Black Sea Bass

2025 Management Track Assessment Report

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northeast Fisheries Science Center
Woods Hole, Massachusetts

Compiled 06-17-2025

This assessment of the Black Sea Bass (Centropristis striata) stock is a Level-2 2025 management track assessment which updates the existing 2024 management track assessment (NEFSC 2024). Based on the 2024 management track assessment the stock was not overfished, and overfishing was not occurring. This assessment updates commercial and recreational fishery catch data, survey indices of abundance, weights and maturity at age, and the spatially explicit WHAM assessment model and reference points through 2024. Additionally, stock projections have been updated through 2027.

State of Stock: Based on the results of this management track assessment, the Black Sea Bass (*Centropristis striata*) stock is not overfished and overfishing is not occurring (Figures 1-2). Spawning stock biomass (SSB) in 2024 was estimated to be 30,896 (mt) which is 284% of the biomass target (SSB_{MSY} *proxy* = 10,877; Figure 1). The 2024 fully selected fishing mortality was estimated to be 0.75 which is 73% of the overfishing threshold proxy (F_{MSY} *proxy* = 1.036; Figure 2).

Table 1: Catch and status table for Black Sea Bass. All weights are in (mt) recruitment is in (000s) and F_{Full} is the fishing mortality on fully selected individuals (age 8). Model results are from the current management track assessment.

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Data										
Commercial catch in North	1,048	1,388	2,346	1,904	1,985	1,713	1,779	2,440	2,065	2,882
Recreational catch in North	4,341	5,963	5,062	3,375	4,147	4,068	4,520	3,310	2,666	2,607
Commercial catch in South	417	310	368	300	513	583	695	636	601	660
Recreational catch in South	635	831	1,576	1,158	1,076	1,423	2,520	2,053	2,341	1,383
Catch for Assessment	6,442	8,491	9,352	6,737	7,721	7,788	9,514	8,440	7,672	7,532
Model Results										
Spawning Stock Biomass	17,367	18,494	18,508	20,695	21,059	22,098	26,123	26,482	28,949	30,896
F_{Full}	0.888	0.975	1.265	0.869	1.002	0.971	0.983	0.902	0.776	0.752
Recruits (age 1)	27,090	61,790	34,594	19,477	44,197	43,929	29,914	55,087	60,540	27,846

Table 2: Comparison of reference points estimated in the 2024 management track assessment and the current management track assessment. An $F_{40\%}$ proxy was used for the overfishing threshold and was based on average recruitment since 1999. F is the fully selected fishing mortality summed across regions and fleets and reflects a maximum value.

	2024	2025
F_{MSY} *proxy*	1.07	1.04
SSB_{MSY} (mt)	11,225	10,877 (7,954 - 14,876)
MSY (mt)	3,649	3,333 (2,430 - 4,569)
Median recruits (age 1) (000s)	33,571	32,736
Overfishing	No	No
Overfished	No	No

Projections: Short term (three year) projections were conducted in WHAM, which propagates uncertainty in fleet selectivity, numbers at age, and environmental covariates. For projection specifications, predicted recruitment was averaged for years after 1999 and the most recent 5-year average of age specific maturity, weight-at-age, fleet selectivity, and natural mortality estimates were used. The ABC catch was used in the first projection year followed by F_{MSY} *proxy* in subsequent years.

Table 3: Short term projections of total fishery catch and spawning stock biomass for Black Sea Bass based on a harvest scenario of fishing at F_{MSY} *proxy* for 2026-2027. Catch in 2025 was assumed to be 7,557 (mt).

Year	Catch (mt)	SSB (mt)	F_{Full}
2025	7,557	29,934 (13,063 - 68,592)	0.755

Year	Catch (mt)	SSB (mt)	F_{Full}
2026	8,101	22,809 (7,303 - 71,233)	1.036
2027	6,036	17,563 (5,111 - 60,352)	1.036

Special Comments:

- What are the most important sources of uncertainty in this stock assessment? Explain, and describe qualitatively how they affect the assessment results (such as estimates of biomass, F, recruitment, and population projections).

