Large Pelagics Survey Catch Data for Sandbar Shark in the Northeast

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Recreational catch estimates for Sandbar Sharks compiled from the Large Pelagics Survey (LPS) in the Northeast Atlantic (Maine to Virginia).

Parameters for data prepared for SEDAR 101 recreational catch data:

Species: Sandbar Shark

Year Range: 2002-2025

Geographic Range: New England and Mid-Atlantic states from Maine to Virginia.

Temporal Range: Massachusetts and New York to Virginia are sampled each year from June through October. Rhode Island, Connecticut, New Hampshire, and Maine are sampled from July to October.

Fishing Modes: Charter, Private. The LPS does not sample Shore mode.

Primary Sampling Unit: Fishing vessels targeting HMS or other large pelagics

INTRODUCTION

The Large Pelagics Survey (LPS) collects data used to estimate fishing effort and catch of large pelagics and highly migratory species (HMS) by private and charter boats in the Northeast (Maine to Virginia). The LPS primarily targets vessels with open access Atlantic HMS fishing permits that are fishing out of known offshore fishing access sites. Participation is mandatory for HMS permit holders contacted by the survey as a requirement of their permit (50 CFR 635.5(f)). Massachusetts and New York to Virginia are sampled each year from June through October. Rhode Island, Connecticut, New Hampshire, and Maine are sampled from July to October. While the LPS has gone through several design iterations, the current design has been in use since 2002. While pelagic sharks are regularly sampled and observed by the LPS, sandbar sharks are one of the few coastal shark species that are regularly reported in the LPS.

MATERIAL AND METHODS

The LPS employs two telephone surveys of Atlantic HMS permit holders to collect vessel-level effort data, and a dockside survey of known offshore fishing access sites to collect catch data on HMS-managed species (tunas, swordfish, billfish, and sharks) and other large pelagic species commonly caught in the HMS fishery (dolphin, wahoo, greater amberjack, little tunny, Atlantic bonito). Estimates of effort and catch are generated by state or state group, as six states are included in two-state groups for sampling and estimation purposes (Maryland/Delaware, Connecticut/Rhode Island, and New Hampshire/Maine). Separate estimates are also generated for North and South New Jersey to facilitate international reporting by statistical areas set by the International Commission for the Conservation of Atlantic Tunas (ICCAT).

The two surveys used by the LPS to collect vessel-level effort data include the Large Pelagic Telephone Survey (LPTS), and the LPTS Add-on to the For-Hire Survey (FHS) (NMFS 2023). The LPTS samples Atlantic HMS Angling, Atlantic Tunas General, and Swordfish General Commercial permit holders to collect data on private boat vessel effort directed at HMS. The LPTS sampling frame is initially compiled in late May, and is updated in late June and late August. Sampling is stratified geographically by state, and temporally in two-week reference periods. Sample size targets for each state and sample week are determined based on historic effort distributions to optimize the precision of effort and catch estimates and the use of available funding.

HMS Charter/Headboat permit holders are surveyed by the FHS, and during the months of June through October when the LPS is conducted, they are asked additional questions

about their HMS-directed fishing effort (i.e., the LPTS Add-on). By collecting this data via an add-on to the FHS, charter captains are allowed to avoid duplicate reporting burden. FHS sampling is conducted on a weekly basis and stratified by vessel type (charter vs. headboat), state, business county, vessel length, and HMS permit status. Unlike the other MRIP surveys, data from the LPTS and LPTS Add-on to the FHS are used to generate effort estimates of total vessel trips, and not the number of individual angler trips.

Catch data is collected by the Large Pelagic Intercept Survey (LPIS) which conducts dockside interviews of private and charter boat operators at known offshore fishing access sites. Unlike other surveys of recreational saltwater anglers, the vessel and not individual anglers serve as the primary sampling unit. The LPIS also does not interview shore-based anglers. Initial screening questions are used to determine whether a vessel was targeting HMS-managed species or other large pelagics before completing the interview. The LPIS collects data on catch, both harvested and discarded fish by species, opportunistic length measurements, and vessel permit information. The later is used for the adjustment of LPS effort estimates by allowing for the development of correction factors for "off-frame" vessel effort in the form of unpermitted and out-of-state fishing effort. Catch data collected by the LPIS is used to generate estimates of catch rates per vessel trip. These catch rates are multiplied by the LPTS vessel effort estimates that have been adjusted for off-frame effort to develop the final LPS catch estimates by species.

