MarinTrust Whole fish fishery assessment report

Türkiye
European anchovy (Engraulis encrasicolus)
and Sprat (Sprattus sprattus)
in FAO 37 4.2. (The Black Sea)

Initial Assessment
WF44

Table 1: Whole fish fishery assessment scope

Fishery name	**Turkey - Engraulis encrasicolus - European anchovy and Sprattus sprattus - Sprat, FAO 37.4.2, Black Sea**
MarinTrust report code	**WF44**
Type 1 species (common name, Latin name)	- European anchovy (*Engraulis encrasicolus*) - Sprat (*Sprattus sprattus*)
Fishery location	FAO 37 4.2. The Black Sea
Gear type(s)	Pelagic trawl and Purse Seine
Management authority (country/state)	Türkiye EEZ

Table 2: Applicant and Certification Body details

Application details			
Applicant(s)		Sürsan Su Ürünleri San. A.S. (BÜLENT ÇETİNER) Sürsan Su Ürünleri San. ve Tic A.S (Samsun) Sürsan Su Ürünleri San. ve Tic. A.S (Sinop) KARDEZ SU ÜRÜNLERİ SAN. VE TİC. ŞTİ. Dalyan Su Ürünleri ve Gıda Sanayi Tic. A.Ş Koptur Balıkçılık Gıda Sanayi Nakliyat ve Ticaret Limited Şirketi.	
Applicant country		Türkiye	
Certification Body details			
Name of Certification Body		NSF / Global Trust Certification Ltd	
Contact Information for CB		Fisheries@nsf.org	
Fishery Assessor name		Léa Lebechnech	
CB Peer Reviewer name		Matthew Jew	
Number of assessment days	8	**Assessment period**	01/2026 to 01/2027

Table 3: Assessment outcome

Assessment outcome **(See Table 4 for a summary of assessment determination)**		Approve
Approval validity	Valid from: 01/2026	Valid until: 01/2027
CB peer reviewer evaluation		Agree with assessment determination
Fishery Assessment Peer Review Group external peer reviewer evaluation		Agree with assessment determination

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Table 4: Assessment determination

Assessment determination **Summary of assessment and outcome**	
This report is the initial assessment of the Turkish anchovy and sprat fishery by pelagic trawls and purse seine in the Black Sea (GSA29). The main species present in the catch are anchovy (*Engraulis encrasicolus*) and sprat (*Sprattus sprattus*), which originate from the Black Sea (GSA29). On the 2019-2024 period, anchovy represented 65% of the catches and sprat 31%. For the purposes of the present assessment they have both been treated as Type 1 stocks as they represent more than 95% of the total catches. None of them meets Category A requirements, consequently, they have been assessed under Category B species, and achieves a Pass under this category. The four remaining species identified by this initial assessment are Type 2 species, as they represent less than 5% of the total catches of the fishery. They are all classified under category D as they are not subject to a species-specific management regime : whiting (*Merlangius merlangus euxinus*), red Mullet (*Mullus barbatus ponticus*), Atlantic bonito (*Sarda sarda*) and Mediterranean horse mackerel (*Trachurus mediterraneus*). They all received a Pass rating under the Category D assessment. Furthermore, the fishery is managed under a legal, scientific and enforcement framework which meets the requirements of Sections M and E. As a result, the MT whole fish requirements are met and the fishery can remain approved for use as a source of raw material for MT-certified facilities.	
Summary of CB peer review	Peer reviewer agreed with the outcomes of all Species Categorisation clauses and concluded that there was sufficient justification for all scores. Furthermore, the CB peer reviewers agrees that the fishery is managed under a legal, scientific and enforcement framework which meets the requirements of Sections M and E. As a result, the MT whole fish requirements are met and the fishery can remain approved for use as a source of raw material for MT-certified facilities
Summary of external peer review **(see Appendix 1 for the full peer review report)**	The CAB made a series of corrections after initial PR that resolved a few issues raised. Including removing inconsistent catch datasets and rebuilding the species categorisation table using logbook data. Anchovy and sprat failed category A and were subsequently scored as a Category B species and passes MT Whole fishery requirements. Whiting and Red mullet failed scoring under Category C and were reassessed as Category D species and now pass MT assessment. Missing references have been added or updated to reflect most recent advice, and ecosystem impact notes were updated. With these revisions in place, the PR is satisfied and agrees with the final determination to certify the whole fishery.
Notes for on-site auditor	1) Whiting and red mullet are caught in very low proportion (total of 0.94% of the total catches of the fishery), which is coherent with the fact that we are currently assessing a pelagic fishery. However, the on-site auditor should monitor the evolution of their %, as if these % increase, it would indicate that fishing would occur closer to the seabed. 2) Check that sprat and anchovy come from designated ports only

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Table 5: General results

Section	Outcome (Pass/Fail)
M1 - Management Framework	Pass
M2 - Surveillance, Control and Enforcement	Pass
E1 - Impacts on ETP Species	Pass
E2 - Impacts on Habitats	Pass
E3 - Ecosystem Impacts	Pass

Table 6: Species-specific results

See Table 7 for further details of species categorisation.

Category	Species name (common & Latin name)	Outcome (Pass/Fail/n/a)	
Category A	- *Anchovy (Engraulis encrasicolus)* - Sprat *(Sprattus sprattus)*	A1	Pass
		A2	Pass
		A3	Fail
		A4	Pass
Category B	- *Anchovy (Engraulis encrasicolus)* (failed Cat. A) - Sprat *(Sprattus sprattus)* (failed Cat. A)	Pass	
Category D	- Mediterranean Horse Mackerel (*Trachurus mediterraneus*) - Atlantic bonito *(Sarda sarda)* - Red Mullet (*Mullus barbatus ponticus)* - Whiting (*Merlangius merlangus euxinus)*	Pass	

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Table 7: Species categorisation table

List of all the species assessed. Type 1 species are assessed against Category A or Category B. Type 1 species must represent 95% of the total annual catch. Type 2 species are assessed against Category C or Category D. Type 2 species may represent a maximum of 5% of the annual catch. Species that comprise less than 0.1% of the catch are not required to be assessed or listed here.

Species name (common & Latin name)	Stock	CITES listed yes/no	IUCN Red list Category	% catch composition	Management (Y/N)	Category (A, B, C or D)
Anchovy (Engraulis encrasicolus)	Black Sea	No	LC	64.7	Y	B (failed Cat. A)
Sprat *(Sprattus sprattus)*	Black Sea	No	LC	30.68	Y	B (failed Cat. A)
Whiting (*Merlangius merlangus euxinus)*	Black Sea	No	LC	0.67	N	D
Red Mullet (*Mullus barbatus ponticus)*	Black Sea	No	LC	0.27	N	D
Atlantic bonito *(Sarda sarda)*	Black Sea	No	LC	1.88	N	D
Mediterranean Horse Mackerel (*Trachurus mediterraneus*)	Black Sea	No	LC	1.80	N	D

Rationale

The client shared with the auditor the quantity of fish caught by the fishery in the 2019-2025 period. The % that each species represent in the total catches come from this data (ton), presented below:

Turkish name	Name (*Latin name*)	Total	%
Hamsi	Anchovy (*Engraulis encrasicolus*)	197850	64.70%
Çaça	Sprat (*Sprattus sprattus*)	93816	30.68%
Palamut	Atlantic bonito (*Sarda sarda*)	5740	1.88%
İstavrit	Horse mackerel (*Trachurus mediterraneus*)	5500	1.80%
Mezgit	Whiting (*Merlangius merlangus euxinus*)	2060	0.67%
Barbunya	Red Mullet (*Mullus barbatus ponticus*)	836	0.27%
GRAND TOTAL		**305802**	**100%**

The source of this table is the fishermen logbooks.

The main species present in the catch are anchovy (*Engraulis encrasicolus*) and sprat (*Sprattus sprattus*), which originate from the Black Sea (GSA29). On the 2019-2025 period, anchovy represented 65% of the catches and sprat 31%. For the purposes of the present assessment they have both been treated as Type 1 stocks as they represent more than 95% of the total catches (95.38%). They are managed according to a management plan based on regular stock assessments with defined reference points, so they have been firstly assessed under Category A. Both fail the Category A requirements. Consequently, they have been assessed under Category B species, and achieved this category.

The four remaining species identified by this initial assessment are Type 2 species as they represent less than 5% of the total catches (4.62%). They were directly classified under category D: whiting (*Merlangius merlangus euxinus*), red Mullet (*Mullus barbatus ponticus*), Atlantic bonito (*Sarda sarda*) and Mediterranean horse mackerel (*Trachurus mediterraneus*). They have been classified under category D as they are currently not subject to a dedicated (GFCM) species-specific management plan in GSA 29, meaning no species-specific TAC or quota, neither harvest control rule or biomass-triggered management action, and are managed only implicitly under general Black Sea fisheries

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regulations. Also, there are no stand-alone GFCM recommendation focused exclusively on each of these species. They all received a Pass rating under the Category D assessment.
References https://www.iucnredlist.org/species/198568/15546291 (Anchovy) https://www.iucnredlist.org/species/198583/45077260 (Sprat) https://www.iucnredlist.org/species/155096/46927291 (Atlantic bonito) https://www.iucnredlist.org/species/198585/45097610 (Whiting) https://www.iucnredlist.org/species/198673/42691799 (Red Mullet) https://www.iucnredlist.org/species/198645/43156470 (Mediterranean Horse Mackerel) Fishers logbook (data shared by the client)

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Management requirements

This section, or module, assesses the general management regime applied to the fishery under assessment. It comprises two parts, M1, which evaluates the management framework, and M2, which evaluates surveillance, control and enforcement within the fishery.

1.1. All management criteria must be met (pass) for a fishery to pass the Management requirements.

1.1.1. The sub-criteria offer a structured evidence base to demonstrate that the fishery sufficiently meets the management criteria. It is not expected that sub-criteria are assessed independently of the main criterion.

M1 Management framework

M1.1	**M1.1 There is an organisation responsible for managing the fishery.** *In reaching a determination for M1.1, the assessor should consider if the following is in place:*
	M1.1.1 The management and administration organisations within the fishery are clearly identified.
	M1.1.2 The functions and responsibilities of the management organisations include the overall regulation, administration, science and data collection and enforcement roles, and are documented and publicly available.
	M1.1.3 Fishers have access to information and/or training materials through nationally recognised organisations.
Outcome	*Pass*

Rationale

The management and organisation of the fishery involves collaboration among several jurisdictions and entities, each with specific responsibilities:

- The Ministry of Agriculture and Forestry, through its General Directorate of Fisheries and Aquaculture (BSGM) is responsible of the Turkish fisheries. It is responsible for the determination of fisheries policies, licensing, fishing quotas, prohibitions, implementation of inspections and sanctions, but also of supervision and implementation of the regulations. Coast Guard teams also support this process. The legal basis in the Fisheries Law n°1380. There are Fisheries Branch Directorates in each city under the General Directorate of Fisheries and Aquaculture, notably in the city of Sinop, where the client factory is located.
- At the provincial/district levels, there are the Directorates of Agriculture and Forestry which are in charge of licensing, inspection, training activities, and implementation of fishing bans at local levels
- Coast Guard Command which control fisheries at seas and do prevention of illegal fishing. They work under the Coast Guard Command Law n°2692
- Fisheries Cooperatives and Unions (including SÜR-KOOP): they organise fishermen training and information, marketing support, and they also defend the rights of their members. The work under the Cooperatives law n°1163
- Municipalities manage fish market and marketing area and supervise local sales places. They work under Municipal law.
- Universities and Research Institute such as Karadeniz Technical University, Sinop University Faculty of Fisheries, TURKSTAT (Turkish statistical Institute) are responsible for Scientific research, stock evaluation, training and consultancy. They work under the Higher Education

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Law.

The main institution responsible for fisheries management in the Black Sea is the Ministry of Agriculture and Forestry of the Republic of Turkey, and duties and responsibilities are carried out especially through the BSGM. These duties are;

- General regulation: Hunting bans, determination of hunting tools and methods, regulation of hunting periods.
- Administration: Licensing, fishing permits, quota and quota allocation practices.
- Science and data collection: Stock assessment studies, TURKSTAT and Ministry databases, research projects, data sharing with international organizations such as FAO General Fisheries Commission for the Mediterranean (GFCM).
- Implementation: Inspection at sea and in port, sanction for activities contrary to the legislation, monitoring programs.

These roles are documented by the Fisheries Law n°1380, the Fisheries Regulation and the periodically published Communiqué Regulating Fisheries (notably the communiqué n°2024/20)and made available to the public through the Official Gazette and the Ministry's website.

In accordance with the objectives, principles and instructions determined by the senior management of the General Directorate of Fisheries and Aquaculture, the BSGM plans, coordinates and supervises activities related to cooperation with other institutions on all kinds of incentives, inspection activities, permits, regulations related to amateur and commercial fishing, controls and inspections related to aquaculture and aquaculture.

Turkey is a member of regional fisheries management organisations such as the GFCM, whose main objective is to ensure the good use, rational management, protection, and development of marine resources in the commission's area of responsibility, as well as the sustainable development of fisheries products, and the International Commission for the Conservation of Atlantic Tunas (ICCAT), which determines protection and management measures aimed at shielding tuna and tuna-like fish species in the Atlantic Ocean and connected seas, as well as sharks and other marine organisms that may be harmed as bycatch or incidental catch. The decisions of regional fisheries management organisations and other international organisations are implemented in Turkish legislation according to our own fisheries dynamics. When these decisions are implemented in the legislation, a detailed comparison is made with Turkey's current regulations and the decision that offers the resource most protection is implemented.

Fishermen operating in the Black Sea have access to information and training materials through nationally recognized institutions and organizations, like the following:

- Republic of Turkey Ministry of Agriculture and Forestry-BSGM: publishes information documents on fishing bans, technical regulations, conservation measures and sustainable fishing methods on the Ministry's website and in printed brochures.
- Provincial/District Directorates of Agriculture and Forestry: conduct training meetings, seminars and field information activities by communicating directly with fishermen.
- Fishermen's Cooperatives and Higher Unions (e.g. Central Union of Fisheries Cooperatives – SÜR-KOOP): provides information meetings, legislative updates and vocational training programs for their members.
- Universities and Research Institutes: Institutions (Karadeniz Technical University and Sinop University Faculty of Fisheries) conduct seminars, workshops and field projects for fishermen.
- International Programs (GFCM and other FAO projects, etc.): Develops training materials on sustainable fisheries and ecosystem-based management and adapts them to Turkish.

Through these resources, fishermen can regularly access information on issues such as legislative changes, fishing techniques, protection of the marine ecosystem, and safe working methods.

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Based on all the above, the **fishery passes Clause M1.1**.

References

Republic of Turkey Ministry of Agriculture and Forestry: https://www.tarimorman.gov.tr/Sayfalar/AnaSayfa.aspx

General Directorate of Fisheries and Aquaculture: https://www.tarimorman.gov.tr/BSGM

6/1 Commercial Aquaculture Fishing Communiqué on the Regulation of commercial fisheries - (communiqué n°2024/20): https://www.resmigazete.gov.tr/eskiler/2024/08/20240811-3.htm

Fisheries Law: https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=1380&MevzuatTur=1&MevzuatTertip=5

Fisheries Regulation: https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=4988&MevzuatTur=7&MevzuatTertip=5

SUR-KOOP (2024). Central Union of Fisheries Cooperatives of Turkey – Activities. https://www.surkoop.org/

FAO GFCM (2023). Capacity building for sustainable small-scale fisheries in the Black Sea. https://www.fao.org/gfcm

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M1.2	**M1.2 Fishery management organisations are legally empowered to take management actions.** *In reaching a determination for M1.2, the assessor should consider if the following is in place:*
	M1.2.1 There are legal instruments in place to give authority to the management organisation(s) which can include policies, regulations, acts or other legal mechanisms.
	M1.2.2 Vessels wishing to participate in the fishery must be authorised by the management organisation(s).
	M1.2.3 The management system has a mechanism in place for the resolution of legal disputes.
	M1.2.4 There is evidence of the legal rights of people dependent on fishing for food or livelihood.
Outcome	*Pass*

Rationale

The Fisheries Law N°1380, enacted in 1971 and last revised in 2019 by the Law n°7191, is the main legal framework governing fishing activities in Turkey. It aims to promote sustainable fishing practices while protecting aquatic ecosystems. It gives Turkish fisheries management and supervision authority to the Ministry of Agriculture and Forestry.

This Law concerns production, protection and inspection of aquatic animals, establishing provisions to be applied on marine and inland fisheries (including aquaculture). It consists of 9 chapters divided into 41 articles defining fisheries sector and specifying the requirements to be satisfied in order to obtain a fishing licence, defining fishing areas, fishing gear, etc. This Law regulates fishing activity within the country, by the issuing of a fishing licence (procedure and conditions specified in the text). Fishermen may create Fisheries production/sale Cooperative in compliance with Laws N° 2834, N°2836 and N°1163. The Law lists prohibited fishing gear and methods, it prohibits hazardous substances discharging into the waters, etc. Fish market conditions, inspection to be carried out and penalties to be paid are specified in the text. Fisheries Act N°1380 is supplemented by other legislation, notably Environment Act N°2872, which imposes penalties for activities harmful to the marine environment. Several notifications are associated to this law and constitutes legal instruments for fisheries management.

The 2019 (n°7191) amendment to this law which entered in force on the 1st of January 2020, contains a special emphasis on the prevention, determination and elimination of IUU fishing.
Also, the 6/1 Commercial Aquaculture Fishing Communiqué on the Regulation of commercial fisheries includes technical regulations such as quotas, prohibited species and fishing times and areas for each fishing season.

In Turkey, licenses are mandatory to access the stocks. Harvesters must hold a valid fishing license and operate under specific restrictions (spatio-temporal fishing bans, minimum landing size, fishing gear limitation…). As stated in the law n°7191, the fishing license and permit are obtained, renewed, or cancelled by the Ministry of Agriculture and Forestry for national and foreign fishermen as well as fishing vessels and other vehicles engaged in fishing. Applications are made through provincial/district directorates of agriculture. The target species, and region and time of the fishing operation are recorded in the fishing license. This licensing process is done before each fishing season.

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In order to obtain the license, the following criteria are evaluated:

- Suitability of the boat for fishing activities (size, engine power, safety equipment, etc.)
- No prohibition contrary to the Fisheries Law from the boat owner
- Ship Registration Certificate or Mooring Log License
- Necessary measurements and registration procedures

This is made in order to prevent overfishing and illegal, unregistered and irregular (IUU) fishing, control fishing tools and methods, better arrange the fishing zones.

These are the main disputes that may arise during the authorization process:

- Rejection of license application
- Revocation of existing license (e.g. quota violation, prohibited area fishing)
- Narrowing the scope of the license (for some species or regions)
- Administrative fines imposed on the boat during the inspection

These disputes can first be resolved through the administrative objection process; if no result is obtained, a lawsuit can be filed in the administrative courts. The Procedure of Administrative Justice Act has been published in the Official Gazette in Turkey on 20 January 1982. Resolution of the disputes falling within the jurisdiction of the Council of State, regional administrative courts, administrative courts and tax courts shall be subject to the procedure prescribed in the present Act. It details the Legal Dispute Resolution Mechanisms:

- Administrative Pathway: Fines, license cancellation, and material confiscation are imposed by the Ministry of Agriculture and Forestry, Coast Guard Command, and port authorities.
- Judicial Remedy:
  - Objection to administrative fines → Criminal Judgeships of Peace
  - Criminal Courts → Crimes such as poaching, use of explosive/toxic substances
  - Commercial Courts → Commercial disputes
- Alternative Dispute Resolution:
  - Mediation → Fish sales disputes, chartering disputes
  - Arbitration → In international waters or foreign commercial contracts

One tension happened in the 1980s–1990s: Between the 1980s and 1990s, small-scale fishers operating along Turkey's Black Sea coast developed informal management mechanisms to cope with the rapid expansion of capital-intensive trawler fleets (Knudsen, 1995). These tensions were primarily driven by resource competition and the collapse of key stocks—particularly anchovy—around 1989. Although these conflicts had significant social implications, they did not escalate into formal legal disputes (Knudsen, 1995, who cited *"Before the collapse in 1989, Black Sea fisheries accounted for approximately 60% of Turkey's total catches… informal regulation struggled to cope with fleet expansion.".*

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FAO technical cooperation reports and GFCM/EU governance documents do not indicate the presence of formal conflicts between Turkish fishers and national authorities. These documents instead emphasize stock rehabilitation, collaborative management practices, and the strengthening of technical capacity (FAO, 1989; GFCM, 2022; European Parliament, 2025). There is no documented evidence of lawsuits, organized protests, or official disputes involving Turkish fishers and Turkish authorities. FAO's 1989 report (FAO, 1989) focuses on the biological recovery of sturgeon and sea trout stocks, without mentioning fisher protests or legal conflicts. GFCM (2022) and the European Parliament (2025) highlight cooperative governance and technical progress in the Black Sea, and do not report internal disputes.

Black Sea fishers in Turkey operate within a comprehensive legal framework that covers licensing, cooperative organization, resource protection, and social welfare. However, the real effectiveness of this framework in practice largely depends on:

- Effective enforcement of environmental and social protection measures,
- Administrative facilitation to ensure access to SGK services, cooperatives, and leasing processes,
- Stronger engagement through cooperatives and EU pre-accession programs to address persistent inequalities in the allocation of fishery resources.

Furthermore, the Turkish Fisheries Law n°1380 (6 November 2019) grants legal protections and preferential treatment for people whose livelihood depends on fishing, mainly through access rights, priorities, and protections linked to production and subsistence.
Although rights are not framed as fundamental human rights, the law clearly acknowledges that fishing is a livelihood and builds protections around that reality:

- Article 2 defines fisheries producers as "Real or legal persons who produce aquatic products in marine and inland waters.". This establishes fishers as recognized economic actors, and subjects of protection, regulation, and support. This is the legal foundation for later preferential treatment.
- Preferential access to fishing grounds for local fishing communities: Article 4 about leasing of fishing and production areas, provides strong evidence of livelihood protection, with the following key elements: fishing and production rights in public waters may be leased. Priority is given to cooperatives or unions that are established in the production area, and whose members have resided there for at least five years, and are exclusively engaged in fisheries production or marketing

This indicates a clear legal preference for local, livelihood-dependent fishing communities over external or purely commercial actors. It legally protects access to resources for communities that depend on fishing to live and work.

Consequently, **Clause M1.2 is met.**

References

6/1 Commercial Aquaculture Fishing Communiqué on the Regulation of commercial fisheries - (communiqué n°2024/20): https://www.resmigazete.gov.tr/eskiler/2024/08/20240811-3.htm

European Parliament, 2025. *Black Sea Synergy and Fisheries Governance.* Brussels: EU Publications.

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FAO, 1989. *Technical Cooperation Programme: Rehabilitation of Black Sea Fisheries in Turkey.* Rome: FAO.

