Agricultural related water quality issue examples forwarded by Regional Operational Committee implementing bodies

*Observations on Agriculture GAP Regs compliance and good practice 2021
Presentation to ASSAP Farm Consultative Group Meeting 24 Jan 2022 & discussion through WFD governance structure: SE and SW ROCs & SERWEMC

* Examples are a sub-set of those forwarded by Local Authorities and Inland Fisheries Ireland

Context

- The following examples of poor farm practices were highlighted through the South East and South West Regional Operational Committees
- These committees meet on a quarterly basis and comprise of the wide range of WFD implementing bodies (e.g., government agencies, national federation of groups water schemes etc) with responsibility for regulating around water, managing sectors that may impact on or require clean water, or supply water for public consumption)
- The illustrated examples are put into context, where possible, to show the level of damage that can occur when things go wrong.
- All of the impacted water bodies, some impacted for several kms, depending on the event, duration and the scale of the risk, are important in their own right (e.g., drinking water, fisheries, shellfish tourism etc). Collectively of course they form part of sub-catchments etc.
- Feedback from the agencies that forwarded the examples is that there is a need for “a change in thinking to bring a more day to day focus on managing risk to water quality in all farm activities”
- Perhaps a greater emphasis on “ water stewardship” in addition to “compliance”?

CORK report from Local Authority

Farm Roadway impact

Roadway discharging to drain

Derogation dairy farm.

1.Small stream discharging to **Inniscarra Reservoir.**

2.Inniscarra is a reservoir which supplies a -

3.major **drinking water abstraction** for Cork city south suburbs, Ringaskiddy, Carrigaline & surrounds.

Dairy Derogation

1.reseeded grassland and drain cleaning
2.length = 300m approx.
3.Awbeg R – **important for Salmon, brown trout**
4. in a priority Area for Action
5. the entire drain within the SAC boundary

This was what the drain looked like before it was cleaned, this is immediately downstream of bridge

Land Clearance Works

Unknown farm type

1. Streams rerouted and area excavated

2. upstream of an SAC, SPA and pNHA

Aerial photo showing land parcel in forestry circled in red, area which was cleared is circled in green, this happened in last few months. Reported to IFI & Forest Service.

Derogation Dairy Farm

1. drain cleaning upstream of **SPA** – on inspection drainage did not appear to be existing network
2. pesticides used beside the river

Example of Drainage work, claimed to be clearing old drains.

Outwintering Replacements, feeding on farm roadway beside drain

Derogation Dairy Farm

Upper reaches of the Douglas (Bride) River, Douglas (Bride)_10.

1. This is a Salmonid river & a tributary of the Bride (Waterford).
2. The Bride is part of the Blackwater River (Cork/Waterford) SAC.

Derogation Dairy Farm

Burst umbilical during land-spreading operation.

These are popping up more often possibly due to their being more in use, incidents never good from a fisheries perspective, usually with short term and catastrophic deleterious discharge to waters.

IFI Cork

Large dairy unit track with fouling which is entirely typical of what's out there. Tracks are generally laid out primarily to get herds from A to B with little else in mind, this often has them linear down a hill and up the other side of a valley, ie direct conduit to receiving waters. The scale of herd numbers on individual units now means cumulative fouling with episodic wash-off may dwarf yard spillage incidents or land-spreading in poor conditions in its potential to pollute surface waters.

Of note it's good to see that many of the smaller streams that are affected by such track traffic in summer are all looking well just now. Then again the tracks are well cleaned, un-used in months and the herds are indoors!

Carlow / Local Authority

- Case 1 ; Found when conducting Planning inspection for new cubicle shed , Co Carlow.

Derogation Dairy Farm

- Case2 ; 2021 Sewage Fungus in 3 km of a stream, caused by silage effluent escaping from large dairy farm-230 cows. It took 7 days to locate the source as it was passing through underground land drains.

- Impact on brown trout spawning areas

Impact on brown trout spawning and nursery areas

Seen at official WFD Co. Council sampling Point 2020 ;
no requirement to fence stream here as farmer is below the 170kg/N2 / Ha

Derogation Dairy Farm

- Case 3;Source of pollution , overflowing silage pits – no concern shown for effluent collection. Farmer was busy converting cows to new Robotic Milk system and admitted to ignoring the problem of the effluent

Derogation Dairy Farm

- Case 4; March 2021 Dairy collection yard for 55 cows, effluent directed into 2 surface water gullies, top and bottom of yard . Effluent found in neighbouring farmers field 1.5 km away.

Derogation Dairy Farm

- Case 5; Slurry found in drain beside farmyard when conducting planning inspection for new milk parlour.

Derogation Dairy Farm

- Case 6 ; Found when inspecting farm for planning application for new slatted shed .

Limerick /Local Authority

Routine Inspection Observations

Owing to the Covid situation Limerick City & County Council did not to carry out new farm inspections in 2021. We instead focused on follow-up inspections on farms which were inspected in previous years and which still had "carry-over" issues.

During 2021 **135 no.** farms were visited.

The table below shows that of the 135 no.farms 54 no. still had outstanding issues. Table shows breakdown in terms of % non-compliances.

