Addressing challenges in biodiversity conservation with fish otolith death assemblages: the state-of-the-art

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Fish otoliths are incrementally growing aragonitic elements found in the inner ear of most fishes. They have species-specific morphology that enable species level identification and they are excellent high-resolution recorders of ambient water conditions, enabling the reconstruction of past fish faunas and their environment. Although they have been studied as fossils for almost 150 years, and they are very useful tools for tracking lifestyle and population changes in modern fishes, otolith death assemblages recovered from sea bottom sediments have been studied only much more recently. Still, these fish remains can provide valuable insight into past fish faunas before most anthropogenic impacts, such as climate warming, habitat modification and biological invasions. Here, we present an overview of research done until now on otolith death assemblages highlighting their applications for marine conservation.