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LIFE+ Biodiversity project “MARMONI – Innovative marine biodiversity indicators and monitoring and assessment of conservation status of nature values in the Baltic Sea” (Project no. LIFE09 NAT/LV/000238)

MARMONI Final Conference: “Innovative indicators, methods, monitoring & assessment of marine biodiversity in the Baltic Sea”

January 27-28, 2015

“Baltic Beach Hotel” (Jūras street 23/25, Jūrmala, Latvia)

REPORT

Rapporteur: Merle Kuris, BEF Estonia

Goals of the conference:

- to present the results of the MARMONI project to an international expert audience and receive feedback;
- to discuss and exchange experience on innovative marine biodiversity indicators and survey methods, use of marine biodiversity information for marine spatial management, cost implications of introducing new monitoring methods for building policy compliant national monitoring programmes and, indicator based marine biodiversity assessment.

Welcome and Introduction

Žaneta Mikosa, Ministry of Environmental Protection and Regional Development of the Republic of Latvia

Ž. Mikosa highlighted the importance of the Baltic Sea for Latvian economy and cultural identity. Careful planning and integration of environmental requirements into sea use planning is essential for sustainable use of the sea resources. The recently renewed Latvian environmental policy strategy sets a goal to achieve good environmental status of marine waters but there are still a lot of challenges to overcome. Therefore, targeted implementation tools are very much welcome. MARMONI project provided a good contribution to the development of the marine monitoring programme and filled some important knowledge gaps in monitoring, assessment and indicator development. The project also has done good work concerning awareness raising among wide range of stakeholders.

The LIFE programme and its importance protecting the marine environment

Angelo Salsi, DG ENV, LIFE Unit

A. Salsi drew attention on high costs of marine investigations. There are only a few LIFE projects dealing with marine biodiversity but these projects are having a high share of the LIFE Programme’s budget. The knowledge gained in these projects will be contributing to the healthy marine environment only if the results are used in practice, so Mr. Salsi urged the stakeholders for uptake of valuable project results.

MARMONI was applied in the one year when LIFE financed also purely conceptual projects to assist the implementation of the new MSFD - in the 2009 call. Usually LIFE is financing concrete conservation or environmental management activities – not only nature conservation projects but also LIFE Environment projects dealing with chemicals, waste, water, air, development of better technologies.

The LIFE programme has a new regulation since 2013, so the programme will continue at least until 2020. The programme until 2020 includes several new features: For LIFE environment/nature projects priority topics are defined and projects fitting under these priorities receive 10 scores. Three specific marine topics are attributed to the Environmental Resources strand, dealing for example with litter and contaminants, impact of economic activities on marine environment and the implementation of the MSFD in general. In the Nature & Biodiversity strand one priority with four sub-themes is dedicated to selection & designation

of MPAs, marine species and habitats protection, monitoring & surveillance as well as functioning of the network of MPAs, The Information & Governance strand includes actions for raising the awareness on the MSFD. A new feature of the programme is “Integrated Projects” targeting at large scale multi-sector projects mainly envisaged for Natura 2000 Prioritised Action Frameworks, WFD river basin management plans, waste and air quality management plans – however, as MSFD is still a big priority in the LIFE regulation Integrated projects could also be on marine issues.

End of March a platform meeting for all marine projects will be held in Madrid in order to feed into marine biogeographical seminars organised to discuss about best practices to manage marine sites. MARMONI will be invited as well.

The Commissioner for environment, fisheries and maritime affairs is the same person, so hopefully the collaboration between the DGs will increase, also regarding allocation and distribution of money.

The LIFE MARMONI project

Heidrun Fammler, Baltic Environmental Forum, MARMONI project manager

Ms. Fammler gave a brief overview on the MARMONI project, its goals, activities and results/achievements. She highlighted that MARMONI is a policy implementation project, not solely an academic research project. Information on all the results and reports of the MARMONI project can be found at the project website and shall not be repeated here: <http://marmoni.balticseaportal.net> .

