Falkland Islands Fisheries Department



Vessel Units

Allowable Effort

Allowable Catch

2027

Summary and Recommendations

© Crown Copyright 2026

No part of this publication may be reproduced without prior permission from the Falkland Islands Government Fisheries Department.

For citation purposes this publication should be referenced as follows:

FIFD. 2026. Vessel Units, Allowable Effort, and Allowable Catch 2027. Summary and Recommendations. Fisheries Department, Directorate of Natural Resources, Falkland Islands Government.

Contents

1. FOREWORD AND SUMMARY 3

2. *DORYTEUTHIS GAHI* (*LOLIGO*) – FALKLAND CALAMARI 5
Andreas Winter

2.1. MANAGEMENT AND STOCK TRENDS 5
2.2. VESSEL UNITS AND Q-VALUES. 5
2.3. REFERENCES. 7

3. FINFISH 9
Andreas Winter

3.1. INTRODUCTION 9
3.2. VESSEL UNITS AND FISHING TIME 9
3.3. REFERENCES 12

4. *DISSOSTICHUS ELEGINOIDES* – PATAGONIAN TOOTHFISH 14
Frane Skeljo

4.1. INTRODUCTION 14
4.2. STOCK ASSESSMENT 15
4.3. MANAGEMENT ADVICE 15
4.4. REFERENCES 16

5. RAJIFORMES – SKATES 18
Andreas Winter

5.1. MANAGEMENT AND STOCK TRENDS 18
5.2. ALLOWABLE EFFORT AND CATCH 19
5.3. REFERENCES 19

6. QUICK REFERENCE GUIDE TO VUM/GT CATEGORIES/TAC 21

6.1. FALKLAND CALAMARI FISHERY (C) 21
6.2. FINFISH FISHERY (A, G, W) 21
6.3. TOOTHFISH LONGLINE FISHERY (L) 22
6.4. SKATE FISHERY (F) 22
6.5. RESTRICTED FINFISH PELAGIC FISHERY (S) 22

1. Foreword and summary

The 2026 Licensing Advice document (Vessel Units, Allowable Effort, and Allowable Catch) summarizes licensing advice for all regulated fisheries in Falkland Islands Conservation Zones for 2027 apart from the B-licenced *Illex* fishery. Current licencing advices are based on data through the end of 2025 for finfish, toothfish and skates, and through the end of first season 2026 for calamari (Loligo). Summary tables of the licencing advice are presented at the end of the report.

Stock assessments, committee papers, and survey data that inform the licencing advice standards are published as separate reports and are available on the Falkland Islands Fisheries Department website: https://www.gov.fk/fisheries/ (publications).

Falkland calamari *Doryteuthis gahi* (Loligo) 1st season 2026 achieved full season opening and a total catch well above the long-term median, with zero calculated risk of failing the escapement biomass threshold. Accordingly, Vessel Units were calculated as per usual as the average of the past three years: 27.01 VUs. However, with the four most recent 2nd seasons closed respectively early (2023), not even opened for stock conservation (2024), closed early again (2025) and closed very early (2026), continued precautionary monitoring of the *D. gahi* population status is indicated.

Finfish licences (A, G, W) returned to active management of the VU allocations after having been 'frozen' to the 2024 levels for both 2025 and 2026, following considerations that the protocol used previously was no longer pertinent to the catch-by-licence distributions. For 2027, ICES advice rules were resumed to calculate proportional allowed catches per species. One difference from previous allocation management was that common hake was switched from category 5 ICES advice rule to category 3 advice rule. The switch was motivated by the completion of a seventh July survey in 2026, thereby providing a sufficiently extensive time series of fisheries-independent biomass estimates for trend calculation. With hake biomass showing an increasing trend, and hake providing by far the greatest proportion of A licence catches, the VU allocation for A licence was substantially increased from the year before. G licence VU was also increased, while W licence VU took a small decrease.

Patagonian toothfish (*Dissostichus eleginoides*) catch in the target longline fishery obtained 1,038.7 tonnes in 2025, while toothfish bycatches in calamari (19.3 tonnes) and finfish trawls (282.2 tonnes) increased in 2025 for the third consecutive year, but still well below their peaks in 2017 and 2016. The current assessment estimates a spawning stock biomass (SSB) of 12,545 tonnes toothfish and a SSB_{2025}/SSB_0 ratio of 0.507 – the SSB_{2025}/SSB_0 ratio being higher than last year's estimate and above the upper target reference point of 0.45. However, SSB/SSB_0 projections under the current TAC still showed a decrease below 0.45 within ten years, and a TAC increase could therefore not be proposed in accordance with the Harvest Control Rules. The TAC for 2027 is maintained at 1040 tonnes.

Skate (Rajiformes) total catch in 2025 of 1864.8 tonnes was slightly lower than the year before but second-highest since 2018. Skate target fishing (F licence) has not been resumed since 2020. Given the hiatus in skate target fishing, and the change in regulatory trawl mesh size since the last skate target fishery, the previously implemented Vessel Unit protocol for F licence was discontinued again for 2027. Instead, the same recommendation as last year was applied by default: that a skate TAC of 500 tonnes may be allocated, on condition of use of the new regulatory trawl mesh, an approved fishing plan, and continuance of the exclusion zone to skate target fishing south of 51°S latitude.

Southern blue whiting (*Micromesistius australis*) in-zone commercial catches in 2025 were the third-lowest of the last eleven years at 69.7 tonnes, far below the long-term average. Over 85% of the 2025 blue whiting catch was reported on experimental E licence, with C (5.2 tonnes) and W (3.8 tonnes) the only commercial licences recording more than a tonne each. Prospective S licence fishing was not taken up in 2025. Accordingly, the statutory S licence TAC of 2,000 metric tonnes is rolled forward again for 2027, but may be augmented if an approved joint commercial-exploratory fishery is reprised this year or next year.

We are grateful to the scientific observers of the FIFD for data collection and to data management staff for processing catch reports from fishing vessels. We also thank our local and overseas-partner fishing companies for their cooperation in providing timely and informative fisheries data.

