



# Towards Competitive Farming and Clean Water

How the Mini-Catchment Programme will Contribute to Achieving the Goal

REPS National Conference  
9<sup>th</sup> November 2007

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## Outline

- Background
  - Future of farming
  - Nitrates Directive (ND)
  - Water Framework Directive (WFD)
- Monitoring and Evaluation
- Mini-Catchment Programme
  - Objectives
  - Operation
  - Mini-catchment Selection



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# Introduction

- Water covers 71% of the world's surface
- Only about 1% is available for use by humans

The EU says\*:

- **Water is life !** It is a precondition for human, animal and plant life as well as an indispensable resource for the economy.
- Protection of water resources ... is therefore one of the cornerstones of environmental protection in Europe.
- The stakes are high ...and concerted action at the level of the EU is necessary to ensure effective protection.

\*European Commission Environment website



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# The Future of Irish farming

**Agri-Vision 2015 (DAFF) envisages -**

*"A dynamic agricultural sector ...which is:*

- *providing a viable living for farm households*
- *firmly focused on consumer requirements, in partnership with the food industry*
- *closely integrated with the wider rural economy*
- *contributing positively to the natural environment"*



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## Nitrates Directive

- Full Title: The protection of **waters** against pollution caused by nitrates from agricultural sources (91/676/EEC)
- 2006 – Good Agricultural Practice for Protection of Waters Reg. (S.I. 378 of 2006)
  - Farmyard Management
  - Fertilizers and Nutrients
  - Records

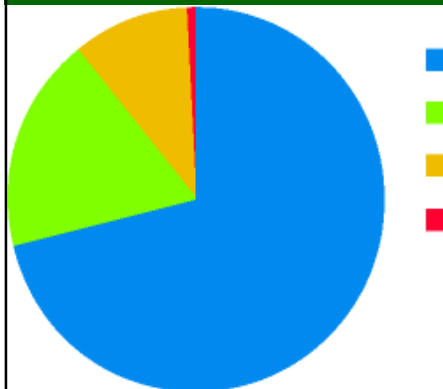


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## The Water Framework Directive

- "Directive 2000/60/EC ... a framework for the Community action in the field of water policy"
- Existing water legislation in one package
  1. The Bathing Water Directive (76/160/EEC)
  2. The Birds Directive (79/409/EEC)
  3. The Drinking Water Directive (780/788/EEC) as amended by Directive (98/83/EC)
  4. The Major Accidents (Seveso) Directive (96/82/EC)
  5. The Environmental Impact Assessment Directive (85/337/EC)
  6. The Sewage Sludge Directive (86/278/EEC)
  7. The Urban Waste-water Treatment Directive (91/271/EEC)
  8. The Plant Protection Products Directive (91/414/EEC)
  9. The Nitrates Directive (91/676/EC)
  10. The Habitats Directive (92/43/EEC)
  11. The Integrated pollution Prevention Control Directive

## River Quality 2004-2006 Percentage Channel Length in each Class



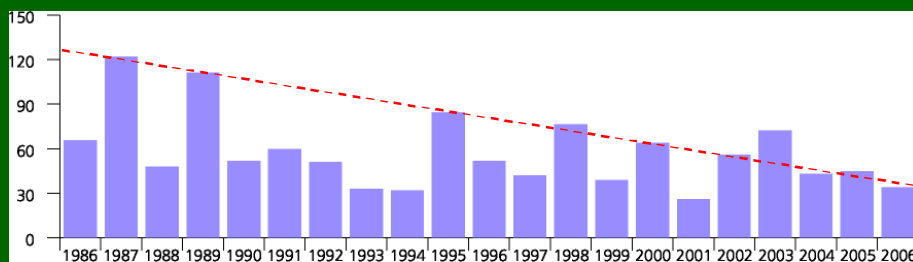
Unpolluted **71.4%**  
Slightly Polluted **18.1%**  
Moderately Polluted **10.0%**  
Seriously Polluted **0.6%**

