The Nordic WFD Conference was held in the City of Oulu in Finland on 19th of March 2014. The Nordic countries shares many similarities concerning water related issues and faces mutual challenges that need to be solved and adapted in collaboration. These include programme of measures, governance, implementation of EU Water Blueprint, harmonization of status assessments and best practices of ICT and technical solutions. The Conference was able to enhance the resource effective implementation of WFD in Nordic countries. The event covered a wide range of topics concerning WFD implementation key challenges of 2nd River Basin Management cycle. We got to share experiences and discuss about challenges and best practices during the conference and in working group sessions. The event emphasized the importance of knowledge and experience exchange between countries.

The depth of thought and preparation that went into all presentations was apparent to all who attended. Many thanks to the organizers, speakers, chairmen and participants for taking the time to come to Oulu and contributing to the success of the event.

Organizing persons: Milla Mäenpää, Pinja Kasvio and Antton Keto (Finnish Environment Institute)
Anneli Harlen, Johan Kling (Swedish Agency for Marine and Water Management)
Jo Halvard Halleraker, Line Fjellvær (Norwegian Environment Agency)
Partly financed by Nordic Council of Ministers
Partners: Norwegian environment agency and Swedish agency for Marine and Water Management

Presentations from the event are available on the website of the Nordic WFD Conference. Attached is a brief Conference report.
Tuesday 18th of March 2014

Welcome reception and pre-dinner at Restaurant Torero.

Wednesday 19th of March 2014

Development Manager Seppo Hellsten acted as the Chairman for the Nordic WFD Conference. Professor Seppo Hellsten is from the Finnish Environment Institute (SYKE) and he has been working long with inland water monitoring, water plant research and heavily modified water body issues in international scale.

Welcome to Oulu and Finland
Director of the Urban and Environment Office of the Oulu Region Leena Tuuri.
Licentiate of Veterinary medicine, Leena Tuuri, has been working in Environment Office of the Oulu Region since 2006. First as a Chief Veterinarian in Veterinary Services, then as a Manager of the Environmental Health Protection Department before the position as a director of the Environment Office.

Leena spoke about the relevance of healthy water resources to the City of Sea and Three Rivers.
Introduction to water management and protection in Finland

Environment Counsellor Hannele Nyroos, Ministry of the Environment in Finland
Hannele has been working with international inland water issues, planning water resources management and restoration.

The watercourses are very vulnerable to human pressures: shallow lakes, low flows in rivers, winter and brackish coastal waters. According to the latest assessment in 2013: main part (~85 % of the lakes are in good status, particularly in the northern and eastern part of Finland and 1/3 of rivers are deteriorated. Approximately 350 (9%) GWBs are identified as being at risk to achieve the good status. Later surface water or terrestrial ecosystems will be identified with more details. Challenges improving water status concerns e.g. the reduction of the eutrophication, restoration of watercourses and habitats and reduction of hydromorphological pressures. Measures are needed in all the sectors. In many areas the status can be improved by restoration.

The PoM has gained success in many areas in Finland. For the 2nd cycle we have improved assessment of cost efficiency in the evaluation of the link pressure-impact-measure. Also we have developed tools to assess pressure-state-impacts (e.a. VEMALA, VIHMA, KUTOVA, VIRVA). Also legislation of the protection of groundwater has improved.

Short presentations from other Nordic countries

Norway: Senior Advisor Tor Simon Pedersen, Ministry of the Environment Norway (Line Fjellvær)

In Norway the River Districts and the River basin Authorities are in preparing the RBMPs. Approximately one third of the water bodies are in risk of not meeting the WFD environmental objectives in 2021. According to the latest assessment the status of the almost 30,000 water bodies identified that 43 % are in good status, 11 % in poor and 3 % are evaluated to be in bad status. The three main pressures are acidification, hydropower and agriculture. Alien species is the fourth pressure. Hydropower is a big issue in Norway and especially the production from regulated reservoirs is highly valued. A screening of more than 400 licenses in 187 watercourses was performed that concluded that environmental flow or reservoir restriction as mitigating measures might apply to as many as almost two thirds (103) of the watercourses. National guidance from the Government, January 2014, proposes that 50 of these watercourses need to be prioritized for minimum flow in the first planning cycle. An agreement of Finnish-Norwegian River Basin District Tana, Neiden and Pasvik was made in May 2014 to fulfill the requirements of the WFD concerning the border crossing river basins. This will establish a framework for bilateral cooperation and administrative border crossing sub-districts coordination of watersheds/sub-districts in Norwegian and Finnish territory.


