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Background

An update on work taking place related to HELCOM waterbird indicators was provided to STATE & CONSERVATION 12-2020 ([document 4J-13](#)). The indicator lead was requested to address specific issues and clarify the work ahead (State and Conservation 12-2020, [Outcomes paragraph 4J.36 and 37](#)).

The response (Annex 1 of this document), shared intersessionally with State and Conservation contacts, has here been compiled with the original indicator work plan as well as the text of document 4J-13 from State and Conservation 12-2020 (**red text** within the work plan). Some additional text for clarification has also been included (also in **red**). This has been carried out to maintain all information in a single place and to clarify the issues raised previously.

Action requested

The Meeting is invited to take note of the information provided.

Waterbirds – a Work Plan for future work on HELCOM indicators

Red text reflects further detailed information or clarifications made after discussion at JWGBIRD, and as presented at State and Conservation 12 ([document 4J-13](#) and [Outcomes paragraphs 4J.36 and 37](#)). The work on HELCOM waterbird indicators will be carried out by the HELCOM indicator leads in cooperation with the HELCOM Experts involved in JWGBIRD. All work on HELCOM waterbird indicators will follow the agreements put in place under the 'Future work on HELCOM indicators' process, for example the established deadlines and the initial placement of effort on identified priority areas and primary MSFD criteria. An annex including further details on the process underway with JWGBIRD is provided below.

What is the optimal assessment?

An optimal assessment would address the Baltic Sea Action Plan (BSAP) and fulfil the primary Marine Strategy Framework Directive (MSFD) criteria on bycatch and abundance, and further if possible breeding success (and other demographic parameters), distribution, and habitat quality for waterbirds, which support secondary MSFD criteria. These separate components contribute to a broader understanding and assessment of the Baltic Sea Action Plan (BSAP) goals and objectives of a **favourable status of Baltic Sea biodiversity**, thriving and balanced communities of plants and animals, and viable populations of species. An overview of these aspects is considered in the [Topic Summary](#). However, bycatch is considered in a separate work plan and is considered to be a topic of high priority.

What will be achieved by HOLAS III (e.g. operational indicators by autumn 2021), and how?

Two indicators for waterbirds were used in HOLAS II, the 'Abundance of waterbirds in the breeding season' and the 'Abundance of waterbirds in the wintering season' HELCOM core indicators. Both are essentially operational, though some adjustments could be applied to make improvements. **Work on the priority areas of abundance (e.g. MSFD D1C2) and by-catch (e.g. MSFD D1C1, see separate work plan), these also being primary MSFD criteria, will be the major focus of efforts to ensure good progress on these aspects is made.** Other identified work will be carried out by the indicator leads (and via cooperation in JWGBIRD) to further develop possible approaches for the assessment of other important components of waterbirds in the ecosystem, though not at the expense of identified priority areas, and all such developments will be presented to State and Conservation for their approval during 2021 (e.g. to define how and to what level they can be utilised in HOLAS III).

The following improvements can be anticipated by HOLAS III:

A solution will be found, with support from the Secretariat, to provide a placement for lists of species of relevance to the indicator work so as to complement the indicator assessment with the regionally reviewed species lists.

Abundance indicators (e.g. MSFD D1C2) – main priority area

Treating breeding and wintering waterbirds separately, two core indicators assessing abundance have been developed in the HELCOM projects CORESET I and II (lead by Germany and co-lead by Sweden and Finland), followed by refinement by JWGBIRD: "[Abundance of waterbirds in the breeding season](#)" and "[Abundance of waterbirds in the wintering season](#)". Both indicators were applied successfully in HOLAS II, with assessments done on two geographical scales – the entire Baltic Sea and seven subdivision consisting of merged subbasins (HELCOM 2018 Indicator reports, at links above). However, the results were presented only for the coastal parts of the Baltic, because breeding birds are restricted to nearshore waters and offshore data of wintering waterbirds were not available for most of the Baltic.

