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PRE-ASSESSMENT BLUFISH PROJECT

Southern and Central Tyrrhenian Sea (GSA 10) European anchovy purse seine fishery

MARINE STEWARDSHIP COUNCIL

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Applicable contract(s) governing the provision of this Report:

Objective:

Preassessmen of the Southern and Central Tyrrhenian Sea (GSA 10) European anchovy purse seine fishery, against MSC Fisheries Standards v2.01.

Prepared by:	Verified by:
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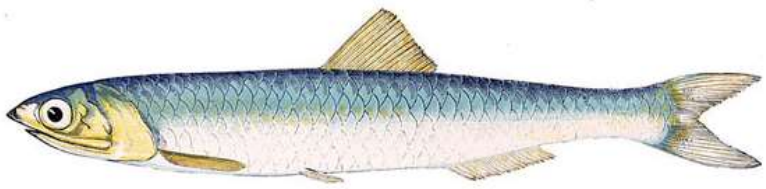
Southern and Central Tyrrhenian Sea (GSA 10) European anchovy purse seine fishery



Pre-Assessment Report

Conformity Assessment Body (CAB)	DNV GL Business Assurance Italia S.r.l.
Fishery client	Marine Stewardship Council
Assessment Type	Pre-assessment

Pre-Assessment Report

April 2020

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1 Introduction

The purpose of this pre-assessment is to assess whether the fishery would meet version 2.01 MSC Certification Requirements.

This report is a pre-assessment which provides details of the MSC assessment process for the purse seine fishery targeting European anchovy in Southern and Central Tyrrhenian Sea (GSA 10). The process begins with the draft of the pre-assessment on 6th May 2019 and was concluded in 15th July 2019. The process begins with the draft of the pre-assessment on 6th May 2019 and was concluded in 5th March 2020, after an internal and external reviews. The report used was drafted using the 'MSC Pre-Assessment Reporting Template v3.1'.

Please note this report does not represent a final scoring outcome or a certification decision.

The scoring presented in this report has not been reviewed by stakeholders, peer reviewers or the client – these steps will all take place from here onwards in the case the client will decide to start a full assessment.

Stakeholders are encouraged to review the scoring presented in this pre-assessment and use the Stakeholder Input Form to provide evidence to the team of where changes to scoring are necessary. DNV GL accepted stakeholder submissions on the pre-assessment from 15th February 2020 for a period of 60 days. The 15th of April the final version of the pre-assessment report was finalized taking into account stakeholder comments (mainly from MSC).

The assessment team for this fishery assessment comprised of Giuseppe Scarcella, who acted as team leader and primary Principle 3 specialist; Alessandro Ligas, who was primarily responsible for evaluation of Principle 1 and Antonello Sala, who was primarily responsible for evaluation of Principle 2. Giuseppe Scarcella was also the traceability expert advisors.

2 Glossary

AIS Automatic identification system
CA Consequence Analysis (RBF)
CFP Common Fisheries Policy
CPU Catch per Unit of Effort
CSA Consequence Spatial Analysis (RBF)
EEZ Exclusive Economic Zone
EFCA European Fisheries Control Agency
ETP Endangered, threatened and protected species
EU European Union
FCR Fisheries Certification Requirements
GES Good Environmental Status
GFCM General Fisheries Commission for the Mediterranean
GSA Geographical Sub-Area
LTL Low Trophic Level
MCRS Minimum Conservation Reference Size
MEDAC Mediterranean Advisory Council
MIPAAF Italian Ministry of Agriculture and Forestry
MLS Minimum Landing Size
MSC Marine Stewardship Council
PI Performance indicator
PISG Performance Indicator Scoring Guidepost
PRI Point of Recruitment Impairment
PSA Productivity-Susceptibility Analysis (RBF)
RBF Risk-Based Framework
SG Scoring Guidepost
SI Scoring Issue
SIC Sites of Important Communities
SPZ Special Protection Zone
STECF Scientific, Technical and Economic Committee for Fisheries
TAC Total allowable catch
UoA Unit of Assessment
VME Vulnerable marine ecosystems

3 Executive summary

Client strengths

European anchovy stock is exploited only by Italy and it is in a good status.

There is a well-established data collection system providing feedback to the decision-making process.

The fishery largely takes place in the Italian waters (inside 12 nm), where the Italian Coast Guard carries out monitoring and inspections. The Italian enforcement system is generally considered to be very effective.

Client weaknesses

The harvest strategy has not limited exploitation effectively, taking into account that catches have been higher than the sustainable levels.

Review of alternative measures to minimize mortality of ETP species are not completely in place. Also UoA specific info on ETP species are lacking.

The Management plan specific for the fishery is still not well structured and updated.

Determination

On completion of the initial review of information and scoring, the assessment team conclude that one PI is likely to score below 60 in Principle 1 and 2.

All team members listed below have completed all requisite training and signed all relevant forms for assessment team membership on this fishery.

Assessment team leader: Dr Giuseppe Scarcella
Primarily responsible for assessment under Principle 3

Giuseppe Scarcella is an experienced fishery scientist and population analyst and modeller, with wide knowledge and experience in the assessment of demersal stocks. He holds a first degree in Marine Biology and Oceanography (110/110) from the Università Politecnica delle Marche, and a PhD in Marine Ecology and Biology from the same university, based on a thesis 'Age and growth of two rockfish in the Adriatic Sea'. After his degree he was offered a job as project scientist in several research programs about the structure and composition of fish assemblage in artificial reefs, off-shore platform and other artificial habitats in the Italian Research Council – Institute of Marine Science of Ancona (CNR-ISMAR). During the years of employment at CNR-ISMAR he has gained experience in benthic ecology, statistical analyses of fish assemblage evolution in artificial habitats, fisheries ecology and impacts of fishing activities, stock assessment, otholith analysis, population dynamic and fisheries management. During the same years he attended courses of uni-multivariate statistics and stock assessment. He is also actively participating in the scientific advice process of FAO GFCM in the Mediterranean Sea. At the moment, he is member of the Scientific, Technical and Economic Committee for Fisheries for the European Commission (STECF). Dr Scarcella is author and co-author of more than 30 scientific paper peer reviewed journals and more than 150 national and international technical reports, most of them focused on the evolution of fish assemblages in artificial habitats and stock assessment of demersal species. For some years now, he has been working in fisheries certification applying the Marine Stewardship Council standard for sustainable fisheries, currently concentrating on Principle 1 of the Standard. Furthermore, Dr Scarcella holds the credential as Fishery team leader (MSC v2.0). Giuseppe has passed MSC training and has no Conflict of Interest in relation to this fishery. Full CV available on request.

Expert team member: Dr Alessandro Ligas
Primarily responsible for assessment under Principle 1

Alessandro Ligas holds a Master Degree in Biological Sciences and a PhD in Marine Ecology (University of Pisa, Italy). He has 15 years of experience in fisheries science and international and national projects. Since 2002, he is involved in the activities carried out under the EU DCF. His research focuses on the biology and population dynamics of marine fish and shellfish stocks to provide scientific advice on stocks and fisheries of commercial and ecological importance. From 2012 to 2014, he has worked as project leader (Senior Scientific Officer) at the Agri-Food and Biosciences Institute (AFBI), Belfast, UK, responsible for the design and implementation of appropriate data collection programmes in support of the assessment and management of fisheries in the Irish Sea. Currently, he holds the position of researcher at CIBM. He is the chairman of the GFCM Working Group on Stock Assessment of Demersal species (WGSAD) in the Mediterranean Sea and has a decadal experience in participating to ICES and STECF expert working groups. His

experience has allowed him to acquire thorough knowledge in the fisheries sector in both the Mediterranean and north-eastern Atlantic waters, and familiarity with European fishery legislation (e.g. CFP, MSFD).

Expert team member: Dr Antonello Sala
Primarily responsible for assessment under Principle 2

Antonello Sala is scientific researcher at the Fishing Technology Unit at the National Research Council (CNR) in Ancona, Italy. Expert in efficiency and selectivity research; fishing gear technology and fuel saving; measurements of the engineering performance of the fishing gears at sea using underwater instrumentation; fishing gear design; netting material properties; modelling and performance; physical and biological impacts produced in the marine environment by human activities. He is responsible of the Fishing Technology Unit and has over 24 years of experience of studying the wider ecosystem effects of fishing on the marine environment. Since 2010 he is member of the European "Scientific, Technical and Economic Committee for Fisheries (STECF)". Since 2014 he has been contracted by the European Fisheries Control Agency (EFCA) as external expert for the "Assistance with the development of a methodology for the statistical and technical analysis of fisheries data". His research interests are fishing gear technology and fuel saving, measurements of the engineering performance of the fishing gears at sea using underwater instrumentation and fishing gear design. Dr. Sala has been responsible scientist in several EU and national research projects and has worked numerous times as a scientific consultant and served on several national and international evaluation committees. He has published over 70 peer reviewed scientific papers and is on the editorial board of various scientific journals.

Using data collected during the previous stage of Bluefish project Italy, the selected fishery has been pre-assessed with regards to the MSC Standards by the independent certification bodies. The objective is to identify the area where improvements are needed to achieve the MSC sustainability level. During a MSC pre-assessment, certifiers and local experts evaluate, at a provisional level, a fishery's performance against the MSC fisheries standard. This allows any potential issues in a fishery's performance to be identified and enables potential fishery clients to improve and prepare accordingly for a full assessment.

In the present pre-assessment the team used recent, publicly available information on stock status, bycatch species, and management to describe and evaluate potential MSC scoring ranges for the fishery. Main strengths and weakness of the of the fishery are summarized below. The weakness will need to be considered in Fishery Improvement Project (FIP) or full assessment.

The team did not have a specific fishery client to consult for this analysis and relied on publicly posted information to develop this assessment. However, site visit was conducted to discuss with major stakeholder interested in the certification the 7th of October 2019 (see Annex I for meeting notes). The main stakeholder interested in the certification process was the FLAG *Approdo di Ulisse*. The FLAG was also the main contributors for the proposal of a local management plan (see Annex II). It is important to stress that the proposed local management plan is not in place, therefore it was not considered in the pre-assessment scoring. However, it is included as annex because can provide useful information for the follow up of the Bluefish project.

4 Report details

4.1 Aims and constraints of the pre-assessment

The present report is a pre-assessment does not attempt to duplicate a full assessment against the MSC Fisheries Standard. A full assessment involves a group of assessment team members and public consultation stages that are not included in a pre-assessment. A pre-assessment provides a provisional assessment based on a limited set of information provided by the client.

The CAB outlines that limitations placed on this pre-assessment are inaccessibility of the fishery key data as the statics on the inspection and infractions in the area.

4.2 Version details

The report shall include a statement on the versions of the fisheries program documents used for this assessment.

Table 1 – Fisheries program documents versions

Document	Version number
MSC Fisheries Certification Process	**Version 2.1**
MSC Fisheries Standard	**Version 2.01**
MSC General Certification Requirements	**Version 2.3**
MSC Pre-Assessment Reporting Template	**Version 3.1**

5 Unit(s) of Assessment

5.1 Unit(s) of Assessment

Table 2 – Unit of Assessment (UoA)

UoA 1	Description
Species	European anchovy (*Engraulis encrasicolous*)
Stock	European anchovy in GSA 10
Geographical area	GSA 10
Gear	Purse seine
Client group	-
Other eligible fishers	None
Justification for choosing the Unit of Assessment	The European anchovy is assessed and managed considering GSA 10.

UoA description

The UoA is composed by vessel active in GSA 10 and targeting small pelagic stocks using purse seine (see Annex II for more details). According to the Bluefish project fast scan report (https://www.msc.org/it/cosa-facciamo/il-nostro-contributo-al-cambiamento/progetto-blufish/risultati-fase-1-di-mappatura; table 11) there are more than 170 vessels using purse for small pelagic fish in GSA 10.

6 Traceability

6.1 Traceability within the fishery

Italian fishery law requires that all vessels keep detailed logbooks with real time information on the species and quantities on board. Round weight is recorded after each haul, and conversion factors for each product are applied. When the catch is brought on board, the different species are immediately separated into different boxes. Each species is stored separately in the holds. ‘

According to the evidence available during the site visit and during the interview with MIPAAFT officers, Italian Coast Guard inspects most of the landings by Italian vessels in accordance with EU regulation 1224/2009 (see https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:343:0001:0050:IT:PDF). However, it is not clear if the ispection are carried out on regular basis.

The internal procedures on board the vessels as well as a high level of enforcement activities by authorities in Italy are considered sufficient to ensure fish and fish products are clearly identified and their origin is known

Table 3 – Traceability within the fishery

Factor	Description
Will the fishery use gear that are not part of the Unit of Certification (UoC)? If Yes, please describe: - If this may occur on the same trip, on the same vessels, or during the same season; - How any risks are mitigated.	*No, regulations related to fishing gear (e.g. mesh size and length) are the same for all small pelagic species in the Southern and Central Tyrrhenian Sea.*
Will vessels in the UoC also fish outside the UoC geographic area? If Yes, please describe: - If this may occur on the same trip; - How any risks are mitigated.	*No, the UoC vessels only fish in the Southern and Central Tyrrhenian Sea (see also Principle 3 – Effective management)*
Do the fishery client members ever handle certified and non-certified products during any of the activities covered by the fishery certificate? This refers to both at-sea activities and on-land activities. - Transport - Storage - Processing - Landing - Auction If Yes, please describe how any risks are mitigated.	*Not applicable.*
Does transhipment occur within the fishery? If Yes, please describe: - If transhipment takes place at-sea, in port, or both; - If the transhipment vessel may handle product from outside the UoC; - How any risks are mitigated.	*No.*
Are there any other risks of mixing or substitution between certified and non-certified fish? If Yes, please describe how any risks are mitigated.	*No.*

7 Pre-assessment results

7.1 Pre-assessment results overview

7.1.1 Overview

The scoring of the fishery is rather good for principles 3, while the fishery fails in principle 1 and 2 respectively because the harvest strategy in place for the exploitation of anchovy in the Southern and Central Tyrrhenian Sea is not going to achieve stock management objectives reflected in PI 1.1.1 SG80 (see P 1.2.1 for more clarification) and for the lack of information on ETP species.

7.1.2 Recommendations

The CAB strongly recommends potential clients to implement a communications that may need to take place with management agencies (MIPAAFT and GFCM) to explain the MSC assessment process and the implications (including costs and benefits) of certification.

7.2 Summary of potential conditions by Principle

Table 4 – Summary of Performance Indicator level scores

Principle of the Fisheries Standard	Number of PIs with draft scoring ranges <60
Principle 1 – Stock status	**1**
Principle 2 – Minimising environmental impacts	**1**
Principle 3 – Effective management	**0**

7.3 Summary of Performance Indicator level scores

Table 5 – Summary of Performance Indicator level scores

Performance Indicator	Draft scoring range	Data deficient?
1.1.1 – Stock status	**≥80**	**No**
Rationale or key points		
In the stock assessment, the SSB is estimated at 39011 t in 2016 t, which is above the limit reference point B_{lim} (21339 t), i.e. biomass under which serious ecosystem impacts could occur. B_{lim} was estimated as the lowest value of SSB in the time series. F current is 0.34, while $F_{0.1}$, used as proxy for F_{MSY}, is 0.22. Therefore, the ratio F/F_{MSY} is 1.55, higher than the requested 1.0. No information on B_0 is available; however, SSB is presently at the historical highest levels. Therefore, there is a high degree of certainty that the stock is above the point where serious ecosystem impacts could occur (SG100 is met).		
1.1.2 – Stock rebuilding	**NA**	**No**
Rationale or key points		
NA		

1.2.1 – Harvest Strategy	**<60**	**No**
Rationale or key points		
There is no evidence that the harvest strategy as reported in Italian management plan of small pelagic fishery in GSA 10 is going to work. Therefore, second scoring guidance at SG60 is not met.		
1.2.2 – Harvest control rules and tools	**60 – 79**	**No**
Rationale or key points		
A multiannual management plan was published in 2011 with the objective of reducing the fishing capacity of the purse seine fleet exploiting anchovy in GSA10. The HCRs are based on both vessels decommissioning and reduction of effort through temporal fishing closures. However, there is no evidence that the implemented measures are capable to keep the stock fluctuating around a target level consistent with ecosystem needs for LTL species. Therefore the first SG is met at SG 60 but not at SG 80..		
1.2.3 – Information and monitoring	**≥80**	**No**
Rationale or key points		
The data required by the harvest control rule are monitored with high frequency and at a level of accuracy and coverage consistent with the HCR. The main information required to support the stock assessment are the total catches, age and weight composition of the catches, abundance surveys together with age and weight composition of the survey catch. However, the understanding of some of the uncertainties in the data is incomplete (e.g. Natural mortality considered as constant) and some of the data used to model the maturity ogive for example, is potentially out of date. Therefore SG 100 is not met.		
1.2.4 – Assessment of stock status	**≥80**	**No**
Rationale or key points		
The stock size, fishing mortality rates and recruitment levels are estimated. The fishing mortality rate is compared to the reference points used by management. The assessment methodology and level of accuracy is sufficient to apply the harvest control rule effectively. The principal assessment model is the XSA. The model is suitable for the available data. XSA is an age structure assessment method which assesses the annual age-disaggregated F and abundance from catch at age data, together with indices of abundance. XSA is used by GFCM and STECF for a number of stocks, has been widely tested and is generally considered robust as long as the catch-at-age and survey data are reliable.		
2.1.1 – Primary Outcome	**≥80**	**No**
Rationale or key points		
According to the last available assessment of STECF (see report: https://stecf.jrc.ec.europa.eu/documents/43805/664390/STECF+14-08+-+Med+assessments+2013+-+part+2.pdf) sardine in the Tyrrhenian Sea is above the PRI (current SSB 60000 tons, around 3 times the PRI). However, the assessment does not show that the stock is at MSY level. Therefore, SG 100 is not met.		
2.1.2 – Primary Management	**≥80**	**No**
Rationale or key points		
There are a number of management measures in place to regulate fisheries in the Tyrrhenian Sea. To date management has been primarily based on technical measures. Such measures include for instance minimum landing sizes for a number of species, time/area closures, technical conditions for maximum fishing gear dimensions and characteristics, minimum mesh sizes, requirements for fishing licenses etc. Although the management plan (MIPAAF 2011) for purse seines being implemented in the Tyrrhenian Sea does not directly consider all the primary species,		

several of the measures (e.g. area closures, reduction of fishing effort) will nevertheless also serve to manage and reduce catches of non-target species, and can be seen as a partial management strategy for such species. As evidenced in 2.1.1a non-target species are above PRI so there is some objective basis for confidence that the measures are working will work, Therefore SG60 and SG80 are met. However, no testing to support high confidence that the partial strategy will work has been carried out. Therefore, SG 100 is not met.		
2.1.3 – Primary Information	**≥80**	**No**
Rationale or key points		
As is described in detail for scoring issue 2.1.3 (a) above, the UoA is subject to both EU and GFCM fisheries data collection requirements. The information collected as a result of the application of the EU DCF and GFCM DCRF in the Mediterranean Sea would be adequate to support a partial strategy to manage main primary species. The Italian Management plan for small pelagic in the Tyrrhenian Sea constitutes a partial strategy to manage non-target species since management measures (e.g. season and area closures) will also have an effect on non-target species. In any case the SG 60 and SG 80 are met. There is currently no cohesive and strategic arrangement to manage non-target species caught by the UoA. Several data quality issues remain (STECF 16-08, 2016) and have yet to be addressed by the relevant authorities, so it would not be possible to evaluate with a high degree of certainty whether a potential future strategy is achieving its objective – SG 100 is not met.		
2.2.1 – Secondary Outcome	**≥80**	**Yes**
Rationale or key points		
The only main secondary species is the round sardinella. The stock was not assessed therefore a PSA analysis was applied (see section 8.3). The MSC PSA-derived score was 84.		
2.2.2 – Secondary Management	**60-79**	**No**
Rationale or key points		
The MSC PSA-derived high score provides plausible argument that the measures are likely to work and SG 60 is met. However, there is not objective basis on the status of the stock that would constitute an objective basis for confidence that the measures/partial strategy will work. Therefore SG 80 is not met.		
2.2.3 – Secondary Information	**≥80**	**No**
Rationale or key points		
Survey (MEDIAS) and catch data are available, sufficient to support a partial strategy made up of technical measures for the purse seine (see Mannini and Sabatella, 2015) SG80 is met. There is certainly no 'high degree of certainty' about stock status in this area. SG100 is not met.		
2.3.1 – ETP Outcome	**60 – 79**	**No**
Rationale or key points		
The team does not have any evidence of impact of the UoA on ETP species and during the site visit the stakeholders did not provide any list of ETP species interacting with the UoA (see ANNEX I). However, it is possible to assume that the following species have a potential interaction with the UoA (see Lucchetti and Sala, 2010; STECF 2019): <u>Loggerhead & Green Turtle</u> Several provisions exist at EU, regional and GFCM level which enables management of fisheries impacts on sea turtle populations:		

Turtles are strictly protected by Article 12 of the EU Habitats Directive, which requires that Member States take the requisite measures to establish a system of strict protection for the animal species listed in Annex IV (Animal and plant species of community interest in need of strict protection) in their natural range.

Measures to manage incidental bycatch of sea turtles in fisheries in the GFCM Competence Area were established through GFCM Recommendation 35/2011/4.

Guidelines to reduce sea turtle mortality in fishing operations were issued by the Food and Agriculture Organisation (FAO) of the United Nations in 2009, which include information on topics such as for example measures to reduce interaction and mortality, and best practices for sea turtle handling and release (FAO, 2009).

Bottlenose & Striped Dolphin

Several provisions exist at EU, regional and GFCM level which enables management of fisheries impacts on cetacean populations:

Cetaceans are strictly protected by Article 12 of the EU Habitats Directive, which requires that Member States take the requisite measures to establish a system of strict protection for the animal species listed in Annex IV (Animal and plant species of community interest in need of strict protection) in their natural range.

Council Regulation (EC) No 812/2004 lays down a number of measures aimed at mitigating incidental catches of cetaceans by fishing vessels, and requires the collection of data through at-sea observer schemes.

Measures to manage incidental bycatch of cetaceans in fisheries in the GFCM Competence Area were established through GFCM Recommendation 36/2012/2.

ACCOBAMS (Agreement on the Conservation of Cetaceans in the Black Sea Mediterranean Sea and Contiguous Atlantic Area) has issued guidelines for technical measures to minimise cetacean-fisheries conflicts in the Mediterranean and Black Seas, as well as a number of recommendations and resolutions which aim to address problems resulting from the interaction of cetaceans and fisheries (Recommendations: 1.1, 1.2, 2.2, 4.2, 4.11, 4.12, 6.7; Resolutions: 2.13, 4.9).

The team considered that the above constitute measures aimed at managing the UoA's impacts on turtle and cetaceans populations which is designed to be highly likely to achieve national and international requirements for the protection of such species. Therefore, SG 60 is met. However, the team does not consider that such measures are a proper strategy that is implemented for the UoA. Therefore SG80 is not met.

2.3.2 – ETP Management	**60 – 79**	**No**
Rationale or key points		
GFCM Recommendation 35/2011/4 on incidental bycatch of sea turtles in fisheries in the GFCM Competence Area states that 'Upon receipt of advice from the SAC, the GFCM shall consider, if necessary, additional measures to mitigate sea turtle bycatch in those fisheries which have been considered most relevant', but no additional GFCM Decisions on management of sea turtle by-catch have been published since 2011 – SG 80 is not met.		
2.3.3 – ETP Information	**< 60**	**No**
Rationale or key points		
Quantitative information on catch of ETP species (including loggerhead & green turtles, bottlenose & striped dolphins from only pelagic trawlers comes from the Italian monitoring programme on incidental catches of cetaceans. Unfortunately, the present UoA (purse seine) is not covered by any quali-quantitative information. Therefore, SG 60 is not met.		
2.4.1 – Habitats Outcome	**60 – 79**	**No**
Rationale or key points		
Information on the distribution of VME habitats in the Mediterranean Sea is available from a number of sources (e.g. Casellato and Stefanon, 2008; Martin et al., 2014; Telesca et al., 2015), and publically available online through the MAREA-MEDISEH project online map viewer, see:		

https://ec.europa.eu/fisheries/sites/fisheries/files/docs/body/scientific-advice-mediterranean-specific-project-2-summary_en.pdf.
Sensitive habitats in general and VMEs in particular are protected from the impact of fishing gears by a number of EU Directives, including the Habitat's Directive (EEC 92/43), the Marine Strategy Framework Directive (EC 2008/56), and the Mediterranean fisheries Regulation (EC 1967/2006 as amended by EC 1343/2011).

The protected areas are strictly enforced by the Italian coastguard, who monitor the location of fishing vessels through VMS. Taking into account that the activity of the UoA is carried out in coastal waters and the gear used does not contact the seabed, it is unlikely that the UoA reduces the structure and function of the VME habitats to a point where there would be serious or irreversible harm. SG 60 is met. However, precise information on the location of fishing grounds based on data from satellite-based Vessel Monitoring System (VMS) was not available to the assessment team. There is thus no evidence that the UoA is highly unlikely to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm – SG 80 is not met

2.4.2 – Habitats Management	**60 – 79**	**No**

Rationale or key points

Based on the measures in place above reported and considering the specific measures of the UoA (e.g., length and height of seines) there are plausible argument that such measures in place are working. SG 60 is met.
However, taking into account the lack of data about the spatial distribution of the effort specifically for the UoA and that testing to support high confidence that the strategy will work are not available, SG 80 and 100 are not met.

2.4.3 – Habitats Information	**≥80**	**No**

Rationale or key points

Information on the impacts of purse seine is available from both scientific and grey literature (STECF 12-12), and the distribution of main habitats is known (for details refer to scoring issue a).

The available information is thus adequate to broadly understand the nature of the main impacts of gear use on the main habitats, including spatial overlap of habitat with fishing gear – SG 60 is met.

Although the information was not available to the assessment team, the Italian coastguard monitors the location and movement of fishing vessels through satellite-based Vessel Monitoring System, which is compulsory on fishing vessels of 12 metres' length overall or more (EC 1224/2009). The UoA has a good compliance record, in particular with regards to respecting areas and seasons closed to fishing. Information to allow for an adequate identification of the main impacts of the UoA on the main habitats, and information on the spatial extent of interaction and on the timing and location of use of the fishing gear is thus adequate – SG 80 is met.

2.5.1 – Ecosystems Outcome	**≥80**	**No**

Rationale or key points

A review of functional groups acting as keystones in the Mediterranean Sea food webs confirmed the unique combination of suprabenthos, micro- and mesozooplankton, dolphins and small pelagic fish in structuring the ecosystem in the Mediterranean Sea, and highlighted the importance of benthic organisms as key structuring species with a relatively high proportion of biomass (Coll and Libralato, 2012). These functional groups were thus interpreted as being the features giving the ecosystem its characteristic nature and dynamics. Species which have been considered separately in this assessment (the P1 target species anchovy and sardine; ETP species striped and bottlenose dolphins) were not considered again. Such conclusions are completely valid also for the Tyrrhenian Sea. Therefore, the assessment team considers that the UoA is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm – SG 60 and SG 80 are met – SG 60 and SG 80 are met.
The assessment team considers that there isn't any specifically evidence for the UoA, therefore SG 100 is not met.

2.5.2 – Ecosystems Management	**≥ 80**	**No**

Rationale or key points

Both the EU and Italy strategies for ecosystem management are based on information about fishing impacts on target and non-target species, marine habitats and ETP species. The Italian Management plan for small-pelagic fisheries in the Tyrrhenian Sea (MIPAAF 2011) set out measures that, once fully implemented will restrain the impacts of the fishery on ecosystems so that it does not cause serious or irreversible harm. The existing fisheries management framework are an integral part of their respective ecosystem management strategies. The measures that have been introduced in the EU and Italy to constrain fishing pressure on target species, and to protect non-target species (through the discard ban, landing obligation and spatial closures), along with measures to protect areas of seabed demonstrate that some measures are already in place to constrain ecosystem impacts. The strategy in place meets that SG 60 and 80 requirements. However, testing to support high confidence that the strategy will work has yet to be carried out, so SG 100 is not met.		
2.5.3 – Ecosystems Information	**≥ 80**	**No**
Rationale or key points		
Numerous ongoing / past research projects have contributed to our understanding of the ecosystem in general, and on the main functions of ecosystem components in particular. A substantial body of scientific literature exists on the topic – the reference list provided with this assessment list gives an overview of some of the most relevant scientific and grey literature. The assessment team is of the opinion that SG 80 and SG 100 are met.		
3.1.1 – Legal and customary framework	**≥80**	**No**
Rationale or key points		
The Italian management system is required to observe, but does not formally commit to, the rights of those dependent on fisheries. The team shall interpret “formally commit” in scoring issue (c) at SG100 to mean that the UoA involved in the fishery can demonstrate a mandated legal basis where rights are fully codified within the fishery management system and/or its policies and procedures for managing fisheries under a legal framework. Such evidence has not been provided and therefore SG100 is not met..		
3.1.2 – Consultation, roles and responsibilities	**≥80**	**No**
Rationale or key points		
The FLAG (Fisheries Local Action Groups) “Approdo di Ulisse” is the main regular consultation process that enables local knowledge from the sector to be considered in development of the management system. However, it is not always explained by the EC how that information is used or not used. Industry stakeholders suggest this is also the case at a national level with Ministry consultation exercises, which are ad hoc exercises associated with the development of new policies prior to the drafting of regulation. However, this is not enough to consider that the management system considers always the information and explains how it is used or not use. Therefore, SG 100 is not met.		
3.1.3 – Long term objectives	**≥80**	**No**
Rationale or key points		
CFP and GFCM have clear long-term objectives that explicitly require the precautionary approach to be followed. The CFP contains clear long-term objectives that guide decision-making and are consistent with MSC principles. These are presented in section 7.6.1 of the report. The CFP is explicit in requiring the precautionary approach to guide all management policy, including the national management of vessels in the UoA. GFCM General Agreement Article 5: In giving effect to the objective of this Agreement, the Commission shall: c) apply the precautionary approach in accordance with the 1995 Agreement and the Code of Conduct for Responsible Fisheries. Therefore SG 100 is met.		
3.2.1 – Fishery specific objectives	**60 – 79**	**No**

Rationale or key points
Well-defined and measurable long and short term objectives are defined in Italian Management plan (MIPAAF, 2011): A multi-annual management plan for the fisheries exploiting the small pelagic stocks in GFCM-GSA 10 must be developed and be coherent with the precautionary approach and designed to provide high long-term yields consistent with the maximum sustainable yield and to guarantee a low risk of stocks collapse while maintaining sustainable and relatively stable fisheries. The Italian management plan forming the fishery-specific management plan are required to comply with the wider GFCM recommendations concerning P2 aspects (SG60 is met). However, these are only implicit in the management plan and explicit objectives solely focus on the two target species and such well-defined and measurable objectives do not extend to MSC P2 aspects. SG80 is met for P1 aspects, but not for P2 and SG80 is therefore only partially met.

3.2.2 – Decision making processes	**60 – 79**	**No**

Rationale or key points
The decision-making process is carried out mainly by national authorities. For the present fishery the Italian Management plan for small pelagic fishery in GSA 10 is clear evidence that there is a decision-making process in place that result in measures and strategies to achieve the fishery-specific objectives. Therefore, SG 60 is met. However, during the site visit was not completely clear such process is strongly established. Therefore, SG 80 is not met.

3.2.3 – Compliance and enforcement	**60-79**	**No**

Rationale or key points
MCS in the Southern and Central Tyrrhenian Sea (GSA 10) is a combination of technical measures such as the requirement for Vessel Monitoring Systems (VMS) on vessels over 12m (all UoA vessels) and e-logbooks. This is supported by at sea inspection, aerial surveillance and port inspection. There is also corroboration of logbook data with sales notes. Control authorities have a reasonable expectation and confidence that MCS measures are effective. The resources available to and used by those authorities have demonstrated an ability to enforce the regulations applying to the fishery. The Italian Coastguard manages monitoring control and surveillance of Italian vessels along with joint operations with the Croatian control authority. Relevant statistics on sanctions and inspections are not available for the UoA but only for the whole Italian fleets on "*Ecomafie*" report 2018 (https://www.legambiente.it/rapporto-ecomafia). Therefore, is not possible to demonstrate the efficacy of the MCS mechanism but it is possible just to infer an expectation of efficacy, SG 60 is met but not 80 or 100.

3.2.4 – Management performance evaluation	**60-79**	**No**

Rationale or key points
The mechanism in place to evaluate some parts of the fishery-specific management system are the scientific working groups (both in the framework of SAC-GFCM and STECF) evaluation the status of the stocks. Therefore SG 60 is met. However, key parts of the management system as the effort reduction foreseen by the Italian Management plan for small pelagic fishery in GSA 10 are not evaluated therefore SG 80 is not met.

7.4 Principle 1

7.4.1 Principle 1 background

After analysing the results of the STOCKMED project (Fiorentino et al., 2014), it was concluded that the region represented by the GSAs 8, 9, 10 and 11, corresponding to the FAO Area 1.3 (Sardinia), is considered inhabited by a unique stock unit. Considering that no data are available for anchovy in GSA 8, it was considered as appropriate to conduct a stock assessment covering GSAs 9, 10 and 11 only.

In the FAO Area 1.3, anchovy is target by purse seine fisheries for small pelagics. It actually represents the most important target species, while other species such as sardine, mackerel and horse mackerel represent the main by-catch. Landing data in weight for GSAs 9 and 10 are reported in the EU official data from 2002 onwards. No information is available for GSA 11. Size and age structures of landings and discards are also reported for GSAs 9 and 10 only. Transversal data showed that the amount of anchovy landed in GSA 11 is negligible and biological data from official Data call shows that the discards is practically zero in GSAs 9 and 10. Only in 2011 there is a 2% of discard in GSA 10. Thus, discards were considered negligible and not included into the assessment.

In Table 7.4.1.1, the landings of anchovy in GSAs 9 and 10 are reported, while Table 7.4.1.2 shows the nominal effort (kW x fishing days) deployed by the purse seine fleets targeting anchovy in GSAs 9 and 10.

Table 7.4.1.1: Landings of anchovy in GSAs 9 and 10. EU official data.

Year	GSA9 Landings (t)	GSA10 Landings (t)	Total (t)
2006	3725	8378	12103
2007	2290	4002	6292
2008	1350	3687	5037
2009	2504	5613	8117
2010	2999	6479	9478
2011	4449	7299	11748
2012	4912	6088	11000
2013	5402	4150	9552
2014	3440	3361	6801
2015	3958	3667	7625
2016	4423	4439	8862

Table 7.4.1.2: Nominal effort (kW x fishing days) of the purse seine fleets targeting anchovy in GSAs 9 and 10. EU official data.

Year	PS_SPF
2004	197055
2005	183408
2006	151326
2007	188900
2008	146375
2009	97204
2010	79166
2011	92535
2012	90075
2013	84920
2014	79945
2015	96328
2016	102839

The von Bertalanffy parameters from the official Data call by GSA are reported in Table 7.4.1.3 (sex combined). No growth parameters are available from GSA 11. A VBGF curve was re-estimated using age data from GSA 9 and 10, according to the recommendations of STECF EWG17-09, i.e. constraining t_0 parameter to be higher or equal to -0.2. This combined curve is reported in Table 7.4.1.3.

Table 7.4.1.3: VBGF growth parameters.

GSA	L_{inf} (cm)	k	t_0
9	17.80	0.48	-0.19
10	20.00	0.20	-2.52
9&10	18.00	0.60	-0.20

Maturity vector by length and by age is available for GSA 9 and 10. No information is available for GSA 11. The size at first maturity for this species in this area is about 10.5 cm. The maturity at age vector was obtained according to the re-estimated set of von Bertalanffy parameters and reported in Table 7.4.1.3.
The natural mortality vector by length was obtained using the Gislason method. The natural mortality by age was derived accordingly to the new set of von Bertalanffy parameters reported in Table 7.4.1.3.

Table 7.4.1.4: Natural mortality (M) vector and proportion of matures by age (Sex combined).

Age	Maturity	Natural mortality
0	0.0	1.16
1	0.7	0.57
2	1.0	0.39
3	1.0	0.33
4+	1.0	0.30

Fishery independent information is available on the stock of anchovy in the FAO Area 1.3. Acoustic survey data are available in GSAs 9 and 10 only starting from 2009, though with some gaps. Data from 2010 to 2012 are missing in GSa 10, while data in GSa 9 are not available from 2010 to 2013. Acoustic survey data are not available from GSA 11. Size structures from MEDITS data are available since 2011 in GSA9 and since 2012 for GSA10 and GSA11.

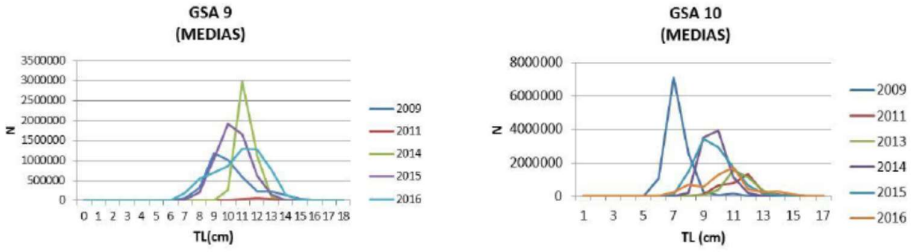


Figure 7.4.1.1: European anchovy in GSAs 9, 10 & 11. Length-frequency distributions from the acoustic survey MEDIAS acoustic survey for the GSA 9 and 10.

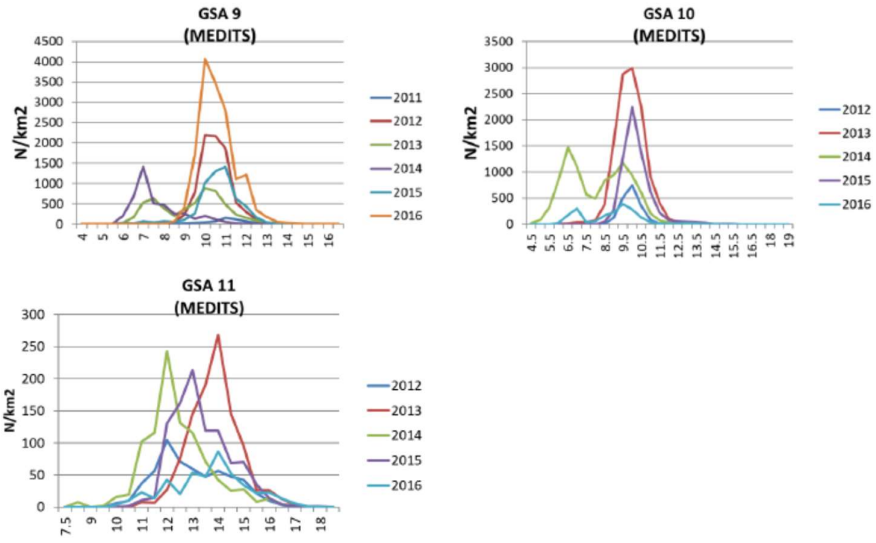


Figure 7.4.1.2: European anchovy in GSAs 9, 10 & 11. Length-frequency distributions from the MEDITS trawl survey for the GSA 9, 10 and 11.

The FLR libraries were employed in order to carry out an XSA based assessment on European anchovy stock in GSAs 9, 10 and 11. The major assumption of the method is the flat selectivity for the oldest ages (selectivity as classical ogive), that for this fishery/species was considered plausible. The method performs a tuning by survey index by age and was applied using the age data obtained by the slicing of the length frequency distributions of the catch and survey data.
The catch at age matrices (for landings and the surveys: MEDIAS and MEDITS) were derived slicing the length frequency distributions of GSA 9, both for the surveys and for the commercial catches, according the age-length keys estimated for GSA 9 using an ALK stabilised over the years. An analogous procedure was applied for GSA 10 using the stabilised ALK estimated for this GSA.
The landings at age matrices are reported in table 6.4.2.1. SoP corrections were applied being the differences between the observed catches and SoP less than 3.7% on average.

Figure 7.4.1.5: European anchovy in GSAs 9, 10 & 11. Landings numbers at age (thousands) matrix used as input to the XSA assessment.

