

ASCOBANS CONSERVATION OBJECTIVES

Sinéad Murphy

ASCOBANS Conservation Objectives Workshop Part 2

16th May 2023

Resolutions related to conservation objectives/bycatch limits

- Two resolutions passed in 2000 ([Resolution 3.3](#) on *Incidental Take of Small Cetaceans*) and 2006 ([Resolution 5.5](#) on *Incidental Take of Small Cetaceans*), both still extant, set out the key conclusions reached in this process.
- Resolution 8.5 (MOP9) in 2020 provided further clarification to those key conclusions.

Aim of
ASCOBANS

- 'to achieve and maintain a **favourable conservation status** for small cetaceans in the Agreement area'

Favourable Conservation Status Habitats Directive, 1992

Conservation means a series of measures required to maintain or restore the natural habitats and the populations of species of wild fauna and flora at a **favourable status** as defined in (e, habitats) and (I, species)

(i) conservation status of a species means the sum of the influences acting on the species concerned that may affect the **long-term distribution and abundance** of its populations within the territory referred to in Article 2;

The conservation status will be taken as "favourable" when:

- population dynamics data on the species concerned indicate that it is **maintaining itself on a long-term basis as a viable component of its natural habitats**, and
- the **natural range** of the species is **neither being reduced nor is likely** to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a **sufficiently large habitat** to maintain its populations on a **long-term basis**;

HD definitions for reporting under Art. 17 cites assessment of long-term 'trend' as 24 years (four reporting periods), and short-term 'trend' as 12 years (two reporting periods)

[Reporting guidelines Article 17 final May 2017.pdf \(europa.eu\)](#)

Bonn Convention

The Bonn Convention (Convention on Migratory Species), under which ASCOBANS was formed (and entered into force in 1994)

CMS Article 1

‘Conservation status [of a migratory species]’ means the sum of the influences acting on the [migratory] species that may affect its long-term distribution and abundance;

c) ‘Conservation status’ will be taken as **‘favourable’** when:

(1) population dynamics data indicate that the [migratory] species is maintaining itself on a **long-term basis as a viable component of its ecosystems**;

(2) the range of the [migratory] species is neither currently being reduced, nor is likely to be reduced, **on a long-term basis**;

(3) there is, and will be in the foreseeable future **sufficient habitat** to maintain the population of the [migratory] species on a long-term basis; and

(4) the distribution and abundance of the [migratory] species **approach historic coverage and levels to the extent that potentially suitable ecosystems exist and to the extent consistent with wise wildlife management**;

d) ‘Conservation status’ will be taken as ‘unfavourable’ if any of the conditions set out in sub-paragraph (c) of this paragraph is not met.

Aim of ASCOBANS

- 'to achieve and maintain a **favourable conservation status** for small cetaceans in the Agreement area'

Aim interpreted as

- 'to restore and/or maintain **biological or management stocks** of small cetaceans at the level they would reach when there is the **lowest possible anthropogenic influence**' (Res.3.3)*

Sub-objective

- 'a suitable **short-term** practical sub-objective" "to restore and/or maintain **biological or management units to/at 80% or more of the carrying capacity**' (Res.3.3, Res. 8.5)**

*suggested as a 'Conservation Objective' in Reijnders, Inf06_MOP2_DOC.4, 1997

**also referred to as an interim objective

Carrying capacity

ASCOBANS had

*...recognised that while it is **difficult, and perhaps impossible, to determine carrying capacity**, such a theoretical target level will allow the development and application of a longer-term approach, which will take into account the uncertainty, which is inevitably inherent in the data required to assess the status of stocks.*

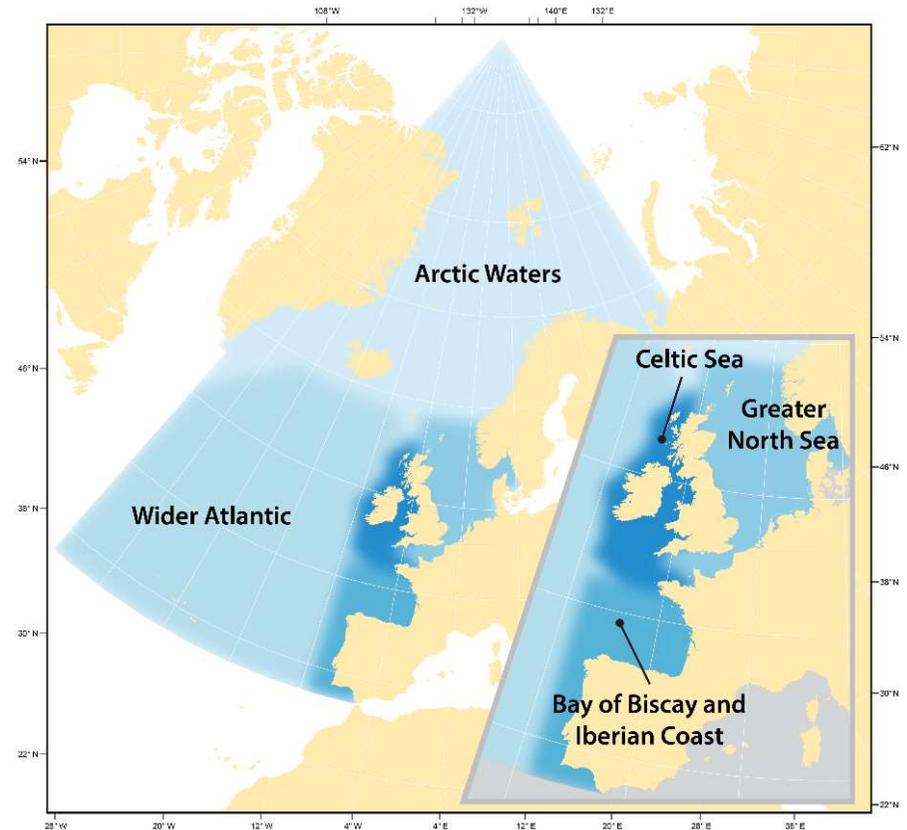
Favourable Reference Values - Habitats Directive