Meanwhile, JWGBIRD has developed a method to combine data from land-based counts of wintering waterbirds with aerial and ship-based surveys in the offshore sections (ICES 2016). Therefore, the wintering waterbird abundance indicator is well prepared to include species ranging off the coastal sections of the Baltic. An improved assessment based on offshore data from 2016 (also scheduled for 2020), and if possible supported by offshore data from 2007-2009 (surveys from SOWBAS project that may provide supporting information).

In both waterbird abundance indicators, further work is required to define appropriate baselines. Currently, the first decade of data availability (1991-2000) is used as a reference period.

An improved understanding and linkage between observed results/trends and the causative factors, following initial analyses by JWGBIRD will also be explored.

Demography indicators (e.g. MSFD D1C3) – additional development work carried out by leads and under JWGBIRD

No indicator covering this MSFD criterion is available for HELCOM. A candidate indicator “Breeding success in guillemots of Gotland” has been proposed in BALSAM WP3, but no development has taken place. Further, breeding success was addressed in earlier versions of the indicator on breeding waterbird abundance, but only descriptive rather than being included in an assessment. Breeding success is responding much faster and clearer to anthropogenic pressures than the pure abundance of waterbirds and thus has more explanatory power. For example, herring and sprat are not only the main prey for Razorbills and Common Guillemots, but also the most important target species for fisheries in the Baltic Sea, and changes in food supply for the alcids due to influence of fisheries would have consequences on their breeding success immediately.

OSPAR has applied an indicator on breeding success/failure of seabirds in their Intermediate Assessment 2017 and currently explores a new approach, relating breeding success to estimated population growth (ICES 2018, 2020). The concept of the new OSPAR approach appears to be applicable to the Baltic Sea as well. It is advisable to consider adopting this indicator concept in HELCOM. Though extensive monitoring of breeding success is lacking in all HELCOM CPs, data from case studies and some long-lasting projects (such as the monitoring of alcids breeding near Gotland) would qualify to serve such an indicator. However, according to the concept this indicator does not require old data as a reference or base line, but can be operated with very recent data, for example when monitoring has just been started. JWGBIRD experts from the Baltic are confident that breeding success would contribute to a high quality assessment of waterbirds (ICES 2015). Therefore, an indicator for breeding success should be developed.

For details of the new approach to assess breeding success in OSPAR and for examples see [Annexes 1 and 2](#) (different document).

JWGBIRD has also discussed the potential of assessing demography in wintering birds (ICES 2018), e.g. by identifying the proportion of juveniles through observation or based on birds shot by hunters (Hario et al. 2009, Fox et al. 2016). Although proportions of juveniles reflect breeding success and thus are related to conditions outside the Baltic Sea Region in some species, they can help considerably to explain changes in population sizes and to build a comprehensive assessment network. JWGBIRD will continue to elaborate a concept for a demography indicator for wintering birds.

- Breeding productivity of waterbirds.
 - Develop the concept further based on cooperation with OSPAR.

- Use the long-term data available on the Gotland auks, and other project data, to provide an initial overview.
- Consider if the available information can be expanded into a suitable indicator or if the information acts as supporting information to provide an improved context for the thematic assessment at HOLAS III.
- Devise an outline of the relevant monitoring requirements to develop a suitable indicator that can be made applicable to the whole Baltic Sea on the basis of this information. Other possible options to address population structure (e.g. MSFD D1C3) should also be explored, for example sex-ratios, and proportion of juveniles or other sub-adult classes in the population. This would provide the basis for longer-term development of the indicator.

Habitat indicators (e.g. MSFD D1C5) – additional development work carried out by leads and under JWGBIRD

The criterion habitat for the species has so far not been covered by HELCOM indicators. JWGBIRD is currently developing an indicator applicable in both HELCOM and OSPAR Regions to assess the quality of waterbird habitats (ICES 2020). The indicator “Marine bird habitat quality” compares the distribution of waterbirds with the spatial occurrence of human activities known to disturb waterbirds or their habitats (shipping, bottom trawling, offshore wind farms, aggregate extraction). The concept involves the modelling of waterbird distribution based on survey data, considering the spatial extension of the human activities and finally showing the amount of waterbird habitat disturbed. Germany is leading this indicator and currently preparing a pilot assessment for the southern North Sea and the German section of the Baltic Sea in order to present it to JWGBIRD in September 2020.

