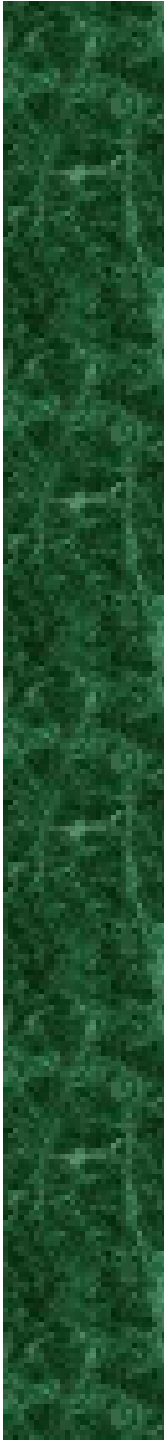




The Water Framework Directive and Groundwater

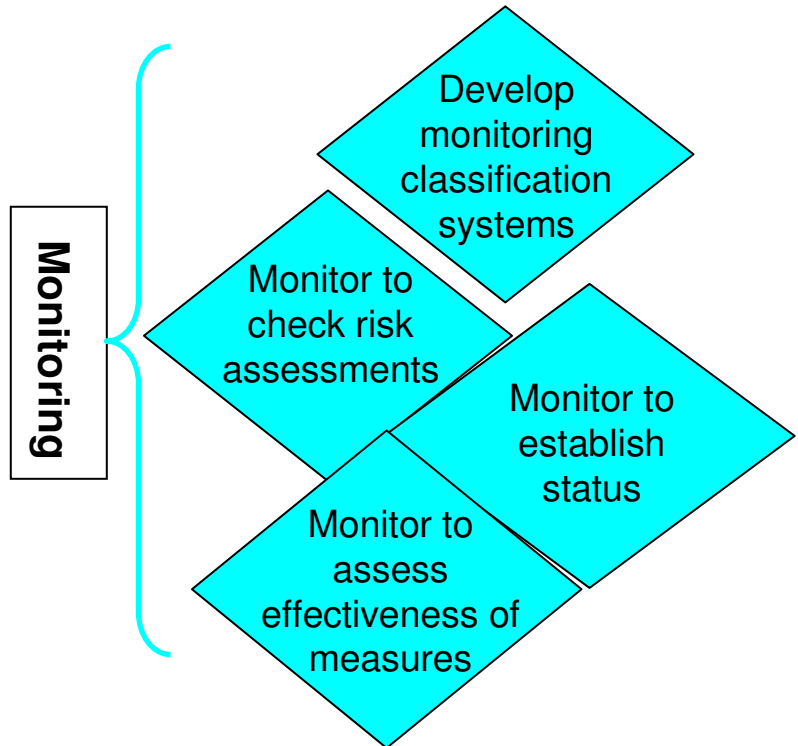
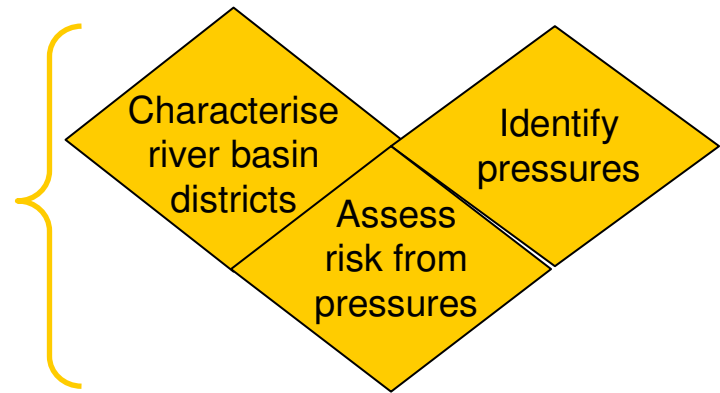
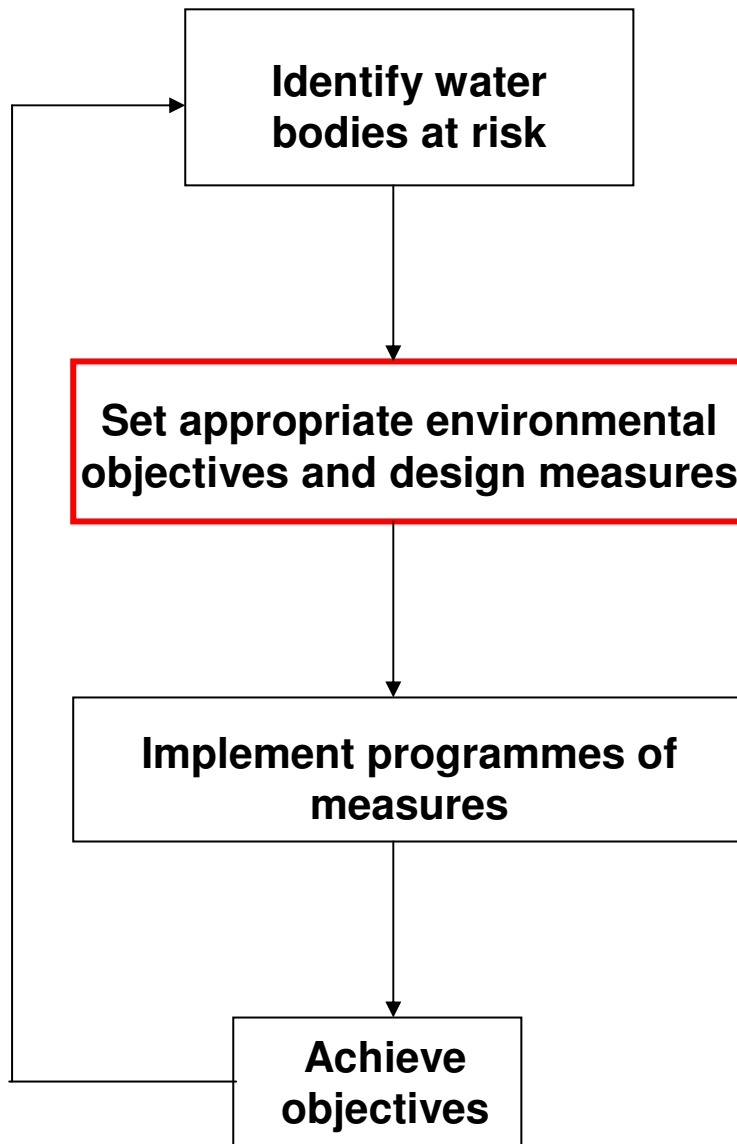
Peter Pollard

