AGREEMENT NUMBER – MARE/2014/19 -SI2.705484

Strengthening regional cooperation in the area of fisheries data collection in the Mediterranean and Black Sea

D.0.2. FINAL REPORT

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Partners involved:

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EXECUTIVE SUMMARY

The project – "Strengthening regional cooperation in the area of fisheries data collection in the Mediterranean and Black Sea, MARE2014_19Med&BS "aims at designing a proposal for a regional Multiannual Regional Work programme (MRWP) to support Member States to build up experience in new areas of regional cooperation, relying upon the contribution of the end-users and stakeholders. Research Institutes from all the European countries facing Mediterranean and Black Sea cooperated in this project to reach these objectives.

The project has been organised in 6 Working Packages, 13 tasks and issued 21 deliverables. Case studies, considering GSAs, stocks and fisheries, depending from the objectives, were the project working basis.

The project **Work Package 0 (WP0)** ensured the coordination, the organization of several meetings to discuss project implementation, results and running case studies, while the setting of a sharepoint (http://mare19partner.coispa.eu/) facilitated the communication among partners and with the Commission throughout the project. The project initiatives were communicated and discussed at the RCMMed&BS and at the Liaison Meeting, respectively held in Rome and Brussels on September and October 2015.

Results from a SWOT analysis carried out in WP1 **(Deliverable 1.1; *Annex 9*)** considering the thematic areas of Biological data collection, Data quality, End users role and Regional database have demonstrated that, despite some measures have been already undertaken, the realization of the opportunities and elimination of the threats across the Region have not yet been fully achieved. These results also pointed out that inputs and suggestions for possible changes/improvements in the future regional coordination activities can be translated into goals through the results achieved in the other WPs of the present project. In addition, from **Deliverable 1.2 (*Annex 10*)** it emerged that although Member States apply quality control procedures to the data they collect, the levels of control and methods used vary between Member States that have not implemented formal quality assurance procedures and no standards for fisheries data quality reporting are shared by supra-national institutions. Thus sharing between Member States tasks that require very specific knowledge, such as statistical programming, is recommended.

As a matter of facts the best short term scenario should be that points for which there is a common understanding and agreement at regional level (e.g. data format, data quality checks using standardized tools, mitigation of workload from data calls, regional databases, designing sampling plans for commercial fisheries and adopt monitoring scheme for by-catch and ecosystem components, , etc.) are taken into account at the Regional Coordination Meeting of the Mediterranean and Black Sea (RCMMed&BS) and translated into recommendations/elements to be adopted by the Annual Work Plan of each country.

On the other hands, the **Work Package 2** (5 tasks and 8 Deliverables) assessed methods and procedures to design an harmonised end-users oriented RSP-CF, based on case studies regarding the stocks of *Merluccius merluccius* and *Mullus barbatus* in the GSA7, *Solea solea* and *Merluccius merluccius* in GSA17, *Sprattus sprattus* in GSA29. It developed an ad-hoc methodology to adjust the sampling effort through an analysis of trade-offs between sample size and precision levels (e.g. CV) (**Deliverables 2.5** and **2.6** in the ***Annexes 15*** and ***16*** respectively). This can be expanded to other areas and stocks, provided that an adequate historical data set is available. The tool developed under the R statistical language proposed a framework which is based on the sampling procedures currently used by the different Member States.

For the future regional coordination relying upon common tools and approaches will be pivotal. A crucial step is to agree upon common data formats and standardized codes. Through this project,

critical steps have been taken and a SDEF (Standard Data-Exchange Format) compatible format tested, while reviewing the code list (see **Deliverable 2.2** and **Deliverable 2.7** in the ***Annexes 12***). As an example, during the 2015 RCM Med&BS – LP, scripts that allowed to re-format national databases let to employ the standardized regional codes used by the Standard Data-Exchange Format (SDEF) in use within the ICES area. This also showed that a viable solution for alleviating the burden of reporting data in different formats and codes could be the automatic remapping of data from the regional standardized way of reporting to other reporting forms.

An attempt conducted to evaluate the financial implications from adopting regionalized biological sampling schemes (see **Deliverable 2.8** in the ***Annex 18***) highlighted that total costs are primarily governed by sample prices and labour costs. Cost increases due to increased sample number will be particularly high in the case of expensive species such as European hake.

To assess the past situation – i.e. the state of the art- in data collection, **WP2** has undertaken an extensive review of the relevant literature (e.g. ICES and STECF reports) in terms of biological and transversal data collection (**Deliverable 2.1** in the ***Annex 11*** and **Deliverable 2.4** in the ***Annex 14***), while assessing the present situation through questionnaires submitted to the most involved people. The sampling strategies and protocols for age and maturity were found to be different between the case studies, as there are still differences between the national programs, which need to be harmonized. Likewise the approaches for evaluation of maturity stages, age determination and validation. The Handbook of protocols for sampling hard structures and maturity condition, implementing age validation and maturity parameters for the selected stocks was finalized in the **Deliverable 2.3** (***Annex 13***) represents a support for the implementation of regional and national programs. Regarding landing obligation in the Mediterranean and Black Sea and in particular survival rates of species listed in Annex III of the MEDREG the review identified that for many of those species information was lacking from Mediterranean fisheries (**Deliverable 2.1** in the ***Annex 11***).

Short and medium term actions have been identified (**Deliverable 2.1, Annex 11**) based on the strengthening scientific and methodological cooperation under the umbrella of the Regional Coordination Groups (RCGs).

After an extended review and consultation of stakeholders carried out in **Work Package 3** (based on 3 tasks and 5 Deliverables), selected case studies were identified (**Deliverable 3.1** in the ***Annex 18***) to implement a Regional Sampling Program of Data Collection on Fisheries Impacts on the Ecosystem (RSP-DCFIE):

- bottom trawling fishery for demersal species (OTB_DES) in the Mediterranean (GSAs 17 and 18) and the gillnet for turbot in the Black Sea (GSA 29) for monitoring by-catch of protected, endangered and threatened species (PET species);
- the stocks of European hake (*M. merluccius*) in north-western Mediterranean (GSAs 6, 7 and GSA9) and turbot (*P. maxima*) in the Black Sea (GSA 29) for sampling stomach contents.

Taking into account the requirement of the Marine Strategy Directive Framework and the needing of implementing an Ecosystem Approach to Fishery Management (key objective of the Common Fishery Policy), additional ecosystem indicators have been selected to better evaluate the impact on the ecosystem due to fishing activities (**Deliverable 3.4** in the **Annex 21**).

In this program incidental bycatches shall be recorded according to standard data collection procedures by experienced on-board fishery observers coupled with log-book data collection. Allocation should allow covering around 0.5% of fishing days at sea carried out by the metier selected for the case study. Stratification is by quarter. A raising procedure, based on the ratio estimate method, was proposed. An handbook with species identification guidelines has been provided together with data sheets and log-books to facilitate the implementation of the sampling program for any fishery and GSA (see

Deliverable 3.2, *Annex 19*). The tasks are proportionally allocated by number of vessels and amount of landings of the main demersal species by each Member State. In GSA29 tasks are allocated to Member States proportionally to the amount of landings of turbot (see **Deliverable 3.5, *Annex 22***).

Two sources of data shall be considered in the collection of stomachs of the two stocks: scientific bottom trawl surveys (e.g. MEDITS) and commercial fishery (DCF). Sampling stratification is by size class and season (see **Deliverable 3.3, *Annex 20***). Among the different methods reviewed on the analysis of fish stomach contents, the volumetric method was proposed. Guidelines on sampling methodologies, identification of the prey items and treatment of the data collected have been provided too.

Activities of **Work Package 4** (based on 3 tasks and 2 Deliverables) have been carried out in close collaboration with the "FishPi" project. The quality checks functions are made available on the git hub website (https://github.com/ldbk/fishPifct). The necessary data quality procedures have been identified and grouped under four pillars in relation to the various stages of a sampling scheme, while a specific time-frame has been suggested for the accomplishment of national and regional quality checks (see **Deliverable D4.1, *Annex 23*** for details).

A specific a tool focused on evaluating the conformity of a dataset against a required data format (see **Deliverable D4.2, *Annex 24*)** has been developed and tested on the case study of European hake in GSA7.

