

# WFD Monitoring Programmes



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## Introduction

- Background & general principals for the review of monitoring
- Groundwaters
- Rivers and Lakes
- Transitional and Coastal
- Conclusions



# Implementation timetable



**Surveillance monitoring** - to supplement and validate risk assessments and identify long-term environmental changes - all parameters

**Operational monitoring** - focuses on water bodies at risk and should be used to establish the classification - best indicators

**Investigative monitoring** - causes, sources and effects of problems detected in operational monitoring - best indicators, biological effects

**Protected area monitoring** - bathing waters, shellfish waters, habitats, species etc



## Historical drivers for monitoring

### EC Directives

- Freshwater Fish
- Surface Water Abstraction
- Dangerous Subs
- Bathing Waters
- Shellfish Waters
- UWWTD
- Nitrates

### International Conventions

#### OSPAR

- Ecosystems & biodiversity
- Hazardous subs
- Radioactive subs
- Eutrophication
- Offshore activities

### Local Legislation

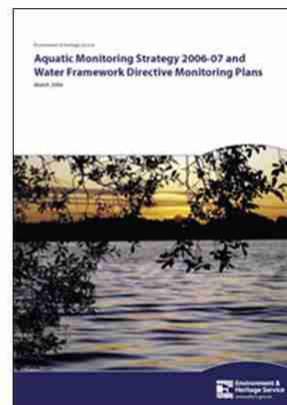
- Water (NI) Order 1999
- Food and Environment Protection Act 1985

Monitoring commitments still in place



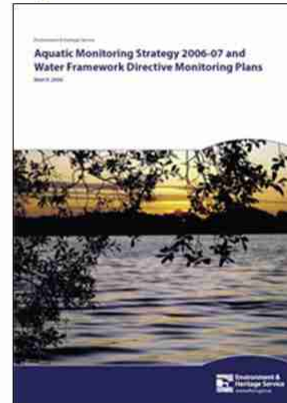
## Principals for new monitoring network

- Where possible
  - build on existing monitoring sites (EHS or other)
  - Serve a range of programmes
- Follow CIS, UK TAG guidance & other monitoring protocols
- To support and be guided by NS SHARE

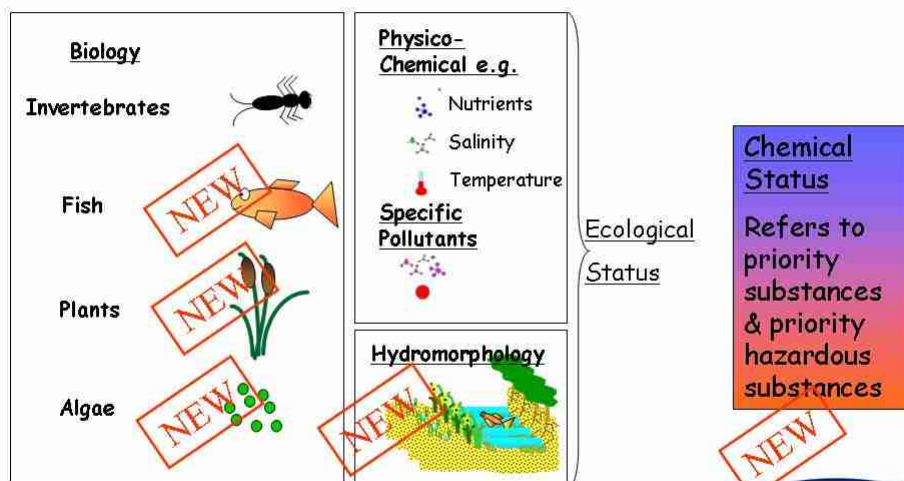


## Principals for new monitoring network (cont.)

- Risk based approach
- Monitoring in 2006-07 focussing on areas of uncertainty
- Ensuring appropriate coverage for WFD and other programmes
- Support intercalibration
- Where possible, to complement Natural Heritage monitoring programmes



