

PRE-ASSESSMENT BLUEFISH PROJECT

Southern Adriatic Sea (GSA 18) deep water rose shrimp bottom trawl fishery

MARINE STEWARDSHIP COUNCIL

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Pre-valutazione del Mare Adriatico meridionale (GSA 18) pesca a strascico di gambero rosa contro gli standard di pesca MSC v2.01.

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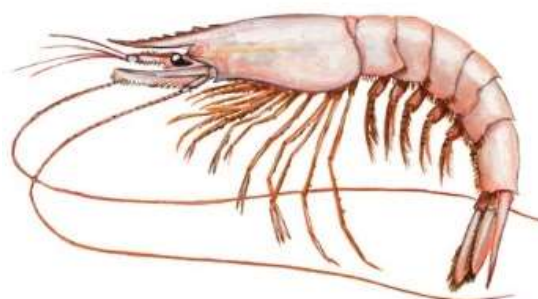
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Southern Adriatic Sea (GSA 18) deep water rose shrimp bottom trawl fishery



Pre-Assessment Report

Conformity Assessment Body (CAB)	DNV GL Business Assurance Italia S.r.l.
Fishery client	MSC Italy
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 of MSC Certification Requirements. The present report is carried out in the framework of Bluefish project (see: <https://www.msc.org/it/cosa-facciamo/il-nostro-contributo-al-cambiamento/progetto-Bluefish> for more details).

This report is a pre-assessment which provides details of the MSC assessment process for Southern Adriatic Sea (GSA 18) deep water rose shrimp bottom trawl fishery. The process begins with publication of the pre-assessment on 6th May 2019 and was concluded in 15th February 2020. The report used was drafted using the 'MSC Pre-Assessment Reporting Template v3.1'.

A review of information presented by the client has been scored by the assessment team also after a site visit in Molfetta and Manfredonia where most of the vessels targeting deep water rose shrimp with bottom trawl are located. 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 or peer reviewers – these steps will all take place from here onwards in the case the client will decide to start a full assessment. The site visit was conducted the 4th of June 2019 in Molfetta and Manfredonia.

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 considering the 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.

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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

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 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, a site visit was conducted to discuss with major stakeholder interested in the certification as Assopesca (Associazione Armatori da Pesca di Molfetta) in Molfetta and Cooperativa Santa Lucia in Manfredonia where around 45 and 20 trawlers respectively are active with tonnage comprised between 25 and 100 GT.

Client strengths

The fishery associations based in Molfetta and Manfredonia are a well-established fishery actor in the Southern Adriatic Sea. They are well integrated in the management process in Italy.

Deep water rose shrimp is a joint Adriatic stock, managed by the GFCM, which is generally considered to be a very effective management body. The stock is not depleted.

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

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

Client weaknesses

The harvest strategy and the HCRs in place are not tested because recently implemented only by Italy in a defined Management Plan. Moreover, the stock configuration is not completely clear.

The information on the UoA impact on habitat and non-target species is missing, therefore, a precautionary approach has been used to score the P2. Review of alternative measures to minimize mortality of ETP species and impact on habitat is not completely in place.

There is a general lack of information specific for the UoA. Also, the information about the compliance level specific for the UoA is not available.

Determination

On completion of the initial review of information and scoring, the assessment team conclude that principles 1 is failing and principle 2 and 3 show many potential conditions.

Assessment team

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, otolith 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. He was 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 50 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 v2.01). 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.

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 v2.01. 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

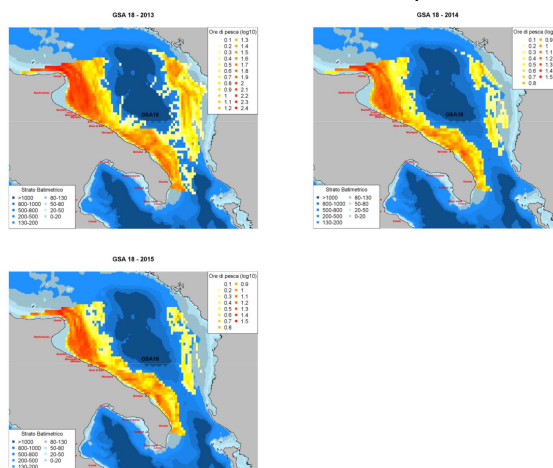
UoA 1	Description
Species	Deepwater rose shrimp (<i>Parapenaeus longirostris</i>)
Stock	Deepwater rose shrimp in GSA 17-18
Geographical area	GSA 17-18
Gear	Bottom trawlers
Client group	Bluefish project MSC
Other eligible fishers	None
Justification for choosing the Unit of Assessment	The Deepwater rose shrimp is assessed and managed considering GSA 17 and 18.

UoA description

The UoA is composed by Italian fishing vessels belonging to GSA 18 and targeting deep-water rose shrimp both in GSA 17 and GSA 18 both in the western and eastern side of the Adriatic basin (see figure below), using bottom trawl nets. According to Fiorentino et al. (2015) the stock is deemed to be shared between Italy, Croatia, Montenegro and Albania and is distributed both in GSA 17 and 18. The last available assessment of the stock is carried out pooling together GSA 17 and 18 data.

Therefore, the UoA targets a stock shared between EU and non-EU countries and the jurisdictions considered are both GFCM and EU.

According to the Bluefish project fast scan report (<https://www.msc.org/it/cosa-facciamo/il-nostro-contributo-al-cambiamento/progetto-Bluefish/risultati-fase-1-di-mappatura>; table 23) there are more than 400 trawlers in the Italian side of GSA 18, mostly concentrated in Molfetta, Manfredonia and Bari ports.



Fishing activities of the trawling fleet in the GSA18. The values represent the average fishing hours per cell, calculated from the monthly hours for the years 2013 to 2015 (MIPAAFT, 2017).

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. 'Fish masters' are responsible for ensuring species are marked and stored appropriately and that certified and non-certified fish are not mixed. All crew members involved in the processing of the fish are also trained to ensure segregation of species throughout the process.

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 inspection 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
<p>Will the fishery use gears that are not part of the Unit of Certification (UoC)?</p> <p>If Yes, please describe:</p> <ul style="list-style-type: none"> - If this may occur on the same trip, on the same vessels, or during the same season; - How any risks are mitigated. 	<p><i>No, regulations related to fishing gear (e.g. mesh size and length) are the same for all demersal species in the Adriatic Sea. According to the information gathered during the site visit the vessels of the UoC use only the otter bottom trawl net.</i></p>
<p>Will vessels in the UoC also fish outside the UoC geographic area?</p> <p>If Yes, please describe:</p> <ul style="list-style-type: none"> - If this may occur on the same trip; - How any risks are mitigated. 	<p><i>No, the UoC vessels only fish in the Adriatic Sea (see also Principle 3 – Effective management)</i></p>
<p>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.</p> <ul style="list-style-type: none"> - Transport - Storage - Processing - Landing - Auction <p>If Yes, please describe how any risks are mitigated.</p>	<p><i>Not relevant.</i></p>
<p>Does transshipment occur within the fishery?</p> <p>If Yes, please describe:</p> <ul style="list-style-type: none"> - If transshipment takes place at-sea, in port, or both; - If the transshipment vessel may handle product from outside the UoC; - How any risks are mitigated. 	<p><i>No.</i></p>
<p>Are there any other risks of mixing or substitution between certified and non-certified fish?</p> <p>If Yes, please describe how any risks are mitigated.</p>	<p><i>No.</i></p>

7 Pre-assessment results

7.1 Pre-assessment results overview

7.1.1 Overview

The scoring of the fishery is rather good in term of stock status and general governance, considering that the stock is clearly increasing and that the EU legislation applies to this fishery. However, several issues have been evidenced and the fishery would fail in P1 for the harvest strategy and the management of the resources (not only the target species) as well as for the information available especially in P2.

7.1.2 Recommendations

The CAB strongly recommends potential fishery to implement a communication 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

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

7.3 Summary of Performance Indicator level scores

Performance Indicator	Draft scoring range	Data deficient?
1.1.1 – Stock status	≥ 80	No
Rationale or key points		
SSB is showing an increasing trend since 2010, and it is now at very high level. Therefore, there is a high degree of certainty that the stock is above the PRI and it is fluctuating around a level consistent with MSY.		
1.1.2 – Stock rebuilding	NA	No
Rationale or key points		
The stock is not depleted.		
1.2.1 – Harvest Strategy	< 60	No
Rationale or key points		

A review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock has not been performed so far. Therefore, this scoring guidance is not met.

1.2.2 – Harvest control rules and tools

60 – 79

No

Rationale or key points

The Italian management plan of demersal resources and the new GFCM MAP in GSAs 17-18 provide tools that are appropriate to implement HCRs that are based on the reduction of fishing activity (in terms of days at sea) and fishing capacity (number of vessels) However, there is still no evidence the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs. As mentioned in section 7.4.1 and PI1.1.1, at GFCM WGSAD 2018, a combined assessment of deep-water rose shrimp in GSAs 17, 18 and 19 was presented. The assessment was run using a4a, and the stock resulted in overexploitation. This result is in line with the assessment presented in 2016 for GSAs 17-18 (with reference year 2015), while last year (WGSAD 2017) the stock in GSAs 17-18 resulted as sustainably exploited. In previous years, assessments were performed using SS3. Due to the fast increase in biomass shown by the MEDITS survey, the methods used to assess this stock appear not able to properly model the population dynamics, and they are providing unstable results in terms of F. However, the large increase in biomass shown by the recent assessments and the MEDITS survey provides some evidence that F should not be far from FMSY level. This can be considered as evidence that HCRs are appropriate and effective in controlling exploitation. The HCRs work on fishing effort reduction. According to STECF, the fishing effort by trawlers in GSA 18 has been decreased by 28% between 2016 and 2018. Further reduction is foreseen by the Italian Ministry Decree n. 26510 of the 28 December 2018. Therefore, this scoring guidance is met at SG60 only.

1.2.3 – Information and monitoring

≥ 80

No

Rationale or key points

Sufficient relevant information is available. Besides data used directly in the stock assessment (catch-at-age, survey and LPUE data), additional information includes biological parameters, and spatio-temporal distribution of juveniles and adults. Furthermore, information on socio-economic aspects and fishing effort are collected. Therefore, SG 80 is met. However, uncertainty still remains regarding stock boundaries. 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 on an annual basis. The fishing mortality rate is compared to the reference points used by management. The principal assessment model is the SS3 (and a4a; Jardim et al., 2014)). The model is suitable for the available data; it 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. It is used by GFCM and STECF for a number of stocks, and has been widely tested and is generally considered robust as long as the catch-at-age and survey data are reliable. As a further internal peer review, assessments are scrutinized by the GFCM SAC and STECF plenary. Therefore, SG 80 is met. The most recent assessments take into account combined GSAs (17-18 and 17-18-19) without having robust evidence on precise stock boundaries. The lack of knowledge on stock boundaries is one of the major issues regarding the understanding of the biology of the species. Therefore, SG 100 is not met.

2.1.1 – Primary Outcome

≥80

Yes

Rationale or key points

According to the last available assessment, most of the primary main species listed in Table 2.1 are above PRI. The most updated evaluation of the demersal Adriatic stocks is available in STECF-EWG 19-16 (see: <https://stecf.jrc.ec.europa.eu/documents/43805/2574657/STECF+19-16+-+MED+demersal+assess+II.pdf/b3f4cb53-3302-4c9a-a77a-2433e5299280?version=1.2&download=true>). The EWG assessed European hake, red mullet, spottail mantis shrimp and common cuttlefish in the Adriatic Sea. The report provided B_{lim} values only for European hake. However, it is possible to assume that B_{loss} is an adequate proxy

for PRI considering that increasing recruitment patterns are observed for all the stocks after the lowest value of biomass. For all the stocks, with the exception of spottail mantis shrimp, the current biomass is above B_{lim} (see table below). Therefore, SG 80 is met.

	Current Biomass (tons)	PRI (=Blim or Bloss) (tons)
European hake	3,820	1,858
Red mullet	10,928	4,000
Spottail mantis shrimp	10,851	10,500
Common cuttlefish	27,100	11,000 (PRI = 0.5 B_{MSY})

However, considering that most of the stocks are in overfishing ($F > F_{MSY}$ or proxies) since several years is not possible to conclude that they are fluctuating around levels consistent with MSY. Therefore, SG 100 is not met.

2.1.2 – Primary Management

≥80

No

Rationale or key points

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). Moreover, according to the GFCM MAP (GFCM, 2019), in 2020 and 2021, a transitional fishing effort regime shall be established. CPCs shall jointly ensure that, by 2021, the overall fishing effort (number of fishing days) deployed by fleets actively fishing for key demersal stocks using bottom otter trawls (OTB), beam trawls (TBB), bottom pair trawls (PTB) and otter twin trawls (OTT) and operating in GSAs 17 and 18, shall be reduced by at least 12 percent for OTB and 16 percent for TBB with respect to the annual effort exerted in 2015 or to the three-year average within the 2015–2018 period. Italy already applied with ministerial decree the above measures. Therefore, there is a partial strategy in place meeting SG 80.

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.

2.1.3 – Primary Information

≥ 80

No

Rationale or key points

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 the Adriatic Sea. The available catch data indicates that there are in fact no main primary species caught by this fishery. Therefore, 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 in the Adriatic Sea (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.

Therefore, SG 100 is not met.

2.2.1 – Secondary Outcome	≥ 80	Yes
Rationale or key points		
The only main secondary species is the Atlantic horse mackerel. The stock was not assessed therefore, a PSA analysis was applied (see section 8.3). The MSC PSA-derived score was 95.		
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		
Sufficient biological information was available to score productivity and susceptibility with reasonable certainty – see references in Appendix 8.3.		
2.3.1 – ETP Outcome	60 – 79	No
Rationale or key points		
In accordance with the reporting requirements of EC Council Regulation 812/2004, in Mediterranean data describing fishing effort, monitoring/sampling effort and incidental bycatch of cetaceans only pelagic trawl must be covered. Data describing monitoring/sampling effort and incidental bycatch of all protected species (including cetaceans) recorded from any other monitored gear types (demersal trawls, lines etc.) are covered under national data collection programmes (e.g. DCF etc.). Considering the information collected during the site visit direct effects of the UoA are likely to not hinder recovery of ETP species. Therefore, SG60 is met. However, the detrimental precise direct effects of the UoA on the ETP species are not known and is not clear if they are highly likely to not hinder recovery of ETP species – SG 80 is not met.		
2.3.2 – ETP Management	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. 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.

2.3.3 – ETP Information

60 – 79

No

Rationale or key points

Quantitative information on by-catch of ETP species (including loggerhead & green turtles, bottlenose & striped dolphins) from trawlers comes from the Italian data collection work plan 2017-2020 (see https://datacollection.jrc.ec.europa.eu/documents/10213/1131890/Italy_WorkPlan_2017-2019.pdf/5be89aee-3ae0-4414-9c67-803778e49711), based on log book data. Council Regulation (EC) No 812/2004 of 26 April 2004 on protecting cetaceans against incidental catches requires that monitoring schemes with independent on-board observers are set up, for priority fisheries. For small sized vessels (measuring less than 15 m in length), where an observer cannot remain on board, data on incidental catches of cetaceans should be collected through scientific studies or pilot projects. Whilst this regulation is concerns cetacean bycatch, observers are also trained to collect additional data on bycatch of other species of conservation concern as sea turtles, including the loggerhead turtle (*Caretta caretta*) and the green sea turtle (*Chelonia mydas*), the leatherback turtle (*Dermochelys coriacea*) and the olive ridley turtle (*Lepidochelys olivacea*); seabirds, including Balearic shearwater (*Puffinus mauretanicus*) and Scopoli's shearwater, Audouin's gull (*Larus audouinii*), the Balearic and Yelkouan shearwaters (*P. yelkouan*) and Mediterranean shag (*Phalacrocorax aristotelis desmarestii*). Observers are also trained to collect data on some sharks and rays species with conservation concern as elasmobranch species included in the IUCN Red List of Threatened Species (see www.iucn.org/sites/dev/files/content/documents/brochure_medredlist_sharks.pdf).

EU Member States are required to report annually on the implementation of the on-board observer programme, and to include all information collected on the incidental captures in these annual reports. The ICES Working Group on Bycatch of Protected Species (WGBYC) subsequently collates and assesses this information (ICES, 2015). Such data and the information obtained during the site visit can represent a sort of qualitative background and potential information adequate to estimate the UoA related mortality on ETP species. Therefore, SG 60 is met. However, quantitative information on UoA related impacts are not yet available, thus SG 80 is not met.

