

# Policy Perspective on Nitrates and Water Quality

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**CATCHMENT  
SCIENCE 2011**

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# Agriculture in Ireland

<b>Total number of farmers</b>	<b>128,200</b>
<b>Average farm size</b>	<b>32.3 ha</b>
<b>Farm family holders by age</b>	<b>7% &lt; 35 yrs; 51% &gt; 55 yrs</b>
<b>Total land area ('000ha)</b>	<b>6,900</b>
<b>Total area farmed ('000ha)</b>	<b>4,200</b>
<b>Grass</b>	<b>3,788 (90%)</b>
<b>Cereals</b>	<b>293 (7.0%)</b>
<b>Other crops</b>	<b>109 (2.6%)</b>
<b>Forestry ('000ha)</b>	<b>731</b>

# Importance of Agri-food and Fisheries Sector

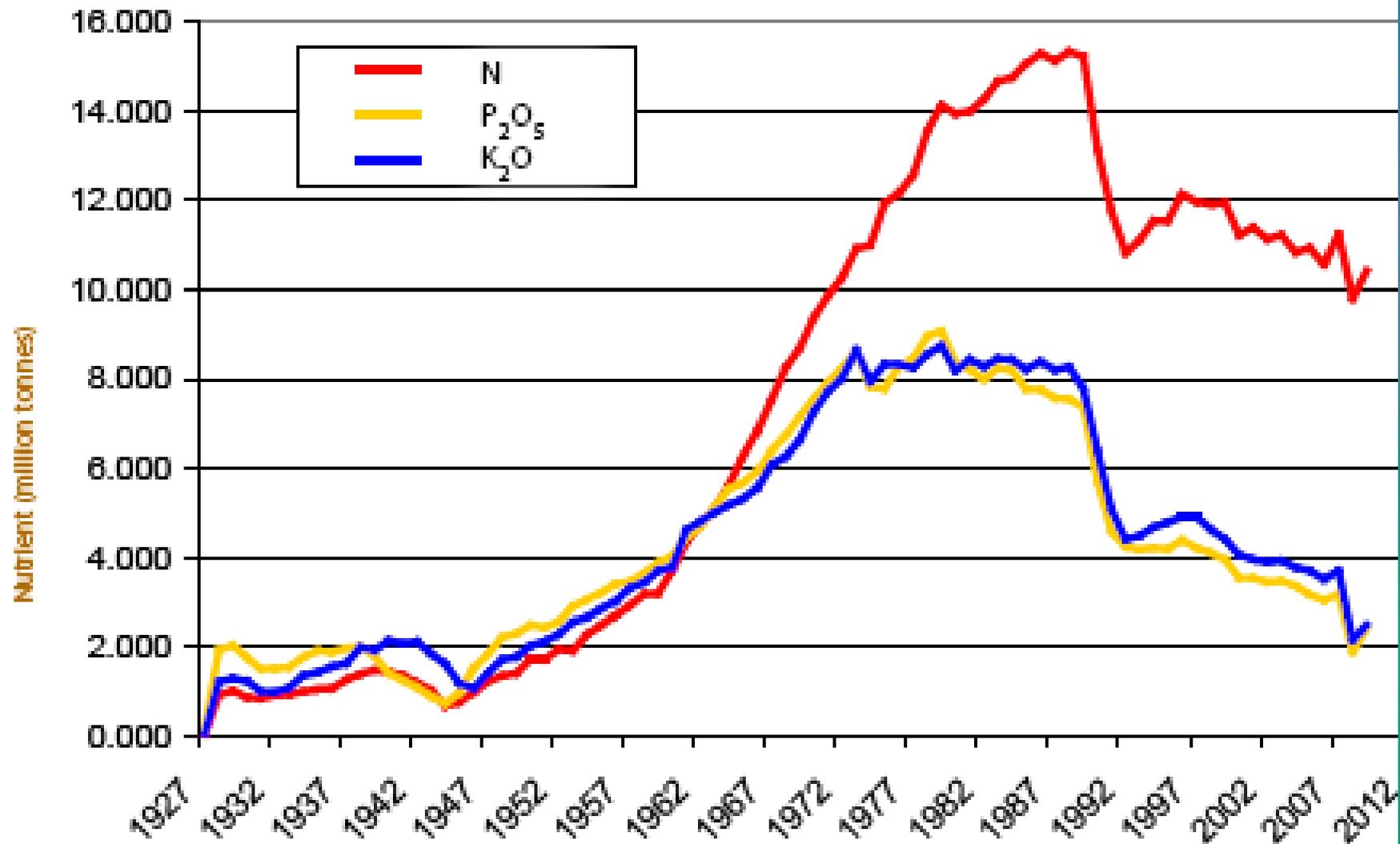
- Contributes gross annual output approaching €24 billion
- Directly employs over 150,000 people
- Provides the outlet for the produce from Ireland's 128,000 farms
- Represents 60% of manufacturing exports by indigenous firms
- Domestically sources 71% of its raw materials