The following general principles should be taken into account in the process of setting FRVs:

- FRVs should be set on the basis of ecological/biological considerations;
- FRVs should be set using the best available knowledge and scientific expertise;
- FRVs should be set taking into account the precautionary principle and include a safety margin for uncertainty;
- FRVs should not, in principle 3, be lower than the values when the Habitats Directive came into force;
- FRV for population is always bigger than the minimum viable population (MVP) for demographic and genetic viability;
- FRVs are not necessarily equal to 'national targets';
- FRVs do not automatically correspond to a given 'historical maximum', or a specific historical date; historical information (e.g. a past stable situation before changes occurred due to reversible pressures) should however inform judgements on FRVs
- FRVs do not automatically correspond to the 'potential value' (carrying capacity for species, maximum possible extent for habitats), which however should be used to understand restoration possibilities and constraints.

OSPAR's modern baselines

- OSPAR's approach for its cetacean abundance and distribution indicator assesses trends in abundance since a baseline
- A modern baseline is used as a 'reference' situation, and possibly one that is already known to be degraded, due to a lack of historical data



Sub-objective: to/at 80% of K

This level was chosen after taking account of information for other cetacean species (c.f. the development of the International Whaling Commission's Revised Management Procedure) which indicate this is **above the level of maximum productivity and therefore more appropriate for a conservation agreement** (MOP2, WG on Scientific Matters).

1.3 Maintain a cetacean population at a level assumed to lie between 50-70% of carrying capacity.

When developing their Revised Management Procedure, the IWC adopted an approach that would lead to stocks being restored to and maintained at a target level of some 72% of carrying capacity. The rationale behind this is that the population is kept at or near to the level giving the greatest yield. However, ASCOBANS' is not a resource management body and thus the concept of net productivity is not especially relevant here. In the USA, as a result of their national legislation, an approach (termed the PBR or Potential Biological Removals approach) had been developed which has as its aim the recovery of populations to at least 60% of their carrying capacity after 100 years.

Given that ASCOBANS accepts a precautionary approach, a suitable objective could be to

1.4 Ensure that stocks/populations are restored to and/or maintained at, at least 80% of carrying capacity.

As noted above, any objective must try to specify the biological unit to be conserved. The question of stock identity is a persistent problem in cetacean studies (e.g. Donovan, 1991). While ideally one would like to manage true biological stocks, in practice one may need to define 'management' stocks, which can be thought of as units that may be 'successfully' managed. In practice, it is important that any proposed management action examines the consequences of mistaken assumptions of stock identity.

Anthropogenic Removals

'General aim'

- **Unspecified timeframe** - 'to minimize (i.e. ultimately to reduce to zero) anthropogenic removals (i.e. mortality)' (Res.3.3, Res.5.5, Res.8.5)*

Set interim targets for the levels of by-catch

- Originally set out as a **short-term aims**

Anthropogenic Removals

'General aim'

- **Unspecified timeframe** - 'to minimize (i.e. ultimately to reduce to zero) anthropogenic removals (i.e. mortality)' (Res.3.3, Res.5.5, Res.8.5)*

Intermediate precautionary objective

- **Short-term** (Res. 3.3)- 'to reduce by-catches to **less than 1%** of the best available population estimate' (Res.3.3, Res.5.5, Res 8.5)

Unacceptable interactions

MOP (1994)

- **Resolution 1.2 on the Implementation of the Conservation and Management Plan** (*expired*):
- The Advisory Committee shall, in the light of work of other intergovernmental organisations, assess the **level at which interactions between fisheries and small cetaceans become unacceptable**, and shall report no later than the next Meeting of the Parties
- The ASCOBANS Conservation and Management Plan, under the heading 'Habitat conservation and management' coins the term 'unacceptable interaction', which has triggered extensive work under the Agreement, especially in the 1990s

Unacceptable interactions

- Original Definition of unacceptable interactions :

in the short term, a total by-catch level in all fisheries above 2% of the maximum likelihood estimate of abundance within an appropriately defined management region should be considered as an 'unacceptable interaction'.

