Algarve octopus pot & trap fishery

Pre-Assessment Report

Company	FishFix
Fishery client	Marine Stewardship Council
Assessment Type	Pre-assessment
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1 Contents

2 Glossary

AIS	Automatic Identification System
CA	Consequence Analysis
CFP	Common Fisheries Policy
EC	European Commission
EFCA	European Fisheries Control Agency
EMFF	European Maritime and Fisheries Fund
ETP	Endangered, Threatened or Protected species
EU	European Union
FAO	Food and Agriculture Organisation of the United Nations
HCR	Harvest Control Rules
ICES	International Council for the Exploration of the Sea
IUU	Illegal, Unreported and Unregulated fishing
MCS	Monitoring, Control and Surveillance
MPA	Marine Protected Areas
MS	EU Member States
MSC	Marine Stewardship Council
NGO	Non-Governmental Organisation
OEL	Onboard Electronic Logbook
PI	Performance Indicator
PO	Producer Organisation
PRI	Point Recruitment is Impaired
PSA	Productivity Susceptibility Analysis
RBF	Risk Based Framework
SI	Scoring Issue
STECF	Scientific, Technical and Economic Committee for Fisheries
TAC	Total Allowable Catch
UoA	Unit of Assessment
UoC	Unit of Certification
UNCLOS	United Nations Convention on the Law of the Sea
UNFSA	United Nations Fish Stocks Agreement
WWF	World Wide Fund for Nature
VME	Vulnerable Marine Ecosystem
VMS	Vessel Monitoring System

3 Executive summary

The Algarve octopus pot & trap fishery pre-assessment was carried out through the Cephs and Chefs (www.cephsandchefs.com/) project funded through the Interreg Atlantic Area Program by the European Regional Development Fund, which aims to develop new markets and products based on cephalopods (squid, octopus, cuttlefish), increase the profitability of the value chain, and help to make fishers more competitive in the Atlantic Area. The pre-assessment was carried out with MSC Fisheries Standard 2.01, with Lisa Borges as expert for P1 and P3 and team leader, and Lucia Revenga as expert for P2. A site visit was conduct to Olhão, Faro and Lisbon, to carry out interviews of the main stakeholders in this fishery, namely industry associations, scientists, environmental NGOs and government authorities.

The main strengths of the Algarve octopus pot & trap fishery is its low environmental impact, with low number of bycatch species and no ETP species affected, while the impact on the bottom is low. There is also no indication that the octopus stock, considered at the Algarve region, is decreasing, while all indicators points to a healthy although naturally variable stock. However, there is widespread non-compliance with fisheries management measures, namely with the maximum number of pots and traps allowed and the high number of lost pots, traps and lines in the seafloor which can cause ghost fishing, there is considerable landings of undersize octopus associated to black landings, and no formal assessment of the stock.

The fishery has automatically failed 6 PI (<SG60) in Principle 1, 2 and 3. There are additional 8 PIs that scored between SG60-79 and would therefore require conditions to improve. In addition, considering that are several PIs <SG80, the overall scoring of P1 and P3 will likely be below SG80 which will result in an overall failure of the fishery. In summary, the fishery has several significant weaknesses and is therefore not consistent with the MSC Fisheries Standard.

4 Sumário executivo

A pré-avaliação da pesca de polvo no Algarve com covos e armadilhas foi realizada no âmbito do projecto “Cephs and Chefs” (www.cephsandchefs.com/) financiado pelo Interreg Atlantic Area Program do European Regional Development Fund, o qual tem como principais objectivos desenvolver novos mercados e produtos tendo como base espécies de cefalópodes (lula, polvo, choco), aumentar a rentabilidade da cadeia de valor, e ajudar a tornar os pescadores mais competitivos na área do Atlântico. A pré-avaliação foi realizada com base no MSC Fisheries Standard 2.01, com a Lisa Borges como especialista para P1e P3 e como líder de equipa, e Lucia Revenga como especialista para P2. Foram realizadas visitas a Olhão, Faro e Lisboa, para fazer entrevistas aos principais agentes de interesse desta pescaria, nomeadamente associações de industriais, cientistas, ONGs ambientais e autoridades governamentais.

O ponto forte da pescaria com covos e armadilhas é o seu reduzido impacto ambiental, com um número reduzido de espécies acessórias e ETP espécies afectadas, sendo o impacto no fundo do mar baixo. Também não existe indicação que o stock de polvo, considerado na região do Algarve, está a diminuir, com todos os indicadores a sugerirem um stock saudável embora naturalmente variável. Contudo, existe um não cumprimento generalizado das medidas de gestão, nomeadamente com o número máximo de covos e armadilhas permitidas, e no número elevado de covos, armadilhas e linhas perdidas no fundo marinho que podem causar “ghost fishing”, de existerem consideráveis desembarques de indivíduos de polvo abaixo do tamanho minimo e não existe uma avaliação formal do stock.

A pescaria falhou automaticamente 6 PI (<SG60) nos Princípios 1, 2 e 3. Outros 8 PIs adicionais que pontuaram entre SG60-79 e que portanto, irão requerer condições para melhorar. Além disso, considerando que existem vários PIs < SG80, a pontuação total de P1 e P3 será provavelmente abaixo de SG80 o que irá resultar na reprovação da pescaria. Em resumo, a pescaria tem várias debilidades/pontos fracos pelo que não é consistente com o Standard do MSC para as pescas.

5 Report details

5.1 Aims and constraints of the pre-assessment

The aim of this pre-assessment is to provide an analysis of the strength and weaknesses of the Algarve octopus pot & trap fishery against the MSC Fisheries Standard 2.01. As with any other pre-assessment, there might be new or additional information that may have been missed that may change the scorings attributed at this time for the fishery.

5.2 Version details

Table I – 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**

6 Unit(s) of Assessment

6.1 Unit(s) of Assessment

The Unit of Assessment is all fishing boats using pot & trap fishing for common octopus in the Algarve region, south of Portugal. The fishery was traditionally carried out mainly with clay pots, but has evolved to plastic pots and traps (Figure 1). The fishery is conducted by around 500 small active vessels (Figure 2) mostly less than 9 meters within 6 nautical miles from coast. Nevertheless, 765 fishing licences were given in 2014 (424 to traps), distributed between 14 different fishing ports in the Algarve region (Livro Verde, 2016).

Table II – Unit(s) of Assessment (UoA)

UoA 1	Description
Species	Common octopus (*Octopus vulgaris*)
Stock	Stock considered at the Algarve region, south Portugal.
Geographical area	Algarve, South Portugal, part of ICES subdivision 9a
Harvest method / gear	Pots and traps
Client group	All fishing boats using pot & trap fishing for common octopus in the Algarve region, south of Portugal.
Other eligible fishers	
Justification for choosing the Unit of Assessment	

Figure 1 – Pots and traps used in the Algarve region.

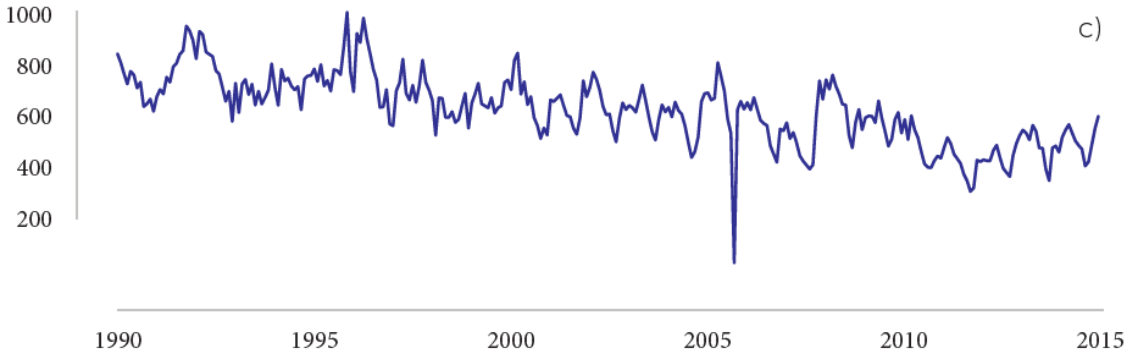


Figure 2 – Number of vessels per month operating pots & traps targeting *Octopus vulgaris* in the Algarve region between 1990-2014 (Sonderblohm, 2016).

7 Traceability

7.1 Traceability within the fishery

Octopus caught in this fishery is landed and divided by sizes in boxes at the landing site (not at sea). Each box is identified with the vessel name, and that identification continues until auction (Figure 3). Vessels that use pots are only pot users, while vessels using traps may switch fishing gear. However, they would not target octopus with other gears. Vessels targeting octopus with pots and traps in the Algarve region usually operate exclusively in this region.

Table III – Traceability within the fishery

Factor	Description
Will the fishery use gears that are not part of the Unit of Certification (UoC)? If Yes, please describe: - If this may occur on the same trip, on the same vessels, or during the same season; - How any risks are mitigated.	The vessels using traps may switch fishing gear, but not on the same day and they will not target octopus. The vessels using pots do not change gear normally.
Will vessels in the UoC also fish outside the UoC geographic area? If Yes, please describe: - If this may occur on the same trip;	Vessels fishing in the Algarve region are also allowed to fish in the Atlantic coast, but they rarely do. Pot and trap vessels usually stay whiting their local fishing grounds near their ports in the Algarve region.

- How any risks are mitigated.	
Do the fishery client members ever handle certified and non-certified products during any of the activities covered by the fishery certificate? This refers to both at-sea activities and on-land activities. - Transport - Storage - Processing - Landing - Auction If Yes, please describe how any risks are mitigated.	The fishery targets octopus from pots and traps lands with vessels identifiers. Octopus is also caught by trawl, but these are different vessels and they are not mixed at landing and at auction.
Does transhipment occur within the fishery? If Yes, please describe: - If transhipment takes place at-sea, in port, or both; - If the transhipment vessel may handle product from outside the UoC; - How any risks are mitigated.	Transhipment does not occur in this fishery. It's a local daily fishery, where vessels leave at dusk and return at dawn and fish is landed daily. Octopus catches may be transported by van to be auction at a different landing site, but are properly identified.
Are there any other risks of mixing or substitution between certified and non-certified fish? If Yes, please describe how any risks are mitigated.	No

Figure 3 – Octopus in the Fuzeta fishing auction.

8 Pre-assessment results

8.1 Pre-assessment results overview

8.1.1 Overview

The Algarve octopus pot & trap fishery targets a stock that although is not assessed quantitatively, all known biological indicators points to a healthy stock. The fishery is quite selective with no major bycatch species or impacts in the ecosystem. However, control and enforcement is lacking and there is a systematic non-compliance of the fishery to several management measures, including minimum size and gear limitations.

Therefore, when analysing the Algarve octopus pot & trap fishery against the MSC Fisheries Standard 2.01, the fishery automatically failed 6 PI (<SG60) in Principle 1, 2 and 3. There are additional 8 PIs that scored between SG60-79 and would therefore require conditions to improve. In addition, considering that are several PIs <SG80, the overall scoring of P1 and P3 will likely be below SG80 which will results in an overall failure of the fishery.

8.1.2 Recommendations

Based on the results summarised above, the following recommendations are made:

- Well-defined Harvest Control Rules need to be developed and implemented
- Fishery specific long-term objectives need to be defined, in accordance with the precautionary approach and maximum sustainable yields policy objectives.
- Monitoring, Control and Surveillance measures need to be implemented, and compliance needs to improve.

8.2 Summary of potential conditions by Principle

Table IV – Summary of Performance Indicator level scores

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

8.3 Summary of Performance Indicator level scores

Table V – Summary of Performance Indicator level scores

Performance Indicator	Draft scoring range	Data deficient?
1.1.1 – Stock status	**60 – 79**	**Yes**
Rationale or key points		
RBF used to derive the score considering a high risk CA a priori.		
1.1.2 – Stock rebuilding	**NA**	**NA**
Rationale or key points		
RBF was used to score P1.1.1		
1.2.1 – Harvest Strategy	**60 – 79**	**Yes**
Rationale or key points		
There is a harvest strategy but it is not responsive to the state of the stock.		
1.2.2 – Harvest control rules and tools	**<60**	**Yes**

Rationale or key points		
There is no generally understood HCR or evidence that exploitation is being limited.		
1.2.3 – Information and monitoring	**<60**	**Yes**
Rationale or key points		
Monitoring of stock abundance is lacking.		
1.2.4 – Assessment of stock status	**≥80**	**Yes**
Rationale or key points		
Default score as RBF was used to score PI 1.1.1.		
2.1.1 – Primary Outcome	**≥80**	**No**
Rationale or key points		
Due to the selectivity of the gear and the low price (if any) of non-targeted species, landing records show only landings of octopus. There is no official data on catches. According to research, there are no primary species in the catch. The only primary species to consider is sardine used as bait which is scored as a minor primary species.		
2.1.2 – Primary Management	**≥80**	**No**
Rationale or key points		
The fishing strategy itself allows for no primary species in the catch.		
2.1.3 – Primary Information	**≥80**	**No**
Rationale or key points		
The fishing strategy itself allows for no primary species in the catch. If any, these would be recorded in landing notes.		
2.2.1 – Secondary Outcome	**≥80**	**No**
Rationale or key points		
According to research, there are no main secondary species in the catch. The only main secondary species to consider is Atlantic chub mackerel used as bait.		
2.2.2 – Secondary Management	**≥80**	**No**
Rationale or key points		
The fishing strategy itself allows for no main secondary species in the catch.		
2.2.3 – Secondary Information	**≥80**	**No**

Rationale or key points		
Available research provides information on interactions with secondary species.		
2.3.1 – ETP Outcome	**60 – 79**	**Yes**
Rationale or key points		
Available research provides information on interactions with certain ETP species such as seahorses. However there isn't sufficient information on the populations of ETP species to determine to what degree the UoA affects the recovery and rebuilding of ETP species.		
2.3.2 – ETP Management	**<60**	**No**
Rationale or key points		
There isn't any management measure by the fishery directed to the protection of ETP species and no recording of such interactions. Besides, to the team's knowledge, there is no review of measures to minimise these interactions.		
2.3.3 – ETP Information	**60 – 79**	**No**
Rationale or key points		
There is some information on expected interactions in research papers by different authors. However most of the research refers to the same period of time and since there is no recording of these interactions by the UoA it is not possible to determine trends.		
2.4.1 – Habitats Outcome	**≥80**	**No**
Rationale or key points		
The light nature of the gear does not create irreversible impacts on benthic habitats. Besides, OSPAR does not identify VME in the UoA fishing grounds. This should be verified by local researchers at a full assessment.		
2.4.2 – Habitats Management	**60-79**	**No**
Rationale or key points		
There are certain management measures related to the protection of habitat, however there are also uncertainties regarding their implementation.		
2.4.3 – Habitats Information	**≥80**	**No**
Rationale or key points		
Emodnet and OSPAR maps provide sufficient information on the nature of affected habitats.		
2.5.1 – Ecosystems Outcome	**60 – 79**	**No**
Rationale or key points		
There are uncertainties on the total removals of octopus in the region. Given the important role of octopus in the food web structure for the Gulf of Cadiz (Torres 2013) the team is not in a position to determine if removals of octopus may have an impact on the ecosystem.		

