

Changing mindsets to improve water quality: A new approach for RBMP 2018-2021

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Catchments Manager, Local Authority Waters
Programme

Teagasc: Catchment Science Conference
Whites Hotel, Wexford
5 – 7 November 2019

Overview

Improving Water Quality – Initiatives:

- What's driving the LA Waters Programme?
- Who are we and what are we doing?
- Water Framework Directive and River Basin Management Planning

Local Catchment Assessments – the steps?

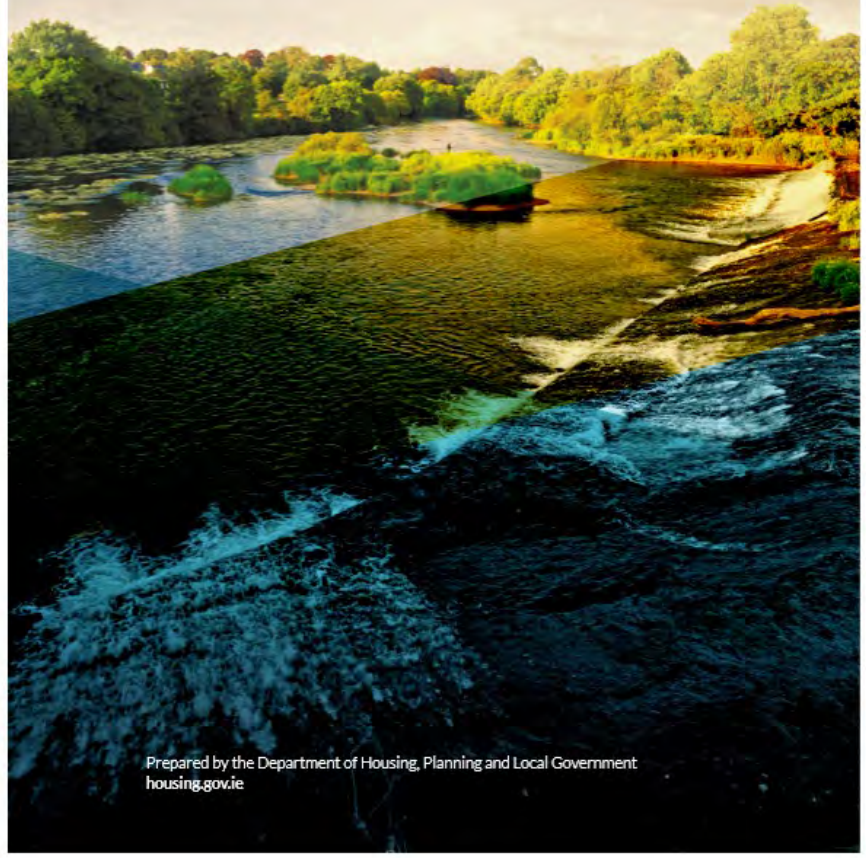
- Desk-study
- Community Information Meeting
- Catchment surveys
- Analysis of results & determination of referrals
- Delivery of Action Plan





Rialtas na hÉireann
Government of Ireland

River Basin Management Plan for Ireland 2018 - 2021



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

Agriculture

Water

Quarries

Water

Fig

RBMP 2018-2021

Expected Outcomes

- 255** Urban waste-water treatment projects progressed
- €73m** Invested to reduce water leakage by 61million m³ per annum. Reduce leakage from 45% - 38%
- 30** Sustainability advisors in place to deliver the Agricultural Sustainability Support and Advisory Programme
- 43** Technical personnel deployed to regionally-based Local Authorities Water Support and Advisory Teams
- 23,000** Farmers will receive sustainability advice under the Dairy Sustainability Initiative and the Agricultural Sustainability Support and Advisory Programme
- 4,000** Inspections under the National Inspection Plan for Domestic Waste Water Treatment Systems
- 3,000+** Water abstractions registered and an authorisation system implemented
- Guidance for planning authorities on physical planning and the Water Framework Directive
- 726** Water bodies to achieve general water quality improvements
- 152** Water bodies to experience improved water quality status



Local Authority **Waters** Programme
 vibrant communities | catchment assessment | healthy waters

Teagasc Agricultural Sustainability Support and Advisory Programme (ASSAP)
 AGRICULTURE AND FOOD DEVELOPMENT AUTHORITY

Farming For Water Quality



Comhairle Contae Ros Comáin Roscommon County Council

Sample of the Implementing Bodies



An Roinn Títhíochta, Pleanála, Poball agus Rialtais Áitiúil
Department of Housing, Planning, Community and Local Government

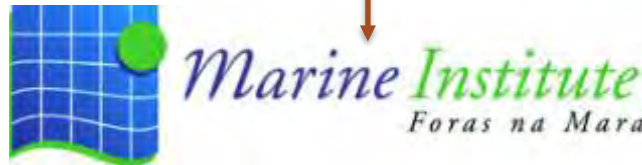


OPW
The Office of Public Works
Oifig na nOibreacha Poiblí



Local Authority
waters Programme
vibrant communities | catchment assessment | healthy waters

Department of **Agriculture, Fisheries and Food**
An Roinn **Talmhaíochta, Iascaigh agus Bia**



