



MARINE STRATEGIES

VII. PROGRAMMES OF MEASURES



SUMMARY OF THE PROGRAMMES OF MEASURES FOR THE MARINE STRATEGIES, FIRST CYCLE (2012-2018)



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1. INTRODUCTION

The final aim of Directive 2008/56/EC, of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (**Marine Strategy Framework Directive, henceforth MSFD**), is to **achieve or maintain a good environmental status (GES) of the marine environment by 2020 at the latest**.

The MSFD was incorporated into Spanish legislation by means of Law 41/2010, of 29 December, on the protection of the marine environment. That law establishes the general legal framework for the protection of the Spanish marine environment.

Marine strategies are the planning instruments for the marine environment and they establish the general framework to which the different sectoral policies and administrative actions with an impact on the marine environment must adapt. Their application seeks the following objectives:

- ◆ To protect and preserve the marine environment, including its biodiversity, avoid its degradation or restore, where practicable, the marine ecosystems in those areas where they have been adversely affected,
- ◆ To prevent and reduce inputs into the marine environment, in order to progressively phasing out the pollution of the marine environment,
- ◆ To ensure that the activities and uses in the marine environment are compatible with the conservation of its biodiversity, which means that their management must be designed taking into account the ecosystem-based approach.

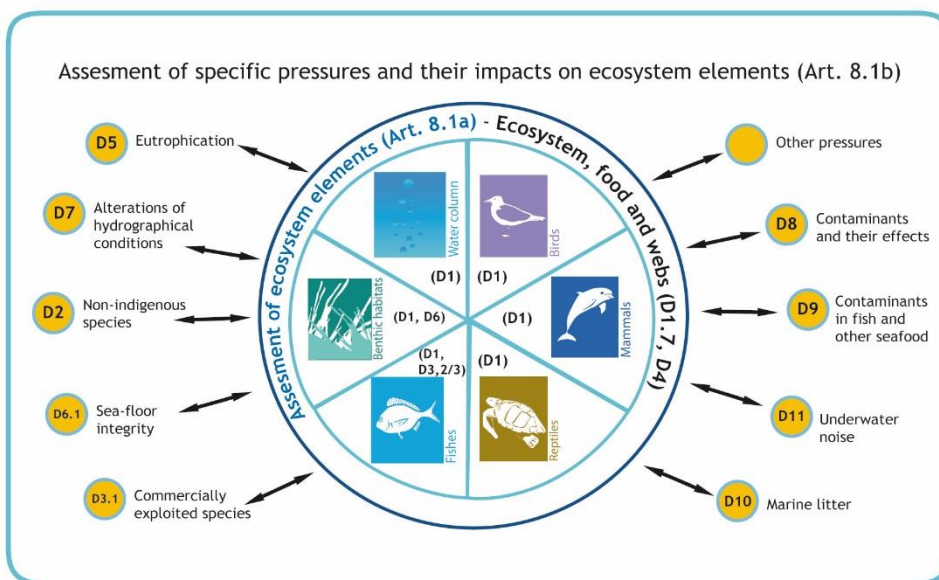


Figure 1. Application of the ecosystem-based approach in marine strategies through the eleven qualitative descriptors of good environmental status (GES). Adapted from the document “Cross-cutting Issues” (European Commission, 2015)

Marine strategies are applied to marine waters, the seabed, the subsoil and the natural resources under Spanish sovereignty or jurisdiction. The strategies will not be applicable to coastal waters for those aspects covered by the river basin management plans, deriving from the application of Directive 2000/60/EC, which establishes a framework for community action in the field of water policy (Water Framework Directive, henceforth WFD).

The Spanish marine environment has been divided into 5 marine subdivisions (MD), taking into account the hydrological, oceanographic and bio-geographical characteristics of each area: north Atlantic MD, south Atlantic MD, Estrecho and Alborán MD, levantine-balearic MD and canary MD.

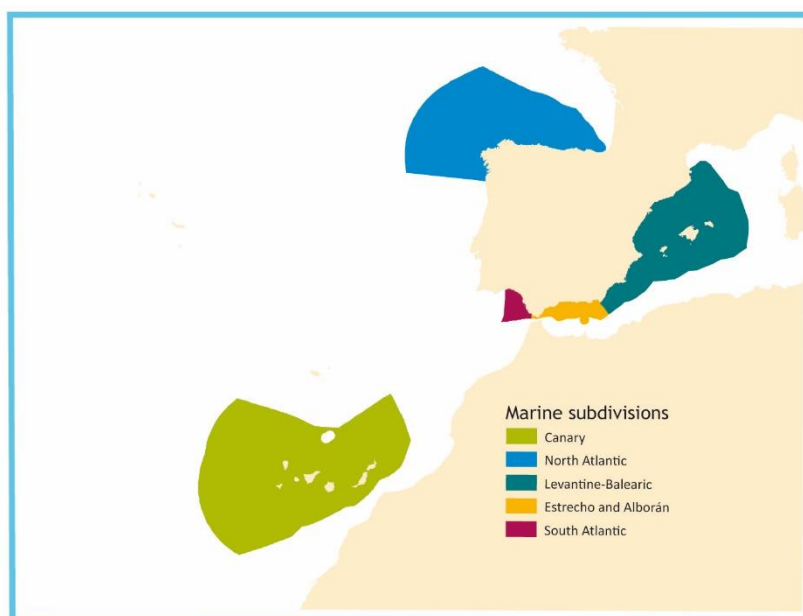


Figure 2. Geographical scope of the five Spanish marine demarcations. NOTE: This map is for technical use and it does not reflect any border with neighbouring states

Implementation of the strategies is structured around the eleven qualitative descriptors of the good status of the marine environment established in the MSFD:

- ◆ D1: Biodiversity
- ◆ D2: Non-indigenous species
- ◆ D3: Commercially exploited species
- ◆ D4: Food webs
- ◆ D5: Eutrophication
- ◆ D6: Sea-floor integrity
- ◆ D7: Alterations of hydrographical conditions
- ◆ D8: Contaminants and their effects
- ◆ D9: Contaminants in fish and other seafood

- 💧 D10: Marine litter
- 💧 D11: Underwater noise

The system adopted in order to draw up the marine strategies, established by the working groups of the Common Implementation Strategy, was as follows:

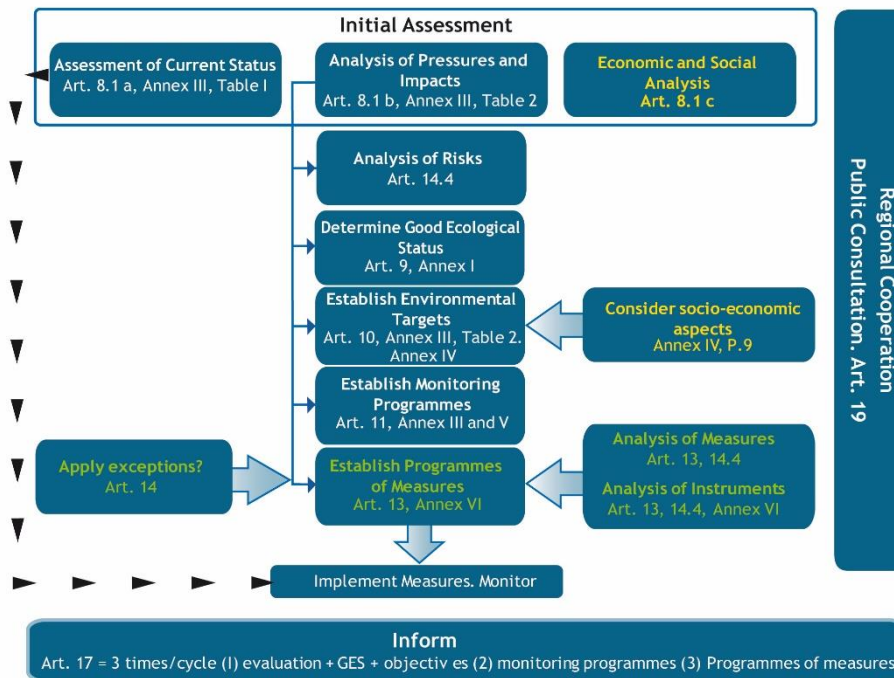


Figure 3. Phases in the marine strategies implementation

For each Spanish marine subdivision, a marine strategy must be developed and its



implementation follows an iterative process which is carried out in six-year cycles. The design and implementation of the marine strategies has been structured in a series of consecutive phases:



- ◆ **Initial assessment of the marine environment (2012):** this work included the carrying-out of three types of analysis:

Figure 4. Iterative process for the development of marine strategies

- Analysis of essential features and characteristics and the current environmental status of the marine waters.
- Analysis of the predominant pressures and impacts which affect the environmental status: a qualitative and quantitative analysis was carried out, mainly of spatial and temporal trends when that information was available. With this analysis, the areas which could potentially be most affected were identified, on which it was therefore advisable to focus the analysis of the environmental status.
- Economic and social analysis of the use of marine waters and the cost of the degradation of the marine environment: the most important economic sectors in the Spanish marine subdivisions were analysed and characterised using different indicators of activity and economic indicators.

The above analyses took into account the elements related to the coastal waters, transitional waters and the territorial waters affected by the WFD, and they were carried out in coordination with the neighbouring countries France, Italy and Portugal, as well as the other European Member States, in order to ensure that transboundary characteristics and impacts were taken into account.

- ◆ **Determination of good environmental status (GES) (2012):** following the initial assessment, and for each one of the eleven qualitative descriptors, the good environmental status (GES) which the marine waters of the five demarcations should have was determined. The definition of GES proposed by Spain has been, if there is robust scientific information, always of a quantitative nature, with quantitative thresholds between GES/non-GES. In those cases in which a quantitative definition was not possible, a qualitative definition was established of what the desired status would be with regard to certain descriptors or criteria.
- ◆ **Establishment of environmental targets and associated indicators (2012):** a series of environmental targets and associated indicators were established for the different marine subdivisions in order to guide the process towards the achievement of GES in the previously-defined marine environment. These environmental targets are coherent and compatible with those which already existed at the national, community and international levels in the same waters and they were approved by Resolution of the Council of Ministers of 2 November 2012.
- ◆ **Preparation of the monitoring programmes (2014):** a series of 13 programmes was established, organised by descriptors and in turn broken down into 65 sub-programmes. The purpose of these is double: on one hand, the on-going assessment of the environmental status of the marine waters and their progress towards achieving the



previously-defined GES; and, on the other hand, to assess the effectiveness of the measures contained in the programme of measures when these are implemented.

- ◆ **Preparation of the programmes of measures (2015):** they must be defined by the end of 2015, and their implementation must begin in 2016. The programmes of measures are the executive part of the marine strategies, detailing the measures which Spain is going to carry out over the 2016-2021 period in order to achieve or maintain the GES of the marine environment, and they imply the formal commitment of all the competent authorities involved.

2. INTER-ADMINISTRATIVE COORDINATION AND PUBLIC PARTICIPATION

Since its inception, the proposed programme of measures has been the subject of an intense process of inter-administrative coordination and public participation, involving all related actors. This process has materialized into:

- ◆ Coordination with the competent administrations in hydrological planning, regarding both inter-community and intra-community accounts.
- ◆ Consultations with the administrations of the Public Administration and autonomous communities with competence in the protection and conservation of the coastal and marine environment through the questionnaire on existing measures.
- ◆ Coordination with the competent administrations of the Public Administration through the Inter-ministerial Commission on Marine Strategies (CIEM).
- ◆ Coordination with the competent regional administrations through the five Marine Strategies Monitoring Committees.
- ◆ Consultations with scientific experts and environmental NGOs through participatory workshops
- ◆ Bilateral technical meetings with the administrations and units competent regarding the different issues addressed by the programme of measures.
- ◆ Bilateral technical meetings with the cross-border countries of France, Italy and Portugal

In addition to the above, the proposed programmes of measures have been submitted to the process of public information and consultation in order to collect the remarks of the public administrations concerned, the relevant public and society in general.

2.1. Inter-ministerial Commission on Marine Strategies

The 4th Inter-ministerial Commission on Marine Strategies (CIEM) (held on 30.06.15) analysed the development of the technical work carried out up to that time for the elaboration of the programme of measures, including the progress made by the different working groups linked to this Commission, as well as the work being developed for their effective implementation in 2016. At the 5th meeting of the CIEM (held on 17.03.17), the final proposal for the programmes of measures, the work to close the first cycle of marine strategy development, and the monitoring of the implementation of the programmes of measures were analysed.



2.2. Marine Strategy Monitoring Committees

The second meetings of the Monitoring Committees of the five Spanish marine demarcations were held in 2015, bringing together, on the one hand, the Monitoring Committees of the South-Atlantic, Strait and Alboran and Levantine - Balearic marine demarcations (15.10.15) and, on the other hand, the Monitoring Committees of the Canary and North-Atlantic marine demarcations (20.10.15).

The Committees provided an important forum for discussion of the process as a whole: integration of contributions (through questionnaires) into the inventory of existing measures, and the appropriateness and timeliness of implementation of each of the new measures. In a process similar to that developed with the CIEM, at the third meeting of these Committees, held in a joint format (23.02.17 and 07.03.17 respectively), the final proposal of the programmes of measures, the work to close the first cycle of marine strategy development, and the monitoring of the implementation of the programmes of measures were analysed.

2.3. Bilateral technical meetings

In addition, during the autumn of 2015, numerous bilateral meetings were held with all units of the Public Administration with competence to implement the proposal for new measures, with the following objectives:

- To analyse and discuss that the measures reflected in the inventory correspond to what is being carried out in Spain in the area of competence of each administration or institution.
- Analysis and discussion of new lines of action or measures that, either according to the available knowledge or as proposed by experts, would be interesting to address in the programme of measures.
- To collect the contributions of new measures from the competent administrations, i.e. actions that they are proposing or planning to implement between 2016 and 2021 within the framework of their competencies, and that will have a positive impact on the marine environment.

3. REGIONAL COORDINATION FOR THE PREPARATION OF THE PROGRAMMES OF MEASURES

The Member States in each marine region or subregion will do everything possible to coordinate their programmes of measures, prioritising the use of the existing regional coordination structures (i.e. the Regional Seas Conventions, RSCs). In Spain, that regional coordination is addressed through different channels:

a) Through the Regional Seas Conventions: Spain regularly participates in the regional and subregional coordination processes through the two Regional Seas Conventions (RSCs): OSPAR in the Atlantic and Barcelona in the Mediterranean. That coordination is not effective for the



marine waters of the Macaronesia subregion, as the Canary Islands archipelago is not within the geographical scope of the OSPAR Convention:

- ◆ **The Oslo and Paris Convention for the protection of the marine environment of the North-East Atlantic (OSPAR Convention)** covers the Spanish marine waters of the North Atlantic and South Atlantic subdivisions. The Convention is actively working on coordination of implementation of the marine strategies of the countries which are Signatories to the Convention, through the ICG-MSFD group (Intersessional Correspondence Group on the Marine Strategy Framework Directive), with Spain's active participation. The OSPAR document *Joint Documentation on Coordination of Measures* includes a compilation of the existing measures in the regional scope of the Convention (called the “OSPAR acquis”), and a compendium of additional information on other measures which have been proposed by the different Parties to the Convention, in a coordinated and/or joint manner. The OSPAR acquis document was taken into account as a basic reference in the preparation of the inventory of measures, incorporating into the national inventory all those which derive from OSPAR (provided they are applicable in the Bay of Biscay and Iberian Coast subregion, which coincides with Region IV of the OSPAR Convention).
- ◆ **The Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention)** covers the Mediterranean Spanish marine waters, that is, the entire Levantine-Balearic and Estrecho and Alborán marine subdivisions. The most relevant contribution of the Agreement materializes through the process of application of the *Ecosystem Approach Process* (ECAP). Within the framework of this process, 11 ecological objectives (EO) were approved -very similar to the descriptors of the DMEM- with their respective GES definitions and operational objectives, and a joint monitoring program was designed and approved in February 2016 (IMAP, *Integrated Monitoring and Assessment Program*). The work of the Convention regarding common measures is still incipient, but the work that has been done to analyze the existing measures in the document *Draft Ecosystem Approach based Measures Gap Analysis* is worthy of note. Contracting Parties have agreed to continue working on the gap analysis and the proposal for coordinated and/or joint measures in the Mediterranean Sea area for the next biennium (2016-2017). The different thematic groups of the process ECAP, called CORMON, have been developing their work in this regard and their last meeting was celebrated in Madrid, in March 2017.

b) Other coordination mechanisms:

- ◆ **Coordination in the Mediterranean, among the 8 Member States: The European Commission has funded a support project to the 8 Mediterranean countries which are members of the EU (EU Med MS Project phase II)**, in the framework of this project, a joint coordinated effort was made by the countries for the identification, selection and analysis of measures on different specific issues: descriptor D10-marine litter, the application of articles 14 and 15 of the MSFD and the conservation measures with a spatial-based component in relation to descriptors D1-biodiversity and D3-commercially exploited species.



- ◆ **Bi- and tri-lateral meetings:** in order to improve the coordination of the proposal of programmes of measures with those of our neighbouring countries, Spain has participated in the following meetings:
 - In the Western Mediterranean subregion, meeting between Spain, Italy and France (Paris, 21 October 2015)
 - In the Bay of Biscay and Iberian Coast subregion, meeting between Spain, France and Portugal (Madrid, 20 September 2015)
 - In the Macaronesia subregion, bilateral meeting between Spain and Portugal (Madrid, 20 September 2015).

4. THE PROGRAMMES OF MEASURES OF THE MARINE STRATEGIES

The design of the programmes of measures was undertaken in such a way that there is a close link with the previous phases of the strategies. The programmes of measures are the most executive part of the marine strategies and they maintain a conceptual link with the first three phases of the marine strategies:

The concept of a "measure" is broad and it includes the following types of actions:

- ◆ Regulations applicable to activities which have an impact on the marine environment, guidelines on the uses of the marine environment, action projects, geographical or temporal restrictions of uses, and measures to control and reduce pollution, among others.
- ◆ Spatial protection measures, to contribute to the creation of coherent and representative marine network of protected areas network.
- ◆ Specific measures for the protection of species and habitat types.

INITIAL ASSESSMENT	ENVIRONMENTAL TARGETS	MEASURES
Are we in GES already, according to the available information?	To guide progress towards achievement of GES	What actions must we take in order to achieve the GES and the ETs
YES	Maintain the GES	No additional measures are necessary (there is no significant risk). Possible measures aimed at maintaining the GES
NO	Targets aimed at: i) improving the status; ii) reducing the pressures; iii) operational objectives	Measures aimed at achieving GES, and the ETs (reducing pressures, regulating activities, etc.)
WE DO NOT KNOW. There is no information to answer the question	Applying the precautionary principle, targets will be addressed aimed at: i) improving the status, ii) reducing the pressures; iii) operational objectives, including knowledge-improvement objectives	All of the above, plus measures aimed at improving knowledge

Table 1. Relation between the first phases of the marine strategies and the programme of measures

The measures may be of two types:

- ◆ **Existing measures** are those which had already been defined in the framework of other environmental policies by the different competent authorities (at the level of both the General State Administration and the Autonomous Communities), though they may have been fully implemented (measures 1.a) or not (measures 1.b).
- ◆ **New measures** are those which were proposed after having carried out an analysis of the effectiveness of the existing measures and the gaps remaining in order to achieve the GES (gap analysis), a process is carried out descriptor by descriptor. The new measures may be framed within community regulations or existing international agreements, going beyond the obligations deriving from those regulations (new measures 2.a), or be measures which address aspects not covered by previous regulatory instruments (measures 2.b).

The new measures must be subject of a detailed characterisation which includes an estimation of their cost, the technical feasibility, as well as an analysis of their economic and social impact (cost-benefit and cost-effectiveness analysis) and their environmental impact, which must be taken into account when prioritising measures and possible alternatives.

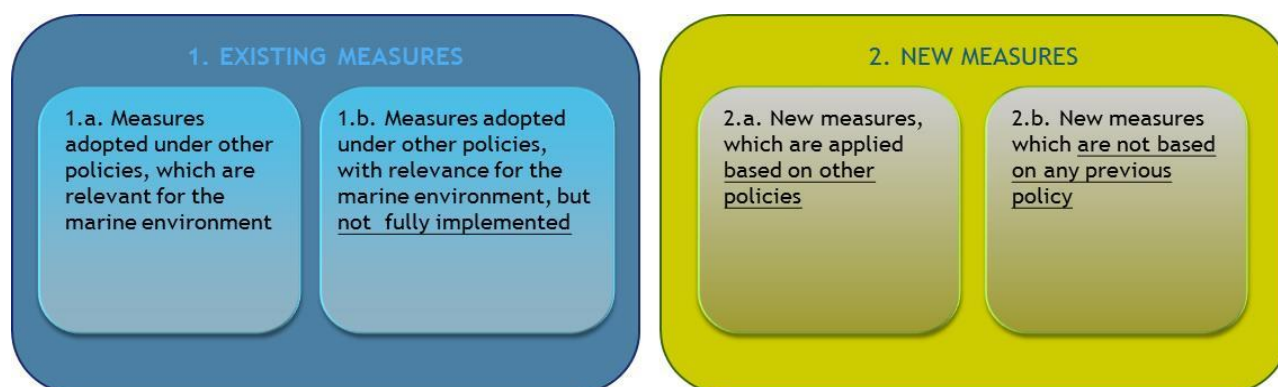


Figure 6. Types of existing measures and new measures

The programme of measures was structured around nine themes: seven of them encompass the eleven qualitative descriptors of the marine environment, and two are additional themes: marine protected areas and horizontal, crosscutting measures (generally issues related to governance in the broad sense, such as coordination among administrations, public participation, training, awareness-raising, etc.). The established themes are:

- ◆ Biodiversity (Descriptors 1, 4, and 6)
- ◆ Non-indigenous species (Descriptor 2)
- ◆ Commercially exploited species (Descriptor 3)
- ◆ Eutrophication, Contaminants and their effects, and Contaminants in fish and other seafood (Descriptors 5, 8, and 9)
- ◆ Permanent alteration of hydrographical conditions (Descriptor 7)
- ◆ Marine litter (Descriptor 10)

- Underwater noise (Descriptor 11)
- Marine protected areas
- Horizontal measures

For the preparation of the programmes of measures, the following technical work was carried out:

4.1 Inventory of existing measures

An inventory of existing measures has been compiled, which includes:

a) Measures included in the second cycle of the river basin management plans (2015-2021) which are relevant for the marine environment:

The methodology for the preparation of the river basin management plans and that for marine strategies show great similarities. In addition, the implementation cycles of both planning instruments overlap with regard to the timetables within which the programmes of measures must be established.

Though it was not possible for the proposals of river basin management plans and marine strategies to overlap in time during the public consultation and information process, we have worked actively with the competent authorities with regard to hydrological planning in order to ensure effective coordination between the programmes of measures of both instruments. It is likely that there will be increasing parallelism between the two processes in subsequent implementation cycles.

- **Coordination of the river basin management plans with the marine strategies:** the General Directorate of Sustainability of the Coast and the Sea (DGSCM, MAPAMA) presented contributions to the river basin management plans of ten Inter-community and thirteen intra-community River basin districts, covering both the coastal and marine measures to be included.