2.4.1 – Habitats Outcome	60 – 79	No
Rationale or key points		
<p>It is widely acknowledged that extensive areas of soft bottom habitats are present in the Adriatic Sea (Vatova (1949; Gamulin-Brinda, 1967; Scardi et al., 1999; Jenkins, 2008, Piras et al., 2016). These soft bottoms show a general pattern of changing from sand to muddy / detritic bottoms with increasing distance from the shore (Brambati et al., 1983). According to the information acquired during the site visit the UoA targeting pink shrimp is fishing in deep waters, as confirmed by the spatial distribution of the species.</p> <p>Bottom trawlers operate in contact with benthic habitats and/or species. The fishing net is configured to interact with the seabed during the actual fishing operation. However, damage to the Mediterranean-type gear is likely to occur in hard bottom rocky substrata. Since, fishing operations usually take place over soft and flat bottom habitats and considering the maps presented below, the assessment team considers that 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 – SG 60 is met.</p> <p>However, considering the lack of UoA specific data about the spatial distribution of the fishing effort, it is not possible to conclude 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. The team also stresses that there is not an 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 80 and 100 are not met.</p>		
2.4.2 – Habitats Management	60-79	No
Rationale or key points		
<p>Based on (i) the variety of measures in place to reduce the impact of fisheries in general, and bottom trawl fisheries in particular on the benthic habitats (see scoring issue (a) above for details), and (ii) available studies assessing the habitat impacts of fishing (e.g. Lucchetti and Sala, 2012; Lucchetti et al., 2018), there is some evidence that the measures are likely to work – 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.</p>		
2.4.3 – Habitats Information	60-79	No
Rationale or key points		
<p>Information on the impacts of bottom trawlers on benthic habitats 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 used on the main habitats, including spatial overlap of habitat with fishing gear. – SG 60 is met.</p> <p>However, this interaction cannot be quantified at UoA level, due to the lack of spatial distribution of the fishing effort specific for the UoA. Therefore, SG 80 is not met.</p>		
2.5.1 – Ecosystems Outcome	≥ 80	No
Rationale or key points		
<p>Coll et al. (2007) developed a trophic mass-balance model to characterise the food web of the Northern and Central Adriatic which can be considered acceptable also for the western side of the Southern Adriatic and described a total of forty functional groups, including target and non-target fish, invertebrate groups and detritus groups. The model highlighted that there is important coupling between benthic and pelagic production of detritus, benthic invertebrates and plankton. Organisms characterising mainly the low and medium trophic levels, but also the upper trophic levels were important in terms of keystone and total effects: phytoplankton, micro and mesozooplankton, suprabenthos (amphipods, cumaceans, isopods), benthic invertebrates (echinodermata, mollusca, crustacea), anchovy and dolphins were all ranked highly.</p> <p>A subsequent review of functional groups acting as keystones in the Mediterranean Sea food webs confirmed this unique combination of suprabenthos, micro- and mesozooplankton, dolphins and small pelagic fish in structuring the</p>		

Adriatic Sea ecosystem, 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. According to the list of species fished by the otter trawl fishery in GSA 18 (see Table 4.4.3.1 in https://www.msc.org/docs/default-source/it-files/e-deeper-mapping_annex-iv_final-eng.pdf?sfvrsn=279fad4e_0) the most important taxa are characterized by species that according to the models available are not key elements of the ecosystem structure. Therefore, it is highly unlikely that the UoA can disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm. – SG 60 and SG 80 are met.

The assessment team observed that there is no data available for the UoA in term of catch composition. Therefore, it is not possible to conclude that there is a clear 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. SG 100 is thus not met for these scoring elements.

2.5.2 – Ecosystems Management

60-79

No

Rationale or key points

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

2.5.3 – Ecosystems Information

60-79

No

Rationale or key points

Bottom trawlers operate in contact with benthic habitats and/or species. The fishing net is configured to interact with the seabed during the actual fishing operation. However, damage to the Mediterranean-type gear is likely to occur in hard bottom rocky substrata. Since, fishing operations usually take place over soft and flat bottom habitats, 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). From such studies is possible to infer the main impacts of the UoA on these key ecosystem elements. Therefore, SG 60 is met.

However, considering the lack of data in term of catch composition of the UoA and its spatial distribution is not possible to conclude that the main impacts of the UoA have been investigated in detail. Therefore SG 80 is not met.

3.1.1 – Legal and customary framework

≥ 80

No

Rationale or key points

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.

The Contracting Parties to the GFCM endorsed the "Amended Agreement for the establishment of the General Fisheries Commission for the Mediterranean" at the GFCM 38 Annual Session on 19-24 May 2014.

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.

3.1.2 – Consultation, roles and responsibilities	≥ 80	No
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Rationale or key points

The reform of the CFP with a greater emphasis on regionalization and sea basin-level management, enhancing the role of the MEDAC at regional level and developing Fisheries Local Action Group (hereafter FLAG) at local level, along with the development of the Better Regulation Guidelines ensures more effective consultation and is a recent improvement in performance. MEDAC is involved at regional level for the consultation about the discard plan of the species. Therefore, the consultation process provides opportunity and encouragement for all interested and affected parties (NGOs are also part of MEDAC) to be involved, and facilitates their effective engagement, meeting SG100.

3.1.3 – Long term objectives	≥ 80	No
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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
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Rationale or key points

The Italian Management plans for demersal fishery in GSA 17-18 has defined long term objectives. However, these are only implicit in the Italian management plan and explicit objectives solely focus on the 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
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Rationale or key points

It is evident that to date GFCM amendments have occurred annually in order to respond to serious issues in the fishery (SG60 is met), but there is no evidence that all issues are taken into account. Therefore, SG80 is not met.

3.2.3 – Compliance and enforcement	60 – 79	No
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Rationale or key points

MCS in the Adriatic 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 demersal fishery in GSA 17-18 are not evaluated therefore, SG 80 is not met.

7.4 Principle 1

7.4.1 Principle 1 background

The deep-water rose shrimp, is one of the target species of the central and southern Adriatic multispecies trawl catches and is an epibenthic short-lived species, inhabiting preferably muddy sediments. In the southern Adriatic it is distributed mostly between 30 and 600 m depth although it is more abundant between 200 and 400 m depth. Larger specimens are caught mainly in deeper waters. According to previous studies (Abellò et al., 2002; Sbrana et al., 2019), the eastern part the south Adriatic is characterised by high occurrence and abundance of the species, given the characteristics of the water masses (warmer and saltier) and the lower fishing pressure; in particular an higher abundance of the juvenile component of the population was reported. However, according to MEDITS time series the abundance of the species was growing even on the western side since 2002.

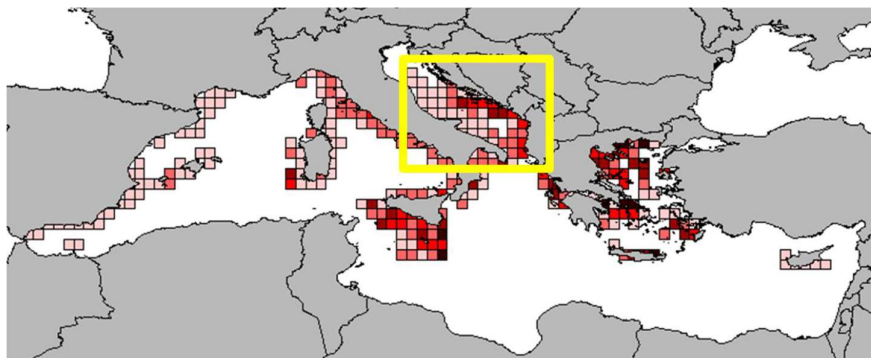


Figure 7.4.1.1. Geographical distribution of deep-water rose shrimp stock in terms of biomass (kg/km²) calculated as average on 2002-2011 period (MEDITS survey data) in the GFCM Statistical grid.

According to historical information on growth in the Adriatic area, *P. longirostris* can grow up to 16 cm (males) and 19 cm (females) in total length. However, males are usually 0.8 to 14 cm and females from 12 to 16 cm total length. During the expedition “Hvar”, the largest specimen caught was a female 17 cm in length. The growth rate of *P. longirostris* is high, but differs between sexes. Size distribution and growth parameters indicate a life cycle of 3-4 years. Historical parameters of the length-weight relationship reported in the literature for carapace length expressed in mm and both sexes combined are $a=0.0034$, $b=2.4364$.

Estimates of growth parameters estimated within the DCF framework using the length frequency distribution analysis and Von Bertalanffy model gave the following parameters: $CL_{\infty} = 45.0$ mm; $k = 0.6$; $t_0 = -0.20$.

The parameters of the length-weight relationship estimated within the DCF for sexes combined and carapace length expressed in cm were $a = 0.0019$, $b = 2.606$.

In the Mediterranean Sea, both males and females reach the maturity in the first year of life.

According to the data obtained in the Data Collection Framework (DCF), the maturity ogive (mature females were specimens belonging to the maturity stage 2 onwards) estimated by a maximum likelihood procedure indicates a $Lm_{50\%}$ of about 18.5 mm (± 0.026 mm) and a maturity range (MR; $Lm_{75\%}$ - $Lm_{25\%}$) equal to 0.83 mm (± 0.03 mm) of carapace length.

Information about maximum observed length, size at first maturity and recruitment size are reported in Table 7.4.1.1 and Figure 7.4.1.2.

The sex ratio of commercial catches evidenced the prevalence of males in the size class from 16 to 18 mm and from 23 to 25 mm, while from 27 mm onwards the proportion of females was dominant.

Table 7.4.1.1. Biological and ecological information on deep-water rose shrimp in the Adriatic (GSAs 17 and 18).

	Female	Male	Combined
Maximum size observed	45 mm CL		
Size at first maturity	18 mm CL		
Recruitment size to the fishery	14 mm CL		

	Female	Male	Combined
Spawning areas			Offshore, mostly on the eastern side both in GSA 17 and GSA 18.
Nursery areas			Offshore, mostly on the eastern side both in GSA 17 and GSA 18.
Reproduction season			March-December

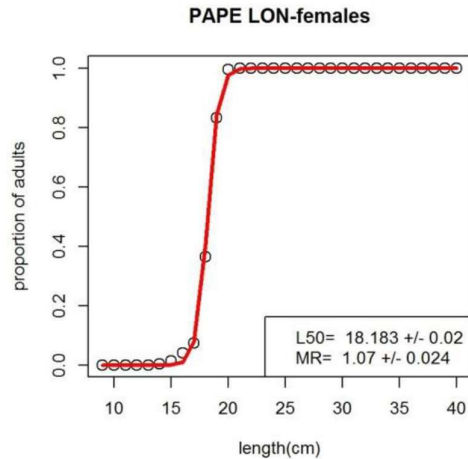


Figure 7.4.1.2. Maturity ogive for *P. longirostris* females, binomial GLM on 2014 DCF data.

The vector of natural mortality was estimated by Chen & Watanabe method for sex combined. The vector of proportion of mature individuals by age has been derived slicing the maturity ogive by length with the von Bertalanffy coefficients for sex combined reported above. LFDA (FAO package) algorithm has been used for the age slicing.

Table 7.4.1.2: Natural mortality (*M*) vector and proportion of matures by age (Sex combined).

Age	Natural mortality	Proportion mature
0	1.75	0.69
1	0.94	1.00
2	0.75	1.00
3	0.67	1.00

The Southern Adriatic Sea makes a substantial contribution to national fishery production, with an input comparable to that of the Strait of Sicily, accounting for about 13%. The fleet data are referred to the whole GSA and are from the GFCM Task 1 Statistical Bulletin 2010.

The trend of the biomass index of the MEDITS trawl surveys conducted in the Adriatic Sea and the western Ionian Sea shows a clear increasing pattern with a sharp increase in the last years (Figure 7.4.1.3).

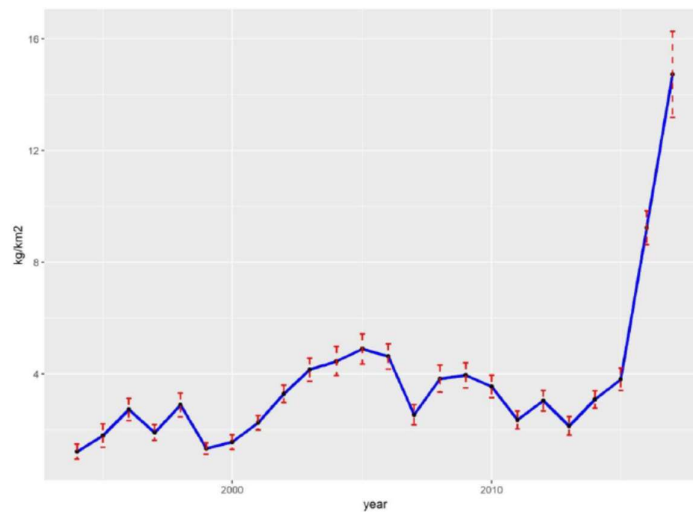


Figure 7.4.1.3. Biomass index (kg/km²) from the MEDITS survey (combined data from GSAs 17, 18 and 19).

In Italy management regulations are based on technical measures, closed number of fishing licenses for the fleet and area limitation (distance from the coast and depth). In order to limit the over-capacity of fishing fleet, the Italian fishing licenses have been fixed since the late eighties and the fishing capacity has been gradually reduced. Other measures on which the management regulations are based regards technical measures (mesh size), minimum landing sizes (EC 1967/06) and seasonal fishing ban, that in southern Adriatic has been mandatory since the late eighties.

In 2008 a management plan was adopted, that foresaw the reduction of fleet capacity associated with a reduction of the time at sea. Two biological conservation zone (ZTB) were permanently established in 2009 (Decree of Ministry of Agriculture, Food and Forestry Policy of 22.01.2009; GU n. 37 of 14.02.2009) along the mainland, offshore Bari (180 km², between about 100 and 180 m depth), and in the vicinity of Tremiti Islands (115 km² along the bathymetry of 100 m) on the northern border of the GSA where a marine protected area (MPA) had been established in 1989. In the former only the professional small scale fishery using fixed nets and long-lines is allowed, from January 1st to June 30th, while in the latter the trawling fishery is allowed from November 1st to March 31 and the small scale fishery all year round. Recreational fishery using no more than 5 hooks is allowed in both the areas. Since June 2010 the rules implemented in the EU regulation (EC 1967/06) regarding the cod-end mesh size and the operative distance of fishing from the coasts are enforced.

In Montenegro, management regulations are based on technical regulations, such as mesh size (Official Gazette of Montenegro, 8/2011), including the minimum landing sizes (Official Gazette of Montenegro, 8/2011), and a regulated number of fishing licenses and area limitation (no-fishing zone up to 3 NM from the coastline or 8 NM for trawlers of 24+ m LOA). Currently there are no MPAs or fishing bans in Montenegrin waters.

In Albania, a new law “On fishery” has now been approved, repealing the Law n. 7908. The new law is based on the main principles of the CFP, it reflects Reg. 1224/2009 CE ; Reg.1005/2008 CE; Reg. 2371/2002 CE; Reg. 1198/2006 CE; Reg. 1967/2006 CE; Reg. 104/2000; Reg. 1543/2000 as well as the GFCM recommendations. The legal regime governing access to marine resources is being regulated by a licensing system. Regarding conservation and management measures, minimum legal sizes and minimum mesh sizes is those reflected in the CE Regulations. Albania has already an operational vessel register system. It is forbidden to trawl at less than 3 nautical miles (nm) from the coast or inside the 50m isobath when this distance is reached at a smaller distance from the shore.

Since the accession of Croatia to the EU the 1st of July 2013, the regulations measures are in accordance with EC regulation 1967/2006 as in the Italy. Furthermore, the following regulations are applied:

Bottom trawl fisheries is closed one and half NM from the coast and island in inner sea, 2 NM around island on the open sea, and 3 NM about several island in the central Adriatic. For vessel smaller than 15 meters, according derogation in sea deeper than 50 meters bottom trawl fisheries is forbidden till 1NM of the coast. Bottom trawl fishery is closed also in most of the channel area and bays. About 1/3 of the territorial waters is closed for bottom trawl fisheries over whole year and additionally 10% is closed from 100-300 days per years. Minimum mesh size on the bottom trawl net was 20 mm (“knot to knot”) in the open sea, and 24 mm (“knot

to knot”) in the inner sea. Recently, mesh size regulation is according EC 1967/2006 (ie. 40 mm square or 50 mm diamond).

In 2015 the no-take zone was established in Jabuka Pit. The establishment of Marine managed area (MMA) was based on long-time assessment of biological resources and analysis carried out by working group through FAO AdriaMed project that showed a decline in biomass of these commercial species. The proposed MMA covers the waters closed to trawling through a bilateral agreement between Republic of Italy and Republic of Croatia. The Pit was re-opened to trawling in 2016. Recently, following the growing support for a MMA in the Jabuka/Pomo Pit, Croatia and Italy agreed to reintroduce a fishing closure from the 1st of September 2017 to 31st of August 2020.

Other interventional fisheries regulation measures were introduced in Croatia such as temporal ban of trawl fisheries in open part of central Adriatic and in channel area of northern Adriatic. The aim of those measures was protection of commercially important species (e.g. European hake and Norway lobster) in critical period (spawning or recruitment period).

The Recommendation GFCM/43/2019/5 established a multiannual management plan for sustainable demersal fishing activities in the Adriatic Sea (GSAs 17 and 18) exploiting demersal stocks, by means of otter-trawling, beam-trawling, bottom pair trawling and otter twin trawling, including the key stocks. The multiannual management plan shall be consistent with the precautionary approach. It shall be designed to provide high long-term yields consistent with the MSY and to guarantee a low risk of stocks collapse while maintaining sustainable and relatively stable fisheries. It shall take account of the mixed nature of the fisheries and the dynamics between the stocks driving them. A set of transitional precautionary management measures for the Adriatic Sea shall be developed in order to ensure that, while minimizing socio-economic impacts and finalizing SAC scientific advice, the stocks and fisheries progress towards biologically sustainable levels.

The stock assessment of deep-water rose shrimp in the Adriatic Sea (GSAs 17-18) was performed at GFCM WGSAD 2017, using data up to 2016.

The assessment was performed using Stock Synthesis (SS3), which provides a statistical framework for calibration of a population dynamics model using a multi fleet approach. It is designed to include different information from fishery and survey data, as well as to consider different subareas within the same stock. The model allows to work by length or by age and to assume different selectivity patterns for the different fleet exploiting the stock. In the model the selectivity is a combination of availability and vulnerability.