GFCM, 2022. *Black Sea Working Group Reports.* https://www.fao.org/gfcm

Knudsen S., 1995. Fisheries in the Turkish Black Sea: Informal Management and Social Organization. Human Organization, 54(4), 437–448: https://www.jstor.org/stable/44127468

Law n°7191 amending the Turkish Fisheries Law n°1380 (6 November 2019): https://leap.unep.org/en/countries/tr/national-legislation/law-no-7191-amending-fisheries-law

Procedure of Administrative Justice Act published in the Official Gazette in Turkey on 20 January 1982: http://www.lawsturkey.com/law/2577-procedure-of-administrative-justice-act

Turkish Fisheries Law n°1380 (last amended on 6 November 2019): https://leap.unep.org/en/countries/tr/national-legislation/fisheries-law-no-1380

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M1.3	**M1.3 There is an organisation responsible for collecting data and (scientifically) assessing the fishery.** *In reaching a determination for M1.3, the assessor should consider if the following is in place:*
	M1.3.1 The organisation(s) responsible for collecting data and assessing the fishery is/are clearly identified.
	M1.3.2 The management system receives scientific advice regarding stock, non-target species and ecosystem status.
	M1.3.3 Scientific advice is independent from the management organisation(s) and transparent in its formulation through a clearly defined process.
Outcome	*Pass*

Rationale

The organisations and Turkish entities responsible for collecting data and assessing the fishery is/are clearly identified as following, as defined in the Fisheries Law n°1380 and its associated Fisheries Regulation (notably communiqué n°2024/20):

- the Ministry of Agriculture and Forestry – through the BSGM, collects commercial and leisure fishing data, records catch amounts from licensed boats and prepares evaluation reports
- the provincial/District Directorates of Agriculture and Forestry collect data at the local level (port exit records, fishing books, species and quantity information) and transmits it to the Ministry
- the Ministry of Agriculture and Forestry – through the General Directorate of Agricultural Research and Policies (TAGEM) is responsible of conducting scientific evaluation of fish stocks, research projects, data analysis. It is supported by the Universities and Fisheries Scientific Institutes which conduct academic research, notably on species distribution and conservation recommendation, stock estimation and ecosystem assessment, and by TURKSTAT which officially publishes fisheries statistics (production, import, export, consumption) under the Turkish Statistical law n°5429. Also, the fisheries Central Research Institutes (Trabzon, Antalya, Elazığ, etc.) provide scientific monitoring of regional fish stocks and recommendations on species conservations. Furthermore, fisheries and Aquaculture Scientific and Technical Advisory Board are composed of scientists who make recommendations on the fishing season, bans and quotas with the participation of ministry representatives and industry stakeholders. All of these entities provide scientific advice on the stocks, non-target species and ecosystem status.

Turkey management authorities are members of International organisation like FAO-GFCM which also give independent scientific advice, and which is transparent in its formulation through a clearly defined process:

1. Independent Research Institutes & Publications: The Turkish Marine Research Foundation (TÜDAV) regularly publishes major scientific reports such as The State of the Turkish Fisheries (2012) and Turkish Fisheries in the Black Sea (2014). These volumes include peer-reviewed studies authored by 33–44 scientists from universities and official research institutes—including SUMAE—with each article clearly stating author responsibility and adherence to scientific standards. As a non-governmental scientific foundation, TÜDAV ensures research independence and scientific accountability, operating separately from policy-making institutions.
2. FAO–GFCM Stock Assessment & Advisory Transparency: Within the FAO's GFCM, Black Sea stock assessments are carried out through publicly documented Working Groups, supported by external expert reviewers and a standardized STAR database. Annual Stock

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Assessment Forms (SAFs) are published online, allowing full traceability of data sources, methodologies, and scientific models used. The FAO–GFCM FishEBM Project (2023–2026) further strengthens transparency through structured stakeholder engagement, independent peer review, standardized methods, and open dissemination of results.

3. Black Sea Fisheries Management & Transparency: According to the Journal of the Black Sea / Mediterranean Environment (2024), Turkey pursues an independent, science-driven management approach—distinct from EU governance structures—while emphasizing cross-border cooperation and knowledge exchange. A 2025 Frontiers in Marine Science study highlights the Trabzon Multi-Actor Forum (Nov 2022), which convened government agencies, academic experts, civil society organizations, and industry stakeholders—demonstrating a structured and inclusive consultation process.

4. Academic Transparency & Journal Ethics: The Turkish Journal of Fisheries and Aquatic Sciences (TRJFAS) provides explicit publication ethics, covering author responsibility, blind peer review, and standardized APA referencing. These openly accessible policies reinforce transparency and accountability across academic outputs.

5. International Evaluation & Transparency Frameworks: Turkey participates in the FAO–GFCM FishEBM initiative (2023–2026), which sets benchmarks for transparent, participatory, ecosystem-based fisheries management. (fao.org). While Turkey is not currently evaluated under the Fisheries Transparency Initiative (FiTI), the FiTI framework outlines international best practices—including public disclosure of legislation, stock assessments, quotas, and management reports—offering a transparency benchmark that Turkey is encouraged to align with.

Consequently, **the fishery passes clause M1.3**.

References

Turkish Fisheries Law n°1380 (last amended on 6 November 2019): https://leap.unep.org/en/countries/tr/national-legislation/fisheries-law-no-1380

Law n°7191 amending the Turkish Fisheries Law n°1380 (6 November 2019): https://leap.unep.org/en/countries/tr/national-legislation/law-no-7191-amending-fisheries-law

6/1 Commercial Aquaculture Fishing Communiqué on the Regulation of commercial fisheries - (communiqué n°2024/20): https://www.resmigazete.gov.tr/eskiler/2024/08/20240811-3.htm

Turkish Statistical law n°5429: https://www.lexpera.com.tr/resmi-gazete/metin/turkiye-istatistik-kanunu-25997-5429

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M1.4	**M1.4 The fishery management system is based on the principles of sustainable fishing and a precautionary approach.** *In reaching a determination for M1.4, the assessor should consider if the following is in place:*
	M1.4.1 A policy or long-term management objective for sustainable harvesting based on the best scientific evidence and a precautionary approach is publicly available and implemented for the fishery.
Outcome	*Pass*

Rationale

Turkey has publicly available policies and long-term management goals for sustainable harvesting in fisheries, which are based on scientific evidence and incorporate precautionary approaches. Turkey's Fisheries Management Framework is firstly supported by legal and Institutional Basis like the following:

- Fisheries Law N°1380, already mentioned previously, forms the backbone of Turkey's fisheries legislation. It includes licensing requirements, seasonal closures, gear restrictions, and penalties for violations. It is supported by *communiqués* like the *communiqué* n°2024/20 mentioned earlier.
- The Ministry of Agriculture and Forestry, through its General Directorate of Fisheries and Aquaculture, oversees implementation and enforcement

The country also adopted the following sustainability and precautionary Measures:

- Since the mid-1980s, Turkey has shifted toward resource conservation, introducing closed seasons, gear bans, and effort controls (*communiqué n°2024/20)*.
- Licensing for new fishing vessels was halted in 2002 to control fleet capacity.
- Between 2013–2018, Turkey implemented fleet reduction support to reduce overcapacity.

Turkey follows scientific advice and ecosystem-Based Management approach:

- Turkey has adopted the ecosystem approach to fisheries management, as demonstrated in pilot projects like the one in Gökçeada, supported by FAO.
- Turkish fisheries management decisions are increasingly based on scientific data and stock assessments, aligning with EU Common Fisheries Policy (CFP) principles, especially as Turkey is an EU candidate country.

Finally, Turkey is actively engaging in sustainable blue economy initiatives, integrating fisheries with broader marine conservation, tourism, and pollution control strategies under frameworks like the Barcelona Convention. Also, organizations like the Turkish Seafood Promotion Committee emphasize sustainable fishing practices, including bycatch reduction and protecting juvenile fish. Consequently, the **fishery passes Clause M1.4**.

References

Turkish Fisheries Law n°1380 (last amended on 6 November 2019): https://leap.unep.org/en/countries/tr/national-legislation/fisheries-law-no-1380

Law n°7191 amending the Turkish Fisheries Law n°1380 (6 November 2019): https://leap.unep.org/en/countries/tr/national-legislation/law-no-7191-amending-fisheries-law

6/1 Commercial Aquaculture Fishing Communiqué on the Regulation of commercial fisheries - (communiqué n°2024/20): https://www.resmigazete.gov.tr/eskiler/2024/08/20240811-3.htm

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M1.5	**M1.5 There is a clearly defined decision-making process which is transparent, with processes and results made publicly available.** *In reaching a determination for M1.5, the assessor should consider if the following is in place:*
	M1.5.1 There is participatory engagement through which fishery stakeholders and other stakeholders can access, provide information, consult with, and respond to, the management systems' decision-making process.
	M1.5.2 The decision-making process is transparent, with results made publicly available.
	M1.5.3 The fishery management system is subject to periodic internal or external review to validate the decision-making process, outcomes and scientific data.
Outcome	*Pass*

Rationale

Turkey has mechanisms for participatory engagement in fisheries management, allowing stakeholders to access, provide input, and respond to decision-making processes.

Turkey's Law on the Right to Information (N°4982) and Law on Use of the Right to Petition provide legal avenues for citizens and stakeholders to access information and formally engage with public institutions. The Regulation on Environmental Impact Assessment also mandates public consultation for projects affecting natural resources, including fisheries.

Also, the Ministry of Agriculture and Forestry has published guidelines for engaging stakeholders in managing protected areas, which include fishers in fisheries zones. These guidelines promote inclusive consultation, transparency, and collaborative decision-making and explicitly include NGOs as key stakeholders.

Turkey's Resilient Landscape Integration Project (TULIP) includes a Stakeholder Engagement Framework that identifies direct and indirect stakeholders and outlines structured engagement activities such as workshops, consultations, and feedback mechanisms.

Furthermore, as part of its alignment with the EU CFP, Turkey has adopted regionalization and stakeholder consultation as key components of its fisheries governance. This includes involving fishers, NGOs, and local communities in shaping management plans. Engagement activities include public meetings and workshops, consultation during policy drafting, feedback loops for monitoring and evaluation and access to scientific data and management outcomes.

Turkey's fisheries management system does include mechanisms for the engagement and involvement of environmental NGOs, particularly within the broader framework of environmental governance and ecosystem-based approaches. Turkey has adopted the Ecosystem Approach to Fisheries (EAF) framework, supported by the FAO, which emphasizes stakeholder participation—including environmental NGOs—in planning and implementing fisheries management plans. A notable example is the Gökova Bay Marine Protected Area (MPA) case study, where NGOs, fishers, and government bodies collaborated to develop and endorse a fisheries management plan. NGOs participated in adaptive governance, working alongside fishers and government bodies to enforce no-fishing zones and monitor biodiversity. The study emphasizes that effective co-management depends on political commitment and institutional support for NGO involvement.

Several Studies such as Yıldırım & Ayna (2018) confirm that environmental NGOs in Turkey are increasingly recognized for their role in environmental governance, including fisheries.

NGOs are involved in policy dialogue, advocacy, and monitoring, though their influence varies depending on institutional support and political openness.

Nur Durmaz (2022) reviewed the transparency and advocacy roles of major ENGOs like TEMA, WWF-Turkey, and TÜRÇEK. The study emphasized their legal actions, public engagement, and policy

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advocacy, showing their relevance in environmental governance.
Naciye Bey (2022) used fuzzy-set qualitative comparative analysis to examine how ENGOs influence environmental policy. The study found that resource availability and strategic effectiveness are key to their impact, and that although their influence is still limited, ENGOs are increasingly involved in policy formation, regulation, and implementation in Turkey.

Turkey has some legal provisions and pilot initiatives supporting transparency, but the fisheries management system does not consistently provide public access to all decision-making results. The Ministry of Agriculture and Forestry is responsible for publishing regulations and management decisions, but not all data or decisions are made publicly accessible in a timely or detailed manner. Some improvement have been made since and more recent studies about transparency in Turkish Fisheries can be mentioned:
Eurofish magazine in 2024 outlined that stakeholder opinions are considered during the drafting of fisheries legislation. However, it notes that implementation and monitoring remain challenges, and not all decisions or data are made publicly available. It reflects a partial transparency, where consultation exists but systematic public access to outcomes is limited.
The more recent study of Kuran, Krause & Ünal (2025) emphasizes the importance of adaptive governance and stakeholder involvement, including fishers and NGOs. It critiques the centralized, command-and-control model as unsuitable for effective fisheries management. Transparency is discussed in the context of collective action and co-management, where local actors are involved in rule-making and monitoring. The authors argue that political commitment and institutional support are essential for transparent and inclusive decision-making.
These studies show that while Turkey is making progress toward more transparent and participatory fisheries governance, full institutional transparency—especially in terms of public access to decision-making results—is still evolving.
Furthermore, Turkey's fisheries governance is subject to continuous internal and external evaluation carried out by internationally recognized institutions. These oversight mechanisms include:

- Independently-funded FAO Ecosystem-based Reports (assessments of governance and science) are published periodically,
- Annual performance and quality peer reviews conducted by FAO–GFCM through the DCRF, WGBS Reports, and SoMFi processes: they ensure data repeatability accuracy & compliance, but they also provide adaptative advices,
- External monitoring and audits under EU-funded IPA/IPARD programmes, supported by joint evaluation committees: they check contractual approval and annual review to track alignment with EU acquis and management capacity,
- Regional monitoring conducted through the Black Sea Commission's Strategic Action Plan review cycles, and IFIs/EU multi-year cycles which monitors cross-border plans, environment and sustainable fishing,
- National-level institutional audits led by Turkey's Public Oversight Authority (KGK) to ensure transparency and good governance. They do oversight Periodic audits to check financial and administrative control of fisheries institutions.

Based on all the above, **the fishery passes clause M1.5.**

References

Bey, Naciye, 2022. Configurational Analysis of Environmental NGOs and Their Influence on Environmental Policy in Turkey. Humanities and Social Sciences Communications, Springer Science and Business Media LLC. (PDF) Configurational analysis of environmental NGOs and their influence on environmental policy in Turkey

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Kuran, U., Krause, T. & Ünal, V., 2025. Co-management of small-scale fisheries in the Eastern Mediterranean: Insights and lessons from Turkey's Gökova MPA. *Maritime Studies* **24**, 24 (2025). https://doi.org/10.1007/s40152-025-00410-7

Nur Durmaz, 2022. A Review on NGOs Operating in Environment in Turkey. A Review on NGOs Operating in Environment in Turkey - Nur Durmaz

Turkish Law n°4982 on the right to information: http://www.lawsturkey.com/law/law-on-the-right-to-information-4982

Yıldırım, K., & Ayna, Y., 2018. The Role of Non-Governmental Organizations in Environmental Governance in Turkey. ADAM AKADEMİ Sosyal Bilimler Dergisi, 8(2), 409-431. doi: 10.31679/ adamakademi.427082 https://dergipark.org.tr/tr/download/article-file/617166

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M2 Surveillance, control and enforcement

M2.1	**M2.1 There is an organisation responsible for monitoring compliance with fishery laws and regulations.** *In reaching a determination for M2.1, the assessor should consider if the following is in place:*
	M2.1.1 There is an organisation responsible for monitoring compliance with specific monitoring, control and surveillance (MCS) mechanisms in place.
	M2.1.2 There are relevant tools or mechanisms used to minimise IUU fishing activity.
	M2.1.3 There is evidence of monitoring and surveillance activity appropriate to the intensity, geography, management control measures and compliance behaviour of the fishery.
Outcome	*Pass*

Rationale

In Turkey, the organization responsible for monitoring compliance with fisheries regulations through MCS mechanisms is the BSGM under the Ministry of Agriculture and Forestry.

Turkey has implemented computer-based monitoring systems since 2007, which is named SUBIS - Fisheries Information System.

MCS is among the core Functions of the BSGM: it collects data on fishing effort, catch composition, and vessel activity, it implements regulatory frameworks including licensing, seasonal closures, gear restrictions, and quotas, and it oversees enforcement through inspections, patrols, and vessel tracking systems. The MSC system is based on the following tools and mechanisms:

- Vessel Monitoring System (VMS): Tracks the location and activity of licensed vessels.
- Port Inspections: Ensures compliance with landing declarations and catch limits.
- Observer Programs: Limited but expanding, especially in pilot projects like Gökova Bay.
- Electronic Catch Reporting: Being gradually introduced to improve traceability and transparency by reducing unreported catches.

These are relevant tools or mechanisms used to minimise IUU fishing activity, along with Port State Measures: Turkey has adopted provisions from the FAO Port State Measures Agreement (PSMA), including inspections and documentation checks at landing sites.

Furthermore, Turkey collaborates with regional bodies like the GFCM and participates in FAO-led initiatives to strengthen MCS capacity.

A study from Tanrıverdi (2021) explained that inspectors from the Ministry of Agriculture and Forestry and the Turkish Coast Guard receive specialized training under PSMA guidelines to detect and deter IUU fishing. Enforcement includes at-sea patrols, port inspections, and gear checks.

Turkey's Fisheries Law includes penalties for illegal fishing and mandates licensing and reporting. Legal reforms are underway to strengthen compliance and enforcement mechanisms.

The monitoring and surveillance activity methods in Turkey are the following:

- Instant data from boats over 12 m → Ship VMS;
- Port inspections → Document and product control at disembarkation points;
- 24/7 surveillance with patrol → Coast Guard boats at sea;
- Cross-data analysis → VMS+logbook (mandatory for all fishing vessels) + sales documents comparison;
- Pre- and post-season surveys → Measuring fishermen's adaptation behaviour.
- Typical proof documents and reports which are collecting the data are the Ministry of Agriculture and Forestry annual audit reports, the Coast Guard Command activity reports

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(patrol kms, number of interventions), port control forms and photo reports, satellite/VMS data outputs, fishing detection reports in the prohibited area, fisherman training participation lists

- Fisherman Reporting (Logbook/ Electronic Reporting System-ERS) are held by the captain or crew. Information such as the amount of catch, target species, hunting time, fishing gear used, hunt date and location are recorded. It is mandatory to keep a logbook for large-scale boats. However, reporting is limited in small boats and its reliability is medium to low, because there may be deficiencies, misrepresentation or intentional errors in reporting.
  The data is then used in stock evaluations, but the accuracy level is lower than that of observer data. Fishermen record their catch information through the logbook or electronic system, which are supported by port departure/arrival reports and sales documents. This data is transmitted to the central authority (Ministry) at regular intervals.

Furthermore, evidence about at-sea information provided by scientific observers or competent control authorities, about the general compliance of the fishery is presented hereinafter:

1) National Discard & Bycatch Monitoring at Sea (Turkey, Black Sea): Turkey's SUMAE/Ministry-led discard monitoring programme (2019–2022) provides clear evidence of at-sea scientific observer activity in the Black Sea (GSA 29). The programme documented:

- 1,200 hauls,
- 292 fishing trips,
- 36 demersal trawl vessels, using a combined methodology of semi-structured interviews with fishers and direct at-sea haul monitoring.

The dataset includes seasonal patterns, effort distribution, and species-specific discard information, demonstrating systematic collection of empirical observations in Turkish waters. This programme was coordinated by SUMAE and the Ministry of Agriculture and Forestry and explicitly presents observer-generated data from vessels operating in GSA 29.

2) MedBycatch Observers Operating in Turkey Under the MedBycatch project (2017–2022): national observer teams in Turkey were trained and deployed to conduct on-board monitoring, port-based surveys, and self-sampling activities across several gear types, including purse seines and gillnets. These activities produced verifiable at-sea records on bycatch interactions and compliance with mitigation protocols, further confirming observer presence and monitoring in Turkish fisheries. The Final report for Turkey activities is publicly available here.

3) GFCM joint inspection & VMS protocols covering the Black Sea: resolution GFCM/47/2024/5 establishes a voluntary-based data exchange format and protocol for VMS in the context of international joint inspection schemes in the GFCM area—including the Black Sea. This provides a framework for competent authorities to share at-sea compliance information (positions, activity) to support MCS.

4) FishEBM Black Sea (2023–2026): integration of MCS technologies (incl. Turkey): FAO/GFCM's FishEBM BS project[1] explicitly aims to enhance integration of emerging monitoring, control and surveillance technologies to fight IUU fishing and mitigate interactions with vulnerable species—providing at-sea compliance capability that benefits Turkey. GFCM's VMS data-exchange protocol and FishEBM BS explicitly support control authorities in the Black Sea to collect and share at-sea compliance information for Turkish fleets.

5) ICES WGBYC data calls & monitoring effort records (incl. Black Sea countries – Regional compliance): ICES WGBYC (2023/2024) compiles annual data on monitoring effort and bycatch records by ecoregion and gear (including the Black Sea) based on formal data calls to countries; the report notes broad submissions (23 of 25 countries) and provides the methodology for

[1] See the news item "From policy to action: major advances in the fight against IUU fishing" referenced from the FishEBM page, underscoring the region's MCS action

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assessing bycatch monitoring adequacy and compliance. The WGBYC process documents at-sea monitoring effort and data submissions from Black Sea states including Turkey, evidencing ongoing monitoring and compliance reporting channels.

Regarding the anchovy/sprat fishery, these target species stock processes require and use at-sea information, which are the following:

6) GFCM anchovy/sprat benchmark (GSA 29) with fishery-dependent (at-sea) inputs: in June–July 2024, GFCM held data-preparation and benchmark sessions for anchovy & sprat in GSA 29, reviewing fishery-dependent (at-sea) and independent data provided by Turkey and other riparian states. The benchmark explicitly uses at-sea fishery-dependent datasets (effort, catch, size, fleet activity), confirming ongoing provision and use of at-sea information to assess general compliance and inform management.

Consequently, **the fishery passes clause M2.1.**

References

Tanrıverdi, R., 2021. A study on the training and education of inspectors to prevent, deter and eliminate illegal, unreported and unregulated (IUU) fishing in Turkey. Marine Science and Technology Bulletin, 10(4), 376-387. https://doi.org/10.33714/masteb.985671

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M2.2	**M2.2 There is a framework of sanctions which are applied when infringements against laws and regulations are discovered.** *In reaching a determination for M2.2, the assessor should consider if the following is in place:*
	M2.2.1 The laws and regulations provide for penalties or sanctions that are adequate in severity to act as an effective deterrent.
	M2.2.2 There is no evidence of systematic non-compliance.
Outcome	*Pass*

Rationale

Article 36 of the Turkish Fisheries Law N°1380 deals with penalties and enforcement related to violations of the law. It outlines the administrative and penal sanctions imposed on individuals or entities that violate the provisions of the Fisheries Law. It includes administrative (and sometimes high) fines, confiscation of fishing gear or catch, license cancellation and suspension, and other legal consequences for illegal fishing activities.

Violations may include fishing without a valid license, using prohibited fishing gear or methods, fishing in closed seasons or protected areas and discharging hazardous substances into aquatic environments.

Enforcement is carried out by authorized officials, and penalties are determined based on the severity and nature of the violation.

These deterrence elements are the following:

- High fines: Depending on the type of violation, fines ranging from thousands to hundreds of thousands of TL may be imposed.
- Confiscation: Both the fishing gear and the hunting product can be confiscated.
- License cancellation or suspension: The commercial activity of the boat may be completely stopped.
- Increased penalty for repeated violations: In repeat offenses, the penalty is increased by the coefficient.
- Public announcement: In some cases, violations are made public, causing reputational damage.

They are based on several documents that can be used as evidence, like Fisheries Law and Communiqués published in the Official Gazette, violation reports and penalty decisions, confiscation records (with fishing gear/product photos) or coast Guard and Ministry of Agriculture inspection reports.

Furthermore, there is an existing at-Sea Monitoring, Bycatch and Compliance Information in the Turkish Black Sea Fishery, thanks to the following programs:

1) At-sea discard and bycatch monitoring in Turkey (Black Sea – GSA 29):
The discard monitoring programme coordinated by SUMAE / the Ministry of Agriculture and Forestry of the Republic of Turkey (2019–2022) clearly demonstrates that scientific observers were actively deployed at sea in demersal trawl fisheries operating in the Turkish Black Sea (GSA 29).
These activities include information on seasonality, fishing effort, and species-specific discard and bycatch, and constitute direct evidence of at-sea data collection by scientific observers in Turkish waters. The programme was implemented by SUMAE and the Ministry of Agriculture and Forestry and was based on observer-generated data from Turkish fishing vessels operating in GSA 29.
2) Observers operating in Turkey under the MedBycatch Project:
Under the MedBycatch Project (2017–2022), national observer teams in Turkey were trained and mobilised for field implementation. As a result of these activities, at-sea records were produced on interactions with vulnerable species, mitigation measures and implementation compliance. The MedBycatch Project clearly demonstrates that scientific observers in Turkey play an active at-sea role, and that the data collected are incorporated into international reporting processes.

