



**OSPAR  
COMMISSION**

*Protecting and conserving the  
North-East Atlantic and its resources*



**HELCOM**

## **OUTCOME**

**from the joint OSPAR-HELCOM workshop to examine  
possibilities for developing indicators for incidental  
bycatch of birds and marine mammals  
Copenhagen, 3-5 of September 2019**

**ASCOBANS, 25<sup>th</sup> meeting of the Advisory Committee**

# Presentations about assessment needs and existing assessment processes

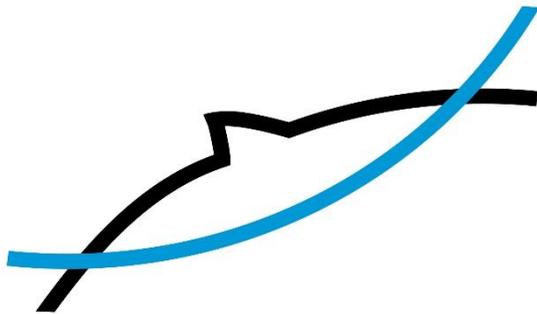


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**HELCOM**



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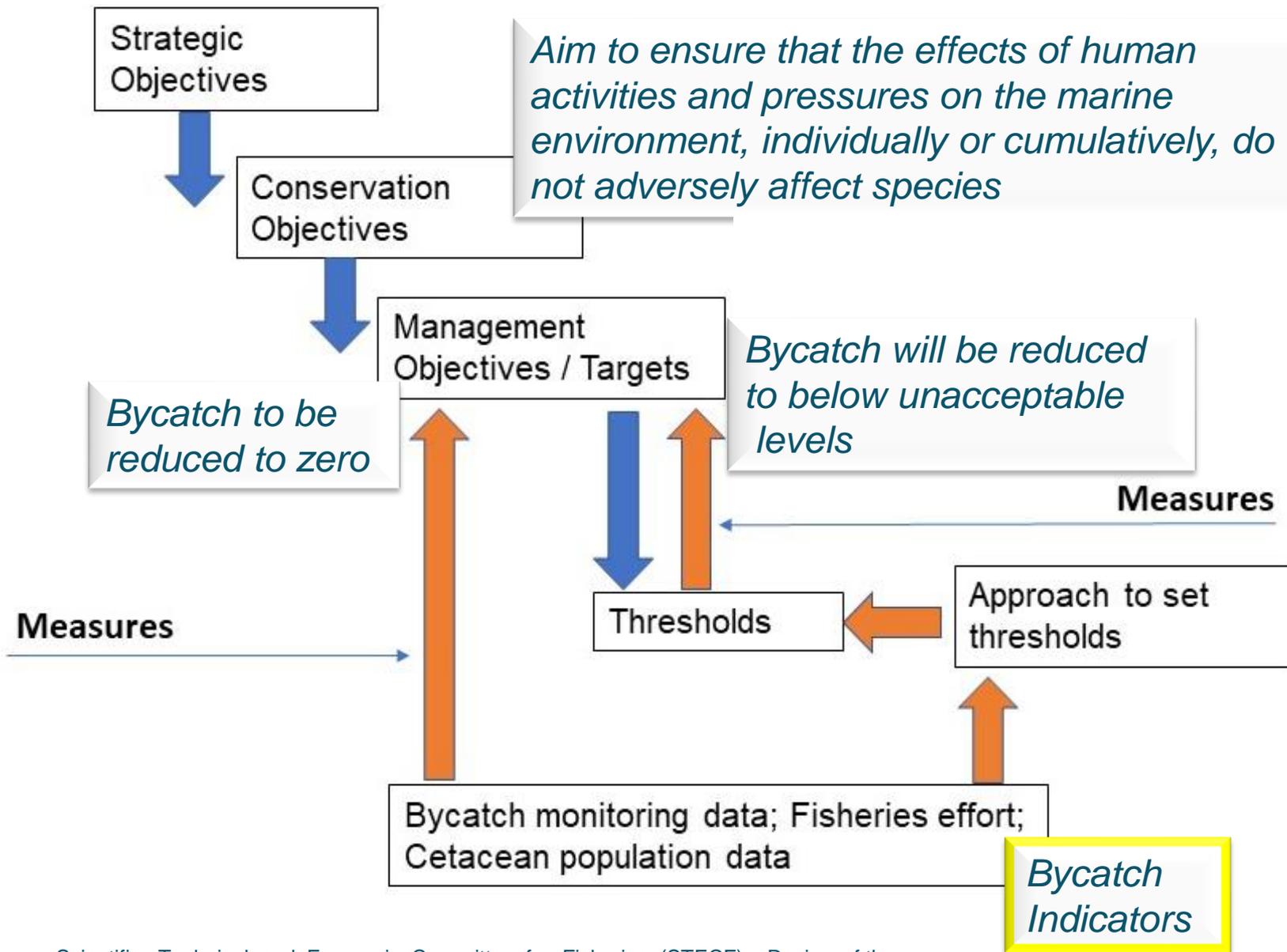