Source: EPA (K. Clabby, J. Lucey and M. McGarrigle)



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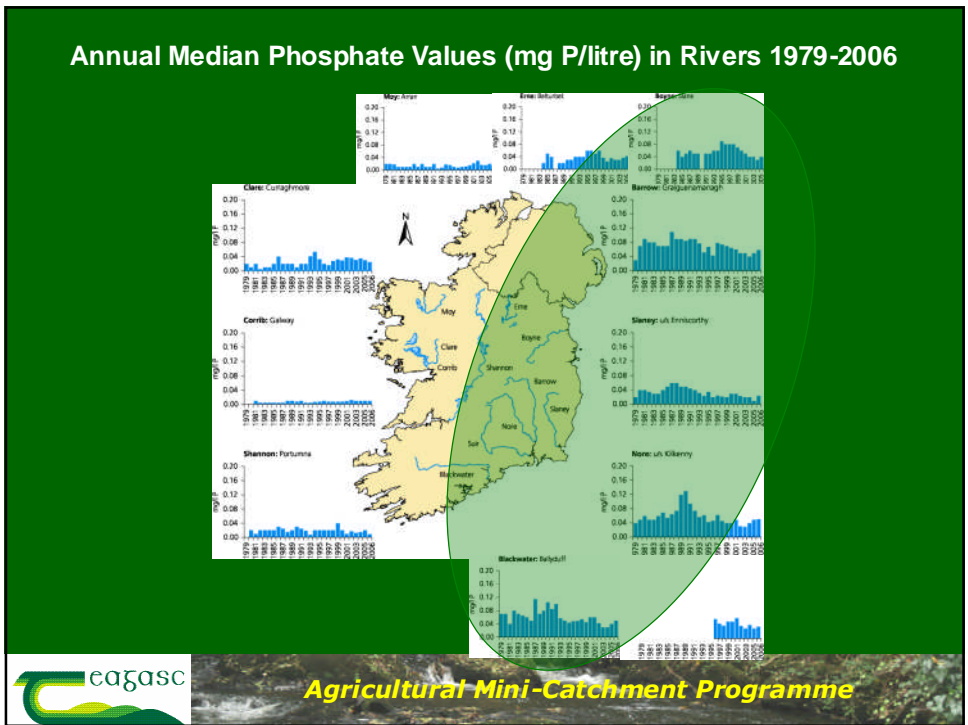
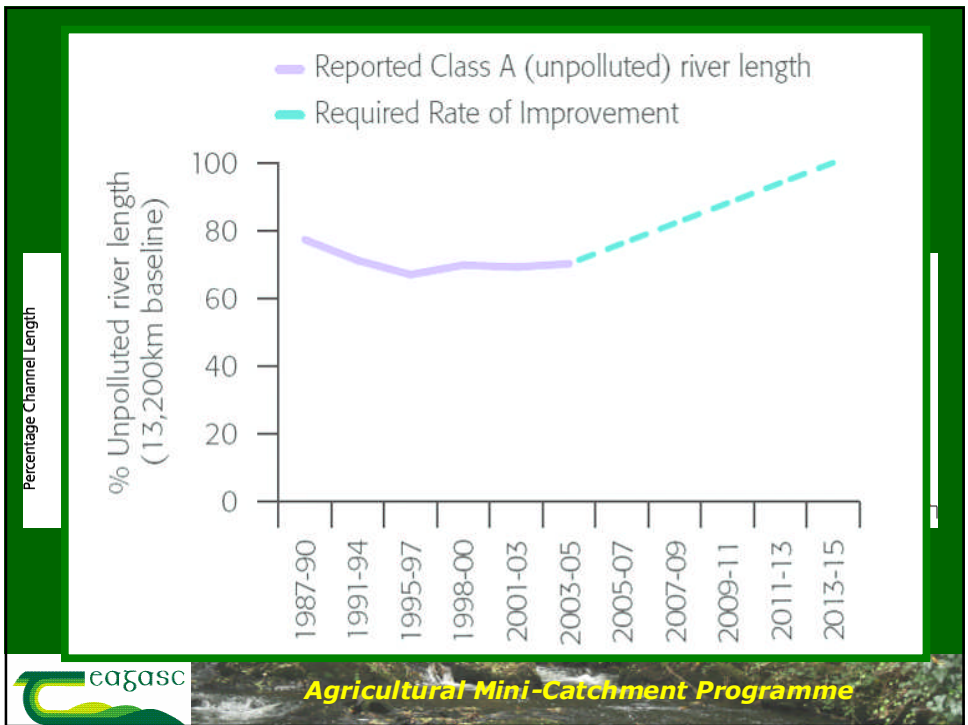
## Fish Kills 1986-2006

