OSPAR COMMISSION

Report of the EIHA Common Indicator Workshop

Biodiversity Series

2013

OSPAR Convention

The Convention for the Protection of the Marine Environment of the North-East Atlantic (the “OSPAR Convention”) was opened for signature at the Ministerial Meeting of the former Oslo and Paris Commissions in Paris on 22 September 1992. The Convention entered into force on 25 March 1998. The Contracting Parties are Belgium, Denmark, the European Union, Finland, France, Germany, Iceland, Ireland, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Convention OSPAR

La Convention pour la protection du milieu marin de l'Atlantique du Nord-Est, dite Convention OSPAR, a été ouverte à la signature à la réunion ministérielle des anciennes Commissions d'Oslo et de Paris, à Paris le 22 septembre 1992. La Convention est entrée en vigueur le 25 mars 1998.
Les Parties contractantes sont l'Allemagne, la Belgique, le Danemark, l’Espagne, la Finlande, la France, l’Irlande, l’Islande, le Luxembourg, la Norvège, les Pays-Bas, le Portugal, le Royaume-Uni de Grande Bretagne et d’Irlande du Nord, la Suède, la Suisse et l’Union européenne.

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1. Introduction

1. On 25 – 26 February 2013 the EIHA Common Indicator workshop took place in The Hague, The Netherlands. The workshop was chaired by Lex Oosterbaan, chairman of EIHA and was attended by 24 participants from Denmark, European Commission, France, Germany, The Netherlands, Portugal, Sweden and the United Kingdom (Annex 1: List of participants).

2. Contracting Parties that are also EU Member States have reported to the EC their Initial Assessments, Good Environmental Status and Targets and Indicators for the first MSFD Cycle. OSPAR wide, regional, GES determinations, targets and indicators have been documented in the "Finding Common Ground" report at the OSPAR Committee meeting in 2012.

3. Next stage is to develop monitoring plans either nationally or regionally coordinated OSPAR monitoring programs, depending on the indicator, and future assessments towards 2018, the start of the next MSFD Cycle.

The aims of the workshop were[1]

- To identify a common set of indicators for each Descriptor under the remit of EIHA, both indicators presented with targets by the CP in their MSFD reports as well as indicators to be further developed;
- To discuss practical monitoring needs for these possible indicators;
- To consider gaps in indicators and where new indicators might need to be developed;
- To keep track of any upcoming knowledge gaps (to be fed into OSPAR Science Needs Agenda[2]);

The Descriptors/indicators under the remit of EIHA are:

- D2 - Non-Indigenous Species (pressures)
- D7 - Hydrographical conditions
- D10 - Marine Litter
- D11 - Noise and other forms of Energy

4. Since many countries are already working on their MSFD monitoring plans, clarification of the commonality of indicators at this stage is important to establish priorities with regard to supporting and establishing future monitoring programmes. Programmes should have consistent methods across the OSPAR regions or sub-regions so as to facilitate comparability of monitoring results. Therefore, the results of this workshop will be fed into the review of the Joint Assessment and Monitoring Program (JAMP) in 2013 – 2014.

5. Based on the outcome EIHA will define work products in order to further develop specific indicators, including monitoring needs, taking into account action points defined in Common Ground report and as developed at this meeting.

6. In practice this means that the outcome of this workshop will be presented to and further discussed at the EIHA meeting in April this year and the ICG-MSFD meeting in March. At the Coordination Group Meeting in May a combined list of common indicator across OSPAR, including their monitoring requirements, will be agreed and forwarded for approval to OSPAR Committee meeting in June.[3]

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[1] At the meeting a question was raised if common "targets" would also be discussed; according to the group this was not the case as this would require a different type of discussion. However, it was recognized that there is a link between types of common indicator and targets.

[2] Introduced through a presentation by Lisette Enserink (The Netherlands), co-lead of the OSPAR Science Needs Agenda

[3] Under consideration is the organization of an ICG MSFD workshop in May 2013 where all MSFD indicators would be looked at.

Way of working

7. In order to prepare for the workshop an inventory was made of what CP's/MS have reported to the EC, both indicators presented with targets as well as indicators to be further developed. Annex 2 presents the way of working at the workshop. For each Descriptor a convener was appointed. Discussion took place within Descriptor breakout groups in three steps:

A. Indicator summary information

B. Criteria for selection of OSPAR Common Indicators

C. Checklist on monitoring related needs

2. Results

8. Annex 3 presents (in Excel sheet format) the outcome of the discussions at the different breakout groups. Below follows a description of the common indicators or candidate common indicators with the highest potential, as well as an overview of future work.

