Blueprint for site-specific conservation objectives for Marine Natura 2000 sites in the European sea basins

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Methods protocol
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1) Background

The Birds and Habitats Directives (BHD) require the designation and effective management of Natura 2000 sites (Special Protection Areas [SPAs] under the Birds Directive and Special Areas of Conservation [SACs] under the Habitats Directive) as the main contribution to reaching and maintaining the favourable conservation status (FCS) of protected habitats and species. Site-Specific Conservation Objectives (SSCOs) are critical in marine conservation because marine environments are vast, dynamic, and subject to diffuse yet intense pressures—most notably fisheries, shipping, climate change and pollution—while lacking the clear physical boundaries typical of terrestrial sites. SSCOs provide the ecological benchmarks necessary to define "site integrity," assess environmental and cumulative impacts, and ensure coherence across the Natura 2000 marine network, which is essential for achieving favourable conservation status at biogeographical scale (McLeod et al., 2016; European Commission, 2018). Through these functions, SSCOs operationalise the concept of favourable conservation status at site level, specifying both what must be achieved and maintained, as well as how impacts must be managed, thereby enabling adaptive management and transparent decision-making (European Commission, 2021).

Article 6(1) of Habitats Directive obliges Member States to set conservation objectives essential for guiding effective conservation actions based on scientific assessments that analyse the ecological needs of species and habitats, their current status, and associated threats, along with clear, measurable targets applied coherently across the network of Natura2000 sites.

Article 6(3) further requires that any plan or project likely to effect a site be assessed against those objectives (European Commission, 2018). The strong focus on Article 6 obligations (avoid deterioration, ensure appropriate assessments) underscores that effective SSCOs are not merely administrative documents but legal tools for compliant decision-making (per CJEU jurisprudence on Habitats Directive obligations) (ieu-monitoring.com).

However, despite existing European Commission guidance, there is currently no standardised methodology for defining measurable conservation targets. Consequently, Member States have developed their own approaches to formulating objectives, which has resulted in uneven application and significant gaps, particularly for marine habitats and species. These gaps have led to implementation challenges, including compliance issues, and have limited the ability of Natura 2000 sites to halt and reverse biodiversity loss and to contribute effectively to EU and global biodiversity targets. Addressing these gaps is therefore critical to improve the effectiveness of marine conservation efforts.

A **SSCO Blueprint**, a **structured, evidence-based, and policy-aligned methodological framework** will define **how Site-Specific Conservation Objectives are systematically developed, validated, implemented, monitored, and reviewed** across habitats and species, while ensuring **legal compliance, ecological credibility, methodological consistency, and governance feasibility**.

2) Objectives

The main goal of this request, put forward by the Directorate General for Environment (DG ENV), is to support Member States on setting scientifically sound, realistic, and measurable SSCOs for marine habitats and species across European marine waters. This will be achieved by:

1) Gathering knowledge on the main ecological requirements, current status, and potential threats for marine habitats and species protected under Annex I of the Birds Directive and Annexes I and II of the Habitats Directive (full list in the Annex of the present document).
2) Developing a blueprint for drafting SSCOs at the sea-basin level, tailored to habitat types and species, with options for sub-types or species groupings where ecological needs overlap.
3) Supporting the establishment and implementation of appropriate conservation measures that follow from these SSCOs.
4) Conducting horizon scanning to identify novel methods and technologies for monitoring key ecological features and indicators, ensuring that SSCOs are underpinned by the most effective and innovative monitoring approaches.

Ultimately, the knowledge gathered through this work will help Member States set legally compliant, site-specific conservation objectives for marine habitats and species, thereby contributing to the effective protection and recovery of marine biodiversity in the Natura 2000 network and helping achieve EU and global conservation targets.

2.1 Policy Relevance and Geographical Scope Of The Request

This request is highly relevant to ongoing EU biodiversity policy and governance efforts. It directly supports the objectives of the EU Biodiversity Strategy for 2030, particularly the commitment to legally protect and effectively manage 30% of EU marine areas, of which 10% is to be strictly protected. It also contributes to the implementation of the Birds and Habitats Directives, by helping Member States define robust, site-specific conservation objectives, which is an essential step toward achieving and maintaining favourable conservation status. The request also aligns with the goals of the Nature Restoration Regulation, which establishes legally binding targets to restore degraded ecosystems across the EU including the objectives to have restoration measures in place for all ecosystems in need of restoration by 2050. The topic is closely connected to discussions within key European Commission expert groups, including the Nature Directives Expert Group (NADEG) and the Marine Expert Group (MEG), where challenges around operationalising site-level conservation targets are actively being addressed. Furthermore, effective management and conservation of 30% of EU marine areas will help contribute to Target 3 of the Convention on Biological Diversity's Global Biodiversity Framework, which also aims to conserve 30% of marine and coastal areas by 2030. The scope of the request is marine Natura 2000 sites designated under the EU Birds and Habitats Directives across all

European sea basins, including the Baltic Sea, North-East Atlantic Ocean, Mediterranean Sea, and the Black Sea. The geographical scope is EU-wide supported by the best available scientific research, regional seas conventions assessments e.g. OSPAR and HELCOM, Article 17 (habitats and species) and Article 12 (birds) assessments, and MSFD environmental status reporting, with a focus on supporting Member States in defining and implementing site-specific conservation objectives relevant to their national marine territories within these regional seas.

2.2 Relevance for Biodiversity

The request would contribute to effectively protecting marine habitats and species by defining their conservation objectives and thereby facilitating the setting of the right conservation measures in the sites belonging to the Natura 2000 network, which should lead to the improvement of marine biodiversity.

3) Methods

This section describes the methodology proposed by the Expert Working Group (EWG), which is a two-staged methods process. The methodological framework presents the methods in general terms and in relation to the objectives. The second section will describe the methods proposed in more detail.

3.1 Methodological Protocol

To achieve the objectives formulated above, a combination of the following two methods are proposed: Rapid Evidence Assessment (REA) and a Participatory Workshop with online consultation. These methods will be conducted sequentially as follows:

a) A Rapid Evidence Assessment (REA) will synthesise the best available scientific and technical knowledge on the ecological requirements, status, pressures, and monitoring of Annex I and II marine habitats and species to underpin scientifically sound, measurable, and legally compliant SSCOs.
b) The Participatory Online Consultation will integrate Member States and expert knowledge to validate findings, address data gaps, and ensure that proposed SSCOs, conservation measures, and monitoring approaches are realistic and applicable across sea basins.

Together, these approaches support the development of a blueprint for SSCOs by identifying shared ecological requirements, pressures, and conservation needs across habitats and species, while allowing flexibility for sub-types or species grouping where appropriate along with regional specificities.

3.2 Rapid Evidence Assessment (REA)

3.2.1 Current REA Protocol

A Rapid Evidence Assessment (REA) is particularly well suited for this request as it provides a transparent, structured, and time-efficient approach for synthesising a large and diverse body of scientific and technical information across multiple marine habitats, species, and sea basins. It offers an appropriate balance between methodological rigour and feasibility, ensuring robust, consistent, and policy-relevant outputs.

