



Draft [ToRs] for joint ICES/OSPAR/HELCOM sub-group on bird migration under JWGBIRD

Please note that these draft Terms of Reference are pending approval from HELCOM State&Conservation Working group meeting, to be held on 4-8 October 2021.

Background

These [ToRs] provide a thematic overview of the work carried out by the joint ICES/OSPAR/HELCOM sub-group on bird migration, under JWGBIRD.

The HELCOM-OSPAR-ICES Joint Working Group on seabirds (JWGBIRD) is a platform for experts from the Baltic Sea and Northeast Atlantic regions to work on waterbird issues and is made up of members nominated via each of the three organizations. JWGBIRD provides a unique forum to address issues relating to waterbird research and conservation across an ecologically relevant geographic scope, ranging from the NE Atlantic, the Baltic Sea, and the Arctic. While many aspects of bird migration (such as securing staging and wintering areas) are dealt within JWGBIRD, specific expertise on topics relating to the active flight stage of migratory birds has been lacking. The overarching aim of the sub-group is to incorporate further expertise on bird migration to the main group in order to support improved conservation of migratory birds in marine areas.

As a result of increasing anthropogenic pressures on marine ecosystems, waterbirds have become the world's most threatened bird group. Average European waterbird population trends are either stable or declining. Approximately 33 % are slightly declining and another 22 % are regarded as threatened (BirdLife International, 2015). In the Norwegian Arctic, the Greater North Sea and the Celtic Seas, there has been an overall drop of 20 % in waterbird populations over the last 25 years for more than one quarter of the species assessed (OSPAR, 2017).

Use of the marine environment, including generation of renewable energy, is likely to further increase in the near future. This will affect birds migrating over sea areas, with an increased risk of direct collision with wind turbines, as recognized in the HELCOM [Recommendation 34E/1](#). Under the Habitats and Birds Directives the EU Member States need to designate specific areas as marine Natura 2000 sites to implement the aforementioned Directives. In order to secure an improved status of migratory waterbird species, the requirements inherent from migratory behaviour need to be included in management and conservation efforts through both securing barrier-free airspace for the migratory flight and securing stopover (and wintering) habitats.

However, the migratory behaviour of birds migrating over sea areas is still poorly understood, presenting a significant barrier to strategic planning and conservation efforts, especially at a trans-boundary scale. These knowledge gaps partially stem from the spatial and temporal limitations in the tracking information available to elucidate on species behaviour. While data on migration are available from tracking studies, migration counts and radar observations are often insufficient to draw conclusions. Where sufficient data are not available, additional monitoring should be implemented.

Sensitivity mapping is a key tool in understanding the sensitivity of marine areas to human pressures based on the presence of species that are expected to be affected by these pressures. This information can help decision-makers to arrange effective planning and management, e.g., by limiting specific activities to ensure

that negative impacts are minimised. In order to create sensitivity maps, it is necessary to enhance the collection and processing of data on the spatial-temporal distribution and abundance of species.

Information on sensitivity, migratory behaviour, and spatial data on migration, as well as information and guidance on how it should be interpreted and best used, are key components of future planning and management efforts in Strategic Environmental Assessments (SEA) and Environmental Impact Assessments (EIA), further supporting sustainable use of marine areas through spatial planning.

Purpose

The overall purpose of the group is to facilitate regional cooperation in relation to bird migration with respect to safeguarding critical migration routes over marine areas from negative effects of wind and wave energy production at sea, in close cooperation with other existing relevant frameworks and programmes working on bird migration.

It is to function as a coordinating framework and a platform to harness the expertise of leading scientists on bird migration, and to make this expertise available to policy makers and planners. In addition, the group will work on improving functioning dataflows and availability of data on bird migration. Through this, the sub-group helps ensure that up to date information on bird migration is accounted for in regional processes through JWGBIRD and subsequently in the advice and decision-making of the three organisations.

