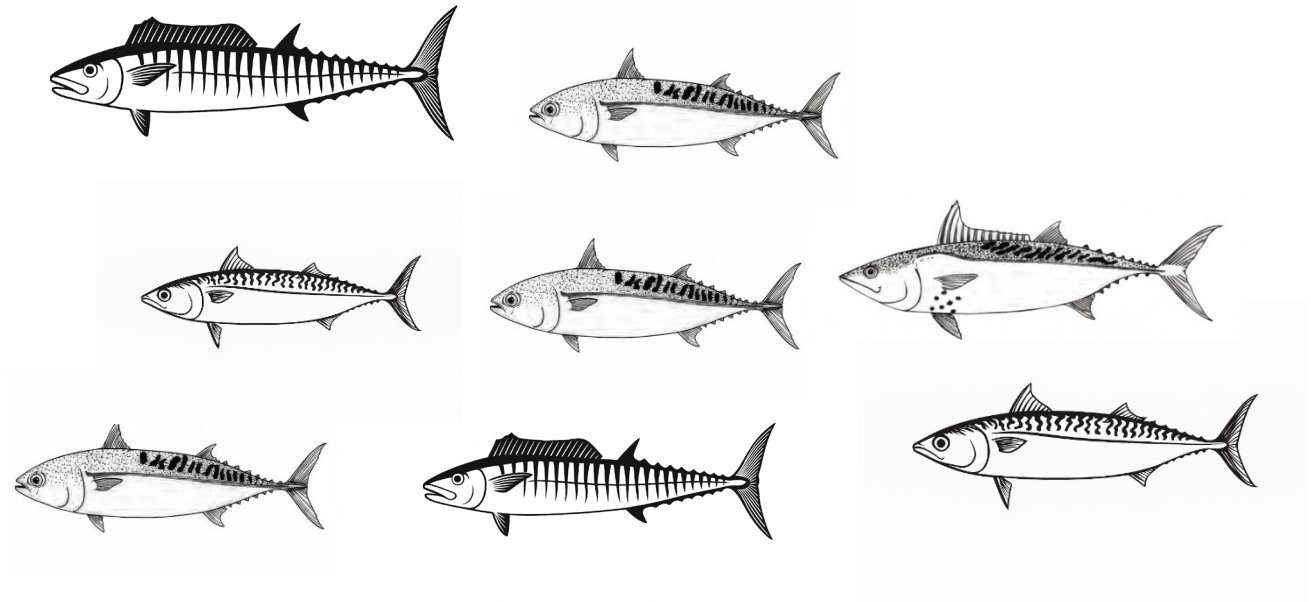
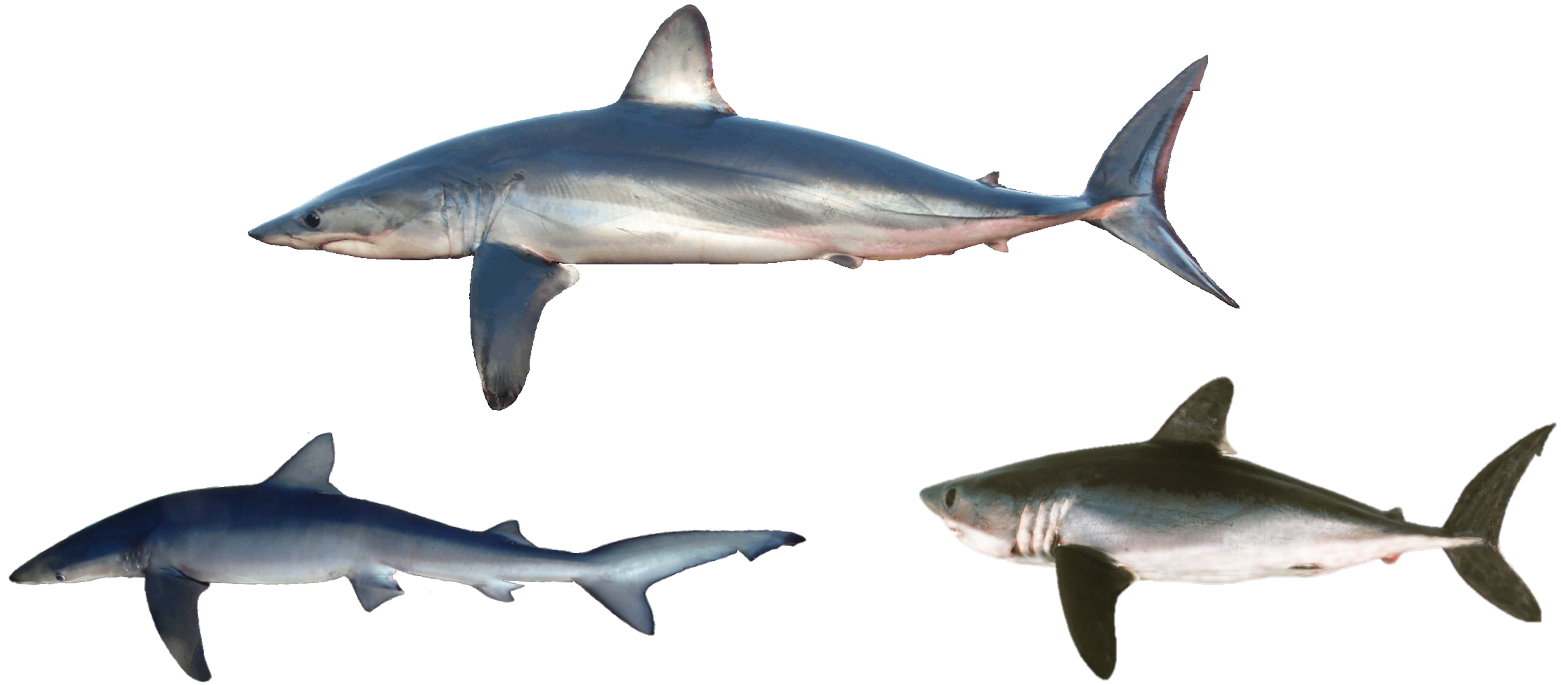
PA4 – Part 2

SMALL TUNAS (SMT)



SHARKS (SHK)

SHARK SPECIES GROUP

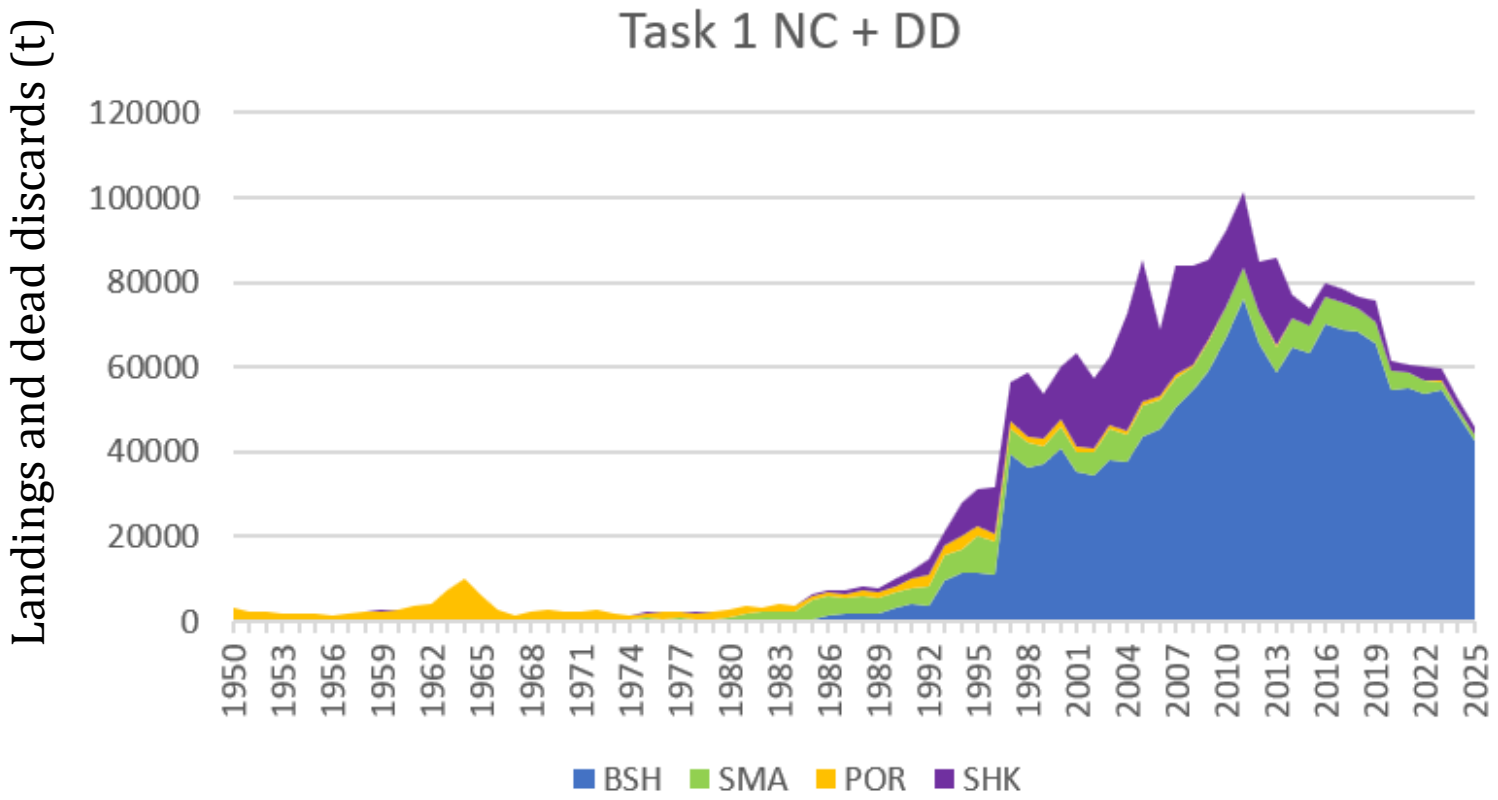


Presentation Index (Sharks)

- Review of major SHK catches and stock status.
- 2026 North Atlantic Shortfin mako (SMA) Stock Assessment.
- Progress on the Blue shark (BSH) MSE.
- Shark Research and Data Collection Programme (SRDCP).
- 2027 Workplan.
- Responses to the Commission.

