

Joint NGO Guidance Paper on the implementation of the MSFD

**A resource document for environmental NGOs
on the implementation of the
Marine Framework Strategy Directive**

March 2012



*Coalition
Clean Baltic*



 **SEAS AT RISK**

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The European Seas Environmental Cooperation (ESEC) is an informal network between the Black Sea NGO Network (BSNN), the Coalition Clean Baltic (CCB), the Mediterranean Information Office for Environment, Culture and Sustainable Development (MIO-ECSDE), and Seas At Risk (SAR), which work for the protection of the marine environment in Europe's regional sea basins: the Baltic, Black and Mediterranean Seas and the North-East Atlantic Ocean.

Black Sea NGO Network (BSNN) is a regional association of NGOs from all Black Sea countries. The BSNN members, currently over 60, are brought together by the common concern for the decreasing environmental quality of the Black Sea and the need for the adoption of democratic values and practices in the Black Sea countries that follow the ideals of sustainability.

Website: <http://www.bsnn.org>

Coalition Clean Baltic (CCB) is a politically independent, non-profit association, which unites 27 member organizations, with over half a million members in all countries around the Baltic Sea. The main goal of CCB is to promote the protection and improvement of the Baltic Sea environment and its natural resources.

Website: <http://www.ccb.se>

The Mediterranean Information Office for Environment, Culture and Sustainable Development (MIO-ECSDE) is a non-profit Federation of 121 Mediterranean NGOs for Environment and Development. MIO-ECSDE acts as a technical and political platform for the presentation of views and intervention of NGOs in the Mediterranean scene and plays an active role for the protection of the environment and the promotion of the sustainable development of the Mediterranean region and its countries.

Website: www.mio-ecsde.org

Seas At Risk (SAR) is a democratic international network which uses its unique membership base and long-standing expertise to advocate environmentally sound policies at European and international level. SAR's vision is "Healthy marine ecosystems whose benefits can be enjoyed now and in the future".

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Introduction

The Marine Strategy Framework Directive (MSFD) is the first all-encompassing piece of European legislation specifically aimed at the protection of the marine environment. Its key aim is to achieve Good Environmental Status (GES) in European waters by 2020. With this aim in mind, the Directive establishes several implementation steps, which should guide progress towards the achievement of GES in 2020 and allow for the revision of the Directive's components thereafter.

The present Guidance Paper is intended to assist NGOs in their advocacy and policy formulation efforts at regional, national and local level. In particular, this paper has been drafted on the occasion of the national consultations on the MSFD and presents a set of recommendations to guide and assist NGOs in their contributions to these consultation processes.

1. Marine Strategy Framework Directive: State of play and next steps

1.1. Why is the MSFD so important?

- The MSFD is the first encompassing piece of EU legislation specifically aimed at the protection of the marine environment.
- The Directive foresees an ecosystem-based approach to the management of all human activities which have an impact on the marine environment.
- It imposes an obligation on all EU Member States to take the necessary measures to achieve or maintain Good Environmental Status in their marine waters by 2020.
- The MSFD foresees a regional approach to implementation, making use of Regional Seas Conventions.

Definition of GES – MSFD Art. 3 (5)

'Good environmental status' means the environmental status of marine waters where these provide ecologically diverse and dynamic oceans and seas which are clean, healthy and productive within their intrinsic conditions, and the use of the marine environment is at a level that is sustainable, thus safeguarding the potential for uses and activities by current and future generations, i.e.:

(a) the structure, functions and processes of the constituent marine ecosystems, together with the associated physiographic, geographic, geological and climatic factors, allow those ecosystems to function fully and to maintain their resilience to human-induced environmental change. Marine species and habitats are protected, human-induced decline of biodiversity is prevented and diverse biological components function in balance;

(b) hydro-morphological, physical and chemical properties of the ecosystems, including those properties which result from human activities in the area concerned, support the ecosystems as described above. Anthropogenic inputs of substances and energy, including noise, into the marine environment do not cause pollution effects;

Good environmental status shall be determined at the level of the marine region or subregion as referred to in Article 4, on the basis of the qualitative descriptors in Annex I. Adaptive management on the basis of the ecosystem approach shall be applied with the aim of attaining good environmental status.

1.2. Where are we now in the implementation process?

By the 15th July 2012, Member States must have produced some of the most important deliverables of this Directive:

- a. An initial assessment of the current environmental status of their marine waters (by reference to Table 1 of Annex III) and of the environmental pressures and impacts of human activities on the marine environment (based on Table 2 of Annex III). The initial assessment must include an economic and social analysis of the use of those waters and of the cost of degradation of the marine environment.
- b. The determination of Good Environmental Status at the level of the marine region or sub-region, on the basis of the qualitative descriptors in Annex I and in reference to the initial assessment. The definition of GES will be done on a case by case basis, rather than being a single one for all Member States.
- c. The setting of environmental targets and associated indicators, in order to guide progress towards achieving GES. The targets should be based on the initial assessment and take account of the indicative lists of pressures and impacts set out in Table 2 of Annex III, and of characteristics set out in Annex IV.

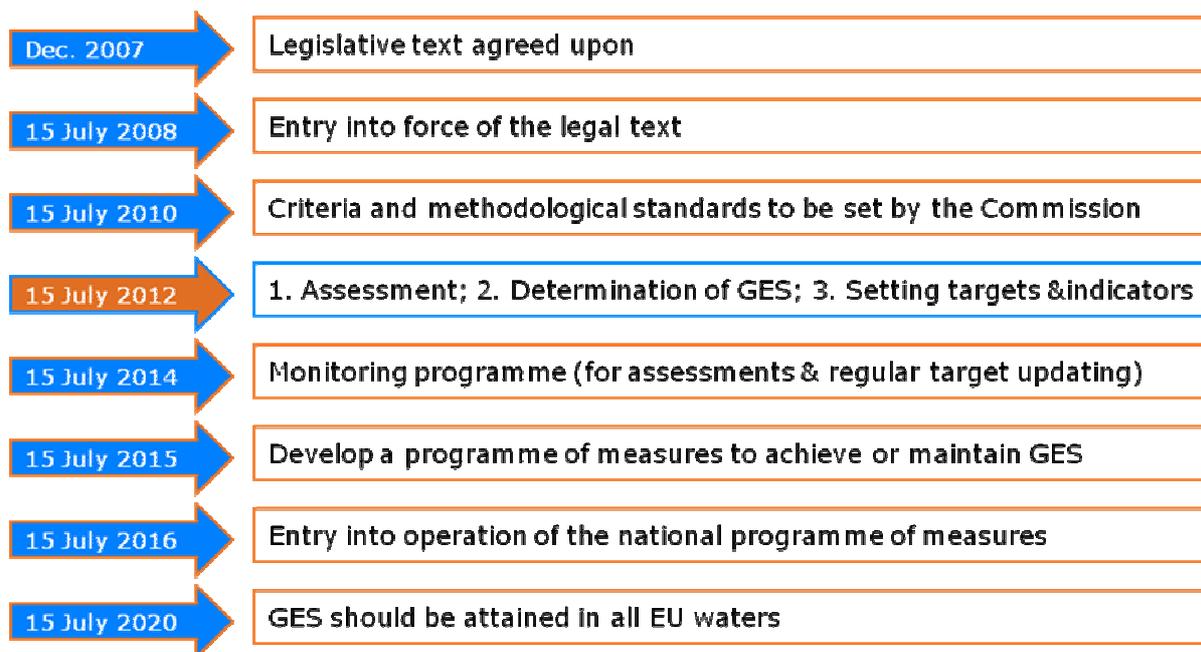


Figure 1. Main milestones in the implementation of the MSFD

1.3. Who are the actors?

The Directive imposes responsibilities and obligations on the Member States. Nevertheless, some decisions and activities are delegated to the European Commission.

It is up to the Member States to decide (in consultation with stakeholders) what they consider to be Good Environmental Status and to set their own environmental targets. Later in the process they will have to set up their own monitoring programmes and design and implement a programme of measures to achieve GES.

1.4. Role of the Regional Seas Conventions

The MSFD has a strong focus on the development of a coherent, co-ordinated and integrated approach to the marine environment. The Directive MSFD requires Member States sharing a marine region or sub-region to cooperate to ensure that the Directive's objectives are achieved and to coordinate their actions on each step of the marine strategies using the mechanisms and structures of the regional sea conventions. They are also obliged to make every effort to coordinate their actions with third countries in the same region or sub-region, taking account of their national obligations under the Directive.

The Regional Seas Conventions (RSCs) such as OSPAR, HELCOM, the Barcelona Convention and the Bucharest Convention can therefore provide a forum for Member States in the same marine region to coordinate their efforts (also in later stages of the implementation process – for example, when it comes to the implementation of monitoring programmes).

Regional cooperation – MSFD Art. 5 (2)

Member States sharing a marine region or subregion shall cooperate to ensure that, within each marine region or subregion, the measures required to achieve the objectives of this Directive, in particular the different elements of the marine strategies referred to in points (a) [initial assessment, determination of GES, setting environmental targets and implementing monitoring programmes] and (b) [programme of measures], are coherent and coordinated across the marine region or subregion concerned, in accordance with the following plan of action for which Member States concerned endeavour to follow a common approach.

Coordination and communication with Third Countries is essential. Coordination will help ensure that conflicting activities are not taking place and will allow for meaningful, practical and effective measures to be established. Without such coordination Member States run the risk that their attempts to achieve or maintain GES will be inadvertently countered by Third Country activities. In that respect, existing international structures, such as the Regional Sea Conventions, should be preferably used to coordinate the regional implementation of the Directive and be used as forums for communication between EU Member States and Third Countries.

1.5. Towards an MSFD Common Implementation Strategy

In addition to regional cooperation, the European Commission is working to ensure a consistent and harmonized approach in all marine regions/sub-regions by Members States, in an effort to facilitate the success of the MSFD implementation. In that respect a process to develop a Common Implementation Strategy (CIS) has been established, whereby a Committee structure oversees the details of implementation.

The Committee itself is made up of the Commission and Member States, but it is advised by several working groups, where stakeholders are allowed as participants. The current structure is as follows:

These working groups have produced documents which can provide some useful guidance on several aspects of the implementation of the Directive. You can find them in the “Resources” section at the end of this document.