Landing at age	0	1	2	3	4+
2006	22392	134762	276829	282194	101903
2007	11501	36198	123380	128430	78844
2008	11568	124318	127274	106323	36693
2009	8304	54232	199394	202270	49626
2010	12913	68040	285290	222363	44521
2011	68435	343915	419558	190887	24092
2012	143997	418445	367125	138587	21528
2013	85355	336966	338596	152083	8342
2014	30186	203717	263987	97239	5361
2015	45077	167878	283210	122331	17271
2016	69731	278299	324014	135181	11202

Table 7.4.1.6: European anchovy in GSAs 9, 10 & 11. Catch numbers at age (N/km^2) matrices of the MEDITS and MEDIAS surveys used as tuning in the XSA assessment.

MEDITS	0	1	2	3	4+
2012	1489	4691	2647	207	34
2013	6001	7432	2792	370	76
2014	11150	3444	975	179	35
2015	2004	5197	3075	498	81
2016	3142	8535	5192	458	64
MEDIAS survey	0	1	2	3	4+
2009	10944775	2817615	911020.5	348198.1	67956.27
2010	NA	NA	NA	NA	NA
2011	50935.99	1265734	1441996	494939.1	64129.88
2012	NA	NA	NA	NA	NA
2013	NA	NA	NA	NA	NA
2014	1768292	7592895	3673971	432163	54716.2
2015	3647208	8366169	3488437	497747.9	40489.94
2016	1962806	4611157	3394627	1157475	162248.4

Table 7.4.1.7: European anchovy in GSAs 9, 10 & 11. Mean weight at age (kg) in the catch and the stock.

	0	**1**	**2**	**3**	**4+**
Catch in weight	0.006	0.008	0.012	0.016	0.021
Stock in weight	0.002	0.011	0.022	0.030	0.035

Due to the lack of survey data in the earlier years, the model applied to the whole time series (2006-2016) showed quite uncertain results in the early years, giving a large population on incomplete cohorts and probably overestimating the SSB at the beginning of the period analysed. For this reason, a second run was performed considering a shorter time series starting in 2009. The input data were the same as the previous assessment but omitting data from 2006 to 2008.

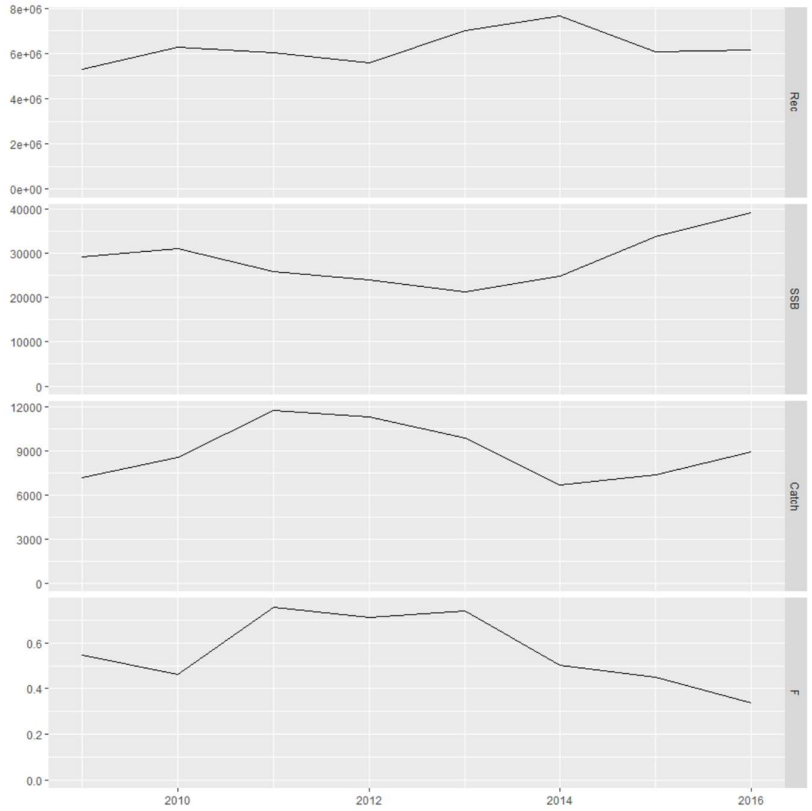


Figure 7.4.1.3: European anchovy in GSAs 9, 10 & 11. Final outputs of the XSA assessment.

Table 7.4.1.8: European anchovy in GSAs 9, 10 & 11. Final outputs of the XSA assessment.

	Fbar (1-3)	Recruitment (thousands)	SSB (t)	Catch (t)	Total Biomass (t)
2009	0.54689	5293672	29145	7154.9	61036
2010	0.46291	6254804	30925	8538	66679
2011	0.7561	6037315	25758	11756.7	64354
2012	0.71306	5587597	24051	11286.5	59137
2013	0.74009	6997280	21339	9879.5	57150
2014	0.50112	7648074	24851	6647.1	61076
2015	0.44866	6077207	33738	7332	70406
2016	0.33589	6150093	39011	8931.1	75750

The reference point used to evaluate the stock status was the F corresponding to the exploitation rate E (= F/Z) equal to 0.4 (Patterson, 1992). The M used to estimate Z was weighed by the selectivity in the age classes 1-3 (Fbar 1-3) and was equal to 0.22. Considering that the F estimated in 2016 was equal to 0.34, the stock resulted overexploited.

The lowest value of SSB in the time series can be considered as a proxy for B_{loss} = B_{lim}. This value is 21339 t. To estimate the B_{pa}, we add a 40% increase to this value, resulting in 29875 t. The SSB in the last years is above this level.

An Italian management plan for the small pelagic fishery in GSA 10 was presented in 2011. However, this management plan is not based on any scientific advice on the stock status. The main measure regards the decommissioning of the 3% of the fleet capacity (reduction by 42,99 GT and 298 Kw).

Based on the MSC criteria, anchovy can be considered as a key Low Trophic-Level species due to their life history: feeding on plankton, short lived, rapid growth, early maturing, high fecundity, small body size and formation of dense schools.

7.4.2 Catch profiles

Anchovy landings data are available starting from 2002 and refer to the Ligurian and Tyrrhenian Seas (GSas 9 and 10) (Table 7.4.2.1).

Table 7.4.2.1 European anchovy in GSAs 9 and 10. Landings in GSAs 9 and 10.

Year	GSA9 Landings (t)	GSA10 Landings (t)	Total (t)
2006	3725	8378	12103
2007	2290	4002	6292
2008	1350	3687	5037
2009	2504	5613	8117
2010	2999	6479	9478
2011	4449	7299	11748
2012	4912	6088	11000
2013	5402	4150	9552
2014	3440	3361	6801
2015	3958	3667	7625
2016	4423	4439	8862

7.4.3 Total Allowable Catch (TAC) and catch data

No Total Allowable Catch (TAC) are set for this fishery; the most recent catch data are shown in Table 7.4.3.1. Those data refer to the landings of anchovy in GSA 10 only.

Table 7.4.3.1 – Total Allowable Catch (TAC) and catch data in GSA 10

TAC	Year	**2016**	Amount	**-**
UoA share of TAC	Year	**2016**	Amount	**-**
UoA share of total TAC	Year	**2016**	Amount	**-**
Total green weight catches by UoC	Year (most recent)	**2016**	Amount	4439 t
Total green weight catches by UoC	Year (second most recent)	**2015**	Amount	3667 t

7.4.4 Principle 1 Performance Indicator scores and rationales – delete if not applicable

PI 1.1.1A – key Low Trophic-Level – delete if not applicable

Based on the MSC criteria, anchovy can be considered as a key Low Trophic-Level species due to their life history: feeding on plankton, short lived, rapid growth, early maturing, high fecundity, small body size and formation of dense schools. Two main studies (i.e.: Libralato et al., 2010 and Coll et al., 2007) are useful to define anchovy as a MSC LTL species.

Libralato et al. (2010) highlighted that the small pelagic are key functional groups in food webs. The high impact of small pelagic on the trophic webs was a feature previously identified in the Mediterranean Sea (Palomera et al., 2007). Due to their ecological importance, their overexploitation may produce deep changes in the structure and functioning of the marine ecosystem (as explored in marine ecosystems by means of modelling simulations; Coll et al., 2007).

PI 1.1.1A		**The stock is at a level which has a low probability of serious ecosystem impacts**		
Scoring Issue		SG 60	SG 80	SG 100
a	Stock status relative to ecosystem impairment			
	Guidepost	It is **likely** that the stock is above the point where serious ecosystem impacts could occur.	It is **highly likely** that the stock is above the point where serious ecosystem impacts could occur.	There is a **high degree of certainty** that the stock is above the point where serious ecosystem impacts could occur.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				
In the stock assessment, the SSB is estimated at 39011 t in 2016 t, which is above the limit reference point B_{lim} (21339 t), i.e. biomass under which serious ecosystem impacts could occur. B_{lim} was estimated as the lowest value of SSB in the time series. F current is 0.34, while $F_{0.1}$, used as proxy for F_{MSY}, is 0.22. Therefore, the ratio F/F_{MSY} is 1.55, higher than the requested 1.0. No information on B_0 is available; however, SSB is presently at the historical highest levels. Therefore, there is a high degree of certainty that the stock is above the point where serious ecosystem impacts could occur (SG100 is met).				
b	Stock status in relation to ecosystem needs			
	Guide post		The stock is at or fluctuating around a level consistent with ecosystem needs.	There is a **high degree of certainty** that the stock has been fluctuating around a level consistent with ecosystem needs or has been above this level over recent years.
	Met?		**Yes**	**Yes**
Rationale				
The SSB in 2016 is estimated at 39011 t and is above B_{pa} (29875 t), i.e. biomass level consistent with maximum sustainable yield, estimated as a 40% increase from B_{lim}. This means PI 1.1.2 – stock rebuilding – should not be scored.				
References				
Coll, M., Santojanni, A., Palomera, I., Tudela, S. and Arneri, E. (2007) An ecological model of the Northern and Central Adriatic Sea: Analysis of ecosystem structure and fishing impacts. Journal of Marine Systems 67,119–154. Coll, M., Libralato, S. (2012). Contributions of food web modelling to the ecosystem approach to marine resource management in the Mediterranean Sea. Fish and fisheries, 13(1), 60-88. Libralato, S., Christensen, V. and Pauly, D. (2006). A method for identifying keystone species in food web models. Ecological Modelling 195, 153–171.				

Libralato, S., Coll, M., Tempesta, M. et al. (2010) Foodweb traits of protected and exploited areas of the Adriatic Sea. Biological Conservation 143, 2182–2194.
Palomera, I., Olivar, M., Salat, J., Sabatés, a., Coll, M., García, a., and Morales-Nin, B. (2007). Small pelagic fish in the NW Mediterranean Sea: An ecological review. Progress in Oceanography, 74(2-3): 377–396.

Stock status relative to reference points			
	Type of reference point	Value of reference point	Current stock status relative to reference point
Reference point used in scoring stock relative to ecosystem impairment (SIa)	$B_{lim.}$	*21339 t*	*39011/B_{lim} = 1.83*
Reference point used in scoring stock relative to ecosystem needs (SIb)	B_{pa}	*29875 t*	*39011/B_{pa} = 1.31*

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥ 80**
Information gap indicator	**More information sought**
Data-deficient? (Risk-Based Framework needed)	**No**

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 1.1.2 – Stock rebuilding

PI 1.1.2		Where the stock is reduced, there is evidence of stock rebuilding within a specified timeframe		
Scoring Issue		SG 60	SG 80	SG 100
a	Rebuilding timeframes			
	Guide post	A rebuilding timeframe is specified for the stock that is the **shorter of 20 years or 2 times its generation time**. For cases where 2 generations are less than 5 years, the rebuilding timeframe is up to 5 years.		The shortest practicable rebuilding timeframe is specified which does not exceed **one generation time** for the stock.
	Met?	**NA**		**NA**
Rationale				
The stock is not depleted				
b	Rebuilding evaluation			
	Guide post	Monitoring is in place to determine whether the rebuilding strategies are effective in rebuilding the stock within the specified timeframe.	There is **evidence** that the rebuilding strategies are rebuilding stocks, **or it is likely** based on simulation modelling, exploitation rates or previous performance that they will be able to rebuild the stock within the **specified timeframe**.	There is **strong evidence** that the rebuilding strategies are rebuilding stocks, **or it is highly likely** based on simulation modelling, exploitation rates or previous performance that they will be able to rebuild the stock within the **specified timeframe**.
	Met?	**NA**	**NA**	**NA**
Rationale				
The stock is not depleted.				
References				

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**NA**
Information gap indicator	**More information sought**

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 1.2.1 – Harvest strategy

PI 1.2.1		There is a robust and precautionary harvest strategy in place		
Scoring Issue		SG 60	SG 80	SG 100
a	Harvest strategy design			
	Guide post	The harvest strategy is **expected** to achieve stock management objectives reflected in PI 1.1.1 SG80.	The harvest strategy is responsive to the state of the stock and the elements of the harvest strategy **work together** towards achieving stock management objectives reflected in PI 1.1.1 SG80.	The harvest strategy is responsive to the state of the stock and is **designed** to achieve stock management objectives reflected in PI 1.1.1 SG80.
	Met?	**Yes**	**No**	**No**
Rationale				
The harvest strategy is based on both vessels decommissioning and reduction of effort through temporal fishing closures. The harvest strategy is not responsive to the state of the stock and the elements of the harvest strategy do not work together towards achieving management objectives. Therefore, the first scoring guidance at SG60 is met.				
b	Harvest strategy evaluation			
	Guide post	The harvest strategy is **likely** to work based on prior experience or plausible argument.	The harvest strategy may not have been fully **tested** but evidence exists that it is achieving its objectives.	The performance of the harvest strategy has been **fully evaluated** and evidence exists to show that it is achieving its objectives including being clearly able to maintain stocks at target levels.
	Met?	**No**	**No**	**No**
Rationale				
There is no evidence that the harvest strategy as reported in Italian management plan of small pelagic fishery in GSA 10 is going to work. Therefore second scoring guidance at SG60 is not met.				
c	Harvest strategy monitoring			
	Guide post	Monitoring is in place that is expected to determine whether the harvest strategy is working.		
	Met?	**Yes**		
Rationale				
The monitoring in place is based on the collection of biological data from the commercial fisheries performed under the EU DCF (now EU MAP), and the surveys: the acoustic survey MEDIAS, and the trawl survey MEDITS.				
d	Harvest strategy review			
	Guide post			The harvest strategy is periodically reviewed and improved as necessary.
	Met?			**No**
Rationale				

The harvest strategy has not been reviewed so far.

e	Shark finning			
	Guide post	It is **likely** that shark finning is not taking place.	It is **highly likely** that shark finning is not taking place.	There is a **high degree of certainty** that shark finning is not taking place.
	Met?	**NA**	**NA**	**NA**

Rationale

NA

f	Review of alternative measures			
	Guide post	There has been a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock.	There is a **regular** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock and they are implemented as appropriate.	There is a **biennial** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock, and they are implemented, as appropriate.
	Met?	**No**	**No**	**No**

Rationale

There was not any review of the potential effectiveness and practicability of alternative measures. Therefore, the SG60 is not met.

References

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**<60**
Information gap indicator	**More information sought**

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 1.2.2 – Harvest control rules and tools

PI 1.2.2		There are well defined and effective harvest control rules (HCRs) in place		
Scoring Issue		SG 60	SG 80	SG 100
a	HCRs design and application			
	Guide post	**Generally understood** HCRs are in place **or available** that are **expected** to reduce the exploitation rate as the point of recruitment impairment (PRI) is approached.	**Well defined** HCRs are **in place** that **ensure** that the exploitation rate is reduced as the PRI is approached, are expected to keep the stock **fluctuating around** a target level consistent with (or above) MSY, or for key LTL species a level consistent with ecosystem needs.	The HCRs are expected to keep the stock **fluctuating at or above** a target level consistent with MSY, or another more appropriate level considering the ecological role of the stock, **most** of the time.
	Met?	**Yes**	**No**	**No**
Rationale				
A multiannual management plan was published in 2011 with the objective of reducing the fishing capacity of the purse seine fleet exploiting anchovy in GSA10. The HCRs are based on both vessels decommissioning and reduction of effort through temporal fishing closures. However, there is no evidence that the implemented measures are capable to keep the stock fluctuating around a target level consistent with ecosystem needs for LTL species. Therefore, the first SG is met at SG 60 but not at SG 80.				
b	HCRs robustness to uncertainty			
	Guide post		The HCRs are likely to be robust to the main uncertainties.	The HCRs take account of a **wide** range of uncertainties including the ecological role of the stock, and there is **evidence** that the HCRs are robust to the main uncertainties.
	Met?		**No**	**No**
Rationale				
The HCRs do not take uncertainty into account. The SG60 is not met.				
c	HCRs evaluation			
	Guide post	There is **some evidence** that tools used **or available** to implement HCRs are appropriate and effective in controlling exploitation.	**Available evidence indicates** that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs.	**Evidence clearly shows** that the tools in use are effective in achieving the exploitation levels required under the HCRs.
	Met?	**Yes**	**No**	**No**
Rationale				
There is no available evidence that indicates that the tools in use are appropriate and effective. Therefore, the SG60 only is met taking into account the evidence related with the good status of the stock (see P1.1.1)				
References				
MIPAAF 2011. Piano di Gestione per la pesca ai piccoli pelagici con le reti a circuizione della GSA10 (Mar Tirreno meridionale). 11 pp.				

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**60-79**
Information gap indicator	**More information sought**

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 1.2.3 – Information and monitoring

PI 1.2.3		Relevant information is collected to support the harvest strategy		
Scoring Issue		SG 60	SG 80	SG 100
a	Range of information			
	Guide post	**Some** relevant information related to stock structure, stock productivity and fleet composition is available to support the harvest strategy.	**Sufficient** relevant information related to stock structure, stock productivity, fleet composition and other data are available to support the harvest strategy.	A **comprehensive range** of information (on stock structure, stock productivity, fleet composition, stock abundance, UoA removals and other information such as environmental information), including some that may not be directly related to the current harvest strategy, is available.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				
A comprehensive range of information is available. As well as data used directly in the stock assessment (catch-at-age, survey and LPUE data), additional information includes changing patterns of growth, the relative spatial distribution of juvenile and adult and removals from other fleets. This meets the requirements at SG100.				
b	Monitoring			
	Guide post	Stock abundance and UoA removals are monitored and **at least one indicator** is available and monitored with sufficient frequency to support the harvest control rule.	Stock abundance and UoA removals are **regularly monitored at a level of accuracy and coverage consistent with the harvest control rule**, and **one or more indicators** are available and monitored with sufficient frequency to support the harvest control rule.	**All information** required by the harvest control rule is monitored with high frequency and a high degree of certainty, and there is a good understanding of inherent **uncertainties** in the information [data] and the robustness of assessment and management to this uncertainty.
	Met?	**Yes**	**Yes**	**No**
Rationale				
The data required by the harvest control rule are monitored with high frequency and at a level of accuracy and coverage consistent with the HCR. The main information required to support the stock assessment are the total catches, age and weight composition of the catches, abundance surveys together with age and weight composition of the survey catch. However, the understanding of some of the uncertainties in the data is incomplete (e.g. Natural mortality considered as constant) and some of the data used to model the maturity ogive for example, is potentially out of date. Therefore SG 100 is not met.				
c	Comprehensiveness of information			
	Guide post		There is good information on all other fishery removals from the stock.	
	Met?		**Yes**	
Rationale				
Anchovy is targeted by purse seine fisheries, while is a by catch of trawling and other fisheries. Information on the removals from those fisheries is available.				

References
GFCM 2017. Working Group on Stock Assessment of Small Pelagic species (WGSASP). FAO HQ, Rome, Italy, 13-18 November 2017. Final Report. 66 pp. STECF 2017. Mediterranean Stock Assessments 2017 part I (STECF-17-15). Publications Office of the European Union, Luxembourg, 2017, ISBN 978-92-79-67487-7, doi:10.2760/897559, JRC109350

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**>80**
Information gap indicator	**More information sought**
Data-deficient? (Risk-Based Framework needed)	**No**

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 1.2.4 – Assessment of stock status

PI 1.2.4		There is an adequate assessment of the stock status		
Scoring Issue		SG 60	SG 80	SG 100
a	Appropriateness of assessment to stock under consideration			
	Guide post		The assessment is appropriate for the stock and for the harvest control rule.	The assessment considers the major features relevant to the biology of the species and the nature of the UoA.
	Met?		**Yes**	**Yes**
Rationale				
The stock size, fishing mortality rates and recruitment levels are estimated. The fishing mortality rate is compared to the reference points used by management. The assessment methodology and level of accuracy is sufficient to apply the harvest control rule effectively. The principal assessment model is the XSA. The model is suitable for the available data. XSA is an age structure assessment method which assesses the annual age-disaggregated F and abundance from catch at age data, together with indices of abundance. XSA is used by GFCM and STECF for a number of stocks, has been widely tested and is generally considered robust as long as the catch-at-age and survey data are reliable.				
b	Assessment approach			
	Guide post	The assessment estimates stock status relative to generic reference points appropriate to the species category.	The assessment estimates stock status relative to reference points that are appropriate to the stock and can be estimated.	
	Met?	**Yes**	**Yes**	
Rationale				
The assessment estimates spawning stock biomass and fishing mortality on an annual basis and these estimates are directly comparable against the reference points.				
c	Uncertainty in the assessment			
	Guide post	The assessment **identifies major sources** of uncertainty.	The assessment **takes uncertainty into account**.	The assessment considers uncertainty and is evaluating stock status relative to reference points in a **probabilistic** way.
	Met?	**Yes**	**No**	**No**
Rationale				
The current assessment model (XSA) does not consider uncertainty in the input data derived from sampling. Therefore, SG60 can be only met.				
d	Evaluation of assessment			
	Guide post			The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.
	Met?			**Yes**

Rationale
The assessment is tested by the working group through an internal evaluation procedure where all input data and relevant assumptions are reviewed, and some alternative assessment approaches are tested. Such activities are carried out both in the framework of GFCM and STECF.

e	Peer review of assessment			
	Guide post		The assessment of stock status is subject to peer review.	The assessment has been **internally and externally** peer reviewed.
	Met?		**Yes**	**No**

Rationale
The assessment is internally peer reviewed by an internal audit within the GFCM and STECF working groups. This meets SG 80.

References
GFCM 2017. Working Group on Stock Assessment of Small Pelagic species (WGSASP). FAO HQ, Rome, Italy, 13-18 November 2017. Final Report. 66 pp. STECF 2017. Mediterranean Stock Assessments 2017 part I (STECF-17-15). Publications Office of the European Union, Luxembourg, 2017, ISBN 978-92-79-67487-7, doi:10.2760/897559, JRC109350

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**60-79**
Information gap indicator	**More information sought**

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

7.5 Principle 2

7.5.1 Principle 2 background

MSC puts **bycatch species** into two categories for the purposes of evaluation under Principle 2: 'primary' and 'secondary' and evaluates each category under a different set of PIs. CR v2.0 defines **primary species** in this context as those: *where management tools and measures are in place that aim to regulate fishing in relation to some biologically based limit and/or target reference levels;* ***secondary species*** *are all the others*.

MSC also makes a distinction between 'main' bycatch species and others. **Main species** are defined as those which exceed 5 % of the total catch (including discards), or 2 % if the species is considered to be vulnerable to fishing pressure (e.g. if the stock is known to be depleted or if the life history makes it vulnerable); assessment teams can also use their discretion to designate species as main if they feel it is necessary.

The electronic logbooks on fishing vessels allow for recording of catch other than main species (in MSC terms). Purse seine activity for small pelagics is mainly carried out by medium-sized vessels (12 to 24 meters of LFT), present in the ports of Naples, Castellammare di Stabia, Salerno, Vibo Valentia, Gioia Tauro, Reggio Calabria and Palermo and are active mainly in coastal waters. Pirse seine activity for large pelagic is mainly carried out by large boats (> 24 metres LFT) and mainly targets bluefin tuna. These boats are mainly present in the ports of Cetara and Salerno and fish mainly in international waters, outside 12 mn from the coast.

Error! Reference source not found. shows the maps of the fishing activity of trawlers (2013-2015 period), estimated from the VMS data. The analyses were carried out with VMS base (Russo et al., 2014) using a grid with 5 km side cells and the values represent the total annual fishing hours per cell of all the trawl boats aggregated also in terms of species target. From the maps it can be seen how the distribution of trawling activity is more concentrated in Campania, in the Gulf of Naples and Salerno without substantial variations from 2013 to 2015 (MIPAAFT, 2017).

The fishery is a mixed fishery mainly targeting anchovy but with other species of small pelagic taken as bycatch (sardine, round sardinella and little tunny). In 2015-16, anchovy represented ~63 % of the total landings of small pelagic, while sardine landings have fluctuated in the range of 8-12 % of the total (Table 2.2). Cumulative landings of other species of the small pelagic reached ~14-15 % of the total.

The dataset presented in Table 2.2 was provided by the BLUFISH PROJECT (Stage 1.b) and it gives a list of bycatch species While the minor species little tunny *(Euthynnus alletteratus)* managed by multiannual recovery plan are the other primary species. For the other species, since there is no direct management via reference points, they would be considered secondary species.

Studies of Mediterranean PS fisheries (Keller, 2005; Tsagarakis et al., 2014) suggest that the discard rate is fairly low (2–3%), because the gear is highly selective and targets small pelagic fish assemblages with limited species and size diversity; however, according to other views the discard fraction may be affected by several factors, including catch quantity and composition as well as market prices (Santojanni et al., 2005). The electronic logbooks on purse seine vessels allow for recording of catch other than sardine and anchovy.

In 2015-16, European anchovy represented ~60 % of the total landings (Table 2.2). The dataset presented in Table 2.2 was provided by the BLUFISH PROJECT (Stage 1.b) and it presents a summary of the main and minor species considered within Principle 2.

Italian vessels operating purse seine in GSA 10 are understood to have relatively low discard levels (Tsagarakis et al., 2014), particularly for shallow water fisheries). However, according to other views the discard fraction may be affected by several factors, including catch quantity and composition as well as market prices (Keller, 2005). The MSC Fishery Certification Requirements (FCR) v2 defines primary species within Principle 2 as those that have management measures and tools in place intended to achieve stock management objectives reflected in either limit or target reference points (FCRv2 SA3.1.3). If management limit or reference points are not in place then the species is classified as a secondary species (regardless of whether it is retained or discarded).

7.5.1.1. Primary species

Outcome

Scientific advice on stock status for a number of species caught as by-catch by purse seine operating in GSA 10 is available from two sources:

(i) European Commission Scientific, Technical and Economic Committee for Fisheries (STECF);
(ii) General Fisheries Commission for the Mediterranean (GFCM) Scientific Advisory Council (SAC).

A recent review of the state of Mediterranean fisheries describes ongoing efforts by the GFCM to apply multiannual management plans aimed at managing fish stocks in the Mediterranean Sea (FAO, 2018). The Italian Minsitry also implemented Management plans for fisheries (see for details https://www.politicheagricole.it/flex/cm/pages/ServeBLOB.php/L/IT/IDPagina/6896), therefore all the species can be considered covered by these MPs, and in MSC terms counted as Primary.

Management

There are a number of management measures in place to regulate fisheries in the Mediterranean Sea, and the species are managed under the auspicies of both GFCM and EU. In particular, to date management has been primarily based on technical measures in order to conform to the provisions outlined in the Mediterranean Fisheries Regulation EC 1967/2006 (as amended by EC 1343/2011), as well as the applicable GFCM Recommendations. Such measures include for instance effort limitation, minimum conservation reference sizes for a number of species, time/area closures, technical conditions for maximum fishing gear dimensions and characteristics, minimum mesh sizes, requirements for fishing licenses etc.

Information

The UoA is subject to both EU and GFCM quantitative fisheries data collection requirements. In the EU Regulation EC 199/2008 concerning the establishment of a Community framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the Common Fisheries Policy sets out the fisheries data collection requirements for EU Member States. The Regulation outlines requirements related to the:

- Collection, management and use of data in the framework of multi-national programmes;
- Data management process;
- Use of data collected in the framework of the Common Fisheries Policy;
- Use of data to support scientific advice.

Commission Regulation (EC) No 665/2008 establishes the detailed rules for the application of Council Regulation (EC) No 199/2008, concerning the establishment of a Community framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the Common Fisheries Policy. The subsequent Commission Decision 2010/93/EU sets out the data collection requirements for 2011-13, and Commission implementing Decision C(2013)5243 extended the application of this decision to 2014-2016. Under the EU fisheries Data Collection Framework (DCF), Member States are required to compile a wide range of biological and economic data, including:

- Biological data, including stock-related data;
- Data on fleet size and fishing activity analysed by fishing season, fleet segment, areas fished and by stock;
- Economic data relating to the fishing, aquaculture and fish processing industries;
- Fisheries independent research surveys at sea;
- Data to evaluate the effects of the fisheries sector on the marine ecosystem.

This data is collected on the basis of National Programmes in which Member States indicate which data is collected, how data is collected, and what resources are allocated to the data collection process. Member States are required to report annually on the implementation of their National Programmes, and these annual reports are evaluated by the European Commission's Scientific, Technical and Economic Committee for Fisheries (STECF).

In addition to the requirements of the EU DCF outlined above, the UoA is also subject to the requirements of the GFCM Data Collection Reference Framework (DCRF), which is GFCM's framework for the collection and submission of the fisheries-related data (Table 2.1). A number of GFCM Recommendations request data from GFCM contracting parties, which is then used by the relevant GFCM subsidiary bodies to formulate scientific advice. The DCFR is based on seven different tasks:

- T1 – Global figures of national fisheries
- T2 – Catch (landing data, catch data per species)
- T3 – Incidental catch of vulnerable species
- T4 – Fleet
- T5 – Effort
- T6 – Socioeconomics
- T7 – Biological information (stock assessment, length data, other biological data, dolphin fish, red coral, European eel, ecosystem indicators)

7.5.1.2. Secondary Species

Official Italian catch data for purse seine operating in the GSA 10 made available by the Italian ministry for the purpose of this assessment shows that few other species are landed besides main species, albeit some in very small volumes (Table 2.2). The species listed in table 2.2 in the group "other" constituted less than 2% of the catches and were not out of scope or less resilient, therefore were not considered in the following evaluations.

Considering the absence of reference points for the secondary species the RBF approach was employed only for the species designated as "Main" (i.e.: Round sardinella).

Note that discarding in this fishery is 'considered negligible'. The Landing Obligation is now in force for this fishery, so in principle there should be no discarding.

Table 2.1. GFCM-DCRF tasks: data and purposes. Source: GFCM (2016).

DCRF TASKS (T)			DATA	RELATED RECOMMENDATIONS
ID	TASK	SUBTASK		
T. I	GLOBAL FIGURES OF NATIONAL FISHERIES	-	Annual data on total landing, number of vessels, total capacity and total engine power by country.	–
T. II	CATCH	II.1) Landing data	Annual data on total national captures (i.e. landing) by country, area and fleet segment.	–Rec. GFCM/33/2009/3
		II.2) Catch data per species	Annual data on total catch (i.e. landing and discards) for the main commercial species reported by country, area and fleet segment.	–Rec. GFCM/33/2009/3
T. III	INCIDENTAL CATCH OF VULNERABLE SPECIES	-	Annual data (i.e. number of individuals) on incidental catch of vulnerable species (i.e. seabirds, turtles, marine mammals and shark species) by area, country and fishing gear.	–Rec. GFCM/35/2011/5 –Rec. GFCM/36/2012/3 –Rec. GFCM/35/2011/4 –Rec. GFCM/36/2012/2
T. IV	FLEET	-	Register of fishing vessels with identification features (i.e. vessel name, registration number, port, fishing gear, geographical subarea, etc.) and information on technical features (i.e. gross tonnage, kilowatt, overall length etc.) of fleets operating in the GFCM area.	–Res. GFCM/35/2011/1 –Rec. GFCM/33/2009/5 –Rec. GFCM/33/2009/6 –Rec. GFCM/33/2009/2 –Rec. GFCM33/2009/1 –Rec. GFCM/33/2009/3 –Rec. GFCM/30/2006/3
T. V	EFFORT	-	Fishing effort data calculated as a combination of capacity and activity by country, area, fleet segment and fishing gear. Information on catch per unit effort (CPUE) for the main commercial species.	–Rec. GFCM/33/2009/3
T. VI	SOCIO-ECONOMICS	-	Data related to economic and social variables of fishery by country, area and fleet segment.	–Rec. GFCM/33/2009/3

DCRF TASKS (T)			DATA	RELATED RECOMMENDATIONS
ID	TASK	SUBTASK		
T. VII	BIOLOGICAL INFORMATION	VII.1) Stock assessment	Annual data on stock identification and stock biological information on priority species: growth parameters, length/weight relationships, recruitment, biomass. Information on environmental factors that may affect population dynamics.	– Rec. GFCM/33/2009/3
		VII.2) Length data	Data related to the observed size distribution, in the landing, of identified priority species per area and fleet segment.	– Rec. GFCM/33/2009/3
		VII.3) Other biological data	Information on some biological variables (i.e. sex and maturity) of identified priority species per area and fleet segment.	– Rec. GFCM/33/2009/3
		VII.4) Dolphin fish	Annual data on total landing, fishing period and the area of fishing operations regarding dolphin fish *Coryphaena hyppurus*.	– Rec. GFCM/30/2006/2
		VII.5) Red coral	Information on red coral harvesting, weight, effort and average diameter	– Rec. GFCM/35/2011/2 – Rec. GFCM/36/2012/1
		VII.6) European eel	Annual data on total catch, gear types and fishing days, by country and for the different life stages.	-
		VII.7) Ecosystem indicators	The selected common indicators will refer to spawning stock biomass, total landings, fishing mortality, effort and incidental catch of vulnerable and non-target species	-

Table 2.2. List of species detected for the UoA using purse seine (PS) for European anchovies, *Engraulis encrasicolus* (ANE), in GSA 10 and scoring elements. The species underlined is the species detected for the selected UoA. Mean landing refers to landed weights in 2015-2016.

Italian name	English name	Mean landing [tons]	Percentage (%)	Component	Scoring elements	Designation	Data-deficient
Alici	European anchovy	4098.630	63.920	P1	*Engraulis encrasicolus*	Main	No
Sardine	European pilchard (=Sardine)	753.094	11.745	Primary	*Sardina pilchardus*	Main	No
Alaccia	Round sardinella	338.680	5.282	Secondary	*Sardinella aurita*	Main	Yes
Tonnetto	Little tunny (=Atl,black skipj)	275.677	4.299	Secondary	*Euthynnus alletteratus*	Minor	No
Other species		943.497	14.754		-	*Negligible (percentage <2%)*	

Source: estimates from MIPAAFT/National Fisheries Data Collection Programme and reported in the BLUFISH PROJECT Stage 1.b (Deeper mapping/Annex II – GSA 10).

7.5.1.3. ETP species

Neither the Italian Ministry nor scientists reported any interactions between the purse seine fishery and any ETP species. It is reported that cetaceans (bottlenose dolphin), turtles (loggerhead) and birds (various) are present in the area, but do not interact particularly with the fishery or the fishing vessels. No seals are present in the area.

There are a variety of projects for monitoring populations of these species in Mediterranean. It is reported that the populations of bottlenose dolphins are among the best-studied in the Mediterranean (see Cetacean Alliance information). In relation to bottlenose dolphins, there are concerns over the status of some populations according to the Cetacean Alliance, but this fishery is not mentioned as an issue; in fact, they note a diet switch towards small pelagic as sardine biomass has increased. Increased pleasure boating and development is the main concern.

The main interaction of the fishery with species other than small pelagic is with bluefin tuna, which was formerly depleted but is now present in the area in increasing numbers. Bluefin tuna is fished under quota, managed by ICCAT, and is not on this basis an ETP species.

Bluefin ranches provide a market for some of the catch of the fishery, but this would also not be considered under an MSC assessment, except in relation to traceability if relevant. Scientific data indicates that the populations of all five ETP species encountered in Mediterranean are part of distinct populations (Wallace et al., 2010; Faria et al., 2012; IUCN, 2012), with both green and loggerhead turtles closely related to turtle populations nesting in the Eastern Mediterranean (Wallace et al., 2010).

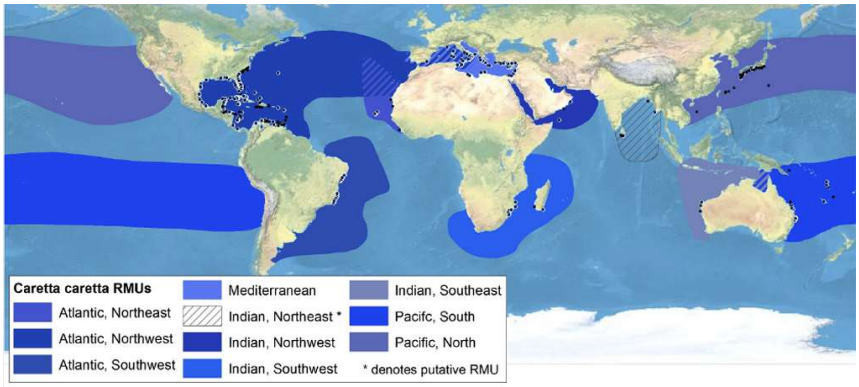


Figure 2.1 Regional management units for loggerhead turtles; nesting sites are represented by black squares. Source: Wallace et al. (2010).

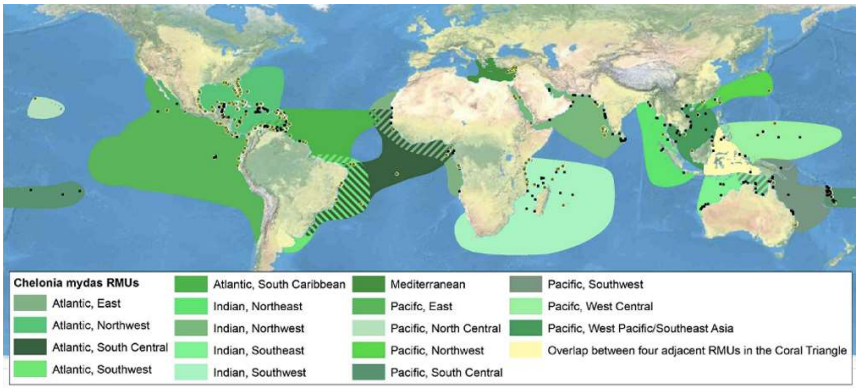


Figure 2.2 Regional management units for green turtles; nesting sites are represented by black squares. Source: Wallace et al. (2010).

Figure 2.3 Distribution of the Mediterranean bottlenose dolphin population in the Mediterranean Sea (hatched area on map). Source: IUCN (2012).

Figure 2.4 Distribution of the Mediterranean striped dolphin population in the Mediterranean Sea (hatched area on map). Source: IUCN (2012).

7.5.1.4. Habitats

The GSA 10 (Central-Southern Tyrrhenian Sea) extends for 20,255 km^2, considering the area between the coastline (about 10 m) and about 800 m of depth, and falls within the statistical division FAO 37.1.3. The total area concerns the coasts of 5 regions: Lazio (only for a few kilometers), Campania, Basilicata, Calabria (Tyrrhenian side) and Sicily (northern side), for a coastal extension of 1,129 km, and includes 12 maritime Compartments. According to the GFCM-FAO classification, the GSA 10 is enclosed in a stretch of the Tyrrhenian Sea delimited by the coastline and the junction between two ideal perpendicular from the coast towards the open sea: one to the south, 70 miles off the coast of Trapani, and one to North, 90 miles off the Circeo promontory.

The central-southern Tyrrhenian presents one of the most complex structures among the seas that surround the Italian peninsula, due to its morphological, geophysical and dynamic characteristics of the masses of water. The coasts are generally very uneven and the island system is the richest of Italian seas. Moreover, the coastal area is characterized by a system of gullies with peculiar environmental characteristics. The morphology of the central-southern Tyrrhenian funds is similar to that of the oceans, with a well-developed continental shelf and slope, abyssal plains and submarine mountains. The Tyrrhenian Sea can in fact be considered, from a geological point of view, more like an ocean, as a consequence of the prolonged processes of lithosphere distension that have generated a thinning of the crust and the formation of an abyssal plane. The geodynamic evolution of the central-southern Tyrrhenian Sea is highlighted by two main abyssal plains, where maximum depths from 2,900 to 3,600 m are reached, where there are two impressive volcanic buildings of basaltic nature, Vavilov (about 85 miles South-West of the Gulf of Naples) and the Marsili (about 54 miles from the Cilento coast line).