A stakeholder Share-Point implemented **(Work Package 5)** with the purpose of collecting inputs from a regional consultation assisted the exchange of information during a 2-days Workshop held to discuss with MSs, end-users and stakeholders the outputs of the project WPs. There was a general agreement, among participants, on the following main outputs of the workshop (**Deliverable D.5.1, *Annex 25***):

i) It is extremely important to present the results of the project to the next Med & Black Sea RCM to be held in September.
ii) It is necessary to increase the technical cooperation in the GFCM area in order to avoid unnecessary duplication and overlap.
iii) On the basis of the current project results, common formats and procedures should be agreed at the next RCM.
iv) NCs expressed their concern for the huge amount of data requests from end-user. To this purpose, common formats and procedures could mitigate the impact of such amount of data requests.
v) NCs expressed their concern for the very compressed time available for the preparation of the National Work Programs due in October.
vi) The sampling optimization is a crucial issue in order to avoid work overload for each Country. In general, the feasibility of each increment of the sampling effort will have to be verified in the field and developed over time.
vii) In consideration of the overall commitment for the whole data collection program, it is not conceivable a commitment too onerous, in terms of sampling effort, for the by catch and stomach samplings.
viii) It is recommended to revise, as soon as new information are available, the sampling design for bycatch and stomach analyses, also taking into account the economic sustainability.
ix) Bycatch and stomach sampling programs should be considered as pilot programs.

Finally the **Deliverable D.0.3** of WP0**, taking the results for the different WPs and Deliverables,** outlined a proposal for a Multiannual Regional Work programme -MRWP (**Annex 26).**

1. ACTIVITIES CARRIED OUT AND ACHIEVED RESULTS

The project - Strengthening regional cooperation in the area of fisheries data collection in the Mediterranean and Black Sea, MARE2014_19Med&BS "aims at designing a proposal for a regional Multiannual Regional Work programme (MRWP) that is sufficiently adaptable and flexible (data format, sampling stratification and allocation, protocols for collecting biological data, etc..) for the different conditions of fishing pressures and historical exploitation perceived in different areas of Mediterranean & Black Sea. This proposal intends to support Member States to build up experience in new areas of regional cooperation, relying upon the contribution of the end-users and stakeholders. Research Institutes from all the European countries facing Mediterranean and Black Sea are cooperating in this project to reach this objective.

The project is organised in 6 Working Packages, 13 tasks and 21 deliverables.

In the following chapters progress towards objectives are described following the structure in Work Package of the project, recalling objectives, deliverables and related responsibilities. The full deliverables are standing alone documents and are provided as Annex to this report.

1.1. WP0 - PLANNING ACTIVITIES, GENERAL COORDINATION AND SYNTHESIS OF THE PROJECT RESULTS INCLUDING THE MULTIANNUAL REGIONAL WORK PROGRAMME (MRWP)

WP0 is the work package for the Project Coordination, management and synthesis of project results.

WP0 - STRUCTURE

WP0 Coordinator: Maria Teresa Spedicato (COISPA)

Partners involved: all partners (CIBM, CNR-ISMAR, COISPA, CNR-IAMC, DFMR, IEO, IFREMER, IO-BAS, IOF, HCMR, IRD, MSDEC-DFA, MABLY, NIMRD, NISEA)

Milestones

M.0.1 – Organization and setting of the sharepoint (month1)

Deliverables

D.0.1. Interim Report (month 6)

D.0.2. Draft Final Report (month 12).

D.0.3 The Multiannual Regional Work Program (MRWP) (month 12)

WP 0 - ACTIVITIES CARRIED OUT AND SUMMARY OF THE ACHIEVEMENTS

The Work Package 0 (3 Deliverables), i.e. the project coordination, started with the preparation of the administrative documentation and kick off meeting with DGMARE and the twin project: "Strengthening Regional cooperation in the area of Fisheries Data Collection in the North Sea and Eastern Arctic (NS/EA) – Coordinator USTAN" (FishPi project) that was organised in Brussels on 20 April 2015. (**Annex 1**).

This meeting was followed by an internal meeting with the participation of WP and Task leaders to discuss the outcomes from the joined meeting and the work plan for the next 6 months (**Annex 2**). The

meeting also discussed the candidate list of species for the case studies of WP2. Finally these were: *Merluccius merluccius* and *Mullus barbatus* in the GSA7, *Solea solea* and *Merluccius merluccius* in GSA17; *Sprattus sprattus* in GSA29.

Progress were also made in the coordination activity with the twin project FishPi.

The project sharepoint (http://mare19partner.coispa.eu/) has been implemented in the first month of the project and has supported the communication, share of documents and information along the project life.

Other two coordination meetings were held: a midterm meeting with DGMARE and the FishPi project on October 21, 2015 in Brussels (**Annex 3**). This meeting was attended by the project and WP coordinators. In this meeting the comments received by DGMARE on the Interim Reports of the two projects were discussed. In addition, the possibility of a project extension was also evaluated.

A project midterm internal meeting with participants (WP and task leaders) was held on 9-10 December 2015 in Bari (Italy) (**Annex 4**). This meeting was attended by 13 participants and it discussed on the possibility for a project extension, on the comments received by DGMARE to the Interim Report and on the organization of the meeting with stakeholders.

To monitor the ongoing activities of the project and making short term plan skype meetings with the WP leaders were held on June, July, September, November 2015 and on March and May 2016. Other virtual meetings were also held at WP level.

The communication with the FishPi project was kept during the project life, especially through bilateral interactions between WPs.

The project initiative was communicated and discussed at the RCMMed&BS and at the Liaison Meeting respectively held in Rome and Brussels on September and October 2015.

In WP0 the following Deliverables were accomplished:

D.0.1 Interim Report that was provided after 6 months from the project start and revised in January 2016. following the input from DGMARE;

D.0.2 which is the present **Draft Final Report;**

D.0.3 reported in the ANNEX 26.

1.2. WORK PACKAGE 1 - AN ANALYSIS OF THE MAIN COORDINATION ACTIVITIES AND TOOLS DEVELOPED SO FAR IN THE REGION, IN THE CONTEXT OF THE EXISTING RCM

WP1 is focused on reviewing achievements and failures in the context of the existing RCM activities. The objective is to identify areas of improvement, i.e. identify areas that could lead to improved coordination, collaboration, standardisation and efficiencies in the field of data collection in the Mediterranean and Black Sea. WP1 had also the function to be central to the other WPs bringing the background of the lesson learnt at regional scale.

WP1 - STRUCTURE

Duration	4 months from the project start
Coordination	Paolo Carpentieri (NISEA)
Tasks	**Task 1.1 -** A SWOT analysis in order to develop inputs and suggestions for possible changes/improvements in the future regional coordination activities (responsible Paolo Carpentieri, NISEA) **Task 1.2 -** An inventory and analysis of the main existing tools developed so far in support of the existing DCF (responsible Evelina Sabatella, NISEA).
Partners involved	NISEA, CIBM, CNR-ISMAR, COISPA, DFMR, IFREMER, IO-BAS, MABLY, NIMRD
Deliverables	**D.1.1** Report of the SWOT analysis of the current situation related to the main coordination activities (responsible: Paolo Carpentieri, NISEA) (month 4) **D.1.2** Analysis of the current tools/models, evaluation of their characteristics, applicability and functionality in the region (responsible: Paolo Carpentieri, NISEA) (month 4)

WP 1 - ACTIVITIES CARRIED OUT AND SUMMARY OF THE ACHIEVEMENTS

The activities of WP1 have been centred on the review of the relevant documents of RCMs, STECF EWGs, GFCM WGs, ICCAT WGs AG FOMLR (Advisory Group on Environmental Aspects of Management of Fisheries and Other Marine Living Resources) Black Sea Commission and all the relevant documents of Regional meetings.

A platform of Evaluation/Discussion was built to support the SWOT analysis for **task 1.1**. In addition, a questionnaire was distributed to National Correspondents, end users and relevant stakeholder, in order to acquire inputs relevant for the **task 1.2**, to support the inventory and analysis of the main existing tools developed so far in support of the existing DCF (a copy of the questionnaire is attached to the deliverable 1.2). The Project Team prepared a questionnaire (Annexed to Deliverable 1.2) which was sent to 38 stakeholders and 12 questionnaires were received back.