Issues	% Non Compliance
Cattle Access to waters	9
Effluent Storage Capacity	24
Silage	9
Effluent Control issues	31
GAEC	13
Farm Passageways	4
Slurry Spreading breaches	9

Serious non-compliances / Enforcement - 2021

In 2021 **15 no. files** were cross-reported to the Single Farm Payment Unit of Department of Agriculture Food & Marine for breaches of GAP Regulations:

4 no. Files – Breach of **Part 2, Article 6(1)** - *Collection and holding of certain substances*

3 no. Files – Breach of **Part 4, Article 19(1)** - *Period when application of fertilizers is prohibited*

4 no. Files – Breach of **Part 2, Article 7(1)** - *Provision and management of storage facilities*

1 no. File – Breach of **Part 4, Article 18 (4)(d)** - *Spreading effluent from farm roadway*

I no. File – Breach of **Part 5, Article 25(6)(d)** - *Failure to comply with a direction form an authorized person*

2 no. Files – Breach of **GAEC 5** – Poaching of lands

Legal proceedings were taken against 1 no. Farmer for failure to comply with a Section 12 Notice which issued under the Local Government (Water Pollution) Acts 1997-2007. Case is on-going.

Dry stock farm

Inadequate effluent control - Inappropriate Farm Yard Manure stored on a concrete yard on a drystock farm, without containment of effluent. No discharge to PAA Bunoke_010. Warning letter issued, FYM removed.

Inadequate effluent control.

Impacts on Receptor

There were no reported fish kills in 2021. During 2021 we responded to 4 no. Complaints relating to silage effluent discharge to waters. Visible impact is typified by photo below (where Ammonia was 0.81mg/l - 3km d/s of the discharge point).

Derogation Dairy Farm

1. runoff from a silage pit
2. length of impact= **>3km approx. "ammonia readings were off the scale"**
3. Deel R – brown trout
4. in a priority Area for Action

General Observations

- Reliance on Contractors can lead to inappropriate slurry spreading activities. In many instances Contractors engage young untrained personnel to carry out slurry spreading activities without providing adequate guidance in relation to the requirements set out in GAP Regulations. A licencing system for Contractors is strongly advised.
- Use of umbilical systems – Large volumes of slurry being spread under inappropriate conditions.
- Silage pits – might be more significant that previously thought (particularly when opened-up during housing period). LC&CC are currently carrying out a study to see if we can determine the impact of silage effluent on waters during housing period.
- Farmyard Management Plans – Variable quality. They are not user-friendly and appear to be prepared for "officialdom" than for Farmer's understanding. In many instances the quality of plans is questionable.
- Issue of slurry exports to stay under limit for derogation – In many cases it would appear that intended spreadlands are unsuitable for landspreading (soil type, slope, etc.). Not sure how new "real time" system for movement will operate but might help matters. Might be useful to receive training on operation of same.
- Re. Importation of sludges from industry. Local Authority should comment on Nutrient Management Plan before permission granted. Local Authority should be informed prior to any movements so that the spreading operation might be overseen. All such intended exports to be flagged to the L.A.

Dairy farm not in Derogation
runoff from a silage pit

Silage pit on a dairy farm. Effluent flowed through cracks on the pit to a small stream (part of the Shannagolden_010), which flowed out to the Shannon Estuary.

There were no wild fish killed, except for **a pond of goldfish**, which is fed by the stream. Farmer cross-reported to DAFM and 20% fine imposed. Only baled silage will be made in future.

Planning Issues.

Dairy farm not in Derogation

Planning issue re cattle underpass. Investigation on foot of a complaint regarding **a polluted well**. Effluent flowed into a small drain, which flows to the Funshion_010.
This matter has been cross reported to DAFM. We have not received notice of the penalty imposed yet.
Planning enforcement dealing with this and farmer is to build tank before cattle are put out to graze in spring.

Planning issue – underpass constructed without an effluent tank. A tank should have been constructed but was it was not done.
Planning Enforcement are dealing with this matter currently.

Small drystock farm not in Derogation

Pollution Complaint

Pollution complaint, as described, cattle given access to a small feeding yard, no effluent collection. No discharge to waters – the Killeenagarriff_010 (Lower Shannon SAC). Infrastructure – farmyard inspected under GAP. Tank was cracked and under-sized to contain all slurry produced from drystock. Warning letter issued.

Infrastructure:

<u>Pollution complaint</u> – inadequate control of effluent from a feeding yard. No discharge to waters. Issue was resolved (cattle kept indoors).

Dairy farm not in Derogation

<u>Accident</u> – Burst tyre on vacuum tanker when spreading slurry. Slurry discharge to field at one point to allow replacement of tyre. Fortunately there was no discharge to waters.

Accident, as described, no discharge to the Aherlow_010, which is a Lawpro PAA.

Land was not being farmed at the time. 2019 LPIS data indicate Not in derogation

Land reclamation.

Significant land reclamation took place on the Broadford Stream_010 and has been reported to IFI and DAFM.

Dairy farm – derogation status unknown

Stream polluted with slurry.

Stream polluted with slurry – Slurry spread on lands resulted in effluent flowing to underground drainage network and onwards to adjacent stream.

Tributary of the Bunoke_010 (LA PAA) from a dairy farm. Lands were drained. Farmer has been warned and will not be spreading slurry on this field in future.

Dairy farm not in Derogation

Silage pit diversion (sewage fungus and heavy siltation observed)

Silage pit diversion – as described. Sewage fungus observed for 300m of drain but no impact observed to the Ballynaclogh River.

Silage pit diversion –Typically when silage is made effluent is diverted to a tank. After a period of approx. 6 weeks (when flow no longer evident) the pipe is – in most instances - directed to a clean water outfall. We are finding (in significant no. of cases) that when the silage pit is opened (i.e. when foddering takes place on the yard) rainwater falling on the face of the pit results in an effluent flow to the clean water outfall (this effluent is rarely /never directed to effluent storage tanks). The photo shows the result (Sewage Fungus). We are planning to carry out investigation over the Winter to see if we can determine extent of this issue.

