UN environment programme

CMS

CONVENTION ON MIGRATORY SPECIES

UNEP/CMS/Angelshark WG1/Doc.4.1
28 April 2025

Original: English

1st Meeting of the Working Group on the Implementation of the Single Species Action Plan for the Angelshark in the Mediterranean Sea (Angelshark WG1)
Bonn, Germany, 29-30 April 2025

SUMMARY OF REPORTS ON IMPLEMENTATION BY RANGE STATES

(*Prepared by the Secretariat*)

1. This document provides a summary of reports on the implementation of the Single Species Action Plan for the Angelshark (*Squatina squatina*) in the Mediterranean Sea region in its Annex. Reports are based on a template that was developed by the Secretariat for that purpose, The format requests information on each of the activities that are included in the SSAP. This includes information on activities undertaken, reasons for obstacles to implementation and assessing the status of implementation.

2. Decision 14.101 (e-g) on the Single Species Action Plan for the Angelshark (*Squatina squatina*) in the Mediterranean Sea requests Pary Range States to:

> *"[…] (e) provide a brief report on the implementation of the SSAP Angelshark Med in time for the last meeting of the Sessional Committee before the 15th Meeting of the Conference of the Parties (COP15) using a template provided by the Secretariat;*
>
> *(f) review information provided by Range States on the implementation of the SSAP Angelshark Med and prepare a brief summary and analysis;*
>
> *(g) make recommendations on the further implementation of the SSAP Angelshark Med to COP15; […]"*

3. Decision 14.105 (c) requests the Secretariat to "*develop a simple reporting form, […..], to enable assessment of progress in the implementation of the SSAP Angelshark Med, and disseminate this to Range States to facilitate reporting in advance of COP15;"*

4. The Secretariat shared the reporting format with Parties on 28 February 2025 through Notification 2025/009: First Meeting of the Working Group on the Implementation of the Single Species Action Plan for the Angelshark (Squatina Squatina) in the Mediterranean Sea (Angelshark Med WG1). The deadline for submission was 1 April 2025. Original responses from Range States are provided on the meeting website.

Actions Requested

5. The Working Group is requested to:

   a) Review the summary of the reports submitted by Range States and the ASCN;
   b) Inform about additional activities undertaken; and
   c) Make recommendations for further implementation of the SSAP to COP15.

ANNEX

SUMMARY OF REPORTS ON THE IMPLEMENTATION OF THE SINGLE SPECIES ACTION PLAN FOR THE ANGELSHARK (*Squatina squatina*) IN THE MEDITERRANEAN

1. On 26 February 2025, the CMS Secretariat issued a request for reports to all 22 Range States in the Mediterranean region and the European Union regarding Decision 14.101(e): "Range States are requested to submit a brief report on the implementation of relevant activities for the Single Species Action Plan for the Angelshark (*Squatina squatina*) (SSAP)."

2. Reports were received from six Range States (Croatia, Cyprus, France, Greece, Spain, and Syria). In addition, reports were received from partner organizations of the Angel Shark Conservation Network (ASCN) on implementation activities in several areas of the Mediterranean region. These include reports from The Shark Trust for Cyprus, Tunisia, and Türkiye, and from Mersea Marine Consulting for Türkiye. In light of the low response rate from Range States, reports from ASCN partners were included in the summary of reports in a separate section. France submitted its report after the deadline, preventing it from being included in this analysis; it will be incorporated in a future update.

3. For the remaining 14 Range States, no reports were received from Governments nor Partners.

Key Findings

4. Using the reports received, the Secretariat has summarized the status of implementation of each area in **Table 1,** using a traffic light system.

5. The key outcomes of the report highlight the efforts made in species-level protection, identification of sites and habitats, scientific studies and data collection, and resource allocation and international coordination.

6. The implementation of the SSAP shows varying levels of progress among Range States. While some countries have made significant strides in legislation, awareness, and data collection, others face challenges due to conflict, funding, and capacity limitations.

Species-Level Protection (SSAP Objective 1)

7. Cyprus, Greece, and Spain have implemented domestic and EU legislation prohibiting the capture, retention, and sale of Angelshark. Croatia enforces protection through national ordinances, while Syria has not addressed this action due to ongoing conflict. Croatia, Cyprus, and Spain have national measures in place for species protection, while Greece lacks specific national legislation. Awareness and educational programmes have been initiated in Croatia, Cyprus, Greece, and Spain, focusing on stakeholder engagement and species identification. Monitoring and enforcement measures are in place in Croatia, Cyprus, Greece, and Spain, with varying levels of implementation and effectiveness.

Identification of Sites and Habitats (SSAP Objective 2)

8. Significant data collection efforts have been reported by Croatia, Cyprus, Greece, and Spain, with contributions from ASCN partners. Cyprus, Greece, and Spain have made progress in identifying critical habitats, while Croatia and Syria have not addressed this action. Croatia and Spain have conducted eDNA analysis to confirm the presence of Angelsharks. Croatia and Spain have used non-invasive visual survey methods to monitor Angelsharks. Efforts to integrate Angelshark conservation into Marine Protected Areas (MPAs) are ongoing in Croatia, Cyprus, Greece, and Spain.

Scientific Studies and Data Collection (SSAP Objective 3)

9. Existing frameworks in Croatia, Cyprus, Greece, and Spain include elasmobranch monitoring, with specific efforts for Angelsharks in Spain. Monitoring and enforcement related to Angelshark catch data are reported by Croatia, Cyprus, Greece, and Spain. Reporting and awareness efforts are in place in Croatia, Cyprus, Greece, and Spain. Engagement of recreational fishers and divers in Angelshark conservation is ongoing in Croatia, Cyprus, Greece, and Spain. Pilot monitoring programs have been implemented in Greece and Spain. Tagging efforts are reported by Greece and Spain, with challenges in expanding these efforts.

Resource Allocation and International Coordination (SSAP Objective 4)

10. Cyprus and Spain have made progress in securing funds for Angelshark conservation, while other states face challenges. Cyprus, Greece, and Spain support the establishment of an international working group for Angelshark conservation. Efforts to expand MPA networks to include Critical Angel Shark Areas (CASAs) are ongoing in Greece and Spain.