The questionnaire was uploaded on the web platform of the project and allows a compilation through the web page. Although the questionnaires were sent to National Correspondents, in some cases they distribute them to other national institutions working with DCF, thus giving a more detailed picture of the existing tools. Hence more subjects participated to the survey.

Deliverable 1.1 (Annex 9) has evaluated the performance, since 2002, of the RCM, PGMed, end user(s) Regional Meeting and/or Working group (e.g. GFCM, ICCAT), producing an updated overview of the strength, weaknesses and opportunities of the identified topics:. biological data collection, data quality, role of end users, through a SWOT analysis.

Concerning the **biological data collection** up to now, a well-standardised fishery monitoring system is operating at regional level only for the scientific surveys, few fishery resources benefit from regional approach in place for the collection of biological variables.
The involvement of **end users**, with their active participation in the regional coordination activities, is urgently needed in order to fully implement the data collection in the frame of a fully 'regional dimension'. A major chance to address this issue could be associated with the role of the future regional coordination groups (RCG).

Further, for a successful implementation of a regional approach, there is the need to develop a well-established fishery resources monitoring system and **data quality** assured by standardized tools in order to support data processing and reporting in the context of regional sampling activity.

Another issue raised by the analysis carried out regards the number of data calls that MSs need to respond to and the differing format of such calls. The implementation of a common **regional database** is a useful step to foster the process in this direction.
It is quite evident that the regional cooperation activities are one of the key strengths of the current and future DCF and should be further strengthened in line with the direction taken by the CFP reform. The weaknesses and the threats that have been identified, indicate that, despite some measures in place, the realization of the opportunities and elimination of the threats across the Region have not really happened.

Following the inputs received from the others WPs of the present MARE2014_19Med&BS project, some measures could be already undertaken. In addition, there is a close link between the opportunities identified in the SWOT analysis for each thematic area and the definition of tasks/goals in the Work Packages 2 and 4. Therefore, inputs and suggestions for possible changes/improvements in the future regional coordination activities, as identified through the SWOT analysis, are translated into goals to be reached in the other WPs.

The survey and analysis conducted through the task 1.2 and fully documented in the ***Deliverable 1.2 (Annex 10)*** highlighted the tools that have been already developed in the Med&BS region. However, several gaps have been also discovered. Deliverable 1.2 has highlighted that:

- All Member States in the Mediterranean and Black Sea Region have developed DataBases although there are wide divergences in data storage systems and data transmission across Member States (MS).
- IT systems within and between MS are generally not compatible.
- Documentation of the databases is often incomplete.
- Improving interoperability of databases within and across MS would increase the efficiency of data sharing.
- Ensuring data availability through better interconnection of IT systems would reduce workload and costs for Member States, while offering data users the opportunity to use data in the format, at the timing and at the aggregation level they need.

Furthermore, although MSs apply quality control procedures to the data they collect, the levels of control and methods used vary enormously between MSs that have not implemented formal quality assurance procedures. There are no standards for fisheries data quality reporting shared by supra-national institutions. Further standardization should be achieved and the most efficient software tools implementing commonly agreed validation rules should be shared among Member States and supra-national institutions.

Possible improvements in this field could be achieved through:

- increasing the synergies between MS to improve the efficiencies in data collection and management;
- spreading best practice e.g. sharing IT tools. Sharing tasks that require very specific knowledge, such as statistical programming is also recommended.
- implementing IT developments to enable automation to a large extent of the verification of MS compliance with their obligations to collect and make available DCF data, through automatic comparisons of data provided by MS via the future IT system, with their obligations under their national work plans. This may include automatic checks regarding quality of data, timeliness of data submission and coverage which would greatly simplify and speed up the whole compliance process for all stakeholders involved, as well as improving quality by eliminating any human-errors.
- defining a minimum common standard for data storage systems and file exchange as regards biological data from commercial fisheries (e.g. like MEDITS TA, TB, TC and TE).
- listing of all the quality control procedures already implemented to be shared among countries/institutes in charge of DCF. This could be, together with the common standard of exchange files, a first step towards the harmonization of more complex IT systems.
- improving quality control in the region e.g. through setting minimum standards, or by following standards such as the EU Statistics Code of Practice.

As a matter of facts the best short term scenario should be that points for which there is a common understanding and agreement at regional level (e.g. data format, data quality checks using standardized tools, mitigation of workload from data calls, regional databases, designing sampling plans for commercial fisheries and adopt monitoring scheme for by-catch and ecosystem components, , etc.) are taken into account at the Regional Coordination Meeting of the Mediterranean and Black Sea (RCMMed&BS) and translated into recommendations/elements to be adopted by the Annual Work Plan of each country.

In WP1 the two following Deliverables were accomplished:

D1.1 reported in the ANNEX 9;

D1.2 reported in the ANNEX 10.

1.3. WORK PACKAGE 2 - A REGIONAL SAMPLING PROGRAM FOR 2016 COVERING COMMERCIAL FISHERIES

WP2 proposes to assess methods and procedures, already in place within the different Mediterranean countries, for data collection (e.g. sampling schemes or collection by declarative forms) and data management, in order to design an harmonised end-users oriented **Regional Sampling Programme** for 2016 covering **Commercial Fisheries (RSP-CF).**

WP2 also proposes a framework to adjust the sampling effort across stocks and countries, through an analysis of trade-offs between effort and precision.

WP2 lasted ten months and was divided within 5 tasks.

WP2 - STRUCTURE

Duration	12 months from the project start
Coordination	Tristan Rouyer (IFREMER)
Tasks	**Task 2.1 -** Identifying and agreeing on guidelines and best practice methodologies for sampling, processing, analysing and managing biological data (responsible Giuseppe Scarcella, CNR-ISMAR) **Task 2.2 -** Assessing availability and quality of transversal data (responsible Evelina Sabatella, NISEA). **Task 2.3 -** A methodological framework for sampling optimization, accounting for cost and precision trade-offs (responsible Tristan Rouyer, IFREMER). **Task 2.4 –** Agreeing on reference (or code) lists (responsible Charis Charilaou, DFMR). **Task 2.5 -** Evaluating the cost implications (responsible Athanassios Machias, HCMR).
Partners involved	IFREMER, CIBM, CNR-ISMAR, COISPA, DFMR, HCMR, IEO, IO-BAS, IOF, IRD, NISEA, MABLY, NIMRD
Deliverables	**D.2.1 -** Guidelines and common protocols for sampling, processing, analysing and managing biological data following a best practice approach (Giuseppe Scarcella, ISMAR-CNR) (month 7) **D.2.2** - Identify suitable standards to foster data exchange and dissemination (Maria Teresa Facchini, COISPA) (month 9) **D.2.3** - Handbook of Protocols for sampling hard structures and maturity condition, implementing age validation and maturity parameters for the selected stocks (Pierluigi Carbonara, COISPA) (month 10) **D.2.4** - Report on methodologies used in Med &BS Member States to collect transversal data (assessment, comparison, identification of gaps) (Evelina Sabatella, NISEA) (month 6) **D.2.5** - Scripts with a detailed document ensuring the reproducibility of the methods and the analyses realized with a special focus on the case studies tests. (Tristan Rouyer, IFREMER) (month 9) **D.2.6** - A tentative sampling design for several stocks, shared between several countries (Tristan Rouyer, IFREMER) (month 10) **D.2.7** - Reference lists with standard codes establishing a standardized way for reporting data and enabling regional analysis (Charis Charilaou, DFMR) (month 10) **D.2.8 –** Comparing the designed RSP-CF and the "business as usual" approach in terms of costs/benefits (Athanassios Machias, HCMR) (month 10).