The REA supports the first objective by systematically gathering and synthesising existing knowledge on ecological requirements, conservation status, pressures, and threats from peer-reviewed literature, grey literature, and EU and national reporting, including Article 12 (Birds Directive - 2009/147/EC) and Article 17 (Habitats Directive - 92/43/EEC) reports, and MSFD assessments. Given that relevant marine biodiversity information for Natura 2000 is widely disperse across sources, the REA provides a consistent framework for screening, selecting, and assessing evidence, resulting in a comprehensive, traceable, management-relevant knowledge base.

By synthesising evidence in a standardised manner, the REA enables the identification of shared ecological requirements, pressures, and conservation needs across habitats, species, and sea basins, while leaving space for certain specificities. This supports the development of a sea-basin-level blueprint for SSCOs, while distinguishing elements that can be addressed at broader scales from those requiring site- or species-specific treatment, including the use of habitat sub-types or species grouping where appropriate. The REA also informs the identification or appropriate conservation measures by clarifying links between pressures, ecological features, and supports horizon scanning for emerging monitoring methods and technologies through systematic review of recent scientific and technical developments, ensuring that SSCOs are underpinned by robust, efficient, and novel monitoring approaches aligned with existing EU frameworks.

Proposed Rapid Evidence Assessment Steps

- Feature Selection
- Highly mobile species assessment strategy
- Scoping and review question definition
- Development of a structured search strategy and eligibility criteria
- Data extraction and evidence synthesis
- Advantages and limitations of REA

Feature Selection

In light of time constraints, a targeted sub-sample of features was selected to support the initial, systematic development of Site-Specific Conservation Objectives (SSCOs), while explicitly retaining the capacity to extend SSCO formulation to the remaining features at a later stage. To underpin this process, a comprehensive inventory of all Annex I marine and coastal habitats, Annex II marine taxa, and Annex I marine bird species under the Birds Directive was compiled.

To ensure ecological relevance and operational usability, broad Habitats Directive categories were overlaid with EUNIS Level 4–6 classifications. This approach translates legally defined habitat types into ecologically meaningful and management-relevant units, effectively bridging statutory habitat typologies with practical monitoring frameworks. As a result, SSCOs are anchored in habitat attributes that are observable, measurable, and scalable. Alignment with EUNIS detail levels further enhances comparability across regions and facilitates integration with national monitoring and reporting systems in future iterations of the SSCO blueprint.

The selection of habitats and species for inclusion in the SSCO blueprint was undertaken in a systematic and consistent manner by the Expert Working Group (EWG), applying three core criteria across all features:

i) priority status;
ii) conservation and vulnerability status, drawing on EU Article 17 assessments and IUCN Red List classifications; and
iii) regional significance, informed by expert judgement.[1]

Based on this screening process, a final list of six habitats and eleven species was retained. All selected features are priority features and/or those identified as having the highest conservation concern and vulnerability, providing a robust and defensible foundation for SSCO development (Table 1).

Table 1. Sample list of selected features for the SSCO blueprint

A.	Annex I Marine & Coastal Habitats (1110–1180) - UPDATED WITH EUNIS CROSWALK: 2012 → 2022				
	Annex I Code	Annex I Habitat Name	EUNIS 2012 Code	Corresponding 2022 Code(s)	EUNIS 2022 Habitat Name(s)

[1] A template of the full approach is accessible at the following link: https://docs.google.com/spreadsheets/d/1aOF7D96fk9pJEYa6SRYK8KCkyX0Xs3JO/edit?gid=1725765174#gid=1725765174.

1	1110	Sandbanks slightly covered by seawater	A5.25	MC5	Circalittoral sand
2	1120	*Posidonia oceanica beds*	MB252 / A5.535	MB2.52 or similar EUNIS_M_2022 code	Mediterranean infralittoral biogenic habitat – Posidonia beds
3	1140	Mudflats & sandflats not covered at low tide	A2.24	MA6 / MA62	Littoral mud
4	1150	Coastal lagoons	X02	MH … / coastal wetland class	Coastal lagoon & brackish water habitats
5	1170	Reefs (exclusively on Mediterranean coralligenous formations)	A6.61	MD2.6x (approximate)	Offshore biogenic coral habitats
6	1110/1160	Maerl beds	A4.62	MA521	Maerl beds on Atlantic infralittoral mixed sediment
7	1170/1140	Kelp / seaweed forests	A3.21–A3.23	MB2.1x / MB2.2x	Infralittoral biogenic habitat types

B	i). Marine mammals (Annex II – Habitats Directive)		
	Group	Annex	Scientific Name
7	*Cetacean	II	*Phocoena phocoena*
8	*Cetacean	II	*Tursiops truncatus*
9	Pinniped	II	*Monachus monachus*
	ii). Marine Birds (Birds Directive – Annex I)		
	Group	Annex	Scientific Name
10	Seabird	I	*Fratercula arctica*
11	Seabird	I	*Uria aalge*
12	Seabird	I	*Thalasseus sandvicensis*
13	Seabird	I	*Rissa tridactyla*

	iii). Marine Reptiles		
	Common Name	Annex	Scientific Name
14	*Loggerhead turtle	II, IV	*Caretta caretta*
	iv). Fish (Annex II)		
	Common Name	Annex	Scientific Name
15	European sturgeon	II	*Acipenser sturio*
	v). Marine Invertebrates & Deep-Sea Taxa		
	Common Name	Annex	Scientific Name
16	Deep-sea corals	II (proxy)	*Desmophyllum pertusum*

Highly Mobile Species (HMS)

Strategy for setting site-specific conservation objectives for highly mobile marine species (HMS)

For highly mobile marine species, traditional site-based conservation objectives are ecologically unrealistic and legally fragile. The HMS-SSCO framework replaces fixed, site-contained targets with network-scale, function-based objectives that integrate connectivity, pressure reduction, and regional coherence. By assessing whether the protected area network meaningfully contributes to favourable conservation status at population and regional scales, this approach aligns Natura 2000 obligations with ecosystem-based management under EU law. It provides a legally robust, climate-resilient, and operationally feasible pathway for conserving species whose ecological reality transcends individual protected sites.

Figure 1 provides a harmonised guidance framework for the formulation of Site-Specific Conservation Objectives (SSCOs) for highly mobile marine species (HMS) within the Natura 2000 network. It addresses species whose ecological characteristics render traditional site-contained conservation targets ineffective, while ensuring full legal compliance with EU nature and marine legislation. The guidance applies to, inter alia, cetaceans, pelagic seabirds, migratory turtles, and wide-ranging fish species listed under the Birds Directive, Habitats Directive, and relevant Marine Strategy Framework Directive (MSFD) descriptors.