SS3 is based on ADMB C++ software, allowing to easily work with large databases, as well as to simultaneously estimate a number of parameters. A wide number of options are available for modelling the selectivity patterns of the different fishing gears. Moreover, time varying selectivity can be defined in order to take into account annual changes in vulnerability and availability of the stock.

For GSA 18 (Italy), discards data were available in the years 2009, 2010, 2011, 2012, 2013, 2014, 2015 and 2016, and were included in the assessment. The proportion of the discards of deep-water rose shrimp in the GSA 18 (Italy) ranged from 0.6% (2011) to 3.2% (2009). Discards data in years 1998-2008 were estimated on the basis of the average discard ratio in 2009-2011.

For GSA 17 (Italy), discards data were available in the years 2011, 2013, 2014, 2015 and 2016, and were included in the assessment. The proportion of the discards of deep-water rose shrimp in the GSA 18 (Italy) ranged from 1.8 % (2013) to 44% (2016). Discards data in the period 1998-2010 and 2012 were estimated on the basis of the average discard ratio in 2011 and 2013-2015. For the Croatian side of GSA17, discards data available and included in the assessment are only related to 2015 and 2016. The proportion of the discards of deep water rose shrimp in Croatia was estimated as 10% (2015). Discard data not available (from 1998 to 2014) have been estimated on the basis of the available discard ratio in 2015.

Fishing mortality (F) showed the minimum value of 0.42 (F_{bar} 0-2) in the last year (2016), and a maximum of 1.35 in the first year of the time series (1998). The reference point ($F_{0.1}$) value estimated by FLBRP package was 0.9.

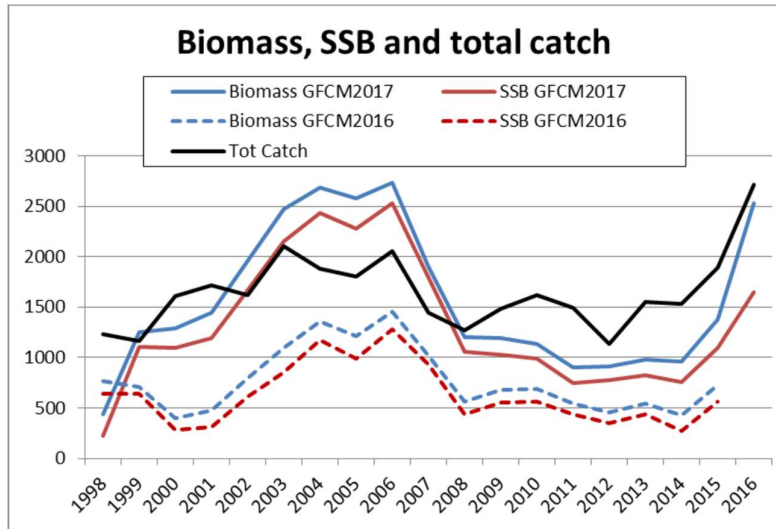


Figure 7.4.1.4. Results of the final run chosen for the advice. The red lines are the SSB trends, the blue lines the Biomass trends and the black line is the total catch. The dotted lines represent the results of the last assessment done in GCFM WGSAD 2016.

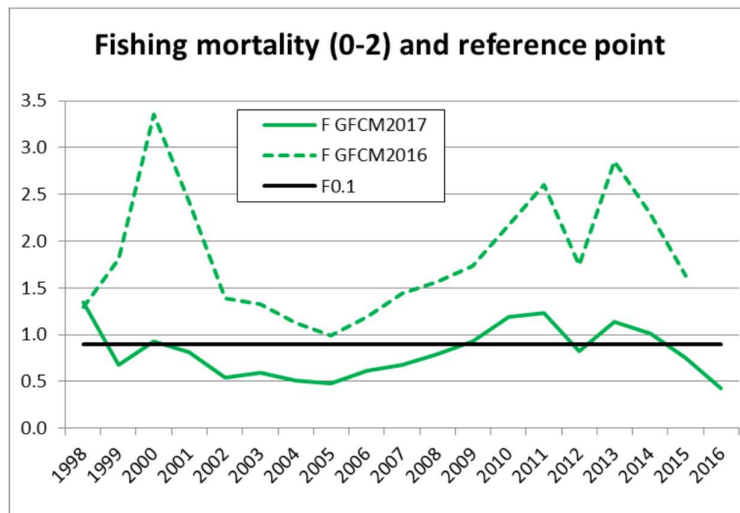


Figure 7.4.1.5. Fishing mortality trend of the final run chosen for the advice. The dotted line represents the results of the last assessment done in GCFM WGSAD 2016.

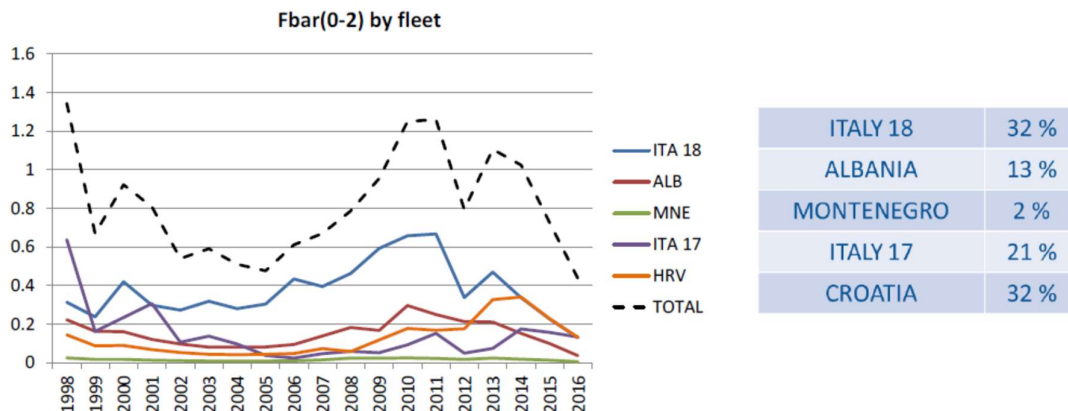


Figure 7.4.1.6. Fishing mortality by fleet.

Table 7.4.1.3: Fishing mortality, recruitment, SSB and total biomass.

Year	$F_{\text{bar}} (0-2)$	Recruitment (thousands)	SSB (t)	Total Biomass (t)
1998	1.35	1064370	224	436
1999	0.67	590219	1101	1250
2000	0.92	883579	1099	1291
2001	0.81	1184140	1189	1447
2002	0.54	1240200	1671	1953
2003	0.59	1401680	2155	2473
2004	0.51	1067530	2430	2689
2005	0.48	1348800	2277	2578
2006	0.62	778034	2533	1735
2007	0.68	441515	1789	1903
2008	0.79	712714	1052	1205
2009	0.92	722025	1031	1195
2010	1.19	609924	988	1130
2011	1.23	697919	746	899
2012	0.82	613067	775	915
2013	1.15	707366	822	977
2014	0.95	964407	753	958
2015	0.81	1311360	1092	1374
2016	0.43	4402230	1644	2533

Table 7.4.1.4: List of reference points and empirical reference values.

Indicator	Empirical reference value	Value	Target Reference point/empirical reference value	Value	Comments
SSB	SSB Percentiles	33 rd : 1028 t 66 th : 1589 t SSB _{curr} : 1644 t			GFCM WGSAD 2017
F			F _{0.1} as proxy for F _{MSY}	0.90	GFCM WGSAD 2017

At GFCM WGSAD 2018, a combined assessment of deep-water rose shrimp in GSAs 17, 18 and 19 was presented. The assessment was run using a4a, and the stock resulted in overexploitation. This result is in line with the assessment presented in 2016 for GSAs 17-18 (with reference year 2015), while last year (WGSAD 2017) the stock in GSAs 17-18 resulted as sustainably exploited. In previous years, assessments were performed using SS3. Due to the fast increase in biomass shown by the MEDITS survey, the methods used to assess this stock appear not able to properly model the population dynamics, and they are providing unstable results in terms of fishing mortality. Therefore, a precautionary advice was provided: possibly in overexploitation, with high biomass (WGSAD, 2018).

7.4.1 Catch profiles

Available time series for the deep-water rose shrimp landings and discards by the trawl fleet in GSA18 are shown in Table 7.4.2.1.

Table 7.4.2.2 shows the production data from DCF for Italy and Croatia and from a pilot study within a framework of the AdriaMed project and the National Statistics Bureau for eastern side (Albania and Montenegro) and from official statistics FISHSTAT for the years not available in the DCF. Landings in Albania were based on export data, which was assumed to equal 64% of the total catch (FAO Yearbook of Fishery Statistics). In case of lack of data even in official statistics landings from 1998 to 2007 were assumed to be the average of the first earliest three available years in the time series (in case of Albania, Montenegro and Croatia).

The landing data for Montenegro are estimates, based on collecting data from a small number of vessels, and then raised to the total fleet in order to obtain the yearly estimate. Current national data collection in Montenegro is based on different methods (used by different agencies, namely, Statistical office of Montenegro – MONSTAT and the Ministry of agriculture and rural development, Department for agriculture statistics) which are not fully compliant with the requirements of the EU DCF, and are considered incomplete and not suitable for realistic analyses.

The reduction of landings observed in 2011 continued, and was even more pronounced in 2012, marking the lowest point in the time series, together with the second lowest point in the time series in 1998. From 2013 there was an increase in landings with a positive trend until the last years (2016).

Table 7.4.2.1. Landings and discards of deep-water rose shrimp by the trawl fleet in GSA18 (Italian data only).

Year	Landings (t)	Discards (t)
1998	450	NA
1999	464	NA
2000	835	NA
2001	788	NA
2002	903	NA
2003	1253	NA
2004	1848	NA
2005	1181	NA
2006	1465	NA
2007	863	NA
2008	766	NA
2009	939	31
2010	888	18
2011	870	5
2012	523	7
2013	734	12
2014	638	8
2015	651	14
2016	996	21
2017	1109	42

Table 7.4.2.2. Landings of deep-water rose shrimp by the trawl fleets in the Adriatic Sea (GSAs 17 and 18) and the western Ionian Sea (GSA 19) by country.

area	country	gear	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
17	HRV	OTB	141	141	141	141	141	141	71	138	174	151	169	315	363	536	655	833
17	ITA	OTB	57	57	57	57	54	70	54	44	65	92	53	84	202	279	471	520
18	ITA	OTB	903	1253	1848	1181	1465	863	766	939	888	870	523	734	638	651	996	1109
18	ALB	OTB	222	222	222	222	222	309	309	275	7	209	1170	1210	1430	1290	1460	1473
18	MNE	OTB	35	35	35	35	35	39	39	36	32	27	22	31	28	31	32	35
19	ITA	OTB	738	646	1170	1243	1245	608	785	767	716	593	488	334	422	622	647	693

7.4.2 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 the whole Adriatic (GSAs 17 and 18).

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

TAC	Year	2016	Amount	-
UoA share of TAC	Year	2016	Amount	-
UoA share of total TAC	Year	2016	Amount	-
Total green weight catch by UoC	Year (most recent)	2016	Amount	1151 t
Total green weight catch by UoC	Year (second most recent)	2015	Amount	1017 t

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

PI 1.1.1 – Stock status

PI 1.1.1		The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing		
Scoring Issue		SG 60	SG 80	SG 100
a	Stock status relative to recruitment impairment			
	Guidepost	It is likely that the stock is above the point where recruitment would be impaired (PRI).	It is highly likely that the stock is above the PRI.	There is a high degree of certainty that the stock is above the PRI.
	Met?	Yes	Yes	No
Rationale				
<p>Despite some inconsistency in the last assessments performed on this stock, SSB is increasing since 2010, and it is now at very high level. The SSB in 2016 is estimated at 1644 t and is above B_{lim} (= B_{loss}) estimated at 746 t. Considering the high recruitments observed after the year when B_{lim} was observed (see Table 7.4.1.3) is possible to assume that such threshold is a precautionary and accurate estimate of the PRI. The lowest biomass in the time series was considered as 746 t. The value of 224 t (estimated in 1998, the first year of the time series of the assessment) should be considered as unreliable.</p> <p>Considering that the current biomass is more than twice the PRI is possible to assume that the stock is highly likely above the PRI. Therefore, SG 80 is met.</p> <p>However, considering the uncertainty in the stock configuration (GSA 17-18 or GSA 17-18-19) as well as in the model outputs, it is not possible to conclude that there is a high degree of certainty that the stock is above the PRI. Therefore, SG 100 is not met.</p>				
b	Stock status in relation to achievement of Maximum Sustainable Yield (MSY)			
	Guidepost		The stock is at or fluctuating around a level consistent with MSY.	There is a high degree of certainty that the stock has been fluctuating around a level consistent with MSY or has been above this level over recent years.
	Met?		Yes	No
Rationale				
<p>The SSB in 2016 is estimated at 1644 t and is above the B_{lim} (746 t). According to GFCM (2017), B_{lim} can be estimated as the lowest biomass in the time series investigated by the assessment.</p> <p>Furthermore, the MEDITS biomass index is showing an increasing trend in the last years (see SAF 2018), that is also shown by the SSB trend obtained from the recent assessments.</p> <p>No decline has been observed in the SSB trend from the assessment and the biomass index from the MEDITS survey for one generation time (GT = 3-4 years) and recruitment index indicates that the stock is at a highly productive level.</p> <p>Considering that B_{MSY} is not analytically determined, the team considered that MSC standards enables the use of independent proxies indicating that the stock is at highly productive level as outlined in SA 2.2.3.1 of MSC Fisheries Standard (Annexes S) and associated Guidance GSA 2.2.3.1:</p> <p><i>'Proxy indicators and reference points or measuring stock status may also be used where the exact relationship with the PRI, BMSY and FMSY levels are not known. In these cases, the team must provide justification that these proxies are reasonable for the context in which they are used.'</i></p> <ul style="list-style-type: none"> At SG60: If no decline has been observed in one proxy of biomass for at least one generation time of the species and the proxy indicates that the stock is likely above the PRI. 				

- At SG80: If no decline has been observed in two proxies of biomass for one generation time and at least one proxy indicates that the stock is at a highly productive level.
- At SG 100: If no decline has been observed in three proxies of biomass for one generation time and at least two proxies indicate that the stock is at a highly productive level.

Therefore, based on stock proxies of biomass coming from fishery dependent and independent information (stock assessment and MEDITS) and considering the evidence that no decline has been observed in two proxies of biomass for one generation time and that recruitment trend indicates that the stock is at a high productive level, is possible to conclude that the stock is at or fluctuating around a level consistent with MSY. Therefore, SG 80 is met.

This implies PI 1.1.2 – stock rebuilding – not to be scored.

Due to the uncertainties in model outputs and stock configuration, it is not possible to conclude that there is a “high degree of certainty” that the stock has been fluctuating around a level consistent with MSY over recent years and SG 100 is not met.

References

- Abelló P., Abella A., Adamidou A., et al. 2002. Geographical patterns in abundance and population structure of *Nephrops norvegicus* and *Parapenaeus longirostris* (Crustacea: Decapoda) along the European Mediterranean coasts. *Sci. Mar.* 66: 125-141.
- GFCM 2017. Working Group on Stock Assessment of Demersal Species (WGSAD). FAO headquarters, Rome, Italy, 13–18 November 2017. FINAL REPORT, 70 pp.
- GFCM 2018. Working Group on Stock Assessment of Demersal Species (WGSAD). FAO headquarters, Rome, Italy, 19–24 November 2018. FINAL REPORT, 79 pp.
- Sbrana M., Zupa W., Ligas A., Capezzuto F., Chatzisprou A., Follesa M.C., Gancitano V., Guijarro B., Isajlovic I., Jadaud A., Markovic O., Micallef R., Peristeraki P., Piccinetti C., Thasitis I., Carbonara P. 2019. Spatiotemporal abundance pattern of deep-water rose shrimp, *Parapenaeus longirostris*, and Norway lobster, *Nephrops norvegicus*, in European Mediterranean waters. *Sci. Mar.* 83S1: 000-000. <https://doi.org/10.3989/scimar.04858.27A>
- 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.