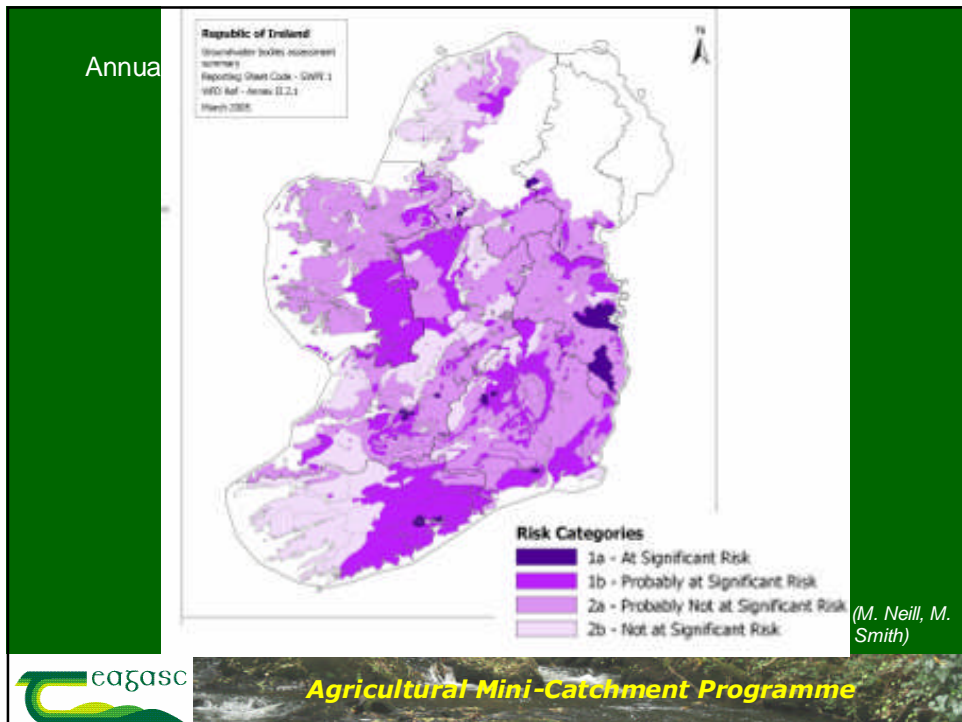
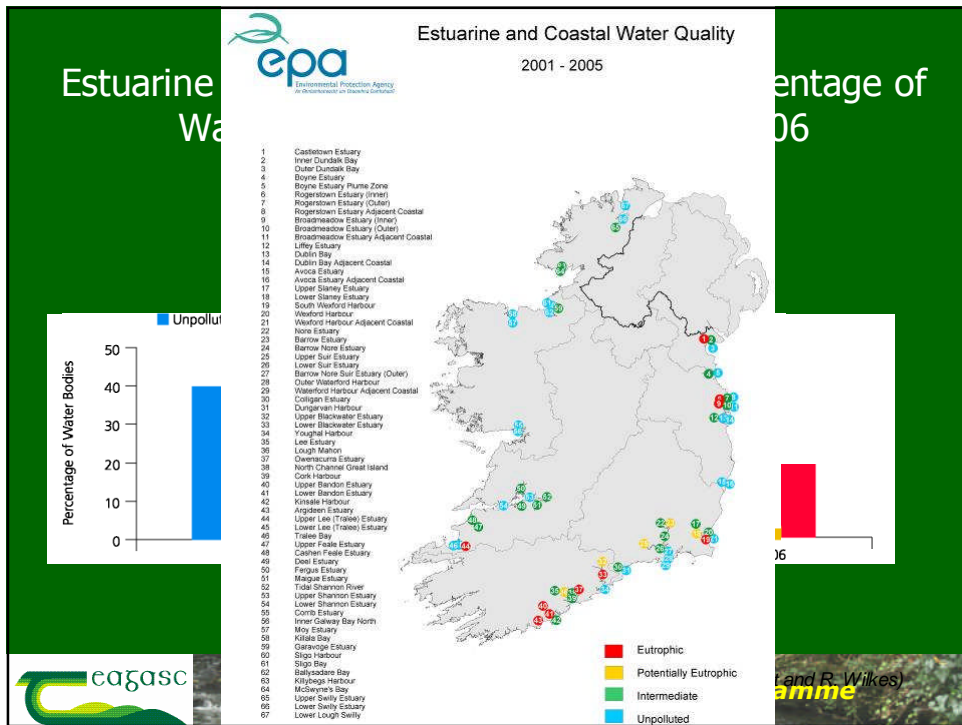