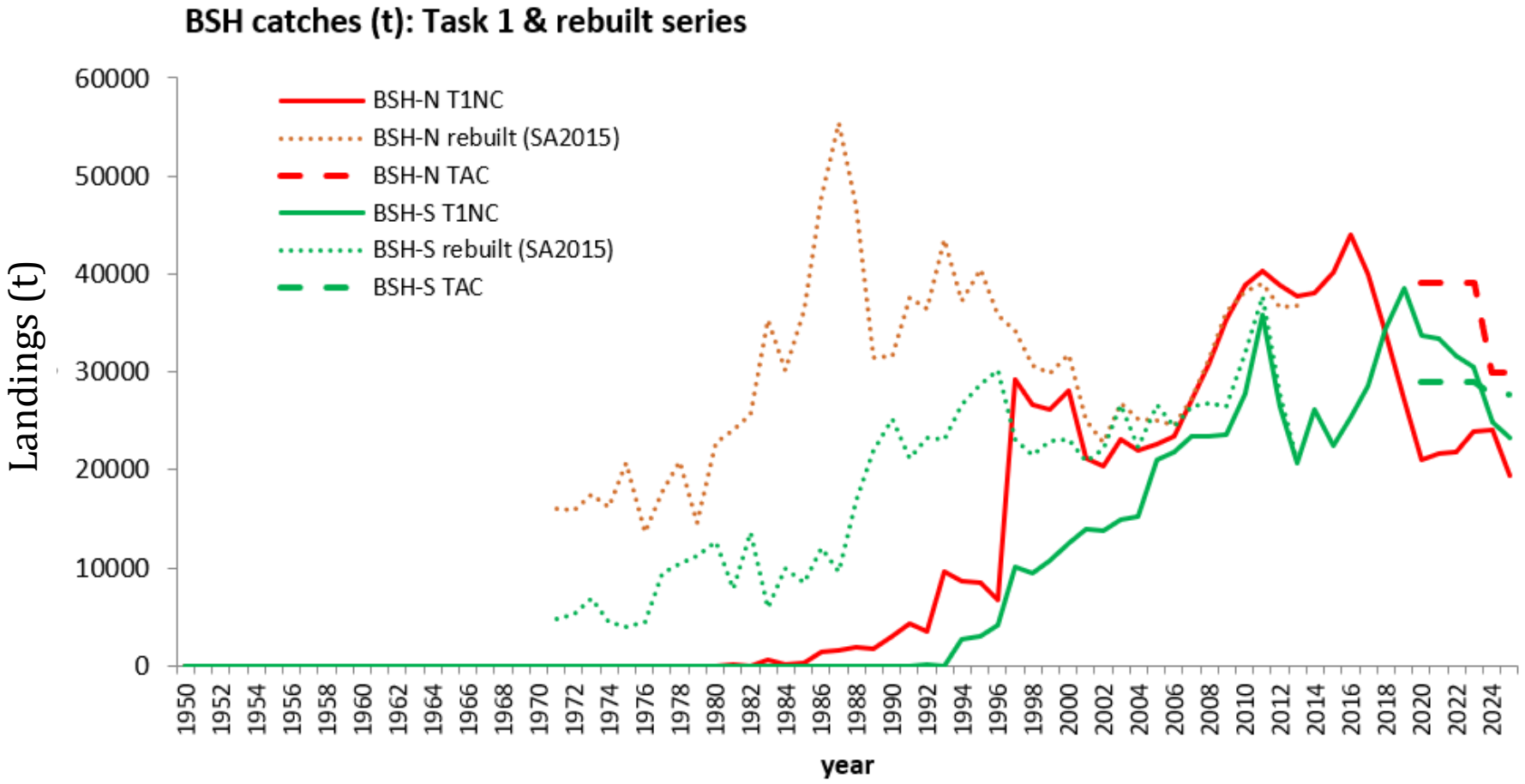
2026 Review of Major SHK catches

- Total accumulated catches by groups of sharks (major, others SHK) and year (1950 – 2025).



- Total catches 2025: 45,671 t
- 7,223 t less than 2024
- 93.5% Blue shark (BSH)

Blue shark catches



North: Captures below the TAC since 2018.

2025: 19,390 t

-4,658 t

Rec.23-10 North TAC 30,000 t.

South: Captures over the TAC 2020 – 2023.

2025: 23,251 t

-1,670 t

Rec.23-11 South TAC 27,711 t.

Blue shark stocks – status

Assessed in 2023 using data through 2021 – no new assessment in 2026.

Table 1a. North Atlantic blue shark summary table.

Indicator		*Stock Status*
Maximum Sustainable Yield (MSY)[1]	32,689 t (30,403 t - 36,465 t)	2021
TAC (2025)	30,000 t	
Current (2025) Yield[2]	19,390 t	
Relative Biomass (B_{2021}/B_{MSY})[3]	1.00 (0.75 - 1.31)	
Relative Fishing Mortality (F_{2021}/F_{MSY})[3]	0.70 (0.50 - 0.93)	
Stock Status	Overfished: NO (50.1% probability of being overfished)[4,5]	
	Overfishing: NO (0.7% probability of overfishing)[4]	
Management measures in effect	Rec. 23-10, Rec. 04-10, Rec. 07-06	

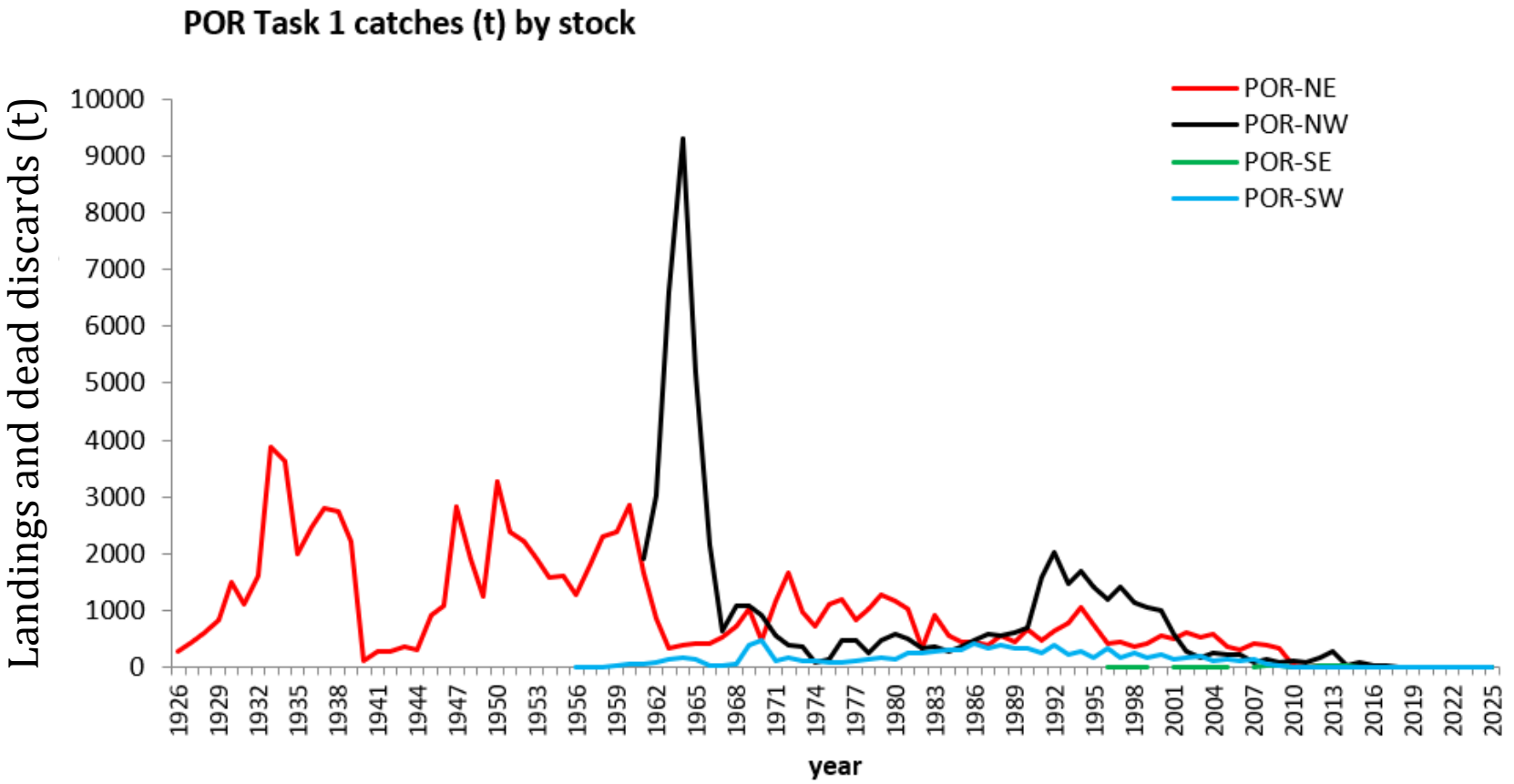
[1] Geometric mean of both models, SS3 and JABBA, with a 95% confidence interval.
[2] Task 1 catch as of 19 September 2026.
[3] Combined results from both models, SS3 and JABBA. Median with a 95% confidence interval in brackets.
[4] As estimated from the Kobe plot probability in each quadrant.
[5] Based on the median point of the estimates.