In the area near Vavilov there is a less imposing volcano, the Magnaghi, probably not active. In the areas surrounding the Marsili (height 3.500 m, length about 60 km), which rises from the seabed up to about 500 m, is present a mountain range of volcanic origin. These are generally active formations with circulation of hydrothermal fluids that give rise to the hydrothermal sources.

This topography influences the circulation of water masses, in particular it has been shown that Vavilov is partially responsible for the persistence, in several seasons, of anticyclonic vortices fed by prod water masses in winter in the North-Western Mediterranean (Western Intermediate Waters, WIW) (Budillon et al., 2009). The margins of the central-southern Tyrrhenian are rather steep and irregular and, in some cases, affected by deep incisions. The continental shelf (up to 200 m) is not very developed along the

northern edge of Sicily and along the coasts of Calabria and Basilicata, while it has a greater development along the margin of Campania and Lazio, where it forms, in the northern part, the continuation towards the sea of the alluvial plains of the rivers Garigliano and Volturno and, further south, in the Gulf of Salerno, that of the Sele. In the Gulf of Gaeta the extension of the continental shelf tends to decrease from NO to SE, passing from about 20 km at the mouth of the Garigliano, less than 10 km south of the river Volturno, where the platform is carved by the canyon of Cuma. The alignment between the mainland and the flegrean islands (Campi Flegrei-Procida-Ischia) represents a physiographic, as well as geographical, partition between the Gulf of Gaeta to the north and the Gulf of Naples to the south, where the continental shelf has amplitude between about 2,5 km off the western sector of the island of Capri, and about 10-15 km, off the coast of Sorrento. In the Gulf of Naples, rather offshore, between the islands of Ischia and Capri, the platform is carved by two large canyons: the Magnaghi and the Dohrn. In the same area there is also a bench of sedimentary nature called "Banco di Bocca Grande" with a top of 130 m. The width of the Magnaghi and Dohrn canyons is between a few hundred meters and more than 1 km and their extension extends from the edge of the continental shelf (about 150 m deep) to the batiale plain (D'Argenio et al., 2004) .

In the stretch included from Punta Campanella to Amalfi the continental shelf tends to disappear and the bottom quickly reaches depths of over 300 m, while in the stretch from Amalfi to Capo d'Orso the platform stretches for only 2-4 km, reaching 10- 12 km from the coastline near Salerno and expanding up to 15-25 km from the coastline at the mouth of the Sele. The Gulf of Policastro is characterized by sectors with a narrow continental shelf (less than 3 km) and sectors where the continental shelf reaches an area of about 8 km, with a 130 and 140 m escarpment. Where the platform is less developed the upper part of the slope is narrow and bumpy and carved by terraces and canyons. The Strait of Messina separates the continental area of the GSA 10 from that of northern Sicily and is the place where the waters of the central-southern Tyrrhenian and the Ionian mix. The submarine profile of the Strait has, at its widest point (3.2 km wide), a depth between 80 and 120 m. On the Tyrrhenian side the sea floor slowly degrades, while in the Ionian part the slope is very steep, reaching in a few kilometers depth of about 500 m. The Strait outlines the physiographic demarcation between central-southern Tyrrhenian and Ionian and represents an additional morphological barrier for the exchange between the two basins.

The fluctuations of the Atlanto-Ionian current (AIS) induce a very particular internal dynamic within the Strait; moreover, even if the tidal excursions in the Mediterranean are relatively small, in the Strait of Messina they become important, since the semi-tides in the Tyrrhenian and the Ionian are generally in opposition. This generates strong vertical and horizontal gradients, so the Ionic waters enter the surface in the Tyrrhenian Sea during the tidal flow from the North and, conversely, the Tyrrhenian waters enter the Ionian at a depth of about 100 m during the flow from the South (Brandt et al. , 1999). The upwelling phenomena, bringing to the surface deep waters, determine in the Strait the presence of superficial waters that are considerably colder than those, at the same depth, of other areas of the Ionian Sea. The salts of nitrogen and phosphorus, transported in the superficial layers from the deep ionic waters, allow the production of a large amount of organic substance, which feeds the trophic network of both the coastal benthic populations and of the pelagic communities.

The Strait of Messina is a fundamental transit point for many Mediterranean migratory species (tunnids, swordfish, cetaceans). The peculiarities of the circulation of water masses in the Strait determine the presence of batopelagic fauna in the less deep layers (for example Chauliodus sloani, Argyropelecus hemigymnus), a phenomenon that has fueled, in this area, a rich research on the abyssal fauna especially between the end of the nineteenth and early twentieth century. The northern coast of Sicily is, like most of the continental coasts, characterized by a steep escarpment, with the bottom reaching the average depth of 500 m at distances between 4 and 15 km from the coast (Figure 2.5). The Tyrrhenian Sea exchanges water with the rest of the Mediterranean through the canals of Sardinia, Corsica and Sicily, morphological thresholds that prevent the recirculation of the deep layers (Sparnocchia et al., 1999). From the point of view of the movements of the masses of water, the Tyrrhenian is an active area, characterized by a rich mesoscale dynamics (Vetrano et al., 2010; Figure 2.5). The waters can be classified into three large layers:

- the surface layer, up to about 200 m of depth, occupied by Modified Atlantic Waters (AW), which flow with the Atlantic current from the Strait of Gibraltar and change to become more salty during their journey;
- the intermediate layer from 200 to 700 m of depth, currently occupied by a mixture of intermediate waters - before the nineties called Intermediate Waters Levantine (LIW, Levantine Intermediate Waters) (Gasparini et al., 2005) - that flow from the Strait of Sicily;
- the deep layer occupied by the Deep Tyrrhenian Waters (TDW, Tyrrhenian Deep Waters) that protrudes from the Sardinian Channel along the Sardinia Sea.

Recent scientific evidences, emerging from the work of Millot and collaborators (2006), suggests that dense and deep Tyrrhenian waters (TDW) play a crucial role in the deep circulation of the western basin, but are also one of the main tributaries to the flow of water leaving the Mediterranean towards the Atlantic. A substantial supply of water from the eastern Mediterranean basin (LIW and underlying layers) flows through the Strait of Sicily and enters the Tyrrhenian basin where it sinks and mixes with the waters of the western Mediterranean basin (Sparnocchia et al., 1999). The historical series of oceanographic data, from the sixties to the end of the eighties, show, instead, that the waters leaving the Mediterranean towards Gibraltar were formed by the deep waters of the western basin (WMDW) and the LIW, but there is no indication of other masses of water, in particular of the dense ones that are formed in the Southern Adriatic and in the Aegean, currently known, when they reach the Sicilian Channel, as Eastern Overflow Water (EOW) (Millot et al., 2006). The most recent measurements of temperature and salinity values, collected near the Strait of Gibraltar, indicate that the denser Mediterranean waters, which flow towards the Atlantic, have undergone continuous changes, becoming increasingly hot and salty. So the dense waters that currently flow out of the Mediterranean are the TDW, mainly composed of EOW (the percentage of WMDW is lower).

The most dense part of the flow has therefore increasingly assumed the characteristics of the eastern Mediterranean basin, undergoing the influence of the Eastern Mediterranean Transient (EMT), an anomaly due to an important contribution of dense waters coming from the Aegean following particular climatic events, which has generated changes in the composition and circulation of the masses of water in the Mediterranean. The available observations make it possible to establish that the transient reached the Tyrrhenian Sea between April and May 1992 and the impact in the western basin was highest in the two years 1992-1994, when an important portion of the flow from the Strait of Sicily collapsed into the Tyrrhenian Sea reaching the greatest depths (Budillon et al., 2009).

All the coasts of Sardinia are characterized by the important presence of prairies of *P. oceanica*, while *Halophila stipulacea* and *Cymodocea nodosa* are less abundant (Figure 2.5, GSA 10). The prairies of *P. oceanica* along the coasts of Sardinia are very well studied and mapped. Distribution maps are currently available for the entire coastal area.

In the Southern Tyrrhenian Sea, in almost all coastal areas of the GSA 10, *Posidonia oceanica, Cymodocea nodosa* and *Halophila stipulacea* are present (Figure 2.6). Otherwise Zostera marina and Zoostera noltii are reported only for the Gulf of Naples.

In the southern Tyrrhenian Sea some information on the distribution of coralligenous is available for the Sicilian northern coast and for some areas of Lazio and Campania (Figure 2.7 and Figure 2.8), while mäerl bottoms seem to be completely absent.

In the southern Tyrrhenian Sea, in the Gulf of Sant'Eufemia, recent investigations with remote controlled video cameras (ROV), conducted mainly along vertical walls of the Calabrian continental shelf between 70 and 130 m depth, have revealed a high concentration of arborescent corals and colonies of gorgonia (*Callogorgia verticillata, Paramuricea clavata, Paramuricea macrospina, Bebryce mollis, Villogorgia bebrycoides, Corallium rubrum* and *Leptogorgia sarmentosa*), and antipatists (*Antipathella subpinnata, Antipathes dichotoma* and *Parantipathes larix*). These colonies have a high concentration (up to 17 colonies per m2) and large (over 1.5 m). The topography of this region, however, also includes large gently sloping plains, such as the one in the Gulf of St. Euphemia (Figure 2.9). In particular, the seabed of this area is identified by numerous small rocky reliefs emerging from a muddy bottom and representing the typical habitat of a biocoenosis called "roche du large".

In the Gulfs of Naples and Salerno it is historically documented the presence of red coral (*C. rubrum*), since it has long been exploited commercially on reefs or shoals up to 200 m deep. In 2010 and 2012, during two ROV monologic campaigns, banks of red corals were detected in 16 of the 25 stations visited, between 45 and 150 m depth (Figure 2.10).

Similar surveys carried out with the ROV but in areas near the Aeolian Islands (OCEANA, 2018) on deep ecosystems around the Sicilian submarine volcanoes have been observed bamboo corals (family Isididae) and other colonies that feature very high biodiversity bottoms.

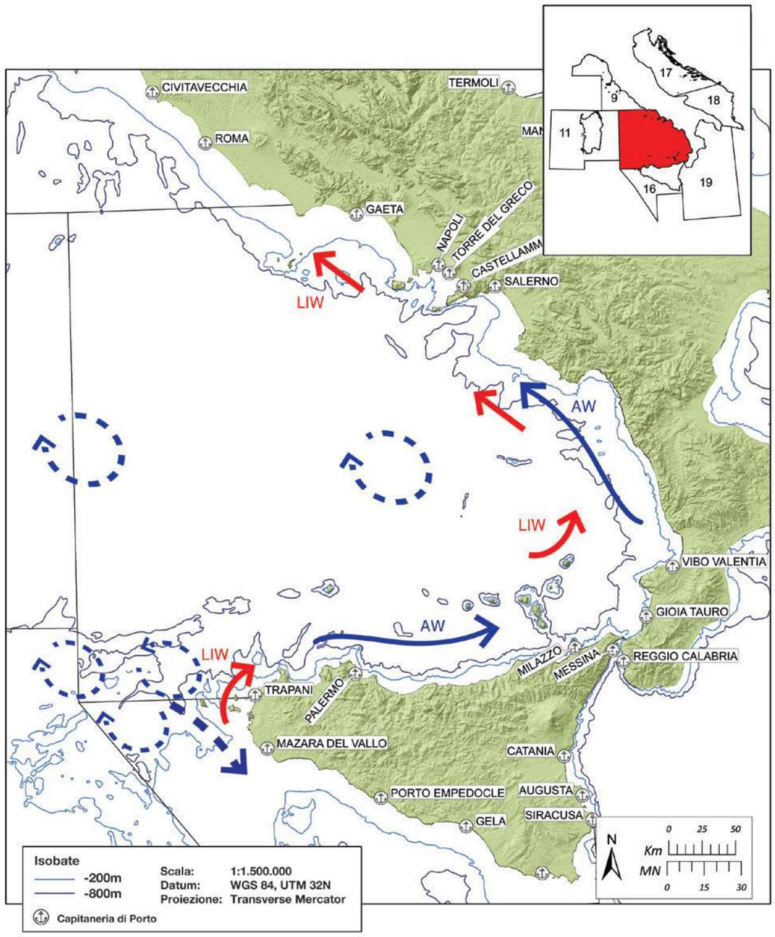
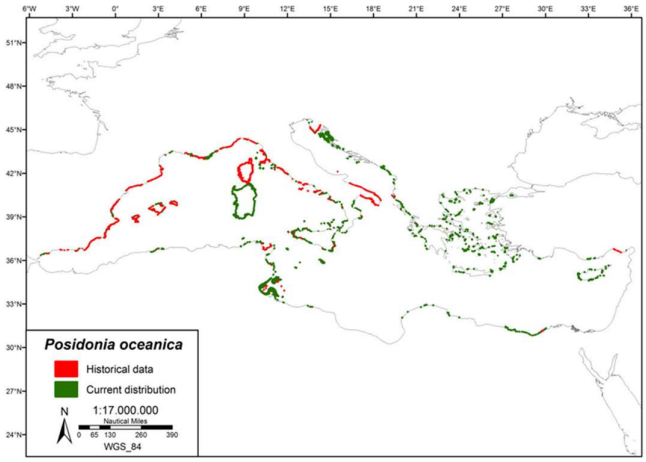
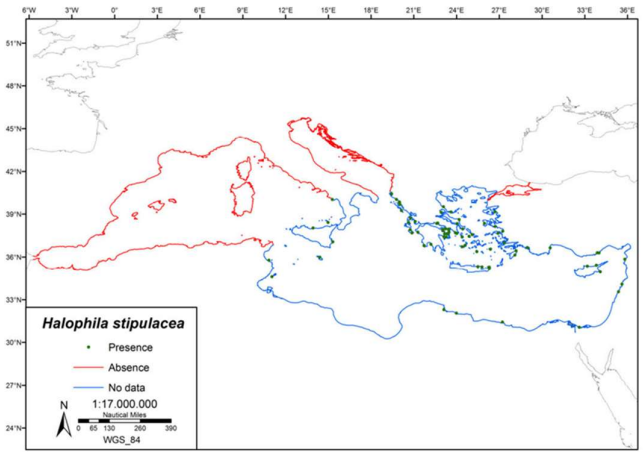


Figure 2.5. Circulation of surface currents (AW) and intermediate currents (LIW); AW: waters of Atlantic origin (blue); LIW: waters of Levantine origin (red) (MIPAAFT, 2017).





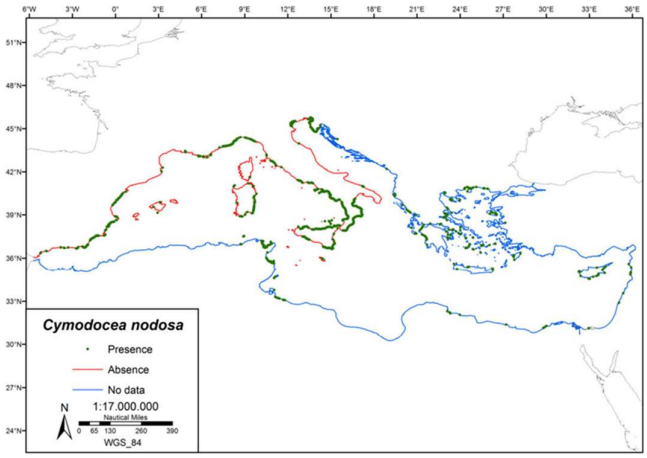


Figure 2.6. Maps of the distribution of the main marine phanerogams in Mediterranean Sea (Giannoulaki et al., 2013).

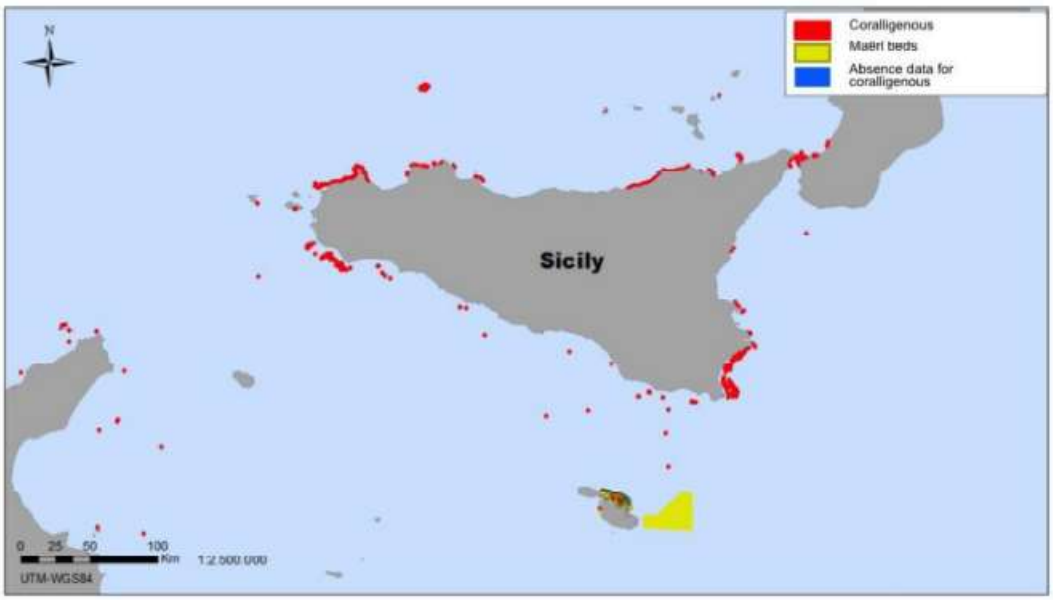


Figure 2.7. Map of the distribution of coralligenous bottoms along the Sicilian coasts (Giannoulaki et al., 2013).

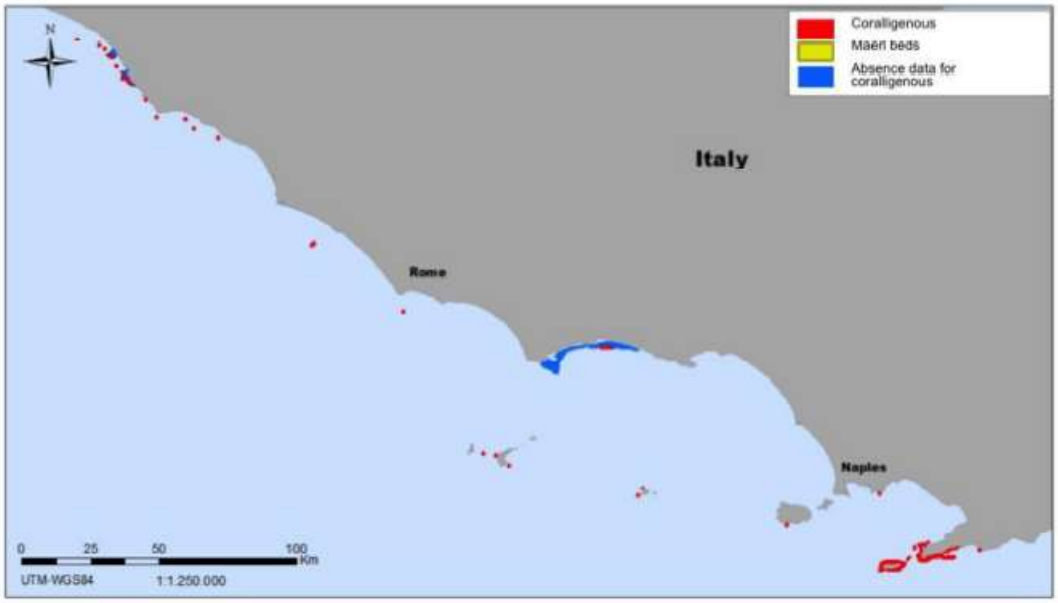


Figure 2.8. Map of the distribution of coralligenous bottoms along Lazio and Campania coasts (Giannoulaki et al., 2013).

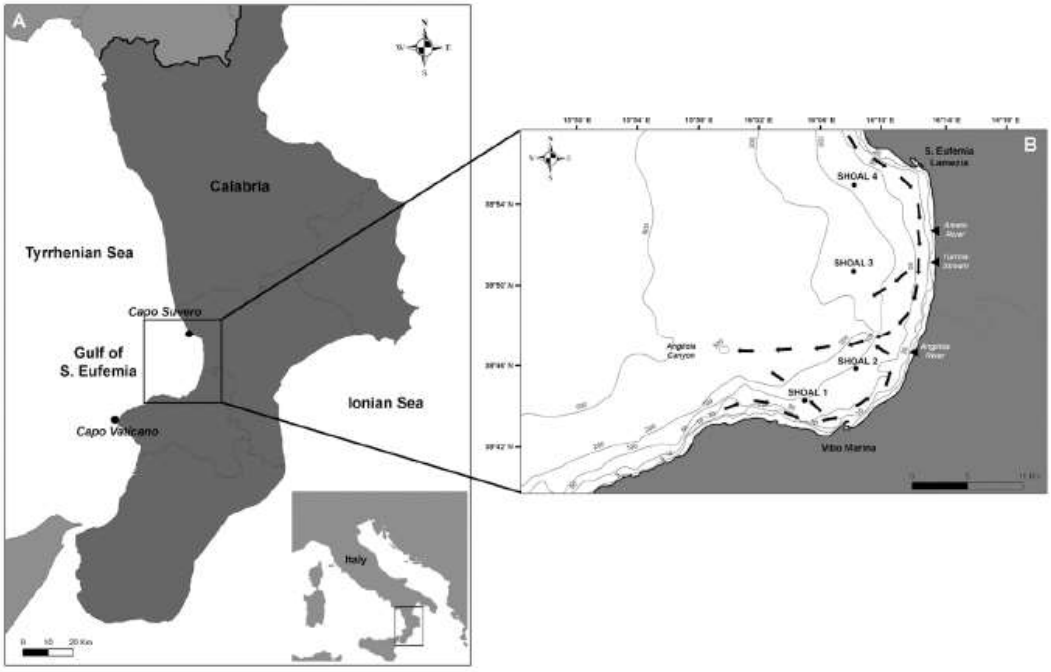


Figure 2.9. Map of the Gulf of S. Eufemia (A) and of the shoals (B). The map also shows the position of the mouths of the main rivers of the region and the pattern of circulation (black arrows) of the coastal current that heads towards the Angitola canyon (modified by Bo et al., 2012).

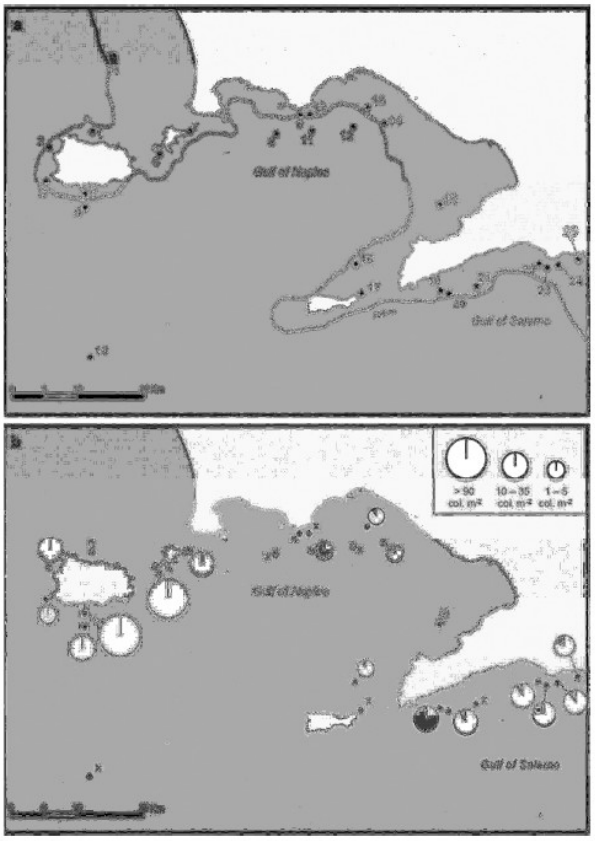


Figure 2.10. a: distribution of the sites explored in the study area; b: average density and percentage of dead colonies (gray sectors) and healthy colonies (white sectors). "X" indicates the absence of red coral in the considered site (Bavestrello et al., 2014).

The Mediterranean Regulation specifies rules for the depth of purse seine nets: they should be no more than 120 m deep (measured when stretched and wet) and not deployed in water shallower than 70 % of the total stretched-mesh depth of the net. The nets should also not be deployed within 300 m of the shore or in depths of less than 50 m (Figure 2.11).

Among the various fishing gears used in the Mediterranean, purse seine fisheries are characterised by limited effects on ecosystem structure (Coll et al., 2007). The EC Reg. 1967/2006 provisions that concern the fishing nets used by a large proportion of such purse seiners are as follows:

- For surrounding nets, the minimum mesh size shall be 14 mm (Article 9);
- The length of netting shall be restricted to 800m and the height to 120 m, except in the case of tuna seines (Annex II);
- Fishing above seagrass beds of Posidonia oceanica or other marine phanerogams shall be prohibited (Article 4);
- The use of purse seines shall be prohibited within 300m of the coast or within the 50m isobath where that depth is reached at a shorter distance from the coast and a purse seine shall not be deployed at depths less than 70% of the overall height of the purse seine itself (Article 13, paragraph 3).

STECF (2016c) stated that the measured headrope length for the Italian purse seines ranged from 400 to 500 m. For purse seines having such a headline length the theoretical net drop could range from 142 and 222 m (STECF, 2016c).

Data from sensors and video cameras by Lucchetti et al. (2018) documented that purse seines do not exert adverse impacts on critical habitats such as Posidonia meadows and that the groundrope impact on the seabed is so slight and short-lived as to be negligible.

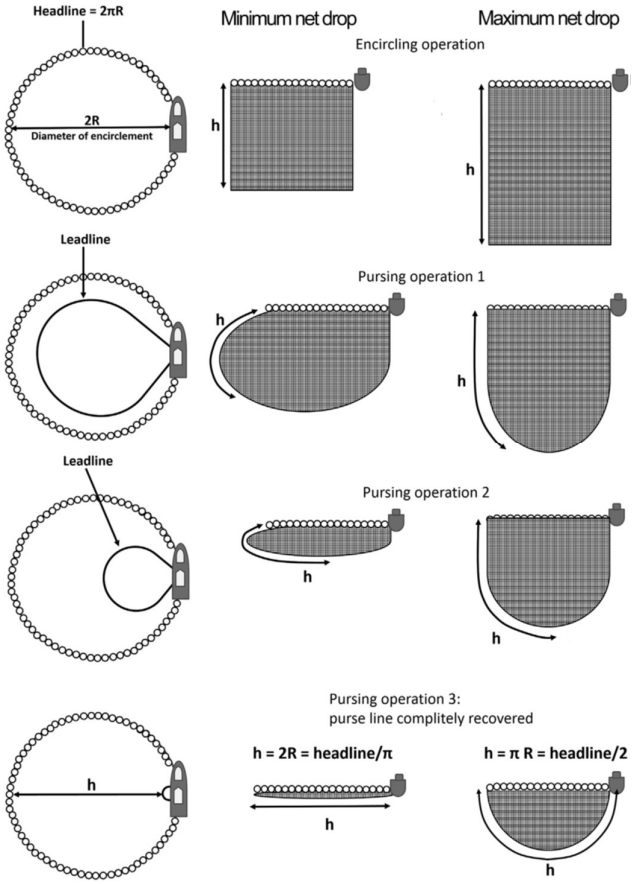


Figure 2.11. Theoretical approach for the definition of minimum and maximum purse seine net height. Source: Lucchetti et al. (2018).

7.5.1.1. Ecosystem

The GSA 10 is located entirely in the western Mediterranean ecoregion. In this area, based on the analyses conducted by Piroddi et al. (2016), the trend of the biomass of the different functional groups (Figure 2.12) shows that sardine has undergone a decline since the beginning of the study period (1950), which became more pronounced in the last years of the series. A similar result was also observed for demersal fish and pinnipeds, although the model was not able to capture the strong decline of these marine mammals in the 1970s. As for sharks and rays, the model has confirmed a decrease until the end of the 90s and a slight increase in the decade of the 2000s. For anchovy and hake, the model was unable to define the decreasing trend observed. Similarly, benthos and deep-sea fishes are also not well described by the madell, mainly due to the limited data available.

A good replicate of the time series of biomass was found for crustaceans and bentopelagic cephalopods, where the model was able to follow most of the fluctuations over time. When analyses were performed using a biogeochemical model as a driver of alternative primary production, an improvement in model outputs was observed.

From the analyses carried out, it is expected that the western Mediterranean basin will become more oligotrophic, due to the decrease in surface density influenced by the waters of the Atlantic. As noted above, sardine and anchovy are likely to be considered key low trophic level (LTL) species according to the MSC definition – i.e. there is a strong possibility that they play an important role in the ecosystem as forage fish for higher trophic levels, including fish and other predators.

Overall, Coll et al. (2009) note 'a low probability that the ecosystem was being sustainably fished during the study period'. There is no particular evidence that the situation has improved since then: sardine biomass has been more or less stable while anchovy has continued to decline; in relation to top predators, bluefin tuna biomass has increased substantially but hake and swordfish remain depleted (STECF, 2016b, ICCAT, 2018).

Hake biomass may be declining as a consequence of climate change; however, the species has seen a huge expansion in the northern-most part of its range (Lav Bavčević, pers. comm.). In general, it is hard to rule out climate change rather than (or as well as) fishing as a possible driver of some of the patterns observed or postulated above.

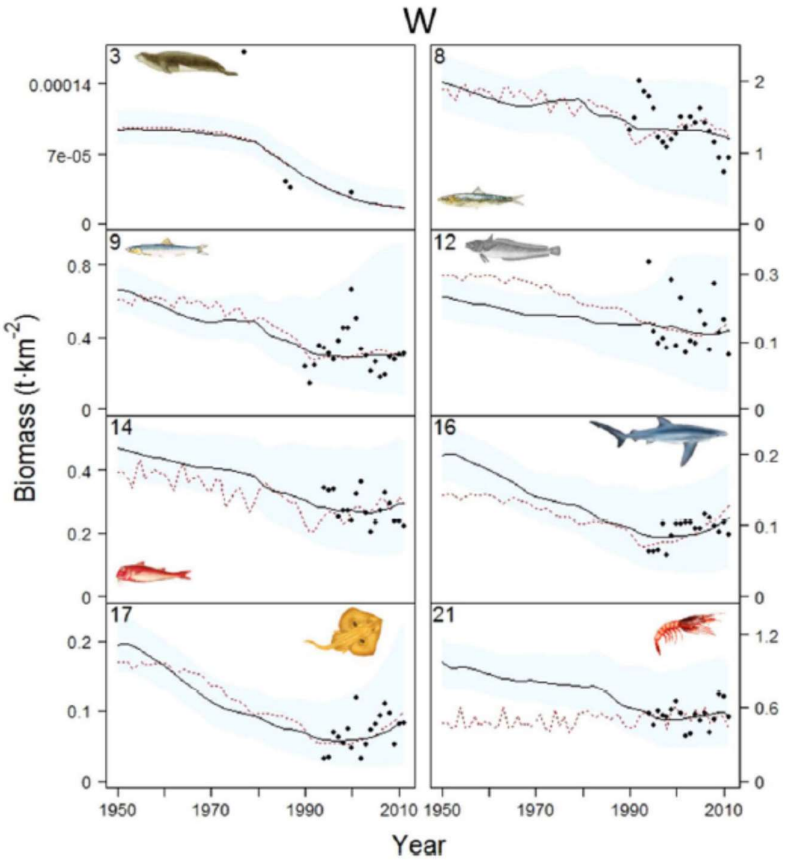


Figure 2.12. Representation of the results of the ecosystem model for some functional groups that are observed in the western Mediterranean for the period 1950-2011 (Piroddi et al., 2016).

7.5.2 Principle 2 Performance Indicator scores and rationales – delete if not applicable

PI 2.1.1 – Primary species outcome

PI 2.1.1		The UoA aims to maintain primary species above the point where recruitment would be impaired (PRI) and does not hinder recovery of primary species if they are below the PRI		
Scoring Issue		SG 60	SG 80	SG 100
a	Main primary species stock status			
	Guide post	Main primary species are **likely** to be above the PRI. OR If the species is below the PRI, the UoA has measures in place that are **expected** to ensure that the UoA does not hinder recovery and rebuilding.	Main primary species are **highly likely** to be above the PRI. OR If the species is below the PRI, there is either **evidence of recovery** or a demonstrably effective strategy in place **between all MSC UoAs which categorise this species as main**, to ensure that they collectively do not hinder recovery and rebuilding.	There is a **high degree of certainty** that main primary species are above the PRI **and are** fluctuating around a level consistent with MSY.
	Met?	**Yes**	**Yes**	**No**
Rationale				
According to the last available assessment of STECF (see report: https://stecf.jrc.ec.europa.eu/documents/43805/664390/STECF+14-08+-+Med+assessments+2013+-+part+2.pdf) sardine in the Tyrrhenian Sea is above the PRI (current SSB 60000 tons, around 3 times the PRI). However, the assessment does not show that the stock is at MSY level. Therefore, SG 100 is not met.				
b	Minor primary species stock status			
	Guide post			Minor primary species are highly likely to be above the PRI. OR If below the PRI, there is evidence that the UoA does not hinder the recovery and rebuilding of minor primary species.
	Met?			
Rationale				
Not scored				
References				

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥ 80**

Information gap indicator	**More information sought**
Data-deficient? (Risk-Based Framework needed)	**No**

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.1.2 – Primary species management strategy

PI 2.1.2		There is a strategy in place that is designed to maintain or to not hinder rebuilding of primary species, and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are **measures** in place for the UoA, if necessary, that are expected to maintain or to not hinder rebuilding of the main primary species at/to levels which are likely to be above the PRI.	There is a **partial strategy** in place for the UoA, if necessary, that is expected to maintain or to not hinder rebuilding of the main primary species at/to levels which are highly likely to be above the PRI.	There is a **strategy** in place for the UoA for managing main and minor primary species.
	Met?	**Yes**	**Yes**	**No**
Rationale				
The management measures in place are considered appropriate for managing the primary main species at a point where recruitment impairment (PRI) is unlikely. These measures include aerial restrictions (based on depth), effort restrictions, minimum landing sizes, seasonal closures and technical gear measures (see the EC Reg 1967/2006). Therefore, SG 80 is met. However, these measures are not considered to ensure that primary main species remain above the PRI; there is not an objective basis for confidence that the measures will work, and robust management focused on reducing fishing mortality and improving selectivity is advocated for Mediterranean fish stocks on a whole (e.g. see Paraskevas et al., 2014). Therefore, SG100 is not met.				
b	Management strategy evaluation			
	Guide post	The measures are considered **likely** to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/species).	There is some **objective basis for confidence** that the measures/partial strategy will work, based on some information directly about the fishery and/or species involved.	**Testing** supports **high confidence** that the partial strategy/strategy will work, based on information directly about the fishery and/or species involved.
	Met?	**Yes**	**Yes**	**No**
Rationale				
There are a number of management measures in place to regulate fisheries in the Tyrrhenian Sea. To date management has been primarily based on technical measures. Such measures include for instance minimum landing sizes for a number of species, time/area closures, technical conditions for maximum fishing gear dimensions and characteristics, minimum mesh sizes, requirements for fishing licenses etc. Although the management plan (MIPAAF 2011) for purse seines being implemented in the Tyrrhenian Sea does not directly consider all the primary species, several of the measures (e.g. area closures, reduction of fishing effort) will nevertheless also serve to manage and reduce catches of non-target species, and can be seen as a partial management strategy for such species. As evidenced in 2.1.1a non-target species are above PRI so there is some objective basis for confidence that the measures are working will work, Therefore SG60 and SG80 are met. However, no testing to support high confidence that the partial strategy will work has been carried out. Therefore, SG 100 is not met.				
c	Management strategy implementation			
	Guide post		There is **some evidence** that the measures/partial strategy is being **implemented successfully**.	There is **clear evidence** that the partial strategy/strategy is being **implemented successfully and is achieving its overall objective as set out in scoring issue (a).**

	Met?		**Yes**	**No**
Rationale				
Based on the information collected during the site visit, technical measures (e.g., mesh size, length, etc.) are in place (see Annex 2 for more details). Therefore, there are some objectives basis for confidence that the measures are being implemented successfully in the UoA – SG 80 is met. The current Italian Management plan does not specifically mention management of non-target species, and as it cannot be considered a partial management strategy in place that is designed to maintain / not hinder rebuilding of such species. In addition, there is no clear evidence currently available that the measures are achieving their overall objectives – SG 100 is not met.				
d	Shark finning			
	Guide post	It is **likely** that shark finning is not taking place.	It is **highly likely** that shark finning is not taking place.	There is a **high degree of certainty** that shark finning is not taking place.
	Met?	**NA**	**NA**	**NA**
Rationale				
SA3.5.2 of the MSC Fisheries Certification – Requirements v2.0 states: 'If the primary species is a shark, the team shall score scoring issue (d)'. Since there are no shark species caught by the UoA for which management tools and measures are in place, the team did not score issue (d).				
e	Review of alternative measures			
	Guide post	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main primary species.	There is a **regular** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main primary species and they are implemented as appropriate.	There is a **biennial** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of all primary species, and they are implemented, as appropriate.
	Met?	**NA**	**NA**	**NA**
Rationale				
Scoring issue (e) was not scored in line with GSA 3.5.3 of the MSC Fisheries Certification – Requirements v2.0: 'If there is no unwanted catch of primary species, or no primary species at all, then the 'Review of alternative measures' scoring issue (e) is not scored.'				
References				
MIPAAF 2011. Piano di Gestione per la pesca ai piccoli pelagici con le reti a circuizione della GSA10 (Mar Tirreno meridionale). 11 pp.				

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥ 80**
Information gap indicator	**More information sought**

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.1.3 – Primary species information

PI 2.1.3		Information on the nature and extent of primary species is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage primary species		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impact on main primary species			
	Guide post	Qualitative information is **adequate to estimate** the impact of the UoA on the main primary species with respect to status. **OR** **If RBF is used to score PI 2.1.1 for the UoA:** Qualitative information is adequate to estimate productivity and susceptibility attributes for main primary species.	Some quantitative information is available and is **adequate to assess** the impact of the UoA on the main primary species with respect to status. **OR** **If RBF is used to score PI 2.1.1 for the UoA:** Some quantitative information is adequate to assess productivity and susceptibility attributes for main primary species.	Quantitative information is available and is **adequate to assess with a high degree of certainty** the impact of the UoA on main primary species with respect to status.
	Met?	**Yes**	**Yes**	**No**

Rationale

The UoA is subject to both EU and GFCM fisheries data collection requirements.

- Under the EU fisheries Data Collection Framework (DCF) established by Council Regulation (EC) No 199/2008, Commission Regulation (EC) No 665/2008, and Commission Decision 2010/93/EU, Member States are required to compile a wide range of biological and economic data, including:
- Biological data, including stock-related data;
- Data on fleet size and fishing activity analyzed by fishing season, fleet segment, areas fished and by stock;
- Economic data relating to the fishing, aquaculture and fish processing industries;
- Fisheries independent research surveys at sea;
- Data to evaluate the effects of the fisheries sector on the marine ecosystem.

Moreover, the UoA is also subject to the requirements of the GFCM Data Collection Reference Framework (DCRF), which is GFCM's framework for the collection and submission of the fisheries-related data. A number of GFCM Recommendations request data from GFCM contracting parties, which is then used by the relevant GFCM subsidiary bodies to formulate scientific advice. The DCFR is based on seven different tasks:

- T1 – Global figures of national fisheries
- T2 – Catch (landing data, catch data per species)
- T3 – Incidental catch of vulnerable species
- T4 – Fleet
- T5 – Effort
- T6 – Socioeconomics
- T7 – Biological information (stock assessment, length data, other biological data, dolphin fish, red coral, European eel, ecosystem indicators)
- Both qualitative and quantitative information is available to assess the impact of the UoA on non-target species as a result of the application of the EU DCF and GFCM DCRF in GSA10. The available catch data indicates that there are in fact no main primary species caught by this fishery – SG 60 and 80 are met.
- The required quantitative information to assess the impact of the UoA on non-target species with a high degree of certainty is however not available. Data quality issues reported by the last STECF expert working

group performing stock assessments for species caught as by-catch by the UoA (STECF 16-08, 2016) for instance included:

- Issues with the time series of landings data and size structure data for some species;
- A lack of length composition information in discards data;
- Problems with fisheries independent data coming from the MEDITS survey in GSA 17 and 18 due to changes in methodology and survey timing.