Management issues: Slurry spreading during the closed period.

Dairy farm not in Derogation

Slurry spread during closed period on the Owvane_030 catchment. This just happened and will be cross-reported to DAFM and reported to LAWPRO.

Co. Kerry, Inland Fisheries Ireland (e.g., hydromorphology – fish passage)

1. Initial inspection: 2hrs to walk the river and locate landowner.
2. 2nd site visit with the landowner about 3hrs.
3. Admin: to include warning letter and phone calls to discuss IFI requirements in relation to removing this migratory impasse, 30mins.
4. 3rd site visit; for fish survey u/s and d/s of impasse, 5hrs.
5. 4th visit; to supervise impasse removal, 5hrs
6. 5th visit; to inspect post works, 30min
7. 6th visit; monitoring after post winter floods, and I.d. snag list 30min

Total time: 16.5 hrs, including travel time to and from, some visits incorporated into other duties, some visits directly to the site.

1. Bank clearance and bank works, without IFI consultation in closed season for fish spawning .

2. Finglas River, a tributary of the Laune. Here the owner is clearing land, cutting down hedges, mature trees and reclaiming lands.
3. The Finglas is good water quality status
4. Important for salmon and brown trout

Unauthorised gravel removal River Inny.

1. This just one of many pictures along the system, it's a major problem on the Inny catchment going back over many many years.
2. Again, a sea Trout/Salmon River

3. Currently under Area of Action.

4. Work done by dairy and sheep farmers.

5. IFI have many more pictures of drainage, pollution, gravel extraction, erosion on many rivers within Kerry.

"IFI working on a plan for the Inny river to involve partnership with the landowners to stop the practice of gravel removal and work with nature rather than against, to allow sustainable farming while maintaining and improving fish stocks within the system.
I think this is very achievable."

Farm Inspections 2021
Wicklow Co. Co. Experience

17 Inspections of Farms in 2021 by Wicklow Council Officials

- 7 Routine Inspections
- 10 Inspections on foot of complaints received
- 10 of the 17 inspections found activities causing water pollution or a high risk of water pollution
- 4 Cross Reports made in 2021

Types of High Risk Activities observed:

- Poor condition or management of storage facilities for Manures/Slurries/Soiled water
- Leaking soiled water of slurry to water
- Leaking silage effluents to water
- Poor slurry spreading practices
- In-stream works
- Inadequate buffer to water

Tillage

1. Ploughing right onto River Bank
2. Siltation
3. Multiple locations over very large tillage fields
4. Ploughing the actual river bank and little or no buffer

5. Common enough occurrence In Co Wicklow

6. High status stream

7. Important for brown trout

Poor Slurry Spreading Practices –

Mixed enterprise farm

1. Slurry in ditches connecting to river
1. Receptor is a PAA and
2. important for brown trout

Soiled water to surface water drain and river –

Derogation Dairy Farm

1. High status
2. Brown trout stream
3. EPA monitoring station 2km downstream showing elevated nutrients and BOD in Aug and Oct 2021 (a trend reversal)

Silage Effluent to field drain & river 1 – **Derogation Dairy Farm**

1. Slaney tributary –
2. high status stream
3. Salmon and trout stream
4. Impact evident along 4kms of stream

Bottom picture – waist high in sewage fungus for 4kms

This was a well run farm but drain below (maize pit, silage pit and wheat pit) was blocked and seeping to surface water drain as drain to storage tank was blocked

Silage seep to field drain & river 2 – **Derogation dairy farm**.

1. Recent entrant to Derogation Silage pit not fit for purpose and
2. Seeping in river
3. Impact for 1km downstream
4. Brown trout river

In-stream Works 1 – Culverting stream – **non Dairy farm**

1. Tributary of the Dargle River

2. Important river for sea trout and salmon – probably one of the most important sea trout rivers on the east coast.

Impact

1. Fish passage prevented
2. Ongoing siltation effects on the main channel

In-stream Works 2 – land reclamation - **Tillage**

1. Newcastle River main channel

2. Main channel excavated for 150m

3. Impact evident for **4km (bottom left picture)**

4. Brown trout and salmon stream

5. Works carried out during fish spawning season

Dungstead effluent to groundwater

Derogation Farm Dairy

Update from Wicklow CoCo

“Two of the derogation examples (1. sileage effluent and 2. soiled water) given here were from the catchment presented last year at the SEROC as good planning examples.

However in 2022 or 1 year later, poor practices were evident. This was very disappointing to see – especially as these are in high status water bodies and important for brown trout.”

Wicklow CoCo 24/01/22

Waterford

River Clodiagh

- Photo taken Jan 10th 2022. Spreading observed in the area on Jan 4th on icy conditions – very heavy rain between periods. River flows along field boundary.