  The recreational catch and the recreational catch-per-angler index both relied on data from the Marine Recreational Information Program (MRIP) which is planning a substantial re-calculation and evaluation in the next few years. To date, the MRIP estimates are a major source of uncertainty in stocks that use these data. Another source of uncertainty is the NEFSC bottom trawl survey data in spring 2023, which only surveyed on Georges Bank and therefore lacked index information for the Gulf of Maine, Southern New England, or the southern region between Hudson Canyon to Cape Hatteras. The bottom trawl survey is only one of several that inform the model-based index time series used in the assessment (VAST), but its spatial (area weighting = 0.8) and temporal (36 year) coverage make it highly influential. The VAST index value in the South for 2023 contributes to the upward trend in recent years. Sensitivity tests were done to exclude the VAST index for 2023 but the results did not change the stock status. Another source of uncertainty stemmed from the lack of length information on landings in the unclassified market category which have not been sampled in the North since 2020, and in the South since 2013. Calculating the catch at length for 2021-2024 necessitated borrowing information from before 2020 and across regions which introduces additional uncertainty.

- Does this assessment model have a retrospective pattern? If so, is the pattern minor, or major? (A major retrospective pattern occurs when the adjusted SSB or F_{Full} lies outside of the approximate joint confidence region for SSB and F_{Full}).

  The 7-year Mohn's ρ, relative to SSB, was 0.01 in the North and -0.132 in the South in the 2024 assessment and was -0.066 in the North and -0.066 in the South in the current assessment. The 7-year Mohn's ρ, relative to fully selected F, was 0.008 in the North and 0.1 in the South in the 2024 assessment and was 0.09 in the North and 0.023 in the South in the current assessment. There was not a major retrospective pattern for this assessment because the ρ adjusted estimates of 2024 SSB (SSB_ρ=33,087) and 2024 F (F_ρ=0.7) were inside the approximate 90% confidence regions around SSB (22,609 - 48,655) and F (0.49 - 1.002). No retrospective adjustment of spawning stock biomass or fishing mortality in 2024 was required.

- Based on this stock assessment, are population projections well determined or uncertain? If this stock is in a rebuilding plan, how do the projections compare to the rebuilding schedule?

  Population projections for Black Sea Bass are relatively well determined. The projected biomass from the 2024 management track assessment was within the 95% confidence bounds of the biomass estimated in the current assessment. Realized catch in 2024 was approximately the 2024 ABC that was used in short-term projections from the previous Management Track Assessment. While estimated SSB in the current assessment did not decline as projected by the 2024 Management Track Assessment model, it was within the uncertainty bounds of SSB for this model. This stock is not in a rebuilding plan.

- Describe any changes that were made to the current stock assessment, beyond incorporating additional years of data and the effect these changes had on the assessment and stock status.

  The inter-year correlation of the 2DAR(1) numbers-at-age process error was decoupled, such that a

separate value was estimated for age-1 individuals and age 2+ individuals. Other than that, the only change to the model is the incorporation of 2024 data.

- If the stock status has changed a lot since the previous assessment, explain why this occurred.
  The stock status of Black Sea Bass did not change since the previous assessment. Reference points are statistically the same as those of the previous assessment.

- Provide qualitative statements describing the condition of the stock that relate to stock status.
  The Black Sea Bass stock shows recent strong levels of recruitment that have sustained a high spawning stock biomass in the North and have increased the spawning stock biomass in the South. This pattern influences the age structure in the North and South, with a more expanded age structure in the previous 10 years than is observed earlier in the time series.

- Indicate what data or studies are currently lacking and which would be needed most to improve this stock assessment in the future.
  The Black Sea Bass assessment could be improved with sampling the length composition of the unclassified market category. Care should be taken to continue the existing sampling regime of the NEFSC Bottom Trawl survey as these data are an indispensable source of fisheries-independent information to inform abundance. Likewise, the portside sampling program provides essential length information of the commercial landings and if the volume of these data diminish, it would need to be supplemented by additional sampling programs.

