



JRC SCIENCE FOR POLICY REPORT

Scientific, Technical and Economic
Committee for Fisheries (STECF)

–

Management Plan for boat seines
in Murcia, Spain (STECF-19-19)

Edited by Clara Ulrich and Hendrik Doerner

This publication is a Science for Policy report by the Joint Research Centre (JRC), the European Commission's science and knowledge service. It aims to provide evidence-based scientific support to the European policy-making process. The scientific output expressed does not imply a policy position of the European Commission. Neither the European Commission nor any person acting on behalf of the Commission is responsible for the use which might be made of this publication.

Contact information

Name: STECF secretariat

Address: Unit D.02 Water and Marine Resources, Via Enrico Fermi 2749, 21027 Ispra VA, Italy

E-mail: jrc-stecf-secretariat@ec.europa.eu

Tel.: +39 0332 789343

JRC Science Hub

<https://ec.europa.eu/jrc>

JRC118074

EUR 28359 EN

PDF	ISBN 978-92-76-11879-4	ISSN 1831-9424	doi:10.2760/890396
-----	------------------------	----------------	--------------------

STECF	ISSN 2467-0715
-------	----------------

Luxembourg: Publications Office of the European Union, 2019

© European Union, 2019

The reuse policy of the European Commission is implemented by Commission Decision 2011/833/EU of 12 December 2011 on the reuse of Commission documents (OJ L 330, 14.12.2011, p. 39). Reuse is authorised, provided the source of the document is acknowledged and its original meaning or message is not distorted. The European Commission shall not be liable for any consequence stemming from the reuse. For any use or reproduction of photos or other material that is not owned by the EU, permission must be sought directly from the copyright holders.

All content © European Union 2019

How to cite: Scientific, Technical and Economic Committee for Fisheries (STECF) - Management Plan for boat seines in Murcia, Spain (STECF-19-19). Publications Office of the European Union, Luxembourg, 2019, ISBN 978-92-76-11879-4, doi:10.2760/890396, JRC118074

All images © European Union 2019

Abstract

Commission Decision of 25 February 2016 setting up a Scientific, Technical and Economic Committee for Fisheries, C(2016) 1084, OJ C 74, 26.2.2016, p. 4–10. The Commission may consult the group on any matter relating to marine and fisheries biology, fishing gear technology, fisheries economics, fisheries governance, ecosystem effects of fisheries, aquaculture or similar disciplines. This report deals with the review of a management plan for boat seines in Murcia, Spain. The STECF produced its advice by written procedure in September 2019.

Authors:**STECF advice:**

Abella, J. Alvaro, Bastardie, Francois, Borges, Lisa, Casey, John, Catchpole, Thomas, Damalas, Dimitrios, Daskalov, Georgi, Döring, Ralf, Gascuel, Didier, Grati, Fabio, Ibaibarriaga, Leire, Jung, Armelle, Knittweis, Leyla, Kraak, Sarah, Ligas, Alessandro, Martin, Paloma, Motova, Arina, Moutopoulos, Dimitrios, Nord, Jenny, PELLEZO, Raúl, O'Neill, Barry, Raid, Tiit, Rihan, Dominic, Sampedro, Paz, Somarakis, Stylianos, Stransky, Christoph, Ulrich, Clara, Uriarte, Andres, Valentinsson, Daniel, van Hoof, Luc, Vanhee, Willy, Villasante, Sebastian, Vrgoc, Nedo

TABLE OF CONTENTS

SCIENTIFIC, TECHNICAL AND ECONOMIC COMMITTEE FOR FISHERIES (STECF) - Management Plan for boat seines in Murcia, Spain (STECF-19-19) .5	
Request to the STECF	5
Background of the management plan	5
Summary of information provided to the STECF.	6
STECF response to the various elements of the ToRs	10
STECF conclusions.....	15
References.....	16
Contact details of STECF members	16

SCIENTIFIC, TECHNICAL AND ECONOMIC COMMITTEE FOR FISHERIES (STECF) - Management Plan for boat seines in Murcia, Spain (STECF-19-19)

Request to the STECF

The STECF is requested to:

TOR 1. Advice and assess whether the management plan for boat seines in Murcia contains adequate elements in terms of:

1.1. The description of the fisheries

- Recent and historical data on catches (landings and discards) of the species concerned, fishing effort and abundance indices such as catch-per-unit-effort (or CPUE).
- Data on length-frequency distribution of the catches, with particular reference to the species subject to minimum sizes in accordance with Annex III of the MEDREG¹.
- An updated state of the exploited resources.
- Information on economic indicators, including the profitability of the fisheries.

1.2. Objectives, safeguards and conservation/technical measures

- Objectives consistent with article 2 of the CFP² and quantifiable targets, such as fishing mortality rates and total biomass.
- Measures proportionate to the objectives, the targets and the expected time frame.
- Safeguards to ensure that quantifiable targets are met, as well as remedial actions, where needed, including situations where the deteriorating quality of data or non-availability places the sustainability of the main stocks of the fishery at risk.
- Other conservation measures, in particular measures to fully monitor catches of the target species, to gradually eliminate discards and to minimise the negative impact of fishing on the ecosystem.

1.3. Other aspects

- Quantifiable indicators for periodic monitoring and assessment of progress in achieving the objectives of the plan.

TOR 2. Provide recommendations to improve the scientific/technical basis of the plan, **in particular regarding the evaluation of the status of the target stocks**. Recommendations could also be given in terms of collection of data, impact on the marine ecosystem and monitoring programme.