Session I: Innovative marine biodiversity indicators & survey methods

The MARMONI Indicator development concept and its results

Georg Martin, Estonian Marine Institute, University of Tartu

G. Martin gave an overview on development of indicators in the MARMONI project and briefly introduced the results.

MARMONI focused on development of indicators for descriptor 1 of the MSFD – biodiversity. In the course of indicator development in MARMONI at first a review of existing operational indicators used for assessment of biodiversity or other purposes has been implemented followed by development of new indicators for assessment of biodiversity, suitable for use in the Baltic Sea area. Mr. Martin highlighted that most of commonly used existing indicators were addressing pressures to the marine biodiversity and rarely the state of biodiversity itself, which the MARMONI project took up as one goal to focus its work on.

The conceptual development of indicators was followed by testing them in the field.

The work resulted in a proposal of 48 indicators (7 fish, 15 benthic, 10 pelagic and 16 bird indicators), of which 43 are ready to use, the rest need some further development.

The MARMONI Indicator approach is illustrated in the new publication and can be obtained from the project partners as well as on the project web site at <http://marmoni.balticseaportal.net>

The HELCOM project CORESET II: Indicator concepts and current stage of development

Lena Avellan, HELCOM

L. Avellan introduced the HELCOM project CORESET II, which is a project for operationalization of HELCOM core state indicators for hazardous substances and biodiversity, also some pressure core indicators carried out from September 2013 till June 2015.

HELCOM approach to indicators is different from MARMONI approach. HELCOM is developing commonly agreed assessment tools and indicators with a unified structure across the themes. The core indicators are part of the HELCOM Monitoring and Assessment Strategy and are used for thematic and holistic assessments of the Baltic Sea. Several indicators developed in MARMONI have been taken up by the CORESET project and tested in a wider circle.

L. Avellan introduced HELCOM biodiversity core, candidate and pre-core indicators as well as explained the steps for operationalization (setting up the system of monitoring and assessment).

HELCOM CORESET project is financed from a small HELCOM budget and the work of participating experts is financed by countries (from national funding or from different projects).

MARMONI & CORESET common grounds and way forward

Georg Martin, Estonian Marine Institute, University of Tartu

G. Martin illustrated the differences of the MARMONI and HELCOM CORESET projects, informed about the contribution of MARMONI to CORESET process and highlighted further needs regarding development of indicators and harmonisation of monitoring and assessment of marine biodiversity.

MARMONI focused only on biodiversity, CORESET is wider (including also indicators on hazardous substances). MARMONI was developing new innovative indicators and monitoring methods and tested them in four project pilot areas; CORESET a short list of core indicators to be used by all Baltic Sea countries. However, some results of MARMONI have been taken up by CORESET and included in the core list of indicators.

G. Martin stressed that there is still need for development of indicators and harmonization of monitoring and assessment also after ending of MARMONI and CORESET II projects. The Commission Decision on criteria and methodological standards on good environmental status of marine waters will be revised and national monitoring and assessment programmes need to be updated/amended. There is also a need for harmonisation of monitoring and assessment of marine biodiversity – currently there is only info exchange but the next step is missing.

Discussion:

- Some of MARMONI indicators have been already included in national monitoring programmes, some are mentioned as to be considered in future.
- Why there are no indicators on migrating birds, neither in MARMONI nor in CORESET?
 - There are long time data on wintering birds that were used for indicator development. Most of migrating birds stay in the Baltic Sea. For some species, e.g. the long-tailed duck, the wintering data give a better picture.
 - The parts of the Baltic Sea where in normal winters there is ice, are much more important for migrating than for wintering birds.
 - If we want to monitor the state of the environment, we need species covering the whole Baltic Sea. Wintering birds are easier to monitor because they are not moving.
- How to avoid the “misuse” of indicators (manipulation, using indicators out of the context)?
 - MARMONI developed quite detailed indicator documentation and methodologies, which should avoid “misuse”. Also a tool for biodiversity assessment using the indicators was developed in MARMONI. The other issue is the quality of monitoring that should be ensured by the institutions carrying out the monitoring.
 - The uncertainty has to be indicated. In case of misuse of indicators the uncertainty will be huge. Also promotion of the project results is very important and MARMONI has done it.