WP 2 - ACTIVITIES CARRIED OUT AND SUMMARY OF THE ACHIEVEMENTS

In task 2.1 (*Identifying and agreeing on guidelines and best practice methodologies for sampling, processing, analysing and managing biological data*) activities were focused on assessing the past situation (ICES and STECF reports) of data collection making an extensive review of the relevant literature in terms of biological (age determination and validation, evaluation of maturity) and transversal data. In addition, questionnaire with 21 questions (see ***Annex 5*** to this report) has been distributed to Med and BS MS in order to receive feedback on relevant issues related to collection of metier/stock related variables and provision of transversal data. Such type of information is useful to better place the new RSP-CF in the context. Furthermore a revision of the information on survival for species listed in Annex III of the MEDREG available from the Mediterranean have been carried out to identify data that can be useful to evaluate survival rate in view of the enforcement of the landing obligation in the Mediterranean and Black Sea.

In task 2.2 – (*Assessing availability and quality of transversal data*) activities started on the second month of the project and were concluded by the end of the sixth month. Such activities were mainly based on the revision of the sources of transversal data in different Mediterranean and Black Sea Member States.
This revision has been carried out through:

- a scrutiny of the NPs and of Annual Reports (ARs). In order to collect all the relevant information in a systematic way a specific format has been developed within the project
- an ad hoc questionnaire sent to national correspondents and other stockholders.

The questionnaire representing the session no. 2 of the general questionnaire for WP2 (see Annex 5) was circulated through the share point of the project and filled in directly on the web platform.

The principles set up by the Eurostat Standard for Quality Reports (EUROSTAT, 2009) have been applied in order to assess the quality of transversal data in the Mediterranean Region. A specific additional questionnaire, based on the above described components, has been also prepared, uploaded on the share point and circulated among National Correspondents.

In the task 2.3 (*A methodological framework for sampling optimization, accounting for cost and precision trade-offs*), following the decision taken in the project and the inputs from DGMARE, COST exercises in task 2.3 were performed on European hake (*Merluccius merluccius*) and red mullet (*Mullus barbatus*) in the GSA7, common sole (*Solea solea*) and European hake in GSA17. Regarding Black sea sprat (*Sprattus sprattus*) has been considered. For this task, data collection was the primary step to achieve, as the amount of data required was large and the format specific to the COST libraries. This was therefore started early so that potential problems linked to data availability could be avoided.

The Spanish data for GSA 7 (European hake and red mullet) were the first collected during a workshop that was held in Mallorca. Data were readily available in the COST format, which allowed to dedicate more time to their integration within algorithms specifically designed for the preliminary runs with this dataset. A first report with detailed R-scripts was thus made available to the project and can be found in ***Annex 6***.

Regarding the second case study, sole and European hake in GSA 17, the data were expected to be approached through the PGMED meeting (Rome, 7th-8th of September). However, neither Croatia nor Italy provided data for the GSA 17 as the data call was not specific enough regarding the requirements for GSA 17 and the list of shared stocks (see the PGMED report of 2015 for more details on the list of shared stocks issue). The data were thus formally requested to Italy and Croatia following the meeting. An intense activity followed in order to revise the data and put in the right format.

Regarding the third case study, a considerable effort was then spent to incorporate also stocks from the Black sea. After several contacts with DGMARE, JRC and the colleagues involved in the Data Collection from

Romania and Bulgaria, data were obtained from Bulgaria and included in the analysis performed under task 2.3 (see ***Deliverable 2.6*** in ***Annex 16*** to this report).

The PGMED held in September 2015 also allowed to present the approach developed within the task 2.3 during the second day of the meeting. The results showed that a very large number of samples were necessary to achieve the CV level requested by the DCF. The results also showed that, as expected, the precision eventually stopped to increase with more samples. Good feedbacks were obtained from the participants and from the Large Pelagics subgroup. The presentation is available in ***Annex 7*** to this report. It has to be noted that the PGMED also allowed for interactions with task 4.3, as algorithms to reformat the PGMED dataset within the COST format and quality indicators were used by participants (examples are also available within the PGMED report).

In the task 2.4 (*Agreeing on reference -or code- lists*) a thorough review has been performed to identify/adopt suitable standards to foster data standardization and data-exchange formats, including code lists, for ensuring a harmonized reporting of data between Member States and allowing a regional analysis of the data exchange and dissemination.

The reviewed sources have included:

- the ICES Cooperative Research Report No. 296 "Definition of Standard Data-Exchange Format for Sampling, Landings, and Effort Data from Commercial Fisheries" (Jansen, 2009)[1];
- the DCF Commission Decision 2010/93/EU;
- the detailed format description of the 2015 RCM Med&BS-LP Data Call (included in 2015 RCM Med&BS-LP report);
- the format of DGMARE Official Data Calls concerning the region (https://datacollection.jrc.ec.europa.eu/data-calls);
- the code lists contained in DGMARE Master Data Register (https://circabc.europa.eu/faces/jsp/extension/wai/navigation/container.jsp);
- relevant RCM Med&BS-LP and PGMed reports;
- the 2013 Medits Handbook (v.7);
- COST Project Final Report and Users'manual.

A summary of the main identified issues of concern regarding the use of codes for reporting data is provided below:

- The regional agreed list of métiers at level 6 is not used under DGMARE Official Data Calls for Med&BS. Instead, separable fields are used for gear, mesh size range and fishery, with different codes.
- Maturity scale: The regional decision has been to use the Medits Maturity Scales, which may differ from the maturity scales that are established for certain species under dedicated ICES maturity workshops. Tables correlating the stages of different maturity scales for certain species have been adopted by the Medits Coordination Group. Such work will need to be updated for incorporating outcomes of future maturity workshops.

[1] Jansen, T. (Ed). 2009. Definition of Standard Data-Exchange Format for Sampling, Landings, and Effort Data from Commercial Fisheries. ICES Cooperative Research Report No. 296. 43 pp.

- Code format for area level 4 – GSA: in SDEF and in 2015 RCM Med&BS Data Call the code format used is GSAnumber, while under the DGMARE Official Data Calls the code format is **SA[space]number and/or GSA[space]number.**
- **Vessel length codes differ between proposed (SDEF) and** DGMARE Official Data Calls.
- Species: ASFIS species list is used as reference by SDEF, DGMARE Official Data Calls and DGMARE Master Data Register, while the WoRMS species reference list is used by the Regional DataBase (RDB) Exchange Format (v. 1, July 2015). For ASFIS reference list, two different species codes are used: the 3-alpha code, used in Master Data Register and DGMARE Official Data Calls, and the scientific name that is used in the SDEF and the 2015 RCM Med&BS-LP Data. ASFIS list does not include all species included in the new EU MAP and/or additionally proposed by the 2015 RCM Med&BS-LP, while some of the scientific names included in ASFIS (latest version) are not considered valid by WoRMS.

The current existence of different formats and codes for reporting DCF data through various Data Calls (RCM Med&BS-LP and DGMARE Data Calls), in parallel with the absence of a regional database, increases the workload of Member States to prepare and provide data according to each data requirement, increases the risk of not complying with each requested coding and threatens the quality of information provided.

In the task 2.5 (*Evaluate the cost implications*) the consequences of optimized biological sampling schemes, in terms of budget requirements, have been evaluated. Both, general and specific evaluations have been carried out based on the case studies examined in **Deliverable 2.6** (***Annex 16***). The approach that has been followed considers the different components of sampling and processing costs and by simulating various scenarios regarding sampling intensity identifies cost differences in relation to the *status quo*. The whole process has been developed under the R language environment and by changing parameter assumptions specific estimates can be obtained for additional case studies.

Looking at overall results **WP2** activity assessed the past situation – i.e. the state of the art- in data collection making an extensive review of the relevant literature in terms of biological and transversal data collection, which usefulness will be found to reach beyond the border of the project. The work package also assessed the present situation from the most involved people within this activity through questionnaires. Finally, **WP2** also prepared the future as it proposed new operational approaches tools to harmonize data collection at the regional scale, but making active use of past project on which these development are built. This WP paves the way for future directions in data collection, harmonized between Member States from the Mediterranean and Black Sea.