## Monitoring Quality Elements





## WFD Groundwater Monitoring

### Problems:

- Expensive
- Getting representative sample



## Groundwater

- Requirement to monitor for both chemical and quantitative (water levels/flows) status across groundwater bodies
- Monitoring network will comprise sites for both surveillance and operational monitoring
- Also required to monitor specific drinking water sources for DWPA compliance, point sources where they represent risk to body status and groundwater dependent terrestrial ecosystems (wetlands)
- Need to ensure some transition between existing monitoring network and new network to maintain collection of long-term trends for issues such as nitrates compliance monitoring

# Groundwater

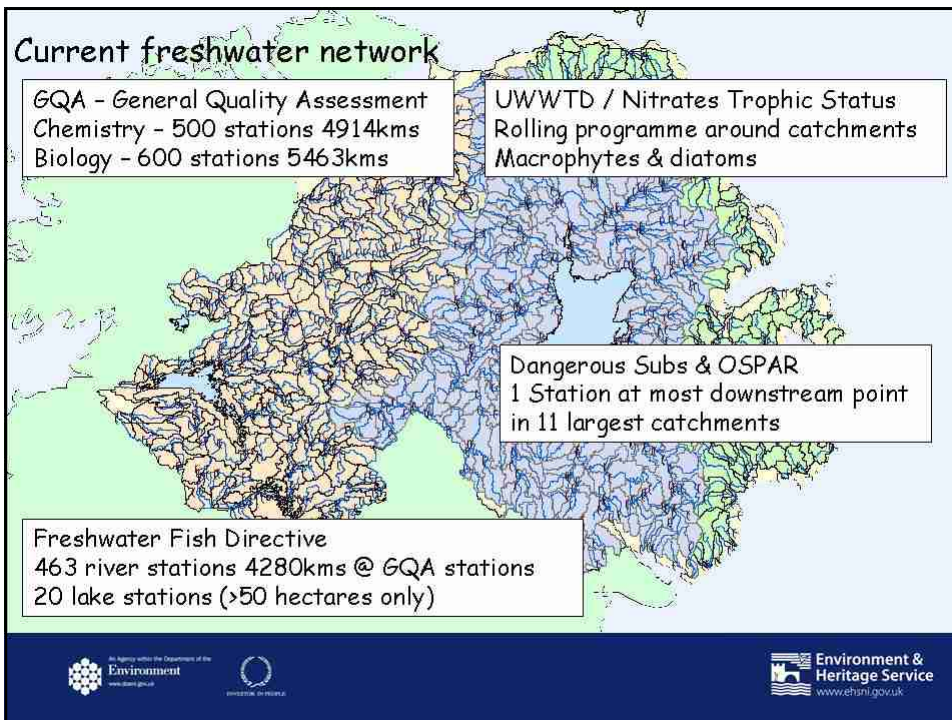
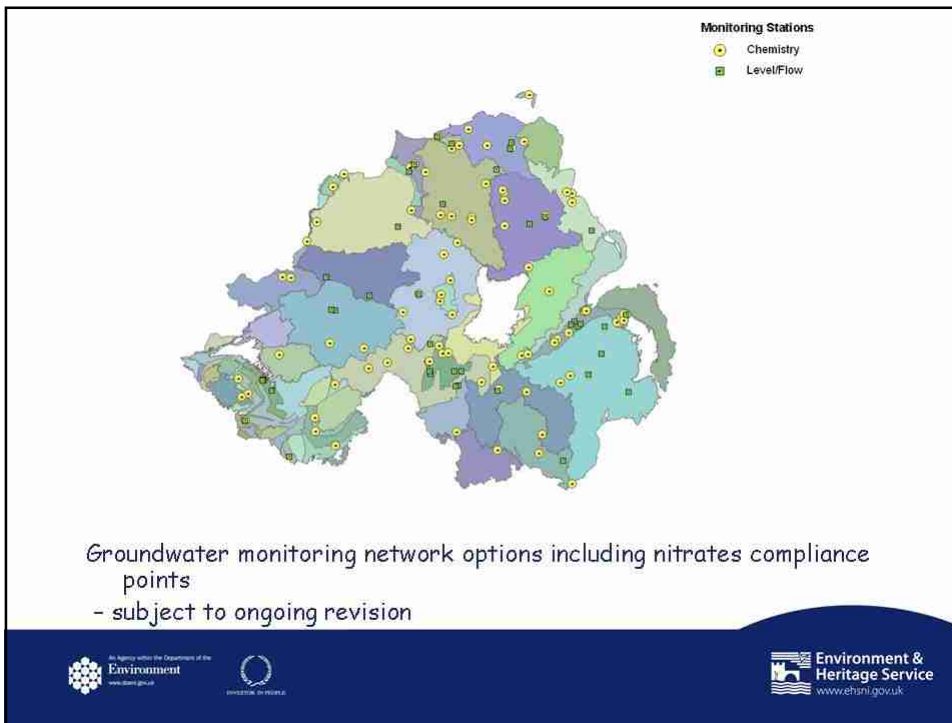
- To ensure representative sample, larger boreholes and spring sources will be targetted, through which significant volumes of groundwater pass and which should give a good 'bulk' groundwater catchment sample
- Following extensive GIS analysis of borehole and hydrogeological datasets, potentially suitable sites identified for screening visits (mainly public water supply and industrial sources)
- Initial site visits nearly complete and owners of suitable sites being contacted for permission to sample