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 PRI (SIa)	B_{lim} (lowest SSB value in the time series)	746 t	$1644/B_{lim} = 2.20$
Reference point used in scoring stock relative to MSY (SIb)	Not defined Proxy Indicators: MEDITS CPUE index SSB stock assessment Recruitment Index		

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 is 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				
<i>List any references here, including hyperlinks to publicly available documents.</i>				

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

Draft scoring range	<60 / 60-79 / >80
Information gap indicator	More information sought / Information sufficient to score PI

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				
<p>The MSC defines a harvest strategy as the combination of the following elements:</p> <ul style="list-style-type: none"> - Monitoring - stock assessment - harvest control rule - management actions <p>There is an appropriate monitoring, data collection and stock assessment process in place (see section 7.4.1).</p> <p>In terms of the harvest control rule, the Italian National Management Plan foresees a general reduction of fishing activity by 16% (through effort quotas per vessel) with respect to the period 2015-2017. This harvest strategy is working towards achieving the exploitation at MSY of the target stock by 2020. According to the last available assessment, despite a significant increase in the biomass, the stock is still overexploited. According to the GFCM MAP, in 2020 and 2021, a transitional fishing effort regime shall be established. CPCs shall jointly ensure that, by 2021, the overall fishing effort (number of fishing days) deployed by fleets actively fishing for key demersal stocks using bottom otter trawls (OTB), beam trawls (TBB), bottom pair trawls (PTB) and otter twin trawls (OTT) and operating in GSAs 17 and 18, shall be reduced by at least 12 percent for OTB and 16 percent for TBB with respect to the annual effort exerted in 2015 or to the three-year average within the 2015–2018 period.</p> <p>The HS is not responsive to updated stock status and it is not clear if all the elements of the HS strategy work together towards achieving stock management objectives reflected in PI 1.1.1 SG80. Therefore, SG 60 is met only.</p>				
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?	Yes	No	No
Rationale				
<p>The stock biomass is increasing, even if this can be considered as a sign that the harvest strategy is having beneficial effects on the stock status, it can be considered only as a plausible argument rather than a proper evidence, considering that the same species is increasing in terms of biomass in other areas of the Mediterranean. Therefore, this scoring guidance is met at SG60 only.</p>				
c	Harvest strategy monitoring			

	Guide post	Monitoring is in place that is expected to determine whether the harvest strategy is working.		
	Met?	Yes		

Rationale

Both GFCM and STECF carried out annual revisions of the assessment of deep-water rose shrimp stock in the southern Adriatic. According to the new GFCM MAP, the SAC shall provide, on an annual basis, advice on the status of key stocks (including deep-water rose shrimp) in the Adriatic Sea, including specific objectives to maintain fishing mortality within agreed precautionary fishing mortality reference. Furthermore, the collection of biological and socio-economic data under the EU DCF/EU-MAP allows a constant monitoring of both the stock and the fisheries, thus providing updated information on the implementation of the harvest strategy. Therefore, SG 60 is met.

d Harvest strategy review

d	Guide post			The harvest strategy is periodically reviewed and improved as necessary.
	Met?			No

Rationale

The harvest strategy has not been reviewed so far. The Italian national programme on fisheries data collection is revised every three years.

e Shark finning

e	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

f	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

A review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock has not been performed so far. Therefore, this scoring guidance is not met.

References

EC (2013) EC Regulation 1380/2013 on the Common Fisheries Policy

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

Draft scoring range

< 60

Information gap indicator	More information sought
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Overall Performance Indicator scores added from Client and Peer Review Draft Report

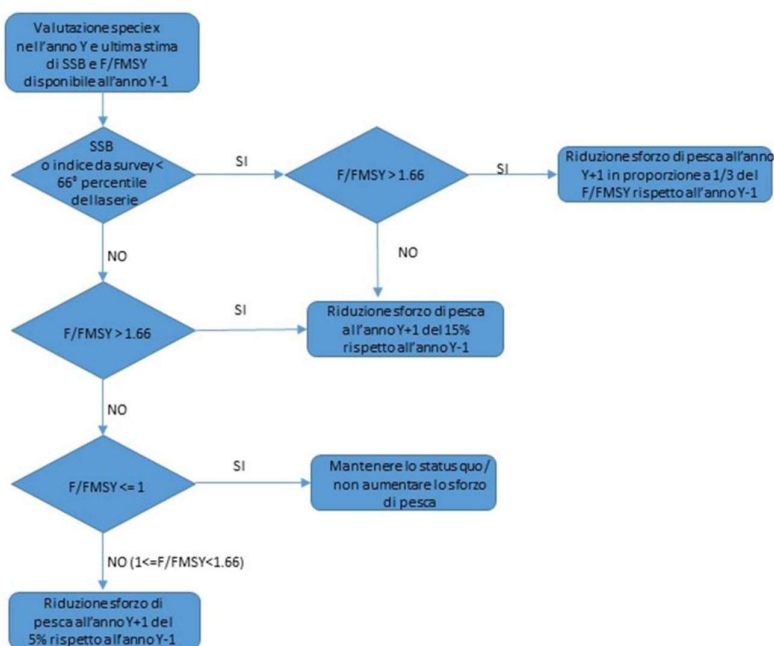
Overall Performance Indicator score	
Condition number (if relevant)	

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

The management plan of demersal resources in GSAs 17-18 is working towards reducing the exploitation rate of demersal resources, including deep-water rose shrimp, as a target species of the management plan. The assessment is updated each year, and the Italian Ministry oversees updating the HCRs depending on the results of the most recent assessment. The management plan provides a scheme for the update of HCRs depending on the stock assessment results:



According to recent estimates (STECF 2019), fishing effort by bottom trawl fleets in GSA 18 has been decreased by 28% between 2016 and 2018. Further reduction is foreseen by the Italian Ministry Decree n. 26510 of the 28 December 2018 by means of a reduction of fishing days. This is operatively applied through the control operated by the Coast Guard. Furthermore, fishing activity is monitored under the national programme of fisheries data collection.

According to the new GFCM MAP (GFCM 2019), in 2020 and 2021, a transitional fishing effort regime shall be established. CPCs shall jointly ensure that, by 2021, the overall fishing effort (number of fishing days) deployed by fleets actively fishing for key demersal stocks using bottom otter trawls (OTB), beam trawls (TBB), bottom pair trawls (PTB) and otter twin trawls (OTT) and operating in GSAs 17 and 18, shall be reduced by at least 12 percent for OTB

and 16 percent for TBB with respect to the annual effort exerted in 2015 or to the three-year average within the 2015–2018 period.

The SAC shall provide, on an annual basis, advice on the status of key stocks (including deep-water rose shrimp) in the Adriatic Sea, including specific objectives to maintain fishing mortality within agreed precautionary fishing mortality reference.

It is not clear if the HCR defined in the management plan (see chapter 10 of the Italian National Management Plan for GSA 17-18) are in place. Therefore, SG 60 is only met.

HCRs robustness to uncertainty				
b	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 foreseen in the management plan of demersal resources in GSAs 17-18 do not take into account any measure of uncertainty.

HCRs evaluation				
c	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

The Italian management plan of demersal resources and the new GFCM MAP in GSAs 17-18 provide tools that are appropriate to implement HCRs that are based on the reduction of fishing activity (in terms of days at sea) and fishing capacity (number of vessels) However, there is still no evidence the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs. As mentioned in section 7.4.1 and PI1.1.1, at GFCM WGSAD 2018, a combined assessment of deep-water rose shrimp in GSAs 17, 18 and 19 was presented. The assessment was run using a4a, and the stock resulted in overexploitation. This result is in line with the assessment presented in 2016 for GSAs 17-18 (with reference year 2015), while last year (WGSAD 2017) the stock in GSAs 17-18 resulted as sustainably exploited. In previous years, assessments were performed using SS3. Due to the fast increase in biomass shown by the MEDITS survey, the methods used to assess this stock appear not able to properly model the population dynamics, and they are providing unstable results in terms of F.

However, the large increase in biomass shown by the recent assessments and the MEDITS survey provides some evidence that F should not be far from FMSY level. This can be considered as evidence that HCRs are appropriate and effective in controlling exploitation.

The HCRs work on fishing effort reduction. According to STECF, the fishing effort by trawlers in GSA 18 has been decreased by 28% between 2016 and 2018. Further reduction is foreseen by the Italian Ministry Decree n. 26510 of the 28 December 2018. Therefore, this scoring guidance is met at SG60 only.

References

GFCM 2019. Recommendation GFCM/43/2019/5 on a multiannual management plan for sustainable demersal fisheries in the Adriatic Sea (geographical subareas 17 and 18) appendix 9 pag 85.
MIPAAFT 2018. Piano di Gestione Nazionale relativo alle flotte di pesca per la cattura delle risorse demersali nell'ambito delle GSA 17 (Mar Adriatico Centro-settentrionale) e GSA 18 (Mar Adriatico Meridionale). 106 pp.
MIPAAFT 2019. Modifica dei Piani di Gestione Nazionale relativi alle flotte di pesca per la cattura delle risorse demersali nell'ambito delle: GSA 9 (Mar Ligure e Tirreno Centro-Settentrionale);GSA 10 (Mar Tirreno Centrale e Meridionale) GSA 11 (Sardegna) GSA 16 (Stretto di Sicilia) GSA 17 e 18 (Mar Adriatico Centro-Settentrionale e Mar Adriatico Meridionale) e GSA 19 (Mar Ionio Occidentale). 5 pp.
STECF 2019. Stock Assessments part 2: demersal stocks in the western Mediterranean Sea (STECF-19-10). Publications Office of the European Union, Luxembourg, 2019, ISBN XXXXXX, doi:XXXXXXX, PUBSY No.

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	No
Rationale				
<p>Sufficient relevant information is available. Besides data used directly in the stock assessment (catch-at-age, survey and LPUE data), additional information includes biological parameters, and spatio-temporal distribution of juveniles and adults. Furthermore, information on socio-economic aspects and fishing effort are collected. Therefore, SG 80 is met.</p> <p>However, uncertainty still remains regarding stock boundaries. Therefore, SG 100 is not met.</p>				
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				
<p>Stock abundance and UoA removals are regularly monitored at a level of accuracy and coverage consistent with the harvest control rule; the MIPAAFT oversees the coordination of the monitoring programme, which is run under the EU DCF/EU-MAP. Data collected by scientists are sent to the MIPAAFT, which oversees data management. 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. The collection of biological and socio-economic data under the EU DCF/EU-MAP allows a constant monitoring of both the stock and the fisheries, thus providing updated information on the implementation of the harvest strategy to the MIPAAFT. Furthermore, the MEDITS surveys (performed each year in spring/summer) provides information on relative biomass and density, juveniles and adults, spatial distribution of nursery and spawning areas.</p> <p>The results of the monitoring activity and stock assessment are presented and discussed in dedicated meeting with the managers and stakeholders.</p> <p>Therefore, SG 80 is met.</p> <p>However, a good understanding of the inherent uncertainties is not available. Therefore, SG100 is not met.</p>				

C	Comprehensiveness of information		
	Guide post		There is good information on all other fishery removals from the stock.
	Met?		Yes

Rationale

Taking into consideration FAO AdriaMed regional project activities facilitating the cooperation among Adriatic countries is possible to conclude that information on all removal from all fleets and nations is well recorded and is appropriate for their use in the assessment.

References

List any references here, including hyperlinks to publicly available documents.

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
Appropriateness of assessment to stock under consideration				
a	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	No
Rationale				
<p>The stock size, fishing mortality rates and recruitment levels are estimated on an annual basis. The fishing mortality rate is compared to the reference points used by management.</p> <p>The principal assessment model is the SS3 (and a4a; Jardim et al., 2014)). The model is suitable for the available data; it 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. It is used by GFCM and STECF for a number of stocks and has been widely tested and is generally considered robust as long as the catch-at-age and survey data are reliable. As a further internal peer review, assessments are scrutinized by the GFCM SAC and STECF plenary. Therefore, SG 80 is met.</p> <p>The most recent assessments take into account combined GSAs (17-18 and 17-18-19) without having robust evidence on precise stock boundaries. The lack of knowledge on stock boundaries is one of the major issues regarding the understanding of the biology of the species. Therefore, SG 100 is not met.</p>				
Assessment approach				
b	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				
<p>The assessment estimates spawning stock biomass and fishing mortality on an annual basis and these estimates are directly comparable against the reference points that are appropriate to the species, as a matter of fact that, similar values of FMSY proxies for deep water pink shrimp are estimated in other areas.</p> <p>The reference points estimated are also appropriate for the specific stock, considering that input data are available from all the countries involved in the fishery (e.g.: Italy, Croatia, Montenegro and Albania).</p>				
Uncertainty in the assessment				
c	Guide post	The assessment identifies major sources of uncertainty.	The assessment takes uncertainty into account .	The assessment takes into account uncertainty and is evaluating stock status relative to reference points in a probabilistic way.
	Met?	Yes	Yes	No
Rationale				
<p>The current assessment model incorporates uncertainty in the input data derived from sampling considering that the stock assessment method is a Statistical Catch at Age model. The stock assessment includes estimation of uncertainty, but it does not provide probabilistic outputs indicating uncertainties. Therefore, SG 100 is not met.</p>				
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; all input data and relevant assumptions are reviewed and some alternative assessment approaches such as the a4a model are tested. Such activities are carried out both in the framework of GFCM and STECF. The a4a assessment has been tested through MSE approach by STECF (STECF, 2019).

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 FAO Adriamed regional project group itself and is peer reviewed by the SAC of GFCM. It is also peer reviewed for the EU by the Scientific, Technical and Economic Committee (STECF). However, there is no external review so far. This meets SG 80.

References

GFCM 2017. Working Group on Stock Assessment of Demersal Species (WGSAD). FAO headquarters, Rome, Italy, 13–18 November 2017. FINAL REPORT, 70 pp.

Jardim, E., Millar, C. P., Mosqueira, I., Scott, F., Osio, G. C., Ferretti, M., Alzorriz, N., and Orio, A. 2014. What if stock assessment is as simple as a linear model? The a4a initiative. – ICES Journal of Marine Science, doi: 10.1093/icesjms/fsu050.

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 2019. Multiannual Plan for the fisheries exploiting demersal stocks in the Adriatic Sea (STECF-19-02). Publications Office of the European Union, Luxembourg, 2019, ISBN 978-92-76-04009-5, doi:10.2760/026674, JRC116731

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)	

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 primary 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 otter trawl vessels allow for recording of catch other than main species (in MSC terms). The fishery is a mixed fishery targeting European hake, red mullet, spottail mantis shrimp, and deep-water rose shrimp, but with other demersal species taken as bycatch (Atlantic horse mackerel, common cuttlefish, musky- and horned octopus, Norway lobster, squids, and prawns). In 2015-16, hake represented ~16 % of the catch, while deep-water rose shrimp landings have fluctuated in the range of 7-8 % of the total (Table 2.1). Cumulative landings of other species of the demersal reached ~19 % of the total.

The dataset presented in Table 2.1 was provided by the BLUEFISH PROJECT (Stage 1.b) and it presents a summary of the main and minor species considered within Principle 2. In MSC terms, European hake, red mullet, spottail mantis shrimp, and common cuttlefish would be considered as main primary species for this fishery. While the minor species Norway lobster is another primary species. For the other species, since there is no direct management via reference points, they would have been considered secondary species. However, they are all currently managed through the MPs implemented by the Italian Ministry, and consequently all these species fall under the definition of Primary species.

The MSC Fishery Certification Requirements (FCR) v2.01 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 demersal trawlers operating in the Southern Adriatic Sea 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).

Expert working groups convened by STECF and GFCM in 2018 carried out analytical stock assessments for the following stocks in the Adriatic Sea: hake, red mullet, Norway lobster, deep water rose shrimp, common cuttlefish, sole and spottail mantis shrimp (STECF, 2018). Scientific advices on stock status are available for these species, and these advices have been operationalized by the relevant management authorities.

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 only management plan currently implemented specifically for Adriatic fisheries concerns the management of sardine and anchovy stocks. The Italian Ministry also implemented Management plans for demersal fisheries in GSA17 and GSA18 (see for details <https://www.politicheagricole.it/flex/cm/pages/ServeBLOB.php/L/IT/IDPagina/6896>), therefore, all the demersal 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 Adriatic Sea, the demersal trawl fisheries targeting European hake, red mullet, spottail mantis shrimp, deep-water rose shrimp, and Norway lobster are managed under the auspices of both GFCM and EU. In particular, to date management has been primarily based on technical measures, many of which have been implemented by Italy, Slovenia and Croatia 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 also by Montenegro and Albania. 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 2.2). 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 demersal trawlers operating in the Adriatic Sea GSA 18 made available by the Italian ministry for the purpose of this assessment shows that numerous other species are landed besides main species, albeit some in very small volumes (Table 2.1). The species listed in table 2.1 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.: Atlantic horse mackerel).

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. List of species detected for the UoA using demersal otter trawls (OT) for deep-water rose shrimp, *Parapenaeus longirostris* (DPS), in GSA 18 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
Nasello	European hake	1642.702	15.696	Primary	<i>Merluccius merluccius</i>	Main	No
Triglie di fango	Red mullet	1484.833	14.188	Primary	<i>Mullus barbatus</i>	Main	No
Pannocchie	Spottail mantis shrimp	935.117	8.935	Primary	<i>Squilla mantis</i>	Main	No
<u>Gamberi bianchi o rosa</u>	<u>Deep-water rose shrimp</u>	<u>823.827</u>	<u>7.872</u>	<u>P1</u>	<u><i>Parapenaeus longirostris</i></u>	-	-
Sugarello o suro	Atlantic horse mackerel	546.266	5.220	Secondary	<i>Trachurus trachurus</i>	Main	Yes
Seppia mediterranea o comune	Common cuttlefish	529.397	5.058	Primary	<i>Sepia officinalis</i>	Main	No
Moscardino muschiato	Musky octopus	521.335	4.981	Secondary	<i>Eledone moschata</i>	Minor	Yes
Moscardino bianco	Horned octopus	478.280	4.570	Secondary	<i>Eledone cirrhosa</i>	Minor	Yes
Scampi	Norway lobster	418.914	4.003	Primary	<i>Nephrops norvegicus</i>	Minor	No
Totano comune	Broadtail shortfin squid	408.820	3.906	Secondary	<i>Illex coindetii</i>	Minor	Yes
Calamaro mediterraneo	European squid	359.984	3.440	Secondary	<i>Loligo vulgaris</i>	Minor	Yes
Mazzancolle	Caramote prawn	331.300	3.166	Secondary	<i>Penaeus kerathurus</i>	Minor	No
Other (63 species)		1984.733	18.965		-	Negligible (percentage <2%)	

Source: estimates from MIPAAFT/National Fisheries Data Collection Programme and reported in the BLUEFISH PROJECT Stage 1.b (Deeper mapping/Annex IV – GSA 18)

Table 2.2. 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. GFCM/33/2009/1 -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 <i>Coryphaena hippurus</i> .	- 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	-

7.5.1.3. ETP species

Neither the Italian Ministry nor scientists reported any significant interactions between the demersal trawl 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.

