Impact of ocean acidification on echinoderm larvae: from physiology to selection
Meike Stumpp1, Narimane Dorey2, Daniel Runcie3, David Garfield3, Bengt Lundve2, Greg Wray3, Frank Melzner1, Mike Thorndyke4 & Sam Dupont2
1IFM-GEOMAR, Kiel, Germany
2Department of Marine Ecology, University of Gothenburg, The Sven Lovén Center for Marine Sciences, Fiskebäckskil, Sweden
3Department of Biology, Duke University, Durham NC 27708, USA
4The Swedish Royal Academy of Sciences, The Sven Lovén Center for Marine Sciences, Fiskebäckskil, Sweden

The impact of OA appears to be extremely species- and even population-specific and depends on life-history stages and the processes studied. This impact also needs to be considered in the context of additional relevant factors such as temperature and other anthropogenic stressors such as pollution. The current paradigms (e.g. OA will negatively impact calcifiers) are now being revisited making any large scale prediction impossible or over-simplistic. To allow large scale predictions of the impact of climate change on marine ecosystems it is important to understand how OA together with other stressors will modify the evolutionary rules shaping marine ecosystems. We have been analysing interactions between present and future natural environmental variability, life history strategy and population plasticity along latitudinal gradients to explore both intra- and inter-specific adaptive potential and genetic variability in various animal species. This presentation will summarize our data on the impact of OA and other stressors on physiology and energetic balance with emphasis on life-history strategies (e.g. planktotrophy vs lecithotrophy, egg size, etc.) to identify the new evolutionary rules in this changing ocean.