# EU Nitrates Directive

- **Article 5 (1):**
  - ‘..Member States shall...establish action programmes in respect of designated vulnerable zones.’
- **Article 5 (6):**
  - ‘Member States shall draw up and implement suitable monitoring programmes to assess the effectiveness of action programmes established...’

# Fertiliser use in Europe (million tonnes of nutrient)

Fertilizer nutrient consumption in the EU 27



# Irish National Action Programme (NAP)

- **Whole territory approach – not NVZ**
- **Agricultural Measures**
- **Nitrates Derogation**
- **Support:**
  - Investment
  - Guidance document
- **Assessing effectiveness:**
  - General monitoring programme
  - Localised monitoring programme
  - Mini-catchment studies



# Good Agricultural Practice Regulations

- **Legal effect to National Action Programme**
- **Article 27 (1):**
  - ‘The Minister for Agriculture...shall carry out....such monitoring and evaluation programmes in relation to farm practices...to determine the effectiveness of measures being taken in accordance with these Regulations.’
- **Article 27 (4):**
  - ‘The Minister for Agriculture...shall carry out....such monitoring, controls and reporting ...for those purposes of Article 8...of Commission Decision of 22 Oct 2007.’  
i.e. Nitrates Derogation

# Monitoring the effectiveness of measures in Ireland's National Action Programme

*Article 5(6) of Directive*

- **EPA National Water Quality Monitoring Programme**
  - General and localised monitoring programmes
- **Agricultural Catchments Programme (ACP)**
  - Mini-catchment studies funded by DAFM
  - Initial 4-yr period (2008-2011) operated by Teagasc

# ACP Objectives

- Establish baseline information on agriculture in relation to Nitrates and Water Framework Directives
- Provide an evaluation of the NAP measures and the derogation in terms of water quality and farm practices
- Achieve greater understanding of factors that determine farmers' understanding and implementation of the NAP
- Provide national focal points for technology transfer and education in relation to diffuse nutrient loss from agriculture to water



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# Food Harvest 2020

## *A vision for Irish agri-food and fisheries*

### 2020 Growth targets

- Increase value of primary output in the agriculture and fisheries sector by €1.5 billion
  - Beef: 20% increase to current annual output value of €1.9 billion
  - Dairy: 50% increase in milk production i.e. 2.75 billion litre increase
- Increase value-added output by €3 billion
- Achieve an export target of €12 billion

### Objective: **SMART – GREEN – GROWTH**

- Verified environmental quality in the farming, fishing and the food processing sector
- Effective communication of Ireland's commitment to sustainability and implementation of world-class environmental practices
- Positive branding of Ireland as clean and green



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# Key messages

- Agricultural Catchments Programme is monitoring the effectiveness of measures in Ireland's National Action Programme (NAP) under the Nitrates Directive
- NAP is main element of WFD implementation in relation to agriculture
- NAP addresses key issues for Irish water quality identified by EPA
- Implementation of NAP is controlled under the GAP Regulations
- Control is also achieved through SMR 4 of Cross-Compliance
- Environmental quality verification by ACP to satisfy sustainability requirement of Food Harvest 2020

# Environment – EU Policy Context

- “Resource efficiency” an urgent priority
  - EC ‘roadmap’ requires change & sets milestones for 2020
  - Issues: meeting climate change targets, ‘environmental footprint’ for products; shifting taxation away from labour to environmental impacts; avoiding pollution from fertilisers
- Greenhouse gas emissions:
  - 20% reduction on 2005 emissions required by 2020 from agriculture, transport, residential & industrial sources
- Water Framework Directive
  - Improving water quality is a national priority
  - Drinking water standards must be met
- Sustainability – a core concept
  - Linking to sustainability will give a competitive advantage

