to retain rainwater where it falls, enabling water infiltration through the re-establishment of wetlands and the increased recharge of aquifers.

Temperature

Rising water temperatures will affect aquatic habitats and cause species migrations. Cold water fish species such as salmon and trout are particularly susceptible to increasing water temperatures. Water temperature is an important factor in determining whether a body of water is also acceptable for human consumption and use:

- The temperature in water governs the kinds and types of aquatic life that live in it.
- Temperature influences the rate of chemical and biological reactions.
- It affects the dissolved oxygen levels in water, photosynthesis of aquatic plants, metabolic rates of aquatic organisms, and the sensitivity of these organisms to pollution, parasites, and disease.

Temperature and drinking water

The temperature of drinking water is largely determined by the raw water source or by the depth of the intake. Rates of chemical reaction increase with increasing temperature. The relative

⁶⁴ Jiminez Cisneros, B.E., Oki, T.E., Arnell, N.W., Benito, G., Cogley, P., Doll, P., Jiang, T. and Mwakalila, S.S. (2014). Freshwater resources. In: Climate Change 2014: Impacts, Adaptation and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. http://www.ipcc.ch/site/assets/uploads/2018/02/WGIIAR5-Chap3_FINAL.pdf

concentrations of reactants and products in chemical equilibria can also change with temperature⁶⁵. Increasing water temperature will also increase the vapour pressure of trace volatiles in drinking water and can lead to increased odour which can be unpalatable for consumers. Micro-fungi can grow inside plumbing systems of buildings, leading to musty or mouldy tastes if the temperature rises above 16°C. Temperature therefore can affect every aspect of the treatment and delivery of potable water.

The viscosity of water decreases with increasing temperature so the rate of sedimentation increases. Warm water stratifies over cooler water such that a small increase in temperature <1°C in raw water can decrease the efficiency of the flocculation-sedimentation process in treatment. Studies have also found that the rate of chloroform formation in raw water treated with chlorine doubled at higher temperatures and the rate of trihalomethane formation increases at higher temperatures.

Temperature and water quality

Climate change impacts how much water is available in the water cycle to refill lakes and rivers. Increased temperature increases evaporation of surface water and a warmer atmosphere can hold more moisture. This can cause lower water levels in some areas in summertime and enhanced precipitation during warmer winters and projections for Ireland are for warmer, dryer summers and warmer wetter winters⁶⁶.

Temperature is a critical water quality parameter as it regulates the dissolved oxygen concentrations in aquatic environments. Organisms within ecosystems have preferred temperature regimes that change as a function of season, organism age and life cycle and other environmental factors⁶⁷.

Higher water temperatures can impact on metabolic and chemical reactions. The physical features of a stream impacts on water temperature such as vegetation cover and physical aspects like channel width and land use (such as urban runoff) with increasing water temperature most impactful during low flow conditions.

Temperature impacts on lakes and reservoirs with lower dissolved oxygen coupled with nutrient concentrations often leading to algal blooms. In summer the top of the lake becomes warmer than lower layers, leading to thermal stratification that can result in anoxic conditions in the bottom layers. As seasons change, when the surface water cools and becomes denser, it sinks placing stress on biological communities within the water body.

Between 1973 and 2014, the annual minimum lake surface temperature across eight European Lakes (including Lough Feeagh, County Mayo) has increased at an average rate of +0.35 °C per decade⁶⁸. The

⁶⁵ <https://www.safewater.org/fact-sheets-1/2018/8/15/water-temperature-fact-sheet>

⁶⁶ O'Dwyer et. al., 2017. The Development of Irish Climate Information Platform ICIP Phase 3 2015-2017 EPA Report 258 http://www.epa.ie/pubs/reports/research/climate/Research_Report_258.pdf

⁶⁷ <https://www.water-research.net/index.php/stream-water-quality-importance-of-temperature>

⁶⁸ Woolway, R.I. et al. (2019). Substantial increase in minimum lake surface temperatures under climate change. *Climatic Change*. <https://doi.org/10.1007/s10584-019-02465-y>

drought period between May-July 2018 was bisected by Storm Hector in late June 2018. The storm quickly and abruptly altered the temperature depth profile of Lough Feeagh, before the lake restabilised following the storm. The changes in lake physics as a result of these two extreme climate events had a significant impact on the lake ecology, highlighting the importance of temperature in aquatic systems and the implications of future climate change⁶⁹.

⁶⁹ Caldero-Pascual, M. (2020). Effects of consecutive extreme weather events on a temperate dystrophic lake: A detailed insight into physical, chemical and biological response. *Water* 12: 1411.

Kells Tackle
Ciaran O Kelly



Hello, thank you for the opportunity to voice our concerns. The issues that we, Kells Anglers have observed on our local system. Listed in no particular order.

