PhytoMFTM model parameters (preliminary)

symbol	variable	description	units	value	source
Physical parameters:					
κ	kappa	diffusive mixing constant	$[m\ day^{-1}]$	0.1/0.01	[Fasham, 1990/1993]
δ_D^N	deltaD_N	remineralization rate	$[day^{-1}]$	0.05	[Fasham, 1990]
k_w	kw	light attenuation coefficient	$[m^{-1}]$	0.2	[Edwards & Brindley 1996]
affecting phytoplankton:					
v	v	phytoplankton sinking constant	$[mday^{-1}]$	0.04	[Edwards & Brindley 1996]
I_{opt}	OptI	optimum irradiance	$[E\ m^{-2}\ day^{-1}]$	30	[Acevedo-Trejos, 2015]
Phytoplankton parameters:					
mo_P	moP	mortality/excretion constant	$[day^{-1}]$	0.09	[Fasham, 1990]
functional type specific:					
P_{dt}	pt1	Diatoms			
Δ_{Si}^{dt}	pt1_ratioSi	nitrogen to silicate ratio	$[\mu MSi\ \mu MN^{-1}]$	1.12	[Brzezinski, 1985]
K_{Si}^{dt}	pt1_K_Si	half-saturation constant of Si uptake	$[\mu MSi]$	2	[Kristiansen et al. 2000]
U_N^{dt}	pt1_U_N	half-saturation constant of N uptake	$[\mu MN]$	0.446	[Litchman et al. 2007]
μ_P^{dt}	pt1_muP	growth rate	$[day^{-1}]$	1.5	[Litchman et al. 2007]
P_c	pt2	Coccolithophores			
U_N^c	pt2_U_N	half-saturation constant of N uptake	$[\mu MN]$	0.265	[Litchman et al. 2007]
μ_P^c	pt2_muP	growth rate	$[day^{-1}]$	1.1	[Litchman et al. 2007]
P_{dn}	pt3	Dinoflagellates			
U_N^c	pt3_U_N	half-saturation constant of N uptake	$[\mu MN]$	0.009	[Litchman et al. 2007]
μ_P^c	pt3_muP	growth rate	$[day^{-1}]$	0.6	[Litchman et al. 2007]
P_n	pt4	Nanoflagellates			
U_N^n	pt4_U_N	half-saturation constant of N uptake	$[\mu MN]$	0.045	[Litchman et al. 2007]
μ_P^n	pt4_muP	growth rate	$[day^{-1}]$	1.7	[Litchman et al. 2007]
Zooplankton parameters:					
mo_Z	moZ	mortality/excretion constant	$[day^{-1}]$	0.0125	[Prowe et al. 2012]
δ_Z	deltaZ	assimilation coefficient of grazing on P_i	[-]	0.75	[Fasham, 1990]
δ_λ	deltaLambda	assimilation coefficient of Z_λ grazing on Z_μ	[-]	0.75	[Fasham, 1990]
μ_λ	muIntGraze	maximum rate of Z_λ grazing on Z_μ	$[day^{-1}]$	0.05	[?]
k_λ	kIntGraze	half-saturation constant of Z_λ grazing on Z_μ	$[\mu MN]$	0.5	[?]
Z_μ	zt1	Mikrozooplankton			
μ_Z^μ	zt1_muZ	maximum rate of grazing on P_i	$[day^{-1}]$	0.1	[Prowe et al. 2012]
k_P^μ	zt1_Kp	half-saturation constant of grazing on P_i	$[\mu MN]$	0.5	[Prowe et al. 2012]
g_μ	zt1_pred	higher order predation on Z_μ	$[day^{-1}]$	0.01	[?]
Z_λ	zt2	Mesozooplankton			
μ_Z^λ	zt2_muZ	maximum rate of grazing on P_i	$[day^{-1}]$	0.1	[Prowe et al. 2012]
k_P^λ	zt2_Kp	half-saturation constant of grazing on P_i	$[\mu MN]$	0.5	[Prowe et al. 2012]
g_λ	zt2_pred	higher order predation on Z_λ	$[day^{-1}]$	0.01	[?]

Feeding preferences:

	P_{dt}	P_c	P_{dn}	P_n
Z_μ	0	1	1	1
Z_λ	1	1	1	0

where number is p_j^i denoting feeding preference of Z_j grazing on P_i