- Recognised that for populations which were severely depleted, this level would not be acceptable even in the short-term
- WG on scientific matters noted that the IWC's Scientific Committee had advised that **an estimated annual by-catch of 1% of estimated population size indicates that further research should be undertaken immediately to clarify the status of the stocks / raise a flag of concern**

J. CETACEAN RES. MANAGE. 2 (SUPPL.), 2000

Annex O
Report of the IWC-ASCOBANS Working Group
on Harbour Porpoises

8-10 March, 1999, Gatty Marine Laboratory, University of St Andrews, Scotland

Unacceptable interactions 1.7% of population size in that year

11.2 Base Model

The Working Group used the terminology of ‘base model’ and ‘simulation trials.’ The base model should incorporate a simple PDM of the form:

$$N_{t+1} = N_t + N_t R_{\max} (1 - (N_t/K)^\theta) - C_t \quad (1)$$

where N is population size, K is carrying capacity, θ determines the MNPL and C is ‘catch’ (anthropogenic removals). This is effectively a single-stock model in which there is no mixing between putative stocks. In applications of the base model, the Working Group agreed to use values of 0.04 for R_{\max} and 2.4 for θ (corresponding to an MNPL of 60% of K).

- ASCOBANS sub-objective **does not stipulate the probability**, i.e. % of cases;
- Base model adapted to achieve **80% of K , (employed 50% probability, default using a deterministic model,)** over an *infinite* time horizon;
- **Rmax of 4%** selected to mirror the default value in the US PBR – not based on harbour porpoise data;
- **No life history data** on harbour porpoises employed in the model;
- **Assumed a single stock** with more or less independent dynamics and when this is not the case, the limit is liable to be inappropriate;
- **Did not incorporate uncertainty in estimates in any parameter** (e.g. population size)
 - If such uncertainties are to be considered, then the maximum annual bycatch must be less than 1.7% to ensure a high probability (i.e. 80%, 95%) of meeting ASCOBANS sub-objective;
- Meeting the sub-objective in a **shorter time** will require that annual bycatch be reduced to an even lower fraction of the abundance.

Recommendations from the IWC-ASCOBANS working group, 1999

The WG agreed that simulations would be useful to:

- (1) investigate violations of assumptions in the base model;
- (2) explore sensitivity of the results to variation in certain parameters; and
- (3) potentially modify the base model to incorporate additional factors, as necessary.

The WG suggested several areas where the base model should be extended for simulation trials, including:

- (1) seasonal mixing,
- (2) dispersal,
- (3) stock sub-structure,
- (4) age/stage structure,
- (5) stochastic variability in R_{max} and K ,
- (6) catastrophic events,
- (7) value of MNPL,
- (8) bias in estimated bycatch,
- (9) variation in monitoring schemes,
- (10) variation in initial depletion level and long-term,
- (11) variation in carrying capacity.

Unacceptable interactions 1.7% of population size in that year

11.2 Base Model

The Working Group used the terminology of ‘base model’ and ‘simulation trials.’ The base model should incorporate a simple PDM of the form:

$$N_{t+1} = N_t + N_t R_{\max} (1 - (N_t/K)^\theta) - C_t \quad (1)$$

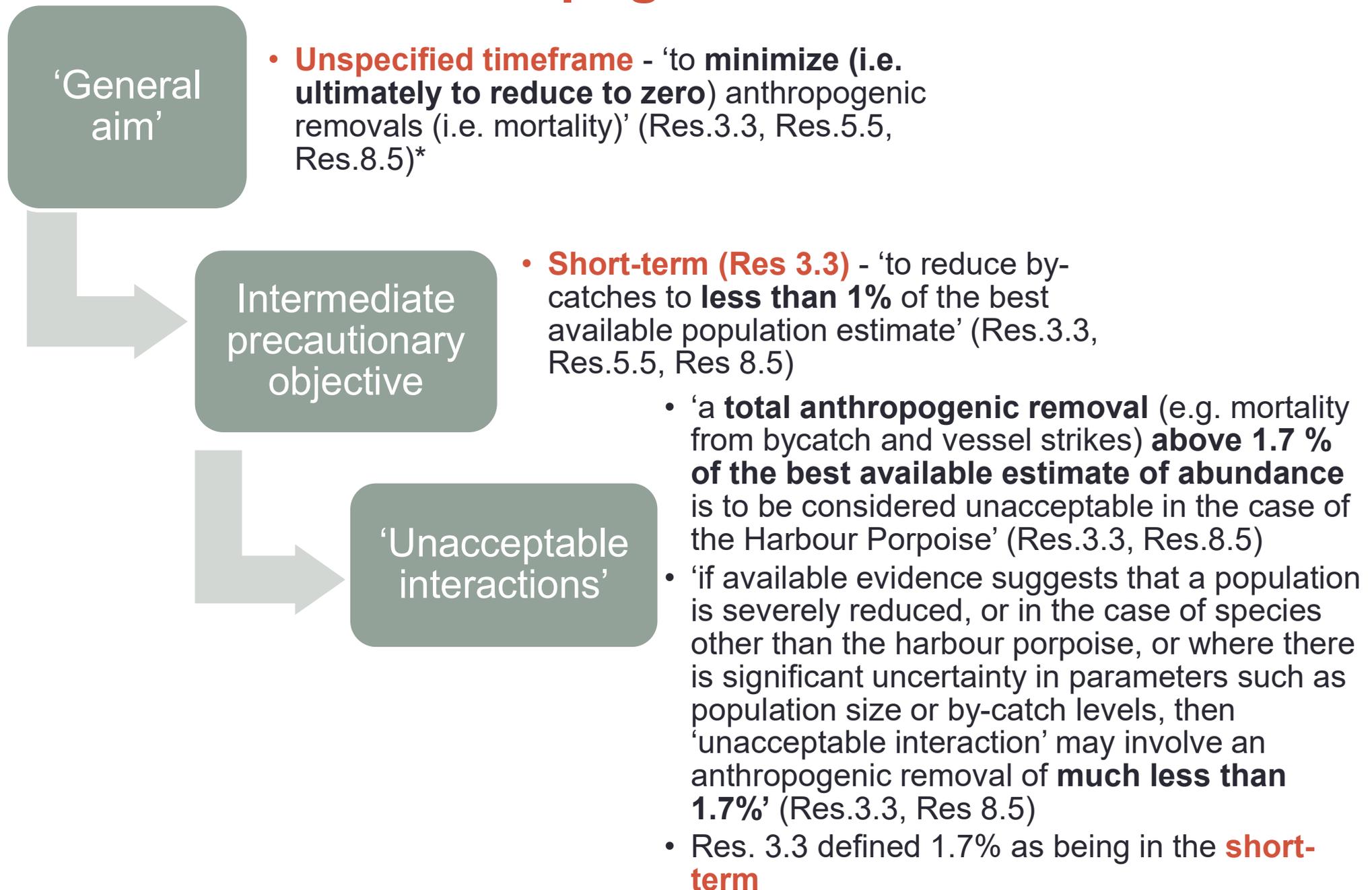
where N is population size, K is carrying capacity, θ determines the MNPL and C is ‘catch’ (anthropogenic removals). This is effectively a single-stock model in which there is no mixing between putative stocks. In applications of the base model, the Working Group agreed to use values of 0.04 for R_{\max} and 2.4 for θ (corresponding to an MNPL of 60% of K).