2.5.2 – Ecosystems Management	**60 – 79**	**No**
Rationale or key points		
The UoA is managed through the allocation of licences which allow for a certain number of pots and traps to be deployed by each boat. Most stakeholders consulted highlighted that fishing effort exceeds this allowance. Given this, it is not possible to state that the management measures are working effectively in preventing damage to the ecosystem.		
2.5.3 – Ecosystems Information	**≥80**	**No**
Rationale or key points		
There is a broad range of information both on the trophic relationships in the area and on the interactions of the UoA on non-target species.		
3.1.1 – Legal and customary framework	**≥80**	**No**
Rationale or key points		
The EU and the Portuguese management system exists within an appropriate legal and/or customary framework which ensures that it delivers fisheries sustainability.		
3.1.2 – Consultation, roles and responsibilities	**60 – 79**	**No**
Rationale or key points		
Consultation roles and responsibilities are well defined and clear, but while the Tertulia initiative is not formalised there is no regular formal consultation process.		
3.1.3 – Long term objectives	**≥80**	**No**
Rationale or key points		
There are clear long term precautionary and MSY objectives in the CFP and in the Portuguese fisheries law.		
3.2.1 – Fishery specific objectives	**<60**	**No**
Rationale or key points		
There are no clear fishery specific objectives for the Algarve octopus pot & trap fishery.		
3.2.2 – Decision making processes	**<60**	**No**
Rationale or key points		
There is evidence that the fishery repeatedly violates several fisheries laws necessary for the sustainability for the fishery, and thus indicates a disrespect or defiance of the law.		
3.2.3 – Compliance and enforcement	**<60**	**Yes**
Rationale or key points		
The MCS mechanisms that are implemented are not effective, while there is evidence of systematic non-compliance with fisheries management measures.		

3.2.4 – Management performance evaluation	≥80	No
Rationale or key points		
There are monitoring systems in place to evaluate the fisheries management system.		

8.4 Principle 1

8.4.1 Principle 1 background

The common octopus (*Octopus vulgaris)* is a benthic species distributed widely in temperate and tropical waters. In the western Portuguese continental coast peak spawning occurs in February/May and June/July, while in the southern region of the Algarve spawning occurs between mainly from May till September, with a peak in August and September. In the Algarve, recruitment is highly influenced by changes in salinity of coastal waters due to the rainy season, that influence the survival of paralarvae. There is no significant migration pattern associated with spawning in the Portuguese coast (J. Pereira, pers. comm.), but younger individuals are in shallower waters, while adults are in deeper water until 200 m. Spawning may extend up to 1 month. During the brooding period (25 to 65 days), females almost cease feeding and many die after the hatching of the larvae, while male usually die after spawning. Octopus vulgaris has a rapid growth, growing 5% per day after recruitment. It reaches first maturity at about 1300 g in males, 1920 g in females in the Gulf of Cadiz. It feeds on bivalves and crustaceans (FAO, 2019, Sonderblohm, 2016).

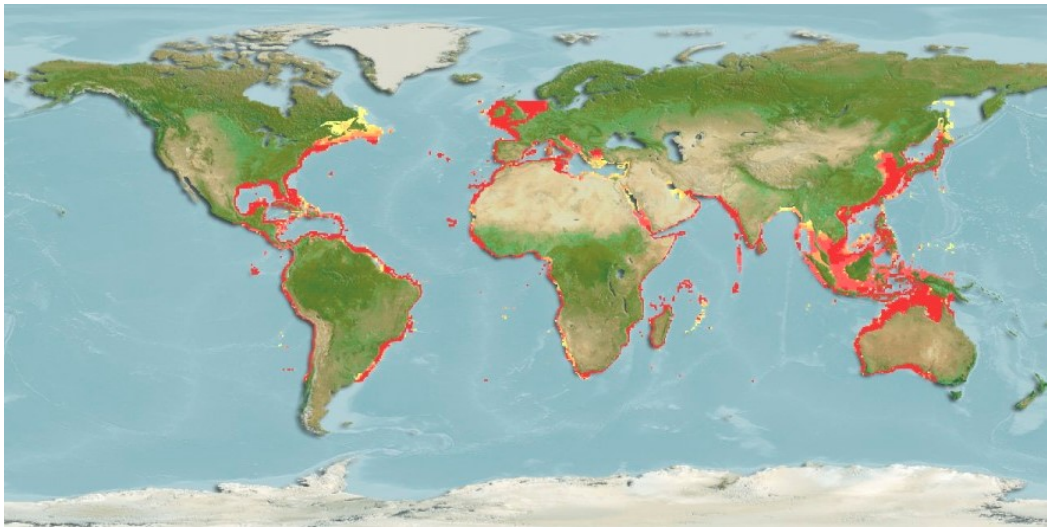


Figure 4 - Global distribution of common octopus (SeaLifeBase, 2019).

Table VI - Species biological attributes for common octopus (Source: https://www.sealifebase.ca/summary /octopus-vulgaris.html, http://www.fao.org/fishery/species/3571/en, information gathered at site visit).

Species biological attributes			
Species	*Octopus vulgaris*	**Average age maturity**	1-2 years
Reproductive strategy	Demersal egg layer and brooders	**Average maximum age**	2 years
Length of larvae phase	2 months	**Fecundity (No of eggs)**	12.000-630.000
Movement of adults	No significant migration pattern	**Average size at maturity**	1300g male; 1920g female
Sediment type	rocky, sandy and muddy bottoms	**Average maximum size**	2/3kg male; 4 kg female
Depth	0-100 m	**Trophic level**	Variable but >3.5

Stock Identity

Octopus can be generally considered panmictic, i.e. where all individuals are potential partners and thus random mating occurs. This assumes that there are no mating restrictions, neither genetic nor behavioural, upon the population. *Octopus vulgaris* may show some genetic differentiation at a wider geographical scale but at smaller scale

regions such as within ICES subdivision 9a there is no evidence of genetically different populations (J. Pereira, pers. comm.).

Nevertheless, there is sufficient information to distinguish two separate populations between the west Portuguese continental coast and the southern region of the Algarve. Because the life cycle of the common octopus is highly influenced by different meteorological and hydrological conditions, and these differ between the two areas, there are therefore observed differences in the life cycle of common octopus between regions. These populations are considered sufficiently different to have separate management measures, namely different seasons for size limitations following different recruitment peaks (Sonderblohm, 2016, J. Pereira, pers. comm., information gathered at site visit).

In summary, there is evidence that there is an *Octopus vulgaris* population structure consistent with separation by the western Portuguese coast and the Algarve region that might reflect different local biogeographical zones. Therefore, the following P1 assessment is carried out at the Algarve region scale considering that there is one *O. vulgaris* stock.

Stock assessment & status

There has been no attempt to assess the stock of *octopus vulgaris* in the Algarve region. In ICES subdivision 9a there has been an attempt to assess the stock in the Spanish part of the Gulf of Cadiz, using a Biomass Dynamic Models including the effect of environmental factor (rainfall). But more work is needed as the model did not fit the observed CPUE values well (ICES, 2017).

Since there is no information on stock status for octopus in the Algarve, nor reference points, a Risk-Based Framework Assessment was carried out to score PI 1.1.1 assuming a priori a high risk in the Consequence Analysis, and therefore moving directly to the Productivity Susceptibility Analysis. A PSA is designed to show the likely risk posed by the fishery to the population based on the biological characteristics of the stock and the likely susceptibility to capture. However, the results of this pre-assessment are provisional as in an MSC assessment PSA is a participatory analysis achieved by contributions by all stakeholders. When undertaking a PSA in MSC Principle 1, it is important to consider the combined contributions of all fishing gears fishing the target species over the range of the stock. Octopus in the Algarve is caught by trawl gear as well as with pots & traps, in the proportion of 4/96 respectively. The contribution of all gear types is therefore also included in the determination of risk posed to the target stock.

Table VII - Common Octopus PSA Productivity reasoning and scores (Sonderblohm, 2016; information gathered at site visit).

Productivity	Rationale	Score
Average age at maturity	1-2 years	1
Average maximum age	2 years	1
Fecundity	>20.000 eggs per year	1
Reproductive strategy	Demersal egg layer	2
Trophic level	Variable but >3.5	3
Density dependence	No depensatory or compensatory dynamics demonstrated or likely	2
Total Productivity (average)		1.67

The productivity scores are fixed for the species, regardless of how the species is caught. By contrast the susceptibility scores will be different for each gear type catching the species within the stock area, in this case trawls and pots & traps and considering that trawls account for only 4% of total catch (Figure 5). In scoring the susceptibility attributes for octopus in the Algarve the rationale for the area overlap was that fishing occurs in more than 50% of the stock area in the Algarve, but pot & trap between 10%-30%, while trawl over 30%. As for encounterability and post capture mortality, were evaluated considering the default score for target species. Selectivity was based on information gathered at site visit that: 750g individuals are frequently caught while individuals of 500g are retained by pots & traps, while for trawl 500g individuals are frequently caught and retained.

Table VIII - Common Octopus PSA Susceptibility reasoning and scores (information gathered at site visit).

Susceptibility	Rationale	Score
Area Overlap	The pot & trap and trawl fisheries operate in an area corresponding to between 10%-30% and more than 30% of the stock area, respectively.	2/3
Encounterability	High overlap with fishing gear - default score for target species.	3
Selectivity	Individuals < size at maturity are	3

	frequently caught and individuals < half the size at maturity are retained by gear.	
Post capture mortality	Retained species default score.	3

The RBF analysis resulted in an overall score for the PSA of 2.86 and 3.43 for pot & trap and trawls respectively, which corresponds to a MSC score of 67.

Harvest strategy & control rules

Both Portugal and the EU have jurisdiction over the octopus stock in the Algarve. There is a minimum size of 750 g established at EU level (Portaria 27/2001, Diário da República 12/2001), and a licencing scheme and weekend closed season to fishing for octopus with pot & traps established at national level (Despacho 127-A/2019, Diário da República 22/2019). Portaria 1102-D/2000 (Diário da República 270/2000) limits the number of traps and pots used in Portugal (traps: 500, 750 or 1000 units/≤9m, 9-12m and >12 m vessels respectively, and pots: 3.000 units/vessel), while Portaria 230/2012 (Diário da República 150/2012) establishes a prohibition to bait traps with live crabs in the Algarve region only. There is also the EU Western Waters MAP that establishes fishing capacity levels and a minimum mesh size for trawls targeting fish (in national legislation Portaria 1102-E/2000, Diário da República 270/2000). Finally, and although it is not in legislation, there is also a *de facto* freeze on fishing effort for the octopus fishery, where no new licences are given and existing ones cannot be changed for pots & traps fishing for octopus (information gathered at the site visit).

8.4.2 Catch profiles

Common octopus official catches from trawl and pot & trap present the same pattern in the Algarve region: they have been variable between 2005 and 2017, presenting two peaks in 2010 and 2013 but at different magnitudes: 65t for trawl and over 2000t for pot & trap in 2010, and 90t and 3500t in 2013, respectively. After 2013, catches have steadily decreased until 2017 for pot & trap till 1500t, while trawl has increased in the last year to almost 60t. Seine fishery has steadily increase catches since 2013, reaching 15t in 2017. This increase coincides with the decreasing trend in sardine catch opportunities, and vessels with a primary licence for purse-seine started targeting octopus increasing the use of the secondary licences owned for pot & trap. In 2017, pot & trap catches in the Algarve region are 20 times above trawl and seine.

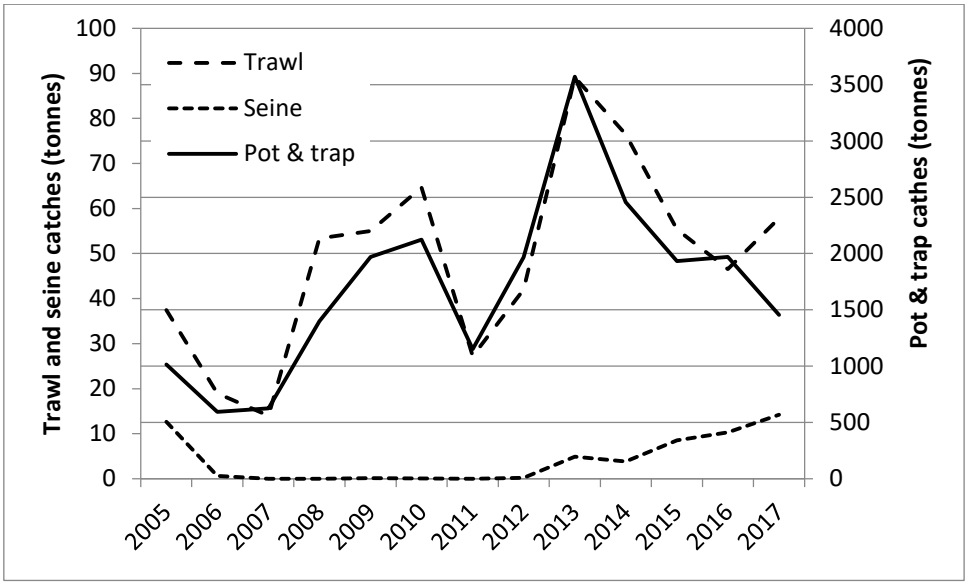


Figure 5 – Total annual catch of octopus in the Algarve region by gear between 2005-2017. Pot & trap catches refer to the polyvalent fleet, but in the Algarve they are almost exclusively from the pot & trap fishery (Pita, pers comm.).

Table IX – Catch data for pot & trap

Total catch	Year	**2017**	Amount	**1526 tonnes**
UoA share of total catch	Year	**2017**	Amount	**1454 tonnes**

Total green weight catch by UoC	Year (most recent)	**2017**	Amount	**1454 tonnes**
Total green weight catch by UoC	Year (second most recent)	**2016**	Amount	**1971 tonnes**

8.4.3 Principle 1 Performance Indicator scores and rationales

PI 1.1.1 – Stock status

Risk Based Framework was used to score this PI. Total score was 67. See section 7.3

PI 1.1.2 – Stock rebuilding

Not applicable as RBF was used to score PI1.1.1

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				

Common octopus in the Algarve region is managed by Portugal and the EU. There are several general regulations in place at EU level to manage Atlantic fisheries (Western Waters Multi-Annual Plan) and national level (Portaria 27/2001, Despacho 127-A/2019, Portaria 1102-D/2000, Portaria 230/2012) that contain different management measures. There is a closed season, minimum size, a national licencing scheme, gear restrictions and data collection. Therefore, SG60 is reached. Although the elements of the harvest strategy are likely to work together, there are no specific stock management objectives, while the harvest strategy is not responsive to the state of the stock and thus SG80 is not reached.

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				

A closed season, a licencing scheme and fishing restriction can work to limit fishing mortality. So SG60 is reached. However, and while catches have been stable in recent years the strategy has not been tested, and as such SG80 is not reached.

c	Harvest strategy monitoring			
	Guide post	Monitoring is in place that is expected to determine whether the harvest strategy is working.		

	Met?	**Yes**		

Rationale

There is monitoring in place to collect data on catches and biological data, including number of traps and other legal requirements, although no independent abundance surveys are carried out.

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

Rationale

There is no information if the harvest strategy is review periodically and thus SG100 is not reached.