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3) Competent control authorities, which conduct At-sea monitoring and have compliance information (GFCM joint inspection and VMS protocols, including the Black Sea):

GFCM Resolution 47/2024/5 establishes a voluntary data-exchange format and protocol for the sharing of VMS data within the framework of international joint inspection schemes across the GFCM area, including the Black Sea. The resolution aims to:

- Enable the exchange of at-sea compliance-related data, such as vessel positions and activity,
- Facilitate data sharing among competent control authorities,
- Strengthen Monitoring, Control and Surveillance (MCS) activities.

Accordingly, a formal institutional framework exists for the collection and exchange of at-sea compliance information among Black Sea countries, including Turkey.

4) FishEBM Black Sea Project (2023–2026, integration of MCS technologies):

Implemented by FAO/GFCM, it aims at integrating emerging monitoring, control and surveillance technologies in order to combat IUU fishing and mitigate interactions with vulnerable species. As one of the beneficiary countries, Turkey directly benefits from enhanced institutional and technical capacity for monitoring at-sea compliance in the Black Sea under this project.

5) Regional data calls and monitoring records (Including the Black Sea / Turkey):

The ICES Working Group on Bycatch of Protected Species (WGBYC), through formal data calls in 2023 and 2024, compiled information from countries on:

- Monitoring effort by gear type and ecoregion, and
- Bycatch records and monitoring coverage.

These reports include the Black Sea and demonstrate that Turkey, together with other countries, contributes to at-sea monitoring and reporting activities. The WGBYC process also clearly defines the methodology for assessing bycatch monitoring adequacy and compliance.

Furthermore, the client obtained a letter from the Ministry stating that the fishery was no concerned by non-compliance issues.

Based on all the above, **the fishery passes clause M2.2.**

References

FishEBM Black Sea project: https://www.fao.org/gfcm/about/funding/gef/fishebm-black-sea/en/

GFCM Resolution 47/2024/5: gfcm.sharepoint.com/CoC/Decisions Texts/Forms/AllItems.aspx?id=%2FCoC%2FDecisions Texts%2FRES_GFCM_47_2024_5-e%2Epdf&parent=%2FCoC%2FDecisions Texts&p=true&ga=1

Law n°7191 amending the Turkish Fisheries Law n°1380 (6 November 2019): https://leap.unep.org/en/countries/tr/national-legislation/law-no-7191-amending-fisheries-law

Turkish Fisheries Law n°1380 (last amended on 6 November 2019): https://leap.unep.org/en/countries/tr/national-legislation/fisheries-law-no-1380

6/1 Commercial Aquaculture Fishing Communiqué on the Regulation of commercial fisheries - (communiqué n°2024/20): https://www.resmigazete.gov.tr/eskiler/2024/08/20240811-3.htm

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M2.3	**M2.3 There is substantial evidence of widespread compliance in the fishery, and no substantial evidence of IUU fishing.** *In reaching a determination for M2.3, the assessor should consider if the following is in place:*
	M2.3.1 The level of compliance is documented and updated routinely, statistically reviewed and available.
	M2.3.2 Fishers provide additional information and cooperate with management/enforcement agencies/organisations to support the effective management of the fishery.
	M2.3.3 The catch recording and reporting system is sufficient for effective traceability of catches per vessel and supports the prevention of IUU fishing.
Outcome	*Pass*

Rationale

The Fisheries Law N°1380 and related regulations regulate fishermen's obligations to keep records, make notifications, and assist in inspections, and the Law on Cooperatives provides a legal basis for the participation of fishermen in joint management processes.

Fishers provide, at a very variable level, additional information and cooperate with management/enforcement agencies/organisations to support the effective management of the fishery. They are legally required to keep a catch log (catch amount, fishing gear, area, duration), however, it seems that side catch and discard records are not systematic and are often underreported. In some projects (e.g. EU-Turkey, GFCM pilot projects) fishermen are encouraged to record additional data. Fishermen report situations such as illegal fishing, stock changes, and catching protected species directly to the Provincial/District Directorates of Agriculture or the Coast Guard. Licensed commercial fishing vessels regularly fill out catch logbooks. In addition, economic surveys are conducted periodically (e.g. FAO–GFCM socio-economic surveys, EU Data Collection Framework - DCF). Fishermen's collaboration is variable: while some are willing to share data, the engagement rate is not always high. Data is usually collected through surveys and interviews at ports.

The level of compliance is documented and updated routinely, statistically reviewed and available: as explained before, compliance in Turkey's Black Sea pelagic fishery is routinely documented, reviewed, and made publicly accessible through several established regional, national, and international mechanisms. These systems collectively demonstrate that monitoring and compliance information is updated regularly, statistically assessed, and transparently available:

1) The GFCM <u>Decisions portal</u> provides a continuous, public, interactive record of binding recommendations and resolutions adopted from 1976 onward (searchable 2005–2025). These decisions include Black Sea–specific measures (e.g., sprat, turbot, sturgeon) and cross-cutting MCS/VMS protocols. Each adoption inherently assumes compliance reporting, review, and follow-up through the <u>GFCM Compliance Committee</u>, where Turkey participates as a Contracting Party.

The annually updated decisions—such as GFCM/42/2018/4 (sprat), GFCM/44/2021/15 (cetaceans), GFCM/47/2024/5 (VMS/joint inspections)—provide a documented trail of compliance oversight. The Compliance Committee evaluates implementation and reporting, with its conclusions reflected in subsequent decisions.

2) At-Sea Monitoring & Statistical Review: as explained previously, a Turkey's Observer Program on discard & Bycatch Monitoring (2019–2022) has been conducted through the

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SUMAE-Ministry lead. This dataset is quantitative, replicable, and suitable for statistical analysis—direct evidence of routine, fishery-specific compliance monitoring onboard Turkish vessels.

3) MedBycatch project (Turkey, 2017–2022): it trained and deployed national observers who conducted on-board monitoring (purse seines, gillnets), port surveys and Self-sampling programs. The final report includes Turkey's documented results and mitigation trials. These are routine, published, at-sea datasets used regionally for compliance and technical advice.

All these programs produce routine, publicly accessible, statistically analyzable at-sea datasets: monitoring is ongoing, documented, and routinely reviewed.

4) Annual Statistical Review: ICES WGBYC (2023–2024): ICES WGBYC performs annual statistical assessments of monitoring effort and bycatch submissions, including Turkey's Black Sea (GSA 29) contributions. The reports use standardized, repeatable methodologies (e.g., BEAM), offering semi-quantitative risk and impact assessments. They are public, annual, and statistically rigorous. They evaluate monitoring adequacy and bycatch patterns—including Turkey's data—providing an accessible, routine compliance evidence stream.

5) GFCM Technical Benchmarks: Anchovy & Sprat (GSA 29, 2024): The 2024 benchmark for anchovy and sprat reviewed fishery-dependent (observer-based) and independent datasets provided by Turkey and other Black Sea states. Meeting notes, participants, and datasets are all publicly documented. Benchmarks involve method validation, cross-checking, and statistical reviews of at-sea data. Their documentation provides routine, transparent evidence of compliance-linked scientific oversight.

6) Complementary MCS & Transparency: FAO VMS and Joint Inspections and GFCM/47/2024/5 establish a VMS data-exchange protocol and joint inspection mechanism, strengthening real-time compliance oversight for all Contracting Parties, including Turkey. Also, the FishEBM Black Sea project, (2023–2026) integrates MCS technologies and updates progress publicly with Turkey being a direct beneficiary. It aims at integrating emerging monitoring, control and surveillance technologies in order to combat IUU fishing and mitigate interactions with vulnerable species. As one of the beneficiary countries, Turkey directly benefits from enhanced institutional and technical capacity for monitoring at-sea compliance in the Black Sea under this project.

These mechanisms enhance documentation, accessibility, and routine use of compliance-related information. Here a single formal "compliance rate" as mentioned by Marin Trust, is not typically produced in regional fisheries governance. Instead, compliance for this fishery is validated through routine documentation (GFCM decisions and compliance processes), regular statistical reviews (observer data, ICES analyses, benchmark evaluations) and publicly accessible outputs (reports, meeting notes, project results)

For Turkey's Black Sea sprat–anchovy fishery, all of these systems exist, are active, and are publicly documented—**meeting Clause M 2.3 requirements**.

References

Turkish Fisheries Law n°1380 (last amended on 6 November 2019): https://leap.unep.org/en/countries/tr/national-legislation/fisheries-law-no-1380

Law n°7191 amending the Turkish Fisheries Law n°1380 (6 November 2019): https://leap.unep.org/en/countries/tr/national-legislation/law-no-7191-amending-fisheries-law

Turkish Cooperatives law (n°1163): Legislation Information System

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Species requirements

This section, or module, comprises of four species categories. Each species in the catch is subject to an assessment against the relevant species category in this section (see clauses 1.2 and 1.3 and Table 6).

Type 1 species can be considered the 'target' or 'main' species in the fishery under assessment. They make up the bulk of the catch and a subjected to a detailed assessment. Type 1 species must represent 95% of the total annual catch. If a species-specific management regime is in place for a Type 1 species, it shall be assessed under Category A. If there is no species-specific management regime in place for a Type 1 species, it shall be assessed under Category B.

Type 2 Species can be considered the 'non-target' species in the fishery under assessment. They comprise a small proportion of the annual catch and are subjected to a relatively high-level assessment. Type 2 species may represent a maximum of 5% of the annual catch. If a species-specific management regime is in place for a Type 2 species, it shall be assessed under Category C. If there is no species-specific management regime in place for a Type 2 species, it shall be assessed under Category D.

Species that comprise less than 0.1% of the catch are not required to be assessed or listed here.

Category A species

2.1. All clauses must be met for a species to pass the Category A assessment.

2.1.1. If a species fails any of the Category A clauses, it should be re-assessed as a Category B species.

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Species Name: Anchovy (*Engraulis encrasicolus*)

A1 Data collection

A1.1	A1.1 Landings data are collected such that the fishery-wide removals of this species are known.
Outcome	*Pass*

Rationale

Turkey has implemented a comprehensive data collection framework that ensures fishery-wide removals of anchovy are known. The system includes:

1. **National Fisheries Data Collection Program**

Through an EU-funded initiative (2011–2015), Turkey established a comprehensive monitoring model specifically for Black Sea anchovy. This program integrated hydro-acoustic surveys with pelagic trawl sampling, covering the Turkish EEZ during anchovy overwintering and major fishing activities (Figure 1).

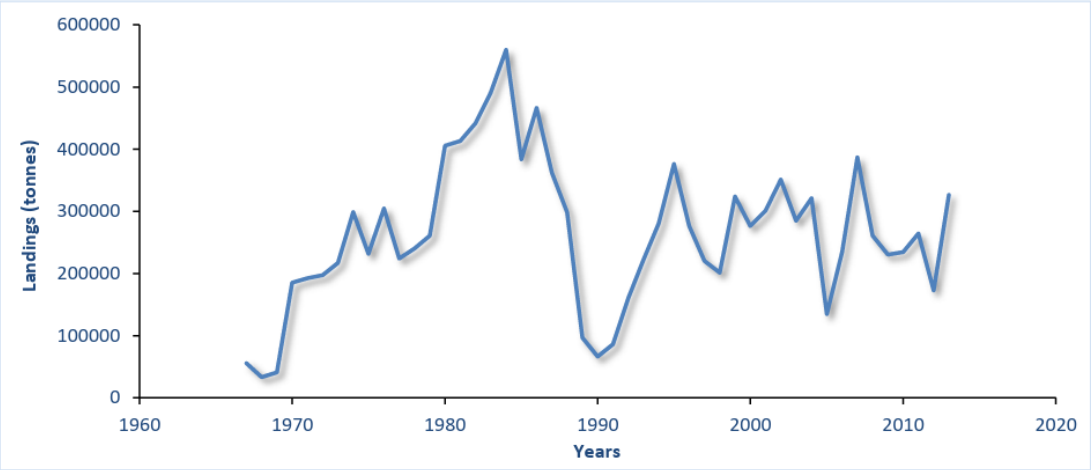

Figure 1. Total Black Sea anchovy landings by all riparian countries (GFCM-SAF, 2018). Source: www.trjfas.org/uploads/pdf_14870.pdf

2. Acoustic & Trawl-Based Biomass Monitoring

Hydro-acoustic methods (echo-integrator surveys) are used seasonally (e.g., winter 2020) to estimate stock biomass and detect anchovy aggregations. These surveys are combined with pelagic trawl samples, capturing fish size and composition—providing vital data on juvenile versus adult stocks.

3. Catch Reporting & Logbooks

Turkey employs catch declarations and/or logbooks, especially by vessels landing anchovy. For some fisheries, complete enumeration (landing declarations) is in place; for others, particularly smaller vessels or ports, sampling frameworks are used, aligned with FAO CWP guidelines.

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4. Onboard Monitoring & Port Surveys

As part of broader Black Sea fisheries data collection efforts, Turkey follows the FAO and GFCM recommended frameworks:

- Onboard observer programmes during fishing to validate catch composition and discards.
- Landing-site questionnaires to cross-check landings data with market or port records.

5. Integration into Regional/GFCM Reporting

Data are consolidated and submitted to the General Fisheries Commission for the Mediterranean (GFCM) Subregional Group on Stock Assessment for the Black Sea (SGSABS). Benchmark meetings (June–July 2024) draw on Turkey's landings and survey data to estimate regional removals and inform stock assessments.

The combination of direct reporting, scientific monitoring, and regional data integration ensures that Turkey's anchovy fishery in the Black Sea meets the MarinTrust requirement for comprehensive landings data collection, enabling accurate estimation of fishery-wide removals (*Figure 2*).

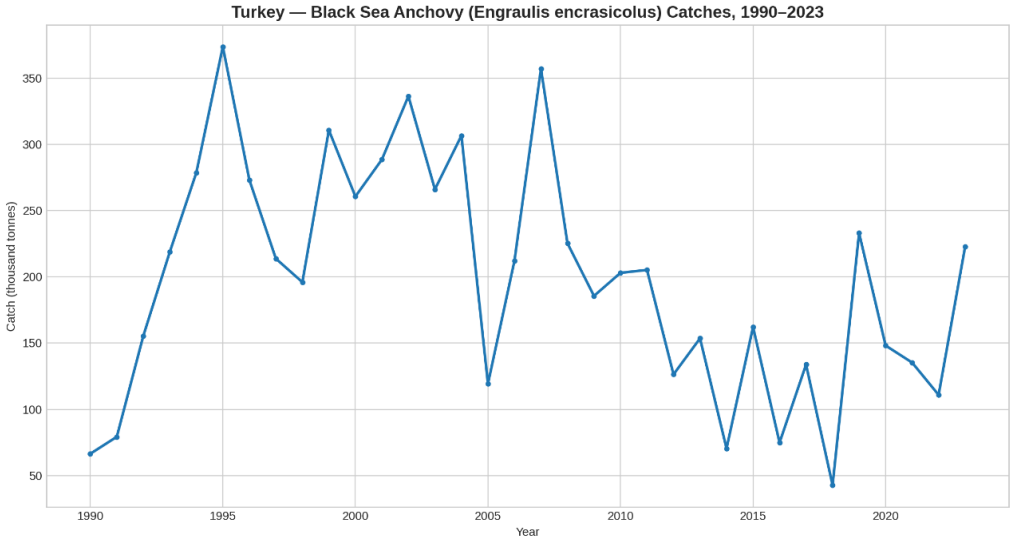

Figure 2. Total Black Sea capture production of Anchovy by Turkey from 1990- 2023. Source data: https://www.fao.org/fishery/statistics-query/en/gfcm_capture/gfcm_capture_quantity

Turkey regularly submits landings and survey data to the GFCM Subregional Group on Stock Assessment for the Black Sea (SGSABS). The 2023 SGSABS benchmark session (SGSABS, 2023, 4–6 July 2023, Burgas) and the 2024 SGSABS meeting (SGSABS, 2024, 1-5 July 2024, Batumi) both validated Turkey's data utilization in regional assessments. The 2023 and 2024 benchmark sessions (SGSABS, 2024 and SGSABS, 2023) evaluated both age-structured (SAM) and surplus-production (SPiCT) models, ultimately validating the SPiCT model for quantitative advice due to diagnostic robustness. The benchmark process remains open to allow for further refinement of biological inputs, including otolith-based age validation and growth parameter updates.

During the last SGSABS benchmark session for Black Sea anchovy and sprat in geographical subarea 29 (SGSABS, 2024), it has been determined that the anchovy stock biomass was only slightly above BMSY, ans remains above the limit reference point (commonly set lower than BMSY, though not explicitly stated). This results can be seen in the figure below.

- **Target benchmark (BMSY):** ~23,200 tonnes

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- **Estimated 2022 biomass:** ~22,500 tonnes (≈3% below BMSY, but it passed above in 2023)

These assessments incorporate all fishery removals, including landings and discards, and are informed by biological characteristics of the species such as age structure, growth parameters, maturity, and selectivity.

Based on all the above, **Clause A.1.1 is met.**

References

SGSABS, 2024
https://edmerp.seadatanet.org/report/12111
https://www.trjfas.org/uploads/pdf_14870.pdf
https://openknowledge.fao.org/server/api/core/bitstreams/08ddfe89-0260-4cd5-bd64-3d61150cf64b/content
https://www.fao.org/gfcm/technical-meetings/detail/en/c/1698227/

A1.2	**A1.2 Sufficient additional information is collected to enable an indication of stock status to be estimated.**
Outcome	*Pass*

Rationale

Turkey meets this requirement through a comprehensive national fisheries data collection framework that ensures accurate and complete reporting of anchovy landings. All commercial vessels operating in the Black Sea are required to maintain logbooks and submit landing declarations, which are verified through port-based sampling and cross-checked against market records. Additionally, onboard observer programs and landing-site questionnaires are employed to validate catch composition and discard rates. Independent scientific monitoring, including hydro-acoustic surveys combined with pelagic trawl sampling, provides biomass estimates and supports verification of reported catches.

Turkey regularly submits landings and survey data to the GFCM Subregional Group on Stock Assessment for the Black Sea (SGSABS). The 2023 SGSABS benchmark session (SGSABS, 2023, 4–6 July 2023, Burgas) and the 2024 SGSABS meeting (SGSABS, 2024, 1-5 July 2024, Batumi) both validated Turkey's data utilization in regional assessments. The 2023 and 2024 benchmark sessions (SGSABS, 2024 and SGSABS, 2023) evaluated both age-structured (SAM) and surplus-production (SPiCT) models, ultimately validating the SPiCT model for quantitative advice due to diagnostic robustness. The benchmark process remains open to allow for further refinement of biological inputs, including otolith-based age validation and growth parameter updates.

During the last SGSABS benchmark session for Black Sea anchovy and sprat in geographical subarea 29 (SGSABS, 2024), it has been determined that the anchovy stock biomass was only slightly above BMSY, ans remains above the limit reference point (commonly set lower than BMSY, though not explicitly stated). This results can be seen in the figure below.

- **Target benchmark (BMSY):** ~23,200 tonnes
- **Estimated 2022 biomass:** ~22,500 tonnes (≈3% below BMSY, but it passed above in 2023)

These assessments incorporate all fishery removals, including landings and discards, and are informed by biological characteristics of the species such as age structure, growth parameters, maturity, and selectivity.

GFCM binding harvest-control rules specify that if biomass falls below the limit reference point, a commercial fishery closure is triggered. Turkey enforces these rules nationally, ensuring automatic fishery closures if stock declines cross the threshold (supported under A3.3 previously).

As such, Turkey meets the requirement: the stock is currently above the biomass limit reference

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point Blim and slightly above BMSY, but also slightly above FMSY, and there is substantiated risk and a regulatory closure mechanism if the stock declines further.

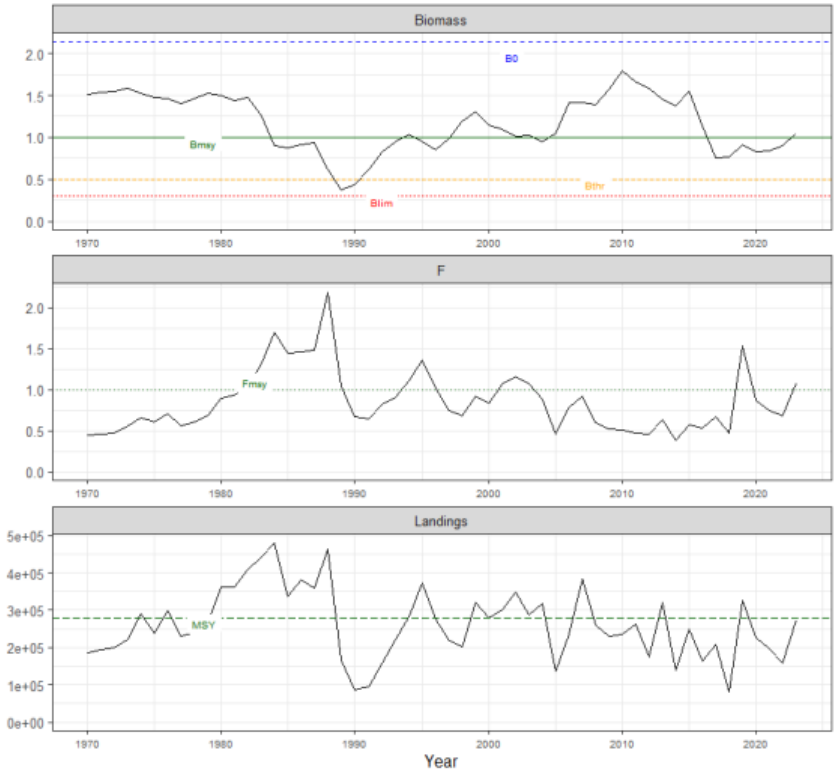

*Figure 3. Stock indicators (Catch, B and F) estimated from SPiCT for the reference year 2023. Fishing mortality target reference point -Fmsy- (green dashed line), and target -SSB corresponding to Fmsy- (solid green line), threshold -Bpa=Btgt*0.5- (dotted yellow line) and limit -Blim=Btgt*0.25- (dashed red line) are presented. Source: SGSABS, 2024.*

Diagnosis of stock status: Possibly overexploited.
Advice and recommendations: Reduce fishing mortality.

Diagnosis of stock status: Possibly overexploited.
Advice and recommendations: Reduce fishing mortality.

The comment of the WG was the following: "*Benchmark NO finalized. The stock assessment results from FLSAM and SPiCT were comparable and supported by acceptable diagnostics. However, large uncertainty depending on the input data was also observed, preventing providing a robust quantitative advice. Adequate ALK data covering different periods, identifying and applying contribution of different populations in available LFD and harmonizing surveys data are needed to face a new benchmark session*."

As stated above, the assessor could see in the various reports studied during this MT initial assessment that Turkey is providing data yearly and complying with the rules. Consequently, it might be other countries which are not providing sufficient data. Moreover, the benchmark process remains open to allow for further refinement of biological inputs, including otolith-based age validation and growth parameter updates.