Table 1b. South Atlantic blue shark summary table.

Indicator		*Stock Status*
Maximum Sustainable Yield (MSY)[1]	27,711 t (23,128 t - 47,758 t)	2021
TAC (2025)	27,711 t	
Current (2025) Yield[2]	23,251 t	
Relative Biomass (B_{2021}/B_{MSY})[3]	1.29 (0.89 - 1.81)	
Relative Fishing Mortality (F_{2021}/F_{MSY})[3]	1.03 (0.45 - 1.55)	
Stock Status	Overfished: NO (8.8% probability of being overfished)[4]	
	Overfishing: YES (54.5% probability of overfishing)[4]	
Management measures in effect	Rec. 23-11, Rec. 04-10, Rec. 07-06	

[1] Geometric mean of both models, SS3 and JABBA, with a 95% confidence interval.
[2] Task 1 catch as of 19 September 2026.
[3] Combined results from both models, SS3 and JABBA. Median with a 95% confidence interval in brackets.
[4] As estimated from the Kobe plot probability in each quadrant.

Porbeagle shark catches



Stock	Catches 2025 (t)
POR-NE	15.09
POR-NW	13.81
POR-SE	0.50
POR-SW	0.98

Task 1 catches as of 18 September 2026.

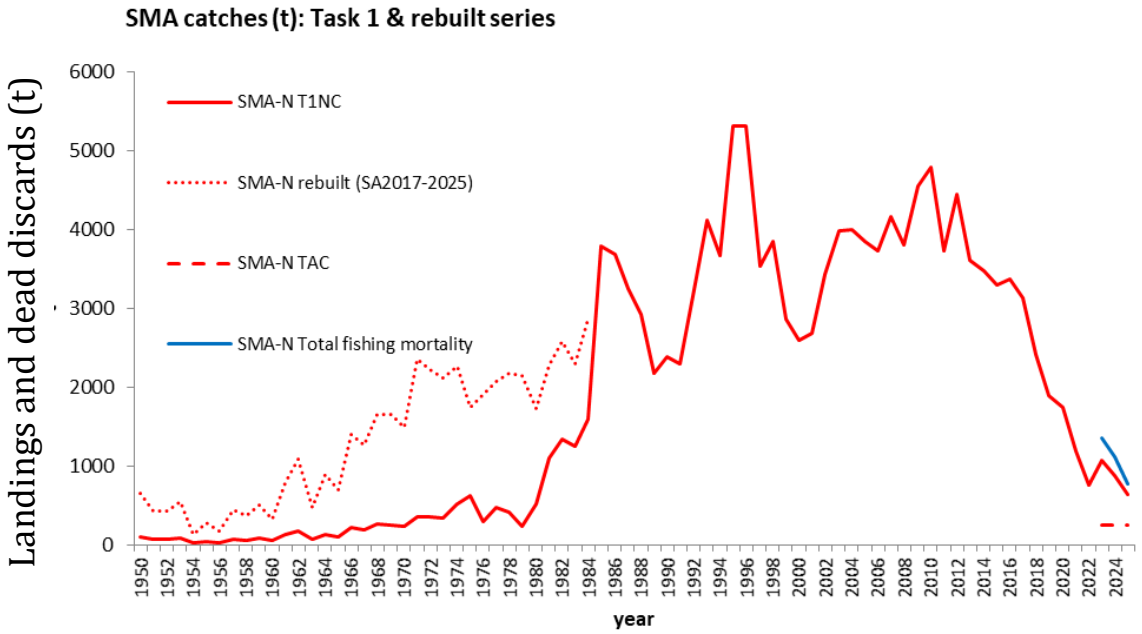
Porbeagle shark stocks – status

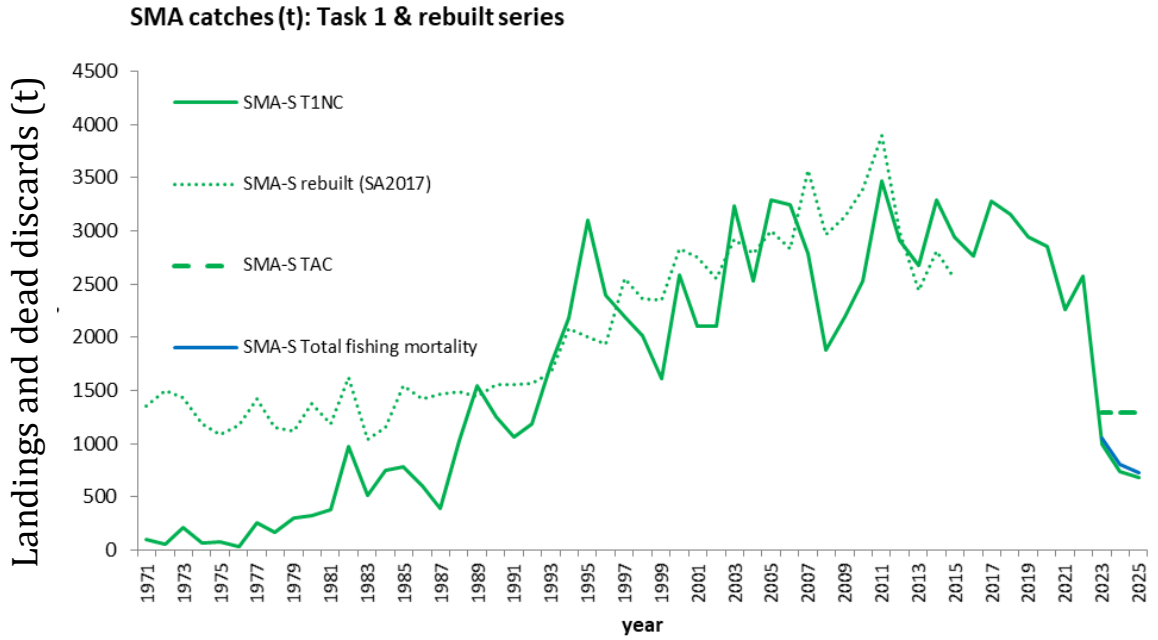
No new assessments in 2026.