- Further work during the Conservation Objectives Part 1 workshop April 2023, identified that
 - Model also assumed a MNPL of 60% of K ,
 - If assuming a MNPL of 50% of K , then the corresponding threshold would be 0.8% of population size
 - Resulting limit very sensitive to the assumed MNPL

MNPL = Maximum Net Productivity Level

K = carrying capacity

Anthropogenic Removals



*suggested as a long-term aim in MOP2 1997 WG on Scientific Matters. Annex G

ASCOBANS Workshop on 'Unacceptable Interactions' – Part I July 2015

Key Conclusions and Recommendations

- 1) The term **'environmental limit'** would best be used to indicate a **'critical'** or **'unacceptable'** point in the environment that should not be exceeded.
- 2) The term **'trigger'** would best be used to signal the need for different **types of management action** that may need to be taken before an 'environmental limit' is reached i.e. 'triggering' urgent action when approaching an 'environmental limit', or 'triggering' the re-allocation of some resources to more urgent areas once bycatch drops below a certain point.
- 3) Guidance should be developed to accompany any environmental limit/trigger to ensure clarity on its interpretation and application i.e. what measures would it 'trigger'.

ASCOBANS Workshop on 'Unacceptable Interactions' – Part I July 2015

Key Conclusions and Recommendations

4) The **ASCOBANS aim of achieving zero bycatch** is important in ensuring pressure is kept up to maintain a downward trajectory in bycatch levels and should therefore **remain in place**.

ASCOBANS Workshop on 'Unacceptable Interactions' – Part I July 2015

Key Conclusions and Recommendations

- 7) There is merit in having a **'generic' bycatch figure** but more species specific estimates are warranted.
- 8) The current 'environmental limit' of 1.7% for total anthropogenic removals should be treated as a critical point in the environment that should not be exceeded. The figure **would benefit from re-evaluation and provision of greater clarity on how it was derived.**
- 9) Using the term 'unacceptable' as a reference to bycatch levels above the 1.7% limit **does not indicate that levels below this are considered 'acceptable'** and that no further measures are warranted.

It was noted that the Conservation Objective at/to 80% or more of carrying capacity represented the **only widely recognised and accepted figure.** Careful consideration should therefore be given before changing something that already had significant political and societal acceptance within the EU, NGOs and other stakeholders.

ASCOBANS Workshop on 'Unacceptable Interactions' – Part I July 2015

Key Conclusions and Recommendations

13) A more detailed consideration should be provided for specific practical, ethical, political or **legal implications of a PBR** (or similar algorithm, i.e. CLA) approach for decision makers. This should include, but not be limited to, a consideration of: how much it would cost; what data are needed and likelihood of availability; whether it would work in the EU; what oversight arrangements would be appropriate and possible; would it meet obligations under ASCOBANS and elsewhere i.e. Habitats Directive; **should highly protected species be subject to 'removal limits'?**

14) A clear strategy should be developed for the **role ASCOBANS** should play in ensuring consistency in the development of a PBR (or similar algorithm) approach across Europe **in light of other obligations** (i.e. the Common Fisheries Policy (CFP), Habitats Directive, Regulation 812/2004, Marine Strategy Framework Directive (MSFD), ACCOBAMS, etc.).

ASCOBANS AC27 2022 ([AC27/Doc.9](#)).

Work Plan Activities 2021-2024, A4, was highlighted as needing attention

4. Review whether the following remain appropriate, bearing in mind the overall objective of the Agreement to achieve and maintain a **favourable conservation status** for small cetaceans, as well as relevant regulations and work carried out under those, and to make recommendations to Parties as appropriate:

(a) the current maximum annual anthropogenic removal rate of 1.7 per cent of the best available estimate of abundance for harbour porpoise;

(b) the current intermediate precautionary aim of reducing bycatch to less than 1 per cent of the best available estimate of abundance;

(c) the objective of restoring and/or maintaining management units or populations to 80 per cent or more of their carrying capacity;

(d) the assessment/management units that have been proposed for regularly occurring species.