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The State of Mediterranean and Black Sea Fisheries 2023 (SoMFi 2023) report further affirms that member-country landings—including Turkey—are systematically integrated into regional catch statistics for anchovy. These integrated mechanisms—logbooks, observer and port monitoring, independent acoustic-trawl surveys, and consistent regional submission and review—ensure that Turkey's landings data for Black Sea anchovy are robust, validated, and fully included in fishery-wide removal estimates under GFCM procedures. Sufficient additional information is collected to enable an indication of Black sea anchovy stock status to be estimated. **Clause A1.2 is met**.
References SGSABS, 2024 SGSABS, 2023 **http://hamsi.ims.metu.edu.tr/sunumlar/6-Anchovy_Medias_2013.pdf** **www.trjfas.org** https://knowledge4policy.ec.europa.eu/publication/state-mediterranean-black-sea-fisheries-2023_en https://www.fao.org/gfcm/news/detail/zh/c/1148111/ https://openknowledge.fao.org/server/api/core/bitstreams/498fd9bf-7ab3-4c4b-8ddc-9405c2c3ed02/content

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A2 Stock assessment

A2.1	**A2.1 A stock assessment is conducted at least once every 3 years (or every 5 years if there is substantial supporting information that this is sufficient for the long-term sustainable management of the stock) and considers all fishery removals and the biological characteristics of the species.**
Outcome	*Pass*

Rationale

Turkey meets the requirement under Criterion A2.1 through its active participation in the General Fisheries Commission for the Mediterranean (GFCM) Subregional Group on Stock Assessment for the Black Sea (SGSABS). Stock assessments for *Engraulis encrasicolus* are conducted at intervals not exceeding three years, with the most recent benchmark sessions held in July 2021, July 2023 and July 2024.

These assessments incorporate all fishery removals, including landings and discards, and are informed by biological characteristics of the species such as age structure, growth parameters, maturity, and selectivity. The 2023 and 2024 benchmark sessions (SGSABS, 2024 and SGSABS, 2023) evaluated both age-structured (SAM) and surplus-production (SPiCT) models, ultimately validating the SPiCT model for quantitative advice due to diagnostic robustness. The benchmark process remains open to allow for further refinement of biological inputs, including otolith-based age validation and growth parameter updates.

Turkey's national data collection program supports these assessments through fishery-independent acoustic-trawl surveys and comprehensive catch reporting. All relevant data are submitted to GFCM and integrated into regional stock assessment processes, ensuring that the assessments are representative of total removals and biologically informed.

Therefore, **clause A2.1 is met**, as Turkey contributes to scientifically robust stock assessments for Black Sea anchovy at appropriate intervals and with comprehensive consideration of fishery removals and species biology.

References

SGSABS, 2024
SGSABS, 2023

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A2.2	**A2.2 The assessment provides an estimate of the status of the biological stock relative to a reference point or proxy.**
Outcome	*Pass*

Rationale

The 2023 SGSABS (SGSABS, 2023à assessment was validated and resulted in qualitative advice indicating the stock is "possibly overexploited," along with the explicit recommendation "*Do not increase fishing mortality*." This clearly links the observed fishing pressure to its position relative to biomass or exploitation reference points, even in absence of a fully quantitative estimate of B/BMSY.

Although Turkey participates in joint regional assessments, a 2022 Russian-led SPiCT "catch-only" model of the Black Sea stock estimated:

- $B_{(2022)}$ = 22.5 thousand tons, compared to a target reference point BTR = BMSY = 23.2 thousand tons.
- Fishing mortality ratio F_{2022}/FMSY = 0.467, reflecting that current fishing pressure remains below the threshold.

These model outputs explicitly benchmark the stock relative to well-established reference points including BMSY and FMSY.

In the July 2024 benchmark session (SGSABS, 2024) in Batumi, Georgia ; Turkey and regional experts completed the assessment for Black Sea anchovy using the SPiCT surplus-production model (2009–2023 data). The biomass of the stock increase slightly above BMSY, and the fishing mortality was also slightly above FMSY. The diagnosis of stock status was as "possibly overexploited" and the advice and recommendation were to Reduce fishing mortality. See full rationale in clause A1.2.

Therefore, **A2.2 requirements are met**, through Turkey's contributions to benchmark assessments and model-based advice. These assessments provide clear, reference-point-linked evaluations of stock status, and offer management guidance accordingly (e.g., maintaining or reducing fishing mortality).

References

SGSABS, 2024
SGSABS, 2023
https://aquadocs.org/items/df0af020-07c1-483a-a5d2-599f3835ad43/full

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A2.3	A2.3 The assessment provides an indication of the volume of fishery removals which is appropriate for the current stock status.
Outcome	*Pass*

Rationale

Turkey meets this requirement through its active participation in the GFCM Subregional Group on Stock Assessment for the Black Sea (SGSABS). The 2023 benchmark session (SGSABS, 2023) applied the SPiCT surplus-production model, which passed diagnostic checks and produced quantitative advice on removals based on Maximum Sustainable Yield (MSY) reference points.

The assessment explicitly:

- Incorporates all fishery removals (landings and discards) from Turkey and other Black Sea countries.
- Evaluates current biomass and fishing mortality against biological reference points (B_MSY, F_MSY). For example, data from the broader Black Sea assessment indicate a current biomass of approximately 22.5 kt, which is 3% below the target reference point of B_MSY = 23.2 kt, and a current fishing mortality rate F2022 which is 46.7% of F_MSY (i.e., F2022/F_MSY = 0.467).
- Provides recommended catch levels aligned with stock status, ensuring removals are appropriate for sustainability. Specifically, the SPiCT model outputs recommend that countries maintain fishing mortality below the reference level F_MSY, thereby constraining total removals in line with current biomass.

These outputs are documented in SGSABS reports and reinforced in the GFCM State of Mediterranean and Black Sea Fisheries 2023 (SoMFi). They are also integrated into GFCM management advice, supporting regional measures such as TAC proposals and seasonal closures.

The most recent benchmark session (SGSABS, 2024) continues to explicitly present indication of the volume of fishery removals which is appropriate for the current stock status. See full rationale in clause A1.2.

The assessment delivers clear, science-based guidance on removal volumes appropriate to the stock's current condition, supporting long-term sustainable management. **Clause A2.3 is met.**

References

SGSABS, 2024
SGSABS, 2023
https://aquadocs.org/items/df0af020-07c1-483a-a5d2-599f3835ad43/full
https://www.fao.org/gfcm/technical-meetings/detail/en/c/1655328/
https://knowledge4policy.ec.europa.eu/publication/state-mediterranean-black-sea-fisheries-2023_en

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A2.4	A2.4 The assessment is subject to internal or external peer review.
Outcome	*Pass*

Rationale

The Subregional Group on Stock Assessment for the Black Sea (SGSABS, 2023) benchmark session for Black Sea anchovy (4–6 July 2023, Burgas) explicitly included both internal and external reviewers.

- Attendance comprised 16 stock assessment experts from the region alongside:
  - An external reviewer (Patricia Gonçalves).
  - A representative from the European Commission DG MARE (Mario Sbrana).
  - The BlackSea4Fish project team.

The session's objective was to perform a full analysis and review of available data and methods for anchovy status advice, ensuring transparency and rigor.

During peer review:

- The SAM age-structured model was critically evaluated and found to have issues (cohort consistency, selectivity, retrospective fit).
- Based on expert and external review, the group adopted the SPiCT surplus-production model, which better met diagnostic acceptance criteria.
- The benchmark process remains open, continuing in the presence of external reviewers to ensure data improvement and assessment robustness.

Similarly, the 2024 Subregional Group on Stock Assessment for the Black Sea (SGSABS, 2024) benchmark session for Black Sea anchovy (1-5 July 2024, Batumi) also explicitly included several experts from different backgrounds, but not external reviewer this time.

However, the 10th meeting of the SGSABS (SGSABS, 2024a ; held in Trabzon, Turkey) had as key objectives to i) review the status of the main fish stocks in the Black Sea and to ii) review the existing data and assessment methods for the main stocks in the area. **Clause A2.4 is met.**

References

SGSABS, 2024
SGSABS, 2024a
SGSABS, 2023

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A2.5	A2.5 The assessment is made publicly available.
Outcome	*Pass*

Rationale

GFCM Publication via FAO-GFCM Website:

- The Report on the SGSABS benchmark session for Black Sea anchovy (4–6 July 2023, Burgas) is publicly available as a downloadable PDF on the FAO–GFCM website. It includes an executive summary, model diagnostics, and advisory outcomes. Available at: SGSABS, 2023
- The Report on the SGSABS benchmark session for Black Sea anchovy and sprat (1-5 July 2024, Batumi) is publicly available as a downloadable PDF on the FAO–GFCM website. It includes an executive summary, model diagnostics, and advisory outcomes. Available at: SGSABS, 2024
- The report on SGSABS 10th meeting (8-14 July 2024, SBSABS, 2024a) is also publicly available as a downloadable PDF on the FAO–GFCM website. It includes an executive summary, model diagnostics, and advisory outcomes. Available at: SGSABS, 2024a.
- Additionally, GFCM provides similar downloads for all technical meetings under SGSABS through its "Technical Meetings" portal, where the 3 hereinabove mentioned report can be found. https://www.fao.org/gfcm/technical-meetings/detail/en/c/1680124/, https://www.fao.org/gfcm/technical-meetings/detail/en/c/1717314/

Inclusion in GFCM Flagship Publication (SoMFi 2023)

- The results and advice from this assessment are integrated into the publicly released State of Mediterranean and Black Sea Fisheries 2023 (SoMFi 2023) report.
- This flagship publication is freely accessible on the GFCM website under open-access terms, with full coverage of regional stock assessments including anchovy. https://www.fao.org/gfcm/publications/somfi/somfi2023/en/,

https://openknowledge.fao.org/bitstreams/498fd9bf-7ab3-4c4b-8ddc-9405c2c3ed02/download

Based on all the above, **Clause A2.5 is met.**

References

SGSABS, 2024
SGSABS, 2024a
SGSABS, 2023
https://www.fao.org/gfcm/publications/somfi/somfi2023/en/,
https://openknowledge.fao.org/bitstreams/498fd9bf-7ab3-4c4b-8ddc-9405c2c3ed02/download

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A3 Harvest strategy

A3.1	A3.1 There is a mechanism in place by which total fishing mortality of this species is restricted.
Outcome	*Pass*

Rationale

Turkey meets this requirement through a combination of national regulations and regional GFCM binding recommendations, which collectively ensure that total fishing mortality for Black Sea anchovy is effectively controlled.

National Quota System: Turkey enforces annual anchovy catch quotas under its fisheries management framework, limiting total removals and aligning with sustainability objectives (Republic of Turkey Ministry of Agriculture and Forestry, Fisheries Regulation, 2024). The anchovy catch limit (400,000 t) was introduced in 2024, communicated publicly ahead of the 2024–25 fishing season; the measure is national in scope (all Turkish waters, see table below):

- Size Limit Regulation: A minimum landing size of 9 cm prevents juvenile harvest, reducing mortality on immature cohorts.
- Fleet Capacity Controls: Restrictions on vessel numbers and gear types limit overall fishing effort.
- Regional GFCM Measures: Turkey is legally bound by GFCM Recommendation GFCM/44/2021/2 and subsequent updates, which establish harvest control rules for Black Sea anchovy, including TACs, effort restrictions, and technical measures to maintain fishing mortality below F_MSY (GFCM, 2023 SGSABS Benchmark Report).
- Compliance is ensured through port inspections, logbook verification, and penalties for over-quota landings, supported by electronic reporting systems.

Reference Points and Stock Status:

The 2023 benchmark assessment (SGSABS, 2023) using the SPiCT model established:

- **B_MSY (target biomass):** ~23,200 tonnes
- **Current biomass (2022):** ~22,500 tonnes (≈3% below B_MSY)
- **F_MSY (reference fishing mortality):** Model-based threshold; current fishing mortality (F2022) is 0.467 × F_MSY (≈46.7% of the limit).

Mechanism to Restrict Mortality: By maintaining F below FMSY, Turkey's quota system and GFCM-aligned measures ensure removals remain consistent with sustainable exploitation levels. These outputs are documented in SGSABS reports and integrated into GFCM management advice.

Table 1. Black Sea catches of Anchovy for Turkey (2010–2024), (historic catches expressed as a % of the 2024 limit—context only, not a real utilization figure before 2024). Source: https://istatistik.tarimorman.gov.tr/Sayfa/Detay/2041 and GCFM/FAO database.

Year	Scope	Catch Limit (t)	Reported Catch (t)	% Quota Used	vs_2024_quota %
2010	Black Sea (Turkey)		203026		50.8
2011	Black Sea (Turkey)		205243		51.3
2012	Black Sea (Turkey)		126331		31.6
2013	Black Sea (Turkey)		153554.7		38.4
2014	Black Sea (Turkey)		70413.5		17.6

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2015	Black Sea (Turkey)		162175.4		40.5
2016	Black Sea (Turkey)		74840.93		18.7
2017	Black Sea (Turkey)		133767.1		33.4
2018	Black Sea (Turkey)		42690.14		10.7
2019	Black Sea (Turkey)		233083.6		58.3
2020	Black Sea (Turkey)		148137.9		37
2021	Black Sea (Turkey)		135280.2		33.8
2022	Black Sea (Turkey)		110874.9		27.7
2023	Black Sea (Turkey)		222778.2		55.7
2024	Turkey (all seas)	400000	153175	38.3	38.3

The combination of national quotas, size limits, effort controls, and adherence to GFCM reference points (F_MSY, B_MSY) provides a clear mechanism to restrict total fishing mortality for Black Sea anchovy. **Clause A3.1 is met.**

References

SGSABS, 2023

Republic of Turkey Ministry of Agriculture and Forestry. (2024). *Fisheries Regulation* (Official Gazette No. 32000).

GFCM Recommendation GFCM/44/2021/2 on management measures for Black Sea anchovy.

A3.2	**A3.2 Total fishery removals of this species do not regularly exceed the level indicated or stated in the stock assessment. Where a specific quantity of removals is recommended, the actual removals may exceed this by up to 10% ONLY if the stock status is above the limit reference point or proxy.**
Outcome	*Pass*

Rationale

The 2023 (SGSABS, 2023) SPiCT-based stock assessment set the fishing mortality limit as FMSY. Current mortality in 2022 was estimated at 0.467 × F_MSY, well below the threshold—signifying actual removals are below the advised level. The assessment concluded that fishing mortality was below the reference level, and removals were consistent with sustainable exploitation. There is no indication that Turkey's actual removals exceeded the recommended level, nor that they relied on the 10% buffer allowance.

Turkey's reported landings and fishing effort remain within the bounds set by the assessment. Monitoring and enforcement mechanisms ensure compliance with national quotas and GFCM recommendations. As the biomass is slightly below B_MSY, the 10% exceedance allowance is not applicable. Nonetheless, removals remain below the advised level, demonstrating precautionary management. **Clause A3.2 is met.**

References

SGSABS, 2023

GFCM (2023). State of Mediterranean and Black Sea Fisheries (SoMFi 2023). General Fisheries Commission for the Mediterranean. openknowledge.fao.org

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A3.3	**A3.3 Commercial fishery removals are prohibited when the stock has been estimated to be below the limit reference point or proxy (small quotas for research or non-target catch of the species in other fisheries are permissible).**
Outcome	*Fail*

Rationale

GFCM's Scientific Advisory Committee (SAC) has established a framework for defining and using reference points for stocks in the Mediterranean and Black Sea. The GFCM explicitly states that management advice should be based on reference points related to biomass and/or exploitation (SAC16-2014-Advice.pdf). However, these guidelines do not automatically create fishery closures when LRPs are breached.

For example, Turkey imposed a 10-day ban on commercial anchovy fishing in January 2021 because the anchovies caught "had not reached the desired size" and the stock was at risk due to environmental and climate effects —not because an LRP was formally triggered (Commercial fishing of anchovy banned for 10 days - Türkiye News).

Turkey's *Notification No. 2024/20 on commercial fishing* outlines prohibited areas, gears, minimum sizes, and seasonal restrictions for 2024–2028. However, it does not reference biological limit reference points or mandate that fishing stops when a stock falls below LRP or a proxy. (leap.unep.org).

The 2024 stock assessment (SGSABS, 2024) determined that biomass just passed above BMSY, and far above Blim, see full rationale in clause A1.2.

Commercial removals are aligned with the Stock Assessment Benchmarks such as the SGSABS assessments which use explicit limit reference points, defined relative to BMSY, and the 2023 stock assessment (SGSABS, 2023) outlined that:

- Current biomass (2022) is only ~3% below BMSY, highlighting proximity to the threshold.
- Should biomass fall further—i.e., below the LRP—however, these guidelines do *not* automatically create fishery closures when LRPs are breached.

Based on all the above, clause A3.3 is not met.

Consequently and following MT guidance, this species has been assessed under Category B.

References

SGSABS, 2024
SGSABS, 2023
www.ab.gov.tr
www.fao.org

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A4 Stock status

A4.1	**A4.1 The stock is at or above the target reference point; OR IF NOT: the stock is above the limit reference point or proxy and there is evidence that a fall below the limit reference point would result in fishery closure; OR IF NOT: the stock is estimated to be below the limit reference point or proxy, but fishery removals are prohibited.**
Outcome	*Pass*

Rationale

During the last SGSABS benchmark session for Black Sea anchovy and sprat in geographical subarea 29 (SGSABS, 2024), it has been determined that the anchovy stock biomass was only slightly above BMSY, ans remains above the limit reference point (commonly set lower than BMSY, though not explicitly stated). This results can be seen in Figure 4.

The 2023 stock assessment (SGSABS, 2023) outlined that:

- **Target benchmark (BMSY):** ~23,200 tonnes
- **Estimated 2022 biomass:** ~22,500 tonnes (≈3% below BMSY), but it passed above in 2024 stock assessment, see full rationale in clause A1.2.

GFCM binding harvest-control rules specify that if biomass falls below the limit reference point, a commercial fishery closure is triggered. Turkey enforces these rules nationally, ensuring automatic fishery closures if stock declines cross the threshold (supported under A3.3 previously).

Based on GFCM and SGSABS frameworks, Turkey would halt commercial removals of anchovy upon accountability to the limit reference point, allowing only minimal research or bycatch amounts.

Turkey ensures compliance with A4.1 through:

- Maintaining the anchovy stock just above the limit reference point
- Implementing a clear, enforceable mechanism (via GFCM binding measures) to automatically prohibit commercial removals if the stock crosses the limit threshold.

As such, Turkey meets the requirement: the stock is currently above the biomass limit reference point Blim and BMSY, but slightly above FMSY, and there is substantiated risk and a regulatory closure mechanism if the stock declines further.

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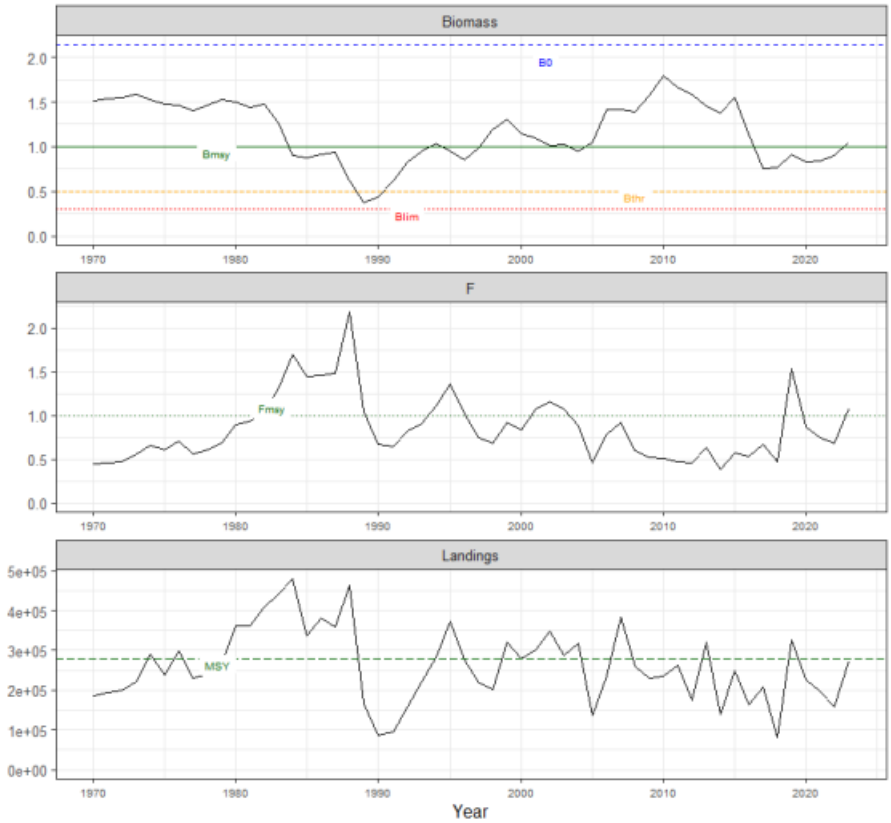

*Figure 4. Stock indicators (Catch, B and F) estimated from SPiCT for the reference year 2023. Fishing mortality target reference point -Fmsy- (green dashed line), and target -SSB corresponding to Fmsy- (solid green line), threshold -Bpa=Btgt*0.5- (dotted yellow line) and limit -Blim=Btgt*0.25- (dashed red line) are presented. Source: SGSABS, 2024.*

Diagnosis of stock status: Possibly overexploited.
Advice and recommendations: Reduce fishing mortality.
Based on all the above, the stock is at or above the target reference point, so **clause A4.1 is met**.

References

SGSABS, 2024
SGSABS, 2023
www.fao.org
www.igi-global.com
avesis.metu.edu.tr

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Species Name: Sprat (*Sprattus sprattus*)

A1 Data collection

A1.1	A1.1 Landings data are collected such that the fishery-wide removals of this species are known.
Outcome	*Pass*

Rationale

Turkey has implemented a comprehensive data collection framework that ensures fishery-wide removals of sprat are known. The system includes:

There is a National Fisheries Data Collection Program under the GFCM Recommendation GFCM/44/2021/9, which Turkey implements, all vessels targeting sprat in the Black Sea (GSA 29) must:

- Be listed by the Turkish authority as authorized to fish for sprat.
- Maintain logbooks detailing operating days, areas, and total catch (landings) of sprat.
- Annually report logbook data to both national authorities and the GFCM Secretariat, by 31 July and 31 January each year.

There is vessel tracking and IUU control as Turkey mandates vessels over 12 m use Vessel Monitoring Systems (VMS) or equivalent and land all sprat only at designated, authorized landing points—this ensures all removals are traceably recorded.

There is a centralized data submission system where Turkey is required to:

1. Submit vessel license lists and logbook catch returns to GFCM bi-annually.
2. Maintain a national fleet register and forward updates of vessel authorizations and landings twice a year.

This ensures that national landings data—including species-specific sprat removals—are compiled centrally, both domestically and within the regional GFCM database.

Statistical Publication by Turkish Statistical Institute (TurkStat) has been ongoing since 2000. TurkStat has been publishing annual national landings of sprat, including data for the Turkish Black Sea coast. One example is how landings reached peaks of 87,140 t in 2011, followed by fluctuations—12,092 t in 2012, 9,764 t in 2013, rising again to 41,648 t (2014) and 76,996 t (2015) (see figure below).

The combination of direct reporting, scientific monitoring, and regional data integration ensures that Turkey's sprat fishery in the Black Sea meets the MarinTrust requirement for comprehensive landings data collection, enabling accurate estimation of fishery-wide removals.

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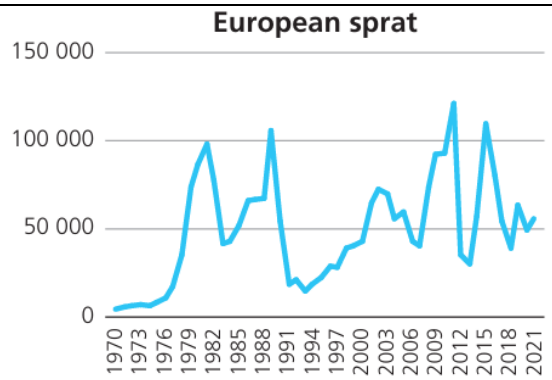

Figure 5. Annual landings of Sprat in the GFCM area of application, 1970–2021. Source: GFCM 2023.