- Coordination of the marine strategies with the river basin management plans: the final aim of this work was to identify the existing measures within the second cycle of WFD implementation (2015-2021) which could contribute to improving the status of the marine environment (called MSFD-relevant measures). The methodology followed for this is summed up in figure 7:

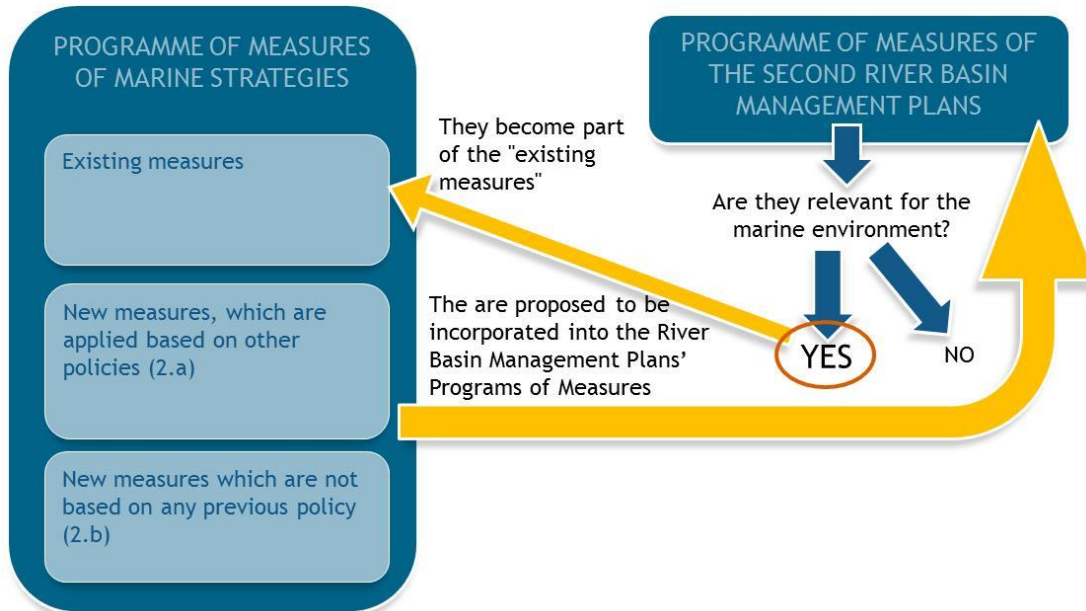


Figure 7: Diagram of the analysis carried out of the existing measures in the hydrological plans and their relevance for the marine strategies

As a result of the coordination with the competent authorities with regard to hydrological planning, **of the 17.250 measures included in the database of the General Directorate of Water, 5.678 measures (80.86%) were finally identified as relevant for the marine strategies.**

b) Measures deriving from other policies, at both national and regional level: in addition to the measures included in the river basin management plan, there are many other regulatory references which have been identified as measures with relevant positive effects for the marine environment. Therefore, international agreements, national legislation and plans, programmes and initiatives (legislative and environmental policy measures) were compiled and also, based on these, other types of measures (technical and economic) already planned and implemented.

The inventory of existing measures was stored in a **database of measures** specifically designed for this work, in which each measure is related to the environmental targets and GES descriptors, the pressures and impacts, the economic sectors it affects, for each of the five marine subdivisions. In this way, both the existing measures and the new ones are adequately characterised, as this database also includes information on the latter, and it has been used to carry out the analysis of the existing gap between the initial status and the GES to be achieved.

c) **Measures from other policies, gathered from the responses to the standardised questionnaires sent to the competent authorities:** a formal consultation was carried out with the authorities of the General State Administration and the Autonomous Communities with competencies regarding the environment and in particular the marine environment. That

consultation was channelled through the contact points of the Inter-Ministerial Marine Strategies Commission (CIEM), which is a body for coordination between Ministerial Departments of the General State Administration and the five Marine Strategies Committees (CS); the equivalent body for cooperation with the coastal Autonomous Communities.

The approach adopted was of an economic type, i.e. focussing the request for information on the budgetary programmes of the public administrations in which the funding for measures of relevance for the marine environment could be included.

To carry out this work, all the existing information available to the public on budgetary programmes of the last five years (2009-2012) was compiled for the different bodies, both national (17 budgetary programmes) and regional (108 budgetary programmes), which have competencies related to the marine environment. To manage the economic information which had been gathered, a **database of budgetary programmes was created**. Based on this, a questionnaire was drawn up, which was customised for each administration. The questionnaire was sent to a total of 10 different Ministries (19 Departments), the 10 coastal Autonomous Communities and the 2 Autonomous Cities. The responses were a number of **43** questionnaires, **18** from the Central State Administration, and **25** of them from the Regional Governments.

As a result of all the work carried out in order to inventory the existing measures, a total of **320 measures or groups of measures** were compiled and characterised.

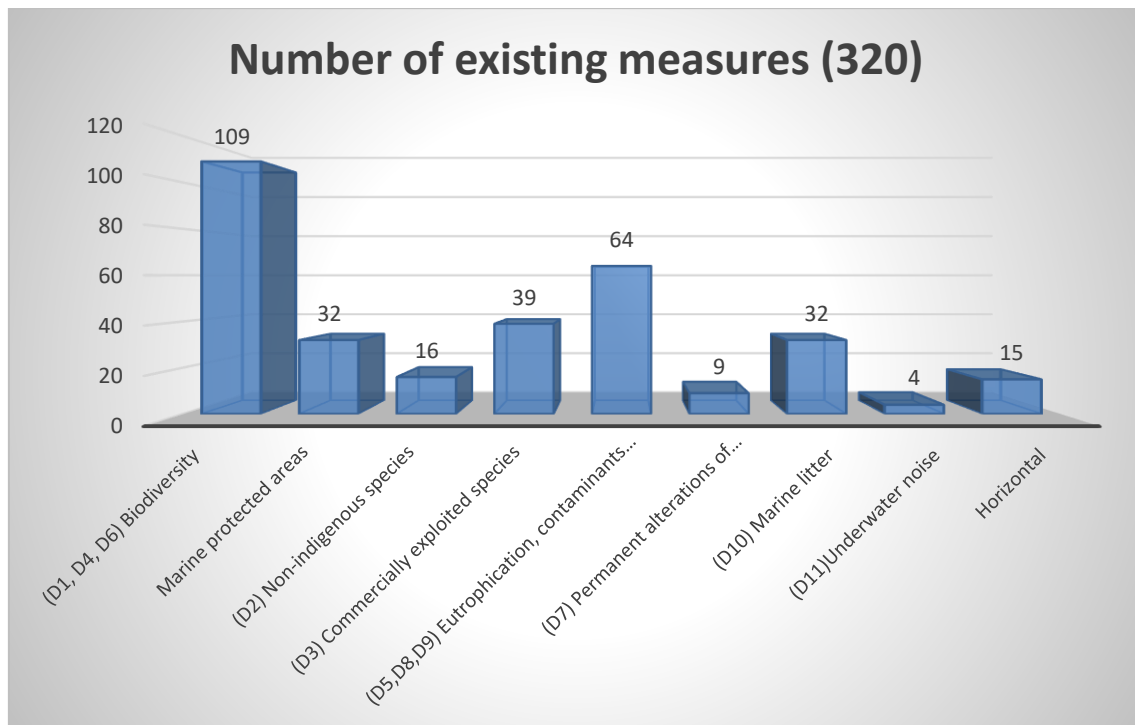


Figure 8 Number of existing measures or groups of measures of the proposal of the programme of measures, by theme

4.2. Characterisation of the measures and analysis of their effectiveness

Once the inventory of existing measures had been completed, they were analysed and discussed with the stakeholders through numerous meetings:

- ◆ On the one hand, four workshops were held with experts from scientific background and environmental NGOs, on the following themes: biodiversity (Descriptors D1, D4, D6 and marine protected areas), marine turtles, marine litter and elasmobranchii.
- ◆ On the other hand, the inventory was discussed in the framework of the Inter-Ministerial Marine Strategies Commission (CIEM) and the five Marine Strategy Committees of the five marine subdivisions.
- ◆ More than twenty bilateral meetings have been held with all the competent authorities. As a result of the foregoing, numerous suggestions and contributions from all interested parties have been included in the inventory. On the other hand, it was also discussed whether the existing measures were considered sufficient or not to allow reaching both the BEA of the eleven marine descriptors and the marine protected areas

4.3. Proposal of new measures

By means of the analysis of effectiveness of the existing measures, a gap analysis was carried out for each of the themes to be addressed in the programmes of measures. The proposal of new measures therefore stemmed from different sources, and the methodology for its preparation, was as follows:

- ◆ Drafting of an initial proposal of new measures covering the measures proposed in **the workshops with experts**.
- ◆ Inclusion in the initial proposal of other measures proposed by the technical marine strategies team (DGSCM, MAGRAMA) for the different themes of the programmes of measures, deriving from the knowledge of the issues which deserve special attention in relation to the good status of Spanish marine waters.
- ◆ Analysis, discussion and validation of this initial proposal of new measures with the competent authorities of the General State Administration (through the **CIEM**, and from the **bilateral meetings held**) and of the Autonomous Communities (in the framework of the **Marine Strategies Committees**).
- ◆ Inclusion of new measures in those cases in which there were actions which are going to be undertaken by the administrations in the framework of their competencies and which were not originally included in the proposal.



- Analysis of allegations and incorporation of two new measures proposed during the public participation process.

The proposal of new measures is structured as follows:

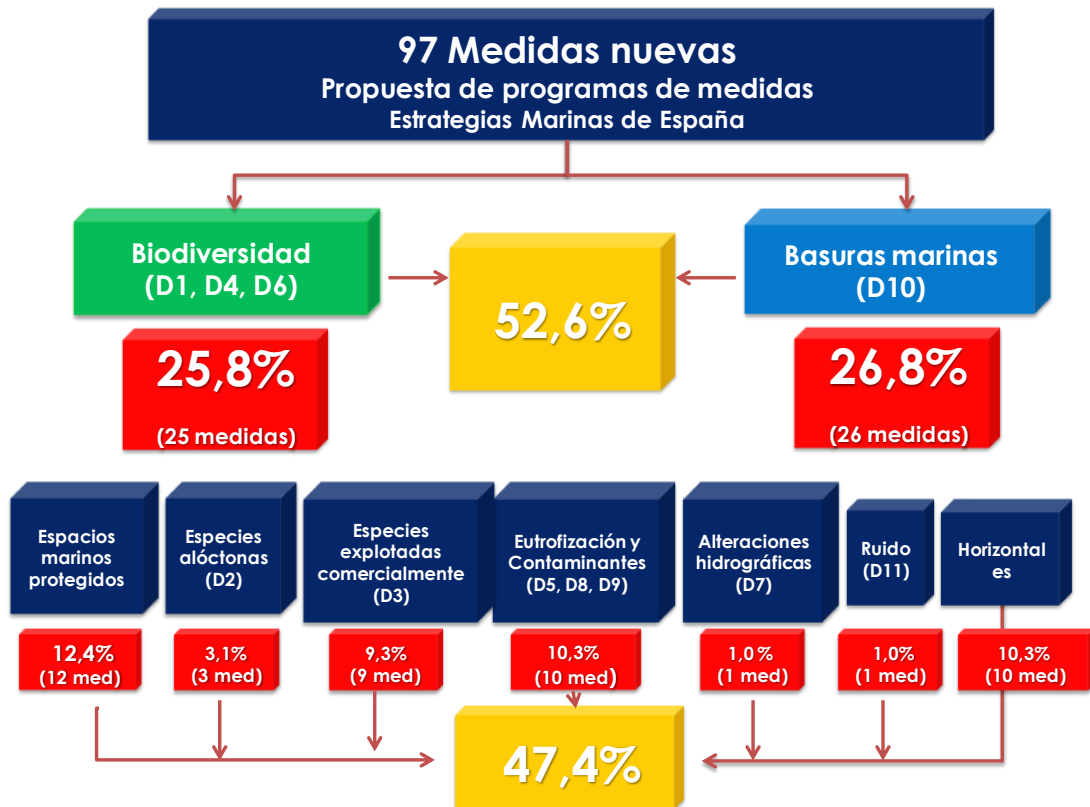


Figure 9. Proportion of new measures by theme, in the proposal of the programmes of measures

4.4 Cost-benefit and cost-effectiveness analysis of the new measures

As a last step before defining the proposal of new measures, an economic and social evaluation of the new measures was carried out, through analysis of the technical viability, the cost-benefit analysis (CBA) and the cost-effectiveness analysis (CEA) of all the measures to achieve or maintain the GES. Assessment of the benefit of applying the new proposed measures in the 9 economic sectors which represent over 90% of GDP and Employment related to the marine environment in Spain:

Those analyses were taken into account for the establishment of the final proposal of new measures which is included in the draft programme of measures.

4.5 Identificación de excepciones

Once the effectiveness analysis of the existing measures and the detection of deficiencies were carried out, and after completing the proposal for new measures, an evaluation was made in order to determine if compliance of environmental objectives and all aspects related to good



environmental status could be achieved, through the proposed measures. In this sense, no exception has been raised in the framework of the program of measures of marine strategies, during its first implementation cycle.

4.6 Strategic environmental assessment of the proposal of measures

In accordance with Law 21/2013 on Environmental Assessment, and alongside the preparation of the proposal of the programmes of measures, all of the marine strategies, and in particular this fifth phase of their implementation, have been submitted to a process of strategic environmental evaluation, whose final Resolution has been favorable (BOE 19.05.17) The strategic environmental declaration resulting from the environmental assessment process will be taken into account.

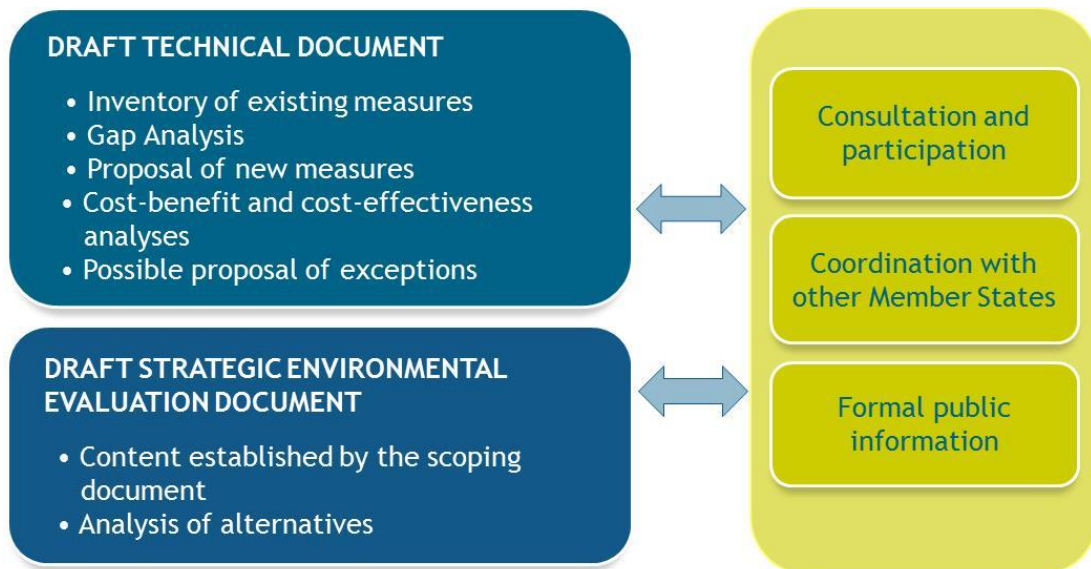


Figure 10. Public consultation and information of the drafts of the programme of measures and the strategic environmental study

4.7 Approval of the marine strategies

The marine strategies, including their programmes of measures, will be approved by Royal Decree, following that established in article 15 of Law 41/2010. This process will also involve the corresponding public participation process, including debate at the Sectoral Environment Conference, reports from the affected Ministries, the affected Autonomous Communities and Cities, and the Environmental Advisory Council.



Figure 11: Process of approval of the marine strategies by Royal Decree

5. ACTION PROGRAMME

Action programmes were designed for each of the 5 marine demarcations, after carrying out a detailed analysis of existing initiatives, a critical assessment of their effectiveness with regard to the proposed environmental goals and an identification of any weaknesses. The proposal of new measures specifically sought to cover these weaknesses. The set of new measures was subject to cost, effectiveness and financial benefit analyses.

It is important to highlight that, due to the ecosystem approach of marine strategies, it may be stated that all existing and/or new actions, regardless of the description that they are associated with, shall have a positive impact on marine biodiversity. For example, actions intended to reduce/remove/control the presence of non- indigenous species (as described in section 6.3) have a positive impact on biodiversity. The same is true of all other measures designed to reduce discharge of nutrients and contaminants as described in section 6.5. In the same manner, all actions aimed at reducing marine litter (section 6.7) shall contribute to improve the status of marine habitats and populations. The same happens with any measures designed to reduce underwater noise (section 6.8) which are directly related with the improvement of life conditions for different biological groups (*Cephalopoda*, fish and marine reptiles), especially those *Cetacea* from a specific demarcation.

Lastly, it is important to clarify that all actions designed for the protection of areas, as well as management initiatives that are or will be decided with regard to those areas are described in a separate section (6.2) for the purpose of highlighting and providing an identity to marine space protection policies as the cornerstone of Spanish Marine Strategies action plans.

Subsequently, an analysis of current initiatives and their effectiveness with regard to achieving environmental goals and a good environmental situation, as defined, is carried out for the scope of each action plan. This allows for any weaknesses in each theme to be identified and for the proposal of new measures to focus on remedying them.



5.1. Biodiversity Descriptors (D1, D4, D6)

The group of biodiversity descriptors include D1 (Biodiversity); D4 (Food webs) and D6 (Sea floor integrity). Usually, these three descriptors are analysed together because they are generally affected by the same pressures, and actions designed to improve one of those descriptors also have a positive impact on the other two.

For this reason, this section is focused exclusively on the measures most directly designed to protect or restore the different biodiversity components (species, habitats) and guarantee that human activity affecting marine environment does not compromise achieving the GES.

Current initiatives are described below, together with their effectiveness and any weaknesses identified, classified by the different themes identified in the context of marine biodiversity. The contribution of each initiative to achievement of environmental goals is also included. Considering the above, it is considered appropriate to propose 25 new measures.



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES (BY THEME)	NEED TO REINFORCE EXISTING MEASURES AND PROPOSED NEW MEASURES
Species - Incidental catch and other causes of mortality	A.1.4. To reduce the causes of mortality among non-commercial species at the apex of the food chain	Knowledge on the impact of different fishing gear (trawling, longline, artisanal and recreational fishing) is, with very specific exceptions, rather incomplete. Development of marine strategies monitoring programmes is expected to enable us to improve our knowledge in this regard. However, knowledge of the global impact of fishing industry in Spanish waters must be improved.	New measure BIO8: Risk analysis of incidental catch of turtles, Cetacea and seabirds. New measure BIO19: Updating of Fishing Electronic Log in order to systematize data collection on incidental catch.
		Regulation of the different fishing gear affecting accidental catch of sea turtles and sea birds is irregular; while, in the specific case of surface longline, work has been carried out on regulation and good practices for surface longline fishing (both in international institutions and at a national level), analyses for other fishing gear is not so well developed. Based on the above measure (BIO8), new regulation measures, or the reinforcement of current ones, shall be proposed.	New measure BIO3: Strategy for reducing incidental catches of protected vertebrates. New measure BIO10: Regulations applicable to fisheries to reduce incidental catches (based on the findings of measure BIO10 and to already available knowledge)
		With regard to technical measures designed to reduce and mitigate catch , several approaches have been tested, but they would need to be strengthened and reinforced.	New measure BIO9: Demonstrative project for mitigation and reduction of incidental catches of protected turtles, birds, mammals and elasmobranchii, as well as other species which are not fishing targets. New measure BIO12: Creating protocols to improve post-catch survival for each specific fishing gear and ensuring that they are applied.
		Prevention and monitoring of incidental catches of Cetacea . It is considered that the measures established in Regulation 812/2004 may contribute to reaching the established goals for this group of species. However, the need to strengthen compliance with this measure, both with regard to reinforcement of specific observers with the same scope as the efforts provided by the regulations and with regard to the fact that monitoring and mitigation regulation measures proposed	Effective implementation of Regulation 812/2004 must be reinforced.



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES (BY THEME)	NEED TO REINFORCE EXISTING MEASURES AND PROPOSED NEW MEASURES
Species - Incidental catch and other causes of mortality	A.1.4. To reduce the causes of mortality among non-commercial species at the apex of the food chain	only apply to some work profiles (specifically, display of acoustic deterrents, pingers, gillnets in certain areas) has been highlighted at a number of different forums.	
		<p>Training and awareness raising initiatives in the fishing sector</p> <p>Daily fishing activities and fisher's actions in the event of an accidental catch event may be key to reducing the impact of fishing activities. Some initiatives are oriented towards both the area of technical training (for example, by means of dissemination of the relevant protocols) and towards that of awareness. More work needs to be done in this line. In this sense, two additional measures are proposed, and shall be addressed not only to the fishing industries but also to other identified sectors.</p>	<p>H10: Training programmes addressed to fishermen and women, on-board observers, staff from the networks for the rescue of beached animals and managers of public administration training programmes.</p> <p>H11: Awareness programmes designed for beachgoers, recreational water activity enterprises, fishermen and women and the society at large.</p> <p>H12: Preparation and implementation of a curriculum related to respect and protection of protected cetaceans, turtles, seabirds and elasmobranchii, as well as sea litter, in the official training courses for obtaining recreational and fishing sailing licenses.</p>
		<p>Collisions Collisions are a problem that mainly affects <i>Cetacea</i>. Spain has already implemented several action plans to reduce collisions (in the Canary Islands, for example). Such action plans must be reinforced.</p>	New measure BIO31: Actions designed to reduce collision risks for large vessels.
Species and habitats: Protection and conservation	<p>A.1.8 To develop initiatives on recovery of species and habitat restoration</p> <p>A.3.3 To maintain the species distribution range</p>	<p>At a regional level, there are many actions designed to achieve these goals under the OSPAR and Barcelona Conventions.</p> <ul style="list-style-type: none"> - OSPAR Convention recommendations for species and habitats - Barcelona Convention action plans <p>However, these recommendations and action plans must be improved at implementation level in Spanish territorial waters.</p>	Real implementation of the OSPAR recommendations and the Barcelona Convention action plans with regard to species and habitats must be reinforced.