2. *Doryteuthis gahi* (Loligo) – Falkland calamari

2.1. Management and stock trends

The targeted fishery for Falkland calamari (*Doryteuthis gahi* – colloquially Loligo) is managed through two levels of control: 1) season schedule and 2) total biomass to a minimum escapement threshold per season. Season schedules are currently set as: 1st season (C licence), 64/65 days opening from late February; 2nd season (X licence), 64 days from late July. Since 2013 a flexible option also allows vessels to defer as many as 6 fishing days for bad weather or mechanical issues, which are then added back as compensatory days at the end of the season. In either 1st or 2nd season the minimum escapement threshold is set at 10,000 tonnes biomass (Barton 2002, Arkhipkin et al. 2008). If in-season depletion models project that calamari biomass will fall below 10,000 tonnes, the fishery may be suspended or stopped before the scheduled end date of the season.

With the use of these controls, actual Vessel Units (VU) play a nominal role in determining the effort allocation to the Falkland calamari fishery. As long as no significant decline in stock biomass is anticipated, all licenced vessels can expect to fish for the duration of the season (except vessels restricted to fixed proportions of the season based on their replacement categories; see below). Vessel allocations are calculated from 1st seasons, given the schedule for publishing licencing advice. All five most recent 1st seasons have CPUE above the long-term median (since 2004, when catch management was assumed by the FIFD, Skeljo 2026). Abundant biomasses are reflected in zero to low risks of season-end escapement failure (Table 2.1).

Table 2.1. Catches, estimated biomass, escapement risks, and VU allocations of Falkland calamari 1st seasons 2022-2026.

Year	1st season calamari catch (t)	1st season calamari biomass (t)[a]	Risk of <10,000 t escapement	Total VU allocation
2022	56,080	274,651	0.000	
2023	52,704	190,210	0.000	
2024	47,588	177,576	0.000	27.01
2025	37,492	83,179	0.001	
2025	44,345	109,582	0.000	

a: Biomass estimate at the start of the season, plus in-season immigration.

2.2. Vessel units and q-values.

As in previous years (e.g., Section 2 in FIFD 2025), the total VU allocation for 2027 was set as the average of the preceding three years (Table 2.1). Given that this procedure has been followed for a number of years, the total VU allocation at this point is essentially a fixed value of 27.01.

Total VU allocation was partitioned among licenced vessels in proportion to the GT category-averaged catchability coefficients (q values). Catchability coefficients represent the efficiency of a vessel at fishing (Arreguín-Sánchez 1996), and are calculated as catch per unit effort per available biomass. To smooth variations within seasons, catchability coefficients were averaged over the most recent three years 2024 to 2026 (Table 2.2). Since 2016 catchability coefficients have been calculated only on unsubstituted vessels, i.e. excluding

vessels that had been entered as short-term substitutes for logistic or mechanical reasons. Substitute vessels may be less experienced in the fishery and therefore have lower catch efficiency independently of their GT category.

Table 2.2. Parameters for average q-value calculations. Trends were visualized for the five years 2022 - 2026; q averages were calculated for the most recent three years 2024 – 2026.

Parameter	GT Cat	Year					3-year average
		2022	2023	2024	2025	2026	
Biomass		274,651	190,210	177,576	83,179	109,582	
Catch (t)	4	15864.5	14653.7	12936.4	9031.2	9963.4	
	5	14902.5	14461.9	9585.1	6964.8	7881.6	
	6	17752.6	16632.9	18881.4	18726.1	23565.6	
	7	7561.0	6464.9	5986.7	2469.5	2878.1	
Fishing days	4	299	307	295	222	240	
	5	242	184	183	167	179	
	6	307	351	371	441	494	
	7	115	115	115	57	64	
CPUE (t day^{-1})	4	53.1	47.7	43.9	40.7	41.5	
	5	61.6	57.6	52.4	41.7	44.0	
	6	57.8	58.4	50.9	42.5	47.7	
	7	65.7	56.2	52.1	43.3	45.0	
Catchability (q)	4	1.93e-4	2.51e-4	2.47e-4	4.89e-4	3.79e-4	3.72e-4
	5	2.24e-4	3.03e-4	2.95e-4	5.01e-4	4.02e-4	3.99e-4
	6	2.11e-4	3.07e-4	2.87e-4	5.10e-4	4.35e-4	4.11e-4
	7	2.39e-4	2.96e-4	2.93e-4	5.21e-4	4.10e-4	4.08e-4

Table 2.3. VU allocations per vessel.

Vessel Callsign	GT category	GT avg. q	VU allocation
EAPW	6	4.11e-4	1.77
ZDLC1	4	3.72e-4	1.60
ZDLC4	4	3.72e-4	1.60
ZDLD4	5	3.99e-4	1.72
ZDLE1	6	4.11e-4	1.77
ZDLF2 [a]	6	3.99e-4	[a] 1.72
ZDLM3 [b]	4	3.42e-4	[b] 1.47
ZDLO1	6	4.11e-4	1.77
ZDLP1 [c]	5	3.47e-4	[c] 1.49
ZDLR1	6	4.11e-4	1.77
ZDLS3	5	3.99e-4	1.72
ZDLS4	6	4.11e-4	1.77
ZDLT4	6	4.11e-4	1.77
ZDLW3	4	3.72e-4	1.60
ZDLZ	7	4.08e-4	1.75
ZDLZ1	6	4.11e-4	1.77
			27.01

[a] Refit to category 6 from category 5, restricted to 1.73/1.78 of the season (FIFD 2024).
[b] Replacing a category 3 vessel, restricted to 1.32/1.44 of the season (FIFD 2019).
[c] Replacing a category 7 vessel, which itself was restricted to 55 fishing days: 1.77/1.75 × 55/64 (2025).

One category 5 vessel was refit to category 6, and is restricted to 97% of the season to offset its higher fishing capacity. One category 4 vessel has been licenced to replace a category 3 vessel since 2019, and is restricted to 92% of the season to offset its higher fishing capacity. A category 5 vessel is restricted to 87% of the season having replaced a category 7 vessel which was itself under a replacement restriction (Table 2.3). By agreement in the Fisheries Advisory Committee (Winter and Ross 2022a, b), allocation restrictions for inter-category vessel replacements are kept to previously fixed percentages going forward.