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

Rationale

Not applicable to this pre-assessment based on catch composition information.

f	Review of alternative measures			
	Guide post	There has been a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock.	There is a **regular** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock and they are implemented as appropriate.	There is a **biennial** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock, and they are implemented, as appropriate.
	Met?	**NA**	**NA**	**NA**

Rationale

Octopus discarded have very high survival rate from pot & trap fishery (site visit information).

References

Information gathered at the site visit.
Portaria 27/2001, Despacho 127-A/2019, Portaria 1102-D/2000, Portaria 230/2012

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

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 taking into account the ecological role of the stock, **most** of the time.
	Met?	**No**	**No**	**No**
Rationale				

There are no generally understood HCR available or in place that may reduce exploitation when the state of the stock approaches its PRI. Therefore, SG60 is not reached.

b	HCRs robustness to uncertainty			
	Guide post		The HCRs are likely to be robust to the main uncertainties.	The HCRs take account of a **wide** range of uncertainties including the ecological role of the stock, and there is **evidence** that the HCRs are robust to the main uncertainties.
	Met?		**No**	**No**
Rationale				

There is no generally understood HCR.

c	HCRs evaluation			
	Guide post	There is **some evidence** that tools used **or available** to implement HCRs are appropriate and effective in controlling exploitation.	**Available evidence indicates** that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs.	**Evidence clearly shows** that the tools in use are effective in achieving the exploitation levels required under the HCRs.
	Met?	**No**	**No**	**No**
Rationale				

A closed season, a licencing scheme and fishing restriction can be effective in limiting exploitation. However, there is no evidence that octopus catches are being limited by the pots and trap fishery or the trawl fishery. Therefore SG60 is not reached.

References

Information gathered at the site visit.
Portaria 27/2001, Despacho 127-A/2019, Portaria 1102-D/2000, Portaria 230/2012

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

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**	**No**	**No**
Rationale				

There is information on catch and biological data. However, several aspects of the biology of the stock, for example stock structure, are not well known and thus SG80 is not reached.

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?	**No**	**No**	**No**
Rationale				

UoA removals are monitored but there is no indicator of stock abundance, although several attempts of using CPUE have been attempted, and thus SG60 is not reached.

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

Trawl fisheries have compulsory EU and national measures to report catches.

References

Information gathered at the site visit.

Draft scoring range	**<60**
Information gap indicator	**More information sought**
Data-deficient? (Risk-Based Framework needed)	**Yes**

PI 1.2.4 – Assessment of stock status

Default score of 80 as RBF was used to score PI1.1.1

8.5 Principle 2

8.5.1 Principle 2 background

Official landing records only contain information regarding commercial species. Therefore, the following scoring element table has been elaborated with public information gathered by different researchers on the subject, such as Villa de Brito (2016), Gomes (2016), Cruz (2016) and Erzini et al. (2008) which have listed the different species present in the catch of the octopus pot & trap fishery in the Algarve region. MSC FS v2.01 SA 3.1.3-3.1.5 criteria has been used to classify them as main or minor, primary, secondary or ETP species.

Table X – Scoring elements

Component	Scoring elements	Designation	Data-deficient
Primary	Sardine (*Sardina pilchardus*)	Minor	No
Secondary	Atlantic chub mackerel (*Scomber colias*)	Main	Yes
Secondary	European conger (*Conger conger)*	Minor	Yes
Secondary	Mediterranean moray *(Muraena Helena)*	Minor	Yes
Secondary	Common two-banded seabream *(Diplodus vulgaris)*	Minor	Yes
Secondary	Annular seabream (*Diplodus annularis),*	Minor	Yes
Secondary	White seabream (*Diplodus sargus)*	Minor	Yes
Secondary	Redbanded seabream *(Pagrus auriga),*	Minor	Yes
Secondary	Red porgy *(Pagrus pagrus*)	Minor	Yes
Secondary	Black seabream (*Spondyliosoma cantharus)*	Minor	Yes
Secondary	Ballan wrasse (*Labrus bergylta)*	Minor	Yes
Secondary	Baillon's wrasse *(Symphodus bailloni)*	Minor	Yes
Secondary	Grey triggerfish (*Balistes capriscus*)	Minor	Yes
Secondary	Lusitanian toadfish (*Halobatracus didactylus)*	Minor	Yes
Secondary	Bogue (*Boops boops)*	Minor	Yes
Secondary	Common sole (*Solea solea)*	Minor	Yes
Secondary	Red scorpionfish (*Scorpaena notata).*	Minor	Yes
Secondary	California scorpionfish (*Scorpaena guttata)*	Minor	Yes
Secondary	Black scorpionfish (*Scorpaena porcus)*	Minor	Yes

Secondary	European seabass (*Dicentrarchus labrax*)	Minor	Yes
Secondary	Forkbeard (*Phycis phycis)*	Minor	Yes
Secondary	Broadnosed pipefish (*Syngnathus typhle*)	Minor	Yes
Secondary	Comber (*Serranus cabrilla*)	Minor	Yes
Secondary	Sichel (*Epinephelus marginatus)*	Minor	Yes
Secondary	Baillon's wrasse (*Symphodus bailloni)*	Minor	Yes
Secondary	Common littoral crab (*Carcinus maenas*)	Minor	Yes
Secondary	Chitons (*Chaetopleura regulata*).	Minor	Yes
Secondary	Hermit crabs (*Pagurus* sp.)	Minor	Yes
Secondary	European spider crab (*Maja brachydactyla*),	Minor	Yes
Secondary	Velvet crab (*Necora puber*)	Minor	Yes
Secondary	Crab (*Pisa armata),*	Minor	Yes
Secondary	Crab (*Atelecyclus undecimdentatus*)	Minor	Yes
Secondary	Sea snail (*Ocinebrina aciculata*)	Minor	Yes
Secondary	Red comb star (*Astropecten aranciacus)*	Minor	Yes
Secondary	Sea star (*Ophioderma longicauda),*	Minor	Yes
Secondary	Brittle stars (Ophiuroidea)	Minor	Yes
Secondary	Sea anemone (*Calliactis parasítica)*	Minor	Yes
Secondary	Sea cucumber (*Holothuria* sp.)	Minor	Yes
Secondary	sea urchin (*Sphaerechinus granularis*),	Minor	Yes
Secondary	Sea urchin (*Paracentrotus lividus)*	Minor	Yes
Secondary	Banded dye-murex (*Hexaplex trunculus***)**	Minor	Yes
Secondary	Common cuttlefish (*Sepia officinalis)*	Minor	Yes
Secondary	European lobster (*Homarus gammarus)*	Minor	Yes
Secondary	Slipper lobster (*Scyllarus arctus)*	Minor	Yes

ETP	Short-snouted seahorse (*Hippocampus hippocampus*)	N/A	Yes
ETP	Long-snouted seahorse (*Hippocampus guttulatus)*	N/A	Yes
ETP	Common dolphin (*Delphinus delphis*)	N/A	No
ETP	Bottlenose dolphin (*Tursiops truncatus*)	N/A	No
ETP	Stripped dolphin (*Stenella coeruleoalba*)	N/A	No
ETP	Risso's dolphin (*Grampus griseus)*	N/A	No

Primary, secondary and ETP species

Pot & trap fishery is an artisanal fleet with vessels <15 m length which do not have an obligation to carry electronic logbook onboard. Certain information on catch composition can be obtained from landing notes, however these notes only collect information on the species actually landed, this is, with commercial value. At present there is no official recording of species in the catch with no commercial value and there is no information on the survival rate after their releasement.

Bycatch of the pot & trap octopus fishery in the Algarve region has been studied by different researchers at the University of Algarve:

- Villa de Brito (2016) sampled 4390 pots and identified 17 different species retained inside the traps, most of them with no commercial value and being consequently thrown back to the sea. The only two species that were brought back to the harbour were European conger (*Conger conger)* and Mediterranean moray *(Muraena helena).* The most frequent species found inside the pots were belonging to the *Diplodus* genus (especially *D.annularis* and *D.vulgaris*). Other important fish bycatch were from *Scorpaenidae* and *Labridae* families. Several species of *Asterozoa, Brachyura*, *Paracentrotus lividus* and *Holothuroidea* were also significant bycatch. In addition, almost every creel had *Sepiida* and *Teuthida* eggs attached to them.

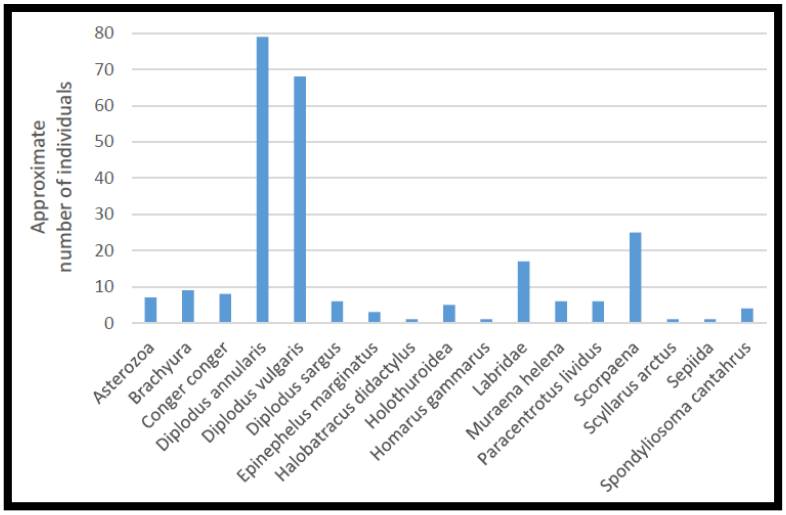


Figure 6 - Bycatch species accounted in 4390 pots (Villa de Brito, 2016).

- Gomes (2016) provides information on bycatch species found in pot & trap targeting octopus in the Algarve region. Many of the species found inside the trap were there simply because the bait was available to eat, so they would enter the trap to forage food. As regards pots, all pots sampled in his research contained chitons (*Chaetopleura regulata*). Other species retained by these fishing gears are white seabreams (*Diplodus sargus*) and other *Diplodus* sp. individuals. European conger (*Conger conger*), Lusitanian toadfish (*Halobatrachus didactylus*), hermit crabs (*Pagurus* sp.), banded dye-murex (*Hexaplex trunculus***),** some brittle star (*Ophiura* sp), seacucumber (*Holothuria* sp.), European spider crab (*Maja brachydactyla*), velvet crab (*Necora puber*) as well as squid and cuttlefish eggs attached to the traps and ropes were also regularly found. Other species trapped by the fishing gears were crab (*Pisa armata),* redbanded seabream *(Pagrus auriga),*

red comb star (*Astropecten aranciacus),* ballan wrasse (*Labrus bergylta)*, grey triggerfish (*Balistes capriscus*), sea snail (*Ocinebrina aciculata*), crab (*Atelecyclus undecimdentatus*), sea star (*Ophioderma longicauda), red porgy (Pagrus pagrus*), comber (*Serranus cabrilla*), sea urchin (*Sphaerechinus granularis*), sea anemone (*Calliactis parasítica),* broadnosed pipefish (*Syngnathus typhle*), velvet crab (*Necora puber*), small red scorpionfish (*Scorpaena notata)*. Mediterranean moray (*Muraena helena*) and European seabass (*Dicentrarchus labrax*) were also recorded once during the research period.

- Cruz (2016) identified 22 different species in 18 fishing lines for the pot & trap octopus fishery in the Algarve region. *Diplodus vulgaris (*common two-banded seabream*)* was the most affected species by these fishing activities, but species as annular seabream (*Diplodus annularis),* Baillon's wrasse (*Symphodus bailloni)* or California scorpionfish (*Scorpaena guttata)* were also very common. Other identified species were white seabream (*Diplodus sargus),* European conger *(Conger conger)*, black scorpionfish (*Scorpaena porcus)*, common sole (*Solea solea),* common cuttlefish (*Sepia officinalis),* seastars *(*Asterozoa), crabs (Brachyura), dusky grouper (*Epinephelus marginatus),* seacucumber *(Holothuria* spp), Lusitanian toadfish (*Halobatracus didactylus)*, European lobster (*Homarus gammarus)*, Mediterranean moray (*Muraena Helena),* European spider crab (*Maja squinado),* brittle stars (Ophiuroidea), sea urchin (*Paracentrotus lividus)*, slipper lobster (*Scyllarus arctus),* Baillon's wrasse *(Symphodus bailloni)*, black seabream (*Spondyliosoma cantharus).*
- Erzini K. et al (2008) give information on the catches in ghost-fishing octopus and fish traps in the Algarve region. The most important cause for the loss of traps was interaction with other gears (41%), followed by bad weather (39%), and fouling on rough bottom (18%). Skippers also indicated that gear loss could be caused by other factors (2%), especially theft. The main reason for trap loss in the local fishery was interference with other gears (42.6%) and fouling on rough bottom (42.4%) in the Sotavento and Barlavento areas. In the case of the coastal fishery, the main reasons for trap loss were bad weather (40.4 %) in the Sotavento (east) area and interference with other gears in the Barlovento (west) area (40.0 %). The research concludes that there were 52,604 octopus traps lost in Algarve waters in 2000. Lost octopus traps caught six species: octopus (*Octopus vulgaris), European conger (Conger conger)*, Mediterranean moray (*Muraena Helena)*, red scorpionfish (*Scorpaena notata*), comber (*Serranus cabrilla*), and forkbeard (*Phycis phycis)*. Catch rates were generally low and highly variable. Most octopus were captured in the first two weeks after trap deployment, and few catches were observed thereafter. For other fishes, namely small red scorpionfish, occasional catches were recorded up to three months after deployment.

Other species to be taken into account are bait species used in the traps. According to stakeholder meeting with fishermen, bait is mainly comprised by Atlantic chub mackerel (*Scomber colias*), accounting for a 90% of the bait used, but other species such as sardine (*Sardina pilchardus*), bogue (*Boops boops*) and common littoral crab (*Carcinus maenas*) are used as bait. Given that each trap is filled with a mackerel, it is expected that the quantity of Atlantic chub mackerel makes up to more than 5% of the catch by the UoA. Therefore, Atlantic chub mackerel is considered as a main secondary species, while all other species mentioned above are considered as minor species as it is expected that they comprise less than 5% of the catch. Since management measures only apply to sardine, sardine would be considered as a minor primary species and all other species as minor secondary species.

ICES provides advice for the sardine stock in Iberian waters. According to ICES 2018 advice for sardine (*Sardina pilchardus*) in divisions 8c and 9a (Cantabrian Sea and Atlantic Iberian waters), the biomass of age 1 and older fish has decreased since 2006, has been below B_{lim} since 2009, and has stabilized to a historical low since 2012. Recruitment has been below the long-term average since 2005 and in 2017, it was estimated as the lowest in the time-series. Fishing mortality has been above F_{lim} for most of the time-series but has been decreasing from a peak in 2011. In 2017, it is the lowest in the time-series and around F_{pa}. ICES assesses that fishing pressure on the stock is above F_{MSY}, just below F_{pa} and below F_{lim}. Biomass 1+ is well below MSY $B_{trigger}$, B_{pa}, and B_{lim}. While fishing pressure on the stock has decreased significantly, the stock continues to be overexploited and suffering overexploitation. ICES advice that when the MSY approach is applied, catches in 2020 should be no more than 4 142 tonnes.