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES (BY THEME)	NEED TO REINFORCE EXISTING MEASURES AND PROPOSED NEW MEASURES
Species and habitats: Protection and conservation	A.3.4 (CAN: A.3.1) To maintain positive or stable trends in populations of key species and apex predators.	In the scope provided by Act 42/2007 on Natural Heritage and Biodiversity, different strategies or conservation programmes for marine taxa (e.g. strategies for Balearic shearwater and ribbed Mediterranean limpet), completed by the measures and programmes implemented by the different coastal Autonomous Communities (programmes for conservations or recovery of different taxa of seabirds, Recovery Programme of <i>Patella candei candei</i> , etc.), have been approved. These strategies need to be periodically revised. Occasionally, the degree of implementation of plans and strategies is not optimal and its implementation should be advanced by all involved Public Administrations. On the other hand, it is planned to continue developing conservation programmes and strategies aimed at specific species or groups of species over the coming years. With regard to <i>Cetacea</i> , for example, several conservation programmes for different species have been drafted by different research groups. However, those programmes are still in a very early stage of development.	Conservation strategies for Balearic shearwater and ribbed Mediterranean limpet. New strategies and programmes are to be developed: BIO1: Conservation programme for the killer whale population of the Strait of Gibraltar and the Gulf of Cádiz. BIO2: Conservation strategy for sea turtles in Spain. BIO6: Conservation strategy for threatened taxa of seabirds BIO7: Conservation programme for threatened marine species
	C.1.1 To keep the lists of endangered species and their assessment updated		
	A.3.5 To maintain positive or stable trends in the distribution of biogenic, protected and singular habitats		
	A.3.6 To maintain the condition parameters of benthic communities within those values guaranteeing their durability		
		There are lists at a national and regional level . Lists have periodic updating mechanisms. Occasionally, marine species are not appropriately represented.	List of threatened species shall be periodically revised.
		Protection of nesting and breeding areas. A large part of the seabird breeding areas are included in Natura Network area. However, the experts' panel insisted on the need to expand protection areas beyond areas protected by Natura Network; this additional protection may be very necessary for certain species. Similarly, with regard to sea turtles, the occurrence of several nesting attempts in the Mediterranean coast over the last few	New measure BIO17: Action protocol for sea turtles nesting events in the Spanish coast and possible implementation of protection measures in beaches with optimal conditions for egg-laying and incubation. New measure BIO29: Coordination of sea birds nesting areas protection and conservation measures



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES (BY THEME)	NEED TO REINFORCE EXISTING MEASURES AND PROPOSED NEW MEASURES
		<p>years makes it necessary to have an acting strategy for any nesting event.</p> <p>On the other hand, the problem of introduced mammal species' predation of these nests poses a threat to certain species; this threat is especially relevant in certain islands and islets. The range of measures includes a set of actions oriented towards control or removal of predators; it is foreseen that such actions need to be reinforced or extended to other areas of the Spanish coast.</p>	<p>Reinforcement of control activities aimed at introduced predators in colonies where this has been identified as an issue</p>
<p>Species - fish and Cephalopoda</p>	<p>A.1.6 (CAN-A.1.9) To regulate extraction of deep-sea elasmobranchii</p> <p>A.3.1 (excepting CAN) To keep the fish size distribution stable</p> <p>A.3.2 (excepting CAN) To keep CSF (Conservation Status of Fishes) below 1</p>	<p>With regard to measures aimed at protecting certain species of elasmobranchii: ICCAT has issued several Recommendations in this area, in addition to the Chondrichthyes Action Plan provided by the Barcelona convention and the different OSPAR Recommendations with regard to different species. Besides, in the framework of the Bonn convention, a Memorandum of Understanding on Sharks was subscribed by, among others, the European Union. Certain populations or species of sharks or rays, specifically those protected by the Barcelona Convention and other international standards, are protected at a national level. In all likelihood, further advances in protection of new elasmobranchii species or populations will be needed over the coming years.</p> <p>With regard to incidental catch of specimens of these species, regardless of whether those species or populations are protected or of zero TAC status, there are no European-wide standards. However, it is important to acquire deeper knowledge on the post-release mortality rates and to advance measures that reduce incidental catches of these species. Maintenance and/or improvement of the conservation status of fish and <i>Cephalopoda</i> communities will be described in further detail in section 6.4.</p>	<p>See proposed actions in section 6.4.</p>



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES (BY THEME)	NEED TO REINFORCE EXISTING MEASURES AND PROPOSED NEW MEASURES
Benthic habitats - Canary Islands	A.1.6 (CAN): To establish control programmes for those species or functional groups whose proliferation indicates an obvious alteration or threat to local food webs (e.g. <i>Diadema aff. antillarum</i> , species released from aquafarming facilities, etc.) A.1.7 (CAN): To reduce or prevent growth of populations of <i>Diadema aff. antillarum</i> urchin based on previously updated knowledge of distribution and extension of population, favouring regeneration of food chains in sub-littoral rocky habitats.	The recently named <i>Diadema africanum</i> sea urchin is an echinoderm which, due to its intense foraging activity, deprives the rocky sea floors of seaweed. The most prevalent seaweed is whitish <i>alga calcárea</i> . The areas in which they are prevalent, called <i>blanquizales</i> due to their whitish colour ("blanco" is Spanish for "white") and pose a problem in certain benthic areas in the Canary islands. For this reason, two environmental goals were posed to solve this problem. According to certain technical reports, the expansion of <i>blanquizales</i> may be related to the fact that overfishing has reduced the natural number of these sea urchins, Although here are no global solutions to counter this problem, experts suggest: 1) establishing protected areas with significantly lower fishing pressure, and 2) controlled reduction of urchin population in small controlled areas using divers.	The DGSCM has authorised actions intended to carry out controlled reductions of urchin populations in certain areas of the Canarian marine demarcation. Work will continue along these lines, exploring other alternatives that have proven to be effective in this area.
Species - Networks for the rescue of beached animals	A.1.7 To coordinate monitoring programmes on beachings and accidental captures	Beached animals rescue plans have been established and maintained by all coastal Autonomous Communities. In some cases, those networks are maintained through different environmentalist organizations without any financial support from the administration. Their degree of implementation is heterogeneous. Currently, the beaching rescue systems are undergoing a reorganization process so that they comply, among others, with the marine strategy monitoring plans and the necessary sea animals rescue plans. This programme is closely related to maintenance (and improvement when appropriate) of marine wildlife rehabilitation centres, financed by the corresponding regional governments.	Networks for the rescue of beached animals shall be reinforced in close collaboration with threatened wildlife rehabilitation centres.
Species - Networks for the rescue of beached animals			



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES (BY THEME)	NEED TO REINFORCE EXISTING MEASURES AND PROPOSED NEW MEASURES
Food networks	A.1.5. To prevent any impact on the food web due to the cultivation of marine species	Improving sustainability of aquaculture becomes a necessity, which shall be addressed by, among other measures, the action plan related to this economic sector and which is described in section 6.9 (Horizontal actions).	A new measure is proposed. H13: Promoting new innovative projects that improve sustainability of aquaculture facilities (described in section 6.9).
Human activity and diminishing fishing pressure	A.1.1 To reduce pressure in habitats, especially biogenic and protected habitats.	Whale watching This activity is already regulated by means of Royal Decree 1727/2007 which establishes protective measures for <i>Cetacea</i> . Furthermore, new sustainable ways of carrying out these activities shall be explored.	Further work shall be carried out with regard to compliance to standards and monitoring. There is New measure BIO47: Promoting a seal of quality for whale watching recreational activities.
	C.1.5 To develop management plans for marine recreational activities	Recreational fishing Recreational fishing is partially regulated in certain protected areas (Royal Decree 347/2011, which regulates recreational fishing at sea in external waters) has been identified as a relevant pressure for certain fishing stocks, as well as for non-target species, in certain areas or marine demarcations.	BIO18: Amendment of Royal Decree 347/2011, of 11 March, regulating recreational fishing at sea in external waters.
		Recreational sea activities Practising this type of activity implies a growing pressure in certain coastal areas, and this aspect needs to be regulated, especially in sensitive areas for certain bird, sea turtle or <i>Cetacea</i> species.	New measure: BIO13: Guidelines on regulation of recreational sea activities
		Boat anchoring (see section on benthic habitats on this table)	(see section on benthic habitats on this table)
		Regulation of use of Marine Protected Areas (see section 6.2 of this document)	(see section 6.2 of this document)
		Initiatives related to boat anchoring activities (outside Marine Protected Areas) . Initiatives have only been identified in the LEBA marine demarcation-. Regulating boat anchoring has been identified in both experts' workshops and in the discussions of monitoring committees as a relevant issue to be addressed, especially in the Mediterranean and Canarian marine demarcation.	New measure BIO13: Guidelines on regulation of recreational sea activities



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES (BY THEME)	NEED TO REINFORCE EXISTING MEASURES AND PROPOSED NEW MEASURES
Human activity and diminishing fishing pressure		Initiatives related to regulation of trawling fishing in certain vulnerable habitats . It is deemed necessary to further our knowledge of sea floors in order to regulate fishing activities on a case-by-case basis for those cases where vulnerable habitats have been regulated.	New measure BIO42: Establishing trawling-free areas and increasing fishing exclusion areas in platforms, based on the results of the ESPACE Project (this initiative is related to BIO34).
		Environmental assessment of infrastructures Environmental assessment of infrastructures is carried out in relation to compliance with Act 21/2013, of 9 December, on environmental assessment. In different workshops, experts have suggested the need to reinforce project assessment with respect to their impact on benthic habitats and species. This reinforcement would also have a positive impact on descriptor 7 and its associated goals (section 6.6).	Strengthening of environmental assessment procedures for facilities must also be improved. These procedures will be improved through the new horizontal initiative H1: Regulation of compatibility criteria with marine strategies as per Article 3.3. of Act 41/2010 (see section 6.9)
		Placement of materials on the coast and sea floor. There are different initiatives related to good environmental management with regard to placement of materials on the sea floor. These measures shall be reinforced by means of its adaptation of the situation of Spanish sea waters.	New measure BIO36: Guidelines on acceptability of sand provided to beaches. New measure BIO46: Preparation of guidelines on artificial reefs
		Artisanal fishing This activity includes a series of fishing activities and gear widely used when fishing in the sea for recreational purposes, and which are not as systematically monitored as professional fishing in larger boats is. Some coastal Autonomous Communities (such as Andalusia) have implemented certain initiatives related to monitoring boats by means of systems similar to VMS. Certain Regional Governments, specifically those of Asturias and Murcia, have stated their interest to continue working in this sense over the coming years. Shellfish harvesting. Different actions have been proposed to improve sustainability of shellfish harvesting. The General Secretariat of Fisheries has stated its intention of continuing to	New measure BIO20: Improvement of monitoring of artisanal fisheries (type VMS) New measure BIO41: Explorations of alternative, low-impact methods for gathering crustacea from the sea floor.



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES (BY THEME)	NEED TO REINFORCE EXISTING MEASURES AND PROPOSED NEW MEASURES
Human activity and diminishing fishing pressure		work in this area, exploring the possibilities of low-impact fishing gear.	
Improvement of knowledge	<p>C.1.2 To foster international cooperation in the study of wide-distribution species</p> <p>C.3.2 Expanding knowledge on sea floors</p> <p>C.3.3 To expand knowledge on coastal habitats</p> <p>C.3.4 (C.3.3 -CAN). To expand knowledge on deep-water habitats</p> <p>C.3.4-CAN. To increase quality of information obtained from professional and recreational fishing and shellfish harvesting activities.</p> <p>C.3.5. To expand knowledge on the effect of human activities over habitats</p> <p>C.3.8 To expand knowledge on food webs</p>	<p>Several projects and initiatives aimed at expanding our knowledge on benthic habitats and sea flora and fauna have been identified. It is also foreseeable that, over the coming years, implementation of monitoring programmes achieves a general better knowledge of the characteristics and status of benthic communities most representative of our sea waters. In support of all of the above, several specific actions in this sense have been proposed.</p> <p>Some of these new measures shall come from the scientific sector (BIO15) and other shall be more specifically addressed to sea</p> <p>Projects BIO48 and BIO49 are clearly focused on improving regional coordination (in the scope of OSPAR and in the Macaronesian subregion) in designing and implementing common method and indicators for assessment and monitoring of marine biodiversity.)</p>	<p>BIO34: Sea floor prospect ion and data processing plan: continuation of the ESPACE project.</p> <p>BIO15: Knowledge improvement: promotion of research projects on birds, turtles, recruitment areas, as well as on impact of human activity on species and habitats.</p> <p>BIO48: MISTIC SEAS Project: “Macaronesian islands standard indicators and criteria: reaching common grounds on monitoring marine biodiversity in Macaronesia”</p> <p>BIO49: ECAPRHA Project: Applying an ecosystem approach to (sub) regional habitat assessments (EcAprHA): addressing gaps in biodiversity indicator development for the OSPAR Region from data to ecosystem assessment</p>

Table 2. Effectiveness analysis and identified weaknesses of measures related to biodiversity.



5.2. Initiatives related to Marine Protected Areas

Inventory of existing measures regarding protected marine species, a significant range of measures implemented at a national level, that is, in all Spanish marine demarcations, has been identified. Those are the Special Protection Measures, a category created specifically by the European Commission guidelines and which includes those measures relating to the establishing of protected marine areas, zoning of those areas, local use restrictions, etc.

A series of implemented initiatives regarding Marine Protected Areas, in addition to those already described, have also been identified in marine demarcations and are usually focused on: research, knowledge improvement and uncertainty reduction; decrease of physical loss on benthic habitats, reducing and monitoring the introduction and dispersion of non- indigenous species in marine habitats and restoring and maintaining marine ecosystems, including habitats and species, and Space Protection Measures for the marine environment.

An analysis of current measures, their efficacy and the identification of weaknesses is described below assessing whether they allow us to reach the goal of having a Network of Marine Protected Areas (RAMPE, as per its Spanish acronym) which is ecologically consistent (representativeness, connectivity) and representative (distribution) of Spanish natural marine heritage. The contribution of each initiative to achievement of environmental goals is also included. Considering the above, it is considered appropriate to propose 12 new measures.



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES	STRENGTHENING OF CURRENT MEASURES AND PROPOSED NEW MEASURES
<p>Actions for developing and fostering the RAMPE</p>	<p>A.2.1 To strengthen the Spanish Network of Marine Protected Areas in marine demarcations</p>	<p>1. Incorporation of current protected marine areas to the RAMPE: Article 26 Act 41/2010 on protection of marine provides the types of protected areas which may become part of the RAMPE.</p> <p>Currently, the RAMPE only includes the following areas, which were included from 2013: the 24 marine Special Areas of Conservation (SAC) in Macaronesia, which acquired such status by means of Order ARM/2417/2011; and El Cachucho, declared a Protected Marine Area and a Special Areas of Conservation by means of Royal Decree 1629/2011 and the Marine Reserves in external waters with fishing interest established as per the National Act on Sea Fishing.</p> <p>Weaknesses: The following areas are pending inclusion in the RAMPE: - Areas proposed by the AGE in the framework of the INDEMARES project, after approval by the European Commission - Areas declared as such by Autonomous Communities whose competencies have been overtaken by the AGE - Areas managed by Autonomous Communities - Area protected by international covenants.</p>	<p>Reinforcement of existing measures. - Inclusion of Marine Protected Areas already declared on the aforementioned RAMPE shall be reinforced.</p> <p>- As the action plan undergoes the corresponding approval procedure, integration of the 46 marine SPABs of Natura 2000 Network in the Spanish Network of Marine Protected Areas by means of a Decision of the General Director of Sea and Coast Sustainability was also under a process of approval. 39 of them have been identified and awarded such status in the framework of the INDAMARES project; the remaining 7 by the Generalitat Valenciana (the Government of the Autonomous Community of Valencia) and their management has been taken over by the AGE. Currently, such integration has been completed (Spanish Official Gazette of 21 January 2016).</p>
		<p>2. With regard to establishing new protected marine areas by any means provided by the RAMPE: In recent years, the progress seen in establishing new Marine Protected Areas is unprecedented in Spain, and must be credited to the work carried out within the framework of projects such as LIFE, the project for identifying Important Bird Areas for seabirds in Spain, or the INDEMARES project (inventory and designation of Natura 2000 Network in Spanish sea</p>	<p>Implementation of New measures is expected to increase significantly protected area until reaching the agreed international standard of 10%. - New measure EMP12: Preparation of research projects for future establishment of Protected Marine Areas - New measure EMP13: Establishment of new PMSs: an example of this is the proposal of establishing a migration</p>



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES	STRENGTHENING OF CURRENT MEASURES AND PROPOSED NEW MEASURES
		<p>areas). In 2013, protected sea surface barely reached 1% of its Spanish territorial waters (estimated at around one million square kilometres), while, from March 2015, this rate increased to 8%.</p> <p>The immense majority of Spanish protected sea areas are included in protection provisions set forth under the Natura 2000 Network, that is, Sites of Community Importance, Special Areas of Conservation and Special Protection Areas for Birds. Besides, Spain boasts one area which is at the same time a Protected Marine Area and a Special Area of Conservation under the Natura 2000 Network: El Cachucho.</p> <p>Weaknesses:</p> <p>These developments have seen Spain make significant progress in terms of compliance with European Directives and also contribute to reaching the targets set by the United Nations Conventions on Biological Diversity, of which Spain is a signatory, which establish that at least 10% of the planet seas and oceans should be designated protected areas. Consequently, this 10% target must be reached by designing and establishing new Marine Protected Areas.</p> <p>3. Legal instrument for enactment of RAMPE.</p> <p>Act 41/2010 on Protection of Marine Environment enacted, and regulated the RAMPE, and at the same time established its goals, defined the natural areas that belonged to it and created mechanisms to appoint and manage such areas. Additionally, by enactment of Royal Decree 1599/2011 which establishes integration criteria to be applied to sea areas protected by RAMPE; the basis for establishing an ecologically consistent and well managed network which is representative of biodiversity of Spanish seas has been set.</p> <p>Weaknesses:</p>	<p>corridor for Cetacea in the Mediterranean as Specially Protected Areas of Mediterranean Importance (SPAMI).</p> <p>- New measure EMP16: Enlargement of the Cabrera Archipelago Maritime-Terrestrial National Park</p> <p>New measures:</p> <p>- Initiative EMP1: RAMPE Master Plan, which shall be approved by means of a Royal Decree</p>



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES	STRENGTHENING OF CURRENT MEASURES AND PROPOSED NEW MEASURES
		<p>The RAMPE Master Plan is yet to be developed. This is a requirement provided by 41/2010 to define strategic goals, cooperation and collaboration objectives, planning and conservation guidelines, action plans and general interest projects under the RAMPE.</p>	
<p>Planning and management</p>	<p>A.2.2 To complete the Natura 2000 Network by establishing marine Important Bird Areas (IBAs) as SPAB, proposing new SCIs and preparing and implementing the relevant management plans.</p>	<p>Once those SCIs have been approved by the European Commission, the Member State has 6 years to declare the status of Special Conservation Area (SCA) and to approve its corresponding management plan.</p> <p>Management instruments for management of Natura 2000 Network areas approved for Spain include:</p> <ul style="list-style-type: none"> - conservations initiatives for species and habitats Many of such measures are oriented to improving our knowledge on the conservation status on European habitats and species and to reduce the pressures to which such habitats and species are subject; this is achieved by means of regulating the use and activities on such habitats. - regulation of uses and activities for the purposes of conservation o of habitats and species: boat anchoring, fishing (both professional and recreational), diving, aquaculture, research, access to genetic resources, underwater cables and conduits, and use of exploitation for extractive or energy uses. Of all these activities, those receiving the least attention when preparing management plans are recreational fishing and diving. <p>Weaknesses:</p> <p>With regard to the 109 Marine Protected Areas which are competence of the AGE, of which 1 is a Marine Protected Area, 26 are SCAs; 17 are SCIs; 10 are proposed SCIs; 47 are SPABs and 10 are Marine Reserves (it must be considered that some have more than one protection classification). Therefore, a lot of Spanish areas that are a part of the Nature Network are at the state in which a management plan is being prepared and approved. Notwithstanding the above, areas included in the framework</p>	<p>Reinforcement of existing measures:</p> <ul style="list-style-type: none"> - implementation of management plans for Mediterranean SCAs - regulation of aquaculture in areas with sensitive habitats (coralligenous or maërl seabeds and phanerogams grasslands) - technical measures for control of invasive species in protected areas <p>New measures:</p> <ul style="list-style-type: none"> - PMS2: Preparation and implementation of management plans for those SCIs managed by the Spanish Government as proposed by INDEMARES. Preparation and implementation of management plans for those SPABs managed by the Spanish Government as proposed by INDEMARES.



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES	STRENGTHENING OF CURRENT MEASURES AND PROPOSED NEW MEASURES
Planning and management		<p>of the INDAMARES project are placed under a preventive protection regime until the Commission confirmed them as SCIs and the Spanish Government has time to develop its management plan.</p>	
	<p>A.2.1 To strengthen the Spanish Network of Protected Marine Areas in marine demarcations</p>	<p>As for Natura 2000 Network marine species, all other areas included in the RAMPE must have a management plan that ensures that the goals for which it was designed will be achieved.</p> <p>In particular: At a regional level, 5 of the 9 areas classified as SPAMI have a current management plan and a new one in the process of approval. Having an area management plan is a provision included in the SPAMI Protocol under the Barcelona Convention. As for the 13 OSPAR areas, two of them have implemented a management plan and the remaining areas are expected to approve theirs throughout 2016.</p> <p>At a national level, the only Marine Protected Area under the RAMPE (El Cachucho) does have a valid current management plan, and this has been identified as one of the actions under the current initiative "Reclassification of Government-managed SCIs as SCAs".</p> <p>An analysis of Marine reserves included in section 6.4.4. under Descriptor 3 on commercially exploited species. However, it may be summarised considering that, although no formal management instrument has been approved for Marine Reserves, all of them are managed according to a well-consolidated management system which has proved efficient for maintaining and protecting fishing stocks.</p>	<p>New measures:</p> <ul style="list-style-type: none"> - EMP10: Management and monitoring of Marine Reserves - preparation and implementation of PMS management plans (different to those under Natura 2000 Network)



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES	STRENGTHENING OF CURRENT MEASURES AND PROPOSED NEW MEASURES
<p>Monitoring and surveillance.</p>	<p>A.2.2. To complete the Natura 2002 Network by establishing seaside Important Bird Areas (IBAs) as SPAB, proposing new SCIs and preparing and implementing the relevant management plans.</p>	<p>Monitoring carried out in PMS allows to verify: 1) the conservation status for each type of habitat and for species of European interest; 2) effectiveness of initiatives applied to achieve a favourable conservations status for such species and habitats.</p> <p>With regard to monitoring habitat and species conservation status, it must be highlighted that they are to be integrated in the monitoring programmes under the descriptors related to marine biodiversity in Marine Strategies, for the purposes of avoiding redundancy.</p> <p>With regard to surveillance, measures regarding surveillance, inspection and control, including certain actions carried out by the Sea Division of the Civil Guard, have been identified. These actions involve mostly boat anchoring and other activities which may cause sea pollution.</p> <p>Weaknesses: Currently, surveillance is carried out only in areas that have approved and implemented management plans and even so partially because of lack of allocated financial resources. Particularly in the Macaronesian SCA, a shortcoming in surveillance capacity has been identified with respect to those activities that have a negative impact on the natural value of those areas which caused them to be classified as protected in the first place, for example, whale watching (impacts and disturbances to several species of sea mammals) and uncontrolled boat anchoring (damages to sea phenogamae grasslands).</p>	<p>Monitoring measures on protected areas shall be reinforced from next year by implementation of Marine Strategies Monitoring Programme.</p> <p>The following initiatives are to be implemented with regard to monitoring and surveillance tasks:</p> <p>EMP1: RAMPE Master Plan, where monitoring and surveillance tasks shall be one of the master lines of management plans.</p> <p>EMP2: Preparing and implementing management plans for those Natura Network SCIs managed by the Spanish Government as proposed by INDEMARES which include monitoring and surveillance tasks.</p> <p>EMP3: Preparing and implementing management plans for those SPABs managed by the Spanish Government which include monitoring and surveillance tasks.</p> <p>EMP4: Revising of management plans for Macaronesian SCAs and El Cachucho SCA which will include monitoring and surveillance tasks.</p> <p>EMP10: Management and monitoring of Marine Reserves</p> <p>EMP15: Surveillance of <i>Posidonia oceanica</i> in the Balearic Islands.</p> <p>Although efforts are to be reinforced by means of implementation of these measures, existing management plans already include monitoring tasks which must be strengthened on order to effectively comply with use regulation, activities and conservation standards.</p>



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES	STRENGTHENING OF CURRENT MEASURES AND PROPOSED NEW MEASURES
Governance	A.2.1 To strengthen the Spanish Network of Protected Marine Areas in marine demarcations	<p>Initiatives related with awareness raising and community participation under the RAMPE:</p> <p>Management plans of the Mediterranean SCA include action designed to favour knowledge and community involvement in the conservation of the protected marine space, by means of dissemination of the natural and cultural values of this environment and fostering community involvement by means of environmental volunteering campaign and beach and sea floor community clean-ups.</p> <p>It is also noteworthy that both the classification of INDAMARES SCIs as well as in the preparation process of management plans for Mediterranean SCAs, an important work including information collection and participative consultation for different Entities, Institutions and industries involved in this areas.</p>	<p>Reinforcement of existing measures: Any initiatives included in management plans regarding awareness raising and community involvement actions must be maintained.</p> <p>New measures - SCAs and SPABs which are pending development must maintain such awareness and community involvement mechanisms. - EMP11: Awareness/dissemination regarding Marine Reserves</p>
		<p>Collaboration and cooperation between public institutions. SCAs' management include actions to promote collaboration between affected Public Administrations in order to guarantee that conservation targets are met.</p> <p>This is so because conservation of marine environment and more particularly, of coastal environment, requires implementing measures that are competence of several Public Administrations.</p> <p>It is foreseen that such collaboration is structured through conventions executed between the National General Administration and Regional Government, especially in those cases on which different protected areas managed by the National General Administration and an Autonomous Community, for the purposes of achieving a consistent, coordinated management.</p>	<p>Reinforcement of existing measures by means of signature and implementation of agreements subscribed between Administrations.</p>



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES	STRENGTHENING OF CURRENT MEASURES AND PROPOSED NEW MEASURES
		Weaknesses: To this date, none of such collaboration agreements or conventions between the National General Administration and an Autonomous Community have been implemented.	
		Valuation of PMS through models compatible with sustainable development of Marine Protected Areas.	<p>Reinforcement of existing measures:</p> <ul style="list-style-type: none"> - Recognition system of sustainable nature tourism within the Natura 200 Network. <p>New measure:</p> <ul style="list-style-type: none"> -EMP9: Analysis of possible creation and implementation support of a quality trademark Natura 2000 Network to foster marketing of products and services compatible with the Natura Network management goals

Table 3. Effectiveness analysis and identified weaknesses of measures related to Marine Protected Areas



5.3. Descriptor 2 - Non-indigenous species

By "non-indigenous" or "exotic" species refers to any species or subspecies, including any parts, gametes, seeds, eggs or propagates which may survive or reproduce when introduced outside their natural distribution area and their potential dissemination area, when introduction in such areas could not be possible without direct or indirect introduction or care by means of human action (RD 630/2013).