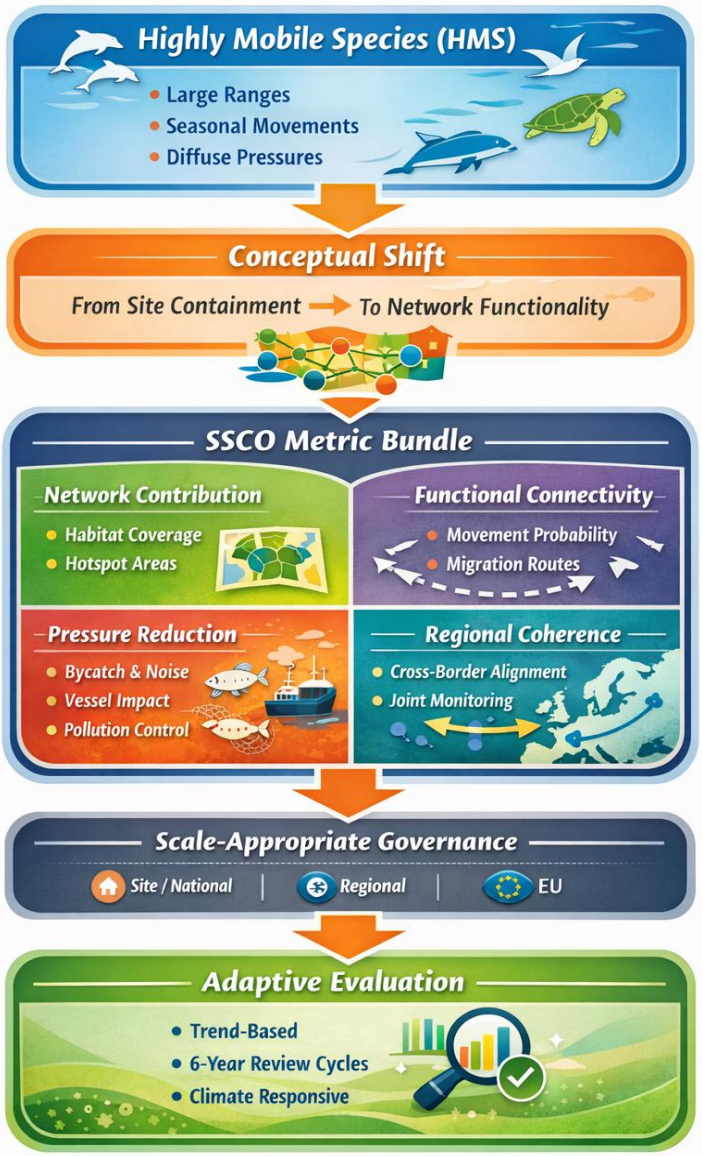

Figure 1. A visual Infographic of the Highly Mobile Species Strategy within the SSCO framework

3.2.2 Scope and Eligibility Criteria

Review Question and Analytical Components

The following analytical framework structures the identification, evaluation, and integration of ecological parameters underpinning Site-Specific Conservation Objectives (SSCOs). By systematically distinguishing structural, functional, compositional, and temporal dimensions—while explicitly accounting for data limitations, pressures, monitoring capacity, and the special requirements of highly mobile species—the framework ensures that SSCOs are ecologically robust, legally defensible, and operationally feasible. The approach supports the translation of

complex ecological evidence into coherent, adaptive objectives aligned with EU conservation policy and reporting obligations.

Table 2. Analytical Framework for Parameter Identification and Integration in SSCO Development

Analytical Dimension	Sub-Category	Key Questions	Indicative Parameters / Search Terms	Measurement & Evidence Considerations
Ecological Structure	Structural Parameters	Which parameters define ecological condition and physical integrity? How do these vary by habitat subtype, species group, or sea basin?	Habitat extent; habitat structure; substrate composition; spatial configuration	Based on mapped ecological requirements for Annex I & II habitats and species (Habitats Directive) and Annex I birds; derived from remote sensing, habitat surveys, bathymetry; requires robust spatial baselines
Ecological Function	Functional Parameters	Which parameters capture ecosystem processes and functionality? How do these vary across habitats, species groups, or regions?	Ecosystem integrity objectives; connectivity objectives; productivity; trophic interactions	Often proxy-based; relies on modelling, functional indicators, and expert judgement rather than direct measurement
Ecological Composition	Compositional Parameters	Which biological elements define ecological identity? How does composition vary by habitat, species group, or basin?	Typical species; community composition; population structure	Requires species inventories, abundance data, demographic and age-structure metrics

Ecological Requirements	Favourable Conservation Status (FCS)	What ecological needs must be met to achieve or maintain FCS?	Habitat ecological requirements; species recovery objectives; population viability objectives	Anchored in Directive definitions; thresholds often implicit and habitat- or species-specific
Highly Mobile Species (HMS)	Ecosystem Connectivity Terms (Group 3)	How are HMS identified and assessed? How are spatial and life-cycle linkages addressed?	Marine corridor objectives; spawning grounds; nursery areas; migration routes	Emphasises network connectivity, regional coherence, and life-cycle integration
Quantification	Quantifiable Metrics	Which parameters can be expressed as measurable indicators?	Habitat extent objectives; breeding success targets; population size or density	Enables SMART SSCOs; numeric thresholds preferred but strongly data-dependent
Temporal Dynamics	Temporal Variability	How do seasonal and interannual dynamics affect objective setting?	Spawning ground objectives; migration route objectives; nursery area objectives	Requires multi-year datasets; seasonal or life-cycle baselines often needed
Evidence Limitations	Critical Data Gaps	What data constraints limit SSCO precision? Where is expert judgement required?	Lack of long-term monitoring; poor spatial resolution; missing baselines	Often necessitates qualitative SSCOs, precautionary thresholds, or adaptive review
Pressures	Limiting Factors	What pressures constrain habitat and species viability?	Climate pressures; anthropogenic threats; management gaps	Supports pressure–state linkage analysis and prioritisation of management action

Monitoring	Monitoring Approaches	How are habitats and species currently monitored? What innovative methods exist?	Monitoring plans; survey frequency; tools and technologies	Informs feasibility, cost, and scalability of SSCO implementation
Pressures (HMS & General)	Pressure-Specific Terms (Group 4)	Which anthropogenic and natural pressures drive declines? What evidence supports these links?	Human pressures; climate change pressures; environmental pressures	Enables targeted pressure-based SSCOs and risk-reduction strategies
Integration for SSCOs	Parameter Synthesis	How are parameters combined into coherent SSCOs?	Structural + functional + compositional parameters	Requires prioritisation, trade-off analysis, and expert synthesis
Implications for SSCO Design	Operationalisation	How do parameters translate into actionable objectives?	Quantitative targets where possible; qualitative where data-limited	Supports feasibility, transparency, and adaptive management

Search Strategy

Ecological status classification metrics will be derived using established EU-recognised frameworks namely:

- Favourable Conservation Status (FCS) definitions under the Habitats and Birds Directives;
- Habitat condition concepts (structure, function, and typical species);
- Population-level attributes for species (range, abundance, demographic viability).