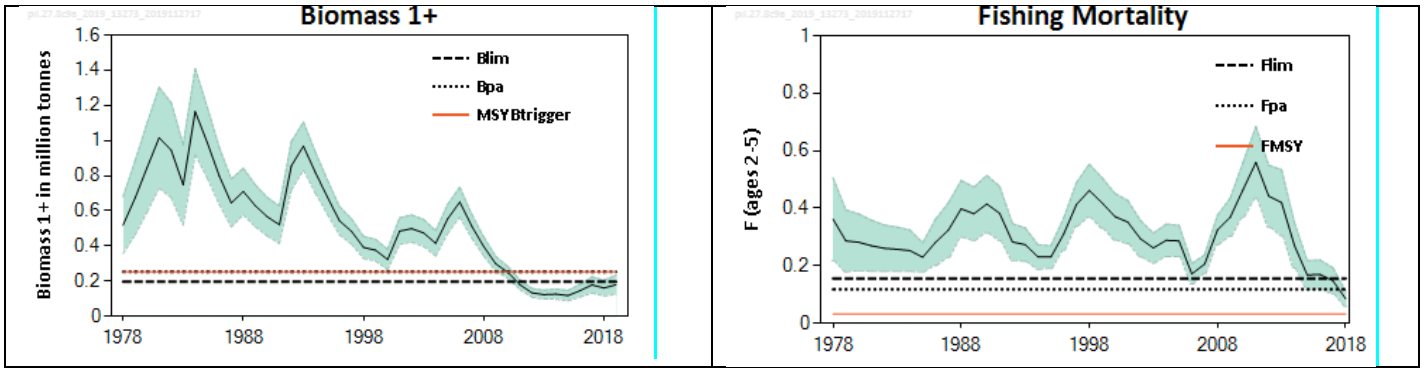


Figure 7 - Sardine in divisions 8c and 9a. Summary of the stock assessment. Fishing mortality and biomass have 95% confidence intervals. Reference points are based on the stock–recruitment relationship in the period 1993–2015. Source: ICES 2019 advice for sardine in divisions 8c and 9a.

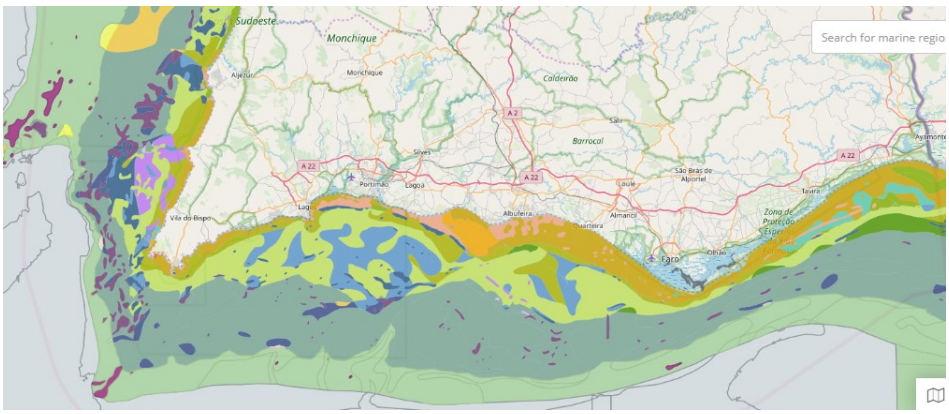
Table XI - Sardine in divisions 8c and 9a. State of the stock and fishery relative to reference points. Source: ICES 2019 advice for sardine in divisions 8c and 9a.

	Fishing pressure				Stock size			
		2016	2017	2018		2017	2018	2019
Maximum sustainable yield	F_{MSY}	✗	✗	✗ Above	MSY $B_{trigger}$	✗	✗	✗ Below trigger
Precautionary approach	F_{pa},F_{lim}	✗	○	✓ Harvested sustainably	B_{pa},B_{lim}	✗	✗	✗ Reduced reproductive capacity
Management plan	F_{MGT}	–	–	– Not applicable	B_{MGT}	–	–	– Not applicable

As regards interactions with ETP species, certain protected species can interact the fishing gear, such as short-snouted seahorse (*Hippocampus hippocampus*) and long-snouted seahorse (*Hippocampus guttulatus)* which may enter the pot or the trap, or dolphins which may, in sporadic occasions, get entangled with the mother line at the deployment of the pots or traps. It has not been possible to identify the dolphin species to which fishermen referred however dolphin species present in waters of Algarve are common dolphin (*Delphinus delphis*), bottlenose dolphin (*Tursiops truncatus*), stripped dolphin (*Stenella coeruleoalba*) and Risso's dolphin (*Grampus griseus)*. According to Decree-Law nr 263/1981 from 3 September, approving the regulation on marine mammal protection, all cetaceans species occurring in mainland Portugal are protect by national legislation. European regulations (Habitats Directive) and international conventions and agreements (Bern, Bonn, CITES, ACCOBAMS) also protect cetacean species in Portuguese waters.

Habitats

Emodnet map on seabed habitat types shows that common habitats in waters affected by the UoA are sandy and muddy grounds, with small patches of rocky areas. The fishery has limited and non-permanent impact on the seafloor, however further quantification on the pots and traps set in each area could help increasing the score.



Legend:
Pink: low energy infralittoral rock.
Purple: moderate energy circalittoral rock
Orange: moderate energy infralittoral rock
Light brown: infralittoral fine sand or infralittoral muddy sand
Dark brown: infralittoral coarse sediments
Light green: circalittoral sandy mud
Green: circalittoral fine sand or circalittoral muddy sand
Dark green: circalittoral fine mud
Grey: deep circalittoral mud
Light blue: Infralittoral mixed sediments
Blue: Circalittoral mixed sediments
Dark blue: low energy circalittoral rock

Figure 8 - Distribution of common habitats in the coast of Algarve. https://www.emodnet-seabedhabitats.eu/access-data/launch-map-viewer/

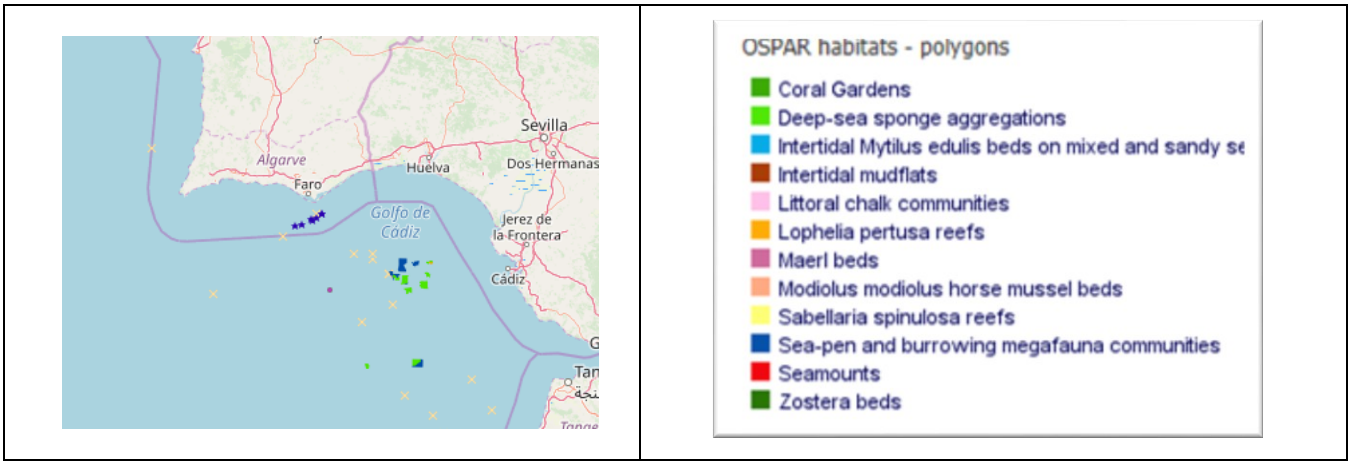


Figure 9 - Location of OSPAR vulnerable habitats in the coast of Algarve. https://odims.ospar.org/maps/1313

There are 8 MPAs in the coast of Portugal's mainland, two of them falling inside the UoA: Ria Formosa MPA and Southwest Alentejo Coast MPA. Both areas fall inside the EU Birds Directive and Ria Formosa also falls inside the EU Habitats Directive. Both areas fall inside the Natura 2000 network.

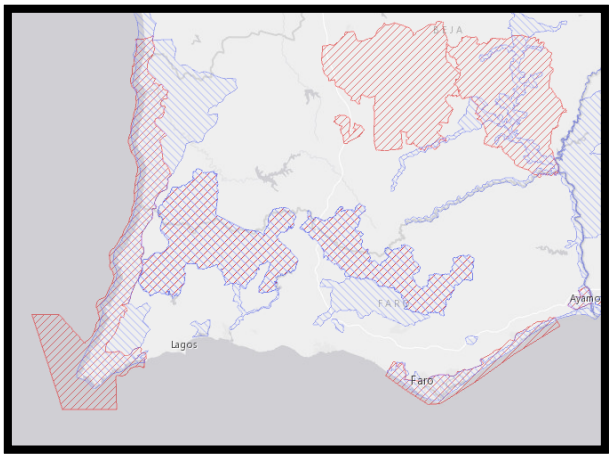


Figure 10 - MPAs in the UoA: Ria Formosa and Southwest Alentejo coast. https://natura2000.eea.europa.eu/#

Ecosystem

The ecosystem in the Gulf of Cadiz is studied by different research institutions, including IPMA, CCMAR, Faro University, Cadiz University, IEO and CSIC. The food-web structure has been described with the Ecopath and Ecosim model, were 43 functional groups were included, including common octopus in the region (with a trophic level of 3,92). The EwE study reveals that the main trophic flows are determined by the interaction between detritus, phytoplankton and micro- and mesozooplankton. Rose shrimp (*Parapenaeus longirostris*), cephalopods and dolphins present important overall effects as keystone species on the rest of the groups (Torres, 2013).

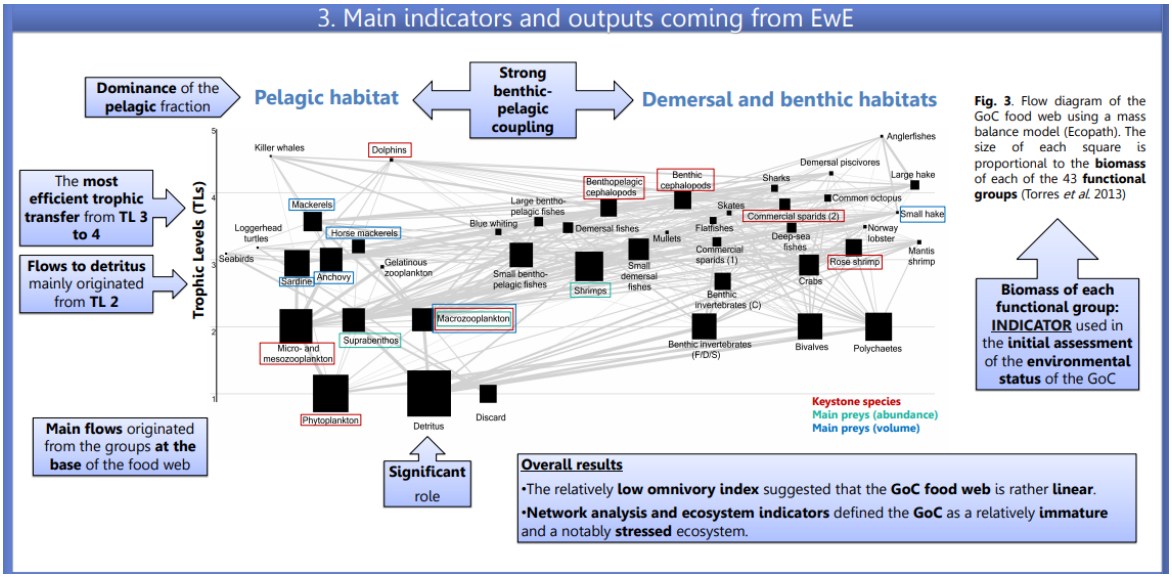


Figure 11 - Main indicators and outputs from the Gulf of Cadiz Ecopath with Ecosim study. Trophic level of common octopus is 3.92. Source: Torres et al. 2013

8.5.2 Principle 2 Performance Indicator scores and rationales

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**	**Yes**
Rationale				

There are no main primary species to consider. SG100 is met by default.

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?			**No**

Rationale

Different stakeholders confirmed that Atlantic chub mackerel (*Scomber colias*, secondary species) is generally and widely used as bait. However, sardine has also been used as bait in the past and is now used on very occasional circumstances. Both the scarceness of the species and its price would prevent fishermen from using sardine as bait if other species are available. Therefore, the assessment team has considered that the only minor primary species to consider is sardine, which is sometimes used as bait in a very small proportion (sardine, bogue and crab together account for a 10% of the total bait). According to latest ICES advice (2019), sardine stock is in a very poor condition, with evidence that the species is below the PRI.

While the low quantity of sardine used as bait could serve to justify that the UoA by itself is not hindering the recovery and rebuilding of the sardine stock, uncertainties regarding the real quantity of sardine used as bait and the impact that this use could have on the stock prevents the fishery from meeting the requirements at SG100, since there is no evidence that the UoA is not hindering in any way the recovery and rebuilding of the species.

Besides, there is uncertainty in relation to possible ghost fishing caused by lost pots and traps which are not counted nor recovered from the seabed and which could hinder the recovery of primary species. SG100 is not met.

References

Information gathered at the site visit.
Erzini, K. et al. Catches in ghost-fishing octopus and fish traps in the northeastern Atlantic Ocean (Algarve, Portugal). Fish. Bull. 106 (3): 321–327 (2008).
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ICES 2018 advice for sardine (*Sardina pilchardus*) in divisions 8.c and 9.a (Cantabrian Sea and Atlantic Iberian waters). http://ices.dk/sites/pub/Publication%20Reports/Advice/2018/2018/pil.27.8c9a.pdf
ICES 2019 advice for sardine (*Sardina pilchardus*) in divisions 8.c and 9.a (Cantabrian Sea and Atlantic Iberian waters

Draft scoring range	**≥80**
Information gap indicator	**Information sufficient to score PI**
Data-deficient? (Risk-Based Framework needed)	**No**

PI 2.1.2 – Primary species management strategy

PI 2.1.2		There is a strategy in place that is designed to maintain or to not hinder rebuilding of primary species, and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are **measures** in place for the UoA, if necessary, that are expected to maintain or to not hinder rebuilding of the main primary species at/to levels which are likely to be above the PRI.	There is a **partial strategy** in place for the UoA, if necessary, that is expected to maintain or to not hinder rebuilding of the main primary species at/to levels which are highly likely to be above the PRI.	There is a **strategy** in place for the UoA for managing main and minor primary species.
	Met?	**Yes**	**Yes**	**No**
Rationale				

The fishery has no impact on main primary species, therefore measures or partial strategy to manage these impacts is not considered necessary. SG60 and SG80 are met by default. However, the team is not aware of any specific measure (apart from the fishing strategy itself) to manage minor primary species such as sardine used as bait. Besides, there are no measures regarding the recovery of the high number of lost pots and traps which can be the cause of ghost fishing. Given that a strategy represents a “cohesive and strategic arrangement which may comprise one or more measures, an understanding of how it/they work to achieve an outcome and which should be designed to manage impact on that component specifically” and that it needs to be appropriate to the scale, intensity and cultural context of the fishery, the team considers that SG100 is not met.