Invasive exotic species are defined by Act 42/2007 of 13 December on Natural Heritage and Biodiversity as "those species introducing or settling in a natural or semi-natural ecosystem and which act as an agent of change or threat to this ecosystem native biological diversity, either due to its invasive behaviour or due to the risk of genetic pollution.

Current initiatives with regard to invasive non- indigenous species are described below, together with their effectiveness and any weaknesses identified. Besides, the contribution of each initiative to achievement of environmental goals, considering the above, it is considered appropriate to propose 3 New measures.



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES (BY THEME)	NEED TO REINFORCE EXISTING MEASURES AND PROPOSED NEW MEASURES
Prevention: Control of introduction vectors	<p>A.1.2 To minimise possibilities of introduction or secondary expansion of non- indigenous species by directly addressing human-caused translocation vectors and path (preventing escapes from aquariums or aquaculture facilities, preventing transportation and release to the environment to species associated with those farmed in areas outside their natural range; control of ballast water, control of live bait, control of sediment dumping, control of boat anchoring and control of hull cleaning activities).</p> <p>A.1.5 To prevent any farmed sea species, especially uncommon or non- indigenous species, to have any impact on the food web.</p>	<p>Accidental introduction of invasive exotic species (IES) must be addressed in each introduction vector.</p> <p>As for ballast waters, the International Convention for the Control and Management of Ships' Ballast Water and Sediments (E000338) shall apply when it is enacted. There are complementary measures such as:</p> <ul style="list-style-type: none"> • -General Guidelines on Voluntary Provisional Application of D1 Standard on ballast water exchange y seas that operate between the Mediterranean Sea, the North-western Atlantic Ocean and the Baltic Sea, in the framework of the OSPAR-HELSINKI-BARCELONA Conventions (E000340). • - In the Mediterranean, it is important to highlight the "UNEP/MAP Action Plan with regard to introduction of invasive species in the Mediterranean (2003)" (E000339)." <p>With regard to introduction of exotic species which used aquaculture as introduction vector, the "Council regulation (EC) 708/2007 of 11 June 2007 concerning use of alien and locally absent species in aquaculture" (E000345) was approved. This Regulation establishes a legal framework intended to regulate aquaculture practices regarding exotic and locally absent species and to minimize any possible impact of such species and associated non-target species in water habitats, for the purposes of contributing to the sector's sustainable development. These regulations are the basic preventive cornerstone to reduce the introduction of</p>	<p>Management of ballast waters is a task on which further development over the coming years shall be required, once the Convention for Ballast Waters is enacted.</p> <p>Any initiative related to improve sustainability of aquaculture facilities, which may include the exotic species factor (initiative H13, see section 6.9) shall also be encouraged.</p> <p>Among these New measures, development of initiative EAI3 is included: "Mobile app for early warning and detection of non- indigenous and invasive species in National Park", whose implementation is provided by the OAPN-MAGRAMA.</p>



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES (BY THEME)	NEED TO REINFORCE EXISTING MEASURES AND PROPOSED NEW MEASURES
Prevention: Control of introduction vectors	<p>A.1.2 To minimise possibilities of introduction or secondary expansion of non-indigenous species by directly addressing human-caused translocation vectors and path (preventing escapes from aquariums or aquaculture facilities, preventing transportation and release to the environment to species associated with those farmed in areas outside their natural range; control of ballast water, control of live bait, control of sediment dumping, control of boar anchoring and control of hull cleaning activities).</p> <p>A.1.5 To prevent any farmed sea species, especially uncommon or non- indigenous species, from having any impact on the food web.</p>	<p>exotic species to this economic sector, which is key for our seas.</p> <p>In the general legal framework for the introduction of invasive exotic species, Regulation (EU) no 1143/2014 of the European Parliament and of the Council of 22 October 2014 on the prevention and management of the introduction and spread of invasive alien species is relevant in that it attempts to provide a response to IES penetration or expansion mechanisms by identifying the penetration paths that require priority action. In line with the provisions set forth in goal 5 of the EU Biodiversity Strategy for 2020, with regard to Prevention, this Regulation establishes a series of measures aimed at preventing entry of new invasive species in the EU.</p> <p>The goal of this sector for the future is to optimise benefits gained from introductions and translocations preventing any alteration in ecosystems, preventing biological interaction with the local population and restricting species expansion. In application of this Regulation, "Spain must ensure that all appropriate measures are taken to prevent adverse effects for biodiversity and especially for species, habitats and functions of ecosystems as a consequence of introduction and translocation of water organisms and locally absent species, arising from aquaculture and from the propagation of such species in the natural environment".</p> <p>One of the most important actions to prevent such impact is the implementation of "awareness-raising activities on invasive and non- indigenous species" (E000352) such as, for example, different initiatives related to awareness-raising at</p>	



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES (BY THEME)	NEED TO REINFORCE EXISTING MEASURES AND PROPOSED NEW MEASURES
Prevention: Control of introduction vectors		<p>a community level and in the sectors affected by invasive and non- indigenous species, as well as on any prevention measures for introduction and expansion.</p> <p>Implementation of good practices codes in the aquaculture is equally important. For these purposes, the Network of Environmental Authorities of the MAGRAMA, with the support of the former Ministry for Labour and Social Matters, prepared Good Practices Guidelines for the fishing and aquafarming sectors.</p>	
Early detection and eradication	<p>A.1.3 To eradicate or reduce, preferably at the first stages of the invasive process, the number and abundance of invasive species so as to diminish pressure on the relevant habitat on those cases on which economic or biodiversity losses may be significant, provided that this is technically feasible and no collateral damages are caused. Eradication of non- indigenous species</p>	<p>Regulation (EU) 1143/2014 establishes a coordinated working framework for those initiatives aimed at preventing, minimising and mitigating the negative effects of IESs in the ecosystemic services. Among those initiatives included are actions aimed at managing existing invasive exotic species which require specific action to limit their expansion and minimise the damage caused by them, and specifically: - combating and/or restricting already established invasive species.</p> <p>Additionally, Article 10 of Royal Decree 630/2013 of 2 August which regulates the Spanish Catalogue of Invasive Exotic Species (E000344) provides measures to fight the invasive exotic species in the catalogue and considers the possibility of preparing strategies to combat invasive exotic species. Up to now, these strategies focused on terrestrial areas and in dunal vegetation. Some Regional Action Plans on Invasive Species were also implemented in certain Autonomous Communities.</p>	<p>There are individual initiatives for eradication of IESs, and probably this line of work needs to be enhanced in the future as per the obligations set forth in Regulation (EU) 1143/2014.</p> <p>A new measure has been proposed in this sense:</p> <p>- EA12: Warning systems, early detection and rapid eradication of invasive exotic species</p>



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES (BY THEME)	NEED TO REINFORCE EXISTING MEASURES AND PROPOSED NEW MEASURES
		<p>There are certain "experiences linked to monitoring, early detection and eradication of certain well-located focuses of invasive species in the Spanish coastal and marine environments (E000350)" a further description of which may be found in the inventory. Some of these actions are carried out in Marine Protected Areas (initiative E000353) and others have been integrated in the respective river basin hydrological plans.</p>	
<p>Surveillance and monitoring</p>	<p>A.1.9 (NOR, SUD, ESAL, LEBA) A.1.12 (CAN)</p> <p>To guarantee appropriate surveillance of the marine environment both by on-site and remote systems.</p>	<p>The second component of Regulation (EU) 1143/2014 highlights early detection and rapid eradication, for which "Member States must create an official surveillance system which collects and stores key data on invasive species present in EU territory which pose a concern for the EU, as well as guaranteeing that immediate action is taken to eradicate IES as early as possible, before it can extend and cause significant damage."</p> <p>In Spain, monitoring of non - indigenous species shall be focused in complementation of marine strategies monitoring programmes, specifically the EAI programme and its five subprogrammes. These subprogrammes are expected to provide information, whenever possible, on presence and abundance of non- indigenous species in hot-spots (ports, marinas, etc.) and in protected sea areas. Together with data collected from other sources ("data mining"), a database shall be constructed in order to facilitate early detection and alert.</p>	<p>Surveillance of invasive and non-indigenous species shall be carried out through monitoring programmes.</p>
<p>Surveillance and monitoring</p>			



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES (BY THEME)	NEED TO REINFORCE EXISTING MEASURES AND PROPOSED NEW MEASURES
		The idea is to create over the coming years a single "over-arching" standard for existing initiatives (that up to now are few and use different methods) by means of the efforts involved in the implementation of monitoring programmes.	
Non-indigenous species, awareness raising	C.1.3 To ensure community involvement in Marine Strategies	Implementation of marine strategies necessarily implies community involvement in terms of dissemination initiatives, environmental education, volunteering programmes and implication of interested sectors. As for community involvement, "awareness-raising activities on invasive and non- indigenous species" (E000352) such as, for example, different initiatives related to awareness-raising at a community level and in the sectors affected on the effects of invasive and non- indigenous species, as well as on any prevention measures for introduction and expansion, are especially noteworthy.	Community involvement, both at national and local, sometimes ultra-local, levels, shall be enhanced. See horizontal measures: H2. Developing a strategy for visibility and dissemination of Marine Strategies. H10. Training programmes addressed to fishermen and women, on-board observers, personnel from the networks for the rescue of beached animals and training of public administration managers and law enforcement agents. H11. Awareness programmes designed for beachgoers, companies of recreational water activities, fishermen and women and the society at large.
Increasing and improving knowledge	C.3.6 To increase knowledge on presence, space distribution abundance and impact of non-indigenous species, especially those which are potentially invasive, promoting specific research projects and promoting	The most noteworthy actions implemented for this purpose are those "focused on improving knowledge of invasive and non-indigenous species in the marine environment" (E000351). At a national level, the MAGRAMA has been working on a collection of all existing information in the aforementioned	It is necessary to continue carrying out research and projects that allow us to increase the available information on IES. A New measure EAI1 is proposed: Improvement of knowledge of invasive



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES (BY THEME)	NEED TO REINFORCE EXISTING MEASURES AND PROPOSED NEW MEASURES
	the development of monitoring networks and their coordination at a national level.	<p>studies, which has been integrated in the Spanish Inventory of Sea Species and Habitats.</p> <p>In conclusion, it may be inferred that initiatives and projects carried out over recent years have been developed in response to a specific problem in a very restricted area. There is no systematic information on invasive non-indigenous species at a regional level, and the current programmes are not sufficient.</p>	species and other issues, which shall be used as a collection of all research initiatives in this field.
Coordination between administrations	C.1.4. To achieve appropriate coordination among administrators, institutions and sectors related to the marine environment	<p>Currently, there is a Work Group in Spain with regard to EU Regulation 1143/2014 on invasive and exotic species.</p> <p>MAGRAMA has created this group in order to ensure that this Regulation is correctly applied. The Group includes all administrations involved in invasive and non-indigenous species: Autonomous Communities, water administrations, General National Administration, etc. The goal of the Group is to improve coordination between administrations in order to apply all provisions set forth in the Regulations.</p>	<p>This is the appropriate forum to address the necessary measures regarding non-indigenous and invasive species.</p> <p>In all cases, it is considered very important to hear and involve different sectors in the population (environmentalist associations, diving clubs, sailing companies, etc.)</p>

Table 4. Effectiveness analysis and identified weaknesses of measures related to non- indigenous species



5.4. Descriptor 3 - Commercially exploited species

This descriptor is one associated with a largest number of existing measures, both at a national level and within the scope of marine demarcations. However, and differently to other descriptors, the scope of those initiatives is limited: most of them are legal initiatives regarding prevention of negative impacts of fishing and aquaculture (either recreational or professional) (KTMs 19, 20) or space protection plans to preserve fishing resources, in this case Marine Reserves.

Current initiatives, classified by theme, are described below, together with their effectiveness and any weaknesses identified. As a consequence of the weaknesses analysis and the needs identified by it, a total of 9 new measures have been identified in the area of fishing activities. This must be considered together with other initiatives (such as BIO18, BIO19, BIO20, EMP10, EMP11) also affecting the fishing sector.



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES (BY THEME)	NEED TO REINFORCE EXISTING MEASURES AND PROPOSED NEW MEASURES
Control and observance of fishing activities	Environmental goal A.1.9 (A.1.12 in CAN): To guarantee appropriate surveillance of the marine environment both by on-site and remote systems.	Fishing surveillance and control activities are fundamental in order to guarantee appropriate compliance of fishing policies. Although an important human and financial provision for these purposes, both the National General Administration (MAGRAMA and Civil Guard) and in the coastal Autonomous Communities, this measure must be reinforced, and such reinforcement has been identified as a priority in the EMFF operational program.	New measure EC7: Reinforcement of monitoring tasks (Article 76).
Recreational fishing	Environmental goal C.1.5: To develop organizational plans for recreational sea activities and/or uses arising from these opportunities, such as boat anchoring, diving, recreational fishing , water sports, whale watching, etc. for each area in each demarcation where these activities are relevant.	Measures to prevent or control negative impacts of recreational uses, including recreational fishing: A single initiative applied in all marine demarcations regarding recreational maritime fishing in external waters has been identified. Besides, Autonomous Communities have regulated this activity in their internal waters. Therefore, there is an existing tool to comply with the associated environmental goals with regard to fishing activities. However, different forums have highlighted the need to advance in sustainability of recreational fishing, and for this reason the General Secretariat of Fisheries tries to adapt national regulations.	New measure: BIO18. Modification of Royal Decree 347/2011 of 11 March, which regulates recreational maritime fishing in external waters,
Improvement of status of fisheries	Environmental goal C.1.6: To guarantee that fishing stocks are appropriately managed, so they stay within safe biological limits. Environmental goal A.3.1 (except CAN) To maintain the stability of the size distribution of teleosts, demersal	Improving the status of fisheries or fishing stocks is the ultimate goal of Descriptor 3 of DMEM and of Common Fisheries Policy insomuch as all goals must be designed to accomplish this goal. Results from initial investigation identified a pool of fishing stocks that were not in good environmental status, either under criterion 3.1. or under criteria 3.2. or both. This situation was of special concern in the Mediterranean stocks.	New measures proposed in this action plan with regard to these environmental goals are the following: EC1. Stopping operations definitively based on the fleet action plan EC2. Temporarily discontinuing operations (according to Article 22 of EMFF Regulations)



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES (BY THEME)	NEED TO REINFORCE EXISTING MEASURES AND PROPOSED NEW MEASURES
Improvement of status of fisheries	<p>elasmobranchii and benthic fish considered large (...)</p> <p>Environmental goal A.3.2 (except CAN) To keep the conservation status of fish species (CDF) under 1 (...)</p> <p>Environmental goal A.3.3 (except CAN) To maintain the species distribution range (...).</p> <p>Environmental goal A.3.4 (CAN A.3.1) To keep positive or stable trends in key species populations and apex predators (sea mammals, reptiles, sea birds and fish) and, for commercially exploited species, ensuring that they stay within biologically safe limits (...).</p>	<p>All measures identified in the relevant inventory have the ultimate purpose of improving the status of fishing stocks.</p> <p>Measures to prevent or control negative impacts of fishing and other types of exploitation and removal of animals and plants: as explained under this section, a large number of measures have been identified and may be classified in two categories:</p> <ul style="list-style-type: none"> • Initiatives regarding regulations of fishing activities in all their aspects (conservation and sustainable exploitation of certain species, minimum sizes, exclusion areas and fishing gear) • Fisheries management plans <p>In line with the new purposes of the Common Fisheries Policy, as well as the adaptive management processes that must be implemented by fishing administrations, a set of new measures has been identified and considered the most strategically relevant for Spain within the EMFF Operational Programme. Other specific action lines aimed at reinforcing the legal framework and existing tools for certain fishing resources have also been identified, both by the Government of Spain and some Autonomous Communities.</p>	<p>EC8: Reducing fishing quotas of red coral by person and year (RD 629/2013)</p> <p>EC9. Management plan for longline fishing fleets in the Mediterranean</p> <p>EC10. Promoting fishing and shellfish harvesting management and co-management plans in Mediterranean waters (Generalitat de Catalunya)</p>
	<p>Environmental goal C.1.6: To guarantee that fishing stocks are appropriately managed, so they stay within safe biological limits.</p> <p>Environmental goal A.2.1: To strengthen the Spanish Network of Marine Protected Areas in marine demarcations</p>	<p>Measures related to Marine Reserves of Fishing Interest: as explained before, two groups of measures have been identified, those related to instruments for establishing Marine Reserves and measures on regulation of uses and activities. Analysis of compliance of goal A.2.1. has already been reflected under Marine Protected Areas.</p> <p>With regard to the other environmental goals, marine reserves are under a well-managed protected space regime the</p>	<p>The Network of Marine Reserves managed by the Government of Spain is to be reinforced by the support of the EMFF Operational Programme, as can be seen through the new proposals.</p> <p>The proposed initiatives include several measures regarding Marine Reserves:</p>



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES (BY THEME)	NEED TO REINFORCE EXISTING MEASURES AND PROPOSED NEW MEASURES
Marine Reserves of Fishing Interest		<p>implementation of which dates back many years and which has proved to be a useful tool to protect fishing resources and biodiversity in general, allowing, on one hand, conservation of fishing populations in the areas within and near the reserve and, on the other, restoration of fishing stocks as the areas are constituted as areas for refuge, breeding and spawning, and the resulting biomass is exported outside the reserve.</p> <p>Conclusion: with respect to the RAMPE-related environmental goal, effectiveness analysis of existing measures has already been carried out under the section specifically devoted to protected areas; with regard to environmental goals referring to favourable conservation status and fishing stock management. It has been positively shown that it significantly contributed to compliance with both and allows for the conservation of fishing stocks and fishing activities to be reconciled in an orderly, sustainable manner.</p>	<p>EMP10. Management and monitoring of Marine Reserves</p> <p>EMP11. Awareness/dissemination regarding Marine Reserves</p> <p>The new EMP10 initiative may contribute to environmental goals with respect to conservation of fishing stocks, since it includes reinforcement of effective management carried out in those areas. On its part, initiative EMP11, together with other actions proposed, it will contribute to attaining the awareness and dissemination goals.</p>
Policy on discards	<p>Environmental goal C.1.6: To ensure that fishing stocks are appropriately managed, so they stay within safe biological limits.</p>	<p>The new Common Fisheries Policies requires the establishment of a new policy on discarded fish, so it is expected that significant advances are made in this regard over the coming years. Among current measures, the creation of a "National Board for Zero Discards" is especially noteworthy. This board shall act as the coordinating forum for implementing any measures in this area.</p>	<p>Therefore, a New measure has been proposed for the purposes of grouping actions in this line:</p> <p>EC4. Actions intended to comply with discard policies.</p>
	<p>Environmental goal C.3.7: To gather information that allows for the assessment of current status with regard to GES based on a larger number of commercially significant stocks, among</p>	<p>The Basic Data National Programme shall be used as the acting general framework to ensure that useful information is used for ecosystem management of fisheries.</p> <p>Besides, over the coming years the programme shall face the challenge of incorporating other type of data (arising from</p>	<p>New measures proposed for this issue:</p> <p>EC5. Fostering collaboration between scientific experts and the fishing sector.</p>



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES (BY THEME)	NEED TO REINFORCE EXISTING MEASURES AND PROPOSED NEW MEASURES
Improvement of knowledge	<p>which the following specific goals are identified:</p> <ul style="list-style-type: none"> • To monitor and obtain basic information on species that up to now were not included in monitoring programmes and which have been included in the list of species selected under Descriptor 3. • To improve knowledge of the status of selected stock which currently is not assessed and translated into main or secondary indicators (as such indicators are defined by the Commission Decision 2010/477/EU). • To advance in establishing precautionary reference values and management reference values. 	<p>possible modification of DFC) which may be useful for application of marine strategies.</p> <p>Although the Basic Data National Programme works smoothly in Spain, it is to be improved over the coming years, and therefore it has been identified as a priority action line in the EMFF Operational Programme.</p> <p>Another action line which will yield useful information for fishery management is the proposal for a new measure related to collaboration between scientific experts and the fishing sector.</p>	<p>EC6. Actions related to maintenance of Basic Data National Programme (Article 77).</p>

Table 5. Effectiveness analysis and identified weaknesses of measures related to Marine Protected Areas



5.5. Descriptors 5, 8 and 9- Eutrophication; contaminants and their effects, and contaminants in seafood

The inventory of existing measures includes some initiatives aimed at improving the effects of nutrients, organic matter and contaminants in sea water, both at a national level -affecting all marine demarcations and usually arising from International Conventions or compliance with other European directives - and at the level that only one marine demarcation, or a specific area within a marine demarcation, is affected.

After grouping descriptors D5 (Eutrophication), D8 (Contaminants and their effects) and D9 (Contaminants in fishing products), which are frequently affected by the same pressures, initiatives are analysed considering that improving one descriptor usually favourably impacts the others.

In the inventory of existing initiatives, a set of actions has been identified which go beyond national level, such as those arising from International Conventions as the Barcelona and the OSPAR Conventions, or else from implementation of European Directives.

The **OSPAR Convention** regarding North-Atlantic and South-Atlantic marine demarcations establishes as its strategic goal the fight against eutrophication (acts on D5) and hazardous substances, and the effects of the oil and gas industries (act ion D9 and D8).