**INTERNATIONAL  
WHALING COMMISSION**



**NAMMCO**

# Discussion about Conservation and Management Objectives

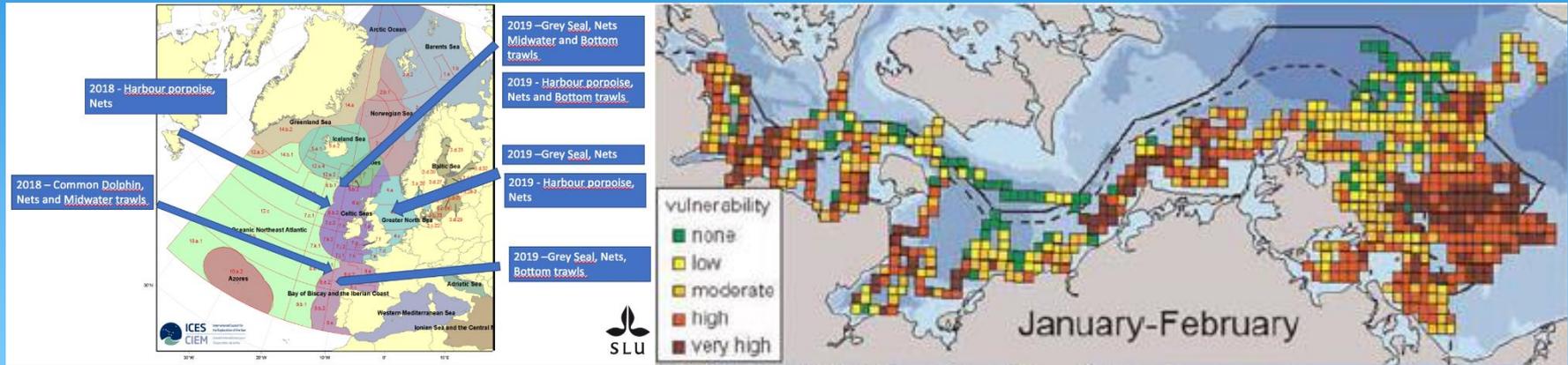


Scientific, Technical and Economic Committee for Fisheries (STECF) – Review of the implementation of the EU regulation on the incidental catches of cetaceans (STECF-19-07). Publications Office of the European Union, Luxembourg, July 2019.