Background of the management plan

The transparent goby (*Aphia minuta*) is a small pelagic coastal goby (maximum length <60 mm in the Mediterranean Sea) with a life span of approximately 1 year. The species is characterized by a unique larval morphology and early sexual maturation (progenesis). The breeding season is quite long and spawning takes place at least twice during its short life span. Juveniles aggregate in schools in shallow water during winter (La Mesa et al. 2005, Morales-Nin et al. 2017). These aggregations of juveniles are the target of the transparent goby fishery. The fishing season of

¹ Council Regulation (EC) No 1967/2006 of 21 December 2006 concerning management measures for the sustainable exploitation of fishery resources in the Mediterranean Sea, amending Regulation (EEC) No 2847/93 and repealing Regulation (EC) No 1626/94. [OJ L 409, 30.12.2006, p. 11-85](#).

² 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. [OJ L 354, 28.12.2013, p. 22-61](#).

transparent goby in the Murcia Region (western Mediterranean) extends from December to February.

The first management plan for the transparent goby boat seine fishery in the Murcia Region was adopted in 2013. A derogation regarding the minimum distance from the coast and depth was granted. As stated in the Commission Implementing Regulation EU No 773/2013, the fishing activities concerned are highly selective, they have a negligible effect on the environment and are not affected by provisions in Article 4(5) of Regulation (EC) No 1967/2006, and are thus eligible for the derogation from the minimum mesh size rules set by Article 9(3) of Regulation (EC) No 1967/2006 (cf Article 9(7)). This derogation affected 29 vessels in 2013.

In 2016, Spain submitted a new management plan for boat seines and derogation request for boat seines targeting transparent goby (*Aphia minuta*) in Murcia. The STECF review was undertaken in August 2016 (STECF-16-15). STECF conclusions were the following:

"Although it is not possible to determine whether the current MP strictly ensures the sustainable exploitation of transparent goby in accordance with the MSY objective of the EU Common Fishery Policy, it can be concluded that the Murcia MP contains the elements necessary for limiting the level of exploitation of transparent goby in the Murcia region, including, a limited fishing period, limitation of the fishing effort, maximum yearly catches, HCRs and monthly CPUE thresholds below which the fishery should be limited or closed. STECF notes nevertheless that since the MP is not based on an analytical assessment, an adaptive approach to the management plan should be adopted, and the CPUE threshold should be decreased if there are signs of degradation of the stock of transparent goby. An independent survey index should be established to monitor the trends in biomass."

The derogation regarding minimum distance from the coast and depth for at least three years was then granted again in April 2017 and will apply until 31 December 2019 (Commission Implementing Regulations (EU) 2017/677). The number of vessels affected by the extension is 27. As for the mesh size, given that the fishing activities concerned are highly selective, have a negligible effect on the marine environment and are not affected by the provisions in Article 4(5), in line with Article 9(7) of Regulation (EC) No 1967/2006 Spain authorised a derogation from these provisions in its management plan (Commission implementing Regulation 2017-677, Alinea (19).

An extension of the derogation regarding minimum distance from the coast and depth for at least three years is requested.

Summary of information provided to the STECF.

- 1) *INFORME SEGUIMIENTO CIENTÍFICO. Plan de Gestión para la pesca tradicional del chanquete (Aphia minuta) en aguas de la Región de Murcia, España. Periodo 2016-2019 (SCIENTIFIC MONITORING REPORT. Management plan for the traditional fishing of transparent goby (Aphia minuta) in the waters of the Murcia Region, Spain. Period 2016-2019)*

Spain had to communicate a report to the Commission, within three years following the entry into force of the derogation regarding the minimum distance from the coast and depth, in accordance with the monitoring plan established in the management plan. The report informs on the management measures in force and on the activity of the boat seine fishery during the fishing seasons 2016-2017, 2017-2018 and 2018-2019.

The management measures considered in the management plan include:

- Limitation of the number of vessels

A census of vessels authorized for fishing transparent goby was established according to the characteristics of the vessels (overall length of less than 12 m and maximum power of 116 HP), and a track record in the fishery of at least five years in the period 2001-2011, with a minimum of 30 fishing days targeting transparent goby.

- The derogation in force applies to 27 vessels. The vessels that in the period 2012-2016 did not undertake a minimum of five fishing days are replaced by vessels registered in the census. Priority is given to vessels of the same base port as the vessels that withdraw from the fishery, with the aim of avoiding the concentration of licenses in a given port.

- The vessels with license have to demonstrate at least 10 fishing days in a fishing season; otherwise they will be replaced by vessels of the reserve list.

- During the transparent goby fishing season, the authorized vessels will not use other small-scale fishing gears

- The vessels are equipped with a localization and monitoring system (TETRAPES).

- The fishing season extends from December to February, from Monday to Friday, and daily from 08:00 to 17:00.

- The target species is transparent goby (*Aphia minuta*). Other authorized species are Ferrer's goby (*Pseudaphia ferreri*) and crystal goby (*Crystallogobius linearis*), with very low catches.

- A detailed description of the fishing gear.

- Establishment of catch limits including fishing season TAC (t), daily TAC (CPUE, kg/day/vessel, varying per vessel depending on the number of fishers on board), and of reference points in the form of CPUE thresholds (monthly lower limit reference CPUE (kg/day/vessel), defined based on the cumulated distribution of CPUE (details are given in the next sections)).