Certain provisions of the **Barcelona Convention** or the *Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean* are also applicable in Mediterranean marine demarcations, such as the following pollution related protocols:

- ◆ Protocol for the prevention of the pollution of the Mediterranean Sea by dumping from ships and aircraft ("Dumping Protocol"), ratified by Spain in 1999.
- ◆ Protocol concerning cooperation in combating pollution of the Mediterranean Sea by oil and other harmful substances in cases of emergency, ratified by Spain in 2007.
- ◆ Protocol for the protection of the Mediterranean Sea against pollution from land-based sources ("COT or LBS2 Protocol"), ratified by Spain in 1999.
- ◆ Protocol for the Protection of the Mediterranean Sea against pollution resulting from exploration and exploitation of the continental shelf and the seabed and its subsoil ("Offshore Protocol"); although in force since 2011, it has not yet been ratified by Spain.
- ◆ Protocol on the Prevention of Pollution of the Mediterranean Sea by Transboundary Movements of Hazardous Wastes and their Disposal ("Hazardous Wastes Protocol"); although in force since 2008, it has not yet been ratified by Spain.

An important instrument for pollution control arising from these protocols is the **Programme for Assessment and Control of Marine Pollution in the Mediterranean (MED POL)**.

This section analyses how existing measures regarding pollution by nutrients and other chemicals contribute to achieving environmental goals, boost their efficiency and help detect any possible weakness. In light of the above, it is considered appropriate to propose 10 new measures.



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES	NEED TO REINFORCE EXISTING MEASURES AND PROPOSED NEW MEASURES
Prevention and fight against sea pollution caused by earth contaminants	<p>B.1.1 To reduce the volume of direct or indirect spilling without appropriate treatment (...) and to improve efficiency of water reclamation systems in order to minimise littering and discharges of contaminants and nutrients into the sea environment.</p> <p>B.1.3 Environmental goal regarding nutrient concentration (variable in each marine demarcation)</p> <p>B.1.4 (NOR and LEBA) To reach or maintain a good or very good status for coastal waters (WFD)</p> <p>B.2.1 To ensure that established contaminant levels in the biota are not exceeded</p> <p>B.2.2 To maintain decreasing or stable trends of contaminants in sediments</p> <p>B.2.3 To ensure biological response levels to pollutions in established indicator organisms are not exceeded</p> <p>B.2.5 To ensure the maximum permitted contaminant contents in human consumption species are not exceeded</p>	<p>Among human pressures that have historically affected the coastal strip, liquid spillage from earth is especially significant; depending on their origin and nature, these spills may be divided in three large groups: Urban, industrial and farming.</p> <p>Even though over the last few years water administrations have made a great effort to improve the conditions of one-time spills by a wide range of initiatives (already described in section 6.5), one of the most noteworthy of which is the commissioning of many wastewater reclamation plants, there are problems that are yet to be solved.</p> <p>Certain initiatives included in the Water Quality National Plans are pending execution and completion, although it is expected that they will be completed for 2021 as included in the relevant Hydrological Plants.</p> <p>Besides, as sewerage systems are being executed, a series of problems arising from diffuse urban pollution have been detected. Those are related to stormwater basins, uncollected spills and industrial spills to sewage systems for which urban water treatment systems are not prepared. Although there are a large number of independent industries that treat their own waste, there is still a significant number of indirect industrial spillage to the local public sewerage and reclamation systems. Often, depuration systems are not totally effective for the wide range of contaminants generated by industry, and may even cause malfunction of water reclamation plants.</p> <p>For this reason, it may be considered that some of the solutions implemented previously were not sufficient, and, therefore, that it may be necessary to continue reducing pollution at its origin using the best technique available.</p> <p>In addition, action against pollution from polluted places must be reinforced through plans to abandon unused industrial premises.</p>	<p>It is necessary to continue carrying out those activities already outlined by the PNCA in addition to reduction at the source by the best available techniques. With regard to new problems detected, it has been necessary to improve existing regulations by means of implement new Guidelines for earth-sea discharges (CONT 4), which will be included as a new measure under this programme.</p> <p>It has been included in the action plan as the New measure "CONT 4 Guidelines for earth-sea discharges "for the purposes of making these guidelines adjusting to new need and new regulation policies and requirement, including the project specific regulations for discharge conduits depending on the type of spills, such as brine or thermal discharges."</p>



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES	NEED TO REINFORCE EXISTING MEASURES AND PROPOSED NEW MEASURES
		<p>Also in recent years, a certain type of spilling has appeared, generated by new industrial sectors, such as the high-density and hypersaline spills from sea water desalination plants and certain combined cycle power plants which use sea water for cooling, and whose waste is very different from the low-density waste that was more common before. Its impact and the approach to finding solutions and designing the corresponding surveillance systems are also very different. For this reason, it is necessary to update existing regulations with new Guidelines for earth-water spills, which is included as a new measure in the corresponding action plan (CONT 4).</p> <p>With regard to nutrient pollution, the largest sources of pollution are usually agricultural and farming activities, in the different River Basin Districts. Many initiatives have been carried out with the purpose of reducing said pollution by treating manure, together with other initiatives, such as those provided by Action Plans for reducing nitrates and Guidelines for good agricultural practices to reduce nitrates and pesticides.</p> <p>In spite of those measures, focuses of diffuse pollution from livestock farming activities are still detected; usually due to the fact that manure is directly spread on the ground, therefore, it is urgently important to regulate livestock farming activities, especially in the most vulnerable areas and in those areas which are most vulnerable, through the correct management of livestock waste.</p>	
Prevention and fight against sea accidental pollution events	B.2.4 To minimise the impact and magnitude of high polluting episodes	<p>With regard to the prevention of accidental pollution events, risk and the number of accidents caused by collision and beaching in maritime traffic has been considerably reduced, and therefore the pollution potentially caused by those accidents.</p> <p>The main tool to face accidental pollution events in Spain is the National Response System against accidental sea pollution events, which established a response procedure framework when such accidents occur; such framework usually refers to action coordination and cooperation,</p>	Conclusion: Prevention and reduction of accidental pollution events in Spain is covered by traffic separation systems and accidental pollution events response systems, from which the Sea Shore Plan arises and therefore all connected plans. For the purposes of reinforcing those tasks that are already under



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES	NEED TO REINFORCE EXISTING MEASURES AND PROPOSED NEW MEASURES
		<p>especially between the Government of Spain, coastal Autonomous Communities and Local Administrations, as well as other public and private organizations involved in maritime affairs; it is also responsible for determining the means to achieve a unified response to a sea pollution event.</p> <p>The National Plan for the Protection of Sea Shores against Pollution (Sea Shore Plan) includes aspects such a sensitivity map of the Spanish shores and a vulnerability and risk analysis, as well as logistic and management capacities necessary to act in the event a pollution event of that extent and intensity. It is considered appropriate to reinforce the following aspects of the plan.</p> <p>It is intended to mitigate the impact of accidental water pollution on the biota through the new measure consisting of establishing a Rescue and Recovery Strategy for oil-stained fauna.</p>	<p>development, three New measures have been included in the plan:</p> <p>CONT1: Reinforcement of the Sea Shore Plan</p> <p>CONT2: Strategy for rescue and recovery of oil-stained fauna</p> <p>CONT3: Preparation of operational procedures or protocols for correct implementation of the National Plan for Response to Sea Pollution Events.</p>
Prevention and fight against pollution from sea sources	B.1.2 To reduce the frequency of improperly treated discharges from ships and platforms	<p>Among sea pollution sources, there are discharges of dredged material, post activities, navigation and offshore activities.</p> <p><u>Dredged material spills</u></p> <p>In 2014 the Spanish Interministerial Commission for Marine Strategies prepared and approved the "Guidelines for classification of dredged material and its relocation in waters of terrestrial or maritime public domain" which have been applied since 2014 without being legally binding. Once the applicability of new proposed methods for material classification and management techniques provided in the above Guidelines have been testes, they are submitted to be approved and enacted. This way, they shall become compulsory in all projects regarding dredging, spilling or relocating material sin the sea, as well as in any authorising procedure.</p> <p><u>Port activities</u></p>	<p>CONT5. Approval of guidelines for dredged material management as Royal Decree.</p> <p>CONT12. Preparation of IMP: Preparation and approval of Port's Internal Maritime Plans, of general interest, aimed at preventing and controlling accidental sea spillages in the port service area.</p> <p>CONT13. Guidelines for handling liquid cargo in bulk. Good Practices Guidelines for Handling Liquid Cargo in Bulk when in Port</p> <p>CONT7. Reinforcement of the National Rescue Plan</p>



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES	NEED TO REINFORCE EXISTING MEASURES AND PROPOSED NEW MEASURES
Prevention and fight against pollution from sea sources	B.1.2 To reduce the frequency of improperly treated discharges from ships and platforms	<p>With regard to port activities, operations from maritime installations that involve handling oil or other harmful or hazardous substances are regulated by Royal Decree 1695/2012 which establishes a National Response System against accidental sea pollution events and implements associated internal maritime plans that include planning and operational response measures. Besides, there are many measures provided by hydrological plans intended to prevent and fight against port pollution by improving discharge systems in the in-port water areas, in the waste management systems and the port sewage system, among others.</p> <p>This set of measures includes two new measures regarding port activities: preparation and enactment of Internal Sea Port Plans, of general interest, aimed at preventing and controlling accidental spilling events at sea in the port service areas (CONT12) and the Good Practices Guidelines for Handling Liquid Cargo in Bulk in Port (CONT13).</p> <p><u>Navigation</u></p> <p>Navigation is governed by a system of traffic separation devices which considerably reduce risk and the number of accidents due to collision and beachings in sea traffic. This is in addition to the National Plan for Maritime Rescue, which is expected to be reinforced by the proposed new measure CONT7.</p> <p><u>Offshore activities</u></p> <p>Spain also implements measures arising from Directive 2013/30/EU of the European Parliament and of the Council of 12 June 2013 on safety of offshore oil and gas operations and amending Directive 2004/35/EC. This Directive sets forth minimum requirements aimed at preventing serious accidents in offshore oil and gas related operations and limiting the consequences for such accidents. This directive is in the latter stages of transposition into the Spanish legal framework.</p>	CONT8. Preliminary Work for the Action Plan for the UNEP-MAP Offshore Protocol (Protocol for the Protection of the Mediterranean Sea against pollution resulting from exploration and exploitation of the continental shelf and the seabed and its subsoil (2013/5/EU))



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES	NEED TO REINFORCE EXISTING MEASURES AND PROPOSED NEW MEASURES
		<p>A new additional measure has been included: the Action Plan for the UNEP-MAP Offshore Protocol (Protocol for the Protection of the Mediterranean Sea against pollution resulting from exploration and exploitation of the continental shelf and the seabed and its subsoil (2013/5/EU)) (CONT18).</p> <p>Conclusion: New measures included in this Plan attempt to minimise both the impact associated with activities such as dredging, navigation and offshore activities, as well as diminishing the risk associated with handling harmful or hazardous substances in maritime installations.</p>	
Contaminants in Seafood	<p>B.2.5 To ensure the maximum permitted contaminant contents in human consumption species are not exceeded</p> <p>C.3.10 To improve access to available information on the sea environment, particularly with regard to descriptors of good environmental status, pressures and impacts and socio-economic aspects, as well as ensuring information quality.</p>	<p>The European Union has a wide range of European regulations in order to guarantee that foodstuffs are healthy and safe, and they cover all the stages in the food chain, from primary production to final marketing of foodstuffs.</p> <p>All these laws and regulations are based on the principle that economic agents must ensure that such laws and regulations are complied with in their activities, since they are directly and primarily responsible for foodstuffs sold to consumers.</p> <p>Currently, the 2011-2015 National Food Chain Control Plan 2011-2015 provides our country with a solid framework, both stable and flexible, for performing official controls on food and feed, which may serve as a reference for public administrators, financial operators and consumers in terms of obligations and guarantees. This plan, operating under the principle of transparency of Public Administration, official control actions to be performed throughout the food chain, from primary production to marketing such foodstuffs to consumers.</p> <p>Given that multi-year control national plans are adjusted while they are valid due to different factors, as set forth by Regulation (EC) 882/2004, Spain has established a system by which the Plan is updated and adjusted annually, and the corresponding annual report of National Plan results is prepared.</p>	<p>All necessary measures regarding prevention of contamination of fishing products may be carried out in the framework of the National Plan for Food Chain Control. For this reason, no further measures are provided in this line.</p>



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES	NEED TO REINFORCE EXISTING MEASURES AND PROPOSED NEW MEASURES
Research and knowledge improvement	B.3.2 To improve knowledge on existing sea pollution and its biological effects considering its spatial extension, evolution in time, types of contaminants and biological effects agreed at a national, regional or European level.	<p>Many initiatives and projects have been identified related to knowledge improvement in different marine demarcations and proposed by different Administrations and Entities such as the IEO, the Scientific Research Council (CSIC), etc., where the impacts of polluting discharges and spillages are assessed for the purposes of minimising their effects or the aforementioned programmes on innovation on environmental restoration of shores (INNODRAVAL) and ecological dredging (ECODRAGA).</p> <p>In addition to current research on pollution, one of the tools that improves knowledge and management of pollution both at national level and at basin management entity level is the census of discharge events described previously. The new census of discharge events will allow for all information to be available in real time.</p> <p>Conclusion: There are several mechanisms that contribute to a better knowledge of management of pollution sources and effects: from research projects to the census of discharge events that allows automatic, real time access to information regarding existing discharge events throughout the country.</p> <p>In order to continue with the research, a new measure has been included in the plan in order to improve knowledge on all aspects related to sea pollution (CONT14).</p>	CONT 14 Improves knowledge in aspects related to marine contamination

Table 6. Effectiveness analysis and identified weaknesses of measures related to pollution and its effects



5.6. Descriptor 7 - Changes in hydrographical conditions

Hydrographical conditions may change on a large scale, as a consequence of climate variability and/or climate change, or on a medium or local scale, as a consequence of human action. Initiatives already implemented in continental water bodies closest to the sea, transitional water bodies and coastal waters are usually taken out from river basin hydrological plans. These initiatives shall be described in the following sections, classified by marine demarcation.

Although measures related to climate change adjustment and mitigation are not included in the scope of Marine Strategies. In this sense, national and international action levels in this sense may be highlighted. Such measures are described in section 5.9. Horizontal measures

At a marine demarcation level, a group of existing measures intended to improve hydrographic conditions.

The following section analyses how the set of existing measures regarding changes in hydrographic conditions contributes to achieve environmental goals, boosts their efficiency and helps detect any possible weakness: After completing weaknesses and needs analyses as identified in the previous research, a new measure was proposed.



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES	NEED TO REINFORCE EXISTING MEASURES AND PROPOSED NEW MEASURES
Changes in hydrographic conditions consequence of human action	C.2.1 To ensure that the surface affected by physical alterations is reduced	The accumulation of artificial elements in rivers and on the coast causes variations in the hydrodynamic regime affecting sediment transportation, which may modify and even replace benthic ecosystems. In this sense, a set of existing measures has been ide that improves hydrological conditions and longitudinal continuity for inland water bodies closest to the shore, has been identified as improving coastal morphology by either constructing or removing structures in the MTPD and its easement are, or restoring and protecting dunes and marshes and regenerating beaches.	Existing measures to minimise local physical alterations have been included in the proposals for the relevant river basin hydrological plans- No additional measures are proposed.
	C.2.2 To ensure that localised physical alterations do not affect habitats C.2.3 To adopt mitigation measures in those coast sections affected by physical alterations	Conclusion: The first assessment concluded that the impact of civil infrastructures is very well located and restricted. However, impacts arising from modification of coastal areas and regulation are difficult to assess.	
Environmental assessment of infrastructures	C.2.4 To ensure that the environmental impact studies consider hydrographic conditions	Determining the impact of civil works should, in principle, be covered by the different environmental impact studies compulsory by law. The regulatory framework for assessment of environmental work in Spain is described in detail in section 6.9. Initiatives on a horizontal theme. Besides environmental assessment, the compulsory report of compatibility with marine strategies (Article 3.3. of act 41/2010) is a valuable tool to guarantee the environmental sustainability of certain projects and intervention in the marine environment. The guidelines for preparing these compatibility reports shall be developed as established by the corresponding regulations (New measure H1).	The regulatory framework for adequate compliance with the environmental framework already exists and is fully operational. This does not mean that technical works associated with project assessment or Plans and Programmes regarding the marine and coastal environments do not need to be constantly improved. For example, information on the impact of certain works and projects, stating the expected affection ranges or increasing the conditions for associated environmental surveillance programmes. With regard to reports of compatibility with marine strategies, the following new H1 measure is proposed: Regulation of compatibility criteria with marine strategies as per Article 3.3. of Act 41/2010



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES	NEED TO REINFORCE EXISTING MEASURES AND PROPOSED NEW MEASURES
Environmental assessment of infrastructures			At the same time, collection and standardization procedures for data obtained in environmental surveillance programmes should be improved as stated in the proposal of marine strategy surveillance programmes.
Marine ecosystems depending of river mouths	C.2.5 To ensure that marine ecosystems depending on river mouths are taken into account when establishing ecological flows	<p>Hydrologic regulation of rivers does not only affect those ecosystems present in the river basin themselves, but also conditions marine ecosystems in the influence range of fresh water discharge booms; in fact, there are species that depend in a larger or smaller extent of such fresh water discharge booms due to its nutrient content. In this sense, hydrological plans include measures to establish ecological flow rates and to improve regulatory structures to maintain such flow rates.</p> <p>Ecological flows are defined in the Hydrologic Planning Guidelines as "<i>such flows that contribute to attaining good status or good ecological potential of rivers or transitional waters and at least maintain the fish population that would naturally live or could live in the river, as well as its riparian vegetation</i>". This definition does not clearly establish whether marine ecosystems depending of river mouths are considered in the relevant calculations.</p> <p>Conclusion: It is considered necessary to promote the inclusion marine ecosystems depending on river mouths when establishing ecological flows.</p>	<p>The next planning period must be focused on continuous improvement of ecological flows, with special attention to low sections of rivers.</p> <p>Participation in European task groups (especially WG-ECOSTAT) shall also be considered in order to advance the analysis of assessment of hydromorphological conditions of coastal and transitional waters.</p>



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES	NEED TO REINFORCE EXISTING MEASURES AND PROPOSED NEW MEASURES
Improvement of knowledge	<p>C.3.5. To increase knowledge on the effect of human activity on habitats, especially biogenic and protected habitats, its species, populations and communities (...) especially regarding fishing activities, infrastructures, dredging, extraction of non-renewable marine resources, pollution and interaction with climate change effects (acidification, warming, etc.)</p> <p>C.3.9 To promote a national monitoring system of the oceanic variability and a warning system</p>	<p>As stated above, the effects of warming observed over recent decades and attributed to climate change, exerts pressure on hydrographic conditions of marine demarcations which has yet to be quantified.</p> <p>On the other hand, monitoring programmes and time series records are relatively recent, so we have not been able yet to accurately establish the normal regime (in climatological terms) or trends of hydrographic conditions that will cause climate changes.</p> <p>A large part of the work related to this environmental purpose was started with the design of marine strategies monitoring programmes, back in 2014.</p> <p>Conclusion: It is considered necessary to maintain and optimise existing promotion programmes and ensure that Spain is involved in different international initiatives that pursue the creation of an integrated global system for Earth monitoring.</p>	<p>The new AH1 initiative has been included in the action plan.</p> <p>AH1. Impulse to operational oceanographic works both in the fields of real time observation and of prediction.</p>

Table 7. Effectiveness analysis and identified weaknesses of measures related to changes in hydrographic conditions



5.7. Descriptor 10 - Marine litter

The main framework of reference for the development of the action plan for descriptor 10 at an international level is the set of actions and initiatives agreed with the Sea Environment Protection Conventions of which Spain is a Contracting Party

Under the Barcelona convention, the *Regional Plan for marine litter management in the Mediterranean in line with Article 15 of the Protocol against pollution from land-based sources (Decision IG.21/7)* was approved in December 2013.

The OSPAR convention includes a North-East Atlantic Environmental Strategy that has the goal of substantially reducing marine litter to levels that are not harmful to the marine and coastal environments. For application purposes, in June 2014 the *Regional Action Plan for prevention and management of marine litter for North-East Atlantic (OSPAR Agreement 2014-1)* which includes specific actions the Contracting Parties agree to undertake in the coming years, either at a national level through the marine strategy action plans or collectively under the OSPAR Commission framework.

Both Plans include a large number of initiatives based on key aspects identified for each marine region (North-East Atlantic/Mediterranean) to address the issue. These aspects may be classified into four different categories.

- ◆ Initiatives aimed at preventing marine litter from sea-based sources
- ◆ Initiatives aimed at preventing marine litter from land-based sources
- ◆ Initiatives for removal of marine litter
- ◆ Initiatives for awareness and dissemination of the problem of marine litter

Regional plans have paved the way for the development of the proposal of Spanish marine strategy action plans for descriptor 10, so that the proposal, besides complying with those aspects included in the environmental goals set forth in Spanish marine strategies approved in 2120, complies with the contents of both Regional Plans in a consistent manner at a national level.

Current initiatives are described below, together with their effectiveness and any weaknesses identified, classified by the different relevant themes identified in the context of marine biodiversity. Considering the above, it is considered appropriate to propose 26 new measures.



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES (BY THEME)	NEED TO REINFORCE EXISTING MEASURES AND PROPOSED NEW MEASURES
<p>Applying and implementing the necessary initiatives so that marine littering does not cause significant negative effects on ecosystems or on goods extracted and services provided in the sea.</p>	<p>B.1.5 (NOR, LEBA, ESAL) and B.1.4 (SUD, CAN) To reduce the amount of marine litter both from sea-based and land-based sources</p> <p>B.1.5 (NOR, LEBA, ESAL) and B.1.4 (SUD, CAN) To generally reduce the total number of visible units of marine litter in the coastline for each marine demarcation by 2020.</p> <p>B.1.7 (NOR, LEBA, ESAL) and B.1.6 (SUD) To reduce, or at least prevent further growth of, the surface of the continental shelf affected by litter from fishing activities with respect to 2012 reference levels.</p> <p>B.1.8 (NOR, LEBA, ESAL) and B.1.7 (SUD) To reduce, or at least ensure no further increase of, the amount of marine litter from fishing activities (in weight per are unit) on the continental shelf with respect to 2012 reference levels.</p> <p>B.1.9 (NOR) and B.1.8 (SUD) To reduce, or at least ensure no further increase of, the amount of litter from fishing activities (number of items in 100 m of beach) with respect to 2012 reference levels.</p>	<p><u><i>Initiatives for preventing marine litter from sea-based sources</i></u></p> <p>A set of initiatives to reduce sea litter from sources described as "sea-based", which are, mainly, sea transportation of passengers and cargo, fishing activities and recreational navigation activities, has been identified. These initiatives address the following issues:</p> <ul style="list-style-type: none"> ◆ Minimising waste generation and separating on-board waste. ◆ Disembarking and receiving at port waste generated on board (MARPOL V) ◆ Possible markets for plastic waste from fishing activities ◆ Good practices in handling and storing solid bulk cargo in port facilities and surveillance of marine litter in port dredging activities. ◆ Good practices in the fishing and aquaculture sectors. ◆ Regulated sanctions for abandonment, or uncontrolled discharge or removal of liquid or solid waste. <p>Conclusion: these measures contribute to compliance with the goal of reducing the amount of litter from sea-based sources. Besides, they contribute to reducing the number of items found along the coastline, water column, sea floor and biota, as well as the degree to which the continental shelf is affected by litter. It is necessary to address the fact that aquaculture is a source of marine litter through specific measures under the 2014-2020 Multi-Year Strategic Plan for Spanish aquaculture.</p>	<p>Conclusion: for the purposes of reinforcing existing measures, the following aspects have been identified.</p> <ul style="list-style-type: none"> ◆ The MAR POL V fixed rate system for waste discharge at port is applied in State-managed ports. It is proposed to implement a similar system in Region-managed ports (BM1) ◆ It is necessary to promote improvement, to the extent possible, of port-based waste management (BM6). ◆ It is necessary to promote projects aimed at reducing, reusing and recycling certain materials such as EPS or fishing nets (BM3), as well as innovative projects and initiatives in the environmental application of fishing sector technologies (BM4) and projects for better management of fishing ships on-board waste or aquaculture facilities (BM7).