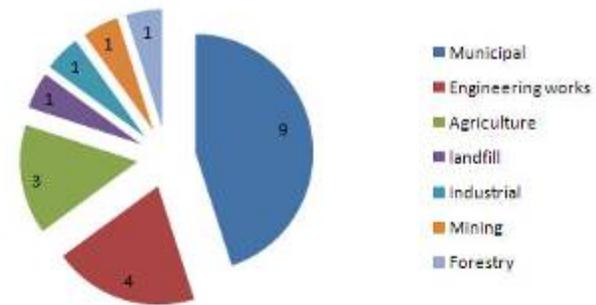
# Water Quality in Ireland

- Groundwater
  - 8% of area polluted by P and N
  - Agriculture
- Rivers
  - Water quality impaired in 30% of river channel
  - Agriculture is a contributor
- Lakes
  - 19% of lakes moderately or strongly eutrophic
- Estuarine and Coastal Waters
  - 5% of total survey area eutrophic (2007-2009)
  - Agriculture contributes ~80% N load & 26% P load

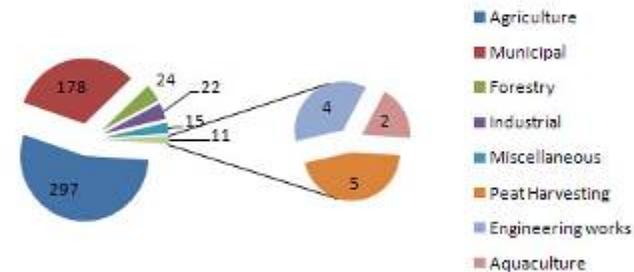
# Suspected causes of River Pollution in Ireland



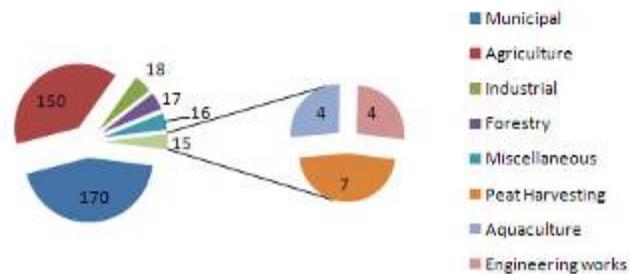
**Suspected Causes of Serious Pollution - 20 Sites**



**Suspected Causes of Slight Pollution - 547 Sites**

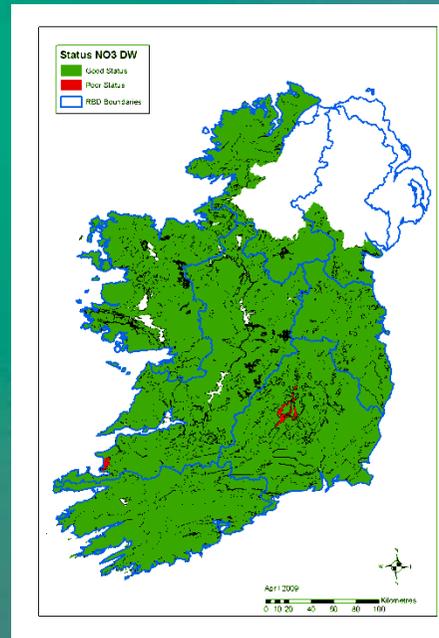
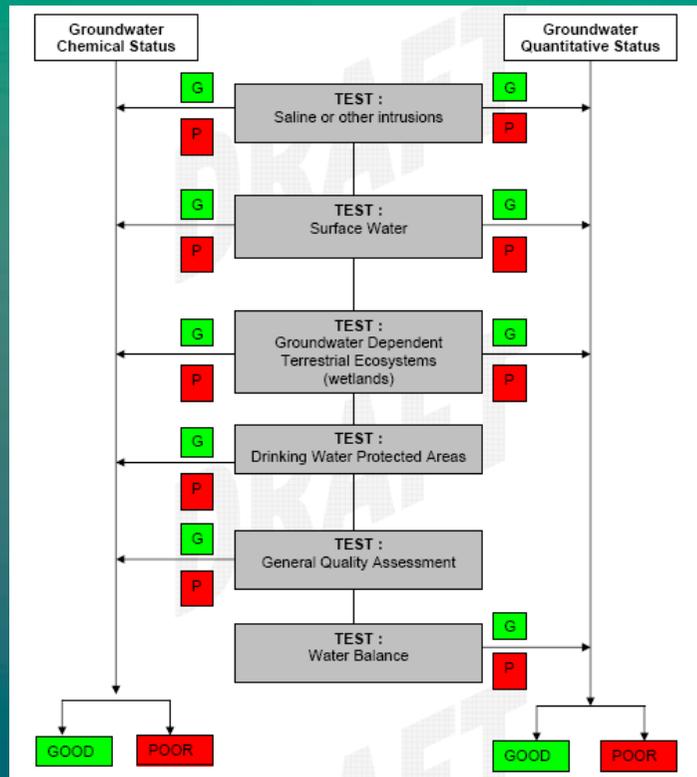


