

14th MEETING OF THE SCIENTIFIC COMMITTEE

7 to 12 September 2026, Tórshavn, Faroe Islands

SC14 - DW 18

Korea's Progress Report on its Exploratory Toothfish Fishery CMM 14h-2025

Republic of Korea

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Korea's progress report on its exploratory toothfish fishery under CMM 14h-2025

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1. Executive summary

Korea conducted exploratory bottom-longline fishing in the SPRFMO Convention Area in 2025 and 2026 under CMM 14h-2025. F/V Greenstar completed 42 sets comprising 162,180 hooks from 14 May to 22 June 2025, and F/V Sunstar, replacing F/V Greenstar, completed seven sets comprising 25,560 hooks from 11 to 16 February 2026. The retained toothfish catch was 19,067.2 kg in 2025 and 40,749 kg in 2026.

The 2025 catch comprised Antarctic toothfish (*Dissostichus mawsoni*; TOA) and a smaller quantity of Patagonian toothfish (*D. eleginoides*; TOP), while only Antarctic toothfish was recorded in 2026. Toothfish catch was concentrated in Research Block N, while the other blocks sampled produced little or no catch. Because the 2026 operation was shorter and covered only Blocks L and N, the relatively high catch rate recorded that year should not be interpreted as evidence of an increase in stock abundance or as representative of the whole research block.

In 2025, 65 toothfish were successfully tagged and released, comprising 56 Antarctic toothfish and nine Patagonian toothfish, and two previously tagged toothfish were recaptured. In 2026, 125 Antarctic toothfish were successfully tagged and released, the tagging rate was 3.07 fish per tonne, tag overlap was 87%, and no tagged toothfish were recaptured.

Biological measurements were available for 71 Antarctic toothfish and six Patagonian toothfish sampled in 2025, and for 140 Antarctic toothfish sampled in 2026. Otoliths and tissue samples were collected for subsequent age and stock-structure analyses. Non-target species and VME indicator taxa were recorded during both seasons.

These results provide initial information on toothfish distribution, catch rates and biological characteristics, as well as non-target catch and VME interactions. Continued spatial coverage, consistent data collection and analysis of the collected biological and tagging data will be required to improve understanding of relative abundance and possible connectivity with adjacent areas. The Scientific Committee is invited to note the progress made during the first two fishing seasons and provide advice on the continued implementation and data priorities of the programme.

2. Introduction

In February 2025, the SPRFMO Commission approved Korea's exploratory fishery for Antarctic toothfish and Patagonian toothfish in Research Blocks L–S for the period 2025–2027 (Figure 1). The fishery is governed by CMM 14h-2025 and follows the Fisheries Operation Plan and Data Collection Plan presented in SC12-DW02_rev3.

The research objectives specified in CMM 14h-2025 are to:

- determine the distribution and abundance of toothfish in the authorised research area;

- improve understanding of toothfish stock structure and links with adjacent CCAMLR Subareas 88.1, 88.2 and 88.3; and
- collect information on the spatial and depth distribution of non-target species, including VME indicator organisms.

Korea submitted a preliminary account of the 2025 fishing season to SC13 in document SC13-DW05. This paper updates that information and reports progress through the 2026 fishing season, incorporating available fishing activity, biological, tagging, non-target catch and VME monitoring data from both years. As an interim progress report, it presents descriptive results from the first two seasons. A more comprehensive evaluation will be possible following completion of the programme and analysis of the biological samples and tagging data collected across fishing seasons.

