



Extension to 2023 Edward Burgess, Manager

Edited by
Tom O'Connell,
ACP Communications
Officer

I am pleased to confirm that the Department of Agriculture, Food and the Marine have just approved funding for a fourth phase of the ACP for another four year period. The programme will continue to study water quality and agriculture in the current six catchment areas.

In addition, it has been requested to research greenhouse gas (GHG) and ammonia emissions, along with the build-up of carbon in soils. This has not come as surprise given recent media coverage. Indeed, the focus on agriculture in RTE's recent "Climate Action Week" was not always easy listening. Moreover, it is my expectation that ammonia and GHGs will have a greater influence than water quality on agricultural policy decisions in the future.

The equipment for measuring gaseous emissions is similar to our weather station, with a four metre high pole holding the probes.



Measuring GHGs from agriculture

Initially, two of the catchments will be equipped with one tower each, and it is likely a third will be put up in a year's time.

The main man-made gas is Carbon dioxide which accounts for most of global emissions. What are the other two main GHGs? The answer is at the end of this newsletter.

To do this work, four extra staff will be taken on by the ACP: one researcher, two recorders for collecting information on farming activities and one technologist to maintain equipment and manage the air quality data being collected.

I believe that the topics being discussed demonstrate a need for greater understanding of the social and economic impacts of agricultural policy. With this in mind, I am glad to say that the ACP will continue to build on its understanding of this topic and a research officer will continue to be based in Athenry.

It would not be possible to operate the programme without the goodwill and co-operation of the over 300 farmers in the six catchments. I would like to take this opportunity to thank you for your co-operation with us over the last twelve years and hope that the next four will build on the success of the three previous phases.

Climate and water quality

Per-Erik Mellander, Chief Scientist

Ireland is well known for its changeable weather conditions which sometimes can give us four seasons in one day and which farmers have learned to manage over the centuries. We all remember the severe drought of 2018 and storms such as Ophelia - even more challenges lie ahead, however.

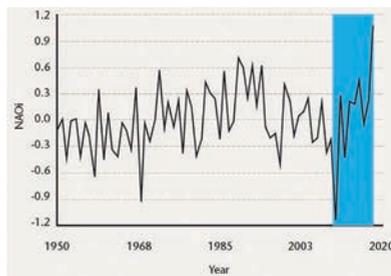
Weather conditions are linked to longer -term climate systems above the major oceans and which affect our weather over decades.



One such climate system is the North Atlantic Oscillation (NAO). This is a difference in atmospheric pressure between the north and mid-Atlantic regions.

In positive phases of the NAO index, weather in north-west Europe is associated with higher air temperatures in summer and more frequent large rainfall events in winter.

The opposite is true when the differences in atmospheric pressure flip to negative phases of the NAO. These phases can grow and diminish over decades and influence weather patterns over wide areas. Since approximately 2009, the annual average NAO index has sharply increased to a positive phase (see graph).



NAO index - ACP period in blue

Does the NAO affect nutrient losses to water? To answer this, high resolution water quality data over six years, 2009 - 2015, was analysed; together with our six catchments, five sites were from Norway and two others were from France.

Our studies showed that the NAO does influence nutrient losses to water in catchments. But it varies across the different sites. In this current period of a positive NAO index, for example, four of the ACP catchments may indicate a worsening of water quality. For the other two catchments, Castledockrell and Dunleer, there seemed to be no link between the NAO index and levels of phosphorous in the water.

Different soils and landscapes greatly explain why the impact of weather varies across agricultural catchments. For instance, in poorly drained soils, much of the rain moves via surface runoff. Features such as slope will also influence where the water flows in the landscape on its way to the stream.

At times, rainfall is directed to critical source areas and thus increasing nutrient concentrations. Other times, high rainfall dilutes the levels of nutrients.

Farmers tour 4-6 December

Tom O'Connell



Some of the farmers at Coolmore Stud on their way to Clonakilty and the Timoleague catchment

"Since I missed the last one, I was really looking forward to this tour. Timoleague is a different catchment than Castledockrell and staff updated us with great information on water quality.

Well done to all for such an excellent trip."

-Joe Doyle,
Castledockrell, Co. Wexford

"This was my third trip to see other catchments since the programme started.

It's great to see what's going on in the different areas and learn from other farmers.

And have the craic as well."

-Terence Keelan,
Corduff, Co. Monaghan

Catchment Science Conference 5-7 November

Tom O'Connell

Every four years we host a major Catchment Science Conference and this year it was in Wexford. During the three days over 40 speakers from across the globe spoke about the challenges we are currently facing to improve water quality in agricultural landscapes.

The conference was opened by Minister of State, Andrew Doyle, TD; Claudia Olazabal, EU Commission and Liam Herlihy, Chair of Teagasc Authority.



Farmers play a key role in our research and as at our previous two conferences, delegates met with some of you. This year Brigid Carroll spoke about her own experience of farming in the Ballycanew catchment. In addition, delegates were able to visit the Ballycanew and Castledockrell sites during field trips.

This was my third conference and the international delegates really appreciated the opportunity to meet with participating farmers and visit some of the catchments. We would like to thank Brigid Carroll, Tom and Alice Doyle for their hospitality to delegates on their farm and all the other farmers who helped with Catchment Science 2019.

Gallery



*Time for a dip in the lake at
Johnstown Castle*



*1949 'Cropmaster',
Irish Agricultural Museum*



*Wishing each of you and your
family a Happy Christmas and
best Wishes for 2020*

Keep in Touch

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This newsletter is produced for the over 300 farmers in the Agricultural Catchments Programme (ACP).

The ACP is a DAFM-funded project and this newsletter is edited by Tom O'Connell, ACP Communications Officer.

Please feel free to contact Tom on 087 0609620 or tom.oconnell@teagasc.ie for further information or with any suggestions for future newsletters.

Answer: In addition to Carbon dioxide, methane and nitrous oxide are also GHGs.