

**Figure 5.9.** Schematic diagram of the stable nitrogen isotope ratios of different nitrogen reservoirs in the sea. The general range of stable isotope ratios (with respect to the atmosphere) found in nature are given in the boxes and the difference fractionation factors  $\epsilon$  (in %) accompany arrows between the boxes. Many of the values are approximations because of the wide variations of observations. See Table 5.3 for more details of some of the reactions and the text for explanation. Values are based on data presented by Altabet and Small (1990), Altabet and Francois (1994) and Sigman and Casciotti (2001).

