



## ***Corbicula fluminea* invasion in Lake Maggiore (Italy): population dynamics and comparison of dietary overlap with native mussels**

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The Asian clam, *Corbicula fluminea* (Müller, 1774), was most likely introduced in 2007 in Lake Maggiore, the second largest and deepest lake in Italy. Spatial and temporal variations in abundance, biomass and population structure of *C. fluminea* at 5 sites, investigated since its first discovery in 2010, confirmed the well known ability of this species rapidly to spread in new recipient environments and to achieve densities of thousands per square meter. In few years *Corbicula* has colonized about one third of the lake littoral area and has become the dominant littoral benthic species in terms of abundance and biomass, creating the conditions for a competitive interaction for space and food with native mussels. Indeed, a comparison with previous data has evidenced a strong decline of the most abundant native mussel species (*Unio mancus*), whose actual density is reduced of about 75% after *Corbicula* invasion. Although native mussel depletion cannot be unequivocally attributed to *Corbicula* impact, the change in bivalve species dominance could lead to changes in the structure and function of the ecosystem. In spite of similar functional roles, unionids and *C. fluminea* are likely to differ in filtering efficiency and trophic niche. Therefore, understanding the role that both native and invasive species play in food-web structure and nutrient cycling is essential for predicting how the ecosystem might be altered. Our study aimed to: (i) explore the invasion dynamics of *Corbicula* in Lake Maggiore; (ii) compare the trophic roles of the native mussel *U. mancus* and *C. fluminea* through measurements of respective filtration rates and spectrum of food resources. Filtration rates were measured by the clearance method under different experimental conditions and over the whole diurnal cycle. Dietary composition and overlap were determined through the measurement of the elemental and stable isotopic compositions ( $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$ ) of the respective tissues.

**Oral Session O2.4**