**Ecosystem Type: ICE AND SNOW**

**Category: Biodiversity Conservation**

1. **Materials**

***Supplier*** – Sea ice is home to a diverse, photosynthetic microbial community (Staley and Gosink, 1999; Brown and Bowman, 2001; Stecher et al., 2015). The species in this habitat include algae, protozoa and bacteria (Staley and Gosink, 1999).

***Driver*** – not applicable

***Demander*** – not applicable

1. **Nutrition**

***Supplier*** – not applicable

***Driver*** -not applicable

***Demander*** - not applicable

1. **Energy**

***Supplier*** – not applicable

***Driver*** – not applicable

***Demander*** - not applicable

1. **Mediation of Waste, Toxics, and Other Nuisances**

***Supplier*** – not applicable

***Driver*** – not applicable

***Demander*** – not applicable

1. **Mediation of Flows**

***Supplier*** – Snow within valleys are important resources providing terrestrial and aquatic ecosystems with carbon (Walsh et al., 2008). The supply of carbon helps support the biodiversity of species.

***Driver*** – not applicable

***Demander*** – not applicable

1. **Maintenance of Physical, Chemical, and Biological Indicators**

***Supplier*** – Ice sheets are important regulators of physical habitats for diverse groups of aquatic species such as krill and fish (Gutt et al., 2011). The collapse of ice sheets due to climate change can affect the overall composition of species. Further, snow determines the available foraging habitat for reindeer and caribou (Tyler, 2010).

***Driver*** – not applicable

***Demander*** – not applicable

1. **Spiritual, Symbolic, Religious, and Social Experiences**

***Supplier*** – not applicable

***Driver*** –not applicable

***Demander*** – not applicable

1. **Physical and Intellectual Interactions w/ Biota, Ecosystems, and Land/Seascapes**

***Supplier*** – not applicable

***Driver*** – not applicable

***Demander*** - not applicable

**Sources:**

Brown, M.V. and Bowman, J.P. (2001) A molecular phylogenetic survey of sea-ice microbial communities (SIMCO). *FEMS Microbiology Ecology, 35*(3), 267-275. <https://doi.org/10.1111/j.1574-6941.2001.tb00812.x>.

Gutt, J. et al. (2011) Biodiversity change after climate-induced ice-shelf collapse in the Antarctic. *Deep Sea Research Part II: Topical Studies in Oceanography, 58*(1-2), 74-83. <https://doi.org/10.1016/j.dsr2.2010.05.024>. [abstract only]

Staley, J.T. and Gosink, J.J. (1999) Poles Apart: Biodiversity and Biogeography of Sea Ice Bacteria. *Annual Review of Microbiology, 53,* 189-215. <https://doi.org/10.1146/annurev.micro.53.1.189>. [abstract only]

Stetcher, A. et al. (2015) rNA and rDNA based assessment of sea ice protist biodiversity from the central Arctic Ocean. *European Journal of Phycology, 51*(1). <https://doi.org/10.1080/09670262.2015.1077395>. [abstract only]

Tyler, N.J.C. (2010) Climate, snow, ice, crashes, and declines in populations of reindeer and caribou (Rangifer tarandus L.). *Ecological Monographs, 80*(2), 197-219. DOI: 10.1890/09-1070.1. [abstract only]

Walsh, S.J. et al. (2004) An Assessment of Snow Avalanche Paths and Forest Dynamics Using Ikonos Satellite Data. *Geocarto International, 19*(2). <https://doi.org/10.1080/10106040408542308>. [abstract only]