Ministerie van Verkeer en Waterstaat

Rijkswaterstaat

Summary Report Sharing ideas on WFD monitoring

Practicalities and common challenges

G. Vossebelt

10 November 2005

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10 november 2005

Informal Workshop
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Colophon

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1. Preface

1.1 Reason for the workshop

An informal workshop on monitoring was organized in Amsterdam with participants from several EU member states.

The reason for organizing this workshop was given during a SWIFT meeting, some months before. During this meeting policy servants responsible for WFD monitoring from Austria, England and The Netherlands discussed on the possibilities to include emerging monitoring methods in WFD monitoring. From their discussions it became clear that these Member States are coping with similar challenges in designing WFD compliant monitoring. The idea came up to organise an informal workshop on the issue of WFD monitoring and to invite a small number of participants to enable in depth discussions.

The workshop was organised by policy servants from Austria and the Netherlands and held in the Amsterdam Bilderberg Garden Hotel in the Netherlands from 21 – 22 September 2005.

1.2 Scope of the workshop

The scope of the workshop was drafted as:

- To exchange views and discuss a selection of challenging topics in WFD monitoring
- To generate feedback on the concept-monitoring strategy of Member States if deemed appropriate by that Member State
- To raise awareness of common challenges for all MS to foster joint approaches
- To discuss technical methodological limitations and potentially contradictory regulatory issues

Instructions for use of this report

The workshop had an informal character. This also includes that data presented and opinions or statements of participants made during the workshop and mentioned in this report do not necessarily reflect the official point of view of the EU Member States.

2. Working mode

- Timing: 21-22 September 2005
- Duration: Lunch-lunch meeting
- Participants: Austria, England, Norway, Bavaria, North Rhine Westphalia, Flanders, The Netherlands, ICPDR, in addition, a representative of the EU 6th Framework Programme Project SWIFT.
- Mode of work: On each challenging topic (e.g. aggregation of water bodies):
  1. An introduction to the topic focussing on WFD requirement and CIS guidance (incl. AMPS and any other relevant working group products);
  2. Tour de table and/or two slides presentations by each Member State/Region on approach on the topic;
  3. Discussion;
  4. Conclusions and drafting of summary notes.

3. Workshop Issues

Day 1
Chair: Birgit Vogel

3.1 Overview of current status, progress and ideas on WFD monitoring in Member States

Presentation by Gert-Jan de Maagd

- Objectives of the workshop:
    - To exchange views and to generate discussions
    - To receive feedback on concept-monitoring strategies
    - To define common challenges
    - To discuss methodological limitations and contradictions
- Introduction to the programme
- Some figures: the Netherlands.
    - This meeting comes just in time to add comments to the concept Dutch national guidance on monitoring that will be finalised the week after the workshop.
    - The English translation of the national guidelines is available.
- Ideas on timing and design of investigative monitoring

3.2 National monitoring strategies

Topics:
- Exchange of already existing national WFD monitoring strategies.
- Where are the boundaries between the different monitoring types (surveillance, operational and investigative monitoring)? A common understanding of these would be helpful.

In a "Tour de Table" participants from each country presented and discussed their national monitoring strategies (see the separate presentations).

The Netherlands – Gert-Jan de Maagd (see part of presentation above)

Austria – Karin Deutsch
Discussion:
Does Austria have a national guidance paper?
We have an Ordinance and the guidance on chemical monitoring is available on the website in German (www.lebensministerium.at/Wasser/Wasserrahmenrichtlinie)
Is there any obligation by the private sector to provide operational monitoring data?
This is a big problem and it depends on which information is specified in the notification of Water Right.
What will you report to Brussels and what needs to be monitored according to the scientists?
The amount of monitoring being put in the Water act seems more then is asked for the in the guidance but is limited by the budget (€ 3,5 million).
What are the first thoughts on Investigative Monitoring?

The Investigative monitoring will be executed by the local authorities (Länder). They do have their own system. There probably will be a federal guidance on this type of monitoring.

England & Wales – Owen Lewis

Scotland and Northern Ireland will implement the WFD monitoring separately, so we are talking here about England and Wales.
Implementation of monitoring networks in England and Wales for freshwaters, saline waters and groundwaters may cost an additional £13 to £20 million (21 - 32 million Euros).
The Environment Agency has proposed to prioritise certain pressures in the first river basin plan, focusing on those pressures that are widely understood and can be remediated successfully. Pressures such as morphology, which is difficult to quantify and to address, would be managed at a later stage once more information has been gathered.
A UKTAG Monitoring Guidance paper is available in draft format and will be mailed to delegates

Discussion:

Why do you have Surveillance Monitoring only in Waterbodies (WBs) that are not at risk?

WBs at risk will be covered in the Operational Monitoring. Operational monitoring will be carried out in WBs at risk where there are pressures. There will be no surveillance monitoring; this will be done in WBs not at risk only.