The monitoring of the by catch of Endangered, Protected, threatened (EPT) species in fishing gears other than those already monitored under the Reg. EU 812/2004 has been performed in Italy for the first time in 2018. The study was implemented as “*Pilot Study 2: Level of fishing and impact of fisheries on biological resources and marine ecosystem - incidental by-catch of all birds, mammals and reptiles and fish protected under Union legislation and international agreements*”. It was included into the Italian National Workplan 2017-2019 as part of the activities foreseen under the EUMAP and following the recommendation of the Regional Coordination Group of Mediterranean and Black Sea (RCG Med&BS) held in Larnaka (Cyprus) in September 2017.

The selection of fishing gears to be monitored was based on the outcomes of the EU Project “*Strengthening regional cooperation in the area of fisheries data collection in the Mediterranean and Black Sea*” (MARE/2014/19 - SI2.705484: Spedicato, 2016) and the Regional Coordination Group Med&BS 2017. In the light of the available information, it was decided to perform the monitoring of the by catch of otter bottom trawl fisheries in 2018. All the Italian GSAs (GSAs 9, 10, 11, 16, 17, 18 e 19) are included in the monitoring programme. The methodology used for the monitoring of the incidental by catch of EPT species is the one proposed by the EU Project “*Strengthening regional cooperation in the area of fisheries data collection in the Mediterranean and Black Sea*” (MARE/2014/19 - SI2.705484: Spedicato, 2016). Independent observations made by trained observers are considered as the most reliable and useful means of collecting data on the by catch of vulnerable species. However, these programmes can be quite expensive. Therefore, it was decided to couple a fleet observer programme with a self-sampling monitoring scheme. Integration of self-reporting tools with observer programmes allows also for cross-checking and review of self-reported data.

In Italy, the observer program conducted under Regulation (EC) no. 812/2004 is an ad-hoc monitoring program in which observers are trained to collect not only data on cetacean bycatch, but also additional data on bycatch of other protected species under the Habitats Directive. A total of 196 days were monitored on board 15 pelagic pair trawlers between GSA 16 (3 vessels) and GSA 17 (12 vessels) in 2017, which represent 14.7% coverage of the national midwater trawl fleet. 3 bottlenose dolphins (*Tursiops truncatus*) were accidentally caught in GSA 17 (Chioggia, north-ern Adriatic Sea). Observers from the monitoring programme were also trained to collect bycatch data of other PETS under HD (i.e. *loggerhead turtles*) and species of conservation concern (e.g. sharks, pelagic rays and skates). 3 loggerhead turtles (*Caretta caretta*) and a large number of sharks and rays were taken as bycatch in GSA 17. However, the report records only 3 starry rays (*Raja asterias*) and 2 common eagle rays (*Myliobatis aquila*) were unintentionally caught in GSA 16. Unfortunately, similar data are not available for bottom trawl fisheries. By catch occurrence and absence data provided through self-sampling are very useful in flagging up by catch hotspots, which could be missed by a limited number of on-board observations. This is particularly true because bycatch rates may be very low and so will be missed by low numbers of on-board observations. Self-reporting fishers were trained by observers so that species identification could be validated by trained observers and specialists.

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 an increased pleasure boating and development as the main concern.

Scientific data indicates that the populations of all ETP species encountered in the Adriatic Sea are part of distinct Mediterranean populations (Wallace et al., 2010; Faria et al., 2012; IUCN, 2012), with both green and loggerhead turtles found in the Adriatic closely related to turtle populations nesting in the Eastern Mediterranean (Wallace et al., 2010).

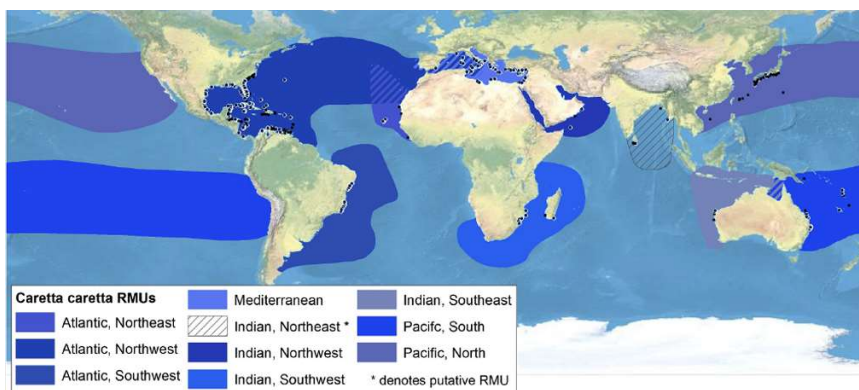


Figure 2.1 Regional management units for loggerhead turtles; nesting sites are represented by black squares. Source: Wallace et al. (2010).

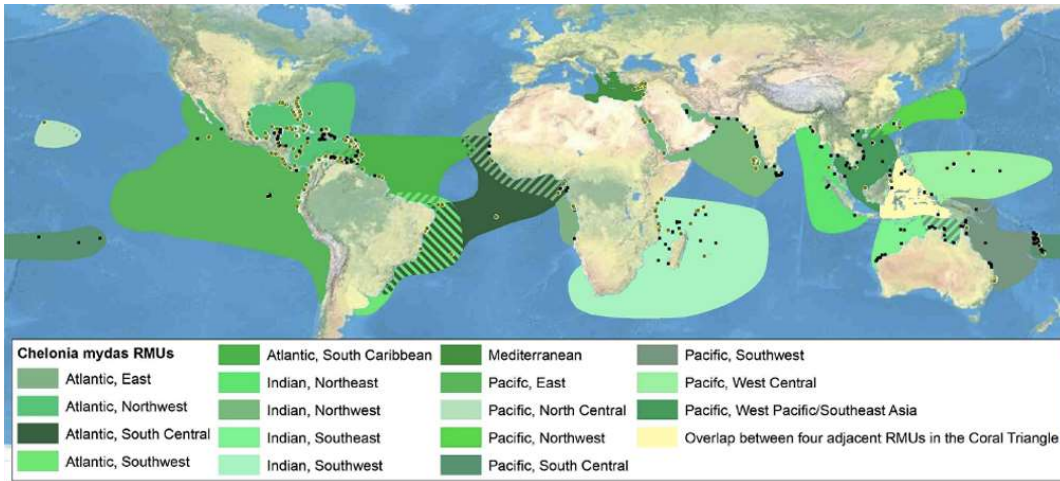


Figure 2.2 Regional management units for green turtles; nesting sites are represented by black squares. Source: Wallace et al. (2010).



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 basin of the Southern Adriatic is connected to the Northern Ionian Sea through the Otranto Channel, which represents the area in which an annual flow of water masses of 35 million m³ is conveyed. The circulation of water

masses is typically cyclonic (Artegiani et al., 1997). In the basin flow the Dense Waters of the Northern Adriatic (NADW), the Deep Waters of the Adriatic (ADW) and the Intermediate Waters Levantine (LIW).

The NADW Dense Waters (cold waters) flow from north to south along the western continental shelf, the deep waters originate in the lower Adriatic basin, while the warmer and salty Levantine intermediate waters enter the northern Ionian through the Otranto Channel and flow in a south-north direction along the eastern coasts of the Adriatic. These masses of water make the funds of the eastern part of the southern basin characterized by higher aline and thermal regimes than the western part (Artegiani et al., 1997). The superficial current present along the western coasts instead pushes the masses of water from the Adriatic to the Ionian. Thanks to the presence of these flows, the basin of the Southern Adriatic is characterized by the mixing of the cooler and less salty Adriatic waters and the Ionian waters, with higher temperatures and salinity (Vilicic et al., 1995).

As for the bathymetry, the maximum depth of the southern Adriatic is 1,233 m in the so-called 'Bari pit'. This depression has rather asymmetrical contours with the steepest eastern escarpment. The western area shows substantial differences in the two northern and southern portions; the first, where the Gulf of Manfredonia is located, has a wide continental shelf (distance between the coast line and the 200 m of depth equal to 45 nautical miles) and a slightly steep slope; the second one, on the other hand, has small islands of close depth, so that the 200 m are reached about 8 miles from Capo d'Otranto.

The presence and distribution of marine flora and fauna, as well as the main ecological characteristics of the basin are linked to environmental and morphological differences (Marano et al., 1998). The demersal species have landed on both the western and eastern sides of the basin with a respective distribution of 97 % and 3 % (MIPAAFT, 2017).

The area potentially exploited by trawlers is 15,000-17,000 km² (70% on the western side, 30 % on the eastern side). The extension of the trailing area has a positive gradient from south to north of the basin.

The Southern Adriatic has a lower level of use than the northern one, as it is characterized mainly by deep habitats. Similarly, to the northern basin there are facies and typical associations of mobile funds such as facies with *Ophelia* sp. and facies of dead leaves of *Posidonia oceanica* and other phanerogams. It contains a batial basin and includes a large depression that reaches about 1,200 m depth. The open area is dominated by the biocoenoses of offshore and debris funds.

Furthermore, in accordance with the Convention on Biological Diversity, the southern Adriatic and Ionian Strait are considered as significant EBSA areas (EBSA: Ecologically or Biologically Significant Areas). These areas contain important habitats for marine mammals such as *Ziphius cavirostris*, a species of Annex II of the Protocol concerning Protected Areas and Biological Diversity in the Mediterranean (SPA / BD Protocol) under the Barcelona Convention and significant densities of other iconic species such as *Mobula mobular*, *Stenella coeruleoalba*, *Monachus monachus* and *Caretta Caretta*, all listed in Annex II to the SPA / BD Protocol. Biocenosis of batial mud and white corals are present on hard substrates.

The Southern Adriatic Sea is considerably deeper than the northern basin. Its average depth is 900 m, and its deepest part is the 1,300 m deep Adriatic pit. Through the Strait of Otranto the basin is connected to the Mediterranean Sea. Despite this, the productivity of this basin is quite high when compared with other Mediterranean areas having a similar geomorphology. The reasons for this situation have been understood thanks to the oceanographic studies carried out in the Adriatic date back to the last century. However, systematic and regular measurements in the central and southern Adriatic began in the 1950s. Measurements of temperature, salinity, transparency, oxygen and phosphate were carried out on a monthly basis. In the 1960s, primary production was included in the measures carried out in the middle Adriatic. Based on the standard oceanographic parameters, it is known that the entry of Mediterranean waters is an important factor, which has caused an increase in productivity in the southern Adriatic Sea. During these periodical "ingressioni", the waters of the Mediterranean, relatively rich in nutrients, are transported in the Adriatic, increasing the productivity of the oligotrophic waters of the middle and southern Adriatic. The increase in productivity is supposed to occur mainly due to the flow of phosphorus from the eastern Mediterranean. Furthermore, an increase in temperature and salinity on an annual scale is also observed, which coincided over time with such "ingresses". A certain regularity has been observed in production fluctuations year after year and related to the passage of water from the Mediterranean to the Adriatic. A change in the composition of phytoplankton species was observed, as was increased biomass and a modified species composition in zooplankton communities. Over the years it has been found that a stronger input of water from the Mediterranean coincides with a higher primary production, a greater biomass of zooplankton and changes in the composition of the species.

The most important feature of the Mediterranean waters that enter the Adriatic (in the middle layer) is their high salinity. This high salinity is characteristic of the Levantine basin, which has one of the highest salinities of all the seas in the world (> 39 psu). The temperature of the Levante waters is higher than that of the Adriatic waters, so that the "income" is also reflected on the temperature. Referring to these phenomena and to certain climatic factors, it has been stated that the most important factor that enhances the water exchange between the two basins is the horizontal pressure gradient in the eastern Mediterranean. Many studies until the 1970s showed that the intensity of water exchange between the Adriatic and the Ionian Seas was the most important factor in long-term production fluctuations in the central and southern Adriatic.

Also, Marasovic et al. (1999) observed the irregular increase in primary production in southern Adriatic waters and linked it to periods of intensified influxes of Mediterranean waters in the Adriatic Sea carrying higher amounts of nutrients. Their results confirm that the increase in primary biological production is related to the intensified influx of Mediterranean water into the Adriatic. However, these authors hypothesize that the upwelling, reported south of Palagruza, caused by the intense influx of Mediterranean waters, causes the enrichment of the waters of the southern Adriatic by "native" nutrients already present in this area.

In the southern Adriatic there are *Cymodocea nodosa*, *Ruppia maritima* and *Posidonia oceanica*. While the presence of the first two is circumscribed in small parts of the Apulian coast, the second is uniformly distributed on both the Italian and Albanian side and Montegrino (Figure 2.5).

In the Southern Adriatic some information on the distribution of coralligenous are available for Albania, while no information is officially available for Montenegro, although there are internal reports that refer to the presence of bioconstructions (Figure 2.6). In Puglia there are many areas characterized by the presence of coralligenous funds (Figure 4.4.4.1), while they seem to be absent mäerl bottoms.

This deep coral biocoenosis is constructed from so-called white corals or cold-water corals (CWC), which include two main branched forms: *Lophelia Pertusa* and *Madrepora oculata*, which are a relict species of the Quaternary cold fauna. The peculiar geomorphology of the deep basin of the southern Adriatic determines the optimal conditions for a wide coverage of CWC (Savini et al., 2014). This biocoenosis (Figure 4.4.4.2) develops a complex 3D habitat providing shelter, breeding sites and nursery areas for many associated species and is of key importance as attractors and shelter for deep-sea fish fauna (D'Onghia et al., 2012)

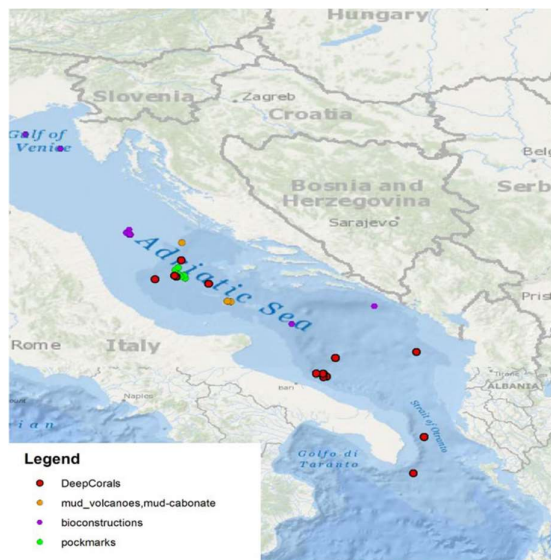


Figure 2.5. Map of the distribution of coralligenous bottoms in the southern Adriatic (Giannoulaki et al., 2013).

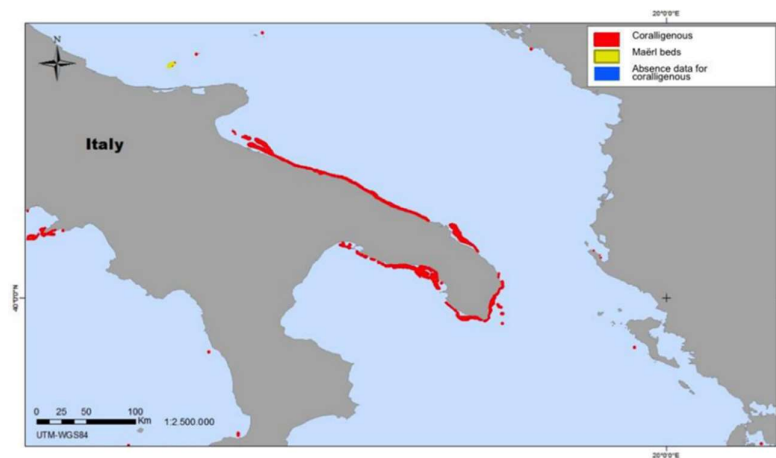


Figure 2.6. Map of the distribution of coralligenous bottoms in the southern Adriatic (Giannoulaki et al., 2013).

7.5.1.5. Ecosystem

The GSA 18 is located entirely in the Adriatic ecoregion together with the GSA 17. In this area, based on the analyzes conducted by Piroddi et al. (2016), the trend of the biomass of the different functional groups shows a decline for some of the apical predators, demersal and pelagic fishes and some invertebrates (Figure 2.7). In particular, the model was able to capture the sharp decline in pinnipeds observed in the Adriatic since the mid-70s and the less marked decline in small demersal fish observed in the mid-1990s. The model has captured some of the patterns observed for hake, sharks and stingrays, which suggest a decline of these functional groups until the late 90s, followed by a slight increase or fluctuations (in the case of hake) in last years of the period studied.

An overall satisfactory correspondence was found between the expected and available data for bentopelagic cephalopods where a decrease was observed from the beginning of the investigation period and for benthic cephalopods and crustaceans. Once again, the model does not represent well the trends for deep fish. As for the small pelagics, when the model uses the anomaly of primary production as a driver, it is not able to reflect the decreasing tendency of the biomass observed in the anchovies, while it has been able to collect a general decline for sardines. However, when using primary production estimated by a biogeochemical model, the ecosystem model is able to follow the sharp decline observed in anchovies in the mid-'70s and also slightly improve the estimate of sardine decline (Figure 2.7).