Conclusions and Recommendations

11. The implementation of the SSAP shows encouraging progress in some Range States, but others continue to face significant challenges, particularly due to conflict, funding shortages, and limited capacity. The differences in progress among Range States underscore the need for continued support, resource mobilization, and stronger collaboration at the regional level.

12. Increased efforts are needed to secure additional funding and to build national capacity, particularly for activities related to monitoring, enforcement, and scientific research. Strengthening these areas will enable Range States to implement the SSAP more effectively.

13. The establishment and sustained support of the Working Group, under an efficient governance structure, is crucial. It will offer an effective forum for coordinated action, promote knowledge exchange, and help maintain momentum in implementing the SSAP across the region.

14. Where Critical Angel Shark Areas (CASAs) have been identified, Range States should work towards integrating these areas into existing or new Marine Protected Areas (MPAs). This step will help safeguard key habitats and support the long-term recovery of Angelshark populations.

15. By taking these actions, Range States can strengthen their conservation efforts for the Angelshark in the Mediterranean and contribute to the successful and coordinated implementation of the SSAP.

16. The Secretariat encourages Range States that have not yet submitted their implementation reports to do so. Comprehensive reporting will provide a fuller picture of overall progress and help identify shared challenges and opportunities for support.

Table 1: Overview of information submitted by the Range States in response to Decision 14.101(e) of the implementation of relevant activities of the Range States regarding the implementation of the Single Species Action Plan for the Angelshark (*Squatina squatina)* in the Mediterranean. (green: fully implemented; yellow: partially implemented, red: not addressed yet)

	Range States						The Shark Trust		
	Croatia	Cyprus	Greece	France[1]	Spain	Syria	Cyprus	Tunisia	Türkiye
Action	**Progress**								
1.1 Prohibition in fisheries regulations									
1.2 Species-protection									
1.3 Awareness programmes									
1.4 Monitoring and enforcement									
2.1 Data collation									
2.2 Habitat modelling									
2.3 Environmental DNA (eDNA) sampling									
2.4 Non-destructive site sampling									
2.5 Role of current MPA network									
3.1 Scientific monitoring									
3.2 Commercial fishery-dependent catch-per-unit-effort data									
3.3 Recreational fishery									
3.4 Citizen science									
3.5 Fishery-independent survey trends									
3.6 Quantification and characterization of discarded Angelshark survival and options for minimising discard mortality									
3.7 Tagging									
3.8 Population structure and connectivity									
3.9 Life-history studies									
3.10 Longer-term, historical population dynamics									
4.1 Provide Resources									
4.2 Establish an international working group (IntWG) for the Mediterranean region									
4.3 Appraise protected areas									

[1] The report from France was received after the deadline and was not incldued in the detailed summary.

Detailed Summary of Reports

Objective 1 - Ensure appropriate species-level protection for Angelshark (*Squatina squatina*)

Action Point 1.1: Prohibition in fisheries regulations

"Secure national fisheries regulations to ensure that it is prohibited to fish for, retain, tranship, and land Angelsharks (Squatina spp.) in support of GFCM Recommendation GFCM/42/2018/2 and GFCM/44/2021/16. Note it is important to also prohibit intentional catches of Smoothback Angelshark (Squatina aculate) and Sawback Angelshark (Squatina aculeata) due to the difficulty to identify and distinguish between the three Angelshark species found within the Mediterranean."

17. Four Range States (Croatia, Cyprus, Greece, and Spain) reported having domestic and EU legislation that prohibits the capture, retention, and sale of three Squatina species. Croatia enforces protection through national ordinances and requires reporting of incidental catches. Cyprus and Greece apply EU Regulation 2023/2124 prohibiting all retention and trade of Squatina species, with additional restrictions for recreational fisheries in Cyprus. Spain prohibits capture of all three species (CEEA 2019 (BOE no. 134, 5 June 2019), with Canary populations listed as "Endangered" and Mediterranean populations in the List of Wildlife Species under Special Protection Regime (LESRPE). Syria reported that Action 1.1 remains unaddressed due to the ongoing 14-year conflict and lack of funding.

18. The Shark Trust reported that Cyprus has ratified EU Regulation 342-2023 for its Northern fleet. In Tunisia, national legislation is pending ministerial signature, and a Sub-Regional Action Plan for geographical subareas (GSAs) 12, 13, and 14 is under revision. Türkiye has included *S. aculeata*, *S. oculata*, and *S. squatina* in its national legislation (Fisheries Law No: 1380 of 1971 (Communique 2018/19 updated Article 5 of the Turkish Prohibited Species lists (Communique 2016/35)).

References

- Regulation (EU) 2023/2124: https://eur-lex.europa.eu/search.html?scope=EURLEX&text=2023%2F2124&lang=en&type=quick&qid=1741257562441 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019R1241
- Terms for recreational fishing licenses in Cyprus: https://www.moa.gov.cy/moa/dfmr/dfmr.nsf/All/FDDB8ACFCAD5FF00C2258AB600269226?OpenDocument
- Spanish legislation CEEA 2019 (BOE no. 134, 5 June 2019)
- BOE-A-2019-8317 Orden TEC/596/2019, de 8 de abril, por la que se modifica el anexo del Real Decreto 139/2011, de 4 de febrero, para el desarrollo del Listado de Especies Silvestres en Régimen de Protección Especial y del Catálogo Español de Especies Amenazadas.
- Fisheries Law No: 1380 of 1971 is the main legislative instrument governing fisheries in Turkey. In 2018, Communique 2018/19 updated Article 5 of the Turkish Prohibited Species lists (Communique 2016/35), prohibiting targeting and retention of all three Squatina species found in the Mediterranean. This legislation also applies to recreational fisheries in Turkey.