Waterways Ireland
Uiscebhealaí Éireann Watterweys Airlann





Communities
Team

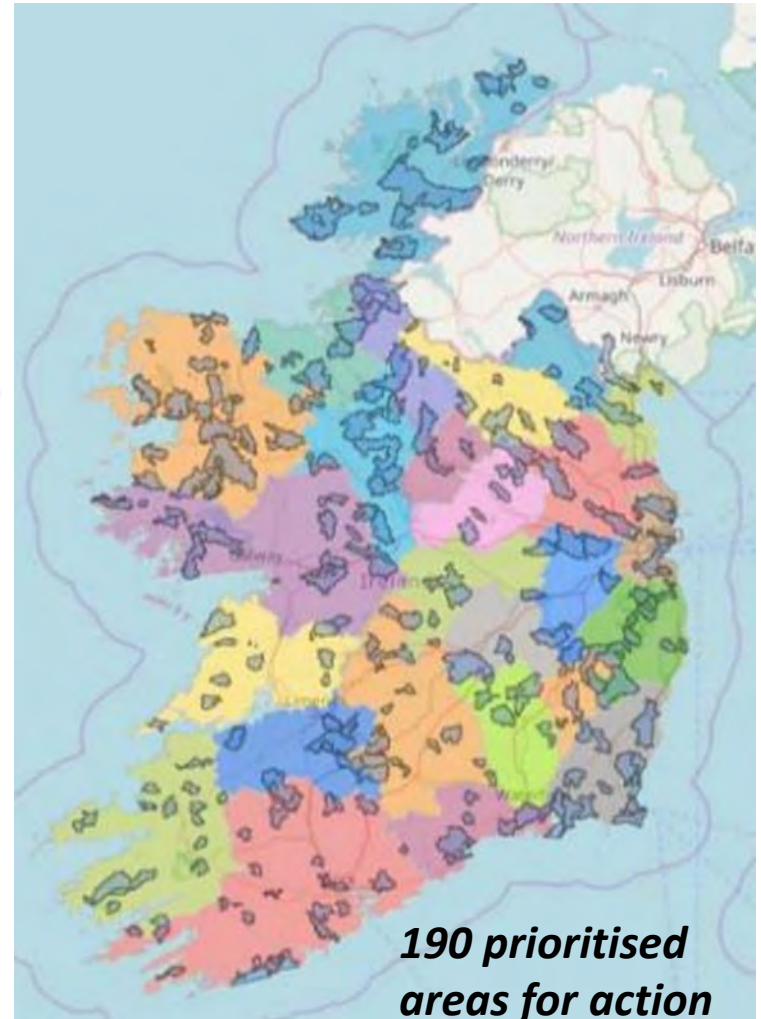


Catchment
Assessment Team



RBMP 2018-2021: Target Resources

Expected Outcomes	
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4,000	Inspections under the National Inspection Plan for Domestic Waste Water Treatment Systems
3,000+	Water abstractions registered and an authorisation system implemented
	Guidance for planning authorities on physical planning and the Water Framework Directive
726	Water bodies to achieve general water quality improvements
152	Water bodies to experience improved water quality status



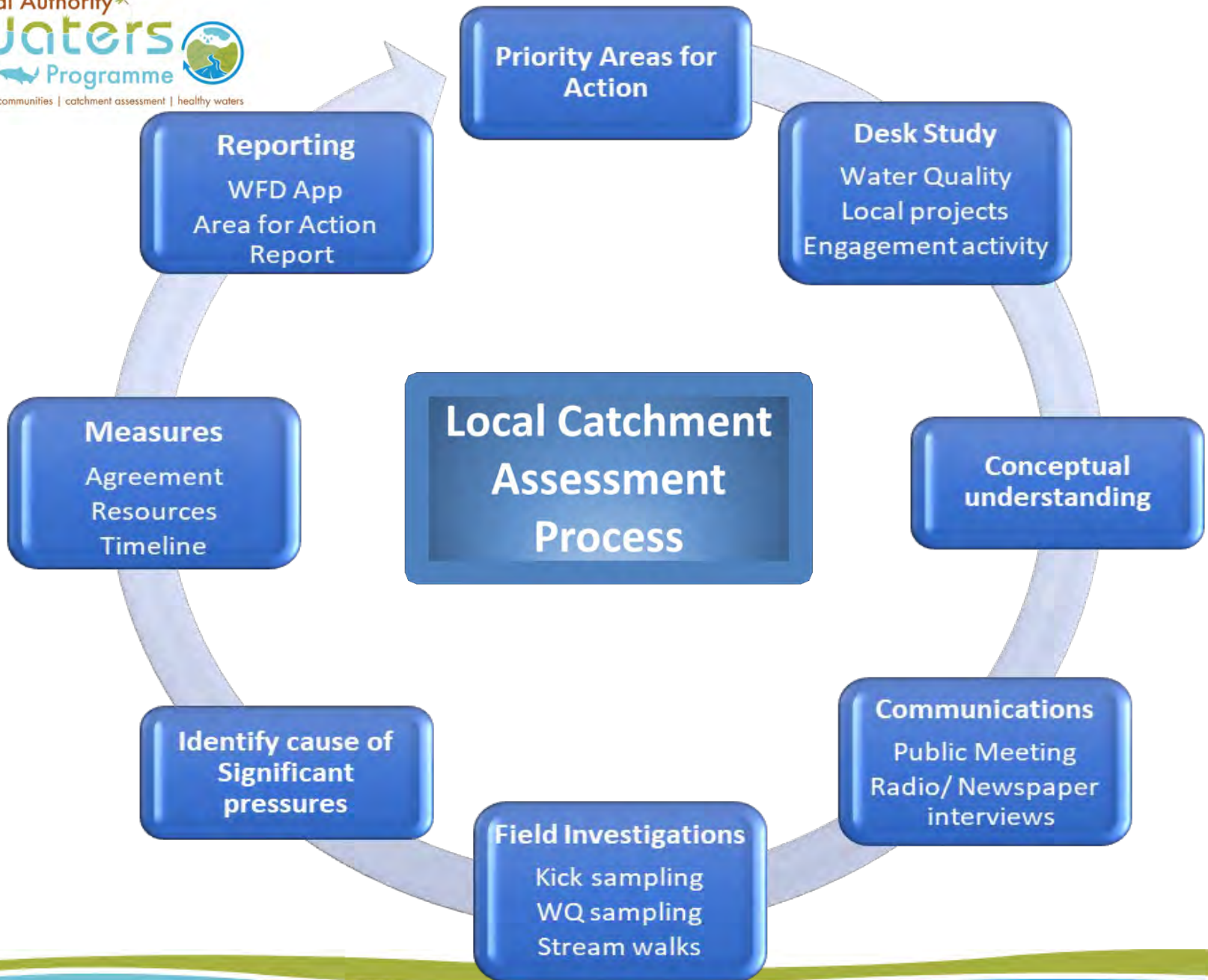
Initial Characterisation & Prioritisation

- 190 prioritised areas for action
 - 726 water bodies
- 359: Agriculture a significant pressure
- 134: Agriculture the only significant pressure



What do our assessments look like?