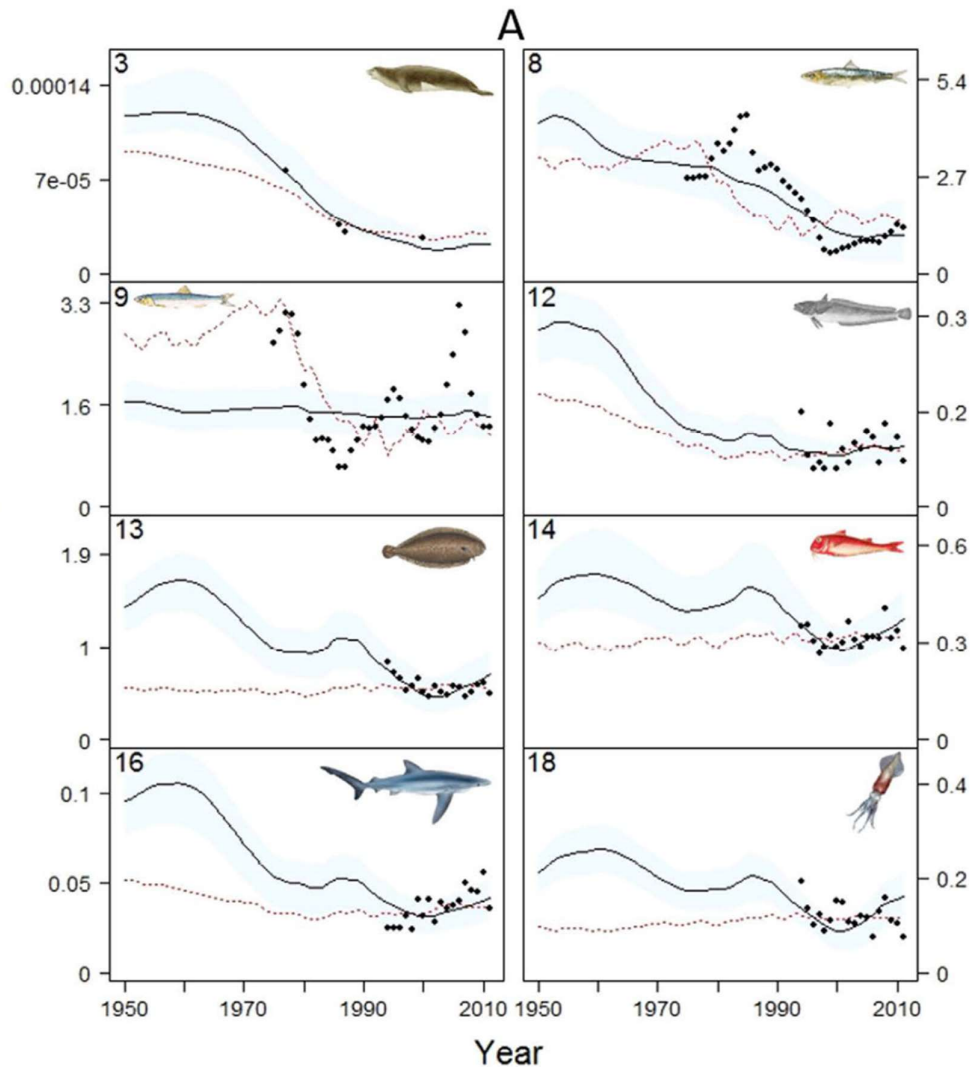


Figure 2.7. Representation of the results of the ecosystem model for some functional groups that are observed in the Adriatic Sea for the period 1950-2011 (Piroddi et al., 2016).

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																		
<p>According to the last available assessment, most of the primary main species listed in Table 2.1 are above PRI. The most updated evaluation of the demersal Adriatic stocks is available in STECF-EWG 19-16 (see: https://stecf.jrc.ec.europa.eu/documents/43805/2574657/STECF+19-16+-+MED+demersal+assess+II.pdf/b3f4cb53-3302-4c9a-a77a-2433e5299280?version=1.2&download=true). The EWG assessed European hake, red mullet, spottail mantis shrimp and common cuttlefish in the Adriatic Sea. The report provided B_{lim} values only for European hake. However, it is possible to assume that B_{loss} is an adequate proxy for PRI considering the increase of recruitment patterns observed for all the stocks after the lowest value of biomass. For all the stocks, except for spottail mantis shrimp, the current biomass seems to be highly likely above B_{lim} (see table below). Therefore, SG 80 is met.</p> <table border="1"> <thead> <tr> <th></th> <th>Current Biomass (tons)</th> <th>PRI (=B_{lim} or B_{loss}) (tons)</th> </tr> </thead> <tbody> <tr> <td>European hake</td> <td>3,820</td> <td>1,858</td> </tr> <tr> <td>Red mullet</td> <td>10,928</td> <td>4,000</td> </tr> <tr> <td>Spottail mantis shrimp</td> <td>10,851</td> <td>10,500</td> </tr> <tr> <td>Common cuttlefish</td> <td>27,100</td> <td>11,500 (PRI = 0.5 B_{MSY})</td> </tr> </tbody> </table> <p>However, considering that most of the stocks are in overfishing ($F > F_{MSY}$ or proxies) since several years is not possible to conclude that they are fluctuating around levels consistent with MSY. Therefore, SG 100 is not met.</p>					Current Biomass (tons)	PRI (=B_{lim} or B_{loss}) (tons)	European hake	3,820	1,858	Red mullet	10,928	4,000	Spottail mantis shrimp	10,851	10,500	Common cuttlefish	27,100	11,500 (PRI = 0.5 B _{MSY})
	Current Biomass (tons)	PRI (=B_{lim} or B_{loss}) (tons)																
European hake	3,820	1,858																
Red mullet	10,928	4,000																
Spottail mantis shrimp	10,851	10,500																
Common cuttlefish	27,100	11,500 (PRI = 0.5 B _{MSY})																
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?			Yes
Rationale			
<p>The only primary species designated as “minor” was the Norway lobster. The most updated evaluation of the demersal Adriatic stocks is available in STECF-EWG 19-16 (see: https://stecf.jrc.ec.europa.eu/documents/43805/2574657/STECF+19-16+-+MED+demersal+assess+II.pdf/b3f4cb53-3302-4c9a-a77a-2433e5299280?version=1.2&download=true). The EWG assessed the current biomass of Norway lobster (current Biomass = 4867 tons) to be above Blim (as Blim = 40% BMSY; 1947 tons). Therefore, SG 100 is met.</p>			
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				
<p>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). Moreover, according to the GFCM MAP (GFCM, 2019), in 2020 and 2021, a transitional fishing effort regime shall be established. CPCs shall jointly ensure that, by 2021, the overall fishing effort (number of fishing days) deployed by fleets actively fishing for key demersal stocks using bottom otter trawls (OTB), beam trawls (TBB), bottom pair trawls (PTB) and otter twin trawls (OTT) and operating in GSAs 17 and 18, shall be reduced by at least 12 percent for OTB and 16 percent for TBB with respect to the annual effort exerted in 2015 or to the three-year average within the 2015–2018 period. Italy already applied in 2019 a reduction of 8% of the fishing days of bottom trawlers (see https://www.politicheagricole.it/flex/cm/pages/ServeAttachment.php/L/IT/D/2%252Ff%252F5%252FD.f724ac77bb3954e28553/P/BLOB%3AID%3D13693/E/pdf). Therefore, there is a partial strategy in place meeting SG 80. 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.</p>				
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				
<p>There are a number of management measures in place to regulate fisheries in the Adriatic 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 for otter trawls being implemented in the Adriatic 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.</p>				
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 available effort data as well as enforcement and control information there is some objective basis for confidence that the measures are being implemented successfully in the UoA. Moreover, from the stock assessment outputs (see 2.1.1a) most of the stocks are above PRI. Therefore, SG 80 is met.

The management strategy for otter trawls currently implemented in the Adriatic concerns the management of the main demersal species (e.g., hake, Norway lobster, red mullet, musky and horned octopus), and the process of adopting sub-regional management plans for other stocks by the relevant authorities has yet to be finalised. The otter trawl fisheries 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. Therefore, SG 100 is not met.

	Shark finning			
d	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 primary 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).

	Review of alternative measures			
e	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 v2.01: ‘If there is no unwanted catch of primary species (see Mannini and Sabatella 2015), or no primary species at all, then the ‘Review of alternative measures’ scoring issue (e) is not scored.’

References

GFCM 2019. Recommendation GFCM/43/2019/5 on a multiannual management plan for sustainable demersal fisheries in the Adriatic Sea (geographical subareas 17 and 18) appendix 9 pag 85
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	Information sufficient to score PI

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
Information adequacy for assessment of impact on main primary species				
a	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				
<p>The UoA is subject to both EU and GFCM fisheries data collection requirements.</p> <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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. <p>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 DCRF is based on seven different tasks:</p> <ul style="list-style-type: none"> • 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) <p>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 the Adriatic Sea. The available catch data indicates that there are in fact no main primary species caught by this fishery. Therefore, SG 60 and 80 are met.</p> <p>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 in the Adriatic Sea (STECF 16-08, 2016) for instance included:</p> <ul style="list-style-type: none"> • 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 dues to changes in methodology and survey timing. <p>Therefore, SG 100 is not met.</p>				

Information adequacy for assessment of impact on minor primary species			
b	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 in the Adriatic Sea – SG 100 is met.

Information adequacy for management strategy				
c	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 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 Adriatic Sea would be adequate to support a partial strategy to manage main primary species. Moreover, the management plan for bottom trawl fisheries in the Adriatic Sea constitutes a partial strategy to manage primary species since management measures (e.g. season and area closures) will also influence such species. Moreover, the stock assessments available for most of the species (see 2.1.2a) is a clear evidence that information are collected and are adequate for a partial strategy to manage main primary species. Therefore, SG 60 and SG 80 are met. There is currently no cohesive and strategic arrangement to manage 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 – Therefore, 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	Information sufficient to score PI

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	<p>Main secondary species are likely to be above biologically based limits.</p> <p>OR</p> <p>If below biologically based limits, there are measures in place expected to ensure that the UoA does not hinder recovery and rebuilding.</p>	<p>Main secondary species are highly likely to be above biologically based limits.</p> <p>OR</p> <p>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.</p> <p>AND</p> <p>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.</p>	<p>There is a high degree of certainty that main secondary species are above biologically based limits.</p>
	Met?	NA	NA	NA
Rationale				
The only main secondary species is the Atlantic horse mackerel. The stock was not assessed therefore, a PSA analysis was applied (see section 8.3). The MSC PSA-derived score was 95				
b	Minor secondary species stock status			
	Guide post			<p>Minor secondary species are highly likely to be above biologically based limits.</p> <p>OR</p> <p>If below biologically based limits', there is evidence that the UoA does not hinder the recovery and rebuilding of secondary species</p>
	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)	Yes

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 is a size limit, as well as technical measures (foreseen in the 1967/2006 Med Reg.). Monitoring is in place with an Acoustic survey (MEDIAS) conducted every year and commercial catches are collected. Moreover, the GFCM multiannual management plans of both demersal and small pelagic fisheries in the area 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 GFCM management plans are recently applied and therefore, there is not 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			
	Guidepost	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 *T. trachurus* are considered to be negligible considering the data available for GSA 18 (OTB) in Mannini and Sabatella 2015 and Giordano et al. (2017).

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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
Information adequacy for assessment of impacts on main secondary species				
a	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. and Giordano et al., 2017.				
Information adequacy for assessment of impacts on minor secondary species				
b	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.				
Information adequacy for management strategy				
c	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, catch, discard data and catch-at-size are available, sufficient to support a partial strategy made up of technical measures and size limit (see Mannini and Sabatella, 2015, Giordano et al., 2017) 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.

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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				
<p>Scientific data indicates that the populations of all ETP species encountered in the Adriatic Sea - loggerhead turtle (<i>Caretta caretta</i>), green turtle (<i>Chelonia mydas</i>), bottlenose dolphin (<i>Tursiops truncatus</i>), and striped dolphin (<i>Stenella coeruleoalba</i>) - are part of Mediterranean populations, which are recognised as distinct regional management units (Wallace et al., 2010; IUCN, 2012).</p> <p>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. 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.</p>				
b	Direct effects			
	Guide post	Known direct effects of the UoA are likely to not hinder recovery of ETP species.	Direct effects of the UoA are highly 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				
<p>In accordance with the reporting requirements of EC Council Regulation 812/2004, in Mediterranean data describing fishing effort, monitoring/sampling effort and incidental bycatch of cetaceans only pelagic trawl must be covered. Data describing monitoring/sampling effort and incidental bycatch of all protected species (including cetaceans) recorded from any other monitored gear types (demersal trawls, lines etc.) are covered under national data collection programmes (e.g. DCF etc.). Considering the information collected during the site visit direct effects of the UoA are likely to not hinder recovery of ETP species. Therefore, SG60 is met.</p> <p>However, the detrimental precise direct effects of the UoA on the ETP species are not known and is not clear if they are highly likely to not hinder recovery of ETP species – SG 80 is not met.</p>				
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				
Evidences on detrimental precise indirect effects are unknown for the UoA and cannot be considered to not create unacceptable impacts – SG 80 is not met.				
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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	
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Condition number (if relevant)

PI 2.3.2 – ETP species management strategy

PI 2.3.2		<p>The UoA has in place precautionary management strategies designed to:</p> <ul style="list-style-type: none"> - meet national and international requirements; - ensure the UoA does not hinder recovery of ETP species. <p>Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species</p>		
Scoring Issue		SG 60	SG 80	SG 100
Management strategy in place (national and international requirements)				
a	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				
<p>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. However, it is possible to assume that the following species have a potential interaction with the UoA (see Lucchetti and Sala, 2010; STECF 2019):</p> <p><u>Loggerhead & Green Turtle</u></p> <p>Several provisions exist at EU, regional and GFCM level which enables management of fisheries impacts on sea turtle populations:</p> <ul style="list-style-type: none"> • 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). <p><u>Bottlenose & Striped Dolphin</u></p> <p>Several provisions exist at EU, regional and GFCM level which enables management of fisheries impacts on cetacean populations:</p> <ul style="list-style-type: none"> • 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.

Management strategy in place (alternative)				
b	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.

Management strategy evaluation				
c	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	No	No

Rationale

Since the implementation of the new EU MAP (Multi-Annual Program see: https://stecf.jrc.ec.europa.eu/c/document_library/get_file?uuid=d58d411c-5c74-46fb-980b-5ec16167b100&groupId=43805) there is the requirement to increase and assess the implementation of additional monitoring of protected species. Such requirement has been implemented in the Italian data collection work plan 2017-2020 (see https://datacollection.jrc.ec.europa.eu/documents/10213/1131890/Italy_WorkPlan_2017-2019.pdf/5be89aee-3ae0-4414-9c67-803778e49711), which requires, among other things, that in the fishing log books of trawlers are registered all the interactions with ETP species. Bottom otter trawl logbooks operating in the Adriatic Sea can provide a basis for confidence that the implemented management strategy is likely to work. Also, during the site visit was evidenced that ETP species (especially turtles) were always released alive, and dolphin incidental catch levels were quite low. According to the evidences collected during the site visit the UoA follows the previous requirements, therefore, SG 60 is met. However, there is at present no objective basis for confidence that these measures worked based on available information. As STECF (2019) pointed out, there is a need for increased regional, national, and international long-term monitoring and research programs to protect ETP species – SG 80 is not met.

Management strategy implementation				
d	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

Evidence that the management strategy is being implemented successfully is available from data collected by log book, the related comprehensive annual report on the implementation of EC 812/2004 which is submitted by all EU

Member States on an annual basis, and the subsequent evaluation carried out by the ICES Working Group on Bycatch of Protected Species (ICES, 2015). Moreover, there is a lack of systematic non-compliance in this fishery about the incidental catch of ETP species as evidenced during the site visit. Therefore, SG 80 is met. However, the log-book data of the UoA are not available to estimate the lethal captures for ETP species and related post-release mortality of by-catch. There is thus no clear evidence that the strategy is being implemented successfully – SG 100 is not met.

Review of alternative measures to minimize mortality of ETP species				
e	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

Guidelines to reduce sea turtle mortality in fishing operations were issued by the Food and Agriculture Organisation (FAO) of the United Nations in 2009. These guidelines include a review of the potential effectiveness and practicality of alternative measures to minimise sea turtle bycatch, as well as information on best practices for sea turtle handling and release. Moreover, 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 based on a review of the potential effectiveness of acoustic deterrent devices. In addition ACCOBAMS has issued a series of recommendations and resolutions to minimise mortality of cetaceans as a result of by-catch (Recommendations: 1.1, 1.2, 2.2, 4.2, 4.11, 4.12, 6.7; Resolutions: 2.13, 4.9). The latter are partly based on the outcome of a workshop on 'Interactions between Dolphins and Fisheries in the Mediterranean: Evaluation of Mitigation Alternatives' which was sponsored by the Italian government's Institute for Applied Marine Research (Istituto Centrale per la Ricerca Scientifica e Tecnologica Applicata al Mare, ICRAM) in 2001 (Reeves et al., 2001). There has thus been a review of the potential effectiveness and practicality of alternative measures to minimise cetacean by-catch in Mediterranean fisheries. According to the evidences collected during the site visit the UoA follows the previous requirements. Therefore, SG 60 is met

However, there are no provisions for a regular (i.e. at least once every 5 years) review of the potential effectiveness and practicality of alternative measures to minimise by-catch mortality included in the FAO guidelines (FAO, 2009) or ACCOBAMS guidelines, and in fact the documents have not been updated since their publication. 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. Therefore, SG 80 is not met.