For details of the concept to assess the quality of waterbird habitat see [Annex 3](#) (different document).

- Waterbird habitat quality.
 - An indicator overlaying waterbird distribution and extent of disturbance from human activities is being explored in JWG Bird and would provide valuable information related to habitat for the species (e.g. MSFD D1C5).
 - This would provide a contribution to an overall thematic assessment at HOLAS III, though an indicator may be possible to operationalise in that time. A minimum would be supporting contextual information to support the overall assessment of birds by HOLAS III.

Distribution indicators (e.g. MSFD D1C4) – additional development work carried out by leads and under JWGBIRD

A concept for an indicator dealing with distributional changes of wintering waterbirds (offshore only) was prepared in the HELCOM project CORESET I (HELCOM 2012), but not followed thereafter. JWGBIRD has expressed concerns regarding the explanatory power of a distribution indicator (ICES 2018). In the Baltic Sea, the distribution of wintering waterbirds is changing considerably due to climate change (e.g. Fox et al. 2019, Pavón-Jordan et al. 2019). Thus, a distribution indicator is likely to fail to assess the environmental status of the Baltic Sea and to provide clear messages about where measures would be needed. On the other hand, a distribution indicator could address the percentages of populations wintering in Marine Protected Areas (IBA, SPA), and measures deriving from assessment outcomes could include adjustments of the network of protected areas, especially where distributional shifts occurred due to climate change (Pavón-Jordan et al. 2019).

Small scale distributional changes due to human activities are addressed in the new D1C5 indicator “Marine bird habitat quality”.

What aspects of the identified work represent the highest priority?

The first three points are considered as the major priority from the workshop (e.g. particularly in the short-term perspective) and the latter two represent ongoing work within JWG BIRD that contributes to an improved overall assessment of waterbirds.

- Bycatch (separate work plan)
- Improved representation of offshore species in the abundance of wintering waterbirds assessment.
- Improved understanding and linkage between observed results/trends and the causative factors where possible (in particular to improve thematic understanding and interpretation of the indicators).
- Further development of the breeding productivity of waterbirds indicator to incorporate more data (and species if possible), building the supporting information for HOLAS III. Work initiated by JWGBIRD.
- Further development of a waterbird habitat quality indicator, in particular testing the approach and building relevant supporting information for HOALS III. Work initiated by JWGBIRD.

Is the proposed assessment policy relevant and ecologically relevant?

The two operational indicators, and the work proposed above is both policy and ecologically relevant, covering over 50 bird species at different trophic levels. The indicators can also be linked to a number of anthropogenic pressures. All aspects contribute to a broad understanding of BSAP goals and objectives, such as a favourable status of Baltic Sea biodiversity, thriving and balanced communities of plants and animals, and viable populations of species. In addition the operational indicators that address primary MSFD criteria, the proposed work above also contributes to building a broad understanding of waterbirds and their habitat.

What are the resource needs (and period) to 1) carry out the work by HOLAS III (autumn 2021), and 2) for longer-term development issues (post-HOLAS III)?

- Gathering data for offshore species, particularly at the scale and frequency needed to build a high confidence assessment will have resource implications. Analysis of the reported data, in particular for indicator update phases, is also a resource issue. The frequency of these events is an additional consideration.
- Maintaining or improving the scale and level of data available for the assessment may have national resource implications.
- Improved data availability via more automated data flows (not data calls) will require resource commitment to ensure the data reporting and hosting solution is sufficient.
- Improved data delivery (including existing data) for breeding birds may have national resource implications.

What integration of the indicators (i.e. those defined in question 2) is foreseen in HOLAS III?

The operational indicators are suitable for an integrated assessment that can provide a comprehensive overview. Integration methods should be developed in alignment to MSFD as long as the approach of MSFD (first integration of indicators to species, second integration from species to species group) is followed.