Johan is a hydro-morphological expert. Most of his work is related to the EU water Framework Directive mainly on hydromorphology and Heavily Modified water bodies. Johan has a long experience as a project manager in many areas.

SwAM started operation in 1.7.2011 and is part of the Ministry of the Environment. SwAM is implementing a unified Swedish policy for lakes, seas and streams. Recent Government commissioned reports have been 1)Sweden’s most important ecosystem services, 2)Green Infrastructure and 3)Inquire report of making the value of ecosystem services visible. Committee on Environmental Objectives advises the Government on how the generational goal and the environmental quality objectives can be achieved cost-effectively.
Government investigation on water legislation showed e.g. that most of the permissions given according to the Water act are more less permanent based on their old premises. A new legislation for water use will be developed and SwAM is responsible for three of the objectives: 1) zero eutrophication, 2) flourishing lakes and streams and 3) a balanced marine environment, flourishing coastal areas and archipelagos. Deliverable 1 oct 2013 suggests that all dams and abstractions shall have a new permission – if the County Administrative Board decides it (Authority for Inspection and Control). Also it was suggested that old permissions shall be terminated, permissions shall have a timelimit, general regulations can be used for needed environmental improvements and environmental report shall be delivered by the water uses.

Social Learning on WFD in Finland, Sweden, Scotland & Ireland

Director Micheál Ó Cinnéide, Environmental Protection Agency EPA, Ireland. Micheál joined the EPA in 2008. Since 2010, Micheál has been enrolled in a DBA programme at Waterford Institute of Technology, which includes research work on the theme of Learning in the Water Framework.

The aim of the research was to study the role of social learning in a period of regulatory change, based on the experience of participants (managers and stakeholders) in River Basin/water management. The key element of Social learning is a feedback loop between structures, processes and outcomes. This research provided insights into the design of adaptive, learning-based societies in managing water for 2nd Cycle. Social learning is not just a “top down” or vertical process, it is a collective learning process in equally vital at a horizontal (policy) level. Where the principles of social learning and practices of interactive governance are embedded in water management, stakeholders are more willing to collaborate (Diffuse P.). The outcome of the study was that managing water needs more integrated learning.

WFD implementation in the context of varying governance systems: Norway, Sweden, Finland, Austria and Scotland

Associate Professor Jan Erling Klausen, NIBR, Norway. Jan Erling works in the University of Oslo and also as a senior researcher at the Norwegian Institute for Urban and Regional Research. His research focus is on issues related to climate change, environmental politics and resource management. Recently he coordinated a project on Norway’s implementation of the EU Water Framework Directive.

The success of EU environmental policy, as WFD, is highly dependent on the institutional preconditions in member states and how the Directive is implemented into existing legal and administrative system. The comparison of five countries (Norway, Sweden, Finland, Austria and Scotland) included the basic issues (spatial information, use of hydropower) and the legal system and institutional setup for WFD and sector legislation (water regulation and agriculture).

The institutional setup for WFD varies from centralized and administrative boundaries to decentralized and ecosystem-based. There can be seen three models how hydropower licenses are granted and reviewed: Independent legal/adm. body: 1) Finland, Sweden, 2) environmental authority: Austria, Scotland (Lebensministerium, SEPA or 3) sectorial authority: Norway (Energy min./ Water and Energy Dir.).
1. Environmental flow and good potential
Senior advisor Jo Halvard Halleraker, NEA, Norway.
Jo Halvard worked in the science policy interface of water management, environmental flows, environmental impact assessment and sustainable hydropower both as a research scientist and water manager. He has also coordinated guidelines and courses for implementation of the Water Framework in Norway.

