UNITED RESEARCH FORUM
(CONNECT WITH RESEARCH WORLD)

2nd International E-Conference on

GEOLOGICAL AND ENVIRONMENTAL SUSTAINABILITY

July 29-30, 2021 | Webinar

# Otolith chemistry reveal that coastal lagoons are not the only suitable habitats with a nursery role for *Sparus aurata*

**Dr. Sanja Matic-Skoko, Dario Vrdoljak[a*], Melita Peharda[a], Hana Uvanović[a], Krešimir Markulin[a], Regina Mertz-Kraus[b]**

Senior researcher, Laboratory of Ichtiology and coastal fisheries, Institute of Oceanography and Fisheries, Split, Croatia.

Knowledge regarding the significance of coastal habitats colonized by juveniles, and identification of nurseries are very important for the maintenance of adult stocks. This study was conducted to determine if otolith chemistry can differentiate between coastal lagoons and shallow coves and if it can effectively re-assign *Sparus aurata* specimens to the nearest nurseries. Specimens were collected in 2018 at fifteen sites within three nursery areas along the eastern Adriatic coast. LA-ICP-MS was used to quantify the concentrations of chemical elements in the otolith region corresponding to the juvenile nursery stage. The element to Ca ratios of individuals from different sites differed significantly among nurseries. CAP analyses was employed to test the reassignment of specimens back to nursery areas. Using a suite of trace elements (Sr, Mg, Zn, Ba and Pb), *S. aurata* specimens were allocated to the nurseries in which they were caught with moderate success (41%). Higher discrimination rate was obtained for shallow cove than for coastal lagoons. A separate CAP analysis explained 94% of element variance, with 100% discrimination for Sr:Ca, Mg:Ca and Pb:Ca. The lowest success of Ba as a discriminant reduced re-allocation to shallow coves. The overall success of re-allocation highlighted that much of the coastal marine waters have a lower salinity than expected, representing a diverse mosaic of environments with different physio-chemical characteristics, making them similar to coastal lagoons. These results suggest that a number of shallow coves with continuous, submarine, freshwater springs along the eastern Adriatic coast could significantly contribute to the *S. aurata* recruitment process, expanding attention from the protection of individual nurseries towards a strong need to protect a wider part of the coast for this purpose.

**Keywords:** otolith, fingerprints, nursery, *Sparus aurata*, Mediterranean Sea

## Biography:

Prof. Sanja Matić Skoko, PhD is senior researcher at Institute of Oceanography and Fisheris, Split, Croatia. Her work scope is Fish Biology and Ecology, Fisheries management and Conservation, Sclerochronology and etc. As author or co-author, published more than 70 scientific papers (http://scholar.google.hr/citations?user=RCm864YAAAAJ&hl=hr). She personally attends on 29 international conferences with 5 invited oral presentations. Reviewed more than 100 manuscripts for leading peer-review journals in fields of Marine and Freshwater Biology and Fisheries. She is associate editor for Acta Ichthyologica and Piscatoria, Marine Biology Research and Acta Adriatica. Leader of a number of national and international projects.