D2 - Non-Indigenous Species (pressures)

9. This group was chaired by Kylie Bamford (DEFRA/UK) and reported by Frank van den Ende (I&M-RWS/The Netherlands).

Indicator	Name	Description	Category
2.1.1	'Risk management of key pathways and vectors of introduction of NIS'		Candidate

10. There was some comparability between Contracting Parties regarding pressure indicators for managing the pathways and vectors of introduction of NIS. It is apparent that there is a fundamental lack of monitoring and data available to ascertain baselines at this time. Through discussions a number of clear work areas were identified to ensure that indicators are implemented in a consistent manner.

2.1 Abundance of NIS

2.1.1 Trends in abundance, temporal occurrence and spatial distribution in the wild of non-indigenous species, particularly invasive non-indigenous species, notably in risk areas, in relation to the main vectors and pathways of spreading of such species.

Candidate indicator:

'Risk management of key pathways and vectors of introduction of NIS'

11. This candidate indicator reflects the approach taken by a number of CP's to activity manage and reduce the rate of introductions. Discussions centred around three key pathways; ballast water, biofouling and aquaculture although it was recognised that these are not the only high risk pathways of introduction. The group identified the need to develop a risk based criteria for selection of pathways to be managed and hot spot areas for monitoring to take place. This will ensure CP's to develop specific management measures for the high risk pathways and ensure accurate baselines in which to measure achievement of the indicator.

12. Specific monitoring at hot spot locations will also assist the baseline development for the state indicator developed through ICG COBAM which is considering a trend based indictor which aims to reflect the rate of increase or decrease of new introductions of NIS.

13. At present, this indicator (both pressure and state) is under developed. Whilst some monitoring by CP's may be in place by 2014 which will inform the development of this indicator, it is unlikely that agreement on a common core indicator for D2 will be possible in before 2018.

14. Further steps:

- EIHA should activity participate in the technical working group within ICG COBAM;
- A risk based criteria should be developed to highlight key pathways of introduction and hot spot areas for monitoring to ensure a consistent approach across CP's;
- Links should be made between this work area and other key work areas tackling NIS such as IMO ballast water measures, IMO biofouling guidelines, monitoring under the Water Framework Directive, EU Alien Directive;
- Development of EU/OSPAR 'black list' of species which is consistently used across CP's;
- Consider central data repository for NIS monitoring including an early warning system;
- Further consideration of indictor and links to monitoring/measures once CP's have collected initial data, and understanding has increased.

2.2 Impacts of NIS

2.1.1 Ratio between invasive non-indigenous species and native species in some well studied taxonomic groups (e.g. fish, macroalgae, molluscs) that may provide a measure of change in species composition (e.g. further to the displacement of native species).

2.2.2 Impacts of non-indigenous invasive species at the level of species, habitats and ecosystem, where feasible.

15. No indicator was proposed.

D7 – Hydrographical conditions

16. This group was chaired by Jon Rees (CEFAS/UK) and reported by Anne-Marie Svoboda (I&M-RWS/The Netherlands).

Indicator	Name	Description	Category
7.1.	Extent of area affected - physical	Area (m2) of activity + physically impacted area around it *e.g*. salinity, stratification, bottom stress, tidal range. Define area affected and define baseline value for each parameter	Common
7.2.1	Spatial extent of habitats affected	Use this indicator in the areas defined by 7.1.. Assess impacts on different habitats in the area based oat EUNIS 3 level. Assess impacts on any vulnerable or sensitive habitats.	Candidate
7.2.2	Changes in habitat functions	Spawning, migratory patterns, breeding, feeding areas due to altered or changed hydrographic (hydrodynamic) conditions. Biomass, spawning stocks, breeding , feeding area, migration routes, species composition of habitats/benthic fauna	Candidate

7.1 Extent of area affected – physical (Common)

17. The extent of the area affected is the indicator most commonly accepted by Contracting Parties for D7. This comprises the physical properties, such as salinity or stratification. However, this indicator is not applicable yet. First of all, the 'area affected' needs to be defined. A baseline study is also needed for optimal use of a modelling approach to design post-construction monitoring strategies (for large infrastructure projects). A threshold value of more than 5% change in that particular parameter/GIS layer is proposed, on

top of natural variability. This would identify which areas to monitor for biological change. Furthermore, the temporal impact needs to be defined. The focus should be on significant activities such as Infra-structure projects, in other words, any activity leading to a severe affect. Cumulative impacts and in combination effects identified in the EIA allow specific pressures to be identified.