Where available, Article 17 (habitats and species) and Article 12 (birds) assessments will inform the baseline status categorization. Ecological status indicators will serve as contextual qualifiers that inform:

- Whether objectives focus on maintenance, restoration, or recovery;
- The appropriateness of trend-based versus threshold-based targets.

Ecological status will be assessed alongside data and information availability for each individual feature of group of features to avoid conflating conservation need with evidence capacity. A feature may be in poor status but lack sufficient data for precise thresholds; conversely, well-studied features in good status may support highly specific maintenance objectives. Separating status from evidence preserves ecological realism and methodological integrity.

Search queries will be constructed using a structured set of keywords designed to capture relevant evidence on marine habitats and species protected under the Birds and Habitats Directives. Keywords will be selected to represent three main components: (i) the habitat or species of interest (using scientific and common names), (ii) core thematic areas relevant to SSCO development, and (iii) the marine context.

Search strings will combine habitat or species names with thematic keywords related to ecological requirements, conservation status, pressures and threats, conservation measures, and monitoring, using Boolean operators (AND/OR). Indicative thematic keywords include ecological requirement, habitat condition, conservation status, pressure, threat, human impact, conservation measure, management, monitoring, and indicator.

Where database functionality allows, synonyms and related terms will be incorporated using OR operators to broaden coverage, while the number of keywords will be carefully managed to ensure results remain relevant and proportionate. The keyword set may be refined iteratively to address data limitations for specific habitats or species, while maintaining transparency through documentation of all search terms used.

Table 3. Literature Screening and Selection Criteria for SSCO Development

Criteria	Inclusion	Exclusion	Rationale
Habitats and species	Marine habitats and species listed under Annex I of the Birds Directive and Annexes I and II of the Habitats Directive	Species or habitats not listed in Annex I or II	Focus on legally protected species and habitats relevant for SSCOs
Topics	Ecological requirements, conservation status, pressures/threats, conservation measures, monitoring methods/indicators	Studies unrelated to ecological requirements, conservation, pressures, or monitoring	Ensure relevance to SSCO development and conservation planning
Geography	EU, UK, EEA, and other Mediterranean regions	Other regions outside the EU/EEA/Mediterranean	Maintain applicability to EU marine policy and management

Publication type	Peer-reviewed articles, grey literature (technical reports, monitoring reports, EU/national assessments), synthesis documents	Opinion pieces, unsupported commentaries, or sources without empirical or synthesised evidence	Ensure credibility and evidence-based conclusions
Temporal coverage	Primarily 2013–present; extend back to 1990 for baseline ecological data	Publications outside this range unless providing essential baseline data	Capture recent knowledge while retaining important historical context
Language	All languages, provided translation is feasible (human or machine-assisted)	Languages that cannot be reliably translated	Include relevant international sources while ensuring usability of evidence

Search Terms

In terms of the search terms and query approach, Boolean operators (AND/OR) and truncation will be applied to ensure relevant coverage while maintaining focus.

Initial results will be screened for relevance based on titles and abstracts. Search terms, databases, and sources may be refined iteratively to capture additional relevant evidence. All searches will be documented, including database, query, date, number of results, and inclusion/exclusion decisions, to ensure transparency.

Habitats	Birds'	Mammals	Supporting	Monitoring
"area" OR "extent" OR "structure" OR "structural complexity" OR "density" OR "height" OR "canopy" OR "matte" OR "age structure" OR "size-frequency" OR "geological feature" OR "seabed characteristic" OR "substrate"	"species of interest" OR "habitat requirements" OR "environmental requirements" OR "feeding requirements" OR "breeding requirements" OR "reproduction requirements" OR "juvenile requirements"	"optimal range" OR "tolerance limits" OR "temperature limits" OR "pH tolerance" OR "oxygen requirements" OR "critical thresholds" OR "critical population density" OR "critical prey density" OR "critical predator	"depth" OR "temperature" OR "salinity" OR "pH" OR "current velocity" OR "energy" OR "exposure" OR "sedimentation rate" OR "water circulation" OR "turbidity" OR "nutrient loading" OR "dissolved oxygen" OR "contaminants" OR "vibration" OR	"novel monitoring" OR "monitoring" OR "status" OR "trends" OR "indicators" OR "targets" OR "evaluation" OR "quality"

OR "sediment type" OR "depth range" OR "characteristic species" OR "typical species" OR "influential species" OR "keystone species" OR "canopy species" OR "species richness" OR "community composition" OR "trophic structure" OR "food web" OR "grazing" OR "primary production" OR "epiphyte" OR "non-indigenous species" OR "invasive species" OR "problematic species" OR "food chain" OR "sea floor" OR "dominance" OR "displacement" OR "community structure"	OR "migration requirements" OR "fledgling" OR "fledge" OR "adult" OR "breeding" OR "overwintering" OR "non-breeding" OR "flyway" OR "roosting" OR "nesting" OR "foraging" OR "burrow" OR "nest" OR "pelagic" OR "seabird" OR "wader" OR "waterfowl" OR "shorebird" OR "diver" OR "duck" OR "special protection area" OR "birds directive"	density" OR "small cetaceans" OR "large cetaceans" OR "pinnipeds" OR "Phocoena phocoena" OR "harbour porpoise" OR "hearing threshold shift" OR "mating" OR "calving" OR "echolocation" OR "communication" OR "fecundity" OR "bioaccumulation" OR "reproduction" OR "density" OR "population size" OR "bycatch" OR "underwater noise" OR "prey availability" OR "death rate" OR "birth rate" OR "disturbance" OR "displacement" OR "injury" OR "collision"	"light exposure" OR "electromagnetic fields" OR "smothering"	

Parameter Scoring Logic and Blueprint Integration Framework

Given the diversity of potential indicators and metrics available for coastal and marine habitats and species, a transparent and systematic approach is required to determine which parameters are scientifically credible, legally defensible, and operationally useful. First, a mastersheet of all possible ecological parameters was compiled for each of the habitats and species of interest through targeted literature searches and extractions. The primary resource for the task was the ETC BE Report 2025. Next, a structured evaluation framework is used to assess ecological parameters identified through the evidence search strategy for their suitability in developing Site-Specific Conservation Objectives (SSCOs). Each parameter will be assessed across six scoring dimensions that collectively reflect the core requirements of SSCOs under the EU Habitats and Birds Directives. Table 1. provides a multi-criterion scoring system that supports

consistent expert judgement and ensures that SSCOs are grounded in best available evidence while remaining feasible for implementation.