The MARMONI innovative survey methods for biodiversity monitoring

Nicklas Wijkmark, AquaBiota Water Research

N. Wijkmark gave an overview on testing and development of monitoring methods in MARMONI and presented some examples of the developed new methods.

The aim of development of new methods was to meet needs for indicator based biodiversity monitoring as well as to increase cost efficiency, precision and spatial and/or temporal cover. In total 17 new/innovative methods for biodiversity monitoring (8 benthic, 7 pelagic and 2 bird methods) were tested in the study areas. 14 of the tested methods proved to be functional or at least promising (need further development), only 3 were not recommended.

Discussion:

- How stakeholders were involved and their data used in indicator development?
 - Ferrybox data was used.
 - Data from fishermen were not used in this project but fishing data are used for fish (resource) monitoring.
 - In Finland citizens trainings on observations of bladder wrack communities and Secchi depth were carried out and smart phone application about green algae was developed. It is an ongoing process to involve stakeholders more and more in monitoring.
 - In Latvia the trainings on beach wrack methodology for school children and teachers were carried out.

- In Estonia also trainings for teachers on beach wrack methodology were carried out in the frame of MARMONI. In 2014 some of Tallinn schools made beach wrack investigations and presented the results in school science conference.
- Data collected by amateurs are used in bird monitoring. There is a long tradition in bird counting by amateurs, it is one of the longest data sets existing, international waterbird counts have taken place since 1960ies. In MARMONI bird counting trainings for amateurs were carried out where new people were involved and new methods taught.
- Data from previous or ongoing projects (e.g. LIFE Finnmarinet) and national marine monitoring programmes were analysed and integrated.

MARMONI findings and recommendations on indicators & monitoring methods

MARMONI findings and recommendations on achieving compliance with requirements of the MSFD, uptake of new monitoring methods and harmonization of indicators and monitoring methods among the countries were presented and discussed:

- The regional approach is very important, e.g. beachwrack analysis – it should be associated with knowledge on how the marine ecosystem works, e.g. from where the beach wrack is coming.
- New methods are usually addition to the existing traditional methods but not substitute. The methods can be region specific.
- There must be a feasibility check of all that we plan to do concerning development of national monitoring programmes.
- Coastal midwinter surveys of waterbirds are very cost-effective – the counts are done by amateurs, there are long data sets. Offshore bird counts cannot be made cheap because they require planes and trained observers.
- The purpose of monitoring is not only to “report to Brussels” but also to justify management actions. To save costs, we should not split monitoring for different purposes but should have a complex monitoring satisfying all needs. In the MSFD there are topics not monitored so far (e.g. habitat monitoring) that need new monitoring because the existing monitoring is not providing the relevant data.
- Screening of the existing monitoring programmes in the Baltic Sea Region in the beginning of the MARMONI project showed that there were no programmes assessing marine biodiversity, although the existing programmes contained some biodiversity elements monitored for different purposes, e.g. water quality.
- Accepting use of best available data does not mean to avoid development of new methods. This possibility is there to ensure that action is still taken even if there is no monitoring in place.

A spatial approach to marine monitoring & management

The spatial dimension of marine bird data and its implication for biodiversity monitoring

Ainars Aunins, Latvian Fund for Nature

A. Aunins presented the conclusions from development and testing of the abundance and distribution indicators of wintering birds.

He concluded that offshore bird monitoring, synchronised among countries, is essential to get reliable abundance and distribution data of marine bird species. Combination of ground counts and plane (or ship) counts is preferred to ensure good coverage of different species. For species with wide distribution areas Baltic Sea wide assessments should be made. Covariate(s) describing climatic factors need to be considered in indicator calculation because distribution of birds is depending on climatic conditions.

Discussion:

- In Lithuania similar data and methods are used and results can be compared.
- Distribution of birds in 2012 and 2014 was different but what about numbers?
 - Difference in numbers was not big between two years.
- Climate change effect has been analysed on Baltic Sea level. Increase of ducks in the northern and decrease in southern parts is related to climate change.
- Do we have sufficient equipment to make surveys in the whole Baltic Sea at the same time?