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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: <ul style="list-style-type: none"> - 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
Information adequacy for assessment of impacts				
a	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?	Yes	No	No
Rationale				
<p>Quantitative information on by-catch of ETP species (including loggerhead & green turtles, bottlenose & striped dolphins) from trawlers comes from the Italian data collection work plan 2017-2020 (see https://datacollection.jrc.ec.europa.eu/documents/10213/1131890/Italy_WorkPlan_2017-2019.pdf/5be89aee-3ae0-4414-9c67-803778e49711), based on log book data. Council Regulation (EC) No 812/2004 of 26 April 2004 on protecting cetaceans against incidental catches requires that monitoring schemes with independent on-board observers are set up, for priority fisheries. For small sized vessels (measuring less than 15 m in length), where an observer cannot remain on board, data on incidental catches of cetaceans should be collected through scientific studies or pilot projects. Whilst this regulation is concerns cetacean bycatch, observers are also trained to collect additional data on bycatch of other species of conservation concern as sea turtles, including the loggerhead turtle (<i>Caretta caretta</i>) and the green sea turtle (<i>Chelonia mydas</i>), the leatherback turtle (<i>Dermochelys coriacea</i>) and the olive ridley turtle (<i>Lepidochelys olivacea</i>); seabirds, including Balearic shearwater (<i>Puffinus mauretanicus</i>) and Scopoli's shearwater, Audouin's gull (<i>Larus audouinii</i>), the Balearic and Yelkouan shearwaters (<i>P. yelkouan</i>) and Mediterranean shag (<i>Phalacrocorax aristotelis desmarestii</i>). Observers are also trained to collect data on some sharks and rays species with conservation concern as elasmobranch species included in the IUCN Red List of Threatened Species (see www.iucn.org/sites/dev/files/content/documents/brochure_medredlist_sharks.pdf).</p> <p>EU Member States are required to report annually on the implementation of the on-board observer programme, and to include all information collected on the incidental captures in these annual reports. The ICES Working Group on Bycatch of Protected Species (WGBYC) subsequently collates and assesses this information (ICES, 2015). Such data and the information obtained during the site visit can represent a sort of qualitative background and potential information adequate to estimate the UoA related mortality on ETP species. Therefore, SG 60 is met. However, quantitative information on UoA related impacts are not yet available, thus SG 80 is not met.</p>				
Information adequacy for management strategy				
b	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			
<p>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.</p>			
References			
<p><i>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.</i></p> <p><i>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.</i></p> <p><i>STECF, 2019. Scientific, Technical and Economic Committee for Fisheries (STECF) – Review of the implementation of the EU regulation on the incidental catches of cetaceans (STECF-19-07), 2019, Sala A., Konrad C., and Doerner H. (eds.). Publications Office of the European Union, Luxembourg, ISBN 978-92-76-11228-0, JRC117515, doi:10.2760/64091, 105 pp</i></p>			

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 2.4.1 – 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
Commonly encountered habitat status				
a	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	No	No
Rationale				
<p>It is widely acknowledged that extensive areas of soft bottom habitats are present in the Adriatic Sea (Vatova (1949; Gamulin-Brinda, 1967; Scardi et al., 1999; Jenkins, 2008, Piras et al., 2016). These soft bottoms show a general pattern of changing from sand to muddy / detritic bottoms with increasing distance from the shore (Brambati et al., 1983). According to the information acquired during the site visit the UoA targeting pink shrimp is fishing in deep waters, as confirmed by the spatial distribution of the species.</p> <p>Bottom trawlers operate in contact with benthic habitats and/or species. The fishing net is configured to interact with the seabed during the actual fishing operation. However, damage to the Mediterranean-type gear is likely to occur in hard bottom rocky substrata. Since, fishing operations usually take place over soft and flat bottom habitats and considering the maps presented below, the assessment team considers that 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 – SG 60 is met.</p> <p>However, considering the lack of UoA specific data about the spatial distribution of the fishing effort, it is not possible to conclude 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. The team also stresses that there is not an 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 80 and 100 are not met.</p>				
VME habitat status				
b	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				
<p>Information on the distribution of VME habitats in the Adriatic 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 (http://mareaproject.net/medviewer/). 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). In addition to these legislative instruments there are at present 25 Marine Protected Areas (MPAs) in the Adriatic Sea (including coastal MPAs which partly cover marine areas); 21 of these MPAs are in the eastern Adriatic including 17 in Croatia (Bastari et al., 2016). 4 additional MPAs are currently in the planning phases: 2 in Albania and 2 in Central Italy (Randone, 2016). These protected areas are strictly enforced by the Italian coastguard, who monitor the location of fishing vessels through VMS. Indeed fishing vessels of the UoC are aware of the location of protected areas, which are highlighted on their on-board navigation system.</p>				

In the area exploited by the UoA the following VME are present (see BLUEFISH - deeper-mapping annex-iv_final-eng for more details):

- Marine seagrasses
- Coralligenous (Figure below)
- Deep coral biocoenosis (Figure below)

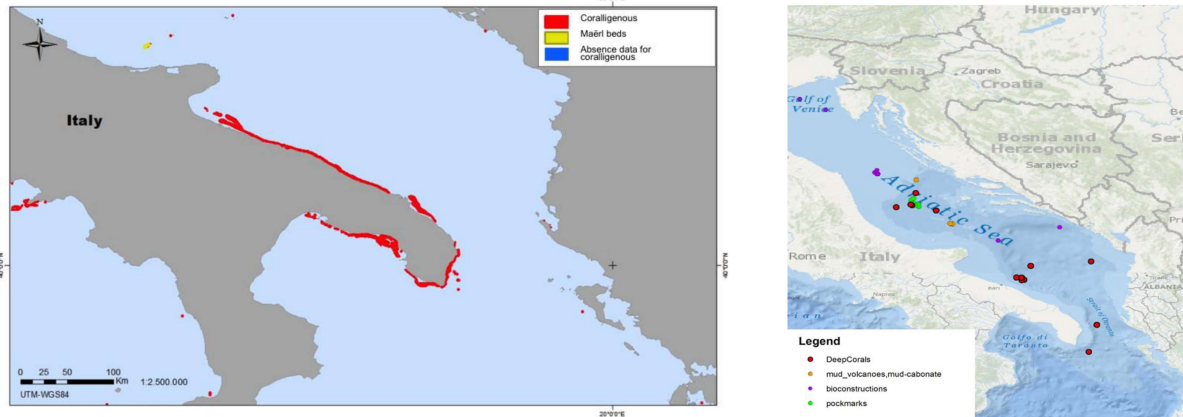
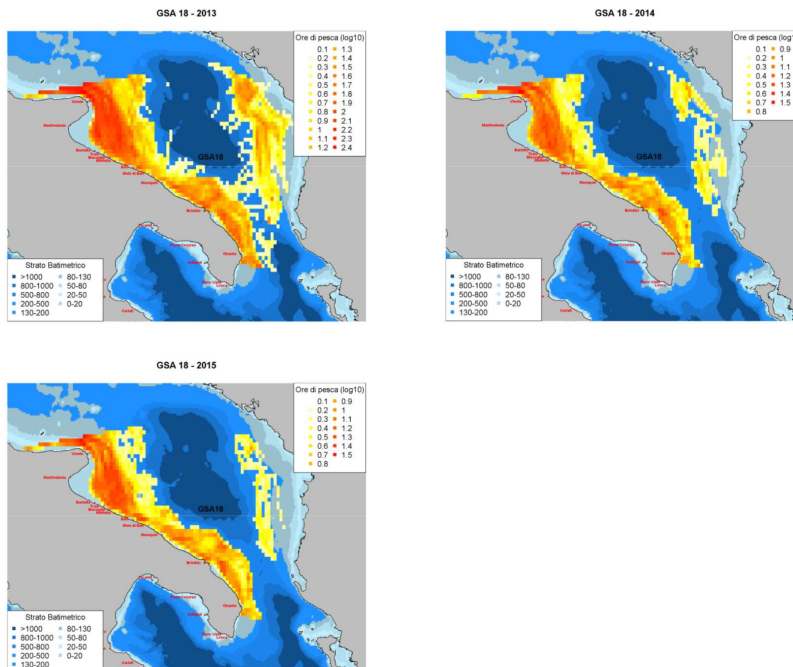


Figure 4.4.4.2 – Map of the distribution of coralligenous (left) and deep-sea coral in the Adriatic Sea (right, Angeletti et al.,2014). Source BLUEFISH - deeper-mapping annex-iv_final-eng

Since the location of VMEs is well known, a number of effective management measures are in place to protect VMEs from fishing in the area where the UoA operates, and these measures are being adequately implemented by the local authorities and appear to be respected by fishers as evidenced during the site visit, the assessment team considers that the UoA is unlikely to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm. Taking also into account that the UoA is targeting a stock present in deep water areas characterized by muddy bottom. Therefore, SG 60 is met.

Precise information on the location of fishing grounds of the UoA based on data from satellite-based Vessel Monitoring System (VMS) was not available to the assessment team. The maps available (figure below) from the VMS are for the entire trawl fleet as reported in Annex IV of the deeper mapping report (see: https://www.msc.org/docs/default-source/it-files/e-deeper-mapping_annex-iv_final-eng.pdf?sfvrsn=279fad4e_0) shows overlapping between fishing activity and VMEs areas. 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.



Fishing activities of the trawling fleet in the GSA18. The values represent the average fishing hours per cell, calculated from the monthly hours for the years 2013 to 2015 (MIPAAFT, 2017).

Minor habitat status			
C	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 the Adriatic Sea 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 of the UoA 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.

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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	No
Rationale				
<p>Benthic habitats in general, and sensitive habitats in particular are protected from the impact of fishing gears by EU legislation:</p> <ul style="list-style-type: none"> - 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. <p>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.</p> <p>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.</p> <p>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 60 and 80 are met.</p> <p>However, considering that Precise information on the location of fishing grounds of the UoA based on data from satellite-based Vessel Monitoring System (VMS) was not available to the assessment team, there is no evidence strategy in place for managing the impact of all MSC UoAs/non-MSC fisheries on habitats – SG 100 is not met.</p>				
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 (i) the variety of measures in place to reduce the impact of fisheries in general, and bottom trawl fisheries in particular on the benthic habitats (see scoring issue (a) above for details), and (ii) available studies assessing the habitat impacts of fishing (e.g. Lucchetti and Sala, 2012; Lucchetti et al., 2018), there is some evidence that the measures are likely to work – 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?		Yes	No
Rationale				
There is some quantitative evidence that the measures/partial strategy is being implemented successfully, for example: <ul style="list-style-type: none"> - Several coastal / marine Natura 2000 sites have been established in the Adriatic Sea in line with the EEC 92/43; - Protected areas, temporal closures and fishing gear restrictions are being 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). The UoA has a good compliance record, with regards to respecting areas and seasons closed to fishing. The assessment team thus considers that SG 80 is met.				
Clear quantitative evidence that the strategy is being implemented successfully and is achieving its objective is lacking – SG 100 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	No	No
Rationale				
Some qualitative evidence that the UoA complies with its management requirements to protect VMEs was showed during the site visit and consists of: <ul style="list-style-type: none"> - 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 is met. However, considering the lack of detailed maps of spatial distribution of the UoA fishing effort it is not possible to conclude that 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. Therefore, SG 80 is not met.				
References				
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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	<p>The types and distribution of the main habitats are broadly understood.</p> <p>OR</p> <p>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.</p>	<p>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.</p> <p>OR</p> <p>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.</p>	<p>The distribution of all habitats is known over their range, with attention to the occurrence of vulnerable habitats.</p>
	Met?	Yes	Yes	No
Rationale				
<p>The Adriatic Sea 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:</p> <p>Minor habitats</p> <ul style="list-style-type: none"> - A3: Infralittoral rock and other hard substrata - A4: Circalittoral rock and other hard substrata <p>Main habitats:</p> <ul style="list-style-type: none"> - 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) <p>A map of soft bottom habitats in the Adriatic Sea 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, maerl and seagrass habitats across the entire Mediterranean, including the Adriatic Sea, 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.</p> <p>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.</p>				

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.

Information adequacy for assessment of impacts

b	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.	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.	The physical impacts of the gear on all habitats have been quantified fully.
		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.	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.	
Met?	Yes	No	No	

Rationale

Information on the impacts of bottom trawlers on benthic habitats 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 used on the main habitats, including spatial overlap of habitat with fishing gear. – SG 60 is met.
However, this interaction cannot be quantified at UoA level, due to the lack of spatial distribution of the fishing effort specific for the UoA. Therefore, SG 80 is not met.

Monitoring

c	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

Although the information about the spatial distribution of the UoA was not available to the assessment team, the UoA's area of operation is continuously monitored by the relevant authorities using VMS data. EU Member States have also the 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 the Adriatic Sea – SG 100 is not met.

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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 2.5.1 – 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				
<p>Coll et al. (2007) developed a trophic mass-balance model to characterise the food web of the Northern and Central Adriatic which can be considered acceptable also for the western side of the Southern Adriatic and described a total of forty functional groups, including target and non-target fish, invertebrate groups and detritus groups. The model highlighted that there is important coupling between benthic and pelagic production of detritus, benthic invertebrates and plankton. Organisms characterising mainly the low and medium trophic levels, but also the upper trophic levels were important in terms of keystone and total effects: phytoplankton, micro and mesozooplankton, suprabenthos (amphipods, cumaceans, isopods), benthic invertebrates (echinodermata, mollusca, crustacea), anchovy and dolphins were all ranked highly.</p> <p>A subsequent review of functional groups acting as keystones in the Mediterranean Sea food webs confirmed this unique combination of suprabenthos, micro- and mesozooplankton, dolphins and small pelagic fish in structuring the Adriatic Sea ecosystem, 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. According to the list of species fished by the otter trawl fishery in GSA 18 (see Table 4.4.3.1 in https://www.msc.org/docs/default-source/it-files/e-deeper-mapping_annex-iv_final-eng.pdf?sfvrsn=279fad4e_0) the most important taxa are characterized by species that according to the models available are not key elements of the ecosystem structure. Therefore, it is highly unlikely that the UoA can disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm. – SG 60 and SG 80 are met.</p> <p>The assessment team observed that there is no data available for the UoA in term of catch composition. Therefore, is not possible to conclude that there is a clear 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. SG 100 is thus not met for these scoring elements.</p>				
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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 consider 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	No
Rationale				
<p>In 2007 the European Union adopted an Integrated Maritime Policy (IMP) which seeks to provide a more coherent approach to maritime issues. Key parts of the IMP with respect to ecosystem management are sea basin strategies established under the Marine Strategy Framework Directive and marine plans established under the Maritime Spatial Planning Directive.</p> <p>The Marine Strategy Framework Directive (MSFD) sets the strategic context for managing ecosystem impacts. The overall goal of the MSFD is to attain “Good Environmental Status” (GES) across Europe’s marine environment by 2020.</p> <p>The MSFD enshrines in a legislative framework the ecosystem approach to the management of human activities having an impact on the marine environment, integrating the concepts of environmental protection and sustainable use.</p> <p>In order to achieve its goal, the Directive establishes European marine regions and sub-regions based on geographical and environmental criteria. The Directive lists four European marine regions, as the Mediterranean Sea and the Black Sea located within the geographical boundaries of the existing Regional Sea Conventions. Cooperation between the Member States of one marine region and with neighbouring countries which share the same marine waters, is already taking place through these Regional Sea Conventions.</p> <p>In order to achieve GES by 2020, each Member State is required to develop a strategy for its marine waters (or Marine Strategy). In addition, because the Directive follows an adaptive management approach, the Marine Strategies must be kept up-to-date and reviewed every 6 years.</p> <p>The separate Maritime and Spatial Planning Directive complements the MSFD. This directive requires Member States to draw up Maritime Spatial Plans that are consistent with, and help to implement, all of the other elements of the IMP (including the MSFD). The Maritime plan within the EU that is relevant to this UoA is Italian National Marine Plan, which was published in 2016 and now is going to be updated.</p> <p>The management strategies implemented by the EU and followed by Italy for the Unit of Assessment area meet the SG60 & 80 requirements for this SI, because the key elements of the ecosystem (target and non-target species, the ETP and the habitat) are clearly considered in the strategy. Moreover, the spatial restrictions envisaged by the 1967/2006 Med regulation clearly restrain the impact of the UoA on the ecosystem (e.g. ban of trawling on seagrass and maerl beds).</p> <p>However, considering that there is not a clear knowledge of all main impacts of the UoA, SG 100 is not met.</p>				
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 demersal fisheries (MIPAAF 2018) 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 SG60 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.

Management strategy implementation				
C	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 in this moment has not clear evidence that the management strategy is being implemented successfully – SG 80 is not met.

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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

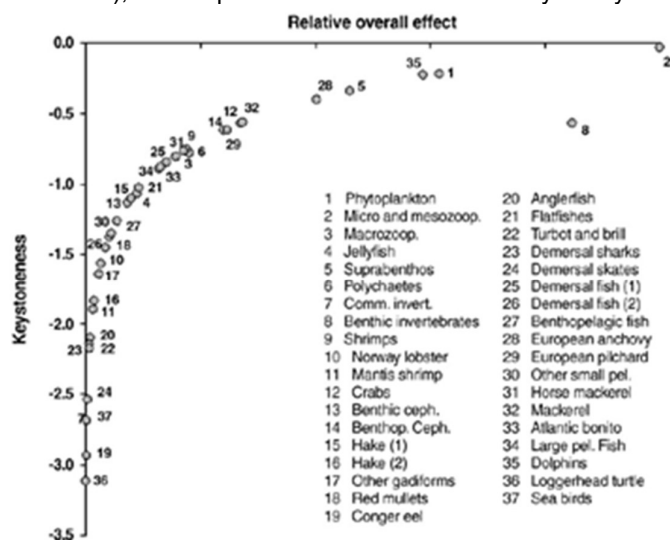
Overall Performance Indicator score	
Condition number (if relevant)	

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 Northern and Central Adriatic which can be considered acceptable also for the Southern Adriatic 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 keystone 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 (ϵ_i) and keystone index (KS_i) of functional groups in the Adriatic Sea ecosystem. Keystone groups are those with higher ϵ_i and higher KS_i (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 Adriatic Sea ecosystem.