Indicator	Northwest	Northeast	South (SE + SW)
Last assessment (data through)	2020 (2018)	2022 (2021)	2020 (2018)
MSY	Not available	Not available	N/A
TAC	N/A	N/A	N/A
Current (2025) yield*	14 t	15 t	1.5 t
B/BMSY	0.57 (2018)	0.464 (0.15 – 1.43) (2021)	Unknown
F/FMSY	0.413 (2010-2018)	0.013 (0.0024 – 0.073) (2021)	0.0113 (2010-2018)
Overfished	YES (98%)	YES (unknown prob.)	Undetermined
Overfishing	Unknown	NO (unknown prob.)	NO (unknown prob.)
Measures in effect	Rec. 04-10, 07-06, 15-06	Rec. 04-10, 07-06, 15-06	Rec. 04-10, 07-06, 15-06
Stock status	**2018**	**2021**	**2018**

** Task 1 catch as of 18 September 2026 (South = SW + SE). New information suggests a single South Atlantic stock; management units kept as currently defined until further research.*

Shortfin mako catches





North 2025: 631 t

-246 t

Total fishing mortality 2025: **779 t**

Rec. 21-09: 250 t

South 2025: 685 t

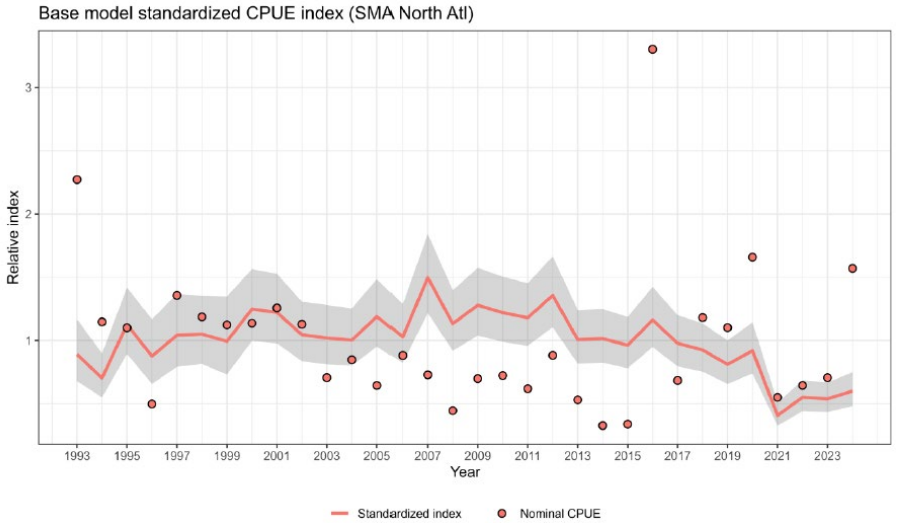
-55 t

Total fishing mortality 2025: **793 t**

Rec. 22-11: 1,295 t

2026 ICCAT North Atlantic Shortfin mako Stock Assessment

- 2025: the SMA North stock assessment could not be finalised; it was continued in 2026.
- Two informal meetings:
  - Combined CPUE index 1993–2024 (Canada, EU-Portugal, EU-Spain, Mexico, Chinese Taipei, USA, Venezuela).
  - Updated life-history parameters and natural mortality.
- Stock Assessment meeting: 8–12 June 2026 (hybrid).
- Species Group meeting: 16–18 September 2026 (hybrid).

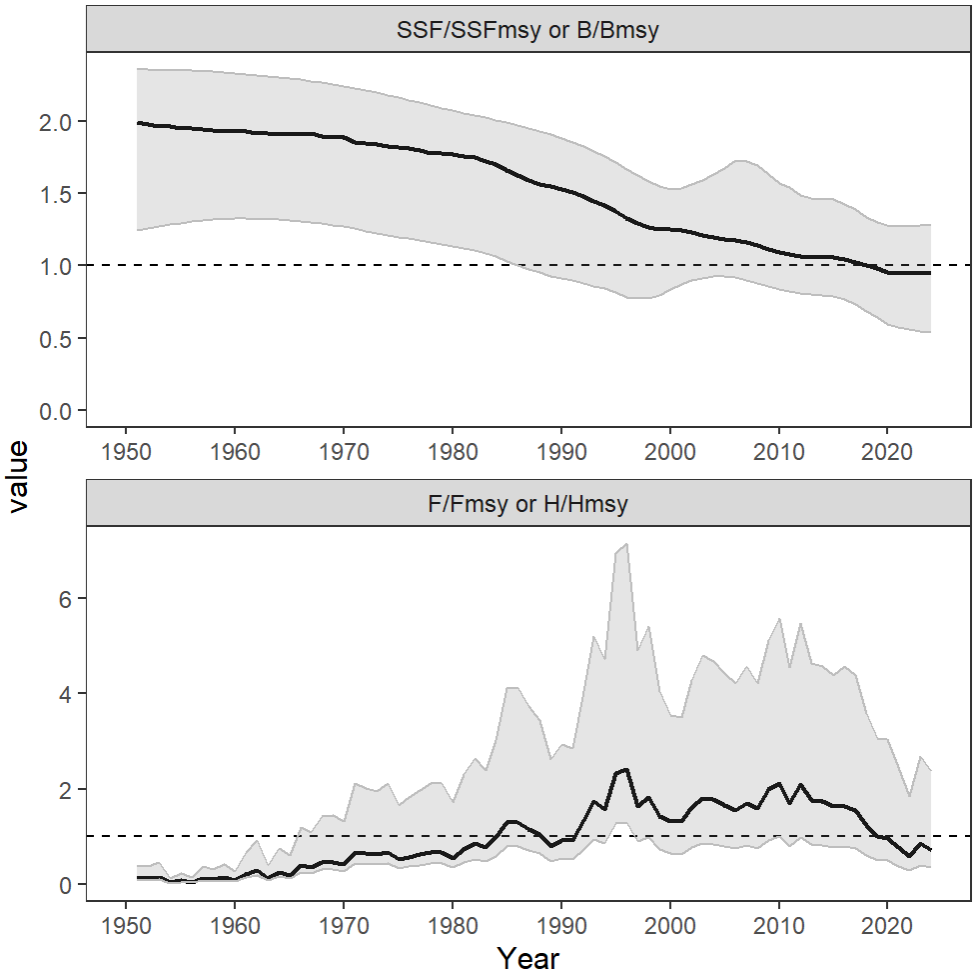


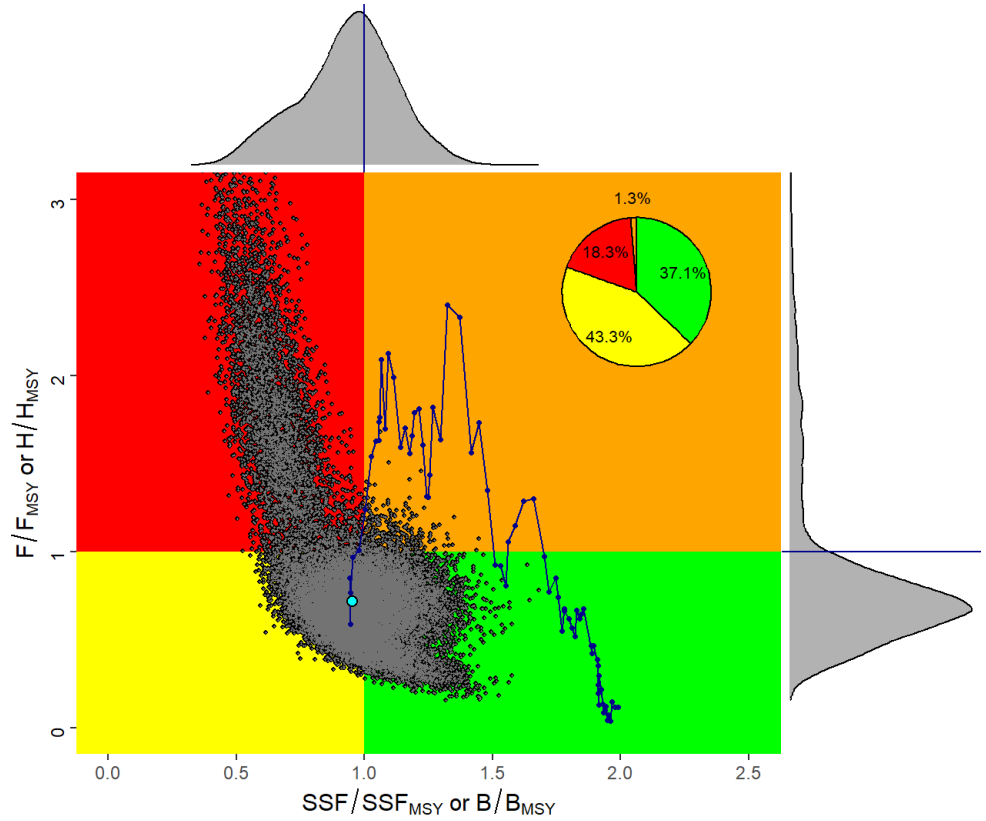
Combined standardized CPUE index (SMA North)

2026 SMA North Atlantic Stock Assessment – models

- Three platforms explored: Stock Synthesis (SS3), JABBA and JABBA-Select.
  - JABBA-Select retained for research only (not used for stock status).
- **Stock status**: 3 JABBA scenarios + 1 SS3 scenario, equal weight between platforms
- **Projections**: SS3 only – the age structure was considered important to project the dynamics of the species through 2070.
- Main drivers of the new results: updated growth and natural mortality, fishery data through 2024, new CPUE indices, lower recent catches.

2026 SMA North Atlantic Stock Assessment – stock status





Kobe plot, 2024 (combined SS3 + JABBA).

Overfished: YES
(61.6%)

Overfishing: NO
(19.6%)

Kobe quadrants 2024:

Green 37.1%

Yellow 43.3%

Red 18.3%

Orange 1.3%

North Atlantic Shortfin mako stock

Summary table (assessed in 2026 using data through 2024)

Table 1a. North Atlantic shortfin mako shark summary table.