RESULTS AND DISCUSSION

Between 2002 and 2025, the LPS estimated a total catch 21,850 sandbar sharks of which only 2.2% were harvested. This is not entirely surprising as retention of sandbar sharks in the recreational fishery was prohibited in 2008. Even prior to their retention prohibition, only 4.6% of sandbar sharks reported caught to the LPS were harvested. Overall, the Charter fishery accounted for 18.5% of the sandbar shark catch, while the Private boat fishery caught the remaining 81.5%. Prior to the prohibition, harvest rates were significantly higher in the Charter fishery (15.8%) than in the Private boat fishery (3.3%). Estimated total catch has varied widely in the LPS, ranging from a low of 118 in 2023 to a high of 3,356 in 2009 (Figure 1). Total catch also varied widely across states. PSEs for total catch estimates also vary, ranging from 25.0 to a high of 82.4, and averaging 38.3 over the time series (at the highest level of aggregation). Seventeen of the 24 years in the time series had PSEs for total catch of 30 or greater, but only 3 had PSEs over 50.

As was noted in Diaz (2026), there were unusually high catch estimates in 2006-2009, especially in the state of Virginia (Figure 1). The estimated catch in Virginia in that four-year

period accounted for 44% of the total LPS catch of sandbar sharks from 2002-2025. An examination of the data, and a unique change in LPIS sampling procedures starting in 2010 likely explain the source of this aberration. In 2010, the LPIS stopped interviewing fishing vessels with incidental catch of large pelagic fish (i.e., vessels with catch of large pelagics that did not identify any large pelagic species as their target species) (NMFS 2025). This change was made to remove an inconsistency with the sampling procedures of the LPTS, which only collects effort data on vessel trips targeting large pelagic species, that was felt to be a potential source of bias in catch estimation. An examination of the trips intercepted from 2006-2009 with sandbar shark catch showed that the plurality (~48%) of them did not list large pelagic species as their primary target species. Approximately 22% of these trips were targeting sharks, while an additional 30% targeted other large pelagics (mostly tunas). Of the non-LPS fish species that were targeted by trips reporting catch of sandbar sharks, trips targeting cobia (15%) and southern flounder (16%) made up the larger portion of them. While it is believed this change in procedure had minimal effect on catch estimates for most HMS -managed species, it does appear to have been a significant factor here. Another factor that may have affected the timing of this change in catch estimates was the prohibition of sandbar shark retention in the recreational fishery in 2008; however, given the low retention of sandbar sharks in the recreational fishery before the prohibition, this was likely less of a factor in the reduction in total catch estimates.

