

**Table 5.1. Beaufort Coast and Continental Shelf ecoregion case study: key features, their drivers, biological productivity and habitat diversity, relevant climate variables, and the assessed persistence of key features above-average productivity and diversity in relation to how projected changes to main climate variables will effect geophysical drivers.**

Key Feature	Main drivers	Current biological productivity & habitat heterogeneity	Main changes to GCM climate variables	Assessed persistence of Key Feature's future above-average productivity / diversity
Barrow canyon & polynya	Benthic topography Seasonal Ice Cover Water circulation/currents Sea Surface Temperature	High productivity and benthic habitat heterogeneity; warm saline Pacific water incursions.	SST Salinity SIC	H
Mackenzie canyon	Benthic topography Seasonal Ice Cover Water circulation/currents Sea Surface Temperature	High riverine plume nutrient inputs & heterogeneity, with upwelling driven by currents.	SST Salinity SIC	H
Mackenzie recurring shoreleads	Benthic topography Seasonal Ice Cover Water circulation/currents Sea Surface Temperature	Low absolute winter productivity, but open water regime allows light penetration/biotic activity.	SST Salinity SIC P	H-M
Kugmallit canyon	Benthic topography Seasonal Ice Cover Water circulation/currents Sea Surface Temperature	High riverine plume nutrient inputs & heterogeneity, with upwelling driven by currents.	SST Salinity SIC	H
Mackenzie plume	Salinity Nutrients Water circulation/currents Sea Surface Temperature	High sediment-laden nutrient inputs, but low habitat heterogeneity. Water circulation patterns influence nutrient availability.	SST Salinity SIC SAT P*	H-M
Cape Bathurst slope	Benthic topography Water circulation/currents Sea Surface Temperature Nutrients	Habitat heterogeneity high, with resultant diversity of benthic fauna and current-induced nutrient availability.	SIC SST	H-M
Cape Bathurst-Amundsen Gulf polynya	Benthic topography Seasonal Ice Cover Water circulation/currents Sea Surface Temperature	Low absolute winter productivity, but open water regime allows light penetration/biotic activity.	SAT SST Salinity SIC	M
Continental shelfbreak and slope	Benthic topography Water circulation/currents	Low productivity currently in deep water, but very extensive high seabed habitat heterogeneity.	SIC Salinity	H

**Climate variables: Sea Surface Temperature (SST); Salinity; Sea-Ice thickness; Sea-Ice concentration (SIC); Precipitation (P); Surface Air Temperature (SAT). Persistence index: H – high; M – medium; L – Low**

\* relevant for the Mackenzie plume is the precipitation over the watershed of the Mackenzie River, i.e. outside the Beaufort coast and shelf ecoregion