CLOSED PERIOD SPREADING

10 Jan 2021

04 Jan 2021

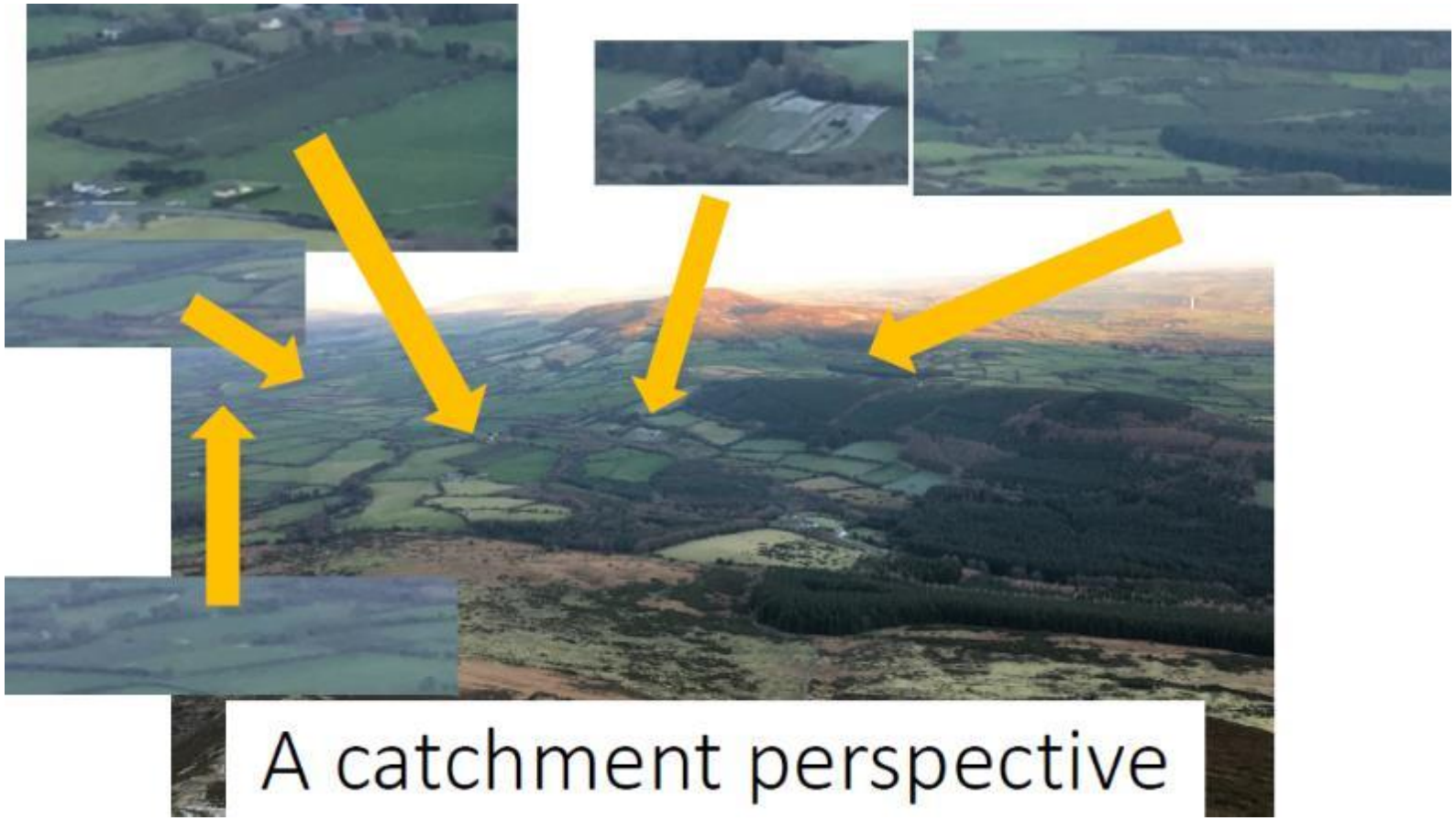
Derogation Dairy Farm

Atlantic salmon and freshwater pearl mussel catchment

A public drinking water source catchment

CLUSTERS

Predominantly Dairy Farms



1. Atlantic salmon and freshwater pearl mussel catchment

2. A public drinking water source catchment

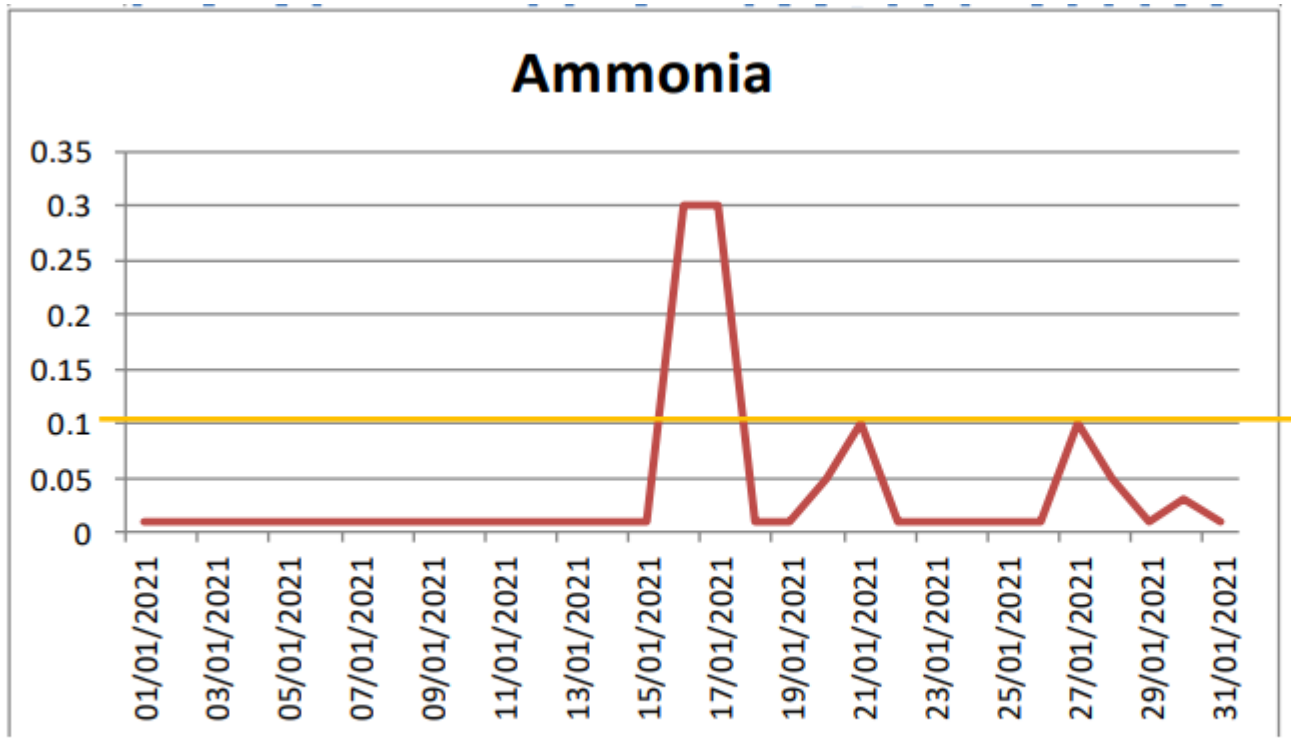
3. Land spreading taken place in at least 8 separate areas in the closed period for slurry spreading in icy conditions.