The SGSABS 2024 benchmark session in July (SGSABS, 2024) determined that SSB and recruitment showed an increasing pattern in recent years. F also increased in 2023 but it is still lower than the targeted fishing mortality (see figure below):

Reference Points	values
Etarget	0.4
Funique (FMSY)	0.63
Ecurrent	0.24
Fcurrent [1:2] 2021:2023	0.29
F/Funique	0.46
SSB_{2023}	304782.7 tonnes

Diagnosis of stock status: Fcurrent<Funique_ stock is being exploited sustainably

Advice and recommendation: Do not increase fishing mortality

Figure 6. 2024 sprat stock assessment references points. Source: SGSABS, 2024.

Based on all the above, **Clause A1.1 is met.**

References

faolex.fao.org

Estimation of Exploitable Sprat (*Sprattus sprattus*, Linnaeus, 1758) Biomass along Black Sea Coasts of Turkey (Samsun Region): This Paper is Dedicated to the Memory of Sedat GÖNENER. Uğur Özsandıkçı 2020.www.researchgate.net

dergipark.org.tr

https://data.tuik.gov.tr/

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A1.2	A1.2 Sufficient additional information is collected to enable an indication of stock status to be estimated.
Outcome	*Pass*

Rationale

Under Recommendation GFCM/44/2021/9, Turkey is required to implement scientific monitoring programmes covering both landings and discards:

- Onboard and at-landing sampling are mandated to quantify landed catch and to minimise and estimate any discards.
- These measures align with the GFCM's ecosystem-based approach aimed at preventing overfishing and ensuring sustainable exploitation of sprat.

In June 2024, Turkey participated in a GFCM-led data-preparation meeting (SGSABS Benchmark prep) addressing fishery-dependent and fishery-independent datasets for sprat in GSA 29. This process involves review and harmonization of landings and discard estimates, confirming data completeness before stock assessment.

The SGSABS 2024 benchmark session in July (SGSABS, 2024) determined that SSB and recruitment showed an increasing pattern in recent years. F also increased in 2023 but it is still lower than the targeted fishing mortality (see figure below):

Reference Points	values
Etarget	0.4
Funique (FMSY)	0.63
Ecurrent	0.24
Fcurrent [1:2] 2021:2023	0.29
F/Funique	0.46
SSB_{2023}	304782.7 tonnes

Diagnosis of stock status: Fcurrent<Funique_ stock is being exploited sustainably

Advice and recommendation: Do not increase fishing mortality

Figure 7. 2024 sprat stock assessment references points. Source: SGSABS, 2024.

The WG comments from the SGSABS 2024 benchmark session in July (SGSABS, 2024) were the following: "**Benchmark finalized**. Validated quantitative advice based on FLSAM. The model is based on catch data and CAA from all GSA29 countries other than Georgia (2009-2023), standardized CPUE from Turkiye (2011-2023) and Spring survey from Romania (2009-2023). Reference points are specified based on Paterson exploitation ratio".

*Precautionary scientific advice considering also the results of SPiCT model is recommended, which suggests shrinking of the stock biomass in the recent years with B/Bmsy and F/Fmsy fluctuating around the reference points, probably associated with environmental-driven biomass.

The GFCM framework for sprat management requires contracting parties—like Turkey—to include discard data in fishery-wide removal estimates as part of their scientific reporting cycles. Thus, even if actual discards are low due to the high market value of sprat, they are still monitored, recorded, and incorporated into the total annual removal figures.

Together, these mechanisms ensure that landings data for sprat in the Turkish Black Sea fishery include comprehensive monitoring of both kept catch and discards, thereby fully meeting A1.2 requirements. Based on all the above, **Clause A1.2 is met**.

References

SGSABS, 2024
faolex.fao.org
leap.unep.org

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A2 Stock assessment

A2.1	**A2.1 A stock assessment is conducted at least once every 3 years (or every 5 years if there is substantial supporting information that this is sufficient for the long-term sustainable management of the stock) and considers all fishery removals and the biological characteristics of the species.**
Outcome	*Pass*

Rationale

Regular GFCM/SGSABS Stock Assessments for sprat in GSA 29 (Black Sea) have been formally conducted on a multi-annual cycle, with the latest benchmark assessment completed in July 2023 (SGSABS, 2023), following previous benchmark reviews in 2018. This timeline confirms assessments occur at intervals of ≤5 years, (2018 → 2023), meeting the requirement of "at least once every 3 years (or 5 if justified)".

In the July 2023 SGSABS benchmark session, Turkey—along with other coastal countries—used two quantitative stock assessment models for sprat:

- A Surplus Production Model (SPiCT) (covering 1960–2023)
- An age-structured model (FLSAM) (covering 2009–2023)

These models integrate; National and regional landings (removals) time-series, Biological data, including age structure, Catch-per-unit-effort (CPUE) or survey indices. The joint use of SPiCT and FLSAM ensures comprehensive incorporation of fishery removals and species biology (growth, recruitment, mortality).

The benchmark results using FLSAM provided quantitative advice, concluding that the sprat stock in the Black Sea is sustainably exploited, with the management recommendation: "Do not increase fishing mortality". The SGSABS process validated that the stock assessment met scientific quality standards, fully covering removal and biological facets for informed advice.

Turkey, through its active participation in GFCM/SGSABS Black Sea sprat benchmark assessments, ensures that a robust stock assessment is conducted within a 5-year interval using quantitative models that include fishery removals, and integrating biological characteristics essential for sustainable stock evaluation.

As explained previously, a benchmark session for Black Sea anchovy and sprat in geographical subarea 29 has also been conducted in July 2024 (SGSABS, 2024) with reference points on the sprat stock. See full rationale in clause A1.2.

Based on all the above, **Clause A2.1 is met.**

References

SGSABS, 2024
SGSABS, 2023
www.fao.org

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A2.2	**A2.2 The assessment provides an estimate of the status of the biological stock relative to a reference point or proxy.**
Outcome	*Pass*

Rationale

The SGSABS benchmark session (1–5 July 2023) for sprat in GSA 29 concluded using two stock assessment models: SPiCT and age-structured FLSAM. The age-structured FLSAM model, validated during the session, produced quantitative stock status estimates relative to reference points (e.g., FMSY, BMSY). Based on this analysis, the Group advised that the sprat stock is sustainably exploited, issuing the recommendation: "*Do not increase fishing mortality*", which directly reflects the stock's position relative to these reference points.

Although detailed numerical values (e.g., F/Fmsy, B/Bmsy) are not quoted in the summary, the explicit "Do not increase fishing mortality" advice is a standard MSY proxy-based management rule, implying that current fishing mortality does not exceed the known reference level. The use of quantitative models rather than purely qualitative evaluation indicates that benchmark reference points were established and used for assessing status, satisfying the requirement for proxy-based reference comparison.

Turkey, through participation in the GFCM/SGSABS 2023 benchmark (SGSABS, 2023), has a stock assessment for sprat that provides quantitative stock status estimates relative to MSY-based reference points (see figure below):

$F_{current}$ ($F_{current}$ (2022))	0.04
F_{MSY}	0.41
$F_{current}/F_{target}$	0.1
$B_{current(2022)}/B_{MSY}$	1.5
$B_{current(2022)}/B_{pa}$	2.99
$B_{current(2022)}/B_{lim}$	4.99

Diagnosis of stock status: Sustainably exploited

Table 2. Stock status for sprat considering Ftarget, Btarget, Bthreshold and Blimit and Fcurrent and Bcurrent for the reference year 2022. Source: SGSABS, 2023.

The 2023 stock assessment for sprat is presented in the figure below:

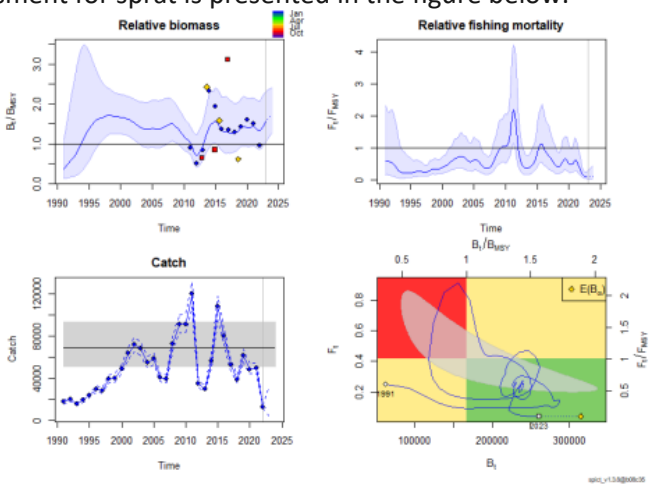

Figure 8. Stock assessment summary for sprat by SPiCT. Source: SGSABS, 2023.

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It can be seen that current biomass is above MSY and current landings are below MSY.
In 2023, the WG comment was the following: "benchmark not finalized. Validated quantitative advice based on a surplus production model (SPiCT). The model is applied on catch data from all GSA29 countries (1989-2022), standarized CPUE from Turkey and Autumn (2012,2014, 2016) and spring (2013, 2015, 2018) surveys from Turkiye. Reference points are specified based on Bmsy. The threshold (Bpa) and limit (Blim) reference points were set with Bmsy at Bpa = 0.5Bmsy and Blim = 0.3Bmsy. *Precautionary scientific advice considering large stock and catch fluctuations around MSY associated with highly environmental-driven biomass".

The SGSABS 2024 benchmark session in July (SGSABS, 2024) determined that SSB and recruitment showed an increasing pattern in recent years. F also increased in 2023 but it is still lower than the targeted fishing mortality (see figure below):

Reference Points	values
Etarget	0.4
Funique (FMSY)	0.63
Ecurrent	0.24
Fcurrent [1:2] 2021:2023	0.29
F/Funique	0.46
SSB_{2023}	304782.7 tonnes

Diagnosis of stock status: Fcurrent<Funique_ stock is being exploited sustainably

Advice and recommendation: Do not increase fishing mortality

Figure 9. 2024 sprat stock assessment references points. Source: SGSABS, 2024.

In this 2024 benchmark session in July (SGSABS, 2024), the WG comment was the following: "benchmark finalized. Validated quantitative advice based on FLSAM. The model is based on catch data and CAA from all GSA29 countries other than Georgia (2009-2023), standardized CPUE from Turkiye (2011-2023) and Spring survey from Romania (2009-2023). Reference points are specified based on Paterson exploitation ratio".

**Precautionary scientific advice considering also the results of SPiCT model is recommended, which suggests shrinking of the stock biomass in the recent years with B/Bmsy and F/Fmsy fluctuating around the reference points, probably associated with environmental-driven biomass.*

The assessment confirms the stock remains within sustainable limits. **Clause A2.2 is met**.

References

SGSABS, 2024
SGSABS, 2023

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A2.3	**A2.3 The assessment provides an indication of the volume of fishery removals which is appropriate for the current stock status.**
Outcome	*Pass*

Rationale

The July 2023 SGSABS benchmark (SGSABS, 2023), attended by Turkey, applied two models:

- SPiCT: a surplus production model covering catch data from 1960 to 2023
- FLSAM: an age-structured model covering 2009 to 2023. The FLSAM analysis integrated: Landings (removals), Age composition data, Stock indices. These inputs enabled calibration against productivity benchmarks like FMSY and BMSY.

Both models incorporate detailed catch (removal) data over time, enabling robust estimation of the volume historically removed and comparison to stock productivity (i.e., relative to sustainable yield).

The Group concluded that, per FLSAM output, the sprat stock is sustainably exploited, meaning current exploitation aligns with management reference levels—most likely close to F ≈ FMSY. The explicit advice to "Do not increase fishing mortality" is grounded in this quantitative analysis, reflecting that:

- Current fishing mortality (F) does *not exceed* reference levels,
- And further increases may negatively affect the stock's long-term productivity.

While the published executive summary does not provide actual F/FMSY or B/BMSY ratios, the FLSAM-based advice implicitly indicates:

- F ≤ FMSY
- The biomass (B) is likely at or above BMSY, consistent with sustainable exploitation.

Similarly to the 2024 benchmark, the 2023 benchmark assessment provided fully quantitative advice derived from FLSAM results. They both showed the Black Sea sprat stock remains within sustainable exploitation levels, and recommended maintaining or reducing fishing mortality to ensure ongoing alignment with reference points—**solidly meeting A2.3's requirement** for volume-appropriate removals.

References

SGSABS, 2024
SGSABS, 2023

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A2.4	A2.4 The assessment is subject to internal or external peer review.
Outcome	*Pass*

Rationale

The sprat assessment was finalized through the Subregional Group on Stock Assessment for the Black Sea (SGSABS) at a benchmark session held 1–5 July 2023 in Batumi, Georgia, in hybrid format, with participation from national experts including those representing Turkey.

- This meeting involved a panel of 18 scientific participants from Bulgaria, Georgia, Romania, Turkey, Ukraine, the GFCM Secretariat, the BlackSea4Fish (BS4F) project, and the EC.
- The group performed rigorous peer review of both SPiCT and FLSAM models, discussing input data, methodological assumptions, diagnostics, and results before finalizing quantitative advice.

Although the external reviewer presence was explicitly noted for the Black Sea *rapa whelk (Rapana venosa),* assessment during the broader July 2023 SGSABS session, the sprat assessment was conducted under the same organizational conditions with 5 external experts present, suggesting the same high-quality expert and external peer validation protocols governed the process.

The sprat stock assessment for the Black Sea—including Turkey's contribution—was carried out and fully peer-reviewed by regional experts within the GFCM's SGSABS benchmark framework.

Similarly, the 2024 SGSABS meeting (SGSABS, 2024) was attended by 18 attendees from Bulgaria, Georgia, Romania, Turkey and Ukraine, including from the Secretariat of the GFCM, the BS4F Project and the EC.

They both adhered to rigorous internal scrutiny and was conducted in parallel with externally reviewed assessments (e.g., rapa whelk), reflecting peer review standards consistent with A2.4 requirements. **Clause A2.4 is met.**

References

SGSABS, 2024
SGSABS, 2023

A2.5	A2.5 The assessment is made publicly available.
Outcome	*Pass*

Rationale

The 2023 SGSABS (SGSABS, 2023) benchmark assessment report for Black Sea sprat (GSA 29) is formally published on the FAO/GFCM website following the 1–5 July 2023 SGSABS session in Batumi, Georgia.

- The official page provides access to the full report (in English), including the executive summary and quantitative assessment results.
- The report is publicly downloadable by all stakeholders, ensuring transparency and accessibility. It is made publicly available at SGSABS, 2023.

The 2024 SGSABS benchmark assessment (SGSABS, 2024) is also made publicly available at SGSABS, 2024.

This documentation is stored under the GFCM Technical Meetings section, organized by session and species (sprat and anchovy, in this case).

- It is clearly labelled under "Benchmark session for Black Sea anchovy and sprat", with the executive summary and background readily available to the public.

Clause A2.5 is met.

References

SGSABS, 2024
SGSABS, 2023

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A3 Harvest strategy

A3.1	A3.1 There is a mechanism in place by which total fishing mortality of this species is restricted.
Outcome	*Pass*

Rationale

Turkey adheres to GFCM Recommendation GFCM/44/2021/9, which establishes binding management measures for sprat in GSA 29 (Black Sea). Key provisions include:

- A precautionary clause specifying that, "for European sprat … the status of the stock was uncertain, and fishing mortality should not be increased".
- This effectively serves as a limit reference point, capping overall fishing mortality to current levels (no increases permitted) unless higher-quality assessment supports modification.

Although Turkey is not an EU member, in regional coordination (e.g., at the September 2024 EU Fisheries Council meeting), Member States committed to:

- Maintain the 2024 sprat catch limit into 2025, aligning with the GFCM-recommended total allowable catch (TAC) framework.

The GFCM transitional management measures for sprat (GFCM/44/2021/9) do not set catch limits and explicitly state that the stock status is uncertain and that management should not increase fishing mortality, but no TAC/quota exists ([faolex.fao.org]).

The precautionary limit ("no increase of fishing mortality") is periodically reaffirmed in GFCM benchmark reviews (e.g., SGSABS sessions in 2023 and 2024) with Turkey actively participating in decisions on status and management measures.

Compliance is enforced through the requirement that vessels land only at authorized ports, carry VMS systems, and adhere to license-based quotas, ensuring that aggregate removal does not exceed prescribed limits established by management frameworks—effectively controlling total mortality.

Year	Scope (Catch)	Reported Catch (t)	Advice (GFCM)	GFCM Biomass (GSA29 SSB, t)	Biomass Notes	Data Quality
2010	Black Sea (Turkey)		Precautionary framework later formalized: do not increase fishing mortality.		GFCM GSA29 SSB not available in accessible sources.	Low
2011	Black Sea (Turkey)	87141	Precautionary approach (later formalized): do not increase fishing mortality.		GFCM GSA29 SSB not available in accessible sources.	Low
2012	Black Sea (Turkey)	12092	Precautionary approach: do not increase fishing mortality.	140000	Approximate statement for 2012–2013: "SSB … about 140,000 t".	Medium
2013	Black Sea (Turkey)	9764	Precautionary approach: do not increase fishing mortality.	140000	Approximate statement for 2012–2013: "SSB … about 140,000 t".	Medium
2014	Black Sea (Turkey)	41648	Precautionary approach: do not increase fishing effort/mortality.		GFCM GSA29 SSB not available in accessible sources.	Low
2015	Black Sea (Turkey)	76996	Precautionary approach: do not increase fishing mortality.		GFCM GSA29 SSB not available in accessible sources.	Low

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2016	Black Sea (Turkey)		Do not increase fishing mortality (transitional approach continued).		GFCM GSA29 SSB not available in accessible sources.	Low
2017	Black Sea (Turkey)		Do not increase fishing mortality (transitional approach continued).		GFCM GSA29 SSB not available in accessible sources.	Low
2018	Black Sea (Turkey)	20000	Stock treated as uncertain at that time; precautionary: do not increase fishing effort/mortality.		Catch value is approximate ("20 thous. t"). GFCM SSB not available in accessible sources.	Low
2019	Black Sea (Turkey)	38000	WGBS: stock uncertain; do not increase fishing mortality.		Catch value is approximate ("38 thous. t"). GFCM SSB not available in accessible sources.	Low
2020	Black Sea (Turkey)	27000	Keep exploitation below reference; do not increase effort/mortality.	190865	Current SSB 2020 (tons) = 190,865 (GSA 29). Catch value is approximate ("27 thous. t").	High
2021	Black Sea (Turkey)		GFCM transitional measures for sprat; do not increase fishing mortality.		GFCM GSA29 SSB not available in accessible sources.	Low
2022	Black Sea (Turkey)		Continued precautionary approach; annual monitoring requested.		GFCM GSA29 SSB not available in accessible sources.	Low
2023	Black Sea (Turkey)		Benchmark updated through reference year 2023; advice: do not increase fishing mortality.		FLSAM time series exists (2009–2023) but annual values not retrievable from accessible excerpt.	Low
2024	Black Sea (Turkey)		Same benchmark conclusion/management advice: do not increase fishing mortality.		As above; annual SSB values not retrievable from accessible excerpt.	Low

Table 3. Reported catch and Advice from GFCM with GFCM biomass where available for Sprat. The advice source is Recommendation_GFCM_44_2021_9-e and the biomass where available source :Microsoft Word - GFCM_SGSABS_2021_Report.docx. Other source Estimation-of-Exploitable-Sprat-Sprattus-sprattus-Linnaeus-1758-Biomass-along-Black-Sea-Coasts-of-Turkey-Samsun-Region-This-Paper-is-Dedicated-to-the-Memory-of-Sedat-GOeNENER.pdf

Together, these elements establish a clear mechanism to restrict total fishing mortality of sprat in the Turkish Black Sea fishery. **Clause A3.1 is met.**

References

SGSABS, 2024
SGSABS, 2023
faolex.fao.org
oceans-and-fisheries.ec.europa.eu

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A3.2	**A3.2 Total fishery removals of this species do not regularly exceed the level indicated or stated in the stock assessment. Where a specific quantity of removals is recommended, the actual removals may exceed this by up to 10% ONLY if the stock status is above the limit reference point or proxy.**
Outcome	*Pass*

Rationale

The GFCM precautionary instruction— "fishing mortality should not be increased"—sets a firm cap on total removals unless future stock assessments justify higher limits. In line with this, the European Commission (on behalf of EU and regional coordination) has continued to maintain the 2024 sprat catch limit into 2025 for the Black Sea. Turkey, as a GFCM contracting party in GSA 29, implements these TACs, ensuring total fishery removals align with scientific advice and do not systematically exceed it.

The regulatory framework requires vessels to land catches only at authorized points, maintain VMS tracking, and report via logbooks; this enables transparent verification that removals remain within set limits. No documented records or GFCM alerts indicate that Turkish sprat landings have exceeded the scientific TAC or management reference levels which indicates ongoing compliance.

GFCM guidelines allow up to a 10% exceedance of a specified catch limit—but *only if* stock status is confirmed above the limit reference point (e.g., biomass > BMSY).
The July 2023 and 2024 SGSABS benchmarks determined the Black Sea sprat stock to be sustainably exploited and advised to maintain current fishing mortality, but did *not* recommend increases. Therefore, the stock is not deemed above reference levels that would permit such margin-based exceedance, and Turkish removals remain capped accordingly.

Turkey, through implementation of GFCM TACs, ongoing fishing controls, and adherence to scientific advice, ensures total sprat removals do not regularly exceed the levels prescribed in stock assessments. As the stock is not above reference biomass and no margin increases are allowed, **the fishery complies fully with clause A3.2.**

References

faolex.fao.org
www.bluelifehub.com
oceans-and-fisheries.ec.europa.eu
stecf.ec.europa.eu
slidetodoc.com

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A3.3	**A3.3 Commercial fishery removals are prohibited when the stock has been estimated to be below the limit reference point or proxy (small quotas for research or non-target catch of the species in other fisheries are permissible).**
Outcome	*Fail*

Rationale

GFCM Recommendation GFCM/44/2021/9, which Turkey implements, stipulates that the sprat stock in GSA 29 must remain above levels capable of producing MSY, and directs that fishing mortality must not increase when stock status is uncertain or depleted. However, it does not establish an automatic suspension of commercial catches if biomass drops below a specific limit reference (e.g., B< BMSY). Instead, it maintains a precautionary floor: no increase in F unless robust evidence supports it.

Unlike some fisheries frameworks that mandate closure when biomass is below a limit reference, the current GFCM measures for sprat rely on:

- Quantitative assessment cycles to determine status, and
- Adaptive TACs or F limits, but
- No explicit prohibition of commercial fishing if biomass declines.

As such, commercial sprat fishing may continue, subject to TACs, even when the stock is below the reference point, unless management decides to reduce or close access via subsequent recommendations.

The GFCM framework allows for research catches or incidental, non-target by-catches to continue under scientific monitoring, even if the stock is low. These are permissible components under A3.3.

The clause A3.3 is only partially fulfilled:

- The precautionary principle is upheld fishing cannot increase if stock is below sustainable levels,
- However, there is no automatic prohibition on commercial removals once the limit reference is breached—allowing continued fishing under quota **(**faolex.fao.org),
- Small-scale research or by-catch removals are permitted and regulated.

Therefore, while Turkey implements effective precautionary controls, it does not fully align with the strict closure mechanism envisioned under A3.3. **Clause A3.3 is not met.**

Consequently and according to MT guidance, the species has been assessed under Category B.