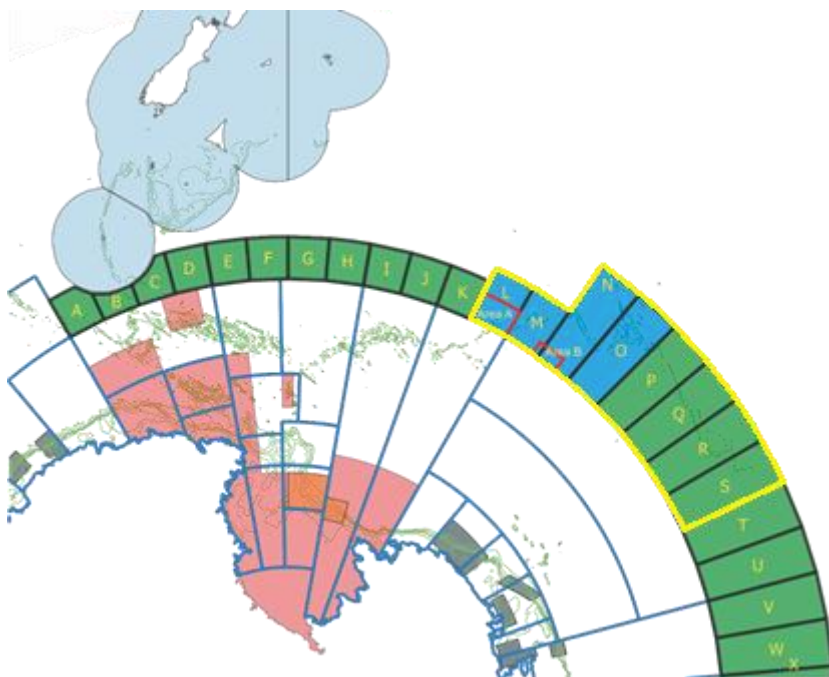


Figure 1: Proposed boundaries of research fishing in the southern SPRFMO Area by Korean vessel, 2025-2027.

3. Fishing design and data collection

Fishing was conducted using the standardised bottom-longline trotline configuration and spatial cluster design specified in the Fisheries Operation Plan. The approved design permits up to five sets per cluster, with a maximum of 6,900 hooks per set and 17,250 hooks per cluster. Clusters must be separated by at least 10 nautical miles to distribute fishing effort and reduce the risk of localised depletion. Under CMM 14h-2025, the annual combined toothfish total allowable catch is 240 tonnes, with catches of Antarctic toothfish and Patagonian toothfish combined limited to 40 tonnes per stratum.

The 2025 programme was conducted by F/V Greenstar and the 2026 programme by F/V Sunstar. Scientific observers collected set-level catch and effort data, biological measurements and samples, tagging and recapture data, and information on non-target species, vulnerable marine ecosystem (VME) indicator taxa and protected-species interactions in accordance with the Data Collection Plan.

4. Results

5.1 Fishing operations and toothfish catch

The 2025 voyage completed 42 sets across Research Blocks L-R; no sets were made in Block S. The 2026 voyage completed seven sets in Blocks L and N. Across both years, 49 sets and 187,740 hooks produced 59,816.2 kg of toothfish.

Table 1. Annual summary of fishing effort, retained toothfish catch, tagging, and nominal CPUE under CMM 14h-2025.

Year	Fishing Period	Sets	Hooks	Retained catch (kg)	Retained fish (n)	Tagged and released (n)	Total caught (n)	Nominal CPUE (kg/1,000 hooks)
2025	14 May–22 June	42	162,180	19,067.2	669	65	734	117.57
2026	11–16 February	7	25,560	40,749.0	1,413	125	1,538	1,594.25
Total	–	49	187,740	59,816.2	2,082	190	2,272	–

Note: Nominal CPUE is a simple ratio of total retained catch weight to the total number of hooks and is not standardised. The 2025 retained catch comprised 18,099.9 kg of Antarctic toothfish (TOA) and 967.3 kg of Patagonian toothfish (TOP), while the 2026 retained catch comprised TOA only. Total caught represents the sum of retained fish and fish successfully tagged and released. In 2025, the 65 toothfish successfully tagged and released comprised 56 TOA and nine TOP; in 2026, all 125 tagged and released fish were TOA.

Table 2. Fishing effort, toothfish catch and tagging by research block.

Year	Block	Sets	Hooks	Retained catch (kg)	Retained fish (n)	Tagged and released (n)	Total caught (n)	Recaptures (n)
2025	L	9	25,980	0.0	0	0	0	0
	M	3	8,160	0.0	0	0	0	0
	N	15	68,040	18,977.1	665	59	724	2
	O	2	9,600	0.0	0	3	3	0
	P	2	8,400	0.0	0	0	0	0
	Q	9	34,800	90.1	4	3	7	0
	R	2	7,200	0.0	0	0	0	0
2026	L	2	8,400	0.0	0	0	0	0
	N	5	17,160	40,749.0	1,413	125	1,538	0

Note: Retained catch and fish numbers represent Antarctic toothfish (TOA) and Patagonian toothfish (TOP) combined. The 2025 retained catch comprised 18,099.9 kg of TOA and 967.3 kg of TOP, while the 2026 retained catch comprised TOA only. The 65 toothfish tagged and released in 2025 comprised 56 TOA and nine TOP; all 125 toothfish tagged and released in 2026 were TOA. Total caught represents the sum of retained fish and fish successfully tagged and released.