# Presentations on assessment of bycatch of marine mammals and birds for OSPAR and HELCOM area

Assessing bycatch of marine mammals in the OSPAR region

Assessing bycatch of seabirds in the Baltic Sea region

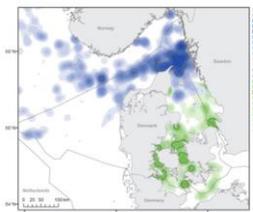


## ICES Bycatch Risk Assessment (BRA)

Area	Metier	Year	Fishing Effort (Da5)	Estimate of bycatch rate (number of by-catch events/observed DAS)		Estimate of bycatch common dolphin		Best estimate of abundance	% mortality using lower bycatch estimate	% mortality using higher bycatch estimate
				Lower 95% CI	Upper 95% CI	Lower 95% CI	Upper 95% CI			
Celtic Sea Ecoregion 7 (a-c, g-h, j-k)	Mid-water trawl (OTM, PTM)	2015/2016	4,767	0.010	0.075	49	355	221933	0.02	0.16
	Nets (GNS, GND, GTR)		17,485	0.006	0.031	104	549		0.05	0.25
Bay of Biscay 8 (a-e)	Mid-water trawl (OTM, )	2015/2016	10,962	0.084	0.199	924	2187	111990	0.83	1.95
Bay of Biscay and Iberian sea 8 (a-e)	Nets (GNS, GND, GTR)	2015/2016	61,124	0.011	0.035	683	2168		0.61	1.94
Total	Mid-water trawls and Nets	2015/2016	94,338			1760	5259	333,923	0.53	1.57

Where are we now?

Porpoise density data



Log book data



AIS data



HELCOM ACTION and harbour porpoise bycatch hot spots

# Overview of availability of fishing effort and approaches to mapping bycatch risk

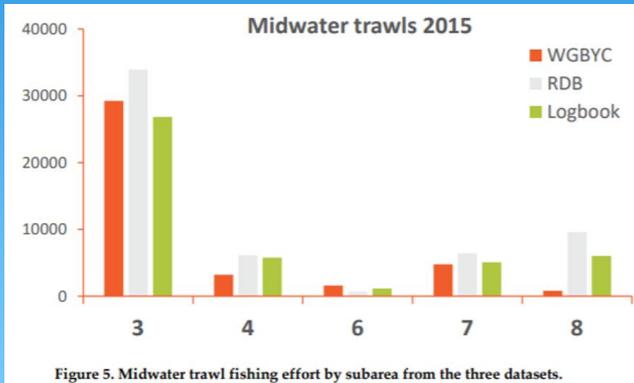
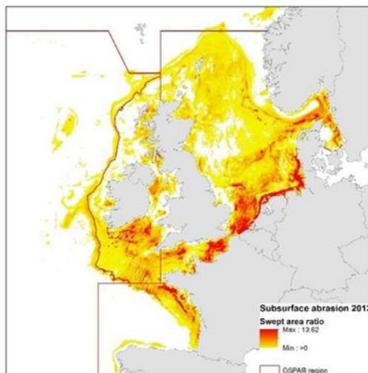


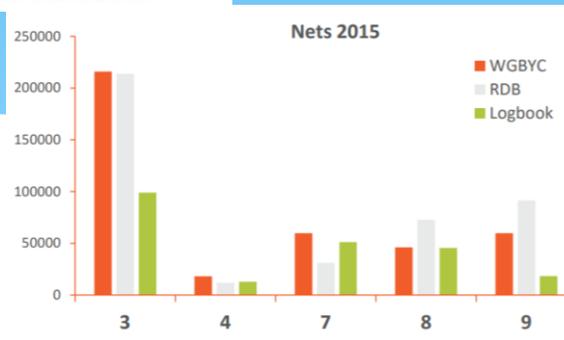
Figure 5. Midwater trawl fishing effort by subarea from the three datasets.