Source: Regional Fisheries Boards



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# Monitoring and Evaluation

ND requires Member States to:

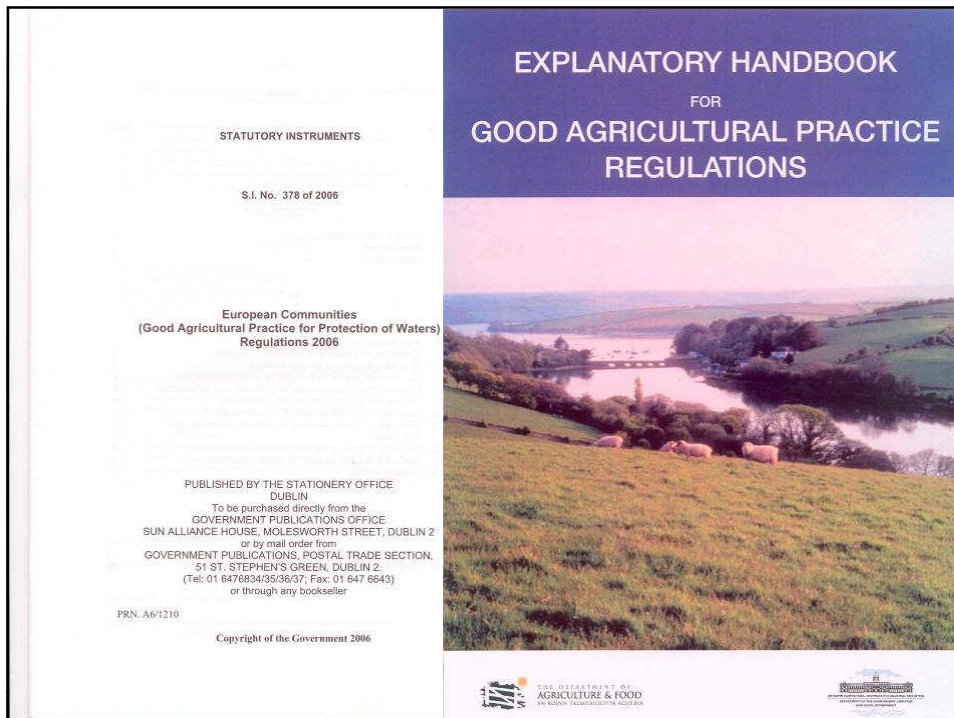
“...draw up and implement suitable monitoring programmes to assess the effectiveness of action programmes...”