Desk top study

Desk Top Assessment

St. Clerans Stream

Priority Area for Action

(AFA0167)

Cormac Mc Conigley

Western Team



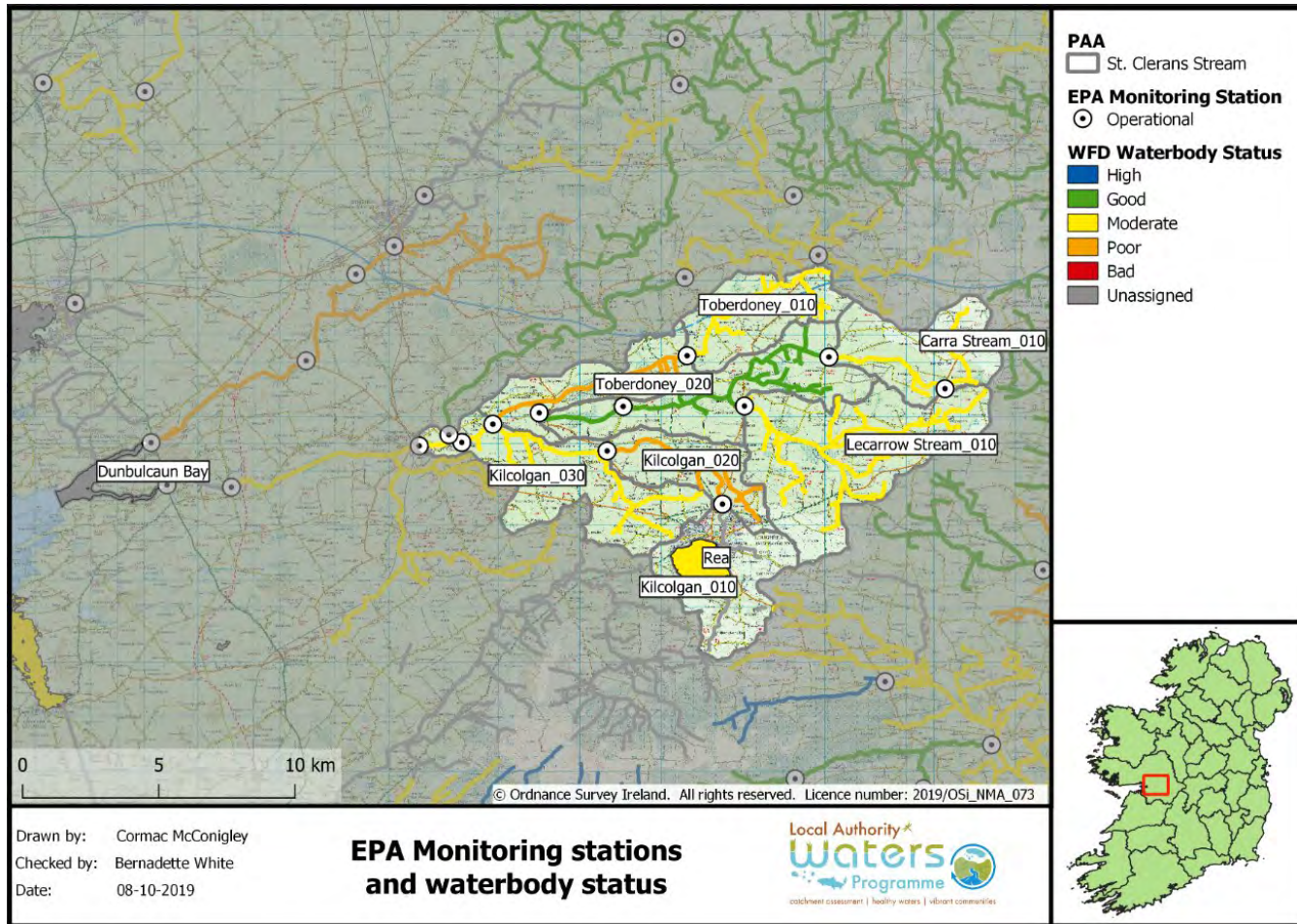
- Receptor information and assessment
- Significant pressures
- Pathway information and analysis
- Identification of data gaps