Comparison of fishing effort data

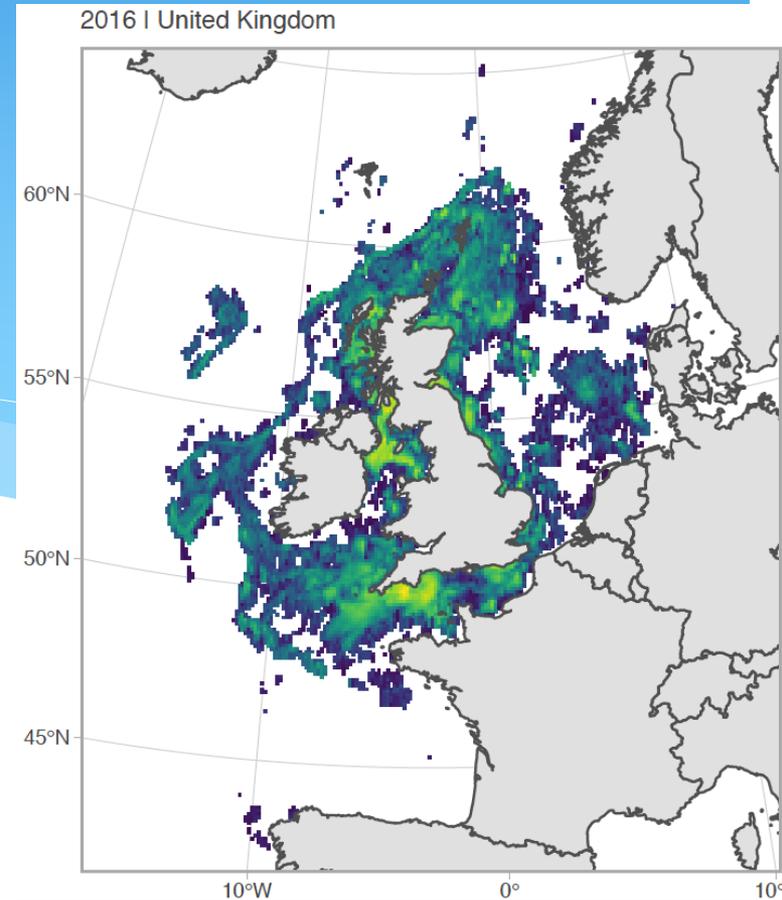


Surface abrasion pressure expressed as the swept area ratio from VMS data from 2013 in part of the OSPAR region with most data.



Spatial fisheries data

Fishing hours for analysis of bycatch risk



# Objectives & Aims of the workshops

## – division into subgroups

To develop methods to assess, for conservation purposes, the pressure of incidental bycatch of birds and marine mammals

Identify next steps

to identify data needs for carrying out assessments and data gaps

A

to explore approaches to identify areas of high/low bycatch risk

B

to identify approaches to setting thresholds for the indicator assessment method

C

Highlighting similarities and differences between marine mammals and birds

# Outcome from group A

Lead - Sara Königson, Rapporteur – Jannica Haldin

## Data needs and data gaps:

**Days-at-sea for all areas and all vessel lengths**  
**VMS equivalent data for small size vessels**

Soak time and net length data (for estimating bycatch rate)  
Data for both part-time and full-time fisheries needed

# Identified relevant barriers

- **overall lack of funding**

- \* reluctance to monitor bycatch and take observers onboard
- \* reluctance of fishers towards CCTV
- \* differences in methods and reporting formats
- \* data are currently not readily available at appropriate spatial scale
- \* reluctance by fishers to report bycatch and the lack of available space for recording the information in the logbooks
- \* no monitoring/sampling programmes for bycatch
- \* data reporting barriers
- \* the need for anonymity of vessels (possible link to GDPR).
- \* unreliable data reporting from fishers
- \* species identification in the field is poor and often aggregated to species group level
- \* the lack of monitoring/sampling standards/guidelines
- \* increased number of tasks but no increase in financing for the DCF work
- \* how to link work under the DCF with the efforts of countries which are not EU Member States
- \* lack of access for bycatch experts to fishing effort data
- \* the rights to use existing data for purposes outside of those for which they were originally collected in the data call
- \* the need to obtain access to data from vessels under other national flags fishing in a given area.

# Practical proposals to fill gaps and overcome barriers

## **Monitoring (key points)**

- \* Make it easier to fishers to report, and ensure that there are no repercussions for reporting;
- \* Provide incentives to accept onboard observers
- \* Counting nets, net length and vessels manually (or via satellite, drones or planes).
- \* Use of a reference fleet to estimate bycatch
- \* Closer cooperation between the “environmental” side and the DCF
- \* A single agreed data and monitoring standard, common logbook format, between EU and non-EU countries
- \* Combine national monitoring projects/efforts with DCF efforts, but ensure that the results are comparable and can be compiled together
- \* Cover a certain % of métier and area under DCF monitoring
- \* Enforcement mechanisms for non-compliance
- \* Use of electronic logbooks would facilitate the sharing of information and shorten the time lag
- \* VMS-equivalents required for smaller vessels; supplement use of VMS with AIS data

