## Appendix B. Life history pattern classification method.

*Determination of threshold $\Delta\delta^{15}N$ value*

An iterative classification method based on the pattern of turtle-specific $\delta^{15}N$ transects and a series of threshold $\Delta\delta^{15}N$ values was employed to classify individuals into life history pattern groups. This method was chosen over classification based on mean prey isotope values in oceanic and neritic habitats to avoid biases and uncertainties associated with diet specializations, diet-tissue isotopic discrimination, and spatiotemporal heterogeneity in prey isotope signatures. First, the beginning of an ontogenetic shift was identified as the growth increment along a $\delta^{15}N$ transect where the $\delta^{15}N$ value surpassed 11.0 ‰, or increased by at least 1.0 ‰ relative to the previous growth increment. From this point, turtles were iteratively assigned to life history pattern groups based on the number of growth increments required for the associated $\delta^{15}N$ values to increase by greater than or equal to the threshold $\Delta\delta^{15}N$ value, which ranged from +2.00 ‰ to +4.00 ‰ in 0.25 ‰ increments. If growth increment-specific $\delta^{15}N$ values surpassed the threshold $\Delta\delta^{15}N$ value in one step along the $\delta^{15}N$ transect the turtle was classified as a discrete shifter, otherwise it was classified as a facultative shifter (i.e., required multiple steps). If growth increment-specific $\delta^{15}N$ values showed no significant change turtles were classified as non-shifters. Indeterminate shifters were turtles that could not be classified with certainty due to insufficient or missing isotopic data, or that displayed evidence of the beginning of an ontogenetic shift ($\Delta\delta^{15}N$ value > 1.0 ‰, but less than the threshold $\Delta\delta^{15}N$ value). Classification counts varied by life history pattern and threshold $\Delta\delta^{15}N$ value and were examined to identify where concordance was reached (Fig. B1). Counts of discrete and facultative shifters were between 12 and 27, and 11 and 16, respectively. The number of turtles classified as non-shifters remained constant at 24 turtles up until a threshold of +3.25 ‰, where counts increased

by 2 or more turtles with each 0.25 ‰ increase in threshold $\Delta\delta^{15}N$ value. Counts of indeterminate shifters remained constant at 22 turtles. Variance in classification counts above the +3.00 ‰ threshold was attributed to turtles classified as discrete or facultative shifters at lower thresholds being classified as non-shifters at higher thresholds due to lack of sufficient data (i.e., turtles died one or two years into/after an ontogenetic shifts). Visual inspection of the $\delta^{15}N$ transects for these reclassified turtles revealed patterns more similar to those of discrete and facultative shifters than non-shifters. Therefore, in order to avoid biases associated with timing of death and to use the most conservative threshold for classification, a threshold $\Delta\delta^{15}N$ value of +3.00 ‰ was used for final assignment of individual turtles to life history pattern groups (Fig. 5).

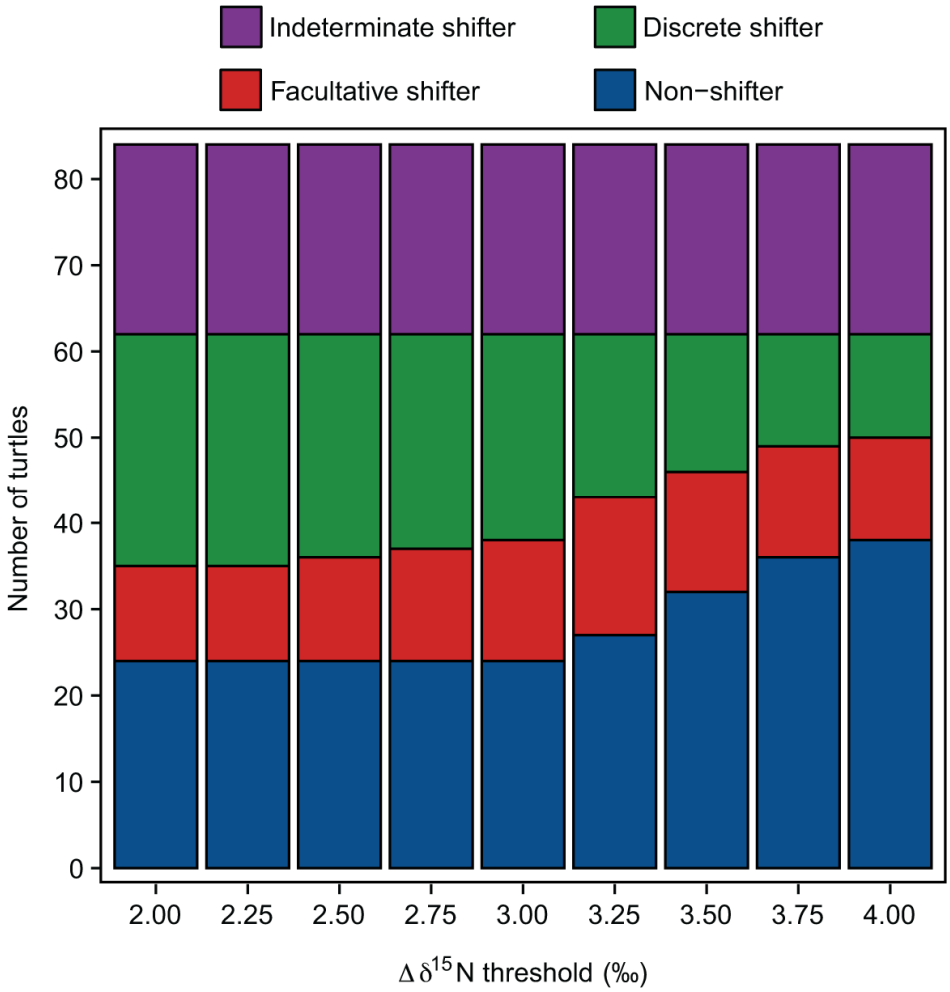


FIG. B1. Iterative classification of turtles into life history pattern categories based on a series of threshold $\Delta\delta^{15}N$ values. A threshold $\Delta\delta^{15}N$ value of +3.00 ‰ was used for final assignment of individual turtles to life history pattern groups.