PAA summary

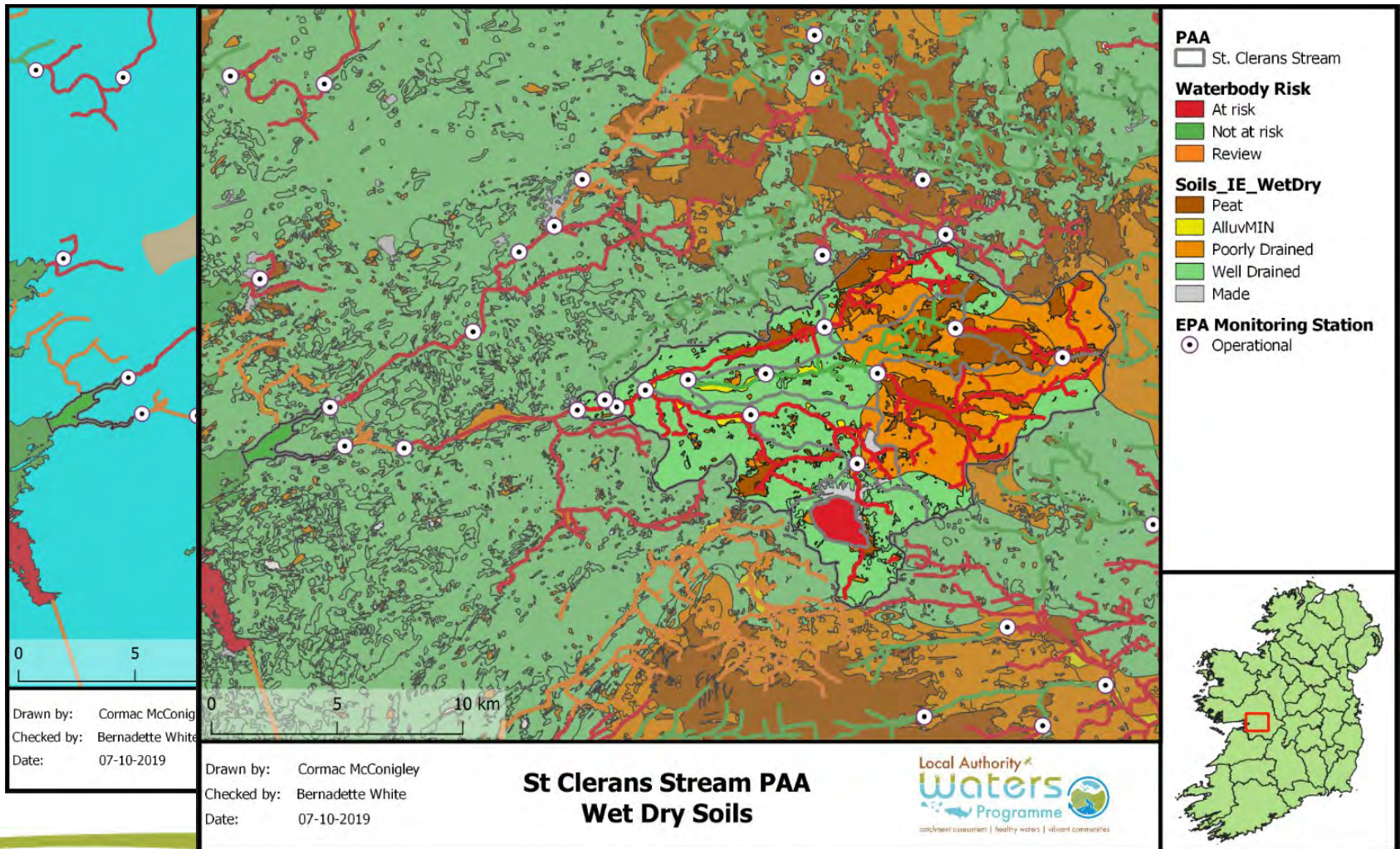
Water Body Name	Water Body Code	Water Body Type	Risk	High status objective	Ecological Status			Biological Status	Pressure Category	Pressure Subcategory	Sig. Pressure
					09	12	15	18			
Dunbulcaun Bay	IE_WE_160_0800	TWB	Not AR	No	U	U	U		-	-	-
Rea	IE_WE_29_194	Lake	AR	No	G	G	M		DWWT	Discharge	Yes
Carra Stream_010	IE_WE_29C031000	River	AR	No	M	M	M	P	Hymo	Channelisation	Yes
Carra Stream_020	IE_WE_29C032000	River	Not AR	No	G	G	G	G	-	-	-
Kilcolgan_010	IE_WE_29K010100	River	AR	No	U	U	U	U	Atmospheric	Atmospheric	No
									UWWT	CSO	Yes
									DWWT	Discharge	Yes
									Urban Run-off	Diffuse Sources Run-Off	Yes
Kilcolgan_020	IE_WE_29K010200	River	AR	No	M	P	P	P	UWWT	PE of 2k to 10k	Yes
Kilcolgan_030	IE_WE_29K010400	River	AR	No	G	G	M	B	Agriculture	Pasture	No
									UWWT	PE of 2k to 10k	Yes
									Hymo	Channelisation	Yes
Lecarrow Stream_010	IE_WE_29L010600	River	AR	No	G	G	M	G	Hymo	Channelisation	Yes
									Agriculture	Pasture	Yes
Toberdoney_010	IE_WE_29T010300	River	AR	No	P	G	M	M	Agriculture	Pasture	Yes
Toberdoney_020	IE_WE_29T010700	River	AR	No	G	G	P	M	DWWT	Discharge	Yes
									Hymo	Channelisation	No
									Forestry	Forestry	No
									Agriculture	Pasture	Yes

(AR= At Risk, G=Good, M= Moderate, P= Poor, U= Unassigned, DWWT= Domestic Waste Water Treatment, Hymo= Hydromorphological, UWWT= Urban Waste Water Treatment, PE= Population Equivalent)

Defining the catchment



Conceptual modelling – understanding water flow



The Dunkellin River and Lough Rea Help protect your local river and lake



What does this work programme mean for you?

We are all connected to our local natural water bodies, be it our local river, a lake or a beach, or our own drinking water supply such as a well that supplies our family and livestock with water. We live in catchments and what we do impacts on the water quality within them. Ensuring that these waters are clean and well protected is critically important to our health and wellbeing.

A healthy catchment provides high-quality drinking water and supports local livelihoods such as agriculture, food production, tourism and water based recreational activities (walking, swimming, angling and water sports). It also sustains and supports instream flora and fauna, (plants, animals, fish and insects) that depend on clean, healthy waters to survive.

For more information contact:

Bernie White Catchments Manager
bwhite@lawaters.ie
 085 8030094

Catherine Seale Community Water Officer
cseale@lawaters.ie
 085 8085533

Useful Links:

- www.watersandcommunities.ie/areas-for-action/
- www.catchments.ie
- www.housing.gov.ie/water/water-quality/river-basin-management-plans/river-basin-management-plan-2018-2021



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Website: www.watersandcommunities.ie



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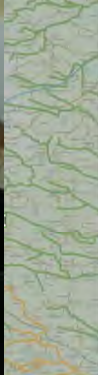
Staff from
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improving water quality.
- Four deteriorated water bodies in the headwaters to the shellfish area.

Location	Good (River)	Poor	Good	Moderate
Stream_010	At Risk	Good (River)	Poor	Good
Toberdonay_010	At Risk	Good (River)	Good	Poor