- Are there other important issues?
  None

References:
Northeast Fisheries Science Center. In progress. Report of the 2024 Black Sea Bass Management Track Assessment. Available at: SAFINF https://apps-nefsc.fisheries.noaa.gov/saw/sasi.php
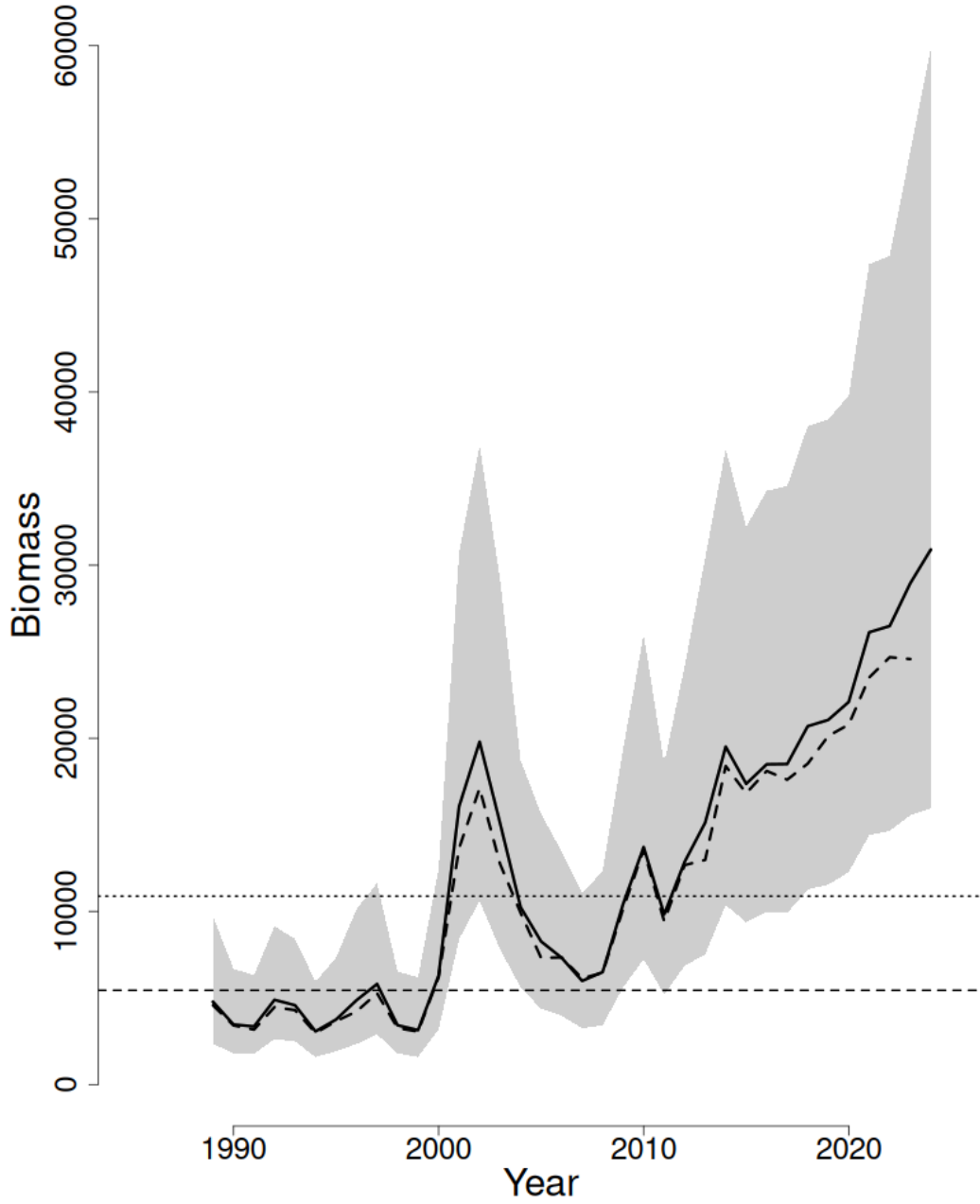
Figure 1: Trends in spawning stock biomass of Black Sea Bass between 1989 and 2024 from the