

An oral presentation to be submitted to the Estuarine and Coastal Sciences Association Conference, Venice, Italy, 3-7 June 2012 (No, I am not going, gosh darn it). This is a student's work and so does not have the EPA disclaimer.

Title: Allochthonous organic matter subsidize the high secondary production of the invasive bivalve *Corbicula fluminea* in Minho estuary (N-Portugal)

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Abstract: The Asian clam *Corbicula fluminea* is one of the most invasive species in freshwater ecosystems. In Minho estuary, this species colonize all the middle and upper part of the estuary, dominating the abundance, biomass and secondary production in River Minho tidal freshwater area (TFW). In fact, their secondary production values are one of the highest ever measured for a species colonizing a freshwater ecosystem, and this situation may be responsible for changes in the benthic and/or pelagic assemblages. To study the contribution of different organic matter (OM) sources to *C. fluminea* production in the Minho estuary, we characterized the carbon ($\delta^{13}\text{C}$) and nitrogen ($\delta^{15}\text{N}$) stable isotope ratios of this clam and their potential OM sources, as well as the concentration and stable isotope ratios of dissolved inorganic carbon (DIC) and particulate OM (POM) along the distributional range, during a summer base flow. In the TFW area, particulate organic carbon (POC) $\delta^{13}\text{C}_{\text{POC}}$ values (bottom: -28.5‰ to -25.5‰; surface: -29.3‰ to -26.3‰) and C:N (>10) of particulate samples indicated that terrestrial-derived sediment comprised a large portion of the bulk POM pool. *C. fluminea* presented similar $\delta^{13}\text{C}$ values to POM, suggesting that they are subsidized by terrestrial-derived OM. Minho estuary is an oligotrophic system with low residence times, what may explain the increasing contribution of carbon exported from the margin and/or upriver to the benthic production. Thus, we hypothesize that the adaptation to lower quality food (e.g. sedimentary, terrestrial-material) by *C. fluminea* is an additional factor explaining their invasive success in Minho estuary.