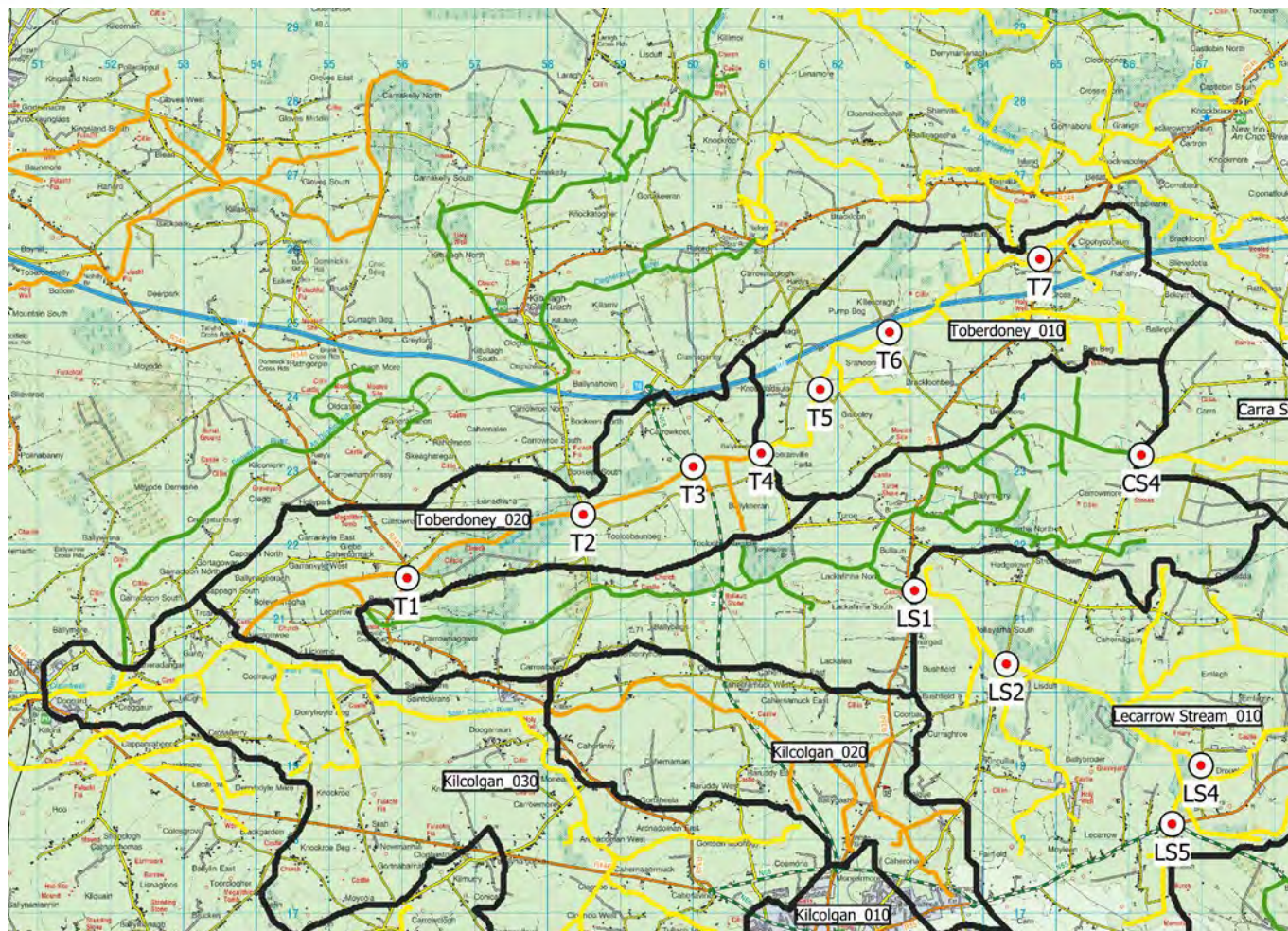
- St Cleran's PAA
- landmarks
- FD River Status
- High
- Good
- Moderate
- Poor
- Bad
- Unassigned
- FD Lake Status
- High
- Good
- Moderate
- Poor
- Bad

ASSAP Farmer Meetings

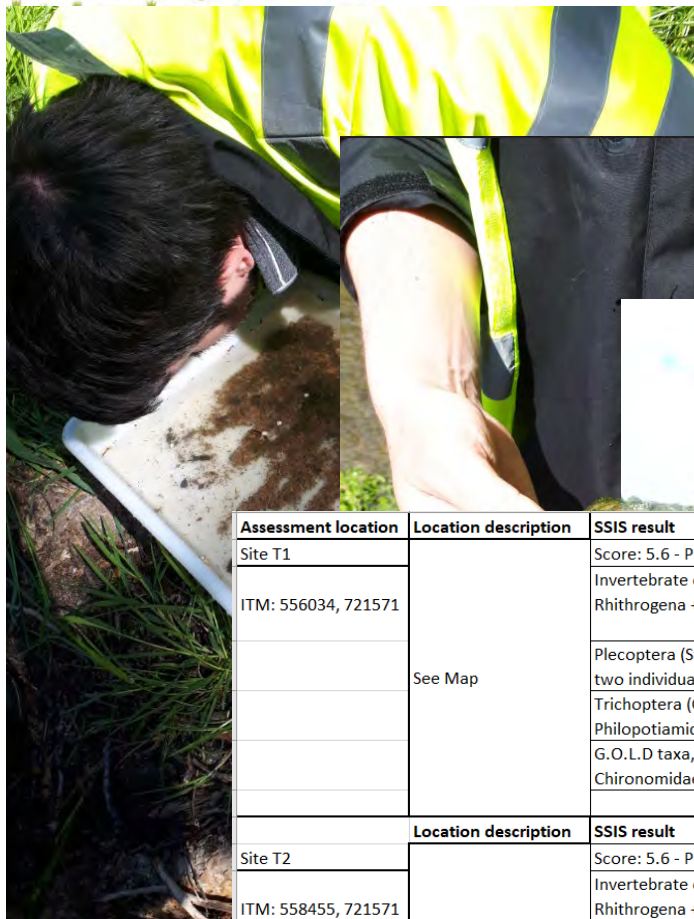
- **Farmers only** meetings (following-on from public meetings)
- **Presentation** from Teagasc Advisors and Catchment Assessment Team
- **Explanation of surveys & overall programme** including equipment & mapping on display



Fieldwork Planning



Fieldwork



Assessment location	Location description	SSIS result	Probe readings		Comments
Site T1	See Map	Score: 5.6 - Probably impacted	D.O: %	95.8	Algae cover was Abundant (>50% to <75%) across the site, dominated by Vaucheria. The Abundant (>50% to <75%) algae cover indicates nutrient pollution of the site (See photos sheet). Significant sedimentation was noted at the site, particularly under the cover of macroalgae, which traps sediment within its filaments.
ITM: 556034, 721571		Invertebrate community: Ephemeroptera (Mayfly) Rhithrogena + Ephemerellidae (Index Score 4)	pH:	8.2	
		Plecoptera (Stonefly) absent with exception of two individuals of Isoperla (index score 4).	Temp: °C	12.2	
		Trichoptera (Caddisflies) 3 Limnephillidae and 3 Philopotiamidae (index score 2).	Conductivity: µS	673	
		G.O.L.D taxa, Simullidae (>100 individuals) and Chironomidae (index score 0).			
	Location description	SSIS result	Probe readings		Comments
Site T2	See Map	Score: 5.6 - Probably impacted	D.O: %	95.8	Algae cover was Abundant (>50% to <75%) across the site, dominated by Vaucheria. The Abundant (>50% to <75%) algae cover indicates nutrient pollution of the site (See photos sheet). Significant sedimentation was noted at the site, particularly under the cover of macroalgae, which traps sediment within its filaments.
ITM: 558455, 721571		Invertebrate community: Ephemeroptera (Mayfly) Rhithrogena + Ephemerellidae (Index Score 4)	pH:	8.2	
		Plecoptera (Stonefly) absent with exception of two individuals of Isoperla (index score 4).	Temp: °C	12.2	
		Trichoptera (Caddisflies) 3 Limnephillidae and 3 Philopotiamidae (index score 2).	Conductivity: µS	673	
		G.O.L.D taxa, Simullidae (>100 individuals) and Chironomidae (index score 0).			
	Location description	Rapid assesment			Comments
Site T3	See Map				
ITM: 559967, 723077		Could not carry out a kick sample due to sedimentation and impact from works at the N65			Hymo impacted by culverting for N65 and straightened