# Groundwater

- Some areas where no suitable sources available and will consider installing EHS boreholes, especially for monitoring of local point source problems or wetland type features - however drawback of this for more general groundwater body studies - only sampling small volumes of water.
- Will review proposed network against that for surface water and marine to see if any 'gaps' in terms of whole water cycle monitoring
- Inherent risk in the design of the network for long-term monitoring due to dependency on privately owned sources with respect to operation, maintenance and access to groundwater source. However few options in NI due to the limited 'publicly' operated groundwater sources (mainly Water Service).
- Estimate at present is 80-90 chemistry and 30-40 level/flow MP's for the general network with some additional for site specific (point/wetland) monitoring (network review ongoing).





# Freshwater Monitoring - Other projects - cont'd

- One external project (QUB) for fish in smaller rivers
- Rolling programme of biological surveys on lakes >50ha (inc WFD intercalibration)
- WFD intercalibration biological and chemical monitoring on smaller lakes
- WFD hydromorphology work
- Input into National Ponds Monitoring Network
- Limited dangerous subs investigative work
- Other programmes - EIONET, ECN, Acid Waters



## Proposed Monitoring Network - Rivers

### Surveillance

96 Rivers sites  
27 Lakes sites  
All quality elements  
More stations pro-rata than GB or ROI

### Operational

All existing stations will be retained  
Monitoring for a range of pressures  
Will include some upstream & downstream monitoring of WWTWs  
Will be kept under review

### Investigative

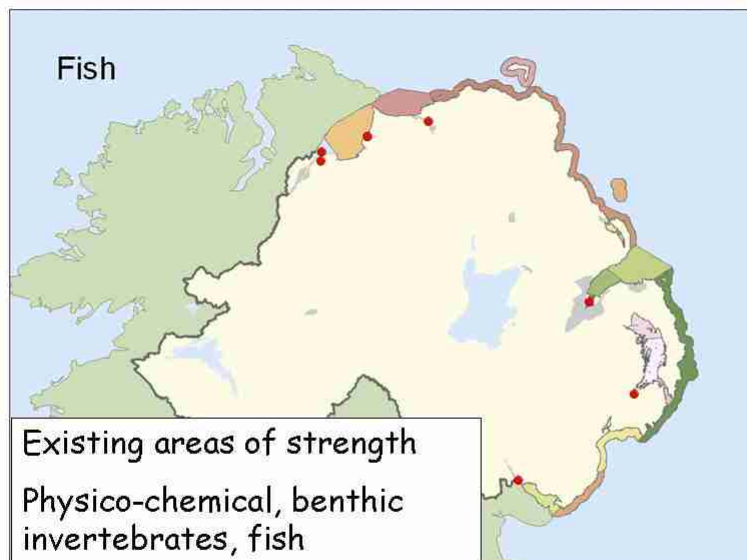
Some further dangerous substances work proposed  
Small water body work  
Pollution incident investigations  
Resource dependent