- Probably it can be managed with planes.
- Offshore bird counts are very costly.
 - In the DG ENV funded BALSAM project (managed by HECOM secretariat) a common monitoring platform of the Baltic Sea countries will be established. All countries have new monitoring programmes, including offshore bird counts, which should be synchronised. The further plans will be discussed in the seabird group meeting back-to-back of the conference.
- Long-tailed duck is quite easy to count during spring migration; do we need to count it by tens of airplanes?
 - Long-tailed duck is not the only species to assess, there are other more offshore species and a counting activity does not focus on one species.

Importance of using spatial biological data for marine management. Examples on mapping, scenarios and ocean zoning useful for marine management and planning

Martin Isaeus, AquaBiota Water Research

M. Isaeus gave a brief overview of spatial biological data layers and mapping of conservation values in the Hanö Bight (MARMONI project area in Sweden), described the scenarios of wind power and eutrophication, explained the ocean zoning for MSP and presented the MARMONI findings and recommendations on spatial biological data layers.

The main conclusions were the following:

- Comprehensive data on marine biodiversity and environmental variables is necessary to develop adequate spatial models allowing spatially explicit mapping of ecological values at large scales.
- It is important that widely acknowledged criteria are used in conservation valuation, and a transparent method.
- Scenario models, including ocean zoning tools, are recommended to be used in environmental impact assessments as well as for planning optimal locations of MPAs or economic activities.
- High quality maps of all relevant conservation values is a prerequisite for an appropriate integration of ecosystem based management into spatial planning; therefore it is recommended that such mapping is done by all member states.
- The methodology used in the Hanö Bight area for conservation value assessment and mapping is likely to be applicable for use across the Baltic Sea and is a good basis for developing a common standard/guidance.

Discussion:

- For mapping of conservation values the spring and autumn migration is even more important than for monitoring. It is important to map bottle neck sites/corridors and important stop over sites. In addition to birds it is also important to consider bats who are also migrating over the sea.
 - To get good results, proper input data are needed.
- Valuation criteria were mainly derived from the Convention on Biological Diversity. A common standard on the criteria would be needed.

Linking integrated marine biodiversity assessment and site evaluation: lessons from LIFE+ DENOFLIT project

Darius Daunys, Marine Science and Technology Center, Klaipeda University

D. Daunys introduced the LIFE project DENOFLIT (“Inventory of marine species and habitats for DEvelopment of NATURA 2000 Network in the OFFshore waters of LITHuania”, 01.10.2010 – 31.03.2015) and assessments of the project areas carried out in the project.

The presentation addressed two aspects: the integrated assessment of biodiversity demonstrating links between different biodiversity elements, and comparative assessment of two areas using different sets of criteria. The main conclusions were that the understanding on links between different biodiversity elements should be increased, and that the value of the assessment unit highly depends on valuation criteria: ecological value of the reef may not necessarily coincide with the conservation value, estimated using e.g. legal criteria.

Discussion:

- So, the assessment results depend on selection of indicators?
 - Yes, the result depends on the set of indicators used for assessment.
- Did you try to show the distribution of ecological values on a map (where higher, where lower)?
 - No, we just made a comparison of two reefs, to show which one has higher and which lower conservation value, based on the selected conservation criteria.
- Did you consider the MSFD in the site selection process?
 - No we did not consider MSFD but focused on target species and habitats according to BD.HD to select N2000 sites. We did not work with status assessments as such but assessed the conservation values of the areas. The task was to find out whether these criteria support designation of sites and where the borders of the sites should be.
- The total area of the three project areas is about 1/3 of the Lithuanian EEZ (ca.1600 km²). Designation of sites takes into account both, the reefs and long-tailed ducks.
- Was the importance of these sites for the network assessed?
 - No, but in Baltic Sea today still only a very few sites designated offshore. The designated reef area is an important stepping stone for reef species because there are very few hard bottoms in the area.