4.2 Spatial distribution and relative abundance

In 2025, toothfish were recorded in Blocks N and Q, with 99.5% of the annual catch taken in Block N. In 2026, all toothfish catch was taken in Block N, while two sets in Block L produced no toothfish. The observed nominal CPUE was 278.91 kg per 1,000 hooks in Block N in 2025 and 2,374.65 kg per 1,000 hooks in Block N in 2026.

The marked difference between years is confounded by differences in fishing period, sites sampled, fishing depth and the small number of sets conducted in 2026. It therefore provides information on local catch occurrence but cannot presently be interpreted as an annual abundance trend.

4.3 Toothfish biology and samples

Individual biological measurements were available for 71 Antarctic toothfish (*Dissostichus mawsoni*) and six Patagonian toothfish (*D. eleginoides*) sampled during 2025, and for 140 Antarctic toothfish sampled during 2026. Given the small number of Patagonian toothfish sampled in 2025, the following summaries and analyses focus on Antarctic toothfish. In 2025, the 71 Antarctic toothfish comprised 38 males and 33 females. Mean total length was 150.63 cm (range: 107–179 cm), and mean body weight was 35.41 kg (range: 11–77 kg). Females were larger on average than males: mean total length and body weight were 156.42 cm and 41.64 kg for females, compared with 145.61 cm and 30.00 kg for males. In 2026, the 140 Antarctic toothfish comprised 107 males and 33 females. Mean total length was 144.68 cm (range: 97–183 cm), and mean body weight was 29.31 kg (range: 9–68 kg). Females were again larger on average than males: mean total length and body weight were 150.76 cm and 35.24 kg for females, compared with 142.80 cm and 27.49 kg for males. The relative length-frequency distributions of Antarctic toothfish sampled in each year are shown in Figure 2. Length–weight relationships were fitted separately to the annual samples of male and female Antarctic toothfish combined and are shown in Figure 3: 2025: $W = 1.80 \times 10^{-7} L^{3.7966}$ ($R^2 = 0.778$) 2026: $W = 1.83 \times 10^{-5} L^{2.8667}$ ($R^2 = 0.767$) where W is body weight in kg and L is total length in cm. These results are descriptive summaries of the fish sampled during each fishing season. No formal interannual comparison was undertaken because the samples were collected during different fishing periods and from different spatial distributions of fishing effort. Maturity observations in 2025 consisted predominantly of resting/developing females and developed males. In 2026, all sampled males were classified as resting/developing, while females were classified as either resting/developing or spent. Biological samples collected in 2025 comprised 21 pairs of otoliths, seven muscle samples, seven fin clips and seven gonad samples. Samples collected in 2026 comprised 40 pairs of otoliths, 20 muscle samples, 20 gonad samples, 20 stomach samples and 10 pairs of eyes. Age, genetic and chemical analyses have not yet been completed; consequently, no conclusions regarding stock structure or connectivity are drawn at this stage.