10 Jan 2021

EFFECTS

- E coli
- Cryptosporidium
- Ammonia

- Drinking waters
- Bathing waters
- Shellfish waters



Ammonia level (0.1mg/l) at which drinking water source is switched off

The graph shows that the online ammonia monitor at a major drinking water plant (serving 65,000 people) detected high ammonia at the abstraction point in the river downstream of a cluster of farms where closed season slurry spreading was carried out. The abstraction had to be switched off due the ammonia levels detected.
Waterford CoCo report.
Data from Kilmeaden Water Treatment Plant – water supply for Waterford City

Parameter	Result
CBOD5	742mg/l O2
COD	5950mg/l O2
Nitrate as N	< 4.8mg/l
Phosphorous	23.95mg/l
Ortho-phosphate as P	7.45mg/l

Example of slurry washout after spreading on frosty conditions – North Cork-DuhallowLIFE *(just for illustration)*

Tipperary Spreading during the closed period 2020/2021.

Increased incidents

Tipperary/Local Authority

Derogation Dairy Farm

1. SAC catchment
2. Atlantic salmon and brown trout

Tipperary Spreading during the closed period 2020/2021.

Derogation Dairy Farm

1. SAC catchment
2. Atlantic salmon and brown trout

Derogation Dairy Farm

1. Heavy rain. Runoff from yards from 2 farms and drain.
2. 2. Continuous over a number of days.

Same drain – reoccurring incidents the previous year

Pic taken on 13/03/20

IFI and Tipp CoCo follow up

Danger signs put up warning against drinking the water at Tipperary holy well

By MaryAnn Vaughan 17th February 2020

Share on Facebook Tweet on Twitter

Sign warning against drinking water at St Patrick's Well, Clonmel | Photo @ 12pm FM

Permanent signs have been erected warning against drinking the water at Tipperary's largest holy well.

The County Council says the water at St Patrick's Well in Clonmel should not be consumed as it could be dangerous.

Don't drink the water, don't use it for washing and don't use it for cooking.

Community report of algal boom on Marlfield lake

Catchment is a SAC

St Patricks Holy Well relatively close – aquafer vulnerability unknown *(but issues with drinking water around the same period)*

Derogation Dairy Farm

1. SAC catchment Atlantic salmon and brown trout

2. Slurry spreading in the closed period

20 tanker loads
over 9.5 acres

Tipperary & Waterford Inland Fisheries Ireland

Silage effluent entering a stream – R. Suir

Dairy farm in Derogation (350 cows)

1. Pil River Co. Kilkenny

2. Atlantic salmon and brown trout river
3. Upstream of SAC

"silage effluent discharge to stream and effects(sewage fungus).
This stream was in slide show from last year but being polluted by farm 1 mile away.
Now it is being polluted by farm 20 meters away!! Frustrating……."

"

“dairy washings being discharged to drain that flows to stream.”

R. Suir Catchment (SAC)

Dumping of slurry

Dairy farm in Derogation (250 cows)