To include:

- Nitrate and phosphorus
- Long rather than short term
- Different scales from field to catchment

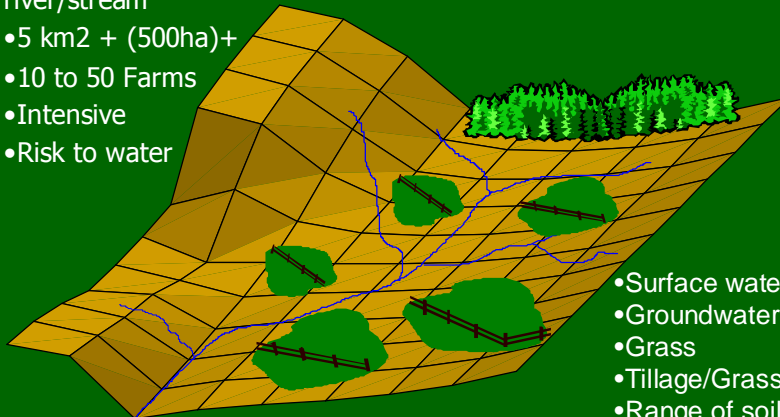


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## What will Mini-Catchments be?

- Area drained a river/stream
- 5 km<sup>2</sup> + (500ha)+
- 10 to 50 Farms
- Intensive
- Risk to water



- Surface water
- Groundwater
- Grass
- Tillage/Grass
- Range of soils
- Extensive/REPS?



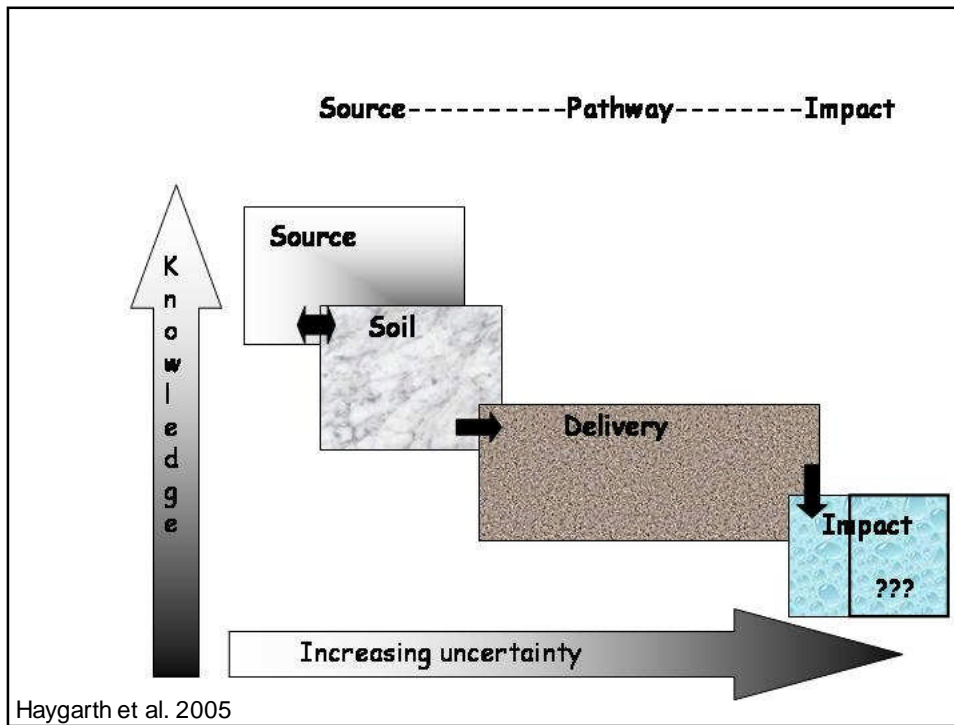
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## DAFF Objectives for the Mini-Catchment Programme