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

Since there are no main primary species to consider such partial strategy is not considered necessary. SG60 and SG80 are met by default. The fishing strategy of using pots and traps can be considered as a partial strategy itself which works effectively in avoiding the catch of primary species. Direct research undertaken in the area showing limited or null bycatch of primary species by the fishing gears is considered as a test that the partial strategy of avoiding the catch of main primary species is working. SG100 is met.

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

Rationale

Research undertaken by Erzini (2008), Gomes (2016), Villa de Brito (2016) and Cruz (2016), serve as clear evidence that the fishing strategy (using pots and traps) works effectively in preventing the catch of main primary species. SG80 is met. However, sardine is used in low proportions as bait and is therefore considered as a minor primary species. Given the poor condition of the sardine stock in the area the team considers that the objective of not hindering the species is not met. SG100 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

There are no sharks in the catch composition by the UoA. This SI is not applicable.

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

Rationale

There is no unwanted catch of main primary species. SG80 is met by default. There is no unwanted catch of minor primary species either, however to the team's knowledge there is no formal review of alternative measures to minimise UoA related mortality (in the form of bait) of minor primary species such as bait. Besides, there is no review of the number of lost pots and traps nor of the impact they can cause on primary, secondary and ETP species (ghost fishing). SG100 is not met.

References

Erzini, K. et al. Catches in ghost-fishing octopus and fish traps in the northeastern Atlantic Ocean (Algarve, Portugal). Fish. Bull. 106 (3): 321–327 (2008).
Gomes, C. Report – Octopus (*Octopus vulgaris* Cuvier, 1797) sampling between Quarteira and Faro, in the south coast of Portugal. Experimental Work in Marine Biology (2016).
Villa de Brito, G. Common Octopus *(Octopus vulgaris)* sampling and bycatch analysis in a commercial fishing boat in Quarteira, Portugal. Faculty of Science and Technology – University of Algarve. 2016.
Cruz, J. The octopus fishery in Algarve (southern Portugal): monitoring of octopus stocks. Universidade do Algarve (2016).
ICES 2019 advice for sardine (*Sardina pilchardus*) in divisions 8.c and 9.a (Cantabrian Sea and Atlantic Iberian waters).

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

PI 2.1.3 – Primary species information

PI 2.1.3		Information on the nature and extent of primary species is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage primary species		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impact on main primary species			
	Guide post	Qualitative information is **adequate to estimate** the impact of the UoA on the main primary species with respect to status. **OR** **If RBF is used to score PI 2.1.1 for the UoA:** Qualitative information is adequate to estimate productivity and susceptibility attributes for main primary species.	Some quantitative information is available and is **adequate to assess** the impact of the UoA on the main primary species with respect to status. **OR** **If RBF is used to score PI 2.1.1 for the UoA:** Some quantitative information is adequate to assess productivity and susceptibility attributes for main primary species.	Quantitative information is available and is **adequate to assess with a high degree of certainty** the impact of the UoA on main primary species with respect to status.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

Research undertaken by Erzini et al. (2008), Gomes (2016), Villa de Brito (2016) and Cruz (2016), provide some qualitative and quantitative information on bycatch estimates and identification of species for the UoA, showing that there are no primary species to consider in the catch by the UoA. SG60 and SG80 are met. Further information can be obtained from landing notes at the fishing landing sites. Given that primary species would always be commercial species, these would appear in landing notes if any. The impact of the UoA on main primary species with respect to status can be obtained by comparing the UoA impact on these species with ICES advice on the different species. As mentioned, there are no main primary species to consider for the UoA and therefore the impact of the UoA is null. SG100 is met.

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

As described in SIa, there is some quantitative information on possible bycatch impacts of the UoA. This information shows that there are no interactions with minor primary species. However sardine is used as bait (although in low proportions) and therefore is considered here as a minor primary species. Some quantitative information can be obtained on the impact by the UoA on the stock (by estimating the amounts of sardine used as bait by the total UoA). As there is ICES advice for the sardine stock in the region (showing that the stock is well below any possible reference point), available information is adequate to estimate the impact of the UoA on the sardine stock with respect to status. Erzini et al. (2008) give a quantitative estimation on lost traps and pots which are responsible of ghost fishing in the Alvarve region. While subject to improvement, this estimation could serve as a proxy estimation of ghost fishing in the area. SG100 is met.

c	Information adequacy for management strategy			
	Guide post	Information is adequate to support **measures** to manage	Information is adequate to support a **partial strategy** to	Information is adequate to support a **strategy** to manage

		main primary species.	manage **main** primary species.	**all** primary species and evaluate with a **high degree of certainty** whether the strategy is achieving its objective.
	Met?	**Yes**	**Yes**	**Yes**

Rationale

Erzini et al. (2008), Gomes (2016), Villa de Brito (2016) and Cruz (2016) provide some quantitative information on expected catch composition by the UoA. This information shows that there are no expected main primary species in the catch. While information sampled and collected by these researchers only represents a fraction of the fishing effort by the UoA, catch composition by the whole UoA is expected to be very similar, with no main primary species to consider. SG60 and SG80 are then met by default. Information on the number of licences and pots and traps used in the gear, together with proxies of sardine used as bait and information on the stock status of the species provided by ICES advice 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. SG100 is met.

References

Erzini, K. et al. Catches in ghost-fishing octopus and fish traps in the northeastern Atlantic Ocean (Algarve, Portugal). Fish. Bull. 106 (3): 321–327 (2008).
Gomes, C. Report – Octopus (*Octopus vulgaris* Cuvier, 1797) sampling between Quarteira and Faro, in the south coast of Portugal. Experimental Work in Marine Biology (2016).
Villa de Brito, G. Common Octopus *(Octopus vulgaris)* sampling and bycatch analysis in a commercial fishing boat in Quarteira, Portugal. Faculty of Science and Technology – University of Algarve. 2016.
Cruz, J. The octopus fishery in Algarve (southern Portugal): monitoring of octopus stocks. Universidade do Algarve (2016).
ICES 2019 advice for sardine (*Sardina pilchardus*) in divisions 8.c and 9.a (Cantabrian Sea and Atlantic Iberian waters).

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

PI 2.2.1 – Secondary species outcome

PI 2.2.1		The UoA aims to maintain secondary species above a biologically based limit and does not hinder recovery of secondary species if they are below a biological based limit		
Scoring Issue		SG 60	SG 80	SG 100
a	Main secondary species stock status			
	Guide post	Main secondary species are **likely** to be above biologically based limits. OR If below biologically based limits, there are **measures** in place expected to ensure that the UoA does not hinder recovery and rebuilding.	Main secondary species are **highly likely** to be above biologically based limits. OR If below biologically based limits, there is either **evidence of recovery** or a **demonstrably effective partial strategy** in place such that the UoA does not hinder recovery and rebuilding. AND Where catches of a main secondary species outside of biological limits are **considerable**, there is either **evidence of recovery** or a, **demonstrably effective strategy in place between those MSC UoAs that have considerable catches of the species**, to ensure that they collectively do not hinder recovery and rebuilding.	There is a **high degree of certainty** that main secondary species are above biologically based limits.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

Official landing data only has information on species that have been landed, that is, with commercial value. To better understand the impact that the fishery has, the assessment team has considered research information by different authors who provide a better overview of the real impact of the fishery on other species apart from octopus. Research undertaken by Erzini at al. (2008), Gomes (2016), Villa de Brito (2016) and Cruz (2016), provide some qualitative and quantitative information on bycatch estimates and identification of species for the UoA, showing that there are no main secondary species to consider in the catch by the UoA. SG60, SG80 and SG100 are met by default.

b	Minor secondary species stock status			
	Guide post			Minor secondary species are highly likely to be above biologically based limits. OR If below biologically based limits', there is evidence that the UoA does not hinder the recovery and rebuilding of secondary species
	Met?			**No**
Rationale				

Research undertaken by Erzini (2008), Gomes (2016), Villa de Brito (2016) and Cruz (2016), show that there are more than 20 different minor secondary species to consider. Given the lack of advice on the stock status of these species the team is not in a position to determine if these stocks are above biologically based limits. The lack of information on the status of these stocks together with the limited information on catch composition (as secondary species are not recorded on landing notes) and on lost pots and traps does not serve to support any evidence of the UoA not hindering the recovery of these species. SG100 is not met.

References

Information gathered at the site visit.
Erzini, K. et al. Catches in ghost-fishing octopus and fish traps in the northeastern Atlantic Ocean (Algarve, Portugal). Fish. Bull. 106 (3): 321–327 (2008).
Gomes, C. Report – Octopus (*Octopus vulgaris* Cuvier, 1797) sampling between Quarteira and Faro, in the south coast of Portugal. Experimental Work in Marine Biology (2016).
Villa de Brito, G. Common Octopus *(Octopus vulgaris)* sampling and bycatch analysis in a commercial fishing boat in Quarteira, Portugal. Faculty of Science and Technology – University of Algarve. 2016.
Cruz, J. The octopus fishery in Algarve (southern Portugal): monitoring of octopus stocks. Universidade do Algarve (2016).

Draft scoring range	**80**
Information gap indicator	**Information sufficient to score PI**
Data-deficient? (Risk-Based Framework needed)	**No**

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 are no main secondary species to consider. SG60 and SG80 are met by default. The team is not aware of any specific strategy for managing minor secondary species, apart from the fishing deployment and lifting of the fishing gear, which allows for limited interaction with secondary species and allows for the releasement of unwanted catch. 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**	**Yes**	**No**
Rationale				

Research information provided by Erzini at al. (2008), Gomes (2016), Villa de Brito (2016) and Cruz (2016), show that while there are more than 20 secondary species interacting the UoA, none of these would meet the requirements of main secondary species as they are taken in very low proportions. This research serves to support that the fishing gear is likely to not hinder main secondary species (of which there are none). Moreover, research by different authors serves as an objective basis for confidence that the fishery strategy of using pots and traps will work (and is working already) in preventing hinder to main secondary species (of which there are none). Given this, the requirements at SG60 and SG80 are met.

While this research could serve to support with a high degree of confidence that the partial strategy (which is the fishing strategy itself) will work in preventing the catch of secondary species, there isn't sufficient information on the survival rate of released minor secondary species to asseverate that this strategy is working effectively and achieving its objective. SG100 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?		**Yes**	**No**
Rationale				

Research undertaken by Erzini at al. (2008), Gomes (2016), Villa de Brito (2016) and Cruz (2016), serve as clear evidence that fishing using pots and traps works effectively in preventing the catch of main secondary species. SG80 is met. However, the high number of minor secondary species in the catch (although in low proportions) and the lack of information on survival rate for released species prevent the UoA from meeting the requirements at SG100, as there is no clear evidence that the partial strategy (which shall represent a cohesive arrangement which may comprise one or more measures) is achieving its objective. SG100 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				

There are no sharks in the catch composition by the UoA. This SI is not applicable.

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

There is no unwanted catch of main secondary species. SG80 is met by default. There are over 20 minor secondary species to take into consideration. To the team's knowledge there is no formal review of alternative measures to minimise UoA related mortality of minor secondary species. SG100 is not met.

References

Erzini, K. et al. Catches in ghost-fishing octopus and fish traps in the northeastern Atlantic Ocean (Algarve, Portugal). Fish. Bull. 106 (3): 321–327 (2008).
Gomes, C. Report – Octopus (*Octopus vulgaris* Cuvier, 1797) sampling between Quarteira and Faro, in the south coast of Portugal. Experimental Work in Marine Biology (2016).
Villa de Brito, G. Common Octopus *(Octopus vulgaris)* sampling and bycatch analysis in a commercial fishing boat in Quarteira, Portugal. Faculty of Science and Technology – University of Algarve. 2016.
Cruz, J. The octopus fishery in Algarve (southern Portugal): monitoring of octopus stocks. Universidade do Algarve (2016).

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

PI 2.2.3 – Secondary species information

PI 2.2.3		Information on the nature and amount of secondary species taken is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage secondary species		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impacts on main secondary species			
	Guide post	Qualitative information is **adequate to estimate** the impact of the UoA on the main secondary species with respect to status. OR **If RBF is used to score PI 2.2.1 for the UoA:** Qualitative information is adequate to estimate productivity and susceptibility attributes for main secondary species.	Some quantitative information is available and **adequate to assess** the impact of the UoA on main secondary species with respect to status. OR **If RBF is used to score PI 2.2.1 for the UoA:** Some quantitative information is adequate to assess productivity and susceptibility attributes for main secondary species.	Quantitative information is available and **adequate to assess with a high degree of certainty** the impact of the UoA on main secondary species with respect to status.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

Comprehensive research by Erzini et al. (2008), Gomes (2016), Villa de Brito (2016) and Cruz (2016) provide sufficient qualitative and quantitative information and estimates on the impact that the UoA has on the different primary and secondary species in the region.
As secondary species, there would be uncertainties on what the status of the different secondary species are and what is the impact that the UoA may have on them. In any case, and for the UoA, different researchers agree that there are no main secondary species to consider and therefore the impact of the UoA in relation to the status would be nil. Minor secondary species are scored under SI.b. The requirements at SG60, SG80 and SG100 are met.

b	Information adequacy for assessment of impacts on minor secondary species			
	Guide post			Some quantitative information is adequate to estimate the impact of the UoA on minor secondary species with respect to status.
	Met?			**No**
Rationale				

Research undertaken by Erzini et al. (2008), Gomes (2016), Villa de Brito (2016) and Cru (2016) provide some quantitative information on the impact of the UoA on minor secondary species. However, there isn't sufficient scientific information on the mentioned stocks to evaluate this impact with respect to status, nor on the number of lost pots and traps in the region and the ghost fishing these can cause. SG100 is not met.

c	Information adequacy for management strategy			
	Guide post	Information is adequate to support **measures** to manage **main** secondary species.	Information is adequate to support a **partial strategy** to manage **main** secondary species.	Information is adequate to support a **strategy** to manage **all** secondary species and **evaluate** with a **high degree of certainty** whether the strategy is **achieving its**

				objective.
	Met?	**Yes**	**Yes**	**No**

Rationale

There are no main secondary species to consider, however information collected by researchers such as Erzini et al. (2008), Cruz (2016), Gomes (2016) and Villa de Brito (2016) on catch composition and proportions is adequate to support measures or a partial strategy to manage main secondary species if any (of which there are none in this UoA). SG60 and SG80 are met. Since information on the impact by the UoA on minor secondary species is limited to punctual research in the region and there is no scientific information on the status of minor secondary species, the team considers that available information is not adequate to support a strategy to manage all secondary species and evaluate whether this strategy is achieving its objective. SG100 is not met.

References

Erzini, K. et al. Catches in ghost-fishing octopus and fish traps in the northeastern Atlantic Ocean (Algarve, Portugal). Fish. Bull. 106 (3): 321–327 (2008).
Gomes, C. Report – Octopus (*Octopus vulgaris* Cuvier, 1797) sampling between Quarteira and Faro, in the south coast of Portugal. Experimental Work in Marine Biology (2016).
Villa de Brito, G. Common Octopus *(Octopus vulgaris)* sampling and bycatch analysis in a commercial fishing boat in Quarteira, Portugal. Faculty of Science and Technology – University of Algarve. 2016.
Cruz, J. The octopus fishery in Algarve (southern Portugal): monitoring of octopus stocks. Universidade do Algarve (2016).