scottish environment protection agency



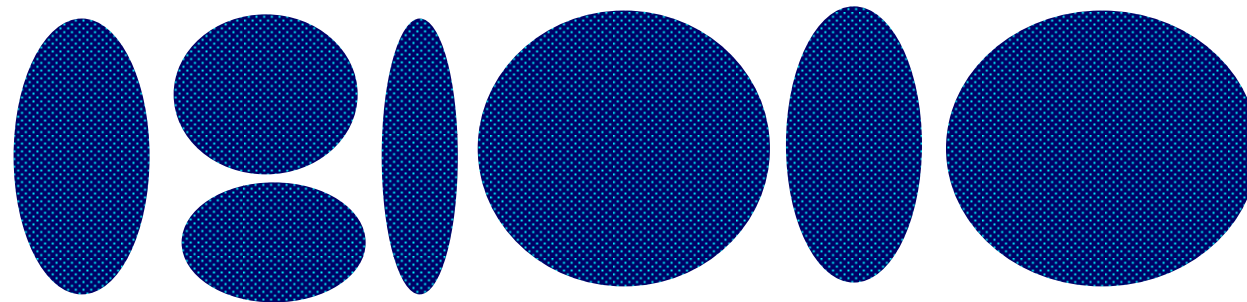
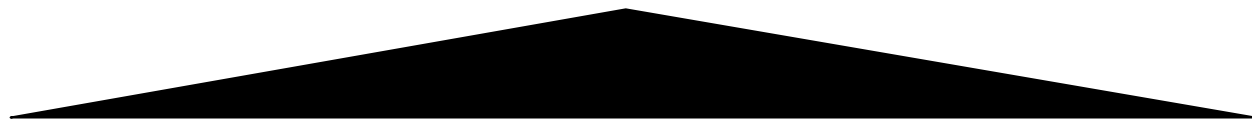
Year	River Basin Planning Requirements
2003	Transpose Directive Identify river basin districts and the competent authorities
2004	Characterisation and risk assessment Economic analysis of water use Register of protected areas
2006	Monitoring programmes Work programme for first RBMPs
2007	Interim overview of the significant water management issues
2008	Publish draft RBMPs for consultation
2009	Finalise and publish first RBMPs
2012	Measures fully operational Work programme for second RBMPs
2013	Review characterisation and risk assessment Review economic analysis of water use Interim overview of the significant water management issues
2014	Publish second draft RBMPs for consultation
2015	Achieve environmental objectives in first RBMPs Finalise and publish second RBMP
2021	Achieve environmental objectives in second RBMPs Publish third RBMPs
2027	Achieve environmental objectives in third RBMPs Publish fourth RBMPs

River Basin Planning Cycle



KEY	
	Principal Annex II tasks
	Principal Annex V tasks

Groundwater & groundwater bodies

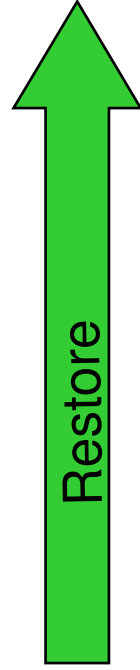


Bodies of groundwater

Groundwater Objectives

- **Prevent deterioration in status**
- **Achieve good status**
- **Achieve Protected Area Objectives**
- **Reverse significant and sustained upward trends**
- **Prevent and limit inputs of pollutants**