The shameful behaviour of certain councils in dubiously awarding planning permissions. Contravening their own county plan in regards to developments in areas where the water infrastructure is not in place. A prime example is in Virginia, Co Cavan. Cavan coco have in order to get around the law have entered into a collusion with IW, gerrymandering real facts. Thankfully Inland Fisheries Ireland and the planning board did their job and overturned Cavan coco planning permissions. Due to the fact that any new hook ups to Virginia WWTP would be "prejudicial to public health". This planning board ruling did not stop IW and Cavan coco trying again to add to the load of Virginia WWTP. How can water quality be improved with this sort of reckless behaviour from public bodies, who have a very large part to play in providing clean water. Who cannot be trusted to tell the truth and are willing to put public health at risk. It is simply outrageous that the body charged with the protection of fish (IFI) were the public body who had to step in. Where was the EPA, when their licensee (IW) was making up figures in their AER? In order to facilitate environmental crimes. It would seem the EPA, who oversees the license of the Virginia plant are completely powerless to reign in IW. What is the point of having a licensing regime if it has no effect or carries no consequences?

Silt movement into channels is a huge problem. From many different sources such as forestry, farming, roads and dredging. The effects of dredging on movement of silt into a channel can carry on for decades after the initial drainage schemes. There seems to be little effort in arresting this movement or slowing it down. We would suggest putting in silt traps on ditches. All this would require is making a section of the ditch twice as wide in regular intervals. Depending on size of ditches and flow rate. This would have the effect of catching a large volume of silt and nutrients and increase the holding capacity of ditches in high water conditions. Obviously a bit more thought would have to go into it.

After drainage large scale colonization occurred of Alders along many sections of channels. Which has led to a very significant silt problem due severe shading. Some of these effects can be mitigated during OPW tree management programs. The OPW should review their tree management programs as they literally mow down everything. Instead of leaving the bankside to recolonize with Alders again. A tree planting program could be carried out with a variety of trees. Which would help slow the transfer of silt to channels. Reprofiling some banks from vertical to a gentle slope would greatly help to slow down silt transfer and would improve the channel's ability to hold flood water inside bank lines and reduce flooding risks downstream. There is a smashing example of this sort of flood relief program on the river Clare. Upstream of Clare Galway. A very large scale two stage channel. Which increased flood water capacity, catches nutrients/silt, slows the speed of flood water getting to a pinch point downstream at Clare-Galway, provides a flood plain for fish to move into during large flood events and had fishery features installed during construction. It is worth noting that this channel had been drained 50 years ago and as a result of draining for land use, a flooding issue was manufactured downstream.

We think it would be very beneficial for cattle grids style slit traps to be installed in driveways and farm/forestry lanes which are over a certain degree or slope.

Cattle drinkers and fencing is a big issue in regards to silt mobilization. In some cases, farmers strip grazing a field would have access to river channels at each strip. This practice has to be eradicated. A silt mobilization audit of some sort for farmers and builders would help in this regard.

The abstraction of water by farmers during extreme low water conditions has no consequences until a river is sucked dry. There needs to be some forethought put into this ridiculous scenario to mitigate against channels being sucked dry. In some cases, low wet areas could be dug out to form large ponds for stock and irrigation.

More human resources required to go to the whole issue of water quality. Also the public should be able to have faith in state bodies to behave in a professional manner. Which is not the case at the moment. We (Kells Anglers) have no faith in Cavan coco or IW.

The issue of identifying and rectifying incorrect sewage hook-ups by private houses and by businesses is proceeding at a glacial rate. We think that if a water cert was to be issued, certifying a clean bill of health, to a house or premises of any description at the point of sale, would increase the rate of repair work. This could be a revenue stream for local councils and would encourage builders not to take short cuts.

Fishery work has to be reinstated. After IFI ran away from its legal responsibility in 2016. There needs to be a prescribed number of OPW/IFI instream fishery projects per year like there was in the past. The instream projects that are described in your consultation document are very, very insignificant on a national level and are mostly still on paper as opposed to being delivered. A national policy cannot be relying on stakeholders to be the main engine for progress.

OPW needs to look away from dredging to other flood relief options.

Barriers should be removed. Some of the barriers have heritage status, yet they bear no resemblance to the original structure. Most barriers serve no purpose.

There needs to be severe consequences for land owners who decide to take matters into their own hands and go into channels with track machines.

Research into the form of calcification caused by pollution.

The department of Agriculture needs to face up to the part it has played in failing water quality. To ensure this does not happen in the future. The department has pushed an agenda of intensifying farming without due care to where these policies were leading to. As a result, Irish farmers are playing catch up with regards to environmental upgrades and practices. This is through no fault of the farmers and every effort should be made by the department to help farmers through environmental matters.

Ciaran O Kelly

Kells Anglers

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Department of Housing, Local Government
and Heritage



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