**Suspected Causes of Moderate Pollution - 386 Sites**

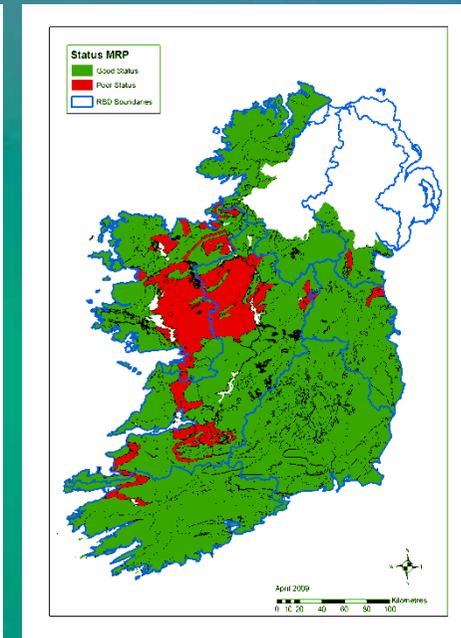


# Groundwater Chemical Status

Receptor orientated risk-based approach (WFD and Directive 2006/118/EC)

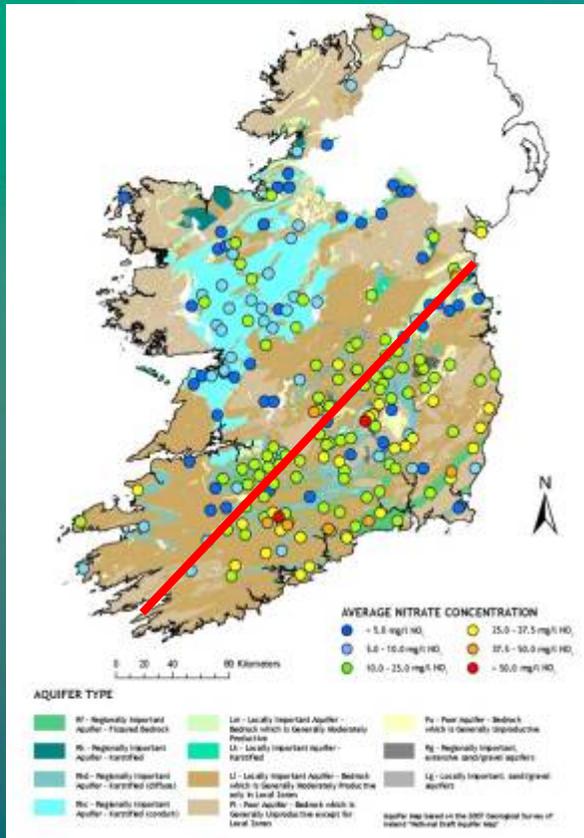


NO3 Status

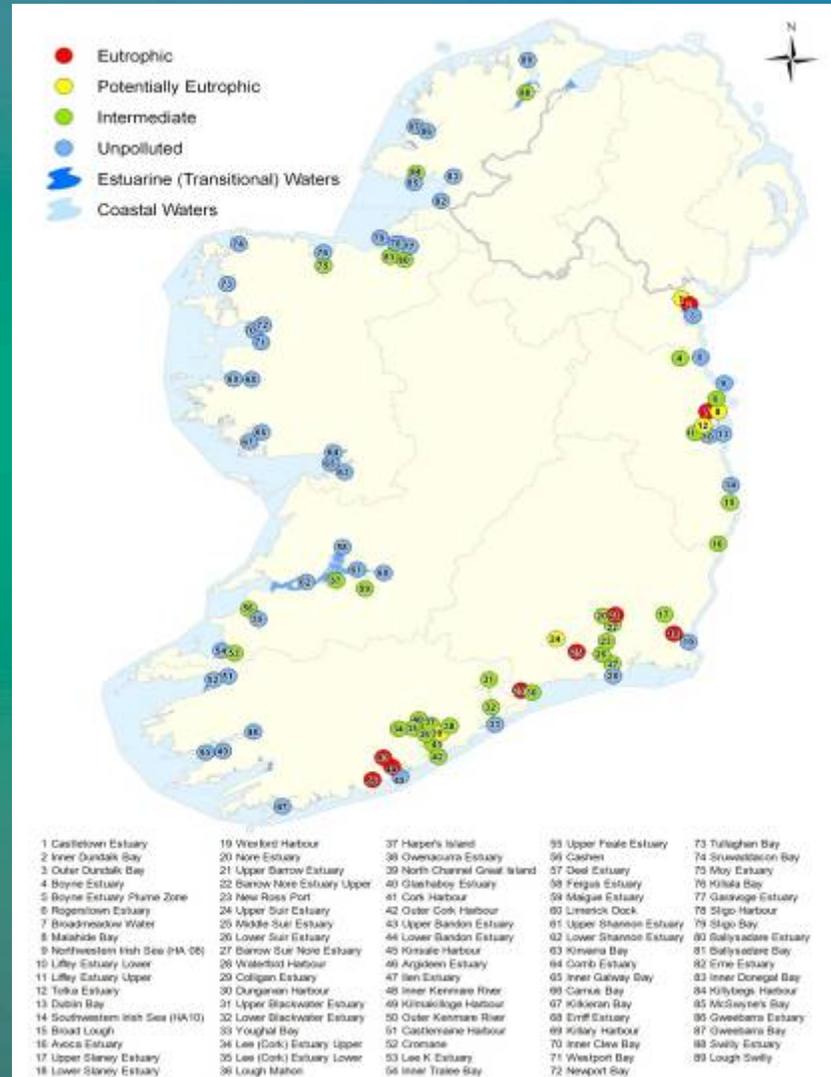
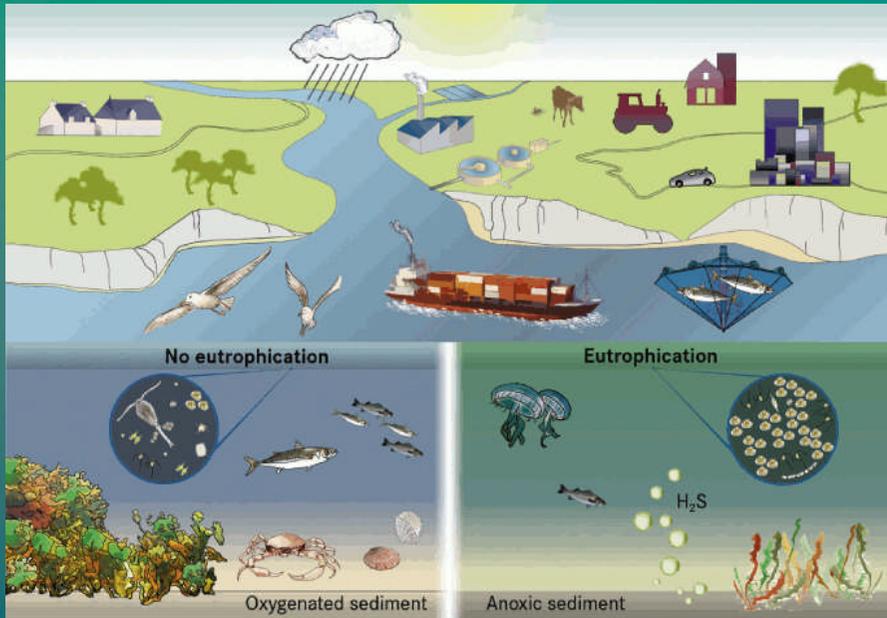