Within JWG BIRD a possible proposal for birds has previously been discussed (according to JWG BIRD 2018 report):

5.3.2 JWGBIRD alternative approach

An alternative and simpler approach to integrating criteria to assess a species of marine birds is proposed by JWGBIRD in Figure 5.2. This uses most of the principles proposed by ICES (2018c) and outlined above in Table 5.2, but applies them to the most likely scenarios to be encountered in assessments of marine birds. The approach includes the following rules:

- a) If an assessment of D1C1 – bycatch or of D1C2 – abundance is below the threshold, then the status of the species is 'poor', regardless of assessment outcomes for secondary criteria C3-C5.
- b) If both D1C1 – bycatch and D1C2 – abundance are above the threshold, status will be dependent on the weighted average of the normalised criteria D1C2-C5; where D1C2 is double the combined weight of D1C3-C5:

$$\text{Weighted average D1C2-C5} = ((2 * \text{D1C2}) + (\text{average D1C3-C5})) / 3$$

This weighting approach enables secondary criteria to overrule primary criteria only in that case abundance is just above threshold, but e.g. breeding success (D1C3) is far below threshold.

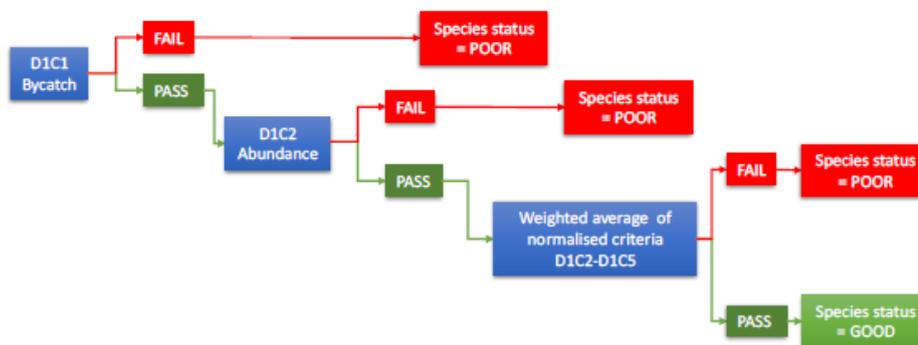


Figure 5.2: JWGBIRD proposed rules for integrating criteria to assess the status of a marine bird species.

What cross-theme issues exist (e.g. links between biodiversity and eutrophication) and how will these be considered in future assessments?

This aspect is covered in a separate document related to across-theme linkages.

Annex 1: More detailed overview of work plans and progress under JWGBIRD.

All developments and progress on any of the identified indicator work strands will be shared with JWGBIRD HELCOM contacts and provided for approval by State and Conservation. Where possible all adjustments related to methodology or threshold values for fully operational core indicators (i.e. primary and priority aspects of abundance), to be used in HOLAS III, will be provided to State and Conservation 14-2021 to allow good time for national discussion and appropriate decision making. Other developments, which are generally considered to represent supporting information, test cases and proof of concept for the assessment of habitat, distribution, or demography will be provided as soon as advances have been made. This will allow for State and Conservation to decide on their appropriate level of application in HOLAS III.

The information below represents a brief overview of processes under JWGBIRD and thus covers aspects outside of the HELCOM indicator process, though work is in general compatible. In all HELCOM focused work, the above work plan and established agreements will be the focus.

JWGBIRD is currently involved in the development of several indicators. However, the role of JWGBIRD is to technically supervise the working process, to discuss the preliminary designs and to recommend how to produce the final version. Initial conceptual work, producing the indicator designs and testing the indicators is delegated from OSPAR and HELCOM to leads and co-leads of the respective indicators. In case of HELCOM, this lead approach was a decision made by CPs. The leads and co-leads are not necessarily members of JWGBIRD, but can be nominated by OSPAR and HELCOM CPs, respectively. Currently, both RSCs are benefitting from each other, because experts from both RSCs are bringing in their expertise and experience.