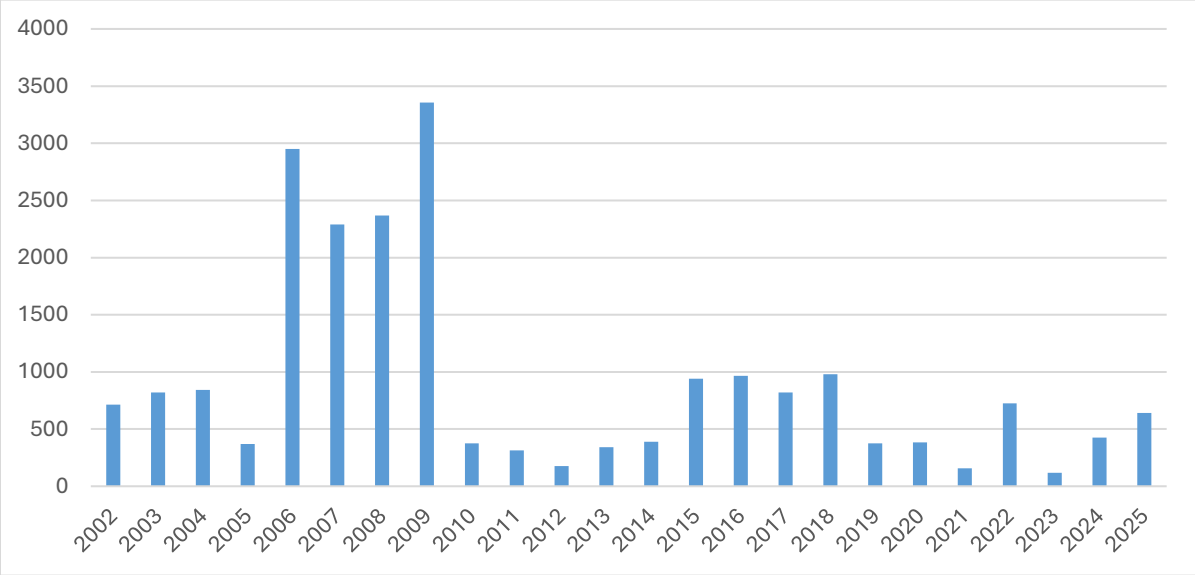

Figure 1. Estimated total catch of sandbar sharks by year by the LPS. The LPIS stopped interviewing vessels with incidental catch on large pelagics in 2010.

Since the adjustment to LPIS sampling methods in 2010, reported sandbar catches in the LPS steadily increased until about 2016 before taking a sharp decline in 2019. This coincided with the extra restrictions placed on shortfin mako sharks in both the commercial and recreational fisheries in 2018 (83 FR 9255), which were in turn followed by a prohibition on retention in 2022 (87 FR 39373). Trips targeting shortfin mako sharks have long comprised the majority of trips targeting sharks in the LPS (62% prior to 2020), and the number of trips targeting sharks dropped significantly following the added restrictions on the retention of shortfin mako (Figure 2). In addition, the number of HMS registered tournaments targeting sharks has declined significantly, and intercepts at these events made up a significant portion of trips targeting sharks in the LPS (NMFS 2023). As such, it is likely the decline in sandbar shark catches since 2019 has likely reflected these changes in the fishery more so than any decline in sandbar shark abundance.

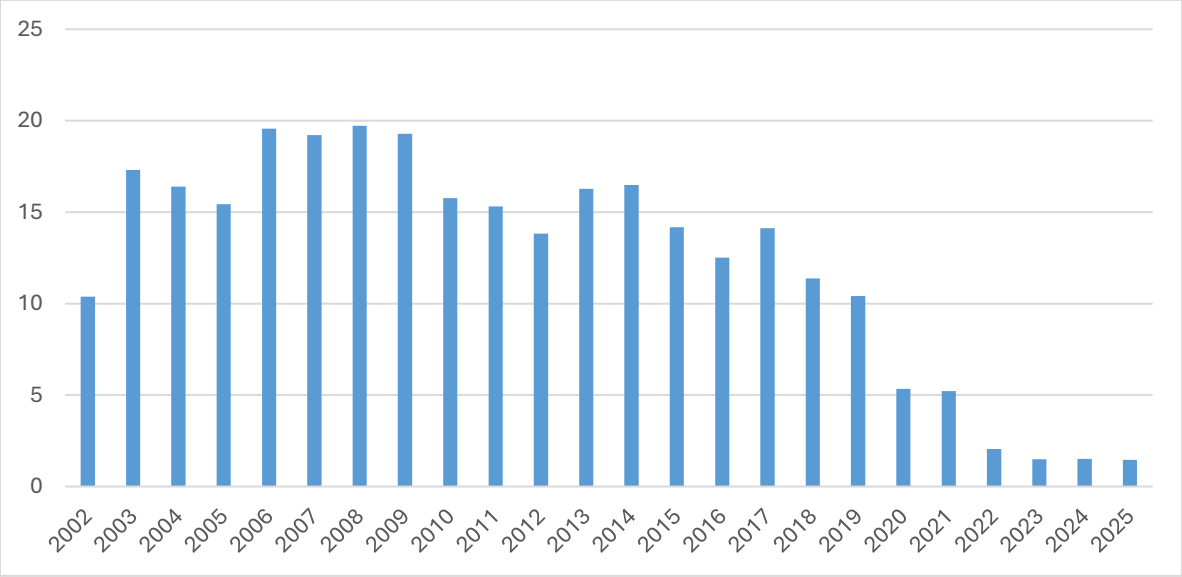

Figure 2. Percentage of LPIS intercepted vessel trips targeting sharks by year.