- Measures of correction in case the CPUE thresholds are not achieved (fishing effort decreases, closure of the fishery).

- All transparent goby catch must be landed in authorized ports and first sale is done by auction.

- Obligation of filling in daily catch forms, informing on the vessel, port, initial and final time of the daily activity as well as, per haul, position, depth and transparent goby catch. This document is compulsory for the catch to be commercialized at the auction. Only hauls catching transparent goby are recorded. Most of the hauls catch less than 10 kg. The data in these forms is later checked against the values from the auction, and generally, differences are small, slightly underestimated in the log-books.

The fleet operates mostly at <18 m depth (88% hauls carried out at <18 m depth, and 99% hauls at <26 m depth), according to the log-book information. Most of the transparent goby catch is caught between 10 and 18 m depth.

Biological information on the sex ratio of mature individual of transparent goby is presented for the entire fishing season. Females are largely dominant during the fishing season, from December to February (95%). The presence of females with oocytes increases as the fishing season progresses, from 0 in December to 28% in February.

The fishery is managed by a Co-Management Committee, with the participation of the Administration and the fishing sector, with the possibility to invite scientific bodies and environmental organizations to participate in the meetings. Measures to be taken in case of infringement are agreed by the Committee. The Co-management Committee, its functioning and responsibilities are established in the Spanish Order that regulates the transparent goby fishery (Document 2).

The report includes detailed information on the administrative and scientific monitoring, at fleet and vessel level, as well as on the control measures.

Sales slips provide the information on landings and income from the sale at the auction, by fishing season, port and vessel. During the three fishing seasons reported, a total of 38.2 tonnes were sold, that generated 965.903 euros at auction (more than 25 euros per kg). In the 2016-2017 fishing season the total catch was 18.2 t, close to the established TAC for the fishing season of 20 t. In the following two fishing seasons the total landed catch was around half the fishing season TAC. Nevertheless, the mean first sale price at the auction in the 2018-2019 fishing was 35.90 euros/kg. The final price paid by the consumer can be 40-50 euros/kg.

The TAC per fishing season was fixed as the 75% percentile of the catch series 2001-2010. This allocation key has not been updated.

In the two most recent fishing seasons, the number of fishing days in February decreased in comparison to the previous months because of the implementation of the fishing effort restrictions applicable when the minimum monthly thresholds are not reached. In February 2018 the fishery was closed.

- 2) *Anexo I. Orden de 25 de noviembre de 2016, de la Consejería de Agua, Agricultura y Medio Ambiente, por la que se regula la pesquería del chanquete (*Aphia minuta*) en aguas interiores de la Región de Murcia (Order of 25 November 2016 of the Water, Agriculture and Environment Department regulating the transparent goby fishery (*Aphia minuta*) in the internal waters of the Murcia Region)*

The transparent goby fishery is regulated by the "Orden de 25 de noviembre de 2016", published on 30 November 2016. This Order came into force on the date of publication and ended on 1

March 2019. This order was updated according to findings of the monitoring report of the transparent goby fishery (2012-2016).

Doc 1 (Scientific monitoring report) reports on the implementation of this Order in the period 2016-2019.

A total of 51 vessels are included in the census of vessels that can be authorized for fishing transparent goby, i.e. they fulfil the requirements regarding vessel characteristics and track record in the fishery. The number of vessels authorized for the transparent goby fishery is 28.

The document specifies the rules and requirements regarding the fishing season, fishing gear, fishing days/week and hours/day, census of authorized vessels, authorized landing ports, log-book, reference points and associated management measures, scientific monitoring, co-management committee, and administrative control and enforcement measures in case of infraction.

3) Anexo II. Pre-evaluación MSC chanquete Murcia WWF-Spain (Octubre 2018) (MSC Pre-assessment of the transparent goby fishery Murcia WWF-Spain (October 2018)).

The main source of information of the MSC pre-assessment is Doc 1 "The monitoring of the Management Plan for the transparent goby fishery in Murcia (2016-2019)".

The MSC pre-assessment of the transparent goby fishery in Murcia identified three issues that needed to be improved:

- The stock status and the harvest control rules.
- The status of by-catch species (commercial and non-commercial) and the impact of the fishing gear on the habitat, taking into account the different types of sea bottom (proximity to seagrass meadows, shallow sandy bottom, etc.).
- The need for a more specific management and more explicit precautionary approach in the management of the fishery and decision-making.

Regarding the weaknesses highlighted in the MSC report, since to date no stock assessment is available, reference points have been established based on catch and effort time series; the fishery is managed on a monthly basis.

As for the status of species other than the target species transparent goby, there are no reference points defined for these species. The amount of by-catch species is however very low and they are immediately released after catch.

Although the impact of the fishing gear is acknowledged to be low or negligible, the information collected on board during the scientific sampling (presence of sediment, stones, sessile species, *Posidonia oceanica*) is considered insufficient. No further explanation is given for this conclusion.

The report identifies a lack of transparency in the regular assessment of the implementation of the management plan, because it is carried out internally in the frame of the co-management committee.

