

## Behaviours in relation to rural diffuse pollution: briefing on the relation between awareness and uptake of measures

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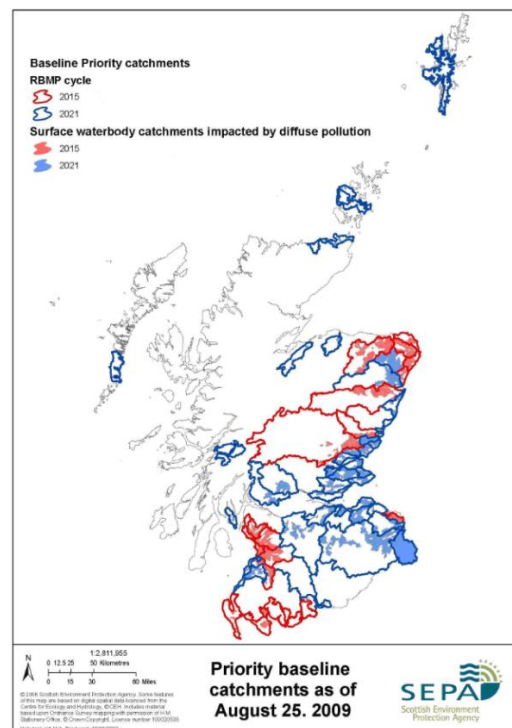
January 2017

### Introduction

Significant efforts and resources have been deployed to mitigate rural diffuse pollution through regulatory, guidance and voluntary measures. Despite these ongoing efforts, rural diffuse pollution remains a persistent problem. In Scotland, the Scottish Environment Protection Agency (SEPA) has established a Diffuse Pollution Management Advisory Group (DPMAG) that ‘focuses on protecting and improving Scotland’s water environment by reducing rural diffuse pollution’. DPMAG has developed a two tiered strategy which includes awareness raising campaigns at national level and a targeted approach in priority catchments, involving catchment walks, awareness raising and one-to-one farm visits. There seems to be a general consensus that many of the barriers to mitigating diffuse pollution are of a behavioural nature and consequently, understanding land manager behaviour is key to enhancing uptake of mitigation measures and improving water quality.

This briefing provides evidence on the effect of awareness and information raising on land managers’ behaviour in relation to mitigation

measures that are part of the Diffuse Pollution General Binding Rules (GBRs). GBRs are a set of mandatory rules for pollution control in specific low risk activities, as defined in ‘The Water Environment (Controlled Activities) (Scotland) Regulations 2011’. We use data gathered by SEPA during the farm visits. The database includes information about breaches in compliance with GBRs and background information on farmers’ self-reported awareness of GBRs, involvement in environmental schemes and whether any soil testing and/or



Map 1: Priority catchments in Scotland 2009–2015 and proposed catchments 2015–2027.  
Source: DPMAG(2012)



nutrient budgeting is carried out. The database is composed of 1995 observations in 13 priority catchments (see Map 1). The analysis of this dataset represents a novel opportunity to inform policy making about the roles of farmer attitudes and behaviour on land management and water quality impacts.

## Key messages

### Current levels of compliance

The results show that 46% of the farmers included in the dataset comply with the Diffuse Pollution General Binding Rules (GBRs). Amongst the non-complying farmers, the average number of non-compliances is nearly 4. The table below shows the three measures with the highest rates of non-compliance.

Description of GBR*	Number of non-complying farmers (out of 1995)	% non compliance
<b>19a – Keeping of livestock</b> <i>Significant erosion or poaching of any land that is within 5m of any river, burn, ditch, etc.</i>	1132	70.2
<b>19c – Keeping of livestock</b> <i>Livestock feeders must not be positioned where run-off from around the feeders could enter any river, burn, ditch, etc.</i>	111	56.8
<b>20ai – Cultivation of Land</b> <i>Land must not be cultivated for crops if it is: within 2m of any river, burn, ditch, etc.</i>	579	60.2

\*Note: for full GBR details refer to The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) [http://www.sepa.org.uk/media/34761/car\\_a\\_practical\\_guide.pdf](http://www.sepa.org.uk/media/34761/car_a_practical_guide.pdf)

On the other hand, there was complete compliance with the following GBRs, where they applied: GBR 21b (*Drainage must not result in destabilisation of the banks, or bed of the receiving river, burn, ditch, etc.*), GBR 23ci (*Pesticide sprayers must not be filled with water taken from any river, burn, etc. unless: a device preventing back siphoning is fitted to the system*) and GBR 24a (*Sheep must be prevented from having access to any river, burn, ditch, etc.*).

### Links between awareness & compliance

Most farmers (84%) in the survey self-reported being aware of the GBRs. Statistical analysis did not indicate any significant direct relationship between awareness and compliance. However, preliminary regression results indicate that specific practices such as nutrient budgeting and soil testing are positively associated with increased compliance with the GBRs. In addition, there is a positive correlation between awareness and being involved in environmental schemes and/or doing nutrient budgeting and soil testing. Although

preliminary, these results seem to indicate that awareness alone does not necessarily have a direct effect on compliance, but when this is mediated by ‘hands on’ practices, such as nutrient budgeting and soil testing, it may have a positive influence on compliance.

### **Policy & Practice Implications**

Preliminary results show that for all of the GBRs monitored during farm visits, non-compliance was more likely for a subset: keeping livestock (19a, 19c) and land cultivation (20ai). This may be partly explained by the fact that breaches in GBRs such as these are easier to spot than for others. However, it may also provide evidence for a more targeted approach aiming to increase compliance with those specific GBRs.

Regarding the relation between awareness and compliance, the available data do not allow us to statistically prove a direct link between these issues. This suggests that awareness alone does not always result in improved compliance. However, this result may also be due to limitations of the data: lack of variation in responses about self-reported awareness, and/or the data suffering from a ‘yeah-saying’ effect (the tendency for respondents to provide positive responses to questions).

The results do prove that awareness is linked to some practices, such as soil testing and nutrient budgeting, which in turn influence compliance. In this regard, encouraging practical ‘hands on’ approaches may potentially be a useful approach for further improving regulatory compliance to tackle water quality problems. In the meantime, further research to “un-pack” farmers’ awareness, how best to measure this, and its indirect or direct relationships with compliance is required.

### **Acknowledgments**

This research is funded by the Rural & Environment Science & Analytical Services Division of the Scottish Government, as part of the 2011-2016 and 2016 -2021 Strategic Research Programmes and Commonwealth Scholarship Commission and the University of Leeds. This briefing corresponds to deliverable KE1 within the project formed by Research Deliverable 1.2.4 Objective 2.1. Authors are grateful to SEPA’s personnel for answering to our questions and to Kerry Waylen for her comments on an earlier draft.



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