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

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				

To the team's knowledge, there are no set limits for ETP species. This SI is N/A.

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				

ETP species present in the area which may interact with the UoA are short-snouted seahorse (*Hippocampus hippocampus*) and long-snouted seahorse (*Hippocampus guttulatus),* as well as marine mammals such as common dolphin (*Delphinus delphis*), bottlenose dolphin (*Tursiops truncatus*), stripped dolphin (*Stenella coeruleoalba*) and Risso's dolphin (*Grampus griseus)*.

Interactions with seahorses are reported by skippers and by researchers, however there is no information on the frequency of these interactions or on the survivability of seahorses after release. Besides, information on the population of seahorses is scarce. As regards dolphins, skippers have reported very occasional entanglements of dolphins (unspecified, with one dolphin being entangled every few years) with the mother line during the deployment of pots and traps. Again, there is no information on the survivability of dolphins after these entanglements.

Given the rare occurrence of these interactions, not recorded in the sampling programs by different researchers, and the opportunity of releasing these species (especially seahorses), the team considers that known direct effects of the UoA are likely not to hinder the recovery of ETP species. SG60 is met. Further information on the ratio of these encounters together with information on survivability, and information on the number of lost pots and traps in the areas and the ghost fishing they cause, would be needed to support a highly likely score. SG80 is not met.

c	Indirect effects			
	Guide post		Indirect effects have been considered for the UoA and are thought to be **highly likely** to not create unacceptable impacts.	There is a **high degree of confidence** that there are no **significant detrimental indirect effects** of the UoA on ETP species.
	Met?		**Yes**	**No**
Rationale				

Indirect effects would be those related to the trophic chain and prey availability or seabed disturbance. Given that neither seahorses nor dolphins feed on octopus and seabed disturbance is short term and does not affect dolphins) the team considers that indirect effects are highly likely not to create unacceptable impacts. SG80 is met. Further information on such interactions and effects is needed to support the SG100 score. SG100 is not met.

References

Erzini, K. et al. Catches in ghost-fishing octopus and fish traps in the northeastern Atlantic Ocean (Algarve, Portugal). Fish. Bull. 106 (3): 321–327 (2008).
Gomes, C. Report – Octopus (*Octopus vulgaris* Cuvier, 1797) sampling between Quarteira and Faro, in the south coast of Portugal. Experimental Work in Marine Biology (2016).
Villa de Brito, G. Common Octopus *(Octopus vulgaris)* sampling and bycatch analysis in a commercial fishing boat in Quarteira, Portugal. Faculty of Science and Technology – University of Algarve. 2016.
Cruz, J. The octopus fishery in Algarve (southern Portugal): monitoring of octopus stocks. Universidade do Algarve (2016).
Information gathered at the site visit.

Draft scoring range	**60-79**
Information gap indicator	**More information sought**
Data-deficient? (Risk-Based Framework needed)	**Yes**

PI 2.3.2 – ETP species management strategy

PI 2.3.2		The UoA has in place precautionary management strategies designed to: - meet national and international requirements; - ensure the UoA does not hinder recovery of ETP species. Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place (national and international requirements)			
	Guide post	There are **measures** in place that minimise the UoA-related mortality of ETP species, and are expected to be **highly likely to achieve** national and international requirements for the protection of ETP species.	There is a **strategy** in place for managing the UoA's impact on ETP species, including measures to minimise mortality, which is designed to be **highly likely to achieve** national and international requirements for the protection of ETP species.	There is a **comprehensive strategy** in place for managing the UoA's impact on ETP species, including measures to minimise mortality, which is designed to **achieve above** national and international requirements for the protection of ETP species.
	Met?	**NA**	**NA**	**NA**
Rationale				

Since there are no national or international requirements for the protection of ETP species this SI is N/A. See SIb.

b	Management strategy in place (alternative)			
	Guide post	There are **measures** in place that are expected to ensure the UoA does not hinder the recovery of ETP species.	There is a **strategy** in place that is expected to ensure the UoA does not hinder the recovery of ETP species.	There is a **comprehensive strategy** in place for managing ETP species, to ensure the UoA does not hinder the recovery of ETP species.
	Met?	**Yes**	**No**	**No**
Rationale				

The team is not aware of any specific management measures to ensure that the UoA is not hindering the recovery of ETP species. The only measure worth mentioning is the fishing deployment and lifting of the fishing gear which allows for limited interaction with these species, and the possibility of release of unwanted catch. However, there are no measures to recover lost pots and traps in the region. Further information and management measures directed to ensure that these limited interactions do not hinder ETP species is needed in order to justify higher scores. SG80 and SG100 are not met.

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

The relative low number of interactions as reported by different researchers (Erzini et al. 2008, Gomes 2016, Cruz 2016, Villa de Brito 2016) and the possibility of survival after interactions provide and objective basis for confidence that the measure (deployment of the fishing gear and possibility of releasement) will work in not hindering ETP species. SG80 is met, since research by different authors and the working mechanism of the fishing gear, which traps the different species without squeeze them, provide an objective basis of confidence that implemented measures will work. Further information on the survival rate and the estimation of these interactions by the total UoA would serve to support with high confidence that the strategy will work. SG100 is not met.

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

Rationale

The measure (which is the fishing deployment of the gear that traps the species without squeezing them, together with the possibility of releasement) is being implemented successfully, as the UoA covers pots and traps as fishing gear and these passive gears do not generally cause major damage to untargeted fauna. As the fishing strategy of using pots and traps is well established, SG80 is met. However, while Erzini et al. 2008, Gomes 2016, Cruz 2016 and Villa de Brito 2016 provide some information on the effectiveness of this strategy (by estimating interactions with ETP species such as seahorses), it is not possible to determine if these measures (trapping species without squeezing them together with the possibility of releasement) is achieving its objective of not hindering recovery and rebuilding of ETP species. SG100 is not met.

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

Rationale

To the team's knowledge, there is no review of measures to minimise UoA related mortality of ETP species. Besides, there is no information or recording on the real extent of interactions with these species. SG60 is not met.

References

Erzini, K. et al. Catches in ghost-fishing octopus and fish traps in the northeastern Atlantic Ocean (Algarve, Portugal). Fish. Bull. 106 (3): 321–327 (2008).
Gomes, C. Report – Octopus (*Octopus vulgaris* Cuvier, 1797) sampling between Quarteira and Faro, in the south coast of Portugal. Experimental Work in Marine Biology (2016).
Villa de Brito, G. Common Octopus *(Octopus vulgaris)* sampling and bycatch analysis in a commercial fishing boat in Quarteira, Portugal. Faculty of Science and Technology – University of Algarve. 2016.
Cruz, J. The octopus fishery in Algarve (southern Portugal): monitoring of octopus stocks. Universidade do Algarve (2016).

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

PI 2.3.3 – ETP species information

PI 2.3.3		Relevant information is collected to support the management of UoA impacts on ETP species, including: - Information for the development of the management strategy; - Information to assess the effectiveness of the management strategy; and - Information to determine the outcome status of ETP species		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impacts			
	Guide post	Qualitative information is **adequate to estimate** the UoA related mortality on ETP species. **OR** **If RBF is used to score PI 2.3.1 for the UoA:** Qualitative information is **adequate to estimate productivity and susceptibility** attributes for ETP species.	Some quantitative information is **adequate to assess** the UoA related mortality and impact and to determine whether the UoA may be a threat to protection and recovery of the ETP species. **OR** **If RBF is used to score PI 2.3.1 for the UoA:** Some quantitative information is **adequate to assess productivity and susceptibility attributes** for ETP species.	Quantitative information is available to assess with a high degree of certainty the **magnitude of UoA-related impacts, mortalities and injuries and the consequences for the status** of ETP species.
	Met?	**Yes**	**Yes**	**No**
Rationale				

Research undertaken by Erzini et al. (2008), Gomes (2016), Villa de Brito (2016) and Cruz (2016) provide qualitative and some quantitative information adequate to estimate the UoA related mortality on ETP species. SG60 is met. Such information can be used to determine whether the UoA may be a threat to protections and recovery of the ETP species, by estimating total interactions by the whole UoA. SG80 is met. This information is however not enough 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, including impacts such as ghost fishing by lost gears. SG100 is not met.

b	Information adequacy for management strategy			
	Guide post	Information is adequate to support **measures** to manage the impacts on ETP species.	Information is adequate to measure trends and support a **strategy** to manage impacts on ETP species.	Information is adequate to support a **comprehensive strategy** to manage impacts, minimize mortality and injury of ETP species, and evaluate with a **high degree of certainty** whether a strategy is achieving its objectives.
	Met?	**Yes**	**No**	**No**
Rationale				

Available information on number of expected interactions and identification of affected species is adequate to support measures to manage the impacts on ETP species. SG60 is met. However, there is no systematic recording of such interactions and most research was published in the same year (2016). Given the lack of historical records is not possible to determine trends of these interactions or to support a strategy to manage impacts on ETP species. SG80 is not met.

References

Erzini, K. et al. Catches in ghost-fishing octopus and fish traps in the northeastern Atlantic Ocean (Algarve, Portugal). Fish. Bull. 106 (3): 321–327 (2008).
Gomes, C. Report – Octopus (*Octopus vulgaris* Cuvier, 1797) sampling between Quarteira and Faro, in the south coast of Portugal. Experimental Work in Marine Biology (2016).
Villa de Brito, G. Common Octopus *(Octopus vulgaris)* sampling and bycatch analysis in a commercial fishing boat in Quarteira, Portugal. Faculty of Science and Technology – University of Algarve. 2016.
Cruz, J. The octopus fishery in Algarve (southern Portugal): monitoring of octopus stocks. Universidade do Algarve (2016).

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

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 on the basis of the area covered by the governance body(s) responsible for fisheries management in the area(s) where the UoA operates		
Scoring Issue		SG 60	SG 80	SG 100
a	Commonly encountered habitat status			
	Guide post	The UoA is **unlikely** to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.	The UoA is **highly unlikely** to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.	There is **evidence** that the UoA is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.
	Met?	**Yes**	**Yes**	**No**
Rationale				

According to Emodnet seabed habitat types, common encountered habitats in the UoA fishing grounds is sand and sandy sediments. Pots and traps are light and passive gear types that rely on bait (or darkness) to attract the target species and are generally considered to have slight impacts on the habitat. Different researchers support this statement:

- Shester and Micheli (2011) quantify and compare the ecosystem impacts of four gears (lobster traps, fish traps, set gillnets, drift gillnets) used in small-scale fisheries of Baja California, Mexico, using at-sea observations and field experiments. Results indicated that traps have minimal impacts on the most vulnerable biogenic habitats, supporting earlier conclusions that habitat and bycatch impacts of traps are expected to be non-significant in the Baja California (where the research took place).
- Eno et al (2001) examined the effects of fishing with crustacean traps on benthic fauna in UK through qualitative and quantitative experiments. This study examined the effects of lobster and crab traps being hauled from rocky substrates in southern England and found that the habitats and their communities appeared relatively unaffected by potting. Moreover, the short-term effects of potting on supposedly sensitive benthic species in west Wales and Lyme Bay did not appear to be detrimental.

Given this, the team considers that it is highly unlikely that the UoA would reduce the structure and function of common encountered habitats to a point where there would be serious or irreversible harm. SG60 and SG80 are met. Further information on the estimation of number of pots and traps used by the total UoA together with research on the impact by the fishing gear would be needed in order to achieve a higher score. At present SG100 is not met.

b	VME habitat status			
	Guide post	The UoA is **unlikely** to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.	The UoA is **highly unlikely** to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.	There is **evidence** that the UoA is highly unlikely to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.
	Met?	**N/A**	**N/A**	**N/A**
Rationale				

According to OSPAR broad scale map on the location of declining habitats in Portuguese waters, there are no VMEs overlapping the fishing grounds by the UoA. This SI is therefore N/A.

c	Minor habitat status			
	Guide post			There is **evidence** that the UoA is highly unlikely to reduce structure and function of the minor habitats to a

				point where there would be serious or irreversible harm.
	Met?			**No**

Rationale

Minor habitats are rocky areas. As above, evidence in form of research would be needed to support a SG100 score. While it is highly unlikely that the UoA would reduce structure and function of minor habitats to a point of serious or irreversible harm due to the light nature of the fishing gear, evidence is needed in order to meet the SG100 requirements. At present SG100 is not met.

References

Seabed habitat maps
OSPAR maps
MPA maps

Draft scoring range	**≥80**
Information gap indicator	**Information sufficient to score PI**
Data-deficient? (Risk-Based Framework needed)	**No**

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				

Fishing with pots and traps is only allowed in waters outside the different lagoons and at distances further than 1 nautical mile from the shoreline. While fishing in deeper waters is allowed, fishermen do not deploy the fishing gear at distances above 6 nautical miles, as trawling is allowed at 6 nm and the lines of pots and traps could be taken by trawlers. So effectively, the UoA deploys its gears at distances between 1 and 6 nm from the shoreline.

There are limitations in the number of pots and traps that can be deployed by each vessel/license, however to the team's knowledge this number is exceed. There are area restrictions inside the lagoons and also two marine protected areas (Southwest Alentejo and Ria Formosa MPAs) in the coast of Algarve. In any case, the light nature of the fishing gear serves to justify that the UoA achieves the Habitat Outcome 80 level or above. SG60 and SG80 are met. The team is not aware of any strategy to manage the impact of all fisheries on habitats. 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/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**	**Yes**	**No**
Rationale				

The measures (this is, the light nature of the gear and the area restrictions) are considered likely to work. SG60 is met. There is some objective basis for confidence to support this statement, as fishing gears are very light (even more since pots started to be made of plastic instead of clay, regardless of other impacts plastic may have) and fishing grounds very restrictive. SG80 is met. The lack of specific research on the habitat impacts caused by pots and traps and on the distribution of the different habitats involved prevent the UoA from achieving SG100. SG100 is not met.

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

There is some evidence that the partial strategy (which includes measures such as use of light gears, number of allowed gears and area restrictions) is implemented. There is army enforcement and surveillance to prevent fishing inside forbidden areas. However, there are uncertainties in relation to general accomplishment with these measures. Several stakeholders mention that number of pots and traps exceeds allowance and that there is fishing in restricted areas. Besides, there is no recovery of lost pots and traps which are cause of ghost fishing. The requirements at SG80 are 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?	**NA**	**NA**	**NA**

Rationale

According to OSPAR maps, there are no VMEs overlapping the UoA fishing grounds. This SI is N/A.

References

Emodnet, ospar and MPA maps.

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

PI 2.4.3 – Habitats information

PI 2.4.3		Information is adequate to determine the risk posed to the habitat by the UoA and the effectiveness of the strategy to manage impacts on the habitat		
Scoring Issue		SG 60	SG 80	SG 100
a	Information quality			
	Guide post	The types and distribution of the main habitats are **broadly understood**. **OR** **If CSA is used to score PI 2.4.1 for the UoA:** Qualitative information is adequate to estimate the types and distribution of the main habitats.	The nature, distribution and **vulnerability** of the main habitats in the UoA area are known at a level of detail relevant to the scale and intensity of the UoA. **OR** **If CSA is used to score PI 2.4.1 for the UoA:** Some quantitative information is available and is adequate to estimate the types and distribution of the main habitats.	The distribution of all habitats is known over their range, with particular attention to the occurrence of vulnerable habitats.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

Emodnet and OSPAR maps provide information on the nature, distribution and vulnerability of all habitats affected by the UoA, at a level of detail relevant to the scale and intensity of the UoA. SG60 and SG80 are met. These maps show that VMEs do not occur in the fishing grounds. SG100 is met.

