Light and life beneath sea ice in Baffin Bay: transmission of sunlight through sea ice and influence on the phytoplankton spring bloom.

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In the framework of the GreenEdge project (<http://www.greenedgeproject.info/>), we measured spectral downwelling irradiance above and below sea ice in Baffin Bay (Nunavut, Canada) from 10 April till 10 June 2015 with a ruggedized C-OPS instrument (*Biospherical*). Measurements were made every other day in two locations forty meters apart, which differed substantially in ice and snow cover. We present the impact of ice, snow, and melt ponds on 1) the amount and color of sunlight transmitted through sea ice, 2) the spectral diffuse attenuation coefficient, and 3) the concentration of microalgae. The strong patchiness of light and life beneath sea ice demonstrated here poses challenges for monitoring blooms of microalgae beneath Arctic sea ice.