Why do you see only limited possibilities for grouping of WBs for operational monitoring?

In England and Wales adjacent waterbodies of the same type, and with the same scale and magnitude of pressure are very rare. In reality neighbouring waterbodies often are subject to a unique combination of pressures. Using the rules for grouping we have defined therefore becomes very difficult.

When you have several pressures in grouped WBs where will you put monitoring sites?

The pressure posing the greatest risk to the 'Good Status' objective would be identified. The monitoring site(s) would then be located to give us most accurate assessment of that pressure within that Waterbody. The remaining pressures might not be assessed by operational monitoring until the main pressure has been remediated.

Have you thought already much about Investigative Monitoring?

We have only recently thought about investigative monitoring. Investigative monitoring would be managed at the river basin scale by local Environment Agency teams. There would need to be some business rules defining what sort of pollution incident would require a WFD investigation.

Do you see Surveillance Monitoring as a flexible network?

Yes, but we don't know yet at which time scale. E.g. when can you change form surveillance monitoring to operational monitoring during the timeframe of the RBMP or at the start of a new one? The EU gives an option for changes in the monitoring programme during the lifetime of the RBMP.

Do you have to come up with data in the RBMP?

Yes, that is a strict requirement, although it is rather hard to organise. In December 2008 the concept RBMP must be ready. However we will be able to include new data during 2009 as long as it does not significantly change the contents of the RBMP.

Bavaria – Ursula Schmedtje
The federal government developed the framework for implementation of the WFD but the Länder are responsible for implementing it. With respect to monitoring the LAWA developed an overall concept for monitoring in Germany. Based on this Bavaria is developing its monitoring schemes. We aim to have a guidance paper available early next year.

68 % of Bavaria is part of the Danube River Basin and therefore WFD implementation in this part must also be coordinated with the neighbouring states in the basin. On the level of the Danube River Basin the International Commission for the Protection of the Danube River (ICPDR) is the responsible platform for coordination. I have been the responsible expert at the ICPDR Secretariat for coordination of WFD implementation in the last 4 years.

The ICPDR operates the Transnational Monitoring Network (TNMN) with agreed monitoring programmes and an analytical quality control in place. The TNMN utilizes national data from the TNMN stations and analyses these on the basin-wide level. Currently, the TNMN is being upgraded to meet the monitoring requirements of the WFD. A monitoring strategy on how to design the TNMN at the basin-wide level is under preparation and will be available by the end of 2006.

Nordrhein-Westfalen – Friederike Vietoris
The framework is ready in concept (see CD-rom).
Discussion:
Old-System: In the past ca. 4000 sites were investigated in NRW.
Circa 3500 basis sites: benthic invertebrates, general physical-chemical parameters, nutrients; Frequency: once/ twice in 5 years
Circa 100 trend sites: basis-monitoring + heavy metals + Pesticides + Volatile (Halogenic) Organic Compounds and further organic pollutants (known relevant hazardous substances), Frequency: every year at least 13 times. For more information: www.lua.nrw.de
With 4000 sites will there not be very high costs?
These are old, existing sites some of which data back to the 70's or 80's. The number of sites is too much for the WFD and there is a need for aggregation but there is still a lot of discussion about.
The detailed information about hydromorphology (River habitat survey) will be reported to Brussels, also within the 2004 report.
For surveillance monitoring measurements will be taken each year (13 times/ year) but not for all parameters. Every 6 years all parameters will be investigated.

Norway – Hanne Therese Skiri
Norway is not part of the EU but it will implement the WFD as part of the EEA agreement.
Discussion:
Norway has not yet established WFD compliant methods and guidance's; it is more at the stage of organisation and planning. A report on developing a Norwegian monitoring network for reference sites is available. (See the National WFD monitoring web page - link from appendix 4) A new and modified report will be ready in December 2005.
In total 11167 lakes and rivers. The number of monitoring sites is to be decided. Most lakes and rivers are small.

Flanders – Martin Verdievel
For political reasons the number of WBs in Flanders was brought back from 1000 to 100-200.
Discussion:

Summary
- Collection of discussion points put forward by MS
- An attempt to fill in a table on the number of expected monitoring points in various Member States.
- Seven summary points of Birgit:
  1. If and so how to report monitoring results in the RBMP
  2. Selection of pressures to monitor
  3. Judging multiple site results in one Waterbody
  4. Requirements on surveillance monitoring (see Bavaria)
  5. Grouping
  6. Hydromorphology
  7. Investigative monitoring

None of the participants says that with more pressures present you should measure all pressures.

3.3 Selection of Quality Elements (QE's)

Selection of quality elements (QEs) for both biological and chemical monitoring

Which biological QEs are chosen for which anthropogenic pressure (refers especially to operative monitoring)? Which priority substances and other relevant compounds (annex VIII) are to be monitored? etc.