1. Trib. Of Duag river Ballyporeen

2. Atlantic salmon and brown trout river


Pro DSS
Run
7.4 °C
743.5 mmHg
82.4 DO %
806 SPC-80
16.54 NH-N
907.28 NO3-N

Clare/Local Authority

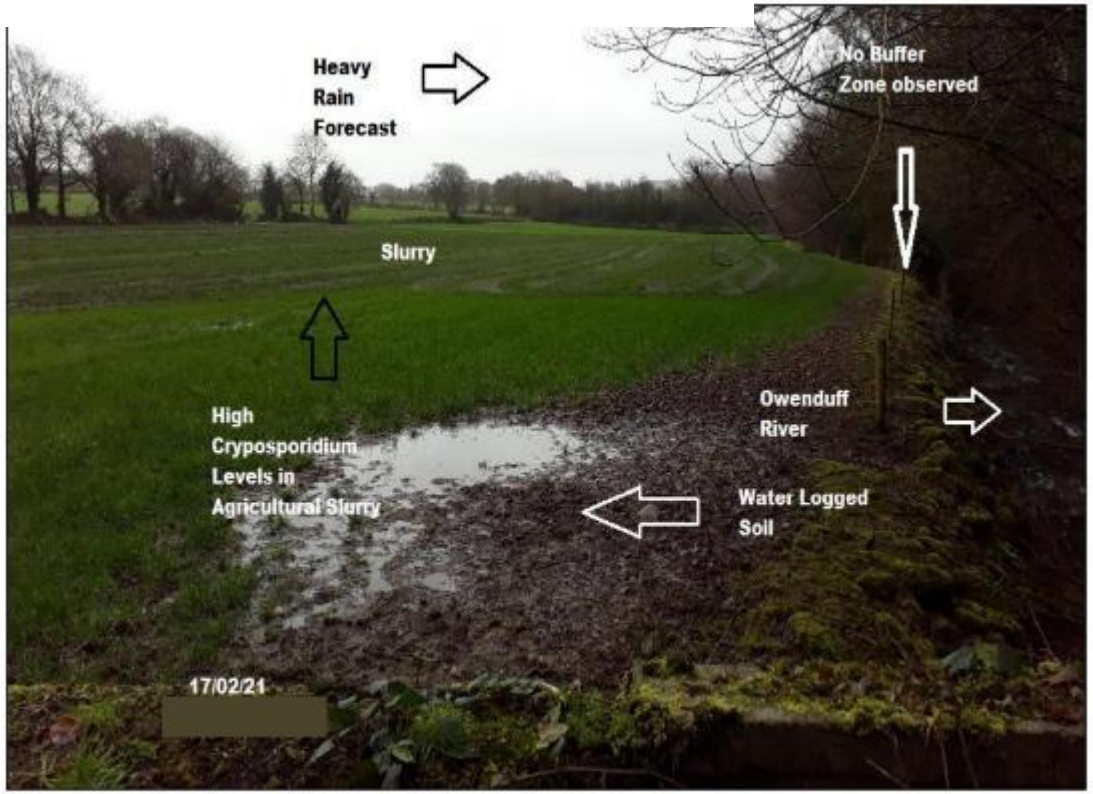
Photo of slurry in drain on edge of road as rain gun used to spray slurry into field.

Photo of slurry dumped in field

The below table outlines general statistics of farm visits resulting from complaints received by Wexford County Council in 2021.

Farm inspections from complaints	Farms with non-compliances	Follow up visits	Legal notices issued
78	45	35	9

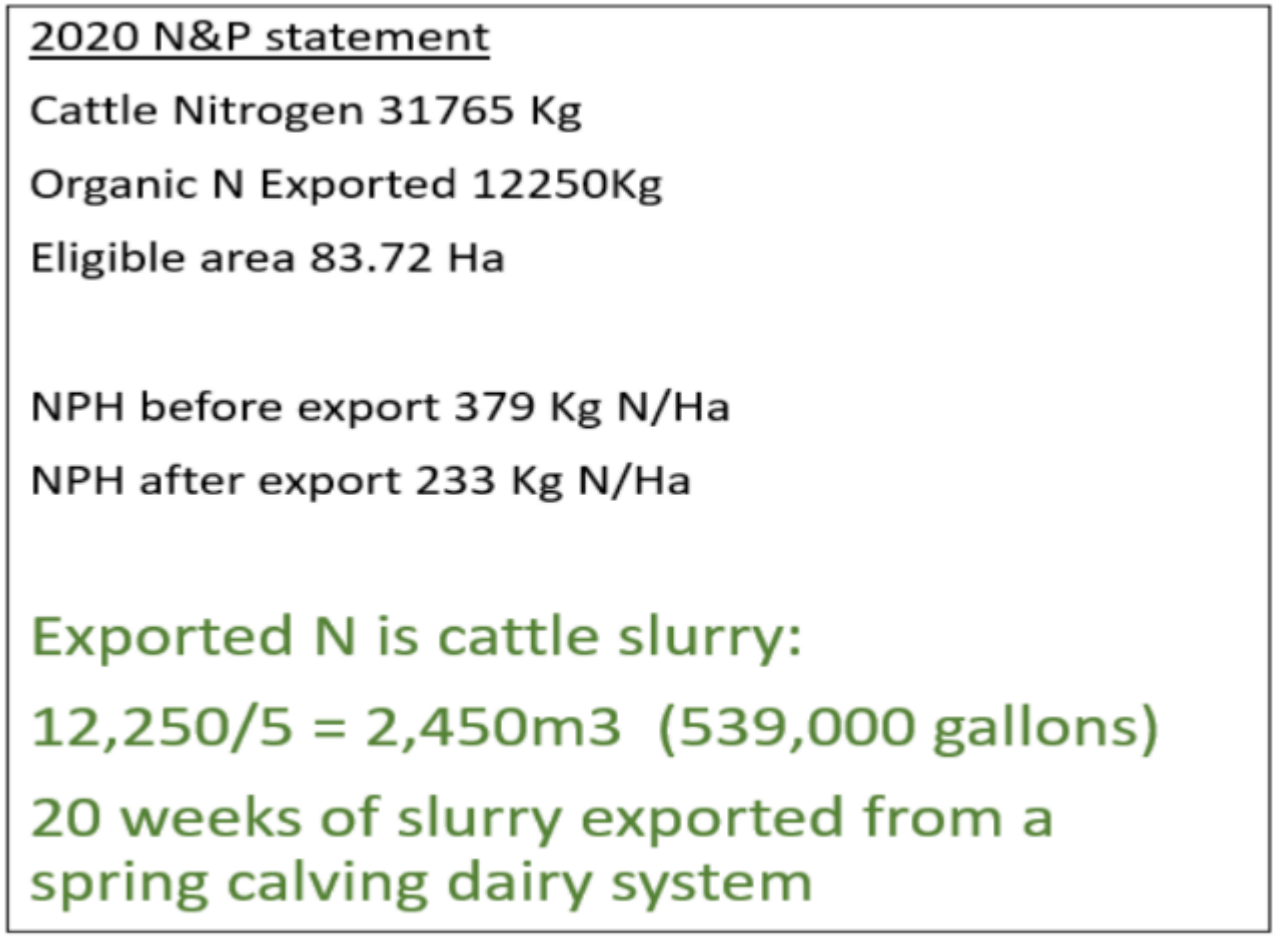
Photograph 1: Slurry & soiled Water not contained with farmyard