As noted previously, 98% of the total sandbar catch over the LPS time series has been sharks that were released alive, meaning this were self-reported sharks that were not observed by the dockside sampler. This introduces the potential issue of mis-identification, especially as dusky sharks are also commonly reported in the survey, and have been reported even more frequently than sandbars in recent years. A comparison of sandbar versus dusky shark total catch estimates in the LPS shows that the reported catch of the two species has followed similar trends in the survey, especially since 2015 (Figure 3).

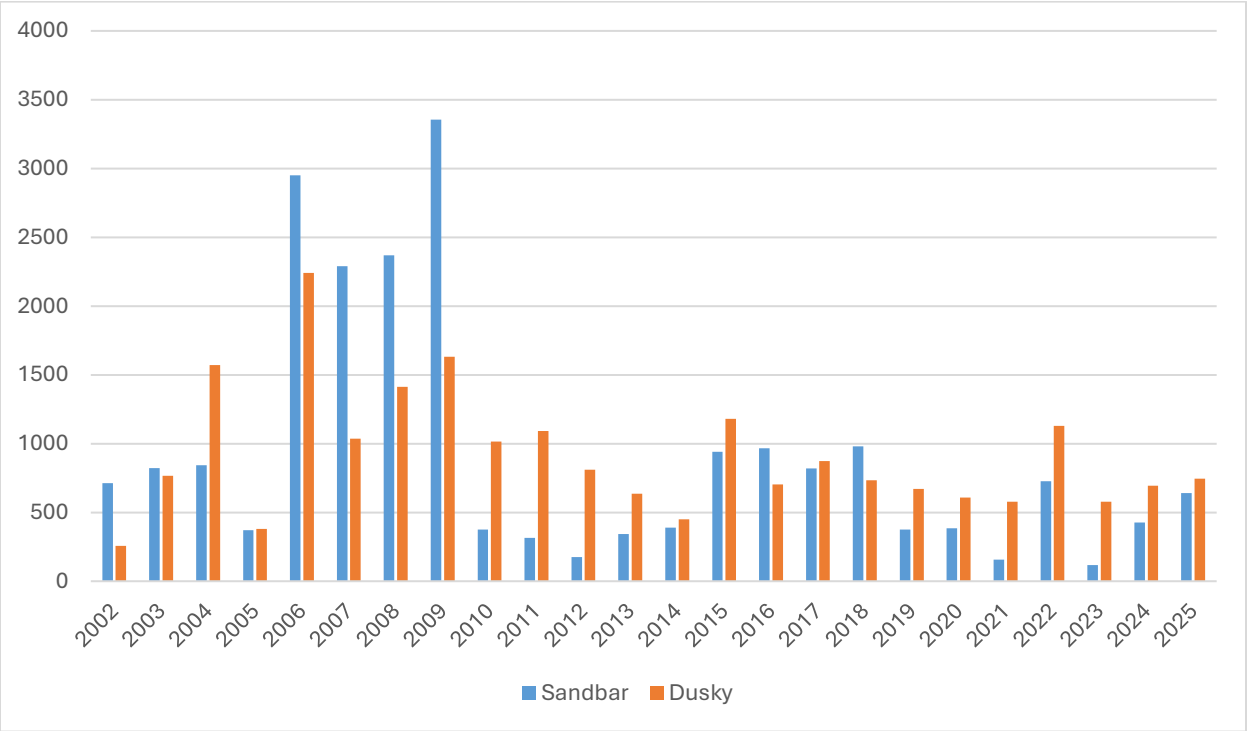

Figure 3. Comparison of LPS total catch estimates for sandbar and dusky sharks, 2002-2025.

In conclusion, there are several issues that raise serious questions about the appropriateness of the LPS as a measure of sandbar shark removals. However, most of these issues are likely to be even more pronounced in the general MRIP survey where the catch estimates are even more highly variable. If the stock assessment team does decide to move forward with using this data source, it might be advisable to truncate the time series to 2010 to 2015, given the change in LPIS methodology (no longer interviewing incidental trips) and its clear impact on sandbar shark catch estimates.

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