Discussion:
- Linking pressures to biological QE's
- Dealing with Art. VIII and Art. X compounds

The Netherlands uses large lists of pressures with groups of QE's. A summary is presented in the Dutch presentation. The more detailed table will be made available (IvS).

For each pressure several QEs have been selected. Do you propose to measure each QE for each pressure?

It will not be possible to tackle all pressures by 2015 but the prioritised pressures will have been dealt with by then.
The QEs are selected with the use of expert judgement, cost and common sense.

NRW will select the most sensitive one.
Sensitive in what sense; reaction in time or greatest confidence that is shows the improvement?

The last option is the opinion of Eng/W as well as the NL.

Criteria for the selection of a QE when more QE's are available for a pressure are:

- Costs of measuring
- Sensitivity either
    - In reaction time or
    - Confidence of showing rightly the improvement.

Austria presented a table (see presentation) of Bio-indicators versus pressure in order to identify the best indicators.

How to choose a QE?

The first step is selection of general biological indicators.
The second step is deciding on how good does this QE reflect (indicate) the pressure? Does it only reflect one pressure or a complex of pressures?

Take into account the selectivity of biological QE's. Macro invertebrates might indicate for several pressures that cannot be distinguished while fish indicate well for a pressure as a barrier

Include also spatial effects of a pressure.

Take into account space because a pressure might have different effects on different sized WB's.

Austria is measuring the most sensitive QE for the pressure regarding the risk assessment.

Summary

It seems relatively easy to draw up a list of QE's for pressures. To make a selection of QE's for monitoring is more difficult.
However 4 criteria for the selection of QE's where found:

1. *Costs – selection of QE's than can be monitored at low costs*
2. *Sensitivity- QE 's that are likely to respond to a decrease in the main pressure(s)*
3. *Measure – only QE's that are linked to pressures to which measures are directed are monitored*
4. *Specificity – QE's that are specifically linked to a certain pressures to which measured are directed are monitored.*

When measuring only part of the WB and its status is good; will then the overall status of the WB be good as well?

When in **Eng/W** the pressure impact zone >1km then the monitoring site is placed within this impact zone. If pressure impact zone <1km then the site is placed outside the impact zone. If in Austria the pressure impact zone >30% then it is considered significant.

How to select art VIII and art X compounds for monitoring?

Austria has monitored all for Austria relevant hazardous compounds at all 32 surveillance monitoring sites 2003-2004. The approach in Austria is that all parameters not found or under the detection limit within 1 year are of the list for at least 6 and up to 12 years. Only the relevant ones out of this check will be monitored in the Operational Monitoring.

Monitoring for Annex VIII and X substances in **England and Wales** will be focussed through our existing programmes on those sites that currently fail EQS for substances identified as being Annex VIII

or X pollutants. Additional monitoring will be focussed at those water bodies deemed to be at risk from pressures that could discharge Annex VIII or X substances using analytical scans for metals or organic chemicals

In **NRW** there is a list of Annex VIII, IX and X substances (according to reporting directive 76/464 and requirements WFD, more than 250 substances), which is the basis for monitoring planning. At present only about 90 substances of this list are relevant for some sub basins in NRW. These 90 substances will be checked in the Surveillance Monitoring. Every six years all parameters belonging to EG 76/464/EWG-list or annex IX and X have to be investigated in Surveillance Monitoring! In Operational Monitoring the relevant ones will be monitored for the specific sites.

In **Flanders** a distinction between Annex VIII and X substances is not made for they are both covered in analysis packages offered by commercial laboratories in Flanders.

Summary:

- Take pressure into account
- The indicator with the best possibility to reflect the pressure is chosen.

3.4 Monitoring Sites and Aggregation

Topics:

- Installation of monitoring sites

  Finding the best possible location for monitoring sites within a water body depending on each relevant pressure type as well as quality parameter.
- Aggregation of water bodies for WFD monitoring (focus: aggregation for operational monitoring):

  Justification of aggregation (representation & homogeneity) and ideas on the size of the aggregation groups/units. Can aggregation also be applied for surveillance monitoring (the guidance is not clear about this issue)? Size of aggregation units seems to be directly linked to the required levels of confidence and precision, homo-/ heterogeneity of natural and anthropogenic catchment properties etc. Therefore, the aggregation methodology may be of common interest.

Discussion:

- Criteria for aggregation
- Drawbacks and limitations of aggregation

Where is the best possible location for a monitoring site within a WB?

In **Austria** the location is rather pressure related then to the QE. For chemical pressures (point sources and diffuse pollution) it is under discussion to locate the monitoring site at the downstream end of the WB. The major problem we then have is the monitoring of hydromorphological pressures (fish).

For the **Eng/W** approach to selection of monitoring sites see the presentation.