## **Fishing effort**

- \* include non-mandatory fields for more detailed data in the data reporting formats at the data nodes, and include these data in the data calls
- \* enable access to fishing effort data for the purposes of studies of assessments of bycatch

# Outcome from group B

(Lead – Lotte Kindt-Larsen; Rapporteur – Owen Rowe)

- \* **Relative bycatch risk** - aspects to consider or that can contribute to an assessment include:
  - \* species sensitivities – characteristics that make them susceptible, length of time at sea (birds), feeding mode (divers vs surface feeders)
  - \* density/abundance – biogeographic aspects
  - \* environmental conditions and heterogeneity
  - \* life history aspects – feeding mode, productivity, longevity, breeding, consumption rates, time at surface, time beneath surface
  - \* seasonality – migration events, seasonal local abundances, breeding (and resultant feeding / behavioural changes)
  - \* habitat information and specialisation

# Absolute bycatch risk

- aspects to consider or that can contribute to an assessment include:

- \* Monitoring data to provide a clear evaluation of bycatch in an identified risk area (a validation of predictions)
- \* Seasonal variation as well as temporal and spatial aspects need to be considered at a suitable time scale – i.e. to ensure high risk areas are as accurate as possible when monitoring is initiated
- \* Risk mapping provides an overview from which monitoring can be targeted resulting in an evaluation of the risk assessment.

# Key Recommendations:

- \* Fisheries data need to be enhanced to a level that can support identification of high-risk areas. VMS on smaller vessels may be a valuable way forward
- \* Cross border data cooperation is important, including utilisation of all data even on stranded animals, to support the identification of high-risk areas and overall status and occurrence of relevant species
- \* Identification of species from a conservation point of view, and those that are forming close interactions with fishing activities
- \* Data on species distribution (inclusive of spatial and temporal aspects), habitat use, prey specificity, and other relevant parameters are important to enable improved identification of high-risk areas.
- \* Risk assessment should be prioritised for endangered, problematic, or declining species and a regionally agreed list of species
- \* Risk assessment to highlight/define the suitable monitoring approach should be carried out at regular enough frequencies so as to ensure ecological relevance of the assessment procedure
- \* Improved data on monitored and recorded actual bycatch incidence.
- \* Appropriate assessment to cover high-risk areas, reference areas and appropriate spatial coverage needed
- \* A possible solution could be to have observers or designated monitoring in times or areas of specifically identified high-risk.

# Outcome from group C

Lead – Peter Evans & Graham Pierce, Rapporteur-Lena Avellan

## Conservation and management objective

### **Conservation objective:**

- \* Minimise and where possible eliminate incidental catches of all marine bird and mammal species such that they do not represent a threat to the conservation status of these species

### **Management objective**

- The mortality rate from incidental catches should be below levels which threaten any marine bird or mammal species, such that their long-term viability is ensured

# Assessment units

- \* OSPAR – use species specific management units when they exist; in other cases, use the OSPAR Regions as assessment units
- \* HELCOM – for seals use existing management units. Harbour porpoise management units are Baltic proper and Belt Seas & Kattegat. Birds: Use three regions: Kattegat->Bornholm basin, Bothnian Bay and ‘the rest’ of the Baltic proper

# Threshold values

## Data rich species

- \* The threshold mortality rate from incidental catches should not exceed levels that would result in a reduction of the median population size below 80% of carrying capacity within a 100-year time period for 50% of the time

RLA approach, NB 'carrying capacity' needs defining

The threshold mortality rate from incidental bycatch should be 1% of natural annual adult mortality of the species