- Baseline information on farming and ND/WFD
- Scientific evaluation of effectiveness of the NAP & WFD measures - including derogation farms
- Basis for modifications of the NAP measures if necessary
- Better understanding of farmers' attitudes and responses to measures
- National focal points for technology transfer and education of all stakeholders



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## Operating the Programme

Task	Staff	No.
Programme Management	Programme Manager	1
	Administrator	1
Farm Management Advice	Advisers	4
	Technicians	4
Source/Pathway -Water	Hydrologist	1
	Limnologist	1
Pathways/Delivery - Soils	N and P	2
Socio-economic	Socio-economist	1
Data Management, Modelling Statistics	Data Manager	1
	Statistician/Modeller	1
	<b>Total</b>	<b>17</b>



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# Programme Management

Develop and lead an integrated research/advisory project team focused on the project objectives



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# Farm Management Advice

- Intensive Advisory Programme delivered in conjunction with local advisers/planners/consultants
  - NMP & implementation of measures
  - Feedback results/information to farmers
  - General farm management and planning
- Promote programme and encourage active participation by stakeholders
- Collect and record data
- Dissemination – Local/national



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## Source/Pathway

- Select farm(s) in each catchment
- Field by field description of soil
- Measure nutrient loss to water
- Nutrient balances for field/farm
- Relate to changes in management
- Scale up to catchment using modelling



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## Pathways/Delivery

- Surface and groundwater
- Existing data will be used if available
- Auto analysers/remote data recording
- Hydrological and water chemistry response of catchments
- Relate to change in management
- Scale up to catchment using modelling



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## Socio-economic

- Surveys at start and end of programme
  - ✓ Measure change attitudes
- Collect farm data annually
  - ✓ Costing of Measures
- Feedback findings to farmers
- Identify barriers and how to overcome them
- Measure achievement of economic/environmental targets



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## Data Management, Modelling and Statistics

### **Data/IT Management**

- Large volumes of data – all related
- Geographical Information System based
- Web site management

### **Statistician/Modeller**

- Statistical design
- Integration of results – water & nutrient data
- Up-scaling & applying to other catchments through modelling
- Demonstration of NAP effectiveness



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## Dissemination

- Mini-Catchments will be National Focal Points for technology transfer and education
- Mainstreaming
  - Advisory: One-to-one, Discussion Groups, Farm Walks, Open Days etc
  - Education: Included in courses
- Newsletter, media, website, public meetings, open days etc
- Scientific papers & reports, scientific meetings



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## Mini-Catchment Selection

EU Guidelines on Monitoring - *"concentrate monitoring efforts in the areas of...*

- *... intensive crop and livestock production...*
- *...with elevated nitrate concentrations...*
- *...adjacent to existing or projected eutrophication areas...*
- *...with similar land use, soil type or agricultural practice".*



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## Mini-Catchment Characteristics

- **Agriculture Dominated** - minimal nutrients from other sources (towns, industry)
- **Intensive Farming Areas** – dairy, tillage
- **Area** >5 km<sup>2</sup> (500ha)
- **Representative** - important soil/farming combinations
- **No. Farms** - 10 to 50 per catchment
- **History** – water/soils data
- **Location** - head water?



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## Main Farm Enterprises

1. **Intensive Grass**
  - Mainly Dairy – 50%+
  - >1.8 L U/ha in general
  - To include derogation farms
  - On a range of soil types/topographies
    - Poorly drained
    - Free-draining
    - Peats
2. **Tillage/Grass**
  - At least one tillage
  - Minimum of 30% of the UAA
  - Max. of 1.6LU/ha for grass areas in tillage catchment
  - Drystock rather than dairy



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