8.5 Bycatch
(Rev.MOP9)

5.7 Research

5.5 Incidental Take

3.3 Incidental Take

NE Atlantic Common Dolphin population (MU/AU)

Approach	Conservation Objective	Estimate	Reference
1%	Intermediate precautionary objective – 1% of the best available population estimate	6343	
1.7%	‘Unacceptable interactions’ - 1.7% of the best available population estimate	10783	
US PBR	50% of K, 95% probability, $R_{max} = 0.04$, $Fr = 0.5$	4927	ICES Advice 2023
10% PBR	50% of K, 95% probability, $R_{max} = 0.04$, $Fr = 0.5$ (US zero mortality rate goal)	493	ICES Advice 2023
mPBR	80% of K, 80% probability, $R_{max} = 0.04$, $Fr = 0.1$	985	OSPAR Indicator 2023

Based on a total estimate of common dolphins (including unidentified dolphins), focused largely upon shelf seas, from the 2016 surveys of 634,286 individuals (95% CI: 352 227–1 142 213) (ICES 2020)

North Sea Harbour Porpoise MU/AU

Approach	Conservation Objective	Estimate	Reference
1%	Intermediate precautionary objective – 1% of the best available population estimate	3450	
1.7%	‘Unacceptable interactions’ - 1.7% of the best available population estimate	5865	
US PBR	50% of K, 95% probability, Rmax = 0.04, Fr = 0.5	Nmin?	
10% PBR	50% of K, 95% probability, Rmax = 0.04, Fr = 0.5 (US zero mortality rate goal)	Nmin?	
mPBR	80% of K, 80% probability, Rmax = 0.04, Fr = 0.1	Nmin?	
RLA	80% of K, 80% probability	1622	OSPAR Indicator 2023

Based on a total estimate of harbour porpoises in the Greater North Sea from the 2016 surveys of 345 000 individuals (CV = 0.18; 95% CI: 239 000 - 483 000) (OSPAR 2023).

ASCOBANS Letter to EC, October 2015

- **Reflections on the Way Forward Proposed by the Commission**, underlining the need for an overarching legislation for the protection of cetaceans from all threats – that would define conservation objectives
- **Proposed Strategy for Assessing and Managing Cetacean Bycatch in European Waters**, calling for a **management framework** defining the threshold of ‘unacceptable interactions’ or ‘bycatch limits’ to help safeguard the favourable conservation status of European cetaceans in the long term, and drive toward the ASCOBANS overall aim of zero bycatch
- **ASCOBANS considerations on the need for a risk-based regional approach to the revision of Regulation 812/2004**, for example taking into account regional differences in species composition, types of fisheries present and the density and spatial distribution of cetaceans

ASCOBANS Recommendations on the Requirements of Legislation to Address Monitoring and Mitigation of Small Cetacean Bycatch [ASCOBANS Recommendations_EUBycatchLegislation_Final.pdf](#)

Management Framework Approach

ASCOBANS Conservation Objective:

“to restore and/or maintain biological or management units **to/at 80% or more of the carrying capacity**”

Societal decisions required for the determination of safe bycatch limits for harbour porpoise, common dolphin and bottlenose dolphin (2013, AC20/Doc.3.1.2)

Decisions required by Parties for implementation of a Management Framework Approach, such as the PBR / CLA

- **Probability for achieving the conservation objective**, e.g. 80%, 95%
- **Time horizon or timeframe for achieving the conservation objective**, *in the short term / in the long term* (e.g. 100 years)
- Updated review of management units for small cetaceans

Review whether the following remain appropriate, bearing in mind the overall objective of the Agreement to achieve and maintain a **favourable conservation status** for small cetaceans, as well as relevant regulations and work carried out under those, and to make recommendations to Parties as appropriate:

(a) the current maximum annual anthropogenic removal rate of 1.7 per cent of the best available estimate of abundance for harbour porpoise;	Still appropriate?
(b) the current intermediate precautionary aim of reducing bycatch to less than 1 per cent of the best available estimate of abundance;	Still appropriate?
(c) the objective of restoring and/or maintaining management units or populations to 80 per cent or more of their carrying capacity;	Discussions on fraction of K; Probability (%of cases) and Time horizon for achieving the CO
(d) the assessment/management units that have been proposed for regularly occurring species.	Follow up workshop

Management Units / Biological Units /Assessment Units

- ASCOBANS Management Unit – ‘a group of individuals for which there are different lines of complementary evidence (e.g. (morphometrics, life history parameters, photo-ID, in addition to genetics) suggesting reduced exchange (migration / dispersal) rates over an extended period (low tens of years)’ [Methods for Discriminating Populations \(ascobans.org\)](http://ascobans.org)
- Management Unit – ‘MUs are therefore recognized as populations with significant divergence of allele frequencies at nuclear or mitochondrial loci, regardless of the phylogenetic distinctiveness of the alleles.’ (Moritz 1994)
- ASCOBANS Biological Units?