Status Objectives



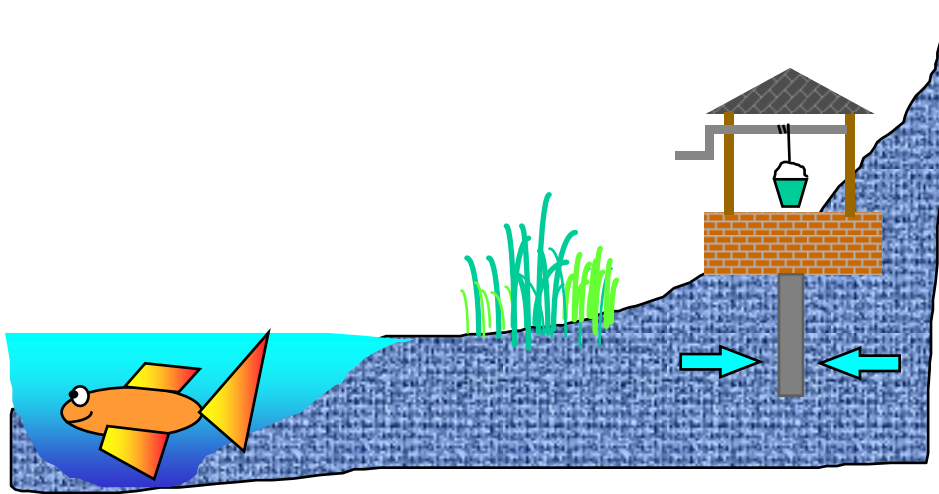
Prevent  deterioration

Groundwater chemical status

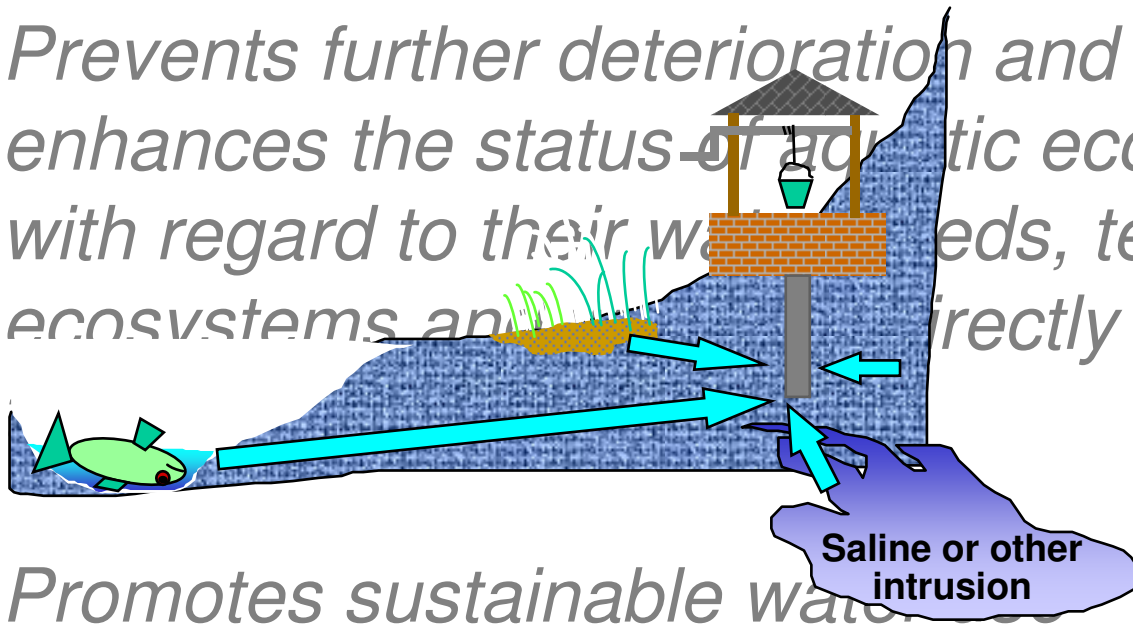
Groundwater quantitative status

Quantitative Status

Groundwater quantitative status



Prevents further deterioration and protects and enhances the status of aquatic ecosystems and, with regard to their watersheds, terrestrial ecosystems and ecosystems directly depending on



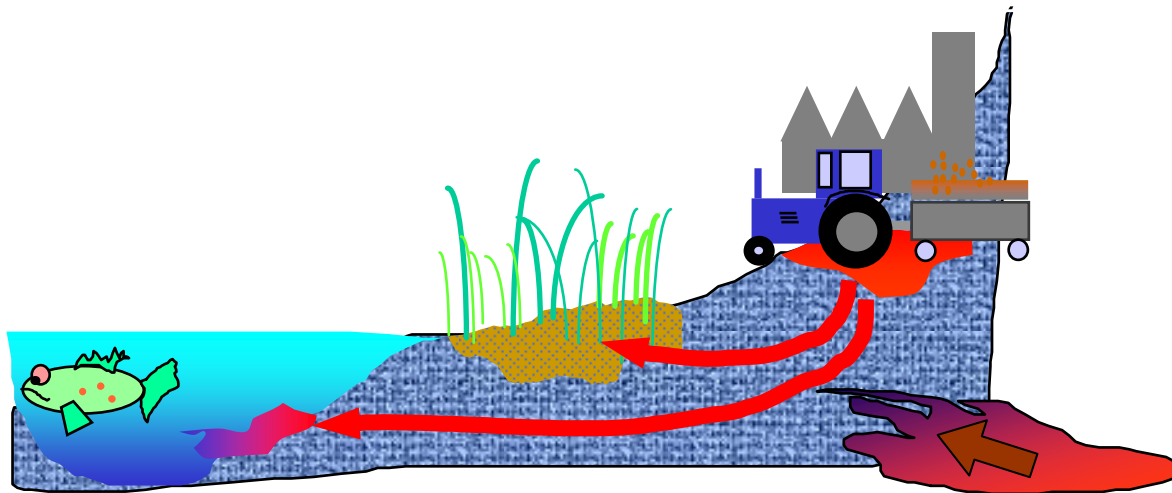
Promotes sustainable water

Chemical Status

Groundwater chemical status

Provision for:
Quality standards applicable under other
RELEVANT Community legislation