Action Point 1.2: Species-protection:

"Establish national species-level protection against the deliberate killing, injuring, or taking of Angelshark. This is of particular importance for those nations where prohibited species

regulations (see 1.1) only apply to commercial fishing vessels, as additional protection against other sources of potential mortality (e.g., artisanal and recreational fisheries) may be required."

19. Four Parties reported on domestic measures relevant to Action 1.2. Croatia has legislation strictly protecting *S. squatina* and *S. oculata*, prohibiting their capture, disturbance, trade, and habitat damage, while *S. aculeata* is not included due to absence in the Adriatic. Cyprus indicated that measures under Action 1.1 also apply to Action 1.2. Spain provides legal protection for Angelshark populations through national endangered species listings, including the CEEA and LESPRE. Greece reported that no national legislation exists for the species conservation. Syria reported that Action 1.2 remains unaddressed due to the ongoing 14-year conflict and lack of funding.

20. The Shark Trust reported that in Cyprus, a draft regulation to include Angelsharks on the protected species list has been presented to the Minister for Tourism and Environment. Advisory text and zonation maps for key marine protected areas are also being developed for inclusion in a policy brief, with implementation planned for year 3. Despite ongoing discussions with the Minister for Tourism and Environment, it is currently unlikely that the protected species list will be updated solely for Angelsharks. In Türkiye, all three Squatina species are listed under national legislation (Fisheries Law No: 1380 of 1971 (Communique 2018/19 updated Article 5 of the Turkish Prohibited Species lists (Communique 2016/35)).

Action Point 1.3: Awareness programmes

"Initiate educational and awareness programmes with relevant stakeholder groups in both the fisheries sector (e.g. enforcement officials, fishing industry, fish markets) and recreational sector (e.g. recreational fishers, spearfishers, and amateur divers) as to the prohibited and/or protected status of Angelsharks With a particular focus on species identification to distinguish between the three Squatina spp., but also for classification purposes as Angelsharks are often reported as rays and not sharks. Share resources already developed by the Angel Shark Project for best practice to safely release Angelsharks if accidentally caught and the Angel Shark Sightings Map to report sightings."

21. Four Range States reported awareness-raising and stakeholder engagement activities under Action 1.3. Croatia established a voluntary Co-management Council involving local stakeholders and institutions, supported by educational materials and training. Cyprus engages fisheries officials in awareness efforts and launched campaigns under the "Protecting Angel Shark in Cyprus" project. Greece, through iSea, conducted workshops and media campaigns, and Natural Environment and Climate Change Agency (NECCA) included Angelsharks in Red List awareness videos. Spain, through the Angel Shark Project: Canary Islands (ASP:CI), developed training tools, led citizen science events like "Count the Angels," and promoted safe release protocols and public engagement.

22. Croatia noted that Angelshark catch data will be shared with the Angel Shark Sightings Map following publication in a scientific paper. Spain reported that a Draft Recovery Plan for all three Angelshark species is under internal review, with plans to implement an awareness program for key stakeholders as part of the proposed measures. Syria reported that Action 1.3 remains unaddressed due to the ongoing 14-year conflict and lack of funding.

23. The Shark Trust reported significant outreach and training activities across Cyprus, Tunisia, and Türkiye under Action 1.3. In Cyprus, fisher workshops were conducted for both northern and southern fleets, reaching over 130 fishers with training on identification, legal protection, and safe handling, complemented by wide distribution of educational materials and a Safe Release Animation. Tunisia held two fisher workshops in the Gulf of Gabès, distributing ID guides and QR stickers, with a Safe Release Animation also in production. In Türkiye, over 250 small-scale fishers were trained, with extensive outreach including poster distribution to dive

schools, government staff, and the public. Mersea Marine Consulting further created Turkish-language outreach materials, safe-release training, and stakeholder engagement through surveys and workshops along key coastal regions within Türkiye.

References

— Greece: Youtube video

Action Point 1.4: Monitoring and enforcment

"Ensure that enforcement staff undertake appropriate monitoring of commercial fisheries and landings, particularly regarding those fleets that are more likely to encounter Angelsharks. Develop, or extend, national reporting framework for collating the number of inspections undertaken (by port, fleet, and month) and instances of infringement with regards to Angelsharks."

24. Four Range States reported on implementation of monitoring and enforcement under Action 1.4. Croatia confirmed full alignment with EU Control Regulation and national fisheries legislation. Cyprus noted the use of both conventional and electronic monitoring with regular inspections and training, though no species-specific monitoring exists due to low shark landings. Additionally, Cyprus submits annual reports to the European Commission detailing shark landings by species and port, as well as detected non-compliance cases and applied penalties, in line with Regulation (EC) 1385/2003 (Art. 6). Greece reported full implementation of monitoring and enforcement measures. Spain indicated reinforced inspections at ports and partial on-board observer coverage, along with citizen reporting tools such as NORMAP and RedPROMAR.

25. Spain noted that an effort is underway for systematic monitoring, but more inspection personnel, more budgetary investment and digital integration of inspection data are required.
Syria reported that Action 1.4 remains unaddressed due to the ongoing 14-year conflict and lack of funding.

26. The Shark Trust reported that Cyprus has released the revised report "Legislative Framework for the Preservation of Angel Sharks", now available on the iSea website and shared with the Department of Fisheries and Marine Research. Mersea Marine Consulting is finalizing the Angel Shark Management Recommendations Report to enhance Angelshark protection in Türkiye.