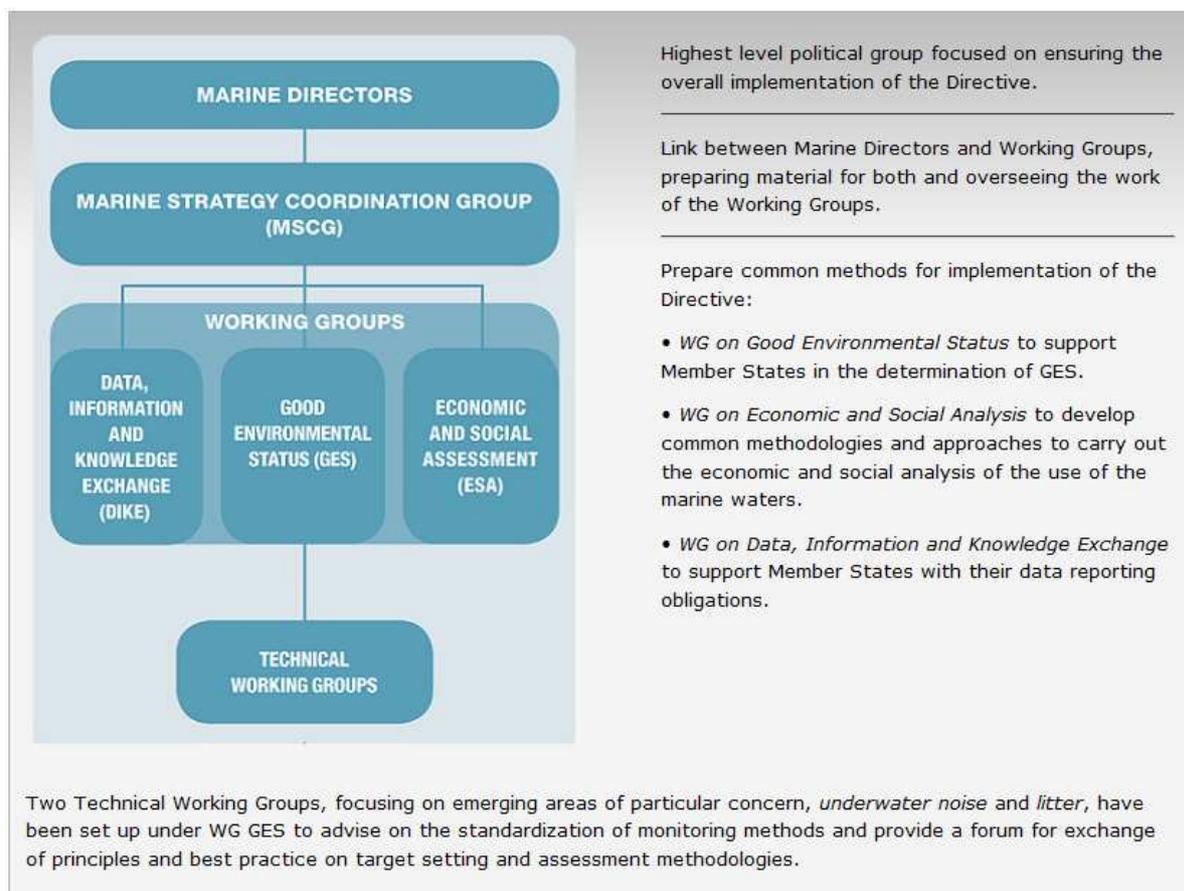


Figure 2. Committee structure to develop a Common Implementation Strategy (CIS) for the implementation of the MSFD.

2. The MSFD and public participation

2.1. Why get involved?

The implementation of the MSFD poses new challenges and opportunities for the environmental movement, at regional but also at national level. NGOs through their involvement and active participation, in the different steps of the process, can ensure the improvement and protection of the marine environment in Europe and the conservation of its resources in the next few decades.

At this step of the process, Member States must submit their draft reports on the initial assessment, the determination of GES and the environmental targets to a public consultation procedure before finalising them, as provided for in the Directive (see below).

The national consultations provide NGOs with an opportunity to give input on these elements, and to voice their concerns and demands. Having a proper vision of what represents “good” environmental status and setting the right environmental targets is very important – ultimately, it will be these targets that will drive the programmes of measures. Weak targets will mean weak measures. This is one of the most fundamental tasks for NGOs to evaluate and point out.

Public consultation and information – MSFD Art. 19

1. In accordance with relevant existing Community legislation, Member States shall ensure that all interested parties are given early and effective opportunities to participate in the implementation of this Directive, involving, where possible, existing management bodies or structures, including Regional Sea Conventions, Scientific Advisory Bodies and Regional Advisory Councils.

2. Member States shall publish, and make available to the public for comment, summaries of the following elements of their marine strategies, or the related updates, as follows:

(a) the initial assessment and the determination of good environmental status, as provided for in Articles 8(1) and 9(1) respectively;

(b) the environmental targets established pursuant to Article 10(1);

(c) the monitoring programmes established pursuant to Article 11(1);

(d) the programmes of measures established pursuant to Article 13(2).

2.2. When to get involved?

Table 1. Timeline for public consultations in the different EU Member States

EU Member States	Consultation starts	Consultation ends	Website
Belgium	April 2012	May 2012	
Bulgaria	From April 2012		
Cyprus	Spring 2012		
Denmark	1 February 2012	30 April 2012	
Estonia	1 April 2012 ?	31 May 2012	http://www.envir.ee/merestrategie
Finland	1 April 2012	15 May 2012	
France	Before May 2012		
Germany	14 October 2011	14 April 2012	http://www.meeresschutz.info/index.php/berichte.html
Greece			
Ireland	End 2012?		
Italy	June 2012?		
Latvia	May?		http://www.lhei.lv/lv/jurasdirektiva.php
Lithuania	1 February 2012?	31 May 2012?	
Malta			
Netherlands	6 April 2012	18 May 2012	http://www.centrumpp.nl/
Poland	31 May 2012	6 August 2012	
Portugal	June 2012		
Romania	First semester 2012		
Slovenia			
Spain	May 2012		
Sweden	19 March 2012	16 April 2012	
United Kingdom	27 March 2012	27/30 June 2012	

2.3. How to contribute? Issues of concern and recommendations

Within the framework of the national consultations, NGOs should try to ensure that:

- Initial assessments are rigorous and accurate, reflecting all the relevant aspects covered by Annex III of the MSFD, as well as the Commission’s decision on criteria and methodological standards.

For example NGOs should make sure that all essential features, characteristics pressures and impacts are addressed by the initial assessments and point out any factual errors or omissions.

- The definition of GES at the national or regional level is ambitious and adequate, and does not just represent the status quo (the already impacted marine environment).

For example GES for marine litter could be defined in the following way: GES will be attained when marine litter is no longer introduced into the marine environment and where the marine environment is free of marine litter, or where levels are close to zero.

- Environmental targets are ambitious, as they will drive the elaboration of the programmes of measures to achieve GES.

For example a 50% an overarching and practical target for all marine litter in EU waters for 2020 could be to reduce the amount of marine litter by a minimum of 50% from an agreed baseline level.

2.3.1. Determining GES

The primary aim of the MSFD is not to achieve “sustainable development” or “sustainable use” of the marine environment. Rather, the primary objective is to achieve and maintain Good Environmental Status, to protect, preserve and restore the marine environment and to avoid its deterioration. In doing so, the Directive aims to ensure that the cumulative and combined pressures of human activities do not hinder the achievement of GES and the resilience of marine ecosystems to respond to anthropogenic effects, so enabling the sustainable use of marine resources now and in the future.

By phrasing the Directive in this way, there is an implicit recognition that sustainable use is dependent on a healthy functioning marine environment.

While we recognise that the aim of the MSFD is not to achieve a completely pristine marine environment, the determination of GES should not preclude the option to retain in or restore to a pristine condition certain elements of the ecosystem or rare or fragile habitats.

GES should not be set at the status quo. The MSFD was developed in response to an agreed view that the marine environment has suffered damage and that human induced pressures are increasing. Consequently the GES descriptors, indicators and targets must be set at ambitious levels, and not just at levels that are easily achievable within the given timeframe.

For example when it comes to fisheries an ambitious target would be to rebuild the biomass of fish stocks to above B_{MSY} within a chosen timeframe, as a necessary precondition to reaching MSY.¹

A key issue is if GES under the MSFD is defined and approached in a coherent way with Good Ecological Status, as provided for in the Water Framework Directive (WFD).

¹ The maximum sustainable yield (MSY) for a given fish stock means the highest possible annual catch that can be sustained over time, by keeping the stock at the level producing maximum growth. The MSY refers to a hypothetical equilibrium state between the exploited population and the fishing activity. MSY is supported by a stable population size known as B_{MSY} (= “biomass MSY”). Consequently, “reaching MSY” means rebuilding fish populations to the B_{MSY} level, in order to be able to support the level of annual catches known as MSY.

Objectives – MSFD Art. 1

1. This Directive establishes a framework within which Member States shall take the necessary measures to achieve or maintain good environmental status in the marine environment by the year 2020 at the latest.
2. For that purpose, marine strategies shall be developed and implemented in order to:
 - (a) protect and preserve the marine environment, prevent its deterioration or, where practicable, restore marine ecosystems in areas where they have been adversely affected;
 - (b) prevent and reduce inputs in the marine environment, with a view to phasing out pollution as defined in Article 3(8), so as to ensure that there are no significant impacts on or risks to marine biodiversity, marine ecosystems, human health or legitimate uses of the sea.
3. Marine strategies shall apply an ecosystem-based approach to the management of human activities, ensuring that the collective pressure of such activities is kept within levels compatible with the achievement of good environmental status and that the capacity of marine ecosystems to respond to human-induced changes is not compromised, while enabling the sustainable use of marine goods and services by present and future generations.
4. This Directive shall contribute to coherence between, and aim to ensure the integration of environmental concerns into, the different policies, agreements and legislative measures which have an impact on the marine environment.

2.3.2. Setting environmental targets and associated indicators

It is important to ensure that the targets are at least as ‘ambitious’ as existing commitments (for example, in the context of RSCs or other Directives, such as the Water Framework Directive, and the Birds and Habitats Directives). These already decided targets must form the minimum standards also for the MSFD implementation and NGOs must underline this.

However, it is also important to secure value-added for the MSFD: the marine strategies should not be a simple compilation of all the targets that exist under other legislation. The MSFD poses an opportunity to really extend environmental protection to the whole sea basin (and not just to protected areas or species) and to apply measures to all human activities having an impact on the marine environment. This is an opportunity not to be missed.

When it comes to the specific targets and indicators, it is necessary to assess whether they are strong enough or detailed enough to ensure that the status of that component of the marine environment is either maintained at a high conservation status or is moving in the right direction. For example, would we consider GES achieved if 25% of a species was below the target set?

The issue of geographical scale and also of time-scales and metrics for indicators is important. Too large an area may mask local impacts and their causes (pressures). In contrast, too small an area may not be feasible for monitoring and assessment purposes or prove insufficient to cover the spatial distribution of biodiversity components or pressures and thus to evaluate wider effects of individual or cumulative local impacts. Specific focus should be given to time-scales required for management and metrics related to indicators, in order for them to provide suitable sensitivity and robustness to variation in natural processes. If an indicator is too aggregated, changes in an environmental component (positive or negative) may be masked.

Baselines and trends

In order to set environmental targets, Member States first need to identify baselines against which to measure their progress. Baselines provide an important standard against which to set the targets.

It is important that baselines are set correctly, so as to avoid the “shifting baselines syndrome”, whereby each generation at the beginning of their career redefines what it is they understand to be a “healthy” marine environment, which may represent significant changes from the original state of the system or even an already significantly impacted scenario.

There are several possible methods for setting baselines, and several associated methods for setting environmental targets. These are summarised below – for more information on baseline and target setting, please see Annex I.

Baseline and target setting methods **(according to the Draft OSPAR Advice Manual on Biodiversity)**

Approaches to setting **baselines** are:

Method A (reference state/negligible impacts) - Baselines can be set as a state in which the anthropogenic influences on species and habitats are considered to be negligible;

Method B (past state) - Baselines can be set as a state in the past, based on a time-series data set for a specific species or habitat, selecting the period in the dataset which is considered to reflect least impacted conditions;

Method C (current state) - The date of introduction of an environmental directive or policy can be used as the baseline state. As this may represent an already deteriorated state of biodiversity, the associated target should include an expression of no further deterioration from this state.

