

Parameters	Description (unit)	values
α_{OC}	Oxygen to carbon ratio (mg O ₂ : mg C)	32/12
$\alpha_{NO_{23}c}$	Oxygen to carbon ratio for nitrate uptake (mg O ₂ : mg C)	12/14
α_{ON}	Oxygen-to-nitrogen ratio (mg O ₂ : mg N)	32/14
$k_{14,15}$	Nitrification rate at 20 °C (day ⁻¹)	0.08
K_{nitri}	Half saturation constant for oxygen limitation (mg O ₂ L ⁻¹)	1.0
$k_{20,0}$	Oxidation rates of refractory dissolved organic carbon at 20 °C (day ⁻¹)	0.009
$k_{21,0}$	Oxidation rates of labile dissolved organic carbon at 20 °C (day ⁻¹)	0.1
$k_{22,0}$	Oxidation rates of reactive dissolved organic carbon at 20 °C (day ⁻¹)	0.1
$k_{23,0}$	Oxidation rates of algal exudate dissolved organic carbon at 20 °C (day ⁻¹)	0.35
$k_{O_2^*}$	Oxidation rates of dissolved sulfide at 20 °C (day ⁻¹)	0.08
K_{LDOC}	Michaelis constant for LDOC (mg CL ⁻¹)	0.1
K_{Pc}	Half-saturation constant for phytoplankton limitation (mg CL ⁻¹)	1.0
K_{DO}	Half-saturation constant for DO limitation (mg OL ⁻¹)	0.2
$K_{DO_{O_2^*}}$	Half-saturation constant for DO limitation in oxidation of dissolved sulfide (mg OL ⁻¹)	0.2
θ_a	Temperature coefficient for re-aeration (dimensionless)	1.024
$\theta_{14,15}$	Temperature coefficient for nitrification (dimensionless)	1.045
$\theta_{20,0}$	The temperature coefficient for oxidation rates of refractory dissolved organic carbon (dimensionless)	1.08
$\theta_{21,0}$	The temperature coefficient for oxidation rates of labile dissolved organic carbon (dimensionless)	1.08
$\theta_{22,0}$	The temperature coefficient for oxidation rates of reactive dissolved organic carbon (dimensionless)	1.08
$\theta_{23,0}$	The temperature coefficient for oxidation rates of algal exudate dissolved organic carbon (dimensionless)	1.047
$\theta_{O_2^*}$	The temperature coefficient for oxidation rates of dissolved sulfide (dimensionless)	1.08