

The use of strontium stable isotope ratios to infer juvenile European Sea Bass (*Dicentrarchus labrax*) estuarine fidelity and movement within high estuarine habitats

Numerous studies have used stable isotope ratios to track fish movement through estuarine and freshwater habitats. A growing number of these publications have utilised the uptake of Strontium ($^{87}\text{Sr}/^{86}\text{Sr}$) in bodily tissues. Due to significant variation between watersheds and increasing salinity, strontium isotope ratios can be used as a geographic marker with a potential accuracy of 1-10km.

European Bass (*Dicentrarchus labrax*) is commercially exploited throughout its range. Large declines in north European stocks and corresponding changes in management have called for better understanding of adult and juvenile movement patterns and habitat use. Tagging studies and expert knowledge have suggested juvenile Bass display high site fidelity through their 1st 4-5 years. However, anecdotal evidence suggests juvenile Bass may also “leap frog” from comparatively smaller to larger estuaries. Tagging studies are also inherently constrained by the size of the test organism in relation to the size of tag used, and often have limited tag returns a year after release. Analysis of strontium stable isotope ratios within otolith age bands offer great scope as a repeatable method of tracking individual juvenile bass movement within and between estuaries throughout infancy.

This poster presents the methodological use of strontium stable isotope ratios to assess juvenile Bass estuarine fidelity and movement within high estuarine habitats. This and successive studies will feed directly into the local Bass management of the South West UK.