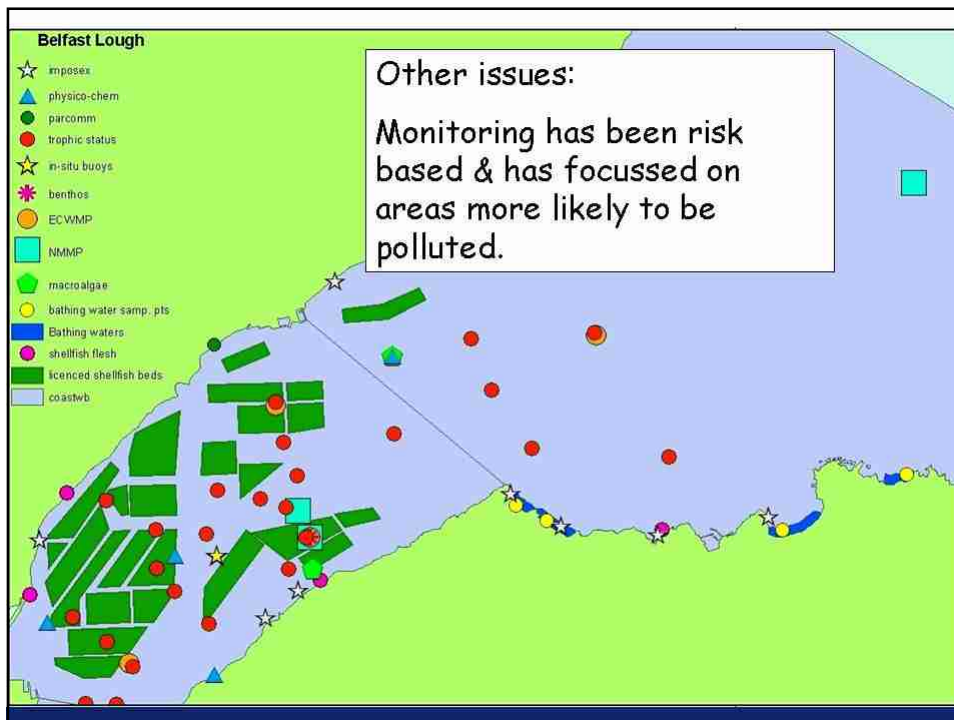
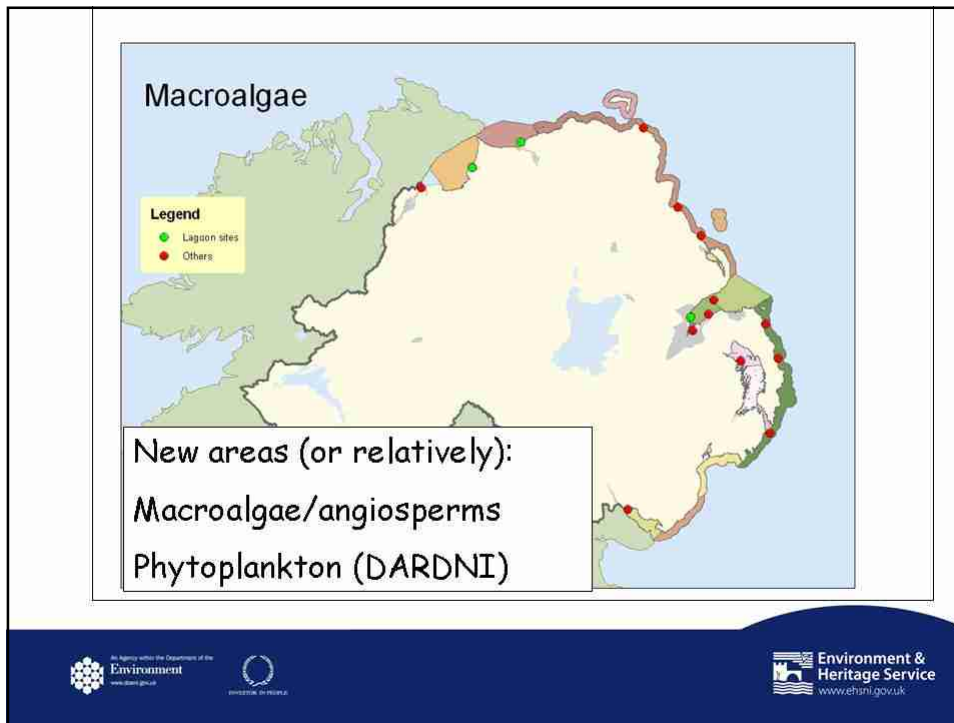