SG 100 is not met.

b	Information adequacy for assessment of impact on minor primary species			
	Guide post			Some quantitative information is adequate to estimate the impact of the UoA on minor primary species with respect to status.
	Met?			**Yes**

Rationale

As is described in detail for scoring issue 2.1.3 (a) above, the UoA is subject to both EU and GFCM fisheries data collection requirements. Some quantitative information is available to assess the impact of the UoA on non-target species with respect to status as a result of the application of the EU DCF and GFCM DCRF – SG 100 is met.

c	Information adequacy for management strategy			
	Guide post	Information is adequate to support **measures** to manage **main** primary species.	Information is adequate to support a **partial strategy** to manage **main** primary species.	Information is adequate to support a **strategy** to manage **all** primary species and evaluate with a **high degree of certainty** whether the strategy is achieving its objective.
	Met?	**Yes**	**Yes**	**No**

Rationale

As is described in detail for scoring issue 2.1.3 (a) above, the UoA is subject to both EU and GFCM fisheries data collection requirements. The information collected as a result of the application of the EU DCF and GFCM DCRF in the Mediterranean Sea would be adequate to support a partial strategy to manage main primary species. The Italian Management plan for small pelagic in the Tyrrhenian Sea constitutes a partial strategy to manage non-target species since management measures (e.g. season and area closures) will also have an effect on non-target species. In any case the SG 60 and SG 80 are met.
There is currently no cohesive and strategic arrangement to manage non-target species caught by the UoA. Several data quality issues remain (STECF 16-08, 2016) and have yet to be addressed by the relevant authorities, so it would not be possible to evaluate with a high degree of certainty whether a potential future strategy is achieving its objective – SG 100 is not met.

References

STECF 16-08 (2016). Scientific, Technical and Economic Committee for Fisheries (STECF) – Mediterranean assessments part 2. Publications Office of the European Union, Luxembourg, EUR 27758 EN, 483 pp.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥ 80**
Information gap indicator	**More information sought**

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.2.1 – Secondary species outcome

PI 2.2.1		The UoA aims to maintain secondary species above a biologically based limit and does not hinder recovery of secondary species if they are below a biological based limit		
Scoring Issue		SG 60	SG 80	SG 100
a	Main secondary species stock status			
	Guide post	Main secondary species are **likely** to be above biologically based limits. OR If below biologically based limits, there are **measures** in place expected to ensure that the UoA does not hinder recovery and rebuilding.	Main secondary species are **highly likely** to be above biologically based limits. OR If below biologically based limits, there is either **evidence of recovery** or a **demonstrably effective partial strategy** in place such that the UoA does not hinder recovery and rebuilding. AND Where catches of a main secondary species outside of biological limits are **considerable**, there is either **evidence of recovery** or a, **demonstrably effective strategy in place between those MSC UoAs that have considerable catches of the species**, to ensure that they collectively do not hinder recovery and rebuilding.	There is a **high degree of certainty** that main secondary species are above biologically based limits.
	Met?	**NA**	**NA**	**NA**
Rationale				
The only main secondary species is the round sardinella. The stock was not assessed therefore a PSA analysis was applied (see section 8.3). The MSC PSA-derived score was 84.				
b	Minor secondary species stock status			
	Guide post			Minor secondary species are highly likely to be above biologically based limits. OR If below biologically based limits', there is evidence that the UoA does not hinder the recovery and rebuilding of secondary species
	Met?			**NA**
Rationale				
Not scored.				
References				

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥80**
Information gap indicator	**More information sought**
Data-deficient? (Risk-Based Framework needed)	**No**

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.2.2 – Secondary species management strategy

PI 2.2.2		There is a strategy in place for managing secondary species that is designed to maintain or to not hinder rebuilding of secondary species and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are **measures** in place, if necessary, which are expected to maintain or not hinder rebuilding of main secondary species at/to levels which are highly likely to be above biologically based limits or to ensure that the UoA does not hinder their recovery.	There is a **partial strategy** in place, if necessary, for the UoA that is expected to maintain or not hinder rebuilding of main secondary species at/to levels which are highly likely to be above biologically based limits or to ensure that the UoA does not hinder their recovery.	There is a **strategy** in place for the UoA for managing main and minor secondary species.
	Met?	**Yes**	**Yes**	**No**
Rationale				
There is only one main secondary species. There are no evaluation on this stock, but there are technical measures (foreseen in the 1967/2006 Med Reg.). Monitoring is in place with an Acoustic survey (MEDIAS) conducted every year and commercial cathes are collected. Moreover, the Italian management plan on small pelagic species in GSA 10 would have an effect also on this species. Such measures provide a basis for other measures to be put in place if required, hence the definition of a partial strategy is met. SG80 is met, but measures are not sufficient to constitute a 'strategy', so SG100 is not met.				
b	Management strategy evaluation			
	Guide post	The measures are considered **likely** to work, based on plausible argument (e.g. general experience, theory or comparison with similar UoAs/species).	There is **some objective basis for confidence** that the measures/partial strategy will work, based on some information directly about the UoA and/or species involved.	**Testing** supports **high confidence** that the partial strategy/strategy will work, based on information directly about the UoA and/or species involved.
	Met?	**Yes**	**No**	**No**
Rationale				
The MSC PSA-derived high score provides plausible argument that the measures are likely to work and SG 60 is met. However, there is not objective basis on the status of the stock that would constitute an objective basis for confidence that the measures/partial strategy will work. Therefore SG 80 is not met.				
c	Management strategy implementation			
	Guide post		There is **some evidence** that the measures/partial strategy is being **implemented successfully**.	There is **clear evidence** that the partial strategy/strategy is being **implemented successfully and is achieving its objective as set out in scoring issue (a).**
	Met?		**No**	**No**
Rationale				
The measures foreseen in the Italian management plan are recently applied and therefore there is no evidence that are being implemented successfully. Therefore SG 80 is not met.				
d	Shark finning			
	Guide post	It is **likely** that shark finning is not taking place.	It is **highly likely** that shark finning is not taking place.	There is a **high degree of certainty** that shark finning is not taking place.

	Met?	**NA**	**NA**	**NA**
Rationale				
SA3.5.2 of the MSC Fisheries Certification – Requirements v2.01 states: 'If the secondary species is a shark, the team shall score scoring issue (d)'. Since there are no species caught by the UoA for which management tools and measures are in place, and hence no primary species which are sharks, the team did not score issue (d) (see deep mapping report Annex IV for the complete list).				
e	Review of alternative measures to minimise mortality of unwanted catch			
	Guide post	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of **unwanted** catch of main secondary species.	There is a **regular** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of **unwanted** catch of main secondary species and they are implemented as appropriate.	There is a **biennial** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of **unwanted** catch of all secondary species, and they are implemented, as appropriate.
	Met?	**NA**	**NA**	**NA**
Rationale				
Scoring issue (e) was not scored in line with GSA 3.5.3 of the MSC Fisheries Certification – Requirements v2.01: 'If there is no unwanted catch of secondary species, or no secondary species at all, then the 'Review of alternative measures' scoring issue (e) is not scored.' The unwanted catches of *round sardinella* are considered to be negligible taking into account the data available for GSA 10 (PS) in Mannini and Sabatella 2015.				
References				
Mannini A., Sabatella R.F. (eds) (2015) - Annuario sullo stato delle risorse e sulle strutture produttive dei mari italiani. Biol. Mar. Mediterr., 22 (Suppl. 1): 358 pp.				

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**60-79**
Information gap indicator	**More information sought**

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.2.3 – Secondary species information

PI 2.2.3		Information on the nature and amount of secondary species taken is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage secondary species		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impacts on main secondary species			
	Guide post	Qualitative information is **adequate to estimate** the impact of the UoA on the main secondary species with respect to status. OR **If RBF is used to score PI 2.2.1 for the UoA:** Qualitative information is adequate to estimate productivity and susceptibility attributes for main secondary species.	Some quantitative information is available and **adequate to assess** the impact of the UoA on main secondary species with respect to status. OR **If RBF is used to score PI 2.2.1 for the UoA:** Some quantitative information is adequate to assess productivity and susceptibility attributes for main secondary species.	Quantitative information is available and **adequate to assess with a high degree of certainty** the impact of the UoA on main secondary species with respect to status.
	Met?	**Yes**	**Yes**	**No**
Rationale				
Sufficient biological information was available to score productivity and susceptibility with reasonable certainty – see references in Appendix 8.3.				
b	Information adequacy for assessment of impacts on minor secondary species			
	Guide post			Some quantitative information is adequate to estimate the impact of the UoA on minor secondary species with respect to status.
	Met?			**No**
Rationale				
The information is not adequate to estimate the impact on minor species.				
c	Information adequacy for management strategy			
	Guide post	Information is adequate to support **measures** to manage **main** secondary species.	Information is adequate to support a **partial strategy** to manage **main** secondary species.	Information is adequate to support a **strategy** to manage **all** secondary species and **evaluate** with a **high degree of certainty** whether the strategy is **achieving its objective**.
	Met?	**Yes**	**Yes**	**No**
Rationale				
Survey (MEDIAS) and catch data are available, sufficient to support a partial strategy made up of technical measures for the purse seine (see Mannini and Sabatella, 2015) SG80 is met. There is certainly no 'high degree of certainty' about stock status in this area. SG100 is not met..				
References				
Mannini A., Sabatella R.F. (eds) (2015) - Annuario sullo stato delle risorse e sulle strutture produttive dei mari italiani. Biol. Mar. Mediterr., 22 (Suppl. 1): 358 pp.				

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥ 80**
Information gap indicator	**More information sought**

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.3.1 – ETP species outcome

PI 2.3.1		The UoA meets national and international requirements for the protection of ETP species The UoA does not hinder recovery of ETP species		
Scoring Issue		SG 60	SG 80	SG 100
a	Effects of the UoA on population/stock within national or international limits, where applicable			
	Guide post	Where national and/or international requirements set limits for ETP species, the **effects of the UoA** on the population/ stock are known and **likely** to be within these limits.	Where national and/or international requirements set limits for ETP species, the **combined effects of the MSC UoAs** on the population /stock are known and **highly likely** to be within these limits.	Where national and/or international requirements set limits for ETP species, there is a **high degree of certainty** that the **combined effects of the MSC UoAs** are within these limits.
	Met?	**NA**	**NA**	**NA**
Rationale				
Scientific data indicates that the populations of all ETP species - loggerhead turtle (*Caretta caretta*), green turtle (Chelonia mydas), bottlenose dolphin (*Tursiops truncatus*), and striped dolphin (*Stenella coeruleoalba*) - are part of Mediterranean populations, which are recognised as distinct regional management units (Wallace et al., 2010; IUCN, 2012). Similarly, there is evidence for distinct twaite shad populations in the Atlantic and Mediterranean Seas (Faria et al., 2012). With regards to turtles, scientific advances have recently been made to estimate the impact of fisheries bycatch on Mediterranean populations of loggerhead and green sea turtles (Casale and Heppell, 2016), but there are no set bycatch limits for protection and rebuilding of these populations in force at present. Similarly, there are no set limits for the capture of twaite shad in the Mediterranean Sea. Since there are currently no national or international set limits for catches of the Mediterranean populations of the relevant ETP species scoring issue (a) was not scored.				
b	Direct effects			
	Guide post	Known direct effects of the UoA are likely to not **hinder recovery** of ETP species.	Known direct effects of the UoA are likely to not **hinder recovery** of ETP species.	There is a **high degree of confidence** that there are no **significant detrimental direct effects** of the UoA on ETP species.
	Met?	**Yes**	**No**	**No**
Rationale				
In accordance with the reporting requirements of EC Council Regulation 812/2004, in Mediterranean data describing fishing effort, monitoring/sampling effort and incidental catch of cetaceans only pelagic trawls must be covered. Data describing monitoring/sampling effort and incidental catch of all protected species (including cetaceans) recorded from any other monitored gear types (demersal trawls, lines, purse seines, etc.) are covered under national data collection programmes (e.g. DCF etc.). SG60 is met. However, the detrimental precise direct effects of the UoA on the ETP species are not known if they are likely to hinder recovery of ETP species – SG 80 is not met.				
c	Indirect effects			
	Guide post		Indirect effects have been considered for the UoA and are thought to be **highly likely** to not create unacceptable impacts.	There is a **high degree of confidence** that there are no **significant detrimental indirect effects** of the UoA on ETP species.
	Met?		**No**	**No**
Rationale				
In accordance with the reporting requirements of EC Council Regulation 812/2004, in Mediterranean data describing fishing effort, monitoring/sampling effort and incidental catch of cetaceans only pelagic trawls must be covered.				

Data describing monitoring/sampling effort and incidental catch of all protected species (including cetaceans) recorded from any other monitored gear types (demersal trawls, lines, purse seines, etc.) are covered under national data collection programmes (e.g. DCF etc.). SG60 is met.

However, the detrimental precise direct effects of the UoA on the ETP species are not known if they are likely to hinder recovery of ETP species – SG 80 is not met.

References

Bearzi, G., Fortuna, C. & Reeves, R. (2012). Tursiops truncatus (Mediterranean subpopulation). The IUCN Red List of Threatened Species 2012: e.T16369383A16369386. Available online at: http://dx.doi.org/10.2305/IUCN.UK.2012-1.RLTS.T16369383A16369386.en (accessed 14/06/2016).

Casale, P., & Heppell, S. S. (2016). How much sea turtle bycatch is too much? A stationary age distribution model for simulating population abundance and potential biological removal in the Mediterranean. Endangered Species Research, 29(3), 239-254.

Clusa, M., Carreras, C., Pascual, M., Gaughran, S. J., Piovano, S., Giacoma, C., ... & Maffucci, F. (2014). Fine-scale distribution of juvenile Atlantic and Mediterranean loggerhead turtles (Caretta caretta) in the Mediterranean Sea. Marine biology, 161(3), 509-519.

Dolman, S., Baulch, S., Read, F., Ritter, F., & Evans, P. (2015). Towards an EU Action Plan on Cetacean Bycatch. Conference paper presented at 22nd ASCOBANS Advisory Committee Meeting. The Hague, Netherlands, 29 September - 1 October 2015; AC22/Inf.4.1.e.

Faria, R., Weiss, S., & Alexandrino, P. (2012). Comparative phylogeography and demographic history of European shads (Alosa and A. fallax) inferred from mitochondrial DNA. BMC evolutionary biology, 12(1), 1.

Fortuna, C. M., Vallini, C., Filidei Jr, E., Ruffino, M., Consalvo, I., Di Muccio, S., ... & Mazzola, A. (2010b). By-catch of cetaceans and other species of conservation concern during pair trawl fishing operations in the Adriatic Sea (Italy). Chemistry and Ecology, 26(S1), 65-76.

Fortuna, C.M., Filidei E. jr., Giovanardi, O. (2014). Valutazione delle catture accidentali di specie protette nel traino pelagico: BYCATCH 2012-2013 – estensione 2013. Relazione finale, 29pp.

Freyhof, J. 2008. Alosa fallax. The IUCN Red List of Threatened Species 2008: e.T904A13091973.

ICES. 2015. Report of the Working Group on Bycatch of Protected Species (WGBYC), 2-6 February 2015, ICES Headquarters, Copenhagen, Denmark. ICES CM 2015\ACOM:26. 82 pp.

La Mesa, G., Annunziatellis, A., Filidei, E., & Fortuna, C. M. (2015). Modeling environmental, temporal and spatial effects on twaite shad (Alosa fallax) by-catches in the central Mediterranean Sea. Fisheries Oceanography, 24(2), 107-117.

IUCN (2012). Marine Mammals and Sea Turtles of the Mediterranean and Black Seas. Gland, Switzerland and Malaga, Spain: IUCN. 32 pp.

Sala, A., Bonanomi, S., Benetti, A., Cani, M. V., Ciofi, C., Colombelli, A., Corrias, V., Ferrer, I. M., Filiciotto, F., Fortuna, M. C., Gaspari, S., Giovanardi, O., Marcone, A., Mazzola, A., Mazzoldi, C., Moro, F., Notti, E., Pulcinella, J., Raicevich, S., Rampazzo, F., Renier, D., Vizzini, S., Zane, L., 2018. Evaluation of the accidental catches of protected species in the pelagic trawling (BYCATCH 2016-2017). Final Report to the Italian Ministry of Agriculture and Forestry (Project MIPAF 7A02), 110 pp.

Sala, A., Brčić, J., De Carlo, F., Lucchetti, A., Pulcinella, J., Virgili, M., 2015. Evaluation of the accidental catches of protected species in the pelagic trawling (BYCATCH 2013-2014). Final Report to the Italian Ministry of Agriculture and Forestry (Project MIPAF 7A02), 59 pp (doi: 10.13140/2.1.3021.3927).

Sala, A., Brčić, J., De Carlo, F., Lucchetti, A., Virgili, M., 2013. Evaluation of the accidental catches of protected species in the pelagic trawling (BYCATCH 2012-2013). Final Report to the Italian Ministry of Agriculture and Forestry (Project MIPAF n. 7A02), 36 pp (doi: 10.13140/2.1.4594.2562).

Wallace, B. P., DiMatteo, A. D., Hurley, B. J., Finkbeiner, E. M., Bolten, A. B., Chaloupka, M. Y., ... & Bourjea, J. (2010). Regional management units for marine turtles: a novel framework for prioritizing conservation and research across multiple scales. PLoS One, 5(12), e15465.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**60-79**

Information gap indicator	**More information sought**
Data-deficient? (Risk-Based Framework needed)	**No**

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.3.2 – ETP species management strategy

PI 2.3.2		The UoA has in place precautionary management strategies designed to: - meet national and international requirements; - ensure the UoA does not hinder recovery of ETP species. Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place (national and international requirements)			
	Guide post	There are **measures** in place that minimise the UoA-related mortality of ETP species and are expected to be **highly likely to achieve** national and international requirements for the protection of ETP species.	There is a **strategy** in place for managing the UoA's impact on ETP species, including measures to minimise mortality, which is designed to be **highly likely to achieve** national and international requirements for the protection of ETP species.	There is a **comprehensive strategy** in place for managing the UoA's impact on ETP species, including measures to minimise mortality, which is designed to **achieve above** national and international requirements for the protection of ETP species.
	Met?	**Yes**	**No**	**No**

Rationale

The team does not have any evidence of impact of the UoA on ETP species and during the site visit the stakeholders did not provide any list of ETP species interacting with the UoA (see ANNEX I). However, it is possible to assume that the following species have a potential interaction with the UoA (see Lucchetti and Sala, 2010; STECF 2019):

Loggerhead & Green Turtle

Several provisions exist at EU, regional and GFCM level which enables management of fisheries impacts on sea turtle populations:

- Turtles are strictly protected by Article 12 of the EU Habitats Directive, which requires that Member States take the requisite measures to establish a system of strict protection for the animal species listed in Annex IV (Animal and plant species of community interest in need of strict protection) in their natural range.
- Measures to manage incidental bycatch of sea turtles in fisheries in the GFCM Competence Area were established through GFCM Recommendation 35/2011/4.
- Guidelines to reduce sea turtle mortality in fishing operations were issued by the Food and Agriculture Organisation (FAO) of the United Nations in 2009, which include information on topics such as for example measures to reduce interaction and mortality, and best practices for sea turtle handling and release (FAO, 2009).

Bottlenose & Striped Dolphin

Several provisions exist at EU, regional and GFCM level which enables management of fisheries impacts on cetacean populations:

- Cetaceans are strictly protected by Article 12 of the EU Habitats Directive, which requires that Member States take the requisite measures to establish a system of strict protection for the animal species listed in Annex IV (Animal and plant species of community interest in need of strict protection) in their natural range.
- Council Regulation (EC) No 812/2004 lays down a number of measures aimed at mitigating incidental catches of cetaceans by fishing vessels, and requires the collection of data through at-sea observer schemes.
- Measures to manage incidental bycatch of cetaceans in fisheries in the GFCM Competence Area were established through GFCM Recommendation 36/2012/2.
- ACCOBAMS (Agreement on the Conservation of Cetaceans in the Black Sea Mediterranean Sea and Contiguous Atlantic Area) has issued guidelines for technical measures to minimise cetacean-fisheries conflicts in the Mediterranean and Black Seas, as well as a number of recommendations and resolutions which aim to address problems resulting from the interaction of cetaceans and fisheries (Recommendations: 1.1, 1.2, 2.2, 4.2, 4.11, 4.12, 6.7; Resolutions: 2.13, 4.9).

The team considered that the above constitute measures aimed at managing the UoA's impacts on turtle and cetaceans populations which is designed to be highly likely to achieve national and international requirements for the protection of such species. Therefore, SG 60 is met. However, the team does not consider that such measures are a proper strategy that is implemented for the UoA. Therefore, SG80 is not met.

b	Management strategy in place (alternative)			
	Guide post	There are **measures** in place that are expected to ensure the UoA does not hinder the recovery of ETP species.	There is a **strategy** in place that is expected to ensure the UoA does not hinder the recovery of ETP species.	There is a **comprehensive strategy** in place for managing ETP species, to ensure the UoA does not hinder the recovery of ETP species.
	Met?	**NA**	**NA**	**NA**

Rationale

Not relevant. There are requirements for protection or rebuilding provided through national ETP legislation or international agreements.

c	Management strategy evaluation			
	Guide post	The measures are **considered likely** to work, based on **plausible argument** (e.g., general experience, theory or comparison with similar fisheries/species).	There is an **objective basis for confidence** that the measures/strategy will work, based on **information** directly about the fishery and/or the species involved.	The strategy/comprehensive strategy is mainly based on information directly about the fishery and/or species involved, and a **quantitative analysis** supports **high confidence** that the strategy will work.
	Met?	**Yes**	**Yes**	**No**

Rationale

To date no detailed quantitative analysis has been carried out to assess the impact of fishery-related mortality on turtles and cetaceans (FAO, 2016). The most comprehensive review of the impact of incidental catches on Mediterranean Sea turtle populations is that carried out by Casale (2011). A quantitative analysis of the effectiveness of the strategy has thus yet to be carried out – SG 100 is not met.

d	Management strategy implementation			
	Guide post		There is some **evidence** that the measures/strategy is being implemented successfully.	There is **clear evidence** that the strategy/comprehensive strategy is being implemented successfully and **is achieving its objective as set out in scoring issue (a) or (b).**
	Met?		**Yes**	**No**

Rationale

There is thus no clear evidence that the strategies are being implemented successfully – SG 100 is not met.

e	Review of alternative measures to minimize mortality of ETP species			
	Guide post	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of ETP species.	There is a **regular** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of ETP species and they are implemented as appropriate.	There is a **biennial** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality ETP species, and they are implemented, as appropriate.
	Met?	**Yes**	**No**	**No**

Rationale

GFCM Recommendation 35/2011/4 on incidental bycatch of sea turtles in fisheries in the GFCM Competence Area states that 'Upon receipt of advice from the SAC, the GFCM shall consider, if necessary, additional measures to mitigate sea turtle bycatch in those fisheries which have been considered most relevant', but no additional GFCM Decisions on management of sea turtle by-catch have been published since 2011 – SG 80 is not met.

References

Casale, P. (2011). Sea turtle by-catch in the Mediterranean. Fish and Fisheries, 12(3), 299-316.

European Environment Agency (2012). Natura 2000: Birds and Habitats Directives. Retrieved from: http://www.eea.europa.eu/data-and-maps/figures/natura-2000-birds-and-habitat directives-7 (accessed 16th June 2016)

FAO (2009). Fisheries and Aquaculture Department. Guidelines to reduce sea turtle mortality in fishing operations. Rome, Italy. 128pp.

FAO (2016). The State of Mediterranean and Black Sea Fisheries. General Fisheries Commission for the Mediterranean. Rome, Italy. 151 pp.

Fortuna, C. M., Vallini, C., Filidei Jr, E., Ruffino, M., Consalvo, I., Di Muccio, S., ... & Mazzola, A. (2010b). By-catch of cetaceans and other species of conservation concern during pair trawl fishing operations in the Adriatic Sea (Italy). Chemistry and Ecology, 26(S1), 65-76.

Freyhof, J. 2008. Alosa fallax. The IUCN Red List of Threatened Species 2008: e.T904A13091973.

ICES. 2015. Report of the Working Group on Bycatch of Protected Species (WGBYC), 2-6 February 2015, ICES Headquarters, Copenhagen, Denmark. ICES CM 2015\ACOM:26. 82 pp.

La Mesa, G., Annunziatellis, A., Filidei, E., & Fortuna, C. M. (2015). Modeling environmental, temporal and spatial effects on twaite shad (Alosa fallax) by-catches in the central Mediterranean Sea. Fisheries Oceanography, 24(2), 107-117.

Reeves, R. R., Read, A. J., & di Sciara, G. N. (Eds.). (2001). Report of the Workshop on Interactions between Dolphins and Fisheries in the Mediterranean, Evaluation of Mitigation Alternatives: Roma, 4-5 May 2001. ICRAM.

Sala, A., Bonanomi, S., Benetti, A., Cani, M. V., Ciofi, C., Colombelli, A., Corrias, V., Ferrer, I. M., Filiciotto, F., Fortuna, M. C., Gaspari, S., Giovanardi, O., Marcone, A., Mazzola, A., Mazzoldi, C., Moro, F., Notti, E., Pulcinella, J., Raicevich, S., Rampazzo, F., Renier, D., Vizzini, S., Zane, L., 2018. Evaluation of the accidental catches of protected species in the pelagic trawling (BYCATCH 2016-2017). Final Report to the Italian Ministry of Agriculture and Forestry (Project MIPAF 7A02), 110 pp.

Sala, A., Brčić, J., De Carlo, F., Lucchetti, A., Pulcinella, J., Virgili, M., 2015. Evaluation of the accidental catches of protected species in the pelagic trawling (BYCATCH 2013-2014). Final Report to the Italian Ministry of Agriculture and Forestry (Project MIPAF 7A02), 59 pp (doi: 10.13140/2.1.3021.3927).

Sala, A., Brčić, J., De Carlo, F., Lucchetti, A., Virgili, M., 2013. Evaluation of the accidental catches of protected species in the pelagic trawling (BYCATCH 2012-2013). Final Report to the Italian Ministry of Agriculture and Forestry (Project MIPAF n. 7A02), 36 pp (doi: 10.13140/2.1.4594.2562).

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**60-79**
Information gap indicator	**More information sought**

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.3.3 – ETP species information

PI 2.3.3		Relevant information is collected to support the management of UoA impacts on ETP species, including: - Information for the development of the management strategy; - Information to assess the effectiveness of the management strategy; and - Information to determine the outcome status of ETP species		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impacts			
	Guide post	Qualitative information is **adequate to estimate** the UoA related mortality on ETP species. **OR** **If RBF is used to score PI 2.3.1 for the UoA:** Qualitative information is **adequate to estimate productivity and susceptibility** attributes for ETP species.	Some quantitative information is **adequate to assess** the UoA related mortality and impact and to determine whether the UoA may be a threat to protection and recovery of the ETP species. **OR** **If RBF is used to score PI 2.3.1 for the UoA:** Some quantitative information is **adequate to assess productivity and susceptibility attributes** for ETP species.	Quantitative information is available to assess with a high degree of certainty the **magnitude of UoA-related impacts, mortalities and injuries and the consequences for the status** of ETP species.
	Met?	**No**	**No**	**No**
Rationale				
Quantitative information on catch of ETP species (including loggerhead & green turtles, bottlenose & striped dolphins from only pelagic trawlers comes from the Italian monitoring programme on incidental catches of cetaceans. Unfortunately, the present UoA (purse seine) is not covered by any quail-quantitative information. Therefore, SG 60 is not met.				
b	Information adequacy for management strategy			
	Guide post	Information is adequate to support **measures** to manage the impacts on ETP species.	Information is adequate to measure trends and support a **strategy** to manage impacts on ETP species.	Information is adequate to support a **comprehensive strategy** to manage impacts, minimize mortality and injury of ETP species, and evaluate with a **high degree of certainty** whether a strategy is achieving its objectives.
	Met?	**Yes**	**Yes**	**No**
Rationale				
Since the commencement of the ICES Working Group on Bycatch of Protected Species (WGBYC) in 2009, the group has been collating, storing and summarising annual data reported by EU Member States which have implemented EC 812/2004. This has resulted in the development of a database which at present stores several years of data on dedicated monitoring effort and bycatch of cetaceans as well as other ETP species such as turtles (ICES, 2015). There is thus sufficient information to measure trends and support a strategy to manage impacts on ETP species. Therefore, SG 80 is met. However, accuracy of mortality estimates for species with low by-catch incidents and data required to assess whether the stress and injury caused by non-lethal capture of turtles and cetaceans is having a negative impact at population level are not available (Fortuna et al., 2010b; STECF 2019). Therefore, SG 100 is not met.				
References				
ICES. 2015. Report of the Working Group on Bycatch of Protected Species (WGBYC), 2-6 February 2015, ICES Headquarters, Copenhagen, Denmark. ICES CM 2015\ACOM: 26. 82 pp.				

Fortuna, C. M., Vallini, C., Filidei Jr, E., Ruffino, M., Consalvo, I., Di Muccio, S., ... & Mazzola, A. (2010b). By-catch of cetaceans and other species of conservation concern during pair trawl fishing operations in the Adriatic Sea (Italy). Chemistry and Ecology, 26(S1), 65-76.

La Mesa, G., Annunziatellis, A., Filidei, E., & Fortuna, C. M. (2015). Modeling environmental, temporal and spatial effects on twaite shad (Alosa fallax) by-catches in the central Mediterranean Sea. Fisheries Oceanography, 24(2), 107-117.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥ 80**
Information gap indicator	**More information sought**

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.4.1 – Habitats outcome

PI 2.4.1		The UoA does not cause serious or irreversible harm to habitat structure and function, considered based on the area covered by the governance body(s) responsible for fisheries management in the area(s) where the UoA operates		
Scoring Issue		SG 60	SG 80	SG 100
a	Commonly encountered habitat status			
	Guide post	The UoA is **unlikely** to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.	The UoA is **highly unlikely** to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.	There is **evidence** that the UoA is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.
	Met?	**Yes**	**Yes**	**No**

Rationale

Purse seiners operate in the water column, and as such are generally not in contact with benthic habitats and/or species. The fishing net is configured not to interact with the seabed during the actual fishing operation, and damage to the gear is likely to occur before any substantial damage to benthic communities takes place. Since fishing operations take place over soft bottom habitats and any contact of the fishing gear with bottom habitats will be brief to avoid damage to the fishing gear, the assessment team considers that the UoA is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm – SG 60 and SG 80 are met.

However, the team does not have any evidence that the UoA is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm – SG 100 is not met.

b	VME habitat status			
	Guide post	The UoA is **unlikely** to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.	The UoA is **highly unlikely** to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.	There is **evidence** that the UoA is highly unlikely to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.
	Met?	**Yes**	**No**	**No**

Rationale

Information on the distribution of VME habitats in the Mediterranean Sea is available from a number of sources (e.g. Casellato and Stefanon, 2008; Martin et al., 2014; Telesca et al., 2015), and publically available online through the MAREA-MEDISEH project online map viewer, see:
https://ec.europa.eu/fisheries/sites/fisheries/files/docs/body/scientific-advice-mediterranean-specific-project-2-summary_en.pdf.
Sensitive habitats in general and VMEs in particular are protected from the impact of fishing gears by a number of EU Directives, including the Habitat's Directive (EEC 92/43), the Marine Strategy Framework Directive (EC 2008/56), and the Mediterranean fisheries Regulation (EC 1967/2006 as amended by EC 1343/2011).

The protected areas are strictly enforced by the Italian coastguard, who monitor the location of fishing vessels through VMS. Taking into account that the activity of the UoA is carried out in coastal waters and the gear used does not contact the seabed, it is unlikely that the UoA reduces the structure and function of the VME habitats to a point where there would be serious or irreversible harm. SG 60 is met. However, precise information on the location of fishing grounds based on data from satellite-based Vessel Monitoring System (VMS) was not available to the assessment team. There is thus no evidence that the UoA is highly unlikely to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm – SG 80 is not met.

c	Minor habitat status			
	Guide post			There is **evidence** that the UoA is highly unlikely to

				reduce structure and function of the minor habitats to a point where there would be serious or irreversible harm.
	Met?			**No**

Rationale

Hard bottom rocky substrata were identified to be minor habitats since they are not common in GSA10 in general, and thus not commonly encountered by the UoA. Although there is some evidence that rocky areas / reefs are in some cases included in Marine Protected Areas or temporal closure areas (a map of MPAs is available in Bastari et al., 2016), precise information on the location of fishing grounds based on data from satellite-based Vessel Monitoring System (VMS) was not available to the assessment team. There is thus no evidence that the UoA is highly unlikely to reduce structure and function of minor habitats to a point where there would be serious or irreversible harm – SG 100 is not met.

References

Bastari, A., Micheli, F., Ferretti, F., Pusceddu, A., & Cerrano, C. (2016). Large marine protected areas (LMPAs) in the Mediterranean Sea: The opportunity of the Adriatic Sea. Marine Policy, 68, 165-177.

Brambati, A., Ciabatti, M., Fanzutti, G. P., Marabini, F., & Marocco, R. (1983). A new sedimentological textural map of the northern and central Adriatic Sea. Boll. Oceanol. teor. appl, 1(4), 267-271.

Casellato, S. and Stefanon, A. 2008. Coralligenous habitat in the northern Adriatic Sea: an overview. Marine Ecology 29, 1-21.

Chuenpagdee, et al., 2003. Shifting gears: assessing collateral impacts of fishing methods in US waters. Frontiers in Ecology and the Environment, 1(10), 517-524

Donaldson, A., Gabriel, C., Harvey, B.J. & Carolsfeld, J. 2010. Impacts of Fishing Gears other than Bottom Trawls, Dredges, Gillnets and Longlines on Aquatic Biodiversity and Vulnerable Marine Ecosystems. Research Document 2010/011. Canadian Science Advisory Secretariat. Fisheries and Oceans Canada.

Fortuna, C.M., Vallini, C., De Carlo, F., Filidei, E.jr, Lucchetti, A., Gaspari, S., Fossi, M.C., Maltese, S., Marsili, L., Bottaro, M., Ruffino, M., Scacco, U., Giovanardi, O., Mazzola, A., Sala, A., Tunesi, L. (2010a). Relazione finale del progetto "Valutazione delle catture accidentali di specie protette nel traino pelagico (BYCATCH III)", codice progetto: 7A02. 84pp.

Fortuna, C. M., Vallini, C., Filidei Jr, E., Ruffino, M., Consalvo, I., Di Muccio, S., ... & Mazzola, A. (2010b). By-catch of cetaceans and other species of conservation concern during pair trawl fishing operations in the Adriatic Sea (Italy). Chemistry and Ecology, 26(S1), 65-76.

Gamulin-Brida, H. (1967). The benthic fauna of the Adriatic Sea. Oceanography and Marine Biology: an Annual Review.
Jenkins C (2008) dbSEABED: an information processing system for marine substrates. Available at http://instaar.colorado.edu/~jenkinsc/dbseabed/

Le Fur, F. 2010. Référentiel pour la gestion dans les sites Natura 2000 en mer - Tome 1 Pêche professionnelle. Activités - Interactions - Dispositifs d'encadrement. Report by Agence des Aires Marines Protegees. 152 pp. Available online at: http://www.airesmarines.fr/Documentation/Referentiels-pour-la-gestion-des-sites-Natura-2000-en-mer (accessed 16/10/2015).

Martin, C. S., Giannoulaki, M., De Leo, F., Scardi, M., Salomidi, M., Knittweis, L., ... & Fraschetti, S. (2014). Coralligenous and maërl habitats: predictive modelling to identify their spatial distributions across the Mediterranean Sea. Scientific reports.

Piras, C., Mion, M., Fortibuoni, T., Franceschini, G., Punzo, E., Strafella, P., ... & Raicevich, S. (2016). A photographic method to identify benthic assemblages based on demersal trawler discards. Fisheries Research, 178, 142-151.

Randone, M. (2016). MedTrends Project: Blue Growth Trends in the Adriatic Sea - the challenge of environmental protection. WWF Mediterranean: http://www.medtrends.org/reports/MedTrends_AD-Report.pdf (accessed 25/06/2016).

Ruffino, M. (2008). Caratterizzazione delle catture commerciali e del by-catch nella pesca da traino pelagico in Alto Adriatico. Università degli studi di Padova. Facoltà di Scienze MM. FF. NN. Laurea specialistica in Biologia Marina. 107 pp.

Scardi, M., Crema, R., Di Dato, P., Fresi, E., & Orel, G. (1999, November). Le comunità bentoniche dell'Alto Adriatico: un'analisi preliminare dei cambiamenti strutturali dagli anni'30 ad oggi. In Proceedings of the Workshop "Impact of trawl fishing on benthic communities", Rome (pp. 95-108).

STECF 12-12 (2012). Scientific, Technical and Economic Committee for Fisheries (STECF) – Development of the Ecosystem Approach to Fisheries Management (EAFM) in European seas. Publications Office of the European Union, Luxembourg, ISSN 1831-9424, 177 pp.

Telesca, Luca, Andrea Belluscio, Alessandro Criscoli, Giandomenico Ardizzone, Eugenia T. Apostolaki, Simonetta Fraschetti, Michele Gristina et al. "Seagrass meadows (Posidonia oceanica) distribution and trajectories of change." Scientific reports 5 (2015).

Vatova, A. (1949). La fauna bentonica dell'Alto e Medio Adriatico. Nova Thalassia, 3: 3-110.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**60-79**
Information gap indicator	**More information sought**
Data-deficient? (Risk-Based Framework needed)	**No**

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.4.2 – Habitats management strategy

PI 2.4.2		There is a strategy in place that is designed to ensure the UoA does not pose a risk of serious or irreversible harm to the habitats		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are **measures** in place, if necessary, that are expected to achieve the Habitat Outcome 80 level of performance.	There is a **partial strategy** in place, if necessary, that is expected to achieve the Habitat Outcome 80 level of performance or above.	There is a **strategy** in place for managing the impact of all MSC UoAs/non-MSC fisheries on habitats.
	Met?	**Yes**	**Yes**	**Yes**

Rationale

Benthic habitats in general, and sensitive habitats are protected from the impact of fishing gears by EU legislation:

- Directive (EC) 2008/56 on establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive). The over-arching goal of the Directive is to achieve 'Good Environmental Status' by 2020 across Europe's marine environment. Good environmental status shall be determined at the level of the marine regions or sub-regions and based on a series of qualitative descriptors. Descriptor 6 requires that: 'Sea-floor integrity is at a level that ensures that the structure and functions of the ecosystems are safeguarded, and benthic ecosystems are not adversely affected'.
- Council Directive (EEC) 92/43 of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (often referred to as the 'Habitats Directive'): the main aim of the Habitats Directive is to promote the maintenance of biodiversity by requiring EU Member States to take measures to maintain or restore natural habitats as well as the populations of wild species listed in the Directive's Annexes, and to maintain habitats and species at a favourable conservation status.
- Council Regulation (EC) No 1967/2006 (as amended by EC 1343/2011) concerning management measures for the sustainable exploitation of fishery resources in the Mediterranean Sea.

Besides the coastal areas which are protected from fishing, there are at present 25 Marine Protected Areas (MPAs) as well as numerous temporal closure areas designed to reduce the impact of fishing activities on the marine environment in general (Bastari et al. 2016). These protected / temporal closure areas as well as fishing gear restrictions are enforced by the Italian coastguard, who monitor the location and movement of fishing vessels through satellite-based Vessel Monitoring System, which is compulsory on fishing vessels of 12 metres' length overall or more (EC 1224/2009). Fishing vessels of the UoC are aware of the location of protected areas, which are highlighted on their on-board navigation system.

Ongoing monitoring is required under the Marine Strategy Framework Directive, which requires that EU Member States establish environmental targets and monitoring programmes for ongoing assessment, enabling the state of the marine waters concerned to be evaluated on a regular basis.

Since there is active management which reduces the impacts of fishing on benthic habitats, includes special provisions for the protection of critical habitats such as nursery areas as well as VMEs, as well as for continuous monitoring and enforcement, the assessment team considers that SG 100 is met.

b	Management strategy evaluation			
	Guide post	The measures are **considered likely** to work, based on plausible argument (e.g. general experience, theory or comparison with similar UoAs/habitats).	There is some **objective basis for confidence** that the measures/partial strategy will work, based on **information directly about the UoA and/or habitats** involved.	**Testing** supports **high confidence** that the partial strategy/strategy will work, based on **information directly about the UoA and/or habitats** involved.
	Met?	**Yes**	**No**	**No**

Rationale

Based on the measures in place above reported and considering the specific measures of the UoA (e.g., length and height of seines) there are plausible argument that such measures in place are working. SG 60 is met.