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES (BY THEME)	NEED TO REINFORCE EXISTING MEASURES AND PROPOSED NEW MEASURES
Applying and implementing the necessary initiatives so that marine littering does not cause significant negative effects on ecosystems or on goods extracted and services provided in the sea.	<p>B.1.1: To reduce the volume of direct or indirect discharge without appropriate treatment (industrial discharges, waste water, discharges from rivers, run-offs) to the sea, as well as improving efficiency of water treatment plants and sewage systems to that the amount of litter, contaminants and nutrients discharged into the sea is minimised.</p> <p>B.1.5 (NOR, LEBA, ESAL) and B.1.4 (SUD, CAN) To reduce the amount of marine litter both from sea-based and land-based sources</p> <p>B.1.5 (NOR, LEBA, ESAL) and B.1.4 (SUD, CAN) To generally reduce the total number of visible units of marine litter in the coastline for each marine demarcation by 2020.</p>	<p><u><i>Initiatives for preventing marine litter from land-based sources</i></u></p> <p>A set of initiatives to reduce sea littering from sources described as "land-based", has been identified. These initiatives include:</p> <ul style="list-style-type: none"> ◆ Prevention and waste management policies. ◆ Prevention of sea littering through sewage systems (especially in rainy weather) and management of rainwater through appropriate systems and infrastructures that guarantee separation of solid waste. ◆ Good environmental practices by beachside restaurants and bars. ◆ Good practices by the agricultural sector. ◆ Regulated sanctions for abandonment, or uncontrolled discharge removal of liquid or solid waste. <p><i>Conclusion:</i> Initiatives related to discharge of waste from the sewage systems or rainwater collection system help us comply with environmental goal B.1.1. and improve efficiency of water reclamation plants and sewage networks in order to minimise the amount of waste discharged to the sea.</p> <p>Besides, all these measures contribute to compliance with the goal of reducing the amount of marine litter from land-based sources and reducing the number of litter items found along the coast and on the sea.</p>	<p>Conclusion: for the purposes of reinforcing existing measures, the following aspects have been identified.</p> <ul style="list-style-type: none"> ◆ Preparation of management plans at an Autonomous Community level, which must be consistent with PEMAR 2016-2022 (BM8) ◆ Review of laws and regulations with an impact of applicability of extended liability of the producer of certain goods (BM9) ◆ Application of initiatives included in the standards transposing Directive 2015/720 amending Directive 94/62/EC with regard to reducing the consumption of lightweight plastic carrier bags (BM10) ◆ Ensuring to include explicit reference to marine litter in all waste management instrument to be enacted in the future (BM12) ◆ Sizing standards for storm water tanks (BM28) <p>Treatment Plan or Discharge Plan to Controlled Landfill for Paper and Paper Derivative Waste and Plastic Waste in Melilla (Chafarinas Islands) (BM29)</p>
Applying and implementing the necessary initiatives so that marine	<p>B.1.5 (NOR, LEBA, ESAL) and B.1.4 (SUD, CAN) To generally reduce the total number of visible units of marine litter in the coastline for each marine demarcation by 2020.</p>	<p><u><i>Initiatives for removal of marine litter</i></u></p> <p>A set of initiatives for removing marine litter from the coastline and marine bottoms has been identified. They are frequently</p>	<p>Conclusion: for the purposes of reinforcing existing measures, the following aspects have been identified.</p>



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES (BY THEME)	NEED TO REINFORCE EXISTING MEASURES AND PROPOSED NEW MEASURES
<p>littering does not cause significant negative effects on ecosystems or on goods extracted and services provided in the sea.</p> <p>Applying and implementing the necessary initiatives so that marine littering does not cause significant negative effects on ecosystems or on goods</p>	<p>B.1.7 (NOR, LEBA, ESAL) and B.1.6 (SUD) To reduce, or at least ensure no further increase of, the surface of the continental shelf affected by litter from fishing activities with respect to 2012 reference levels.</p> <p>B.1.8 (NOR, LEBA, ESAL) and B.1.7 (SUD) To reduce, or at least ensure no further increase of, the amount of marine litter from fishing activities (in weight per are unit) on the continental shelf with respect to 2012 reference levels.</p> <p>B.1.9 (NOR) and B.1.8 (SUD) To reduce, or at least ensure no further increase of, the amount of litter from fishing activities (number of items in 100 m of beach) with respect to 2012 reference levels.</p>	<p>accompanied by a strong awareness raising component. These initiatives include the following issues:</p> <ul style="list-style-type: none"> Experiences, guidelines and obligation acquired regarding "litter fishing" Regulation on marking fishing gear to state property and on recovery of lost fishing gear. Coordinated initiatives on location and subsequent controlled removal of this type of gear in protected areas. River, shallow sea bottom and beach cleaning events and plans, either promoted or funded by the Public Administration or NGOs, many of them under international or national projects involving both regular citizens and diving centres. <p>Conclusion: these initiatives contribute to compliance of environmental goals on reducing waste in the environment, as well as improving knowledge on composition and origin of such measures (B.3.3.).</p>	<ul style="list-style-type: none"> Preparation of a framework document for the development of a consistent programme for "litter fishing". Impulse and financing "litter fishing" (BM18) Promoting installation of waste recycling points in fishing docks (BM5) Creating and maintaining a national database of objects collected while litter fishing (BM26) Financing river, beach, shallow sea bottoms and floating litter clean-ups (BM22) Clean-up campaigns aimed at places where marine litter is known to accumulate (BM22) Preparation of an action protocol on lost or abandoned fishing gear that represents a threat for habitat and species conservation in areas included in Natura 2000 Network.
	<p>B.1.5 (NOR, LEBA, ESAL) and B.1.4 (SUD, CAN) To reduce the amount of marine litter both from sea-based and land-based sources</p> <p>B.1.5 (NOR, LEBA, ESAL) and B.1.4 (SUD, CAN) To generally reduce the total number of visible units of marine litter in the coastline for each marine demarcation by 2020.</p>	<p><u><i>Initiatives for awareness and dissemination about the problem of marine litter</i></u></p> <p>Beyond awareness raising implied in clean-up activities described under "removal of marine litter" has been identified as a set of initiatives aimed at awareness raising and dissemination on the problem of marine litter, which includes:</p> <ul style="list-style-type: none"> Participation in seminars and dissemination of information by Public Administrations. 	<p>Conclusion: the following aspects have been identified:</p> <ul style="list-style-type: none"> Promotion and coordination of participative marine litter clean-up events as a tool for citizen awareness raising (BM20) Preparation of awareness raising / communication materials, with the possibility of launching an awareness raising campaign in the media (BM24) Creation of marine litter technical groups which will act as a coordination/discussion



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES (BY THEME)	NEED TO REINFORCE EXISTING MEASURES AND PROPOSED NEW MEASURES
<p>extracted and services provided in the sea.</p> <p>Applying and implementing the necessary initiatives so that marine littering does not cause significant negative effects on ecosystems or on goods extracted and services provided in the sea.</p>	<p>B.1.7 (NOR, LEBA, ESAL) and B.1.6 (SUD) To reduce, or at least ensure no further increase of, the surface of the continental shelf affected by litter from fishing activities with respect to 2012 reference levels.</p> <p>B.1.8 (NOR, LEBA, ESAL) and B.1.7 (SUD) To reduce, or at least ensure no further increase of, the amount of marine litter from fishing activities (in weight per are unit) on the continental shelf with respect to 2012 reference levels.</p> <p>B.1.9 (NOR) and B.1.8 (SUD) Reducing, or at least not increasing, the amount of litter from fishing activities (number of items in 100 m of beach) with respect to 2012 reference levels.</p>	<ul style="list-style-type: none"> ◆ Awareness raising materials aimed at the fishing, aquaculture, agricultural and other, published by the Network of Environmental Authorities. ◆ Awareness raising campaigns from NGOs and other environmental associations with a significant impact on society. ◆ Project consisting in collection community experiences on phenomena that occur in the sea in order to perform marine research (CSIC). <p>Conclusion: these initiatives contribute to compliance with the goal of reducing the amount of marine litter from sea and land-based sources. Besides, they contribute to reduce the number of items found along the coastline, water column, sea bottom and biota, as well as the degree to which the continental shelf is affected by litter.</p>	<p>forum with respect to the marine litter issue and its possible solutions (BM25)</p> <ul style="list-style-type: none"> ◆ Creation a "Beachwatch" formed by associations, environmental organisations, fishermen and women, fishing associations and other collectives, as well as other "beach watching" organizations that cares for environmental preservation of rivers and beaches and raises awareness for this problem. Besides, the following horizontal measures have been included. ◆ Training programmes addressed to fishermen and women, on-board observers, members of networks for the rescue of beached animals, Public Administrator managers and Law Enforcement Agents (H10) which will include the issue of marine littering. ◆ Awareness programmes designed for beachgoers, enterprises of recreational water activities, as well as for the fishing and agricultural sectors and the society at large (H11). ◆ Preparation and implementation of academic training related to protecting and respecting protected Cetacea, turtles, seabirds and elasmobranchii, as well as sea litter, official training courses for obtaining recreational and fishing sailing licenses (H12).



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES (BY THEME)	NEED TO REINFORCE EXISTING MEASURES AND PROPOSED NEW MEASURES
<p>Improving scientific knowledge of cause-effect relationships and impacts regarding marine littering</p>	<p>B.3.3 To improve our knowledge on the types and impact of marine litter, including its origin and dissemination.</p>	<p><u><i>Initiatives for preventing marine litter from land-based sources</i></u></p> <p>Microplastics have been identified as an area about which our knowledge has to be improved, especially regarding quantification of microplastic production in Spain, in order to identify any possible measure at the source that would reduce microplastics discharge in the sea and also regarding research on impact of microplastics on the marine environment.</p> <p><u><i>Initiatives for removal of marine litter</i></u></p> <p>It is necessary to carry out a research on especially vulnerable areas with the highest concentration of marine litter in order to be able to launch clean-up campaigns in those identified places.</p>	<p>Conclusion: for the purposes of reinforcing existing measures, the following aspects have been identified.</p> <ul style="list-style-type: none"> ◆ Research on the amount of marine litter (including microplastics) from waste water treatment plants and proposal for specific measures to be incorporated in basin plans (third cycle) (BM11). ◆ Research on ecological impact of microplastics. JPI Oceans pilot initiative: BASEMAN, EPHEMARE, and PLASTOX projects (BM13) ◆ Research on quantification of microplastic sources and identification of possible measures for reducing microplastic at their source (BM14) ◆ Research of marine litter hotspots (areas where marine litter tends to concentrate or especially vulnerable areas with presence of marine litter) (BM21)

Table 8. Effectiveness analysis and identified weaknesses of measures related to marine litter.



The following table shows the correspondence between the above with Regional Plans on marine litter. Non-inclusion in this table of existing or New measures is a consequence of assessment of additional aspects not included in the Regional Plans.

OSPAR Actions (actions by Contracting Parties)	Barcelona Convention Actions	IDENTIFICATION OF WEAKNESSES, REINFORCEMENT NEEDED THROUGH NEW MEASURES
Measures for preventing marine litter from sea-based sources		
<p>62. Guaranteeing effective application and compliance with Annex V or MAR POL Convention regarding both marine transport and fishing waste.</p> <p>Related collective action: 30, 31, 32, 33 and 34</p>	<p>9.5. Pursuant to Article 14 of the Protocol for Prevention and Emergency, to explore and implement to the maximum possible extent a fair rate for the use of waste collection facilities in ports, or non-special rates when corresponding, by 2017. The Contracting parties must also follow the necessary steps to offer those ships using their ports updated information on the obligations acquired pursuant Annex V or MARPOL Convention and the related applicable laws and regulations.</p>	<p>Identified existing measures address multiple aspects related to effective application and compliance of Annex V of the MARPOL Convention: Disembarking, reception in port and management of waste generated on the port (MARPOL V), including the establishment of a compulsory fixed fee for docking ships, inspection by Maritime Authorities, provision of appropriate waste collection facilities and plans for waste collection and handling in port. Minimising waste generation and separating on-board waste (ISO standard 21070:2013). Pilot projects for fishing ships on-board waste management improvement. Pilot projects for installation of waste recycling points in fishing docks and recreational navigation docks.</p> <p>Conclusion: The MAR POL V fixed rate system for waste discharge at port is applied in State-managed ports. It is proposed to implement a similar system in Region-managed ports (BM1) It is necessary to promote innovative projects and initiatives in the environmental applications of fishing sector technologies (BM4) and projects for a better management of fishing ships on-board waste or aquaculture facilities (BM7).</p>
<p>63. Market research regarding plastic waste from fishing industry and maritime transportation.</p>	<p>9.3.e. To explore and implement to the maximum possible extent, measures related to establishing a system for collection, returning and retrieval of EPS boxes in the fishing sector.</p>	<p>Some projects are being carried out with regard to possible markets for plastic waste from fishing activities.</p> <p>Conclusion: Promoting projects aimed at analysing recycling options for certain materials such as EPS of fishing nets (BM3)</p>



OSPAR Actions (actions by Contracting Parties)	Barcelona Convention Actions	IDENTIFICATION OF WEAKNESSES, REINFORCEMENT NEEDED THROUGH NEW MEASURES
<p>83. Launching or supported by the corporate community on the manufacturers' responsibility or deposit systems, for example with regard to recycling fishing nets.</p> <p>Related collective action: 35, 49</p>		
<p>_____</p>	<p>9.8. To apply profitable measures to prevent all kinds of sea litter from dredging activities, considering the appropriate guidelines adopted under the Protocol on Waste Discharge under the Barcelona Convention.</p>	<p>In April 2014 the Inter-Ministerial Commission for Marine Strategies (CIEM as per its Spanish acronym) approved the relevant guidelines for description of dredged material and its re-location in publicly owned sea front, which include marine litter surveillance in dredging operations (version revised in 2015, available in the Ministry for Agriculture, Food and the Environment's website).</p> <p>Conclusion: After the pertinent approval by the Inter-Ministerial Commission for Marine Strategies is expected to be enacted by means of a Royal Decree, which would make its contents enforceable.</p>
<p>Actions for preventing marine litter from land-based sources</p>		
<p>64. Guaranteeing that considerations related to marine litter and actions from this Plan are integrated, as appropriate, in the implementation and future revisions of the relevant EU Directives.</p> <p>66. Promoting and supporting, when appropriate, inclusion of initiatives directed to prevent and</p>	<p>9.1. To adopt a source-based reduction method for solid urban waste, prioritizing waste in prevention of littering and in enactment of management of related laws and policies: prevention, preparation for reuse, recycling, any other kind of recovery (for example, energy recovery) and ecologically correct disposal.</p> <p>9.2. To implement appropriate measures for reduction/reuse/recycling waste in order to reduce the amount corresponding to plastic container waste which</p>	<p>Waste prevention policies (considering prevention as a reduction in the among of waste generate, its content in harmful substances and adverse impacts of such waste) and correct management of waste according to the principles of priority: preparation for reuse, recycling, any other kind of recovery (including energy recovery) and disposal are fundamental to prevent this waste from littering the sea.</p> <p>Existing measures include current policies on prevention and management in application of European and Spanish laws that address the issues posed by Regional Plans.</p>



OSPAR Actions (actions by Contracting Parties)	Barcelona Convention Actions	IDENTIFICATION OF WEAKNESSES, REINFORCEMENT NEEDED THROUGH NEW MEASURES
<p>reduce marine littering in the 2014 version of the EU regulations on waste.</p> <p>67. Including, when applicable, reference to marine litter in National Plans for Waste Prevention and Management.</p> <p>68. Starting a discussion with the waste industry in order to address the most significant aspects of waste management which have an impact on the marine environment.</p>	<p>are destined to the landfill or incinerator without energy recovery.</p> <p>9.9. To close, to the maximum possible extent, existing illegal dumping sites in the scope of application of the Regional Plan</p>	<p>Conclusion:</p> <p>In order to reinforce existing initiatives at a national level, the following new actions are considered necessary:</p> <p>Preparation of management plans at an Autonomous Community level, which must be consistent with PEMAR 2016-2022 (BM8)</p> <p>Ensuring to include explicit reference to marine litter in all waste management instrument to be enacted in the future (BM12)</p>
<p>69. Identifying seafront landfills and historical and illegal discharge areas, including those who may be in risk of erosion, and undertake appropriate action.</p> <p>Related collective action: 39 and 40</p>		
<p>70. Promote extended manufacturer liability strategies that require producers, manufacturers, trademark holders and main importers to take responsibility of the complete life cycle of products. These strategies will be focused on those items most frequently</p>	<p>9.3.A. To explore and implement, as much as possible, actions related to the Extended Producer Responsibility Strategy, thus making producers, factory owners and first importers responsible for the whole product life cycle by means of initiatives that prioritize management hierarchy of waste. This has the purpose of encouraging companies to design durable products which may be reused and recycled, and to use materials with less weight and toxicity levels.</p>	<p>Existing measures include extended producer responsibility by which producers of goods that may become waste are involved in waste prevention and waste management organisation, thus promoting reusing, recycling and waste recovery. Besides, it promotes designing products in such a way that their environmental impact is reduced throughout their life cycle, and waste generation in manufacturing and subsequent use is minimised. Such initiatives are included within so-called "ecodesign", which is the object of several initiatives at national and regional levels.</p>



OSPAR Actions (actions by Contracting Parties)	Barcelona Convention Actions	IDENTIFICATION OF WEAKNESSES, REINFORCEMENT NEEDED THROUGH NEW MEASURES
<p>found as litter in the marine environment.</p> <p>Associated collective action: 51</p>		<p>Conclusion:</p> <p>The MAGRAMA shall carry out a revision of the relevant standards to adapt the Extended Producer Responsibility System to the provisions of Title IV of Act 22/2011 for the purposes of optimising management of such waste and minimising environmental management caused by its treatment (BM9).</p>
<p>_____</p>	<p>9.3.f. To explore and implement to the maximum possible extent, measures related to establishing a system for collection, returning and retrieval of beverage containers, prioritising recycling whenever possible.</p>	<p>In order to promote prevention and foster reuse and high quality recycling of containers and waste from containers, the Spanish regulations consider the possibility of establishing deposit-refund systems (DRS) Section 7.6 of the recently approved State Waste Management Framework Plan considers the need to analyse other models, alternatives or complementary system for collection of containers and container-related waste considering its efficiency and technical, environmental and economic liability, considering the perspectives of all stakeholders in the relevant model, alternative or complementary system.</p> <p>Conclusion:</p> <p>No New measures have been included in this respect, other than those included when preparing regional plans for waste management consistently with 2016-2022 PEMAR (BM8).</p> <p>It is considered that initiatives of this kind may be developed though the action of promoting projects aimed at reduction, reuse and recycling of certain materials such as EPS or fishing nets (BM3).</p>
<p>Related collective action: 43, 44</p>	<p>9.3.c. To explore and implement to the maximum possible extent initiatives related to subscription of voluntary agreements with retailers and supermarkets in order to establish the goal of reducing consumption of plastic carrier bags, as well as promoting sale of dry goods or cleaning products in bulk, and re-filling of special, reusable containers.</p>	<p>Among existing measures, those related with a change of consumption habits with regard to single use plastic carrier bags are especially relevant.</p> <p>Conclusion:</p> <p>Reinforcement shall be carried out through implementation of initiatives included in the standards transposing Directive 2015/720 amending Directive 94/62/EC as regards reducing the consumption of lightweight plastic carrier bags (BM10)</p>



OSPAR Actions (actions by Contracting Parties)	Barcelona Convention Actions	IDENTIFICATION OF WEAKNESSES, REINFORCEMENT NEEDED THROUGH NEW MEASURES
	<p>9.3.d. To explore and implement, to the maximum possible extent, measures related to fiscal and tax instruments in order to encourage a reduced use of plastic carrier bags.</p>	
<p>71. Promoting development and implementation of a Public Procurement Policy that contributes to promotion of recycled products.</p>	<p>9.3.b. To explore and implement as much as possible policies related to sustainable procurement, which contribute to promotion of consumption of projects manufactured from recycled plastic.</p>	<p>Existing measures include sustainable public procurement, including the Plan for Green Public Procurement by the Spanish National Administration, Autonomous Communities and Social Security Management Entities (2008), which states as its specific target the use of recycled paper: cleaning paper towels must also be made out of recycled paper, and paper, containers, waste bags or other containers must be made from recycled materials; besides, green procurement and contracting procedures enacted by coastal Autonomous Communities must be complied with.</p> <p>Conclusion: No new measures have been implemented in this regard.</p>
<p>72. Promoting and increasing national alliance with key sectors focusing on marine litter.</p> <p>84. Developing collective agreements between the Contracting Parties, NGOs and the industry to fight the specific problems posed by littering.</p>		<p>Engagement of the private sector is fundamental. For this reason, all efforts by associations, corporations and individuals to achieve a more efficient use of resources and a higher level of respect to the environment, even going beyond the legally required standard. This is reflected in current measures through:</p> <p>Voluntary agreements and conventions between the aforementioned agents and the Administration.</p> <p>Compliance with the <i>Good environmental practices by beachside restaurants and bars</i> and the "Sustainable Beachside Restaurant Award"</p> <p>Conclusion: No new measures have been implemented in this regard.</p>
<p>Related collective action: 46, 47 and 52</p>	<p>9.3.g. To explore and implement to the maximum possible extent any initiative related to the implementation of manufacturing procedures and methods together with the plastic industry, for the</p>	<p>Among the existing measures, those aimed at reducing primary microplastics at the source; that is, plastic microparticles used as a raw material. In this sense, the <i>Operation Clean Sweep</i>, an international programme unilaterally promoted by the plastics industry (including the Spanish branch of Plastics</p>



OSPAR Actions (actions by Contracting Parties)	Barcelona Convention Actions	IDENTIFICATION OF WEAKNESSES, REINFORCEMENT NEEDED THROUGH NEW MEASURES
	<p>purposes of minimising the characteristics of plastic breakdown and thus reducing microplastics.</p>	<p>Europe), aimed at preventing plastic resin, pellets and other plastic products used in industry end in the seas, is especially noteworthy. Microplastics have been identified as an area where improvement is needed, particularly with regard quantification of microplastics production in Spain, especially identification opportunities for possible microplastic reduction at the source, quantification of discharge of microplastics to the marine environment and research of environmental impact of microplastics.</p> <p>Conclusion: Proposal for New measures includes: Research on quantification of microplastic sources and identification of possible measures for reducing microplastic at their source (BM14) Research on ecological impact of microplastics. JPI Oceans pilot initiative: BASEMAN, EPHEMARE, and PLASTOX projects (BM13)</p>
<p>65. Good cooperation between hydrographic authorities and hydrographic basin authorities in order to include the impact of waste on the marine environment in their corresponding hydrological plans.</p> <p>Related collective action: 41, 42</p>	<p>9.4. To implement the necessary measures to establish, as appropriate, urban sewage systems, effluent treatment plants and waste management systems appropriate to prevent waste discharge through run-offs and rainfall.</p>	<p>Litter reaching the sea through sewage and rainwater reclamation system, especially in rain events, is a very serious issue, which has been addressed both by the Spanish water regulations and by current hydrological planning instruments. Particularly, recently approved river basin plans include actions to improve rainwater management, such as building stormwater tanks in urban areas, establishing separate networks for rainwater or installation of floating system separation in spillways. In 2014, the MAGRAMA prepared Guidelines for design of stormwater tanks.</p> <p>Conclusion: Ancillary to the above, the MAGRAMA shall set forth sizing standards for storm water tanks (BM28) Besides, research on the amount of marine litter (including microplastics) from waste water treatment plants and proposal for specific measures to be incorporated in basin plans (third cycle) (BM11) shall be carried out.</p>
<p>_____</p>	<p>9.10. To take obligatory steps to fight waste discharge, pursuant national and regional regulations, including</p>	<p>Regulated sanctions for abandonment or uncontrolled discharge or removal of liquid or solid waste.</p>



