

## Theme Session D

### Physico-chemical aspects of ocean acidification in the ICES area

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Ocean acidification is a result, primarily, of uptake of anthropogenic carbon dioxide (CO<sub>2</sub>) in the air arising from human activities. This leads to a change of carbonate chemistry in the earth's oceans: decrease of pH, decrease of CO<sub>3</sub><sup>-</sup> concentrations, decrease of calcite and aragonite saturation levels, and increase of CO<sub>2</sub> concentrations. These changes are expected to negatively affect calcium carbonate-building organisms. This potential threat is widely recognised and organisations such as regional sea conventions (e.g. OSPAR) are as a matter of high priority considering how best to approach monitoring ocean acidification. Regional differences are likely to be large and coastal and shelf regions are likely to show the largest deviation from projected average trends. Furthermore, time-series and basin-scale measurements and models, of the carbonate system, indicate that surface water pH varies substantially - seasonally, interannually and decadal. For acidification research, these observations are important to establish natural variations because their magnitude sets a boundary for what might constitute damaging pH change. The theme session will also cover technical and methodological aspects of monitoring ocean acidification, including quality assurance issues.