However, considering the lack of data about the spatial distribution of the effort specifically for the UoA and that testing to support high confidence that the strategy will work are not available, SG 80 and 100 are not met.

c	Management strategy implementation			
	Guide post		There is **some quantitative evidence** that the measures/partial strategy is being implemented successfully.	There is **clear quantitative evidence** that the partial strategy/strategy is being implemented successfully and is achieving its objective, as outlined in scoring issue (a).
	Met?		**No**	**No**

Rationale

Although during the site visit was evidenced that the measures in place were successfully implemented, the assessment team does not have quantitative evidences about their effectively implementation. Therefore, the assessment team considers that SG 80 is not met.

d	Compliance with management requirements and other MSC UoAs'/non-MSC fisheries' measures to protect VMEs			
	Guide post	There is **qualitative evidence** that the UoA complies with its management requirements to protect VMEs.	There is **some quantitative evidence** that the UoA complies with both its management requirements and with protection measures afforded to VMEs by other MSC UoAs/non-MSC fisheries, where relevant.	There is **clear quantitative evidence** that the UoA complies with both its management requirements and with protection measures afforded to VMEs by other MSC UoAs/non-MSC fisheries, where relevant.
	Met?	**Yes**	**Yes**	**No**

Rationale

Some quantitative evidence that the UoA complies with its management requirements to protect VMEs is available:

- Satellite-based Vessel Monitoring System (VMS) data are routinely used by the authorities in charge of enforcement;
- Information on the number of infringements issued by the Italian authorities against vessels of the UoA as part of monitoring and enforcement inspections is routinely compiled and shows that fishing in closed / protected areas is not a concern.

The assessment team thus considers that SG 60 and SG 80 are met.

References

Bastari, A., Micheli, F., Ferretti, F., Pusceddu, A., & Cerrano, C. (2016). Large marine protected areas (LMPAs) in the Mediterranean Sea: The opportunity of the Adriatic Sea. Marine Policy, 68, 165-177.

Donaldson, A., Gabriel, C., Harvey, B.J. & Carolsfeld, J. 2010. Impacts of Fishing Gears other than Bottom Trawls, Dredges, Gillnets and Longlines on Aquatic Biodiversity and Vulnerable Marine Ecosystems. Research Document 2010/011. Canadian Science Advisory Secretariat. Fisheries and Oceans Canada.

Lucchetti, A., Sala, A., 2012. Impact and performance of Mediterranean fishing gear by side-scan sonar technology. Canadian journal of fisheries and aquatic sciences, 69: 1806-1816.

Lucchetti, A., Notti, E., Sala, A., Virgili M., 2018. Multi-purpose use of side-scan sonar technology for fisheries science. Canadian journal of fisheries and aquatic sciences, 75: 1652-1662.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**60-79**
Information gap indicator	**More information sought**

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	

Condition number (if relevant)	

PI 2.4.3 – Habitats information

PI 2.4.3		Information is adequate to determine the risk posed to the habitat by the UoA and the effectiveness of the strategy to manage impacts on the habitat		
Scoring Issue		SG 60	SG 80	SG 100
a	Information quality			
	Guide post	The types and distribution of the main habitats are **broadly understood**. **OR** **If CSA is used to score PI 2.4.1 for the UoA:** Qualitative information is adequate to estimate the types and distribution of the main habitats.	The nature, distribution and **vulnerability** of the main habitats in the UoA area are known at a level of detail relevant to the scale and intensity of the UoA. **OR** **If CSA is used to score PI 2.4.1 for the UoA:** Some quantitative information is available and is adequate to estimate the types and distribution of the main habitats.	The distribution of all habitats is known over their range, with attention to the occurrence of vulnerable habitats.
	Met?	**Yes**	**Yes**	**No**

Rationale

GSA10 supports a wide diversity of habitats, including coralligenous communities, maerl bottoms, seagrass meadows, rocky reef areas, and extensive areas of soft bottoms (Jenkins, 2008; MEDISEH, 2013; Bastari et al., 2016). Based on the available information the assessment team identified the following European Nature Information System (EUNIS) habitat categories to be relevant for the assessment:

Minor habitats
- A3: Infralittoral rock and other hard substrata
- A4: Circalittoral rock and other hard substrata

Main habitats:
- A5.1: Sublittoral coarse sediment
- A5.2: Sublittoral sand
- A5.3: Sublittoral mud
- A5.4: Sublittoral mixed sediments
- A5.5: Sublittoral macrophyte-dominated sediment => A5.51: Maerl beds
- A5.5: Sublittoral macrophyte-dominated sediment => A5.53: Sublittoral seagrass beds (Posidonia, Cymodocea, Zostera etc.)
- A5.5: Sublittoral macrophyte-dominated sediment => A5.54: Angiosperm communities in reduced salinity (vegetation in brackish water, Zostera in reduced salinity etc.)
- A5.6: Sublittoral biogenic reefs (mussel beds, Lophelia reefs, polychaete reefs)

A map of soft bottom habitats in GSA10 is available from Jenkins (2008); data on the benthic assemblages found in these soft bottom habitats was first compiled by Vatova (1949), and subsequently studied by a number of authors (e.g. Gamulin-Brinda, 1967; Scardi et al., 1999; Piras et al., 2016). A thorough review of existing spatial datasets showing the distribution of coralligenous, maërl and seagrass habitats across the entire Mediterranean, including GSA10, was undertaken by the MEDISEH (Mediterranean Sensitive Habitats) project (MEDISEH, 2013), whose results are available online on the MAREA (Mediterranean hAlieutic Resources Evaluation and Advice) online map viewer (http://mareaproject.net/medviewer/), and have been published in scientific journals (e.g. Martin et al., 2014; Telesca et al., 2015). The assessment team thus considers that the nature, types and distribution of the main habitats are broadly understood – SG 60 is met.

The assessment team considers that the UoA is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm – SG 60 and SG 80 are met. The assessment team is of the opinion that the vulnerability of the main habitats in the UoA area are known at a level of detail relevant to the scale and intensity of the UoA – SG 80 is met.

Although the distribution of both main and minor habitats are known at a level of detail relevant to the scale and intensity of the UoA, the distribution of all habitats is not well known over their range since several of the available habitat maps are lacking in detail and / or are outdated – SG 100 is not met.

b	Information adequacy for assessment of impacts			
	Guide post	Information is adequate to broadly understand the nature of the main impacts of gear use on the main habitats, including spatial overlap of habitat with fishing gear. OR **If CSA is used to score PI 2.4.1 for the UoA:** Qualitative information is adequate to estimate the consequence and spatial attributes of the main habitats.	Information is adequate to allow for identification of the main impacts of the UoA on the main habitats, and there is reliable information on the spatial extent of interaction and on the timing and location of use of the fishing gear. OR **If CSA is used to score PI 2.4.1 for the UoA:** Some quantitative information is available and is adequate to estimate the consequence and spatial attributes of the main habitats.	The physical impacts of the gear on all habitats have been quantified fully.
	Met?	**Yes**	**Yes**	**No**

Rationale

Information on the impacts of purse seine is available from both scientific and grey literature (STECF 12-12), and the distribution of main habitats is known (for details refer to scoring issue a).

The available information is thus adequate to broadly understand the nature of the main impacts of gear use on the main habitats, including spatial overlap of habitat with fishing gear – SG 60 is met.

Although the information was not available to the assessment team, the Italian coastguard monitors the location and movement of fishing vessels through satellite-based Vessel Monitoring System, which is compulsory on fishing vessels of 12 metres' length overall or more (EC 1224/2009). The UoA has a good compliance record, in particular with regards to respecting areas and seasons closed to fishing. Information to allow for an adequate identification of the main impacts of the UoA on the main habitats, and information on the spatial extent of interaction and on the timing and location of use of the fishing gear is thus adequate – SG 80 is met.

c	Monitoring			
	Guide post		Adequate information continues to be collected to detect any increase in risk to the main habitats.	Changes in all habitat distributions over time are measured.
	Met?		**Yes**	**No**

Rationale

The UoA's area of operation is continuously monitored by the relevant authorities using VMS data. EU Member States have obligations to monitor any increase in risk to benthic habitats in general and sensitive habitats under the Marine Strategy Framework Directive (EC 2008/56) as well as the Habitats Directive (EEC 94/43). Furthermore, under the MSFD Member States are required to implement 'programmes of measures for the protection and management of the marine environment', and to present interim reports describing progress in the implementation of these programmes to the Commission. The effectiveness of the implemented management measures is thus also monitored. The assessment team thus considers that adequate information continues to be collected to detect any increase in risk to the main habitats – SG 80 is met.

Although Member States have an obligation to measure changes in habitat distributions over time under the MSFD and Habitats Directive, the assessment team considers that sufficiently detailed habitat maps are currently not available for all marine habitats in GSA10 – SG 100 is not met.

References

Bastari, A., Micheli, F., Ferretti, F., Pusceddu, A., & Cerrano, C. (2016). Large marine protected areas (LMPAs) in the Mediterranean Sea: The opportunity of the Adriatic Sea. Marine Policy, 68, 165-177.

Donaldson, A., Gabriel, C., Harvey, B.J. & Carolsfeld, J. 2010. Impacts of Fishing Gears other than Bottom Trawls, Dredges, Gillnets and Longlines on Aquatic Biodiversity and Vulnerable Marine Ecosystems. Research Document 2010/011. Canadian Science Advisory Secretariat. Fisheries and Oceans Canada.

Gamulin-Brida, H. (1967). The benthic fauna of the Adriatic Sea. Oceanography and Marine Biology: an Annual Review.

Fiorentino F., E. Massuti, F. Tinti, S. Somarakis, G. Garofalo, T. Russo, M.T. Facchini, P.Carbonara, K. Kapiris, P. Tugores, R. Cannas, C. Tsigenopoulos, B. Patti, F. Colloca, M. Sbrana, R. Mifsud, V. Valavanis, and M.T. Spedicato (2015). Stock units: Identification of distinct biological units (stock units) for different fish and shellfish species and among different GFCM-GSA. STOCKMED Deliverable 03: FINAL REPORT. 215 p.

Jenkins C (2008) dbSEABED: an information processing system for marine substrates. Available at http://instaar.colorado.edu/~jenkinsc/dbseabed/

Le Fur, F. 2010. Référentiel pour la gestion dans les sites Natura 2000 en mer - Tome 1 Pêche professionnelle. Activités - Interactions - Dispositifs d'encadrement. Report by Agence des Aires Marines Protegees. 152 pp. Available online at: http://www.airesmarines.fr/Documentation/Referentiels-pour-la-gestion-des-sites-Natura-2000-en-mer (accessed 16/10/2015).

Lembo G. (coord), Scarcella G., Sabatella E., Vrgoč N., Bitetto I., Gambino I., Joksimovic A., Cikes Kec V., Kolitari J., Kristo R., Marčeta B., Marković O.,Avdič Mravlje E., Pešić A., Pinello D., Sabatella R., Santojanni A., Zorica B., Spedicato M.T. (2015). SEDAF Final Report. 146pp.

Lucchetti, A., Sala, A., 2012. Impact and performance of Mediterranean fishing gear by side-scan sonar technology. Canadian journal of fisheries and aquatic sciences, 69: 1806-1816.

Lucchetti, A., Notti, E., Sala, A., Virgili M., 2018. Multi-purpose use of side-scan sonar technology for fisheries science. Canadian journal of fisheries and aquatic sciences, 75: 1652-1662.

Martin, C. S., Giannoulaki, M., De Leo, F., Scardi, M., Salomidi, M., Knittweis, L., ... & Fraschetti, S. (2014). Coralligenous and maërl habitats: predictive modelling to identify their spatial distributions across the Mediterranean Sea. Scientific reports.

MEDISEH (2013). Mediterranean Sensitive Habitats. Edited by Giannoulaki M., A. Belluscio, F. Colloca, S. Fraschetti, M. Scardi, C. Smith, P. Panayotidis, V. Valavanis M.T. Spedicato. DG MARE Specific Contract SI2.600741, Final Report, 557 p.

Piras, C., Mion, M., Fortibuoni, T., Franceschini, G., Punzo, E., Strafella, P., ... & Raicevich, S. (2016). A photographic method to identify benthic assemblages based on demersal trawler discards. Fisheries Research, 178, 142-151.

Scardi, M., Crema, R., Di Dato, P., Fresi, E., & Orel, G. (1999, November). Le comunità bentoniche dell'Alto Adriatico: un'analisi preliminare dei cambiamenti strutturali dagli anni'30 ad oggi. In Proceedings of the Workshop "Impact of trawl fishing on benthic communities", Rome (pp. 95-108).

STECF 12-12 (2012). Scientific, Technical and Economic Committee for Fisheries (STECF) – Development of the Ecosystem Approach to Fisheries Management (EAFM) in European seas. Publications Office of the European Union, Luxembourg, ISSN 1831-9424, 177 pp.

Telesca, Luca, Andrea Belluscio, Alessandro Criscoli, Giandomenico Ardizzone, Eugenia T. Apostolaki, Simonetta Fraschetti, Michele Gristina et al. "Seagrass meadows (Posidonia oceanica) distribution and trajectories of change." Scientific reports 5 (2015).

Vatova, A. (1949). La fauna bentonica dell' Alto e Medio Adriatico. Nova Thalassia, 3: 3-110.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥ 80**

Information gap indicator	**More information sought**

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.5.1 – Ecosystem outcome

PI 2.5.1		The UoA does not cause serious or irreversible harm to the key elements of ecosystem structure and function		
Scoring Issue		SG 60	SG 80	SG 100
a	Ecosystem status			
	Guide post	The UoA is **unlikely** to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	The UoA is **highly unlikely** to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	There is **evidence** that the UoA is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.
	Met?	**Yes**	**Yes**	**No**

Rationale

A review of functional groups acting as keystones in the Mediterranean Sea food webs confirmed the unique combination of suprabenthos, micro- and mesozooplankton, dolphins and small pelagic fish in structuring the ecosystem in the Mediterranean Sea, and highlighted the importance of benthic organisms as key structuring species with a relatively high proportion of biomass (Coll and Libralato, 2012). These functional groups were thus interpreted as being the features giving the ecosystem its characteristic nature and dynamics. Species which have been considered separately in this assessment (the P1 target species anchovy and sardine; ETP species striped and bottlenose dolphins) were not considered again. Such conclusions are completely valid also for the Tyrrhenian Sea. Therefore, the assessment team considers that the UoA is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm – SG 60 and SG 80 are met – SG 60 and SG 80 are met.

The assessment team considers that there isn't any specifically evidence for the UoA, therefore SG 100 is not met.

References

Coll, M., Santojanni, A., Palomera, I., Tudela, S., & Arneri, E. (2007). An ecological model of the Northern and Central Adriatic Sea: analysis of ecosystem structure and fishing impacts. Journal of Marine Systems, 67(1), 119-154.

Coll, M., & Libralato, S. (2012). Contributions of food web modelling to the ecosystem approach to marine resource management in the Mediterranean Sea. Fish and fisheries, 13(1), 60-88.

Fortuna, C.M., Vallini, C., De Carlo, F., Filidei, E.jr, Lucchetti, A., Gaspari, S., Fossi, M.C., Maltese, S., Marsili, L., Bottaro, M., Ruffino, M., Scacco, U., Giovanardi, O., Mazzola, A., Sala, A., Tunesi, L. (2010a). Relazione finale del progetto "Valutazione delle catture accidentali di specie protette nel traino pelagico (BYCATCH III)", codice progetto: 7A02. 84pp.

Fortuna, C. M., Vallini, C., Filidei Jr, E., Ruffino, M., Consalvo, I., Di Muccio, S., ... & Mazzola, A. (2010b). By-catch of cetaceans and other species of conservation concern during pair trawl fishing operations in the Adriatic Sea (Italy). Chemistry and Ecology, 26(S1), 65-76.

Giani, M., Djakovac, T., Degobbis, D., Cozzi, S., Solidoro, C., & Umani, S. F. (2012). Recent changes in the marine ecosystems of the northern Adriatic Sea. Estuarine, Coastal and Shelf Science, 115, 1-13.

Libralato, S., Coll, M., Tempesta, M., Santojanni, A., Spoto, M., Palomera, I., ... & Solidoro, C. (2010). Food-web traits of protected and exploited areas of the Adriatic Sea. Biological Conservation, 143(9), 2182-2194.

Ruffino, M. (2008). Caratterizzazione delle catture commerciali e del by-catch nella pesca da traino pelagico in Alto Adriatico. Università degli studi di Padova. Facoltà di Scienze MM. FF. NN. Laurea specialistica in Biologia Marina. 107 pp.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥ 80**

Information gap indicator	**More information sought**
Data-deficient? (Risk-Based Framework needed)	**No**

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.5.2 – Ecosystem management strategy

PI 2.5.2		There are measures in place to ensure the UoA does not pose a risk of serious or irreversible harm to ecosystem structure and function		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are **measures** in place, if necessary, which take into account the **potential impacts** of the UoA on key elements of the ecosystem.	There is a **partial strategy** in place, if necessary, which considers **available information and is expected to restrain impacts** of the UoA on the ecosystem so as to achieve the Ecosystem Outcome 80 level of performance.	There is a **strategy** that consists of a **plan**, in place which contains measures to **address all main impacts of the UoA** on the ecosystem, and at least some of these measures are in place.
	Met?	**Yes**	**Yes**	**Yes**

Rationale

The potential impacts of the UoA on the key elements of the ecosystem are constrained by a number of relevant measures, including:

- Regulation (EU) No 1380/2013 on the Common Fisheries Policy (CFP) outlining a set of rules for managing European fishing fleets and for conserving fish stocks. Under the CFP an ecosystem-based approach to fisheries management needs to be implemented, and environmental impacts of fishing activities should be limited.
- Commission Delegated Regulation (EU) No 1392/2014 of 20 October 2014 establishing a discard plan for certain small pelagic fisheries in the Mediterranean Sea, which specifies the details for implementing the landing obligation specified in the new Common Fisheries Policy (CFP).
- Regulation (EC) No 1967/2006 (as amended by EC 1343/2011) concerning management measures for the sustainable exploitation of fishery resources in the Mediterranean Sea. This regulation outlines a number of measures to protect Mediterranean marine ecosystems from the effects of fishing, including requirements to ban fishing in coastal waters, to protect sensitive habitats and to establish fishing protected areas.
- Directive 2008/56/EC on establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive - MSFD). The MSFD outlines a legislative framework for an ecosystem-based approach to the management of human activities which supports the sustainable use of marine goods and services. The overarching goal of the Directive is to achieve 'Good Environmental Status' (GES) by 2020 across Europe's marine environment. Descriptors 1 and 4 of the MSFD include requirements that "the distribution and abundance of species are in line with prevailing physiographic, geographic and climatic conditions" and that "all elements of the marine food webs, to the extent that they are known, occur at normal abundance and diversity and levels capable of ensuring the long-term abundance of the species and the retention of their full reproductive capacity".

Achieving GES under the MSFD requires Member States to follow a plan of action stipulated by the Directive as follows:

- Preparation of an 'initial assessment' of the environmental status of marine waters by July 2012;
- Determination of GES, and establishment of associated environmental targets and indicators by July 2012;
- Implementation of a monitoring programme for the ongoing assessment of GES and targets by July 2014;
- Development of a programme of measures designed to achieve GES by 2015, which will be made operational by 2016.
- A review process to reassess the effectiveness of national action plans every six years.

The assessment team considers that there is thus a strategy that consists of a plan in place, and that this strategy contains measures to address all main impacts of the UoA on the ecosystem. There is evidence that at least some of these measures are in place – SG 100 is met.

b	Management strategy evaluation			
	Guide post	The **measures** are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar UoAs/ ecosystems).	There is **some objective basis for confidence** that the measures/ partial strategy will work, based on some information directly about the UoA and/or the ecosystem involved.	**Testing** supports **high confidence** that the partial strategy/ strategy will work, based on information directly about the UoA and/or ecosystem involved.

	Met?	**Yes**	**Yes**	**No**

Rationale

Both the EU and Italy strategies for ecosystem management are based on information about fishing impacts on target and non-target species, marine habitats and ETP species. The Italian Management plan for small-pelagic fisheries in the Tyrrhenian Sea (MIPAAF 2011) set out measures that, once fully implemented will restrain the impacts of the fishery on ecosystems so that it does not cause serious or irreversible harm.

The existing fisheries management framework are an integral part of their respective ecosystem management strategies. The measures that have been introduced in the EU and Italy to constrain fishing pressure on target species, and to protect non-target species (through the discard ban, landing obligation and spatial closures), along with measures to protect areas of seabed demonstrate that some measures are already in place to constrain ecosystem impacts. The strategy in place meets that SG 60 and 80 requirements. However, testing to support high confidence that the strategy will work has yet to be carried out, so SG 100 is not met.

c	Management strategy implementation			
	Guide post		There is **some evidence** that the measures/partial strategy is being **implemented successfully**.	There is **clear evidence** that the partial strategy/strategy is being **implemented successfully and is achieving its objective as set out in scoring issue (a).**
	Met?		**No**	**No**

Rationale

The assessment team at the moment has not clear evidence that the management strategy is being implemented successfully – SG 80 is not met.

References

Donaldson, A., Gabriel, C., Harvey, B.J. & Carolsfeld, J. 2010. Impacts of Fishing Gears other than Bottom Trawls, Dredges, Gillnets and Longlines on Aquatic Biodiversity and Vulnerable Marine Ecosystems. Research Document 2010/011. Canadian Science Advisory Secretariat. Fisheries and Oceans Canada.

Le Fur, F. 2010. Référentiel pour la gestion dans les sites Natura 2000 en mer - Tome 1 Pêche professionnelle. Activités - Interactions - Dispositifs d'encadrement. Report by Agence des Aires Marines Protegees. 152 pp. Available online at: http://www.airesmarines.fr/Documentation/Referentiels-pour-la-gestion-des-sites-Natura-2000-en-mer (accessed 16/10/2015).

Lucchetti, A., Sala, A., 2012. Impact and performance of Mediterranean fishing gear by side-scan sonar technology. Canadian journal of fisheries and aquatic sciences, 69: 1806-1816.

Lucchetti, A., Notti, E., Sala, A., Virgili M., 2018. Multi-purpose use of side-scan sonar technology for fisheries science. Canadian journal of fisheries and aquatic sciences, 75: 1652-1662.

STECF 12-12 (2012). Scientific, Technical and Economic Committee for Fisheries (STECF) – Development of the Ecosystem Approach to Fisheries Management (EAFM) in European seas. Publications Office of the European Union, Luxembourg, ISSN 1831-9424, 177 pp

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**60-79**
Information gap indicator	**More information sought**

Overall Performance Indicator scores added from Client and Peer Review Draft Report

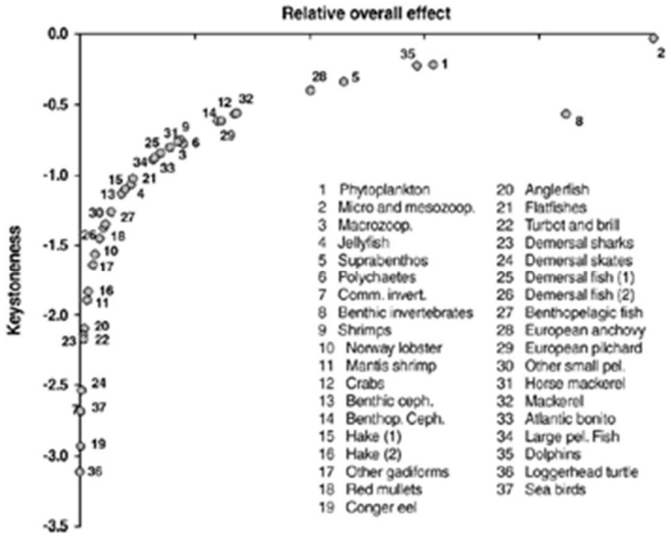
Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.5.3 – Ecosystem information

PI 2.5.3		There is adequate knowledge of the impacts of the UoA on the ecosystem		
Scoring Issue		SG 60	SG 80	SG 100
a	Information quality			
	Guide post	Information is adequate to **identify** the key elements of the ecosystem.	Information is adequate to **broadly understand** the key elements of the ecosystem.	
	Met?	**Yes**	**Yes**	

Rationale

Coll et al. (2007) developed a trophic mass-balance model to characterise the food web of the Mediterranean and described a total of forty functional groups, including target and non-target fish, invertebrate groups and detritus groups. Key elements of the ecosystem were identified by ranking functional groups according to (1) relative overall effect) and (2) a keystoneness index. Phytoplankton, micro and mesozooplankton, suprabenthos (amphipods, cumaceans, isopods), benthic invertebrates (echinodermata, mollusca, crustacea), and dolphins were identified to be key ecosystem elements.



Relative overall effect (εi) and keystoneness index (KSi) of functional groups in the ecosystem of GSA10. Keystone groups are those with higher εi and higher KSi (Coll et al., 2007).

This result was substantiated by subsequent work (Coll et al., 2008d; Coll et al., 2009c); a review of functional groups acting as keystones in the Mediterranean Sea food webs compiled by Coll and Libralato (2012) confirmed that suprabenthos, micro- and mesozooplankton, dolphins and small pelagic fish are the most important functional groups in structuring the ecosystem in GSA10.

Besides identifying these functional groups as key elements, these studies also describe their role in the ecosystem og GSA10. The assessment team thus considers that information is adequate to broadly understand the key elements of the ecosystem – SG 80 is met.

b	Investigation of UoA impacts			
	Guide post	Main impacts of the UoA on these key ecosystem elements can be inferred from existing information but **have not been investigated** in detail.	Main impacts of the UoA on these key ecosystem elements can be inferred from existing information, and **some have been investigated in detail**.	Main interactions between the UoA and these ecosystem elements can be inferred from existing information and **have been investigated in detail**.
	Met?	**Yes**	**Yes**	**No**

Rationale

The assessment team considers that the UoA is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm (Lucchetti and Sala, 2012; STECF 12-12).
The UoA is highly unlikely to cause permanent changes in the diversity of plankton communities, or to impact the capacity of phytoplankton and micro- / mesozooplankton to a point where productivity would be adversely impacted. The main impacts of the UoA on key ecosystem elements can thus be inferred – SG 60 is met.
The assessment team considers that some of the main impacts of the UoA on key ecosystem elements have been investigated in detail – SG 80 is met.

Whilst the main interactions between the UoA and ecosystem elements can to an extent be inferred from existing information, these interactions have not been investigated in detail – SG 100 is not met for micro- / mesozooplankton, benthic invertebrates and suprabenthos.

c	Understanding of component functions			
	Guide post		The main functions of the components (i.e., P1 target species, primary, secondary and ETP species and Habitats) in the ecosystem are **known**.	The impacts of the UoA on P1 target species, primary, secondary and ETP species and Habitats are identified and the main functions of these components in the ecosystem are **understood**.
	Met?		**Yes**	**Yes**

Rationale

Numerous ongoing / past research projects have contributed to our understanding of the ecosystem in general, and on the main functions of ecosystem components in particular. A substantial body of scientific literature exists on the topic – the reference list provided with this assessment list gives an overview of some of the most relevant scientific and grey literature. The assessment team is of the opinion that SG 80 and SG 100 are met.

d	Information relevance			
	Guide post		Adequate information is available on the impacts of the UoA on these components to allow some of the main consequences for the ecosystem to be inferred.	Adequate information is available on the impacts of the UoA on the components **and elements** to allow the main consequences for the ecosystem to be inferred.
	Met?		**Yes**	**Yes**

Rationale

Adequate information is available on the impacts of the UoA on the main components (i.e., P1 target species, secondary and ETP species and Habitats) to allow some of the main consequences for the ecosystem to be inferred – SG 80 is met.
Adequate information is also available on the impacts of the UoA on key ecosystem elements (i.e. phytoplankton, micro and mesozooplankton, suprabenthos (amphipods, cumaceans, isopods), benthic invertebrates (echinodermata, mollusca, crustacea), anchovy and dolphins (Coll et al., 2007)) to allow the main consequences for the ecosystem to be inferred – SG 100 is met.

e	Monitoring			
	Guide post		Adequate data continue to be collected to detect any increase in risk level.	Information is adequate to support the development of strategies to manage ecosystem impacts.
	Met?		**Yes**	**Yes**

Rationale

Monitoring data which would allow to detect any increase in risk level comes from a number of sources:
- The activity of the UoA is continuously monitored by the relevant authorities, including using satellite-based VMS data.
- Monitoring strategies and programmes being implemented by EU Member States as part of obligations arising from the implementation of the Marine Strategy Framework Directive. Member States are obliged to

implement the monitoring activities (see Annex 2) for ongoing assessment and regular updating of environmental targets, including on the maintenance of biological diversity, marine food-webs and sea-floor integrity.
- Scientific research activities in GSA10 is ongoing and will complement information coming from fisheries and environmental monitoring activities by providing further information on best practices to manage impacts.

The assessment team thus considers that adequate data continue to be collected to detect any increase in risk level, and that the available information is adequate to support the development of strategies to manage ecosystem impacts – SG 80 and SG 100 are met.

References

Coll, M., Santojanni, A., Palomera, I., Tudela, S., & Arneri, E. (2007). An ecological model of the Northern and Central Adriatic Sea: analysis of ecosystem structure and fishing impacts. Journal of Marine Systems, 67(1), 119-154.

Coll, M., Lotze, H.K. and Romanuk, T.N. (2008d). Structural degradation in Mediterranean Sea food webs: Testing ecological hypotheses using stochastic and mass-balance modelling. Ecosystems 11, 939–960.

Coll, M., Santojanni, A., Palomera, I. and Arneri, E. (2009c). Food-web changes in the Adriatic Sea over the last three decades. Marine Ecology Progress Series 381, 17–37.

Coll, M., & Libralato, S. (2012). Contributions of food web modelling to the ecosystem approach to marine resource management in the Mediterranean Sea. Fish and fisheries, 13(1), 60-88.

Donaldson, A., Gabriel, C., Harvey, B.J. & Carolsfeld, J. 2010. Impacts of Fishing Gears other than Bottom Trawls, Dredges, Gillnets and Longlines on Aquatic Biodiversity and Vulnerable Marine Ecosystems. Research Document 2010/011. Canadian Science Advisory Secretariat. Fisheries and Oceans Canada.

Fortuna, C.M., Vallini, C., De Carlo, F., Filidei, E.jr, Lucchetti, A., Gaspari, S., Fossi, M.C., Maltese, S., Marsili, L., Bottaro, M., Ruffino, M., Scacco, U., Giovanardi, O., Mazzola, A., Sala, A., Tunesi, L. (2010a). Relazione finale del progetto "Valutazione delle catture accidentali di specie protette nel traino pelagico (BYCATCH III)", codice progetto: 7A02. 84pp.

Le Fur, F. 2010. Référentiel pour la gestion dans les sites Natura 2000 en mer - Tome 1 Pêche professionnelle. Activités - Interactions - Dispositifs d'encadrement. Report by Agence des Aires Marines Protegees. 152 pp. Available online at: http://www.airesmarines.fr/Documentation/Referentiels-pour-la-gestion-des-sites-Natura-2000-en-mer (accessed 16/10/2015).

Ruffino, M. (2008). Caratterizzazione delle catture commerciali e del by-catch nella pesca da traino pelagico in Alto Adriatico. Università degli studi di Padova. Facoltà di Scienze MM. FF. NN. Laurea specialistica in Biologia Marina. 107 pp.

STECF 12-12 (2012). Scientific, Technical and Economic Committee for Fisheries (STECF) – Development of the Ecosystem Approach to Fisheries Management (EAFM) in European seas. Publications Office of the European Union, Luxembourg, ISSN 1831-9424, 177 pp.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥ 80**
Information gap indicator	**More information sought**

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

References (Principle 2)

AdriaMed Working Group on Small Pelagics, 2015a. General Fisheries Commission for the Mediterranean (GFCM) stock assessment form small pelagics – Anchovy (*Engraulis encrasicolus*). Reference year 2014. Reporting year 2015, 40 pp.

AdriaMed Working Group on Small Pelagics, 2015b. General Fisheries Commission for the Mediterranean (GFCM) stock assessment form small pelagics – Sardine (*Sardina pilchardus*). Reference year 2014. Reporting year 2015, 40 pp.

Anonymous, 2017. Report of the 2017 ICCAT Bluefin stock assessment meeting. Madrid, Spain (20-28 July, 2017), 106 pp.

Artegiani, A., Bregant, D., Paschini, E. et al., 1997. The Adriatic Sea general circulation. Part 1: air-sea interactions and water mass structure. J. Phys. Oceanogr., 27: 1492–1514.

Coll, M., Santojanni, A., Palomera, I., Tudela, S., Arneri, E., 2007. An ecological model of the Northern and Central Adriatic Sea: analysis of ecosystem structure and fishing impacts, J. Mar. Syst. 67: 119–154,

Cossu, A., De Luca, M., 2016. Seabed survey to support implementation of marine strategy framework directive - Northern Sardinia. Conference: 47° Congresso della Società Italiana di Biologia Marina. Torino. June 2016.

D'Onghia, G., Maiorano, P., Carlucci, R., Capezzuto, F., Carluccio, A., Tursi, A., Sion, L., 2012. Comparing deep-sea fish fauna between coral and non-coral "megahabitats" in the Santa Maria di Leuca cold-water coral province (Mediterranean Sea). PLoS One 7(9), e44509.

Falco, P., Belardinelli, A., Santojanni, A., Cingolani, N., Russo, A., Arneri, E., 2007. An observing system for the collection of fishery and oceanographic data, Ocean Sci. 3: 189–203.

FAO, 2018. The State of Mediterranean and Black Sea Fisheries. General Fisheries Commission for the Mediterranean. Rome. 172 pp.

Faria, R., Weiss, S., Alexandrino, P., 2012. Comparative phylogeography and demographic history of European shads (*Alosa alosa* and *A. fallax*) inferred from mitochondrial DNA. BMC evolutionary biology, 12(1), 1.

Froese, R., Winker, H., Coro, G., Demirel, N., Tsikliras, A.C., Dimarchopoulou, D., Scarcella, G., Quaas, M., Matz-Lück, N., 2018. Status and rebuilding of European fisheries. Marine Policy, 93: 159-170.

GFCM, 2017. Report of the Working Group on Stock Assessment of Small Pelagic species (WGSASP). FAO headquarters, Rome (13-18 November 2017) http://www.fao.org/gfcm/reports/technical-meetings/detail/en/c/1107436/, 66 pp.

Giannoulaki, M., Belluscio, A., Colloca, F., Fraschetti, S., Scardi, M., Smith, C., Panayotidis, P., Valavanis, V. Spedicato, M.T., 2013. DG MARE Specific Contract

SI2.600741, Final Report, 557 pp.

ICCAT, 2018. Swordfish Mediterranean: executive summary: http://iccat.int/Documents/SCRS/ExecSum/SWO_MED_ENG.pdf

IUCN, 2012. Marine Mammals and Sea Turtles of the Mediterranean and Black Seas. Gland, Switzerland and Malaga, Spain: IUCN. 32 pp.

Keller, K., 2005. Discards in the world's marine fisheries. An update, FAO Tech. Pap. No. 131.

Lucchetti, A., Belardinelli, A., D'Andrea, L., Marčetac, B., Martinelli, M., Russo, T., Čikeš Keč, V., Zorica, B., Virgili, M., 2018. Small pelagic purse seines in the Adriatic Sea: A spatial analysis and technical overview in relation to Mediterranean Regulation provisions. Mar. Pol. 98: 104-114.

Lucchetti, A., Sala, A., 2012. Impact and performance of Mediterranean fishing gear by side-scan sonar technology. Canadian journal of fisheries and aquatic sciences, 69: 1806-1816.

Lucchetti, A., Notti, E., Sala, A., Virgili M., 2018. Multi-purpose use of side-scan sonar technology for fisheries science. Canadian journal of fisheries and aquatic sciences, 75: 1652-1662.

Marano, G., Vaccarella, R., Pastorelli, A.M., Piccinetti, C., Del Piero, D., 1998. Valutazione della biomassa di *Callista chione* (L.) (Fasolaro) in Adriatico. Biol. Mar. Medit., 5(3): 451–456.

Marasovic, I., Vilicic, D., Nincevic, Ž., 1999. South Adriatic Ecosystem: Interaction with the Mediterranean Sea. In: Malanotte-Rizzoli P., Eremeev V.N. (eds) The Eastern Mediterranean as a Laboratory Basin for the Assessment of Contrasting Ecosystems. NATO Science Series (Series 2: Environmental Security), vol 51. Springer, Dordrecht.

Paraskevas, V., Maravelias, C.D., Tserpes, G., 2014. The Alarming Decline of Mediterranean Fish Stocks. Current Biology 24: 1643-1648.

Piroddi, C., Coll, M., Liquete, C. , Macias, D., Greer, K., Buszowski, J., Steenbeek, J., Danovaro, R., Christensen, V., 2016. Historical changes of the Mediterranean Sea ecosystem: modelling the role and impact of primary productivity and fisheries changes over time. Scientific Reports, 7: 444-491.

REC.ICCAT-GFCM/35/2011/7. ICCAT Recommendation [10-04] amending the Recommendation by ICCAT to establish a Multi-annual recovery plan for Bluefin Tuna in the Eastern Atlantic and Mediterranean, 39 pp.

Sala, A., Bonanomi, S., Benetti, A., Cani, M. V., Ciofi, C., Colombelli, A., Corrias, V., Ferrer, I. M., Filiciotto, F., Fortuna, M. C., Gaspari, S., Giovanardi, O., Marcone, A., Mazzola, A., Mazzoldi, C., Moro, F., Notti, E., Pulcinella, J., Raicevich, S., Rampazzo, F., Renier, D., Vizzini, S., Zane, L., 2018. Evaluation of the

accidental catches of protected species in the pelagic trawling (BYCATCH 2016-2017). Final Report to the Italian Ministry of Agriculture and Forestry (Project MIPAF 7A02), 110 pp.

Sala, A., Brčić, J., De Carlo, F., Lucchetti, A., Pulcinella, J., Virgili, M., 2015. Evaluation of the accidental catches of protected species in the pelagic trawling (BYCATCH 2013-2014). Final Report to the Italian Ministry of Agriculture and Forestry (Project MIPAF 7A02), 59 pp (doi: 10.13140/2.1.3021.3927).

Sala, A., Brčić, J., De Carlo, F., Lucchetti, A., Virgili, M., 2013. Evaluation of the accidental catches of protected species in the pelagic trawling (BYCATCH 2012-2013). Final Report to the Italian Ministry of Agriculture and Forestry (Project MIPAF n. 7A02), 36 pp (doi: 10.13140/2.1.4594.2562).

Santojanni, A., Cingolani, N., Arneri, E., Kirkwood, G., Belardinelli, A., Giannetti, G., Colella, S., Donato, F., Barry, C., 2005. Stock assessment of sardine (Sardina pilchardus, Walb.) in the Adriatic Sea, with an estimate of discards, Sci. Mar. 69: 603–617.

Savini, A., Vertino, A., Marchese, F., Beuck, L., Freiwald, A., 2014. Mapping coldwater coral habitats at different scales within the northern Ionian Sea (Central Mediterranean): An assessment of coral coverage and associated vulnerability. PLoS One 9(1), e87108.

Spedicato, M.T., 2016. Strengthening regional cooperation in the area of fisheries data collection in the Mediterranean and Black Sea. Contract MARE/2014/19 - SI2.705484, Final Report, 34 pp.

STECF, 2018. Mediterranean Stock Assessments - Part 2 (STECF-18-16). Publications Office of the European Union, Luxembourg, 2018, ISBN 978-92-79-79399-8, doi:10.2760/598716, JRC114787

STECF, 2016a. Reports of the Scientific, Technical and Economic Committee for Fisheries (STECF) – Mediterranean assessments part 2 (STECF-16-08). 2016. Publications Office of the European Union, Luxembourg, EUR 27758 EN, JRC 101548, 483 pp.

STECF, 2016b. 2016 Mediterranean assessments part 1 (STECF-16-22). John Simmonds, Giacomo Chato Osio and Alessandro Mannini (eds).

STECF, 2016c. Scientific, Technical and Economic Committee for Fisheries (STECF) – 52nd Plenary Meeting Report (PLEN-16-02); Publications Office of the European Union, Luxembourg; EUR 28106 EN; doi:10.2788/6958.