Indicator		***Stock Status***
Maximum Sustainable Yield (MSY)	1,883 t (1,556 – 2,209 t)[1]	2024
TAC (2025)[2]	250 t	
Current (2025) Yield[3]	631 t	
Relative spawning stock fecundity (SSF_{2024}/SSF_{MSY})[4]	0.95 (0.54-1.29)	
Relative Fishing Mortality (F_{2024}/F_{MSY})[4]	0.72 (0.35-2.37)	
Stock Status	Overfished: YES (61.6% probability of being overfished) Overfishing: NO (19.6% probability of overfishing)	
Management measures in effect	Rec. 21-09, Rec. 04-10 and Rec. 07-06	

[1] Median and 95% CIs from integrated age-structured model.
[2] Refers to total fishing mortality established in Rec. 21-09 para 4a.
[3] Task 1 catch as of 18 September 2026.
[4] Range obtained from three production models and 1 integrated age-structured model. The combined time series were built based on the multivariate lognormal (MVLN) approach with 15,000 iterations for the age-structured model and 5,000 Markov Chain Monte Carlo (MCMC) for each of the production model, giving 50% of the overall weight to the one age-structured model and 50% to the three production model configurations.

SMA North – why did the stock status change?

2017 assessment (data to 2015)

90% probability of being overfished AND subject to overfishing (red).

2026 assessment (data to 2024)

Overfished (61.6%) but NOT subject to overfishing (19.6%) (yellow).

The change was attributed to several factors, including:

- new estimates of biological information providing new growth and natural mortality estimates (ICCAT-funded age-validation study ongoing);
- very substantial reduction in catches since 2015 and
- the incorporation of updated fishery data and indices through 2024.

SMA North – Kobe II Strategy Matrix (SS3 projections)

Total removals (t)	2027	2030	2035	2040	2045	2050	2060	2070	
0	50%	45%	59%	86%	96%	99%	100%	100%	
250	**50%**	**44%**	**55%**	**80%**	**92%**	**97%**	**100%**	**100%**	**Rec. 21-09**
500	50%	43%	50%	74%	87%	94%	99%	100%	
700	49%	42%	47%	68%	81%	89%	97%	99%	
1,000	**49%**	**41%**	**43%**	**60%**	**70%**	**78%**	**89%**	**95%**	**Mean TFM 2022-25**
1,100	**49%**	**40%**	**41%**	**57%**	**66%**	**74%**	**85%**	**92%**	**(1,046 t)**
1,300	49%	39%	38%	51%	59%	64%	74%	82%	
1,500	**48%**	**38%**	**35%**	**45%**	**50%**	**54%**	**62%**	**68%**	**60% by 2060**
1,600	**47%**	**38%**	**34%**	**42%**	**46%**	**49%**	**55%**	**60%**	**60% by 2070**
1,700	44%	36%	32%	38%	41%	44%	48%	51%	
1,883	**35%**	**31%**	**27%**	**30%**	**32%**	**33%**	**35%**	**36%**	**MSY**
2,000	28%	26%	22%	24%	25%	25%	27%	28%	

Probability that F ≤ FMSY and SSF ≥ SSFMSY. Selected rows of Table 3c (SHK-002); full matrix in the Executive Summary.

2026 SMA North Atlantic Stock Assessment

Management recommendation:

- Total fishing mortality has declined but remains well above the 250 t allowed by Rec. 21-09 (average 2022–2025: **1,046 t**).
- Single SS3 scenario was projected, to explicitly account for age structure; therefore, projections do not capture the full range of uncertainties considered for stock status.
- The first objective of the rebuilding plan (ending overfishing) has been achieved.
- The K2SM was updated until 2070 (Rec. 21-09) and can be used to assess the achievement or not of the second objective (biomass to support MSY, with at least 60–70% probability).
- Current biological assumptions→ the generation time is estimated to be shorter (19 *vs* 25 years), which the Commission should consider if/when updating the rebuilding plan.

South Atlantic Shortfin mako stock

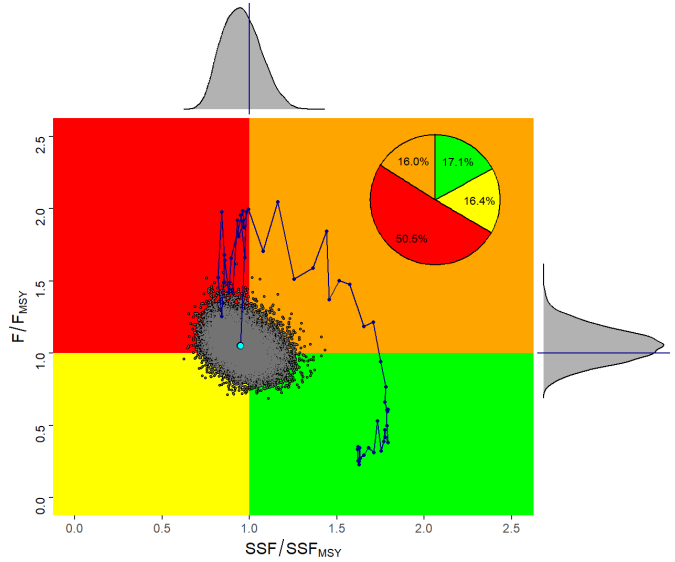
Summary table (assessed in 2025 using data through 2023) – no new assessment in 2026

Table 1b. South Atlantic shortfin mako shark summary table.

Indicator		*Stock Status*
Maximum Sustainable Yield (MSY)	1,648 t (1,519-1,795 t)	2023
TAC (2025)[1]	1,295 t	
Current (2025) Yield[2]	685 t	
Relative spawning stock fecundity (SSF_{2023}/SSF_{MSY})[3]	0.949 (0.763-1.179)	
Relative Fishing Mortality (F_{2023}/F_{MSY})[3]	1.052 (0.837-1.287)	
Stock Status	Overfished: YES (66.9% probability) Overfishing: YES (66.5% probability)	
Management measures in effect	Rec. 25-08, Rec. 04-10, Rec. 07-06	

[1] Refers to total retention allowance established in Rec. 22-11 para 3.
[2] Task 1 catch as of 18 September 2026.
[3] Equally weighted combined catch scenarios. The combined time series were built with 10,000 iterations based on the MVLN approach for each scenario.

- Total removals of 1,295 t: at least 66% probability of being in the green quadrant by 2050.



Blue shark (BSH) MSE – progress in 2026

- 2026: technical team established within the Shark Species Group.
- Prototype BSH MSE workflow operational (openMSE).
- South Atlantic: documented, reproducible workflow from stock assessment to management-procedure testing (SCRS/2026/215–217) (no MP advice yet).
- The Committee was made aware that some discussion occurred at the Commission regarding potential inclusion of target–bycatch considerations in the BSH MSE.
- The Committee discussed some options but notes that it has not yet received operational management objectives for the BSH MSE.

Blue shark MSE – next steps and input from the Commission

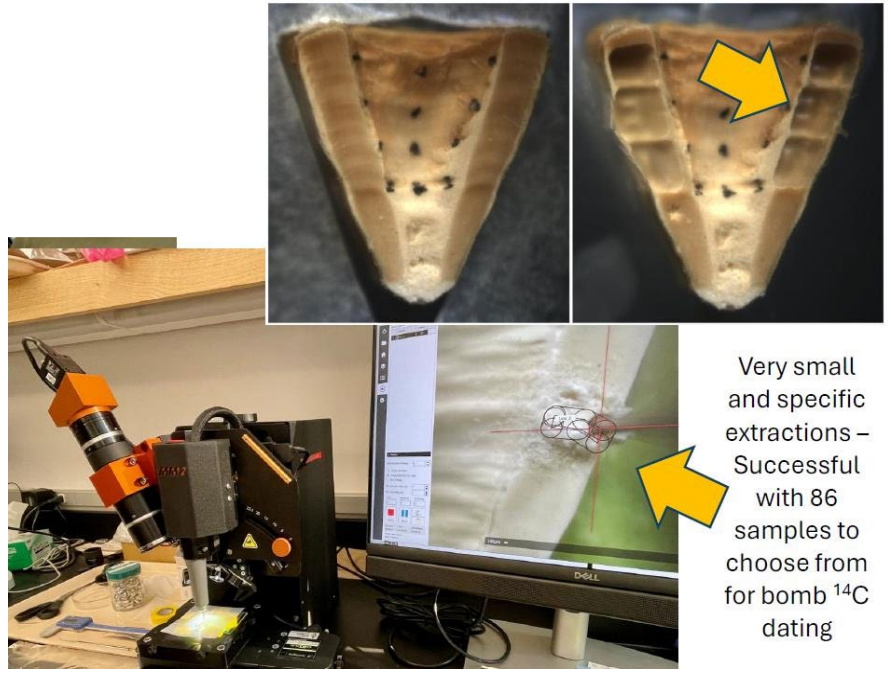
Request to the Commission

Provide management objectives for the N and S Atlantic BSH stocks, including clarity on the interest of addressing target–bycatch interactions within the MSE.

- 2027: condition/recondition the operating models with data through 2025; refine South OMs and extend the pipeline to the North stock.
- Panel 4 intersessional (July 2026) feedback: parallel development of the North and South MSEs and timeline.
- 2028: CMP development and testing; present results to PA4.