References

faolex.fao.org

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A4 Stock status

A4.1	**A4.1 The stock is at or above the target reference point; OR IF NOT: the stock is above the limit reference point or proxy and there is evidence that a fall below the limit reference point would result in fishery closure; OR IF NOT: the stock is estimated to be below the limit reference point or proxy, but fishery removals are prohibited.**
Outcome	*Pass*

Rationale

The July 2023 SGSABS benchmark concluded that the Black Sea sprat stock is sustainably exploited, which indicates that it is at or near the biomass level capable of producing MSY. The provided recommendation—"Do not increase fishing mortality"—is consistent with a stock that is at or above the target reference point (i.e., F ≈ FMSY, B ≥ BMSY) .

Clause A4.1 is met on the basis that the Black Sea sprat stock is at or above its MSY-based target reference point. The precautionary advice to "not increase fishing mortality" supports ongoing management within safe bio-profiles, confirming meeting of this criterion.

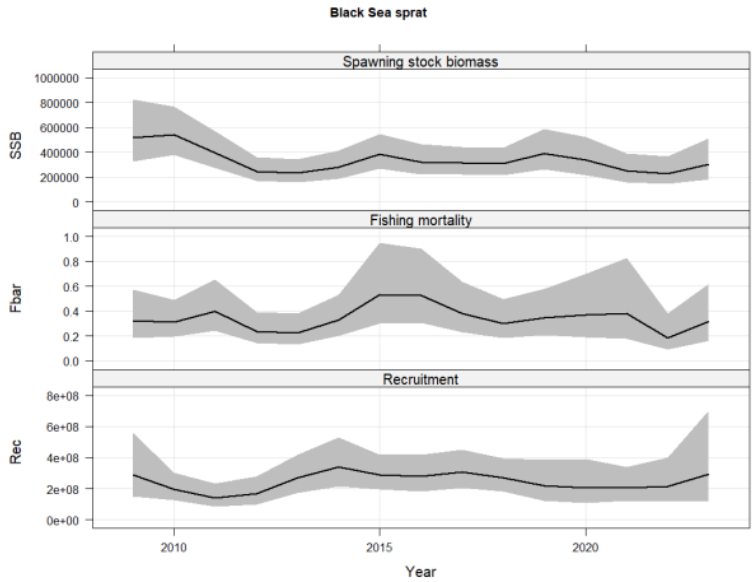

Figure 10 Stock assessment for sprat in the Black Sea by FLSAM results for the reference year 2023.Source: GFCM

The 2024 sprat stock status detailed in the 2024 SGSABS benchmark session (SGSABS, 2024) is fully detailed in clause A1.2. **Clause 4.1 is met**.

References

SGSABS, 2024
SGSABS, 2023
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www.fao.org
aquadocs.org

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Category B species

Category B species are assessed using a risk-based approach.

2.2. The risk matrix in Table B(a) shall be used when assessing a Category B species when estimates of Fishing mortality (F), Biomass (B) and reference points are available.

2.3. The risk matrix in Table B(b) shall be used when assessing a Category B species when no reference points are available.

Species Name: Anchovy (*Engraulis encrasicolus*)

B1	**A3.3 Commercial fishery removals are prohibited when the stock has been estimated to be below the limit reference point or proxy (small quotas for research or non-target catch of the species in other fisheries are permissible).**
Table used B(a) or B(b)	B(a)
Outcome	*Pass*
Rationale ○ $B_{(2022)}$ = 22.5 thousand tons, compared to a target reference point BTR = BMSY = 23.2 thousand tons → Biomass is above MSY/target reference point. ○ Fishing mortality ratio F_{2022}/FMSY = 0.467, reflecting that current fishing pressure remains below the threshold → Fishing mortality is below MSY/target reference point. According to the Table B(a) in MT guidance, **the species achieves a Pass in the Table B(a).**	
References SGSABS, 2024 SGSABS, 2023 https://aquadocs.org/items/df0af020-07c1-483a-a5d2-599f3835ad43/full	

Species Name: Sprat (*Sprattus sprattus*)

B1	**A3.3 Commercial fishery removals are prohibited when the stock has been estimated to be below the limit reference point or proxy (small quotas for research or non-target catch of the species in other fisheries are permissible).**
Table used B(a) or B(b)	B(a)
Outcome	*Pass*
Rationale The SGSABS 2024 benchmark session in July (SGSABS, 2024) determined that SSB and recruitment showed an increasing pattern in recent years. F also increased in 2023 but it is still lower than the targeted fishing mortality (see figure below):	

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Reference Points	values
Etarget	0.4
Funique (FMSY)	0.63
Ecurrent	0.24
Fcurrent [1:2] 2021:2023	0.29
F/Funique	0.46
SSB_{2023}	304782.7 tonnes

Diagnosis of stock status: Fcurrent<Funique_ stock is being exploited sustainably

Advice and recommendation: Do not increase fishing mortality

Figure 11. 2024 sprat stock assessment references points. Source: SGSABS, 2024.

The July 2023 SGSABS benchmark concluded that the Black Sea sprat stock is sustainably exploited, which indicates that it is at or near the biomass level capable of producing MSY. The provided recommendation—"Do not increase fishing mortality"—is consistent with a stock that is at or above the target reference point (i.e., F ≈ FMSY, B ≥ BMSY) .

This Black Sea sprat stock achieves a Pass in Table B(a), on the basis that it is at or above its MSY-based target reference points (B and F). The precautionary advice to "not increase fishing mortality" supports ongoing management within safe bio-profiles, confirming meeting of this criterion.

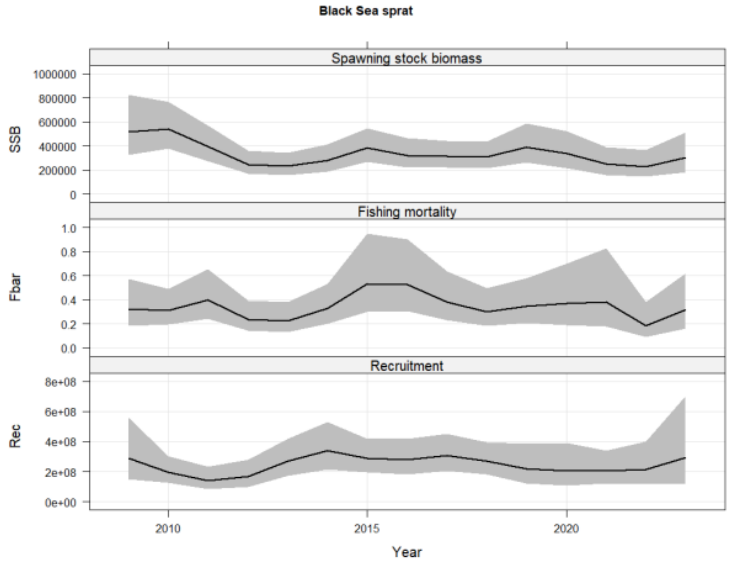

Figure 12. Stock assessment for sprat in the Black Sea by FLSAM results for the reference year 2023.Source: GFCM

According to the Table B(a) in MT guidance, **the species achieves a Pass in the Table B(a).**

References

faolex.fao.org

Estimation of Exploitable Sprat (*Sprattus sprattus*, Linnaeus, 1758) Biomass along Black Sea Coasts of Turkey (Samsun Region): This Paper is Dedicated to the Memory of Sedat GÖNENER. Uğur Özsandıkçı 2020.www.researchgate.net

dergipark.org.tr

https://data.tuik.gov.tr/

SGSABS, 2024

SGSABS, 2023

www.fao.org

www.fao.org

aquadocs.org

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Category C species

2.4. All clauses must be met for a species to pass the Category C assessment.

2.4.1. Where a species fails this Category C clause, it should be assessed as a Category D species instead, except if there is evidence that the species is currently below the limit reference point.

There are no Category C species in this initial assessment.

Category D species

Category D species are assessed against a risk-based approach.

2.5. The Productivity-Susceptibility Analysis (PSA) in Table D(a) shall be used when assessing Category D species.

2.6. Table D(b) shall be used to calculate the overall PSA risk rating for the Category D species.

2.7. Should the PSA indicate a high risk, further assessment shall be completed against the requirements in Table D(C).

Productivity Susceptibility Analysis (PSA) and scores

Table D(a) provides detailed values and scores for the species productivity and susceptibility attributes and attributes, the assessor shall use Table D(a) to the PSA table.
Table D(b) is used to calculate the overall PSA risk rating for the Category D species.

Atlantic bonito (*Sarda sarda*)

The species is currently not subject to a dedicated GFCM management plan, quota, or harvest control rule and is managed only implicitly under general Black Sea fisheries regulations.

Species name	Atlantic bonito *(Sarda sarda)*	
Productivity attributes	**Value**	**Score**
Average age at maturity	0.9 years[2]	1
Average maximum age	4 years[2]	1
Fecundity	Over 300 000[3]	1
Average maximum size	62.5[2]	1
Average size at maturity	34.2[2]	1
Reproductive strategy	Broadcast spawner[2]	1
Mean Trophic Level (MTL)	4.5[2]	3
Density dependence (to be used when scoring invertebrate species only)	/	/
Susceptibility attributes		
Areal overlap (availability): Overlap of the fishing effort with a species concentration of the stock	10-30% overlap[2]	2

[2] Fishbase

[3] Saltwater guide association

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	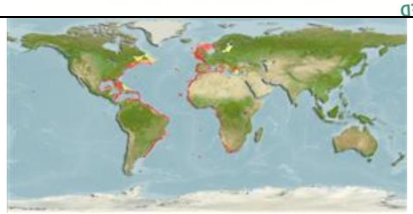	
Encounterability: The position of the stock/ species within the water column relative to the fishing gear, and the position of the stock/species within the habitat relative to the position of the gear	Medium overlap with fishing gear: Marine; brackish; pelagic-neritic; oceanodromous; depth range 80 - 200 m[2]	2
Selectivity of gear type: Potential of the gear to retain species	Precautionary score: Individuals < half the size at maturity are retained by gear	3
Post-capture mortality (PCM): The chance that, if captured, a species would be released and that it would be in a condition permitting subsequent survival	Precautionary score: Retained species or majority dead when released	3
Average productivity score		1.29
Average susceptibility score		2.5
PSA risk rating (from Table D(b))		Pass
Compliance rating		Pass

Mediterranean Horse Mackerel (*Trachurus mediterraneus*)

There is no dedicated, species-specific management plan for *Trachurus mediterraneus* in GSA 29, meaning:

- No species-specific TAC or quota,
- No FMSY-based harvest control rule,
- No biomass-triggered management action,
- No stand-alone GFCM recommendation focused exclusively on horse mackerel.

Furthermore, the WG comments taken from the SGSABS report of 8-13 July 2024 (SGSABS, 2024a) state the following: "Validate qualitative advice based on XSA model. The model used catches from 2005 to 2023 and standardized CPUE (2012-2023) and Biomass index from Turkiye east (2013-2022). The fishery dependent and independent data needs exploring the availability of extra information before considering the provision of quantitative advice. The results from the exploration of different assessment scenarios consistently inform about the decreasing biomass trend while for the fishing effort contradictory signals were observed. The assessment perform better using a plus group of 4. All the scenarios using plus group 4 estimate similar values for f01 (around 0.59) and F values well above Fmsy".

Species name	Mediterranean Horse Mackerel (*Trachurus mediterraneus*)	
Productivity attributes	**Value**	**Score**
Average age at maturity	1.5 years[4]	1
Average maximum age	8 years[5]	1

[4] Art59.pdf

[5] Biological Parameters of *Trachurus mediterraneus* (Carangidae) off the Coast near Southwestern Crimea during the Period from 2020 to 2022 | Journal of Ichthyology

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Fecundity	80 000 - 300 000[6]	1
Average maximum size	30[3]	1
Average size at maturity	12[3]	1
Reproductive strategy	Broadcast spawner[4]	1
Mean Trophic Level (MTL)	3.8[7]	3
Density dependence (to be used when scoring invertebrate species only)	/	/
Susceptibility attributes		
Areal overlap (availability): Overlap of the fishing effort with a species concentration of the stock	> 30% overlap	3
Encounterability: The position of the stock/ species within the water column relative to the fishing gear, and the position of the stock/species within the habitat relative to the position of the gear	High overlap with fishing gear	3
Selectivity of gear type: Potential of the gear to retain species	Individuals < half the size at maturity are retained by gear	3
Post-capture mortality (PCM): The chance that, if captured, a species would be released and that it would be in a condition permitting subsequent survival	Retained species or majority dead when released	3
Average productivity score		1.29
Average susceptibility score		3
PSA risk rating (from Table D(b))		Pass
Compliance rating		Pass

Red Mullet (*Mullus barbatus ponticus*)

There is no dedicated, species-specific management plan for this species in GSA 29.

Species name	Red mullet (*Mullus barbatus ponticus*)	
Productivity attributes	**Value**	**Score**
Average age at maturity	2 years[8]	1
Average maximum age	7.4 years[8]	1
Fecundity	Medium fecundity ≈ 1900 to 80000[8]	2
Average maximum size	22.1 cm TL[8]	1
Average size at maturity	13.5[8]	1
Reproductive strategy	Batch spawner[8]	1
Mean Trophic Level (MTL)	3.1[8]	2
Density dependence (to be used when scoring invertebrate species only)	NA	/
Susceptibility attributes[8]		
Areal overlap (availability): Overlap of the fishing effort with a species concentration of the stock	Precautionary score: high overlap	3

[6] Mediterranean horse mackerel - Facts, Diet, Habitat & Pictures on Animalia.bio

[7] Horse Mackerel - MSP Knowledge Base

[8] Mullus barbatus, Red mullet : fisheries, gamefish

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Encounterability: The position of the stock/ species within the water column relative to the fishing gear, and the position of the stock/species within the habitat relative to the position of the gear	Found on gravel, sand and mud bottoms of the continental shelf. Depth range from 10-300 m: medium selectivity/retention	2
Selectivity of gear type: Potential of the gear to retain species	Precautionary score: Individuals < half the size at maturity are retained by gear	3
Post-capture mortality (PCM): The chance that, if captured, a species would be released and that it would be in a condition permitting subsequent survival	Precautionary score: Retained species or majority dead when released	3
Average productivity score		1.29
Average susceptibility score		2.75
PSA risk rating (from Table D(b))		Pass
Compliance rating		Pass

Whiting (*Merlangius merlangus euxinus*)

There is no dedicated, species-specific management plan for this species in GSA 29.

Species name	Whiting (*Merlangius merlangus euxinus*)	
Productivity attributes	**Value**	**Score**
Average age at maturity	5[10] to 8.8 years[9]	1
Average maximum age	5 to 9 years[10]	1
Fecundity	≈ 330 000[9]	1
Average maximum size	37.05 cm TL[10]	1
Average size at maturity	25.9 cm[10]	1
Reproductive strategy	Batch spawner[9]	1
Mean Trophic Level (MTL)	4.4[9]	3
Density dependence (to be used when scoring invertebrate species only)	NA	/
Susceptibility attributes[9]		
Areal overlap (availability): Overlap of the fishing effort with a species concentration of the stock	Medium overlap	2
Encounterability: The position of the stock/ species within the water column relative to the fishing gear, and the position of the stock/species within the habitat relative to	Brackish; benthopelagic; oceanodromous, depth range 10-200m, usually 30-100 m, mainly mud	2

[9] Merlangius merlangus, Whiting : fisheries, gamefish, aquarium

[10] Age, Growth and Mortality of Whiting (Merlangius merlangus Linnaeus, 1758) from the Western Black Sea, Turkey | AVESİS

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the position of the gear	and gravel bottoms, but also on sand and rock: medium overlap with fishing gear	
Selectivity of gear type: Potential of the gear to retain species	Precautionary score: Individuals < half the size at maturity are retained by gear	3
Post-capture mortality (PCM): The chance that, if captured, a species would be released and that it would be in a condition permitting subsequent survival	Precautionary score: Retained species or majority dead when released	3
Average productivity score		1.29
Average susceptibility score		2.5
PSA risk rating (from Table D(b))		Pass
Compliance rating		pass

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Further assessment for Category D species

Should the PSA indicate a high risk, further assessment shall be completed against the requirements D1 and D2 – Table D(c).

D1	**D1. The potential impacts of the fishery on this species are considered during the management process, and reasonable measures are taken to minimise these impacts.**
Outcome	Choose an item.
Rationale	
References	

D2	**D2. There is no substantial evidence that the fishery has a significant negative impact on the species.**
Outcome	Choose an item.
Rationale	
References	

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Ecosystem requirements

This section, or module, assesses the impacts that the fishery under assessment may have on key ecosystem components: ETP species, habitat and the wider ecosystem.

3.1. All ecosystem criteria must be met (pass) for a fishery to pass the Ecosystem Requirements.

3.1.1. The sub-criteria offer a structured evidence base to demonstrate that the fishery sufficiently meets the ecosystem criteria, it is not expected that sub-criteria are assessed independently of the main criterion.

E1 Impact on Endangered, Threatened or Protected species (ETP species)

E1.1	**E1.1 Information on interactions between the fishery and ETP species is collected.** *In reaching a determination for E1.1, the assessor should consider if the following is in place:*
	E1.1.1 ETP species which may be directly affected by the fishery have been identified.
	E1.1.2 Interactions between the fishery and ETP species are recorded and reported to management organisations.
	E1.1.3 Collection and analysis of ETP information is adequate to provide a reliable indication of the impact the fishery has on ETP species.
Outcome	*Pass*

Rationale

In their logbook, fishers must record interaction with ETP species (species name, date, location, fishing gear, species status (alive, dead, released), which are forwarded to the competent authorities.

Furthermore, Turkey maintains functioning systems for recording and reporting interactions with ETP species in the Black Sea. These include formal observer and discard-monitoring programmes, structured fisher surveys, regional databases, and binding GFCM recommendations that explicitly require data collection, mitigation, and reporting.

There are some species-specific data on ETP interactions in Turkish fisheries:

1) Broader regional studies from ACCOBAMS, Kasapoğlu, N. (2018), and ecosystem assessments suggest that the following species may be impacted by the fishery:

- Cetaceans: particularly some Black Sea endemic species like the bottlenose dolphin (*Tursiops truncatus ponticus*), harbour porpoise (*Phocoena phocoena relicta*), and common dolphin (*Delphinus delphis ponticus*). These species are vulnerable to as they can be bycatch in pelagic fisheries, they could suffer from noise pollution from fishing vessels and Prey depletion due to overfishing of anchovy and sprat.
- Seabirds such as Yelkouan shearwater (*Puffinus yelkouan*) and Mediterranean gull (*Ichthyaetus melanocephalus*), which rely on small pelagic fish for food.
- Marine turtles: though less common in the Black Sea, loggerhead turtles (*Caretta caretta*) may occasionally be affected by fishing gear.

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2) Both regional (FAO/GFCM, SPA/RAC, ICES) and national (SUMAE/Ministry) bodies have documented these activities, with Turkey participating fully in GSA 29 (Black Sea):

- A review on INCIDENTAL CATCH OF VULNERABLE SPECIES IN MEDITERRANEAN AND BLACK SEA FISHERIES has been conducted in 2021 by GFCM (Carpentieri *et al.,* 2021). The results are the following for the Black Sea Region:

	Species		
	Sea turtles	Elasmobranchs	Marine Mammals
Results	No pelagic trawlers operate in this subregion. **Pelagic trawlers overview** The mortality reported for this fishery is usually low (8 percent, on average) and most of the sea turtles caught are alive and healthy and usually released back into the sea immediately after capture. In the Adriatic Sea, this fishery may be responsible for around 70 events in which individuals were found dead each year. In Turkey, pelagic trawlers cause incidental catch of both sea and freshwater turtles, though with a low direct mortality rate (0–5%). Information on sea turtle bycatch and mortality in purse seines is scarce, probably since these fisheries do not heavily impact sea turtles (Universitat de Barcelona, 1995).	Purse seiners usually target large and small pelagic species. They are considered relatively selective in terms of discards/catch rates. In 2007, the capture of a bigeye thresher shark (*Alopias superciliosus*), measuring 450 cm TL, by a purse seiner operating in Turkish waters was documented by Kabasakal and Karhan (2008). In Turkish coastal waters, Kabasakal also reported the incidental capture of 2 individuals of thresher (*Alopias vulpinus*), caught in 1996 and 2004, respectively, by purse seiners. Between 2009 and 2010, a discard monitoring programme (Şahin, Ceylan and Kalaycı 2015), carried out monthly onboard commercial purse seiners operating along the southeastern coast of the Black Sea in Turkey, recorded the presence of *Squalus acanthias*, *Dasyatis pastinaca* and *Raja clavata* in the catch composition, though these represented only 0.0003, 0.003 and 0.009 % of the catch, respectively. All the elasmobranch bycatch was discarded at sea. The MEDLEM database on purse seine bycatch in the Black Sea includes records of 2 individuals of *Alopias vulpinus*, 1 of *A. superciliosus*, 2 *Hexanchus griseus*, and 1 of *Gymnura altavela*.	Over the last years, reports on the mortality of Mediterranean monk seals (*Monachus monachus*) due to fisheries are scarce. No reporting for pelagic trawl neither purse seine. For cetaceans, there is no recent data are available for pelagic trawlers operating in this subregion. A 2014 study estimated that in Turkey for purse seine, the porpoise bycatch rate per vessel was 2.71 and 0.56 for dolphins.

- SUMAE/GFCM project: The resulting datasets include quantitative information (e.g., haul-level discard records) and qualitative data (e.g., semi-structured fisher interviews), all of which feed into regional assessments, stock benchmarks, and ecosystem models that incorporate fleet–ETP interactions. With 1,200 hauls and hundreds of structured interviews, SUMAE's dataset provides concrete, replicable, quantitative evidence of recorded ETP interactions—used in GFCM workflows and regional assessments.

- Additionaly, as explained previously, the following programs can be mentioned: FAO/GFCM Bycatch; GFCM Decisions; SPA/RAC MedBycatch; FAO FishEBM Black Sea; programme; ICES WGBYC report; PLOS ONE Blue2 model...

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Regarding regional Governance & Data Collection Frameworks; the GFCM maintains binding recommendations for Black Sea fisheries relating to cetaceans, sturgeons, elasmobranchs, seabirds, and sea turtles. These measures require harmonized bycatch data collection and feed into regional databases such as MedBycatch, which includes Turkey as a participating country. The following examples can be mentioned:

- GFCM/37/2013/2: minimum standards for turbot gillnets and cetacean protection (Black Sea).
- GFCM/44/2021/5: sturgeon conservation measures for GSA 29.
- GFCM/44/2021/15: updated cetacean mitigation and monitoring protocols.
- GFCM/42/2018/2: sharks and rays (elasmobranchs) conservation and reporting requirements.

These instruments demonstrate a sustained expectation that ETP bycatch interactions be recorded and submitted by contracting parties, including Turkey.

Regarding National Monitoring: Turkey's Discards & Bycatch Programme: as explained previously, the Ministry of Agriculture and Forestry, through SUMAE, conducts a structured discard and bycatch monitoring programme in the Black Sea. These datasets are quantitative, traceable, and directly relevant to ETP recording. They are also shared through GFCM technical processes, demonstrating that recorded interactions exist and are actively used.

Regarding Regional Projects Supporting ETP Monitoring, the SPA/RAC MedBycatch can be mentioned: the multitaxa monitoring by MedBycatch establishes standardized methodologies for collecting and reporting incidental catch of marine mammals, seabirds, sea turtles, and elasmobranchs. Turkey is one of the participating countries and contributes national datasets via observer protocols, port surveys, and sampling work. The project's rationale and outputs confirm that data are recorded, reported, and used.