STECF response to the various elements of the ToRs

TOR 1. *Advice and assess whether the management plan for boat seines in Murcia contains adequate elements in terms of:*

1.1. The description of the fisheries

- *Recent and historical data on catches (landings and discards) of the species concerned, fishing effort and abundance indices such as catch-per-unit-effort (or CPUE).*

The fishery in terms of catch, effort and CPUE is described in detail. Data provided include:

- Catch, income and mean price, by fishing season, for the period 2001-2002 to 2018-2019; catch, CPUE, income and mean price detailed by fishing season and month for the period 2012-2013 to 2018-2019;
- Fishing days, catch, income and daily income by vessel for the period 2016-2017 to 2018-2019.

From the implementation of the management plan, the number of vessels decreased from 40 that regularly participated in the transparent goby fishery to the current 27 licenses (fishing period 2018-2019).

STECF notes that there is a minor inconsistency in the number of vessels to which the derogation regarding distance from the coast and minimum depth affects. When the derogation was published in 2013 the number was 29; in the extension of the derogation to 2019 it was 27; and according to the Spanish regulation in force the number of vessels cannot be higher than 28.

- *Data on length-frequency distribution of the catches, with particular reference to the species subject to minimum sizes in accordance with Annex III of the MEDREG¹.*

Transparent goby is the dominant species in the catch. Results of the biological examination are presented for transparent goby, and also for Ferre's goby and crystal goby. Length frequency distributions are presented by season and month for the last three fishing seasons merged (2016-2019) and for the period 2012-2019 (all fishing seasons merged). The length frequency distributions of these two periods of different duration are very similar. The monthly length frequency distributions of transparent goby suggest the incorporation of recruits from autumn spawning, in addition to those from spring spawning.

The presence in the catches of under-sized individuals of MEDREG Annex III species is very low (1% in weight). These species include *Diplodus annularis* (observed in 10 of the 50 sampled hauls), *Pagellus erythrinus* and *Trachurus* sp. (in 6 hauls), and *Pagellus acarne* and *Engraulis encrasicolus* (observed in 1 haul). Length-frequency distributions are not presented.

Squid (*Loligo vulgaris*) was observed in 1 of the 50 hauls examined for the determination of the specific composition of by-catch.

- *An updated state of the exploited resources.*

No standard analytical assessment is available. Management is based on TACs (fishing season and daily by vessel) and monthly limit reference CPUE (kg/day/vessel).

Catches of transparent goby are fluctuating. Catch data are provided for the period 2001-2002 to 2018-2019. Highest transparent goby catches along this period were achieved at the beginning of the series, in 2001-2002 (22.4 t), 2003-2004 (20.7 t) and 2004-2005 (18.7 t). From 2005-2006 to 2018-2019 catches fluctuated around a mean value of 11.8 t per fishing season, with minimum catch in 2014-2015 (5 t; the fishery was closed) and a maximum in 2016-2017 (18.1 t). No major trends in total catches have been detected since the beginning of the management plan in 2013.

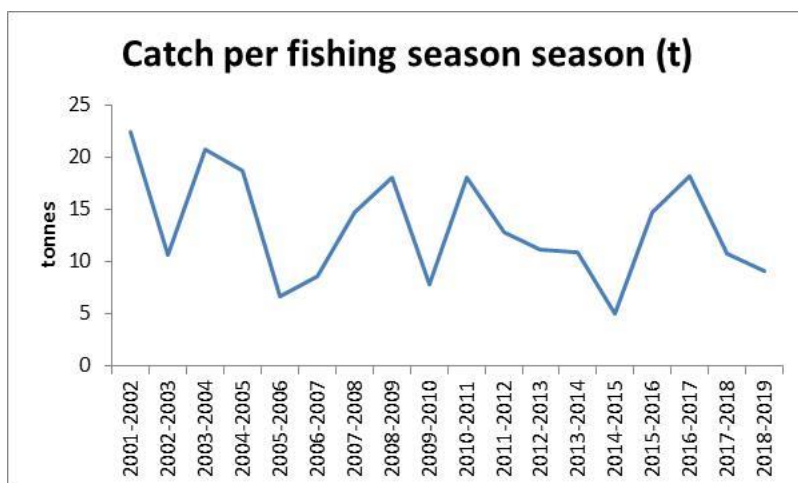


Fig. 1. Transparent goby catch per fishing season (t) in the Murcia Region.

Because of the very short life span of transparent goby, catch limits and CPUE reference points were proposed as empirical in-season management measures aimed at the protection of the resource. CPUE are taken as a proxy of the species abundance. The CPUE per month has also been fluctuating with a slight decreasing trend overall (Figure 2).

Environmental conditions play likely a major role in the annual fluctuations of the catches, but because of the short life-span of the species it remains difficult to disentangle the fishery effects from the environmental effects. The fishing season, targeted on juveniles, overlaps however only partially with the spawning season, which peaks in March- April.