Approaches to **target-setting** are:

Method 1. Directional or trend-based targets:

- i. direction and rate of change
- ii. direction of change only

Method 2. Targets set at a baseline

Method 3. Target set as a deviation from a baseline

Several Member States are considering using trends when setting their environmental targets. Most Member States advocate this option in instances when scientific knowledge or understanding of a certain descriptor is considered to be limited. For example, when it comes to marine litter most Member States are likely to set a target of “reduction over time”, rather than setting a quantifiable, time-bound target, such as “40% less litter on beaches by 2020”.

Other Member States, however, are only planning to use trends for each and every descriptor.

Trends provide an easy solution to a perceived lack of information, but they are insufficient to guide significant improvements in environmental quality. The use of trends should be seen as an interim option until the evidence base supports the establishment for more quantitative environmental targets and NGOs should urge the Member States to avoid such an approach and fulfil the ambitions of this Directive.

2.3.3. Applying the ecosystem-based approach and the precautionary principle

The Marine Strategy Framework Directive defines the ecosystem-based approach, in its Art. 1.3, in the following way:

Ecosystem-based Approach – MSFD Art. 1 (3)

Marine strategies shall apply an ecosystem-based approach to the management of human activities, ensuring that the collective pressure of such activities is kept within levels compatible with the achievement of good environmental status and that the capacity of marine ecosystems to respond to human-induced changes is not compromised, while enabling the sustainable use of marine goods and services by present and future generations.

It is important that conduct and management of human activities (including fisheries, dredging etc.) will be carried out in a way that supports the objectives of the MSFD, as well as the Birds and Habitats Directives. The application of the precautionary principle is a central part of this ecosystem approach.

The precautionary principle – Earth Summit (1992)

Principle #15 of the Rio Declaration notes:

In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

The challenge for EU Members States is to investigate and quantitatively evaluate, specify and propose options and undertake actions for a gradual transition from the current fragmented management of these activities (e.g. fish stock based regime for fisheries management) to a mature integrated management, including strategies for the implementation of the ecosystem approach at regional level, reconciling short-term economic objectives with long-term ecosystem sustainability objectives.

In that respect, Member States should try to develop a set of fully costed ecosystem management options that will deliver the objectives of the Marine Strategy Framework Directive, the Habitats Directive, the European Commission Blue Book and the Guidelines for the Integrated Approach to Maritime Policy. The key objective is to produce scientifically-based operational procedures that allow for a step by step transition from the current fragmented system to fully integrated management.

2.3.4. Applying an integrated and coherent approach

The national Marine Strategies to be developed and implemented should also contribute to the overall coherence and integration of existing EU policies and legislation, such as the Water Framework Directive, the Habitats Directive, the Convention for Biological Diversity, Maritime Spatial Planning, the Community Guidelines on Integrated Coastal Zone Management (ICZM), the Common Agricultural Policy (CAP), The common Fisheries Policy (CFP), the ICZM Protocol of the Barcelona Convention, and other ongoing work of the Regional Seas Conventions.

In addition, the implementation of the MSFD should provide the guiding lines for future policy developments. MSFD provisions must be kept in mind and complied with when devising policies in the fields of fisheries, maritime transport, coastal development, etc.

2.3.5. Ensuring a consideration of socio-economic aspects

No “development” can result from the destruction of the marine environment. Protecting the marine environment must form the basis for economic growth, and it must be recognised that some economic activities (among which fisheries is the paradigmatic, but not sole, example) cannot even exist without a healthy environment and balanced ecosystems. Therefore, social and economic uses should be taken into account in determining GES.

2.3.6. Establishing coordinated monitoring programmes in 2014

Many monitoring programmes are fragmentary and do not meet the MSFD requirements. By 2014, Member States shall have established fit-for-purpose monitoring programmes and developed (by 2015) and implemented (by 2016) programmes of measures designed to achieve or maintain GES by 2020.

In case, Member States bring up arguments like arguments like “we do not have data” or “we can’t do this because of other directives”, they should be urged to make it clear where gaps exist in order that the limitations are defined and also to indicate what is needed to eliminate such gaps. NGOs should point out that existing monitoring tools could be appropriately adapted to meet the MSFD purposes and that new ones should be adopted in order to reach the objectives of the Directive.

3. Factsheets on the different descriptors

Herewith, a set of useful factsheets focusing on different descriptors are listed. This factsheets have been the outcome of a collective effort of European NGOs to coordinate and share their expertise in order to contribute more effectively in the process.

- Joint NGO guidance factsheet on Fisheries (Descriptor 3) on the implementation of the MSFD.
- Joint NGO guidance factsheet on “Concentrations of contaminants are at levels not giving rise to pollution effects” (Descriptor 8) & “Contaminants in fish and other seafood for human consumption do not exceed levels established by Community legislation or other relevant standards” (Descriptor 9) on the implementation of the MSFD.
- Joint NGO guidance factsheet on Marine Litter (Descriptor 10) on the implementation of the MSFD.
- Joint NGO guidance factsheet on Noise (Descriptor 11) on the implementation of the MSFD.

Coalition Clean Baltic



GREENPEACE



Joint NGO guidance factsheet on Descriptor 3 (Fisheries) on the implementation of the MSFD

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Introduction

Fisheries are a vital component in the livelihoods of people in many parts of the world, including the EU. However, irresponsible fishing practices and habitat loss and degradation, allied to pressures associated with water abstraction, drainage of wetlands, dam construction and pollution (including eutrophication) have led to substantial declines and changes in synthesis of fishery resources.

Overfishing represents one of the biggest threats to the health of our oceans and seas. Fishing activities not only have impacts on target species, but they also have significant impacts on non-target species and habitats.

Of the assessed stocks in the EU in 2011, 63% in the Atlantic were overfished, 82% in the Mediterranean and 4 out of 6 in the Baltic². This is primarily the result of practices deriving from decision-making that is based on short-term considerations and meant to cushion the economic and social impacts of reduced fishing opportunities. It also results from a top-down and heavily politicised decision making framework which is unable to respond to differentiated needs of the different fisheries realities in Europe.

Fisheries management in the EU has so far failed to deliver sustainable fisheries, able to support a profitable economic activity while simultaneously ensuring the sustainability of fish stocks and the health of the marine ecosystems of which fish are a key component. In order to improve the sustainability of fishing activities, fisheries governance must:

- take into account the ecosystem's limits
- respond to environmental changes and
- contribute to the conservation of ecosystem components.

Fisheries management will have to be integrated much better with the planning and management of the other sectors sharing aquatic space and resources.

The objective of the Marine Strategy Framework Directive (MSFD) has the ambitious task to achieve or maintain good environmental status (GES) in the marine environment by 2020. The implementation of the MSFD therefore provides a formidable opportunity to advance sustainable fisheries management in Europe.

1. The Marine Strategy Framework Directive & Fisheries (descriptor 3)

Annex I of the MSFD lists 11 qualitative descriptors which should be used in assessing the status of the marine environment and in setting targets for the achievement of GES. Some of these 11 descriptors relate to the overall status of the marine environment (for example, descriptors 1, 4 and 6, which address biodiversity, food webs and seafloor integrity, respectively). The remaining descriptors are mostly related to specific pressures and/or impacts of human activities on the marine environment.

Descriptor 3 specifically addresses the **impact of fishing activities on target species**. Impacts on non-target species and on habitats should be addressed under descriptors 1, 4 and 6.

Descriptor 3 – MSFD Annex I

² Communication from the commission concerning a Consultation on fishing opportunities COM(2011) 298 final

Populations of all commercially exploited fish and shellfish are within safe biological limits, exhibiting a population age and size distribution that is indicative of a healthy stock.

This descriptor is rather general and does not provide sufficient detail for the practical implementation of the Directive. For that reason, the European Commission has put forward 3 main criteria that need to be taken into consideration by Member States when assessing this descriptor and when setting targets and indicators.

2. Commission criteria³

The criteria mentioned in the Commission Decision apply to all stocks covered by the Data Collection Framework Regulation⁴ within the MSFD area and similar obligations under the Common Fisheries Policy (CFP).

Commission criteria for descriptor 3

3.1. [Level of pressure of the fishing activity](#)

Primary indicator:

3.1.1 Fishing mortality (F)

Secondary indicators (if analytical assessments are not available):

3.1.2 Catch/biomass ratio

Other secondary indicators may be developed on the basis of other proxies for fishing mortality, adequately justified.

3.2. [Reproductive capacity of the stock](#)

Primary indicator:

3.2.1 Spawning Stock Biomass (SSB)

Secondary indicators (if analytical assessments are not available):

3.2.2 Biomass indices

3.3. [Population age and size distribution](#)

Primary indicators:

3.3.1 Proportion of fish larger than the mean size of first sexual maturation

3.3.2 Mean maximum length across all species found in research vessel surveys

3.3.3 95 % percentile of the fish length distribution observed in research vessel surveys

Secondary indicator:

3.3.4 Size at first sexual maturation, which may reflect the extent of undesirable genetic effects of exploitation

³ From the Commission Decision on criteria and methodological standards on good environmental status of marine waters (2010/477/EU)

⁴ Regulation 199/2008/EC

3. NGO recommendations on target setting for descriptor 3

The Commission criteria mentioned above provide a solid basis to ensure that the main aspects of this descriptor are addressed. Therefore, all **Member States should ensure that they set targets for all three criteria and for their indicators**. This may sound difficult but it is of paramount importance.

A major problem with descriptor 3 is that at the moment only about one third of all commercial fish stocks have analytical assessments. Therefore, Member States should make sure that they **assess all their commercial fish stocks**, and that no important stocks are left out due to the way the stock selection is conducted. For example, deep sea stocks may constitute a small percentage of landings if compared with landings of pelagic species, but deep sea stocks remain particularly important due to their important life traits. An easy way to ensure that all significant stocks are assessed is to divide all landed species in categories (e.g.: pelagic, demersal, flatfish, deep sea fish, etc) and to **assess all species that provide more than 0.1% or 1% of landings for each category**.

3.1 Fishing mortality

The Commission Decision states that “[a]chieving or maintaining GES requires that F values are equal to or lower than F_{MSY} ” (emphasis added)⁵. This is incorrect. Inflicting a fishing mortality equal to F_{MSY} on a stock that is not yet at B_{MSY} will not rebuild the stock to B_{MSY} levels, or only after a very long period of time. Moreover, since F_{MSY} is a rate based on several estimates, it is unlikely that it can be estimated at the exact correct level, meaning that the theoretical balance point whereby fishing at F_{MSY} will eventually lead to a biomass of B_{MSY} might never be reached.

In order to achieve healthy stocks, and hence GES, **fishing mortality must not exceed F_{MSY}** . F_{MSY} therefore becomes a **limit rather than a target** reference point – in line with the United Nations Fish Stocks Agreement (UNFSA). In order to ensure that the limit is not exceeded, **fisheries managers should aim at a fishing mortality slightly below F_{MSY}** – for instance, 0.9 or 0.75 F_{MSY} ⁶.