Management Units / Assessment Units

OSPAR – AU should be of ‘ecological relevance’

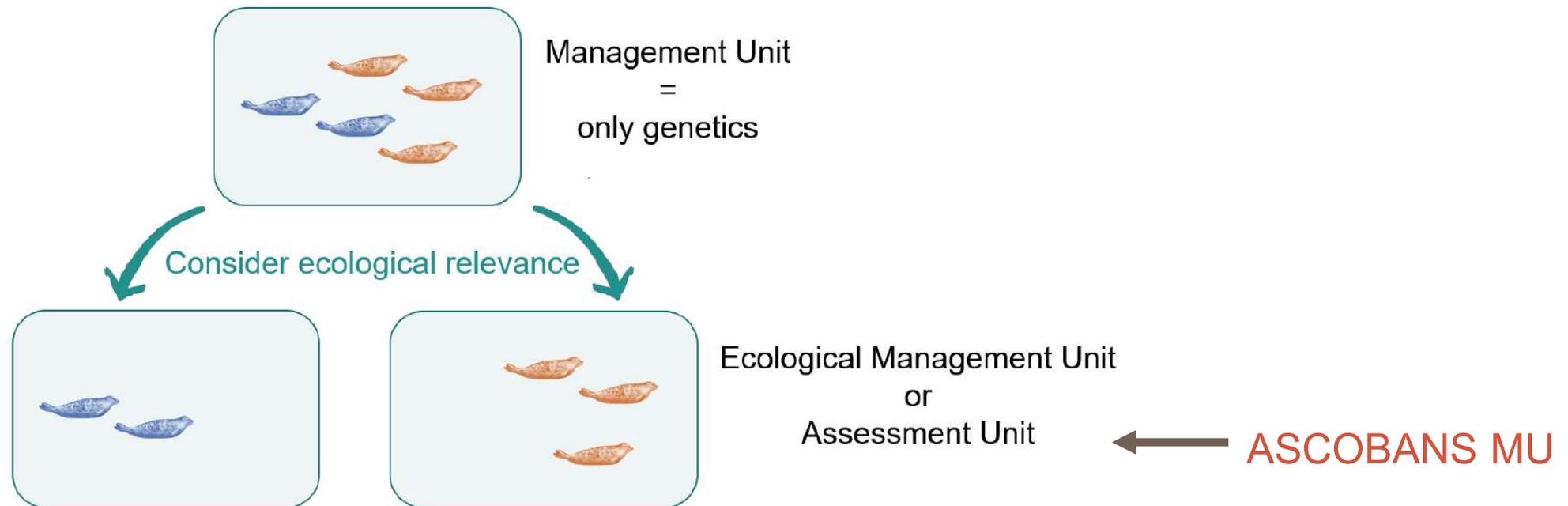


Figure 4. Schematic representation of applicable intraspecific units, as defined for the purpose of this study. Each seal represents a separate sampled element. The top shows a Management Unit (MU) where the unit is identified solely on the basis of genetic distinctiveness. The two different seal colours (blue, orange) represent ecologically distinct characteristics of sampled elements within this single MU. When considering such ecological relevance, an MU in this example is split into two Ecological Management Units or Assessment Units which consider their ecological characteristics/features in addition to genetic distinctiveness.

ICES/OSPAR – Common Dolphin

- evidence based on genetic data only

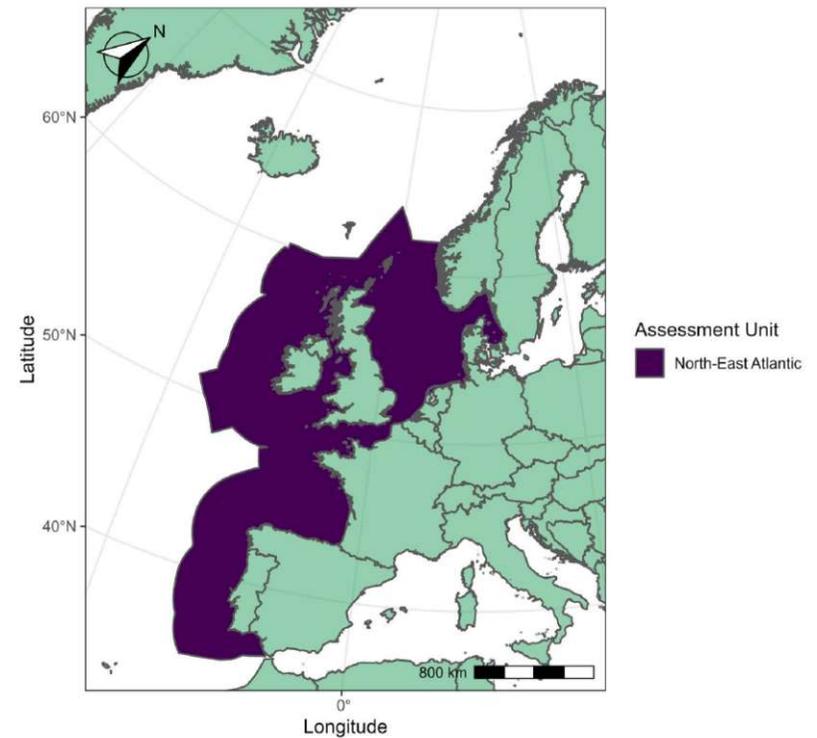
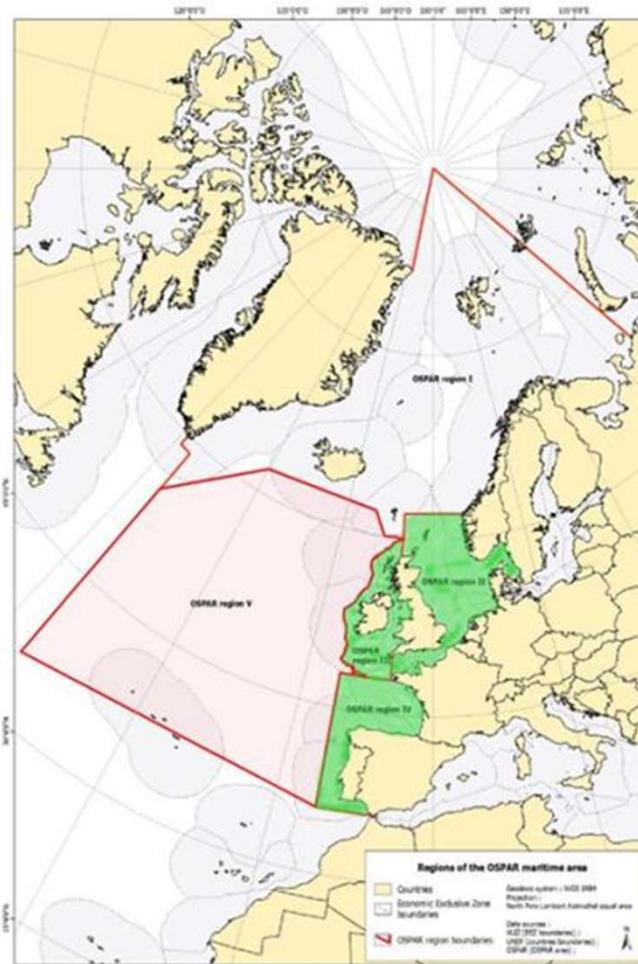