WFD goals of good ecological status (GES) includes both qualitative and quantitative aspects. So far, there is no common definition and application of E-flow. There is a need for common terms and understanding as well as hierarchy of mitigation options. Several countries (e.g. AT, FR, NO) have identified potential to compensate new E-flow by refurbishment or modernization.

2. PoM, agriculture and economics
Coordinator Milla Mäenpää, Finnish Environment Institute, Finland.
Her tasks involve national coordination of river basin management planning, such as preparing guides, arranging training and support to planning and reporting.

EU common implementation process (CIS) organization of 3 clusters and 9 working groups are steered by water directors and SCG. Working group programmes of measures (PoM) cover a wide range of issues including funding the measures to new guidance/tools. The overall purpose of the PoM WG is to share best practices in developing and implementing of PoMs, and correspond how to better address the pressures affecting water status. Specific issues cover nature water retention measures (NWRM), water reuse and leakage reduction and marine strategy.

WG agriculture aims to improve the Art 5 assessments, develop and share agricultural measures and funding to better support the implementation (CAP, RDP, LEADER etc.). The main principle under discussion is how MS should strengthen the basic measures before introducing them to voluntary based supplementary measures.

WG economics develops and shares knowledge and good practices related to economic issues of WFD. The WG concentrates on exchange of experiences on Art 5 analysis and exemptions and WATECO guidance review. Also, the reporting scheme, financing and economic policy instruments how to target the water management will be discussed.

3. Data sharing and information issues
Strategist Niklas Holmgren, South Baltic Water District, Sweden.
Niklas is responsible for Water Information System of Sweden and connecting this data with other water related databases from different national authorities in Sweden.

Related to data sharing, the main goal in the blue print is that the Water Information System Europe (WISE) should be better linked and fully interoperable with national databases – helping to build a comprehensive picture of aquatic ecosystems.

The data sharing and integration issues between Nordic/Celtic countries are ongoing and active. Main gains so far have been transnational cooperation on waterbodies in Norway/Sweden/Finland, common layout, sharing data web map services and measures and measures library to provide knowledge exchange from good examples.
**4. Ecostat, priority substances**

Senior Research Scientist Ansa Pilke, Finnish Environment Institute, Finland.

Ansa is a member of Ecostat-WG, e.g. in intercalibration and proceeding and other CIS WGs for a longer time. She has experience in ecological status and other WFD issues in Finland and internationally in several context.

Main tasks of ECOSTAT in coming years deal with the Intercalibration of the ecological potential. Other tasks involve giving recommendations on biological monitoring methods, including on biological monitoring methods for which harmonisation is needed and where standardization is possible, and on which standardized methods should be added to Annex V 1.3.6 of the WFD. Also information exchange on the comparability of classification methods is needed, improving coherence of assessment between EU policies and Science-Policy and interface contribution and considerations on EEA/EIONET reporting of biological/ecological data.

**Country presentations of the European WFD implementation**

**Finland:** Leading Expert Antton Keto, Finnish Environment Institute.

Antton is acting as a head of River Basin Management group in the Freshwater Centre. He has been involved in preparation of WFD legislation, national guidance’s, databases and EU-reporting sheets since 2006.

The key issues where governance, timetables of second cycle, progress of 2nd planning cycle and Commission assessment of Finnish 1st RBMP’s. Finland has three key working groups in the context of implementation of WFD. These groups are: Steering group for RBMP planning, National Coordination Group for RBM planning, National Coordination Group for WFD data Management. In order to harmonize processes, close cooperation is organized with National Coordination Group for Flood Risk Management and National Coordination, Expert and PoM groups for Marine strategy implementation.