18. In practice, the EIA process could allow optimization of the design and identification of potential mitigation measures using a modelling approach or semi quantitative estimation. EIA processes should be checked if this information is readily available. Further development needs are more work on methodologies, standardization, analytical techniques, with definitions of significance. For application, a framework is necessary. New (EIHA) guidelines could establish a process in the first instance, then 6-year MSFD reviews would establish if guidelines are fit for purpose. Finally, there is access needed to web services internationally to establish pressures and impacts. There is a clear need to collate information from EIA based monitoring. EMODNET was suggested as a good example.

7.2.1 Spatial extent of habitats affected (Candidate)

19. This indicator is in concept used by many Contracting Parties, but the way it is implemented is not that common. Therefore it is a good candidate, but much further work is needed. This indicator can be used in the area defined by 7.1.1. For each habitat in the EUNIS 3 level, the vulnerability or sensitivity should be defined by direct and indirect influences. Habitat models could be used, however, these are still under development. Parameters could be m^2 and/or % of habitats affected, species abundance, biomass and biodiversity. Differentiate between special habitats or predominant habitats. This indicator will follow on from 7.1.1 and therefore the specific pressure and the significance of this pressure can be identified.

20. Just as for 7.1.1, the EIA process could allow optimization of the design of the activity and potential mitigation measures using a habitat modelling approach or semi quantitative estimation. Some parties do not have this indicator at all, other parties propose to use numerical modelling, others habitat monitoring. Therefore, more work is needed on guidelines for methodologies, standardization, analytical techniques, with definitions of significance.

7.2.2 Changes in habitat functions (Candidate)

21. This candidate indicator is still under development for most Contracting Parties. It comprises habitat functions such as spawning, migratory patterns, breeding, feeding areas due to altered or changed hydrographic conditions. Therefore, parameters are biomass, spawning stocks, breeding and feeding areas, migration routes, species composition of habitats/benthic fauna. There is no one threshold possible due to multiple functions/species and site specific nature. These parameters are complex and not easily accessible from EIA's, so therefore there is much more work needed to make this indicator applicable.

22. Also for this parameter there is a cascade, 7.2.2 will follow on from 7.2.1 and therefore the specific pressure and the significance of this pressure can be identified. At present the indicator could not be used in the development and/or evaluation of management measures. Locally it would be possible at the EIA level through mitigation measures.

23. In practice, this indicator is very complicated, but could be practicable for specific parameters, *e.g*. for migration routes, but not in a total ecosystem response way. There is not yet enough comparability between Contracting Parties, and much more research is needed to allow assessment at a (sub) regional scale. Possible synergies exist with other indicators which need to be explored *e.g*. 6.2.2 Benthic.

24. Additional remarks/future work:

- Why not apply SEA for multiple large infrastructure projects with cross border effects instead of plans/programmes only? (is there a need to adjust the Directive?)

D10 – Marine litter

25. This group was chaired by Thomas Maes (Cefas/UK) and reported by Machteld Schoolenberg (I&M/The Netherlands).

Indicator	Name	Description	Category
10.1.1	Beachlitter		Common
10.1.2/ 10.2.1	Fulmar (floating/impact)		Common
10.1.2	Seabed		Common
10.1.3	microplastics		Candidate

Additional reference: JRC 2011: Marine litter: Technical Recommendations for the implementation of MSFD requirements ("TSG ML 2011 report").

10.1.1 – Beach litter (common indicator)

26. This indicator is a pressure indicator and has been (voluntary) monitored within OSPAR for more than 10 years already. The OSPAR Pilot Project on Monitoring Marine Beach Litter (2000– 2006) was the first region-wide attempt in Europe to develop a standard method for monitoring and assessment of trends of marine litter on beaches in the OSPAR area. The OSPAR Beach litter monitoring protocol was adopted by the OSPAR Commission in 2010 and nowadays the monitoring system is implemented in nine countries – Belgium, Denmark, France, Germany, the Netherlands, Portugal, Spain, Sweden and the United Kingdom. A network of experienced people applying a standardized system is available within the OSPAR region and it would be sensible to utilize these existing resources for MSFD requirements.

