

Assessment Model, Terminal Year	Description of Assessment Model	Overfishing?/Overfished?	In Rebuilding Program?	OFL	ABC/ABC CR	ACL	ACT
ASAP, 2021	Statistical Age-Structured Model	No/No (assessment indicates change in overfished condition from previous assessment)	Yes, 2004-2031 $F_{REBUILD} = 70\%FMSY$	3,022 mt in 2022	Total ABC = 2,155 mt and US ABC = 2,116 mt in FY2022	2,011 mt in 2022	N/A
Catch and numbers-at-age are not well characterized due to potential mis-identification (particularly in early years), low sampling, no commercial catch-at-age data prior to 1989, and bias resulting from dealers culling extra-large fish out of the <i>large</i> category starting in 2003 (an extra-large market category wasn't established until 2014).				MSY/OY	AMs	Discards	State Waters
				MSY = 4,186 mt	In-season closures and lb-lb for commercial groundfish fishery	21.6 mt in FY2021	1.2 mt in FY2021
Availability of Biological and Assessment Data		Updated data since last assessment: updated survey indices (2019 and 2021 NEFSC spring and fall surveys) and commercial fishery catch data; new survey, ASMFC shrimp survey, added to ASAP model					
Recent Performance Against Harvest Control Rule		74.7% of ACL caught in FY2019; 90.2% of ACL caught in FY2020; and 95.1% of the ACL caught in FY 2021.					
Current Management Program		Expected Canadian catch (based on the average catch of the most recent three years available, 39 mt assumed for FY2022) is reduced from the total ABC before distributing the remaining portion of the ABC to U.S. vessels. The Total ACL is divided between several sub-ACLs and sub-components. The commercial sub-ACL is further divided between the sector sub-ACL and the common pool sub-ACL. The majority of commercial permits participate in 1 of 17 sectors, fishing under quotas. The common pool operates under days-at-sea, with trip limits and trimester TACs controlling catch. State waters and the other sub-component round out the final components of the total ACL. Landings and discards from all fisheries count against the applicable sub-ACL or sub-component, which are monitored throughout the year. If an overage occurs, an accountability measure is triggered for a subsequent fishing year.					
Variability in Catch/Revenues?		Commercial Groundfish Revenue for white hake (2020S): \$4.5 million in FY2018, \$4.3 million in FY2019, \$4.5 million in FY2020; \$4.8 million 5-year average White hake ex-vessel price/lb (2020S/lb): \$1.30/lb in FY2018, \$1.26/lb in FY2019, \$1.46/lb in FY2020; \$1.46/lb 5-year average Total groundfish landings: 44.28 million pounds in FY2018, 42.66 million pounds in FY2019, 50.66 million pounds in FY2020 White hake catch (landings + discards): 2,113.1 mt in FY2018, 2,088.0 mt in FY2019, 1,840.3 mt in FY2020, 1,941.6 mt in FY2021 A relatively equivalent amount of white hake is caught during each quarter of the fishing year (low seasonality to catch).					
Data - Vessels, Permits, Dealers, Processors, Employment		FY 2020: 876 commercial groundfish permitted vessels, of those 590 vessels which received revenue from any species on a declared groundfish trip and 197 vessels with revenue from groundfish. 99 dealers reported buying groundfish.					
% Food, % Recreational		95% of the total ACL is allocated to the commercial groundfish fishery. There is no recreational sub-ACL.					
Fishing Communities		The top 5 ports based on the Groundfish-Specific Commercial Engagement Indicator (2004-2020) are Gloucester, MA; New Bedford, MA; Boston, MA; Narragansett, RI; and Portland, ME.					
Other Economic/Social Factors		ACE lease prices modeled using a hedonic price model from inter-sector leases for FY2017-2021: Inter-sector ACE lease prices were at or around \$0.00/lb in 2018, but from 2019 through 2021 steadily increased and were at or above \$0.50/lb from the third quarter of 2020 through the fourth quarter of 2021. White hake utilization has been high (at or above 75%) since 2018 and was predicted to be a constraining stock for FY2022.					
Major Sources of Scientific Uncertainty		Catch-at-age information is not well characterized due to possible mis-identification of the species. Numbers-at-age and mean weights-at-age for fish 5+ may not be well specified. There are no commercial catch-at-age data prior to 1989 and the catchability of older ages in surveys is low, resulting in large uncertainty in starting numbers at age. Dealers have been culling extra-large fish out of the large category since 2003 but there was no extra-large market category until 2014. This may bias the age composition of landings, especially for 2014.					
Major Sources of Management Uncertainty		White hake may move seasonally into and out of the defined stock area.					
How is the probability of overfishing addressed?		White hake is in a rebuilding plan with a rebuild-by date of 2031. The plan sets $F_{REBUILD} = 70\%FMSY$. The FY2022 ABC for white hake was revised downward from previous catch advice set based on 75%FMSY to ensure catch advice is consistent with the new rebuilding plan.					
What is the consequence of overfishing?		Reduction in biomass, yield, and net economic benefits over the long-term.					
How are expected net benefits to the Nation currently measured/evaluated?		Yield (mt and \$)					
Interactions with Other Fisheries/Stocks, Bycatch Issues		Utilization of white hake is high (over 75%) and can be constraining to other groundfish stocks.					
Ecosystem Considerations: Trophic Interactions		The diet of demersal juveniles includes polychaetes, shrimp, and other crustaceans. Atlantic puffin and Arctic tern are major predators of juvenile white hake.					
Ecosystem Considerations: Habitat		Adult white hake are demersal occurring from estuaries to the upper continental slope and deep basins on muddy and fine-grained, sandy bottom.					
Ecosystem Considerations: Climate		White hake are considered to be moderately vulnerable to climate change (high climate exposure risk, moderate biological sensitivity). White hake distribution has shifted northwards and into deeper waters over time.					
Other Important Considerations/Notes		The change in stock status to not overfished due to a reduction in the retrospective pattern and reduction in biomass reference point because of a lower mean recruitment.					