current (solid line) and previous (dashed line) 2024 management track assessment and the corresponding $SSB_{Threshold}$= 5438.5 ($\frac{1}{2}$ SSB_{MSY} proxy; horizontal dashed line) as well as SSB_{Target} (SSB_{MSY} proxy=10,877; horizontal dotted line) based on the 2025 assessment. The approximate 95% lognormal confidence intervals are shown.
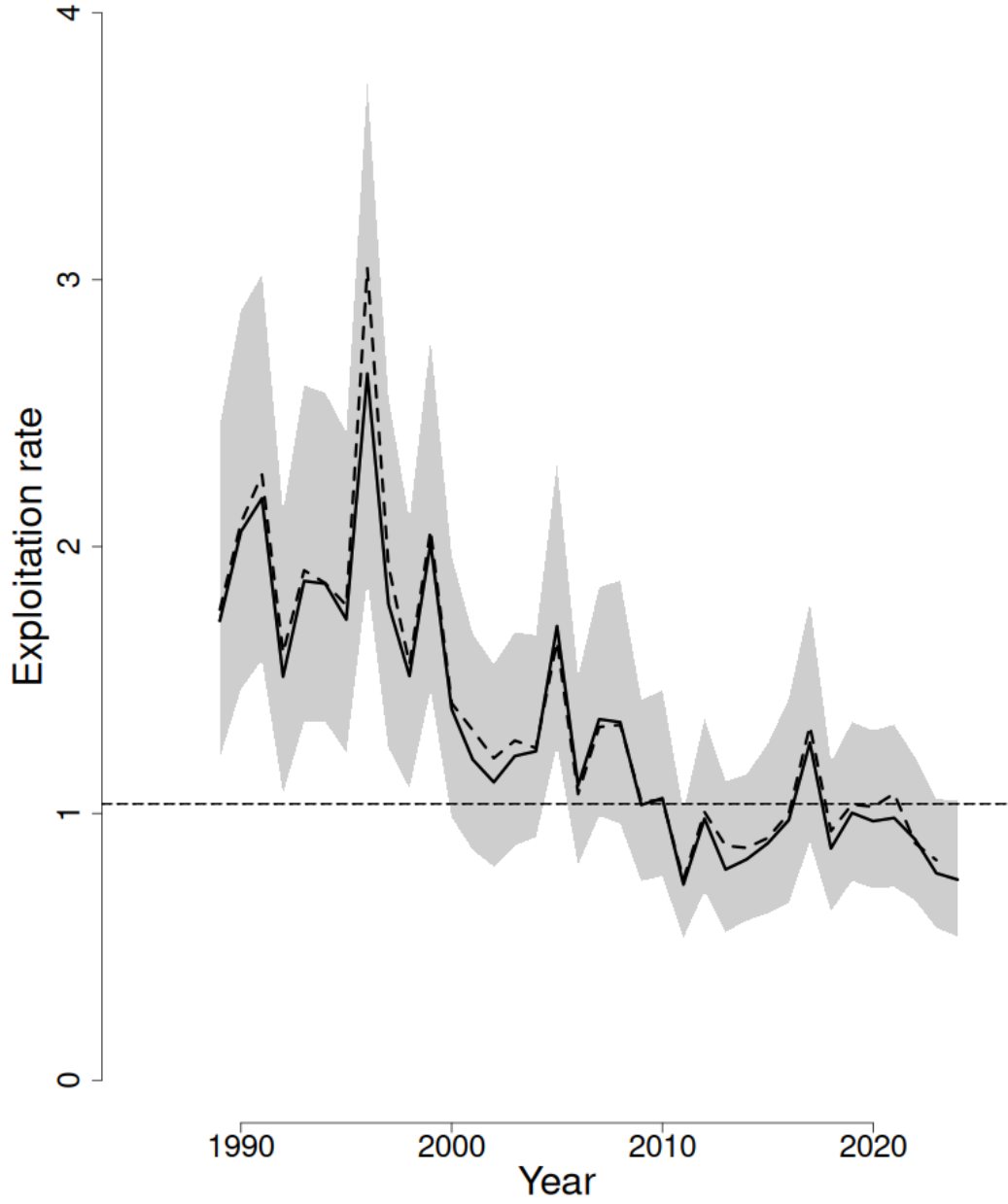