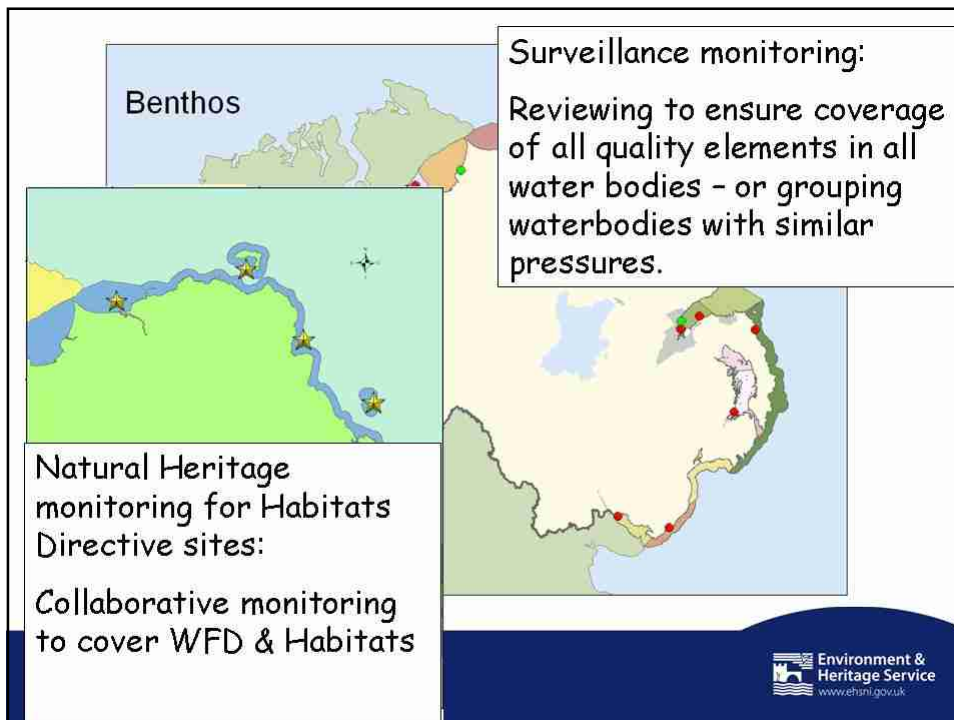
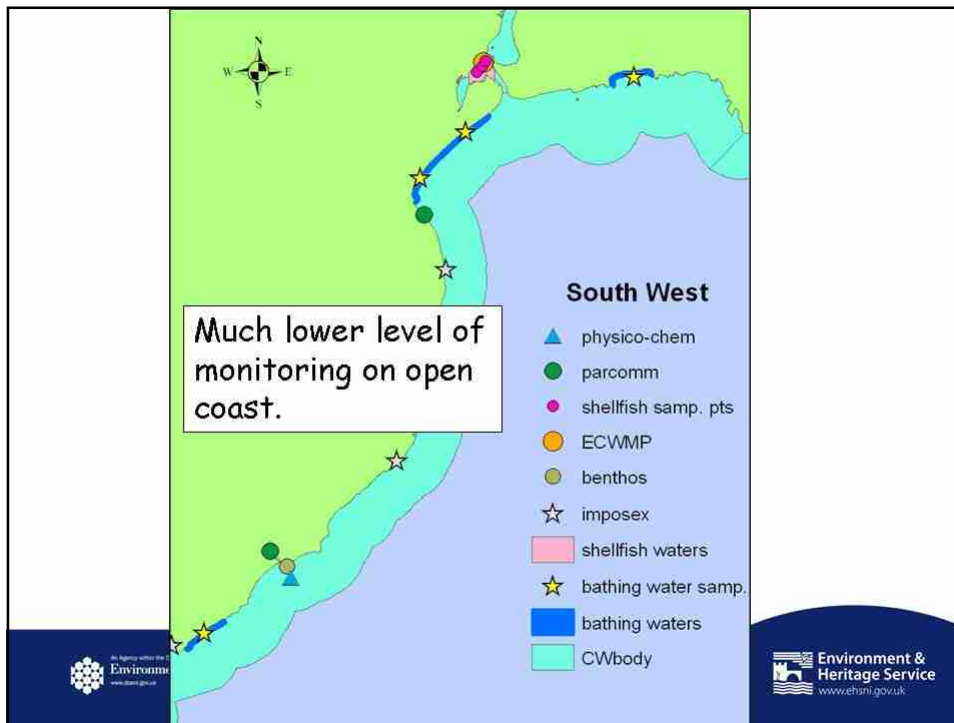