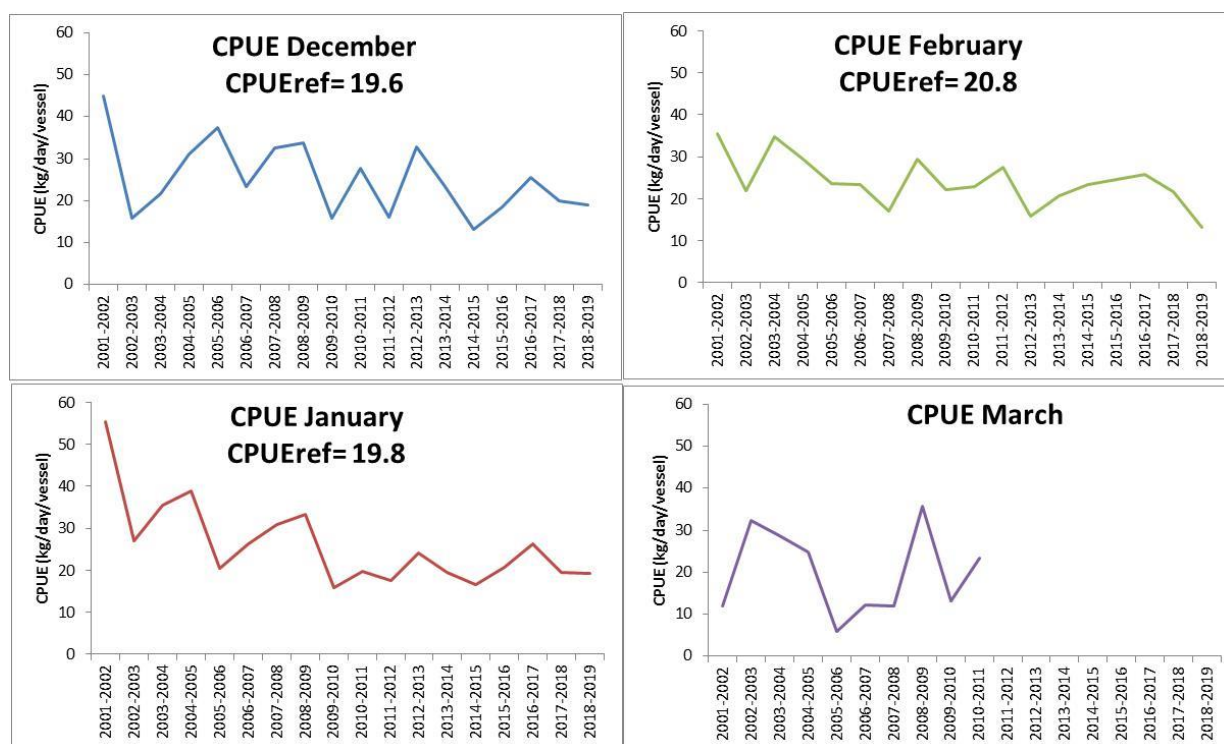


Fig.2. Transparent goby CPUE (kg/day/vessel) in the Murcia Region, by month, over the period 2001-2002 to 2018-2019. Note that with the implementation of the management plan the duration of the fishing season was reduced and finishes on 1st March. CPUE ref= monthly limit CPUE = 25th percentile (lower quartile) of the cumulated distribution of CPUE (kg/day/vessel) in the period 2001-2010.

A survey just before the opening of the fishing season may be not indicative of the available biomass to be exploited during the fishing season. The fishery is based on recruitment, which timing may change from year to year. Depending on the catch at the beginning of the fishing season, vessels may decide to delay going fishing for transparent goby.

It is worth noting that both the TAC per fishing season and the monthly limit CPUE were calculated with data from the period 2001-2010, that is, the seasons of highest catches were included in this calculation.

- *Information on economic indicators, including the profitability of the fisheries.*

Indicators provided include catch, income and mean price, by fishing season, for the period 2001-2002 to 2018-2019; catch, income and mean price detailed by fishing season and month for the period 2012-2013 to 2018-2019; fishing days, catch, income and daily income by vessel (euros/day) for the period 2016-2017 to 2018-2019.

In the last three fishing seasons, the number of fishing days by vessel decreased from 26 to 22 and catch decreased from 672 to 397 kg, but the daily income was much higher in 2018-2019 (662 euros/day). In this period, between 24 and 27 vessels have been active, which represents around 70-80 direct jobs.

The dependency of the fleet on the transparent goby fleet income (% transparent goby income/total income) decreased from 31% 2016 to 16% in 2018; but the individual dependency is highly variable among vessels.

1.2. Objectives, safeguards and conservation/technical measures

- *Objectives consistent with article 2 of the CFP² and quantifiable targets, such as fishing mortality rates and total biomass.*

The transparent goby fishery is managed on a monthly, season and daily basis. Empirical limit reference points have been established aiming at the conservation of the resource i.e. for the monthly CPUE, 25th percentile (lower quartile) of the cumulated distribution of CPUE (kg/day/vessel), and for the season TAC, 75th percentile of the catches, percentiles based on the catch per season and monthly CPUE over the period 2001-2010.

The daily catch per vessel is aimed at regulating the price in the market, it is not based on biological evidence.

- *Measures proportionate to the objectives, the targets and the expected time frame.*

The fishery is managed at monthly scale and measures regarding fishing effort reduction and closure of the fishery are taken when the monthly limit reference points (CPUE) are not achieved.

- *Safeguards to ensure that quantifiable targets are met, as well as remedial actions, where needed, including situations where the deteriorating quality of data or non-availability places the sustainability of the main stocks of the fishery at risk.*

Based on the 75th percentile of catches during the time series 2001-2010, a TAC has been set at 20 t per fishing season, as well as daily TAC per vessel (35 kg for vessels with two fishers, and 45 kg for vessels with three fishers).

STECF notes however that the TAC has not been reached since the implementation of the first management plan for the boat seine fishery in 2013. STECF considers thus that the TACs and reference points should be revised periodically on the basis of the most recent years.