Such favourable collaboration has taken place in the indicators falling into the MSFD **criteria D1C2 – abundance**. HELCOM adopted the design of the OSPAR indicator B1 “Marine Bird Abundance” for its two bird abundance indicators (for breeding and wintering birds, respectively), but adjusted it to the conditions of the Baltic Sea and data availability. So far, both OSPAR and HELCOM indicators were covering wintering birds counted from the coast only, restricting assessments to coastal marine areas (as has been done in HOLAS II). For several years, JWGBIRD and the co-leads of the abundance indicators have stressed the need to include data deriving from ship-based or aerial offshore surveys to extend the bird abundance assessments to marine areas further off the coast and to include those species representing the marine habitats of the open sea (i.e. seaducks, divers, alcids). JWGBIRD has already developed a method to combine coastal and offshore surveys, so the need for resources to run the indicator are comparatively minor since data are also recorded for Birds Directive reporting and are additionally used here. Meanwhile, at-sea bird data are available from many parts of the Baltic Sea, and after a first coordinated survey of most HELCOM CPs in early 2016, JWGBIRD supports the planning of such surveys in the future. Currently, a test assessment with data from the German, Dutch and Belgian North Sea is in preparation, and experiences from that test run will be beneficial for the respective implementation in the Baltic Sea. Funding for HELCOM bird abundance assessments for HOLAS II was provided by Germany, and Germany has expressed its willingness to continue to the same extent.

The other primary MSFD criterion for birds is **D1C1 – bycatch**. The HELCOM indicator “Numbers of drowned mammals and waterbirds in fishing gear” was not developed and reviewed in JWGBIRD, but by leads and co-leads from Germany, Sweden and Poland. In HOLAS II, the indicator was included descriptive and no assessment could be provided, because data of bird bycatch and fishing effort were not available. Following the joint “OSPAR/HELCOM Workshop to examine possibilities for developing indicators for incidental bycatch of birds and marine mammals” (Sept. 2019, Copenhagen), JWGBIRD has designed a concept for the OSPAR indicator B5 “Marine bird bycatch”, which was submitted to OSPAR COBAM and BDC. The HELCOM

bycatch indicator covers both mammals and birds, and it is emphasized to develop this indicator according to the recommendations of the OSPAR/HELCOM Workshop. This work will be done by leads and co-leads nominated by HELCOM CPs (and including mammal and bird experts), and JWGBIRD will discuss the concept and give further advice if needed. The development of the HELCOM bycatch indicator is of very high priority, and resources needed for the indicator leads are provided to the same extent as before.

In line with HELCOM GEAR 19-2018, JWGBIRD is giving priority to these two primary criteria, which are seen as very important for the assessment of the state of the Baltic Sea. This is reflected in the 2020 tasks of JWGBIRD, which have been proposed during the 2019 JWGBIRD meeting, have been amended according to requirements from the RSCs and have been reiterated in a JWGBIRD co-chair meeting in mid June 2020:

- **Plan bird assessments for HELCOM HOLAS III: Agree procedures for waterbird abundance indicators.** Data calls will be scheduled for breeding and wintering birds, the latter needing to approach the inclusion of at-sea data (see also next paragraph).
- **Plan bird assessments for OSPAR QSR2023: Draft proposals for a pilot assessment of at-sea abundance data in southern North Sea.** Testing the methods already developed (see above) will also benefit the HELCOM indicator on the abundance of wintering birds.
- **Review of results from offshore (at-sea) surveys of the Baltic and planning future work.** The experiences from this first overall offshore survey will feed into the improvement of the HELCOM indicator on the abundance of wintering birds.
- **Plan bird assessments for OSPAR QSR2023: Draft proposal for a pilot assessment of B5 seabird bycatch mortality.** OSPAR is already planning a bycatch indicator mostly following the recommendations for the joint OSPAR/HELCOM Workshop (see above). The experiences made in this process will benefit the restructuring of the HELCOM bycatch indicator.