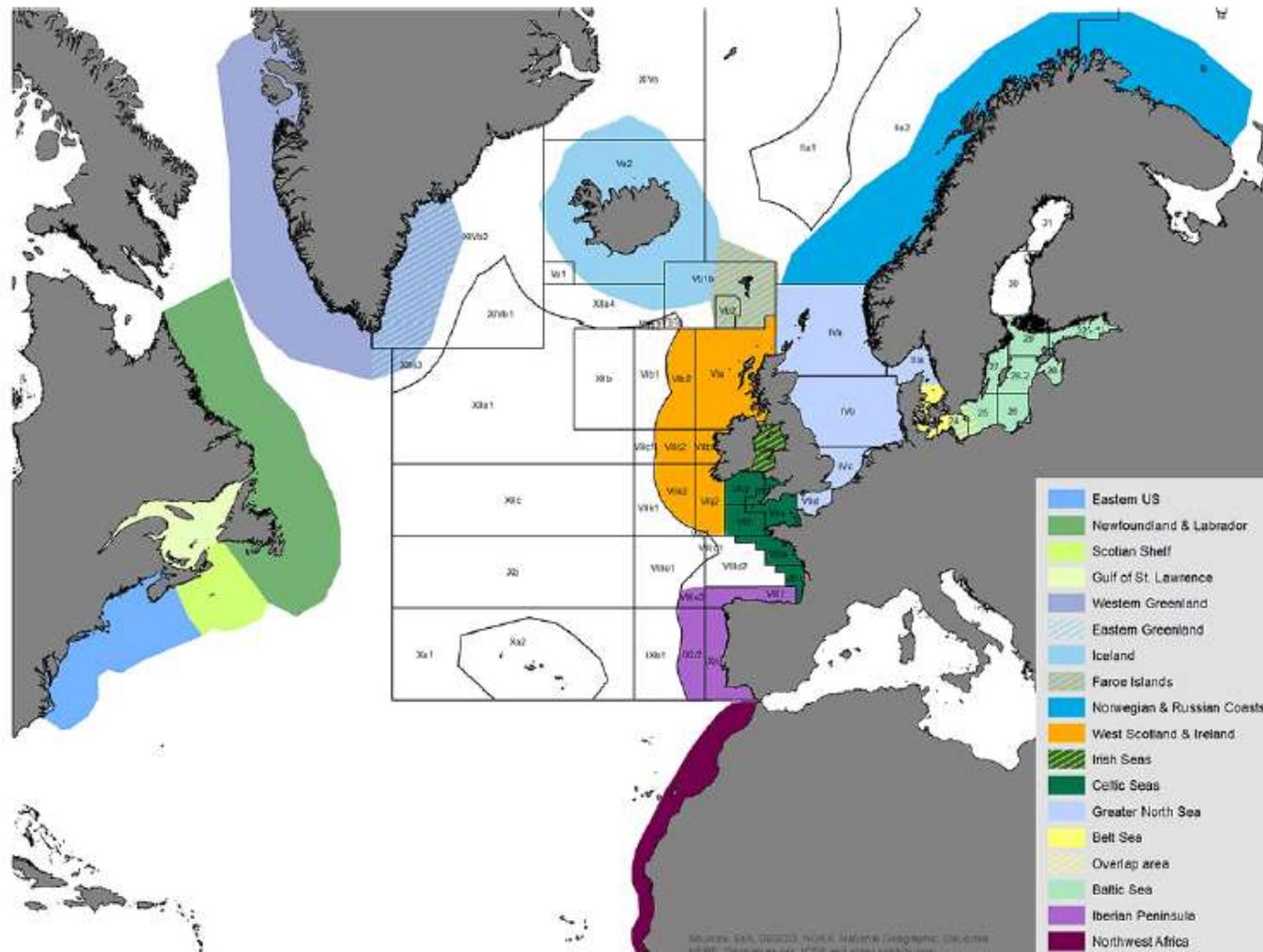
Figure 2: M6 assessment unit for common dolphin by-catch