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

Information provided by Emodnet and Ospar maps, as well as research by Eno et al (2011) and Shester and Micheli (2011) are enough to broadly understand the nature of the main impacts of the gear on main habitats, including spatial overlap of habitat with fishing activity. SG60 is met.

The number of licences together with the estimation of pots and traps deployed by each boat provide information on the spatial extent of interaction and the timing and location of the fishing gear. There is also a proxy by Erzini et al. (2008) on the number of lost gears in the region. SG80 is met. Since there is no quantification of the physical impacts of the fishing gears SG100 is not met.

c	Monitoring			
	Guide post		Adequate information continues to be collected to detect any increase in risk to the main habitats.	Changes in all habitat distributions over time are measured.
	Met?		**Yes**	**Yes**

Rationale

There is research in the area undertaken by different institutions, such as IPMA, Faro University, CCMAR and other institutions, including a regular update of Emodnet maps every few years. This research should serve to detect any increase in the risk to main habitats and to measure changes in habitat distributions if any. SG80 and SG100 are met.

References

Emodnet, Ospar and MPA's maps.
Shester, G.G., Micheli, F. 2011. Conservation challenges for small-scale fisheries: Bycatch and habitat impacts of traps and gillnets. Biological Conservation 144 (2011) 1673–1681.
http://web.stanford.edu/group/MicheliLab/pdf/13-Shester&Micheli2011BiolCons.pdf
Eno, N. C., MacDonald, D. S., Kinnear, J. A. M., Amos, C. S., Chapman, C. J., Clark, R. A., Bunker, F. St P. D., and Munro, C. 2001. Effects of crustacean traps on benthic fauna. – ICES Journal of Marine Science, 58: 11–20.
https://academic.oup.com/icesjms/article/58/1/11/603498
Erzini et al. (2008)

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

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**	**No**	**No**
Rationale				

The ecosystem in the Gulf of Cadiz is studied by different research institutions, including IPMA, CCMAR, Faro University, Cadiz University, IEO and CSIC. The food-web structure has been described with the Ecopath and Ecosim model, were 43 functional groups were included, including common octopus in the region (with a trophic level of 3,92). The EwE study reveals that the main trophic flows are determined by the interaction between detritus, phytoplankton and micro- and mesozooplankton. Cephalopods, together with rose shrimp (*Parapenaeus longirostris)* and dolphins present important overall effects as keystone species on the rest of the groups (Torres, 2013). The low impact nature of the fishing gear and the limited interactions with non-targeted species serve to support that the UoA unlikely to disrupt the key elements underlying ecosystem structure and function. SG60 is met.

Torres (2013) highlights the important role of octopus in the trophic chain. Given the uncertainties on the total biomass of octopus removed by the UoA and other fisheries in the area, and the uncertainties in the status of the stock, the team is not in a position to asseverate that the UoA is highly unlikely to disrupt the key elements underlying ecosystem structure and function. Further information is needed to confirm this statement. SG80 is not met.

References

Torres, M.A. Modelización ecológica del Golfo de Cádiz: Relaciones tróficas, análisis de la estructura de la comunidad e impacto de la pesca en el ecosistema. Tesis doctoral. Universidad de Cádiz. 2013.
Torres et al (2013). Food-web structure of and fishing impacts on the Gulf of Cadiz ecosystem (South-western Spain). Ecological Modelling 265, 26-44. https://doi.org/10.1016/j.ecolmodel.2013.05.019

Draft scoring range	**60-79**
Information gap indicator	**More information sought on the stock of octopus.**
Data-deficient? (Risk-Based Framework needed)	**No**

PI 2.5.2 – Ecosystem management strategy

PI 2.5.2		There are measures in place to ensure the UoA does not pose a risk of serious or irreversible harm to ecosystem structure and function		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are **measures** in place, if necessary which take into account the **potential impacts** of the UoA on key elements of the ecosystem.	There is a **partial strategy** in place, if necessary, which takes into account **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				

The UoA (and other fisheries in the area) is managed through licences which serve to regulate fishing effort. Removal of octopus by the UoA (and by other fisheries) can be estimated through the landing notes. There are also area restrictions (such as the limitation of fishing inside the 1nm zone). These measures conform a partial strategy which is expected to restrain impacts of the UoA on the ecosystem. SG60 and SG80 are met.

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

Effort regulations are considered likely to work, as they should work effectively in preventing the fishery from over exploitation or from causing ecosystem impacts to other species. SG60 is met. However, most stakeholders reported that the numbers of pots and traps set is much higher than those allowed by the regulation, creating room for overfishing, and that lost gears are not always recovered leading to ghost fishing. Besides, there is uncertainty on the ecosystem impacts that lost gears (especially plastic pots) may have in the different elements of the ecosystem. Given the important role of octopus in the trophic chain (as described by Torres, 2013), the team considers that there is no objective basis for confidence that the partial strategy will work. SG80 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				

Stakeholders comments highlighting that fishing effort by the UoA was higher than allowed in licenses prevent the fishery from meeting SG80, as there is no evidence that the partial strategy has been implemented successfully. SG80 is not met.

References

Information gathered at the site visit.
Torres, M.A. Modelización ecológica del Golfo de Cádiz: Relaciones tróficas, análisis de la estructura de la comunidad e impacto de la pesca en el ecosistema. Tesis doctoral. Universidad de Cádiz. 2013.
Torres et al (2013). Food-web structure of and fishing impacts on the Gulf of Cadiz ecosystem (South-western Spain). Ecological Modelling 265, 26-44. https://doi.org/10.1016/j.ecolmodel.2013.05.019

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

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				

The ecosystem in the Gulf of Cadiz is studied by different research institutions, including IPMA, CCMAR, Faro University, Cadiz University, IEO and CSIC. The food-web structure has been described with the Ecopath and Ecosim model, were 43 functional groups were included, including common octopus in the region. The EwE study reveals that the main trophic flows are determined by the interaction between detritus, phytoplankton and micro- and mesozooplankton. Cephalopods, together with rose shrimp (*Parapenaeus longirostris)* and dolphins present important overall effects as keystone species on the rest of the groups (Torres, 2013). Information gained by the different research institutions, together with the EwE model for the region, provide adequate information to identify and broadly understand the key elements of the ecosystem. SG60 and SG80 are met.

b	Investigation of UoA impacts			
	Guide post	Main impacts of the UoA on these key ecosystem elements can be inferred from existing information, but **have not been investigated** in detail.	Main impacts of the UoA on these key ecosystem elements can be inferred from existing information, and **some have been investigated in detail**.	Main interactions between the UoA and these ecosystem elements can be inferred from existing information, and **have been investigated in detail**.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

Torres (2013) thesis on trophic relationships in the Gulf of Cadiz and the impacts of the different fleets (including pots and traps in the neighbourhood area of the coast of Huelva and Cadiz), together with information gathered by Erzini et al. (2008), Gomes (2016), Villa de Brito (2016) and Cruz (2016) on interactions of the UoA with non-target species provide sufficient information on the main interactions between the UoA and key ecosystem elements. SG60, SG80 and SG100 are met.

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

Research information on the area is adequate to know and understand the main functions of the different components of the ecosystem. SG80 is met. Specifically, the impacts of the UoA on target, primary, secondary, ETP species and habitats are identified by different researchers. This has been done by research undertaken by Erzini et al. (2008), Gomes (2016), Villa de Brito (2016) and Cruz (2016). The EwE model for the Gulf of Cadiz serves to understand the main functions of these components in the ecosystem. SG100 is met.

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

The broad range of information collected by the different scientific institutions working in the area, together with the EwE model showing trophic relationships between the different species and the research on interactions of the UoA with non-target species is more than adequate to allow the main consequences for the ecosystem to be inferred, as regards both its components and elements. SG80 and SG100 are met.

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

Research institutions, including IPMA, CCMAR, Faro University, Cadiz University, IEO and CSIC conduct and ongoing research in the area, collecting data which would serve to detect any increase in risk level (SG80 is met) and providing information which would be adequate to support the development of strategies to manage ecosystem impacts. SG100 is met.

References

Torres, M.A. Modelización ecológica del Golfo de Cádiz: Relaciones tróficas, análisis de la estructura de la comunidad e impacto de la pesca en el ecosistema. Tesis doctoral. Universidad de Cádiz. 2013.
Torres et al (2013). Food-web structure of and fishing impacts on the Gulf of Cadiz ecosystem (South-western Spain). Ecological Modelling 265, 26-44. https://doi.org/10.1016/j.ecolmodel.2013.05.019
Erzini, K. et al. Catches in ghost-fishing octopus and fish traps in the northeastern Atlantic Ocean (Algarve, Portugal). Fish. Bull. 106 (3): 321–327 (2008).
Gomes, C. Report – Octopus (*Octopus vulgaris* Cuvier, 1797) sampling between Quarteira and Faro, in the south coast of Portugal. Experimental Work in Marine Biology (2016).
Villa de Brito, G. Common Octopus *(Octopus vulgaris)* sampling and bycatch analysis in a commercial fishing boat in Quarteira, Portugal. Faculty of Science and Technology – University of Algarve. 2016.
Cruz, J. The octopus fishery in Algarve (southern Portugal): monitoring of octopus stocks. Universidade do Algarve (2016).

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

8.6 Principle 3

8.6.1 Principle 3 background

European Union

European fisheries are managed through the European Union Common Fisheries Policy (CFP). The CFP started in 1983 and is reviewed every 10 years, with the most recent review coming into force in 1 January 2014 (Regulation (EU) No 1380/2014). This newly reviewed legislation aims to ensure that "fishing and aquaculture activities are environmentally sustainable in the long-term and are managed in a way that is consistent with the objectives of achieving economic, social and employment benefits, and of contributing to the availability of food supplies."

Other EU environmental legislation and international agreements that are applicable to habitats and species protection, but which are also relevant to fisheries activities are: the Marine Strategy Framework Directive (2008/56/EC) which obliges achieving a good environmental status by 2020; the Bird and Habitat Directives on the conservation of natural habitats providing the basis for the Natura 2000 networks; EC Regulation 812/2004 laying down measures concerning incidental catches of cetaceans; ASCOBANS (Agreement on the Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas); CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora); and finally the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention).

National

At a national level, individual Member States are responsible for implementing the CFP and other EU legislation and agreements. EU fisheries legislation is transposed directly to national legislation, while environmental and other agreements are transposed by primary and secondary national legislation, enacted in accordance with the EU legislation. The main fisheries law in Portugal is the Decreto-Lei 278/87.

A Member State may take non-discriminatory measures to conserve and manage fish stocks, as well as maintain or improve the conservation status of marine ecosystems within 12 nautical miles of its baselines, as long as the EU has not adopted specific measures addressing conservation and management in that area or specifically addressing the problem identified by the Member State concerned. The Member State measures must be compatible with the objectives set out in CFP Article 2 and must be at least as stringent as the measures under Union law.

The octopus pot & trap fishery in the Algarve is managed through the following measures nationally: a minimum size of 750 g established at EU level (Portaria 27/2001, Diário da República 12/2001), and a licencing scheme and weekend closed season to fishing for octopus with pot & traps established at national level (Despacho 127-A/2019, Diário da República 22/2019). Portaria 1102-D/2000 (Diário da República 270/2000) limits the number of traps and pots used in Portugal (traps: 500, 750 or 1000 units/≤9m, 9-12m and >12 m vessels respectively, and pots: 3.000 units/vessel), while Portaria 230/2012 (Diário da República 150/2012) establishes a prohibition to bait traps with live crabs in the Algarve region only. There is also the EU Western Waters MAP that establishes fishing capacity levels and a minimum mesh size for trawls targeting fish (in national legislation Portaria 1102-E/2000, Diário da República 270/2000). Finally, and although it is not in legislation, there is also a *de facto* freeze on fishing effort for the octopus fishery, where no new licences are given and existing ones cannot be changed for pots & traps fishing for octopus (information gathered at the site visit).

Consultation, roles and responsibilities

The Ministry of the Sea, and its Secretariat of Fisheries are the main government department for the management of Portuguese fisheries and the implementation of the Common Fisheries Policy.

The main institutions involved in management of the Algarve octopus pot & trap fishery are:

- European Commission DG MARE – responsible for drafting European legislation on the management of European fisheries in accordance with the Common Fisheries Policy.
- Ministry of the Sea, and its Secretariat of Fisheries responsible for overall management of Portuguese fisheries.
- Direção-Geral de Recursos Naturais, Segurança e Serviços Marítimos (DGRM), responsible for regulating, monitoring, enforcement and inspection of fishing, and providing structural support, e.g. from the European Maritime and Fisheries Fund.
- International Council for the Exploration of the Sea, ICES – provides the forum for consolidation of scientific work undertaken by scientists in participating national institutions (through relevant Expert Groups), and the delivery of advice on how best to manage fish stocks.

- European Commission's Scientific, Technical and Economic Committee for Fisheries, STECF – the fisheries scientific committee of the European Commission providing advice to the Commission on all aspects of fisheries science and economics.
- IPMA, national fisheries research institute, responsible for octopus fisheries analysis and advice.
- The South Western Advisory Council (SWAC), established in the 2002 CFP reform to increase stakeholders participation in the management of south western European fisheries. It includes representatives of the fisheries sector and other groups (including environmental NGOs).

All of these institutions have well established protocols covering their purpose, roles, operation, representation, consultation, and decision-making process, as well as for communicating policy, plans, decisions, and other information. Their roles are well understood and the interaction between them works effectively.

Nationally, there was the so-called project "Tertulias do Polvo", which organised between 2014-2016 monthly meetings involving all stakeholders (fishing industry, government, environmental NGOs, scientists) (Sonderblohm, 2016). These meetings constituted the start of a co-management framework for the octopus fishery in Portugal. Management measures were discussed and decided by all stakeholders. However, not all the measures agreed were taken forward by the government. The introduction of co-management is at present being discussed at national level, within the revision of the Decreto-Lei 278/87.

Long term and specific objectives for the fishery

The CFP has specific precautionary and MSY objectives to reach sustainable fisheries, namely to recover stocks biomass above maximum sustainable yield and reach MSY exploitation rates by 2015 where possible and, on a progressive, incremental basis at the latest by 2020 for all stocks.

The EU Marine Strategy Directive (Directive 2008/56/EC) also commits Members States to further foster the integration of environmental concerns into other relevant policies, such as the CFP, in order to achieve 'good environmental status' in the marine environment, through the development and implementation of national level policies based on an ecosystem approach.

Regarding the management of the Algarve octopus pot & trap fisheries (Principle 1) and its impact on ecosystem (Principle 2), the management system is in general less developed and less comprehensive when compared to other fish stocks, and there are no specific objectives for the Algarve pot & trap octopus fishery.

