Catch only projection for shortspine thornyhead

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This document details a catch-only projection for shortspine thornyhead. The most recent assessment for shortspine thornyhead was conducted in 2023. This analysis updates catches between 2023 - 2024 to the best information about removals as provided by the Groundfish Management Team (GMT). The removals for 2025 and 2026 were set equal to mortality projections provided by the GMT for each fleet in the model. For years 2027 and beyond, removals were set equal to the projected Annual Catch Limit (ACL) based on a category 2 time-varying σ of 1 and a P* value of 0.45. These buffers are the same as in the previous stock assessment, with two additional years of buffers for years 2035 and 2036.

Two alternative projections are provided. In Table 2, first, a new ACL for 2026 is calculated based on assumed catches through 2025. Then, a full projection is done using the same assumption of 67% ACL attainment and similar apportioning by fleet in 2026 as the projection in Table 1, but applied to the newly calculated 2026 ACL. In Table 3, first, a new ACL for 2026 is calculated based on assumed catches through 2025 *and* a category 1 sigma of 0.5. Then, the same full projection is done assuming 67% attainment.

Table 1: Original 2023 projection and new catch-only projection for OFLs (mt), buffer, ABCs (mt), actual & assumed catch (mt), ACLs (mt), spawning output (billions of eggs), and stock status (fraction of unfished spawning output) given the removals. The gray shading indicates values associated with the original 2023 assessment projection. In both the original model and the new projection, the removals for years beyond the values in the 'Actual & Assumed Removals' columns are the ACL values estimated from that model.

Year	OFL (2023)	OFL	Buffer	ABC (2023)	ABC	Actual & Assumed Removals (2023)	Actual & Assumed Removals	ACL (2023)	ACL	Spawning Output	Stock Status (2023)	Stock Status
2023	—	—	—	—	—	756	441	—	—	8,716.84	0.394	0.394
2024	—	—	—	—	—	756	635	—	—	8,708.71	0.392	0.393
2025	940	—	—	821	—	—	546	815	—	8,698.00	0.391	0.393
2026	961	—	—	831	—	—	556	825	—	8,702.13	0.391	0.393
2027	982	995	0.857	841	853	—	—	834	848	8,715.11	0.390	0.394
2028	1,001	1,015	0.849	850	861	—	—	843	857	8,717.97	0.390	0.394
2029	1,020	1,034	0.841	858	869	—	—	851	865	8,727.92	0.391	0.394
2030	1,038	1,052	0.833	865	876	—	—	859	872	8,744.37	0.391	0.395
2031	1,056	1,069	0.826	872	883	—	—	866	880	8,766.71	0.392	0.396
2032	1,072	1,086	0.818	877	888	—	—	872	886	8,794.24	0.394	0.397
2033	1,088	1,101	0.810	881	892	—	—	877	891	8,826.41	0.395	0.399
2034	1,103	1,116	0.803	885	896	—	—	883	896	8,862.63	0.397	0.400
2035	—	1,130	0.795	—	899	—	—	—	899	8,902.27	—	0.402
2036	—	1,144	0.788	—	901	—	—	—	901	8,944.96	—	0.404

Table 2: Original 2023 projection and alternative catch-only projection in which the 2026 assumed catches are set to 67% of a new ACL based on actual and assumed catches through 2025 rather than fixed at the values calculated by the GMT based on the current harvest specifications. See caption of table above for additional details.

Year	OFL (2023)	OFL	Buffer	ABC (2023)	ABC	Actual & Assumed Removals (2023)	Actual & Assumed Removals	ACL (2023)	ACL	Spawning Output	Stock Status (2023)	Stock Status
2023	—	—	—	—	—	756	441	—	—	8,716.84	0.394	0.394
2024	—	—	—	—	—	756	635	—	—	8,708.71	0.392	0.393
2025	940	—	—	821	—	—	546	815	—	8,698.00	0.391	0.393
2026	961	970	0.865	831	839	—	562	825	834	8,702.13	0.391	0.393
2027	982	995	0.857	841	852	—	—	834	848	8,714.68	0.390	0.394
2028	1,001	1,015	0.849	850	861	—	—	843	857	8,717.53	0.390	0.394
2029	1,020	1,034	0.841	858	869	—	—	851	865	8,727.47	0.391	0.394
2030	1,038	1,052	0.833	865	876	—	—	859	872	8,743.91	0.391	0.395
2031	1,056	1,069	0.826	872	883	—	—	866	880	8,766.24	0.392	0.396
2032	1,072	1,086	0.818	877	888	—	—	872	886	8,793.76	0.394	0.397
2033	1,088	1,101	0.810	881	892	—	—	877	891	8,825.92	0.395	0.399
2034	1,103	1,116	0.803	885	896	—	—	883	896	8,862.13	0.397	0.400
2035	—	1,130	0.795	—	899	—	—	—	899	8,901.76	—	0.402
2036	—	1,144	0.788	—	901	—	—	—	901	8,944.44	—	0.404

Table 3: Original 2023 projection and alternative catch-only projection in which the 2026 assumed catches are set to 67% of a new ACL based on 1) a category 1 sigma of 0.5 and 2) actual and assumed catches through 2025 rather than fixed at the values calculated by the GMT based on the current harvest specifications. The listed buffer in 2026 is for a category 1 assessment, and does not apply to the 2023 ABC. See caption of table above for additional details.

Year	OFL (2023)	OFL	Buffer	ABC (2023)	ABC	Actual & Assumed Removals (2023)	Actual & Assumed Removals	ACL (2023)	ACL	Spawning Output	Stock Status (2023)	Stock Status
2023	—	—	—	—	—	756	441	—	—	8,716.84	0.394	0.394
2024	—	—	—	—	—	756	635	—	—	8,708.71	0.392	0.393
2025	940	—	—	821	—	—	546	815	—	8,698.00	0.391	0.393
2026	961	970	0.930	831	902	—	604	825	897	8,702.13	0.391	0.393
2027	982	994	0.857	841	852	—	—	834	847	8,711.82	0.390	0.393
2028	1,001	1,014	0.849	850	861	—	—	843	856	8,714.60	0.390	0.394
2029	1,020	1,033	0.841	858	869	—	—	851	864	8,724.47	0.391	0.394
2030	1,038	1,051	0.833	865	876	—	—	859	872	8,740.84	0.391	0.395
2031	1,056	1,068	0.826	872	883	—	—	866	879	8,763.10	0.392	0.396
2032	1,072	1,085	0.818	877	887	—	—	872	885	8,790.55	0.394	0.397
2033	1,088	1,101	0.810	881	892	—	—	877	890	8,822.65	0.395	0.398
2034	1,103	1,116	0.803	885	896	—	—	883	896	8,858.80	0.397	0.400
2035	—	1,130	0.795	—	898	—	—	—	898	8,898.36	—	0.402
2036	—	1,143	0.788	—	901	—	—	—	901	8,940.98	—	0.404