The quickest way to rebuild an overexploited fish stock is to reduce mortality. The stronger and quicker the reductions, the quicker will be the recovery of the stock.

In mixed fisheries, the only way to ensure that Maximum Sustainable Yield (MSY) is achieved for all commercial stocks is to base management on the most vulnerable stock (typically the species with lower growth rates and lower reproductive capacity). Therefore, **in mixed fisheries, the most vulnerable stock should be exploited at a rate below F_{MSY}** , meaning that other stocks in the fishery may not be exploited to their full commercial potential. The Commission Decision acknowledges the problem of mixed fisheries, but does not clearly state the need to base management on the most vulnerable stock.

Several fish stocks are already exploited at or below F_{MSY} ⁷. Moreover, with further efforts, a number of stocks, such as North Sea plaice, Baltic sprat, Eastern Baltic cod, mackerel, Norwegian spring-spawning herring, could reach biomass levels above Maximum Sustainable Yield by 2015 as agreed in international commitments.

⁵ For more information on the MSY concept, see Annex I to this document.

⁶ Froese, R., Branch, T. A., Proelß, A., Quaas, M., Sainsbury, K. and Zimmermann, C. (2011), Generic harvest control rules for European fisheries. *Fish and Fisheries*, 12: 340–351.

⁷ Stocks currently fished at or below F_{MSY} are: Anglerfish (VIIIc,IXa,X,CECAF 34.1.1), Blue whiting (all areas), Cod (25-32, Eastern Baltic), Common sole (Skagerrak and Kattegat, IIIbcd (EC)), Common sole (VIIe and VIIfg), Haddock (Skagerrak, Kattegat, IIIbcd (EC)), Haddock, (IIa (EC), North Sea (EC), VIb, XII, XIV, Vb,Via), Herring (Skagerrak and Kattegat, [by-catches], IIIa, [Directed fishery], North Sea IV abc + VIId, IVc, VIId, VIIghjk, 30,31 Bothnian Bay & Sea), Horse Mackerel (Western stock), Megrim (VIIIc,IX, CECAF34.1.1(EC)), Nephrops (Skagerrak, Kattegat (EC), IIIbcd (EC)), Nephrops (IIa (EC), North Sea (EC)), Norway Lobster (Vb(EC), VI, VII), Plaice (IIa (EC), North Sea (EC))

3.2 Stock biomass

The Commission Decision indicates that if a stock's Spawning Stock Biomass (SSB) is equal to or higher than SSB_{MSY} , the criterion is deemed to be met and the stock is in GES. The Commission considers, however, that it might not be possible to have all stocks at SSB_{MSY} levels simultaneously, due to predator-prey relationships and other ecosystem interactions.

Indeed, having all stocks in a given mixed fishery at SSB_{MSY} is unlikely, if not impossible. However, **having all stocks at levels above SSB_{MSY} is possible, and should be the target** of fisheries managers, in line with international agreements (Johannesburg and UNFSA). In addition, targeting for a population size greater than B_{MSY} creates a "reserve" that only reduces yield slightly while providing a precautionary safety margin in case of natural fluctuations in stock abundance, or flawed estimates due to unreliable data or poor assumptions in models. An economic advantage of this approach is that a larger stock size also contributes to lower fishing costs.

The Commission Decision states that if SSB_{MSY} cannot be estimated due to lack of scientific information, SSB_{pa} is to be used as a reference point. This approach is utterly insufficient to achieve a GES, and should therefore be rejected by Member States. **SSB_{pa} represents too low a level of abundance to be indicative of a healthy stock.** Other countries around the world (such as Australia, New Zealand and the United States) apply fisheries management based on MSY and have developed proxies to MSY which are much more suitable to sustainable fisheries management than the "precautionary" approach as defined by the International Council for the Exploration of the Sea (ICES).

3.3 Age and size distribution indicative of a healthy stock

Healthy fish stocks are typically characterised by a varied age class range often with a high proportion of sexually mature, older and larger individuals. Such population characteristics are important for the resilience of the stock to natural variability and human induced pressures.

The sexual maturity, i.e. the ability for the fish to spawn and contribute to the rebuilding of weak stocks is an absolutely crucial component to reach GES. A level of maturity, be it length, age or a combination of the two is a biological minimum level that is non negotiable and must be based on expert opinion. Today the minimum landing sizes are in some areas well below this biological level and to reach a GES this must be changed.

Member States tend to argue that there is not enough scientific knowledge and information about what is an age and size distribution which is indicative of a healthy stock, so this criterion tends to be neglected in the Member States' definition of GES and setting of targets. The fact that information is still missing is exactly the reason for the precautionary principle to be applied. **These indicators should be given equal priority as the other criteria when setting targets for this descriptor.** The missing information should be also urgently generated.

The data needed to calculate these indicators should be collected by Member States in the context of the Data Collection Framework Regulation. Non-compliance with that regulation should not be used as an excuse to not apply this indicator, and should be regarded as wilful non-compliance of both regulations.

In any case, it is recognised that further research is likely to be needed regarding this criterion. Member States must therefore ensure that the issue is considered when developing the monitoring programmes required by the MSFD and the new "Horizon 2020" Research Framework Programme by 2014.

4. International cooperation

Fisheries constitute one of the EU Common Policy (CFP), and as such a high degree of international cooperation is needed when it comes to fisheries management. The MSFD text acknowledges the need for sustainable fisheries management in order to achieve good environmental status, and in this respect it clearly mentions the role of the Common Fisheries Policy (CFP) in achieving GES:

GES and CFP – MSFD Recital 40

The Common Fisheries Policy, including in the future reform, should take into account the environmental impacts of fishing and the objectives of this Directive.

While it is correct that a single Member State cannot, on its own, implement management measures leading to a certain target in terms of biomass or stock mortality, it must also be acknowledged that Member States are not powerless.

The majority of stocks in EU waters are managed by the CFP, but several stocks are only exploited by one (or some) Member State(s). In these instances, nothing prevents that/those Member State(s) from taking the necessary measures to achieve GES in respect of descriptor 3.

In cases when stocks are managed by the EU, Member States need to engage in negotiations with each other, but are all but powerless. The setting of fishing opportunities is an exclusive competence of the Council of Ministers, where each Member State has a seat.

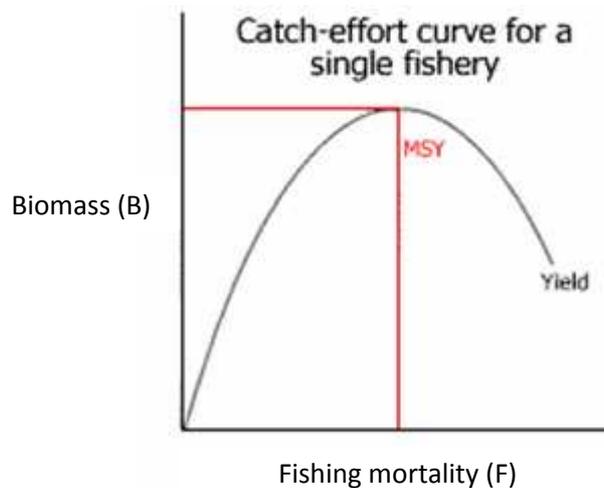
In addition, the CFP is currently undergoing a reform process, and as part of this reform EU institutions will need to decide on overall objectives in terms of stock abundance. Member States must make use of this opportunity to **ensure that the CFP will contribute to the achievement of GES, by supporting a stock recovery objective based on MSY as a limit reference point.**

Annex I – Maximum Sustainable Yield (MSY)

In population ecology and economics, maximum sustainable yield or MSY is, theoretically, the largest yield (or catch) that can be taken from a fish stock over an indefinite period under existing environmental conditions. The MSY refers to a hypothetical equilibrium state between the exploited population and the fishing activity.

MSY is supported by a stable population size known as B_{MSY} (the estimated biomass of a fish stock in order to deliver/support MSY. In theory, the B_{MSY} is the population size (in weight) at the point of maximum growth rate).

Harvesting the biomass amount that would normally be added to the population, in other words the surplus yield that you can harvest without reducing the population, allows the population to continue to be productive indefinitely. This level of fishing pressure is defined as F_{MSY} (the fishing mortality rate that will result in B_{MSY}).



The MSY concept has been subject to harsh criticism from the scientific community since the early 1970's, as it is single-species oriented and heavily reliant on data-intensive models. However, the EU and its Member States have entered into several international commitments regarding MSY, and while it is not an ideal concept, applying it properly would take European fisheries a long way along the path to sustainable fisheries management.

The international commitment agreed at the Johannesburg Summit in 2002 is to maintain or restore stocks to levels that can produce MSY (i.e., achieve a stock biomass of B_{MSY}) "on an urgent basis and where possible not later than 2015". The 2015 date is therefore not a target but an ultimate deadline and must be upheld for all stocks, whether in mixed fisheries or not, and regardless of whether a stock is currently far from its target or close to it. Any delay is in direct contradiction with the above commitments and with other international agreements (such as recent measures agreed in Nagoya at the meeting of the Parties to the Convention on Biological Diversity).

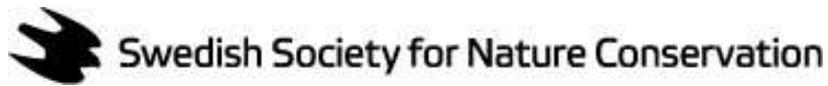
The EU's obligations as a Party to the 1995 UN Fish Stocks Agreement (UNFSA) reinforces the fact that obligations must go beyond the achievement of MSY. This is also in line with the provisions of the FAO Code of Conduct for responsible fisheries. Firstly, the UNFSA requires States to set targets for fisheries conservation and management consistent with the "precautionary approach" (Articles 5, 6 and Annex II), which requires States to take the reproductive capacity and the resilience of each stock, the characteristics of fisheries exploiting the stock, as well as other sources of mortality and major sources of uncertainty into account (Annex II). In addition, States must assess and minimise the impact of fishing activities on non-target and associated or dependent species and their environment, protect biodiversity in the marine environment and protect habitats of special concern

(Article 5 (f) and (g), Article 6). The combination of these and related provisions in the UNFSA, therefore, requires States, in most, if not all cases, to maintain the abundance of targeted fish stocks at levels well above that which would produce MSY.

Secondly, to the extent the UNFSA refers to MSY, it is intended as an (absolute minimum) limit reference point. This is made explicit in Annex II, paragraph 7 of the Agreement: “The fishing mortality rate which generates maximum sustainable yield should be regarded as a minimum standard for limit reference points”. In other words, the UNFSA essentially sets MSY as the lowest possible minimum standard for maintaining or rebuilding fish stocks, in the event all else fails.

In short, NGO position can be summarised in the following points:

- fishing above MSY has important negative ecological, economic and social impacts;
- fishing at a level lower than MSY will result in almost the same catch with much less effort and is therefore economically more viable in the medium and long-term;
- in relation to current and future practice, the MSY target should therefore be viewed only as an intermediate target to achieving a significantly higher fish abundance; and
- in order to achieve GES, fishing mortality should be kept below MSY ($F < F_{MSY}$) and stock biomass should be kept above MSY ($SSB > SSB_{MSY}$).



