

Table 1. Model parameter symbols, units and values used in the mainrun solutions:

Description	Symbol	Value	Units
<i>Biological Parameters</i>			
Growth efficiency for H on P	ge_P	0.20	dimensionless
Growth efficiency for H on T	ge_T	0.20	dimensionless
Growth efficiency for H on DON	ge_{DON}	0.20	dimensionless
Growth efficiency for H on D	ge_D	0.20	dimensionless
Growth efficiency for H on H	ge_H	0.20	dimensionless
Assimilation efficiency for H on P	ae_P	0.70	dimensionless
Assimilation efficiency for H on T	ae_T	0.70	dimensionless
Assimilation efficiency for H on DON	ae_{DON}	1.0	dimensionless
Assimilation efficiency for H on D	ae_D	0.70	dimensionless
Assimilation efficiency for H on H	ae_H	0.70	dimensionless
Partitioning of P and T senescence	β	0.25	dimensionless
Partitioning of P and T production	α	0.70	dimensionless
Partitioning of excretion to DIN	γ	0.75	dimensionless
Maximum phytoplankton growth rate	μ_P	3.22	day^{-1}
Maximum <i>Trichodesmium</i> growth rate	μ_T	0.17	day^{-1}
Phytoplankton light saturation parameter	I_P	40.0	$Watts/m^2$
Phytoplankton photoinhibition parameter	$I_{\beta P}$	400.0	$Watts/m^2$
<i>Trichodesmium</i> light saturation parameter	I_T	80.0	$Watts/m^2$
<i>Trichodesmium</i> light saturation parameter	$I_{\beta T}$	0	$Watts/m^2$
Sat. const. for <i>DIN</i> uptake by <i>P</i>	PK_s	0.5	$mmol/m^3$
Sat. const. for <i>DIN</i> uptake by <i>T</i>	TK_s	0.5	$mmol/m^3$
Phytoplankton natural mortality rate	S_P	0.01	day^{-1}
<i>Trichodesmium</i> natural mortality rate	S_T	.021,.0235	day^{-1}
Heterotrophic maximum consumption rate	C_m	6.4	day^{-1}
Sat. const. for heterotrophic consumption	HK_s	0.80	$mmol/m^3$
Heterotrophic preference for P	Φ_P	1/4	dimensionless
Heterotrophic preference for D	Φ_D	1/4	dimensionless
Heterotrophic preference for H	Φ_H	1/4	dimensionless
Heterotrophic preference for T	Φ_T	0	dimensionless
Heterotrophic preference for DON	Φ_{DON}	1/4	dimensionless
Phytoplankton specific attenuation coeff.	k_p	0.0223	$m^2/mmole\ N$
Detritus sinking rate	w	12,4	m/day
<i>Physical Parameters</i>			
Vertical resolution	ΔZ	1.0	m
Time step	Δt	3600	s
Diffusion coefficient	K_w	.0001	m^2/s
Short wave extinction coefficient	k_x	0.03	m^{-1}
Temperature restoration time scale	T_T	41.66	days
Salinity restoration time scale	T_S	41.66	days