References

Cyprus:
- Link for Regulation (EC) 1185/2003: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02003R1185-20130706&qid=1741259995264

Spain:
- Recommendation GFCM/42/2018/2: https://faolex.fao.org/docs/pdf/mul201606.pdf
- Recommendation GFCM/44/2021/16 https://faolex.fao.org/docs/pdf/mul217151.pdf
- CMS Appendices I and II: https://www.cms.int/en/species/appendix-II and II cms#:~:text=Appendices%20I%20and%20II%20of%20the%20Convention%20on,2017%2C%202020%20and%202024.%20Effective%3A%2017%20May%202024.
Reports of the General Secretariat of Fisheries and Seprona

The Shark Trust:
- https://isea.com.gr/wp-content/uploads/2024/12/iSea_Applicable-legislation-and-enforcement-for-_Angel-Shark-in-the-Republic-of-Cyprus_FINAL.pdf

Objective 2 - Identification of sites and habitats of Angelshark (*Squatina squatina*)

Action Point 2.1: Data collation

"Collate national data (including both contemporary and historic sources) regarding the presence of Angelsharks Squatina squatina (and sister taxa) from relevant sources (including published studies, commercial and recreational fisheries data, fish market data, fisher and diver interviews, citizen science programmes, trawl survey data, discard observer data, museum specimens, Angelshark survey data and historical resources) to better document the contemporary and historical occurrence of Angelsharks in national waters. Such data may also be enhanced through the collection of data on the current presence of Angelshark through the use of social media.

Such data could be usefully collated in a common format …, with institutes collating national data collaborating with other national institutes in order that more robust regional data are available. The collation of comparable data for other species of Angel Shark should also be undertaken, in order to aid in the interpretation of data for Squatina squatina. The Angel Shark Sightings Map, hosted by the Angel Shark Conservation Network, is already established, open access and widely used and could be utilised for this purpose."

27. Four Range States reported significant data collection efforts under Action 2.1. Croatia conducted three studies, including historical data collection, eDNA analysis, and habitat mapping, which led to the identification of important areas for Angelshark conservation. Cyprus is collecting data on Angelsharks through commercial fisheries, recreational fisheries, and the international bottom trawl survey in the Mediterranean (MEDITS) survey and is also participating in The Mediterranean Science Commission (CIESM) SHARKnowledge initiative. Greece is gathering species data through the EU Data Collection Framework and iSea's Angel Shark Project, with an extensive database on the species. Spain's Angel Shark Project has been collecting scientific data since 2014, identifying critical areas in the Canary Islands, and contributing to the development of the Draft Recovery Plan through sightings data and collaborative efforts. Syria reported that 180 individual Angelsharks were caught during 2001, 12 individuals during 2015–2016, and only 5 individuals during 2023.

28. Spain noted that in many other Range States, there are still no equivalent systems of structured monitoring or citizen participation, nor interinstitutional collaboration. In addition, the lack of digitization of historical data, the absence of specific funding or qualified technical staff, limits the replicability of the model. Spain's Ministry of Environment's (MITECO) Integrated Biodiversity Information System is being implemented. Syria reported that Action 2.1 remains unaddressed due to the ongoing 14-year conflict and lack of funding.

29. The Shark Trust reported that in Cyprus were 129 fisheries observer trips in 2024, recording 124 elasmobranch encounters, including 3 Angelsharks and a sawback angelshark. Additionally, 2 Angelshark and 1 sawback Angelshark records were received directly from fishers as part of a long-term bycatch monitoring project. For the southern fleet, 97 days of onboard observations were completed, covering 59% of planned observations. Tunisia examined 170 landings and conducted 155 LEK questionnaires to gather historical data on Angelshark occurrences. Türkiye collated over 120 Angelshark records from onboard observations and fisher-reported sightings. Mersea Marine Consulting compiled a geospatial database of over 150 Angelshark sightings in Turkish waters, identifying two potential reproductive habitats and one feeding area.

References

— Saad, A., Seret, B., Ali, M., 2004. Liste commentée des Chondrichthyens de Syrie (Méditerranée orientale). Rapport Commission international Mer Méditerranée, 37, 430

pp.
- Saad, A., Ali, M., Seret, B., 2006. Shark exploitation and conservation in Syria. The proceedings of the international workshop on Mediterranean cartilaginous fish with emphasis on southern and eastern Mediterranean. 14th-16th October 2006, Istanbul-Turkey, p. 202 -208.
- Alkusairy H. The Study of Catches Composition (Quantitative and Qualitative) of Chondrichthyes, and Reproductive Biology and Diet of Dipturus oxyrinchus in Syrian Marine Waters [PHD Thesis]. Syria, Lattakia: Tishreen University, Faculty of Agriculture; 2019. (in Arabic, with abstract in English), 222 p.

Action Point 2.2: Habitat modelling

"Based on data from action 2.1, undertake Angelshark habitat modelling in national waters and regional seas, in order to better understand and predict Critical Angel Shark Areas (CASAs), including habitats used by key life-history stages, including nursery, mating grounds, pupping and overwintering grounds."

30. Three Range States reported progress on identifying critical areas for Angelsharks: Cyprus is preparing a report using ecosystem modeling; Greece has identified additional sites through Important Shark and Ray Areas (ISRA) delineations; and Spain has used habitat modeling in the Canary Islands to define priority areas, integrating results into the Draft Recovery Plan.

31. Croatia noted that habitat modeling is currently not feasible due to insufficient data and funding constraints. Spain reported that a Species Distribution Model (SDM) is under development for the Mediterranean, including its national waters. Syria reported that Action 2.2 remains unaddressed due to the ongoing 14-year conflict and lack of funding.

32. The Shark Trust reported that Cyprus is running a Species Distribution and Spatial Prioritization Zonation Model to identify potential CASAs, with a layman's report under expert review. Türkiye plans to complete CASA mapping in early 2025. In parallel, Mersea Marine Consulting in Türkiye has developed mapped distribution layers and is finalizing habitat modelling, supported by local ecological knowledge interviews across the Marmara Sea to identify areas suitable for long-term Angelshark protection.

References

- Giovos, I., Katsada, D., Spyridopoulou, R. N. A., Poursanidis, D., Doxa, A., Katsanevakis, S., Kleitou, P., Oikonomou, V., Minasidis, V., Ozturk, A. A., Petza, D., Sini, M., Yigin, C. C., Meyers, E. K. M., Barker, J., Jiménez-Alvarado, D., & Hood, A. R. (2022). Strengthening Angel Shark Conservation in the Northeastern Mediterranean Sea. Journal of Marine Science and Engineering, 10(2), 269. https://doi.org/10.3390/jmse10020269

Action Point 2.3: Environmental DNA (eDNA) sampling

"Undertake eDNA sampling of appropriate areas (i.e., former, current and potential Angelshark habitats identified in 2.2) to gauge potential presence of Angelshark in the region."