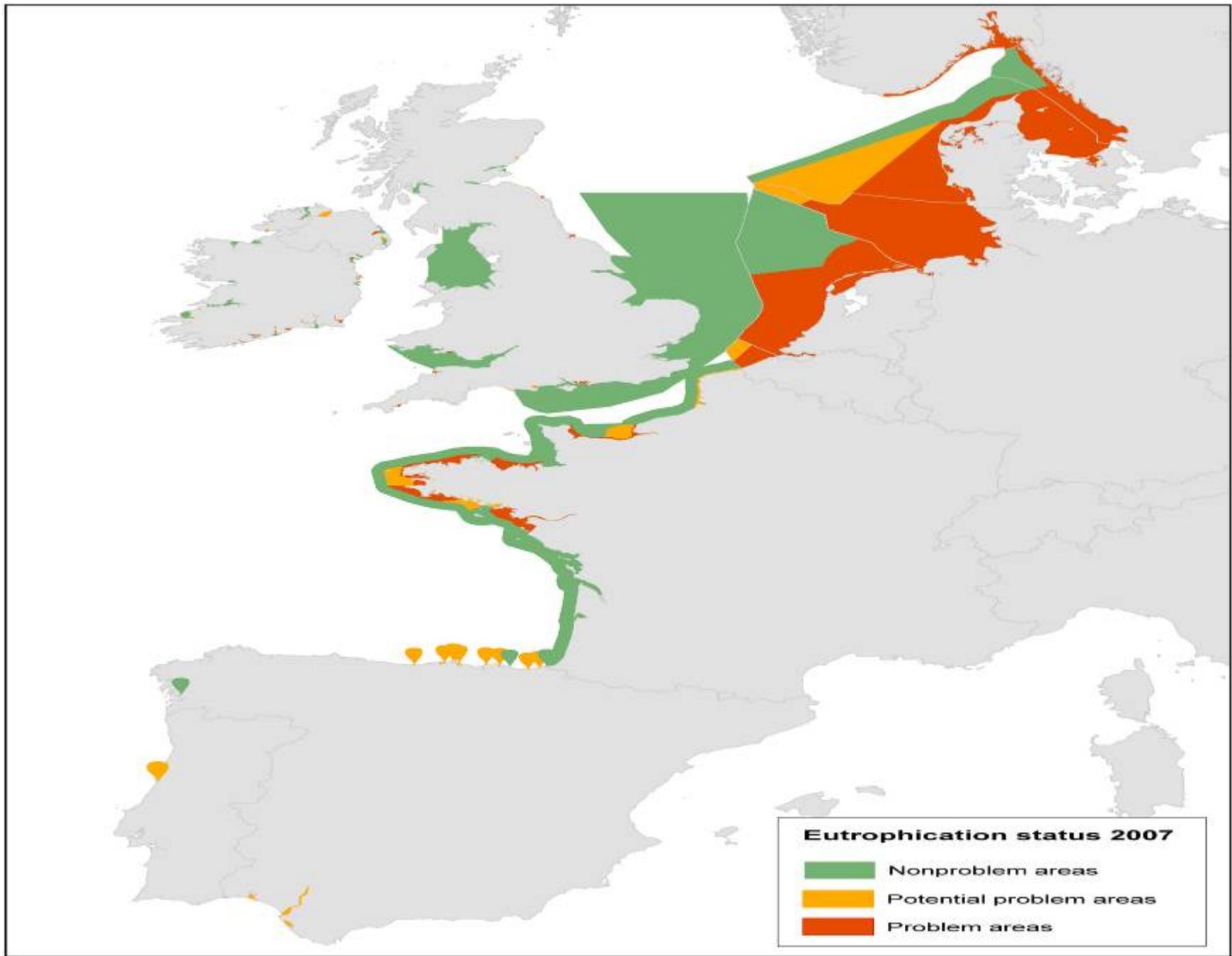
MRP Status

# Nitrate Levels in Groundwater and Rivers

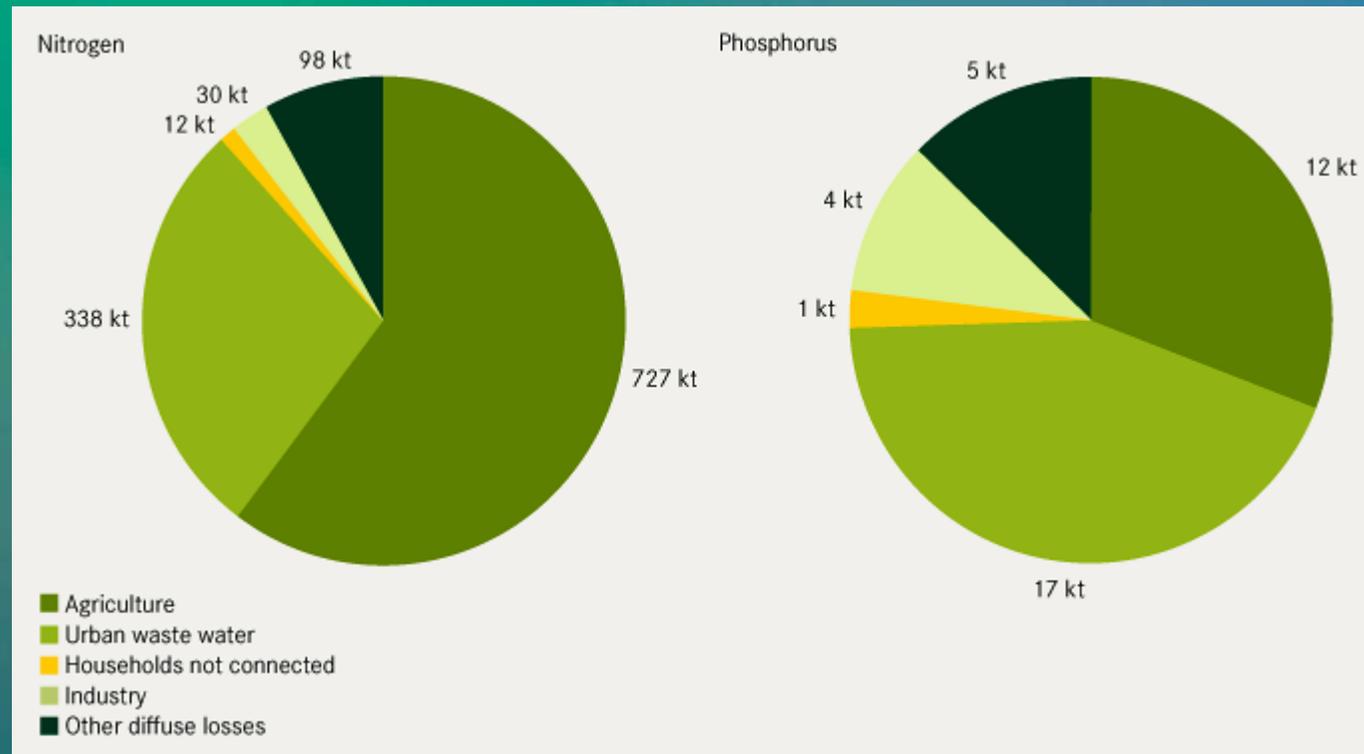


# Trophic Status of Estuaries and Bays





# Nutrient Sources across Europe



# European and international instruments to combat eutrophication

## **EU Urban Waste Water Treatment Directive (91/271/EEC)**

Connection of industry and households to waste water treatment

Higher level treatment of waste water

Designation of water areas sensitive to nutrient inputs

## **EU Nitrates Directive (91/676/EEC)**

Good agricultural practice

Designation of water zones vulnerable to nitrogen losses

## **EU Integrated Pollution Prevention and Control (IPPC) Directive (2008/1/EC)**

Industrial and agricultural point sources

Best Available Techniques

Emission and discharge limits

