Climate change is affecting species distributions in space and time. Rapid warming in the Gulf of Maine has altered the distribution of the critically endangered North Atlantic right whale (*Eubalaena glacialis*). Right whales have returned to historically inhabited areas such as southern New England shelf waters (SNE), an area known to have been a whaling ground, but one that has not been known to host large numbers of right whales in modern times. While right whales are known to occur in SNE, the relative importance of this region is still being assessed. We compared aerial survey data from two time periods (2013-2015; 2017-2019) to assess the trends in right whale abundance in the region using distance sampling techniques. We also explored the annual and seasonal use of this habitat by different age and sex classes using photographically identified individuals. A generalized linear model of abundance (βyear = 1.48, p < 0.01) and a linear model of the number of unique individuals (IPUE; βyear = 2.25, r2 = 0.66, p < 0.001) showed significant increasing trends in right whale use of the area. We estimated zero abundance and IPUE during summer and fall of 2013-2015, but non-zero abundance or IPUE during the summer and fall of 2017-2019. A *G*-test of independence showed significantly different proportions of adults to juveniles between seasons pooled across years (G = 20.61, df = 3, p < 0.001), and a *G*-test goodness of fit of individual seasons from 2017 to 2019 showed significantly higher proportions of juveniles during four seasons (Bonferroni p-values < 0.05). Our results show the current importance of this habitat and suggest that importance may vary seasonally by age class. Management options must evolve as right whales repatriate historical habitats and potentially expand to new habitats as they adapt to climate change.