OSPAR (2023) – MSFD Sub-regions

ICES 2014 – OSPAR Regions II, III and IV

Harbour porpoise Assessment Areas/Units

– NAMMCO-IMR (2019), OSPAR (2023)



ASCOBANS Workshop on 'Unacceptable Interactions' – Part I July 2015

Key Conclusions and Recommendations

10) Different interpretations of language exist between different communities i.e. modellers, fisheries, conservation, so caution must be exercised to avoid misunderstandings. **A legal view should be sought of the language and broad definitions being used to avoid potential future issues.**

11) **A simple guide to models and modelling terminology** should be produced to help inform future discussions and minimise misunderstandings, providing clarity on what models can do, how they can and cannot be used, and how they work.

12) The following **terms should be further defined for agreement and use within ASCOBANS:**

- Unacceptable interactions
- Environmental Limits
- Triggers
- Targets
- Sustainable removal
- Thresholds

Others to define – short-term, long-term, biological units etc.

Working Group on Definitions?

EU Habitats Directive (92/43/EEC)

- *Under Article 12:*

Member States shall take the requisite measures to establish a system of strict protection for the animal species listed in Annex IV(a) in their natural range,

prohibiting: (a) all forms of deliberate capture or killing of specimens of these species in the wild; (b) deliberate disturbance of these species, particularly during the period of breeding, rearing, hibernation and migration; and (d) deterioration or destruction of breeding sites or resting places (pp. 9–10).

- *Under Article 12(4)*:*

*Member States should establish a system to monitor the incidental capture and killing of the animal species listed in Annex IV(a), and in the light of the information gathered, Member States shall take further research or conservation measures as required to **ensure that incidental capture and killing does not have a significant negative impact on the species concerned** (p. 10).*

No specific requirement to report under Article 12

*Includes vessels under 15m

Other legislation for consideration

- Articles 2 (3) and 12 of Regulation (EU) 1380/2013 on the Common Fisheries Policy:

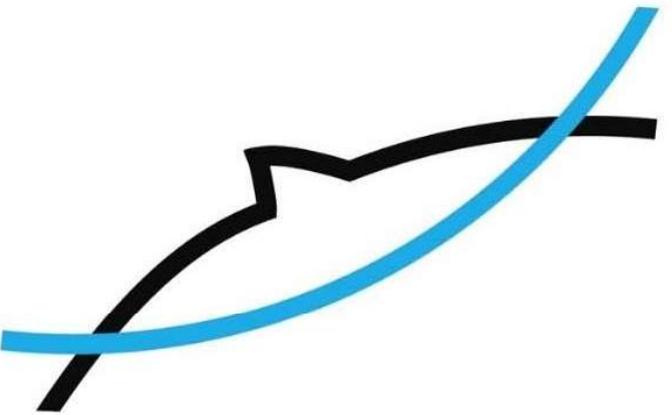
The CFP shall implement the ecosystem-based approach to fisheries management so as to ensure that **negative impacts of fishing activities on the marine ecosystem are minimised**, and shall endeavour to ensure that aquaculture and fisheries activities avoid the degradation of the marine environment.

- Article 3(2 b) of Technical Measures Regulation (EU) 1241/2019:
Ensure that incidental catches of sensitive marine species, including those listed under Directives 92/43/EEC and 2009/147/EC, that are **a result of fishing, are minimised and where possible eliminated so that they do not represent a threat to the conservation status of these species**;

EU Marine Strategy Framework Directive (2008/56/EC)

- D4 - All elements of the marine food webs, to the extent that they are known, occur **at normal abundance and diversity and levels capable of ensuring the long-term abundance of the species** and the retention of their full reproductive capacity.
- D1 - Biological diversity is maintained. The quality and occurrence of habitats and the distribution and abundance of species are in line with prevailing physiographic, geographic and climatic conditions.
 - D1C1 'The mortality rate per species from incidental by-catch is below levels which threaten the species, such that its long-term viability is ensured.'
 - 'Member States shall establish the threshold values for the mortality rate from incidental by-catch per species, through regional or subregional cooperation'
 - Thresholds for achieving Good Environmental Status of marine waters
 - [COMMISSION DECISION \(EU\) 2017/ 848 - of 17 May 2017 - laying down criteria and methodological standards on good environmental status of marine waters and specifications and standardised methods for monitoring and assessment, and repealing Decision 2010/ 477/ EU \(europa.eu\)](#)

And consider legislation of non-EU parties



 **ASCOBANS**

30 YEARS
1992-2022

The graphic features a white square containing a line graph with two lines: a jagged black line and a smooth blue line, both trending upwards. Below the graph is the UNEP logo and the text 'ASCOBANS'. At the bottom of the white square is a blue horizontal bar with the text '30 YEARS 1992-2022' in white.