OSPAR Actions (actions by Contracting Parties)	Barcelona Convention Actions	IDENTIFICATION OF WEAKNESSES, REINFORCEMENT NEEDED THROUGH NEW MEASURES
	discharge of waste on beaches, sewage discharge to the sea, coastal areas and rivers in the implementation area provided by the Regional Plan.	<p>Conclusion: No new measures have been implemented in this regard.</p>
Measures for removal of marine litter		
<p>73. Removing any obstacles to appropriate treatment or discharge of marine litter collected in the "litter fishing" actions, including landfills when relevant and compliant to waste regulations.</p> <p>74. Encouraging all fishing boats to take part in any available litter fishing programme.</p> <p>75. Ensuring that any ship that takes part in the programme can discharge non-operational waste collected at sea in any participating seaport.</p> <p>Associated collective action: 53</p>	<p>9.6. To explore and implement, to the maximum possible extent, environmentally correct practices with regard to litter fishing, after consulting competent international and regional organizations in order to facilitate floating litter collection and collection of litter from sea bottom, removing accidentally collected marine litter and waste generated by fishing boats in their usual activity, including abandoned fishing gear.</p> <p>10.e. Exploring and implementing, to the maximum possible extent, environmentally correct practices with regard to litter fishing, after consulting competent international and regional organizations in collaboration with fishermen and women, in order to ensure that extracted litter is correctly collected, selected, recycled and disposed of in an environmentally correct way.</p>	<p>Current measures reflect experiences, guidelines and obligation acquired regarding "litter fishing".</p> <p>Conclusion: for the purposes of reinforcing existing measures, the following aspects have been identified.</p> <p>Preparation of a framework document for the development of a consistent programme for "litter fishing".</p> <p>Promotion and financing of litter collection activities (litter fishing) (BM18)</p> <p>Promoting installation of waste recycling points in fishing docks (BM5)</p> <p>Creating and maintaining a national database of objects collected while litter fishing (BM26)</p>
<p>76. Awareness campaign in order to raise awareness among fishermen and women of their obligations with regard to information, labelling and recovery of lost fishing nets as stated in Regulation 1224/2009 of the EU.</p>	<p>9.7. To explore and implement to the maximum possible extent the practices of marking fishing gear to identify their owner and using nets, and reducing catches by ghost gear by using environmentally neutral fishing nets and traps until they are completely broken down", requesting advice as needed from international and regional organisations competent in the fishing sector.</p>	<p>At a European level, there are regulations concerning marking of fishing gear to identify its owner and recovering lost fishing gear (<i>Council Regulation (EC) 1224/2009 of 20 November 2009 establishing a Community control system for ensuring compliance with the rules of the common fisheries policy</i>) In Spain there are several coordinated initiatives including location and subsequent controlled removal of these type of gear in protected areas.</p> <p>Conclusion: The following measures are included aiming those that shall contribute to remove lost or abandoned fishing gear from the sea:</p>



OSPAR Actions (actions by Contracting Parties)	Barcelona Convention Actions	IDENTIFICATION OF WEAKNESSES, REINFORCEMENT NEEDED THROUGH NEW MEASURES
		<p>Clean-up campaigns aimed at places where marine litter is known to accumulate (BM22)</p> <p>Preparation of an action protocol on lost or abandoned fishing gear that represents a threat for habitat and species conservation in areas included in Natura 2000 Network.</p>
<p>80. Encouraging participation in international, European and national fishing campaigns:</p> <p>Associated collective action: 54</p>	<p><i>10.b. To explore and implement, to the maximum extent possible, implementation of national wide campaigns for periodic removal of marine litter</i></p> <p>10.c. Exploring and implementing, to the maximum possible extent, participation in international programmes and campaigns for coast cleaning.</p>	<p>River, shallow sea bottom and beach cleaning events and plans, either promoted or funded by the Public Administration, public-private collaborations or NGOs are already in operation, many of them under international or national projects involving both regular citizens and diving centres.</p> <p>Conclusion:</p> <p>New actions include continuing to fund river, beach, floating litter and shallow sea bottoms (BM19), and promoting coordination of participative marine litter cleaning events as an awareness raising activity for the community (BM20).</p>
<p>Related collective action: 55, 56, 57</p>	<p>10.A. To explore and implement, to the maximum possible extent, in collaboration with the relevant stakeholders, focuses or accumulation of marine litter and implementing national projects for periodic removal and correct disposal.</p>	<p>It is necessary to carry out a research on especially vulnerable areas with the highest concentration of marine litter in order to be able to launch clean-up campaigns in those identified places.</p> <p>Conclusion:</p> <p>For these purposes, a research programme on marine litter hotspots (areas where marine litter tends to concentrate or especially vulnerable areas with presence of marine litter) (BM21) shall be carried out.</p>
<p>Measures for raising awareness and dissemination of the problem of marine litter</p>		
<p>82. Raise awareness among the population with regard to the presence, impact and prevention of sea litter, including microplastics.</p>	<p>16.2. To implement educational and public awareness raising activities, with an appropriate duration and monitoring, on marine litter management, including activities related to littering prevention and promotion of sustainable production and consumption, as appropriate, in synergy with other existing initiatives in the area of environmental education and sustainable development, and in collaboration with civil society,</p>	<p>Beyond awareness raising implied in clean-up activities described under "removal of marine litter" has been identified as a set of initiatives aimed at awareness raising and dissemination on the problem of marine litter, which includes:</p> <p>Participation in seminars and dissemination of information by Public Administrations.</p>



OSPAR Actions (actions by Contracting Parties)	Barcelona Convention Actions	IDENTIFICATION OF WEAKNESSES, REINFORCEMENT NEEDED THROUGH NEW MEASURES
		<p>Awareness raising and good practices materials aimed at the fishing, aquaculture and other sectors, published by the Network of Environmental Authorities.</p> <p>Awareness raising campaigns from NGOs and other environmental associations with a significant impact on society.</p> <p>Project consisting in collection community experiences on phenomena that occur in the sea in order to perform marine research (CSIC).</p> <p>Conclusion: Communication and awareness raising materials must be prepared. The possibility of launching an awareness raising campaign (BM24) as well as promotion or coordination of marine litter community clean-up events as a tool for community awareness raising is to be considered (BM20)</p>
<p>77. Promote educational activities in synergy with existing initiatives in the area of sustainable development and in collaboration with the civil society.</p> <p>78. Promoting research plans for education in the marine environment, involving the recreational sector.</p> <p>79. Promoting or implementing environmental educational courses for fishermen and women and other partners in the fishing sector</p> <p>Associated collective action: 58</p>		<p>Conclusion: Besides, for the purposes of reinforcing awareness raising and training among different sectors, the following New measures have been include.</p> <p>Training programmes addressed to fishermen and women, on-board observers, members of networks for the rescue of beached animals, Public Administrator managers and Law Enforcement Agents (H10) which will include the issue of marine littering.</p> <p>Awareness programmes designed for beachgoers, enterprises of recreational water activities, fishermen and women and the society at large (H11).</p> <p>Preparation and implementation of academic training related to marine litter to be included in the official training courses for fishing or recreational sailing license.</p>



OSPAR Actions (actions by Contracting Parties)	Barcelona Convention Actions	IDENTIFICATION OF WEAKNESSES, REINFORCEMENT NEEDED THROUGH NEW MEASURES
<p>81. Promoting the "Adopt a beach" system</p>	<p>10.d. To explore and implement, to the maximum extent possible application of initiatives such as the "Adopt a beach" system and improving community involvement with respect to management of marine litter.</p>	<p>A "Beachwatch" formed by associations, environmental organisations, fishermen and women, fishing associations and other collectives, as well as other "beach watching" organizations that cares shall be created with the mission of monitoring environmental preservation of rivers and beaches and raising awareness for this problem at a local, regional and national level (BM27)</p>

Table 9: Correspondence analysis of measures related to marine litter with implementation of Regional Plans on marine litter (scope of the OSPAR and Barcelona Conventions).



5.8. Descriptor 11 - Underwater noise

Underwater noise is an emerging aspect in the marine environment, which may be very relevant for some species of fauna, for example, Cetacea.

In the 2012 initial assessment, a general lack of information about the characteristics, intensity and spatial distribution of ambient noise and impulse noise in the 5 Spanish marine demarcations, as well as the impact of this noise in marine biota. It is expected that this immense gap in knowledge (which is by no means exclusive of Spain, but happens in the great majority of European marine waters) shall be partially amended by the development and implementation of monitoring programmes.

Next, an analysis of existing measures, its effectiveness and the identification of weaknesses, depending on the key issues identified with regard to the problem of marine litter. Once the analysis has been completed, it is considered appropriate to propose a new measure. Since our knowledge of the magnitude and range of issues associated with underwater noise is very limited, a series of environmental goals was established for precautionary purposes, and this same approach has been used for remedies proposals.



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES (BY THEME)	NEED TO REINFORCE EXISTING MEASURES AND PROPOSED NEW MEASURES
Impulse noise	B.1.9 (B.1.6 in CAN): To guarantee that underwater noise levels do not have a significant impact on marine biodiversity	<p>The two documents including the guidelines are aimed at identifying any possible preventive and impact mitigating measures. These initiatives are designed to be applied as soon as the relevant activities are approved (mainly seismic drilling), but they do not have regulatory status.</p> <p>On the other hand, the "guidelines for training courses for marine mammal observer (MMO) and passive acoustic monitoring (PAM) for noise-generating off-shore operations" are a useful tool which has already been implemented in other neighbouring countries. Therefore, it would be convenient to reinforce its dissemination and training for technicians in this field.</p> <p>With regards to limitations to the use of sonar in the Canarian marine demarcation, this measure has proven effective to reduce certain acute events detected in the past.</p> <p>Detection and mitigation of impulse noise arising from certain human activities has been a priority for a few years now, as shown by the relevant technical documents. The following proposal aims to reinforce such prevention using the relevant applicable regulations.</p>	<p>New measure RS1: Regulation on criteria for projects generating underwater noise and for the preparation of EsIA for such projects.</p> <p>New measure H1: Regulation of compatibility criteria with marine strategies as per Article 3.3. of Act 41/2010 This action, which is described in detail under section 6.9., underwater noise shall be included under compatibility criteria for certain human activities.</p>
Environmental noise	B.1.9 (B.1.6 in CAN): To guarantee that underwater noise levels do not have a significant impact on marine biodiversity	<p>The impact of ambient noise in populations of Cetacea, albeit documented, is even less well-known that that of impulse noise. An aspect to be added to this is that initiatives that should be implemented to address this issue clearly exceed national competences and should be addressed in an international forum, either through Regional Marine Conventions (which are already addressing it, even if they are only on their early stages) or through</p>	<p>Up to now, no action for reducing ambient noise has been proposed and the possibility of applying Article 1.35 of MSFD has not been considered. However, Spain will detail its advances with respect to measures to reduce ambient noise, and it is possible that in the future specific actions are supported at international</p>



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES (BY THEME)	NEED TO REINFORCE EXISTING MEASURES AND PROPOSED NEW MEASURES
Environmental noise		the IMO, as the organization regulating international maritime traffic.	level. All this must be carried out in close coordination with the Maritime Authorities (General Directorate Merchant Navy).
Improvement of knowledge	B.3.4. To improve knowledge on underwater noise and other energy inputs in the marine environment, as well as their impacts on marine biodiversity.	Several research projects have been identified within the range of existing actions. However, it is considered that improving knowledge on this matter is a key challenge for upcoming years.	In Spain, it is expected that, through the implementation of monitoring programmes, progress will be made in obtaining further consistent data gradually covering all identified knowledge gaps and that facilitate grounded decision maker in adaptive management. This may be complemented with the completion of several research programmes (unidentified as for now) and the desirable development of innovative techniques for monitoring in the marine environment.

Table 10 Effectiveness analysis and identified weaknesses of measures related to underwater noise



5.9. Cross-cutting measures

This section includes a set of initiatives of different kinds that positively affect the marine environment and that are usually transversal initiatives, that is, initiatives that impact most descriptors at the same time.

The Marine Strategies established a series of environmental goals, whose compliance and scope are also a priority, since this will be used on a transversal basis for all goals addressed in the issues described above. The following section will describe how existing initiatives, together with new proposals for action, will contribute to effectively attaining the desired goals. Once that this analysis was completed, the proposal of 10 new cross- cutting initiatives is considered appropriate:



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES (BY THEME)	STRENGTHENING CURRENT MEASURES AND PROPOSED NEW MEASURES
Coordination between administrations	C.1.4. To achieve adequate coordination between public administration, institutions and sectors that perform works related with the marine environment, so as to avoid redundancy and create synergies.	<p>Coordination between public administrations for appropriate implementation of marine strategies is structured, as stated above, through the Inter-Ministerial Commission for Marine Strategies and the five Marine Strategies Monitoring Committees.</p> <p>The role of these collegiate agencies shall be reinforced during the progressive implementation of the corresponding action plans. In the same manner. It is expected to be fully operative during the second stage of Marine Strategies, on which works will start from 2017.</p> <p>There are other useful coordination strategies more associated with each issue. The following table includes the most relevant ones.</p> <ul style="list-style-type: none"> ➤ National Commission and National Committee for Natural Heritage and Biodiversity. ➤ Council of Competent Authorities for Hydrographic Demarcations and Water Council for Hydrographic Demarcations ➤ National Water Council ➤ Environment Sector Conference ➤ Joint task force of the Government of Spain and Autonomous Communities: implementation of European regulations on exotic species, application of the WFD in coastal and transitional waters, waste task groups. ➤ Future technical task group for marine litter included as a new action plan (BM25) in this document. 	<p>It is considered that there are sufficient adequate tools to achieve these coordination goals.</p> <p>The two main tools with regard to Marine Strategies, the Inter-Ministerial Commission for Marine Strategies and Marine Strategies Monitoring Committees were enacted as downstream regulations arising from Act 41/2010 and their potential as common ground for different administrations with competences over the marine environment is expected to increase over the following years.</p> <p>At the same time, work must be carried so that, within each collegiate entity mentioned here (National Water Council, Environmental Sector Conference, etc.) issues related to the marine environment are gradually included in those cases where they have not yet been.</p>



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES (BY THEME)	STRENGTHENING CURRENT MEASURES AND PROPOSED NEW MEASURES
<p>Community involvement, dissemination, awareness raising</p>	<p>C.1.3. To ensure community involvement in the marine strategy through dissemination, awareness raising, environmental education, volunteering and involvement of interested sectors in the marine environment.</p>	<p>Investment in better awareness of affected sectors, sea users and the public in general is required. Awareness raising activities should improve knowledge among the public in general, both with respect to the most important environmental issues and main challenges faced by the marine environment, as well as potential individual lifestyle changes that may be adopted to reverse this situation.</p> <p>With regard to this, we are not starting from zero. The catalogue of action plans includes many awareness raising actions addressed to different groups (fishermen and women, beachgoers, etc.) which will be used as a basis to reinforce such initiatives in the future. Although some actions are more specific issue-oriented (and therefore have been covered in previous sections), the need for reinforced the following action lines has been identified:</p> <ul style="list-style-type: none"> ➤ General public: visibility and knowledge among the general public of marine strategies and the marine environment must be improved. Advancing in raising awareness among children has been considered equally relevant. ➤ Marine sectors and sea users: due to the special involvements and relevance of its action in the marine environment, it was necessary to invest in raising awareness in different sectors: fishermen and women, beachgoers, recreational sailing companies. 	<p>Awareness improvement on the issues of marine environment shall be addressed, at least, through the three next following action plans:</p> <p>H2. Developing a strategy for visibility and dissemination of Marine Strategies.</p> <p>H4. Awareness raising programmes at schools</p> <p>H11. Awareness programmes designed for beachgoers, recreational water activity enterprises, as well as for the fishing and agricultural sectors and the society at large</p>



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES (BY THEME)	STRENGTHENING CURRENT MEASURES AND PROPOSED NEW MEASURES
<p>Improving sustainability of activities in the marine environment through appropriate assessment and regulation</p>	<p>A.1.1. To reduce the intensity and area of influence of significant human-originated pressures on benthic habitats (...)</p> <p>A.1.4: To reduce the main causes of mortality and diminishing of populations of non commercially exploited species at the top of the food chain (...); those causes include accidental catches, collision with other ships, ingestion of marine litter, introduced terrestrial predators, pollution, habitat destruction and overfishing.</p>	<p>The importance of improving sustainability of human activities and reducing of human-caused pressures has already been discussed in detail and the sections above address how each identified pressure considered relevant in the first assessment is to be addressed. However, in this section a new set of initiatives is addressed which, due to their transversal nature, were not included any previous section.</p> <p>Compatibility of human activities with marine strategies. Regulation procedures for these activities are regulated through coordination and synergy when applying the relevant laws and regulations: Act 2/2013, on Protection and Sustainable Use of Coasts Act, Act 41/2010 on Protection of the Marine Environment, and Act 21/2013 of Environmental Assessment. It is considered that the standard process must be reinforced by establishing by law (as provided by Article 3.3. of Act 41/2010) a series of criteria to assess compatibility with marine strategies, in order to guarantee that the sea is not used in any way that compromises its Good Environmental Status, and that environmental goals are complied with, as well as to provide sea users with knowledge on compulsory environmental criteria. All this is intended to be reinforced through the New measure H1.</p>	<p>Reinforcement of sustainability and environmental assessment processes through initiative:</p> <p>H1. Regulation of compatibility criteria with marine strategies as per Article 3.3. of Act 41/2010</p>



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES (BY THEME)	STRENGTHENING CURRENT MEASURES AND PROPOSED NEW MEASURES
Improving sustainability of activities in the marine environment through increased involvement of affected sectors	<p>A.1.1. To reduce the intensity and area of influence of significant human-originated pressures on benthic habitats (...)</p> <p>A.1.4: To reduce the main causes of mortality and diminishing populations of non commercially exploited groups of species at the top of the food chain (...); those causes include accidental catches, collision with other vessels, ingestion of marine litter, introduced terrestrial predators, pollution, habitat destruction and overfishing.</p>	<p>Improving sustainability in certain sectors and uses through education</p> <p>There are certain activities and uses of the sea that transversally impact virtually all descriptors. Aquaculture, fishing and tourism, both by the seaside and through recreational sailing activities, are especially noteworthy. The aim is to improve the level of sustainability of these activities, as well as effective involvement of sea users through boosting training and innovative projects. In this sense, new actions have been proposed in order to reinforce these lines of action.</p>	<p>With regard to training, two new specific measures are proposed to minimise impacts from certain sea users and to reinforce managers' know-how. These initiatives are:</p> <p>H10. Training programmes addressed to fishermen and women, on-board observers, personnel from the networks for the rescue of beached animals and training of public administration managers and law enforcement agents.</p> <p>H12: Preparation and implementation of academic training related with respect and protection of protected cetaceans, turtles and seabirds, as well as sea litter, in the official training courses for obtaining recreational and fishing sailing licenses.</p>
		<p>Improving sustainability in certain sectors and uses through promotion of innovative processes</p> <p>With regard to sector involvement, it is considered important to promote innovative projects which may be used as a stimulus for adopting more sustainable productive processes which, at the same time, contribute to better employment in maritime sectors.</p>	<p>H13. Promoting new innovative projects that improve the sustainability of aquaculture facilities (described in section 6.9).</p> <p>H14. Promoting entrepreneurship: prevention (innovation at corporate level) and management (support for the creation of new companies)</p>



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES (BY THEME)	STRENGTHENING CURRENT MEASURES AND PROPOSED NEW MEASURES
Improvement in access to information	C.3.1 To improve access to available information on the sea environment, particularly with regard to descriptors of good environmental status, pressures and impacts and socio-economic aspects, as well as ensuring information quality.	<p>Improvement of access to available information on the marine environment was one of the most discussed aspects of the monitoring programmes design procedures.</p> <p>Currently, work is carried out to implement such monitoring programmes, under the premises of sharing and re-using information available from different administrations, optimisation of sampling techniques and campaigns and making all data from monitoring programmes available to national, European and international institutions, other Member States and the general public.</p>	This goal shall be considered appropriately covered through implementation and operation of monitoring programmes (except in those aspects referring to the gaps described in document VI. Monitoring programmes)
Coordination with Member States and third party countries	C.1.2 To promote international cooperation for the research and monitoring of populations of groups of species widely distributed geographically (for example, cetaceans and reptiles).	<p>There are several coordination tools, both at a regional and European level. The role of the OSPAR and Barcelona Regional Conventions is especially noteworthy.</p> <p>Besides all existing measures, new measures regarding specific coordination levels at a sub-regional level have been proposed, and Spain is engaged to take part in these over the coming months. These projects are summarised in the three new measures identified in the right hand column. There is a project for each of the three marine subregions including Spanish territorial waters.</p> <p>Projects of this type are to be increased over the coming years, since the European Commission is trying to reinforce lines of coordination at the subregional level, financing goal-oriented projects and specific needs identified by Member States.</p>	<p>H5. ACTIONMED Project: Action Plans for Integrated Regional Monitoring Programmes, Coordinated Programmes of Measures and Addressing Data and Knowledge Gaps in the Mediterranean Sea</p> <p>BIO48: MISTIC SEAS Project: “Macaronesian islands standard indicators and criteria: reaching common grounds on monitoring marine biodiversity in Macaronesia”</p> <p>BIO49. ECAPRHA Project: Applying an ecosystem approach to (sub) regional habitat assessments (EcApRHA): addressing gaps in biodiversity indicator development for the OSPAR Region from data to ecosystem assessment</p>



THEME	ENVIRONMENTAL GOAL	EFFECTIVENESS OF MEASURES AND WEAKNESSES (BY THEME)	STRENGTHENING CURRENT MEASURES AND PROPOSED NEW MEASURES
Integral management of certain environments	<p>C.1.3. To ensure community involvement in the marine strategy through dissemination, awareness raising, environmental education, volunteering and involvement of interested sectors in the marine environment.</p> <p>C.1.4. To achieve adequate coordination between public administration, institutions and sectors that perform works related with the marine environment, so as to avoid redundancy and create synergies.</p> <p>C.1.5: To develop management plans for activities (...)</p>	<p>There are certain seaside environments that, due to its concentration of pressures and uses or its fragility, deserve direct integral and integrating management. An example of this is the Mar Menor (Autonomous Community of Murcia, Balearic-Levante Marine Demarcation).</p> <p>The Regional Government of the Autonomous Community of Murcia reported, through the Marine Strategies, that it had designed a comprehensive plan for the Mar Menor, which shall be structured through the EMFF Funds managed by this Autonomous Community, in the format of "Integral Territorial Investment (ITI)"</p>	<p>The New measure H6 s proposed: Mar Menor ITI</p>

Table 11 Effectiveness analysis on horizontal measures and weaknesses.



6. CONCLUSIONS

The main aim of each one of the five marine strategies is to achieve or maintain the good environmental status (GES) and the adequate protection of the waters of the corresponding marine subdivisions. Therefore, the findings of the initial assessment, the definition of GES and the environmental targets, which were put forward in the initial documents of the 5 marine strategies of Spain (section 5 of the present document), were taken into account during the PoMs proposal.