What to do with a gradient in a river e.g. coming from a discharge (mixing zone principle)?

The Eng/W approach is to measure the width of the river at the point of discharge, multiplied by 10 will this give the distance at which the monitoring site will be located.

How will Eng/W reduce the number of 5200 monitoring location candidates for Operational Monitoring?

There is a limited opportunity for grouping. A methodology for grouping is not available. Would Brussels accept expert judgement for this? If for the reasoning of grouping measurements are needed you might as well include it in the monitoring.

For Brussels the WB is the central unit. Both risk assessment and status allocation have been done for WB's.

For NL approach to grouping see the presentation.

What is the opinion of the participants to reducing the number of operational monitoring WB's using pressure as criteria?

Eng/W is worried about getting into problems with Brussels about validating grouping and so may not do grouping widely. The expectation in Eng/W is that all statutory monitoring (legislation from Brussels) will stay and all non-statutory monitoring will phase out in three years time.

The **NL** distinguishes between monitoring needed by water managers and legally required monitoring.

In **Austria** there is large list of waterbodies. It is not possible to measure all. The way forward is to build groups of relevant pressures and diminish the number of location that way.

Valid grouping and statistical power remains a problem.

As an output it would be interesting to find points why countries are worried about grouping WB's.

Why is the grouping so complicated?

Combine worries with the criteria put forward to grouping.

Grouping might be done on very vague assumptions?

Grouping is a practical problem.

There is a risk of the EU saying that if grouping is not possible you measure everything.

3.5 Dealing with art. VIII (other relevant compounds) and art. X (PC) compounds

In **Austria** if in 1 year a compound < detection limit (dl) this compound is skipped for a minimum of 6 years, up to 12 year.

In **Eng/W** a scanning method in combination with a target risk based monitoring is used. This applies only to Art. VIII compounds since for Art. X you need to measure all compounds. Hormones included in ground water.

In **NRW** there is a list of Annex VIII, IX and X substances (according to reporting (daughter) directive 76/464 and requirements WFD, all in all more than 250 substances), which is the basis for monitoring planning (Surveillance and Operational Monitoring). This list contains also "new" substances, e.g. several hormones and antibiotics. If a compound < ½ detection limit (dl), this compound is skipped for 6 years.

Fland. (over)complete chemical monitoring due to analytical packages

Day 2
Chair: Gert-Jan de Maagd

3.6 Summary Day 1

See presentation Gert-Jan de Maagd.

Still open questions and issues:

NL (GJdM) would like to exchange experiences on investigative monitoring.

A (KD) Issues in Austria are the focus on grouping of WB's; the practicalities of rotation in e.g. a 3 year cycle and organizing the monitoring logistics.

Eng/W (OL) The draft RBMP may contain only 1/3 of the sites since this will be the number that will be analysed by the time the draft RBMP will be published (2008). It is expected that in the final report (by the end of 2009) about 2/3 of the sites will be in. We can put data in the RBMP during 2009 as long as it does not disturb public participation. JvA comments that the WFD states that at least one complete year of Surveillance Monitoring has to be included in the RBMP and you also have to show that have started the Operational Monitoring cycle.

Bav (US)

1. What does "verify the results of the risk analysis" mean? Do all water bodies have to be monitored at least once?

- It concerns the sites that are possibly at risk. Supplementing the impact assessment means getting clear about WBs being at risk or not. Austria will measure all QEs in the frame of surveillance monitoring in order to decide if the WB is at risk or not and which QE is affected (NF).
- Not all water bodies have to be monitored at least once, because they can be grouped. (BV; GJdM). There is no need to monitor all WBs, the WFD states that representative sampling is possible (NF). The question remains if all WBs or groups of WBs that are not at risk need to be monitored at least once in order to verify that they are in deed not at risk.

2. Is it necessary to monitor all biological elements in surveillance monitoring in all surface water categories? E.g. macrozoobenthos in lakes - > approaches in other countries?

- It is necessary to monitor all biological Quality Elements for surveillance monitoring, but you have an opportunity to come up with a good reason not to and you can measure an indicator instead of the whole QE. Looking from the legal point of view we do need to measure all biological elements. It still remains an open question. All countries agree on not measuring phytoplankton in rivers.

N (HS) Norway is interested in knowing how other countries deal with defining the GEP for Heavily Modified Waterbodies (HMWB). In Norway hydropower mainly determines the state of the WB's.

The approach in Eng/W is that the parameter that has modified the WB is identified. The QE that indicates this parameter will be excluded and the status is decided upon without this QE.

3.7 WFD Parameter Overview

In order to get an impression of the actual situation in each country a table was drawn with for each country the number of surface waterbodies, the number or % of these at risk, the number of proposed surveillance and operational monitoring sites.

It should be stated clearly that this table by no means represents the official situation. It was drawn up on the basis of available knowledge with the participants.