27. Marine Beach Litter Monitoring is a relatively cheap monitoring program; however it provides a valuable amount of data. The monitoring method developed within OSPAR can be used to monitor quantities, composition and trends of marine litter on beaches in the North East Atlantic region. Beach surveys provide important information but not necessarily the full picture of the total load of marine litter in the coastal and marine environment.

28. However, due to its region-wide scope, the methodology and findings of the OSPAR beach litter surveys have provided a major step forward in the analysis and better understanding of the sources and trends of marine litter in North-West Europe by following indicator items. Nevertheless this has only provided a snapshot of the extent of marine litter pollution. Further surveys and analysis of the results of the assessment should be carried out for a more comprehensive picture of marine litter pollution in the North-East Atlantic.

29. So far, no objective evaluating tool for marine litter on beaches is available in the OSPAR region but in the view of EIHAWKIN the OSPAR Marine Beach Litter Monitoring provides this tool for the first time and thus it became our prime common indicator for D10.

30. Surveys of litter on beaches are a primary tool for monitoring the load of litter in the marine environment and have been used world-wide to quantify and describe marine litter pollution. Although it is not always pressure specific, counting the number of individual items provides the best, easiest and cheapest information for formulation of management measures at all levels (linking items to specific sources and uses, although not always straightforward). It is also the most practical method; other additional methods can be valuable: *e.g*. the assessment of the weight of the items found.

31. The beach litter monitoring surveys should take place on selected beaches which are marked by reference landmarks or GPS coordinates. The entire 100 m beach stretch should be surveyed (at least two times a year) from the tide line to the structures forming the border of the back of the beach (dunes, sea wall *etc*.). Litter items found on the beach should be registered using a standard list of items. All the items should be counted.

32. The identification of items should be assisted by the use of a photo guide which is included in the guidelines. During the monitoring session the litter should be removed from the beach. No lower size limit is proposed, litter items smaller than 2.5 cm could be assessed additionally (in line with the NOAA protocol)

using the method for meso-litter on beaches. An OSPAR Beach litter monitoring protocol was adopted by OSPAR Commission in 2010.

33. Running (statistical) research projects are expected to supply some new information on selection of sites and frequencies of surveys. A master list of items to be surveyed on beaches is being developed by the TSG ML and will soon be finalized, which could also be applied to other compartments of the marine environment. The method is relatively cheap (especially when using volunteers). Procedures for quality assurance and quality control (as well as a Database) are in place for OSPAR and will be further developed using concepts developed by NOAA (US).

34. Additional remarks/Future work:

- future development of statistical assessment criteria and methods
- QA/QC: data management

10.1.2 (floating litter) and 10.2.1 (impact on biota): Plastic particles in stomachs of Fulmars (common indicator)

35. Considered as both a pressure indicator (for floating) as an impact indicator (impact on biota; in relation to ingestion). The methodology of this tool is the OSPAR Ecological Quality Objective (EcoQO) for litter particles in stomachs of northern fulmars (*Fulmarus glacialis*). EcoQO threshold: 10% of birds > 0.1 gr.

36. The stomach contents of beached northern fulmars are used to measure trends in marine litter. The technical requirements are described in detail in documents related to the fulmar EcoQO methodology (Dead birds are collected from beaches; continuous sampling; a sample size of 40 birds or more is recommended for a reliable; size range: >= 1 mm (stomach contents are rinsed over 1 mm mesh sieve). Survey frequency: annual average for a particular area.

37. However, also years of low sample size can be used in the analysis of trends as these are based on individual birds and not on annual averages. For reliable conclusions on change or stability in ingested litter quantities, data over periods of 4 to 8 years (depending on the category of litter) is needed. The methodology referred to in this report is based on an agreed OSPAR methodology which has been developed over a number of years.

38. For each litter category/subcategory the

(1) incidence;

(2) abundance by number (count of number of items); and (

3) abundance by mass (weight in grams)

is assessed. Trend assessment is based on statistical tests of linear regressions of in-transformed data for the mass of plastics against year of collection in individual stomachs. The indicator is specific to floating items, significant especially for certain pressures (*e.g*. fishery, shipping), however it is difficult to link to specific items.