The Mediterranean is known to be a complex territory when it comes to fisheries, mainly because it is defined by a constellation of locally-specific small scale fisheries, rather than a few large-scale ones. This high dispersion and diversity of fisheries makes more complex several aspects of the data-collection. Transversal data collection makes no exception to it. The review made in WP2 (see **Deliverable 2.4** in ***Annex 14***) shows that two main types of data collection methodologies are currently applied to estimate transversal data in that context. While sample surveys are preferred when no exhaustive declaration can be used, the declarative approach remains the rules in the other case. This being clear, the quality of data that comes out has to be assessed to ultimately allow providing sound scientific advises. However, it is not clear whether nowadays such an assessment is possible without guidance and identification of standards to be used, an aspect that should be implemented in the new EU Regulation on data collection and of the future Multiannual Program for the period 2017-2020.

As for transversal data, the collection of biological data is not an obvious task, which requires a particularly coordinated effort so that data can ultimately serve for analyses at the regional level. The review encompassing the most updated reports from relevant study groups, planning groups, working groups and workshops (ICES and STECF) (see **Deliverable 2.1** in the ***Annex 11***) allowed to identify key aspects for

biological data collection, which created the basis to propose a best practice approaches for sampling. In particular, the sampling strategies for age and maturity were found to be different between the case studies as there are until now some differences between the national program protocols, which need to be harmonized. The questionnaire distributed to Mediterranean and Black Sea Member States allowed to identify items such as the importance of scientific surveys (e.g. MEDITS) for biological data collection, which can be used as assets to propose harmonized approaches across Member States. For instance, maturity assessment is impaired by a lack of agreed maturity scale and histological validation for the maturity scale currently used. The description maturity stages should be as possible based on objective elements and it is important to promote workshop and exchanges at regional level on this aspect. The Handbook of protocols for sampling hard structures and maturity condition, implementing age validation and maturity parameters for the selected stocks was finalized in the **Deliverable 2.3** (***Annex 13***) represents a support for the implementation of regional and national programs).Regarding survival rates species listed in Annex III of the MEDREG in relationship to the landing obligation in the Mediterranean and Black Sea, the work conducted identified that for many of those species information was lacking from Mediterranean fisheries. This was circumvented by using other fisheries, but it underlined the critical need for more studies focused on Mediterranean fisheries so that this gap could be bridged. According to STECF, a threshold for "high survival" is 50%, but much remains to be done to obtain consistent estimates for this metric, as survival is highly species and gear-specific dependent.

Short and medium term actions have been identified based on the strengthening scientific and methodological cooperation under the umbrella of the Regional Coordination Groups (RCGs) (see **Deliverable 2.1** in ***Annex 11***).

For the future regional coordination, relying upon common tools and approaches will be pivotal. For that leap to be made, a crucial step is to agree upon common data formats and standardized codes. Indeed, among other drawbacks, the current existence of different formats and codes for reporting DCF data from the Mediterranean and Black Sea region, in parallel with the absence of a regional database, increases the workload of Member States to prepare and provide data according to each data requirement, increases the risk of not complying with each requested coding and threatens the quality of information provided. Through the project, critical steps have been taken (see **Deliverable 2.2** and **Deliverable 2.7** in the ***Annexes 12***) and its results show that common sampling tools can be designed to be used by the community, but also showed that provided that sufficient technical support is provided, it could be implemented within a relatively short time frame within coordination bodies such as the RCM Med & BS - LP. As an example, scripts that allowed to re-format national databases allowed to make use of the standardized regional codes proposed by the Standard Data-Exchange Format (SDEF) and in use within the ICES area, during the 2015 RCM Med&BS – LP. This also showed that a viable solution for alleviating the burden of reporting data in different formats and codes could be the automatic remapping of data from the regional standardized way of reporting to other reporting forms. Finally, trying to make full use of this set-up, a common framework was applied to several shared-stock case studies from the Mediterranean and the Black Sea. The tool developed under the R statistical language, proposed a framework for adjusting number of individuals within a suitable trade-off between precision levels expected (e.g. CV) and sampling effort, based on the current sampling procedures used by the different Member States (see **Deliverables 2.5** and **2.6** in the ***Annexes 15*** and ***16*** respectively).

Finally an attempt conducted to evaluate the financial implications from adopting regionalized biological sampling schemes, with special reference to the case studies developed in WP2, has found that total cost are primarily governed by sample prices and labour costs (see **Deliverable 2.8** in the ***Annex 17***). The optimized sampling schemes for the examined case studies are demanding higher number of samples in most cases. Cost increases due to increased sample number will be particularly high in the case of expensive species such as European hake.

Plenty of work remains to be done to achieve the generalization of the use of such tools, but the present project can act as a stepping stone to promote regional databases by showing to the scientists how they can take benefit from it. Short-term effort could probably directed towards providing technical support for Member States so that data can be exchanged within the same format, which the present project proved feasible.

In WP2 the following eight Deliverables were accomplished:

D2.1 reported in the ANNEX 11;

D2.2 and D2.7 reported in the ANNEX 12;

D2.3 reported in the ANNEX 13;

D2.4 reported in the ANNEX 14;

D2.5 reported in the ANNEX 15;

D2.6 reported in the ANNEX 16;

D2.8 reported in the ANNEX 17.

1.4. WORK PACKAGE 3 - REGIONAL SAMPLING PROGRAM FOR THE COLLECTION OF DATA ON FISHERIES IMPACTS ON THE ECOSYSTEM

The general objective of the Work Package 3 is to design a Regional Sampling Program of Data Collection on Fisheries Impacts on the Ecosystem (RSP-DCFIE) for 2016. This because for the future EU Multiannual Programs the following aspects should be considered:

- to increase the knowledge on predator-prey relations, which are required for multi-species stock assessments.
- the increase the knowledge on by-catch, especially that of non -target species, such as protected, endangered or threatened species.
- to increase, in general, the knowledge useful to assess the ecosystem impact due to fishing activity.

WP3 - STRUCTURE

Duration	13 months from the project start
Coordination	Paolo Sartor (CIBM)
Tasks	**Task 3.1**. Identifying, in consultation with the relevant end users in the region, the exact data to be collected (responsible Violin Raykov, IO-BAS). **Task 3.2**. Developing methodologies for the collection of these new data (Responsible Beatriz Guijarro, IEO) **Task 3.3**. Allocating tasks to Member States for the collection and analysis of these data (Responsible Alessandro Ligas, CIBM)
Partners involved	CIBM, CNR-ISMAR, COISPA, IEO, IO-BAS, IOF
Deliverables	**D.3.1** - Report on the characteristics of the fisheries and stocks selected for data collection on fisheries impacts on the ecosystem in 2016 (Violin Rajkov, IO-BAS) (month 4) **D.3.2** - Handbook with guidelines for monitoring incidental by catch and processing the collected data (Beatriz Guijarro, IEO) (month 9) **D.3.3.** - Protocols and guidelines for sampling, processing and analysing the stomach contents (Beatriz Guijarro, IEO). (month 9) **D.3.4.** - Guidelines for the computation of new ecosystem indicators from the DCF data (Beatriz Guijarro, IEO). (month 10) **D.3.5** - Programme of Task allocation among MS about Regional Sampling Programme of Data Collection on Fisheries Impacts on the Ecosystem (RSP-DCFIE) (Alessandro Ligas, CIBM). (month 11).

WP 3 - ACTIVITIES CARRIED OUT AND SUMMARY OF THE ACHIEVEMENTS

The activities of Task 3.1 (*Identifying, in consultation with the relevant end users in the region, the exact data to be collected)* were based on the critical revision of documents produced by primary End Users, such as STECF, ICES, GFCM, BSC and other RFMOs. A review of the available understandings on the main demersal and small pelagic fisheries and stocks in Mediterranean and Black sea was carried out gathering a detailed picture on the current information on fishing capacity and fishing effort, landings, discards and by-catch, as well on the understandings on the impact of fishing activities on the ecosystem. The selection of

stocks and fisheries for implementing case studies was also supported by advices requested to primary End Users, as STECF and GFCM and also the MEDAC.

An ad-hoc designed request of advice/questionnaire was prepared and distributed in the first months of the project to these End Users. The request was formulated following a set of candidate stocks and fisheries, selected taking into account the overall knowledge on Mediterranean and Black Sea

Finally the stocks proposed for the sampling program on stomach contents are European hake (*M. merluccius*) in north-western Mediterranean (GSAs 6, 7 and GSA9) and turbot (*P. maxima*) in the Black Sea (GSA 29). Both stocks show widespread distribution and great importance for demersal fisheries; both species are active predators with ontogenic changes in the food spectrum; both stocks suffer a "chronic" overexploitation.