33. Two Range States reported on the use of eDNA under Action 2.3. Croatia conducted eDNA analysis to confirm the presence of Angelsharks in the Molat archipelago. Spain proposed eDNA as a non-invasive tool to support habitat model validation and detect Angelsharks in areas with low visibility, noting its successful use in other regions for cryptic species.

34. Five Range States reported that eDNA sampling has not yet been implemented. Croatia and Spain cited funding and capacity limitations, while Cyprus noted that although habitat identification is ongoing, eDNA analysis is not currently planned.
Syria reported that Action 2.3 remains unaddressed due to the ongoing 14-year conflict and lack of funding.

References

- Thomsen, P. F., & Willerslev, E. (2015). Environmental DNA–An emerging tool in conservation for monitoring past and present biodiversity. Biological conservation, 183, 4-18.
- Valentini, A., Taberlet, P., Miaud, C., Civade, R., Herder, J., Thomsen, P. F, Dejean, T. (2016). Next-generation monitoring of aquatic biodiversity using environmental DNA metabarcoding. *Molecular ecology*, *25*(4), 929-942.

Action Point 2.4: Non-destructive site sampling

"Depending on the results of 2.1, 2.2, and/or 2.3, undertake non-destructive surveys (e.g., underwater visual census) of contemporary/potential Angelshark habitat to determine whether effective non extractive field programmes could be developed in order to monitor localised populations of Angelshark."

35. Two Range States reported using non-invasive visual survey methods to monitor Angelsharks. Croatia conducted underwater visual censuses and habitat mapping in the Molat archipelago, while Spain's ASP:CI has used systematic coastal visual sampling since 2014, supported by participatory protocols for divers and snorkelers, proving effective in identifying critical habitats.

36. Three Range States reported limited progress in visual survey efforts. Croatia noted a lack of underwater visual census (UVC) data due to funding constraints. Cyprus is currently working to identify contemporary and potential Angelshark habitats, while Greece has yet to determine such areas. Syria reported that Action 2.4 remains unaddressed due to the ongoing 14-year conflict and lack of funding.

Action Point 2.5: Role of current MPA network

"Undertake appropriate sampling (e.g., eDNA sampling, underwater visual census) of existing Marine Protected Areas which may provide suitable habitat for Angelshark, in order to ascertain the likely presence/absence of Angelshark and the effectiveness of conservation measures in place in the current MPA network."

37. Four Range States reported varying progress on integrating Angelshark conservation into marine protected areas (MPAs). In Croatia, studies have been conducted in Natura 2000 areas, but current management plans do not address Angelshark conservation. Cyprus is conducting visual surveys in MPAs and is assessing potential overlap with critical habitats. Greece reported that identified CASAs do not fall within the national MPA network. Spain is evaluating overlap between Angelshark habitats and MPAs, with efforts underway to improve management and expand protective zones.

38. Two Range States highlighted data limitations for incorporating Angelshark conservation into MPA management. Croatia noted that additional funding is needed to collect the data required for including Angelshark measures in Natura 2000 plans. Spain is conducting a study on MPA overlap with Angelshark distribution in the Mediterranean, though no sightings have been reported in the region to date. Syria reported that Action 2.5 remains unaddressed due to the ongoing 14-year conflict and lack of funding.

39. The Shark Trust reported that Cyprus included the Angelshark conservation as part of the Species Distribution Modelling (SDM) conducted under national efforts.

Objective 3 - Support and undertake scientific studies, including data collection and liaison with the fishing sectors, to improve scientific knowledge of Angelsharks *Squatina squatina,* including population trends

Action Point 3.1: Scientific monitoring

"Based on the results of 2.1, 2.2, and/or 2.3, initiate (or expand) scientific observer programmes to ensure dedicated and robust observer coverage of those commercial fleets that may interact with Angelshark, covering Angelshark habitats in order to improve contemporary data on the presence of Angelshark and their interactions with fisheries.), and associated biological information (length, gender, females that are pregnant or giving birth)."

40. Four Range States reported efforts to monitor elasmobranch bycatch through existing frameworks. Croatia noted that data collection systems include vulnerable species. Cyprus and Greece indicated that current scientific monitoring through commercial fisheries and MEDITS surveys includes elasmobranchs broadly, with no dedicated Angelshark monitoring yet. Spain reported more targeted efforts, including onboard observers, landings monitoring, and catch cameras, with the Canary Islands implementing specific campaigns to assess interactions with artisanal and recreational fishers as part of the Angelshark Recovery Plan.

41. Cyprus reported that dedicated observer coverage for Angelsharks has not yet been initiated, pending outcomes from related habitat and presence assessments. Spain noted that while monitoring efforts exist, coverage remains inconsistent and is not yet systematic across all areas of Angelshark distribution. Syria reported that Action 3.1 remains unaddressed due to the ongoing 14-year conflict and lack of funding.

42. Mersea Marine Consulting reported the completion of fisheries onboard observing in potential CASA areas in Türkiye, with 12 months of data collection in Fethiye and 5 months in Finike.

References

- Regulation GFCM/42/2018/2 (Spain):https://www.fao.org/faolex/results/details/en/c/LEX-FAOC201606/#:~:text=The%20prohibitions%20for%20the%20conservation,landed%20in%20contravention%20of%20this
- Regulation GFCM/44/2021 (Spain): https://www.fao.org/faolex/results/details/en/c/LEX-FAOC217215

Action Point 3.2: Commercial fishery-dependent catch-per-unit-effort data

"Improved reporting of interactions with commercial fishing fleets, including data on the numbers of Angelsharks caught, fate (discarded alive or discarded dead). Comparable data on fishing effort, especially for those fleets expected to have a higher number of interactions with Angelsharks, should also be recorded. Such work could utilise the existing reporting requirements of GFCM and potentially focus on a particular 'reference fleet' as a case study."