Assessment of costs for building a compliant marine monitoring programme

Economic analysis of marine biodiversity monitoring programme: factors determining the cost effectiveness of indicators

Kristina Veidemane, Baltic Environmental Forum Latvia

K. Veidemane introduced the aims and methodology used for economic analysis carried out in the MARMONI project and presented the results of the assessment of cost-effectiveness for some indicators and monitoring methods developed by MARMONI. She also presented the key findings and recommendations from MARMONI analysis:

- Taking into account extensiveness of MSFD monitoring and requirements, it is recommended that more resources are given to the monitoring programmes.
- Development of indicators and methods still needs to be continued and joint capacity building and training between countries would be recommended.
- New methods provide higher cost effectiveness in majority of cases but they still have lower confidence; therefore the current methods also need to be included in monitoring for calibration and verification.
- The cost effectiveness of indicators or monitored parameters is largely determined by the monitoring intensity – frequency and density of monitoring network; therefore coordinated actions for sharing costs in particular for field works would be recommended.
- The cost effectiveness assessment can help to build an optimal monitoring programme (to use equipment and staff resources to full extent).

Discussion:

- The total costs of the compliance scenario would be probably millions of euros. We should ask ourselves, are we able to achieve it and do we really need it? It should be analysed critically. May be some umbrella species could be used as indicators of the status of the sea?
 - The requirements are listed in the directives and reporting formats. It is a question to the European Commission whether we need to comply with all requirements/elements listed in directives and reporting formats.
- The current Commission Decision on criteria and methodological standards on good environmental status of marine waters has been criticized for important issues being missing, so there will be even more elements included. It is not known yet whether these requirements will be voluntary or obligatory. There is big gap between what we have to do and what we can do.
- We do not need to monitor everything but essential feature of marine biodiversity. E.g. if some bird species is declining we need to know why. Monitoring is needed to justify the management measures and assess their effectiveness. Monitoring is needed to find out problems and reasons for problems, who is responsible and what can be done about it.

- It is really hard to decide what to monitor. There was an increase of DDT in egg shells of sea eagles recently in Sweden but the reasons are not known. Sweden is trying to follow the demands of the directives very hard. However, the demands are changing but monitoring should not be changed very often.
- It is not only difficult to find out what should be measured but also to decide about the accuracy of measurements. Methodologies require unrealistic amount of replicates to achieve good confidence.
- Latvian budget for marine biodiversity monitoring is close to zero and usually the decision about what to monitor is based on the scarce resources available.
- MARMONI findings and recommendations should be delivered to policy makers.
 - Yes, but the MARMONI work so far has been focused on developing indicators but monitoring costs mainly depend on the number of stations and frequency of sampling, which has not been proposed by MARMONI.

Marine biodiversity assessment

Assessment of Conservation Status of species and habitats in the pilot areas of the MARMONI project.

Ainars Aunins, Latvian Fund for Nature

A. Aunins introduced the assessment methodology and presented the results of the assessment of the conservation status of species and habitats in the four MARMONI project areas.

The assessment methodology and reporting sheets for MARMONI project areas were developed based on Art. 17 of the Habitats Directive and Art. 12 of the Birds Directive. Some modifications were made because the assessment areas were not countries but project areas.

The main conclusions from the conservation status assessment were the following:

- Assessment is applicable to different scales. However, there are some difficulties concerning wide ranging species and setting «favourable reference values».
- Cross-border assessment is possible but «no data» on one side of border turn corresponding fields of joint assessment into «no data» too.
- Area assessment is possible using Favourable Conservation Status approach.

Development of Tool for assessing status of marine and coastal biodiversity and results of demonstration assessment of MARMONI pilot areas.

Georg Martin, Estonian Marine Institute, University of Tartu

G. Martin introduced the web-based MSFD marine biodiversity assessment tool developed in the MARMONI project and presented the results of demonstration assessment of MARMONI project areas.

The tool is available at <http://www.sea.ee/marmoni/index.php> and can be used by everybody (for starting an own assessment project, registration of a work group/project is needed). The tool uses a hierarchical approach and aggregates the indicators/assessment results on different levels. The system allows using different types of indicators. This type of tool is useful in case there are many indicators that need to be aggregated for an overall biodiversity assessment.

It is an easy to use, transparent analytical tool for performing MSFD compatible indicator based assessment exercise. However, it is data dependent, which means that operational indicators are needed and monitoring programmes feeding operational indicators have to be in place.