Scope

The sub-group's work will focus on migratory corridors of birds migrating over sea areas. This information will support collecting the data necessary to inform and guide management measures. The group's work focuses on risks to migratory birds from renewable energy generation (wind, wave, and tidal power), including infrastructure, and may be extended to other human activities deemed relevant for active migration over sea areas.

The sub-group will handle the operational production and delivery of the scientific products of the dedicated work on bird migration, e.g., related to data collection and collation, developing methodology and guidance for monitoring, guidance on the use of produced data to inform spatial planning, as well as other tasks agreed by JWGBIRD and the three organizations and assigned to the group. The work includes producing maps on species migration routes and sensitivity to human pressures, transferring quality assured science to end users, and providing clear guidance on the level of confidence in the presented information. The work can also support the identification of knowledge gaps and possible future research priorities. Due to limited data, it can be necessary to classify the selected migratory bird species in groups.

The work is transregional by nature and aims to cover the ecologically relevant geographical scope of migratory waterbirds across the NE Atlantic, the Baltic Sea and the Arctic.

The principal benefits of the sub-group are to have:

- a) Enhanced use of existing data and improved dataflows through agreed data hosting for data specific for migration, such as telemetry and tracking data, and migration count data, with a focus on encouraging data sharing.
- b) Improved access to information on migratory waterbird behaviour.
- c) Improved monitoring practices for migratory waterbirds
- d) Improved map products and appropriate use of data and map products in spatial planning
- e) Improved transfer of research results and products between planners and to the policy level
- f) Improved advice on necessary actions and measures and on how regional policies could be adapted to better account for bird migration in spatial planning.

Objectives

The objectives of Migration the sub-group are to:

- a) Map the overall knowledge level of bird migration in the Baltic and North Sea regions based on existing data and expert knowledge, including gaps and recommendations for the relevant species (including whether the species is relevant for planning and why, altitude information etc.)
- b) Improve joint data management on a trans-regional level.
- c) Produce detailed recommendations on how to conduct monitoring of birds migrating over sea areas to support the existing monitoring guidelines, possibly producing best-practice guideline and harmonizing monitoring practices for e.g., citizen science observations and visual migration counts.
- d) Produce more specific species and sensitivity maps of a given area to e.g. renewable energy installations, in a way that allows regular updating of the map products and inclusion of multiple types of data sources.
- e) Cooperate with other initiatives to find synergies.
- f) Cooperate closer with the planners, e.g., through scoping workshops to share information, challenges and needs.
- g) Complement the list of species information with a non-exclusive list of non-waterbird priority species and identify species that are clear broad-front migrants vs. those for which tracking would yield good results.
- h) Identify funding possibilities for a dedicated project to support further work on bird migration and look into possibility to form a consortium to prepare and submit an application.

Reporting

The sub-group will report back to JWGBIRD and subsequently to the ICES, HELCOM, and OSPAR Working Groups. For all scientific products, the sub-group will present a production plan for sign off by JWGBIRD. For region-specific outputs, the work may also be carried out in task teams without the involvement of experts from all three organizations.

Reporting on the tasks, work and products of the sub-group will be included in the JWGBIRD annual report. Products developed and delivered intersessionally shall be appended to the report. The report is co-authored by the three organisations. The products stemming from the groups work will be handled at ICES workspaces dedicated to this purpose.

The group may also, where possible and appropriate, submit some products for publication in scientific journals or to be presented at conferences.

Membership

Membership of the sub-group is obtained by experts seeking nomination from their national delegations to either ICES, OSPAR or HELCOM. It is important that all members of the sub-group have a firm connection to their national delegations. Members of the sub-group are by default also be members of JWGBIRD. The [sub-group lead/JWGBIRD co-chairs] can also invite non-members to attend the annual meeting or to take part in intersessional work. Invited experts should demonstrate particular skills that are relevant to the delivery of a specific request.