Photograph 2: Slurry not spread in compliance with Nitrates Directive

Note: Photographs 1 & 2 taken on the same farm on the same day

Example of slurry export on paper only



Photograph 4: Issues concerning cattle slurry export system

Concern that declared exporting is not always taking place

Photograph 3: Silage effluent contamination of clean water systems

Bannow Bay

Field where we saw (at our shore meeting the 29th Nov) that Slurry had previously been spread on it. Note tracks into water below high water mark

Shellfish industry under severe pressure in SE and SW regions due to decline in water quality

- This affects access to markets

Image forwarded by BIM- slurry spreading (and tracks to hightide shoreline) in closed period adjacent to shellfish production area (oysters) illustrating challenges facing the shellfish and WQ objectives in the SE.

Bell Harbour, Co Clare –source SFPA (forwarded to the SWROC on 16 Feb 2022)

Feedback from the SE and SW ROCs

- **Derogation – entry controls are insufficient**
- **Falsification of slurry movement records**
- **Inability of LAs to access DAFM real time data on movement of manures/slurry etc**
- **EIA (AG) Regs – and their application and transparency of decision making**
- **Need for greater recognition on the impact of individual incidents (e.g., slide 80 –** shellfish industry in Bannow Bay in danger of being excluded from markets, individual impacts can be several kms and impacting on other sectors – also attitude of some when confronted by LAs is concerning (more concerned on who reported rather than the public health or the issue to be addresssed)
- **Inaccurate information provided for planning (e.g., storage, herd size etc)** – previously examples provided by Cork CoCo to the SWROC and to NAP consultation
- **Connections between water courses and farmyards via drains –** widely reported across most counties where we got feedback
- **Inadequate storage and poor nutrient management practices**
- **Spreading of slurry during closed period**
- **Clean yards does not necessarily mean no impact – an area that was unexpected** (e.g., either accidental or deliberate washing into drains)
- **Advice and perception that riparian buffers pose risk to Basis Farm Payments**

Follow up feedback from IFI (FEO O. McGrath)

8 out of 10 farms affecting water quality were derogated/intensive in SERBD(where IFI took action in spring/summer of 2021).

7 were in the Suir catchment with one in the Nore and Barrow and the remaining discharging to a coastal stream.

The 8 farms were primarily dairy farms with 130 cows being milked on the smallest one and 350 cows on the largest one.

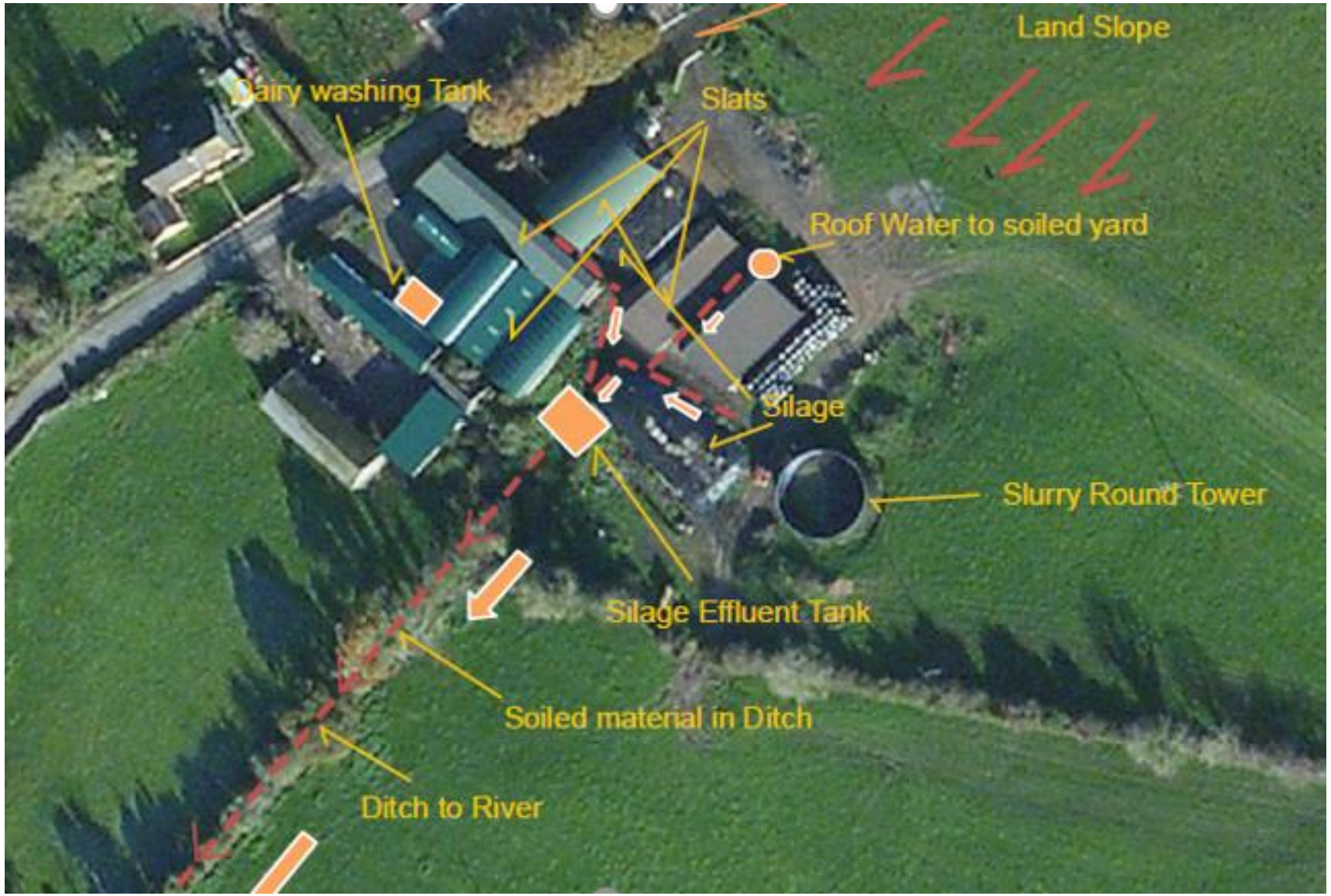
The 2 remaining farms were beef rearing enterprises with 50 and 60 cattle respectfully.