Besides identifying these functional groups as key elements, these studies also describe their role in the Adriatic ecosystem. 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	No	No

Rationale

Bottom trawlers operate in contact with benthic habitats and/or species. The fishing net is configured to interact with the seabed during the actual fishing operation. However, damage to the Mediterranean-type gear is likely to occur in hard bottom rocky substrata. Since, fishing operations usually take place over soft and flat bottom habitats, 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). From such studies is possible to infer the main impacts of the UoA on these key ecosystem elements. Therefore, SG 60 is met.

However, considering the lack of data in term of catch composition of the UoA and its spatial distribution is not possible to conclude that the main impacts of the UoA have been investigated in detail. Therefore SG 80 is not met.

Understanding of component functions

c	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

As detailed in report sections 2.3 (P1 target species) and 2.4.1 – 2.4.4, (P2 primary / secondary / ETP species and habitats) impacts of the fishery on ecosystem components have been identified. Numerous ongoing / past research projects have contributed to our understanding of the Adriatic ecosystem in general, and on the main functions of ecosystem components. 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 the Adriatic Sea is one of the most studied areas of the Mediterranean Sea, and that as such SG 80 and SG 100 are met.

Information relevance

d	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?		No	No

Rationale

Considering the lack of data in term of catch composition of the UoA and its spatial distribution is not possible to conclude that adequate information is available on the impacts of the UoA. Therefore SG 80 is not met.

Monitoring

e	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 fisheries Data Collection Framework (DCF) implemented by European Member States / the Data Collection Reference Framework (DCRF) implemented through the GFCM: Data on fishing effort, catches and discards are routinely collected for the UoA. Fisheries independent data is collected through the scientific surveys MEDITS (Mediterranean International Trawl Survey), MEDIAS (Mediterranean International Acoustic Survey) and SOLEMON (survey for the study of flatfish stocks in the central and northern Adriatic Sea).
- 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 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 the Adriatic Sea is ongoing (see report section 2.4.5 for examples of relevant research projects) 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.

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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)	

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7.6 Principle 3

7.6.1 Principle 3 background

The UoA consists of stock Deep-water rose shrimp shared between EU Member States (Italy and Croatia) and third countries (Montenegro and Albania).

The fishery area of operation is FAO Central Mediterranean Subarea 37.2 - Adriatic Division 37.2.1; Geographical Sub-Area 18 (Southern Adriatic).

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). These rules continue to apply to vessels fishing outside EU waters, including outside the EEZs of the Member States in North Adriatic (although the Italian vessels are shown to not operate beyond the Italian EEZ).

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 2016-2020¹, 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

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

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.

The vessels are required to report the location and quantity of species retained daily 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.

The Commission and MIPAAFT are the major donors of the ADRIAMED FAO regional project. ADRIAMED aims to promote scientific cooperation among the Adriatic nations. Its goal is to improve the management of fishing activities in conformity with the Code of Conduct for Responsible Fisheries (FAO 1995).

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 considering 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 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 demersal stocks in the Adriatic Sea are mainly Italy, Croatia and Slovenia. 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.

This amount is above the average levels of discarding and with the de minimis derogation in place, there has been very limited impact from the landing's obligation to date.

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 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. 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 program 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 countries².

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 region³.

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. 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*” (hereafter 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 18, 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/>). However, from the interaction with stakeholder during the site visit was clear that the level of inspection is quite high, and the number of infringements is relatively low.

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 (MEDAC⁴). 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, (including the Southern Adriatic).

The Italian fishery sector itself is organized within co-operatives, many of which are also Producer Organizations (an EU-recognized marketing body that often also acts as a representative of its members). Federpesca⁵ and Federcoopesca⁶ are umbrella bodies that represent these numerous sector organisations at a national level and are members of MEDAC.

The Italian ministerial decree of 30th January 2018 adopts new management plans for demersal stocks in GSA 17-18 (MIPAAFT, 2018a). The decree clearly defines the objective to recover the status of the demersal stocks within biological limits. In December 2018 the Italian administration (MIPAAFT, 2018b) with a specific directorial decree (Prot. 26510 of 28.12.2018) modified the previous management plans for demersal species GSA 17 and 18. The modified management plan adopts a reduction of fishing effort in 2019 and 2020 of 8% in relation to the mean fishing days observed in the

⁴ <http://en.med-ac.eu/index.php>

⁵ <http://www.federpesca.it>

⁶ <http://www.federcoopesca.it>

period 2015-2017. Moreover, the modified plan foreseen further changes in fishing effort in the period 2021-2023 in accordance with the evaluation of the stock status observed in 2020.

CO-OPERATION IN FISHERIES MANAGEMENT

Shared management for key stocks has been developed in recent years. The Adriatic Fishing District was founded by the Ministerial Decrees in 2010 and 2012, in accordance with EC legislation enabling the identification of fishing areas which apply rules of common governance. Cross-border projects are ongoing between Italian districts and Croatian and Slovenian fishing communities targeting shared Northern Adriatic resources.

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 and observes of Assopesca Molfetta and Cooperativa Santa Lucia in Manfredonia.

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.

FISHERY-SPECIFIC MANAGEMENT

For the Adriatic demersal fisheries, GFCM, EU and Italian Ministry has developed a number of measures, which together should be considered the Management Plan for the fishery:

- GFCM defined mesh size regulation for trawl fishery;
- EU Med Reg 1976 defined a MLS for the species;
- Italian Ministry established a management plan for demersal species in place in December 2018, characterized by both technical measures (area closure), effort and capacity reduction.

STECF in 2019 was requested to test the performance of HCRs for Adriatic Sea stocks of hake, sole, deep water rose shrimp, red mullet, Nephrops and spottail mantis shrimp. The HCRs were based in (i) effort management and catch limits for sole and Nephrops, (ii) two options of intermediate period effort reductions and (iii) two options of spatial management, the sole sanctuary and 6nm closures. Additionally STECF was required to estimate areas of high persistence of adults or juveniles for the same stocks (see <https://stecf.jrc.ec.europa.eu/reports/management-plans>).

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: <ul style="list-style-type: none"> - 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
		Compatibility of laws or standards with effective management		
a	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>

As the UoA includes shared stocks (Fiorentino et al., 2015) that are subject to international cooperation for management, at the SG100 level for scoring issue (a), the following is required:

- The existence of national laws, agreements and policies governing the actions of the authorities and actors involved in managing the UoA,
- That binding legislation exists governing comprehensive international cooperation under the obligations of UNCLOS Articles 63(2), 64, 118, 119, and UNFSA Articles 8 and 10, and
- That cooperation under the RFMO/arrangement, and the actions of the RFMO, shall demonstrably and effectively deliver UNFSA Article 10.

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.

		Resolution of disputes		
b	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	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

			and that is appropriate to the context of the UoA.	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.

The Contracting Parties to the GFCM endorsed the "Amended Agreement for the establishment of the General Fisheries Commission for the Mediterranean" at the GFCM 38 Annual Session on 19-24 May 2014.

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.

	Respect for rights			
C	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.

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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	No
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 functions and relationships between these management, industry and advisory groups are, therefore, explicitly defined and understood by key areas of responsibility (SG80 is met). However, during the site visit was not completely clear if all the anglers involved in the specific fishery had a direct participation and understood all areas of responsibility or only the representative of the fishery cover such role. Therefore, SG 100 is not 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				

MEDAC 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.	encouragement for all interested and affected parties to be involved and facilitates their effective engagement.
	Met?		Yes	Yes

Rationale

The reform of the CFP with a greater emphasis on regionalization and sea basin-level management, enhancing the role of the MEDAC at regional level and developing Fisheries Local Action Group (hereafter FLAG) at local level, along with the development of the Better Regulation Guidelines ensures more effective consultation and is a recent improvement in performance. MEDAC is involved at regional level for the consultation about the discard plan of the species. Therefore, the consultation process provides opportunity and encouragement for all interested and affected parties (NGOs are also part of MEDAC) to be involved, and facilitates their effective engagement, meeting 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

The Italian Management plans for demersal fishery in GSA 17-18 and the new GFCM MAP (GFCM 2019) have defined long term objectives. However, these are only implicit in the Italian and GFCM management plans and explicit objectives solely focus on the 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

GFCM 2019. Recommendation GFCM/43/2019/5 on a multiannual management plan for sustainable demersal fisheries in the Adriatic Sea (geographical subareas 17 and 18) appendix 9 pag 85.

Italian Demersal Management Plan GSA 17-18

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	Yes	
Rationale				

The GFCM develops binding recommendations that are required to be implemented by the GFCM contracting parties. Those recommendations are drafted based on advice from the Scientific Advisory Council (SAC), which is the only body able to provide advice directly to the GFCM. Submissions from other parties (e.g. European Union) can also be considered.

The GFCM checks compliance by those parties required to implement the binding recommendations and reports on the extent to which this has been achieved. In particular GFCM decision (RES-GFCM/33/2009/1) on the management of demersal fisheries in the GFCM area, foreseen reduction of a minimum of 10 % of bottom trawling fishing effort that shall be applied in all GFCM areas

Both Italy and GFCM developed specific management plan for the demersal fishery in this area, which a represent a clear formulation of a decision-making processes that result in measures (e.g. fishing effort limit) and strategies (data collection, scientific advice, effort restriction, etc.) to achieve the fishery-specific objectives (MSY level). Therefore, SG 80 is met.

Responsiveness of decision-making processes				
b	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 that both MIPAAFT and GFCM have identified a series of issues in the monitoring (e.g.: the need to improve the stock assessment models and data collection, discard plans) and amendments have occurred in order to respond to serious issues in the fishery (SG60 is met), but there is no evidence that all issues are taken into account, as the lack of management measures to reduce the exploitation and the impact of the UoA. Therefore, SG80 is not met.

Use of precautionary approach	
c	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 and STECF, using the best available data collected in the EU-MAP. A clear evidence of the use of a precautionary approach is the use of reference points (e.g. F0.1) more precautionary than FMSY (see 1.1.1). Therefore, SG 80 is met.

Accountability and transparency of management system and decision-making process				
d	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. Moreover, also the management decision of both GFCM and MIPAAFT are available to the public. Work to date, as stock assessment forms and compliance reports, are 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				

In working through the SAC and General Council, along with the establishment of specific working groups that involve all contracting parties, the GFCM is proactively attempting to avoid legal disputes through the agreement of advice and resulting decisions. To improve governance and avoid any legal challenges in the GFCM Area the understanding of the relationships between environmental and socio-economic issues is considered necessary. The GFCM work programme involved all main users of marine spaces in the GFCM Area, beginning with fishermen and managers. An efficient way to do this is to build upon the cooperative framework established between the GFCM and partner organizations based on provisions in adopted Memoranda of Understanding. Similarly, ongoing cooperation with FAO Regional Projects is facilitated to be reinforced by this work programme (see: <http://www.fao.org/gfcm/activities/technical-assistance-and-cooperation/fwp-info/en/>). A participatory approach is foreseen in the GFCM mid-term strategy (see: http://www.fao.org/fileadmin/user_upload/faoweb/GFCM/News/Mid-term_strategy-e.pdf) to legitimate a consensus-based decisions process for management, also considering the elaboration of multiannual management plans. As a result, it will be possible to elicit better compliance with regulations in place. Similarly, also at national level the Italian Management Plan foreseen a clear governance (see chapter 8) that would avoid any legal challenge. SG 80 is met.

However, evidence on how this governance both in GFCM and at National is acting proactively are lacking. Therefore, SG 100 is not met.

References

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 Adriatic 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 "Ecomafia" 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.

Sanctions				
b	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.

Compliance				
c	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, in particular was evidenced how the coast guard makes several controls on the mesh of the codend and due to the spatial distribution of the target species (deep water) the fishery occurs in areas outside the 3nm from the coast, the figures reported in 2.4.1 is an evidence that trawling is active outside 3 nm. This can meet SG 60.

However, there is not any evidence that the fishery complies with the management system (e.g. reduction of fishing days foreseen in 2019 by the Italian MP will be available next year). Therefore, SG 80 is not met.

Systematic non-compliance			
d	Guided post		There is no evidence of systematic non-compliance.
	Met?		Yes
Rationale			

Some stakeholders during the site visit did report non-compliance (i.e. fishing within 3 nautical miles), but this was recognized as an occasional occurrence and not indicative of systematic non-compliance. It is also important to stress that the target species is not present in coastal waters. Therefore, it is possible to assume that there is not a systematic non-compliance in term of distance from the coast. Also, during the site visit was confirmed that the fishery is using regular trawl net in term of mesh size.

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 less than 80 and a condition should be considered here.

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 demersal fishery in GSA 17-18 are not evaluated therefore, SG 80 is not met.

Internal and/or external review				
b	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	No
Rationale				

The fishery-specific management system is subject to regular internal review of the Italian management plan revised every 5 years, also an external review from STECF in carried out occasionally only. Therefore, SG 100 is not met.

References

Overall Performance Indicator (PI) Rationale

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

8 Appendices

8.1 Assessment information

8.1.1 Small-scale fisheries

Considering the information gathered during the site visit 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 visits and engagement with stakeholders were carried out:

- 23/05/2019 – Engagement with stakeholders of MIPAAFT and GFCM
- 04/06/2019 – Site visit in Molfetta in Assopesca – Cooperativa Santa Lucia Manfredonia
- 05/06/2019 – Site visit in CNR-IRBIM – discussion about assessment and data collection
- 07/06/2019 – Site visit at MEDAC headquarters Rome.

8.2.2 Recommendations for stakeholder participation in full assessment

The following stakeholders should be involved in the full assessment:

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

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)	<i>Trachurus trachurus</i>	
Attribute	Rationale	Score
Average age at maturity	The average age at maturity is 2-3 years (https://www.fishbase.se/Reproduction/MaturityList.php?ID=1365&GenusName=Trachurus&SpeciesName=trachurus&fc=314)	1
Average maximum age	Life span is known to be about 5 year in the Adriatic Sea (https://www.fishbase.se/popdyn/PopCharSummary.php?ID=1365&GenusName=Trachurus&SpeciesName=trachurus&fc=314&vStockcode=1383&autoctr=1001)	1
Fecundity	Females produce between 4,000 and 50,000 of eggs (https://www.fishbase.se/Reproduction/FecundityList.php?ID=1365&GenusName=Trachurus&SpeciesName=trachurus&fc=314&StockCode=1383)	1
Average maximum size	The average maximum size in the Adriatic Sea is 40 cm. (https://www.fishbase.se/popdyn/PopCharSummary.php?ID=1365&GenusName=Trachurus&SpeciesName=trachurus&fc=314&vStockcode=1383&autoctr=1001)	1
Average size at maturity	The average size at maturity in the Adriatic Sea is 16.5 cm. (https://www.fishbase.se/Reproduction/MaturityList.php?ID=1365&GenusName=Trachurus&SpeciesName=trachurus&fc=314)	1
Reproductive strategy	The Atlantic horse mackerel is a Broadcast spawned. (https://www.fishbase.se/Reproduction/FecundityList.php?ID=1365&GenusName=Trachurus&SpeciesName=trachurus&fc=314&StockCode=1383)	1
Trophic level	Trophic Level 3.7 - Based on diet studies. (https://www.fishbase.se/summary/Trachurus-trachurus.html)	2
Density dependence Invertebrates only	NA	2
Susceptibility		
Fishery Only where the scoring element is scored cumulatively	<i>Bottom trawl in GSA 18</i>	
Attribute	Rationale	Score

Areal Overlap	The species is a pelagic fish distributed in the entire Southern Adriatic. Therefore, the fishery overlaps for more than 30%.	3
Encounterability	The species is a pelagic fish distributed in the entire water column and has a depth range 0 - 1050 m, usually 100 - 200 m (https://www.fishbase.se/summary/Trachurus-trachurus.html). Considering that the trawl gear has a vertical opening of 2-3 m from the bottom the vertical overlap is considered low.	1
Selectivity of gear type	Small individuals are frequently caught by trawl nets. (see Giordano et al., 2017).	3
Post capture mortality	The species is always retained or discarded dead.	3
Catch (weight)	5220 tons of catches in 2015-2016 average (see table 2.1).	

Only main species scored?		Species							Productivity Scores (1-3)										Susceptibility Scores (1-3)				Cumulative only				MSC PBA derived		Risk Category: High		MSC scoring grid/total
Scoring element	First of each scoring element	Species Grouping only (D) 'At Risk' species by selecting associated species group	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	Frondity	Average max size	Average age at maturity	Reproductive strategy	Trophic level	Density Dependence	Global Productivity (0-10)	Availability	Encounterability	Selectivity	Post-capture mortality	Total multiplication	MSC PBA Score	Catch (tons)	Weighting	Weighted Total	Weighted Risk Score	MSC PBA derived	Risk Category: High	MSC scoring grid/total	
1st				Carangidae	Trachurus trachurus	Atlantic horse mackerel	Non-silverfish	Bottom trawl														8	5220	100	2,01	2,01	5	Low	380		

Reference:

Giordano, D., Perdichizzi, A., Pirrera, L., Perdichizzi, F., Greco, S., (2017). *Trachurus trachurus*. In: P. Sartor, A. Mannini, R. Carlucci, E. Massaro, S. Queirolo, A. Sabatini, G. Scarcella, R. Simoni (eds) "Sintesi delle conoscenze di biologia, ecologia e pesca delle specie ittiche dei mari italiani / Synthesis of the knowledge on biology, ecology and fishery of the halieutic resources of the Italian seas"

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.

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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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