39. The tool is applicable to the MSFD marine regions where fulmars occur; the Greater North Sea, the English Channel, and the Celtic Seas. For other regions Shearwater might be used (to be further developed).

40. Additional remarks/future work

- no database at OSPAR level; currently held by IMARES in the Netherlands
- ascertain QA/QC (analyses more nationally managed; training workshops required; change management though EIHA/ICG ML)
- Other biota to monitor required due to regional differences in availability

10.1.2 Seabed/IBTS (Common Indicator)

41. Just like beached litter, litter on the seabed aggregates locally in response to local sources and bottom topography. Surveys of macro litter loads on the seabed can be conducted by using trawl surveys designed for fish stock assessments. Monitoring cost are relatively low as marine litter monitoring is effectively a by-product of the original fish survey. This method is the most adequate method to date, although quantities of litter might be underestimated. It should be considered as a method for estimating relative litter densities rather than absolute densities.

42. Constant trawl widths are required, but due to the variation in bottom types, each country uses different gear. With the sampling protocols, however, a significant level of standardization is achieved and all countries are using the same sampling strategy. Details on protocols are available for each country and need to be taken into account for final assessments. General strategies to investigate seabed litter look at abundance and nature (*e.g.* bags, bottles, pieces of plastics) of items rather than their mass. At the moment several contracting parties have indicated they will use their fish stock surveys for benthic litter monitoring and thus it became a common indicator at EIHAWKIN.

10.1.3 Microparticles – (Candidate indicator)

43. Monitoring for microplastics will have to take place across Europe to address D10 properly. In that way it will become a common type of monitoring, but unfortunately the evidence to guide towards one type of standardised monitoring/best practice is still been gathered and thus no common method can be brought forward at this point. Research and monitoring are still under development.

44. Additional remarks/future work (for all litter indicators):

- Circumstantial indicators: evidence which can be collected, but falls outside of routine monitoring *e.g*. CPR, whale stomach content, *etc*.
- Check against baselines or moving averages?
- Statistical significance of marine litter surveys: what can we realistically detect with our programmes (Power of Programme far below targets we might want to aim at)
- Response times are longer then MSFD cycles
- Watercolumn monitoring relevant? Litter will be cast on beaches or sink so monitoring the watercolumn might become obsolete
- FFL as monitoring tool? Not too much variability and unknowns in data so rather sensibilisation and removal then monitoring.

D11 Noise and other forms of Energy

45. This group was chaired by Sandra van der Graaf (I&M-RWS/The Netherlands) and reported by Frederieke Knoppert (I&M-RWS/The Netherlands).

Indicator	Name	Description	Category
11.1.1	Impulsive noise		Common
11.2.1	Ambient noise		Common

11.1.1 - Impulsive noise (common indicator)

46. This indicator is a pressure indicator, the parameter is the “Distribution in space and time of activities generating loud, mid- and high- frequency impulsive sounds”. The indicator addresses the cumulative pressure of impulsive-sound generating activities and possible associated displacement, rather than that of individual projects (which should be dealt with in EIA). Activities that fall under this indicator are: pile-driving, explosions, airguns, low-mid frequency sonar and low-mid frequency acoustic deterrents.

47. The initial purpose of this indicator will be to assess the pressure, *i.e*. an overview of all loud impulsive low and mid-frequency sound sources, through the year and through areas. This will enable MS to get an overview of the overall pressure from these sources, which has not been achieved previously. A first step is to establish the current level and trend in these impulsive sounds. This should be done by setting up a register of the occurrence of these impulsive sounds. Eventually, the register can be used as a planning-tool.

48. At present the indicator is under development by the TSG Noise, but it is expected that the indicator will be fully developed mid-2013. The indicator is very practicable because it makes use of existing information and can be applied throughout the OSPAR region. Many CPs have indicated that they intend to use the indicators as developed by the TSG Noise (DE, DK, FR, UK, NL, SE). The indicator is thus proposed as a common indicator.