Note that the 3-year average has produced lower catchability q, and therefore VU allocation, for the largest category 7 vessels than the lower category 6 vessels (Table 2.2, Table 2.3). Similarly, for 2024 and 2025 (FIFD 2023, FIFD 2024) category 6 VUs were lower than category 5 VUs, indicative that GT categories are not always strictly monotonic in their catching power. However, the coefficient of variation (standard deviation / mean) among GT category VUs (cv (1.60, 1.72, 1.77, 1.75) = 0.0445; Table 2.3) continues to decrease as it has in each of the previous seven years, as the entrance of new purpose-built vessels has made GT categories progressively less differentiated in their performance.

2.3. References.

Arkhipkin, A.I., Middleton, D.A.J., Barton, J. 2008. Management and conservation of a short-lived fishery resource: *Loligo gahi* around the Falkland Islands. American Fisheries Society Symposium 49:1243-1252.

Arreguín-Sánchez, F. 1996. Catchability: a key parameter for fish stock assessment. Reviews in Fish Biology and Fisheries 6:221-242.

Barton, J. 2002. Fisheries and fisheries management in Falkland Islands Conservation Zones. Aquatic Conservation: Marine and Freshwater Ecosystems 12:127-135.

FIFD. 2019. Vessel Units, Allowable Effort, and Allowable Catch 2020. Part I. Summary and recommendations. Fisheries Dept., Directorate of Natural Resources, Falkland Islands Government, 21 p.

FIFD. 2023. Vessel Units, Allowable Effort, and Allowable Catch 2025. Summary and Recommendations. Fisheries Dept., Directorate of Natural Resources, Falkland Islands Government, 19 p.

FIFD. 2024. Vessel Units, Allowable Effort, and Allowable Catch 2025. Summary and Recommendations. Fisheries Dept., Directorate of Natural Resources, Falkland Islands Government, 20 p.

Skeljo, F. 2026. Stock assessment of Falkland calamari *Doryteuthis gahi* in the first season of 2026. Technical Document, Falkland Islands Fisheries Department. 50 p.

Winter, A., Ross, S. 2022a. VU options for permanent vessel replacement in the Falkland Islands calamari (*Doryteuthis gahi*) fishery. Fisheries Advisory Committee paper, June 2022, 3 p.

Winter, A., Ross, S. 2022b. VU options for permanent vessel replacement in the Falkland Islands calamari (*Doryteuthis gahi*) fishery. Fisheries Advisory Committee paper, September 2022, 3 p.

3. Finfish

3.1. Introduction

Finfish trawl catch in the Falkland Islands is allocated by three licences: A (unrestricted finfish), G (*Illex* squid and restricted finfish), and W (restricted finfish). Specialized fisheries for toothfish, skates and surimi are separately allocated by L, F and S licences. In 2025, catch of major commercial species by A, G and W licences totalled 69689.6 tonnes (Table 3.1), marginally higher than the year before.

Table 3.1. Catches in 2025 of commercial species targeted by finfish licences. Licence A/G means the vessel declared both A and G licences on a given fishing day.

Species	Catch by Licence (tonnes)				Total
	A	A/G	G	W	
Common hake	53548.5	12.8	7560.7	833.4	61955.5
Southern hake	1.4	0	4.8	4.7	10.9
Illex squid	195.9	4.3	1782.0	225.9	2208.0
Southern blue whiting	0.6	0	0.7	3.8	5.1
Hoki	106.1	0	423.1	162.6	691.8
Red cod	620.8	0.2	198.3	80.0	899.2
Kingclip	801.7	0.8	154.7	51.8	1009.0
Rock cod	1770.5	27.8	775.1	336.6	2910.0
	57045.6	45.8	10899.3	1698.9	69689.6

Total allocated Vessel Units (VU) to the A, G and W finfish licences were, by consensus, frozen for years 2025 and 2026 to the same levels that had been calculated for 2024, following perception that the algorithms previously used to calculate VU adjustments had become distorted by shifts in the proportions of non-permitted bycatch (Winter et al. 2025). For 2027, however, active management of the VU allocations will be resumed, to reflect variations in the catch levels and inferred stock biomasses that have since taken place.

The finfish VU allocations of 2026 (equal to those of 2024 and 2025) will be set as the new baseline, and adjusted for 2027 by the differences between 2026 and 2027 in aggregate TAC for each licence. For species that are permitted under each of the three finfish licences (everything except hake (permitted only for A licence) and *Illex* (permitted only for G licence)), species TACs are proportioned according to the extent of the year that each licence is open (Table 2; following Winter and Ramos 2024). Species TACs multiplied by their proportions are then summarized for 2027 and 2026, and the 2027:2026 ratio is taken as the multiplying factor for the VU baseline. The calculations are described in HoS et al. (2026) and Winter (2026).

3.2. Vessel Units and Fishing Time

VUs, originally a calculation of catchability ×biomass × effort, represent a metric of the fishing effort expected to yield a standard level of catch of the target species. VUs are then used to apportion the total effort allocation into fishing time. A, G and W-licence VUs from 2021 to 2027 are shown in Table 3.2, the 2027 VUs are published in FI Gazette (2026).

Table 3.2. Vessel Units comparing 2021 to 2027.

Licence	2021 VU	2022 VU	2023 VU	2024 VU	2025 VU	2026 VU	2027 VU
A	12.20	22.39	23.93	22.83	22.83	22.83	24.40
G	12.77	7.34	11.26	10.14	10.14	10.14	10.65
W	14.27	4.01	3.60	6.07	6.07	6.07	5.61

VUs are translated to fishing time (vessel-days or vessel-months) by the vessel-units per month (VUMs), which are a function of catchability and available fish biomass. In the current TAE/TAC formulation VUMs are considered practically constant, as finfish catchability is assumed to not fundamentally change, and available fish biomass is calculated in relation to the allowed catch (Winter and Ramos 2023, 2024). Differences in fishing time allocated for years since 2021 are therefore directly proportional to VU differences from 2021 (Table 3.2):

Table 3.3. Fishing effort VUM and allocated fishing time in vessel-months by GT category, for A licence, 2018 to 2027.