Joint NGO guidance factsheet on
“Concentrations of contaminants are at levels not giving rise
to pollution effects” (Descriptor 8)
& “Contaminants in fish and other seafood for human
consumption do not exceed levels established by
Community legislation or other relevant standards”
(Descriptor 9)
on the implementation of the MSFD

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Introduction

Chemical pollution is one of the main pressures affecting the marine environment today. The main sources of pollution include municipal and industrial discharges (including wastewater and waste), agriculture and aquaculture runoffs, maritime traffic, ship generated and other oil spills, and nuclear accidents/discharges.

Over the past few decades approximately 100.000 chemicals⁸ have been produced for commercial uses and have entered the European market. About 30.000 of these chemicals have a production volume higher than one ton per year, and many of these end up in the marine environment, with potentially damaging effects on marine organisms, ecosystems and processes, and potentially, on human health.

Knowledge in terms of concentrations, input and removal fluxes, fate and behaviour within the water and sediment columns and toxicological impacts on ecosystems varies and depends on the group of contaminants being considered. Chemical contaminants are generally divided into three main groups: trace elements (e.g. Cu, Cd, Pb, Hg, Sn, etc.), organic substances (e.g. Persistent Organic Pollutants – POPs such as DDT, PCBs, dioxins, etc.; hormones; veterinary medicines and pharmaceuticals) and radionuclides.

The compounds of higher concern in the marine environment are generally those that are persistent, toxic and bioaccumulative. In addition, high risks are posed by compounds which have the potential to travel long distances and contaminate remote areas far from pollution sources.

Chemicals can cause not only direct intoxication and acute effects such as death of marine biota, but they can also cause more subtle adverse effects (nevertheless reducing their viability) such as cellular and biochemical alterations, anatomical malformations, and impairment of the reproductive, hormonal and immune systems. Furthermore, chemical pollution can cause changes in species distribution and abundance, habitats, energy-flow patterns, and biogeochemical cycles. Marine biota are threatened by loss of species, habitat destruction, new or unusual interspecies interactions that affect community structure and function, and decreased ability to recover.

1. The Marine Strategy Framework Directive & Pollution Effects

The Marine Strategy Framework Directive (MSFD) lists 11 qualitative descriptors which represent high level aims for which Good Environmental Status (GES) should be achieved by 2020 at the latest. Two MSFD descriptors focus on contaminants and pollution effects and are closely linked with each other: Descriptor 8 is formulated as “**Concentrations of contaminants are at levels not giving rise to pollution effects**”. Descriptor 9 is formulated as “**Contaminants in fish and other seafood for human consumption do not exceed levels established by Community legislation or other relevant standards**”.

Specific indicators have been formulated to assess each descriptor. Guidelines on how to approach these indicators can be found in the recent publications of the MSFD Task Groups on “Contaminants and pollution effects”⁹ and “Contaminants in fish and other seafood”¹⁰.

⁸ *European Inventory of Existing Commercial Chemical Substances - EINECS, 1981*

⁹ R. Law, G. Hanke, M. Angelidis, J. Batty, A. Bignert, J. Dachs, I. Davies, Y. Denga, A. Duffek, B. Herut, K. Hylland, P. Lepom, P. Leonards, J. Mehtonen, H. Piha, P. Roose, J. Tronczynski, V. Velikova & D. Vethaak R. MARINE STRATEGY FRAMEWORK DIRECTIVE, Task Group 8 Report Contaminants and pollution effects, APRIL 2010 (http://www.ices.dk/projects/MSFD/TG8%20Report_Final_vll.pdf).

¹⁰ F. Swartenbroux, B. Albajedo, M. Angelidis, M. Aulne, V. Bartkevics, V. Besada, A. Bignert, A. Bitterhof, A. Hallikainen, R. Hoogenboom, L. Jorhem, M. Jud, R. Law, D. LichtCederberg, E. McGovern, R. Miniero, R. Schneider, V. Velikova, F. Verstraete, L. Vinas & S. Vlad. MARINE STRATEGY FRAMEWORK DIRECTIVE, Task Group 9 Contaminants in fish and other seafood, APRIL 2010 (http://www.ices.dk/projects/MSFD/TG9%20report%20Final_vll.pdf).

Descriptor 8: Concentrations of contaminants are at levels not giving rise to pollution effects.

Criterion 8.1: Concentration of contaminants

Indicator 8.1.1: Concentration of the contaminants mentioned above, measured in the relevant matrix (such as biota, sediment and water) in a way that ensures comparability with the assessments under Directive 2000/60/EC.

Criterion 8.2: Effects of contaminants

Indicator 8.2.1: Levels of pollution effects on the ecosystem components concerned, having regard to the selected biological processes and taxonomic groups where a cause/effect relationship has been established and needs to be monitored.

Indicator 8.2.2: Occurrence, origin (where possible), extent of significant acute pollution events (e.g. slicks from oil and oil products) and their impact on biota physically affected by this pollution.

In view of Descriptor 8, “contaminants” are defined as substances or groups of substances that are toxic, persistent and liable to bioaccumulate, and other substances or groups of substances which give rise to an equivalent level of concern. The definition is in line with the definition of hazardous substances used in the Water Framework Directive (WFD). “Pollution effects” are defined as direct and/or indirect adverse impacts of contaminants on the marine environment, such as harm to living resources and marine ecosystems, including loss of biodiversity, hazards to human health, the hindering of marine activities, including fishing, tourism and recreation and other legitimate uses of the sea, impairment of the quality for use of sea water and reduction of amenities or, in general, impairment of the sustainable use of marine goods and services.

Descriptor 9: Contaminants in fish and other seafood for human consumption do not exceed levels established by Community legislation or other relevant standards

Criterion 9.1: Levels, number and frequency of contaminants

Indicator 9.1.1: Actual levels of contaminants that have been detected and number of contaminants which have exceeded maximum regulatory levels.

Indicator 9.1.2: Frequency of regulatory levels being exceeded.

Regarding Descriptor 9, the terms "fish and other seafood" are interpreted as only wild caught fish, crustaceans, molluscs, echinoderms, roe and seaweed harvested in the different (sub) regions, all destined for human consumption. "Levels established by Community legislation" are considered to be the regulatory levels set in Community legislation for public health reasons; and "Other relevant standards" could be other national and international (WHO, FAO, etc.) standards and recommendations set for fish and other seafood for consumption, which are not in contradiction with the EU legislation.

Due to the obvious inter-linkages and interdependencies of Descriptors 8 and 9, they are jointly addressed throughout this document.

2. How to contribute? Issues of concern and recommendations

While the European Commission recognizes that progress has been made in certain areas, such as in reducing pollution of metals, it is also clear that the state of the marine environment has been deteriorating significantly over recent decades (European Commission, 2005) and that the existing

policy framework has not delivered the high level of protection of the marine environment that is needed.

Within the framework of the MSFD, NGOs have a unique opportunity, through their involvement and active participation, to ensure the improvement and protection of the marine environment in Europe and the conservation of its resources. In the framework of the national consultations they should voice their concerns and demands outlined below:

2.1. Setting environmental targets and associated indicators

Descriptor 8

- A combination of biological effects and chemical measurements (or additional effects measurements) should be used, to provide an improved assessment due to the ability to address effects that are potentially caused by a wide range of contaminants as well as those that are more clearly linked to specific compounds or groups of compounds.
 - In agreement with the recommendations made by the MSFD Task Group on contaminants and pollution effects, for the purpose of implementing Descriptor 8 under the MSFD, the Member States are urged to ensure that:
 - Concentrations of contaminants in water, sediment and/or biota are set below environmental target levels identified on the basis of ecotoxicological data;
 - Levels of pollution effects are below environmental target levels representing harm at organism, population, community and ecosystem levels;
 - Concentrations of contaminants in water, sediment and/or biota, and the occurrence and severity of pollution effects, decrease.
- It is very important to take into account the synergistic effect of contaminants, as in that case, the effects of a mixture of contaminants, even though each contaminant is at concentration lower than the regulatory levels, can be more significant than the effects to single contaminants exceeding maximum regulatory levels. In addition, the frequency of the occurrence of extremely high concentration values and of course the average concentration value, are very important too.
- Appropriate species should be used as indicators.

Descriptor 9

- A distinction should be made between contaminants for which regulatory levels have been set and other contaminants of relevance in fish and other seafood. A realistic target in order to achieve GES would be for all contaminants to be at levels much lower than those established for human consumption by relevant regulations. In addition, regarding those contaminants for which monitoring is ongoing, but regulatory levels have not yet been set, a downward trend should be demonstrated.
- Assessment of the indicators should at least take into account the actual levels that have been detected, the frequency that levels exceed the regulatory levels, the number of contaminants for which exceeding levels have been detected in parallel and the origin of the contamination.
- The significance of an increase for specific contaminants under Descriptor 8 should be regarded as an important element for inclusion in monitoring under Descriptor 9.
- Besides the issue of aggregation within a given descriptor, when aggregating information from individual descriptors into an overall assessment, care should be taken not to lose information, nor to oversimplify the outcome of complex monitoring schemes by aggregating numerous individual results into a single score. A joint aggregation of information for Descriptors 8 and 9

for contaminants covered by both descriptors might bring a solution to the problem of the unclear situation towards GES at levels below the regulatory levels set for human consumption in Descriptor 9.

- Monitoring and setting of GES for contaminants in fish and other seafood for human consumption should at least consider the following contaminants for which regulatory levels have been laid down:
 - Heavy metals: lead, cadmium and mercury;
 - Polycyclic aromatic hydrocarbons (PAHs);¹¹
 - Dioxins including dioxin-like Polychlorinated Biphenyls (PCBs);¹²
 - Radionuclides;

In addition, the following contaminants of concern should be monitored:

- Non-dioxin like PCBs;
 - Brominated flame retardants (BFRs);
 - Polyfluorinated compounds (PFCs), such as perfluorooctanoic acid (PFOA) and perfluorooctanesulfonate (PFOS);
 - Arsenic;
 - Organotin compounds, preferably tributyltin (TBT), triphenyltin (TPT) and dibutyltin (DBT);
 - Phthalates, preferably butyl-benzyl phthalate (BBP), di-butylphthalate (DBP), bis(2-ethylhexyl)phthalate (DEHP), di-isodecylphthalate (DIDP), di-isononylphthalate (DINP) and di-isobutylphthalate (DIBP).
- Radioactivity in fish and other seafood should be assessed through radiation dose estimates for consumers and not by concentration measurements. Radiation dose estimates for humans are an important measure to use in establishing Good Environmental Status in respect of radioactivity since they provide a direct indication of health risk. GES could be achieved when doses of radioactivity for a consumer in a given region are well beneath limits specified in EC legislation.
 - Existing national monitoring programmes often do not cover the data needs for monitoring compliance to GES under Descriptor 9. Results from monitoring of contaminants under descriptor 8 and descriptor 9 should be integrated. Results from monitoring under descriptor 8 are an important element in selecting contaminants for Descriptor 9. Since Descriptors 8 and 9 largely deal with the same topic, it should be avoided to use different methodologies in parallel trend programmes for these descriptors.
 - Given the facts that Descriptor 9 focuses on fish and seafood for human consumption and that commonly eaten species do not necessarily represent a good coverage of the (sub) region, care should be taken to make a selection of appropriate/representative species for monitoring in order to ensure a correct assessment of the entire region and/or sub-region.
 - Depending on the contaminant a tendency of decreasing, stable levels or increasing can be observed over various time-scales. In order not to lose details of temporal trends, levels must be expressed in absolute figures rather than relative to the regulatory level (below, at or above the relevant limit). Because regulatory levels are generally too high to be used as an early indicator

¹¹Regulatory levels for PAHs set in community legislation for public health reasons currently consider only benzo(a)pyrene, since benzo(a)pyrene is used as a marker for the presence of the whole class.