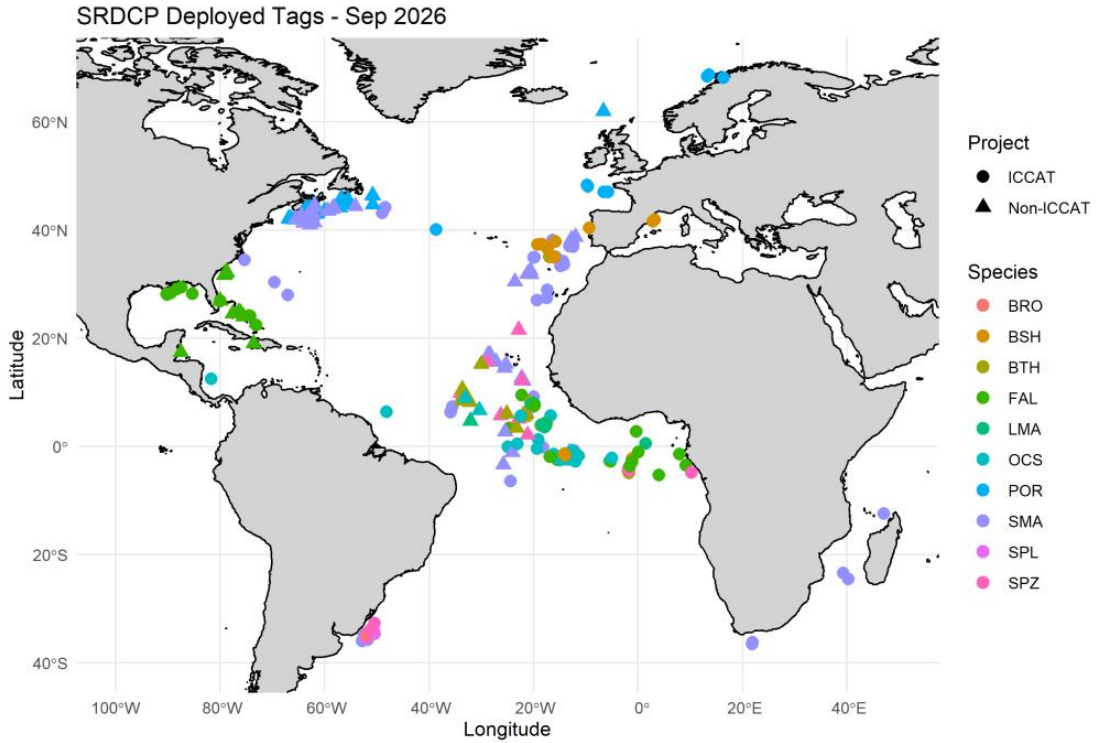
Shark Research and Data Collection Programme (SRDCP)

- **Age validation – North Atlantic SMA -** bomb radiocarbon on existing samples (annual vs biannual band-pair formation); conclusion in 2027.
- **Age and growth – other species -** priority on LMA, growth modelling finalised in 2027.
- **Porbeagle genetics -** first genetic evidence of kinship (half-siblings) in southern POR; no related pairs between SE Atlantic and SW Indian Ocean so far; final results in 2027.
- **SMA reproduction** (using hormones): no activity in 2026 (no samples from gravid females); remains a priority.



SRDCP – Tagging and Temperature Depth Recorders

- **Satellite tagging** (ICCAT tags): 52 SMA (7 in the SW Indian Ocean), 15 POR and 114 other priority species;
- **2026 tagging campaign**: 18 sharks + 6 SWO + 1 BUM + 1 SAI tagged.
- **TDR pilot study** (Recs. 21-09 and 25-08): 528 TDRs deployed on 93 longline sets; 9 capture records (4 BSH, 5 SWO).
  - Long-term study; to be extended to national observer programmes.



Sharks Workplan and Research Plan for 2027

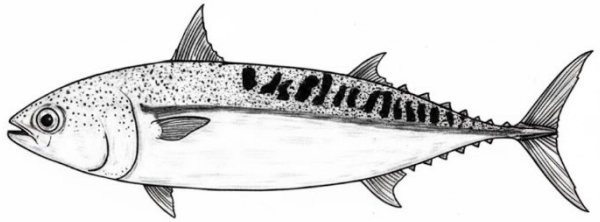
- **Mediterranean BSH stock assessment** (priority for Med BSH; also compile information on other SHK species). SCRS proposes 2 hybrid meetings, both including BSH MSE work.
  - Data Preparatory: 15–19 March 2027, data through 2025.
  - Stock Assessment: 14–18 June 2027.
- **BSH MSE (North and South):** condition the OM with length and catch data through 2025; CPCs to provide updated CPUE by the Data Preparatory meeting**.**
- **SRDCP**: continue activities; contact national scientists to evaluate SMA sampling for a CKMR feasibility update in 2028.

Responses to the Commission

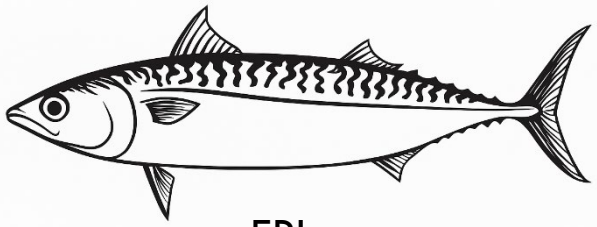
- 12 Commission requests were addressed, 8 still active
- The total retention allowance of shortfin mako, north and south, was calculated for 2027.
- Advances of SRDCP were presented as part of research on shortfin mako requested by the Commission.
- Atlantic BSH MSE activities were developed according to MSE roadmap.

SMALL TUNAS SPECIES GROUP

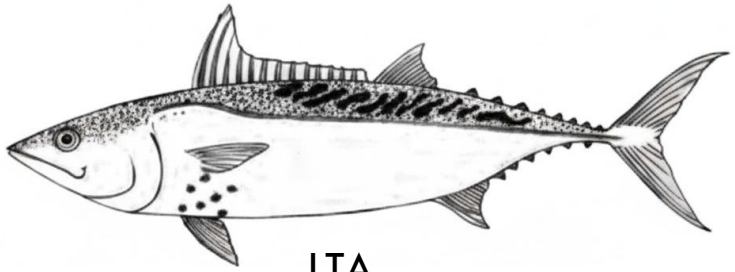
WAH



BLT



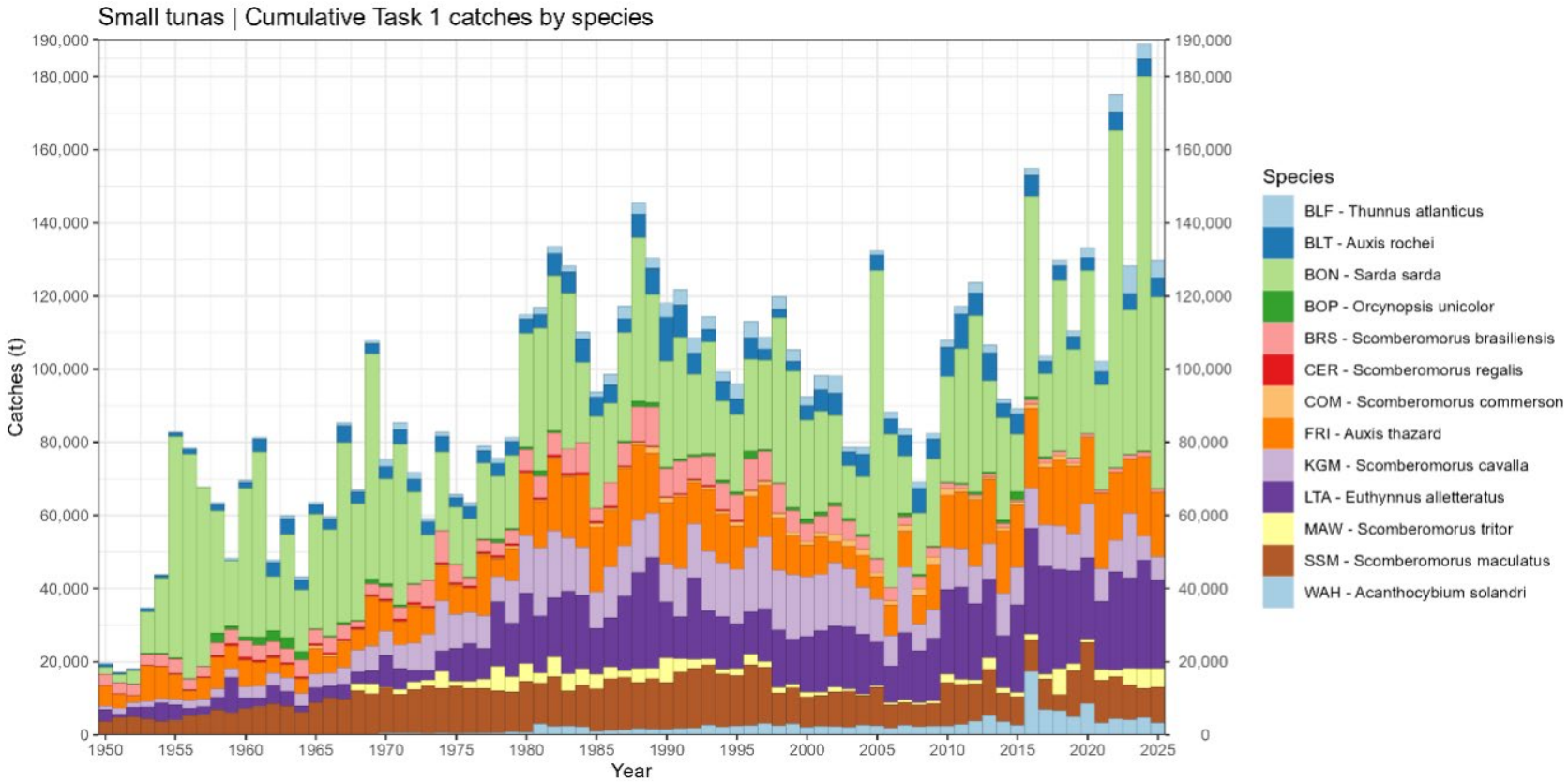
FRI



LTA

And 9 more...