National sectoral planning guidances were updated and further developed to give guidance to regional ELY-centers in preparing regional PoM’s. Planning process guidance consists (76) planning stages and the tasks in these phases are described. Sectoral guidance were prepared for municipalities, agriculture (includes acid sulphate soils and fur production), forestry, groundwaters, hydromorphological and restoration measures, peatland production, fishery and industry. Assessment of the costs, social impacts, effectiveness, financing instruments, responsibilities in implementation, follow up and monitoring were also included in sectoral guidances. Horizontal guidances were prepared for environmental objectives and exemptions, the application of Article 4.7 has, assessment of climate change impacts and adaptation in the RBMP’s and how to take the chemical impacts into consideration. Finland is now updating program of measures and draft versions should be ready by the end of April. Public hearing starts on October, so draft RBMP’s should be ready by the end of September. Finland got more than 70 questions for Com to the clarify RBMP’s process. These issues were discussed in October bilater-meeting and some further actions by Com were also suggested.
**Norway:** Head of the Water Management Line Fjellvær Norwegian Environment Agency.

Line’s background is within biology, natural resources and environmental geology as well as education. She has worked with hydropower issues for 10 years and since 2007 she worked with the WFD at the Norwegian Directorate for Nature Management.

Norwegian Environment Agency was established in 1.7.2013 as a result of a merger of the Directorate for nature management and the Norwegian Climate and Pollution Agency. The Agency is now the largest agency under the Ministry of the Environment with 700 employees. Environment Agency’s functions are to monitor the state of the environment, convey environment-related information, exercise authority, oversee and guide regional and municipal authorities, collaborate with the authorities of relevant sectors, act as an expert advisor, and assist in international environmental efforts.

New Norwegian classification guidance on RBMP and PoM was prepared from the results of Bioklass-Fresh, WISER and from other research programmes. This guidance has not yet been intercalibrated and there is a wish to start a Nordic cooperation (+Scotland) to develop a suitable system for Nordic conditions. In the assessment of the Norwegian Pilot on RBMPs found, that the national technical guidance documents on ‘Classification of ecological status’ and ‘Characterisation of the RBD’ are particularly useful and comprehensive. From these it is clear that there has been active participation of Norwegian experts in the CIS process on these topics. This should ensure that these aspects, when fully implemented, will be technically best practice and will produce comparable results with EU Member States.

Still there is very little information on monitoring. In the areas (within RBDs) that have been monitored it appears that only operational monitoring of surface waters has been undertaken and this needs to be improved. At present, there are no complete classification systems for all national water body types in rivers, lakes and coastal waters. Therefore the ecological assessment methods and classification need to be further developed to fully meet the requirements of the WFD by 2015. Also appropriate groundwater monitoring should be established to assess groundwater status and to detect pollution trends. The identification of river basin specific pollutants need to be more transparent, with clear information on e.g. how pollutants were selected, and how and where they were monitored and the derivation of the national EQS.

**Sweden:** Water Management Coordinator Juha Salonsaari at Länsstyrelsen Västernorrland and Johan Kling.

Juha is the leader of the water district authorities and joint working group for Program of Measures. Besides PoM he has been working with characterization, classification and monitoring. His educational background is a master in aquatic biology and chemistry.

Salonsaari told us about classification process in Sweden and preliminary results. In national level the status groups varied compared to previous classification. There is less WBs in good and bad status, but more in moderate and high status. The confidence of the classification is a challenge and varies between RBMD. The main pressures in Sweden are diffuse sources: forestry, agriculture and releases from facilities not connected to sewerage network and especially in rivers the barriers and physical alternations (excluding atmospheric deposition).

Also the pressures for groundwater come from the diffuse sources and are more common than point sources. Major problems of implementation of the measures are the lack of accurate cost/benefit-analysis (value of water) and lack of information about cost and effectiveness of measures and the sufficient quality. The hearing of the draft RBMPs/PoMs will begin in November 2015.

Bilateral meetings with EU Commission concluded the main issues that need to be explained: the monitoring of waters, review of permission system for new HyMo modifications, and methods for assessment of biological quality
Lessons learned and experiences about WFD implementation in the Alpine convention

Dr. Veronika Koller-Kreimel, Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management, Austria. Veronika works as a head of unit of National Water Management and also a head of subunit of Aquatic ecology. Her responsibilities consists of implementation of WFD for surface waters Hydropower and Water Ecology.