The fisheries proposed for the sampling program of the PET species by-catch are the bottom trawling for demersal species (OTB_DES) in the Mediterranean GSAs 17 and 18 and the gillnet for turbot in the Black Sea (GSA 29). Both fisheries have high importance in terms of fishing effort, volume and value of landings and by catch (e.g. Elasmobranchs, sea turtles in Mediterranean, cetaceans in Black Sea) (see **Deliverable 3.1** in the ***Annex 19***).

The selected stocks and fisheries for the RSP-DCFIE have been thus the subject of the activities of the **task 3.2** (*Developing methodologies for the collection of these new data*) devoted to elaborate appropriate tools and methodologies regarding the sampling of the incidental by catch and the collection and analysis of fish feeding ecology.

As concerns the monitoring of by catch of PET species, a critical review of the available knowledge on fishery impacts on protected, endangered and threatened species in Mediterranean and Black Sea was carried out; a discussion about *pros* and *cons* of the different methodologies of monitoring of incidental catches was done as well. Finally, a proposal of a sampling Program was elaborated. Incidental bycatches shall be recorded according to standard data collection procedures by experienced on-board fishery observers. It has been proposed to couple this approach with log-book data collection, utilizing also the sampling onboard during routine monitoring of DCF.

A total of 480 days/year will be covered by fleet observers in the Adriatic Sea: 160 days in GSA 18, 320 days in GSA 17. This allocation should allow covering around 0.5% of fishing days carried out by OTB_DES fleets in the Adriatic Sea. A total of 80 days at sea shall be carried out by fleet observers in Black Sea (GSA 29).

Regarding the log-book monitoring Program, 30 vessels will be randomly selected for carrying out the information recording on PET species bycatch in GSA 18 (southern Adriatic), and 60 vessels in GSA 17; 20 vessels will be randomly selected in GSA 29 (Black Sea). Additional information will be provided by means of the discard samplings already carried out under the DCF.

A raising procedure of the sampled data was proposed following the ratio estimate approach.

A handbook with species identification guidelines has been provided together with data sheets and log-books in order to help fleet observers and fishermen in accurately identifying the species caught and correctly filling in the information. At the same time, a training on species identification and completion of data sheets and log-books will be implemented to both the observers and the fishermen involved in the monitoring Programs (see **Deliverable D.3.2**. in the ***Annex 19***).

As regards the collection and analysis of feeding data for the two selected stocks, that of European hake in GSAs 6, 7 and 9 and that of turbot in GSA 29, a sampling design has been implemented, taking into account all the factors for a suitable stratification. Two possible sources of data shall be considered in the collection of stomach contents of the two stocks:

- scientific bottom trawl surveys (like MEDITS in the Mediterranean) and
- commercial fishery monitoring (under DCF).

The sampling Program has been planned taking into account the following criteria (strata), which are known to influence the diet of the two investigated species: **size class** and **season**, the latter will be only taken into account in the commercial fishery sampling.

Sample size. The following proposed numbers to sample correspond to full stomachs.

European hake (GSAs 6, 7, 9). *Commercial fishery*: 50 full stomachs by quarter and length group, by GSA. *Experimental trawl surveys*: 30 full stomachs by length group, by GSA.

Turbot (GSA 29). *Commercial fishery*: 50 full stomachs by quarter and length group. *Surveys*: 90 full stomachs by length group.

Among the different methods for analyzing fish stomach contents reviewed, the **volumetric method** was proposed. Guidelines on sampling methodologies, including collection of samples, removal of the stomach contents, identification of the prey items and treatment of the data collected have been provided.

The sampling design for feeding data collection is presented in detail in the **Deliverable D.3.3** (***Annex 20***).

Another activity of task 3.2 consisted in the proposal of additional ecosystem indicators, which could be useful to improve the assessment of the ecosystem impact due to fishing. After a critical review of the current understandings on ecosystem indicators, the following indicators have been proposed, to integrate the battery of indicators already in use in DCF.

- **Typical Length (TyL)** (geometric mean length of fish, weighted by body mass);
- **Mean Trophic Level**;
- **Kempton's Q_{75} index** – Biomass diversity index;
- **N_{90} index.**

The critical revision on the available information on ecosystem indicators, as well as the description of the characteristics of the new indicators are provided in the **Deliverable D.3.4** (see the ***Annex 21***).

The **task 3.3.** (*Allocating tasks to Member States for the collection and analysis of these data*) was targeted to allocate tasks to Member States for the collection and analysis of the new data, taking into account the fisheries and stocks selected in Task 3.1 and the methodologies for the collection of the new data proposed in Task 3.2. This proposal takes also into consideration the issues emerged during the discussion with the National Correspondents and stakeholders taken during the Workshop of Rome (April 19-20th 2016).

As regards by catch monitoring of PET species, tasks have been proportionally allocated by number of vessels and amounts of landings of the main demersal species by each Member State (from DCF data 2014), while for stomach contents the task allocation to Member States was split equally by GSA. The work carried out under the task 3.3 is summarized in the **Deliverable D.3.5** (see the ***Annex 22***).

In WP3 the following five Deliverables were accomplished:

D3.1 reported in the ANNEX 18;

D3.2 reported in the ANNEX 19;

D3.3 reported in the ANNEX 20;

D3.4 reported in the ANNEX 21;

D3.5 reported in the ANNEX 22.

1.5 . WORK PACKAGE 4 - PROCEDURES TO ASSESS THE QUALITY OF FISHERIES AND BIOLOGICAL DATA AT REGIONAL LEVEL

WP4 aims at identifying possible bottlenecks in the current approach of checking data and to classifying the checks to be carried out both at national and regional level for improving the data quality. The final objective is to develop a practical framework for detecting and flagging potential sources of bias in biological data at regional level.

WP4 - STRUCTURE

Duration	9 months (months 4-12)
Coordination	George Tserpes (HCMR)
Tasks	**Task 4.1.** Preparing a compilation of national quality checks (Responsible George Tserpes, HCMR). **Task 4.2.** Preparing a compilation of regional quality checks (Responsible Stelios Somarakis, HCMR) **Task 4.3**. Implementing quality indicators (Responsible Norbert Billet, IRD)
Partners involved	HCMR, CIBM, CNR-ISMAR, COISPA, IFREMER, IOF, IRD
Deliverables	**D.4.1.** Guidelines for data quality checks at national and regional levels with calendar of data quality checks (responsible: George Tserpes, HCMR) (month 10) **D.4.2** Quality Assurance (QA) with scorecard summarizing the temporal development of the sampling scheme, its relevance and R-scripts using COST tools (responsible: Norbert Billet, IRD) (month 10)

WP 4 - ACTIVITIES CARRIED OUT AND SUMMARY OF THE ACHIEVEMENTS

The activities of **WP4** has been carried out in close collaboration with the "FishPi" project. The quality checks functions have been developed and made available on the git hub website (https://github.com/ldbk/fishPifct).

The activities carried out in the **task 4.1** were aimed at identify the requirements of data quality checks procedures, review the work that has been done so far on this aspect, and define existing bottlenecks and future needs (see **Deliverable D4.1**, ***Annex 23***). Relevant scientific reports from regional coordination meetings and ICES working groups including suggestions about the needs of quality checks have been reviewed and their advice has been taken into consideration. Based on the above, the necessary data quality procedures have been identified and have been grouped under four pillars in relation to the various stages of a sampling scheme:

1. verification of the data structure;
2. verification of sampling protocol implementation;
3. verification of the data base population protocol;
4. advanced data checks.

In addition, it has been suggested a specific time-frame for the accomplishment of national and regional quality checks at the Mediterranean and Black Sea level. The expansion/modification of the existing "COST" tool has been suggested as the best procedure to achieve the above targets.

The new functions for data quality checks have been developed under the R language environment. A library under the R language environment has been compiled (csPiCore_0.1.zip) and will soon be available on a public website. These functions and the library are to be considered as the first version of a library meant to improve as time goes on.