MS	Surface Waterbodies	At risk + par (n or %)	Surv MP (n)	Oper MP (n)
A (> 100 Km2)	940	64% (+20%)	32 (max 40)	600
Eng / Wales	7000	5225	700	5225
Bavaria *)	954	Hydrom. 66% Org.poll 39% Nutr. 39% Haz.sub. 4%	To be decided	To be decided
NRW	1814	76% at risk 20 % poss. at risk	~ 40	~1000
N	13000 (11167 fresh water)	35% (fresh water)	To be decided	To be decided
Flanders	197	95%	197	500
NL	1400*	90%	50-100	170-270

Table 1: Table comparing several WFD parameters by Member State (MS) or Region. Figures mentioned do not necessarily reflect the official data of the MS.
*) Bavaria does not summarise different risks to one overall risk assessment; the result is therefore the risk assessment per category.

Austria: The monitoring of the nearly 600 Operational Monitoring sites will be dealt with by dividing them over three years and measuring in a rotation system, which means about 200 sites will be measured per year.
Eng/W will also apply a rotation system: measuring all sites in three years, with a net frequency of 1 measurement every six years for surveillance monitoring.

3.8 Monitoring methods

Topics:
- Exchange and discussion on monitoring methods

Biological monitoring of fish, sampling analysis of priority substances in surface waters, etc.

- Dealing with confidence, sampling frequency and precision.
- Strategy to establish long time series for trend analysis although assessment methods are changing over time.

  Discussion comparability of results over time.

Discussion:

1. Availability of techniques and sampling
2. Frequency
3. Confidence and precision

3.8.1. Availability of techniques and sampling

In **Eng/W** there is social political problem with surveying fish populations in lakes using destructive methods since people pay the Environment Agency to protect fish populations in rivers and lakes for 'angling' (amateur fishing).
The WFD refers to a CEN paper in which a methodology for fish monitoring is described.
A possibility is to cooperate with the anglers.
The FAME method for fishing is not used in **Austria**. The FAME results and tools are on the website (http://fame.boku.ac.at/overview.htm). Since in FAME the hydro-morphological aspects are more or less neglected it is not suitable. The status assessment for Austria using FAME would be better then with the more detailed Austrian method.

Eng/W uses macro-invertebrate classification system known as CPET based on skins (excuviae) washed up on shore.
Owen will send more information.

NRW - Not for every chemical compound there is an analysis method available. There is still no draft and no standardised method for C10-C13 Chloroalkanes. For the Brominated Diphenylether there is a draft, but only for sediment (ISO CD 22032).

Sampling and analysis of certain compounds
The whole water sampling is common practices in EU. Are there countries that measure suspended solid in sediment or suspended matter or whole water sample? The WFD doesn't ask for analysis in sediment.

Eng/W - no sediment samples. In England and Wales the techniques are available but we are politically against the use of sediment and biota standards. It is feared that the sediment standards may not be practically complied with in many areas of the country.

Bav – monitoring of most chemical compounds in the water sample; monitoring of heavy metals, organic compounds, some specific hazardous substances, and radioactivity in suspended solids.

Fland – have possibility for both but answer is still open.

N – do analysis of sediment. (Some priority substances relevant for Norway.)

A – Use whole water sampling, except for metals – metals are detected in both: in the whole water sample and in the filtrated

sample. For some compounds (f.e. tin compounds) where there are analytical problems the possibility of biota monitoring or suspended solids is under discussion.
NRW – Caused by the non-paper to Art. 16 activity, the matrix is under discussion. The filtrated water sample is – now - under discussion for priority heavy metals, the total water for the other substances. The suspended matter/ sediment perhaps could be used for special cases in Operational and Investigative monitoring. At present predominantly total water and suspended matter is used.
NL – Same approach. The NL Will not use suspended solids method for WFD. It will continue this analysis for back up and other purposes; it can be used in investigative monitoring since it gives more detail.

3.8.2. Frequency

Is the frequency of monitoring higher or lower as asked for in the WFD?

In the **NL** it is close to the minimum that is asked for in the WFD. For reliability they take into account the fluctuations occurring within a specific group.
Austria – for Annex VIII substances monthly. The risk assessment is based on monthly data. The Idea is to monitor for biological monitoring every 2 years 1 time a year.
Eng/W experts say 1 sample per 3 month but will visit the site each month to take a sample anyway.
Eng/W, Austria and **Flanders**: Discussion on seasonal measuring for pesticides and number of samples and period of the year.
NL measures priority substances12-13 times a year. With only 12 measures and if you miss out one (e.g. a bottle brakes) you are not meeting your obligations so an extra sample is taken.