'natural' may need defining, discussion on summing all anthropogenic mortality

## Data poor species

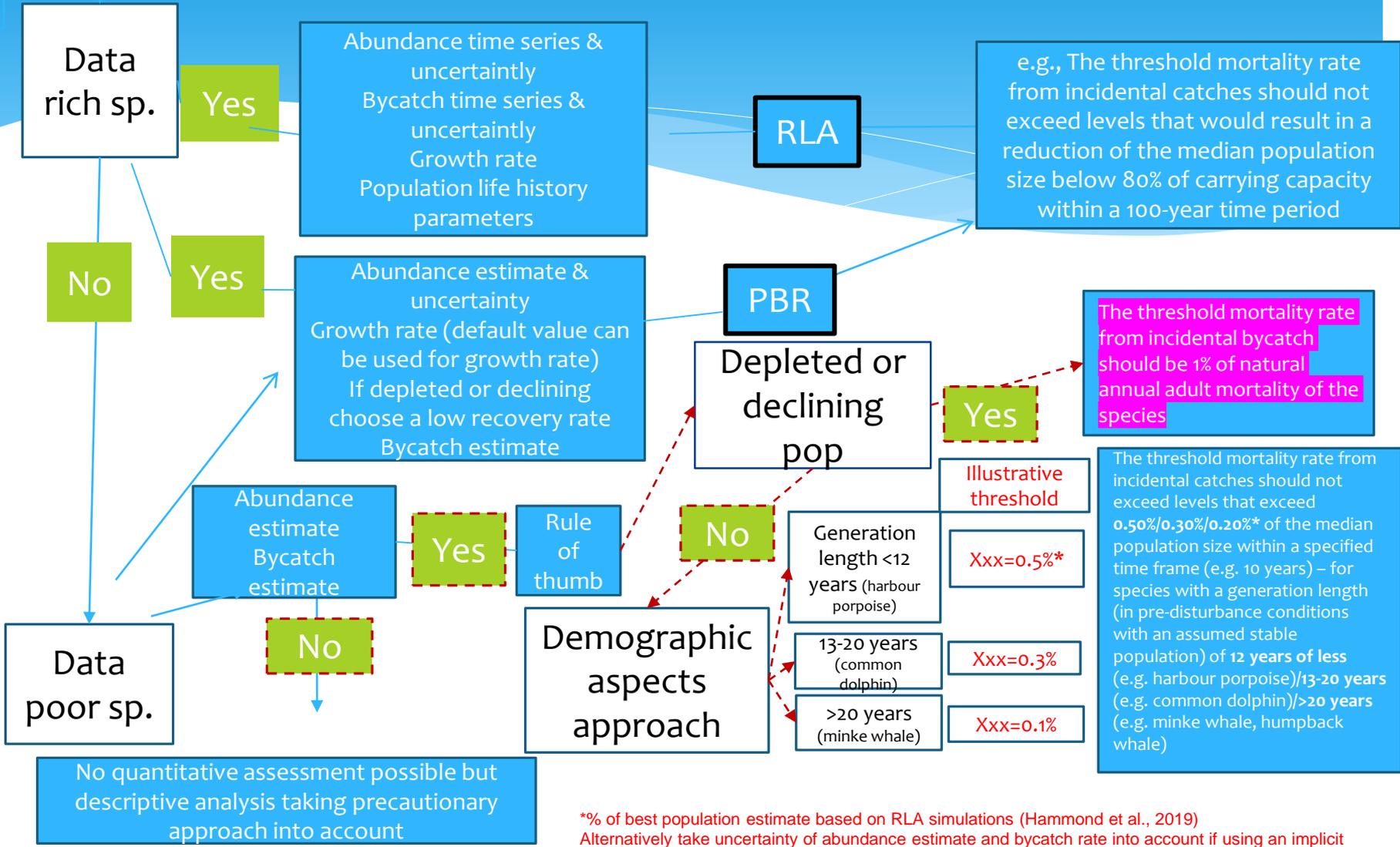
- \* The threshold mortality rate from incidental bycatch should be 1% of natural annual adult mortality of the species
- \* The threshold mortality rate from incidental catches should not exceed levels that are **0.5%/0.3%/0.1%** of the median population size within a specified time frame (e.g. 10 years) – for species with a generation length (in pre-disturbance conditions with an assumed stable population) of **12 years of less** (e.g. harbour porpoise)/**13-20 years** (e.g. common dolphin)/**>20 years** (e.g. minke whale, humpback whale)