5 of these farms had been noted for previous pollution events with 4 having been cross-reported to DAFM.

3 were from silage effluent discharges. 5 were from slurry storage facilties.2 were from soiled water discharges.

On average the discharges affected aquatic life for 4 km of stream/river. The shortest being the coastal stream(silage effluent) at approximately 2 km(to the sea) with the longest affected area of river being approximately 8 km downstream of discharge (slurry).

Common Yard Lay-out Wicklow – High Risk example



Derogation dairy farm example

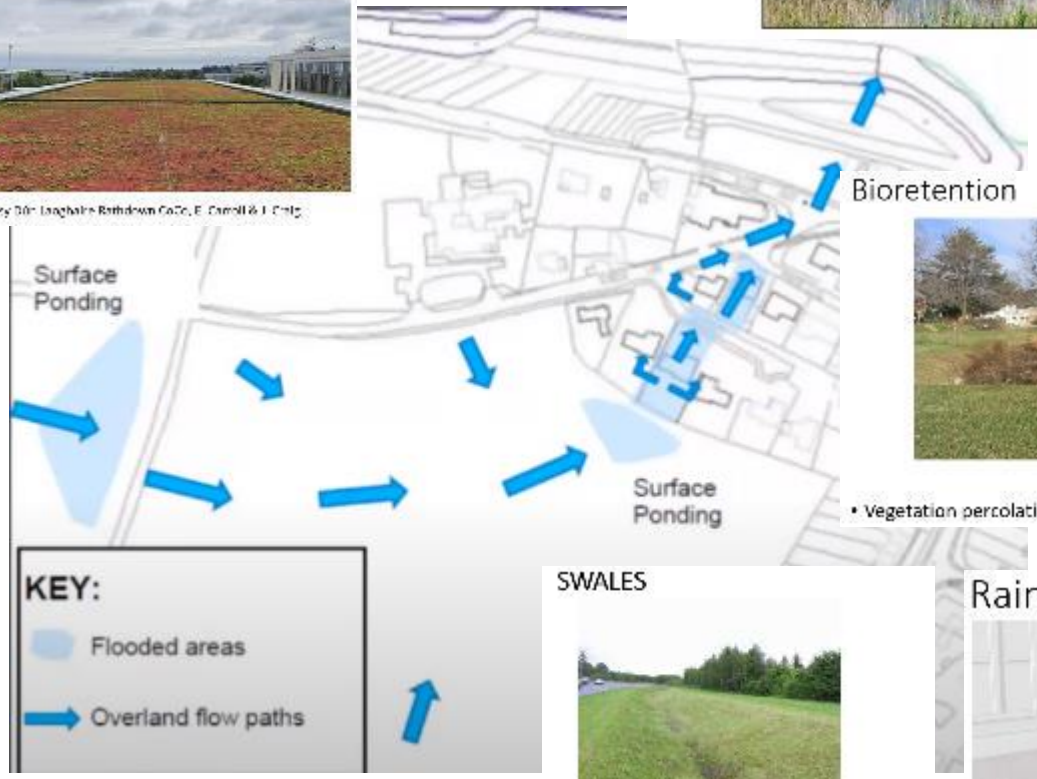
Due to clean water management it is a common issue in Wicklow for storage areas to become overwhelmed with soiled water during heavy weather events
i.e., to prevent clear water from mixing with soiled areas and break pathway (ditch) to river
With kind permission

Rainwater management plan (surface water management plan)

Ponds/wetlands

Shallow side slopes
Erosion protection
Amenity and Biodiversity

Green roof



Bioretention

• Vegetation percolation and/or drainage layers

SWALES

Effectively grassed drains – but wide and mostly dry

Rain gardens

- Work out preferential flows
- Look at topography – contours, hilly areas etc
- Link in proposed open, green spaces (public spaces)
  Plan for larger Nature based SuDS for these areas with amenity in mind
  Integrate then with development planning requirements (green roofs, SWALES, rain gardens etc)