The preparation of the **inventory of existing measures** has been a very useful tool when compiling the series of instruments, initiatives, projects and actions contemplated by Spain in relation to the protection of the marine environment. A considerable number of consulted public Administrations actively participated in that inventory. It is likely that the inventory will be subject to improvement during the public consultation process, if comments are received in this regard.

The figure below shows a summary of the identified existing measures, as well as the number of new measures proposed for each one of the themes.

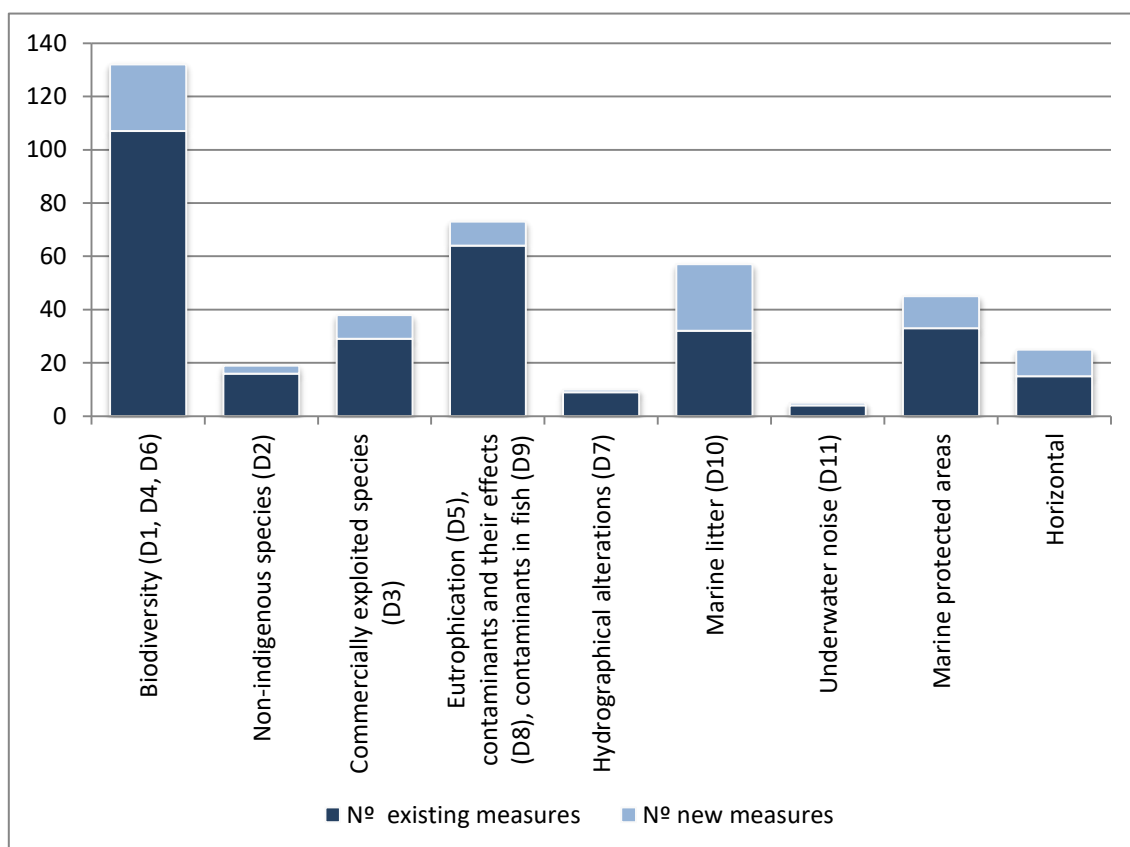


Figure 12. The programmes of measures as a whole: Existing measures identified and proposed new measures by theme



For each marine subdivision, it is expected that the combination of the existing measures and, in particular, the application of the proposed new measures will make it possible to achieve good environmental status through achievement of the environmental targets.

The **proposal of new measures** includes a series of measures for each one of the themes which address the eleven qualitative descriptors of the marine environment, and for marine protected areas. It also includes a proposal of horizontal, crosscutting measures which, in some cases, encompass a number of different descriptors and, in other cases, address issues generally related to governance in the broad sense (coordination among administrations, public participation, training, awareness-raising, etc.).

Of the **total of 97 proposed new measures**, more than half are distributed between the themes of biodiversity and marine litter. The **biodiversity** measures focus on the reduction of different pressures which affect the biological communities and ecosystems. We must not forget that descriptors 1, 4 and 6 are, in accordance with the ecosystem-based approach, those related to the condition of the ecosystem. The measures of the biodiversity theme are complemented by an important series of measures in the scope of **Marine Protected Areas** (MPAs) which seek to address the improvement in the Network of Marine Protected Areas in Spain (RAMPE), with regard to both its spatial coverage and representability and to guarantee an adequate management of all MPAs.

With regard to the **marine litter** measures, these arose following an exercise to design and implement the OSPAR and Barcelona Regional Action Plans on marine litter, adapted to the peculiarities of the Spanish marine subdivisions. Therefore, this proposal of programmes of measures will also be the main tool for the application of these two Regional Action Plans in the Spanish marine environment.

With regard to the measures related to **commercially exploited species**, it has been considered relevant to include all the main lines of action on which Spain will work in the coming years in the framework of the application of the recently-approved Operational Programme of the EMFF (European Maritime and Fisheries Fund).

The measures of the **eutrophication, contaminants and contaminants in fish and other seafood** themes (D5, D8, D9), as well as those of **permanent alterations of hydrographical conditions** (D7), derive mainly from the existing measures in the river basin management plans. The proposal of new measures for these themes aims to address the offshore aspect of these descriptors in greater detail, dealing with the pressures most closely related to activities at sea.

The proposal of a new measure on **underwater noise** seeks to advance in the regulatory instruments for activities which generate impulsive noise.

Finally, a series of **horizontal measures** have been proposed, which, due to their cross-cutting nature, affect a wide range of themes and descriptors. These measures are aimed at improving awareness-raising and training, as well as guaranteeing the sustainability of certain human activities and the compatibility of those activities with the marine strategies.

Each one of the new measures has been characterised in detail, with a fact-sheet for each one of them. This characterisation includes:



- The list of GES descriptors
- The sectors affected by the measure
- The envisaged environmental effect
- The pressures of Annex 1 of Law 41/2010 (Annex III of MSFD) which that measure addresses
- The environmental targets at which the measure is aimed
- The marine subdivision(s) in which that measure will be applied
- The envisaged date of implementation
- The competent authority or authorities
- The monitoring indicators (based on the proposal of indicators of the monitoring programmes, expanded where required to new indicators which make it possible to assess the implementation of the measure)

In addition, an estimation of the cost of the measures has been made, as well as their effectiveness (based on the pressures which are tackled) and their benefit (in the different economic sectors). It is important to stress that the analysis of the benefit has taken into account only the monetary benefit of each one of the measures, and not the intangible benefit (from ecosystem services), which have been more clearly dealt with in the "envisaged effect".

The marine strategies as a whole, including the present proposal of Programmes of Measures, is undergoing a strategic environmental evaluation, and it is anticipated that the Environmental Report will be available for public consultation at the start of 2016.

The proposal was drawn up through a participatory process, with both groups of experts and the different competent administrations. The proposals and indications made by those administrations have been respected, always seeking to adapt them to the terminology of marine strategies.

The present proposal will be subject to revision and improvement as a result of the process of public consultation of the document.



ANNEX: Proposal of new measures for the five marine strategies

THEME	NEW MEASURE	COMPETENT AUTHORITY	MARINE SUBDIVISION(S) IN WHICH THE MEASURE APPLIES
BIODIVERSITY (D1, D4, D6)	BIO1. Conservation plan for the killer whale in the Strait of Gibraltar and Gulf of Cadiz	DGSCM	ESAL, SUD
	BIO2. Marine turtles conservation Strategy in Spain	DGSCM/ CCAA	All
	BIO 3. Strategies/Plans for the reduction of the by-catches of protected vertebrates (birds, turtles, marine mammals and elasmobranchii) in fishing gear	DGSCM/SGP/ CCAA	All
	BIO 6. Conservation Strategies for threatened marine bird species	DGSCM/CCAA	All
	BIO 7. Conservation Plans for endangered marine species	DGSCM/CCAA	Depending of the species
	BIO 8. Risk analysis of the by-catches of turtles, cetaceans and marine birds	DGSCM/CCAA	All
	BIO9 Demonstration projects on the mitigation and reduction of by-catch of marine turtles, birds and mammals by the different fishing gears	DGSCM/SGP/ FBIO	All
	BIO 10. Fishery regulations to reduce by-catches (based on that detected in measure BIO8).	SGP/CCAA	Depends of the fishing gear
	BIO 12. Establishment of specific protocols which improve post-capture survival for different fishing gears and ensure their application	SGP/DGSCM/ CCAA	All
	BIO13 Guidelines on the management of recreational nautical activities	DGSCM/DGMM/ CCAA	All



THEME	NEW MEASURE	COMPETENT AUTHORITY	MARINE SUBDIVISION(S) IN WHICH THE MEASURE APPLIES
BIODIVERSITY (D1, D4, D6)	BIO15 Improvement of knowledge: promotion of research studies on birds, turtles, recruitment areas, as well as on the impact of human activities on species and habitats	MAGRAMA/ FBIO/ MINECO/ IEO/ CSIC/ CCAA	All
	BIO17: Protocol for action in response to turtle nesting on the Spanish coast and possible adoption of protection measures on optimal beaches for incubation	DGSCM/ CCAA/ Local entities	LEBA / ESAL
	BIO18: Modification of Royal Decree 347/2011, of 11 March, regulating maritime recreational fishing in offshore waters	DGRPA	All
	BIO19: Updating of the Electronic Fishing Logbook to systemise the gathering of data on by-catch	DGOP	All
	BIO20: Improvement of the monitoring of artisanal fisheries (VMS type)	CARM / Regional. Government of Asturias	LEBA/NOR
	BIO29 Coordination of the protection and conservation measures of marine bird nesting areas	Government of the Canary Islands	CAN
	BIO31 Actions related to the reduction of the risks of collision on large vessels	DGMM / DGSCM	All
	BIO34: Sea-floor mapping and data processing programme: Continuation of the ESPACE Project	DGRPA / IEO	NOR/ SUD / ESAL / LEBA
	BIO 36. Guidelines on the acceptability of sand replenishment on beaches	DGSCM	All
	BIO41: Exploration of alternative methods of low impact for capturing crustaceans on the seabed	DGRPA	All
	BIO42: Establishment of bottom trawling-free zones / increase of exclusion zones in shelf areas, based on the results of the ESPACE project (measure related to BIO34)	DGRPA	NOR/ SUD/ ESAL/ LEBA
BIO46: Elaboration of guidelines on artificial reefs	DGSCM	All	



THEME	NEW MEASURE	COMPETENT AUTHORITY	MARINE SUBDIVISION(S) IN WHICH THE MEASURE APPLIES
BIODIVERSITY (D1, D4, D6)	BIO47: Promote a quality mark for recreational whale-watching activities (including tourism fishing)	DGSCM	All
	BIO48: MISTIC SEAS Project: “Macaronesian islands standard indicators and criteria: reaching common grounds on monitoring marine biodiversity in Macaronesia”	DGSCM /FBIO / IEO	CAN
	BIO49: ECAPRHA Project: Applying an ecosystem approach to (sub) regional habitat assessments (EcAprHA): addressing gaps in biodiversity indicator development for the OSPAR Region from data to ecosystem assessment	IEO	NOR/ SUD
MARINE PROTECTED AREAS	EMP1: RAMPE (MPA Network of Spain) Master Plan	DGSCM	All
	EMP2: Preparation and implementation of the management plans of the Natura Network SCIs proposed by INDEMARES which competence belong to the central government	DGSCM / FBIO	All
	EMP3: Preparation and implementation of the management plans of the SPAs which competence belong to the central government	DGSCM	All
	EMP4: Review of the management plans of the Macaronesian SCAs and the EI Cachucho SCA	DGSCM	NOR, CAN
	EMP9: Analysis of the potential creation of and support to the implementation of a "Natura 2000 Network" quality mark to favour the commercialisation of products and services which are compatible with the management objectives of the Natura Network	DGSCM/ DGOP/ DGCEAMN / FBIO	All
	EMP10: Management and monitoring of Marine Reserves	DGRPA	ESAL, LEBA, CAN
	EMP11: Awareness-raising / Information in Marine Reserves	DGRPA	ESAL, LEBA, CAN
	EMP12: Preparation of studies for the designation of future MPAs	DGSCM	All
	EMP13: Declaration of new MPAs (based on that identified in measure EMP12)	DGSCM	All



THEME	NEW MEASURE	COMPETENT AUTHORITY	MARINE SUBDIVISION(S) IN WHICH THE MEASURE APPLIES
	EMP15: Surveillance plan of <i>Posidonia oceanica</i> in the Balearic Islands	CAIB	LEBA
	EMP16: Expansion of the Maritime-Terrestrial National Park of the Cabrera Archipelago	CAIB	LEBA
	EMP17: Preparation and implementation of instruments for the management of marine protected areas (different from those mentioned in EMP2, EMP3 and EMP4)	DGSCM/CCAA	Undefined
NON-INDIGENOUS AND INVASIVE SPECIES (D2)	EAI1: Improvement of knowledge on invasive species and other issues	MINECO / CSIC / IEO / FBIO / CCAA / SOCIB	All
	EAI2: Systems of alert, early detection and rapid eradication of exotic invasive species	DGSCM / CCAA / Port authorities	All
	EAI3: Mobile application for alert and early detection of non-indigenous and invasive species in National Parks	OAPN / CCAA	NOR, LEBA
COMMERCIALY EXPLOITED SPECIES (D3)	EC1: Permanent cessations based on the fleet action plan	SGP/CCAA	All
	EC2: Temporary cessations of fishing activity (in accordance with Art. 33 of the European Maritime and Fisheries Fund (EMFF) Regulations)	SGP/CCAA	All
	EC4: Actions aimed at fulfilling the discards policy	SGP/CCAA	All
	EC5: Promotion of collaboration between scientists and the fishery sector	FBIO / CCAA / SGP	All
	EC6: Actions related to the maintenance of the National Basic Data Programme (Article 77)	SGP / IEO /CCAA	All
	EC7: Reinforcement of control work (article 76)	SGP/CCAA	All
	EC8: Reduction of red coral fishery quotas per person and year (RD 629/2013)	DGRPA/CCAA	SUD, ESAL, LEBA



THEME	NEW MEASURE	COMPETENT AUTHORITY	MARINE SUBDIVISION(S) IN WHICH THE MEASURE APPLIES
	EC9: Management plan for the longline fleet in the Mediterranean	DGRPA	ESAL, LEBA
	EC10: Promote the fish and seafood management and co-management plans in the Mediterranean (Regional Government of Catalonia)	Regional Government of Catalonia	LEBA
EUTROPHICATION, CONTAMINANTS AND THEIR EFFECTS, AND CONTAMINANTS IN FISH AND OTHER SEAFOOD (D5, D8, D9)	CONT 1: Reinforcement of the “Plan Ribera”	DGSCM	All
	CONT 2: Strategy for the rescue and recovery of oiled wildlife	DGSCM	All
	CONT 4: Guidelines for land-sea direct discharges	DGSCM /CCAA	All
	CONT5: Approval as Royal Decree of the guidelines for the management of dredged material	CIEM	All
	CONT7: Reinforcement of the National Rescue and Pollution Response Plan	DGMM	All
	CONT8: Preparatory work related to the UNEP-MAP Offshore Protocol Action Plan (Protocol for the protection of the Mediterranean Sea against pollution from the exploration and exploitation of the continental platform, the soil and the subsoil)	General State Administration (MINETUR/MAGR AMA/MFOM)	LEBA, ESAL
	CONT12: Preparation of the Interior Maritime Plans	State Ports	All
	CONT13: Guide for the handling of bulk liquids	State Ports	All
	CONT 14: Improvement of knowledge of aspects related to marine pollution	MINECO/CSIC/ IEO	All
ALTERATIONS OF HYDROGRAPHICAL CONDITIONS (D7)	AH1: Promotion of operational oceanography work, in terms of both real time observation and prediction	MINECO/ IEO/ CSIC/ SOCIB/ CAIB	LEBA, ESAL (possibly extendible to other subdivisions)
	Measures for the prevention of marine litter from maritime sources		
	BM1: Implementation of a fixed fee system in regional ports similar to that regulated in RDL 2/2011	CCAA	LEBA



THEME	NEW MEASURE	COMPETENT AUTHORITY	MARINE SUBDIVISION(S) IN WHICH THE MEASURE APPLIES
MARINE LITTER (D10)	BM3. Promotion of projects aimed at analysing the possibilities of recycling certain materials, such as expanded polystyrene (EPS) or fishing nets	MAGRAMA / FBIO / CCAA / MINECO / CDTI	All
	BM4: Promotion of innovative projects and initiatives on environmental aspects of technologies and processes in the fishery and aquaculture sectors	MAGRAMA / FBIO / CCAA / MINECO / CDTI	All
	BM6: Improvement of the wastes management in ports	State Ports / Port Authorities / CCAA	All
	BM7: Promotion of projects for better management of the waste on board in fishing vessels or in aquaculture facilities	MAGRAMA / FBIO/ CCAA / CDTI / MINECO	All
	Measures for the prevention of marine litter from land sources		
MARINE LITTER (D10)	BM8: Preparation of regional waste management plans	CCAA	All
	BM9: Revision of regulations which affect the application of the Extended Producer Responsibility	DGCEAMN	All
	BM10. Application of the measures contained in the regulations which transpose Directive 2015/720, amending Directive 94/62/EC with regard to the reduction of the consumption of light plastic bags	DGCEAMN / CCAA	All
	BM11. Study on the quantities of marine litter (including microplastics) from wastewater treatment plants and proposal of specific measures to be incorporated into the river basin management plans (3 rd cycle)	DGSCM	All
	BM12. Ensure the inclusion of explicit references to marine litter in all waste management instruments to be promoted in the future	MAGRAMA / CCAA	All



THEME	NEW MEASURE	COMPETENT AUTHORITY	MARINE SUBDIVISION(S) IN WHICH THE MEASURE APPLIES
MARINE LITTER (D10)	BM13: Research into ecological aspects of microplastics. JPI Oceans pilot initiative: BASEMAN, EPHEMARE, PLASTOX projects	MINECO / IEO / Univ.of Coruña / Univ..of Vigo / Univ. of Murcia / Univ. of the Basque Country	All
	BM14: Study on the quantification of sources of microplastics and identification of possible reduction/prevention measures	DGSCM	All
	BM28. Standards for the design of stormwater tanks	DGA	All
	BM29: Plan for Treatment or Removal to Controlled Landfill of paper waste and derivates and plastics in Melilla (Chafarinas Islands).	OAPN- MAGRAMA	ESAL
	Measures for the removal of marine litter		
	BM5: Promote the installation of waste-collection facilities at fishing docks	MAGRAMA / FBIO / Port Authorities / CCAA / Local Entities	All
	BM17. Development of a framework document for the development of a coherent "fishing for litter " scheme	DGSCM	All
	BM18: Promotion and funding of "fishing for litter " activities	SGP / FBIO / CCAA	All
	BM19. Funding of clean-up activities in rivers, beaches, and shallow waters	FBIO / CCAA / Town Councils / OAPN- MAGRAMA	All



THEME	NEW MEASURE	COMPETENT AUTHORITY	MARINE SUBDIVISION(S) IN WHICH THE MEASURE APPLIES	
MARINE LITTER (D10)	BM20. Promotion of events coinciding with <i>Cleanup Day</i> initiative, and encouraging participation	DGSCM	All	
	BM21: Study of marine litter hotspots (areas of greatest accumulation or particularly vulnerable areas in the presence of waste)	DGSCM / IEO	All	
	BM22: Clean-up campaigns aimed at identified marine litter accumulation sites	DGSCM / FBIO	All	
	BM26. Creation and maintenance of a national database of items collected in "fishing for litter" activities.	DGSCM / FBIO	All	
	Awareness-raising and information measures on the problem of marine litter			
	BIO 24. Preparation of rise awareness/communication materials, with the possibility of including a campaign through media	DGSCM / FBIO	All	
	BM25. Creation of a technical group on marine litter as a coordination/discussion forum around the problem of marine litter and its possible solutions	DGSCM	All	
	BM27. Creation of the figure of "Beach Guardians", aimed at associations, environmental organisations, fishermen, fishery associations and other groups, and a network of "guardian" organisations for the environmental conservation of rivers and beaches and raise awareness about this problem at local, regional and national level	MAGRAMA / FBIO	All	
UNDERWATER NOISE (D11)	RS1: Regulation of criteria for projects generating underwater noise and for the preparation of EIAs of those projects.	DGSCM	All	
	H1: Regulation of criteria of compatibility with marine strategies, in accordance with article 3.3 of law 41/2010	DGSCM	All	
	H2 Development of a strategy for the visibility and dissemination of marine strategies	DGSCM	All	



THEME	NEW MEASURE	COMPETENT AUTHORITY	MARINE SUBDIVISION(S) IN WHICH THE MEASURE APPLIES
CROSS- CUTTING MEASURES	H4: Education programme in schools	DGSCM / FBIO	All
	H5: ACTIONMED Project: Action Plans for Integrated Regional Monitoring Programmes, Coordinated Programmes of Measures and Addressing Data and Knowledge Gaps in Mediterranean Sea	IEO	LEBA, ESAL
	H6: Mar Menor "ITI"	CARM	LEBA
	H10: Training programmes for fishermen, on-board observers, personnel of stranding networks, and training of policy-makers and agents of the authority	DGSCM / SGP / IEO / CCAA / FBIO	All
	H11: Rise awareness programmes targeted to users of beaches, nautical-recreational tourism companies, fishermen and civil society in general	DGSCM / CCAA / FBIO	All
CROSS- CUTTING MEASURES	H12: Preparation and implementation of a curriculum related to respect for and protection of cetaceans, marine turtles and birds, as well as marine litter, in official marine-related education in the recreational and fishing sectors	DGMM / DGOP	All
	H13: Promotion of innovative projects for the improvement of the sustainability of aquaculture facilities	FBIO	All
	H14: Promotion of entrepreneurship: prevention (business innovation) and management (support to the creation of new companies)	FBIO / CDTI / MINECO	All

ACRONYMS MARINE SUBDIVISIONS: NOR- North Atlantic MD; SUD- South Atlantic MD; ESAL- Estrecho and Alborán MD; LEBA- Levantine-balearic MD; CAN- Canary MD.

ACRONYMS COMPETENT AUTHORITIES: CCAA- Regional Governments; CAIB- Regional Government of Balearic Islands; CARM- Region of Murcia; CDTI- Centre for the Development of Industrial Technology; CEDEX- Centre for Studies and Experimentation of Public Works; CIEM- Interministerial Commission for Marine Strategies; CSIC- Spanish National Research Council; DGA- Directorate General of Water; DGCEAMN- Directorate General of Quality, Environmental Assessment and Natural Environment; DGMM- Directorate General of Merchant Marine; DGOP- Directorate General of Fisheries Management; DGRPA- Directorate General for the Protection of Fisheries and Aquaculture Resources; DGSCM- Directorate General for the Sustainability of the Coast and the Sea; FBIO- Biodiversity Foundation; IEO- Spanish Institute of Oceanography; MAGRAMA- Ministry of Agriculture, Food and Environment; MFOM- Ministry of Public Works; MINECO- Ministry of Economy and Competitiveness; MINETUR- Ministry of Industry, Energy and Tourism; OAPN- National Parks Autonomous Agency; PdE- State Ports; SGP- General Secretariat of Fisheries; SOCIB- Balearic Islands Coastal Ocean Observing and Forecasting System.