GT category	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Fishing effort VUM										
3	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
4	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
5	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
6	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
7		0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	
Fishing time vessel-months										
3	26.6	26.6	26.6	26.6	48.7	52.0	49.6	49.6	49.6	53.0
4	26.6	26.6	26.6	26.6	48.7	52.0	49.6	49.6	49.6	53.0
5	26.6	26.6	26.6	26.6	48.7	52.0	49.6	49.6	49.6	53.0
6	26.6	26.6	26.6	26.6	48.7	52.0	49.6	49.6	49.6	53.0
7		26.6	26.6	26.6	48.7	52.0	49.6	49.6	49.6	

Table 3.4. Fishing effort VUM and allocated fishing time in vessel-months by GT category, for G licence, 2018 to 2027.

GT category	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Fishing effort VUM										
3	0.40	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38
4	0.68	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
5	0.96	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
6	1.25	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42
7		1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	
Fishing time vessel-months										
3	38.1	40.0	35.2	33.4	19.3	29.6	26.7	26.7	26.7	28.0
4	22.4	21.0	18.5	17.5	10.1	15.4	13.9	13.9	13.9	14.6
5	15.9	14.3	12.6	11.9	6.9	10.5	9.5	9.5	9.5	10.0
6	12.3	10.8	9.5	9.0	5.2	7.9	7.1	7.1	7.1	7.5
7		8.7	7.7	7.3	4.2	6.4	5.8	5.8	5.8	

Table 3.5. Fishing effort VUM and allocated fishing time in vessel-months by GT category, for W licence, 2018 to 2027.

GT category	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Fishing effort VUM										
3	0.31	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
4	0.49	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
5	0.66	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
6	0.84	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
7		1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	
Fishing time vessel-months										
3	54.4	42.5	37.4	35.5	10.0	9.0	15.2	15.2	15.2	14.0
4	35.0	30.5	26.9	25.4	7.2	6.4	10.8	10.8	10.8	10.0
5	25.8	23.8	21.0	19.9	5.6	5.0	8.4	8.4	8.4	7.8
6	20.4	19.5	17.2	16.3	4.6	4.1	6.9	6.9	6.9	6.4
7		16.5	14.5	13.8	3.9	3.5	5.9	5.9	5.9	

Note that GT categories are equalized for A licence, as previous analyses (FIFD 2018) showed no statistically significant correlation between GT and VU of individual vessels under A licence. Also note that VUM and vessel-months per category are alternate (not additive) total outcomes, for example, the W-licence fishery could be taken entirely by Category 3 vessels fishing a total of 14.0 vessel-months or by Category 4 vessels fishing a total of 10.0 vessel-months or by Category 5 vessels fishing a total of 7.8 vessel months, etc.; or any fractional combination of these categories.

For summary purposes (H. Guille, Njord Consulting Ltd, pers. comm.), a nominal total of allocated fishing days has also been calculated for each licence, defined as the vessel-days equivalent to the vessel-months (×30.5), average-weighted by the number of fishing days per GT category actually carried out in the preceding year 2025 (Tables 3.6, 3.7, 3.8).

Table 3.6. A licence summary of vessel days and fishing days. V-months / v-days are equivalent to Table 3.3.

GT category	2027		2025
	v-months	v-days	fishing days
3	53.0	1617.8	490
4	53.0	1617.8	383
5	53.0	1617.8	429
6	53.0	1617.8	117

Table 3.7. G licence summary of vessel days and fishing days. V-months / v-days are equivalent to Table 3.4.

GT category	2027		2025
	v-months	v-days	fishing days
3	28.0	855.1	66
4	14.6	445.1	93
5	10.0	303.7	91
6	7.5	228.8	31

Table 3.8. W licence summary of vessel days and fishing days. V-months / v-days are equivalent to Table 3.5.

GT category	2027		2025
	v-months	v-days	fishing days
3	14.0	427.8	18
4	10.0	305.6	28
5	7.8	237.7	28
6	6.4	194.5	9

Summary A days =

$$\frac{(1617.8 \times 490) + (1617.8 \times 383) + (1617.8 \times 429) + (1617.8 \times 117)}{(490 + 383 + 429 + 117)}$$

= 1617.8

Summary G days =

$$\frac{(855.1 \times 66) + (445.1 \times 93) + (303.7 \times 91) + (228.8 \times 31)}{(66 + 93 + 91 + 31)}$$

= 471.7

Summary W days =

$$\frac{(427.8 \times 18) + (305.6 \times 28) + (237.7 \times 28) + (194.5 \times 9)}{(18 + 28 + 28 + 9)}$$

= 297.2

3.3. References

Falkland Islands Fisheries Department (FIFD). 2018. Vessel Units, Allowable Effort, and Allowable Catch 2019. Summary and recommendations. Fisheries Dept., Directorate of Natural Resources, Falkland Islands Government, 21 p.

Falkland Islands Gazette (2026). Volume 135, No. 21. Notices No. 107, 108, 110.

Head of Science (HoS), Director of Natural Resources, Stock Assessment Scientist. 2026. Finfish licencing advice 2027. Fisheries Advisory Committee paper, July 2026, 11 p.

Winter, A., Ramos, J.E. 2023. Finfish licencing advice 2024. Fisheries Advisory Committee paper, June 2023, 16 p.

Winter, A., Ramos, J.E. 2024. Finfish licencing advice 2025. I. Calculations. Fisheries Advisory Committee paper, June 2024, 20 p.

Winter, A., Jenkins, M., Wilson, J. 2025. Finfish Licencing Advice 2026. Fisheries Advisory Committee paper, June 2025, 3 p.

Winter, A. 2026. Finfish A Licence Advice, hake moved from Category 5 to Category 3 assessment. Fisheries Advisory Committee paper, September 2026, 5 p.