¹²Regulatory levels for dioxins and dioxin-like PCBs set in community legislation for public health reasons consider sum of dioxins (WHO-PCDD/F-TEQ) and sum of dioxins and dioxin-like PCBs (WHO-PCDD/F-PCB-TEQ).

of increasing pollution of the marine environment, expressing results relative to the regulatory level would only trigger a change in environmental status at a very late stage.

2.2. Good environmental status

The current situation is already far away from GES. Pollution effects on biota have been demonstrated for all European seas. In some European seas, fish and seafood is currently not safe to eat, not for humans, nor for other top consumers. Therefore it is important that:

GES should not be set at the status quo. GES descriptors, indicators and targets must be set at ambitious levels, and not just at levels that are easily achievable within the given timeframe.

2.3. Future steps: research and monitoring needs

Descriptors 8 & 9

- Given the production of new chemical compounds and their potential release into the marine environment, more elaborated and targeted monitoring schemes should be developed to detect potentially toxicologically or ecotoxicologically significant concentrations or biological effects.
- MSFD GES target setting implies an understanding of the processes affecting contaminant cycling and availability, the responses of marine organisms to contaminants, the identification of sources and the availability of appropriate monitoring tools. Member States should be urged to address the relevant fundamental knowledge gaps and uncertainties already identified by the MSFD Sub-Group listed below:
 - Understanding of the ecosystem responses, including mixture effects and/or interactions between contaminants and other environmental stressors on marine biota;
 - Knowledge on marine foodwebs with regard to contaminants, including bioaccumulation and biomagnification, and the possibility of additive, synergistic and antagonistic effects;
 - Contaminant uptake and effects in marine top predators;
 - Pollution source identification and quantitative apportionment;
 - Development of methods for the monitoring of pollutants;
 - Deep Sea Research;
 - Passive sampling techniques;
 - Biological effects techniques.
- In the case of knowledge gaps and scientific uncertainties on the effects of contaminants on marine biota (as described above), Member States should be urged to apply the precautionary principle.
- Taking into account that there is rarely a well-defined established simple quantitative link between levels of contaminants in marine environment and levels in fish and other seafood, there is an imperative research need on the transfer mechanisms of contaminants from the marine environment to the fish/fishery species.



**Joint NGO guidance factsheet on
Properties and quantities of marine litter do not cause harm
to the coastal and marine environment (Descriptor 10)
on the implementation of the MSFD**

May 2012

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Introduction

Marine litter is a serious problem of our day which has become worse in recent years. It is the responsibility of this generation to significantly reduce the quantities of marine litter in the short term and put in place appropriate strategies and measures towards resolving the problem for future generations.

Marine litter originates from many different sources and has a wide spectrum of negative impacts, including environmental, economic, safety, health and cultural. Waste ends up in the marine environment from domestic, industrial, agricultural and maritime activities and enters the sea due to accidental and intentional discharges. Litter in the marine environment also travels long distances from its source by waves and sea currents meaning that locations far from the point of source can be affected by marine litter.

The impacts of marine litter on the environment and coastal communities are also multi-faceted. Litter spoils the landscape, constituting a major source of aesthetic pollution and may affect the marine ecosystem. Pollutants and toxic chemicals contained in marine litter can also leach out through interaction with rainwater and seawater, with the potential for such compounds to enter the food chain.

Marine litter poses a major threat to wildlife (e.g. through digestion, entanglement, etc.). It may also endanger human health and safety (e.g. from contaminated medical and sewage waste, injuries, etc.) and other items such as lost or discarded fishing gear can have financial implications for the fishing industry. Ghost fishing from lost nets also pose a major threat to marine biota, as well as to marine users (navigation, fisheries, tourism, etc.).

What is marine litter?

Marine litter includes any discarded, disposed of or abandoned synthetic or manufactured solid material found on beaches and in the sea. Marine litter includes both visible macrolitter items such as bottles, bags or pieces of fishing rope but also microlitter items such as the fibres from clothing or fragmented plastic pieces that are too small for the eye to see. Marine litter includes items made of paper, wood, glass and crockery but the majority of items are made from plastic and it is plastic that in this context poses the biggest danger to the health of the marine environment and humans, to the aesthetic beauty of coastal locations and the economic situation of marine users.

1. The Marine Strategy Framework Directive & Marine Litter

The Marine Strategy Framework Directive (MSFD) is the key European legal instrument that provides a platform for action related to marine litter and allowing for a Europe-wide approach to tackle this growing environmental, social and economic problem.

The ultimate potential of the MSFD is clear: It provides Member States with an opportunity to put in place efficient measures that can collectively mitigate marine litter, over the short and long term. However, it will require Member States to show commitment to achieving such outcomes and 2012 marks the first key implementation deadline, where Member States of the European Union will set out the level of their ambition and show whether the political will to solve the problem exists or not.

By July 2012, Member States will have to disclose their initial assessments of their own waters, define what they consider to be 'Good Environmental Status' and set targets for 2020.

In essence, the MSFD is a Europe wide legislative initiative that utilises the **ecosystem approach** to improve the management of human activities, that impact on the marine environment. Central to the Directive are the concepts of environmental protection and sustainable use of resources. It also requires a collaborative approach by countries across the European Union and further cooperation within regional seas frameworks. International approaches are essential when attempting to solve almost any marine environmental problem and are extremely relevant for addressing marine litter, a problem that has no boundaries and derives from various different sources.

Within MSFD specific indicators have been formulated to assess the trends of quantities and properties of marine litter. Guidelines on how to approach these indicators can be found in the publication of the MSFD GES Technical Subgroup on Marine Litter.¹³

Descriptor 10: Properties and quantities of marine litter do not cause harm to the coastal and marine environment

Criterion 10.1. Characteristics of litter in the marine and coastal environment

Indicator 10.1.1: Trends in the amount of litter washed ashore and/or deposited on coastlines, including analysis of its composition, spatial distribution and, where possible, source.

Indicator 10.1.2: Trends in the amount of litter in the water column (including floating at the surface) and deposited on the sea- floor, including analysis of its composition, spatial distribution and, where possible, source.

Indicator 10.1.3: Trends in the amount, distribution and, where possible, composition of micro-particles (in particular micro- plastics).

Criterion 10.2. Impacts of litter on marine life

Indicator 10.2.1: Trends in the amount and composition of litter ingested by marine animals (e.g. stomach analysis).

2. How to contribute? Issues of concern and recommendations

Achieving Good Environmental Status for marine litter

The main aim of the Directive is to achieve **Good Environmental Status (GES)**. The MSFD broadly defines GES in the following way: *“...The environmental status of marine waters where these provide ecologically diverse and dynamic oceans and seas which are clean, healthy and productive within their intrinsic conditions, and the use of the marine environment is at a level that is sustainable, thus safeguarding the potential for uses and activities by current and future generations.”*

This definition of GES clearly relates closely to marine litter, perhaps most obviously in relation to the requirements for a **clean marine environment**. Sadly, this is not the case for Europe’s seas at present, where marine litter is a serious problem for a large number of coastal and off-shore areas and has become a matter of strong concern for all EU governments, NGOs, citizens and industry alike.

Member States also have to decide on how to define GES in relation to marine litter, by July 2012. For example, GES for marine litter could be defined in the following way: **GES will be attained when marine litter is no longer introduced into the marine environment and where the marine environment is free of marine litter, or where levels are close to zero.**

Setting environmental targets and monitoring

¹³ Marine Litter, Technical Recommendations for the Implementation of MSFD Requirements, MSFD GES Technical Subgroup on Marine Litter. JRC Scientific and Technical Reports (EUR collection), Publications Office of the European Union— Joint Research Centre, doi: 10.2788/92438, ISBN: 978-92-79-21801-9. (http://publications.jrc.ec.europa.eu/repository/bitstream/11111111/22826/2/msfd_ges_tsg_marine_litter_report_eur_2_5009_en_online_version.pdf)

The ultimate goal for marine litter within European marine waters must be to have, **litter free seas**. This should be actually what corresponds to GES. By 2020 - the first assessment deadline of the MSFD - it is rather unlikely that a litter-free marine environment, even within the European marine waters can be achieved. However, because the efforts towards achieving GES are expected to continue -in that it involves consecutive six-year cycles of monitoring and target setting- the first deadline of 2020 should be approached as an important stepping stone towards achieving GES.

2020 GOAL - 50% reduction in marine litter as a stepping stone towards Good Environmental Status

Member States across Europe should set an overarching target for all marine litter in their waters for 2020 and aim to reduce the amount of marine litter by a minimum of 50% from an agreed baseline level. A reduction target of 50% by 2020 is realistically feasible with the concerted action that should result from the implementation of the MSFD. Not only are all EU countries legally committed to the Directive, but efforts to reduce marine litter have and will continue to benefit from growing industry and public interest in taking on initiatives to help mitigate the problem. Such initiatives include the reduction of packaging material at source and extensive recycling and composting of urban solid waste. With multiple opportunities to better enforce current regulations and to amend existing legislation, so as to better account for marine litter, it is highly probable that the target for the significant reduction of **50% can be achieved by 2020**. To achieve this goal a wide spectrum of measures are needed, such as to address the overall urban solid waste load; to enhance recyclable material markets; and to better organize collections schemes on beaches etc. Other measures that are perhaps more time dependent to implement (e.g. full scale operation of the extended producer responsibility concept) should also be developed in parallel, even if their impact will become visible much later.

The environmental targets (referring to acceptable concentrations of marine litter) are specific to different sectors of the marine environment and must be set in line with the overarching 2020 50% reduction target. There are multiple environmental targets that Member States might consider using. Such targets should be set for the water column, beach and marine biota and should be set against an agreed reference/baseline level. Member States must ensure that a harmonised approach across European marine waters, and particularly within regional zones, is agreed in setting such targets.

Monitoring of marine litter and associated targets must also cover the entire marine environment as marine litter is largely dispersed and present everywhere. This means having monitoring and targets set for marine biota, across the water column and beaches (Member States must have monitoring programmes finalised for implementation by July 2014).

Is a significant reduction in marine litter by 2020 feasible?

The advice given to Member States by the European Commission's expert group on marine litter says **that large reductions are possible**. In their advice document they state the following: "In setting such targets for [a measurable and significant] reduction of marine litter under the MSFD, it is important to have a perspective of their feasibility. The case of industrial plastics may be indicative. Losses of industrial pellets which constitute primary material for plastic industries are also a direct economic loss to the industry. During the mid-1980's *beached Fulmars* from the Dutch coast had 6.8 ± 1.1 industrial plastic pellets per stomach (average \pm standard error; sample size $n=69$ birds). Changed methods in production and transport processes resulted in a rapid decrease of industrial granules in the marine environment. **By the second half of the 1990s the abundance of plastics in *Fulmar* stomachs was reduced by almost half** to an average of 3.6 ± 0.5 pellets per stomach (1995-99, sample size $n=222$ birds) (Van Franeker et al., 2011). Similar reductions of industrial plastic pollution in seabird stomachs have been reported from the Pacific by Vlietstra and Parga (2002) and from the south Atlantic by Ryan (2008). These changes show that reductions in abundance of at least some categories of marine litter in the order of 50% per decade are a feasible target when adequate measures are taken."