Figure 2: Trends in the fully selected fishing mortality (F_{Full}) of Black Sea Bass between 1989 and 2024 from the current (solid line) and previous (dashed line) 2024 management track assessment and the corresponding $F_{Threshold}$ (F_{MSY} proxy=1.036; horizontal dashed line) based on the 2025 assessment. The approximate 95% lognormal confidence intervals are shown.
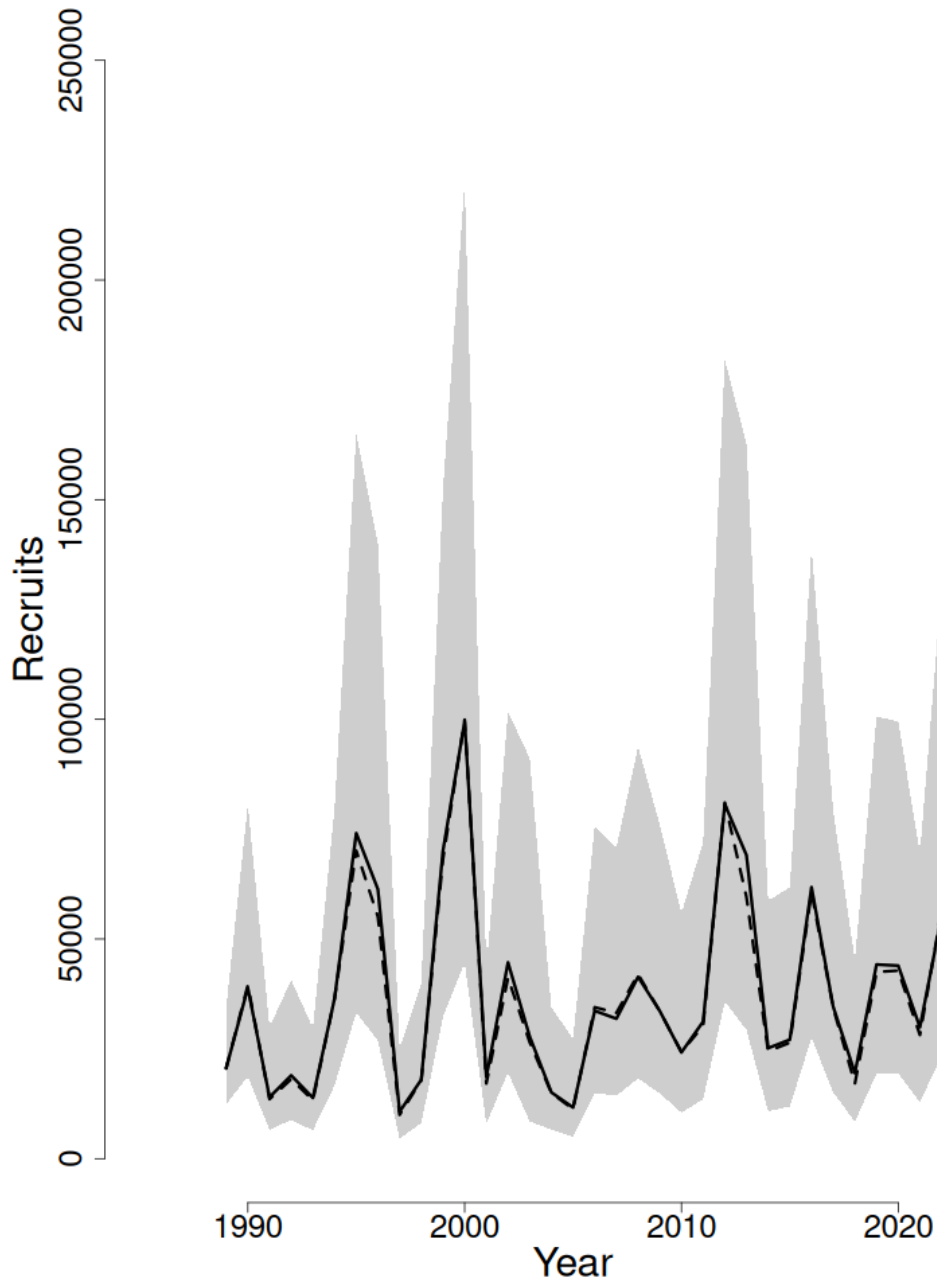
Figure 3: Trends in Recruits (age 1) (000s) of Black Sea Bass between 1989 and 2024 from the current (solid line) and previous (dashed line) assessment. The approximate 95% lognormal confidence intervals are shown.
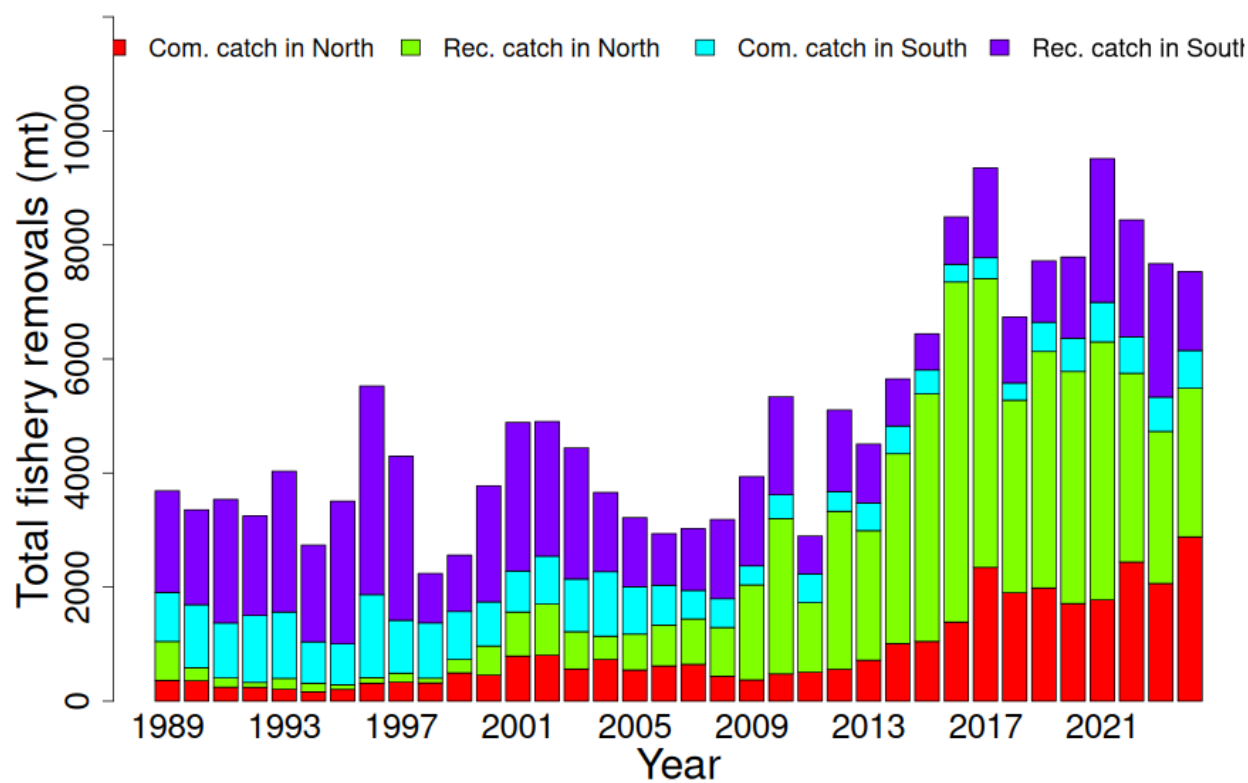
Figure 4: Total catch of Black Sea Bass between 1989 and 2024 by fleet (commercial or recreational) and region (North or South).
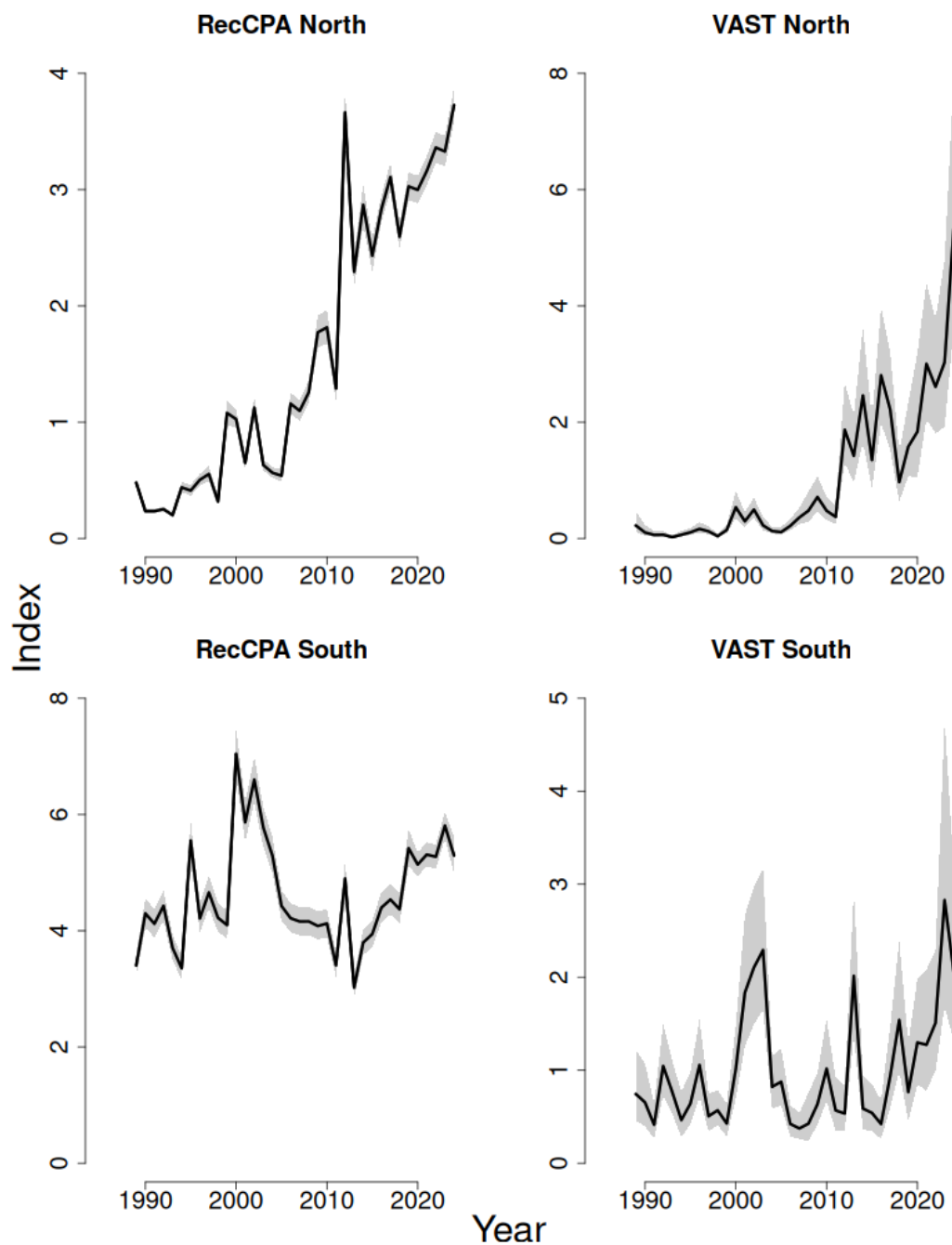
Figure 5: Indices of abundance for Black Sea Bass between 1989 and 2024 for the recreational catch-per-angler (RecCPA) and the Vector Autoregressive Spatio-Temporal Model (VAST) models in the North and South regions. The approximate 95% lognormal confidence intervals are shown.