4. *Dissostichus eleginoides* – Patagonian toothfish

4.1. Introduction

The targeted longline fishery for Patagonian toothfish (*Dissostichus eleginoides*) operates under the L-licence and is managed through a total allowable catch (TAC). Toothfish are also taken as bycatch in the finfish and calamari trawl fisheries. In the finfish fishery they are a commercially valuable bycatch, whereas in the calamari fishery they are usually discarded because the fish are small.

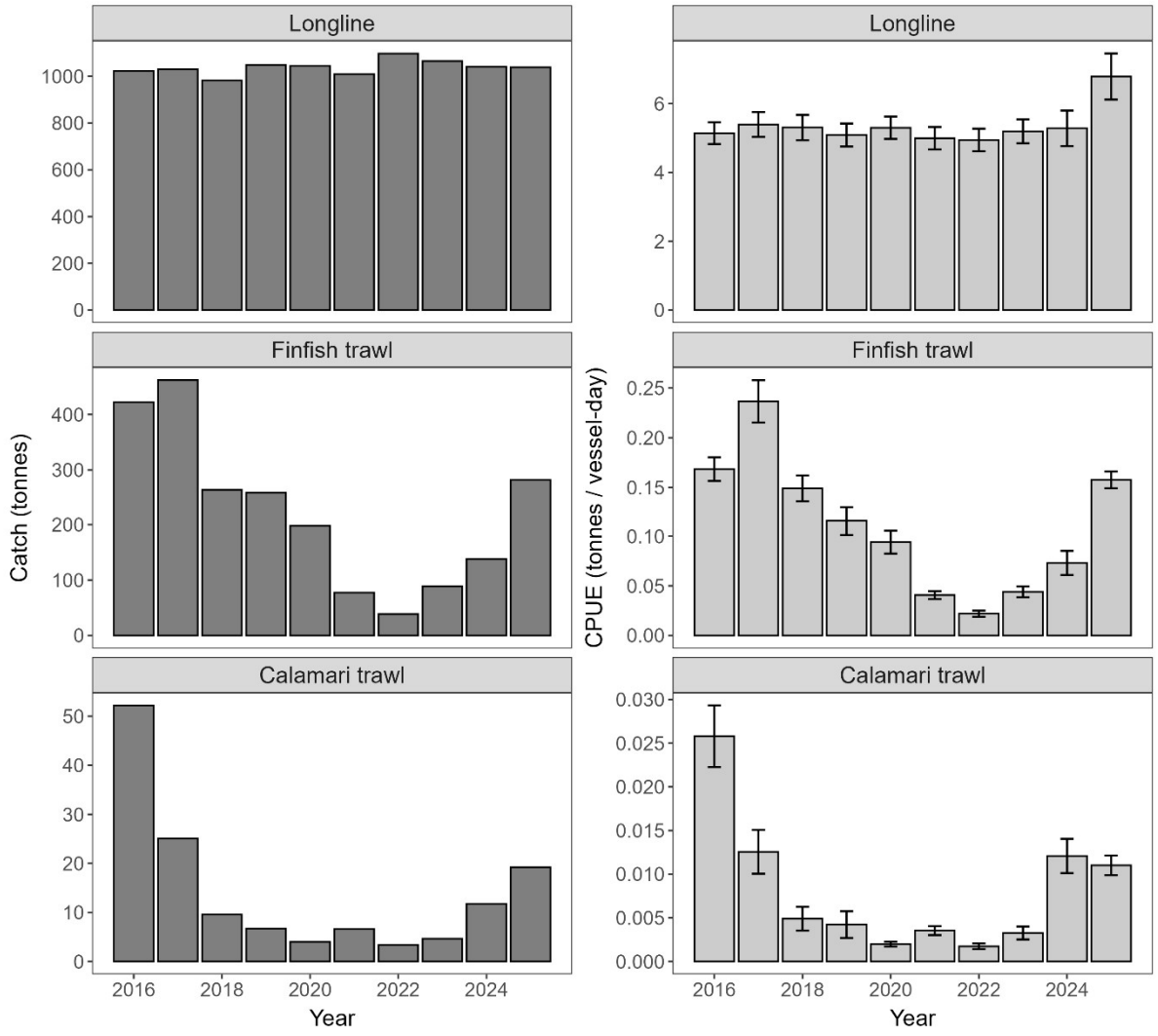

Figure 4.1. Annual toothfish catch (left) and mean observed CPUE (right) in the longline, finfish trawl and calamari trawl fisheries. Error bars show 95% confidence intervals around mean CPUE.

The toothfish stock assessment uses an integrated model implemented in CASAL (Bull et al. 2012). The model combines catch, effort and tag-recapture data reported by the fisheries with age, length and maturity data collected by observers on commercial trips and research surveys. Tag-release and tag-recapture data were first included in the 2023 assessment. They

provide an index of absolute abundance, which reduces the model's reliance on commercial CPUE. The main observations informing the model are:

- catch-at-age data for the Spanish-system longline, umbrella-system longline, finfish trawl and calamari trawl fisheries;
- catch-at-age data for the groundfish survey and the calamari pre-season survey;
- CPUE indices for the Spanish- and umbrella-system longline fisheries (standardised using vessel, month, soak time, depth and fishing area as covariates);
- tag-recapture data for the umbrella-system longline fishery.

In 2025, 1,346.0 t of toothfish was caught in the FCZ. The targeted longline fishery took 1,038.7 t (77.2%), the finfish trawl fishery 282.2 t (21.0%) and the calamari trawl fishery 19.3 t (1.4%). A further 6.0 t (0.4%) was caught during research surveys. Toothfish annual CPUE in the longline fishery increased significantly in 2025 compared to the previous nine years (Figure 1). This was associated with spatial concentration of fishing effort in a single grid on the eastern part of Burdwood Bank, where catches were consistently high. This level of spatiotemporal concentration is unprecedented and raises important ecological and management concerns (Saulnier 2026). If this practice persists, a precautionary management measure limiting the concentration of catch and fishing effort may be required, particularly in areas associated with spawning. Toothfish bycatch in the finfish and calamari trawl fisheries increased for the third year in a row but remains below the 2016–2017 peak (Figure 4.1).