Monthly limit values (reference points) have been established at the 25th percentile (lower quartile) of the cumulated distribution of CPUE (kg/day/vessel) as 19.6, 19.8 and 20.9 in December, January and February, respectively, although STECF notes that the period considered for the definition of monthly reference CPUEs is not clear from the report.

In case these thresholds are not reached, measures for effort reduction or closure of the fishery are described: in case the monthly threshold is not reached, fishing effort the following month is reduced; and if the monthly threshold is not reached with the effort reduction, the fishery is closed. These measures have been implemented in 2015 and 2018.

Data on transparent goby catch are recorded daily, by vessel. Fishers must complete daily forms indicating transparent goby catch and fishing ground, by haul. Fortnightly daily trips are undertaken for control on board boat seiners.

STECF notes that the MSC report had identified a lack of transparency in the regular assessment of the implementation of the management plan, because it is done only internally in the frame of

the co-management committee. STECF agrees that adequate levels of independent control are necessary to insure that the plan is implemented as intended.

- *Other conservation measures, in particular measures to fully monitor catches of the target species, to gradually eliminate discards and to minimise the impact of fishing on the ecosystem.*

Scientific and inspection daily trips are undertaken twice a month on board transparent goby vessels. The specific composition of the by-catch (commercial and non-commercial species) from 50 hauls is presented for the period 2016-2019. Data were collected in the three fishing seasons. By-catch represented around 9% in weight and expressed in number it is minimal. The examination of the by-catch (commercial and non-commercial species) was done *in situ*. By-catch species are immediately released, alive, and survivability is assumed to be very high. The report explains that This is due to the gear being hauled very slowly aboard the vessels, and only transparent gobies and a very small quantity of by-catch are retained in the cod-end; the by-catch specimens are not touched by anything else than the transparent goby, which has an extremely soft body and no hard parts. Very little mechanical damage is caused to the various species that make up the by-catch. Moreover, the gear is hauled aboard the vessel very quickly on completion of the gear set; meaning, the catch is out of the water for a very short time. Good on-board handling practices for the specimens in the cod-end is assumed to lead to a very high survival rate. The sampling on board includes a visual check of the degree of survival of by-catch once returned to the sea. Information is presented by haul on the observed survival, which shows 100% survival, apart from 1 haul (95%), 2 hauls (90%) and 1 haul (80%). While this information indicates survival potential to be high it does not constitute discard survival estimates. Further observations from survival experiments are needed to provide reliable estimates of survival rates in the days following release.

The number of individuals above minimum size that may remain on board is extremely small (details not given). The fishing gear appears to be highly selective

Any species different from the authorized ones must be returned to the sea and its commercialization is forbidden. A discards limit of 5% in weight has been established (commercial under-sized individuals and non-commercial species).

In the 50 sampled hauls for the scientific monitoring, material that would indicate that the gear was trawled over the bottom was also recorded (presence of sediment, stones, sessile species, *Posidonia oceanica*). According to these results, there is minimal impact of the fishing gear on the seabed. These samplings verified the absence of benthic or sessile organisms as well as inert elements from the seabed. *Posidonia* leaves appeared in 20 samplings with clear signs that they had been dead for many days before the fishing day (blackened and in a state of decomposition); the presence of the leaves is attributable to the strong currents during those fishing days. Maps with the position of hauls are presented, for the three fishing seasons 2016-2019 and the four fishing areas San Pedro Pinatar, Cartagena, Mazarrón, Águilas. Two main fishing grounds have been identified, in front of San Pedro Pinatar and SW Grosa Island.

1.3. Other aspects

- *Quantifiable indicators for periodic monitoring and assessment of progress in achieving the objectives of the plan.*

The fishery is monitored on a monthly basis.

TOR 2. *Provide recommendations to improve the scientific/technical basis of the plan, in particular regarding the evaluation of the status of the target stocks. Recommendations could also be given in terms of collection of data, impact on the marine ecosystem and monitoring programme.*

The transparent goby biology and very short life span prevent the use of standard VPA assessment methods to be applied to this stock. The use of depletion methods is not possible because there is incorporation of new recruits during the fishing season.

STECF suggests investigating other options for applying stock assessment methods for data-limited stocks. STECF notes among others that the ASPIC software (surplus production model fitted to catch-effort time series) has been used for the determination of the exploitation status of transparent goby in the Balearic Islands over the period 1990-2014 (Quetglas et al. 2016). This period includes data collected before and after the implementation of the transparent goby management plan in 2013. ASPIC estimates several benchmarks and stock status indicators such as population biomass (B), relative biomass (B/B_{MSY}), and relative fishing mortality (F/F_{MSY}). This assessment provided time trajectories of B/B_{MSY} and F/F_{MSY} . B/B_{MSY} remained rather constant around 0.3 over 2000-2014 and at the time when the assessment was performed (2014) transparent goby would be overexploited in the Balearic Islands ($F_{2014}/F_{MSY} = 1.5$).

Data on transparent goby catches, effort and CPUE have been collected in a comprehensive way during the implementation of the management plan. The log-book forms that must be completed daily are necessary for the transparent goby to be sold through the auction. At present it is only the information from successful hauls that is recorded, and the fishing effort unit is the fishing day. STECF considers that these forms could be modified in such a way that the by-catch data per haul is also recorded. The time at sea, information already available from the log-books, would allow a more precise measure of fishing effort.

CTD data are collected weekly. These data are intended to be used in the establishment of a predictive model for recruitment. This information has however not been analyzed yet.