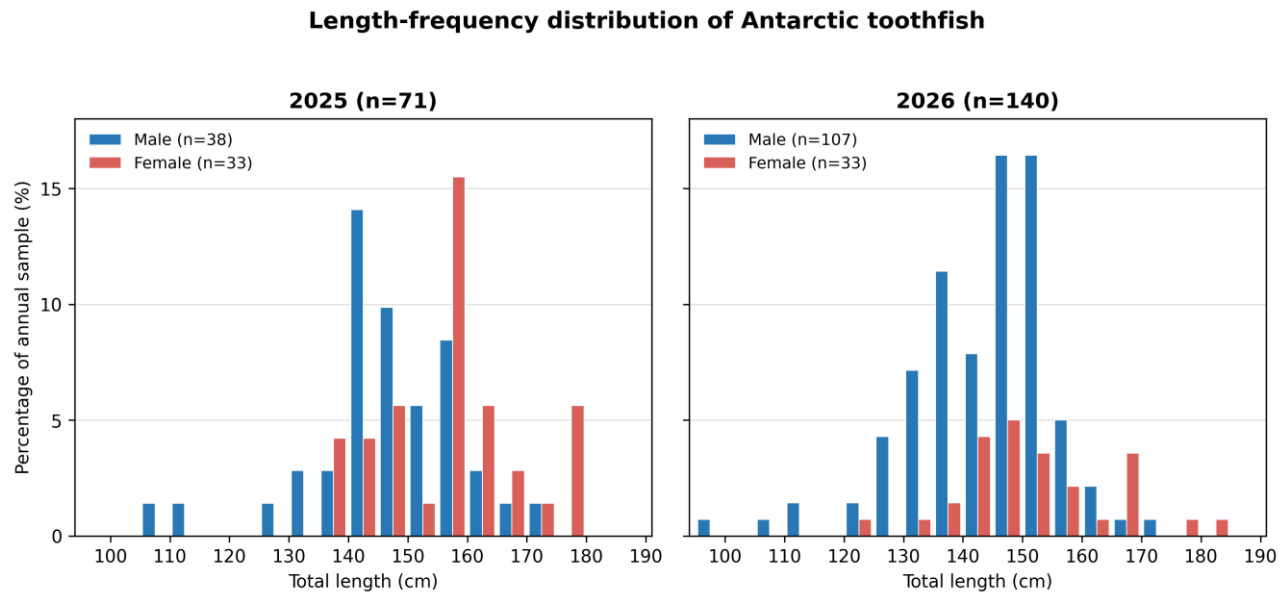


Figure 2. Length-frequency distributions of male and female Antarctic toothfish sampled during the 2025 and 2026 exploratory fishing seasons. Length classes are presented in 5-cm intervals.

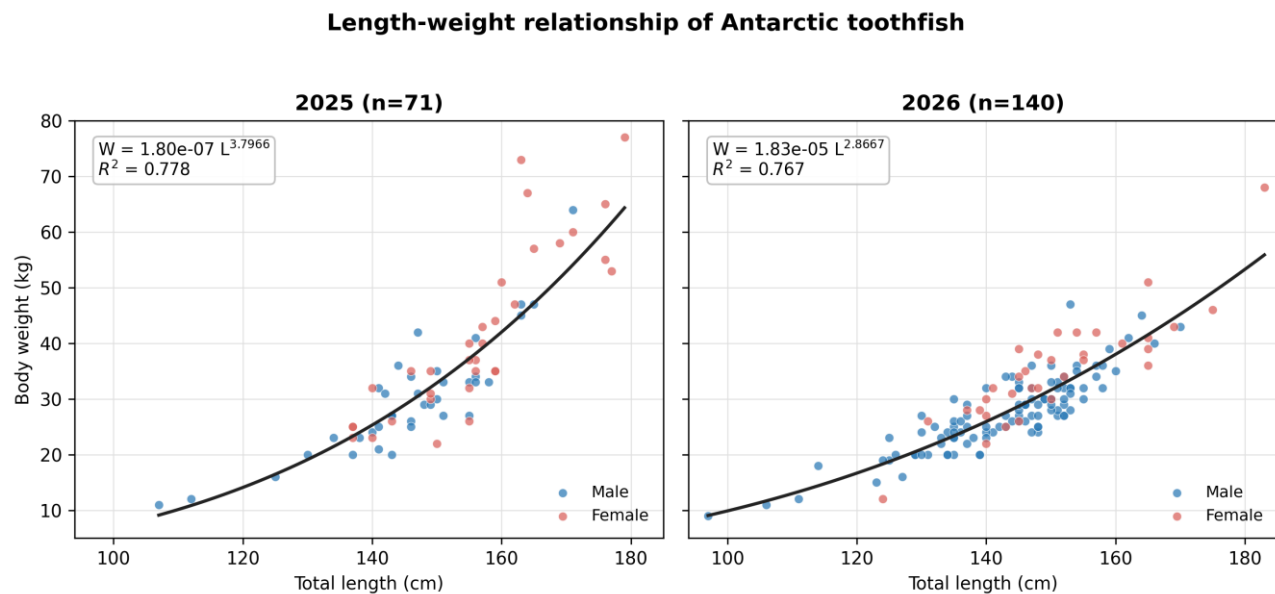


Figure 3. Length–weight relationships of Antarctic toothfish sampled during the 2025 and 2026 exploratory fishing seasons. Curves represent power relationships fitted to males and females combined.