4.2. Stock assessment estimates

Model estimates (with 95% credible intervals) of initial spawning stock biomass (SSB_0), current spawning stock biomass (SSB_{2025}) and current SSB relative to SSB_0 (SSB_{2025}/SSB_0) are given in Table 4.1. Estimated parameters and derived quantities were highly consistent with those from the previous assessment (Skeljo, 2025), and annual estimates of absolute and relative SSB differed by only a few percent. In particular, the SSB ratio in the most recent year was nearly identical between the current ($SSB_{2025}/SSB_0 = 0.507$) and previous ($SSB_{2024}/SSB_0 = 0.498$) assessments. This similarity was expected, because the model structure and assumptions were essentially unchanged, and the data updated through 2025 did not show markedly different trends. Since tag-recapture data were first included in the 2023 assessment, the 95% credible intervals have been noticeably narrower and only slightly asymmetric compared with earlier years. Likelihood profiles indicate that this is because the tag-recapture data are highly informative about SSB_0. Deterministic MSY was estimated at 1,678 t, which falls within the range of estimates from the last three assessments (1,653-1,720 t).

Table 4.1. Model estimates (with 95% credible intervals) of SSB_0, SSB_{2025} and SSB_{2025}/SSB_0.

SSB_0	SSB_{2025}	SSB_{2025}/SSB_0
24,725 (22,944 - 27,528)	12,545 (10,845 - 15,726)	0.507 (0.471 - 0.570)

Projections of SSB/SSB_0 were also very similar to those from the previous assessment (Skeljo, 2025), with a decline from the *expansion range* into the *target range* by 2032. The decline reflects a series of weak recruitments estimated by the model (below-average year-class strength (YCS) in 2018–2020), which an independent analysis also supports (Lee et al.,

2021). Because recent recruitment strength strongly influences the projections, juvenile toothfish abundance continues to be closely monitored during research surveys and the commercial calamari fishing seasons. Skeljo (2023) also proposed protecting strong age-0 cohorts while they are on the shelf, through spatiotemporal management of the calamari trawl fishery, and a protocol for this was established in early 2024. No notable recruitment of age-0 toothfish onto the calamari fishing grounds has been observed since then, so the protocol has not yet been applied in practice. However, toothfish bycatch increased in both the calamari and finfish trawl fisheries in 2024 and 2025. Because a strong cohort would not produce high bycatch rates immediately after recruitment, owing to the small size of the fish (Skeljo 2023), this increase suggests that a recruitment event occurred in 2022–2023 in an area where age-0 fish would not be detected by surveys or the calamari fishery, such as inshore waters to the west or southwest of the Falkland Islands. A more detailed analysis of toothfish bycatch and its size structure, planned for 2027, should help confirm the timing and location of this recruitment event.

4.3. Management advice

Management advice is based on the harvest control rule (HCR) established for the Falkland Islands toothfish longline fishery (Farrugia and Winter 2018). The estimated SSB_{2025}/SSB_0 ratio of 0.507 was abov*e the upper target reference point* of 0.45, placing the stock in the *expansion range*. This was the sixth consecutive year in which SSB/SSB_0 was estimated to be in the *expansion range.* However, projections from the current model indicated that SSB/SSB_0 will decline into the *target range* by 2032 and remain there until 2046. Because projected SSB/SSB_0 under the current total allowable catch (TAC) falls below 0.45 within ten years, the HCR does not require a change to the TAC at this stage.

The recommendation is therefore to maintain the annual toothfish TAC for the longline fishery at its current level of 1,040 t.

4.4. References

Bull B, Francis RICC, Dunn A, McKenzie A, Gilbert DJ, Smith MH, Bian R, Fu D. 2012. CASAL (C++ algorithmic stock assessment laboratory): CASAL User Manual v2.30-2012/03/21. NIWA Technical Report 135, 275 p.

Farrugia TJ, Winter A. 2018. 2017 Stock Assessment Report for Patagonian toothfish, Fisheries Report SA-2017-TOO. Fisheries Department, Directorate of Natural Resources, Falkland Islands Government, 35 p.

Lee B, Arkhipkin A, Randhawa H. 2021. Environmental drivers of Patagonian toothfish (*Dissostichus eleginoides*) spatial-temporal patterns during an ontogenetic migration on the Patagonian Shelf. Estuarine, Coastal and Shelf Science 259, 107473.

Saulnier E. 2026. Catch composition of the Patagonian toothfish longline fishery in the Falkland Islands (2016-2025). Fisheries Report CC-2025-TOO. Fisheries Department, Directorate of Natural Resources, Falkland Islands Government, Stanley, Falkland Islands. 22 p.

Skeljo F. 2023. Patagonian toothfish (*Dissostichus eleginoides*) bycatch in the calamari trawl fishery (2012 - 2021). Fisheries Report BY-2023-TOO. Fisheries Department, Directorate of Natural Resources, Falkland Islands Government, Stanley, Falkland Islands. 50 p.

Skeljo F. 2025. Stock assessment of Patagonian toothfish (*Dissostichus eleginoides*) in the Falkland Islands to 2024. Fisheries Report SA-2024-TOO. Fisheries Department, Directorate of Natural Resources, Falkland Islands Government, Stanley, Falkland Islands. 48 p.

5. Rajiformes – Skates

5.1. Management and stock trends

Skate (Rajiformes) are since 1994 licenced separately from other groundfish trawl fisheries in the Falkland Islands (F licence). The skate fishery has been regulated by total allowable effort (TAE) of licenced vessels. A large proportion of skate catch is routinely taken in finfish trawls, while skate-licenced vessels may take large amounts of groundfish other than skate.

