

A species is considered rebuilt when B is greater than B_{MSY} and F is less than F_{MSY} . A species is considered healthy when B is greater than or equal to the biomass at optimum yield (B_{OY}) and F is less than or equal to the fishing mortality at optimum yield (F_{OY}). NMFS is not changing these definitions in this rule, thus the target control rule for managing healthy stocks continues to be 75 percent of F_{MSY} . This definition is consistent with the National Standard guidelines.

D. Minimum Size Restrictions

Comment 1: NMFS received a range of comments regarding what the commercial minimum size should be. Comments included: We support the no commercial minimum size alternative. The minimum size in the HMS FMP was based on sandbar sharks but does not fit for all ridgeback LCS species. We support the proposed no minimum size because the minimum size was established for sandbar sharks which is no longer overfished and because it will help reduce regulatory discards. We support a minimum size for sharks. The minimum size of any shark should be 15 feet. If recreational fishermen have a minimum size to protect juveniles, commercial fishermen should have a minimum size as well. We could support no commercial minimum size if juveniles of all species were protected by time/area closures; the proposed time/area closure does not do this.

Response: NMFS considered six different minimum size alternatives in the commercial fishery. Not implementing a commercial minimum size is preferred because, in combination with the other preferred alternatives, it will minimize regulatory discards and economic and social impacts to commercial fishermen, while providing adequate protection for juvenile and neonate sharks through the time/area closure off of North Carolina. Furthermore, commercial gear, unlike recreational gear, can have high post-release mortality rates. Therefore commercial management measures, which are aimed at reducing (*i.e.*, quota reductions) or preventing (*i.e.*, via time/area closures) catch are better for protecting juvenile and neonate sharks.

Comment 2: NMFS made a strong case in the HMS FMP for a minimum size based on protecting the age classes with the highest reproductive potential, demographic information, and the proportion of sharks brought to the boat dead. Now that NMFS is backing away from a ridgeback LCS quota, this measure is needed to protect the most sensitive life stages of ridgeback LCS (sandbar and dusky sharks in

particular). NMFS should maintain the minimum size, show quantitative analyses that indicate a minimum size is not needed, or replace it with more effective species-specific measures to protect juvenile dusky and sandbar sharks.

Response: Maintaining the commercial minimum size is not warranted at this time. This rule finalizes several commercial management measures including, but not limited to, trimester seasons, regional quotas, reductions in the LCS quota, bycatch reduction measures, and a time/area closure to protect juvenile dusky and sandbar sharks, which will facilitate rebuilding of LCS.

Comment 3: If NMFS does not adopt a minimum size, it must adopt a time/area closure to reduce bycatch of juvenile and neonate sharks to levels at least as great as would be achieved with minimum sizes.

Response: Implementation of a time/area closure would reduce bycatch of juvenile and neonate sharks, but alone, it would not be sufficient to meet the rebuilding target for the LCS complex. As such, NMFS is implementing multiple management measures including, but not limited to reductions in the LCS quota, bycatch reduction measures, and the time/area closure, which are intended reduce bycatch of juvenile and neonate sharks.

Comment 4: NMFS should establish sub-group or species-specific minimum sizes within the LCS, SCS, and/or pelagic shark species groups as justified by new or updated research.

Response: Minimum sizes for sub-groups or individual species within each management unit are not necessarily the most effective management measures. While a commercial minimum size would seek to protect and reduce fishing mortality on juvenile sharks, any conservation benefits gained may be offset by increases in regulatory discards and associated post-release mortality if commercial fishermen are unable to avoid mixed-size aggregations of some shark species. For instance, while sandbar sharks tend to segregate by size, blacktip sharks and other species do not. Regulatory discards may also result in effort increases by fishermen in order to make up for lost catches, which could also result in increased interactions with protected (*i.e.*, sea turtles and marine mammals) and non-targeted (*i.e.*, prohibited sharks and other finfish) species. Additionally, regulatory discards of LCS are not counted against the 4,000 pound trip limit. Thus, if a fisherman should catch a set full of undersized sharks, those sharks would

be discarded and the fisherman could set the gear again, possibly in another school of small sharks. If the ability of fishermen to target certain species of sharks improves, then NMFS may reconsider minimum sizes in the commercial fishery.

Comment 5: Commercial fishermen have long claimed that most sharks come in alive. Therefore, there does not seem to be any rationale for a recreational minimum size while similar commercial measures are eliminated. A commercial minimum size for mako sharks is overdue. Longliners are willing to compromise for a minimum size on mako sharks.

Response: Commercial fishery observer data indicate that a number of LCS exhibit low survivability following longline capture. These species include spinner (63 percent dead when brought to the vessel), dusky (81 percent), scalloped hammerhead (87 percent), blacktip (88 percent), silky (90 percent), and great hammerhead (95 percent). As such, NMFS believes that implementation of a minimum size in the commercial fishery would result in significant increases in regulatory dead discards of LCS. However, sharks caught on recreational gear are thought to have low post-release mortality rates and, as such, a minimum size in the recreational fishery would contribute to LCS rebuilding by protecting juvenile and subadult sharks.

E. Commercial Shark Quota: General

Comment 1: NMFS received a range of comments regarding what the commercial quota level should be, including: Commercial quota levels should be reduced or even eliminated until the complex recovers. Quotas should be reduced by 700 percent. We support the quota alternatives (classification, administration, and basis) insofar as that together they result in the lowest overall quotas to ensure sustainable levels for all species and protect juveniles.

Response: NMFS did not propose a specific quota level. Instead, NMFS considered a wide range of quotas that resulted from the combination of classification and quota basis alternatives, specifically seven different commercial quotas for LCS and three different commercial quotas for SCS. Each quota alternative carefully considered the results of the 2002 stock assessments for LCS and SCS. The preferred quota alternatives will implement commercial quota levels of 1,017 mt dw for the LCS aggregate and 454 mt dw for the SCS aggregate. These quota levels are expected to rebuild the LCS complex within the necessary time