Table 1: Assessment results

Referrals to Implementing Bodies = Action Plans

Home / Current Characterisation Summary / Further Characterisation / Waterbody: TOBERDONEY_020

Step 1 Desk Based Study | Step 2 Field Assessment | Step 3 Specialist Assessment | Step 4 Refine Significant Pressures & Mitigations | Step 5 Conclusions

Name: TOBERDONEY_020 | Code: IE_WE_29T010700
 Id: FC001543
 Last updated by: EDEN System User

Thank you

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 rhennessy@lawaters.ie
 www.catchments.ie

Tier 2 Assessment - Sur

Action: IA7 Multiple Sources
 Description: Focus on nutrients (

Significant Pressures

Code	Category	Subcategory	License Status	Code	Name
WBP0002283	Agriculture	Pasture	n/a	n/a	n/a
WBP0005980	Domestic Waste Water	Single House Discharges	n/a	n/a	n/a

permanent pasture the most common crop.
 As phosphorous is the significant issue, efforts should focus on areas where the transport of phosphorous and application provide high risk, see dark areas around T2 and T3 in map 3 (PIP mapping).

Catchment Science Conference November 2019



Changing mindsets to improve water quality

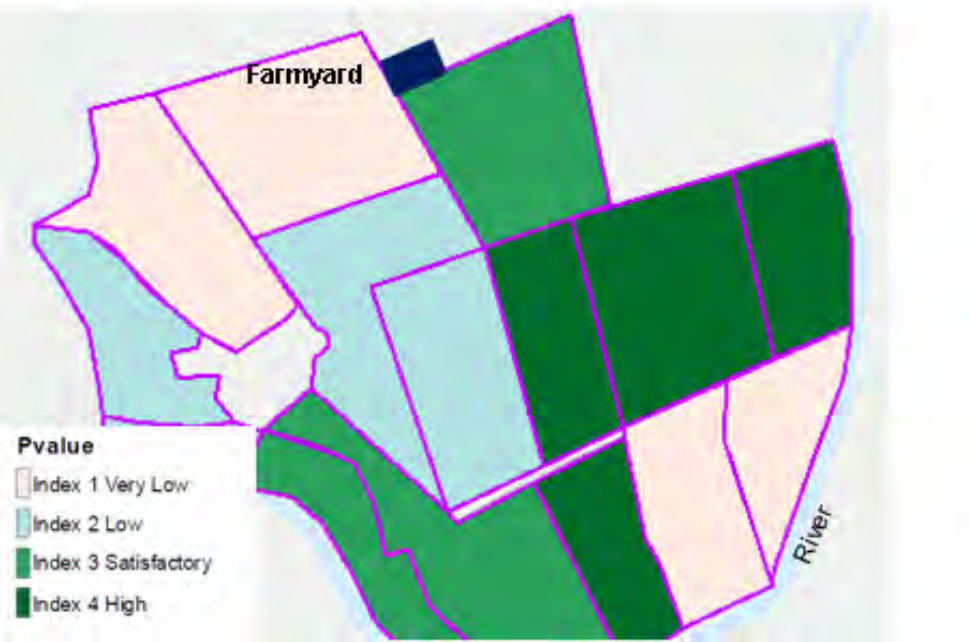
Ivan Kelly, ASSAP Advisor



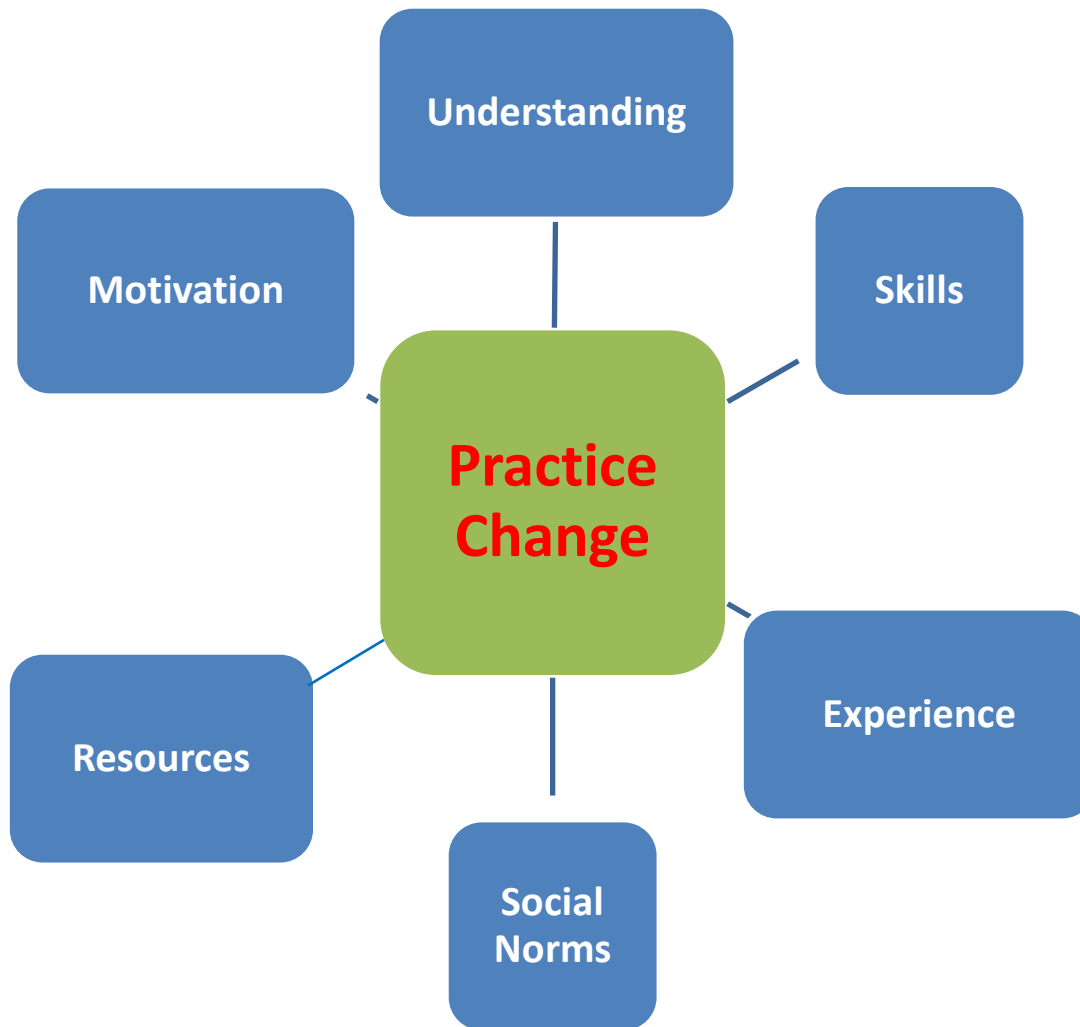
Aerial View



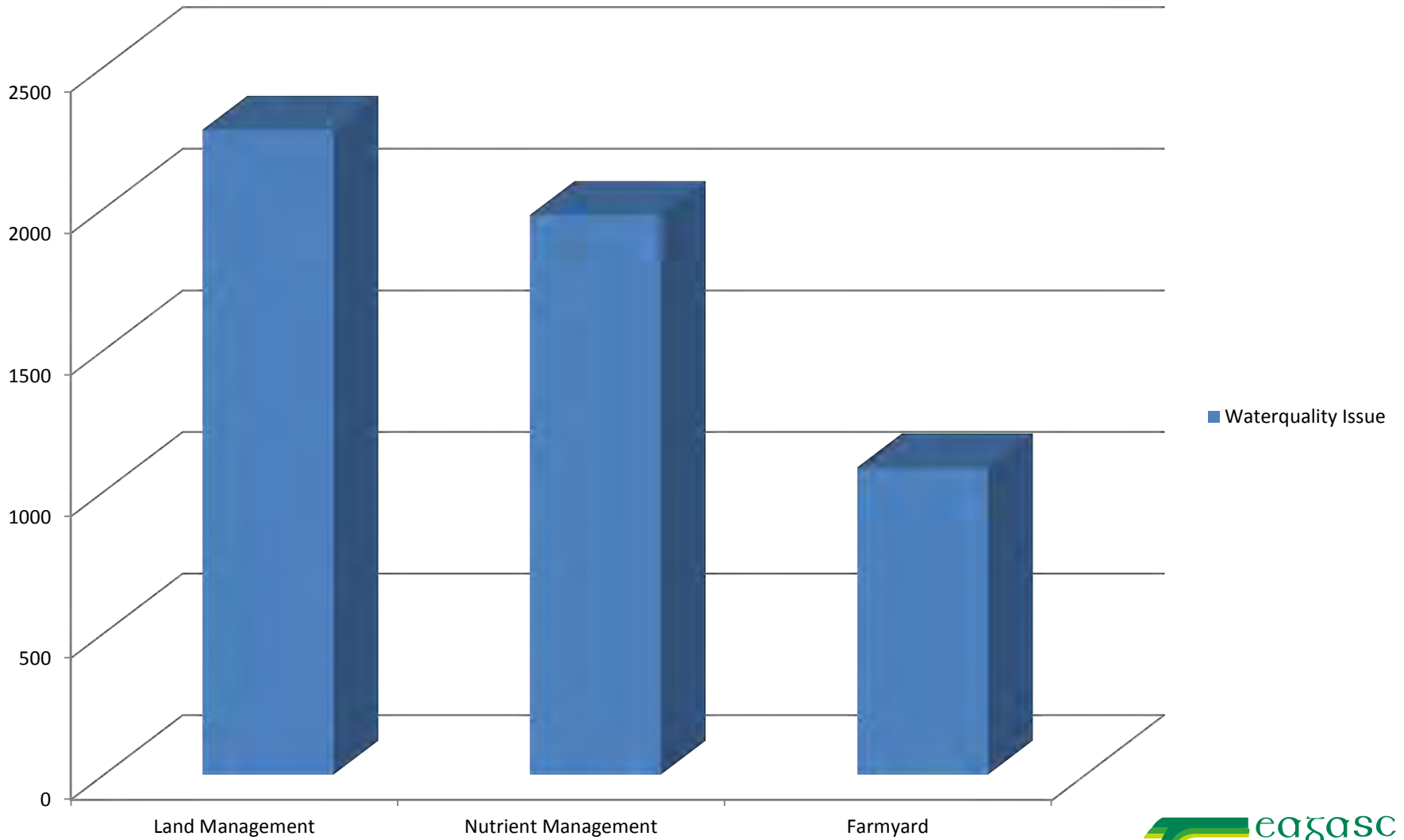
NMP



Farmer Readiness Assessment



ASSAP Issue



Critical Source Area's


- Heavy clay soil
- Slopes from other fields into this area
- Prone to occasional flooding





14/06/2019



Nutrient Content & Value €€	Weather
 <p data-bbox="697 1029 807 1090">Spring N - P - K</p> <p data-bbox="697 1133 807 1158">9 - 5 - 32</p> <p data-bbox="730 1205 774 1229">€20</p>	<p data-bbox="1166 991 1219 1005">cloudy</p>   <p data-bbox="1166 1148 1219 1162">sunny</p>  

ASSAP Farmyard Management Advice

Clean Water Controls

- Drainpipes & Guttering
- Diversion Manholes

Minimise Point Sources of Nutrient Loss by:

Cattle Housing

- Adequate Slurry Storage
- Adequate FYM Storage
- Collection of Seepage



Yards

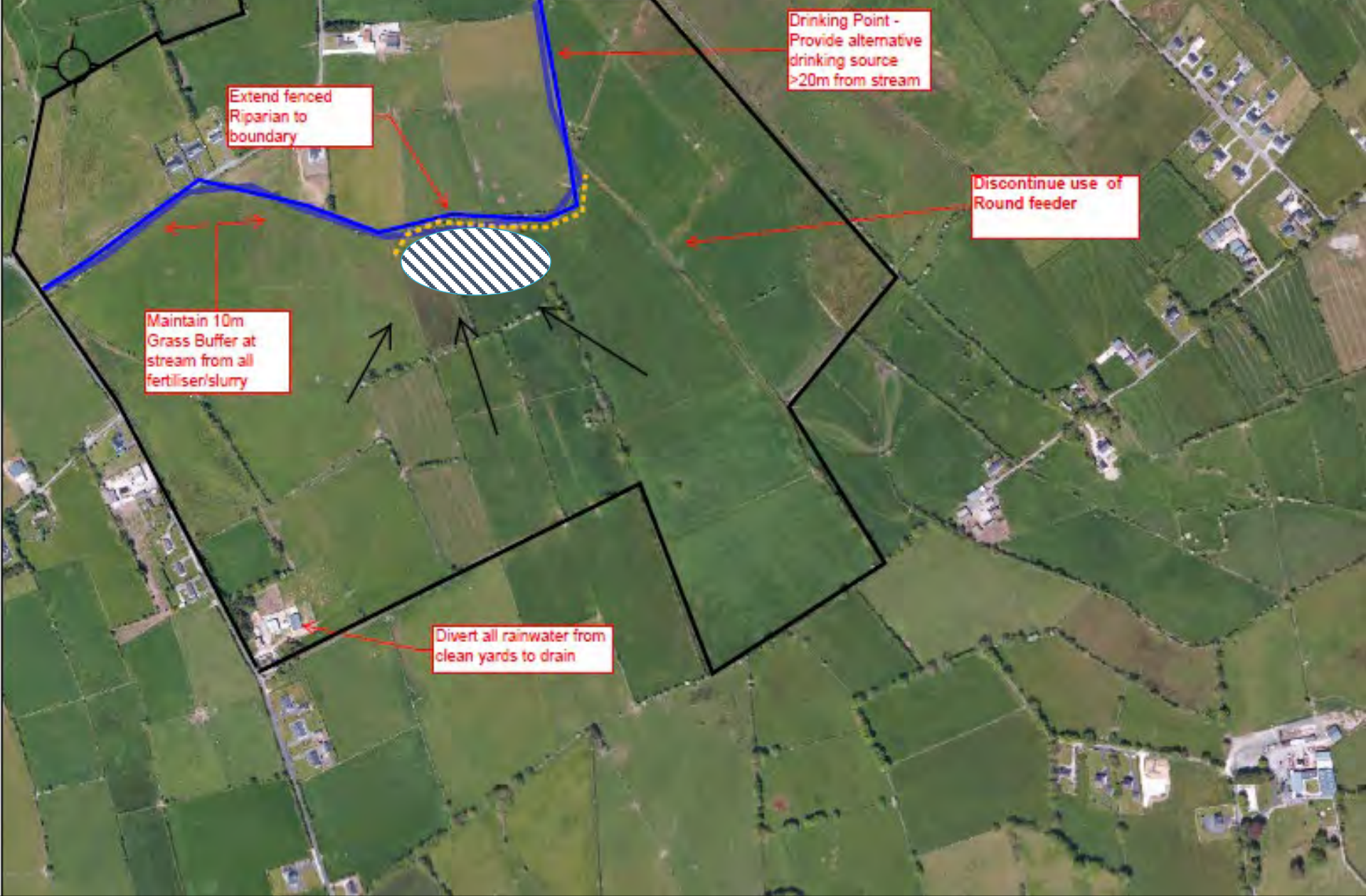
- Minimise soiled water areas
- Adequate collection of soiled water
- Wash down areas
- Concrete Surface Soundness

Silage Pits

- Adequate Effluent Collection
- Minimise Silage Waste

Milking Facilities

- Soiled Water Management
- Dairy Washings Storage
- Chemical/ Detergents use



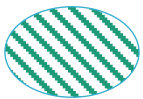
Extend fenced Riparian to boundary

Drinking Point - Provide alternative drinking source >20m from stream

Discontinue use of Round feeder

Maintain 10m Grass Buffer at stream from all fertiliser/slurry

Divert all rainwater from clean yards to drain



= Critical Source Area

Dear Joe

Thank you for taking the time to meet with me on my recent visit to your farm. Based on our discussion I include a list of recommendations as agreed with you on the day. Please do not hesitate to contact me about any of the issues outlined.

This is not a complete list of issues on the farm but addresses the most important actions for water quality improvement in the catchment

The St Clarens Catchment has been characterised by the Catchments assessment team

The significant pressure identified by the EPA during initial characterisation was Agriculture (sub category Pasture) and Domestic Waste Water (Nutrient Pollution). The main pathways for pollutants are overland in the peaty area and subsurface in the well drained sections. phosphorous and sediment are the significant issues, efforts should focus on areas where the transport of phosphorous and sediment provide high risk.

We recommend that you undertake the following actions to reduce losses from your farm

Issue	Implementation Advice	Risk	Status	Visit	Progress
P Loss Through Overland Flow	In field grass buffers are essential in all fields containing open drains and streams. Riparian margin and vegetation also provide additional protection to nutrient loss to waterbody. Extend current Riparian margin to south East boundary.	1	Agreed	1	Commenced
Sediment Loss	Discontinue practice of feeding cattle at round feeder beside drain during winter. Consider housing or alternative arrangements for this group of stock.	1	Agreed	1	Not Started
Drinking Points & Stream Fencing	Fence off drinking point at stream and provide alternative drinking source for livestock at least 20m from stream.	2	Not Agreed	1	Not Proceeding
Identify and Manage Critical Source Areas	Avoid slurry spreading and fertiliser during or before wet weather. Delay spreading until weather/ground is suitable and grass growth is occurring to maximise uptake of nutrients. Maintain minimum of 10m buffer when spreading fertiliser on sloped fields. No slurry to be applied to hill field (CSA on Map).	1	Agreed	1	Ongoing

Yours sincerely

Ivan Kelly

email ivan.kelly@teagasc.ie

Phone 087 9690610

Summary

- Positive action and resource management
- Voluntary, targeted & effective mitigation measures
- Key to success - Implement and maintain practice change