STECF conclusions

The implementation of the boat seine management plan in the Murcia Region in the period 2016-2019 has followed the management plan, and the conditions upon which the derogation regarding minimum distance from the coast and depth was granted in 2016 have been fulfilled.

The established TAC per fishing season (20 t) has not been reached since the implementation of the first management plan for the boat seine fishery in 2013. Therefore, this TAC is not restrictive and its usefulness as a tool for the management of the fishery and conservation of the resource is questionable. Conversely, the monthly CPUE limit reference points have been restrictive and have triggered reduction of fishing effort and an early closure of the fishery.

Both the fishing season TAC and monthly reference CPUEs were set with information collected before the implementation of the management plan. A periodic revision of these values should be included in the MP.

References

- COMMISSION IMPLEMENTING REGULATION (EU) No 773/2013 of 12 August 2013 establishing a derogation from Council Regulation (EC) No 1967/2006 as regards the minimum distance from coast and the minimum sea depth for boat seines fishing for transparent goby (*Aphia minuta*) in certain territorial waters of Spain (Murcia)
- COMMISSION IMPLEMENTING REGULATION (EU) 2017/677 of 10 April 2017 on extending the derogation from Council Regulation (EC) No 1967/2006 as regards the minimum distance from the coast and depth granted to boat seines fishing for transparent goby (*Aphia minuta*) in certain territorial waters of Spain (Murcia)
- La Mesa M, Arneri E, Caputo V, Iglesias M. 2005. The transparent goby, *Aphia minuta*: review of biology and fisheries of a paedomorphic European fish. *Reviews in Fish Biology and Fisheries* 15: 89–109, DOI 10.1007/s11160-005-1613-4
- Morales-Nin B, Grau AM, Aguilar JS, Gil MM, Pastor E. 2017. Balearic Islands boat seine fisheries: the transparent goby fishery an example of co-management. *ICES Journal of Marine Science* 74:2053-2058, doi:10.1093/icesjms/fsw227
- Quetglas A, Merino G, Ordines F, Guijarro B, Garau A, Grau A, Oliver P, Massutí E. 2016. Assessment and management of western Mediterranean small-scale fisheries. *Ocean & Coastal Management* 133: 95-104.
- Scientific, Technical and Economic Committee for Fisheries (STECF) – Management plan for boat seines in Greece & derogation for boat seines targeting transparent goby (*Aphia minuta*) in Murcia, Spain (STECF-16-15).); Publications Office of the European Union, Luxembourg; EUR 27758 EN; doi:10.2788/252155.

Contact details of STECF members

¹ - Information on STECF members' affiliations is displayed for information only. In any case, Members of the STECF shall act independently. In the context of the STECF work, the committee members do not represent the institutions/bodies they are affiliated to in their daily jobs. STECF members also declare at each meeting of the STECF and of its Expert Working Groups any specific interest which might be considered prejudicial to their independence in relation to specific items on the agenda. These declarations are displayed on the public meeting's website if experts explicitly authorized the JRC to do so in accordance with EU legislation on the protection of personnel data. For more information: <http://stecf.jrc.ec.europa.eu/adm-declarations>

Name	Affiliation ¹	Email
Abella, J. Alvaro	Independent consultant	aabellafisheries@gmail.com

Name	Affiliation¹	<u>Email</u>
Bastardie, Francois	Technical University of Denmark, National Institute of Aquatic Resources (DTU-AQUA), Kemitorvet, 2800 Kgs. Lyngby, Denmark	fba@aqu.dtu.dk
Borges, Lisa	FishFix, Lisbon, Portugal	info@fishfix.eu
Casey, John	Independent consultant	blindlemoncasey@gmail.com
Catchpole, Thomas	CEFAS Lowestoft Laboratory, Pakefield Road, Lowestoft, Suffolk, UK, NR33 0HT	thomas.catchpole@cefas.co.uk
Damalas, Dimitrios	Hellenic Centre for Marine Research, Institute of Marine Biological Resources & Inland Waters, 576 Vouliagmenis Avenue, Argroupolis, 16452, Athens, Greece	shark@hcmr.gr
Daskalov, Georgi	Laboratory of Marine Ecology, Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences	Georgi.m.daskalov@gmail.com
Döring, Ralf (vice-chair)	Thünen Institute [TI-SF] Federal Research Institute for Rural Areas, Forestry and Fisheries, Institute of Sea Fisheries, Economic analyses Herwigstrasse 31, D-27572 Bremerhaven, Germany	ralf.doering@thuenen.de
Gascuel, Didier	AGROCAMPUS OUEST, 65 Route de Saint Briec, CS 84215, F- 35042 RENNES Cedex, France	Didier.Gascuel@agrocampus-ouest.fr
Grati, Fabio	National Research Council (CNR) – Institute for Biological Resources and Marine Biotechnologies (IRBIM), L.go Fiera della Pesca, 2, 60125, Ancona, Italy	fabio.grati@cnr.it
Ibaibarriaga, Leire	AZTI. Marine Research Unit. Txatxarramendi Ugarte z/g. E- 48395 Sukarrieta, Bizkaia. Spain.	libaibarriaga@azti.es
Jung, Armelle	DRDH, Techopôle Brest-Iroise, BLP 15 rue Dumont d'Urville, Plouzane, France	armelle.jung@desrequinsetdeshommes.org