49. Additional remarks/future work:

- OSPAR should consider to host the register and carry out joint regional assessments

11.2.1 - Ambient noise (common indicator)

50. This indicator is a pressure indicator, the indicator measures the ambient noise level. The indicator addresses the cumulative pressure of anthropogenic continuous low frequency sound input, in particular by shipping. This type of noise may mask biologically significant sounds and behavioural reactions. The initial purpose of this indicator is to assess the pressure. This will be done by producing sound maps, based on models and data from monitoring stations. It is essential that member states sharing a (sub)region work together to set up a monitoring programme.

51. At present the indicator is under development by the TSG Noise, but it is expected that the indicator will be fully developed mid-2013. The use of a combination of modelling and measuring is very powerful and makes the indicator practicable and cheaper. However, no systematic measuring is existing yet, so this will have to be set-up and involves additional costs. Many CPs have indicated that they intend to use the indicators as developed by the TSG Noise (BE, DE, FR, UK, NL, SE). The indicator is thus proposed as a common indicator.

52. Additional remarks/future work:

- OSPAR regions to sit together and jointly design an ambient noise monitoring programme for each region (*e.g*. number of monitoring points), based on the advice of the TSG Noise.
- Consider the need for a shared database of monitoring to facilitate regional assessments

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Annex 2 - Information for workshop convenors for selecting OSPAR common indicators

The objectives of the workshop are to select and describe common indicators in a way that is uniform across all OSPAR committees and their subsidiary bodies. The following description of objectives and definitions and expected results is taken from the terms of reference on the process for development of common indicators and associated monitoring needs (COG November 2012):

Objectives and definitions

This work concerns 'indicators':

The definition of an indicator is "a specific attribute of each GES[4] criterion[5] that can either be qualitatively described or quantitatively assessed to determine whether each criterion meets good environmental status and/or (interim-) targets, or to ascertain how far each criterion departs from GES and/or (interim-)targets."

whose purposes are:

- *To allow MS/CP to make assessments at (sub-) regional scale (of common features), including national waters; and*
- *as a basis for regional coherence of monitoring programmes (cf. Art. 11), across the entire range of DPSIR features of interest to Contracting Parties.*

where the word 'common' is used to mean that:

- *the indicator is applicable at the national level, at the region or sub-region level (as appropriate) including individual countries (or their relevant subdivisions), representing – in the case of biodiversity and ecosystems - the basic skeleton for Member States/Contracting Parties' assessment;*
- *as much as possible common methodologies should be achieved for use from the start of monitoring;*
- *with the ambition to cover in practice all countries, so that the development process should be guided by the highest number of countries with an interest in a particular indicator;* and

in the understanding that "candidate" indicators need further development before being adopted as 'common indicator' (such development can include monitoring tools and approaches). High-potential candidate indicators should be developed without further delay in a phased approach.

Expected results

In 2012-13 the main aim is to present to OSPAR 2013, through the work of the Committees, and their subsidiary bodies and ICG MSFD, and after vetting by CoG May 2013, a combined list of common indicators across OSPAR, including their monitoring requirements, with an indication of (sub)regional importance to feed into the review of the JAMP in 2013-2014 (see also CoG agreement on a possible OSPAR consultation meeting in April 2013).

[4] 'Good Environmental Status' – See MSFD Art. 3(4)(5), Art. 9 and Annex I.

[5] Including countries' choices in respect of Art.10, *i.e*. there are possible common indicators for features that are not mentioned explicitly in the MSFD or the COM Decision 477/2010/EC, when they are seen to fulfill a role in monitoring progress towards GES.

Process – practical steps for the workshop

Note: the given time frames are just an indication.

1. The first step is to make an inventory of the indicators that will be used by the contracting parties/member states for the MSFD descriptor concerned. Ideally this is already available from the questionnaire sent by the OSPAR secretariat, but this probably will have to be completed in the workshop. There will be large sheets on the wall, with an overview of the indicators that are already known. The group can spend approximately 20 minutes going over this overview and completing where necessary.
2. For each of the indicators a description should be filled in part A of the excel-format, if this is not already done. For this process an excel-format will be available and a laptop and beamer to allow filling the format during the workshop. There will be a rapporteur present to fill out the excel sheet.
3. The next 20 minutes can be spent selecting those indicators that are shared by at least several contracting parties. Because of limited time, try to prioritise the indicators, so that the best 'candidates' can be worked out.
4. For each indicator selected in step 3 answer the questions concerning the criteria for selecting common indicators. For this process, the rapporteur can fill out part B of the excel-format.
5. Indicators meeting all criteria are considered common indicators or candidate common indicators (when further development is needed). If not all criteria are met but the indicator is nevertheless considered a useful (candidate) common indicator, please indicate why it is still proposed.
6. For candidate common indicators specify the needs for operationalisation.
7. If there is time fill out the checklist on monitoring related needs for indicators considered common indicators or candidate common indicators (part C of the excel-format).
8. The workshop convenor can provide a short summary at the plenary afterwards.