2026 Review of Small Tunas catches



- Total catches 2025: **129,835 t** (13 species).
- 59,018 t less than 2024.
- Main species in 2025:

  BON 52,368 t;

  LTA 24,279 t;

  FRI 17,551 t.
- The decrease is mainly due to Mediterranean BON

Cumulative Task 1 catches by species (landings and dead discards), 1950–2025. Data as of 18 September 2026.

Small tunas – stock status

- ICCAT has never set TAC for small tunas; several regional and national regulations are in place.
- Standard fisheries indicators (MSY, B/BMSY, F/FMSY) are not available for any small tuna stock.
- Catches are underestimated: artisanal fisheries, discards or local sales by industrial fleets, and misidentification.
- Previous data-limited analyses (2019): only **LTA Southeast** and **WAH Northwest** showed signs of overfishing for most models.

Management recommendation

CPCs should implement proper monitoring programmes.

Data-limited models are a first step; more robust methods should be applied as more complete data become available.

Small Tunas Year Programme (SMTYP): overview

14
entities in the 2026 consortium

11
CPCs involved

5
species under study

- Three research areas: ageing and growth, reproductive biology and genetics.
- Species: LTA, BON and WAH (sampled since 2018); BLT and FRI (added in 2023).
- Objectives of the current contract:
  - fill size gaps for growth and maturity of BON, LTA and WAH;
  - growth and reproduction parameters for BON, LTA, WAH, FRI and BLT;
  - refine stock structure; genetic differentiation between FRI and BLT.

SMTYP: age and growth, and reproduction

Age and growth

- 2026: reference sets and growth parameters presented for **BON** and **two LTA populations**.
- **WAH**: major discrepancies between spine- and otolith-based ages
- **BLT/FRI**: most samples still need processing and genetic validation; size gaps remain.

Reproduction

- Size at first maturity and spawning season reported for **LTA, BON and WAH**.
- Gaps in size classes and months remain; monthly gonad sampling at regional scale is essential.
- High cost of purchasing whole fish and limited capacity to purchase samples and be reimbursed.

SMTYP: genetics and stock structure

BON

Two distinct populations: Group 1 (Côte d'Ivoire, Senegal, Morocco) and Group 2 (EU-Portugal, EU-Spain, Tunisia).

LTA

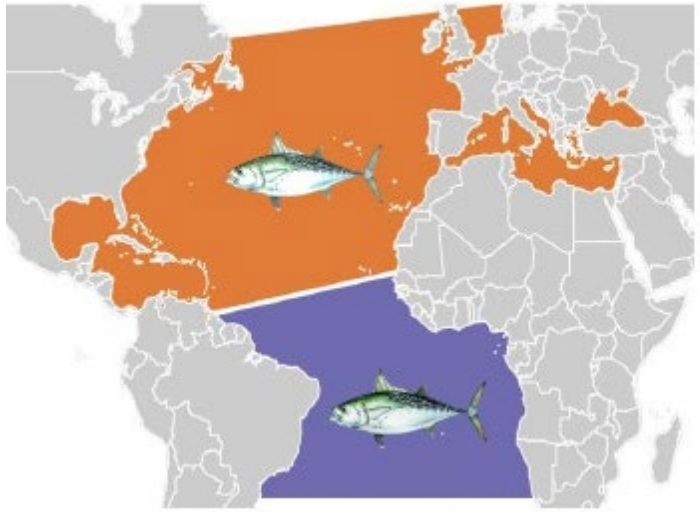
Species-level distinction between the northern Atlantic incl. the Mediterranean and the southern Atlantic.

WAH

No stock-level differences among the Atlantic regions studied.

BLT / FRI

Mixture of both species across the eastern Atlantic, unknown ratio; FRI appears predominant.

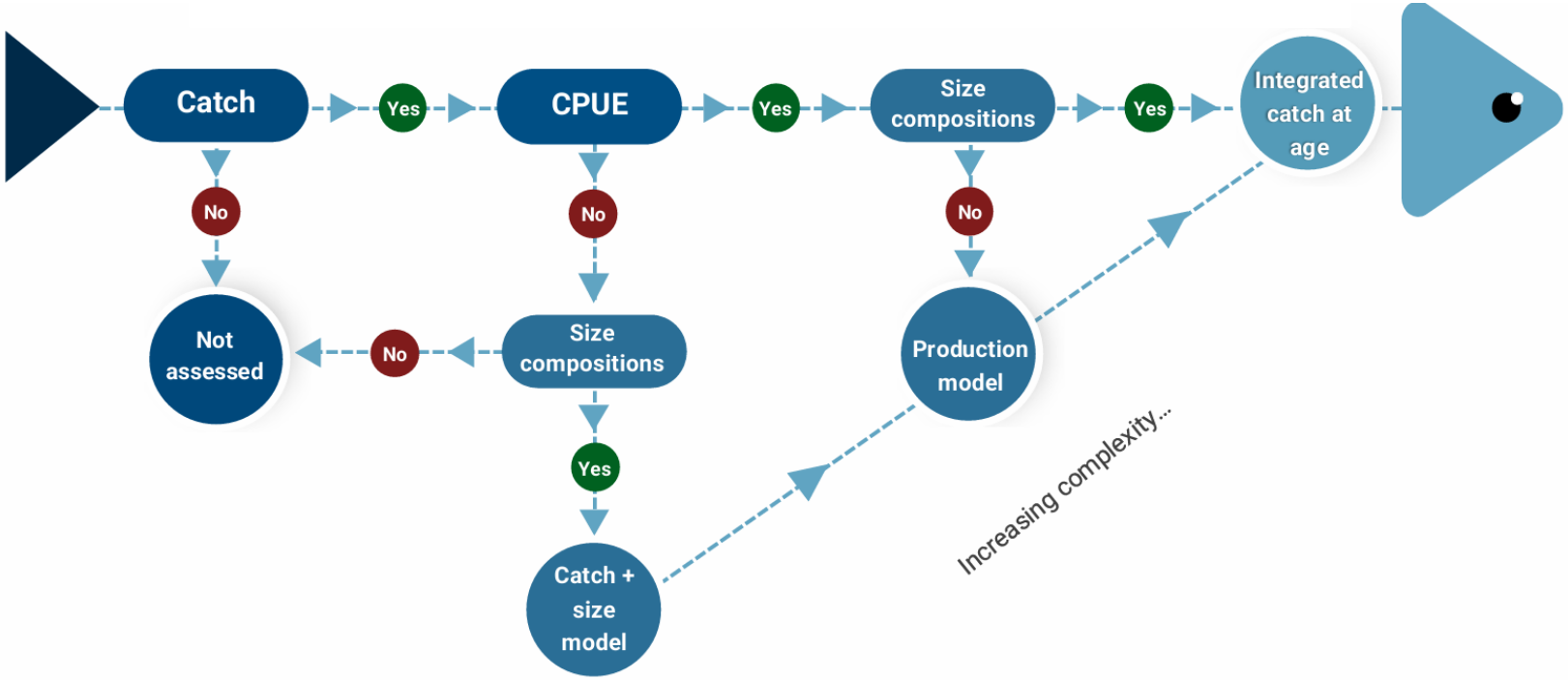


LTA: northern and southern groups.

Next phase: samples from the eastern Mediterranean, southern Atlantic and Gulf of Mexico.