3. Conclusion

The marine litter targets, that Member States will set out for 2020 under the MSFD in 2012, constitute a critical test of political will, ambition and responsibility towards future generations on solving the problem of marine litter. The opportunity is unparalleled, both within Europe and globally, and there must be an appropriate response to the current surge in demand from civil society to resolve this growing marine environmental problem. Significant and ambitious reduction targets that are set out across all parts of the marine environment, coupled with extensive and harmonised monitoring protocols, are badly needed.

If the proposed approach is adopted, the problem of marine litter in European marine waters stands a far greater chance of being resolved. If lack of political will and ambition prevails, one more opportunity will be lost and the cost to the environment, the economy and to future generations will increase.



Joint NGO guidance factsheet on Noise (Descriptor 11) on the implementation of the MSFD

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Introduction

Sound is very important for the survival of many marine organisms like fish and marine mammals. They rely on sound for locating food, communicating, finding mates, protecting themselves, orientating and navigating underwater. The oceans are full of both natural and anthropogenic sources of sound.

Naturally generated background sound in the oceans is caused by weather (rain/hail, wind, etc.), currents and waves, geological phenomena (e.g. earthquakes, sediment movement) and animals.

However, due to the industrialization of the oceans, over the past hundred years, much attention has recently been focused on anthropogenic sources of sound in the ocean and their potentially harmful effects on marine animals. It is generally acknowledged that sources of human induced noise are becoming both more pervasive and more powerful, increasing both oceanic background sound levels and peak intensity levels. Ambient noise in the ocean has consequently increased over the past fifty years at both low frequencies and mid-frequencies.

The main human activities that contribute to underwater noise include hydrocarbons exploration and production, commercial fishing, shipping, pile-driving and dredging, the use of some oceanographic research and military technologies and more recently the construction and operation of offshore wind farms. Consequently, noise levels associated with anthropogenic activities have increased tremendously in the last decades.

Research indicates that increased background noise and specific sound sources can impact marine animals in several ways. Marine organisms that are exposed to human induced sound/noise can be adversely affected both on a short timescale (acute effect) and on a long timescale (permanent or chronic effects). Adverse effects can be subtle (e.g. temporary reduction in hearing sensitivity, displacement, behavioural effects, etc.) or severe (e.g. organ damages and in the worst case, death).

A number of factors affect the impact of sounds on marine animals. These include: the sound level, frequency and other characteristics of the sounds; the hearing sensitivity, age, sex and behavior of the animals; the environmental conditions under which the animals experience the sound.

Current knowledge about the effects of sound on marine animals is limited and much more scientific research is needed to fully understand the effects of anthropogenic sounds on marine biota. Some of the main gaps in knowledge include the impact of noise on individual marine organisms, on populations and ecosystem level; what can be considered as acceptable sound level for marine life, etc.

Although noise is nowadays a recognized form of pollution, sources of noise in the marine environment are not regulated at an international level. Recently, some progress has been made at the regional level (e.g. OSPAR, CBD, CMS, ASCOBAMS, ACCOBAMS, HELCOM, Barcelona Convention).

4. The Marine Strategy Framework Directive & Noise

The Marine Strategy Framework Directive (MSFD) overarching aim is to achieve Good Environmental Status (GES) in European waters by 2020. Good environmental status shall be determined on the basis of 11 qualitative descriptors. One of these descriptors, Descriptor 11 focuses on the introduction of energy, including underwater noise. GES descriptor 11 will be achieved if introduction of energy, including underwater noise, is at levels that do not adversely affect the marine environment¹. Two indicators have been formulated to assess this descriptor. Guidelines on how to

approach these indicators can be found in the recent publication of the MSFD Technical Subgroup on Underwater noise and other forms of energy.¹⁴

Descriptor 11: Introduction of energy, including underwater noise, is at levels that do not adversely affect the marine environment

Criterion 11.1: Distribution in time and place of loud, low and mid frequency impulsive sounds

Indicator 11.1.1: Proportion of days and their distribution within a calendar year over areas of a determined surface, as well as their spatial distribution, in which anthropogenic sound sources exceed levels that are likely to entail significant impact on marine animals measured as Sound Exposure Level (in dB re 1µPa².s) or as peak sound pressure level (in dB re 1µPa peak) at one meter, measured over the frequency band 10 Hz to 10 kHz (11.1.1)

Criterion 11.2: Continuous low frequency sound

Indicator 11.2.1: Trends in the ambient noise level within the 1/3 octave bands 63 and 125 Hz (centre frequency) (re 1µPa RMS; average noise level in these octave bands over a year) measured by observation stations and/or with the use of models if appropriate (11.2.1).

Additionally to the existing indicators the MSFD GES Technical Sub-Group on Noise suggested the development of the following additional indicators and criteria related to:

1. Medium and high frequency impulsive sounds;
2. Electromagnetic fields;
3. Combined mapping of sound levels and sensitivity of marine life;
4. Further issues
 - Air-based mechanical energy and light
 - High frequency acoustic deterrent devices
 - Particle motion

5. How to contribute? Issues of concern and recommendations

From the aforementioned information it is clear that human induced under water sound can cause serious problems to marine life.

Within the framework of the national consultations, NGOs should try to ensure that:

- Noise related targets are ambitious, as they will drive the elaboration of the programmes of measures to achieve GES. For example the target could be realistic and may keep underwater noise not higher than the levels recorded in 2012, excluding however, levels that are harmful to marine life, which should be reduced. This should be an absolute minimum but a reduction is recommended and more ambitious targets are welcome.
- Given the fact that the levels of underwater noise have increased tremendously the past decades and that human induced sound inputs will continue to increase due to various activities (such as shipping, construction and operation of offshore wind farms, etc.), there is

¹⁴ Van der Graaf AJ, Cools J, Ainslie MA, André M, Brensing K, Dalen J, Dekeling RPA, Robinson S, Tasker M, Thomsen F, Werner S (2012). European Marine Strategy Framework Directive - Good Environmental Status (MSFD GES): Report of Technical Subgroup on Underwater noise and other forms of energy.

an imperative need for Member States to apply the precautionary principle in any case of scientific uncertainty(-ies).

- Member States should be urged to address the many noise related knowledge gaps and uncertainties already identified and undertake research activities.
- Member States should be encouraged to support the development of mitigation measures for the most important sources of noise such as seismic surveys¹⁵; shipping¹⁶; offshore installation with pile driving¹⁷.

a. Initial Assessment

- The initial assessment has to be conducted based at least on the existing two indicators. Both impulsive and ambient noise should be addressed.
- The assessment should follow the advice of the MSFD GES Technical Sub-Group on Noise. The suggested additional indicator should be considered and preparation should be made to fulfill future demands.

b. Good environmental status

The current situation is already far away from a natural situation. Despite the many knowledge gaps, it is clear that the current situation is not close to GES! The MSFD itself states that the marine life should not be adversely affected. Therefore it is important that:

- Focus is not limited on death or injury (Permanent Threshold Shift (PTS) / Temporary Threshold Shift (TTS));
- Long term and less obvious effects are also taken into account. At a minimum, the GES should include no substantial interference with biologically important behaviours from underwater noise pollution.

c. Future steps: further development of indicators

The existing two indicators do not fulfill the demand of an ecosystem-based approach. Additional indicators should be developed as soon as possible. “Combined mapping of sound levels and sensitivity of marine life” describes an impact indicator and can be acknowledged as an ecosystem-based approach. Therefore it needs to be stressed that this indicator has to be developed and a timeframe should be given for this (preferably before 2014, so as to be in time for the monitoring programmes).

Furthermore Member States should be aware of an additional demand in relation to the suggested additional indicators and should support any scientific activities which fill out the knowledge gaps. Until this moment the use of the precautionary principle is indicated and strongly recommended.

Due to the lack of information and science-based recommendations Member States should at least agree to freeze the actual status. In relation to the two existing indicators Member States should agree on:

¹⁵ Report of the Workshop on Alternative Technologies to Seismic Airgun Surveys for Oil and Gas Exploration and their Potential for Reducing Impacts on Marine Mammals. <http://www.oceanos-foundation.org/assets/Uploads/Airgun.pdf>

¹⁶ MEPC 61-19-Noise CG Report: Report of the Correspondence Group on Noise From Commercial Shipping and Its Adverse Impacts on Marine Life <http://www.imarest.org/Technical/TechnicalActivities/Representation/InternationalMaritimeOrganizationIMO.aspx>

¹⁷ Sound Solutions – offshore wind installation techniques without underwater noise <http://www.noordzee.nl/bibliotheek/windparkenopzee/soundsolutions/>

Impulsive noise:

The so-called "bang days" or "pulse-blockdays" (described by the Technical Sub-Group on Noise) do not exceed the level of 2012 in 2020.

Ambient Noise:

The trend in the ambient noise level does not exceed the level of 2012 in 2020.

Annex I- Baseline setting methods and target-setting approaches¹⁸

a) Baselines

Method A - Baseline as a state at which the anthropogenic influences are considered to be negligible

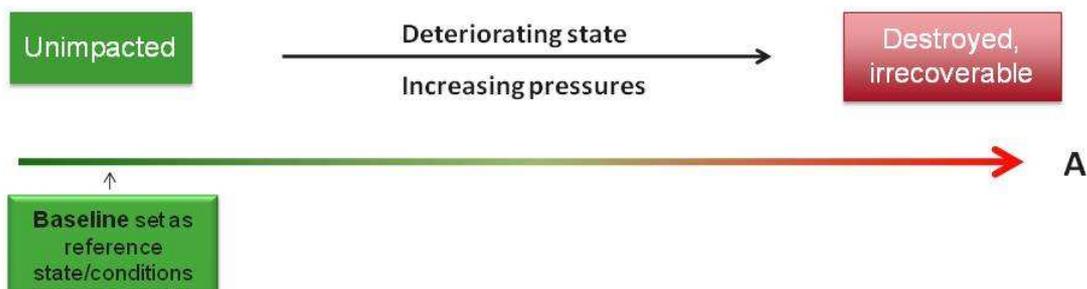


Figure 1. Baseline method A – as a state at which anthropogenic influences are negligible (reference state).

A state when anthropogenic influences are considered to be negligible can be identified in 3 different ways:

- Existing reference state: using current information on species and habitats from areas where human pressure is considered negligible or non-existent (for example, in some marine protected areas).
- Historical reference state: using historical information to ascertain what a habitat/community or species population may have been like at a time when impacts from human activities were negligible.
- Modelling of reference state: using models to determine a reference state (models depend on historic as well as current information to develop a theoretical state of unimpacted ecosystems under present climatic conditions).

¹⁸ Adapted from the draft OSPAR Advice Manual on Biodiversity.