Temporary involvement of other expertise within the respective organizations' structures can be further explored based on the list of tasks as the work progresses. The ICES, HELCOM, and OSPAR Secretariats together with the [JWGBIRD co-Chairs/sub-group lead] will evaluate the coverage of required technical expertise and communicate with the respective organisation on any additional need for expertise in the group. The aim is to ensure sufficient expertise for all identified tasks.

Task list

Concrete tasks for the group will be presented in the task list included in Annex 1. The work plan is valid for a three-year period following the tasks identified in the JWGBIRD work plan but should be reviewed and

updated on an annual basis to ensure that the timeline and planned work remains relevant. This task list enables long-term planning and delivery of significant products that may require several components to be developed during consecutive years.

Validity of [ToRs]

The work of the group is open ended but subject to review every three years, in line with the JWGBIRD workplan. The Terms of Reference are to be subjected to review and, as appropriate, revision by the JWGBIRD at three-year intervals and subsequently presented for endorsement by the relevant HELCOM, ICES and OSPAR working groups.

Organization of work

The mode of work for the sub-group will include correspondence and online meetings facilitated by the ICES, with physical meetings taking place as needed. Expert opinion will be required at more frequent intervals than annual, and the annual meeting cycle and reporting format of the group may not necessarily be the most appropriate forum in which to deal with such requests (e.g. due to mismatched deadlines). Correspondence and intersessional work between relevant group members should be used to provide a timely delivery of required outputs. Contracting Parties of the various conventions will need to be made aware of the resources (i.e. time of experts) that will be required for all aspects of the Group's work.

Given the extensive expertise and workload required to carry out the work related to bird migration, specific actions carried out by the sub-group can be resourced through designated project funding. The possibilities of acquiring funding for the sub-group's tasks through forming a consortium may subsequently affect the timing of completing actions in specific years or months. Whenever a project-funded activity is planned, JWGBIRD will communicate details on the planning to OSPAR, HELCOM and ICES well in advance of the activity to enable dissemination of the information to all possibly concerned parties.

The group is open to connect with other relevant bird groups and networks.

ICES will provide administrative support to the sub-group as a part of JWGBIRD's activities.

Annex 1: Preliminary Task list of the Bird Migration sub-group

Please note that the task list below is likely overly ambitious and the specific task list for the sub-group will be considered by the group once established.

This task list is valid for a 3-year period (beginning XXXX) and is to be reviewed and revised by the sub-group and approved by JWGBIRD with approval from the relevant ICES, HELCOM and OSPAR Working Groups. The task list should be considered as a reference document to help guide the subgroup's work, rather than a definitive list of tasks that must be carried out.

Theme	Task	Specifications	Timeline
Supporting information	Produce a list of relevant migratory birds for each region in cooperation with representatives from national planning authorities, responsible for spatial planning to ensure that the information is relevant for planning purposes. Make the information accessible e.g. through species information sheets or a database.	Develop structure and relevant content for supporting information, including but not limited to:	
		Name and relevant ecology of species.	
		Timing and drivers of migration.	
		Temporal aspects of migration, including seasonality, monthly and time of day	
		Information on flight altitude.	
		Species distributions	
		Species movements in space and time	
		Drivers that control patterns in distribution and movement.	
		Identify species that are clear broad-front migrants vs. those for which tracking would yield good results	
		Bird behavior when facing barriers or obstacles (e.g. windfarms)	
		Bird behavior under varying weather conditions etc.	
		Is species relevant for planning and why	
migration occurring at night and daytime.			
Monitoring, data, and information flows	Data management infrastructure	Perform gap analyses for data, e.g. low amount and narrow spatial distribution of data for	