Again the FAO FishEBM Black Sea (2023–2026) project can be mentioned: FishEBM Black Sea supports integration of monitoring technologies, MCS strengthening, and ecosystem-based management tools. Turkey is a beneficiary country, and project documentation confirms activities aimed at mitigating interactions with vulnerable species.

All these projects reflect an operational, multi-taxa system for observing, recording, and reporting ETP interactions.

Furthermore, regarding cross-Regional Scientific Reporting, ICES WGBYC compiles annual bycatch submissions from contracting parties, including Turkey's Black Sea data (*GSA 29 context*). Reports also provide methodological reviews and legal frameworks for ETP bycatch reporting. These annual outputs confirm that Turkey has an active channel for contributing ETP interaction records.

GFCM Studies & Reviews (e.g., S&R 100/101) and the Blue2 ecosystem model (PLOS ONE, 2025) rely on documented fleet–ETP interaction data to parameterize risk and ecosystem impact scenarios. These scientific products would not be possible without underlying recorded datasets from Black Sea countries, including Turkey. This approach demonstrates that Turkey and indirectly the fishery's ETP interaction monitoring is documented, traceable, and incorporated into regional scientific and managerial processes.

It is important to underline that Binding GFCM Measures Require ETP Interaction Recording & Reporting. GFCM recommendations for the Black Sea all contain monitoring & reporting obligations. These measures create an institutional structure in which ETP interaction data must be recorded and transmitted.

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ICES WGBYC and GFCM Studies & Reviews compile reported interactions, including from Turkey, demonstrating that data flows exist and are used in regional bycatch assessments. The Blue2 model (PLOS ONE, 2025) and related frameworks rely on recorded fleet–ETP interaction data. This is clear proof that ETP interactions from Turkey are documented, available, and scientifically integrated. There is clear, documented, routine, and statistically reviewed evidence of ETP interaction monitoring in Turkey's Black Sea fisheries. Taken together—GFCM decisions, national observer programmes, MedBycatch, FishEBM, ICES WGBYC, GFCM reviews, and ecosystem models—these systems demonstrate that the fishery **meets the requirements of Clause E1.1.**
References Carpentieri, P., Nastasi, A., Sessa, M. & Srour, A., eds. 2021. Incidental catch of vulnerable species in Mediterranean and Black Sea fisheries – A review. Studies and Reviews No. 101 (General Fisheries Commission for the Mediterranean). Rome, FAO. https://doi.org/10.4060/cb5405en Kasapoğlu, N. 2018. Age, Growth, and Mortality of Exploited Stocks: Anchovy, Sprat, Mediterranean Horse Mackerel, Whiting, and Red Mullet in the Southeastern Black Sea. Aquatic Sciences and Engineering, 33(2): 39-49. https://dergipark.org.tr/en/download/article-file/444644

E1.2	**E1.2 The fishery has no significant negative impact on ETP species.** *In reaching a determination for E1.2, the assessor should consider if the following is in place:*
	E1.2.1 The information collected in relation to E1.1.3 indicates that the fishery does not have a significant negative impact on ETP species.
Outcome	Pass
Rationale Based on the explanations in the clause E1.1, the assessor can confirm that the information collected in relation to E1.1.3 indicates that the fishery does not have a significant negative impact on ETP species. Furthermore, the auditor got from the client a letter from the Ministry affirming that they did not encounter any fishing or processing of ETP species during their controls and inspections during the five last years. Even if the level of controls is unknown, **the fishery passes clause E1.2**.	
References No specific references to indicate here.	

E1.3	**E1.3 There is an ETP management strategy in place for the fishery.** *In reaching a determination for E1.3, the assessor should consider if the following is in place:*
	E1.3.1 There are measures applied to the fishery which are designed to manage the impacts of the fishery on ETP species.
	E1.3.2 The measures are considered likely to achieve the objectives of regional, national and international legislation relating to ETP species.
Outcome	*Pass*
Rationale In Turkey: - 13 marine mammals (e.g., dolphins, porpoises),	

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- 22 species of sharks and rays,
- 3 sea turtle species,

are legally protected by the Turkish fisheries legislation in Law N°1380 and its associated *communiqués* (e.g., 6/1), which regulate gear types, closed seasons, and prohibited areas.
According to a national review by Duzgunes & Saglam (2018), Turkish fisheries apply several general management measures that indirectly benefit ETP species: minimum landing sizes, fishing gear restrictions (e.g., mesh size regulations, net opening, depth limits), acoustic deterrent devices (pingers) closed seasons and areas, licensing and vessel monitoring. These measures, even if they are not fishery-specific, apply to the fishery under assessment.
Furthermore, as explained in the previous clauses (please refer to them for more detailed explanations):

- the fishery is not considered as a high risk for ETP interaction, notably confirmed by a cost-effectiveness study (Conservation Biology) which shows that choosing the right mitigation delivers major conservation gains at low cost—aligning with Turkey's risk-based approach;
- ETP-specific monitoring and enforcement, and scientific data exist, even if they are limited, and that scientific data on bycatch rates is lacking (FAO/GFCM Bycatch & Decisions; MedBycatch (Turkey); ICES WGBYC 2024-2025 which applies the BEAM methodology to estimate population-level risk and bycatch impact by region and gear type; GFCM anchovy/sprat benchmark; Turkish hydroacoustic surveys, FishEBM Black Sea project (FAO/GFCM, 2023–2026);
- the auditor got from the client a letter from the Ministry affirming that they did not encounter any fishing or processing of ETP species during their controls and inspections during the five last years.

To add some details, in the Turkish Black Sea, there are dedicated programmes and governance frameworks that specifically address ETP (cetaceans, seabirds, sea turtles) interactions and mitigation in pelagic fisheries targeting anchovy and sprat:

- Turkey participates in binding regional measures that require mitigation and monitoring like GFCM binding measures with GFCM/44/2021/15 recommandation, which requires mitigation and monitoring of cetacean bycatch—covering gear modifications, time–area measures, thresholds and reporting obligations—and applies across the GFCM area, including Turkey's Black Sea pelagic purse-seine and midwater trawl fleets targeting anchovy and sprat,
- The GFCM 2030 Strategy and its ecosystem-based and vulnerable-species actions further reinforce mitigation and data requirements in the Black Sea, including for pelagic gears (2025 EAFM presentation available here), and maintains fishery-independent surveys for anchovy/sprat that underpin ecosystem-based management.
- As explained previously, Turkey participated in the MedBycatch program 2017-2022 (Multi-taxa, Observers, Mitigation Trials), which explicitly included Turkey as a focus country, deploying national observer teams to collect ETP bycatch data in relevant gears (including small pelagic purse seines), and test mitigation options under standardized protocols. The project delivered species-ID guides, standard forms and good-practice handling/release materials used by Turkish observers and fishers. The final report is available here and stated that on a survey about Turkish trawlers and polyvalents (longliners and static nets) "In both phases the highest bycaught taxa recorded was Elasmobranchs. No marine mammal neither seabird bycatch reported".
- Within MedBycatch project, Turkey-specific sea turtle bycatch coordination (with MEDASSET, DEKAMER, WWF-Turkey) provided species-specific training, handling and release protocols, and mitigation testing applicable to pelagic operations: this shows that

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Turkish pelagic fleets are operating within targeted, species-specific frameworks (GFCM + MedBycatch) that require and enable bycatch mitigation and data collection.

- Furthermore, as already explained, under MedBycatch, Turkish national observers were trained and deployed toconduct on-board observations in small pelagic gears (including purse seines), carry out port surveys, support self-sampling schemes and collecting ETP interaction data and trialling mitigation measures.
- A GFCM data-preparation / benchmark meeting (3–7 June 2024) for anchovy and sprat in GSA 29 assessed both fishery-dependent and fishery-independent data submitted by Turkey. This confirms structured data flows for pelagic stocks that are used in risk-based management and ETP impact analysis.
- In parallel, Turkish hydroacoustic surveys (e.g., 2020 work on anchovy from Gücü *et al.,* 2020) produced biomass and abundance indices, which are key fishery-independent inputs. These surveys are used alongside fishery-dependent data (including observer-derived information) in ecosystem-based management frameworks for pelagic fisheries.
- Turkey is also included in Direct Comparative Mitigation through ACCOBAMS pilot projects (ACCOBAMS SC13/2020 pilot and ACCOBAMS SC14/2021 update). They cover onboard monitoring, standardized observer protocols, and mitigation testing such as pingers—explicitly include Turkey. These studies provide before/after and with/without mitigation comparisons and confirmed that the methodology is valid for the Black Sea, mitigation tools can be applied in practice, and comparative results can be measured and replicated. This shows that Turkey not only records ETP interactions but also conducts mitigation trials that enable direct scientific comparison.

  - To assess change over time, baseline metrics exist in Turkey for Pelagic Purse-Seine Fisheries (Anchovy/Sprat). Şahin et al. (2015) quantified catch composition in Black Sea purse-seine fisheries and found the following catch composition for the anchovy-targeted operations: Target catch: 97.9%, bycatch: 2.1% and discards ratio: 1.65%.This provides a pre-mitigation baseline, enabling measurable comparisons when mitigation measures are applied.

  - The last ICES WGBYC report (2025) reported bycatch only for turbot fisheries before 2024. And in 2024, in the Black Sea ecoregion, no bycatch information was recorded from 100 monitoring days at sea (monitoring coverage of 0.57%). Turkey's Black Sea data submissions are included, creating a transparent link between observed bycatch, mitigation, and legislative objectives. This is the mechanism by which the scientific community evaluates whether mitigation contributes to achieving conservation targets.

  - Observer Protocol & Estimation Science: peer-reviewed methods used globally—but relevant to Turkey—show how to detect and correct observer bias, how to estimate bycatch with limited coverage (common in early program phases), and how to produce credible, comparable estimates over time. Two examples can be taken from ICES J. Mar. Sci. (Precoda and Orphanides, 2024) which studied the observer bias methodology in gillnet fisheries and Global Ecology & Conservation (Luck *et al.,* 2020) which studied protected species bycatch in static net fisheries from limited observer coverage.

  - Mitigation Efficacy Literature Relevant to the Black Sea: A 2022 systematic review (open access, Springer) finds that net lights significantly reduce marine mammal, seabird, and turtle bycatch, supporting the likely effectiveness of similar measures in Turkey's high-risk gillnet fisheries (e.g., turbot).

Based on all the information detailed above, **the fishery passes clause E1.3.**

References

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ACCOBAMS Final report: https://accobams.org/wp-content/uploads/2022/11/MOP8.Inf37_Final-report-of-the-MAVA-Bycatch-project.pdf

Cemalettin Şahin, Yusuf Ceylan, Ferhat Kalaycı, 2015. Purse Seine Fishery Discards on the Black Sea Coasts of Turkey. Turkish Journal of Fisheries and Aquatic Sciences 15: 81-91 (2015). DOI: 10.4194/1303-2712-v15_1_09. https://www.trjfas.org/uploads/pdf_10.pdf

Duzgunes E., & Saglam H., 2018. Management measures and their effectiveness on the fisheries management of Turkey. (PDF) MANAGEMENT MEASURES AND THEIR EFFECTIVENESS ON THE FISHERIES MANAGEMENT OF TURKEY

FAO/GFCM Bycatch: https://www.fao.org/gfcm/activities/environment/bycatch/en/

Final report of the Medbycatch project: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://accobams.org/wp-content/uploads/2022/11/MOP8.Inf37_Final-report-of-the-MAVA-Bycatch-project.pdf

FishEBM Black Sea project: https://www.fao.org/gfcm/about/funding/gef/fishebm-black-sea/en/

GFCM Recommendation /44/2021/15:
- text: https://faolex.fao.org/docs/pdf/mul217150.pdf,
- decisions overview: https://www.fao.org/gfcm/decisions/en/

GFCM data-preparation / benchmark meeting 2024 (anchovy & sprat, GSA 29): https://www.fao.org/gfcm/technical-meetings/detail/en/c/1698227/

Gucu, A.C., Bilir B., Aydin C.M., Erbay M., Kilic, S., 2022. An Acoustic Study on the Overwintering Black Sea Anchovy in 2020. Turkish Journal of Fisheries and Aquatic Sciences, 22(1), TRJFAS19187. http://doi.org/10.4194/TRJFAS19187

ICES WGBYC 2024 : https://ices-library.figshare.com/articles/report/Working_Group_on_Bycatch_of_Protected_Species_WGBYC_/24659484

ICES WGBYC 2025: https://ices-library.figshare.com/articles/report/Working_Group_on_Bycatch_of_Protected_Species_WGBYC_2025_Report/30610370

Kristin Precoda, Christopher D Orphanides, Impact of fishery observer protocol on estimated bycatch rates of marine mammals, ICES Journal of Marine Science, Volume 81, Issue 2, March 2024, Pages 348–357, https://doi.org/10.1093/icesjms/fsad202

Luck, C., Jessopp, M., Tully, O., Cosgrove, R., Rogan, E., Cronin, M., Estimating protected species bycatch from limited observer coverage: a case study of seal bycatch in static net fisheries, Global Ecology and Conservation, https://doi.org/10.1016/j.gecco.2020.e01213.
MedBycatch (Turkey observers & mitigation): https://www.fao.org/gfcm/activities/environment-and-conservation/med-bycatch-project/en/

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E2 Impact on the habitat

E2.1	**E2.1**	**Information on interactions between the fishery and marine habitats is collected.** *In reaching a determination for E2.1, the assessor should consider if the following is in place:*
	E2.1.1	Habitats which may be directly affected by the fishery have been identified, including any habitats which may be particularly vulnerable.
	E2.1.2	Information on the scale, location and intensity of fishing activity relative to habitats is collected.
	E2.1.3	Collection and analysis of habitat information is adequate to provide a reliable indication of the impact the fishery has on marine habitats.
Outcome	*Pass*	
Rationale The assessor did not found any information about requirements from Turkish government for fishers/scientists to collect data on habitat interactions. However, open water (pelagic) habitats at depths of 0–200 m are the main hunting grounds; direct contact with benthic (bottom) habitats is minimal. However the Turkish sprat and anchovy fishery under assessment implements pelagic fishing gears: pelagic trawl and purse seine. These gears do not contact the seabed and are operated fully in the water column. As such, the need to collect information between these gears and marine habitats is not applicable. There is no risk to habitats from this fishery. Consequently, **clause E2.1 is met**.		
References None		

E2.2	**E2.2**	**The fishery has no significant impact on marine habitats.** *In reaching a determination for E2.2, the assessor should consider if the following is in place:*
	E2.2.1	The information collected in relation to E2.1.3 indicates that the fishery does not have a significant negative impact on marine habitats.
Outcome	*Pass*	
Rationale The anchovy and sprat fishery under assessment implements pelagic fishing gears: pelagic trawl and purse seine. These gears do not contact the seabed and are operated fully in the water column. As such, the need to collect information between these gears and marine habitats is not applicable. There is no risk to habitats from this fishery. The fishery has no significant impact on marine habitats. Clause E2.2 is met.		
References None		

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E2.3	**E2.3 There is a habitat management strategy in place for the fishery.** *In reaching a determination for E2.3, the assessor should consider if the following is in place:*
	E2.3.1 There are measures applied to the fishery which are designed to manage the impact of the fishery on marine habitats.
	E2.3.2 The measures are considered likely to prevent the fishery from having a significant negative impact on marine habitats.
Outcome	*Pass*

Rationale

The assessor did not find any evidence of measures applied to the fishery which are designed to manage the impact of the fishery on marine habitat, and consequently cannot determined if these measures are considered likely to prevent the fishery from having a significant negative impact on marine habitats.

However, as said previously, the anchovy and sprat fishery under assessment implements pelagic fishing gears: pelagic trawl and purse seine. These gears do not contact the seabed and are operated fully in the water column. As such, a specific habitat management strategy is not considered necessary.

Consequently, clause E2.3 is met.

References

None

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E3 Impact on the ecosystem

E3.1	**E3.1**	**Information on the potential impacts of the fishery on marine ecosystems is collected.** *In reaching a determination for E3.1, the assessor should consider if the following is in place:*
	E3.1.1	The main elements of the marine ecosystems in the area(s) where the fishery takes place have been identified.
	E3.1.2	The role of the species caught in the fishery within the marine ecosystem is understood, either through research on this specific fishery or inferred from other fisheries.
	E3.1.3	Collection and analysis of ecosystem information is adequate to provide a reliable indication of the impact the fishery has on marine ecosystems.
Outcome	*Pass*	

Rationale

Anchovy and sprat fished with pelagic trawl and purse seine nets on the Black Sea coast of Turkey constitutes 70-80% of the total annual catches of the country. According to 2023 data, anchovy catch is ~250–300 thousand tons/year and sprat catch is ~100–150 thousand tons/year in Turkey.
Although anchovy and sprat stocks are spread all over the Black Sea, the fishing density is concentrated in pelagic areas 5-50 nautical miles from the coast.
The following information detail how the three sub-clauses of E3.1 are met, please not that they have already been detailed in clauses E1.

1) Pelagic Stock Data Pipelines: Anchovy/Sprat Feeding Ecosystem Assessments:

- A GFCM data-preparation/benchmark meeting (3–7 June 2024) for anchovy and sprat in GSA 29 assessed both fishery-dependent (fleet activity, catch/effort, size data) and fishery-independent (survey) datasets submitted by Turkey for anchovy and sprat in GSA 29. This confirms structured data flows for pelagic stocks that are used in risk-based management and ETP impact analysis.
- In parallel, Turkish hydroacoustic surveys (e.g., 2020 work on anchovy from Gücü *et al.,* 2020) have been conducted by Turkish research institutions in November–December 2020 to estimate anchovy biomass, supported by pelagic trawl sampling to determine size and age structure (juveniles vs adults). They produced biomass and abundance indices, which are key fishery-independent inputs. These surveys are used alongside fishery-dependent data (including observer-derived information) in ecosystem-based management frameworks for pelagic fisheries. Hydroacoustic surveys are a standard ecosystem-science tool that reduce sampling bias and inform both stock status and ecosystem condition assessments—directly addressing E3.1's requirement for "ecosystem information", as this hydroacoustic work is directly relevant for the sprat–anchovy pelagic guild and ecosystem-level biomass indicators. These benchmarks ensure that ecosystem-relevant indicators and stock dynamics are methodologically robust, harmonised and reproducible.

Turkey and regional bodies (FAO/GFCM) do collect and analyse ecosystem information relevant to the sprat–anchovy fishery. This includes fishery-independent biomass indices (hydroacoustics), fishery-dependent data and benchmarks, ecosystem models that explicitly represent trophic interactions and fleet impacts, and projects that integrate monitoring, control and surveillance (MCS) technologies in the Black Sea. Taken together, these elements form a coherent ecosystem-information base that reliably indicates fishery impacts and supports compliance with clause E3.1.

2) GFCM decisions for Black Sea stocks:

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The GFCM decisions portal presents an interactive record of adopted measures, including those relating to Black Sea stocks such as sprat. This reflects a continuous cycle of assessment → advice → management, built on underlying ecosystem and stock information.

3) Ecosystem Modelling Including Pelagic Guilds & Fleet Impacts (Black Sea)

- Blue2 ecosystem model (PLOS ONE, 2025): The European Commission–JRC Blue2 model for the Black Sea simulates trophic dynamics from 1995–2021, from primary producers up to marine mammals and seabirds. It explicitly incorporates fleet impacts and ecosystem indicators and identifies anchovy/sprat (small pelagics) as structurally important components of the food web. The model quantifies indirect effects of pelagic fisheries on higher trophic levels, providing ecosystem information directly relevant to E3.1 in the context of sprat–anchovy fishing. This work integrates multiple data sources to evaluate policy and management scenarios.

4) Regional Ecosystem-Based Management Projects (FAO/GFCM – Turkey as Beneficiary):

- FishEBM Black Sea (2023–2026): The FAO/GFCM "Fisheries and ecosystem-based management for the Black Sea" (FishEBM BS) project strengthens ecosystem-based tools, participatory processes and integration of MCS technologies to combat IUU and mitigate impacts on vulnerable species. Turkey is explicitly listed as a beneficiary. The project builds and consolidates ecosystem information systems used to interpret fishery impacts, supporting clause E3.1.

5) Cross-Taxa Ecosystem Interactions & Vulnerable Species (Context for Pelagic Impacts):

While MarinTrust E3.1 focuses on ecosystem information rather than bycatch per se, Turkey's pelagic ecosystem information base is complemented by regional frameworks that monitor interactions with vulnerable species. These help trace ecosystem impact pathways from pelagic fleets to higher trophic levels:

- GFCM/FAO vulnerable species & bycatch actions (Black Sea included): These frameworks cover cetaceans, seabirds, turtles and elasmobranchs, providing interaction data that contribute to ecosystem-status assessments for fisheries.
- ICES WGBYC (2024, 2025), Black Sea ecoregion: Using the BEAM methodology, ICES WGBYC compiles and assesses bycatch risk and impact across taxa and gears, delivering population-level context for pressures from pelagic fleets. These cross-taxa systems complement anchovy/sprat stock and hydroacoustic data by linking pelagic fishing to marine megafauna.

6) Baseline Pelagic Ecosystem Metrics from Turkish Purse-Seine Operations

- Quantified discard/bycatch baselines in Turkish Black Sea purse-seine fisheries (anchovy/horse mackerel): Şahin *et al.* (2015) provide a quantified baseline for purse-seine operations on the Turkish Black Sea coast. They quantified catch composition in Black Sea purse-seine fisheries and found the following catch composition for the anchovy-targeted operations: Target catch: 97.9%, bycatch: 2.1% and discards ratio: 1.65%.

Taken together, these demonstrate both collection (surveys, observer data, multi-taxa monitoring) and analysis (benchmarks, modelled indicators, advisory cycles) at a level consistent with MarinTrust clause E3.1, providing a reliable indication of sprat–anchovy fishery potential impacts on the marine ecosystem in the Turkish Black Sea, and how the information is collected. Based on all the information above, **clause E.3.1 is met**.

References

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Cemalettin Şahin, Yusuf Ceylan, Ferhat Kalaycı, 2015. Purse Seine Fishery Discards on the Black Sea Coasts of Turkey. Turkish Journal of Fisheries and Aquatic Sciences 15: 81-91 (2015). DOI: 10.4194/1303-2712-v15_1_09. https://www.trjfas.org/uploads/pdf_10.pdf

FAO-GFCM, 2023. The State of Mediterranean and Black Sea Fisheries: https://openknowledge.fao.org/items/c1485da2-d4a9-4db8-a155-d876ce0d2488

FishEBM Black Sea project: https://www.fao.org/gfcm/about/funding/gef/fishebm-black-sea/en/

GFCM data-preparation / benchmark meeting 2024 (anchovy & sprat, GSA 29): https://www.fao.org/gfcm/technical-meetings/detail/en/c/1698227/

Gucu, A.C., Bilir B., Aydin C.M., Erbay M., Kilic, S., 2022. An Acoustic Study on the Overwintering Black Sea Anchovy in 2020. Turkish Journal of Fisheries and Aquatic Sciences, 22(1), TRJFAS19187. http://doi.org/10.4194/TRJFAS19187

ICES WGBYC 2024 : https://ices-library.figshare.com/articles/report/Working_Group_on_Bycatch_of_Protected_Species_WGBYC_/24659484

ICES WGBYC 2025: https://ices-library.figshare.com/articles/report/Working_Group_on_Bycatch_of_Protected_Species_WGBYC_2025_Report/30610370

E3.2	**E3.2 There is no substantial evidence that the fishery has a significant negative impact on the marine ecosystem.** *In reaching a determination for E3.2, the assessor should consider if the following is in place:*
	E3.2.1 The information collected in relation to E3.1.3 indicates that the fishery does not have a significant negative impact on marine ecosystems.
Outcome	*Pass*
Rationale Please refer to the previous clause' information. None of this source indicated that the fishery does have a significant negative impact on marine ecosystems.	
References Please refer to the previous clauses.	