Numbers are 'placeholders', time period could be 10/6 years

# CETACEANS

# MAMMALS

Adaptive management (every 6 years)



e.g., The threshold mortality rate from incidental catches should not exceed levels that would result in a reduction of the median population size below 80% of carrying capacity within a 100-year time period

The threshold mortality rate from incidental bycatch should be 1% of natural annual adult mortality of the species

The threshold mortality rate from incidental catches should not exceed levels that exceed 0.50%/0.30%/0.20%\* of the median population size within a specified time frame (e.g. 10 years) – for species with a generation length (in pre-disturbance conditions with an assumed stable population) of 12 years or less (e.g. harbour porpoise)/13-20 years (e.g. common dolphin)/>20 years (e.g. minke whale, humpback whale)

Illustrative threshold

Xxx=0.5%\*

Xxx=0.3%

Xxx=0.1%

Generation length <12 years (harbour porpoise)

13-20 years (common dolphin)

>20 years (minke whale)

\*% of best population estimate based on RLA simulations (Hammond et al., 2019)  
Alternatively take uncertainty of abundance estimate and bycatch rate into account if using an implicit conservation target

# BIRDS

**DUCKS /  
AUKS /  
DIVERS /  
"OCEANICS"**

Population  
identity  
known

No

No assessment  
possible

Yes

Pop size  
Bycatch  
Growth rate  
Abundance time series and  
population status  
Further demographic data

PVA

Yes

Pop size  
Bycatch  
Growth rate  
Abundance time series and  
population status

RLA

The threshold mortality rate from  
incidental catches should not exceed  
levels that would result in a  
reduction of the median population  
size below 80% of carrying capacity  
within a 100-year time period

Data  
rich sp.

No

Adaptive management (every 6 years)

Data  
poor  
sp.

Pop size  
Bycatch

Rule of  
thumb

Depleted or  
declining pop

The threshold mortality rate from  
incidental bycatch should be 1% of  
natural annual adult mortality of the  
species

Demographic  
aspects

<12 years	Xxx=0.5%
13-20 years	Xxx=0.3%
>20 years	Xxx=0.1%

Illustrative  
threshold

The threshold mortality rate from  
incidental catches should not exceed  
levels that exceed **xxx** of the median  
population size within a specified  
time frame (e.g. 10 years) – for  
species with a generation length  
(pre-disturbance conditions with an  
assumed stable population) of

# Conclusions

- \* To assess the impact of bycatch, where possible one should delineate by species population, then obtain information on its abundance, trends, some key life history parameters (e.g. annual adult mortality, generation length), and bycatch rates;
- \* This requires decisions on which metrics to use, and these can vary within and between major taxa;
- \* The most challenging parameter to measure is usually bycatch rate and this is consistently under-recorded because of sampling difficulties, REM monitoring can help towards solutions;
- \* Risk mapping (including overlays of species density distributions and fishing effort operating particular gears so that different links can be distinguished) can help in this respect to focus resources for better monitoring, whilst information from other sources, such as strandings, can supplement at-sea reporting/recording

# Conclusions

- \* Good information on fishing effort is crucial for robust estimates of bycatch rates. Although inadequate in many ways, 'Days at Sea' (DaS) from VMS remains the long-standing method to measure fishing effort;
- \* A major sampling issue is the scarcity of monitoring for small vessels;
- \* In developing a bycatch indicator and thresholds to alert one to unsustainable levels of bycatch, it is necessary to first have a clear conservation objective - one was proposed during the workshops;
- \* A number of options were proposed for setting thresholds, designed to take account of uncertainty which can be very great particularly for the data poor species/species groups;
- \* For birds, emphasis was placed on using a single measure: 1% of natural annual adult mortality, but in some cases, it should be possible to be informed by Population Viability Analysis (PVA) or to directly apply a Removals Limit Algorithm (RLA); both approaches will need further testing. For mammals, an RLA approach may be possible for the data rich species, whereas for others, a PBR (Potential Biological Removals) or Rule of Thumb approach drawn from the results of RLA testing on species of comparable life history features (generation length) may be appropriate;
- \* Thresholds cannot substitute for mitigation measures.

# Thank you