In **task 4.2** the activity has also been focused on the quality assurance of data in conjunction with the fishPi MARE 2014/19 corresponding work package, to produce a tool focused on evaluating the conformity of a dataset against a required data format (see **Deliverable D4.2**, ***Annex 24***). The examined dataset has been checked in terms of data structures, validity of data domains and consistency, if some linkage between data structures are expected. The developed tool allows easy of use for data producers by a precise identification of and flexibility for data collectors which can define finely the expected format. Using it, both sides can ensure a certain level of conformance on exchanged data.

In WP4 the following two Deliverables were accomplished:

D4.1 reported in the ANNEX 23;

D4.2 reported in the ANNEX 24.

1.6. WORK PACKAGE 5 - INPUTS FROM A REGIONAL CONSULTATION

WP5 aims at collecting inputs from a regional consultation from all Members States (MSs) in the Mediterranean and Black Sea, as well as from end-users and stakeholders, such as GFCM, STECF and MEDAC. This communication was planned to be kept alive since the beginning of the project activities.

WP5 - STRUCTURE

Duration	14 months from the start of the project
Coordination	Giuseppe Lembo (COISPA)
Tasks	
Partners involved	all partners: COISPA, CIBM, CNR-ISMAR, CNR-IAMC, DFMR, HCMR, IFREMER, IO-BAS, IOF, MABLY, MSDEC-DFA, NIMRD, NISEA
Deliverables	**D.5.1.** Report on the overview from a regional consultation (responsible Giuseppe Lembo) (month 13)

WP 5 - ACTIVITIES CARRIED OUT AND SUMMARY OF THE ACHIEVEMENTS

With the purpose of collecting inputs from a regional consultation, a stakeholder web Share-Point has been designed and implemented to be populated with the participation of DCF National Correspondents, end-users, stakeholders and experts from the Mediterranean and Black Sea. In particular, experts from the following Institutions/Groups have been invited and granted of a personal access code to the Share-Point: PGMed, RCM, STECF, JRC, GFCM, GFCM-SCSA, GFCM-WGSCSA, GFCM-WGBS, FAO regional projects, MEDAC (the list of the experts invited is included in Annex 8).

The communication has been kept alive through the Share-Point, which was continuously updated with the project documents (e.g. presentations, communications, deliverables, questionnaires, etc.). This platform is conceived to assist the feedback process on the project outputs developed in WP1-4.

Similar web Share-Point has been designed and implemented to assist the work and interactions of project partners.

Furthermore, a specific web platform (LimeSurvey) has been designed and implemented to launch web surveys on issues related to the WP1-4. The access to such platform is allowed by a personal code. LimeSurvey is an open-source, free software application, which allows users to quickly create intuitive, powerful, online question-and-answer surveys that can work for tens to thousands of participants. The survey software itself is self-guiding for the respondents who are participating to the consultations.

Four questionnaires were launched through LimeSurvey:

Task 1.2 – Questionnaire. Analysis of developed tools;

Task 2.1 – Questionnaire for the national correspondents on metier/stock related variables;

Task 2.2 – Questionnaire for the national correspondents on availability and quality of transversal data;

Task 3.1 – A) As concerns stocks/species for the sampling program on stomach contents; B) As concerns the fisheries for the sampling program aimed at increasing the collection of data on by-catch of non-target species.

The foreseen Workshop of 2 days duration has been held in Rome, at month 13, on April 19th -20th.

This workshop has been organized to discuss with MSs, end-users and stakeholders the outputs of the project WPs. An invitation letter has been circulated to the list of National Correspondents and stakeholders first setting a doodle and then the final date of the Workshop. The material related to the overviews of the different WPs and of the project as well was made available well in advance before the workshop. Likewise short power points presentations were shared on the stakeholder platform. All the material made available can be consulted on the stakeholder platform (http://mare19stakeholder.coispa.eu/).

During the Workshop the different issues related to a Regional Sampling Program covering the data collection on commercial fisheries, the fisheries impacts on the ecosystem and the procedures for the quality assessment of the biological data at regional level were discussed with MSs, end-users and stakeholders.

Specifically, the following presentations were discussed:

- WP1 - An analysis of the main coordination activities and tools developed so far in the region, in the context of the existing RCM.
  - SWOT analysis results: P. Carpentieri (Nisea)
  - Available tools: Evelina Sabatella (Nisea)
- WP2 - A regional sampling program covering commercial fisheries.
  - Methods for collection of transversal data: Evelina Sabatella (NISEA)
  - Sampling and analysing biological traits: Pierluigi Carbonara (COISPA)
  - Guidelines and best practices for sampling, analyzing and managing biological data: Giuseppe Scarcella (ISMAR-CNR)
  - Standardize, exchange, disseminate data: Charis Charilaou (DFMR) and Maria Teresa Facchini (COISPA)
  - A methodological framework for sampling optimization: Giuseppe Scarcella (ISMAR-CNR)
  - Comparing design in term of costs-benefits: George Tserpes (HCMR)
- WP3 - Regional Sampling program for the collection of data on fisheries impacts on the ecosystem.
  - Define targets: Violin Raykov (IO-BAS)
  - Monitoring incidental by catch and processing collected data: Beatriz Guijarro (IEO)
  - Guidelines for sampling, processing and analyzing the stomach contents: Beatriz Guijarro (IEO)
  - New ecosystem indicators from the DCF data: Beatriz Guijarro (IEO)
  - Task allocation: Alessandro Ligas (CIBM)
- WP4 - Procedures to assess the quality of fisheries and biological data at regional level.
  - Guidelines for data quality checks at national and regional levels: George Tserpes (HCMR)
  - Quality assurance and COST tools: George Tserpes (HCMR).

The participants to the workshop expressed their appreciation for the impressive work carried out. The participation was very proactive and several inputs/feedbacks were recorded.

There was a general agreement, among participants, on the following main outputs of the workshop:

x) It is extremely important to present the results of the project to the next Med & Black Sea RCM to be held in September.

xi) It is necessary to increase the technical cooperation in the GFCM area in order to avoid unnecessary duplication and overlap.

xii) On the basis of the current project results, common formats and procedures should be agreed at the next RCM.

xiii) NCs expressed their concern for the huge amount of data requests from end-user. To this purpose, common formats and procedures could mitigate the impact of such amount of data requests.
xiv) NCs expressed their concern for the very compressed time available for the preparation of the National Work Programs due in October.
xv) The sampling optimization is a crucial issue in order to avoid work overload for each Country. In general, the feasibility of each increment of the sampling effort will have to be verified in the field and developed over time.
xvi) In consideration of the overall commitment for the whole data collection program, it is not conceivable a commitment too onerous, in terms of sampling effort, for the by catch and stomach samplings.
xvii) It is recommended to revise, as soon as new information are available, the sampling design for bycatch and stomach analyses, also taking into account the economic sustainability.
xviii) Bycatch and stomach sampling programs should be considered as pilot programs.

The participants to the workshop were the following:

National Correspondents: Mrs Simona Vasileva Nicheva, Mr Kolyo Zhelev, Bulgaria; Mrs Ivana Vukov, Croatia; Mrs Evelina Carmen Sabatella, Italy; Mrs Roberta Mifsud, Malta; Mr Constantin Stroie, Romania; Mr Jernej Švab, Slovenia; Mrs Maria Moset, Spain.

GFCM: Mr Federico De Rossi, Data compliance officer.

GFCM-WGBS: Mr Violin Raykov, Working Group on the Black Sea.

FAO ADRIAMED/MEDSUDMED: Mr Enrico Arneri, Mrs Nicoletta Milone, Mr Luca Ceriola.

Ministry of Agriculture Italy: Mr Mauro Bertelletti.

Project Partners: Mrs Maria Teresa Spedicato, Mr Giuseppe Lembo, Mr Pierluigi Carbonara, Mrs Maria Teresa Facchini, COISPA, Italy; Mr. Paolo Carpentieri, NISEA, Italy; Mr Giuseppe Scarcella, ISMAR-CNR, Italy; Mr Bernardo Patti IAMC-CNR, Italy; Mrs Charis Charilaou, DFMR; Cyprus; Mr Paolo Sartor, Mr Alessandro Ligas, CIBM, Italy; Mrs Beatriz Guijarro, Mrs Maria Gonzales, Spain; IEO, Mrs. Bianca Maria Mazzocchi, Mably, Italy; Mr George Tserpes, HCMR, Greece; Mrs Marie Louise Pace, DFA-MSDEC, Malta; Mr Igor Isailovic, IOF, Croatia.