Control, enforcement, and compliance

The overall CFP requirements for Monitoring, Control and Surveillance (MCS) are enshrined in the Fisheries Control Regulation (Council Regulation (EC) 1224/2009). The specifications of the EU MCS systems (operational procedures) are well developed, are in place, and are applied in a clear and transparent way.

Portugal as a Member State of the European Union, its fisheries are subject to the principles and practices of the CFP, including its MCS systems. However, control and enforcement activities are an exclusive national competence. The DGRM is responsible for monitoring, enforcement and inspection of fishing. There is clear system of monitoring quota uptake, based on e-logbooks for vessels over 12 meters and paper logbooks for vessels over 9 meters, cross referenced with sales notes. As most UoA vessels are between 9 and 12 meters most only have paper logbooks.

Overall there is a low degree of confidence in the enforcement system and there is significant evidence of systematic non-compliance. The majority, if not all stakeholders interviewed stated that the Algarve octopus pot & trap fishery are operating in low compliance with existing management rules.

8.6.2 Principle 3 Performance Indicator scores and rationales

PI 3.1.1 – Legal and/or customary framework

PI 3.1.1	**The management system exists within an appropriate legal and/or customary framework which ensures that it:** - **Is capable of delivering sustainability in the UoA(s);** - **Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and** - **Incorporates an appropriate dispute resolution framework**		
Scoring Issue	SG 60	SG 80	SG 100

a	Compatibility of laws or standards with effective management			
	Guide post	There is an effective national legal system **and a framework for cooperation** with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2	There is an effective national legal system and **organised and effective cooperation** with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2.	There is an effective national legal system and **binding procedures governing cooperation with other parties** which delivers management outcomes consistent with MSC Principles 1 and 2.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

European fisheries are managed through the European Union Common Fisheries Policy (CFP). The CFP has specific precautionary and MSY objectives to reach sustainable fisheries in the context of ecosystem based management, and therefore has management outcomes consistent with MSC principles 1 and 2. Portugal has enacted the CFP in its 1986 Fisheries law and has set management objectives in line with its principles. SG60 and SG80 is reached. Also, Portugal as part of the EU is under binding procedures governing cooperation with other Member States and other parties and thus SG100 is also met.

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

Disputes between Member States and the European Commission are resolved in the Council of Ministers, while legal disputes between European Institutions and with EU governments can be taken to the Court of Justice of the European Union. Nationally, the resolution of legal disputes is made through the Portuguese judicial system. In the event of a fisheries infringement, the DGRM passes the details to the public prosecutor who will then decide the value of the fine. Fishers, or industry representatives, can appeal to the full judicial process. Therefore SG60 and SG80 are met. However, there is no information that the system has been tested and proven to be effective and thus SG100 is not met.

c	Respect for rights			
	Guide post	The management system has a mechanism to **generally respect** the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	The management system has a mechanism to **observe** the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	The management system has a mechanism to **formally commit** to the legal rights created explicitly or established by custom of people dependent on fishing for food and livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

The EU CFP, and in national legislation Decreto-Lei 278/87, and its management system has a mechanism to formally commit to the legal rights of people depending their livelihoods from fishing and thus SG 60, 80 and 100 are met.

References

Information gathered at the site visit.

Decreto-Lei 278/87

Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy, amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 2004/585/EC.

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

PI 3.1.2 – Consultation, roles and responsibilities

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

The major institutions involved in the management of the Algarve octopus pot & trap fishery are well known and their functions and roles are explicitly defined and well understood. The Tertulias project has clearly helped clarifying any doubts that may have existed in these roles and responsibilities, but particularly in the individuals involved in the management. Therefore SG100 is reached.

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**	**No**	**No**
Rationale				

At European level there are several consultation processes that include local knowledge to inform management system, namely through the ACs and different industry associations and environmental organisations, that meet regularly. At national level, the Tertulia initiative constituted a regular consultation process. And thus SG 60 is met. However, this consultation process is still informal and thus SG80 is not reached.

c	Participation			
	Guide post		The consultation process **provides opportunity** for all interested and affected parties to be involved.	The consultation process provides **opportunity and encouragement** for all interested and affected parties to be involved, and **facilitates** their effective engagement.
	Met?		**Yes**	**No**

Rationale

There are no barriers for any type of stakeholder to participate in a consultation process, and the Tertulias initiative was proof of it, and thus SG80 is reached. However, this type of regular consultation, implicit in a co-management framework, has not been adopted yet by the management system and as such does not facilitate or encourages stakeholder involvement and SG100 is not met.

References

Information gathered at the site visit.

Sonderblohm, C., Guimarães, H., Rainha, R., Gonçalves, J.M.S., Pereira, J., Gaspar, M., Erzini, K., Rangel, M. 2016. Livro verde da pesca do polvo no Algarve. Centro de Ciências do Mar (CCMAR), Universidade do Algarve; Direcção Regional de Agricultura e Pescas do Algarve (DRAP Algarve). GOBIUS Comuniação e Ciência, 48p.

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

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

The CFP has clear precautionary and MSY long term objectives, while the Portuguese fisheries law is in accordance with these objectives. In addition, the EU Marine Strategy Directive (Directive 2008/56/EC) also commits Members States to further foster the integration of environmental concerns into other relevant policies, such as the CFP, in order to achieve 'good environmental status' in the marine environment.

References

Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy, amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 2004/585/EC.

Decreto-Lei 278/87

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?	**No**	**No**	**No**

Rationale

There are no clear fishery specific objectives for the Algarve octopus pot & trap fishery. Although the CFP and national general fisheries law has specific precautionary and MSY objectives, there have not been translated in a fisheries management plan with specific objectives. The fishery specific management system includes input limits (licences, maximum number of traps and pots deployed, number of fishing days and soaking time) but these are not necessarily in line with MSY objectives or with avoiding wider ecosystem impacts in line with P2 objectives. Therefore SG60 is not reached.

References

Information gathered at the site visit.

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

PI 3.2.2 – Decision-making processes

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

There are some decision making process in place through the EU CFP and its implementation, such as establishing specific technical measures like minimum size by co-decision, and thus SG60 is met. However, while the process of co-management is not formalised in Portugal there are no established decision making processes for the UoA and SG80 is not reached.

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

At EU there is a decision making process that responds to serious issues such as the poor state of a stock, of the systematic non-compliance for example of the Landing Obligation. Although there is also a decision-making process nationally and SG60 is met, it does not respond to other important issues such is the case of non-compliance with the management measures in place for the octopus pot & trap fishery, or with the management measures proposed by stakeholders and this SG80 is not met.

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

The decision-making process at EU level uses the precautionary approach, while the management proposed by stakeholders and embedded in national law also use the precautionary approach and were based on the best available scientific information and thus SG80 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**	**No**
Rationale				

Information on stock sustainability and on the fishery is available publicly trough for example the Livro Verde (Sonderblohm, 2016), and explanations were provided to stakeholders why some of the measures proposed and agree in the Tertulias were not taken forward by management. Thus SG60 and 80 are met. However, since there is no formal reporting SG100 is not met.

	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?	**No**	**No**	**No**
Rationale				

There is evidence that the fishery repeatedly violates several fisheries laws necessary for the sustainability for the fishery, and namely the minimum size, which is one measure most stakeholders agree is likely to be the most effective in ensuring the sustainability of the stock but it is not followed, and thus SG60 is not met.

References

Information gathered at the site visit.

Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy, amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 2004/585/EC.

Decreto-Lei 278/87

Sonderblohm, C., Guimarães, H., Rainha, R., Gonçalves, J.M.S., Pereira, J., Gaspar, M., Erzini, K., Rangel, M. 2016. Livro verde da pesca do polvo no Algarve. Centro de Ciências do Mar (CCMAR), Universidade do Algarve; Direcção Regional de Agricultura e Pescas do Algarve (DRAP Algarve). GOBIUS Comuniação e Ciência, 48p.

Draft scoring range	**<60**

Information gap indicator	**More information sought**

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			
	Guide post	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?	**No**	**No**	**No**
Rationale				

MCS mechanisms exist but are focused on the safety of the fishery and the required paperwork in the pots & traps fishery, and at sea activities are more focused on trawlers. Therefore the MCS mechanisms that are implemented are not effective and SG60 is therefore not met.

b	Sanctions			
	Guide post	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				

Sanctions exist in the Portuguese law and there is evidence that they are applied for example in cases of landings of undersize octopus and thus SG60 is met. However, there is no evidence that sanctions are consistently applied as for example landings of undersize individuals occur frequently or are sold illegally and thus SG80 is not met.

c	Compliance			
	Guide post	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?	**No**	**No**	**No**
Rationale				

Although fishers are known to collaborate with scientific projects and provide the required data for the authorities, they are not generally thought to comply with the management measures in place, except for the weekend prohibition for fishing and the 48 hours gear soaking time. Therefore SG60 is not met.

	Systematic non-compliance			
d	Guide post		There is no evidence of systematic non-compliance.	
	Met?		**No**	

Rationale

All stakeholders interviewed refer to at least two major illegal activities being widespread in the fishery: number of pots and traps exceed the maximum legal limit and landings under minimum weight are frequent and sold outside official landing site Docapesca. Therefore there is evidence of systematic non-compliance and SG80 is not reached.

References

Information gathered at the site visit.

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

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			
	Guide post	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**	**Yes**	**No**
Rationale				

There are mechanisms in place to evaluate key parts of the fishery specific management system, namely monitoring of catches, licences, and minimum size. SG 60 and 80 is met. However, it is unclear if all parts of the management system are evaluated and thus SG100 is not reached.

b	Internal and/or external review			
	Guide post	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 process of co-management through the Tertulias has initiated a process of internal review of the fishery specific management measures, such as the minimum weight or the number of permitted traps & pots and the type of bait. SG60 and SG80 are therefore reached. However, this process is still in a non-formal state and thus one cannot say that the fishery-specific management system is subject to regular external review and thus SG100 is not met.

References

Information gathered at the site visit

Sonderblohm, C., Guimarães, H., Rainha, R., Gonçalves, J.M.S., Pereira, J., Gaspar, M., Erzini, K., Rangel, M. 2016. Livro verde da pesca do polvo no Algarve. Centro de Ciências do Mar (CCMAR), Universidade do Algarve; Direcção Regional de Agricultura e Pescas do Algarve (DRAP Algarve). GOBIUS Comuniação e Ciência, 48p.

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

9 Appendices

9.1 Assessment information

9.1.1 Small-scale fisheries

Table X – Small-scale fisheries

Unit of Assessment (UoA)	Percentage of vessels with length <15m	Percentage of fishing activity completed within 12 nautical miles of shore
Algarve octopus pots & traps fishery	100%	100%

9.2 Evaluation processes and techniques

9.2.1 Site visits

The site visit was carried out by Lisa Borges and Lucia Revenga between the 30-31 October 2019, with the participation of Alberto Martin and Rodrigo Sengo from MSC, and included a visit to the port and auction of Fuseta, and interviews (in person or through phone calls) with the following stakeholders:

- President and secretariat of the Associação de Armadores de Pesca da Fuzeta – AAPF
- Instituto Português do Mar e da Atmosfera – IPMA, Olhão and Lisbon (via call)
- Center of Marine Sciences – CCMAR, Gambelas, Faro
- University of Algarve, Gambelas, Faro
- Sciaena (via call)
- WWF (via call)
- Direção-Geral de Recursos Naturais, Segurança e Serviços Marítimos, Lisbon (in person interview 11 November, Lisa Borges and Rodrigo Sengo)
- Consultant and former PhD student (call 8 November, Lisa Borges)

9.2.2 Recommendations for stakeholder participation in full assessment

All stakeholders contacted in this pre-assessment should participate in a full assessment, jointly with additional fishers associations, and particularly from Santa Luzia.

9.3 Risk-Based Framework outputs

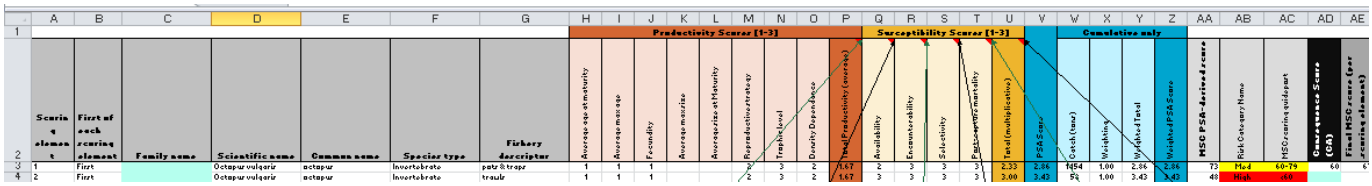
9.3.1 Consequence Analysis (CA)

Since there is no information on stock status for octopus in the Algarve Region a Risk Based Assessment was carried out to score PI 1.1.1 assuming a priori a high risk in the Consequence Analysis and conducting PSA directly.

9.3.2 Productivity Susceptibility Analysis (PSA)

Table X – PSA productivity attributes and scores		
Performance Indicator	1.1.1	
Productivity		
Scoring element (species)	Common octopus (*Octopus vulgaris*)	
Attribute	Rationale	Score
Average age at maturity	1-2 years	**1**
Average maximum age	2 years	**1**
Fecundity	>20.000 eggs per year	**1**
Average maximum size Not scored for invertebrates		**NA**
Average size at maturity Not scored for invertebrates		**NA**
Reproductive strategy	Demersal egg layer	**2**
Trophic level	>3.5	**3**
Density dependence Invertebrates only	No depensatory or compensatory dynamics demonstrated or likely	**2**
Susceptibility		
Fishery Only where the scoring element is scored cumulatively	Pot & trap and trawl	
Attribute	Rationale	Score
Areal Overlap	The pot & trap and trawl fisheries operate in an area corresponding to between 10%-30% and more than 30% of the stock area, respectively.	**2/3**
Encounterability	High overlap with fishing gear - default score for target species.	**3**
Selectivity of gear type	Individuals < size at maturity are frequently caught and individuals < half the size at maturity are retained by gear.	**3**
Post capture mortality	Retained species default score.	**3**

Catch (weight) Only where the scoring element is scored cumulatively	Pot & trap 96% - trawl 4%	**NA**



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE
1								Productivity Scores [1-3]									Susceptibility Scores [1-3]						Cumulative only								
2	Scoring elements	First of each scoring element	Family name	Scientific name	Common name	Species type	Fishery descriptor	Average age at maturity	Average max age	Fecundity	Average max size	Average size at Maturity	Reproductive strategy	Trophic level	Density Dependence	Total Productivity (average)	Availability	Encounterability	Selectivity	Post-capture mortality	Total (multiplicative)	PSA Score	Catch (tons)	Weighting	Weighted Total	Weighted PSA Score	MSC PSA-derived score	Risk Category Name	MSC scoring guidepost	Consequence Score (CS)	Final MSC score (per scoring element)
3	1	First		Octopus vulgaris	octopus	Invertebrate	pots & traps	1	1	1			2	3	n/a	1.67	2	3	3	3	2.33	2.86	1.54	1.00	2.86	2.86	73	Med	60-79	60	60
4	2	First		Octopus vulgaris	octopus	Invertebrate	trawls	1	1	1			2	3	n/a	1.67	3	3	3	3	3.00	3.42	98	1.00	3.43	3.42	48	High	≤59		

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11 Template information and copyright

This document was drafted using the ‘MSC Pre-Assessment Reporting Template v3.1’.

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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