		several species migrating over sea areas.	
		Agree on the use of a trans-regional data format drawing on existing data formats (e.g. MoveBank)	
		Establishing data flows	
		Establishing long term consistent data hosting	
		Ensure that data is accessible	
	To map the overall level of available knowledge for the relevant bird species (as defined by the sub-group) in order to produce an overview and a gap analysis.		
	Produce detailed monitoring guidelines on how to conduct monitoring of migratory [birds/waterbirds]	Tracking, for the recording devices to collect increasing number of fixes and register additional information, e.g. flight altitude.	
		Recommend species for monitoring to broaden spectrum to ensure the data is useful for also for planning purposes.	
		Calculate and recommend the required number of taggings in order to get proper coverage for statistical analyses	
	Explore and provide guidance for citizen science relating to migratory [birds/waterbirds]	Ensure that effort is logged (hours etc) when conducting and including citizen science in the information, guidance to ensure quality-checking and quantifying the data is available.	
	Plan and recommend how to best implement joint surveys (e.g. interlacement of existing national monitoring programmes) on migratory waterbird species' to further identify and gain knowledge on	Monitoring using tracking data and for the tracking efforts to be spread out across the distributional range of the species (to account for that sub-populations might have different migration behavior).	

	migratory [bird/waterbird] species		
	Prepare guidelines for collection of post-construction investigations of actual effects from wind and wave energy, based on before/after comparison studies.		
	Develop a digital catalogue with GIS-maps concerning migration routes, moulting areas, staging areas, and other features that influence the distribution of waterbirds in space and time.	Make the catalogue publicly available.	
		Communication/outreach about the developed GIS-maps.	
Maps on waterbird migration and staging.	To produce species specific migration maps using a gridded approach in order for the final maps to meet the requirements of planning.	Develop common methodology for producing species specific migration maps.	
		Prepare information in approximate numbers of individuals of waterbirds using the routes	
		Set definitions for how to evaluate confidence and uncertainty (whether data is based on expert judgment and/or data, and the size and quality of the dataset)	
		Provide uncertainty estimates as a integrated component of the maps	
		Develop and agree on how to, in addition to numbers of individuals of species using a given route, also consider rarity of the specie's.	
		Consider if and how to best include buffers, sensitivity scores or weighting to the layers and tracks.	
		Agree on an appropriate approach for including buffer zones around the area with the highest density of /individuals	
		Set definitions for how to weigh the tracks	

		Link relevant information collated under X with the maps, e.g. as part of the metadata information.	
	Preparing large scale sensitivity mapping through aggregating species layers.	Develop common methodology for producing aggregated sensitivity analysis maps for resting areas and migratory routes of birds migrating over sea areas.	
		Approximate numbers of species and individuals of waterbirds using the routes	
		Consider if and how to best include buffers, sensitivity scores or weighting to the layers.	
		Agree on an approach for including buffer zones around the area with the highest density of species/individuals.	
		Develop and agree on how to, in addition to numbers of individuals of species using a given route, also consider rarity of the species.	
		Set definitions for how to evaluate confidence and uncertainty (whether data is based on expert judgment and/or data, and the size and quality of the dataset)	
		Provide uncertainty estimates as an integrated component of the maps	
		Develop and / or update of the mathematical factor (coefficient) that presently are used widely for calculated mortality due to collision and displacement at wind farms and it should be investigated whether bio-geographical adjustments are needed.	

	A compiled description of the effects on selected migratory bird species from human activities at sea, comprising gaps of knowledge	Addressing the subject of cumulative effects from human activities in space and time. Evaluation of potential impacts on the flyway population level as well as development of methods to address potential cumulative impacts from these effects.	
	Complement the information on migration with similar information on resting/staging waterbirds, to be presented as separate sensitivity maps (for reasons of transparency and detail).	Develop maps	
		Link routes to staging areas	
	Prepare a publication of migration in the Baltic Sea, including gaps and recommendations, for submission to a scientific journal.		
	Prepare recommendations for actions based on the results of the migration and sensitivity mapping.		
	To complement the list of species information with a non-exclusive list of non-waterbird priority species		