

S4 Table. Sea ice high and low years and depth-integrated pheophytin proportions.

Station	2013			2014			2015			2016			2017			2018			2019		
	SIC	SIB	Pheo (%)	SIC	SIB	Pheo (%)	SIC	SIB	Pheo (%)	SIC	SIB	Pheo (%)	SIC	SIB	Pheo (%)	SIC	SIB	Pheo (%)	SIC	SIB	Pheo (%)
SLIP1	H	H	0.593954	H	H	0.373222	H	H	0.518292	H	H	0.381913	H	H	0.367915	L	L	0.366109	L	L	0.38877
SLIP2	H	H		H	H	0.373876	H	H	0.604481	H	H	0.397802	H	H	0.36129	L	L	0.360771	L	L	0.390271
SLIP3	H	H	0.412285	H	L	0.434265	H	H	0.735779	H	L	0.287742	H	L	0.352553	L	L	0.385	L	L	0.267828
SLIP4	H	H	0.269887	H	L	0.502255	H	L	0.780171	H	L	0.340989	H	L	0.269726	L	L	0.393292	L	L	0.261329
SLIP5	H	H	0.373403	H	L	0.417339	H	L	0.519559	H	L	0.359837	H	L	0.408743	L	L	0.378827	L	L	0.18595
BCL-6A	L	H		H	H	0.43493	H	L	0.564533	H	L	0.467707	L	L	0.491797	L	L	0.402831	H	L	0.314232
BCL-6C	H	H		H	H		H	H		H	H	0.662629	L	L	0.428162	L	L	0.359982	H	L	
UTBS-5	H	H	0.494905	H	H	0.57451	H	H	0.66711	H	H	0.363878	H	L	0.401696	L	L	0.37925	L	H	
UTBS-4	H	H	0.473087	H	H	0.309774	H	H	0.697297	H	H	0.308762	H	L	0.398232	L	L	0.225342	L	L	
UTBS-2	H	H	0.434707	H	H	0.284423	H	L	0.523535	H	L	0.445198	H	L	0.355783	L	L	0.249538	L	L	
UTBS-2A	H	H		H	H		H	H		H	L	0.267623	H	L	0.229462	L	L	0.428783	L	L	
UTBS-1	H	H		H	H	0.285421	H	L	0.524123	H	L	0.494227	H	L	0.352184	L	L	0.223353	L	L	
DBO-2.7	H	H		H	H		H	H		H	L	0.362788	H	L	0.119468	L	L	0.525466	L	L	

High and low sea ice years were distinguished using DOY thresholds determined per station based on sea ice breakup date (SIB) and by sea ice concentration (SIC) relative March–May coverage at each station during the 2013–2019 time period.