43. Four Range States reported on monitoring and enforcement related to Angelshark catch data. Croatia stated that its practices align with the EU Control Regulation 1224/2009 and the national Marine Fisheries Act. Cyprus noted that while incidental catches of protected elasmobranchs, including Angelsharks, are reported annually to the GFCM, data remain limited due to low interaction levels. Greece implements EU Regulation (EC) 1185/2003 on shark finning. Spain

has initiated pilot efforts using artisanal fleet data and onboard observers, particularly in the Canary Islands, with plans to integrate these into mandatory bycatch reporting systems.

44. Spain reported that in many regions, standardized fishing effort and monitoring protocols by fleet are lacking. Resistance from some commercial fleets to share detailed effort or discard data, along with limited personnel for data analysis, hinders effective monitoring. Syria reported that Action 3.2 remains unaddressed due to the ongoing 14-year conflict and lack of funding.

References

- EU Council Regulation (EC) No 1185/2003: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32003R1185
- Regulation GFCM/42/2018/2: https://www.fao.org/faolex/results/details/en/c/LEX-FAOC201606/#:~:text=The%20prohibitions%20for%20the%20conservation,landed%20in%20contravention%20of%20this
- Regulation GFCM/44/2021: https://www.fao.org/faolex/results/details/en/c/LEX-FAOC217215/

Action Point 3.3: Recreational fishery

"Encourage reporting of sightings to both the relevant national fisheries institute and the Angel Shark Sightings Map22. Adapt and distribute a code of conduct to safely release Angelsharks if accidentally caught (already developed by the Angel Shark Project) to the recreational fishing community."

45. Four Range States reported on actions related to recreational fisheries and Angelshark conservation. Croatia noted that a new data collection framework for recreational fisheries is under public consultation, with annual surveys including bycatch of vulnerable species. In Cyprus, projects such as "Protecting Angelshark in Cyprus" and "MedByCatch" have enabled recreational fishers to report incidental captures, including the first record of *S. aculeata* in 50 years. Greece reported only one recreational capture through citizen science. Spain highlighted outreach by the ASP: CI, including the creation of a Code of Conduct, campaigns for sighting reports, and integration of recreational fisher data in the Draft Recovery Plan.

46. Spain reported a low perception of the impact of recreational fishing on Angelshark, which limits its inclusion in fisheries or marine policies. Additionally, there is a lack of institutional integration with recreational associations and poor coordination within recreational fisheries. Syria reported that Action 3.3 remains unaddressed due to the ongoing 14-year conflict and lack of funding.

47. Mersea Marine Consulting reported plans to publish best practices for recreational fishers in Türkiye.

Action Point 3.4: Citizen science

"Through awareness programmes developed in Action 1.3, encourage reporting of Angelshark sightings to both the relevant national fisheries institute and the Angel Shark Sightings Map22, whether amateur or commercial divers, recreational fishers or someone sighting them in a market. Adapt and share a code of conduct for scuba and snorkel23 (already developed by Angel Shark Project) with the diving community."

48. Four Range States reported ongoing efforts to engage recreational fishers and divers in Angelshark conservation. Croatia developed and disseminated a brochure for recreational divers with conduct rules. Cyprus and Greece, through iSea, promote the Angel Shark

Conservation Network (ASCN) and The Mediterranean Elasmobranch Citizen Observation Project (M.E.C.O.) project, with over 1000 and 3000 shark and ray records, respectively. Spain's ASP:CI has produced training materials, workshops, and identification guides, improving citizen science data quality and coverage, and enabling the collection of hundreds of annual sightings through platforms like RedPROMAR, iNaturalist, and Count the Angels.

49. Croatia reported that expanding awareness programs to encourage reporting of Angelshark sightings requires additional staff and funding. In Spain, there is a lack of coordination with dive operators and insufficient funding for long-term educational campaigns. Efforts have mainly focused on the Canary Islands, as no confirmed records of Angelshark exist in the Spanish Mediterranean. Additionally, there is a need to update reporting maps and carry out a detailed analysis of the data. Syria reported that Action 3.4 remains unaddressed due to the ongoing 14-year conflict and lack of funding.

50. Mersea Marine Consulting is promoting the Angel Shark Sightings Map and engaging divers to monitor Angelshark 'beds'. They have also introduced stickers with QR codes to facilitate the reporting of Angelshark sightings in Türkiye.

Action Point 3.5: Fishery-independent survey trends

"For any areas of localised Angelshark abundance or suitable Angelshark habitat (as surveyed under Actions 2.2, 2.3 and 2.4), initiate standardised, longer-term, non-destructive monitoring programmes to understand seasonal and annual trends in the presence and relative abundance of Angelsharks. Such work could involve collaborative studies with relevant stakeholder groups (e.g., commercial fishers, recreational fishers, divers etc.)."

51. Two states reported progress on Angelshark conservation efforts. Greece noted that iSea is working with the fishing fleet in East Lemnos and Nysiros, where over 30 Angelsharks have been released. Spain has implemented pilot monitoring programs in the Canary Islands through ASP:CI, utilizing the Sightings Map and *the "*Count The Angels" program as part of a citizen science initiative.

52. Three Range States reported challenges in fishery-independent surveys for Angelsharks. Croatia highlighted the need for additional staff and funding to expand its surveys. Cyprus noted that trends in fishery-independent surveys are pending due to ongoing actions in Actions 2.1, 2.2, and 2.3. Spain faced difficulties with sustaining long-term funding for regular campaigns, lack of harmonized regional protocols, and poor integration of data into official fisheries monitoring systems. Syria reported that Action 3.5 remains unaddressed due to the ongoing 14-year conflict and lack of funding.

References

— Greece: https://www.facebook.com/iSea.org/videos/447812561476856

Action Point 3.6: Quantification and characterization of discarded Angelshark survival and options for minimising discard mortality

"Depending on the results of Action 3.1 and 3.2, detailed studies are needed to provide more robust estimates of discard survival (at-vessel mortality and post-release mortality) of Angelsharks from commercial fleets. Such work should be undertaken in conjunction with current levels and patterns of fleet activity and should be designed in such a way that would decrease fishing mortality on Angelsharks. Such work should also identify where changes in fisher behaviour (e.g., soak times of nets) can prevent or minimise mortality of incidentally caught Angelshark."