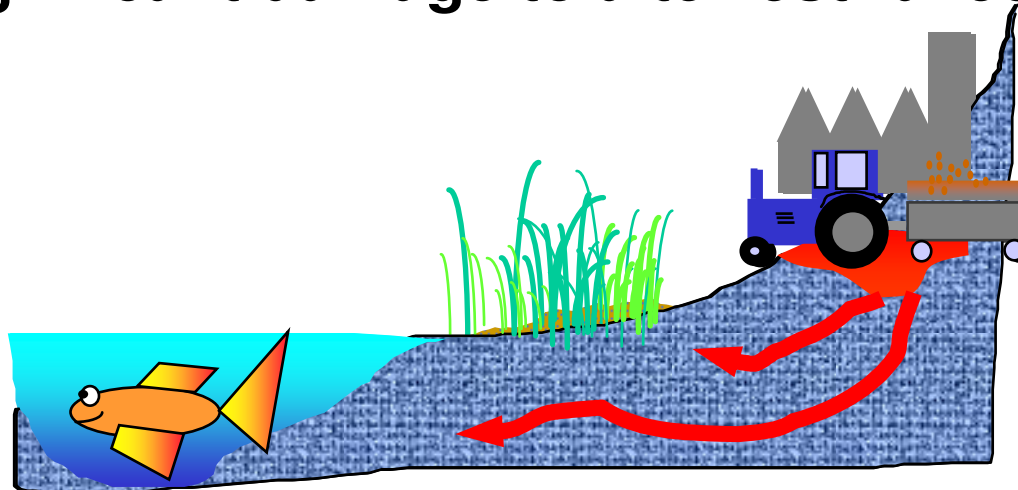
Daughter
Directive



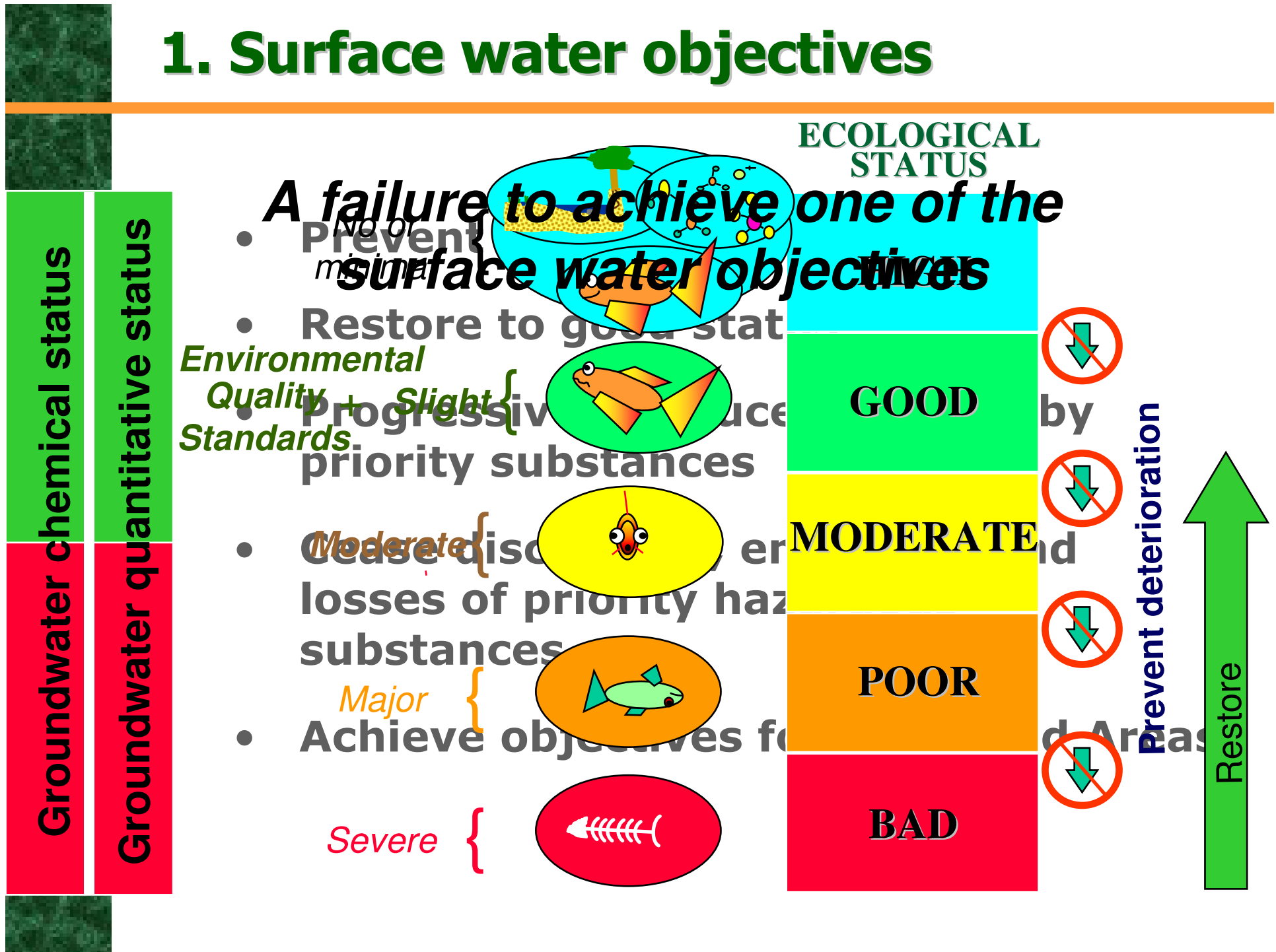
Surface receptors & chemical status

Concentrations of pollutants are not such as **WOULD** cause:

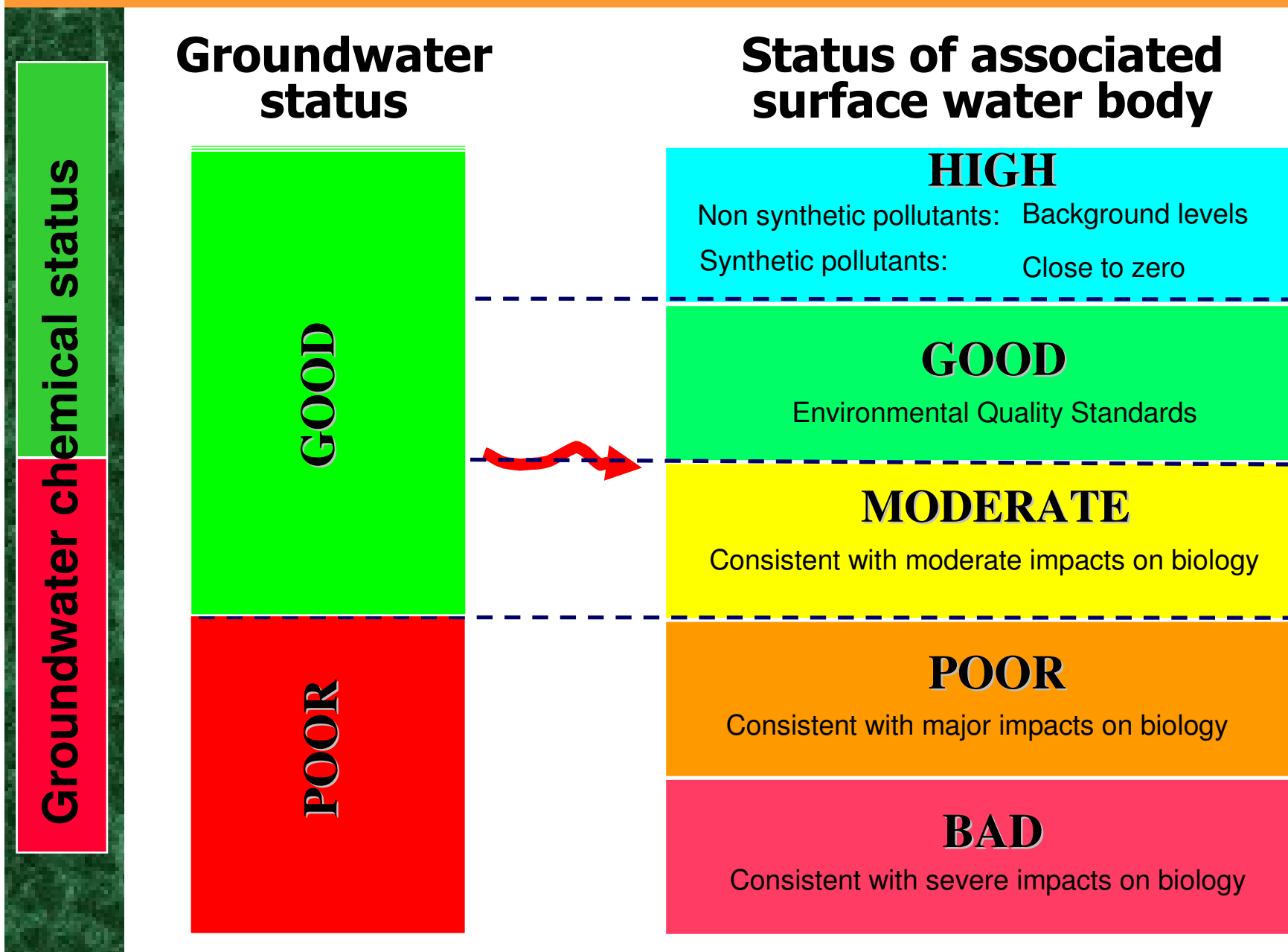
1. A failure to achieve one of the surface water objectives
2. Significant diminution in the chemical or ecological quality of a surface water body
3. Significant damage to a terrestrial ecosystem



1. Surface water objectives



Relationship to groundwater status



2. Significant diminution in quality

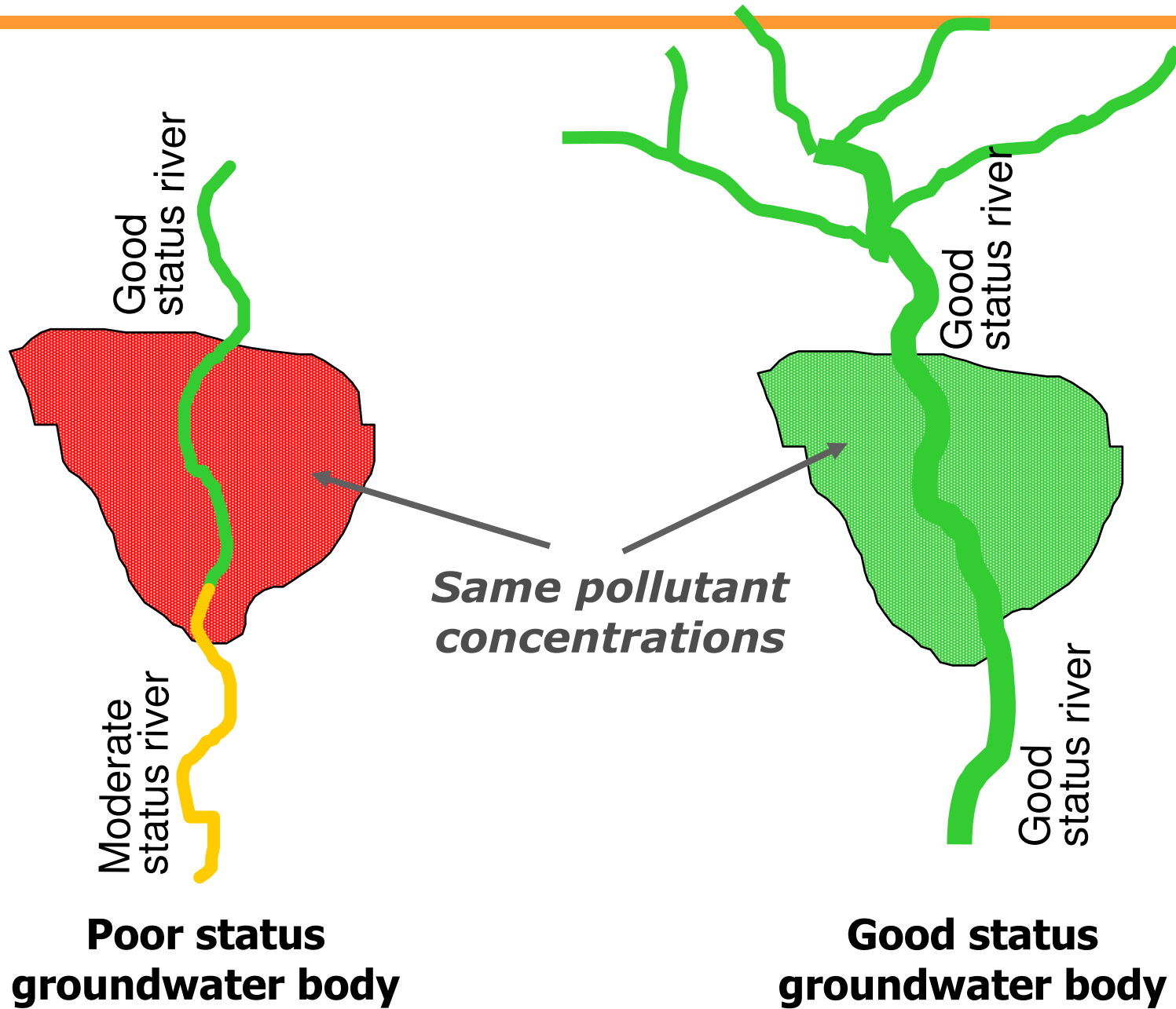
Groundwater chemical status

A body of groundwater would be at poor status if the concentrations of pollutants in that body have:

- *Lowered the status that would otherwise be achieved by a surface water body*
- *Compromised the restoration of a surface water body*
- *Significantly increased the risk of one the objectives for a surface water body being compromised*

Implications of surface water criteria

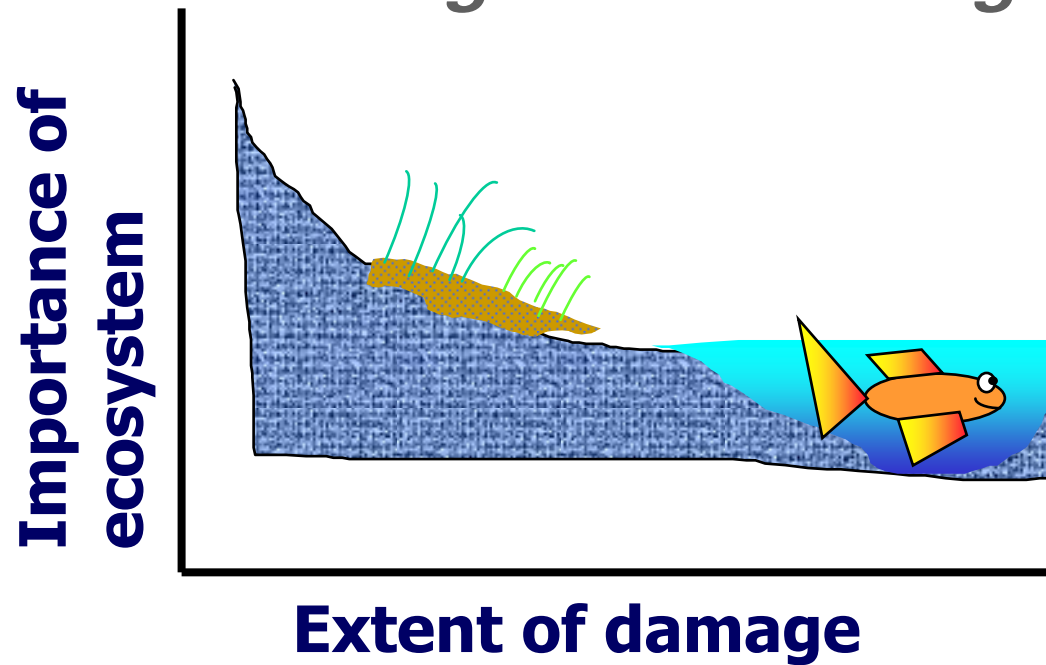
Groundwater chemical status



3. Damage to terrestrial ecosystems

Significant damage to a directly dependent terrestrial ecosystem

Definition of significant damage?

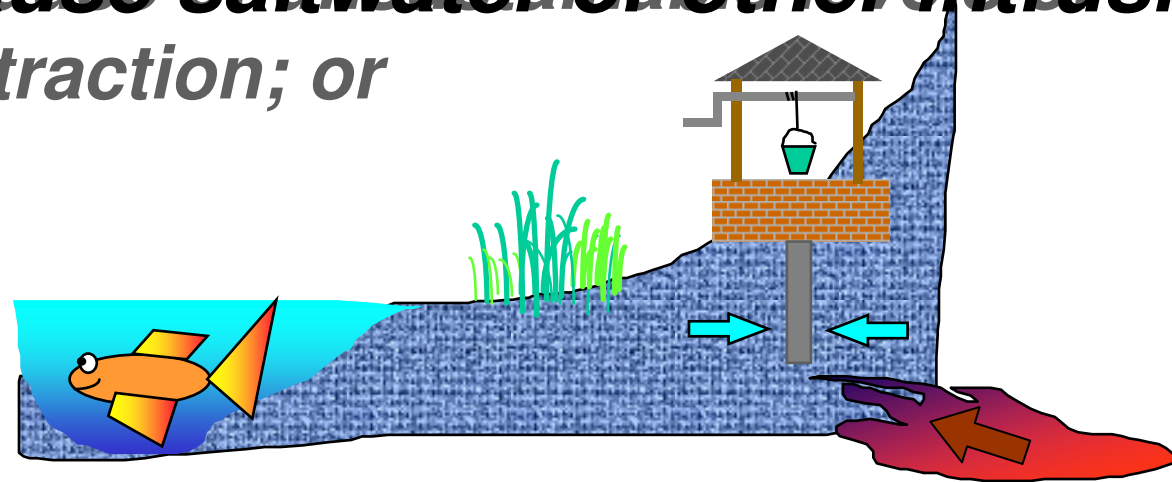


Groundwater chemical status

Groundwater quantitative status

Intrusion

Alterations to flow directions do not
cause saltwater or other intrusion
abstraction; or



Changes to chemical composition would
result in significant adverse effects on:

1. *surface water ecosystems*
2. *terrestrial ecosystems*
3. *a Protected Area objective; or*
4. *other uses of the body of groundwater.*

Groundwater chemical status

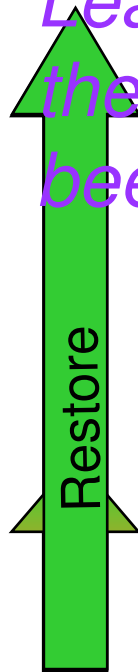
Groundwater quantitative status

Objective Setting

Technically unfeasible or disproportionately expensive

- *Extend deadline up to 2027*
- *Set less stringent objectives*

Least possible changes to good status given the impacts that could not reasonably have been avoided