Taviani, M., Angeletti, L., Canese, S. et al., 2016. The “Sardinian cold-water coral province” in the context of the Mediterranean coral ecosystems. Deep Sea Res PT I. https://doi.org/10.1016/jdsr2.2015.12.008

Tsagarakis, K., Palialexis, A., Vassilopoulou, V., 2014. Mediterranean fishery discards: review of the existing knowledge, ICES J. Mar. Sci. 71: 1219–1234.

Vilicic, D., Leder, N., Grzetic, Z. et al., 1995. Microphytoplankton in the Strait of Otranto (Eastern Mediterranean). Mar. Biol., 123: 619-630.

Wallace, B.P., DiMatteo, A.D., Hurley, B.J., Finkbeiner, E.M., Bolten, A.B., Chaloupka, M.Y., ... & Bourjea, J., 2010. Regional management units for marine turtles: a novel framework for prioritizing conservation and research across multiple scales. PLoS One, 5(12), e15465.

7.6 Principle 3

7.6.1 Principle 3 background

The UoA consists of stock European anchovy exploited mainly by Italian vessels. The stock is not considered to be shared with other countries.

The UoA vessels are Italian-registered and so fish under Italian licences, are members of Italian POs and report (via electronic logbooks) to the Italian management authorities.

The main management body for the UoA is therefore the Italian central government, which operates in accordance with its commitments as a Member State of the European Union and as a contracting party of the regional fishery management organisation, the UN FAO's General Fisheries Commission of the Mediterranean and Black Sea (GFCM). How each organisation works to manage the fishery is described in the sections below.

EUROPEAN UNION

As Italy is an EU Member State, the key legal framework for the management of the UoA is set out at European level by the Common Fisheries Policy (CFP; European Regulation 1380/2013). The CFP provides a framework under which shared stocks in European waters (stocks where the geographic distribution covers more than one European EEZ, or stocks fished outside 12 miles in a given EEZ) are managed on a common European basis.

EU vessels are all bound by the same rules and regulations as defined under the EU Common Fisheries Policy (CFP) (EC reg. 1380/2013).

The CFP also defines common objectives and requirements that the Italian, Croatian and Slovenian operators in the fishery must adhere to. These are implemented in each Member State; in the case of Italy via presidential decrees.

The objective of the CFP is to ensure that fisheries and aquaculture are ecologically, economically and socially sustainable. It is also concerned with maintaining employment and the sector's economic viability.

Following the 2002 CFP reform, a new system for limiting the fishing capacity of the EU fleet entered into force on 1 January 2003. This system gave more responsibility to the Member States in achieving a better balance between the fishing capacity of their fleets and the available resources. An Italian Ministerial Circular of 07 October 2004 laid down a plan that aims at reducing fishing effort, particularly by encouraging a reduction in fishing vessels operating within 6 nautical miles of the baseline and using trawl nets.

The CFP is reviewed every 10 years and its most recent revision (EU Reg. 1308/2013) sought to make fisheries more sustainable. The new policy came into force in 2014, including commitments to:

- Fish stocks exploited at Maximum sustainable yield (MSY),
- Greater regionalization (through increased roles for Regional Advisory Councils, including the North Sea Advisory Council (North Sea AC),
- An ecosystem approach to fisheries by ensuring fishing capacity is in line with fishing opportunities and moving more stocks under Long Term Management Plans,
- An obligation to land the fish that is caught (discard ban).

The EC's DG Maritime Affairs and Fisheries has recently published its strategic plan 2016-2020[1], which sets out fisheries management objectives and targets as well as those for marine environmental management.

For Monitoring, Control and Surveillance activities, the EU Member States are required to comply with the agreed control regulations within the CFP framework. Since 2007 these have been coordinated at an EU level by the European Fisheries Control Agency (EFCA). Its goal is to coordinate the fisheries inspection and control operational activities of Member States, and provide assistance to the Member States in their application of the CFP.

The CFP includes requirements for fishing vessels longer than 12 meters to report their logbook data, including catch data, electronically and to have an approved satellite-based vessel monitoring system (VMS) on board. Fishing vessels longer than 18 meters are also required to have an automatic identification system (AIS) on board. From 1 May 2014, AIS must be on board all vessels over 15 meters in length.

As a European Union Member State, Italy has a responsibility to monitor fishing activities and catches, and to share such information via the Data Collection Framework (DCF), which is consistent with commitments under the GFCM.

[1] http://ec.europa.eu/atwork/synthesis/amp/doc/mare_sp_2016-2020_en.pdf

The vessels are required to report the location and quantity of species retained on a daily basis via an electronic logbook that is transmitted to control authorities. Skippers must also notify authorities ahead of landing their fish and only into designated ports.

European fisheries management also involves taking decisions based on the best available scientific data. The European Commission receives advice from the STECF and various other scientific organizations. In the event of data gaps, the EU has the means to fund studies and projects in the short, medium, and long term with the aim of rectifying the lack of data.

STECF can be consulted for the annual stock assessment results and STECF reports and recommendations are publicly available. The outcomes of the deliberations of the EU Fisheries Commission are also publicly available via their communications and regulations.

Management plan under the Mediterranean regulation 1976/2006

The basic EC regulation for the fishing activity in the Mediterranean Sea is Council Regulation (EC) No 1967/2006 of 21 December 2006 concerning management measures for the sustainable exploitation of fishery resources in the Mediterranean Sea, amending Regulation (EEC) No 2847/93 and repealing Regulation (EC) No 1626/94.

The Regulation's aim is to establish an effective management framework, through an appropriate sharing of responsibilities between the Community and the Member States. It also extends to the Mediterranean High Sea the strict protection of certain marine species already afforded by Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora, which was previously only applicable to marine waters under Member States' sovereignty.

This regulation introduces for the first time the concept of management plans for Mediterranean fisheries, which was present in the basic CFP regulation since 2002. A reference to those plans can be found in the preamble of the regulation, both at community level and national level:

> "*In view of the specific characteristics of many Mediterranean fisheries, which are restricted to certain geographical sub-zones, and taking into account the tradition of applying effort management system at sub-regional level, it is appropriate to provide for the establishment of Community and national management plans, combining in particular effort management with specific technical measures*."

It also introduces a procedure to deal with new fishing protected areas:

> "*By Decision 98/392/EC2 the Council has concluded the United Nations Convention on the Law of the Sea, which contains principles and rules relating to the conservation and management of the living resources of the high seas. In accordance with the rules of that Convention, the Community endeavours to coordinate the management and conservation of living aquatic resources with other coastal States.*"

Chapter VII of Regulation 1967/2006 includes provisions for Management Plans.

Article 18 refers to Community-level management plans that should be deployed to manage specific Mediterranean fisheries, in particular, in areas totally or partially beyond the territorial waters of Member States. Until now, there have not been any such plans at Community level.

Management plans may include measures which go beyond the provisions of this Regulation for the purpose of: increasing the selectivity of fishing gear; reducing discards and limiting the fishing effort. The measures to be included in the management plans had to be proportionate to the objectives, the targets and the expected time frame.

Landing obligation

The European MS exploiting small pelagic in the Southern and Central Tyrrhenian Sea (GSA 10) is mainly Italy. In such countries the CFP regulation (EU) No 1380/2013 aims to progressively eliminate discards in all Union fisheries through the introduction of a landing obligation. Article 15(6) empowers the Commission to adopt discard plans by means of a delegated act for a period of no more than three years based on joint recommendations developed by Member States in consultation with the relevant Advisory Councils. In accordance with the joint recommendation provided by the Mediterranean Advisory Council (MEDAC), the discard plan should cover all catches of species which are subject to minimum sizes as defined in Annex III to Regulation (EC) No 1967/2006 caught in small pelagic fisheries using pelagic mid-water trawl and/or purse seines in the Mediterranean Sea (i.e. fisheries for anchovy, sardine, mackerel and horse mackerel) from 1 January 2015.

To avoid disproportionate costs of handling unwanted catches and in accordance with Article 15(5)(c)(ii) of Regulation (EU) No 1380/2013, a *de minimis* exemption from the landing obligation in terms of percentage of the total annual catches of species subject to the landing obligation can be set. The joint recommendations submitted by the concerned Member States support the case for the *de minimis* exemption, due to the increased costs entailed in the management of unwanted catches, both on board (sorting and boxing, storage and conservation) and on land (transport and storage, conservation, marketing and processing or destruction as special waste), compared to the limited and sometimes non-

existent economic profit that could be derived from those unwanted catches. The evidence provided by the Member States was reviewed by the Scientific, Technical and Economic Committee for Fisheries (STECF, 2013) which concluded that the joint recommendations contained reasoned arguments related to the increase of costs in handling unwanted catches, supported in some cases with a qualitative assessment of the costs.

GENERAL FISHERIES COMMISSION FOR THE MEDITERRANEAN (GFCM)

The fishery advisory body in the Mediterranean is the General Fisheries Commission for the Mediterranean and Black Sea (hereafter GFCM). GFCM is a regional fisheries management organization (RFMO) established under the provisions of Article XIV of the FAO Constitution. The GFCM was established as a Council in 1952 and became a Commission with greater powers in 1997.

The main objective of the GFCM is to promote the development, conservation, rational management and best utilization of living marine resources as well as the sustainable development of aquaculture in the Mediterranean, the Black Sea and connecting waters (GFCM area of application).

The GFCM is currently composed of 23 member countries, including Italy, (and also the European Union) who contribute to its autonomous budget to finance its functioning. Membership is open to Mediterranean coastal States and regional economic organizations as well as to United Nations member States whose vessels engage in fishing in its area of application.

The GFCM implements its policy and activities through its Secretariat, based at its headquarters in Rome, Italy. The Commission holds its regular sessions annually and operates during the intersession by means of its committees:

- Scientific Advisory Committee (SAC),
- Committee on Aquaculture (CAQ),
- Compliance Committee (CoC),
- Committee of Administration and Finance (CAF) and their subsidiary bodies, including the ad hoc Working Group for the Black Sea (WGBS),
- GFCM Bureau steers strategic orientations to the Commission and the Secretariat.

The Commission has the authority to adopt binding recommendations for fisheries conservation and management in its area of application and plays a critical role in fisheries governance in the region. In particular, its measures can relate to the regulation of fishing methods, fishing gear and minimum landing size, the establishment of open and closed fishing seasons and areas, and fishing effort control. GFCM Resolution GFCM/37/2013/2 establishes guidelines on the management of fishing capacity in the GFCM area to be followed by contracting parties. The GFCM is one of the few RFMOs worldwide entitled to adopt spatial management measures that regulate or restrict human activities in the high seas, e.g. by introducing closures or prohibiting the use of certain gears.

In cooperation with other RFMOs, the GFCM coordinates efforts by governments to effectively manage fisheries at the regional level following the FAO Code of Conduct for Responsible Fisheries (CCRF). Moreover, it closely cooperates with other international organizations in matters of mutual interest and it benefits from the support of cooperation projects and programs at the regional and sub regional level in order to enhance scientific cooperation and capacity-building among its members. The GFCM also manages a database of national fisheries legislation of member countries[2].

The GFCM has recently amended its legal framework and the Agreement for its establishment with a view to enhancing its efficiency and thus better responding to current and future challenges in the whole region[3].

The decision-making process can be well developed through the use of the GFCM – Scientific Advisory Committee (SAC) and its integrated advisory structure comprised of the STECF/MEDAC/European Commission, as well as the different interested parties having the option to participate in the decision-making. Advice to the GFCM can only be given by the SAC with other groups able to advise the SAC, but not the GFCM directly (GFCM Fishery Officer, pers comm.). The outcomes of the technical meetings and scientific councils are considered when taking decisions on fisheries management and made available on the GFCM website.

As with the CFP, National management plans must be consistent with GFCM plans, and can only be more restrictive, not less (as is the intention of the EU's draft Management Plan for small pelagic). The Compliance Committee meets years to assess how the contracting parties have enforced the agreed plans.

Proposed developments for 2016 include an on-board observer programme (as set out in the GFCM mid-term strategy 2016-2020), which will be GFCM-wide complementing the EU's existing observer and reporting activities under the EU's Data Collection Framework.

[2] http://nationallegislation.gfcmsecretariat.org/index
[3] http://www.fao.org/gfcm/background/about/en/

ITALIAN MANAGEMENT

The "*Ministero delle politiche agricole alimentari, forestali e del turismo*" (hereafter MIPAAFT) is the Central Government Ministry that is responsible for managing fishing activity in Italy. The "*Direzione generale della pesca marittima e dell'acquacoltura*" (hereater PEMAC) is part of this ministry and is responsible for carrying out this task.

In Italy no legal or natural persons are allowed to engage in commercial fishing without the preliminary registration in the Fishing Company Register. Crew members are also registered in the Seamen Register and ships are recorded in apposite Vessels Register. This obligatory recording regime came from the Navigation Code, Presidential Decree No. 328/1952 of 1952, Law No. 963/1965 of 1965, and Presidential Decree No. 1639/1968 of 1968.

MIPAAF is the competent authority for Monitoring, Control and Surveillance (hereafter MCS).

In order to register, professional seamen must satisfy the following statutory requirements:

a) they must show that fishing is their sole or principal source of income; and

b) they must demonstrate that they have acquired adequate professional knowledge and skills to conduct commercial fishing operations (training course).

Currently this regime is confirmed by the context of the new Legislative Decree 153/2004. The registers are kept by the local offices of the Ministry of Transport (Comando Generale delle Capitanerie di Porto or Coast Guard Authorities) located along the Italian coastline.

The Italian Coast Guard is delegated responsibility by MIPAAFT for fisheries control at sea and on land. It works with the local and national agencies to apply these controls (e.g. with the financial ministry and police to progress prosecutions). On MCS, the Coastguard works with EFCA, Croatian and Slovenian control authorities to implement joint deployment plans such as those for specific fisheries (e.g. Blue Fin Tuna) or more generally (Mediterranean).

It operates the National Fishery Control Centre (Centro Controllo Nazionale Pesca - CCNP); in Rome and 15 regional offices, each with their own assets for aerial, sea and land-based inspections. For fisheries in GSA 10, the Italian Coastguard carries out aerial surveillance, sea-based inspections and port inspections with resources targeted using a risk analysis approach. Statistics on inspections and infringement are not available for the present UoA but only for the whole Italian fleet (see Ecomafie Report 2018 - https://www.legambiente.it/rapporto-ecomafia/).

In recent years inspectors have remained on board to contribute to the scientific information for the fishery. By inspectors also observing hauls, this has improved the sampling levels in the quantification of discards as per DCF commitments.

The Italian Government regularly convenes the sector to inform them of the resolutions and changes that affect or may affect the fishery, and they work hand in hand to find the best solution. This also means that the Government has first-hand knowledge of the sector's issues and concerns (MIPAAFT officer pers. comm.).

The fisheries sector participates in the Mediterranean Advisory Council (MEDAC[4]). The MEDAC is made up of European and national organizations representing the fisheries sector (including the industrial fleet, small-scale fisheries, the processing sector and trade unions) and other interest groups (such as environmental organizations, consumer groups and sports/recreational fishery associations) which operate in the Mediterranean area in the framework of the CFP.

The role of MEDAC includes the preparation of opinions on fisheries management and socio-economic aspects in support of the fisheries sector in the Mediterranean, to be submitted to the Member States and the European institutions in order to facilitate the achievement of the objectives of the CFP; MEDAC also proposes technical solutions and suggestions, such as joint recommendations (ex. Art. 18 Reg.1380 / 2013) at the request of the Member States. MEDAC consists of an executive committee and a number of thematic working groups (including Management Plans and GFCM issues) and regional focus groups.

The Italian fishery sector itself is organized within co-operatives, many of which are also Producer Organisations (an EU-recognized marketing body that often also acts as a representative of its members). Federpesca[5] and Federcoopesca[6] are umbrella bodies that represent these numerous sector organisations at a national level and are members of MEDAC.

Italy endorsed in 2011 a management plan for small pelagic fishery in GSA 10. The objective of the management plan is to rebuild or maintain stocks within safe biological limits. The management plan was elaborated on the basis of the scientific evidence that can be used for a responsible management of fishing activities and takes into account the limit and target reference points recommended by scientific bodies. The management plan tend to achieve the following specific objectives:

1. preservation of the capacity to renew commercial stocks;

[4] http://en.med-ac.eu/index.php
[5] http://www.federpesca.it
[6] http://www.federcoopesca.it

2. improvement of the economic conditions of the sector's employees
3. maximization of employment opportunities in areas dependent on fishing.

The management measures foreseen by the plan were: reduction of fishing capacity (scrapping of vessels), reduction of fishing effort (temporary closures), fishing permits and monitoring (acoustic survey).

CO-OPERATION IN FISHERIES MANAGEMENT

Shared management for key stocks has been developed in recent years. From 2012 the District activities are coordinated by a Management Committee, composed of three Regional Councilors for Fisheries and Aquaculture and a representative of MIPAAFT. A support committee there is a Technical Working Group, under the supervision of an advisory committee; the first is composed of the three regional managers of fisheries and aquaculture, a MIPAAFT representative.

The Fishing District has expertise in several areas, including the definition of annual and multi-annual projects; the preparation of Local Management Plans, co-ordination with coastal Institutions, the application of guidelines and monitoring and review of the Local Management Plans.

7.6.2 Principle 3 Performance Indicator scores and rationales

PI 3.1.1 – Legal and/or customary framework

PI 3.1.1		The management system exists within an appropriate legal and/or customary framework which ensures that it: - Is capable of delivering sustainability in the UoA(s); - Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and - Incorporates an appropriate dispute resolution framework		
Scoring Issue		SG 60	SG 80	SG 100
a	Compatibility of laws or standards with effective management			
	Guide post	There is an effective national legal system **and a framework for cooperation** with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2	There is an effective national legal system and **organised and effective cooperation** with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2.	There is an effective national legal system and **binding procedures governing cooperation with other parties** which delivers management outcomes consistent with MSC Principles 1 and 2.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

Italy has an effective national legal system and binding procedures listed within comprehensive suite of fisheries legislation that is updated to implement commitments under the EU's CFP and the under the GFCM.
A summary of this legislation is available at:
http://nationallegislation.gfcmsecretariat.org/index.php?title=Italy

In relation to a: Membership of the EU requires co-operation with other parties to deliver such management outcomes under the Common Fisheries Policy.
In relation to b: Membership of the GFCM also has binding procedures governing co-operation with other parties. General Agreement on Establishment of the GFCM: "*Further recognizing that, under international law, States are required to cooperate in the conservation and management of living marine resources and the protection of their ecosystems"*
In relation to c: General Agreement on Establishment of the GFCM: Further recalling the Agreement for the Implementation of the Provisions of the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks of 4 December 1995, the Agreement to promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas of 24 November 1993, as well as other relevant international instruments concerning the conservation and management of living marine resources, SG 100 is therefore met.

b	Resolution of disputes			
	Guide post	The management system incorporates or is subject by law to a **mechanism** for the resolution of legal disputes arising within the system.	The management system incorporates or is subject by law to a **transparent mechanism** for the resolution of legal disputes which is **considered to be effective** in dealing with most issues and that is appropriate to the context of the UoA.	The management system incorporates or is subject by law to a **transparent mechanism** for the resolution of legal disputes that is appropriate to the context of the fishery and has been **tested and proven to be effective**.
	Met?	**Yes**	**Yes**	**No**
Rationale				

The Italian legal system provides recourse for the resolution of disputes resulting from the management system. This can be applied at a local and national level.

An amendment of the GFCM Agreement was launched in 2013 following a performance review finalised in 2011, which concluded that the Agreement should be amended to clarify the objectives and functions of the GFCM, and strengthen its efficiency. This included the establishment of a well-defined dispute settlement mechanism in case disputes arise between Contracting Parties.
Article 19: Settlement of disputes on the interpretation and application of the Agreement
1. In the event of a dispute between two or more of Contracting Parties concerning the interpretation or application of this Agreement, the Parties concerned shall consult among each other with a view to seeking solutions by negotiation, mediation, inquiry or any other peaceful means of their own choice.
2. If the parties concerned cannot reach agreement in accordance with paragraph 19.1, they may jointly refer the matter to a committee composed of one representative appointed by each of the party of the dispute, and in addition the Chairperson of the Commission. The findings by such committee, while not binding in character, shall constitute the basis for renewed consideration by the Contracting Parties concerned of the matter out of which disagreement arose.
3. Any dispute concerning the interpretation or application of this Agreement not resolved under paragraphs 19.1 and 19.2 may, with the consent in each case of all parties to the dispute, be referred for settlement to arbitration. The results of the arbitration procedure shall be binding upon the parties.
4. In cases where the dispute is referred to arbitration, the arbitral tribunal shall be constituted as provided in the Annex to this Agreement. The Annex forms an integral part of this Agreement.
This meets SG80 requirements, but to date there is no evidence of this dispute resolution system being tested and proven to be effective. So SG100 not met.

c	Respect for rights			
	Guide post	The management system has a mechanism to **generally respect** the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	The management system has a mechanism to **observe** the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	The management system has a mechanism to **formally commit** to the legal rights created explicitly or established by custom of people dependent on fishing for food and livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.
	Met?	**Yes**	**Yes**	**No**

Rationale

The Italian management system is required to observe, but does not formally commit to, the rights of those dependent on fisheries.
The team shall interpret “formally commit” in scoring issue (c) at SG100 to mean that the UoA involved in the fishery can demonstrate a mandated legal basis where rights are fully codified within the fishery management system and/or its policies and procedures for managing fisheries under a legal framework. Such evidence has not been provided and therefore SG100 is not met.

References

GFCM general agreement
Common Fisheries Policy Regulation (EU) no. 1380/2013 (the “Basic Regulation”)
Italian general fisheries laws:
D.P.R. 2 October 1968, n. 1639 - Executive Regulation of the L. 963/1965.
L 41/1982 - Plane for rationalization and develop of maritime fishery (repealed).
D.Lgs. 153/2004 - Application of L. 38/2003 on maritime fisheries.
D.Lgs. 154/2004 - Fisheries and aquaculture modernization.

Overall Performance Indicator (PI) Rationale

Considering the rationales reported for the SI a, b and c the overall performance should be 85.

Draft scoring range	**≥80**
Information gap indicator	**Information sufficient to score PI**

PI 3.1.2 – Consultation, roles and responsibilities

PI 3.1.2		The management system has effective consultation processes that are open to interested and affected parties The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties		
Scoring Issue		SG 60	SG 80	SG 100
a	Roles and responsibilities			
	Guide post	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are **generally understood**.	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are **explicitly defined and well understood for key areas** of responsibility and interaction.	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are **explicitly defined and well understood for all areas** of responsibility and interaction.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

Section 7.6.1 describes the various management, industry and scientific organisations involved in fisheries management. GFCM co-ordinates regional management and scientific data collection to inform fishery management.
The EC through the CFP sets framework for fisheries management, which is then implemented by the Italian ministry (implements the CFP and GFCM binding recommendations).
MEDAC is a multi-stakeholder group that feeds advise into these complementary processes. Federpesca and Federcoopesca are industry bodies representing the Italian catching sector as members of MEDAC.
The European Union, through the EMFF (European Fund for Maritime Affairs and Fisheries), supports the implementation of participatory local development strategies (CLLD: Community Led Local Development), implemented through the FLAG (Fisheries Local Action Group). In the area, the FLAG "*Approdo di Ulisse*" cover a central role in the management of the fleet in the area. The FLAG is interested in cooperation projects dealing with the development of sustainable tourism, direct sales of local fisheries products, joint marketing of local products from land and sea, and building links between producers and local catering/restaurants.
The functions and relationships between these management, industry and advisory groups are well defined (see: https://webgate.ec.europa.eu/fpfis/cms/farnet2/on-the-ground/flag-factsheets/landing-ulysses-flag_en#group-factsheet-flag-project-ex) and understood by participants for all areas of responsibility (SG100 is met).

b	Consultation processes			
	Guide post	The management system includes consultation processes that **obtain relevant information** from the main affected parties, including local knowledge, to inform the management system.	The management system includes consultation processes that **regularly seek and accept** relevant information, including local knowledge. The management system demonstrates consideration of the information obtained.	The management system includes consultation processes that **regularly seek and accept** relevant information, including local knowledge. The management system demonstrates consideration of the information and **explains how it is used or not used**.
	Met?	**Yes**	**Yes**	**No**
Rationale				

The FLAG (Fisheries Local Action Groups) "Approdo di Ulisse" is the main regular consultation process that enables local knowledge from the sector to be considered in development of the management system. However, it is not always explained by the EC how that information is used or not used. Industry stakeholders suggest this is also the case at a national level with Ministry consultation exercises, which are ad hoc exercises associated with the development of new policies prior to the drafting of regulation. However, this is not enough to consider that the management system considers always the information and explains how it is used or not use. Therefore, SG 100 is not met.

c	Participation			
	Guide post		The consultation process **provides opportunity** for all interested and affected parties to be involved.	The consultation process provides **opportunity and encouragement** for all interested and affected parties to be involved, and **facilitates** their effective engagement.
	Met?		**Yes**	**Yes**

Rationale

The consultation process is based on the activity of the FLAG, along with the development of the Better Regulation Guidelines ensures more effective consultation and is a recent improvement in performance that meets SG100.

References

Common Fisheries Policy Regulation (EU) no. 1380/2013 (the “Basic Regulation”)

Overall Performance Indicator (PI) Rationale

Considering the rationales reported for the SI a, b and c the overall performance should be 95.

Draft scoring range	**≥80**
Information gap indicator	**Information sufficient to score PI**

PI 3.1.3 – Long term objectives

PI 3.1.3		The management policy has clear long-term objectives to guide decision-making that are consistent with MSC Fisheries Standard, and incorporates the precautionary approach		
Scoring Issue		SG 60	SG 80	SG 100
a	Objectives			
	Guide post	Long-term objectives to guide decision-making, consistent with the MSC Fisheries Standard and the precautionary approach, are **implicit** within management policy.	**Clear** long-term objectives that guide decision-making, consistent with MSC Fisheries Standard and the precautionary approach are **explicit** within management policy.	**Clear** long-term objectives that guide decision-making, consistent with MSC Fisheries Standard and the precautionary approach, are **explicit** within **and required by** management policy.
	Met?	**Yes**	**Yes**	**Yes**

Rationale

CFP and GFCM have clear long-term objectives that explicitly require the precautionary approach to be followed.
The CFP contains clear long-term objectives that guide decision-making and are consistent with MSC principles. These are presented in section 7.6.1 of the report.
The CFP is explicit in requiring the precautionary approach to guide all management policy, including the national management of vessels in the UoA.
GFCM General Agreement Article 5:
In giving effect to the objective of this Agreement, the Commission shall:
c) apply the precautionary approach in accordance with the 1995 Agreement and the Code of Conduct for Responsible Fisheries. Therefore SG 100 is met.

References

GFCM General Agreement
Common Fisheries Policy Regulation (EU) no. 1380/2013 (the “Basic Regulation”)

Overall Performance Indicator (PI) Rationale

See previous rationale.

Draft scoring range	**≥80**
Information gap indicator	**Information sufficient to score PI**

PI 3.2.1 – Fishery-specific objectives

PI 3.2.1		The fishery-specific management system has clear, specific objectives designed to achieve the outcomes expressed by MSC's Principles 1 and 2		
Scoring Issue		SG 60	SG 80	SG 100
a	Objectives			
	Guide post	**Objectives**, which are broadly consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are **implicit** within the fishery-specific management system.	**Short and long-term objectives**, which are consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are **explicit** within the fishery-specific management system.	**Well defined and measurable short and long-term objectives**, which are demonstrably consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are **explicit** within the fishery-specific management system.
	Met?	**Yes**	**Partial**	**Partial**

Rationale

Well-defined and measurable long and short term objectives are defined in Italian Management plan (MIPAAF, 2011): A multi-annual management plan for the fisheries exploiting the small pelagic stocks in GFCM-GSA 10 must be developed and be coherent with the precautionary approach and designed to provide high long-term yields consistent with the maximum sustainable yield and to guarantee a low risk of stocks collapse while maintaining sustainable and relatively stable fisheries.

The Italian management plan forming the fishery-specific management plan are required to comply with the wider GFCM recommendations concerning P2 aspects (SG60 is met). However, these are only implicit in the management plan and explicit objectives solely focus on the two target species and such well-defined and measurable objectives do not extend to MSC P2 aspects.
SG80 is met for P1 aspects, but not for P2 and SG80 is therefore only partially met.

References

MIPAAF 2011. Piano di Gestione per la pesca ai piccoli pelagici con le reti a circuizione della GSA10 (Mar Tirreno meridionale). 11 pp

Overall Performance Indicator (PI) Rationale

According to the rationale explained above the PI should score less than 80 and a condition should be considered here.

Draft scoring range	**60-79**
Information gap indicator	**Information sufficient to score PI**

PI 3.2.2 – Decision-making processes

PI 3.2.2		The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives, and has an appropriate approach to actual disputes in the fishery		
Scoring Issue		SG 60	SG 80	SG 100
a	Decision-making processes			
	Guide post	There are **some** decision-making processes in place that result in measures and strategies to achieve the fishery-specific objectives.	There are **established** decision-making processes that result in measures and strategies to achieve the fishery-specific objectives.	
	Met?	**Yes**	**No**	
Rationale				

The decision-making process is carried out mainly by national authorities. In particular for the present fishery the Italian Management plan for small pelagic fishery in GSA 10 is clear evidence that there is a decision-making process in place that result in measures and strategies to achieve the fishery-specific objectives. Therefore, SG 60 is met. However, during the site visit was not completely clear such process is strongly established. Therefore, SG 80 is not met.

b	Responsiveness of decision-making processes			
	Guide post	Decision-making processes respond to **serious issues** identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take some account of the wider implications of decisions.	Decision-making processes respond to **serious and other important issues** identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.	Decision-making processes respond to **all issues** identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.
	Met?	**Yes**	**No**	**No**
Rationale				

It is evident that to date Italy amendments have occurred in order to respond to serious issues in the fishery (SG60 is met), but there is no evidence that all issues (such as the ecosystem significance of the target species) are considered. Indeed, the Italian management plan does not show the necessary response as recommended by the SAC or STECF via the scenario modelling work conducted and therefore SG80 is not met.

c	Use of precautionary approach			
	Guide post		Decision-making processes use the precautionary approach and are based on best available information.	
	Met?		**Yes**	
Rationale				

The precautionary approach is used within the advice received from the SAC. SAC shall provide advice on the status of the small pelagic stocks (sardine, anchovy) in GSA 10.

d	Accountability and transparency of management system and decision-making process

	Guide post	Some information on the fishery's performance and management action is generally available on request to stakeholders.	**Information on the fishery's performance and management action is available on request**, and explanations are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.	Formal reporting to all interested stakeholders **provides comprehensive information on the fishery's performance and management actions** and describes how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

The SAC and General Council reports are published on the GFCM website as well as in the STECF reports. Work to date, such as GFCM stock assessment forms and STECF report[illegible]e examples of comprehensive information on fishery performance and management actions that are readily available

	Approach to disputes			
e	Guide post	Although the management authority or fishery may be subject to continuing court challenges, it is not indicating a disrespect or defiance of the law by repeatedly violating the same law or regulation necessary for the sustainability for the fishery.	The management system or fishery is attempting to comply in a timely fashion with judicial decisions arising from any legal challenges.	The management system or fishery acts proactively to avoid legal disputes or rapidly implements judicial decisions arising from legal challenges.
	Met?	**Yes**	**Yes**	**No**
Rationale				

The establishment of specific groups (e.g. FLAGS) that involve most of the stakeholders, are proactively attempting to avoid legal disputes through the agreement of advice and resulting decisions. For the specific fishery, as observed also during the site visit, there is no evidence that the management authorities are subject to continuing court challenges. Therefore SG 60 and 80 are met. However, the management system does not act proactively to avoid legal disputes or rapidly implements judicial decisions arising from legal challenges. Therefore, SG 100 is not met.

References

MIPAAF 2011. Piano di Gestione per la pesca ai piccoli pelagici con le reti a circuizione della GSA10 (Mar Tirreno meridionale). 11 pp

Overall Performance Indicator (PI) Rationale

According to the rationales reported above the PI should score less than 80 and a condition should be considered here.

Draft scoring range	**60-79**
Information gap indicator	**Information sufficient to score PI**

PI 3.2.3 – Compliance and enforcement

PI 3.2.3		Monitoring, control and surveillance mechanisms ensure the management measures in the fishery are enforced and complied with		
Scoring Issue		SG 60	SG 80	SG 100
a	MCS implementation			
	Guidepost	Monitoring, control and surveillance **mechanisms** exist, and are implemented in the fishery and there is a reasonable expectation that they are effective.	A monitoring, control and surveillance **system** has been implemented in the fishery and has demonstrated an ability to enforce relevant management measures, strategies and/or rules.	A **comprehensive** monitoring, control and surveillance system has been implemented in the fishery and has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules.
	Met?	**Yes**	**No**	**No**
Rationale				

MCS in the Southern and Central Tyrrhenian Sea (GSA 10) is a combination of technical measures such as the requirement for Vessel Monitoring Systems (VMS) on vessels over 12m (all UoA vessels) and e-logbooks. This is supported by at sea inspection, aerial surveillance and port inspection. There is also corroboration of logbook data with sales notes.
Control authorities have a reasonable expectation and confidence that MCS measures are effective. The resources available to and used by those authorities have demonstrated an ability to enforce the regulations applying to the fishery. The Italian Coastguard manages monitoring control and surveillance of Italian vessels along with joint operations with the Croatian control authority.
Relevant statistics on sanctions and inspections are not available for the UoA but only for the whole Italian fleets on "*Ecomafie*" report 2018 (https://www.legambiente.it/rapporto-ecomafia). Therefore, is not possible to demonstrate the efficacy of the MCS mechanism but it is possible just to infer an expectation of efficacy, SG 60 is met but not 80 or 100.

b	Sanctions			
	Guidepost	Sanctions to deal with non-compliance exist and there is some evidence that they are applied.	Sanctions to deal with non-compliance exist, **are consistently applied** and thought to provide effective deterrence.	Sanctions to deal with non-compliance exist, are consistently applied and **demonstrably** provide effective deterrence.
	Met?	**Yes**	**No**	**No**
Rationale				

During the site visit was reported by the representative of the fishery that sanctions are applied. SG 60 is met. However, it is not completely clear how this provide an effective deterrence. Therefore SG 80 is not met.

c	Compliance			
	Guidepost	Fishers are **generally thought** to comply with the management system for the fishery under assessment, including, when required, providing information of importance to the effective management of the fishery.	**Some evidence exists** to demonstrate fishers comply with the management system under assessment, including, when required, providing information of importance to the effective management of the fishery.	There is a **high degree of confidence** that fishers comply with the management system under assessment, including, providing information of importance to the effective management of the fishery.
	Met?	**Yes**	**No**	**No**

Rationale

The statistics on inspection and infringements are not directly available for the present UoA. However, during site visit was evidenced that fishers generally comply with the laws, was evidenced how the coast guard makes several controls on the mesh of the codend and on the spatial distribution of the fleet. This can meet SG 60.
However, there is not any evidence that the fishery complies with the management system. Therefore, SG 80 is not met.

	Systematic non-compliance			
d	Guidepost		There is no evidence of systematic non-compliance.	
	Met?		**Yes**	

Rationale

Some stakeholders during the site visit did report non-compliance (i.e. landings target species smaller than the legal size), but this was recognized as an occasional occurrence and not indicative of systematic non-compliance.

References

EFCA Mediterranean Deployment Plan 2014 http://www.efca.europa.eu/en/content/mediterranean-reports-2014.

Overall Performance Indicator (PI) Rationale

According to the rationales reported above the PI should score above 80.

Draft scoring range	**≥60-79**
Information gap indicator	**More information sought:** Availability of statistics related to the UoA about penalties and non-compliance

PI 3.2.4 – Monitoring and management performance evaluation

PI 3.2.4		There is a system of monitoring and evaluating the performance of the fishery-specific management system against its objectives There is effective and timely review of the fishery-specific management system		
Scoring Issue		SG 60	SG 80	SG 100
a	Evaluation coverage			
	Guidepost	There are mechanisms in place to evaluate **some** parts of the fishery-specific management system.	There are mechanisms in place to evaluate **key** parts of the fishery-specific management system.	There are mechanisms in place to evaluate **all** parts of the fishery-specific management system.
	Met?	**Yes**	**No**	**No**
Rationale				

The mechanism in place to evaluate some parts of the fishery-specific management system are the scientific working groups (both in the framework of SAC-GFCM and STECF) evaluation the status of the stocks. Therefore SG 60 is met. However, key parts of the management system as the effort reduction foreseen by the Italian Management plan for small pelagic fishery in GSA 10 are not evaluated therefore SG 80 is not met.

b	Internal and/or external review			
	Guidepost	The fishery-specific management system is subject to **occasional internal** review.	The fishery-specific management system is subject to **regular internal** and **occasional external** review.	The fishery-specific management system is subject to **regular internal and external** review.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

External review can be considered to result from the scrutiny applied by the EC as a GFCM contracting party, along with the opportunity for other parties and the multi-stakeholder group. In particular, STECF provides regular evaluations on the status of the stock. Moreover, the FLAG is in the process to review and propose a management plan (see ANNEX II). Such activities exemplify the regular internal and external review that the small pelagic plan is subject to and so SG100 is met.

References

Overall Performance Indicator (PI) Rationale

According to the rationales reported above the PI should score above 80.

Draft scoring range	**60-79**
Information gap indicator	**More information sought**

8 Appendices

8.1 Assessment information

8.1.1 Small-scale fisheries

Considering the information available is not possible to conclude that the UoA can be defined as small-scale fishery.

8.2 Evaluation processes and techniques

8.2.1 Site visits

The following site visit were and engagement with stakeholder were carried out:

- 23/05/2019 – Engagement with stakeholder of MIPAAFT and GFCM
- 05/06/2019 – Site visit in CNR-IRBIM – discussion about assessment and data collection
- 07/06/2019 – Site visit at MEDAC headquarter Rome.

8.2.2 Recommendations for stakeholder participation in full assessment

The following stakeholder should be involved in the full assessment:

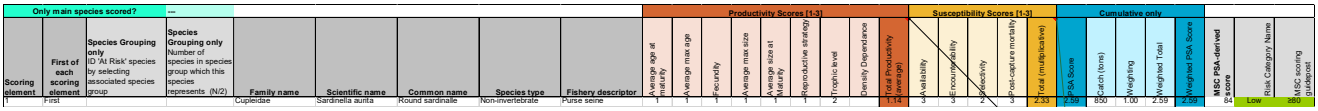
- MIPAAFT.
- GFCM.
- MEDAC.
- NGOs (Oceanan, WWF, GreenPeace, MedReact, etc.).
- COISPA scientists.
- CNR-IRBIM scientists.
- NISEA

8.3 Risk-Based Framework outputs

8.3.1 Productivity Susceptibility Analysis (PSA)

Table 8.3.2 – PSA productivity attributes and scores		
Performance Indicator	2.2.1	
Productivity		
Scoring element (species)	*Sardinella aurita*	
Attribute	Rationale	Score
Average age at maturity	The avarage age at maturity is 1-3 years (https://www.fishbase.se/Reproduction/MaturityList.php?ID=1043&GenusName=Sardinella&SpeciesName=aurita&fc=43)	1
Average maximum age	Life span is known to be about 7 years (https://www.fishbase.se/popdyn/PopCharList.php?ID=1043&GenusName=Sardinella&SpeciesName=aurita&fc=43)	1
Fecundity	Females produce between 9000 and 72,000 of eggs per year (https://www.fishbase.se/Reproduction/FecundityList.php?ID=1043&GenusName=Sardinella&SpeciesName=aurita&fc=43&StockCode=1059)	1
Average maximum size	The average maximum size in the Adriatic Sea is 25 cm. (https://www.fishbase.se/popdyn/PopCharList.php?ID=1043&GenusName=Sardinella&SpeciesName=aurita&fc=43)	1
Average size at maturity	The average size at maturity in the Adriatic Sea is 18 cm. (tps://www.fishbase.se/Reproduction/MaturityList.php?ID=1043&GenusName=Sardinella&SpeciesName=aurita&fc=43)	1
Reproductive strategy	The atlantic horse mackarel is a Broadcast spawner. ((https://www.fishbase.se/Reproduction/FecundityList.php?ID=1043&GenusName=Sardinella&SpeciesName=aurita&fc=43&StockCode=1059)	1
Trophic level	Trophic Level 3.4 - Based on diet studies. (https://www.fishbase.se/summary/Sardinella-aurita)	2
Density dependence Invertebrates only	NA	2
Susceptibility		
Fishery Only where the scoring element is scored cumulatively	*Purse seine in GSA 10*	
Attribute	Rationale	Score
Areal Overlap	The species is a pelagic fish distributed in the entire GSA 10. Therefore, the fishery overlap for more than 30%.	3
Encounterability	The species is a pelagic fish distributed in the entire water column.	3

Selectivity of gear type	Small individuals are regularly caught by purse seine according to the evidences available from the same gear used in Egypt. (https://www.researchgate.net/publication/316978287_Fisheries_of_experimental_purse_seine_net_using_light_and_population_dynamics_of_Sardinella_aurita_Family_Clupeidae_east_of_Alexandria_Egypt).	2
Post capture mortality	The species is always retained or discarded dead.	3
Catch (weight)	338 tons of catches in 2015-2016 average (see table 2.1).	