53. One Range State, Spain, has initiated preliminary trials on the status of Angelsharks caught and released in artisanal fisheries in the Canary Islands. ASP:CI has developed a Code of Conduct with best practices for minimizing damage during release. Additionally, specific protocols for post-release analysis, including resistance and recovery, have been designed and distributed.

54. Croatia highlights the need for additional staff and funding to quantify and characterize discarded Angelshark survival and explore options for minimizing discard mortality. Cyprus reports that available data on incidental catches are rare, preventing detailed studies on discard survival from commercial fleets. Greece notes that data are scattered, making analysis difficult. Spain faces technical challenges in implementing post-release monitoring protocols, such as tagging and cameras, and struggles with limited systematic data and funding for evaluating post-discard mortality rates regionally. Additionally, studies in Spain indicate a mortality rate of about 40% for other species, and there is poor cooperation with industrial fleets in some countries. Syria reported that Action 3.6 remains unaddressed due to the ongoing 14-year conflict and lack of funding.

Action Point 3.7: Tagging

"For any areas of localised Angelshark abundance (as surveyed under Action 2.4), consider the utility of visual and/or electronic tagging to inform on seasonality, habitat use, home range and movement. Such studies should be designed carefully and follow an ethical review process, to avoid increasing mortality."

55. Two Range States reported progress on tagging efforts for Angelsharks. Greece will conduct conventional tagging in East Lemnos, with satellite tagging scheduled for 2026. In Spain, visual and acoustic tagging studies have already been developed by the ASP:CI in the Canary Islands, with visual tagging involving hatchlings and adults in the eastern islands and Tenerife, and acoustic tagging starting in the marine reserves of La Graciosa and the Lobos corridor. These efforts have provided valuable data on Angelshark space use, and the ethical and methodological design has been validated by expert workshops and scientific committees from the Zoological Society of London (ZSL), the University of Las Palmas de Gran Canaria (ULPGC), and the University of La Laguna (LIB).

56. Three states reported challenges in advancing tagging efforts. Croatia noted that electronic tagging requires additional staff and funding. Cyprus is currently considering the utility of visual and/or electronic tagging studies as part of ongoing work on contemporary and potential Angelshark habitats. Spain highlighted the high costs of acoustic transmitters and receivers, which make it difficult to expand efforts to other regions. Additionally, visual tagging relies on the development of long-term scientific monitoring and citizen science support, and there is a lack of specialized technical capacity in some areas. Efforts in Spain have primarily focused on the Canary Islands, as there are no confirmed records of Angelsharks in the Spanish Mediterranean. Syria reported that Action 3.7 remains unaddressed due to the ongoing 14-year conflict and lack of funding.

References

— Mead, L. R., Alvarado, D. J., Meyers, E., Barker, J., Sealey, M., Caro, M. B., ... & Jacoby, D. M. (2023). Spatiotemporal distribution and sexual segregation in the Critically Endangered angelshark *Squatina squatina* in Spain's largest marine reserve. *Endangered Species Research*, *51*, 233-248.

Action Point 3.8: Population structure and connectivity

"Collect opportunistic tissue samples (e.g., from dead bycatch) and ensure appropriate longer-term archiving and storage. Subsamples of this material should be made available for scientific studies to facilitate Atlanto-Mediterranean genetic analyses to understand Angelshark connectivity in the region and global range."

57. Two Range States reported efforts in collecting tissue samples for genetic analysis. Greece's iSea has collected Angelshark tissue samples, with genetic analysis pending to explore connectivity with other Mediterranean and East Atlantic populations. In Spain, tissue samples from deceased individuals have been systematically archived in the Canary Islands since 2014, following standardized protocols by the ASP:CI. Some of these samples have been used for genetic studies on genetic diversity and kinship, and contacts with international laboratories have been established for future integrated analyses.

58. In Croatia, additional staff and funding capacities are needed to collect data on population structure and connectivity. In Cyprus, the Department of Fisheries and Marine Research (DFMR) records incidental catches of live individuals returned to the sea and may collect tissue samples from dead individuals for genetic analysis. However, the development of a common protocol for tissue collection and preservation would be beneficial. In Spain, there is a lack of specific funding for large-scale genetic analysis, limited access to samples outside the Canary Islands, and a need for transnational collaboration to enable comparative studies. Syria reported that Action 3.8 remains unaddressed due to the ongoing 14-year conflict and lack of funding.

59. The Shark Trust reported that in Türkiye some genetic material is available and ready to be shared.

Action Point 3.9: Life-history studies

"Depending on studies being undertaken under the Concerted Action Plan, relevant national institutes could usefully collect life-history information (length, sex, weight, maturity, collection of biological material for supporting studies, including genetic samples, stomach contents, tissue samples, and parasites). In accordance with the "no taking" rule described in CMS Article III (524) such work should only be undertaken when based on specimens of incidental dead bycatch and under authorised derogation from relevant national regulatory frameworks (see Objective 1)."

60. One range state reported ongoing biological sampling of Angelsharks. In Spain, biological samples from individuals killed by natural causes or incidental capture have been collected under the ASP:CI and used for morphometry and growth studies. Preliminary length-weight, sex, and maturity data have been recorded since 2014, coordinated by the Institute of Environmental Science at the University of Las Palmas de Gran Canaria (IUSA at ULPGC).

61. Croatia reported that conducting life-history studies of Angelsharks requires additional staff and funding capacities. In Cyprus, the Department of Fisheries and Marine Research (DFMR) noted that incidental catches are recorded, with live individuals returned to the sea and deceased individuals utilized for collecting life-history data. Greece highlighted the scarcity of records and lack of available information on Angelsharks. Spain identified regulatory challenges, including restrictions on permits for analyzing deceased specimens, as well as the absence of systematic elasmobranch stranding protocols at the Canary Islands, national, and international levels for collecting stranded specimens. Syria reported that Action 3.9 remains unaddressed due to the ongoing 14-year conflict and lack of funding.