# Marine Monitoring Network

- Bathing waters
- Shellfish waters
- UWWTD / Nitrates trophic status assessments
- UK NMMP (OSPAR)

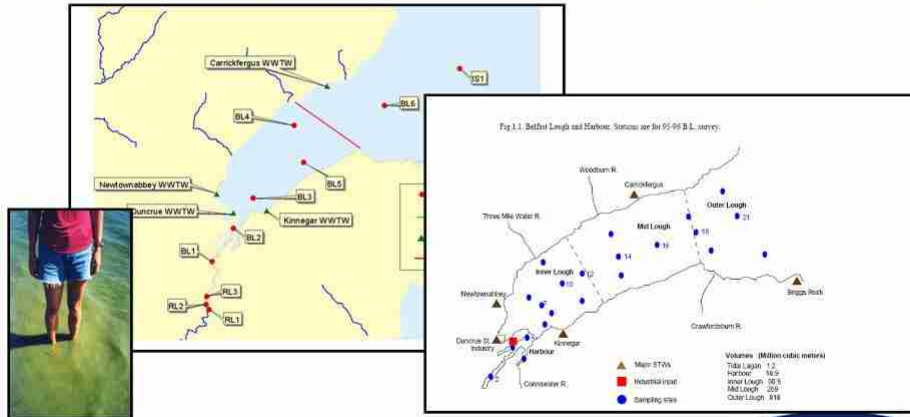






# Operational Monitoring

## Rolling programme round sea loughs



## Conclusions

- EHS currently finalising a review of monitoring
- Summary report to EC by March 2007 (through Water Information System for Europe - WISE)
- Final maps will be placed on web site [www.ehsni.gov.uk](http://www.ehsni.gov.uk)