Total catch of skate in 2025 was slightly lower than the year before, but second-highest since 2018 (Figure 5.1). 2025 was also the fifth consecutive year on record with a complete absence of skate catch under target (F) licence, which had been decreasing continually since 2014 (Figure 5.1). A new catch / effort-based stock assessment was again not calculated in 2026. Most skate in 2025 was caught under finfish (A, G and W) licences, but representing no more than low single-digit percentages of the total commercial catches of these licences (Table 5.1). The most recent stock assessment (Winter 2018) showed stable trends of the skate stock, while reviews of the skate assemblage (Arkhipkin et al. 2012, Winter et al. 2015) noted high population abundance, species diversity, and habitat structure. In contrast, an analysis of skate surveys indicated that since 2013 (the latest year examined by Winter et al. 2015) skate biomass in Falkland Islands waters may have decreased by 45% to 70% overall, with most individual species showing declines (Winter 2022, Winter and Arkhipkin 2023).

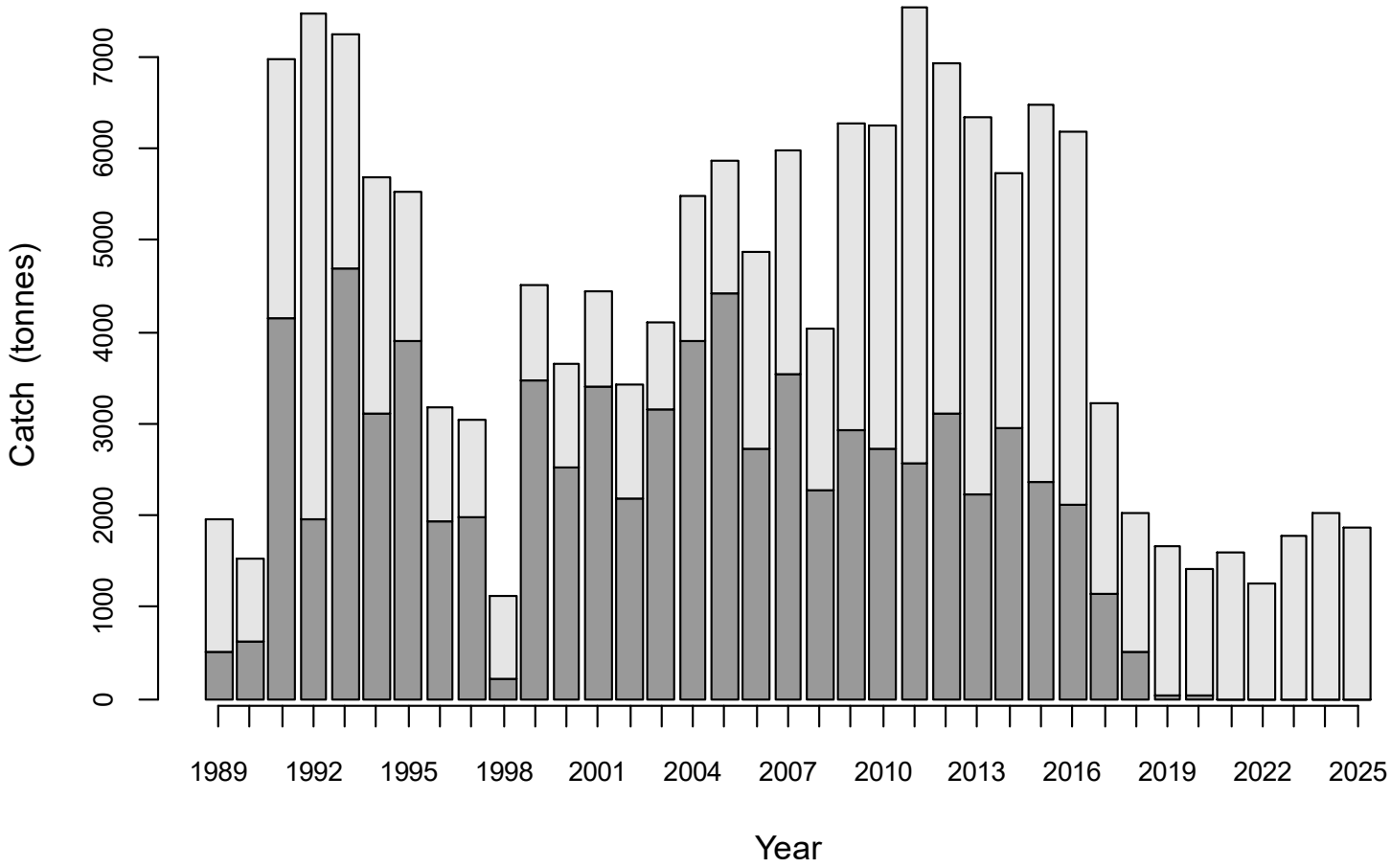

Figure 5.1. Target-licence catches (dark) and all catches (light grey) of skates, 1989 to 2025.

Table 5.1. Skate catch by fishing licence in 2025, and percentage that skate represented of each licence's total commercial catch. Licence A/G means the vessel declared both A and G licences on a given fishing day. Percentages of commercial catch exclude jig fishing (B and O licences), as jig fishing never catches skate, but B licence was only jig fishing in 2025.

Licence	Tonnes	% of commercial species catch
A	1508.8	2.6
A/G	0.4	0.8
B*	–	–
C	7.9	< 0.1
E	3.7	0.3
G	165.5	1.5
L	19.2	1.7
O*	47.4	0.3
W	101.0	5.5
X	10.8	0.1
Total	1864.8	1.5

* Excluding jig fishing.

5.2. Allowable effort and catch

The general aim of Licencing Advice is to maintain fisheries at sustainable catch levels while mitigating year-to-year fluctuations in allocated effort. Vessel Units (VU) are therefore calculated over three-year rolling averages. However, the speculative use of F licence in recent years has made the VU protocol impractical. Before ceasing completely in 2021, 59 fishing days under F licence were recorded in 2020, of which only 2 reported >50% skate in the catch and only 12 reported even >10% skate in the catch. The year before, in 2019, a total of 27 fishing days were recorded under F licence, of which 9 reported >50% skate in the catch and 13 reported >10% skate in the catch. Furthermore, a regulatory minimum codend mesh size of 400 mm for skate target trawling, established in 2021 (Arkhipkin et al. 2021) (and thus never used commercially) would prevent any straightforward catch-per-unit-effort comparison with previous years.