Koller-Kreimel told about Austria’s experience and lessons learned on implementation of WFD. Federal Ministry of Agriculture, Forestry, Environment and Water Management is responsible for WFD implementation. Austrian river net consists of 8,000 rivers (mean length is 4 km). Number of lakes (larger than > 0,5 km²) is 62 (19 artificial). 35 % of Austrian rivers are in less than good status based on 2009 status assessment. Main hydromorphological pressures are continuity interruptions (33,000, 1/km), flood defense and river regulation (25% of river net), abstraction – no e-flow (10% of river net) and impoundment (4% of river net).

New water Act gave general possibility to change existing licenses and presented principals. Water constructions must ensure river continuity and water abstractions need to ensure e-flow. Owner of permit or license has to submit a restoration project on river continuity to the authorization body to be approved. In case of no submittance, there is a risk that license expires. In HMWB designation general principle has been as few as possible but as many as necessary. This means that 10 % of river net is heavily modified. Extension of deadlines is usually applied with not less stringent objectives. Reasons for exemptions have been usually administrative constraints, missing knowledge or actions would lead to disproportionate costs. At this stage majority of Austrian hydropower plants are not HMWB and have to restore ecological flow to achieve GES. New National Environmental Fund for Investments to Improve Ecology has been the key driver in restoration of measures although other sources like EU-funds and Agro-Environment subsidies have been used. Principles for “No significant adverse effect” has been defined on national level. These are fish pass for upstream migration (was declared to be State of Art/ BEP), restoration of e-flow by hydropower diversion plants (means a total loss of electricity base load production about 3% of total national hydropower production), measures to improve the morphological situation in impoundments and compensation reservoirs for hydropoeaking (when there is enough place to gain).

Recommendations of the ecosystem services approach to take onboard on WFD implementation

Ekonomist Christina van Breugel, COWI, Denmark.

Christina has obtained a solid understanding of the application of environmental economics as part of preparing and implementing environmental legislation. She has worked with the national climate change adaption strategy and the development of the energy strategy.

Ecosystem services are benefits provided by ecosystems (e.g. fishery, water purification, flood mitigation, biodiversity and recreational services) and ecosystem approach aims to combine environment (like the river basin) with socio-economic system (user/beneficiaries). The guideline on how to use an ”Ecosystem Service Approach” (ESA) to support the implementation of the WFD has been prepared for EU Commission this year. The ESA can support planning of PoM. The guidelines give a systematic framework to assess the benefits of the measures and better optimize the set of measures and gives ideas how to visualize the trade-offs. The ways to integrate the ESA into PoM development process can vary between MS. There are also some challenges in ES approach, as it needs skills and resources carrying out and does not solve conflicting interests.
Restoring rivers for effective catchment management - Results from the REFORM-project
Senior Research Scientist Jukka Aroviita, Finnish Environment Institute, Finland.
Jukka is responsible for the development of ecological status classification system in Finnish rivers and lakes. Recent projects explore restoration effects on structure and function of river ecosystems in national and international projects.

In Nordic areas intense land use is particularly intense along the rivers, without adequate buffer strips in some areas. The question in REFORM was how to achieve good status? In the project the effects of multiple stressors in Finnish rivers were detected. All BQEs respond to water quality degradation. In contrast to eutrophication, the degradation of hydrological and morphological features affects the biota through various and often complex pathways, such as alterations in habitat composition, flow dynamics, shading or food sources. The study was made with field samplings (e.g. biotic sampling, food web studies, restoration costs), from different catchment areas across Europe that were restored or not restored. The key findings showed that naturally functioning freshwater systems are highly nutrient deprived and diffuse pollution overrules the reach scale of HyMo degradation. Elevated nutrient concentrations are most widespread stressor in Europe. Pristine status means independent functioning. For the restoration success the riparian land use is crucial.
More captures from the conference
The Conference Dinner at Restaurant Hugo