Further development possibilities of the tool:

- Update after revision of the Commission Decision on criteria and methodological standards on Good Environmental Status of marine waters;
- Possibility to expand to cover all MSFD Descriptors;
- Adding GIS module;
- Improvement of uncertainty assessment (adding uncertainty estimation of data coverage).

Discussion:

- At the moment different indicators were used for assessment of different project areas. To have comparable assessment for all areas, bigger number of indicators would be needed. However, hierarchical approach of the tool still enables to have a comparison.
- All indicator data and GES boundaries have to be inserted manually. There is no automatic system yet but it is possible to create.

Comparison of the *conservation status assessment* and the *indicator-based integrated biodiversity assessment*.

Ainars Aunins, Latvian Fund for Nature

A. Aunins gave an overview on differences in approach of assessment of Favourable Conservation Status (FCS) and Good Environmental Status (GES) as well as compared the assessment results for MARMONI project areas. The main conclusions were the following:

- Monitoring programmes established under one directive can make an important contribution for the collecting of data compliant also with the reporting requirements of another directive.
- Using a more complete list of indicators (for GES) with high confidence scores or species and habitats (for FCS) with known status ensures a more reliable outcome of the assessments.
- No methodological problems were encountered in applying the indicator-based integrated biodiversity assessment and the conservation status assessment at the project area scale.
- Both methodologies can be applied also for cross-border areas. However, for the FCS assessment, a lack of data for a specific parameter on one side of a country border results in an “unknown” conservation status for the parameter in question for the whole assessment area.
- The methodology for the GES assessment is more robust in this regard since the indicators to be used as input are not strictly defined and can be adjusted according to the availability of data.

Discussion:

- The conservation status assessment results are much better for an area than GES results. May be the missing GES indicators could be replaced with FCS info?
- If only bird indicators are used for assessing GES and habitats are not assessed then there is a risk that the conservation status of species will not remain favourable in case the habitats are not in good status. If the status concerning eutrophication will improve then conservation status of birds can go down (because their food resources will decrease).
- MSFD and Habitats Directive are not looking at the same things.

MSFD and Birds and Habitats Directives: towards a coordinated implementation

Anna Karasszon, European Commission, DG ENV

Anna Karasszon gave an overview on general background and current situation regarding implementation of the MSFD, introduced conclusions from the first reporting phase and informed about the further plans concerning the revision of the Commission Decision on criteria and methodological standards on good environmental status of marine waters.

The first assessment showed a generally low coherence between the Member States regarding GES definitions, initial assessments as well as setting targets and reference values.

As stated in the Workshop on the coordinated implementation of nature, biodiversity, marine and water policies in December 2014, the only way forward is a common agenda. Therefore it is planned to revise the GES Decision and align the requirements of the MSFD and Birds and Habitats Directives (BHD).

The aim of the GES Decision review is to make it clearer and simpler (including integration of some descriptors) and coherent with other EU legislation and regional sea conventions. It is planned to introduce minimum standards and include a clear and minimum list of elements and/or parameters per descriptor.

The aspects to consider for aligning the MSFD and BHD include elements for assessment, assessment criteria, reference points, aggregation scales and time period. Both the MSFD and BHD foresee 6-year reporting cycles but the next reporting for MSFD is in October 2018 and for BHD in July 2019. If all these aspects can be harmonised then there could be one assessment for the MSFD and BHD.

Discussion:

- Can GES be equal to FCS? The approaches are different and FCS of birds can be different from GES of a marine area regarding eutrophication.
 - The objectives of different directives are not as contradictory as it might sound. FCS of species and habitats contributes to GES of the ecosystem.
 - The species and habitats listed in the annexes of the Habitats and Birds Directives are mostly rare species/habitats that are not necessarily indicators of GES of the sea. This has to be considered when harmonising the directives.
 - The Birds Directive includes all wild birds, not only the rare species. The Habitats Directive is substantially different; it is designed to protect species and habitats for which EU is responsible. The marine lists of the Habitats Directive are not very good/comprehensive because of lack of knowledge. The problem is that the annexes of the Birds and Habitats Directives are not dynamic.
- Lack of coordination between the Member States (MS) in MSFD implementation has been criticised by NGOs. Are there any plans to facilitate the coordination of MSFD Programmes of Measures between the MS?
 - The European Commission has legal right to address the MS but not to give obligations on regional level. EC can give feedback to the MS, make recommendations, encourage the cooperation of the MS and point out the problems after the reporting. HELCOM and OSPAR are making efforts for harmonisation and cooperation.
 - Coherence/coordination between the MS on selection of indicator species (criteria used for selection) would be needed.
- The definitions of habitats can vary substantially between the MS. This should be considered when looking for a harmonised approach. If EC argues that there should be a regional harmonised assessment, then does HELCOM assessment satisfy the MSFD requirements? If everything is harmonised then only one report for the Baltic Sea would be needed?
 - HELCOM is discussing with EC about this. If HELCOM makes a GES report for the Gulf of Finland then both Estonia and Finland can report that. HELCOM is doing efforts to harmonise monitoring (the HELCOM Monitoring Manual) but some MS of course are doing additional national monitoring.
- EC could publish a comparative assessment of the MS assessments with comparative maps/pictures.
 - EC is also preparing regional reports that are sent to all MS of the region. MSFD includes obligation for regional cooperation but it is not specified who should coordinate it.
- There are differences between FCS and GES. When the comparison of the four study areas was made in MARMONI, we had different indicators. Should all MSFD annex III features be covered? How many indicators for each of these should be used? The result depends also on weight of indicators for different features, for example birds were overweighted in Hanö Bight assessment.
- Common Fisheries Policy (CFP) and its role regarding the MSFD?
 - Commercial fish species are included in the MSFD because they are part of the ecosystem. They need to be monitored because their state affects the state of the other parts of the ecosystem.
 - We want to combine all pressures and their effects on environment. But part of the commercial fish populations is removed every year. This is a resource, therefore the assessment approach is completely different.
 - The methods for assessment of commercial fish species can be imported from CFP. The aim was to incorporate fisheries in the ecosystem.
- The Baltic Sea is extremely dynamic, the changes can be in short time and all the changes are interlinked. The specifics of the Baltic Sea should be much more considered.
- The approach of using the extensive lists for defining GES is not a very good concept. Especially in a very dynamic, small sea area. Different definitions of habitats are not only the question of interpretation; there are also real differences in the environment. In a particular location a very small list of features can be assessed. Therefore it is may be not so wise to go to species level with harmonisation. Data have to be collected on species level but GES assessment requires aggregation.

- The nested system could partly help but it means again building up lists for certain small units. How to ensure comparability between units?
- Setting mandatory lists of species to be assessed is dangerous but coordination between the neighbours should be a must. If different species are used for the assessment then the reasons should be found out.
- The criteria/rules for selecting species and habitats for assessment should be agreed.
 - There are quite good criteria in CBD.
- Setting reference values is a topic for a full day seminar. In the MSFD there are no requirements concerning reference points. In the WFD the reference conditions are defined. MSFD also covers part of WFD areas, the assessments should be combined somehow. Several countries defined reference conditions on indicator level. If there is a wish to harmonise reference conditions, then this is a very big topic to discuss.
- OSPAR made a manual/guidance on implementation of Art 10 of the MSFD, which provides good general principles for target and baseline setting.

HOLAS II: project to develop a 2nd Holistic Assessment of the Ecosystem Health of the Baltic Sea

Lena Bergström, HELCOM

L. Bergström gave an overview on purpose of HOLAS II, the key features of the product, indicative timeline, the project structure and components, and the relation to the MSFD.

The main aims of HOLAS II are to follow up the Baltic Sea Action Plan (BSAP) and to serve as a regional roof report for the 2018 reporting of the MSFD. The timeline of HOLAS II is planned as 2015-2018, including development of tools and concepts, improvement of data flows and operationalization of core indicators in 2015-16; carrying out assessments and preparing the draft report in 2016-17 and consultation and finalising the report in 2017-18.