The skate survey analysis recommended that with as much as 70% reduction of biomass, a precautionary limit on catch should be 30% of the most recent calculated MSY, which after deduction of bycatch, would leave approximately 500 tonnes TAC for F licence (Winter 2022). As no skate target fishing is being taken in 2026, and no more recent stock assessment data are available, the 500 tonne TAC is continued for next year. Fishing this 500 tonne TAC should require use of the regulatory 400 mm mesh trawl codend, and should continue to be excluded from south of 51°S latitude, established as a skate conservation area since 1996 (Agnew et al. 1999).

As noted above, setting a corresponding fishing days allocation is impeded by the lack of comparability with previous skate trawl effort using smaller mesh. For 2023, a nominal maximum effort allocation of 114 days was set based on previous years (FIFD 2022). For 2024, 2025, 2026, and now 2027, the 114-day effort allocation is continued by default, but in practice, any resumption of F licence skate target fishing in 2027 will require an approved fishing plan.

5.3. References

Agnew, D.J., Nolan, C.P., Pompert, J. 1999. Management of the Falkland Islands skate and ray fishery. In: Case studies of the Management of Elasmobranch Fisheries (R. Shotton, ed.), FAO, Rome, pp. 268-284.

Arkhipkin, A., Brickle, P., Laptikhovsky, V., Pompert, J., Winter, A. 2012. Skate assemblage on the eastern Patagonian Shelf and Slope: structure, diversity and abundance. Journal of Fish Biology 80:1704-1726.

Arkhipkin, A., Skeljo, F., Wallace, J., Derbyshire, C., Goyot, L., Trevizan, T., Winter, A. 2021. Industry-collaborative mesh trials to reduce bycatch in the Falkland Islands skate trawl fishery (Southwest Atlantic). ICES Journal of Marine Science 80: 578–590.

FIFD. 2022. Vessel Units, Allowable Effort, and Allowable Catch 2022. Summary and recommendations. Fisheries Dept., Directorate of Natural Resources, Falkland Islands Government, 18 p.

Winter, A. 2018. Stock assessment – skates (Rajidae). Technical Report, Falkland Islands Fisheries Department. 14 p.

Winter, A. 2022. Survey estimation of skate biomass. Fisheries Advisory Committee paper, September 2022, 15 p.

Winter, A., Arkhipkin, A. 2023. Opportunistic survey analyses reveal a recent decline of skate (Rajiformes) biomass in Falkland Islands waters. Fishes 8, 24.

Winter, A., Pompert, J., Arkhipkin, A., Brewin, P. 2015. Interannual variability in the skate assemblage on the South Patagonian shelf and slope. Journal of Fish Biology 87: 1449-1468.

6. Quick reference guide to VUM/GT Categories/TAC

6.1. Falkland calamari fishery (C, X)

VU = 27.01 – allows for a standard fleet of 16 vessels.

6.2. Finfish fishery (A, G, W)

VU allocations for 2021 to 2027.

Licence	2021 VU	2022 VU	2023 VU	2024 VU	2025 VU	2026 VU	2027 VU
A	12.20	22.39	23.93	22.83	22.83	22.83	24.40
G	12.77	7.34	11.26	10.14	10.14	10.14	10.65
W	14.27	4.01	3.60	6.07	6.07	6.07	5.61

A licence. Fishing effort VUM and fishing time vessel-months.

GT category	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Fishing effort VUM										
3	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
4	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
5	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
6	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
7		0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	
Fishing time vessel-months										
3	26.6	26.6	26.6	26.6	48.7	52.0	49.6	49.6	49.6	53.0
4	26.6	26.6	26.6	26.6	48.7	52.0	49.6	49.6	49.6	53.0
5	26.6	26.6	26.6	26.6	48.7	52.0	49.6	49.6	49.6	53.0
6	26.6	26.6	26.6	26.6	48.7	52.0	49.6	49.6	49.6	53.0
7		26.6	26.6	26.6	48.7	52.0	49.6	49.6	49.6	

G licence. Fishing effort VUM and fishing time vessel-months.

GT category	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Fishing effort VUM										
3	0.40	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38
4	0.68	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
5	0.96	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
6	1.25	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42
7		1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	
Fishing time vessel-months										
3	38.1	40.0	35.2	33.4	19.3	29.6	26.7	26.7	26.7	28.0
4	22.4	21.0	18.5	17.5	10.1	15.4	13.9	13.9	13.9	14.6
5	15.9	14.3	12.6	11.9	6.9	10.5	9.5	9.5	9.5	10.0
6	12.3	10.8	9.5	9.0	5.2	7.9	7.1	7.1	7.1	7.5
7		8.7	7.7	7.3	4.2	6.4	5.8	5.8	5.8	

W licence. Fishing effort VUM and fishing time vessel-months.

GT category	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Fishing effort VUM										
3	0.31	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
4	0.49	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
5	0.66	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
6	0.84	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
7		1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	
Fishing time vessel-months										
3	54.4	42.5	37.4	35.5	10.0	9.0	15.2	15.2	15.2	14.0
4	35.0	30.5	26.9	25.4	7.2	6.4	10.8	10.8	10.8	10.0
5	25.8	23.8	21.0	19.9	5.6	5.0	8.4	8.4	8.4	7.8
6	20.4	19.5	17.2	16.3	4.6	4.1	6.9	6.9	6.9	6.4
7		16.5	14.5	13.8	3.9	3.5	5.9	5.9	5.9	

6.3. Toothfish longline fishery (L)

TAC – 1,040 tonnes.

6.4. Skate fishery (F)

TAC – 500 tonnes, maximum 114 vessel-days pursuant to an approved fishing plan.

6.5. Restricted finfish – Pelagic fishery (S)

TAC for southern blue whiting – 2,000 tonnes plus FIFD-approved exploratory fishing.