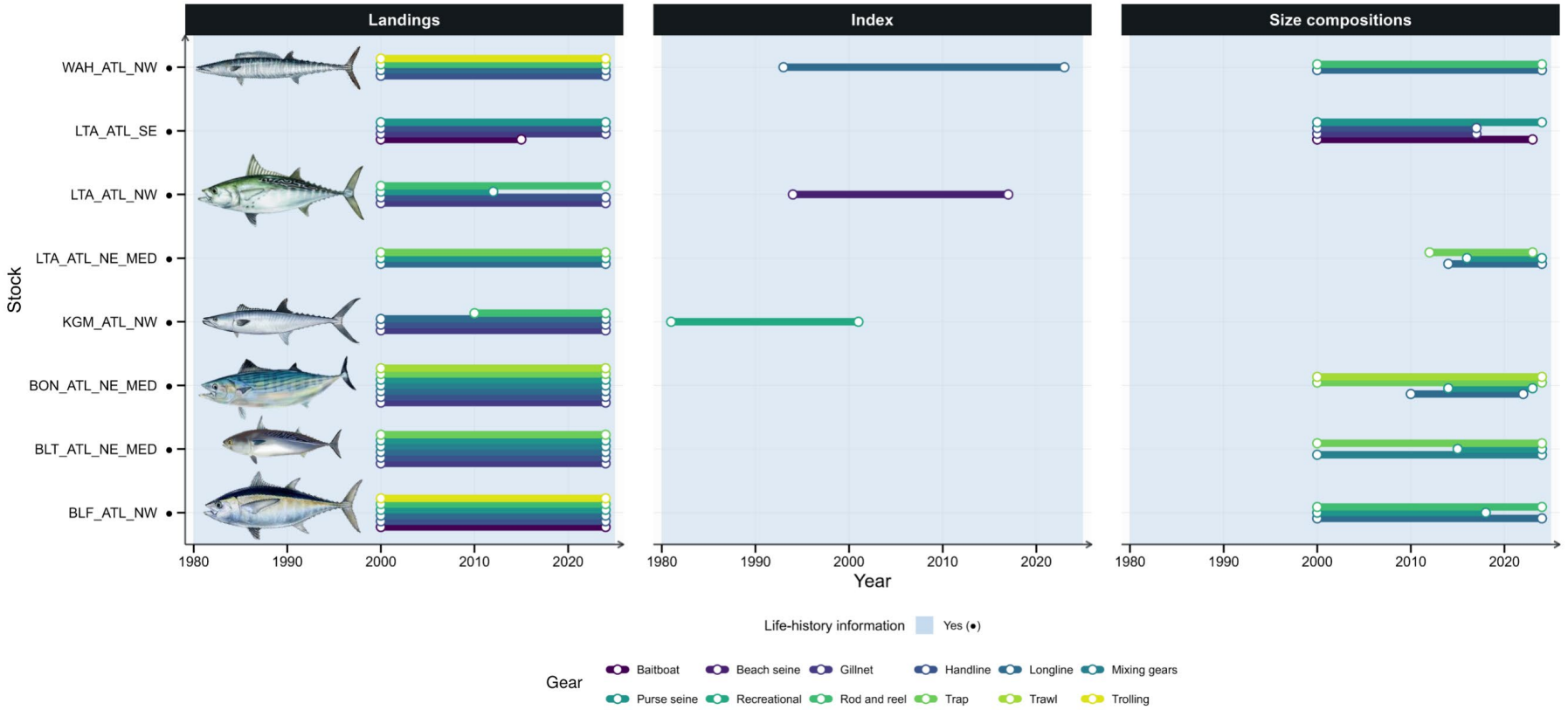
Towards the first small tuna stock assessment

Decision framework



- 2026: an expert sub-group on data-limited methods applied a **decision framework** (SCRS/P/2026/098).
- **Eight stocks** identified as primary candidates (SCRS/P/2026/102).
- Top priority for 2027: **standardized abundance indices** for these stocks.
- Goal: full assessment of at least one small tuna species (single stock) by **2028**.

Candidate stocks for the first assessment (SCRS/P/2026/102)



Eight candidate stocks:

- WAH – NW Atlantic
- LTA – SE Atlantic
- LTA – NW Atlantic
- LTA – NE Atlantic & Med.
- KGM – NW Atlantic
- BON – NE Atlantic & Med.
- BLT – NE Atlantic & Med.
- BLF – NW Atlantic

Data availability by stock: landings, abundance indices and size compositions by gear. All candidates have life-history information.

Small Tunas Workplan for 2027 and beyond

Activity	Priority	Timeframe	Leader / participation
Reproduction (1. LTA, 2. BON, 3. WAH, 4. BLT, 5. FRI)	**High**	BON by 2027; others by 2029	D. Macías / R. Borrego (EU-Spain)
Age and growth (1. BON, 2. LTA, 3. WAH, 4. BLT, 5. FRI)	**High**	Reference sets BON, LTA, WAH 2026; BLT, FRI 2027; growth parameters by 2029	R. Muñoz-Lechuga (EU-Spain)
Genetics (LTA stock boundary; FRI/BLT)	**High**	LTA, BLT and FRI by end of 2029	J. Viñas (EU-Spain)
Systematics and identification of species and stocks (biometric method)	Medium	Feasibility study 2027; training 2028	I. Talijancic, R. Muñoz-Lechuga, P. Lino
Updating the biological meta-database	Medium	Annual	P. Lino, R. Muñoz-Lechuga
Historical data collection and recovery	**High**	Paper to the 2027 SG meeting	F. Arocha, M. Shivlani, Secretariat
Small tunas stock assessment	**High**	Data preparatory 2027; assessment 2028	M. Narváez, E. Kikuchi, R. Muñoz-Lechuga, P. Lino
Update Chapter 2 of the ICCAT Manual (BON, LTA genetics)	**High**	2027	Small expert group + Secretariat
Intersessional meeting (3 days, hybrid)	**High**	2027	Small Tunas Species Group

Timeline 2026 – 2029

2026

- Decision framework applied
- Eight candidate stocks identified
- Reference sets and growth parameters for BON and two LTA populations

2027

- Data Preparatory Meeting
- Standardized indices for candidate stocks
- BON reproduction finalized
- Reference sets BLT and FRI
- Systematics feasibility study
- Historical-data paper
- ICCAT Manual Chapter 2 updated

2028

- First single-stock assessment
- Capacity-building workshop on biometric identification

2029

- Reproduction studies finalized
- Growth parameters for remaining species
- Genetic studies (LTA, BLT, FRI) completed

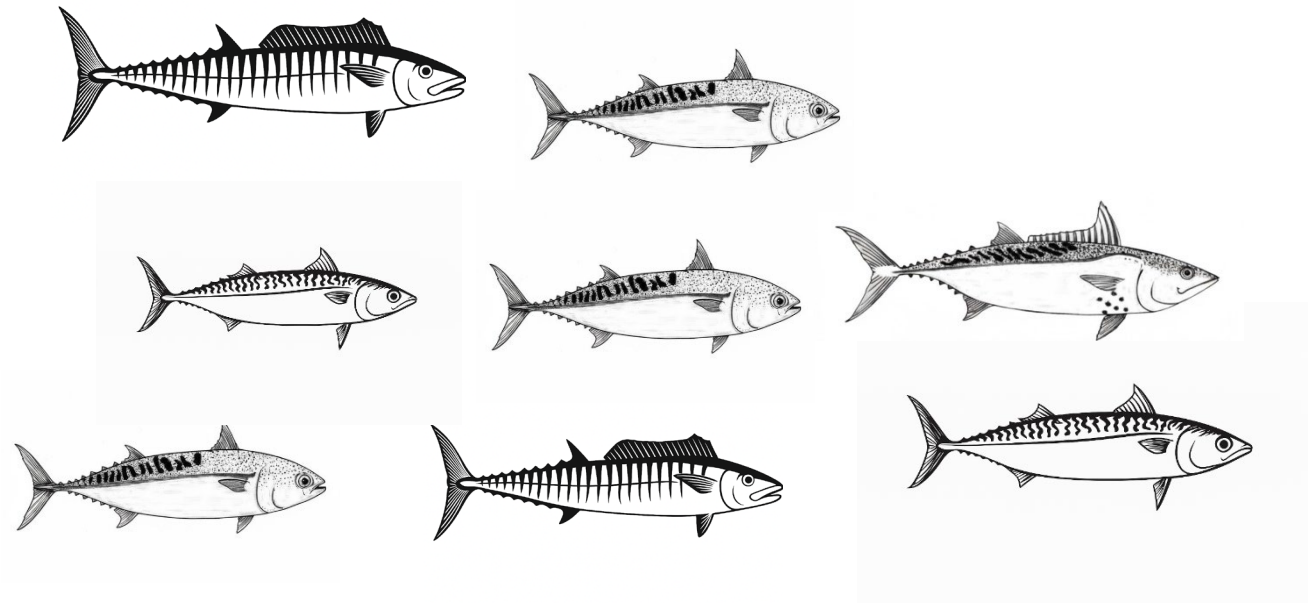
I would like to express my gratitude to the SCRS Shark Species and Small Tunas officers for their work over the years and for their collaboration in the preparation of this presentation.

SHARK SPECIES GROUP: **Mr. Rodrigo Forselledo (Uruguay)**

SMALL TUNA GROUP: **Madam N'Guessan Constance Diaha (Côte d´Ivoire)**

THANK YOU! MERCI! GRACIAS!

SMALL TUNAS (SMT)



SHARKS (SHK)