Groundwater chemical status

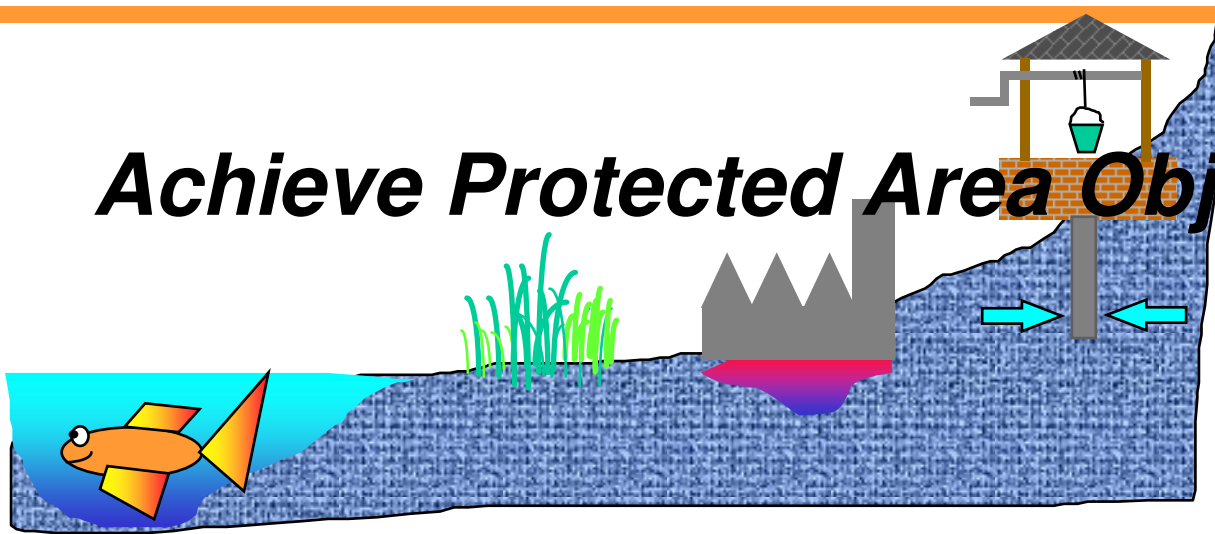
Groundwater quantitative status



Protected Area Objectives

Protected Area Objectives

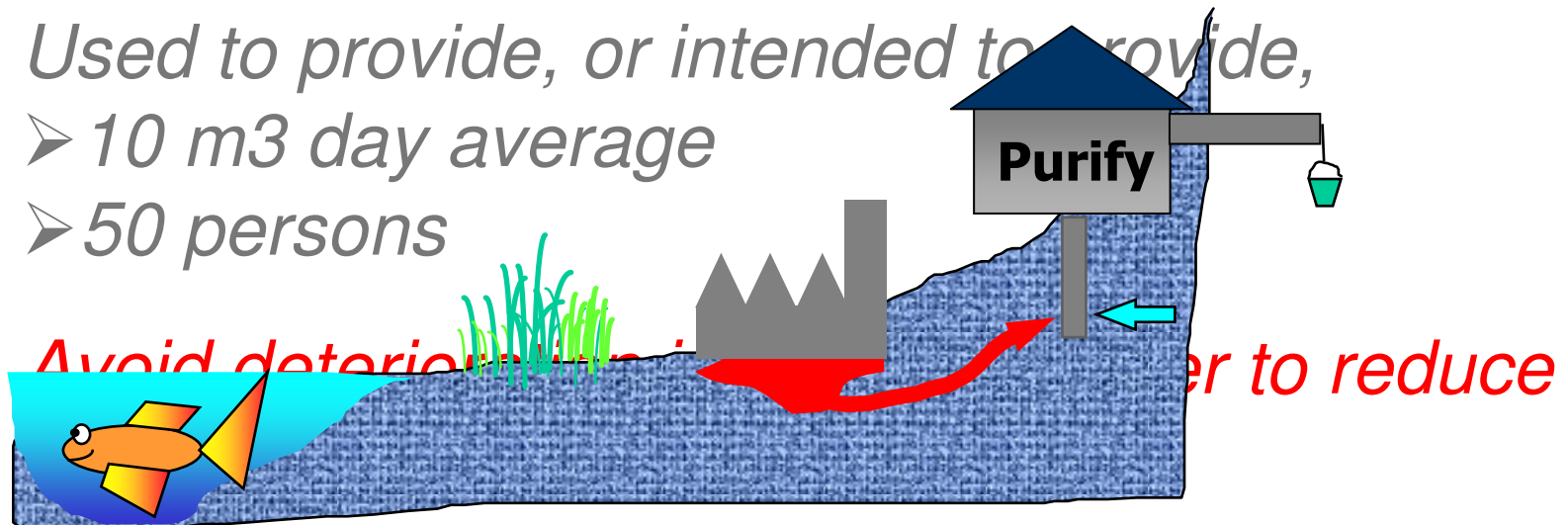
Achieve Protected Area Objectives



DRINKING WATER PROTECTED AREAS

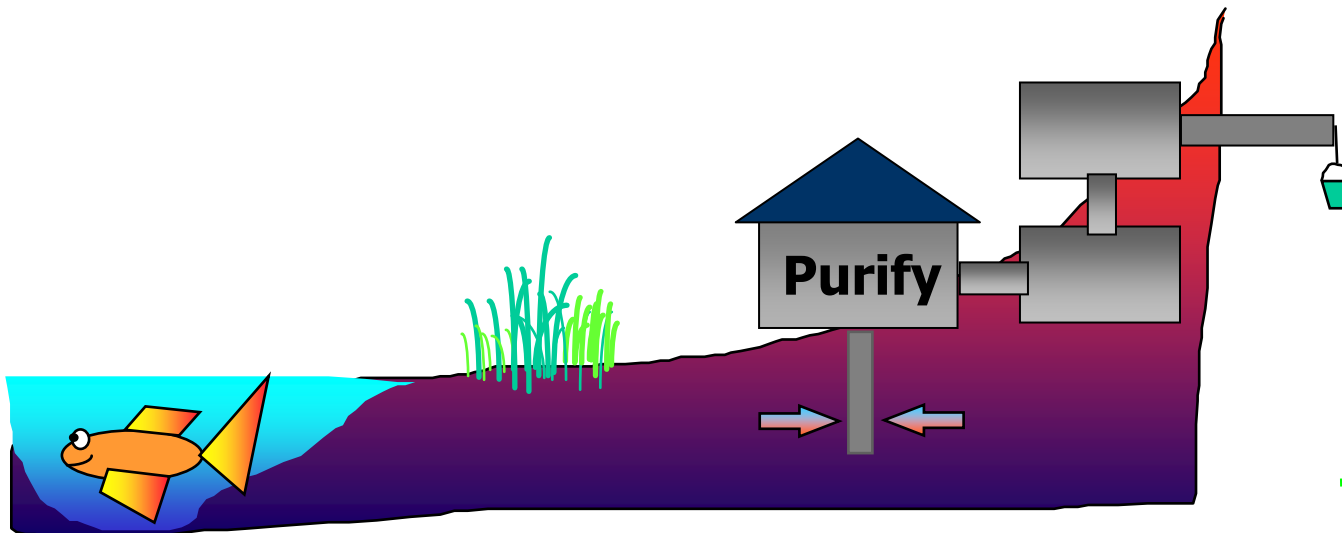
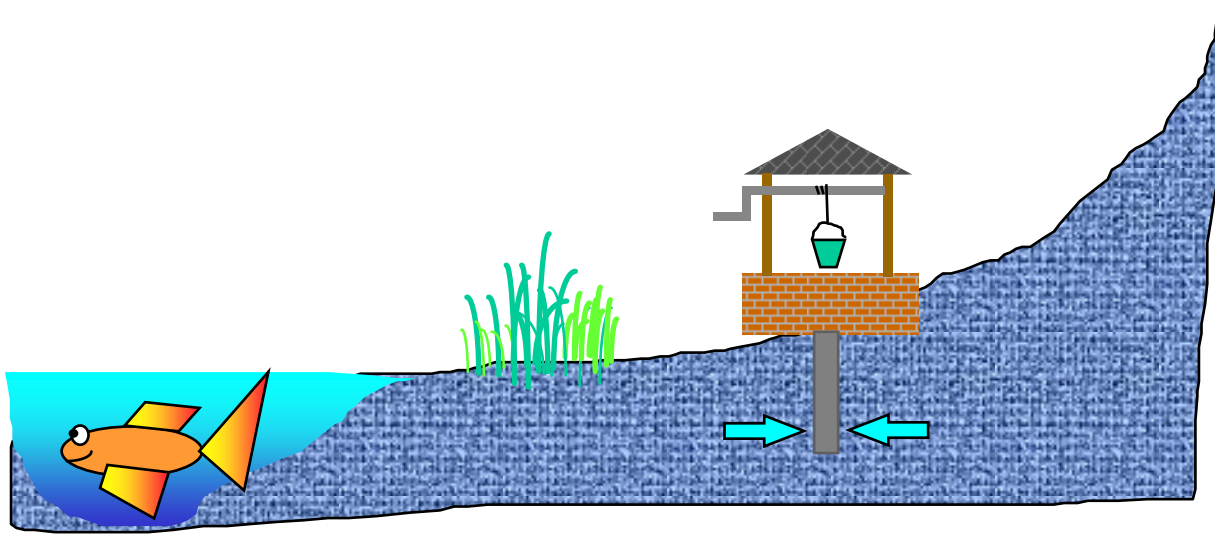
Used to provide, or intended to provide,

- 10 m³ day average
- 50 persons



Level of purification treatment

Protected Area Objectives



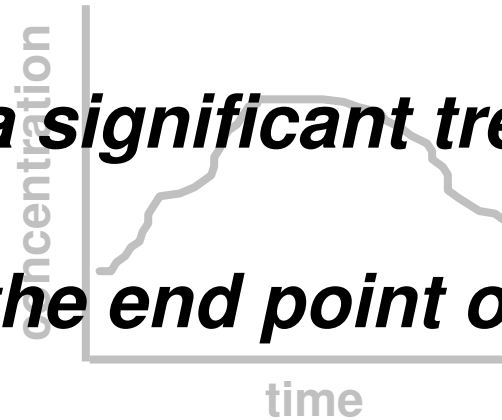
Good Groundwater Status

Trend Reversal Objective

Reverse any significant and sustained upward trend in the concentration of any pollutant...

What is a significant trend?

What is the end point of trend reversal?



... in order to progressively reduce pollution of groundwater

**Risk of harm to:
Human health; aquatic ecosystems; terrestrial
ecosystems; material property; uses of water
environment**

Criteria for defining significant trends

Trend Reversal Objective

cause or significantly increase the likelihood of, **deterioration in groundwater or surface water status?**

Yes

prevent, or significantly compromise, **restoration of groundwater or surface water status?**

Yes

prevent, or significantly compromise, achievement of a **Protected Area objective (e.g. NVZ, Drinking Water, etc)?**

Yes

cause harm to human health; damage to material property; or impair other uses of the environment?

Yes

Trend is significant

Trend is not significant

Prevent or Limit Inputs Objective

Prevent or Limit Objective

Prevent or limit the input of pollutants into groundwater

- 1980 Groundwater Directive Repealed in 2013
- No equivalent to List 1 and List 2
- Purpose of 'limit' not specified

Daughter Directive?

Proposals end of 2002