

## Theme Session D

### **Fish tales from the past: Using subfossil, fossil, and prehistoric structures to describe past marine populations and oceans**

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Understanding the oceans in a long-term perspective has never been more important than now. We are moving into management schemes that use the ecosystem approach with goals defined as "Good environmental status". Results from archaeozoological, archaeological and historic investigations are of interest to a wider community in modern marine science. Current fish stock advice may learn from prehistoric and historic patterns, changes in population traits, distributions and abundance. We may find new ways to interpret changes from pressure to response. In the end the results can be used as guidance in how we manage the ecosystem. The concept of Good Environmental Status could be evaluated based on results obtained from various time periods to exclude the impact of anthropogenic pressures and show what effects are related to natural variation. In this session we look for tales told by subfossil, fossil, and prehistoric structures. We want to hear about the marine life before humans became the main predator and anthropogenic pressures were low in the oceans. The main focus will be contributions on faunal history, biodiversity, population structure and distribution, abundance of marine life, physiological adaptation and environmental change. Opening up to new ideas for research by showing available prehistorical and historical archives and archeozoological findings can provide a wealth of information of use to modern marine research.

Bony structures can be considered "time capsules" of the life history of the specimen. Otoliths of fish are often called "flight recorders" which contains information about both the fish and its environment. Otolith chemistry is one of the largest growing fields in otolith science, mainly because modern technology has made it available and affordable on a wider basis.

During the right conditions, remains of fish (and other marine vertebrates) may become preserved in the sediments as direct evidence of former faunas and human activities. Analyses of sediment cores taken in the oceans may thus result in snapshots of past faunas. Excavations of terrestrial middens representing archaeological households or maybe early fish industries may reveal which species were eaten, their importance through time and when it became possible (technologically) to catch them in amounts large enough to make an industry. They may also reveal important changes in body sizes and community structure. Finds of exotic species that are not commonly seen in the area nowadays may indicate other climatic conditions then.