62. The Shark Trust reported that in Türkiye some biological data, such as length, sex, and weight, are recorded through onboard observations.

References

- Barker, J., et al. "Angelshark action plan for the Canary Islands." *ZSL* 2 (2016): 3
- Noviello, N., McGonigle, C., Jacoby, D. M., Meyers, E. K., Jiménez-Alvarado, D., & Barker, J. (2021). Modelling critically endangered marine species: Bias-corrected citizen science data inform habitat suitability for the angelshark (*Squatina squatina*). Aquatic Conservation: Marine and Freshwater Ecosystems, 31(12), 3451-3465.

Action Point 3.10: Longer-term, historical population dynamics

"Depending on the data available (see Action 2.1), undertake analyses of longer-term population trends of Angelsharks for national waters and regional seas to understand historical population trends."

63. One range state, Spain, reported that the ASP:CI has been collecting sighting data since 2014, with some study areas, such as the Las Teresitas breeding area, having a 10-year monitoring program. This data has contributed to the development of the Angelshark Conservation Relevant Areas (ARCAs), proposed within the draft Recovery Plan for the Angelshark in the Canary Islands, based on scientific criteria analyzing population dynamics and life histories.

64. Four Range States reported challenges in conducting longer-term, historical population dynamics studies of Angelshark. Croatia highlighted the need for additional staff and funding capacities, while Cyprus and Greece mentioned limited available data for such analyses. Spain cited limitations in historical data availability, lack of technical capacity for long-term demographic analyses, insufficient funding for research, and challenges in conducting climate impact studies. Syria reported that Action 3.10 remains unaddressed due to the ongoing 14-year conflict and lack of funding.

65. The Shark Trust reported that in Türkiye all available historical national data has been gathered and interpreted and is currently undergoing preparation for inclusion in a report.

References

- Jiménez-Alvarado, D., Meyers, E. K., Caro, M. B., Sealey, M. J., & Barker, J. (2020). Investigation of juvenile angelshark (Squatina squatina) habitat in the Canary Islands with recommended measures for protection and management. Aquatic Conservation: Marine and Freshwater Ecosystems, 30(10), 2019-2025.
- Meyers, E. K., Tuya, F., Barker, J., Jiménez Alvarado, D., Castro-Hernández, J. J., Haroun, R., & Rödder, D. (2017). Population structure, distribution and habitat use of the Critically Endangered angelshark, *Squatina squatina*, in the Canary Islands. Aquatic Conservation: Marine and Freshwater Ecosystems, 27(6), 1133-1144

Objective 4 - Sufficient resources secured for long-term Angelshark (*Squatina squatina*) conservation actions

Action Point 4.1: Provide Resources

"National and regional governments secure the necessary funds for the implementation of the actions at national and regional levels. Parties shall strive to provide funds to implement priority actions in the plan and financially contribute to staff time and coordination."

66. Two Range States reported progress under Objective 4.1 to secure resources for long-term Angelshark conservation. In Cyprus, the DFMR will evaluate the possibility to include priority actions that are not addressed yet and are eligible to be funded under the EU Data Collection

Framework (Regulation (EU) 2017/1004) in future Cyprus Work Plans on Data Collection. In Spain, regional and national funds have been earmarked for Angelshark conservation actions, including the development of the Draft Recovery Plan for three species of Angelshark in the Canary Islands. ASP:CI has co-financed the development of the Recovery Plan with private funding. The Recovery Plan includes proposed conservation measures to be established in ARCAs: critical areas at the national level.

67. Spain states that many states still do not prioritize critically endangered marine species in their budgets, and that there is a lack of integration of Angelshark in national marine biodiversity agendas or environmental budgets. Spain reports that its Ministry of Agriculture, Fisheries and Food (MAPA) has blocked the approval of the Angelshark Recovery Plan in relation to measures that would regulate professional and recreational fishing. Syria reported that Action 4.1 remains unaddressed due to the ongoing 14-year conflict and lack of funding.

Action Point 4.2: **Establish an international working group (IntWG) for the Mediterranean region:**

"An IntWG will be established to coordinate and monitor the implementation of this Single Species Action Plan."

68. Three Range States reported engagement under Action 4.2 to support international coordination for Angelshark conservation. Cyprus and Greece agreed to contribute to the establishment of an IntWG, with Greece having already formed one. Spain confirmed the participation of the Ministry for the Ecological Transition and the Demographic Challenge (MITECO) in the IntWG, and Eva Meyers from the Angel Shark Project has been appointed as an additional expert.

69. Syria reported that Action 4.2 remains unaddressed due to the ongoing 14-year conflict and lack of funding.

70. The Shark Trust communicates that reports have been submitted to the IntWG for its inaugural meeting on 29–30 April 2025, for Cyprus, Tunisia, and Türkiye.

Action Point 4.3: Appraise protected areas

"Expand the existing MPA network to include any identified CASAs and the effectiveness of MPA networks is continually monitored."

71. Two Range States reported progress under Action 4.3 related to the integration of CASAs into MPAs. In Greece, CASAs have been identified, but they are currently not included in the national MPA network. In Spain, some Critical Angelshark Areas in the Canary Islands already overlap with existing MPAs. However, efforts are ongoing to expand protection through proposals for new MPAs, such as the marine corridor of Lobos, and the extension of "no take zones" within the Marine Reserve of La Graciosa.

72. Cyprus noted that the identification of the CASAs is ongoing, and the expansion of the existing MPA network is under discussion. Greece reported that it overlooked sharks in the creation of the MPAs network. Spain reported that in many countries, marine spatial planning is not aligned with the ecological requirements of Angelshark, with a lack of integrative criteria between marine biodiversity and MPA management, and a lack of integration of elasmobranchs in MPA management plans, including Marine Reserves and Natura 2000 (NR2000). Syria reported that Action 4.3 remains unaddressed due to the ongoing 14-year conflict and lack of funding.