HELCOM Core indicators to form the basis for the assessment but also supplementary indicators and supporting parameters will be used. Thematic assessments for eutrophication, hazardous substances, maritime activities and biodiversity are produced as part of HOLAS II. The holistic assessment will also include data and results from assessments carried out in other HELCOM projects and activities. Pressure indicators and indices will be developed in parallel.

Discussion:

- In CORESET there are quite many indicators that will not be operational by the end of the project. How much are other indicators considered to be used?
- The first issue is the quality of indicators that will be used. The core indicators will be used because we need to use indicators agreed on a regional scale. If these indicators do not satisfy the needs then the problem has to be solved, e.g. by countries adding other aspects in reporting.

MARMONI summary and main conclusions

MARMONI team

Achieving of compliance with requirements of MSFD

- Systematic data collection should be carried out at MS level, in order to fulfil all requirements of MSFD.
- The previous monitoring schemes (and to some extent the new ones) are not able to provide all necessary data required for adequate indicator based assessments. Therefore:
 - use of “best available data” for the implementation of MSFD is not appropriate
- Further development of biodiversity indicators is still necessary to gain better coverage and representation of all biodiversity elements.
 - new data collection programmes and methods needed in the areas not covered by existing data collection schemes.

Uptake of new monitoring methods

- The increase of sampling effort to achieve better compliance with MSFD requirements using traditional methods and approaches will not cover all assessment needs, or will lead to a tremendous increase in monitoring costs. Therefore,
 - new methods and approaches proven viable by testing in MARMONI should be applied both to data collection, aggregation and assessment procedures.
- The utilization of automated methods, whenever applicable, should be considered for reducing the need for human resources, saving costs, as well as decrease possible subjectivity. However, the automated methods should be used in combination with conventional methods for calibration and/or verification purposes.
- The new methods are not substituting the conventional methods, but provide new information.

Harmonization of indicators & monitoring methods among the countries

- Harmonization of indicators and monitoring methods is recommended in order to reach comparable assessment results among different Member States.
- Assessment properties (GES definitions, reference conditions) for indicators should be defined for each assessment area separately and intercalibration between assessment areas should be done.
- Countries shall **put efforts in harmonization** of indicators and methods – exchange of information is not sufficient. Harmonization is easier in new developing topics (e.g. biodiversity) – we should use this opportunity.

Quantity of indicators necessary for ensuring proper assessment (GES)

- Despite the tendency of member states toward limiting environmental assessments to a few commonly agreed indicators (e.g. at regional sea level), **the project recommends the application of a higher number of indicators, especially in assessment of marine biodiversity**, to increase the representativeness of assessments and be adjustable to area specific conditions.
- The indicators should preferably be evenly distributed between different MSFD descriptor 1 criteria and cover all or most of the relevant biodiversity components and elements.

Scale of assessment areas

The size and geographical location of an assessment area have an important implication on the assessment procedure:

- The sea basin approach might be more suitable for marine ecosystem. However this calls for stronger international cooperation and inter-calibrated data collection than has been performed so far.
- Larger assessment areas usually have more data and operational indicators available. On other hand adequate spatial aggregation procedures needed for too large areas.
- Variation in the environmental conditions related to geographical features needs to be considered when defining the borders of assessment areas.
- The choice of appropriate scale of assessment unit depends on purpose of assessment:
- Transnational/Baltic wide approach is more appropriate to assess status of species populations with large distribution areas (e.g. seals, several bird species). The conservation status of the populations can often be effectively maintained or improved only by large-scale management plans, because populations are affected by various additive pressures in different regions of the Baltic Sea or even outside the region.
- Assessment units based on national borders or Baltic Sea sub-regions are more appropriate to assess the status of particular area.

Interrelation of GES and FCS assessment

- Although the established reporting units and reporting parameters of the HD & BD reporting cannot directly be used as indicators in GES assessments and vice versa, the **indicators can often be calculated from the same data sets**. This is particularly true with regard to bird data.

The overall conclusions:

Since most of the MARMONI indicators mostly do not have regional restrictions to their applicability in different areas of the Baltic Sea, **we recommend application of the MARMONI indicators in marine monitoring programmes**, in order to increase the ability of the programmes to meet the assessment needs according to the MSFD and benefit the regional harmonization of monitoring programmes.

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