## **EU Water Framework Directive (2000/60/EC)**

Normative definitions describing good ecological status of a water body

River basin management plans

## **EU National Emissions Ceiling Directive (2001/81/EC)**

Ceilings for air emissions of nitrogen

## **MARPOL Annex VI**

Emission control standards for ships

Emission control sea areas with stricter ship standards

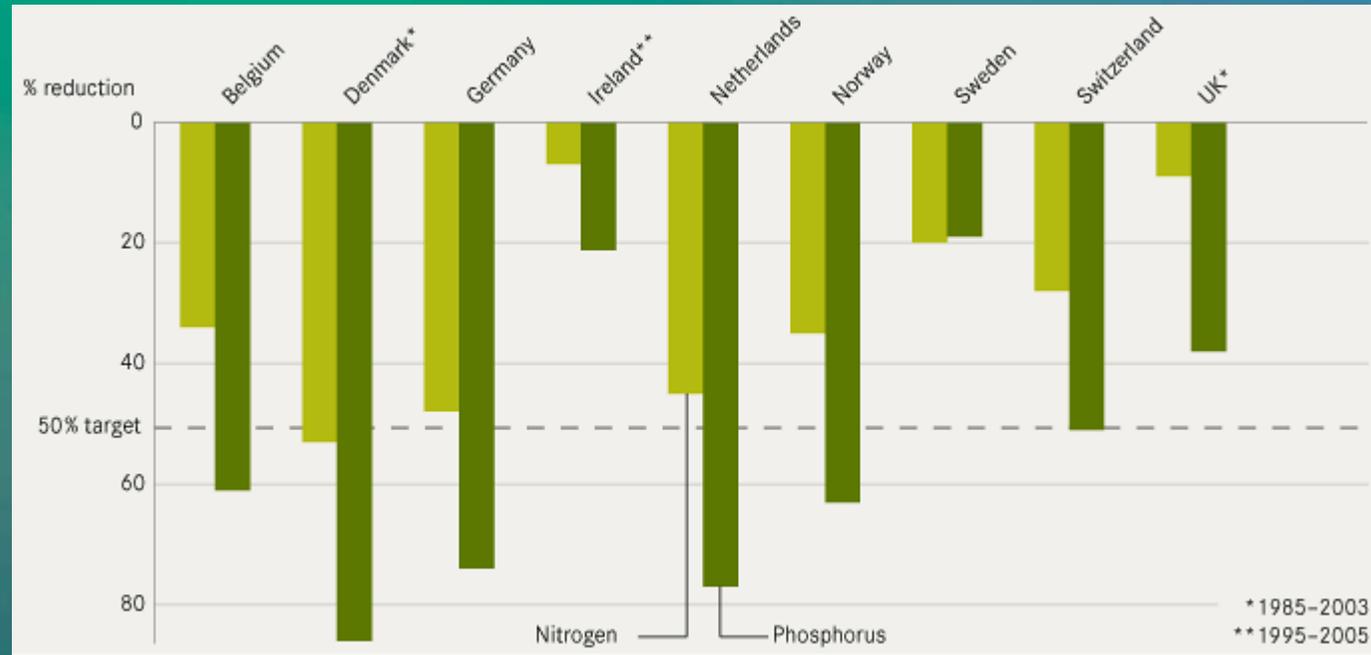
## **UNECE Convention on Long-range Transboundary Air Pollution -(Gothenburg Protocol)**

Industrial and agricultural point sources

Emission targets for nitrogen

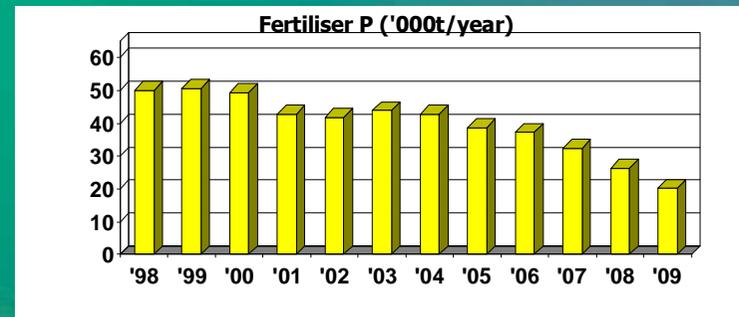
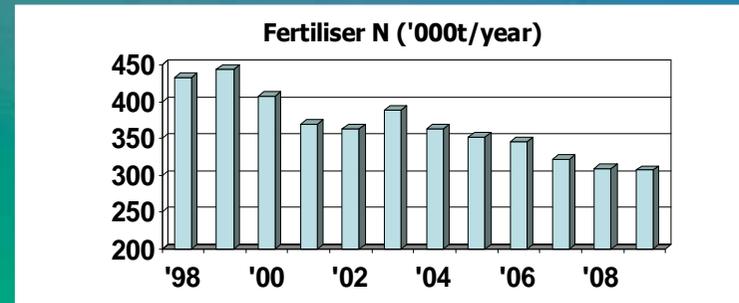
Transboundary air transport of nitrogen

# Nutrient Reductions across Europe



# Ireland - Trends in Nutrient Inputs 1995-2005

	Nitrogen reduction	Phosphorus reduction
<b>Point</b>	<b>26%</b>	<b>38%</b>
• Industry		
• WWTP		
• Households		
<b>Diffuse</b>	<b>4%</b>	<b>5%</b>
• Agriculture		
• Background		
<b>Total</b>	<b>7%</b>	<b>21%</b>



- PARCOM Recommendation 88/2 on the reduction of nutrient inputs
- % reduction in nitrogen and phosphorus losses 1995–2005
- Estimated using HARP-NUT Guidelines and loss coefficients
- Comparisons based on estimates for the 3 river basin districts along Ireland's eastern and southern coasts



# Conclusions

- Economic opportunities – Food Harvest 2020
- Water resources are an important natural resource and must be carefully managed
- Efficient environmentally sustainable production
- Marketing opportunities
- Potential negative impacts on the environment must be credibly addressed
- Best practice and credible science