3.8.3. Confidence and Precision

We have to report at a certain moment on Confidence and Precision. The WFD asks for a certain (not specified) confidence level; the minimal required frequencies are very low and so we will end up with low precision. This is a contradiction. It is expected that all 25 members by 2009 will have problems with their confidence and precision. Often information on the variation in the system lacks to do a statistical analysis and to produce results with a good reliability you need a prohibitive extended monitoring program.
The WFP refers to confidence and precision of the classification. Additional there is the overall confidence and precision of the selection of sites, grouping WB and choosing a representative WB, timing and methods used.
We need to find a pragmatic approach. We can provide in the monitoring a parallel analysis of samples taken at the same time under the same conditions and have a sort of quality assurance. Finding out about the sampling error will give a rough idea of the status of confidence and precision.
Two aspects (KD):

1. What is the standard of the assessment method?
2. How many samples and sites are needed within a WB?

NL (IvS) A qualitative description of methods will be made in the report of the monitoring program (we work with sampling in strata, timing will be yearly the same, expert judgement and general practice).
At the moment detailed studies for each QE are carried out to find out how many samples are needed to observe changes in time.
In **Flanders** a quality check on new data in the database is carried out using seasonality and precision intervals. New data is checked against the already present data (e.g. above or below certain levels)
Bav – Eliminate certain variability as seasonality by selecting certain periods of the year for sampling (e.g. spring) and compare the years.

Summary:
The subject of confidence and precision is quite complicated and their still is limited knowledge available. We are not very sure on how to report on Confidence and Precision in the RBMP.

Eng/W (OL) offers help with their 20 years of experience with quality assessment. Owen will send ideas around using their macro-invertebrate 'GQA classification system' data.
The ecostat as well as the intercalibration group are working on it.

3.9 Hydromorphology

Topic:
What is the role of hydromorphology and general physico-chemical parameters within WFD monitoring?

Although the guidance paper deals with these issues there is still ambiguity.

Discussion:
NL didn't have a system or methodology that matches the WFD demands. This has been developed. It turned out that a lot is already measured. NL sees hydromorphological monitoring as part of the annex V monitoring.
Eng/W will monitor hydromorphology in all WBs between 2000 – 2009 as part of the River Habitat Survey (RHS). This program is not linked to the WFD and runs parallel. The CEN paper is a combination of RHS and the Austrian and Finnish approach. The new CEN approach is already available.

It is peculiar that for the WFD you need to assess the hydromorphology for the good – very good status while often hydromorphology is the main pressure. You need to know the hydromorphological situation in order to be able to determine how to monitor the effects of the measures taken in a WB at risk. For this reason it is useful to include hydromorphology into the monitoring program.

Hydromorphology is both a QE and a pressure but the scope is different. Looking at Hydromorphology as a pressure is different from looking at it as QE for status.

In **NRW** the present method will be used furthermore, as pressure information.

The hydromorphological method aggregates pressures and so you don't get a clear result. The status reports cannot be used to predict if measures taken will solve the problem and so there is need for changes in the methodology for this issue. Part of the method can be used to show changes.

In **Norway** there is a long experience with hydromorphology monitoring. Information on present monitoring programs can be found on the web page of The Norwegian Water Resources and Energy Directorate (NVE) http://www.nve.no/
In **Flanders** data is available in different databases. During next year this data will be brought together.
In **Bavaria** the same LAWA methodology is used as in NRW (Gewässerstrukturkartierung). There are two methods, one for the overview scale (Übersichtsverfahren) and for the local scale (Vor-Ort-Verfahren). These assessment methods are much more detailed than the requirements on hydromorphology of the WFD.

Summary:
- RHS is similar to the LAWA methodology
- RHS coincides with the WFD time frame
- There is semantic discussion hydromorphology in risk analysis and monitoring. Hydromorphology is both a QE and a pressure.
- The work done for the risk assessment can not be used for the hydromorphology monitoring: the focus is on pressures and the information is not suitable for monitoring the impact of the measure (the measure can be expensive and needs additional monitoring)
- When planning hydromorphological measures be sure they work – therefore you need information on the hydromorphology.
- Pressure based assessment might be the only requirement that will be needed for Brussels (BV).

3.10 Physico-chemical parameters

Topic:
The role of hydromorphology and general physico-chemical parameters within WFD monitoring.

Although the guidance paper deals with these issues there is still ambiguity.

Discussion:
Do countries have a general physical-chemical monitoring or a type specific quality standard (scheme) for nutrients?
NRW – at the moment no type specific schema for nutrient monitoring, instead a general physical-chemical monitoring using quality standards as set by LAWA. Type specific schema is actually under discussion. There is a need for clustering of the types. We cannot use the same standard for nutrients in each river type.

Eng/W - type specific quality standards (scheme) for nutrients in about 12 types of rivers. There is a problem with the river data of low detection levels for filtered P.

A - general physical-chemical monitoring. Data will be on the government website shortly.