Table 1. Criteria used to evaluate each parameter identified through the search strategy

Scoring Dimension	Assessment Question	Scoring Logic (1-5)	Role in SSCO blueprint
Relevance	Does the parameter directly support defining or assessing FCS?	Low (1) → High (5)	Determines inclusion priority
Data Availability	Are data sufficient to support quantitative or semi-quantitative use?	Poor (1) → Robust (5)	Determines feasibility of SMART targets
Transferability	Can the parameter be applied consistently across sites or regions?	Site-specific (1) → Widely transferable (5)	Supports harmonisation
Directive Alignment	Is the parameter explicitly or implicitly supported by EU Directives?	Weak (1) → Explicit (5)	Ensures legal defensibility
Management Feasibility	Can the parameter be operationalised in management plans?	Not feasible (1) → Highly feasible (5)	Supports implementation
Blueprint Contribution	How does the parameter inform SSCO structure or methodology?	Marginal (1) → Foundational (5)	Shapes final blueprint architecture

Figure 2. presents a visual explanation of this scoring framework providing a transparent, structured method for selecting and justifying parameters used in Site-Specific Conservation Objectives (SSCOs). Parameters are evaluated across six dimensions—relevance to Favourable Conservation Status, data availability, transferability, directive alignment, management feasibility, and blueprint contribution—ensuring that objectives are ecologically meaningful, legally robust, and practically implementable.

Figure 2. A Visual Explanation of the Parameter Scoring Dimensions

Scoring each dimension on a 1–5 scale supports consistent decision-making, documents expert judgement, and balances scientific ambition with real-world constraints, ultimately underpinning harmonised, evidence-based SSCOs for coastal and marine habitats and species. This structured approach underpins the development of robust, evidence-based, and implementable SSCOs for coastal and marine habitats and species.

Data Extraction and Evidence Synthesis

Data extraction will be conducted using **standardised templates** to ensure consistency and transparency. If relevant synthesis documents are available, no screening will be required. For

primary or grey literature, titles and abstracts will first be screened for relevance, and full-texts assessed where appropriate.

For all included sources, the following information will be extracted:

- Qualifying feature (publication covers entire EUNIS 2022 habitat or a component species)
- Qualifying feature name (species or EUNIS habitat)
- Quantitative / qualitative metrics
- Structural, functional, supporting, or monitoring component type
- Component description
- Study location and regional sea
- Method used in the study
- Type of study (conceptual, review, empirical)
- Literature type (academic, EU, regional seas, national, NGO, etc.)
- Language and translation method
- Monitoring methods reported (Y/N)
- Knowledge gaps, issues, or challenges identified (Y/N)
- DOI or URL
- Additional comments

Extracted data will be organised by **habitat, species, sea basin, or grouping where relevant**, supporting cross-comparison and identification of shared ecological patterns. Evidence synthesis will integrate **quantitative data** (e.g., population trends, habitat extent, environmental thresholds) and **qualitative information** (e.g., management experience, monitoring approaches).

Uncertainties, data gaps, and limitations will be clearly documented. The synthesis will provide a **transparent** and **structured evidence base** to support the development of scientifically sound SSCOs, the selection of conservation measures, and the identification of effective monitoring approaches.

Advantages and Limitations of REAs

Rapid Evidence Assessments (REAs) provide structured and transparent syntheses of the best available evidence within a relatively short period of time (3-6 months). They allow an overview of key information to support policy or management decisions, making them suitable for informing the development of SSCOs. Compared with full systematic reviews, REAs are quicker to complete while maintaining methodological rigour, and the methods used are clearly documented to ensure transparency and reproducibility.

With regard to limitations, to achieve this “rapid” approach, REAs are necessarily less exhaustive and comprehensive than full systematic reviews. They may limit the breadth or depth of searches, potentially overlooking some relevant studies, and the risk of bias across sources can vary. REAs

rely on clear inclusion criteria and structured analysis, but interpretation may be influenced by subjectivity, terminology, or the content and quality of the underlying evidence. As a result, REAs are most suitable for focused questions rather than extremely broad or highly complex topics, and findings should be complemented by expert judgement and participatory validation where needed.

3.3 Participatory Workshop

A participatory workshop will be conducted to support and complement the Rapid Evidence Assessment integrating Member States' and expert knowledge to validate findings, address data gaps, and ensure that proposed SSCOs, conservation measures, and monitoring approaches are realistic and applicable across sea basins. This consultation will combine an **online survey** and **structured expert discussion session**.

3.3.1 Online Survey

The online survey will gather **broad input from Member States and relevant stakeholders** to validate the findings of the Rapid Evidence Assessment and capture experiential knowledge on ecological requirements, pressures, and conservation measures. The survey will be structured to cover key habitats, species, and ecological features relevant to SSCOs, including monitoring approaches and practical implementation considerations. Responses will be used to **identify data gaps, confirm the applicability of proposed SSCOs across sea basins, and highlight emerging challenges or opportunities**. Survey design will ensure accessibility and consistency, and results will be collated and summarised to inform the subsequent expert consultation sessions.

3.3.2 Online Participatory Workshop: Expert Consultation

The online expert consultation will provide a **more in-depth, interactive forum** for targeted discussion of specific habitats, species groups, pressures, and monitoring approaches. It will be structured using **facilitated breakout sessions**, each focusing on defined ecological or conservation topics. A plenary session will follow to integrate insights across all breakout groups, identifying common themes, challenges, and opportunities.

Participants will receive **briefing materials in advance**, including draft REA findings and preliminary survey results, to maximise engagement and focus discussions on evidence gaps and practical considerations.

4) Synthesis and Final Blueprint Development

The EWG expects to integrate the knowledge gathered through the Rapid Evidence Assessment (REA) and the Participatory Workshop to develop a coherent, evidence-based blueprint for Site-

Specific Conservation Objectives. This integrated synthesis will combine scientific evidence with Member State and expert knowledge to identify shared ecological requirements, pressures, and conservation needs across habitats, species, and sea basins, while clearly distinguishing elements requiring site- or species-specific consideration.

The resulting blueprint will set out structured guidance for defining measurable SSCOs, linking them to appropriate conservation measures and monitoring approaches, and ensuring consistency with the Birds and Habitats Directives. By integrating literature-based evidence with participatory validation, the final outputs will be scientifically robust, practically feasible, and applicable across the Natura 2000 marine network, supporting effective implementation by Member States and contributing to the achievement of EU and global biodiversity targets.

Box 1: Example SSCO Logic
Seabird Species: Black-legged Kittiwake (Rissa tridactyla) – Marine SPA

Dimension	Application to SSCO Framework
Legal status	Birds Directive (2009/147/EC), Annex I species; Article 4 SPA designation
Conservation value	Indicator species for pelagic ecosystem health; declining trends in NE Atlantic
Key ecological features	Breeding cliffs, offshore foraging areas, prey availability (sandeels, clupeids)
Structural parameters	Availability and integrity of nesting habitat (cliff structure, disturbance levels)
Functional parameters	Breeding success, chick survival, adult foraging efficiency
Compositional parameters	Population size, age structure, colony distribution
Quantifiable metrics	• Number of breeding pairs • Fledging success (% chicks fledged/pair) • Mean foraging trip distance
Temporal variability	High interannual variability linked to prey dynamics and climate forcing
Critical data gaps	Non-breeding season distribution; offshore cumulative pressures
Example SSCO	**Maintain ≥ X breeding pairs with ≥ Y fledglings per pair, averaged over a 6-year reporting cycle**

Monitoring link	x; aligned with Article 12 reporting

5) Limitations

While the combined use of Rapid Evidence Assessment and Participatory Workshop provides a robust and efficient basis for developing the SSCO blueprint, some limitations should be acknowledged. The REA by design, prioritises timeliness and relevance over exhaustiveness and may not capture all available evidence, particularly highly localised or unpublished data. Evidence quality and coverage may vary across habitats, species, and sea basins, and some conclusions may therefore rely on limited or uneven data. The participatory components, including the online survey and expert consultation, depend on the availability and representativeness of participants and may reflect differing levels of experience or regional focus. These limitations will be explicitly documented, and uncertainties clearly highlighted, ensuring that the final SSCO blueprint remains transparent, scientifically credible, and adaptable as new evidence and monitoring data become available.