Only main species scored?	---								Productivity Scores [1-3]								Susceptibility Scores [1-3]				Cumulative only					MSC PSA-derived score		
Scoring element	First of each scoring element	Species Grouping only ID 'At Risk' species by selecting associated species group	Species Grouping only Number of species in species group which this species represents (N/2)	Family name	Scientific name	Common name	Species type	Fishery descriptor	Average age at maturity	Average max age	Fecundity	Average max size	Average size at maturity	Reproductive strategy	Trophic level	Density Dependance	Total Productivity (average)	Availability	Encounterability	Selectivity	Post-capture mortality	Total (multiplicative)	PSA Score	Catch (tons)	Weighting	Weighted Total	Weighted PSA Score		Risk Category Name	MSC scoring guidepost
1	First			Cupleidae	Sardinella aurita	Round sardinalle	Non-invertebrate	Purse seine	1	1	1	1	1	1	2	1	1.14	3	3	2	3	2.33	2.59	850	1.00	2.59	2.59	84	Low	≥60

Reference:

Akel, El & Akel,. (2009). Fisheries of experimental purse seine net using light and population dynamics of Sardinella aurita (Family Clupeidae) east of Alexandria, Egypt. Egypt

8.4 Harmonised fishery assessments – delete if not applicable

No other certified fisheries are present in the area.

9 Corporate branding

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Examples of appropriate amendments are:

a. A title page with the company logo;
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d. Inclusion of contact details for the CAB in relation to consultation
e. Deletion of any sections that are not applicable, though CABs should leave any sections that will be populated later in the assessment; and,

Deletion of introductory text or instructions.

10 Template information and copyright

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Template version control

Version	Date of publication	Description of amendment
1.0	15 August 2011	Date of first release
1.1	31 October 2013	Updated in line with changes to CR v1.3
2.0	08 October 2014	Confirmed background sections (Section 3) as optional (use of 'may' statements) Modified Table 6.3 to create a simplified scoring sheet to be completed in place of full evaluation tables Made amendments to PIs based on Fishery Standard Review changes (e.g. removed original PIs 1.1.2, 3.1.4 and 3.2.4).
2.1	9 October 2017	Inclusion of optional full evaluation tables
3.0	17 December 2018	Release alongside Fisheries Certification Process v2.1
3.1	29 March 2019	Minor document changes for usability

A controlled document list of MSC program documents is available on the MSC website (msc.org)

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ANNEX I – SITE VISIT AGENDA AND SUMMARY

Scopo della visita

Definire l'UoA:

Unit of Assessment	Associazione di pesca interessata	
	Nome comune della specie	Alice / Acciuga
	Geographic Location:	GSA 10
	Gear Types:	Circuizione
	Autorità di gestione	MIPAAFT

Ora/Luogo	*Attività prevista*	*Partecipanti*
10:00 -17:00 Luogo Da definire	Presentazione della certificazione MSC Domande specifiche: 1. Da quante barche è composta la flotta interessata alla certificazione. 2. In quali porti/o è distribuita la flotta. 3. Caratteristiche tecniche dell'attrezzo utlizzato. 4. Quali altre specie target sono pescate durante l'anno. 5. Descrizione dell'attività di pesca in termini di: a. periodo, b. zona di pesca, c. durata della stagione, d. durata della bordata, e. cattura, f. problematiche varie. 6. Quali altre specie oltre all'alice che vengono pescate. 7. Quali sono le catture accidentali di altre specie (es. specie protette più frequenti). 8. Descrizione del sistema di gestione della flotta a circuizione che ha come target l'alice (giornate di pesca, quota giornaliera, quota annua). 9. Durante la stessa bordata di pesca le barche possono avere a bordo altro attrezzo? 10. Le barche pescano anche al di fuori della GSA 10? 11. Può avvenire il trasbordo di pesce su altre barche? 12. C'è il rischio che il prodotto certificato sia mischiato con prodotto non certificato? 13. Numero di controlli effettuati sulle barche nel 2018 e numero di multe.	**DNV GL Italy** Giuseppe Scarcella **MSC Italy** Francesca Oppia (da confermare) **Associazioni pescatori interessati alla certificazione** **Pescatori** **Rappresentati dei FLAG** **Reppresentatin istituzioni (Assessori/Consiglieri/Sindaco)** **Rappresentati del MIPAAFT/MEDAC**

1. Da quante barche è composta la flotta interessata alla certificazione.

L'area di riferimento è il Compartimento Marittimo di Salerno. Nel compartimento sono presenti 36 imbarcazioni autorizzate, tra gli altri attrezzi, anche all'esercizio della pesca a circuizione con chiusura meccanica (PS). Effettivamente negli ultimi 3 anni hanno esercitato l'attività di pesca circa 15 imbarcazioni.

2. In quali porti/o è distribuita la flotta.

I porti in cui è distribuita la flotta sono: Salerno, Cetara, S. Marco di Castellabate, Agnone (porto di S. Nicola).

3. Caratteristiche tecniche dell'attrezzo utlizzato.

L'attrezzo di pesca utilizzato è "Circuizione a chiusura meccanica" (PS)

4. Quali altre specie target sono pescate durante l'anno.

   Sarde, sgombri, sugarelli, aringa

5. Descrizione dell'attività di pesca in termini di:
   a. Periodo: aprile - novembre
   b. zona di pesca: golfo di Salerno (Positano – Sapri)
   c. durata della stagione: 8 mesi
   d. durata della bordata: 10 ore
   e. cattura:
   f problematiche varie: 1) Nel periodo di pesca la richiesta di acquisto è inferiore alla quantità di prodotto pescato Domanda inferiore all'offerta - 2) le dimensioni delle alici generalmente sono di pezzatura ridotta rispetto alla richiesta delle società di trasformazione e dei consumatori.

6. Quali altre specie oltre all'alice che vengono pescate.
   Pesce azzurro (Sarde, sgombri, sugarelli, aringa, tonnetti)

7. Quali sono le catture accidentali di altre specie (es. specie protette più frequenti):
   Tonnetti e Pesce spada

8. Descrizione del sistema di gestione della flotta a circuizione che ha come target l'alice (giornate di pesca, quota giornaliera, quota annua).

Non esiste un sistema di gestione della flotta. L'obiettivo è di istituire un piano di gestione che imponga le seguenti azioni:

1. Riduzione delle giornate di pesca durante la settimana,
2. Riduzione delle bordate,
3. Riduzione dell'attrezzo di pesca,
4. Azioni rivolte alla valorizzazione del prodotto (certificazione), ed al miglioramento delle strategie commerciali.

9. Durante la stessa bordata di pesca le barche possono avere a bordo altro attrezzo?

   Potrebbero imbarcate altri attrezzi da pesca ma questa ipotesi non si verifica mai.

10. Le barche pescano anche al di fuori della GSA 10?

    Le barche operano prevalentemente nel golfo di Salerno. Non pescano al di fuori dell'area GSA 10.

11. Può avvenire il trasbordo di pesce su altre barche?

    Generalmente non si verificano trasbordi del prodotto.

12. C'è il rischio che il prodotto certificato sia mischiato con prodotto non certificato?

    Attualmente il prodotto locale non è certificato e risulta fortemente svalutato a causa della concorrenza dei prodotti d'importazione.

13. Numero di controlli effettuati sulle barche nel 2018 e numero di multe.

    I controlli sono frequenti e generalmente non risultano infrazioni.

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ANNEX II – LOCAL PURSE SEINE MANAGEMENT PLAN PROPOSAL

PIANO LOCALE DI GESTIONE
CIRCUIZIONE SALERNO

Il presente preliminare del Piano di Gestione si propone per le navi da pesca iscritte nel Compartimento marittimo di Salerno che praticano la pesca a circuizione.
Il proposto PGL Circuizione Salerno risponde all'esigenza dei pescatori di preservare la propria attività nel tempo ed ha come obiettivo prioritario il recupero e/o il mantenimento degli stock delle specie oggetto di questa tipologia di pesca.
La recente letteratura scientifica rivela una condizione di pieno sfruttamento per l'alice (Engraulis encrasicolus) e per la sardina (Sardina pilchardus), mentre le indicazioni sulle altre specie (spratti, sgombri, sugarelli) sono poche o meno dettagliate.
Il piano di gestione in oggetto nasce quindi dalla necessità di rendere compatibili le modalità e l'intensità del prelievo con la potenzialità di rinnovo biologico delle specie e con lo scopo di conseguire, nel caso della pesca dei piccoli pelagici, un miglioramento della sostenibilità tramite il controllo del tasso di sfruttamento ed il continuo monitoraggio dell'entità della biomassa disponibile.
L'adozione di misure ad elevata sostenibilità biologica, volte a migliorare la qualità dei prodotti della pesca e ad elevare la sostenibilità economica dell'attività ad essa associata, rappresentano la base per il raggiungimento degli obiettivi proposti.

L'appartenenza delle imbarcazioni aderenti al presente Piano di Gestione, allo stesso Compartimento marittimo (Compartimento marittimo di Salerno), giustifica la coerenza amministrativa, che risulta omogenea anche perché costituita da circa l'80% delle imprese autorizzate alla pesca con sistema a circuizione.
La coerenza alieutica è rappresentata invece, dalla omogeneità e dalla complementarietà delle attività di pesca all'interno di tale area, coerenza rafforzata anche da comuni interessi commerciali e mercatali della filiera.
Infine, la coerenza ecologica è assicurata dalle caratteristiche intrinseche delle specie pescate in quanto fortemente selezionate da caratteristiche ecologiche ed ambientali.

1.1 Descrizione geografica e chimico-fisica dell'area d'azione del PdG

Dal punto di vista amministrativo, procedendo da Nord verso Sud, il litorale salernitano insiste sul tratto costiero regionale che interessa l'intera provincia di Salerno.
I comuni interessati sono quelli compresi da Positano a Sapri.

Provincia	Comune	superficie (km2)	numero abitanti	densità (abitanti/km2)
Salerno	Positano	8.42	3904	463.7
Salerno	Amalfi	6.11	5173	846.6
Salerno	Maiori	16.42	5560	338.6
Salerno	Cetara	4.92	2238	454.9
Salerno	Salerno	58.96	131.925	2237.5
Salerno	Agropoli	32.51	20911	643.2
Salerno	Castellabate	36.54	8370	229.1
Salerno	Pollica (Acciaroli)	27.72	2400	86.6
Salerno	Casal Velino	31.47	5025	159.7
Salerno	Ascea	37.61	5683	151.1
Salerno	Pisciotta	30.34	2760	89.7
Salerno	Palinuro	47.21	5146	109
Salerno	Camerota	70.80	6757	95.4
Salerno	S. Giovanni a Piro (Scario)	37.69	3794	100.7
Salerno	Ispani	8.19	996	121.6
Salerno	Santa Marina	28.11	3139	111.7
Salerno	Sapri	13.84	6868	496.2

L'area del PLG è interamente compresa nel Compartimento Marittimo di Salerno. Gli approdi principali sono rappresentati dai porti e/o porticcioli di Cetara, Salerno, Agropoli, S. Marco di Castellabate, Agnone S. Nicola, Acciaroli, Marina di Casalvelino, Marina di Pisciotta, Marina di Camerota, Sapri.

La costa della provincia di Salerno si estende per circa 210 km, da Positano a Sapri. È delimitata a nord dalla Costiera Amalfitana e a sud dalla parte settentrionale del Golfo di Policastro. Questa estesa zona include il Golfo di Salerno, la piana del Sele e la Costiera Cilentana.
La dinamica del litorale delle zone costiere è caratterizzata da un'associazione di tratti distinti più o meno ampi definiti unità fisiografiche. Sulla costa campana della provincia di Salerno sono state individuate quali unità fisiografiche:
la Piana del Sele o Golfo di Salerno (da Salerno ad Agropoli);
la Piana dell'Alento (da Casalvelino ad Ascea) ed il Litorale di Palinuro (da Ascea a Camerota) o costa cilentana;
il Golfo di Policastro (da Scario a Sapri).
Nel complesso, la sua morfologia è estremamente varia.
Le coste salernitane sono costituite per circa il 40% da coste basse e pertanto suscettibili di ampia utilizzazione anche con finalità turistiche. Il problema della loro conservazione dovrebbe essere prioritario per salvaguardare una risorsa naturale di notevole interesse sociale ed economico. Il rimanente 60% è rappresentato da coste alte che presentano minori rischi per quanto attiene ai fenomeni erosivi, ma soggette ugualmente ad arretramento delle falesie per fenomeni di franamento progressivo. Le coste basse sono costituite da una fascia di sedimenti recenti di tipo clastico; esse sono limitate verso l'interno da piane alluvionali più o meno estese o dalle propaggini delle dorsali appenniniche.
Il rifornimento dei materiali detritici avviene ad opera dei sedimenti alluvionali trasportati verso la costa dalle acque dei fiumi: Sele, Alento, Mingardo, Lambro e Bussento.
La Costiera Amalfitana, tra Punta Campanella e Salerno, si presenta alta e rocciosa per via delle pendici dei monti Lattari che cadono a picco sul mare. Questa tratto di costa presenta una morfologia particolarmente accidentata, che genera situazioni di dissesto idrogeologico. Il tratto di costa tra Salerno e Agropoli, invece, individuata come la fascia costiera della Piana del Sele, è caratterizzata da una costa bassa. Esso comprende le aree di spiaggia e le dune, con estese pinete antropiche. Si tratta di un sistema ambientale affascinante e fragile, caratterizzato dalla presenza di ecosistemi di elevatissimo valore naturalistico. Infine la costa del Cilento si presenta, da un punto di vista geomorfologico, particolarmente articolata con gran parte del litorale caratterizzato da coste alte propaggine estrema della catena montuosa degli Alburni. Questi tratti di costa presentano alternanze di falesie attive e baie, all'interno delle quali si collocano pocket beach di tipo per lo più ghiaioso. Nella zona calcarea tra Palinuro e Scario sono presenti diverse insenature della costa, dovute allo sventramento marino di antiche cavità carsiche. Brevi baie costiere sono situate allo sbocco delle incisioni fluviali principali (torrente Testene, Rio dell'Arena, fiume Alento, fiume Lambro e Fiume Mingardo). La maggiore di queste è senza dubbio quella ospitata nella bassa valle dell'Alento, che determina la lunga falcata sabbiosa che va da Marina di Casalvelino a Marina d'Ascea.

Il principale bacino idrografico individuato dal Distretto Idrografico dell'Appeninno meridionale sul territorio della provincia di Salerno è il Bacino Sele.
I principali affluenti del fiume Sele sono: Tanagro, Bianco, Platano e Calore Lucano.
Sul territorio della provincia di Salerno sono presenti quali altri bacini idrografici: a Nord del Sele (destra Sele) l'Irno ed il Tusciano, a sud del Sele (sinistra Sele) l'Alento, il Mingardo ed il Bussento.
La rete idrografica della costa bassa, tra Salerno e località Lido Lago (al confine tra i comuni di Battipaglia ed Eboli) è costituita da corsi d'acqua di tipo perenne e di estensione significativa che trovano origine dai rilievi dei Monti Picentini.
Il tratto di costa alta, tra Punta Campanella e Salerno, caratterizzata dalla presenza di alte falesie rocciose delle propaggini meridionali del Monti Lattari, è solcato invece, da brevi e ripidi corsi d'acqua montani alle cui foci si rinvengono spesso piccole spiagge di fondo baia (pocket beach).
L'erosione dei terreni da parte dei corsi d'acqua è da ritenersi scarsa nei terreni carbonatici, molto elevata in quelli terrigeni. Il rifornimento alle spiagge è garantito oltre che dai corsi d'acqua, per la costa alta, anche dalla disgregazione diretta della falesia operata dagli agenti atmosferici e dall'azione dei marosi.

Tutte le coste campane, insieme alle coste della Basilicata, della Calabria e della Sicilia, sono state inserite nel settore biogeografico afferente alla sezione meridionale del settore centro-occidentale del Mediterraneo. Il golfo di Salerno, la costiera cilentana ed il golfo di Policastro (come quello di Napoli) sono situati al centro di questo grande bacino e riflettono tutte le caratteristiche ecologiche, in termini di ricchezza di microhabitat, di peculiarità geomorfologiche e idrologiche, e di elementi floro-faunistici provenienti da gli stock biogeografici del Mediterraneo.

Climatologia
Le temperature media annue in Provincia di Salerno sono di circa 10 °C nelle zone montuose interne, 15 °C nelle pianure interne e 18 °C nelle zone costiere.

La temperatura media annuale registrata nella metà degli anni 2000 nella stazione di riferimento di Capo Palinuro è risultata pari a 19.1 °C. L'andamento delle temperature mensili nello stesso periodo, evidenza che la stazione con temperature più elevate è quella localizzata a Battipaglia (nella piana del fiume Sele) in cui sono state registrate le temperature medie più alte di tutto il territorio regionale.
Il regime delle precipitazioni è di tipo appenninico sublitorale con un massimo in autunno/inverno.
I valori di precipitazione cumulata registrati in Campania negli ultimi anni del 2000, sono stati massimi nella stazione di Pontecagnano che, in particolare nel 2005, ha fatto registrare valori superiori a 1200 mm. Dall'analisi e dal confronto delle carte della piovosità media annua tra il periodo '50-'80 e quello della fine degli anni '90 si evince una netta riduzione delle precipitazioni soprattutto nella zona della provincia di Salerno sia lungo la linea costiera che nelle zone interne.
Riguardo ai venti, le misure sono fortemente influenzate dal posizionamento delle stazioni rispetto alla orografia locale. Va quindi, sottolineato per quanto riguarda il valore medio (piuttosto che la direzione), che le stazioni della provincia di Salerno presentano generalmente, valori compresi tra 1.5m/s ed i 2m/s.
I valori di umidità media, misurati a metà degli anni 2000, rivelano un tasso di umidità nella stazione di Pontecagnano prossimi o superiori al 70%. Generalmente, l'analisi della distribuzione dell'umidità relativa media mensile evidenzia un andamento che oscilla tra circa il 70% in luglio e circa l'80% in novembre.
Caratteristiche oceanografiche e correntometriche;
Le correnti che interessano il Golfo di Salerno, provengono prevalentemente da Nord, a causa della circolazione tirrenica, che viene localmente modificata dalla morfologia della costa, infatti, la Penisola Sorrentina e Capri creano un riparo consentendo così la formazione di correnti a carattere locale, oltre a quelle di gradiente e di deriva.
Le correnti di deriva, dovute all'interazione con i venti, non interessano gli stadi profondi, in quanto diminuiscono di intensità man mano che aumenta la profondità. Queste sono dovute per lo più al Grecale, vento predominante nel Golfo all'altezza di Salerno, mente di traversia abbiamo il Libeccio e a ridosso Tramontana e Maestro.
Le correnti di gradiente, dovute alla differenza di densità, provocata da variazioni fra temperatura e salinità, tendono a smorzarsi grazie alla pendenza dolce del fondale. Queste possono formarsi anche per una differenza superficiale, magari provocata da un forte vento, capita così che da correnti di deriva si passa a correnti di gradiente.
Caratteristiche fisico chimiche biologiche dell'acqua
Gli studi di monitoraggio delle acque marino-costiere della provincia di Salerno rivelano un elevato stato ambientale della zona alla foce del fiume Picentino, di Punta Licosa e di Punta Tresino, dove le acque si presentano generalmente trasparenti, con assenza di anomale colorazioni e sotto saturazione di ossigeno disciolto. Nei transetti di tali stazioni di monitoraggio, l'indice trofico Trix (azoto inorganico, fosforo totale, clorofilla "a", ossigeno disciolto), mantiene un valore più o meno costante denotando un basso impatto antropico delle zone esaminate.
Il giudizio sulla qualità delle acque marino costiere (indice CAM- Classificazione Acque Marine) rivela che nella porzione più meridionale (Punta Licosa e Punta Tresino) queste presentano un assetto tipicamente oligotrofico tipico delle acque del largo, non soggette ad immissioni dalla linea di costa o a perturbazioni di natura antropica e caratterizzate da basse biomasse fitoplanctoniche, scarsità di nutrienti e di particolato organico ed inorganico.

La zona più prossima alla piana del Sele (foce del Picentino) rivela invece, un livello di eutrofizzazione più o meno marcato, per l'influsso di apporti terrigeni o di altre sorgenti di arricchimento - in termini trofici - delle acque marine costiere. Ciò indica che queste acque, caratterizzate da una elevata biomassa fitoplanctonica sono anche in grado di produrre, con alto grado di efficienza, nuova biomassa. L'arricchimento in pratica non determina uno squilibrio dell'assetto ecologico del sistema, che è in grado di metabolizzare quindi, l'eccesso di nutrienti.
L'andamento della salinità nelle acque del litorale della provincia di Salerno mostra un range compreso tra 37.5‰ e 38.0‰ (soprattutto quella zona meridionale) dove appare meno evidente il ruolo degli apporti terrigeni.
L'indagine algale, rivela nella provincia di Salerno una dominanza della categoria "Altro Fitoplancton" che rappresenta infatti, il gruppo predominante, cui seguono, soprattutto in Punta Tresino e Punta Licosa, Dinoflagellati e Diatomee. Solo alla foce del fiume Picentino le Diatomee, assumono una certa importanza.
La fioritura algale rivela una marcata variabilità stagionale delle concentrazioni fitoplanctoniche, ma tali comunità vegetali, nel Golfo di Salerno, non mostrano cambiamenti profondi della loro struttura rispetto alla stagione primaverile-estiva.
Nel corso della stagione primaverile ed autunnale, comunque nelle stazioni di Punta Tresino e Punta Licosa, sono state osservate fluttuazioni delle abbondanze totali meno marcate rispetto alle stazioni del Golfo di Napoli.
L'analisi del contributo percentuale dei principali gruppi di zooplancton ha permesso di evidenziare che la composizione dei diversi popolamenti è rappresentata per più del 70% dell'intera comunità dal popolamento a copepodi.

1.2 Descrizione della qualità ambientale e dello stato delle risorse e degli habitat

Caratterizzazione bionomica delle coste della Campania
La Campania ha uno sviluppo costiero considerevole, dovuto da un lato all'articolazione delle sue coste in quattro golfi (da Nord a Sud: di Gaeta, di Napoli, di Salerno e di Policastro), dall'altro alla presenza di tre isole (Ischia, Procida, Capri). Il primo e l'ultimo sconfinano, rispettivamente, nel Lazio e nella Basilicata.

Il Golfo di Salerno è articolato in tre settori ben distinti: l'isola di Capri con la Costiera Amalfitana, la costa bassa e sabbiosa della piana del Sele e il litorale cilentano da Agropoli a Punta Licosa.
Il primo settore è una falesia calcarea pressoché ininterrotta da Punta Carena a Vietri sul Mare, che nel tratto insulare e in parte della Costiera, dopo una stretta fascia nel piano infralitorale colonizzata dalla biocenosi AP e da sporadiche macchie di Posidonia su roccia, continua in profondità ben oltre il piano circalitorale. Tra Punta Campanella e Capo di Conca un fondale delimitato a Sud dagli isolotti Li Galli ospita comunità di substrato mobile del circalitorale. Anche in questo settore, la cui parte occidentale è compresa nell'area marina protetta "Punta Campanella", è stata esercitata illegalmente la pesca del dattero di mare.
Tra Salerno e Agropoli si estende la lunga e bassa costa della Piana del Sele, formata da depositi alluvionali; il fondale digrada dolcemente, con una successione biocenotica tipica lungo il gradiente batimetrico (SFS, SFBC, VTC), e con la presenza sporadica di estesi prati di Cymodocea nodosa. In questo settore sono assenti i substrati rocciosi.
Il terzo settore è una costa rocciosa con piccole spiagge; la comunità di substrato duro, non molto estesa in profondità, termina su un fondo sabbioso-fangoso con Posidonia a macchie.
Tra il Golfo di Salerno e il Golfo di Policastro si estende la lunga e articolata fascia costiera del Cilento, costituita da litorali rocciosi alternati a spiagge fatte di sedimenti fluviali. Da Punta Licosa a Pioppi la costa è rocciosa, con una comunità epilitica non molto estesa e una vasta prateria di Posidonia impiantata su matte e su roccia; più a Sud il fiume Alento ha formato una spiaggia con le biocenosi caratteristiche dei substrati mobili terrigeni (SFS, SFBC, VTC). Da Ascea a Palinuro vi è nei primi metri un'alternanza di comunità di substrato duro e mobile, e più in profondità le biocenosi dell'infralitorale profondo e del circalitorale, soprattutto di substrato mobile, ma con sporadici affioramenti rocciosi.
La costa del promontorio di capo Palinuro è una falesia calcarea con una ricca comunità epilitica e con numerose grotte che termina in profondità su un fondale coperto da sedimenti fini misti a detrito organogeno.
A est del promontorio il fiume Mingardo ha veicolato in mare una quantità di sedimenti sufficiente a creare un fondo mobile simile, sia pure in scala minore, a quello prospiciente l'Alento. Nei dintorni di Punta Iscoletti la costa è alta e rocciosa e le biocenosi dominanti sono di nuovo quelle di substrato duro dei piani infra- e circalitorale.
Il Golfo di Policastro, nella sua parte campana, è diviso in due settori: da punta Iscoletti a Punta del Monaco e da Punta del Monaco a Sapri. Nel primo la costa è alta e rocciosa, e ospita una ricca comunità epilitica la cui valenza ambientale è tra le motivazioni della proposta di istituzione dell'area marina protetta "Costa degli Infreschi e Masseta"; la costa è bassa e sabbiosa, con una successione di comunità sabulicole e misticole insediate nei sedimenti terrigeni veicolati dal fiume Bussento.
Caratteristiche morfologiche e sanità delle acque
Per quanto riguarda le conoscenze relative alla morfologia costiera, alla sua evoluzione e alla qualità delle acque di balneazione, la descrizione seguente ha preso in esame tratti ampi, morfologicamente omogenei, per ognuno dei quali, sulla base delle diverse tipologie di informazioni, sono state considerate e valutate le condizioni.
AREA 1 : Castellamare - Salerno
Morfologia costiera e assetto dei fondali
La costiera amalfitana ha un notevole valore naturalistico e paesaggistico. Il litorale, dominato da falesie rocciose, presenta brevi tratti di spiaggia ciottolosa. Anche in quest'area non mancano tratti interessati da diverse opere di difesa e zone ad intensa urbanizzazione con insediamenti turistico - abitativi. Non sono segnalati particolari apporti di materiale sedimentario.
Qualità igienico sanitaria delle acque
L'area si presenta qualitativamente buona, i parametri relativi alle acque rientrano quasi sempre nei limiti, con eccezioni in aree peraltro poco estese, quali quella presso Conca dei Marini, dove si rileva una contaminazione sia batteriologica che chimica, presso Minori e nell'area immediatamente a Nord di Salerno.
AREA 2: Salerno – Agropoli
Morfologia costiera e assetto dei fondali
Questo tratto è caratterizzato da costa bassa, sabbioso – ciottolosa, ad andamento rettilineo, con alternanza di tratti in erosione ed altri in avanzamento. Sono presenti cordoni dunali antropizzati, inoltre si rilevano diversi apporti di materiale sedimentario prevalentemente fine, ma anche più grossolano, con trasporto litoraneo da Nord a Sud. I fondali sono prevalentemente sabbiosi, il tratto immediatamente sotto costa presenta granulometrie più grossolane, comprese tra 0,18 e 2 mm, più a largo sono tra 0,13 e 0,18 mm, mentre la fascia più esterna ha sabbie con diametri medi compresi tra 0,062 e 0,09 mm. Le pendenze nel tratto sono variabili, prossime al 3% nella parte più settentrionale, in quella meridionale l'acclività è inferiore, mediamente intorno all'1,5%. E' presente un sistema di barre sottomarine che si estende di fatto lungo tutta l'area.
Qualità igienico sanitaria delle acque
L'area presenta un'evidente contaminazione a Sud di Salerno, particolarmente tra S. Leonardo e il fiume Tusciano, con un inquinamento generale di tipo batteriologico, riguardante, in alcuni tratti, anche i parametri chimici e fisici. I limiti relativi ai parametri batteriologici sono superati anche presso il fiume Sele e a Nord di Agropoli. Subito a Nord di Agropoli presso la foce del fiume Testene si rileva anche un inquinamento di tipo chimico – fisico.
AREA 3: Agropoli – Capo Palinuro

Morfologia costiera e assetto dei fondali
Il tratto ha un andamento poco rettilineo, presentando una successione di golfi poco estesi, si osserva un'alternanza di tratti alti e rocciosi in corrispondenza dei promontori con tratti bassi e sabbiosi, spesso in erosione, in corrispondenza delle parti mediane. In corrispondenza dei tratti sabbiosi i fondali presentano sabbie a granulometrie comprese tra 0,18 e 2 mm nel tratto sotto costa, successivamente è presente una fascia con diametri medi compresi tra 0,13 e 0,18 mm, nella parte più esterna le sabbie sono più fini con granulometrie comprese tra 0,062 e 0,09 mm. Le pendenze non sono particolarmente elevate, variando tra l'1,3 e l'1,7%. Si rilevano apporti di materiale sedimentario fine e la presenza di cordoni di barre sottomarine. Il trasporto litoraneo avviene in direzione Sud.
Qualità igienico sanitaria delle acque
Questo tratto presenta in generale una buona qualità delle acque, con parametri che rientrano nei limiti. Uniche eccezioni, di lieve estensione, si hanno presso Ogliastro Marina e la foce del Fiume Alento, con un inquinamento di tipo batteriologico, indice di una contaminazione di tipo cloacale.
AREA 4: Capo Palinuro – Sapri
Morfologia costiera e assetto dei fondali
L'ultimo tratto della fascia della costa campana comprende il Golfo di Policastro. In prevalenza la spiaggia è bassa e sabbiosa con solo alcuni tratti rocciosi. Nell'area sono presenti diversi e consistenti apporti di materiale sedimentario, sia fine che grossolano. Il trasporto litoraneo segue la costa in direzione Ovest. Nonostante il consistente apporto di sedimenti sono presenti ampi tratti di spiaggia in erosione, che giustificano le numerose le opere di difesa costiera.
Qualità igienico sanitaria delle acque
Anche questo tratto presenta in generale una buona qualità delle acque, con parametri che rientrano nei limiti. Uniche eccezioni, di lieve estensione, si hanno presso Palinuro e la foce del Fiume Bussento, nelle quali si rileva un inquinamento che interessa anche i parametri chimico fisici.
1.3 Descrizione delle attività di pesca esistenti e della distribuzione spaziale dello sforzo di pesca
La flotta
Nel compartimento di Salerno suddiviso in 15 uffici marittimi:

UFFICIO MARITTIMO	NUMERO IMBARCAZIONI
SALERNO	224
AMALFI	56
POSITANO	47
MAIORI	42
CETARA	98
VIETRI SUL MARE	6
AGROPOLI	54
S. M. CASTELLABATE	83
ACCIAROLI	82
M. DI PISCIOTTA	19
PALINURO	49
M. DI CAMEROTA	59
SCARIO	21
CAPITELLO	37
SAPRI	33
TOTALE IMBARCAZIONI	910

Flotta nel Compartimento marittimo di Salerno (Dati: Feet Register 31.12.2018).

risultano iscritte 910 imbarcazioni, che rappresentano poco più del 50% della flotta regionale. Queste imbarcazioni corrispondono ad una stazza complessiva di 4.380 GT, pari rispettivamente al 45% della flotta campana.
La distribuzione delle imbarcazioni tra i diversi uffici marittimi rivela che, poco meno di un terzo delle imbarcazioni è concentrata nell'ufficio marittimo di Salerno, il 12 % è iscritto all'ufficio marittimo di Acciaroli, mentre le rimanenti imbarcazioni sono distribuite nei residui 13 uffici marittimi, nessuno dei quali raggiunge però, il 10 %.
In termini di stazza e di potenza motore il quadro della distribuzione tra gli uffici marittimi si modifica sostanzialmente con le imbarcazioni iscritte a Salerno che presentano stazze e potenze motori con un peso percentualmente doppio rispetto a quello del numero di imbarcazioni e dove il 31 % delle imbarcazioni del compartimento esprime il 69 % della stazza come GT.
Gli altri uffici marittimi presentano stazze e potenze motori con un peso percentualmente inferiore a quello del numero di imbarcazioni.

In termini di mestieri di pesca, il 77% delle imbarcazioni appartiene alla piccola pesca, distribuita in tutti gli uffici marittimi. In particolare, Il massimo è stato registrato negli uffici marittimi di Positano e Marina di Pisciotta (la flotta peschereccia è completamente composta da battelli della piccola pesca) ed il minimo in quello di Sapri dove la piccola pesca rappresenta solo la metà della flotta.
Segue il segmento dei polivalenti che rappresenta circa il 16% della flotta del compartimento, ed è assente solo negli uffici marittimi di Positano e Marina di Pisciotta. Tale segmento è distribuito in tutti gli altri uffici marittimi con il massimo a Sapri dove costituisce il 40% dell'intera flotta.
Lo strascico rappresenta poco più del 5% della flotta peschereccia compartimentale ed è presente nei soli uffici marittimi di Salerno, Agropoli, Santa Maria di Castellabate, Acciaroli e Sapri, in tutti con percentuali inferiori al 10% della flotta di ciascun ufficio.
Infine, la circuizione, che nel complesso del compartimento rappresenta l'1% della flotta, e che è presente negli uffici marittimi di Salerno, Cetara e Santa Maria di Castellabate.

Complessivamente, le caratteristiche medie della flotta del compartimento marittimo di Salerno in termini di imbarcati (2 per imbarcazione) ed un'età media delle imbarcazioni (30.2 anni) si allineano ai valori regionali.

In riferimento al sistema di pesca oggetto del presente PGL, nel Compartimento marittimo di Salerno complessivamente incidono 45 imbarcazioni con dotazione in licenza dell'attrezzo circuizione. Di queste 40 imbarcazioni sono polivalenti sia con altri attrezzi mobili (strascico e sciabica) che passivi (posta, palangari, lenze), mentre 5 hanno, come attrezzo autorizzato in licenza, la sola circuizione.
Nel compartimento marittimo di Salerno, questo segmento della flotta ha subito, nel tempo, un decremento nel numero dei battelli in cui la circuizione è autorizzata in polivalenza con altri sistemi di pesca.

N. battelli	2012	2015	2018
Circuizione	5	5	5
Circuizione in polivalenza	40	38	32

Variazioni annuali del numero di battelli autorizzati alla pesca con circuizione nel Compartimento marittimo di Salerno (Dati: Fleet register).
La risorsa
Gli studi sulla dinamica degli stock dei piccoli pelagici più in generale, e di acciughe e sardine in particolare, nelle varie parti del mondo, hanno concordemente mostrato come l'espansione o la contrazione dell'abbondanza e dell'areale di distribuzione di tali risorse sia fortemente condizionata dai fattori ambientali. Si tratta infatti, di risorse composte da specie a vita breve, che presentano elevati tassi di mortalità naturale (a causa di predazione da parte di altre specie) ed il cui reclutamento può variare di anno in anno in maniera cospicua e difficilmente prevedibile.

L'alice, in particolare, è una specie pelagica gregaria, che si avvicina alla costa in primavera quando i valori di temperatura aumentano. Si riproduce da aprile ad ottobre e le uova e le larve sono concentrate in acque costiere. La maturità sessuale viene raggiunta al termine del primo anno di vita con taglia di 11-12 cm, ed il ciclo biologico in Mediterraneo è di circa tre anni con taglia massima di 20 cm (Marano, 2000). Importante fattore limitante per lo sviluppo dei banchi è costituito dalla reperibilità di cibo. Il suo sviluppo, infatti, è legato alla componente animale del plancton ed in particolare alle larve di crostacei, decapodi e copepodi che costituiscono la porzione preponderante della dieta. Verso la fine dell'autunno le acciughe si allontanano dalla costa e scendono a maggiore profondità. La mortalità naturale è stimata nell'intervallo 60-100% (Piccinetti, 1970). Il tempo minimo di raddoppio della popolazione è di circa 15 mesi.
I processi fisico-chimici e oceanografici influiscono pesantemente sulla deposizione delle uova, sul loro reclutamento e post-reclutamento, determinando il successo di ciascuna classe di età.
Data la breve vita di queste specie, le fluttuazioni quantitative anno per anno sono elevate e maggiormente evidenti rispetto a quanto accade per altre specie ittiche (Alvares F., 2003). Le specie dei piccoli pelagici costituiscono inoltre la preda più ambita per numerose risorse ittiche, come ad esempio il tonno, altri tunnidi e lo sgombro, pertanto il crollo, o comunque un notevole calo di questi stock, influisce in modo massiccio sulle altre specie e sull'industria della pesca ad essi connessa.

Per la sardina, la deposizione delle uova è fortemente condizionata dalle variazioni di temperatura. Si riproduce, infatti, tra ottobre e maggio nelle aree caratterizzate da isoterme comprese tra 10 e 20°C. Le uova, che possiedono un diametro tra 1,2 e 1,7 mm, si schiudono tra i 2 e i 5 giorni, lasciando fuoriuscire larve di 3-4 mm. Queste, nella prima fase di vita, si nutrono principalmente di fitoplancton e, raggiunte le dimensioni di 24-25 mm, tendono ad allontanarsi dalla zona in cui è avvenuta la deposizione per avvicinarsi alla costa. La metamorfosi, dalla fase larvale a quella adulta, con l'acquisizione della morfologia e della colorazione definitiva, inizia quando gli esemplari hanno raggiunto una lunghezza di circa 3,5 cm e termina alla lunghezza di circa 4,1 cm. Gli esemplari giovani, raggiunti i 7-10 cm, all'inizio dell'autunno

si allontanano verso il largo, ove permangono tutto l'inverno. Raggiunte, il secondo anno, le dimensioni di 15 cm di lunghezza, si riproducono per la prima volta. Successivamente si riproducono ogni anno con modalità partial spawning e con un numero di circa 15 deposizioni/anno (Sinovic, 1991). La longevità massima delle sardine è stimata in 6-7 anni, periodo in cui raggiungono una lunghezza massima di oltre 20 cm; la mortalità per le classi adulte è stimata pari al 60-80% (Marano, 2000). L'alimentazione, durante la fase adulta, è costituita da larve di crostacei, copepodi e decapodi.

Allo stato attuale, valutazioni sullo stato di sfruttamento delle risorse di alice e sardina sono disponibili solo per l'Adriatico ed in misura minore per lo Stretto di Sicilia. Per il Mar Tirreno sono da considerarsi, invece, solo preliminari non essendo supportate da validazioni mediante analisi di serie storiche. Scarse restano anche le informazioni sulla biologia (identità di stock, loro distribuzione, periodi riproduttivi, ecc.) e sulla dinamica di popolazione (accrescimento, biologia riproduttiva).
Riguardo alla distribuzione per classi di taglia alcune indicazioni si riportano per le popolazioni dei litorali sardi (fig. 1 e fig.2).

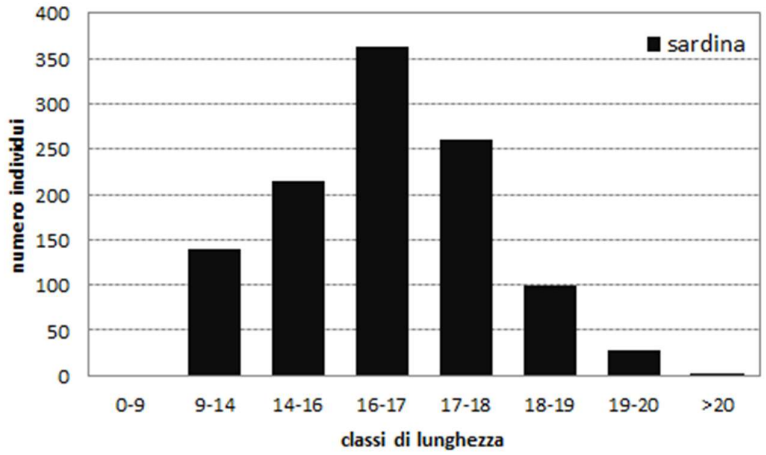


Figura 1. Sardina - composizione per classi di lunghezza.