N – The list of relevant priority substances and additional substances relevant for Norway will be ready December 2005. No type specific standards

NL – water body type specific quality standards for nutrients. There is a problem with high concentrations of nutrients from neighbouring countries entering the Netherlands. This makes it impossible to achieve the standards.

Flanders – The only country that defines local WBs. The type specific environmental qualities will probably be linked to those local waters.

Bavaria - type specific quality standards for nutrients using quality standards as defined by LAWA.

3.11 Conclusions and way forward

- The workshop sharpened the view on the requirements and obscurities of the WFD.
- Need to look forward at where we expect problems both at the technical and the political level (NF).
- It is a good start and source for keeping each other up to date.
- Need for a follow up workshop.
- Need for going into more detail
- This workshop might function as a start up for a monitoring group.

4. Annex

A.1 List of Participants

Address details	Short description of WFD involvement and activities
Ingeborg van Splunder (IvS) Ministry of Transport, Public Works and Water Management RIZA P.O. Box 17 8200 AA Lelystad The Netherlands I.vSplunder@riza.rws.minvenw.nl http://www.rws.nl/rws/riza/home/	Biologist responsible for design of national monitoring programme and WFD strategy
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Ursula Schmedtje (US) Regierung van Oberbayern Maximilianstr. 39 D-80538 Munich Germany Ursula.Schmedtje@reg-ob.bayern.de http://www.regierung.oberbayern.bayern.de/	Biologist, all biological / ecological issues in water management including WFD
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Friederike Vietoris (FV) Staatliches Umweltamt Herten	Biologist, biological and chemical issues in water management

NRW Germany friederike.vietoris@stua-he.nrw.de www.stua-he.nrw.de	including the WFD monitoring.
Owen Lewis (OL) Environment Agency Swift House, Frimley Business Park, Camberley, Surrey GU16 7SQ UK owen.lewis@environment-agency.gov.uk www.environment-agency.gov.uk	Monitoring Policy Advisor for WFD National Team.
Karin Deutsch (KD) Federal Ministry for Agriculture, Forestry, Environment and Water Management Dept. VII/1 BMLFUW / VII 1 Marxerg 2 1030 Wien Austria karin.deutsch@lebensministerium.at www.lebensministerium.at	Biologist, National Team to Water Monitoring Network
Hanne Therese Skiri (HS) hanne.skiri@dirnat.no Contact person (not present at the workshop): Signe Nybø Signe.nybo@dirnat.no Directorate for Natural Management www.dirnat.no	Member of national Monitoring group for Implementation of WFD
Nikolaus Fleischmann (NF) Auhofstr 4/7 1130 Wien Austria nikolaus.fleischmann@h2o-net.at	Monitoring Guidance Austria
Birgit Vogel (BV) International Commission for the Protection of the Danube River birgit.vogel@unvienna.org	Hydrobiologist, Technical Expert on River Basin Management being responsible for WFD Implementation
Gert-Jan de Maagd (GJdM) Ministry of Transport, Public Works and Water Management Directorate General for Water The Netherlands Gert-Jan.de.Maagd@minvenw.nl	Drafting national guidance; quality control monitoring programmes
Gerrit Vossebelt (GV) Ministry of Transport, Public Works and Water Management RIZA P.O. Box 17 8200 AA Lelystad The Netherlands g.vossebelt@riza.rws.minvenw.nl http://www.rws.nl/rws/riza/home/	Biologist; optimalisation of biological monitoring programmes including the biological component of WFD monitoring

A.2 Additional Mailing List

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A.3 Additional Documents

Title	Short description of contents
(Dutch) Guidance on Monitoring for Surface water European Water Framework Directive; 15 July 2005. By the MIR monitoring project group and discipline groups.	
Summary of the (Dutch) Guidelines for Monitoring Surface water, European Water Framework Directive, for the water manager; July, 21 2005.	This summary of the Guidelines for Monitoring Surface water (30 June 2005) was drawn up for water managers in the Netherlands, as an extra aid to compiling the actual WFD monitoring programmes. This summary deals with the formulation of the monitoring programmes without further explanations. With the aid of this summary, and their colleagues in the field, water managers will be able to put together their own WFD monitoring programme.
Proposal for design of a Norwegian Monitoring Network for Reference sites. Norwegian Institute for Nature Research (NINA) and Norwegian Institute for Water Research. 2005.	The report is a proposal for a preliminary design of a monitoring programme for reference sites for all surface water categories compatible with the requirements in the EU Water Framework Directive. It includes preliminary recommendations of number of sites, parameters, sampling frequency and monitoring intervals. A new and updated report will be ready in December 2005.
Rahmenkonzeption zur Aufstellung von Monitoringprogrammen und zur Bewertung des Zustandes von Oberflächengewässern. Empfehlung. Stand 2-03-2005.	
Grundlagen zur Aufstellung von Monitoringprogrammen und zur Bewertung des Zustandes von Oberflächengewässern	
Monitoringkonzeption. Konzeption zur Analyse der auf die Gewässer einwirkenden Belastungen, zur Überwachung des Gewässerzustandes und zuer Beurteilung des Gewässerzustansdes. (Concept17 Oktober 2005; Nordrhein-Westfalen)	
Revision of the TNMN. Strategy for the development of WFD compliant monitoring programmes at the basin-wide level. Draft discussion paper prepared by Dr. Igor Liška in cooperation with Dr. Ursula Schmedtje. (1 september 2005)	This paper outlines the overall strategy for ensuring that the basin-wide monitoring programmes are in line with the requirements of the WFD and provide an overview on water quality on a basin-wide level. It is intended to use this paper (or major parts of it) as part of the report to Brussels in March 2007, which addresses the operation of monitoring programmes in line with the requirements of the WFD. This paper will be supplemented by the report of the UNDP/GEF DRP consultants assigned with the development of the technical details of the monitoring programmes.