6) Timeline

The following key activities with milestones and proposed duration are described in the following Table.

	Description	Duration/T
Task 1	**Method Protocol**	**4 months**
Milestone 1	**Method Protocol final version**	**March 2026**
	Method Protocol peer-reviewed finished (3 weeks)	April 2026
	Reply to comments peer review	April 2026
Task 2	**Rapid Evidence Assessment (REA)**	**June 2026**
Milestone 2	**Database with quantitative and/or qualitative results**	**June 2026**
Task 3	**Participatory Workshop: Online Survey**	**July 2026**
Task 4	**Participatory Workshop: Expert Consultation**	**July 2026**
	Identification of experts for workshop	July 2026
	Invitation to workshop	July 2026
	Workshop planning	July 2026
	Workshop summaries by experts	July 2026
Milestone 3	**Analysis of workshop results**	**End August 2026**

Task 5	Report Writing	September 2026
Milestone 4.1	Draft report ready for peer review	September 2026
Milestone 4.2	Report finished	September 2026

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8) Annexes

Annex I: List of marine habitats and species

Habitats listed in Annex I

Open sea and tidal areas natural habitats types of community interest whose conservation requires the designation of special areas of conservation (SAC's)
1110 Sandbanks which are slightly covered by sea water all the time

1120 * Posidonia beds (Posidonion oceanicae)
1130 Estuaries
1140 Mudflats and sandflats not covered by seawater at low tide
1150 * Coastal lagoons
1160 Large shallow inlets and bays
1170 Reefs
1180 Submarine structures made by leaking gases
8330 Submerged or partially submerged sea caves

Species of community interest listed in Annex II

(18 marine species, including fish, reptile, cetacean, and seal species) whose conservation requires the designation of Special Areas of Conservation (SACs)
1349 *Tursiops truncatus*
1351 *Phocoena phocoena*
1364 *Halichoerus grypus*
1365 *Phoca vitulina*
1366 *Monachus monachus*
1938 *Phoca hispida bottnica*
1224 *Caretta caretta*
1095 *Petromyzon marinus*
1099 *Lampetra fluviatilis*
1100 *Acipenser naccarii*
1101 *Acipenser sturio*
1102 *Alosa alosa*
1103 *Alosa fallax*
1151 *Aphanius iberus*
1152 *Aphanius fasciatus*
1153 *Valencia hispanica*
1154 *Pomatoschistus canestrini*
1992 *Valencia letourneuxi*
Seabirds and waterbird species for which Special Protection Areas (SPAs) should be considered.
Gavia stellata
Gavia arctica
Gavia immer
Podiceps cristatus
Podiceps grisegena
Podiceps auritus
Podiceps nigricollis
Fulmarus glacialis
Pterodroma feae
Pterodroma madeira
Bulweria bulwerii
Calonectris diomedea
Puffinus griseus
Puffinus assimilis
Puffinus puffinus
Puffinus mauretanicus

Puffinus yelkouan
Hydrobates pelagicus
Oceanodroma leucorhoa
Oceanodroma castro
Pelagodroma marina
Morus bassanus
Phalacrocorax carbo
Phalacrocorax aristotelis
Phalacrocorax a. desmarestii
Phalaropus lobatus
Phalaropus fulicarius
Aythya marila
Somateria mollissima
Polysticta stelleri
Melanitta nigra
Melanitta fusca
Clangula hyemalis
Bucephala clangula
Mergus serrator
Mergus merganser
Stercorarius skua
Stercorarius pomarinus
Stercorarius parasiticus
Stercorarius longicaudus
Larus genei
Larus ridibundus
Larus canus
Larus melanocephalus
Larus audouini
Larus marinus
Larus fuscus
Larus argentatus
Larus michahellis
Larus hyperboreus
Larus glaucoides
Larus minutus
Rissa tridactyla
Sterna caspia
Sterna albifrons
Sterna nilotica
Sterna sandvicensis
Sterna paradiseae
Sterna hirundo
Sterna dougallii
Cepphus grylle
Fratercula arctica
Alle alle

Alca torda
Uria aalge
Uria aalge ibericus

ANNEX II: EXAMPLES OF CONSERVATION OBJECTIVES FOR MARINE SITES

i) Ireland

A list of attributes on habitat area, habitat distribution and community distribution, with associated targets, was drawn up in order to maintain the favourable conservation condition of Sandbanks which are slightly covered by sea water all the time (Habitat 1110) in the Natura 2000 site Blackwater Bank SAC (IE0002953) in Ireland.[2]

Conservation objectives for: Blackwater Bank SAC [002953]			
1110 Sandbanks which are slightly covered by sea water all the time			
To maintain the favourable conservation condition of Sandbanks which are slightly covered by sea water all the time in Blackwater Bank SAC, which is defined by the following list of attributes and targets:			
Attribute	Measure	Target	Notes
Habitat area	Hectares	The permanent habitat area is stable or increasing, subject to natural processes. See map 3	Habitat area was estimated as 7310 ha using the Carnsore Point to Wicklow Head Admiralty Chart (no. 1787-0)
Habitat distribution	Occurrence	The distribution of sandbanks is stable or increasing, subject to natural processes. See map 3	Distribution established using the Carnsore Point to Wicklow Head Admiralty Chart (no. 1787-0)
Community distribution	Hectares	Conserve the following community type in a natural condition: Sand with *Nephtys cirrosa* and *Bathyporeia elegans* community complex. See map 4	The likely area of the community was derived from benthic surveys undertaken in 2005 (Roche et al., 2007) and in 2012 (Aquafact, 2012). See marine supporting document for further details

A list of attributes on distribution, habitat area and community structure, with associated targets, was drawn up in order to maintain the favourable conservation condition of Reefs (Habitats 1170) in the site Slyne Head Islands SAC (IE0000328) in Ireland.[3]

[2] Source: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002953.pdf
[3] Source: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000328.pdf