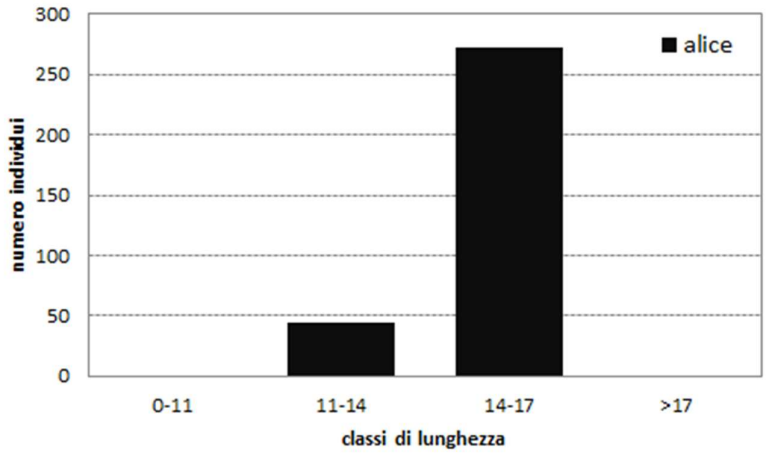


Figura 2. Alice - composizione per classi di lunghezza.

Nel caso della sardina circa il 50% delle catture è risultata appartenere alle classi di età comprese tra i 3 e 4 anni, mentre per l'alice l'80% non ha superato i due anni.
Nel contesto regionale la flotta salernitana assume un ruolo di grande rilevanza sia in termini di catture che di fatturato. Dall'attività di questi battelli proviene infatti, più della metà degli sbarchi e dei ricavi regionali.

Per quanto il pescato del sistema a circuizione, si componga prevalentemente di alici (92% del pescato) e sarde (5% del pescato), sono presenti anche sgombri, alaccia, palamiti con una incidenza percentuale minima di circa il 3%.
Il confronto dei valori medi per imbarcazione di alcuni parametri produttivi nell'ultimo quinquennio (2013-2017) è riportato nella tabella che segue.

INDICATORI	2013	2014	2015	2016	2017
Giorni di pesca	70	84.6	75	85	75,1
Catture giornaliere (kg)	480	540	520	460	480
Ricavi giornalieri (€)	816	810	936	690,00	624,00
Catture annue (kg)	33.600	45.684	39.000	39.100	36.048
Ricavi annui (€)	57.120	68.526	70.200	58.650	46.862,40
Prezzi produzione(€/kg)	1,70	1,50	1,80	1,50	1,30

Variazioni dei valori medi per battello di alcuni indicatori di produttività (Fonti: Elaborazione su dati acquisiti dalla Cooperativa Cala Bianca)

1.4 Descrizione del quadro normativo e gestionale esistente

Norme di riferimento:
D.P.R. 2 ottobre 1968, n. 1639, regolamento per l'esecuzione della L. 14 luglio 1965, n. 963, concernete la disciplina della pesca marittima.
Reg. (CE) 1967/2006 del Consiglio del 21 dicembre 2006, relativo alle misure di gestione per lo sfruttamento sostenibile delle risorse della pesca nel Mar Mediterraneo e recante modifica del regolamento (CEE) n. 2847/93 e che abroga il regolamento (CE) n. 1626/94.
Nel D.P.R. sopra citato si stabilivano le norme che disciplinano l'utilizzo delle reti a circuizione. Dall'art. 106 al 108 viene regolamentato la dimensione delle maglie che non dovevano essere inferiori ai 10 mm mentre non viene disposto un limite di lunghezza delle singole reti.
Con lo stesso decreto che costituiva il regolamento di esecuzione della L. 963/65, oggi abrogata, si fissavano anche i limiti di distanza dalla costa o profondità per l'uso di questo tipo di reti che erano vietate entro le 3 miglia marine dalla costa se la profondità a tale distanza è inferiore ai 50 metri; oggi però tali limiti sono stabiliti a livello comunitario dal Reg. (CE) 1967/2006, cosiddetto regolamento mediterraneo.
Il regolamento citato dispone infatti con il comma 3 dell'art. 13 che: "è vietato l'uso di ciancioli entro una distanza di 300 metri dalla costa o all'interno dell'isobata di 50 m quando tale profondità è raggiunta a una distanza inferiore dalla costa."
Lo stesso comma nel paragrafo successivo dispone inoltre che: "i ciancioli non sono piazzati ad una profondità inferiore al 70% dell'altezza totale dei ciancioli stessi secondo i criteri di misura di cui all'allegato II del presente regolamento."
I limiti di distanza dalla costa sono dunque rimasti quasi invariati (300 m) ma viene specificato che se l'isobata dei 50 metri si raggiunge ad una distanza dalla costa inferiore ai 300 metri il divieto è egualmente valido.
Lo stesso regolamento modifica inoltre le dimensioni minime delle maglie con l'art. 9, che al comma 5 dispone per quanto di interesse ai fini della presente analisi:
"Per le reti a circuizione, la dimensione minima delle maglie è di 14 mm.
La dimensione delle maglie delle reti da imbrocco calate sul fondo non è inferiore a 16 mm."
Esiste inoltre un decreto specifico che disciplina l'utilizzo delle reti a circuizione, specificatamente per la pesca di piccoli pelagici, ma valido solo per l'Adriatico, visto che riguarda i compartimenti marittimi compresi tra Venezia e Brindisi; tale decreto fissa dei limiti temporali come la sospensione per 4 giorni consecutivi ogni mese nei giorni immediatamente consecutivi al giorno di luna piena e di due giorni settimanali, nei giorni di sabato e domenica.

Analisi dei Punti di Forza e Debolezza

	Punti di forza	Punti di debolezza
Territorio	Ampia estensione delle zone di pesca	Antropizzazione e sovrastrutturamento dei litorali con flussi turistici concentrati in alcuni periodi stagionali

Attività di pesca	Ammontare di catture offerte sul mercato in quantità idonee a soddisfare i mercati locali	Frammentaria presenza di natanti, su tutto il tratto costiero, caratterizzata da forte individualità e difficilmente coordinabili
		Forti fluttuazioni dei tassi di reclutamento
Economia	Forte radicamento economico sul territorio e sulle risorse locali e familiari	Difficoltà di accesso al credito a condizioni vantaggiose o paritarie rispetto ad altre zone dell'Italia e dell'Europa in particolare
Situazione sociale	Professionalità, motivazione e radicamento sul territorio	Conflittualità nell'uso del territorio (attività da diporto e turistico-ricreative)
Filiera ittica e strutture	Attività (pesca e trasformazione) a forte carattere artigianale nel rispetto delle tradizioni	Carenze strutturali (impianti di stoccaggio) e di dinamica mercatale (strategie di marketing)
		Difficoltà nell'intercettare le esigenze del consumatore quale forzante del sistema di produzione
Associazionismo	Ampia presenza di associazioni cooperative della pesca	Carattere individualistico/familiare nella gestione delle attività
	Imbarcazioni aderenti tutte al Consorzio/OP gestore del Piano	

INDIVIDUAZIONE DEGLI OBIETTIVI DI SOSTENIBILITA' BIOLOGICA E SOCIO ECONOMICA

2.1 Individuazione dell'obiettivo globale e degli obiettivi specifici

Il piano di gestione in oggetto, in funzione dei valori di riferimento limite e target, ha come obiettivo una gestione responsabile delle attività di pesca, lo sfruttamento sostenibile dello stock delle risorse pelagiche ed il mantenimento a livelli sostenibili, dell'impatto delle attività di pesca sugli ecosistemi marini.
Il piano, inoltre, mira a minimizzare i conflitti, esistenti nell'area, tra le diverse imprese di pesca e a dare, allo stesso tempo, rilevanza ad un settore da sempre fondamentale per l'economia sia locale che regionale.
In particolare, il piano tende al conseguimento dei seguenti obiettivi specifici di natura biologica, sociale ed economica:
conservazione della capacità di rinnovo dello stock commerciale di pesce azzurro;
mantenimento delle condizioni economiche degli addetti del settore;
massimizzazione delle opportunità occupazionali nelle aree dipendenti dalla pesca.

Obiettivi	Obiettivi specifici	Indicatori
Conservazione della capacità di rinnovo degli stock commerciali di pesce azzurro	Miglioramento delle catture per unità di sforzo	CPUE
Riduzione dello sforzo di pesca	Riduzione dell'attività di pesca espressa in termini di giorni annui di pesca	Giorni di pesca annui per battello
Miglioramento delle condizioni economiche degli addetti al settore	Mantenimento della redditività delle imprese di pesca	produzione lorda vendibile per M/P
Massimizzazione delle opportunità occupazionali nelle aree dipendenti dalla pesca	Sviluppo del livello di attività e di occupazione del settore ed in attività correlate	Età media dei pescatori
		Numero di addetti delle imprese di pesca sulle attività dell'intera filiera

Obiettivi ed indicatori biologici, economici e sociali.

2.2 Individuazione e quantificazione degli indicatori biologici, economici e sociali

La quantificazione della conservazione della capacità di rinnovo degli stock commerciali, ed in particolare, il miglioramento delle catture per unità di sforzo quale obiettivo biologico specifico, potrà essere raggiunta mediante la rilevazione di indicatori produttivi con cadenza mensile e separatamente per ognuna delle marinerie interessate. In particolare, ciò sarà effettuato sulla base della valutazione delle catture in relazione allo sforzo di pesca e quindi alla stazza ed alle giornate di pesca effettuate.
In relazione agli specifici obiettivi socioeconomici, per verificarne il raggiungimento in termini di rimunerativita e sostenibilità nel tempo, sono stati individuati quali indicatori:
- rendimenti medi economici per M/p, mensili ed annuali;

- numero di addetti nella filiera.

Nella tabella 2 sono riportati gli indicatori biologici, relativi alla situazione di partenza (o status quo) e ai reference points come previsti nel piano di gestione.

Obiettivi	indicatori	Baseline*	Reference points
Biologico	Catture per unità di sforzo specifico per specie	CPUE (kg) Alici e Sardine: 480	CPUE da 0 a - 15% della baseline
	Giorni di pesca per battello annui	Giorni di pesca per battello annui: 85	da -20 a -30% della baseline
Economico	produzione lorda vendibile per M/P	Produzione lorda vendibile per M/P (000€) = 19500	+0% della baseline
Sociale	Età media dei pescatori	Età media dei pescatori:	- 0.5% della baseline
	Numero di addetti	N. pescatori: 80 N. addetti non pescatori: 0	+ 0% della baseline

Quantificazione degli indicatori biologici, economici e sociali
*valore medio per l'anno 2017

MISURE GESTIONALI DEL PIANO DI GESTIONE NAZIONALE RELATIVO ALLA GSA (GEOGRAPHICAL SUBAREA) IN CUI RICADE L'AREA D'AZIONE DEL PDG CIRCUIZIONE SALERNO

Con il Decreto Direttivo n. 6 del 20 settembre 2011 il Ministero delle Politiche Agricole Alimentari e Forestali ha adottato nr. 6 Piani Nazionali di Gestione della Flotta, tra cui il Piano di Gestione per la pesca ai piccoli pelagici con le reti a circuizione della GSA10 (Mar Tirreno Meridionale) che comprende i compartimenti marittimi di Campania e Calabria. Di seguito vengono indicati gli obiettivi di tale piano e le relazioni con quello che si vuole realizzare per il solo compartimento di Salerno.

Premessa

Le conoscenze sulla dinamica degli stock dei piccoli pelagici più in generale, e di acciughe e sardine in particolare, nelle varie parti del mondo hanno concordemente mostrato come l'espansione o la contrazione dell'abbondanza e dell'areale di distribuzione di tali risorse sia fortemente condizionata dalle condizioni ambientali. Si tratta in generale di risorse composte da specie a vita breve, che presentano elevati tassi di mortalità naturale (a causa di predazione da parte di altre specie) e il cui reclutamento può variare di anno in anno in maniera cospicua e scarsamente prevedibile. La variabilità di reclutamento e l'elevata mortalità naturale rendono queste risorse di difficile gestione perché l'impatto dello sforzo di pesca (unica variabile controllabile dall'uomo) sull'abbondanza della risorsa non è sempre evidente. Al tempo stesso queste risorse si sono dimostrate estremamente fragili quando ad una congiuntura ambientale sfavorevole si è aggiunta un'attività di pesca eccessiva. Si pensi al drammatico collasso dell'anchoeta peruviana avvenuto negli anni Ottanta, alla sardina della California, al crollo per fortuna episodico dello stock di acciuga in Adriatico degli anni 86-87, fino al recente collasso prolungato dell'acciuga del Golfo di Biscaglia. E' ormai accertato che nonostante l'attività di pesca sia soltanto uno dei fattori che determinano la dinamica degli stock e che la relazione tra abbondanza, catture e sforzo di pesca sia molto più debole di quanto è riscontrabile negli stock demersali, le risorse dei piccoli pelagici devono essere trattate con estrema cautela e con un approccio di tipo precauzionale.

Tali evidenze e la natura sostanzialmente monospecifica (o di un paio di specie acciuga e sardina) della pesca dei piccoli pelagici in Mediterraneo suggerirebbero di configurare uno scenario gestionale orientato alla previsione di breve periodo delle catture da effettuare in ogni anno, lasciando a mare una quota di biomassa compatibile con il rinnovo della risorsa, uno scenario quindi basato su una regolazione annuale piuttosto che pluriennale dello sforzo di pesca (adaptative management - gestione adattativa). Sulla base di tale approccio lo sforzo di pesca potrebbe essere ridotto in quegli anni caratterizzati da bassi livelli di biomassa e da scarsi reclutamenti, mentre in annate di maggiore abbondanza sarebbe ipotizzabile aumentare lo sforzo di pesca e le catture corrispondenti, purché entro certi limiti precauzionali stabiliti.

Per fare questo, in aggiunta alla conoscenza dei quantitativi e della struttura demografica delle catture commerciali, è necessario disporre di una valutazione della consistenza del reclutamento di un determinato anno, mediante campagna scientifica, utile alla stima della biomassa e della cattura nell'anno successivo. Tale valutazione dovrebbe idealmente essere accoppiata ad un'ulteriore campagna scientifica, da condursi in periodo estivo, con obbiettivo la stima della frazione adulta dello stock. L'integrazione di metodologie che analizzano la struttura demografica della popolazione con stime indipendenti della biomassa (echosurveys e/o DEPM) rappresenta, allo stato attuale, la miglior soluzione per una corretta gestione scientifica della pesca dei piccoli pelagici.

Allo stato attuale, tuttavia, le informazioni necessarie per gestire in maniera adattativa la pesca dei piccoli pelagici sono parzialmente disponibili per l'Adriatico (GSA 17-18) ed in misura minore per lo Stretto di Sicilia (GSA 16). Nella GSA 10, così come in altre GSA dei mari Italiani (GSA 9, 11, 19) non si dispone di analisi scientifiche che permettano questo tipo di procedimento; anche le conoscenze di tipo biologico come identità di stocks, distribuzione degli stessi, periodi riproduttivi etc., sono molto frammentarie, fatto che rispecchia la minor importanza economica degli stock di piccoli pelagici in queste GSA. Si deve poi tener presente che un certo numero di imbarcazioni autorizzate alla circuizione per i piccoli pelagici si sposta durante l'anno al di fuori dei confini della propria GSA, esercitando quindi uno sforzo e un prelievo aggiuntivo su altri stock. Per tutte queste ragioni è ragionevole procedere mediante indicatori empirici e un approccio generale di tipo precauzionale alla gestione degli stock di piccoli pelagici di queste GSA.

Obiettivo del piano di gestione è la ricostituzione o il mantenimento degli stock entro limiti biologici di sicurezza. Pur in assenza di dettagliate analisi scientifiche sullo stato delle risorse, vi è comunque la necessità di rendere compatibili le modalità e l'intensità del prelievo con la potenzialità di rinnovo biologico delle specie oggetto di questa pesca.

Nel rispetto di tali obiettivi si muoverà il PLG Circuizione Salerno che per il compartimento di riferimento effettuare quei controlli e analisi statistiche indispensabili per individuare la consistenza del reclutamento in un determinate anno, mediante una campagna scientifica utile alla stima della biomassa e delle catture per giungere alla corretta gestione della pesca dei piccoli pelagici.

INDIVIDUAZIONE DI MISURE GESTIONALI SPECIFICHE DEL PDG LOCALE

Le misure gestionali incluse nel presente Piano di Gestione sono state individuate in ragione del raggiungimento degli obiettivi proposti.
Per quanto concerne la riduzione dello sforzo di pesca, sono state previste limitazioni della attività, mediante forme di divieto programmato settimanale e stagionale rafforzate dalla volontà di apportare restrizioni alla efficienza dell'attrezzo (limiti al numero massimo di lampare presenti a bordo) ed alla capacità di pesca del natante (riduzione del numero di bordate per giornata di pesca).
In particolare, si prevede una riduzione del numero di giornate di pesca consentite in una settimana (divieto di pesca di due giorni) ed un periodo di interdizione delle abituali zone di pesca compreso tra ottobre e dicembre.
Per ogni imbarcazione viene inoltre, disciplinato a due il numero di lampare ed ad uno il numero di bordate giornaliere.
Di seguito si riporta una descrizione delle singole misure gestionali:

n.	IMPEGNI RELATIVI ALLA GESTIONE
1	Divieto programmato settimanale (per due giorni – sabato e domenica) e interdizione dell'areale compreso tra Ottobre e Dicembre, che permetta di diminuire le giornate di pesca dalle attuali 85 raggiungendo un numero stimato annuale di circa 60 giorni
2	riduzione a 2 sole lampare consentite a bordo per battello
3	limitazione a una bordata consentita per battello al giorno (è possibile stimare una riduzione di circa il 25% di catture/giorno)
4	Limitare la rete circuizione a piccolo pelagici (cianciolo) a mt 450 di lunghezza a 9.000 maglie d'altezza (nel rispetto della normativa vigente).

A sostegno ed in considerazione delle misure gestione obbligatorie da implementare sono state individuate le seguenti misure di gestione complementari.

n.	Misura di gestione	Misura FEAMP	Reg. UE 508/2014
1	corsi di formazione per aggiornare le conoscenze e competenze dei pescatori su argomenti quali il trattamento del pescato, la sicurezza a bordo, acquisire qualifiche professionali (capo barca, motorista …)	1.29	ART. 29

2	misure a sostegno dello sviluppo della commercializzazione: investimenti in attrezzature ed infrastrutture per la produzione, la trasformazione o la commercializzazione, incluse quelle per il trattamento degli scarti;	5.69	ART 69
3	Progetti per il miglioramento delle condizioni di lavoro e sicurezza	Mis. 1.32	ART 32
4	rimuovere dai fondali gli attrezzi di pesca smarriti al fine di lottare contro la pesca fantasma;	Mis. 1.40	ART 40
5	Incentivare l'aggregazione degli operatori della piccola pesca costiera e della filiera del pesce azzurro e favorire i Partenariati tra esperti scientifici e pescatori	Mis. 1.28	ART 28

VALUTAZIONE DEGLI IMPATTI BIOLOGICI E SOCIO ECONOMICI DELLE MISURE GESTIONALI

L'efficacia e la validità delle misure messe in atto con il presente Piano di gestione locale verranno verificate mediante un'attività di monitoraggio della compliance delle misure gestionali e degli indicatori degli obiettivi gestionali. A tal scopo si utilizzerà lo strumento della raccolta di informazioni tramite interviste periodiche sulle attività di pesca, sulle catture, sui ricavi e sulla percezione dell'efficacia del PdG locale. Ove fosse necessario saranno effettuate rilevazioni campionarie sullo sbarcato. Una particolare attenzione sarà rivolta all'analisi degli indicatori di efficacia della vigilanza (tipologia, numero ed esiti dei controlli svolti), soprattutto per quanto riguarda la repressione della pesca e delle altre forme di illegalità se presenti nell'area.
I risultati delle attività di monitoraggio saranno presentati e discussi in periodici tavoli tecnici, ai quali parteciperanno tutte le parti coinvolte nella gestione dell'area. Nel caso risultassero difformità rispetto a quanto atteso, il piano verrà rimodulato e si metteranno in atto misure correttive.
Gli impatti delle indicazioni gestionali proposte nel presente piano di monitoraggio saranno verificati annualmente attraverso un monitoraggio costante delle attività di pesca.
I valori calcolati in riferimento a ciascun indicatore saranno posti a confronto con i rispettivi reference points (RP) e presentati in una forma grafica di immediata interpretazione in cui inquadrare le informazioni di base per la valutazione del settore peschereccio in un'ottica ecosistemica e di sostenibilità.
L'istituto scientifico designato dall'organismo di gestione del piano è responsabile del monitoraggio e della produzione dei rapporti sull'attività e sulle catture della flotta. L'istituto scientifico designato adotta procedure e metodologie coordinate con l'amministrazione regionale.
L'organismo scientifico avrà il compito di produrre l'analisi annuale sulla consistenza degli stock interessati attraverso l'utilizzo di adeguati parametri biologici, in modo da garantire un livello di sfruttamento entro limiti biologici di sicurezza (safe biological limits).
Lo stato degli stock e il risultato dell'attività di pesca è oggetto di monitoraggio attraverso l'analisi e l'integrazione dei diversi dati disponibili, che derivano sia da un approccio censuario (giornale di bordo, schede di rilevazione) che campionario (osservazioni allo sbarco e/o tramite imbarco di operatori tecnico/scientifici).
L'attività di monitoraggio dovrà assicurare:
la registrazione e la validazione delle statistiche sulle catture e sugli sbarchi;
la registrazione e la validazione della composizione delle specie e delle loro dimensioni;
la registrazione delle caratteristiche degli attrezzi utilizzati;
la raccolta di dati ambientali per lo sviluppo di una gestione basata sull'approccio ecosistemico.
In particolare, saranno svolte le seguenti attività di monitoraggio:
raccolta di campioni allo sbarco: i campioni delle specie oggetto di cattura dovranno essere raccolti in base a campionamento statistico avente per obiettivo informazioni biologiche ed economiche. Sulla base delle informazioni raccolte l'istituto responsabile per il monitoraggio produrrà un rapporto annuale sugli indici di abbondanza, la struttura della cattura e lo stato di sfruttamento dei principali stock commerciali dell'area. Per gli aspetti economici il rapporto conterrà adeguate analisi socioeconomiche per la verifica delle condizioni di sostenibilità bio-economica dell'area. I risultati delle analisi saranno utilizzati per la definizione di linee guida gestionali più dettagliate negli anni successivi. E' fatto obbligo alle imprese aderenti di rendere disponibili i campioni per le analisi previste in accordo al protocollo di campionamento stabilito ed predisposto dall'organismo scientifico.
ricercatori a bordo: in funzione delle esigenze di valutazione è possibile imbarcare personale tecnico/scientifico a bordo delle imbarcazioni da pesca coinvolte nel PGL per consentire l'osservazione diretta delle operazioni di pesca, delle caratteristiche degli attrezzi utilizzati, oltre che il monitoraggio delle catture e del bycatch.
informazioni su cattura e sforzo: tutte le imbarcazioni coinvolte nel piano di gestione saranno fornite di schede per l'indicazione di tutte le specie catturate e ritenute a bordo, anche per piccole quantità. Tali schede saranno da compilare per ciascuna uscita in mare e dovranno essere consegnate al soggetto proponete periodicamente. Nelle schede saranno riportati le catture giornaliere per specie, l'area di pesca, il tempo speso in mare e il by catch. Il soggetto proponente sarà responsabile per la raccolta e l'informatizzazione dei dati in uno specifico database per le successive analisi, secondo quanto disposto dall'organismo scientifico responsabile del monitoraggio.
Nel caso in cui, per due annualità consecutive, la media annuale delle CPUE per segmento di pesca cada al di sotto dei Limit Reference Point sopra indicati, misure di gestione correttive saranno adottate. Fra queste, i periodi di pesca potranno essere ridotti in misura percentualmente corrispondente o, in alternativa, un'area di pesca potrà essere chiusa, e tali decisioni dovranno essere adottate prima dell'inizio della successiva annualità.
Eventuali ritardi nell'esecuzione del programma e/o il mancato perseguimento degli obiettivi biologici, economici e sociali costituiranno motivo di riesame da parte dell'autorità di gestione. In particolare, i risultati dell'azione di monitoraggio scientifico saranno comunicati all'autorità di gestione che provvederà all'analisi delle motivazioni sottostanti il mancato raggiungimento degli obiettivi previsti ed alla eventuale riprogrammazione degli interventi.
CONTROLLO E SORVEGLIANZA DEL PLG CIRCUIZIONE SALERNO
Sistema di controllo

L’attività di controllo della effettiva applicazione delle misure proposte viene demandata alle competenti Autorità locali, anche mediante la stipula di un protocollo tra Autorità di gestione e Capitaneria di Porto.

Sistema di sorveglianza

l’Organismo di gestione, in aggiunta all’azione di controllo esercitata dalla Guardia Costiera, si pone come ente di garanzia e monitoraggio del rispetto delle regole da parte dei propri associati, in sinergia e collaborazione con la Capitaneria di Porto, attraverso un regolamento interno di ammonimenti ed, eventualmente, sanzioni accessorie che potrà essere approvato dall’assemblea dei soci del Consorzio/OP.

L’organismo di gestione, inoltre, è responsabile per la produzione di un rapporto annuale sulle infrazioni e sulle sanzioni comminate ai soci aderenti al soggetto gestore del Piano, che terrà anche conto degli esiti della Patente a punti prevista dal Reg. (CE) 1224/2010.

In caso di infrazione grave o di un punteggio superiore a 5 l’armatore (o se del caso il pescatore) non potrà avere accesso ai benefici previsti dal Reg. (CE) 1198/06 o altra norma regionale.

STRUMENTI FINANZIARI DI SUPPORTO AL PIANO DI GESTIONE

Gli strumenti finanziari di supporto al Piano di Gestione Locale sono tutti rivenienti da Misure del PO FEAMP 2014/2020, suddivise in obbligatorie e complementari, che sono attivate all'interno del PGL.
In particolare, le misure complementari sono commisurate alla portata delle misure obbligatorie e sono coerenti con gli obiettivi del PGL. L'importo complessivo delle misure complementari è pari al 20 % del valore del costo dell'intero PGL.
Il soggetto proponente, ottenuta l'approvazione del presente PGL da parte dell'AdG del PO FEAMP 2014/2020, provvederà a predisporre tutte le istanze, a valere sulle misure obbligatorie e complementari inserite nel PGL stesso ed approvate.
La predisposizione di tali istanze avverrà secondo i relativi Bandi delle Misure del PO FEAMP 2014/2020 ovvero secondo quanto richiesto dall'Amministrazione nel rispetto delle procedure previste dalle disposizioni vigenti; l'istruttoria di tali istanze sarà effettuata direttamente dall'Amministrazione regionale e seguirà le procedure previste dalle disposizioni vigenti.
PIANO FINANZIARIO GENERALE DEL PIANO DI GESTIONE

Categoria	Descrizione	Esecutore	Costo €
Studi	Acquisto e/o raccolta dei dati di riferimento per la definizione del contesto _____ Indagini e studi scientifici per la valutazione ex ante, intermedia ed ex post		
Predisposizione monitoraggio e gestione del PLG	redazione del Piano di Gestione Locale		
	consulenze scientifiche relative alla predisposizione, monitoraggio e gestione del PLG;		
	spese per organizzazione e realizzazione di seminari e convegni sul PLG;		
	monitoraggio scientifico;		
	Rilevazione diretta a bordo dei dati, da parte di ricercatori/osservatori/rilevatori durante le battute di pesca		
	gestione tecnico amministrativa del PLG		
TOTALE			

INTERNO

L'Ente promotore è il FLAG Approdo di Ulisse, che lavorerà per facilitare la definizione di un soggetto proponente il PdG Circuizione del Compartimento di Salerno – secondo la vigente normativa - al quale spetteranno nella fattispecie, le funzioni di coordinamento, direzione e amministrazione del PdG locale.

Per il corretto funzionamento del Piano il soggetto promotore si avvarrà del contributo di tutte le altre componenti del comparto relativamente al territorio di riferimento . Esse sono la Ricerca, alla quale spetta il supporto per quanto attiene agli aspetti tecnico-scientifici del Piano, la Capitaneria di Porto competente che ha l'onere di rendere effettive, tramite ordinanza, le misure gestionali proposte e controllarne il rispetto, e inoltre le Autorità (amministrazioni locali, Regione Campania e MiPAAF), i pescatori, le Associazioni di categoria che devono fungere da interfaccia tra l'Ente gestore e i pescatori, associazioni ambientaliste e altri portatori di interesse (trasformatori, commercianti, operatori turistici).

L'attuazione del piano di gestione locale richiede, infatti, un meccanismo di governance basato su una strategia di gestione centrata su un sistema integrato di monitoraggio, controllo e sorveglianza descritto nel paragrafo 6. Controllo e sorveglianza del PdG locale.

Il sistema gestionale proposto nel Piano di Gestione Locale è caratterizzato dalla istituzionalizzazione di un dialogo fra l'autorità di gestione amministrativa pubblica e il soggetto attuatore del Piano di Gestione stesso. La distribuzione di competenze e responsabilità fra l'autorità amministrativa pubblica e la comunità interessata, la cui estensione può variare in funzione degli obiettivi e dei fattori interni ed esterni esistenti nell'area, configura un modello di "cogestione" dove per cogestione si intende un accordo in cui governo, comunità locale e gli altri attori del sistema interessati condividono la responsabilità e la gestione di un'area di pesca costiera. Tali accordi implicano un trasferimento di competenze, e dunque di diritti, dall'autorità pubblica in favore delle comunità locali. In particolare, a seguito della approvazione del Piano di gestione locale e delle misure in esse contenute, l'autorità di controllo competente recepisce le regole di gestione condivise ed emana un'ordinanza che obbliga gli aventi diritto ad esercitare la pesca secondo dette regole e controlla che esse siano osservate.

il sistema di cogestione previsto in questo piano di gestione locale si basa sulla attribuzione di diritti sulle risorse biologiche, estrinsecantesi nei quantitativi massimi giornalieri di pesca, strategia di gestione associata con l'introduzione dei diritti di proprietà sulle catture.

L'importante per il successo di tale strategia è lo stabilire delle regole di gestione condivise dagli attori del sistema in modo che essi stessi possano dar vita ad una organizzazione dello sfruttamento in grado di tutelare meglio le risorse e aumentare la rendita che da queste promana. In altre parole, la sostenibilità biologica, sociale ed economica dell'area in questione rappresenta l'obiettivo del presente piano di gestione locale mediante l'attribuzione di diritti territoriali e sulle risorse biologiche in favore degli stessi attori del sistema e delle loro future generazioni.

L'esercizio di tali diritti trova sostanza nella adozione di piani di gestione locali articolati in misure tecniche e gestionali. In particolare, in questo piano di gestione locale saranno previste misure quali l'individuazione, zonazione e gestione delle aree di pesca, delle aree di ripopolamento, dei calendari di pesca, l'adozione di misure tecniche restrittive rispetto ai quantitativi ed alle taglie pescate, la presenza di adeguati sistemi di controllo.

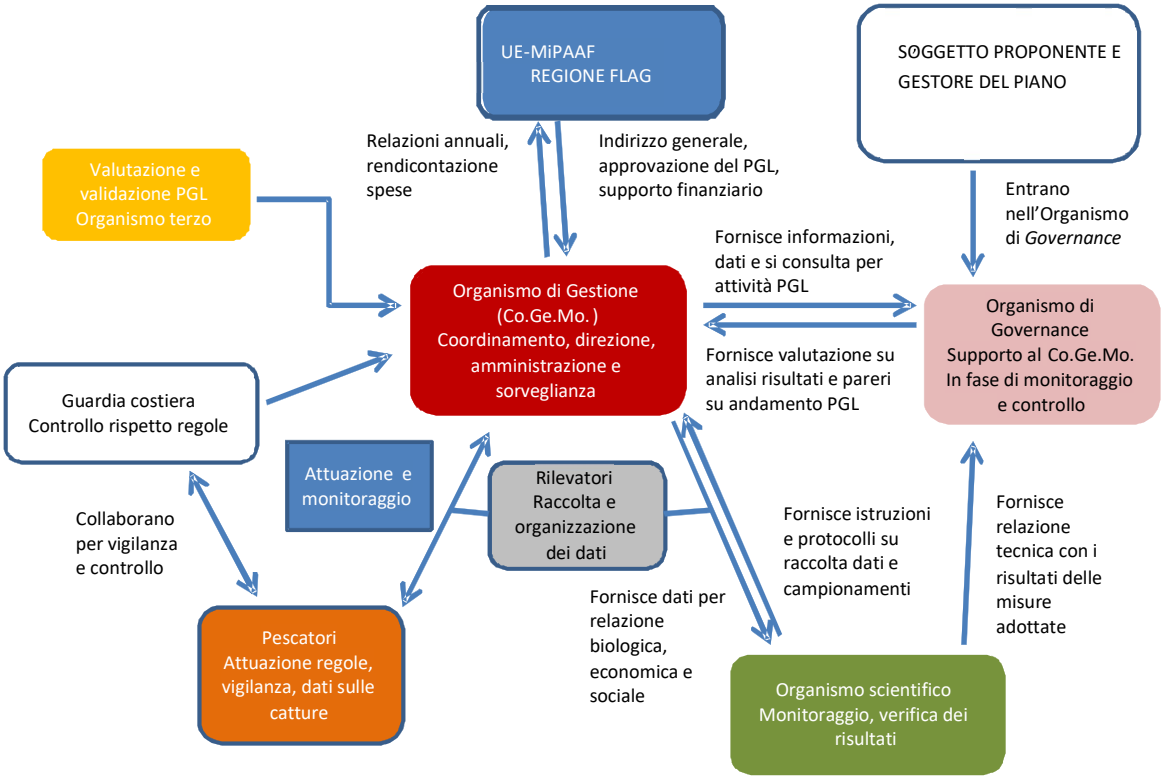
In base ai risultati emersi dall'attività di monitoraggio il sistema di governance dovrà garantire l'efficacia e l'efficienza delle misure di controllo dell'attività di pesca, in termini di sforzo, cattura e misure tecniche, e, se del caso, introdurre adeguati elementi correttivi. Il buon funzionamento del meccanismo sarà garantito da un adeguato sistema di sorveglianza, in capo all'autorità marittima, coadiuvato dagli altri corpi di polizia marittima e da operatori aderenti al soggetto gestore del Piano, per verificare la reale osservanza delle misure di controllo del prelievo adottate.

La governance sarà assicurata attraverso la costituzione di un Organismo di Governance che prevede la partecipazione di rappresentanti della ricerca scientifica (l'istituto scientifico responsabile per il monitoraggio), di rappresentanti dei pescatori facenti parte del soggetto gestore, di rappresentanti delle associazioni dei pescatori riconosciute, una rappresentanza della locale Capitaneria di porto, una rappresentanza della Regione e dei FLAG coinvolti.

Qualora fosse necessario, potranno essere coinvolti nella governance altri stakeholders che, a vario titolo, potrebbero essere interessati al problema in discussione.

All'interno dell'Organismo di Governance sarà individuato un referente responsabile per gli aspetti scientifici e valutazione delle risorse ed un referente responsabile per la raccolta e la elaborazione degli indicatori socioeconomici.

Organigramma
Flusso delle attività



Identificazione ente responsabile del monitoraggio scientifico (nucleo valutazione scientifico)
Organismo scientifico
L'Organismo scientifico responsabile dell'attuazione del Piano è in fase di individuazione. Esso dovrà garantire una pregressa attività di ricerca specifica nel settore di riferimento almeno di dieci anni.

Organismo indipendente
L'Ente terzo, che sarà responsabile della valutazione ex ante, in itinere ed ex post del PGL, esso avrà un profilo di prim'ordine nazionale e dovrà essere in gradi garantire un board tecnico scientifico con i seguenti profili: zoologi, ecologi, botanici, geologi, fisiologi, antropologi, genetisti etc..

Allegato 1 – Elenco degli indicatori biologici, sociali ed economici

C1) Indicatori Biologici

Tabella I: Indicatori di impatto della pesca sulle risorse e sugli habitat

Indicatori	Descrizione
Lo sforzo di pesca totale	
Le catture per unità di sforzo medie giornaliere (CPUE), per le principali specie oggetto di pesca (con deviazione standard e CV)	
Lo sbarcato commerciale medio giornaliero, per le principali specie oggetto di pesca (con deviazione standard e CV)	
Lo sbarcato commerciale medio mensile, per le principali specie oggetto di pesca (con deviazione standard e CV)	
Il pattern spaziale stagionale dello sforzo di pesca	Mappe con distribuzione delle aree e dello sforzo di pesca (stagionali e per sistema di pesca)
Abbondanza delle principali specie commerciali per sistema di pesca	Indici di abbondanza in numero e/o peso
Analisi struttura demografica delle principali specie oggetto di pesca	Struttura demografica (per taglia ed età)
Indici e pattern di reclutamento delle principali specie oggetto di pesca	Indici di reclutamento; Andamento del reclutamento
Analisi della qualità funzionale degli habitat	Analisi delle gilde
Analisi della diversità specifica dei popolamenti planctonici e micronectonici e macro- e meio-bentonici	Indici di diversità specifica
Analisi della diversità specifica del pescato	Indici di diversità specifica
Parametri di maturità delle principali specie oggetto di pesca	Percentuali di individui maturi; Rapporto sessi

Taglia e età di maturità sessuale dei riproduttori delle principali specie oggetto di pesca	Struttura demografica (per taglia ed età) per sesso dei riproduttori; Ogive di maturità; Lunghezza di maturità al 50%; Spawning Stock Biomass
Indici di mortalità delle principali specie oggetto di pesca	
Scarto e valori di scarto delle specie commerciali oggetto di pesca	Indici di abbondanza della frazione scartata in numero e/o peso

C2) Indicatori socioeconomici

Tabella 2: Indicatori economici sullo stato della pesca e loro descrizione

Indicatore	Descrizione
Valore Aggiunto/Ricavi	quota dei ricavi destinati a salari, profitti, interessi e ammortamenti.
Margine Operativo Lordo/Ricavi	quota dei ricavi destinati a profitti, interessi e ammortamenti.
ROS (Return on Sale)	quota dei ricavi destinati a profitti e interessi.
ROI (Return on Investment) (%)	rapporto tra profitti più interessi e capitale investito, in termini percentuali.
Ricavi/Capitale Investito (%)	rapporto tra ricavi e capitale investito, in termini percentuali.
Profitti netti per battello (000 E) *	profitto medio per battello, dedotti ammortamenti e interessi.
Catture per battello (ton)	Produzione media in peso per battello.
Catture per TSL (ton)	Produzione media in peso per unità di TSL della flotta.
Catture giornaliere (ton)	Produzione media in peso per giornata di pesca.
CPUE (kg)	Produzione media in peso per unità di sforzo (TSL*gg/N.battelli).
Ricavi per battello (000 E) *	Produzione media in valore per battello.
Ricavi per TSL (000 E) *	Produzione media in valore per unità di TSL della flotta.
Ricavi giornalieri (000 E) *	Produzione media in valore per giornata di pesca.
RPUE (E) *	Produzione media in valore per unità di sforzo (TSL*gg/N.battelli).

Prezzo medio sbarcato (E/kg)	prezzo medio di mercato delle catture.
Costi di carburante per battello (000 E) *	costo medio di carburante per battello.
Costi di carburante giornaliero (000 E) *	costo medio di carburante per giornata di pesca.
Costi di manutenzione per battello (000 E) *	costo di manutenzione medio per battello.

* Deflazionato con l'indice dei prezzi al consumo per l'intera collettività.

Tabella 3 – Indicatori sociali sullo stato della pesca e descrizione

Indicatore	Descrizione
Catture per addetto (ton)	produzione media in peso per occupato.
Ricavi per addetto (E) *	produzione media in valore per occupato.
Occupati (num)	numero di persone impiegate nel settore.
Salario medio (000 E) **	salario medio per occupato nel settore.

* Deflazionato con l'indice dei prezzi al consumo per l'intera collettività.
** Deflazionato con l'indice dei prezzi al consumo per impiegati ed operai.