A.4 Links

Austria:
http://www.lebensministerium.at/Wasser/Wasserrahmenrichtlinie

FAME
http://fame.boku.ac.at/overview.htm

Germany:
www.icpdr.org
ICPDR (International Commission for the Protection of the Danube River). Their website also contains the Danube Basin Analysis Report which is the WFD Report responding to reporting requirements of Art. 5 WFD.

Netherlands:
http://www.kaderrichtlijnwater.nl/

Norway:
The Norwegian Water Resources and Energy Directorate (NVE):
http://www.nve.no/
Site for the WFD monitoring group:
http://www.dirnat.no/wbch3.exe?p=3889

Preliminary Programme

Preliminary Programme of the informal workshop 'Sharing ideas on WFD monitoring: practicalities and common challenges'

Reason for the workshop

- Policy servants responsible for WFD monitoring from Austria, England and The Netherlands recently met during a SWIFT meeting in France. From their discussions it became clear that these Member States are coping with similar problems in designing WFD compliant monitoring. The idea came up to organise a workshop on the issue of WFD monitoring and to invite selected representatives.

Scope of the workshop

- To exchange views and discuss a selection of challenging topics in WFD monitoring
- To generate feedback on the concept-monitoring strategy of Member States if deemed appropriate by that Member State
- To raise awareness of common challenges for all MS to foster joint approaches
- To discuss technical methodological limitations and potentially contradictory regulatory issues

Outline

- Timing: 21-22 September 2005
- Duration: Lunch-lunch meeting

21 September: 12:00 to 18:00, 22 September: 9:00 to 13:00.

- Possible Participants: Austria, England, Denmark, Bavaria, North Rhine Westphalia, Flanders, The Netherlands (Maximum of two participants (preferably: one technical expert and one responsible policy servant) for each Member State/ Region), Denmark, ICPDR, in addition, maybe two representatives of the EU 6th Framework Programme Project SWIFT.
- Mode of work: On each challenging topic (if possible to be defined in advance (e.g. aggregation of water bodies):
  (1) an introduction to the topic focussing on WFD requirement and CIS guidance (incl. AMPS and any other relevant working group products);
  (2) tour de table and/or two slides presentations by each Member State/Region on approach on the topic;
  (3) discussion;
  (4) conclusions and drafting of summary notes.

Possible challenging topics to be discussed

1. Exchange of already existing national WFD monitoring strategies.

2. Aggregation of water bodies for WFD monitoring (focus: aggregation for operational monitoring):

Justification of aggregation (representation & homogeneity) and ideas on the size of the aggregation groups/units. Can aggregation also be applied for surveillance monitoring (the guidance is not clear about this issue)? Size of aggregation units seems to be directly linked to the required levels of confidence and precision, homo-/ heterogeneity of natural and anthropogenic catchment properties etc. Therefore, the aggregation methodology may be of common interest.

3. Where are the boundaries between the different monitoring types (surveillance, operational and investigative monitoring)?

Common understanding of these would be helpful.

4. Installation of monitoring sites

Finding the best possible location for monitoring sites within a water body depending on each relevant pressure type as well as quality parameter.

5. Exchange of thoughts on timing and design of investigative monitoring.

6. Selection of quality elements (QEs) for both biological and chemical monitoring

Which biological QEs are chosen for which anthropogenic pressure (refers Especially to operative monitoring)? Which priority substances and other relevant compounds (annex VIII) are to be monitored? etc..

7. Dealing with confidence, sampling frequency and precision.

8. Exchange and discussion on monitoring methods

Biological monitoring of fish, sampling analysis of priority substances in surface waters, etc..

9. The role of hydromorphology and general physico-chemical parameters within WFD monitoring.

Although the guidance paper deals with these issues there is still ambiguity.

10. Strategy to establish long time series for trend analysis although assessment
methods are changing over time.

Discussion comparability of results over time.