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E3.3	**E3.3 There is an ecosystem management strategy in place for the fishery.** *In reaching a determination for E3.3, the assessor should consider if the following is in place:*
	E3.3.1 There are measures applied to the fishery which are designed to manage the impacts of the fishery on marine ecosystems.
	E3.3.2 The measures are considered likely to prevent the fishery from having a significant negative impact on marine ecosystems.
Outcome	*Pass*

Rationale

As explained previously, there are specific measures applied to the Turkish Black Sea sprat–anchovy fishery that are explicitly designed to manage ecosystem impacts. In addition, multiple scientific and technical studies, monitoring frameworks, and modelling tools confirm the feasibility of these measures and provide the evidence needed to evaluate whether they prevent significant negative ecosystem effects. These include:

- binding GFCM recommendations for the Black Sea sprat stock and vulnerable species (e.g., cetaceans, sturgeons) implemented by Turkey;
- targeted bycatch-mitigation frameworks (MedBycatch, ACCOBAMS/GFCM) applied operationally in Turkey;
- ecosystem-based projects and analytical tools (FishEBM BS, hydroacoustics, ICES WGBYC, and the Blue2 ecosystem model) that generate and analyse ecosystem information relevant to sprat–anchovy fishing impacts.

More specifically:

1) Specific Regional Measures Applied to the Fishery (GFCM, Black Sea)

- Sprat management measures (GSA 29): The GFCM Compendium includes Recommendation GFCM/42/2018/4, *"on management measures for the sustainable exploitation of sprat in the Black Sea (GSA 29)"*. This is a binding regional measure covering effort controls, catch rules, data collection and assessment—applied directly to the sprat fishery in which Turkey participates.
- Vulnerable species measures relevant to pelagic fleets:
  a. Cetaceans – GFCM binding recommendation 44/2021/15 which applies throughout the GFCM area—including the Black Sea and Turkey and requires monitoring of cetacean bycatch, gear and operational mitigation, time–area measures, bycatch thresholds and reporting. These provisions directly address ecosystem impacts from pelagic sprat–anchovy operations.
  b. Sturgeons – GFCM/47/2024/11: Adopted in 2024, this measure reinforces spatial and gear-related restrictions to protect Black Sea sturgeon populations, a keystone ecosystem component. These restrictions influence when and where pelagic anchovy–sprat fleets operate, contributing to ecosystem impact mitigation.

These are specific, binding, ecosystem-focused measures implemented by Turkey that directly regulate the sprat–anchovy fishery through data requirements, technical measures, and spatial controls.

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2) Bycatch Mitigation & Monitoring Measures Applied in Turkey (Pelagic Context)

- MedBycatch Turkey (2017–2022): as explained previously, under MedBycatch Phases I–II, Turkey implemented onboard observations in pelagic gears (including purse seines), port surveys and self-sampling schemes, mitigation trials for ETP species, standardized data collection and reporting protocols. These operational measures are designed to manage ecosystem impacts and generate evidence of their effectiveness.
- ACCOBAMS Black Sea pilot & update (2019–2021, see SC13 pilot and SC14 update) - including Turkey—tested pingers, monitoring protocols and mitigation tools for cetacean bycatch. These studies provided head-to-head comparisons (before/after, with/without mitigation), feasibility evidence for Black Sea conditions, standard scientific methodologies for evaluating performance. These mitigation and monitoring measures are *specific*, already applied in Turkey, and produce data that allow evaluation of whether impacts are being reduced—directly addressing E3.3.

3) Ecosystem-Based Projects & Analytical Tools (Turkey Beneficiary / Black Sea)

- FishEBM Black Sea (2023–2026), as explained previously, this project provides ecosystem-based management tools, MCS integration for impact monitoring, and participatory management frameworks. Turkey participates as a beneficiary country, meaning the sprat–anchovy fishery is supported by ecosystem-focused monitoring and decision-support systems.
- Anchovy–sprat benchmark meeting (GSA 29, 2024): as explained previously, GFCM technical meetings (June–July 2024) harmonized fishery-dependent and independent data for anchovy and sprat, ensuring assessment-ready inputs for ecosystem impact evaluation and advice.
- Hydro-acoustic surveys (2020): as explained previously, Hydroacoustic surveys conducted in 2020 produced biomass, abundance and size-structure indices—key ecosystem metrics for anchovy/sprat that directly inform impact evaluations.
- Blue2 ecosystem model (PLOS ONE, 2025), which explicitly includes anchovy and sprat, seabirds and marine mammals, and fleet impacts and food-web pathways. It demonstrates the structural importance of small pelagics and quantifies indirect effects of fishing—providing an ecosystem-level basis for evaluating measures.

4) Baselines & Risk-Based Ecosystem Monitoring (Pelagic Purse Seines):

- Baseline ecosystem pressure metrics (Turkey purse seines), documented by Şahin et al. (2015), as explained previously. It provides a measurable baseline for evaluating changes following application of specific ecosystem-impact mitigation measures.
- ICES WGBYC (2024 and 2025) risk and impact assessments (Black Sea ecoregion): ICES WGBYC uses the BEAM methodology to provide semi-quantitative risk assessments of ETP interactions by gear and region, using national data contributions (including Turkey). This is a transparent, scientific mechanism to judge whether measures prevent significant impacts.

The elements explained above constitute specific measures designed to manage ecosystem impacts, and scientific evidence that these measures are likely (or not likely) to achieve their objectives. Based on clause E3.1 and E3.2, the measures are considered likely to prevent the fishery from having a significant negative impact on marine ecosystems.

Turkey's Black Sea sprat–anchovy fishery is managed under binding regional measures and supported by robust scientific and monitoring frameworks that assess whether ecosystem impacts are being mitigated. Based on all the information above, **clause E.3.3 is met**.

References

Please refer to clauses above.

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Annex 1: External Peer Review report

Assessment and determination summary

Fishery name	**Turkey - Engraulis encrasicolus - European anchovy and Sprattus sprattus - Sprat, FAO 37.4.2, Black Sea**
MarinTrust report code	**WF44**
Type 1 species (common name, Latin name)	*European anchovy, Engraulis encrasicolus* *Sprat, Sprattus sprattus*
Fishery location	*FAO 37 4.2. The Black Sea*
Gear type(s)	*Pelagic trawl and Purse Seine*
Management authority (country/state)	*Turkey EEZ*
Certification Body recommendation	*Approved*
FAPRG reviewer recommendation	Agree with CB determination

Summary of peer review outcomes

Summary *Provide any information about the fishery that the reviewers feel is significant to their decision. This summary is used by the Certification Body in the Fishery Assessment Report.*
The CAB made a series of corrections after intial PR that resloved a few issues raised. Including removing inconsistent catch datasets and rebuilding the species catergorisation table using logbook data. Anchovy and sprat failed catergory A and were subsequently scored as a Catergory B sepcies and passess MT Whole fishery requirements. Whiting and Red mullet failed scoring under Catergory C and were reassessed as Catergory D species and now pass MT assessment. Missing references have been added or updated to relfect most recent advice, and ecosystem impact notes were updated. With these revisions in place, the PR is satisfied and agrees with the final determination to certify the whole fishery.
General comments on the draft report provided to the peer reviewer
Notes for onsite auditor to check full catch profiles entering the factory from this fishery should be in place; given the confusion of intial catch datasets used in assessment process.

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Peer reviewers should review the fishery assessment report with the primary objective of answering the key questions listed in the table below. When the situation is more complicated, reviewers may answer "See Notes" instead.

1. Has the fishery assessment been fully completed, using the recognised MarinTrust fishery assessment methodology and associated guidance?	No
2. Does the Species Categorisation section of the report reflect the best current understanding of the catch composition of the fishery?	No
3. Are the scores in the following sections consistent with the MarinTrust requirements (i.e. do the scores reflect the evidence provided)?	No
Section M – Management Requirements	Yes
Category A Species	See notes
Category B Species	Yes
Category C Species	See notes
Category D Species	See notes
Section E – Ecosystem Impacts	Yes

Detailed Peer Review Justification

Peer reviewers should provide support for their answers in the boxes provided, by referring to specific scoring issues and any relevant documentation as appropriate.
Detailed justifications are only required where answers given are one of the 'No' options. In other (Yes) cases, either confirm 'scoring agreed' or identify any places where weak rationales could be strengthened (without any implications for the scores).
Boxes may be extended if more space is required.

1. Has the fishery assessment been fully completed, using the recognised MarinTrust fishery assessment methodology and associated guidance?	No
Generally the report is written with the MT guidance in mind and is very detailed, but there are a few places where the scoring rationale doesn't address points highlighted in the MT guidance document. This is highlighted principally in Catergorisation of species for scoring, and scoring of Catergory A species. See notes below.	
Certification Body response	
Thanks for your comment. Please see assessor's answer below.	

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2. Does the species categorisation section of the report reflect the best current understanding of the catch composition of the fishery?	Yes

The species categoriations looks accurate based on the client data but some of the other references provide confusion. For clarity the peer reviewer has shared their version of the Statistical bulletin.
Is the statistical bulletin pleagic and purse seine catch? Looks to be gov collected data “Statistics on marine fish and other seafood catches are obtained from the Monthly Large Fish Seafood Catchment Survey and the Seasonal Small Fish Seafood Catchment Survey, conducted jointly by the Ministry of Agriculture and Forestry and the Turkish Statistical Institute. Statistics on inland water catches and aquaculture production are compiled by the Ministry of Agriculture and Forestry.” but the numbers in the excel don’t match the client table below? There is no 2025 in the excel. Furthermore if for the whole of Turkey the whiting catch is too low “Another study revealed that whiting accounted for 98.8% of the fish caught in the Black Sea, underscoring its dominance in the region's fishery (BSGM, 2023). “ taken from ÇİLOĞLU reference 2025. If the catch in the statistical bullentin is for the pelagic fleet as suspected due to whiting numbers, and I assume the catch data from the client is from the whole pelagic / purse seine fleet, the annual catch of anchovy from client data vs, turkey whole catch is on 15%. Given the majority of anchovy will be landed by pelagic and purse seine, this seems very low! and needs to be explained. Futerhmore, if I'm assuming that the Statisitcal bullentin is for the pelagic / purse senie *and coming from Gov data - the % doesn't add up for species catergorisations i.e., Excel has 24 species over 0.1% if filter to 3 decimal place and 21 if you get rid of species which make up e.g., 0.11% of the catch. This means the Excel sheet type 1 species = 68.7% and the Type 2 species and total 30.6% of the catch?

Catch data should be clear - where is comes from - what gear types it covers - time period it covers. And what the auditor is basing the species catergorisation on.

Moving onto the rationale under "Black Sea Catch Ratios Based on 20-Year TURKSTAT Data:" - Most of this rationale is irrelevant i.e., it doesn't tell how the auditor has justified the Catergorisation of A-B or C-D species which is all based on catch % and mnagement measures. This may have caused some of the confusion in C-D (see notes below). The catch catergoriation table doesn't match whats actually scored as C-D in scoring taables 2 C species 2 D species, but here in table there are 3 C species.

Additionally:
"According to the 20-year data published by TURKSTAT (Turkish Statistical Institute)" is this the excel sheet provided? this is only for 10 years, if referering to another data set please references.
"Furthermore, sectoral sources and Ministry briefing notes estimate that the share of anchovy catches obtained from the Black Sea ranges between 60% and 90%, depending on seasonal conditions and annual stock fluctuations" No references are provided for this statement, in addition is this the share of anchovy from total catch from the black sea? if so this seems to contradict reference above for blue whiting. Is it refering just to pelagic catch? if so again contradicts the catch statistics in the excel sheet.

If using excel sheet for catch catergorisation the additional species should be re-checked against the CITES and IUCN status.

Certification Body response

We have checked the rationale and the data and it appears that it does not make sense to have the statistical bulletin neither the "Black Sea Catch Ratios Based on 20-Years Turkstat Data". We have then removed them and used only the logbook-based catches data.
Furthermore, we have added the explanation about the species categorisation in the Table 7's rationale.
Also, the mistakes in the species categorisation tables have been corrected accordingly.

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3. Is the scoring of the fishery consistent with the MarinTrust requirements, and clearly based on the evidence presented in the assessment report?	No
The scorign justifications largely meet the MT requirements however it is noted under some scoring, principally in Catergorisation of species (noes above) and scoring of Catergory A species (see notes below), MT requirements are not met fully.	
Certification Body response	
Thanks for your comment. Please see the assessor's answer above and below.	

3a. Are the “Category A Species” scores clearly justified?	Yes
Anchovy A1.1 - what about landings from other countries targeting the same stock? A1.1 Note: Table 1 in scoring A1.1 match excel statistical bulletin but contradict page 35 scoring A3.1 table 2. A1.1 "According to the client, the catches of anchovy only in Black sea or the following: 136 437,8 t in 2021 and 113 382,4 t in 2022" -- I'm not sure what this means? A1.2 Rationale belongs to A1.1 or status scoring rationales; look at the guidance for whats required under A1.2 none of the points currently provided meets the scoring guidance. A1.2 "These integrated mechanisms—logbooks, observer and port monitoring, independent acoustic-trawl surveys, and consistent regional submission and review—ensure that Turkey’s landings data for Black Sea anchovy are robust, validated, and fully included in fishery-wide removal estimates under GFCM procedures." again belongs under a different rationale but raises questions why the WG for this stock raised such uncertainty in input data to formally set benchmarks? This statement seems to contradict what the WG is saying, or should be explained i.e., is it other countries not providing sufficient data? A2.1 para 2 "These assessments incorporate all fishery removals, including landings and discards, and are informed by biological characteristics of the species such as age structure, growth parameters, maturity, and selectivity" this statement needs to be evidenced in A1.1 and A1.2 as justification not provided in previous scoring rationale. A3.3 final para "Through adherence to binding GFCM harvest control rules and proactive national enforcement, commercial fishery removals are legally and procedurally prohibited if anchovy stock falls below the limit reference point" The scoring rationale seems to suggests it’s happened before and has been closed but no evidence is provided?- however, if regulations are new, is there a historic track record of doing the right thing in other fisheries? A4.1 final para "“Benchmark NO finalized. The stock assessment results from FLSAM and SPiCT were comparable and supported by acceptable diagnostics. However, large uncertainty depending on the input data was also observed, preventing providing a robust quantitative advice. Adequate ALK data covering different periods, identifying and applying contribution of different populations in available LFD and harmonizing surveys data are needed to face a new benchmark session.” This needs to be explained more and how uncertainty of assessment was incorporated in scoring of the stock by the auditor.	

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Sprat
A1.1 Comments for anchovy apply here - other countries removals
A1.1 Note to auditor could be added - check that sprat and anchovy come from designated ports only
A1.1 note Table 3 matches excel bulletin catch
A1.2 Anchovy comments apply here - current rationale belongs elsewhere and auditor should consider MT guidance when drafting rationale here.
A2.2 Advice is clearly precautionary as both sprat and anchovy benchmark not finalised, indicating something is amiss and benchmarking to process is ongoing i.e., WG no fully happy with advice.
A3.2 usually the auditor provides a table of Catch vs Advice *as seen for anchovy but is abscent here?
A3.3 I don't think MT requirements allow a fishery to partially meet a clause, if failing sprat needs to be scoring as a Cat B species.
A4.1 "A Russian-led assessment for the Black Sea sprat (2022–2023) reports that spawning biomass (SSB) is in the buffer zone between the limit and target reference points" if between Blim and BMSY but fishery wouldn't close if falling below Blim it's a fail?

Certification Body response
Anchovy A1.1 - what about landings from other countries targeting the same stock? --> This is exactly what the Figure 1 presents: it is the "Total Black Sea anchovy landings by all riparian countries" A1.1 Note: Table 1 in scoring A1.1 match excel statistical bulletin but contradict page 35 scoring A3.1 table 2. --> Table 1 makes it confused and does not add anything useful after Figure 2, so the assessor prefers to take it off. A1.1 "According to the client, the catches of anchovy only in Black sea or the following: 136 437,8 t in 2021 and 113 382,4 t in 2022" -- I'm not sure what this means? --> This sentence has been removed. See answer just above. A1.2 Rationale belongs to A1.1 or status scoring rationales; look at the guidance for whats required under A1.2 none of the points currently provided meets the scoring guidance. --> The assessor reviewed the Guidance to support category A species assessment and respectfully does not agree with the PR comment. A1.2 "These integrated mechanisms—logbooks, observer and port monitoring, independent acoustic-trawl surveys, and consistent regional submission and review—ensure that Turkey's landings data for Black Sea anchovy are robust, validated, and fully included in fishery-wide removal estimates under GFCM procedures." again belongs under a different rationale but raises questions why the WG for this stock raised such uncertainty in input data to formally set benchmarks? This statement seems to contradict what the WG is saying, or should be explained i.e., is it other countries not providing sufficient data? --> The assessor could see in the various reports studied during this MT initial assessment that Turkey is providing data yearly and complying with the rules. So yes, it might be other countries which are not providing sufficient data. This explanation has been added into the report. A2.1 para 2 "These assessments incorporate all fishery removals, including landings and discards, and are informed by biological characteristics of the species such as age structure, growth parameters, maturity, and selectivity" this statement needs to be evidenced in A1.1 and A1.2 as justification not provided in previous scoring rationale. --> the assessor has made additions and

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small modification of A1.2 clause to answer your comment.

A3.3 final para "Through adherence to binding GFCM harvest control rules and proactive national enforcement, commercial fishery removals are legally and procedurally prohibited if anchovy stock falls below the limit reference point" The scoring rationale seems to suggests it's happened before and has been closed but no evidence is provided?- however, if regulations are new, is there a historic track record of doing the right thing in other fisheries? --> The assessor has re-work on this species and determined that clause A3.3 was not met. Consequently and following MT guidance, this species has been assessed under Category B.

A4.1 final para "“Benchmark NO finalized. The stock assessment results from FLSAM and SPiCT were comparable and supported by acceptable diagnostics. However, large uncertainty depending on the input data was also observed, preventing providing a robust quantitative advice. Adequate ALK data covering different periods, identifying and applying contribution of different populations in available LFD and harmonizing surveys data are needed to face a new benchmark session.” This needs to be explained more and how uncertainty of assessment was incorporated in scoring of the stock by the auditor.
-->The assessor took this § off from here because we think it is more appropriate in clause A1.2, where it has been further detailed.

Sprat
A1.1 Comments for anchovy apply here - other countries removals --> figure 5 contemplates all the countries removals of sprat in the GFCM area.
A1.1 Note to auditor could be added - check that sprat and anchovy come from designated ports only --> note added.
A1.1 note Table 3 matches excel bulletin catch --> The assessor removed Table 3 as the statistical bulletin has been removed.
A1.2 Anchovy comments apply here - current rationale belongs elsewhere and auditor should consider MT guidance when drafting rationale here --> the assessor respectfully does not agree and find the rationale provided coherent, but she added some elements of A1.2 in A1.1.
A2.2 Advice is clearly precautionary as both sprat and anchovy benchmark not finalised, indicating something is amiss and benchmarking to process is ongoing i.e., WG no fully happy with advice. --> Careful, the WG comment in 2023 said that benchmark was not finalised, but the WG comment in 2024 said that benchmark was finalised. This has been clarified in the rational of the clause.
A3.2 usually the auditor provides a table of Catch vs Advice *as seen for anchovy but is abscent here? --> The assessor added a table in A3.1.
A3.3 I don't think MT requirements allow a fishery to partially meet a clause, if failing sprat needs to be scoring as a Cat B species. --> Yes, the assessor consequently assessed it under Category B.
A4.1 "A Russian-led assessment for the Black Sea sprat (2022–2023) reports that spawning biomass (SSB) is in the buffer zone between the limit and target reference points" if between Blim and BMSY but fishery wouldn't close if falling below Blim it's a fail?--> The assessor has deleted this misleading Russian assessment which is old, and reminded that the stock is at/above Btarget.

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3b. Are the “Category B Species” scores clearly justified?	No
Potentially sprat should be scored here.	
Certification Body response	
Thanks for your comment. The assessor agreed, sprat has been scored under category B.	

3c. Are the “Category C Species” scores clearly justified?	No
Why species are selected as category C should be justified. See table provided in email. Whiting https://gfcm.sharepoint.com/EG/Report%20v2/Forms/AllItems.aspx?id=%2FEG%2FReport%20v2%2F2024%2FSGSABS%2FSGSABS%5F2024%5FREPORT%2Epdf&parent=%2FEG%2FReport%20v2%2F2024%2FSGSABS&p=true&ga=1 scoring should mention this report for black sea and why chosen to focus on eastern black sea reference. --> should we use the last SGSABS meeting report instead? Even if the stock assessment is kind of scarce? https://gfcm.sharepoint.com/:b:/g/EG/EXWO-mugEc9Nt047ct2reBkB1fhafjdUqT_16p2XTCMBVg. Red mullet ponticus - If this is a specific stock and explains stock info below this needs to be explained as report I said is for black sea - Red mullet in the Black Sea was believed to consist of two distinct stocks, as indicated in Ciloglu at al. (2019). C1.1 Rationale misses report above which covers red mullet. Page 11 of the report and seems to contradict the other report, this says a high mortality and relatively high exploitation where as the other says low fishing mortality and biomass recovering. Final sentence of the rationale 0.29% needs a reference for source data. C1.2 this is not met surely? biomass is low and fishing mortality is high and the it's the scientific authorities which determine pelagic catch is neglible not the auditor, where is this evidenced? --> The assessor has reviewed this clause and indeed determined that it does not pass.	
Certification Body response	
In the table 7 rationale, the assessor added the justification of the species categorisation. Furthermore, be aware that, after a close review, red mullet and whiting had finally been assessed directly under category D as they do not have a species-specific management plan. Consequently, as it stands now, there is no Category C species anymore in this initial assessment.	

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3d. Are the “Category D Species” scores clearly justified?	No
Catergory D species need justification as to why scored as Cat D. Atlantic Bonito - no references provided for peer review to check scoring. Horse mackerel - doesn't reference the Subregional Group on Stock Assessment for the Black Sea (SGSABS) report linked to whiting and red mullet above.	
Certification Body response	
In Table 7's rationale, the assessor added the justification as to why both species are classified as category D. Also on p.53, before each species table analyse, the assessor already explained why each of these species are classified under category D. For Atlantic bonito: references have been provided by the assessor for PR to check (see PSA table p.53). For Med horse mackerel: not sure about which report you are talking about but the assessor added reference to the 2024 SGSABS report (https://www.fao.org/gfcm/technical-meetings/detail/en/c/1717314/) before the PSA table.	

Are the scores in “Section M – Management Requirements” clearly justified?	Yes
The management scoring is very detailed and references are provided throughout.	
Certification Body response	
Thank you	

Are the scores in “Section E – Ecosystem Impacts” clearly justified?	Yes
This fishery seems to be well managed in terms of its impacts on ETP and ecosystems. The gear type, pelagic trawl, doesn't interact with the seabed so habitat management is minimised however - Whiting and red mullet are demersal species and so there catch % should be explained and a note put for the onsite auditor to monitor % as if % increases would indicate fishing closer to the seabed	
Certification Body response	
Whiting and red mullet are caught in very low proportion (total of 0.94% of the total catches of the fishery), which is coherent with the fact that we are currently assessing a pelagic fishery. A note for the onsite auditor to monitor % as if % increases, this would indicate fishing closer to the seabed, has been added in Table 4.	

Optional: General peer reviewer comments on the draft report
Certification Body response

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