

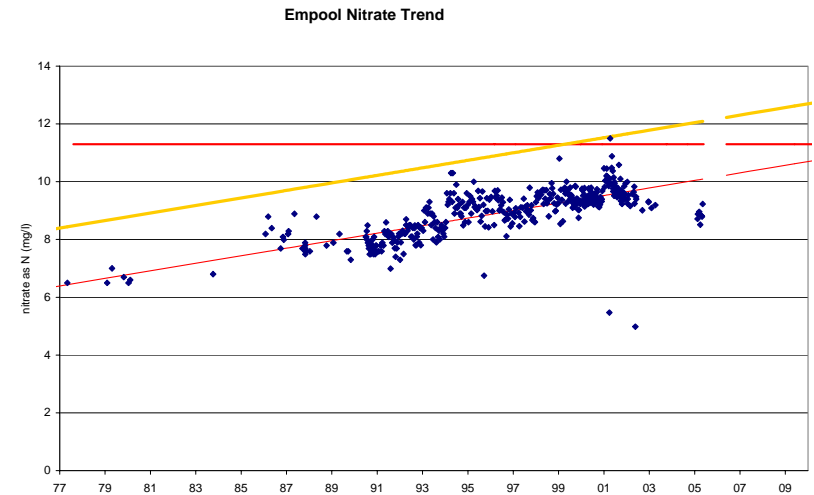
*Vesper
Cater*
a YTL company

CATCHMENT MANAGEMENT- AN ALTERNATIVE TO WATER TREATMENT

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Setting the Scene

- **Halt and reverse the upward trend in nitrate levels and remove peakiness**
- **Remove need for end of pipe solutions**
 - **Cost to water customers equivalent to more than £150 per acre per year**
- **Work with landowners to reduce nitrate loss at source**
- **Wagrigo**
- **Develop a toolkit which can be transferred to other catchments**



Starting Point



- **Define catchment**
- **Water quality within catchment**
- **Identify and contact all farmers & landowners**
- **Identify other groundwater monitoring sites**
- **Historical farm data & look for significant changes or upward trends**
- **Identify current farm practices**
 - **farm enterprise**
 - **cropping**
 - **cultivations**
 - **yields**
 - **fertiliser timings & rates**
 - **soil indicies**
 - **livestock type & numbers**
 - **rainfall**
- **Identify areas of concern**
- **Set a baseline to work from**

REDUCING NITRATE LOSS TO GROUNDWATER FROM THE CATCHMENT via



- Engage with all farmers/ landowners in catchment
- Explain our problem
- Provide a benchmark to begin from
 - Nitrate levels in groundwater
 - Hotspots
 - Current farm practices
 - Soil nitrate levels
- Suggest alterations to farm practices
 - Reduction in inorganic fertiliser use
 - Improvement in soil management
 - Adoption of resource protection measures under ES
 - Change in cultivations
 - Altering drilling dates of autumn crops
 - Catch crops
 - Changes in use of organic manures (manure & nutrient management plans)
 - Nutrient balancing
- Assess impact of changes to farm management practices on nitrate loss
- Assess impact of changes to farm income
- Work with actual as opposed to assumed data

Monitoring & Indicators of Success



Monitoring

- Nitrate levels at Empool
- Nitrate levels in soil and crops
- Nitrate levels in rivers
- Nitrate use on farm
- Nitrate levels in groundwater below fields
- Nitrate levels in groundwater between fields and Empool – may require new observation boreholes

Indicators of Success

- Buy in from farmers
- Reduction of nitrate levels at Empool
- Reduction in nitrate levels in local boreholes
- Catch crops grown on overwintered stubbles
- Reduction in post-harvest soil mineral N
- Reduction in leachate in porous pots
- No winter application of slurry/ manure / dirty water to fields
- Reduction in use of inorganic N

Involvement with Stakeholders



- **Project launch**
- **Development of a stakeholder group (EA, Defra, NFU, FWAG, Landcare, Angling Groups, EN, Farmers)**
- **Consultation**
- **Provide updates through meetings**
- **Identify other projects within the river catchment so as to avoid overlap**
- **Ensure synergy with other projects**
- **Share information**