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Moored Observations at Station HL2 on the Scotian Shelf

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The decline of a spring bloom on the Scotian Shelf is examined using an array of autonomous instruments deployed at a mooring site. A SeaHorse profiler and a CARIOCA buoy provide physical, biological and chemical measurements with very high temporal resolution. The profiler makes highly vertically resolved measurements of water temperature, salinity, fluorescence while the CARIOCA buoy makes hourly measurements of surface water pCO2, near-surface water temperature, salinity, pressure, air temperature and wind speed, as well as fluorescence. The measurements are complimented by frequent shipboard sampling at the mooring station (HL2) as part of the Atlantic Zone Monitoring Program (AZMP). Measurements obtained at HL2 from early April to early July of 2007 are presented.

Surface water pCO2 increases from a minimum of ˜210 ppm during the bloom period and is highly correlated with the rise in near-surface water temperature. The temperature control on pCO2 is examined by normalizing all pCO2 values to a constant temperature. Measurements of pCO2 from the buoy are found to be in good agreement with shipboard measurements taken at station HL2 using an underway pCO2 system. Observations of chlorophyll concentration are corrected for day-time photochemical quenching; the expected inverse relationship between chlorophyll concentration and surface water pCO2 is observed throughout the measurement period.