4.4 Tagging and recaptures

In 2025, 65 toothfish were successfully tagged and released, comprising 56 Antarctic toothfish and nine Patagonian toothfish. Of these, 59 fish were released in Block N, three in Block O and three in Block Q. The species-specific tagging rates were 3.09 Antarctic toothfish per tonne of retained Antarctic toothfish catch and 9.30 Patagonian toothfish per tonne of retained Patagonian toothfish catch. Two previously tagged toothfish were recaptured in Block N.

In 2026, 125 Antarctic toothfish were successfully tagged and released, all in Block N. The tagging rate was 3.07 fish per tonne, and tag overlap was 87%. No tagged toothfish were recaptured during the 2026 fishing operation.

The species-specific tagging rates achieved in both years met the minimum requirement of three fish of each *Dissostichus* species per tonne of retained catch. The 2026 tag-overlap value exceeded both the minimum of 60% specified in CMM 14h-2025 and the operational target of greater than 80% specified in the Fisheries Operation Plan.

4.5 Non-target species

In 2025, 3,561.13 kg (1,394 individuals) of non-target catch was recorded across eight taxonomic categories. The catch was dominated by grenadiers (GRV; 1,871.31 kg, 725 individuals), followed by blue antimora (ANT; 605.99 kg, 344 individuals), Lepidion codlings (LEV; 598.74 kg, 92 individuals) and ratfishes (HYD; 311.33 kg, 62 individuals). The combined non-target catch represented approximately 15.74% of the combined toothfish and non-target catch by weight. In 2026, the non-target catch comprised 14.09 kg (11 individuals) of grenadiers, 8.70 kg (seven individuals) of blue antimora and 0.28 kg (one individual) of red stone crab. The combined non-target catch was 23.07 kg, equivalent to approximately 0.057% of the combined toothfish and non-target catch by weight.

4.6 VME indicators

VME monitoring was conducted during both fishing seasons in accordance with the Data Collection Plan. In 2025, eight VME indicator taxon codes were recorded, with a combined weight of 62.244 kg. The recorded weight was dominated by DWR (32.670 kg; 52.49%) and CSS (22.814 kg; 36.65%).

In 2026, two VME indicator taxa were recorded: DMO (five specimens, 1.050 kg) and OEQ (one specimen, 0.165 kg), with a combined weight of 1.215 kg. No VME encounter exceeding the applicable threshold was recorded in either fishing season.

The composition and recorded weight of VME indicator taxa are summarised in Table 3, and their spatial distribution is shown in Figure 4.

Table 3. Composition and recorded weight of VME indicator taxa during the 2025 and 2026 exploratory fishing operations.

Year	VME code	Number (n)	Weight (kg)	Percentage by weight (%)
2025	AQZ	4	1.680	2.70
	ATX	1	0.080	0.13
	AXT	9	3.340	5.37
	CSS	85	22.814	36.65
	CWD	1	0.165	0.27
	DMO	6	1.195	1.92
	DWR	99	32.670	52.49
	OEQ	5	0.300	0.48
2026	DMO	5	1.050	86.42
	OEQ	1	0.165	13.58