Method B - Baseline set in the past

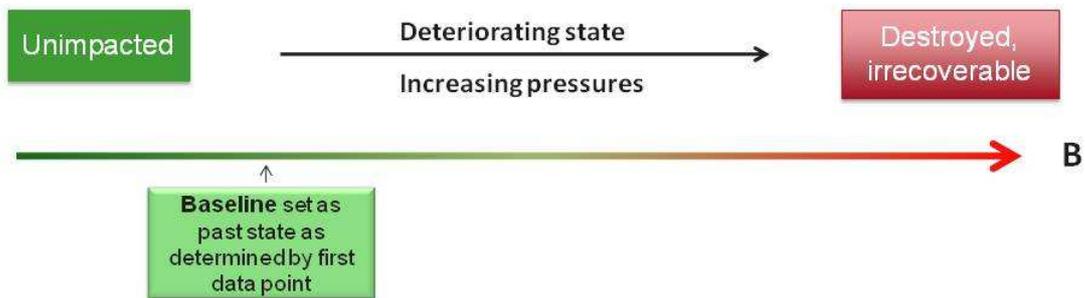


Figure 2. Baseline method B – as a state set in the past (often when monitoring first started).

The second method is to set a baseline as a past state (Figure 2), based on a time-series data set for a specific species or habitat. Expert judgement is needed to select the period in the dataset which is considered to reflect least impacted conditions; this may be the date of the first data point in a time series, provided this is considered the least impacted state of the time series. It is important to note that this first data point is not intended to represent an unimpacted/reference state, but simply when research or data recording on a particular species population or habitat began.

It is a robust approach in the sense that it is based on a time series of scientific data which should indicate how the state of a feature has changed over time; however, it can be limited by the quality and quantity of the data (for example, if the time series is rather short). It is straightforward and comprehensible, but resultant targets run the risk of being based on an already significantly impacted scenario. This is sometimes referred to as the ‘shifting baselines syndrome’¹⁹, where each generation at the beginning of their career redefines what it is they understand to be a ‘healthy’ marine environment, which may represent significant changes from the original state of the system.

Method C - Current baseline

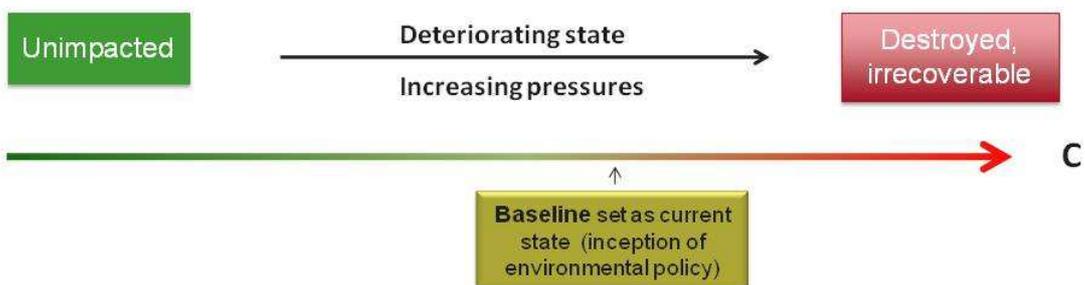


Figure 3. Baseline method C – as current state e.g. at inception of a policy or first assessment.

Finally, baselines can be set as the date of inception of a particular environmental policy or the first assessment of state (Figure 3). This approach was used in the context of the Habitats Directive,

¹⁹ As described by Pauly, D (1995) "Anecdotes and the shifting baseline syndrome of fisheries." Trends in Ecology and Evolution, 10(10):430.

where the date when the Directive came into force was used by many European countries as the baseline for favourable reference values. This type of baseline is typically used with the objective of preventing any further deterioration from the current state; there can additionally be a target to improve the state from such a baseline (towards a reference state).

This approach could be appropriate where it is determined that GES has already been achieved and hence only requires “maintenance” under the MSFD. However, it is not considered appropriate where deterioration or degradation has already occurred. In addition, there is a significant risk of succumbing to ‘shifting baseline syndrome’ as described above. This method is generally more appropriate for use in setting baselines for pressures.

b) Targets

Once an appropriate baseline has been established, environmental targets (for state, impacts and pressures) can then be generated in line with the methodologies outlined below.

Several different ‘target-setting options’ exist:

- Method 1. Directional or trend-based targets
 - direction and rate of change
 - direction of change only
- Method 2. Targets set as the baseline
- Method 3. Target set as a deviation from the baseline

Method 1: Directional or trend-based targets

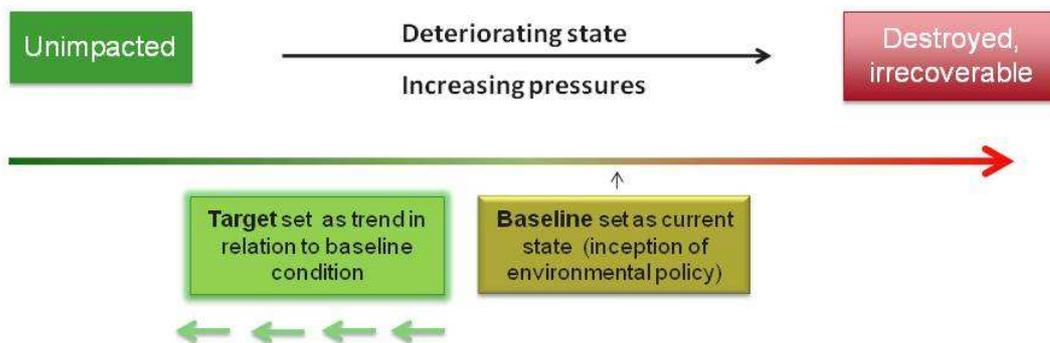


Figure 4. Target setting method 1 – directional or trend-based (here illustrated as an improvement compared with current state).

Directional or trend-based targets represent an improvement towards a more desirable state (e.g. a larger population of a particular species, or good condition of a habitat type over an increasing area) (Figure 4). They can be articulated simply as a direction of change, or as both direction and rate of change of an environmental parameter. This approach is relatively practical and straightforward, but it does not allow for a clear assessment of whether GES has been achieved, as a slight trend might be seen as “meeting the target”, but it might still be very far off from GES. This can be overcome by expressing an improving trend up to a defined limit (e.g. the carrying capacity of a species) and then an acceptable deviation from this higher limit.

Method 2: Target set as the baseline

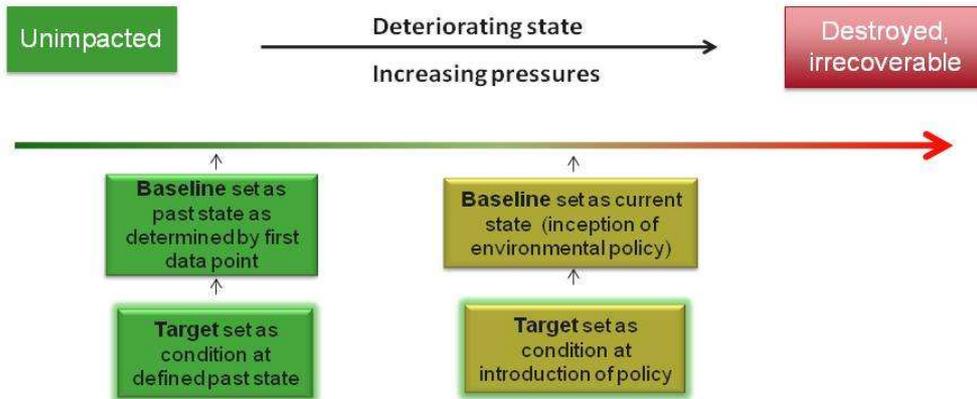


Figure 5. Target setting method 2 –target is set as the baseline (here two examples for baselines are illustrated: past and current baselines).

The target can be set as equivalent to the baseline (whether that be current state or a past known state) (Figure 5).

Method 3: Target set as a deviation from a baseline

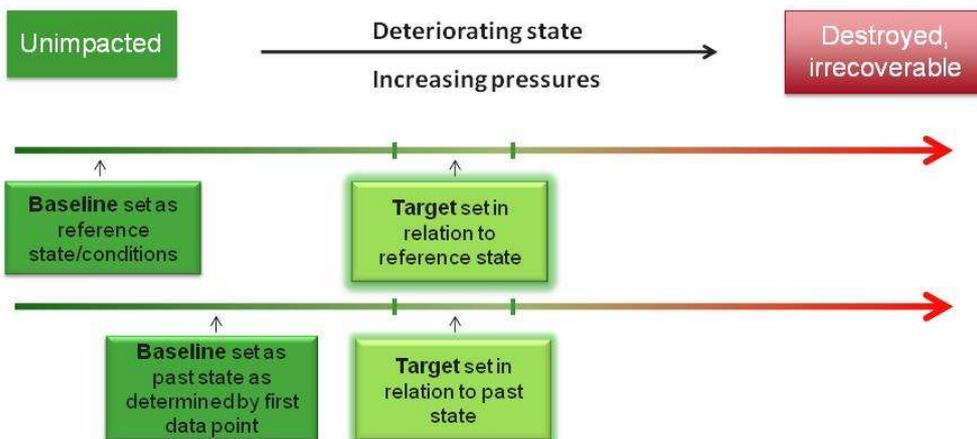


Figure 6. Target setting method 3 –target as a deviation from a baseline (here illustrated as a defined deviation from a reference or past state).

Targets can be set that represent a specified deviation from a chosen baseline, which is typically the reference state or past state (Figure 6), but can also be in relation to a current state when the target should be for an improved state rather than a deteriorated state. For example, a target can be set as the percentage of baseline habitat extent or species population size (or aspect of habitat or species condition, e.g. seagrass shoot density). These types of targets can be set as a percentage range or single percentage figure.

The European Seas Environmental Cooperation (ESEC) is an informal network between the Black Sea NGO Network (BSNN), the Coalition Clean Baltic (CCB), the Mediterranean Information Office for Environment, Culture and Sustainable Development (MIO-ECSDE), and Seas At Risk (SAR), which work for the protection of the marine environment in Europe's regional sea basins: the Baltic, Black and Mediterranean Seas and the North-East Atlantic Ocean.

Black Sea NGO Network (BSNN) is a regional association of NGOs from all Black Sea countries. The BSNN members, currently over 60, are brought together by the common concern for the decreasing environmental quality of the Black Sea and the need for the adoption of democratic values and practices in the Black Sea countries that follow the ideals of sustainability.

Website: <http://www.bsnn.org>

Coalition Clean Baltic (CCB) is a politically independent, non-profit association, which unites 27 member organizations, with over half a million members in all countries around the Baltic Sea. The main goal of CCB is to promote the protection and improvement of the Baltic Sea environment and its natural resources.

Website: <http://www.ccb.se>

The Mediterranean Information Office for Environment, Culture and Sustainable Development (MIO-ECSDE) is a non-profit Federation of 121 Mediterranean NGOs for Environment and Development. MIO-ECSDE acts as a technical and political platform for the presentation of views and intervention of NGOs in the Mediterranean scene and plays an active role for the protection of the environment and the promotion of the sustainable development of the Mediterranean region and its countries.

Website: www.mio-ecsde.org

Seas At Risk (SAR) is a democratic international network which uses its unique membership base and long-standing expertise to advocate environmentally sound policies at European and international level. SAR's vision is "Healthy marine ecosystems whose benefits can be enjoyed now and in the future".

Website: www.seas-at-risk.org

Cover photo: A. Rossetti-Sunce