Conservation objectives for: Slyne Head Islands SAC [000328]			
1170 Reefs			
To maintain the favourable conservation condition of Reefs in Slyne Head Islands SAC, which is defined by the following list of attributes and targets:			
Attribute	Measure	Target	Notes
Distribution	Occurrence	The distribution of reefs is stable or increasing, subject to natural processes. See map 3	Distribution was established from 2010 subtidal reef survey (Aquafact, 2011) and 2012 field observations
Habitat area	Hectares	The permanent area is stable, subject to natural processes. See map 3	Habitat area was estimated as 1418 ha from 2010 subtidal reef survey (Aquafact, 2011) and 2012 field observations
Community structure	Biological composition	Conserve the following community types in a natural condition: Exposed intertidal reef community complex; *Laminaria*-dominated community; and Exposed subtidal reef with echinoderms and encrusting algae community. See map 4	Based on 2010 subtidal reef survey (Aquafact, 2011) and 2012 field observations

The following list of attributes and targets was drawn up in order to maintain the favourable conservation condition of Grey Seal in Slyne Head Islands SAC (IE000328) in Ireland.[4]

Conservation objectives for: Slyne Head Islands SAC [000328]			
1364 Grey Seal Halichoerus grypus			
To maintain the favourable conservation condition of Grey Seal in Slyne Head Islands SAC, which is defined by the following list of attributes and targets:			
Attribute	Measure	Target	Notes

[4] Source: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000328.pdf

Access to suitable habitat	Number of artificial barriers	Species range within the site should not be restricted by artificial barriers to site use. See map 5	See marine supporting document for further details
Breeding behaviour	Breeding sites	Conserve the breeding sites in a natural condition. See map 5	Attribute and target based on background knowledge of Irish breeding populations, review of data from Summers (1983), Lyons (2004), Ó Cadhla et al. (2005), a comprehensive breeding survey in 2005 (Ó Cadhla et al., 2008) and unpublished National Parks and Wildlife Service records. See marine supporting document for further details
Moulting behaviour	Moult haul-out sites	Conserve the moult haul-out sites in a natural condition. See map 5	Attribute and target based on background knowledge of Irish populations, review of data from Ó Cadhla et al. (2006), a national moult survey (Ó Cadhla and Strong, 2007) and unpublished National Parks and Wildlife Service records. See marine supporting document for further details
Resting behaviour	Resting haul-out sites	Conserve the resting haul-out sites in a natural condition. See map 5	Attribute and target based on review of data from Lyons (2004), Cronin et al. (2004), Ó Cadhla et al. (2005) and unpublished National Parks and Wildlife Service records. See marine supporting document for further details
Disturbance	Level of impact	Human activities should occur at levels that do not adversely affect the grey seal population at the site	See marine supporting document for further details

ii) Belgium

Conservation objectives adopted in 2022 for the Vlaamse Banken Natura 2000 site in Belgium.[5]

Targets
1 The spatial extent of habitat type 1110 does not change significantly
1.1 The spatial range and distribution of Level 2 EUNIS physical habitats (sandy mud to mud, muddy sand to sand and gravel containing sediment) fluctuates - in relation to the reference status as described in the 'Initial Assessment' (KRMS) - within a margin limited to the accuracy of the current distribution folders
1.2 The spatial range and distribution of the *A. alba* community is maintained
2 Function of shallow sandbanks as spawning and nursery areas is maintained or enhanced
2.1 Occurrence and densities of juvenile flatfish such as plaice (Pleuronectes platessa) and sole (*Solea solea*) in the coastal zone is maintained or increasing.
3 Non-indigenous species introduced by human activities occur at levels that do not alter the ecosystem.
3.1 Introduction of new human-introduced non-native species of macrofauna and macroflora (>1mm) that alter an ecosystem is avoided.
4 The frequency of occurrence of vulnerable species increases
4.1 The ratio of benthic R-strategists to K-strategists (at species level) is decreasing
4.2 The number of K-strategists (at species level) is increasing
4.3 There is a positive trend in the mean density of adult specimens (or frequency of occurrence) of a selection of long-lived and/or slow reproducing species and the major structuring benthic species groups in mud to muddy sands and pure fine to gravelly sands
5 The benthic ecosystem provides sufficient food for higher trophic levels
6 The ecological quality of the benthic habitat of the Abra alba biotope is preserved
6.1 The Benthic Ecosystem Quality Indicator as determined by BEQI tool is a minimum value of 0.60 for each occurring community
6.2 The bioturbation potential (BPc), an indicator for evaluating the functioning of the benthic ecosystem, has a minimum value of 0.60 (as determined via the BEQI procedure) for the *A. alba* community in the second half of the year.
7 The autonomous development of *L. conchilega* aggregations is not prevented
7.1 The 3D structures formed by *L. conchilega* are preserved
7.2 The densities of the *L. conchilega* reef-associated species (e.g. *Eumida sanguinea, Pariambus typicus*, *Microprotopus maculatus* and *Phyllodoce* spp.) do not show a downward trend
8 There is at least a conservation of the surface area of naturally occurring hard substrates

[5] Belgische Staat. 2022. Instandhoudingsdoelstellingen voor het Belgische deel van de Noordzee - Habitat- en Vogelrichtlijn – Herziening 2022. Federale Overheidsdienst Volksgezondheid, Veiligheid van de Voedselketen en Leefmilieu, DG Leefmilieu, Brussel, België: 27 pp.

8.1 For gravel beds, the ratio of hard substrate surfaces (specifically, surfaces colonized by hard substrate epifauna) to soft sediment surfaces (specifically, surfaces on top of the hard substrate and preventing the development of substrate fauna) should not show a negative trend in predefined test zones
9 There is a recovery of more natural benthic communities in the gravel beds
9.1 There has been an increase in species richness within taxa typically associated with hard substrates (specifically Porifera, Cnidaria, Bryozoa, Polychaeta, Malacostraca, Maxillopoda, Gastropoda, Bivalvia, Echinodermata and Ascidiacea)
9.2 There is an increase in the frequency of occurrence or median density of adult or mature colonies of at least half of the most important and long-lived species within gravel beds: native Flat oyster (*Ostrea edulis*), Mussel (*Mytilus edulis*), Common Whelk (*Buccinum undatum*), Dead man's fingers (*Alcyonium digitatum*), erected sponges (such as Mermaid's glove sponge (*Haliclona oculata*)) and erected Bryozoa (such as Sea chervil (*Alcyonidium* spp.) and Leafy hornwrack (*Flustra foliacea*))
9.3 There is an increase in the median body size of the larger benthic species: Common Whelk (*Buccinum undatum*) and Spider Crabs (Majidae spp.)
9.4 There is an increase in the number and size of sand tubeworm Ross worm (*Sabellaria spinulosa*) reefs and the number of clusters of triangular tubeworms (*Pomatoceros* (*Spirobranchus*) *triqueter*). - Type 1
9.5 There is recovery of gravel beds as spawning areas for Herring (*Clupea harengus*) and as sites for egg deposition by rays and sharks

iii) Greece

Conservation objectives for the habitat type *Posidonia* meadows (*Posidonion oceanicae*) (1120) in the NISOS GYAROS KAI THALASSIA ZONI SCI-SPA (GR4220033).[6]			
Parameter	Measurement unit	Target	Specific Target
Surface	Hectares	199.4	Maintenance
Rhizome growth strategy (at 15 m depth)	% of plagiotropic rhizomes	<10%	Maintenance
Depth of lower distribution limit	Metres	≥35	Maintenance
Meadow coverage (at 15 m depth)	% total habitat surface	>80%	Maintenance
Dynamics (stability, range, shrinking) of meadow at the lower distribution range	Typology of lower limit of meadow distribution	Advancing	Maintenance
Conservation index (at 15 m depth)	Index (Conservation Index - CI)	> 0,9	Maintenance

