During the last decades the technological developments and improved spatial and temporal resolution in hydro-acoustics, have made it possible to study schooling and aggregation behaviour of fish and predator-prey interactions in considerable detail. Hydro-acoustic methodology have thus revealed new and interesting scientific findings on animal behaviour and ecology previously difficult to observe and document from the marine environment. A fundamental challenge is still to be able to track individual fish within a school or animal aggregation at the same time as we observe the collective movements. The spatial resolution of hydro-acoustics is usually not sufficient enough to track individual fish within dense aggregations. Underlying mechanisms and motivations of individual animals swimming in aggregations are needed, in order to improve our understanding and predictability of collective behaviour. Improved post-processing programs for quantitative analysis of multi-beam sonar data are also needed. High-resolution underwater cameras, Crittercam-technology and individual tagging will offer complementary data sources to our understanding of detailed behaviour of marine animals. I will present synoptic ecological studies using multi-beam sonar and echosounder on schooling behaviour and predator-prey interactions including fish, seabirds and marine mammals.