Elements in the excel-format:

Part A. Indicator summary information

1. Indicator name;
2. Description;
3. Relevant to descriptor, criterion and/or indicator proposed in commission decision;
4. Type (State, impact or pressure);
5. Status (Existing or under development).

Part B. Criteria for selecting OSPAR common indicators

1. Is the indicator sensitive to *significant* and *specific* pressures?

Specific refers to the response of an indicator to a single pressure. This question is especially relevant for state indicators. This enables the use of state indicators to identify pressures and aids the identification of appropriate management measures.

Significant refers to selecting indicators that respond to pressures with known or potential threat to a species, functional group, habitat or ecosystem. This is to direct monitoring efforts towards detecting impacts of *predominant* threats.

2. Is the indicator relevant for development and/or evaluation of management measures ?

An indicator relevant for management informs on the pressure and supports the development of management measures. Another aspect of relevance is the response time *i.e*. the elapse between measures taken and response of an indicator. [sensitive to measure the effects of management measures]

3. Is the indicator practicable?

The consideration of practicability includes methodological aspects of the measurement and assessment, costs of monitoring, whether the indicators can be based on existing monitoring, and whether one and the same monitoring effort can be used as a basis for several different indicators. See also checklist on monitoring needs.

4. Is the indicator applicable across the region/sub-region?

Common indicators should be applicable across the OSPAR area, acknowledging that in some cases regional specifications, *e.g*. of relevant species and habitat, will be necessary to fill the indicator with relevant parameters.

5. Does the indicator contribute to a representative set of indicators?

As a set the indicators should respond to the MSFD requirements (criteria and indicators of 2010/477/EU) and enable a representative state assessment of all important ecosystem components.

6. What is the degree of consensus among Contracting Parties?

Degree of consensus among Contracting Parties refers to the number of CP that already apply the indicator/ number of CP that intend to use this indicator/ consider development of the indicator useful.

Level at which there is (no) consensus (*e.g*. analytical methods, species selection, sampling matrix *etc*). if there are differences between CP, is there sufficient comparability to allow assessment at a (sub-) regional scale?

This criterion should be used as a complementary criterion. High consensus supports the inclusion of an indicator as a common indicator. Low consensus should on the other hand not be used as an exclusive argument for excluding an indicator if it fits the other criteria. If low specify why the indicator still qualifies as a (candidate) common indicator.

Part C. Checklist on monitoring related needs.

CHECKLIST	INFO FOR THIS INDICATOR
	Possible answers *e.g.*: OK / possibly problematic (specify if possible) / not problematic but still to be addressed.
1. Is the **assessment question**(s) and the objective and purpose of any monitoring clear?	[*default here should be OK if the indicator is clearly spelled out*]
2. Is the **monitoring strategy** (spatial temporal coverage in relation to statistical demands **and representativity**) clear?	
3. Are the **monitoring parameters** determined (incl. any necessary control variables[6]) in relation to the assessment need?	
4. Are adequate[7] **sampling or observation methodologies** available?	
5. Are adequate7 **analytical methodologies** available?	
6. Are **QA/QC methods** available?	
7. Are assessment tools available (as the case may be: **statistical analysis** tools, **assessment criteria**)	
8. Has the scope for **pooling** monitoring infrastructures and **resources** been established?	
9. Are there arrangements for the monitoring **metadata and data management** at national level and at OSPAR level, **georeferencing** of the data	
10. Is it clear how **change management** (modifying important features such as adding or removing parameters, changing coverage) should be addressed at OSPAR level?	
11. Any other concerns?	

[6] Such as those necessary to document the relationship with status or changes in the prevailing conditions that might affect the monitoring parameter (*e.g.* GES Descriptor 1).

[7] 'adequate' means 'fit for purpose in the context of the agreed collective assessment objectives'

A1 - D2 indicator

A2 - D7 indicators

A3 – D10 indicators

A4 – D11 indicators

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