JWGBIRD acknowledges the priority of primary criteria, but recognizes to develop indicators for the secondary criteria. Since the HELCOM indicators should also be used for the MSFD, the indicator set of the HELCOM indicators must be usable for CPs which are also EU Member States. This reflects COM Dec 2017/848 Article 3 (2): **Secondary criteria and associated methodological standards, specifications and standardised methods laid down in the Annex shall be used to complement a primary criterion or when the marine environment is at risk of not achieving or not maintaining good environmental status for that particular criterion.** The HELCOM indicators dealt with below are intended to be the regionally coordinated products for use in the implementation of the MSFD by EU Member States in the HELCOM Region, i.e. as an operationalisation of the criteria according to COM decision 2017/848. This is notwithstanding the fact that a legal bindingness of these values/elements/standards is not achieved through their agreement at HELCOM but only when an EU Member State is reporting these officially to the European Commission. In general, the development of indicators for secondary criteria is addressed by the following JWGBIRD 2020 task:

- **Plan bird assessments for HELCOM HOLAS III: Discuss possibilities to expand waterbird assessments to other MSFD criteria.**

Regarding the secondary MSFD criterion **D1C3 – demography**, JWGBIRD has developed a new concept for the respective OSPAR indicator B3, now called “Marine bird population growth” (formerly “Marine bird breeding success/failure”). This concept appears to be transferable to the Baltic Sea, without the need of extensive work for adaptation. However, JWGBIRD would have to scan availability of data on breeding success from waterbirds breeding at the Baltic Sea coasts. It could be a task for JWGBIRD 2021 to give an overview of information about productivity, to be prepared intersessionally. Resources for preparing a

population growth assessment along the design of the OSPAR indicator would be partly available in the German MSFD project, but additional funding would be needed for the population modelling required in this indicator. It has to be stressed that this indicator would have considerable explanatory power regarding the state of the Baltic Sea, as problems for waterbirds are visible directly, compared to abundance indicators with several years of delay between effects of disturbance and impact on the populations. JWGBIRD is dealing with an indicator for D1C3 in this task:

- **Plan bird assessments for OSPAR QSR2023: Review progress on revising indicator B3 marine bird breeding success.**

JWGBIRD appreciates the development of an indicator linking pressures from human activities to the occurrence of waterbirds, which can fill the gap with respect to the secondary MSFD criterion **D1C5 – habitat for the species**. The benefit of this indicator would be to point directly on human impact on waterbirds. It needs the same bird data as the indicator on the abundance of wintering birds (no extra monitoring required), which will have to be combined to available data of human activities (e.g. from the HELCOM Map and Data Service). The indicator will be designed for both HELCOM and OSPAR Regions and has also been nominated as a candidate indicator to OSPAR COBAM and BDC. Furthermore, there will be at least a pilot assessment in the upcoming OSPAR Quality status report for D1C5. The modelling work for this indicator has already been initiated and funding is already guaranteed. The modelling approach allows to cope with different resolution of bird and pressure data, and preliminary the indicator will be restricted to offshore waterbirds (such as seaducks and divers) rather than coastal waterbirds (such as dabbling ducks and swans). The indicator design and first test assessments for the German Baltic Sea as well as for the German, Dutch and Belgian sections of the North Sea will be presented at the JWGBIRD 2020 meeting. JWGBIRD experts will discuss the results, and applying the indicator to a larger geographical scale such as the whole Baltic Sea would be a succeeding step. Funding for the development of this indicator is already guaranteed. The related JWGBIRD 2020 tasks are:

- Plan bird assessments for HELCOM HOLAS III: Draft proposal for a new candidate indicator and pilot assessment of offshore habitat disturbance.
- Plan bird assessments for OSPAR QSR2023: Draft proposal for a new candidate indicator and pilot assessment of offshore habitat disturbance.

In summary, JWGBIRD sees its indicator work in line with the guidelines of HELCOM GEAR 19-2018, which in turn are strongly related to the COM Decision 2917/848. Work on primary MSFD criteria will be prioritised wherever possible for indicators being developed for HELCOM purposes to ensure they are available for HOLAS III. Indicators with relevance to secondary MSFD criteria will be worked on where resources allow, but not at the expense of successful achievement of the planned work on primary MSFD criteria. Currently, no resource problems (personal and financial) are apparent for JWGBIRD's indicator work, because funding is guaranteed and most conceptual and technical development is performed by the indicator leads and co-leads nominated by HELCOM CPs.