[6] Government Gazette: Series II, No 1807/22.03.2023

Meadow density (at 15 m depth)	Shoots per m^2	>500	Maintenance

iv) Bulgaria

Parameters for setting the specific conservation objectives for the species *Puffinus yelkouan* in the site BG0002077 Bakerlata.[7]

Parameter	Unit	Target value	Additional information	Site-specific conservation objectives
Population: Size of the migratory population	Number of individuals	At least 20 individuals	The target value is set on the basis of data from the SDF and data from eBird. The quantity of individuals passing during migration is highly dependent on weather conditions. The species' presence in the area is irregular during migration.	Maintaining the number of migrating individuals in the area to at least 20 through maintenance of foraging habitats
Habitat of the species: Area of suitable foraging habitats of the species	Ha	At least 21110	The species feeds in the Bay of Burgas. Determined on the basis of the % contribution of habitat N01-Marine sites and bays. The area in the site is 21110 ha.	Preservation and maintenance of the habitat types in the site to at least 21110 ha.

[7] For more information see:
https://natura2000.egov.bg/EsriBg.Natura.Public.Web.App/Home/Natura2000ProtectedSites

Habitat of the species: Ecological status of water bodies with habitats of the species by using biological quality element 'Fish' under the WFD	5 step scale for ecological status	1– High/ 2 – Good	Fish are covered by studies under the Water Framework Directive, using a biological quality element 'Fish'. The ecological status of water bodies according to the biological quality element Fish is assessed on a 5-level scale: Ecological status 1– High 2– Good 3– Moderate 4– Poor 5– Bad The monitoring of internal and coastal waters is carried out by the Basin Directorate 'Black Sea area' annually on defined monitoring points.	Maintaining and/or improving the ecological status of water bodies with appropriate habitats for the species, at values 2– Good or 1– High.

Annex III: Key terms and definitions in marine conservation and SSCO

Term	Definition	Key components/Criteria	Policy Context / Application	Source with Links
Systematic Conservation Planning (SCP)	Structured decision-support framework for identifying priority conservation areas based on explicit biodiversity objectives, spatial	Complementarity; representativeness; adequacy; efficiency	MPA network design; spatial prioritisation	Margules & Pressey (2000); Pressey & Bottrill (2009); Marxan Solutions

	data, and cost-efficiency.			
Complementarity	Selection of sites that add biodiversity features not yet represented in a conservation network.	Marginal gain; avoidance of redundancy	Protected area network design	Margules & Pressey (2000)
Representativeness	Inclusion of full biodiversity range across regions.	Habitat diversity; species assemblages	Natura 2000 coherence	Kukkala & Moilanen (2013)
Adequacy	Ensures conservation network is sufficient for long-term persistence.	Viability thresholds; population size	Habitats Directive reporting	Rondinini (2010)
Conservation Efficiency	Achieving conservation goals at minimal socio-economic cost.	Cost-effectiveness; optimisation	Spatial prioritisation	Wilson et al. (2009)
Connectivity	Ecological linkages allowing movement between sites.	Larval dispersal; corridors	Climate-resilient MPA networks	Beger et al. (2010)
Site-Specific Conservation Objectives (SSCO)	Defined conservation targets for habitats/species within Natura 2000 sites.	Quantified targets; structure & function indicators	Natura 2000 site management	European Commission (2012)
One Health Approach (OHA)	Integrated approach linking ecosystem, animal, and human health in environmental management.	Zoonotic risk; pollution control; ecosystem integrity	Marine and coastal planning	WHO (2021)
Highly Mobile Species (HMS)	Species undertaking large-scale migrations across jurisdictions.	Migratory routes; transboundary governance	Cetaceans; tuna; seabirds	Convention on Migratory Species (CMS)
Favourable Conservation Status (FCS)	Status achieved when habitat/species range is stable or	Range; area; structure; future prospects	Habitats Directive Art. 1	Directive 92/43/EEC

	increasing and viable long-term.			
Favourable Reference Value (FRV)	Benchmark population/area required for FCS.	Viability threshold	Article 17 reporting	EC Reporting Guidance (2017)
Favourable Reference Population (FRP)	Population benchmark ensuring species viability.	Minimum viable population	Habitats Directive reporting	EC (2017)
Favourable Reference Range (FRR)	Geographic range required to achieve FCS.	Historical baseline	Article 17 reporting	EC (2017)
Population Viability Analysis (PVA)	Quantitative modelling of extinction risk under scenarios.	Demographic modelling; stochasticity	Species management planning	Morris & Doak (2002)
Lower Reference Limit (LRL)	Threshold below which conservation status is unfavourable.	Precautionary benchmark	MSFD & fisheries	MSFD
Limit of Acceptable Change (LAC)	Threshold defining acceptable ecological change before intervention.	Indicators; trigger values	Adaptive MPA management	Stankey et al. (1985)
Blue Carbon Ecosystems	Marine ecosystems storing significant carbon (seagrass, saltmarsh, mangroves).	Carbon sequestration; habitat provision	Climate mitigation; restoration	UNEP
Ecosystem-Based Management (EBM)	Integrated ecosystem-scale management including humans.	Cumulative impacts; resilience	MSFD; MSP	CBD
Marine Spatial Planning (MSP)	Process allocating marine space for ecological and socio-economic objectives.	Zoning; stakeholder engagement	MSP Directive	Directive 2014/89/EU
Natura 2000 Network	EU-wide network of SACs and SPAs.	Connectivity; biogeographic coverage	Habitats & Birds Directives	Art. 3, Habitats Directive
Marine Protected Area (MPA)	Clearly defined marine area managed for long-term conservation.	Legal designation; monitoring	Global marine conservation	IUCN (2019)

Conservation Measures	Actions necessary to maintain/restore FCS.	Legal; administrative; restoration	Habitats Directive Art. 6(1)	Directive 92/43/EEC
Appropriate Assessment (AA)	Assessment of plan/project implications for site integrity.	Screening; mitigation hierarchy	Habitats Directive Art. 6(3)	Directive 92/43/EEC
Site Integrity	Ecological coherence sustaining designated features.	Structure; function; conservation objectives	AA decision-making	EC Guidance (2021)
Good Environmental Status (GES)	Status where marine ecosystems are healthy and resilient.	11 descriptors; ecosystem functioning	MSFD Art. 3(5)	Directive 2008/56/EC
Precautionary Principle	Preventive action when risk exists despite uncertainty.	Risk avoidance; burden of proof	EU environmental law	TFEU Art. 191
Transboundary Governance	Cooperative ecosystem management across national borders.	Regional agreements; shared monitoring	Highly mobile species	UNCLOS