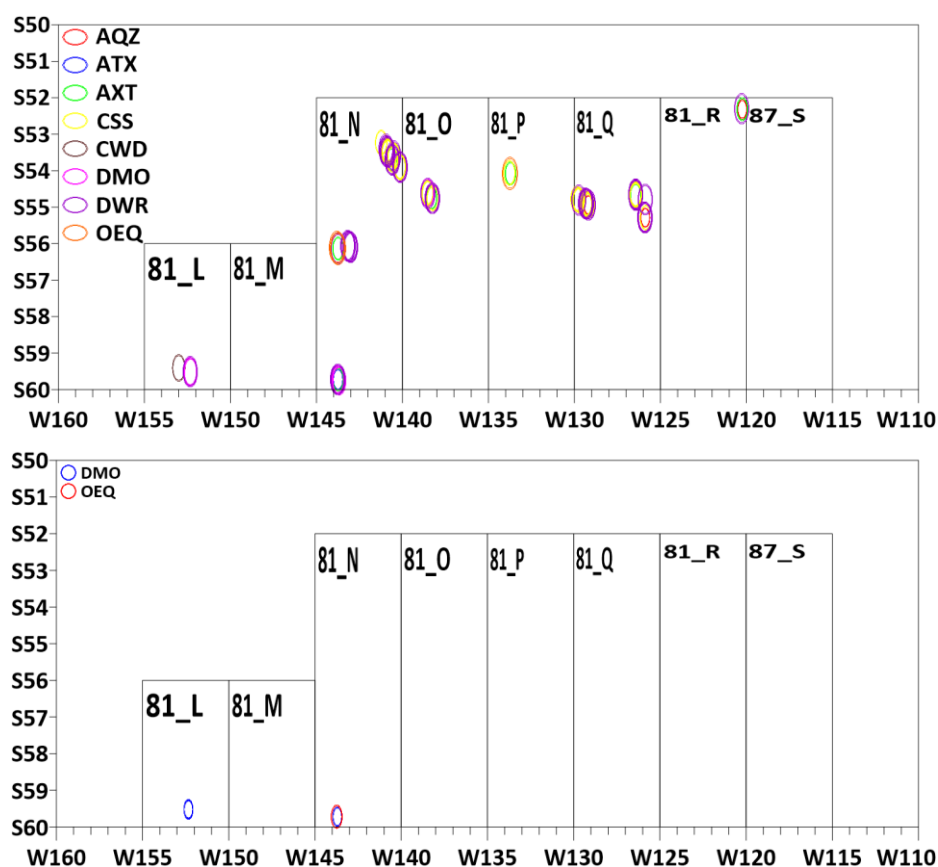


Figure 4. Spatial distribution of VME indicator taxa in 2025 and 2026.

5. Progress against research objectives and the Fisheries Operation Plan

Table 4. Progress against the research objectives of Korea's exploratory toothfish fishery during 2025–2026.

Research objective	Progress during 2025–2026
Distribution and relative abundance	Seven research blocks were sampled in 2025, and Blocks L and N were sampled in 2026. Toothfish catch was concentrated in Block N.
Stock structure and connectivity	Toothfish were tagged and released in both years, with two recaptures recorded in 2025. Otoliths and tissue samples were collected for subsequent age and stock-structure analyses.
Non-target species and VME monitoring	Non-target species and VME indicator taxa were recorded during both fishing seasons. Their composition, weight and spatial occurrence were documented.
Tagging performance	The species-specific tagging requirement of at least three fish per tonne of retained catch was met in both years.
Spatial implementation of fishing	Set-level catch and effort data were collected across the research blocks sampled during the two fishing seasons.
Biological data collection	Length, weight, sex and maturity data were collected, together with otoliths and other biological samples.

6. Discussion and next steps

The first two fishing seasons confirmed the occurrence of Antarctic toothfish in Block N and demonstrated the implementation of tagging, biological sampling, non-target catch monitoring and VME monitoring under the Korean exploratory fishery programme. Toothfish catch was concentrated in Block N, while little or no catch was recorded in the other blocks sampled. These results provide initial information on the spatial distribution of toothfish within the exploratory fishing area. However, the limited number and spatial coverage of sets mean that the results should be interpreted as preliminary.

The relatively high nominal CPUE recorded in Block N in 2026 was based on five sets and should not be considered representative of the entire block. Further fishing and repeated observations across blocks, depths and fishing locations will be required to improve understanding of toothfish distribution and relative abundance. Future analyses should incorporate set-level positions, fishing depth, effort, catch composition and available habitat information.

Continued tagging and biological sampling will provide information on movement, growth, age structure and possible stock connectivity. Tag-release and recapture records should be linked across fishing seasons, and the collected otolith and tissue samples should be analysed as data become available. Continued monitoring of non-target species and VME indicators will also support the evaluation of potential ecosystem effects.

The results from subsequent fishing seasons will be combined with the 2025 and 2026 observations to provide a more comprehensive assessment of the exploratory fishery and to support future review of the Data Collection Plan by the Scientific Committee.