In WP5 the following Deliverable was accomplished:

D.5.1 is reported in the ANNEX 25.

2. DEVIATION TO THE WORKPLAN

There were no major deviations from the project workplan.

The needing of an extension of possibly two months emerged during the discussion held at the project intermediate meeting, in Brussels on 21st October, and successively during the plenary project meeting, held in Bari on December 9-10th 2015.

This request was motivated by the timing of the delivery of project outputs and the organization of the project Workshop with the relevant End-Users and Stakeholders. Such Workshop was originally foreseen by February 2016, just after the completion of most project Deliverables, which was foreseen by the end of January and February. Part of these deliverables required some extra time, as they are linked each other and some were not yet completely finalised in time with the own deadline. In addition, the implementation of the quality indicators, planned in the Work Package 4 of the project, was foreseen to progress in close collaboration with the North Sea and Eastern Arctic grant (FishPi project), that also needed extra time, as discussed during the project intermediate meeting at DGMARE premises.

Ideally, it was considered useful to hold the Workshop with the relevant End-Users and Stakeholders after leaving them a reasonable time to analyse the project outputs, that would be compatible with a planning of the Workshop by the end of April, leaving afterwards the time to the project team for the completion of the Draft Final Report by the first days of June.

The extension of the project allowed a smooth organization of the Workshop that was held in Rome on April 19-20 making available to the stakeholders a full documentation of the project (http://mare19stakeholder.coispa.eu/)

There was during the project the needing of replacing two researchers, task responsible, who were temporarily in the position of not ensuring their collaboration: Isabella Bitetto and Alessandro Mannini, who were respectively replaced by other two researchers: Maria Teresa Facchini, who took the responsibility of the Deliverable 2.2, and Alessandro Ligas who took the responsibility of task 3.3 and deliverable 3.5. George Tserpes took the responsibility of deliverable 2.8, replacing Athanassios Machias.

Annexes are embedded in the .pdf and .docx Final Report

ANNEXES FROM 1 TO 8 MEETING REPORTS AND OTHER SUBJECTS RELATED TO THE WP ACTIVITIES

ANNEX 1 REPORT OF THE KICK-OFF MEETING HELD ON APRIL 20, 2015 WITH DGMARE AND THE FISHPI PROJECT IN BRUSSELS

ANNEX 2 REPORT OF THE INTERNAL MEETING OF THE PROJECT HELD ON APRIL 21, 2015 IN BRUSSELS

ANNEX 3 REPORT OF THE MIDTERM MEETING WITH DGMARE AND THE FISHPI PROJECT IN BRUSSELS HELD ON OCTOBER 21, 2015 IN BRUSSELS

ANNEX 4 REPORT OF THE MIDTERM INTERNAL MEETING OF THE PROJECT HELD ON 9-10 DECEMBER 2015 IN BARI (ITALY)

ANNEX 5 QUESTIONNAIRES DISTRIBUTED UNDER THE ACTIVITIES OF TASKS 2.1 AND 2.2

ANNEX 6 MEETING REPORT OF THE WORKSHOP FOR THE TASK 2.3 (WP2) – JUNE 29-JULY 2 MAIORCA (SPAIN)

ANNEX 7 PRESENTATION TO PGMED 2015, ROME – DEVELOPING METHODS FOR OPTIMIZING SAMPLING SIZE IN THE MEDITERRANEAN

ANNEX 8 LIST OF END-USERS, STAKEHOLDERS AND EXPERTS FROM THE MEDITERRANEAN AND BLACK SEA. INVITED AND GRANTED OF A PERSONAL ACCESS CODE TO THE PROJECT SHARE-POINT

ANNEXES FROM 9-TO 26 - PROJECT DELIVERABLES

ANNEX 9 DELIVERABLE 1.1 - REPORT OF THE SWOT ANALYSIS OF THE CURRENT SITUATION RELATED TO THE MAIN COORDINATION ACTIVITIES

ANNEX 10 DELIVERABLE 1.2 - ANALYSIS OF THE CURRENT TOOLS/MODELS, EVALUATION OF THEIR CHARACTERISTICS, APPLICABILITY AND FUNCTIONALITY IN THE REGION

ANNEX 11 DELIVERABLE.2.1 - IDENTIFYING AND AGREEING ON GUIDELINES AND BEST PRACTICE METHODOLOGIES FOR SAMPLING, PROCESSING, ANALYSING AND MANAGING BIOLOGICAL DATA

ANNEX 12 DELIVERABLE.2.2 - IDENTIFY SUITABLE STANDARDS TO FOSTER DATA EXCHANGE AND DISSEMINATIONAND DELIVERABLE.2.7 - REFERENCE LISTS WITH STANDARD CODES ESTABLISHING A STANDARDIZED WAY FOR REPORTING DATA AND ENABLING REGIONAL ANALYSIS

ANNEX 13 DELIVERABLE.2.3 - HANDBOOK OF PROTOCOLS FOR SAMPLING HARD STRUCTURES AND MATURITY CONDITION, IMPLEMENTING AGE VALIDATION AND MATURITY PARAMETERS FOR THE SELECTED STOCKS

ANNEX 14 DELIVERABLE.2.4 REPORT ON METHODOLOGIES USED IN MED &BS MEMBER STATES TO COLLECT TRANSVERSAL DATA (ASSESSMENT, COMPARISON, IDENTIFICATION OF GAPS)

ANNEX 15 DELIVERABLE.2.5 - SCRIPTS WITH A DETAILED DOCUMENT ENSURING THE REPRODUCIBILITY OF THE METHODS AND THE ANALYSES REALIZED WITH A SPECIAL FOCUS ON THE CASE STUDIES TESTS

ANNEX 16 DELIVERABLE.2.6 - A TENTATIVE SAMPLING DESIGN FOR SEVERAL STOCKS, SHARED BETWEEN SEVERAL COUNTRIES

ANNEX 17 DELIVERABLE.2.8 - COMPARING THE NEW AND THE 'BUSINESS AS USUAL APPROACH IN TERMS OF COSTS/BENEFITS

ANNEX 18 DELIVERABLE.3.1 REPORT ON THE CHARACTERISTICS OF THE FISHERIES AND STOCKS SELECTED FOR DATA COLLECTION ON FISHERIES IMPACTS ON THE ECOSYSTEM IN 2016

ANNEX 19 DELIVERABLE.3.2 - HANDBOOK WITH GUIDELINES FOR MONITORING INCIDENTAL BY CATCH AND PROCESSING THE COLLECTED DATA

ANNEX 20 DELIVERABLE.3.3 - PROTOCOLS AND GUIDELINES FOR SAMPLING, PROCESSING AND ANALYSING THE STOMACH CONTENTS

ANNEX 21 DELIVERABLE.3.4 - GUIDELINES FOR THE COMPUTATION OF NEW ECOSYSTEM INDICATORS FROM THE DCF DATA

ANNEX 22 DELIVERABLE.3.5 PROGRAMME OF TASK ALLOCATION AMONG MS ABOUT REGIONAL SAMPLING PROGRAMME OF DATA COLLECTION ON FISHERIES IMPACTS ON THE ECOSYSTEM (RSP-DCFIE)

ANNEX 23 DELIVERABLE.4.1 TIME-FRAME & GUIDELINES FOR DATA QUALITY CHECKS AT NATIONAL AND REGIONAL LEVELS

ANNEX 24 DELIVERABLE.4.2 - TOOLS FOR DATA FORMAT CONFORMITY CHECKS

ANNEX 25 DELIVERABLE.5.1 - REPORT ON THE OVERVIEW FROM A REGIONAL CONSULTATION

ANNEX 26 DELIVERABLE.D.0.3 - A MULTIANNUAL REGIONAL WORK PROGRAMME (MRWP)