Name	Affiliation¹	<u>Email</u>
Knittweis, Leyla (vice-chair)	Department of Biology, University of Malta, Msida, MSD 2080, Malta	Leyla.knittweis@um.edu.mt
Kraak, Sarah	Thünen Institute of Baltic Sea Fisheries, Alter Hafen Süd 2, 18069 Rostock, Germany.	sarah.kraak@thuenen.de
Ligas, Alessandro	CIBM Consorzio per il Centro Interuniversitario di Biologia Marina ed Ecologia Applicata "G. Bacci", Viale N. Sauro 4, 57128 Livorno, Italy	ligas@cibm.it ; ale.ligas76@gmail.com
Martin, Paloma	CSIC Instituto de Ciencias del Mar Passeig Marítim, 37-49, 08003 Barcelona, Spain	paloma@icm.csic.es
Motova, Arina	Sea Fish Industry Authority, 18 Logie Mill, Logie Green Road, Edinburgh EH7 4HS, U.K	arina.motova@seafish.co.uk
Moutopoulos, Dimitrios	Department of Animal Production, Fisheries & Aquaculture, University of Patras, Rio-Patras, 26400, Greece	dmoutopo@teimes.gr
Nord, Jenny	The Swedish Agency for Marine and Water Management (SwAM)	Jenny.nord@havochvatten.se
Prellezo, Raúl	AZTI -Unidad de Investigación Marina, Txatxarramendi Ugarteaz/g 48395 Sukarrieta (Bizkaia), Spain	rprellezo@azti.es
O'Neill, Barry	DTU Aqua, Willemoesvej 2, 9850 Hirtshals, Denmark	barone@aqu.dtu.dk
Raid, Tiit	Estonian Marine Institute, University of Tartu, Mäealuse 14, Tallin, EE-126, Estonia	Tiit.raid@gmail.com
Rihan, Dominic	BIM, Ireland	rihan@bim.ie
Sampedro, Paz	Spanish Institute of Oceanography, Center of A Coruña, Paseo Alcalde Francisco Vázquez, 10, 15001 A Coruña, Spain	paz.sampedro@ieo.es

Name	Affiliation¹	<u>Email</u>
Somarakis, Stylianos	Institute of Marine Biological Resources and Inland Waters (IMBRIW), Hellenic Centre of Marine Research (HCMR), Thalassocosmos Gournes, P.O. Box 2214, Heraklion 71003, Crete, Greece	somarak@hcmr.gr
Stransky, Christoph	Thünen Institute [TI-SF] Federal Research Institute for Rural Areas, Forestry and Fisheries, Institute of Sea Fisheries, Herwigstrasse 31, D-27572 Bremerhaven, Germany	christoph.stransky@thuenen.de
Ulrich, Clara (chair)	IFREMER, France	Clara.Ulrich@ifremer.fr
Uriarte, Andres	AZTI. Gestión pesquera sostenible. Sustainable fisheries management. Arrantza kudeaketa jasangarria, Herrera Kaia - Portualdea z/g. E-20110 Pasaia – GIPUZKOA (Spain)	auriarte@azti.es
Valentinsson, Daniel	Swedish University of Agricultural Sciences (SLU), Department of Aquatic Resources, Turistgatan 5, SE-45330, Lysekil, Sweden	daniel.valentinsson@slu.se
van Hoof, Luc	Wageningen Marine Research Haringkade 1, IJmuiden, The Netherlands	Luc.vanhoof@wur.nl
Vanhee, Willy	Independent consultant	wvanhee@telenet.be
Villasante, Sebastian	University of Santiago de Compostela, Santiago de Compostela, A Coruña, Spain, Department of Applied Economics	sebastian.villasante@usc.es
Vrgoc, Nedo	Institute of Oceanography and Fisheries, Split, Setaliste Ivana Mestrovica 63, 21000 Split, Croatia	vrgoc@izor.hr

GETTING IN TOUCH WITH THE EU

In person

All over the European Union there are hundreds of Europe Direct information centres. You can find the address of the centre nearest you at: https://europa.eu/european-union/contact_en

On the phone or by email

Europe Direct is a service that answers your questions about the European Union. You can contact this service:

- by freephone: 00 800 6 7 8 9 10 11 (certain operators may charge for these calls),
- at the following standard number: +32 22999696, or
- by electronic mail via: https://europa.eu/european-union/contact_en

FINDING INFORMATION ABOUT THE EU

Online

Information about the European Union in all the official languages of the EU is available on the Europa website at: https://europa.eu/european-union/index_en

EU publications

You can download or order free and priced EU publications from EU Bookshop at: <https://publications.europa.eu/en/publications>. Multiple copies of free publications may be obtained by contacting Europe Direct or your local information centre (see https://europa.eu/european-union/contact_en).

STECF

The Scientific, Technical and Economic Committee for Fisheries (STECF) has been established by the European Commission. The STECF is being consulted at regular intervals on matters pertaining to the conservation and management of living aquatic resources, including biological, economic, environmental, social and technical considerations.

The European Commission's science and knowledge service

Joint Research Centre

JRC Mission

As the science and knowledge service of the European Commission, the Joint Research Centre's mission is to support EU policies with independent evidence throughout the whole policy cycle.



EU Science Hub

ec.europa.eu/jrc



@EU_ScienceHub



EU Science Hub - Joint Research Centre



Joint Research Centre



EU Science Hub



Publications Office
of the European Union

doi:10.2760/890396

ISBN 978-92-76-11879-4