



## Arctic Watch

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The dramatic reduction of sea ice in the Arctic Ocean will increase human activities in the coming years. This will be driven by increased demand for energy and the marine resources of an Arctic Ocean more accessible to ships. Oil and gas exploration, fisheries, mineral extraction, marine transportation, research and development, tourism and search and rescue will increase the pressure on the vulnerable Arctic environment. Synoptic in-situ year-round observational technologies are needed to monitor and forecast changes in the Arctic atmosphere-ice-ocean system at daily, seasonal, annual and decadal scales to inform and enable sustainable development and enforcement of international Arctic agreements and treaties, while protecting this critical environment. This paper will discuss multipurpose acoustic networks, including subsea cable components, in the Arctic. These networks provide communication, power, underwater and under-ice navigation, passive monitoring of ambient sound (ice, seismic, biologic and anthropogenic), and acoustic remote sensing (tomography and thermometry), supporting and complementing data collection from platforms, moorings and autonomous vehicles. This paper supports the development and implementation of regional to basin-wide acoustic networks as an integral component of a multidisciplinary, in situ Arctic Ocean Observatory.