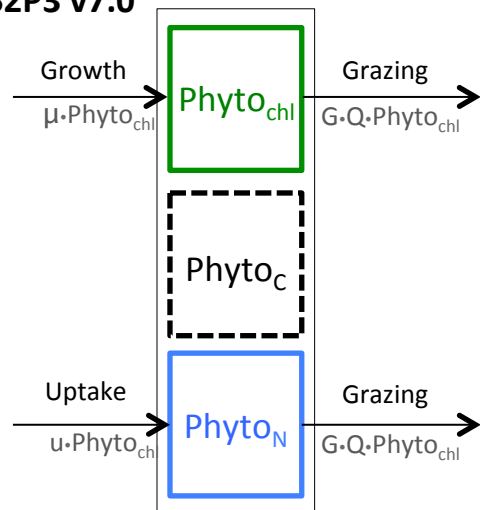
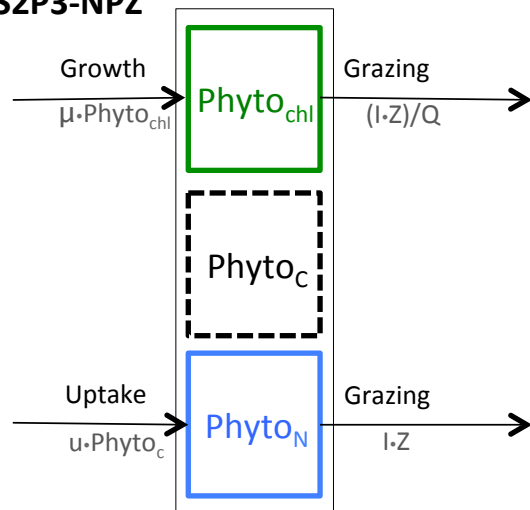
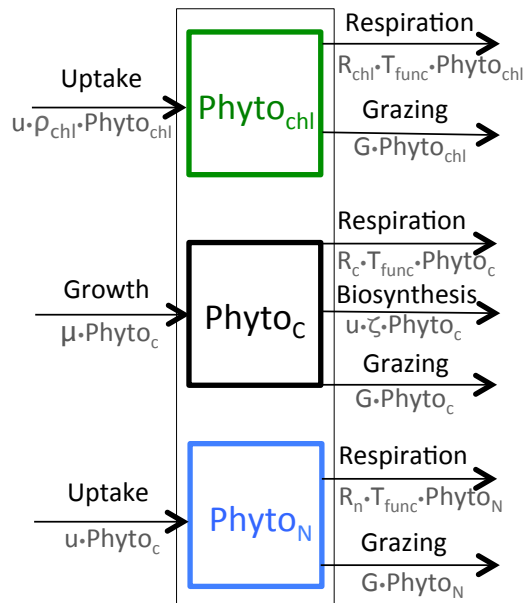
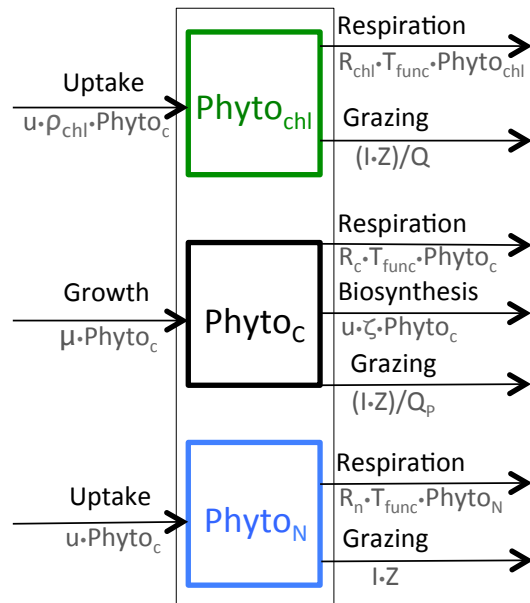


(a) S2P3 v7.0**(b) S2P3-NPZ****(c) S2P3-Photoacclim****(d) S2P3 v8.0**

Variables	Definition
$\text{Phyto}_{\text{chl}}$	Phytoplankton biomass in chlorophyll currency
Phyto_C	Phytoplankton biomass in carbon currency
Phyto_N	Phytoplankton biomass in nitrogen currency
u	Phytoplankton carbon-specific nitrate uptake rate
μ	Carbon-specific rate of photosynthesis
Q	Cellular nutrient quota (N:Chl)
I	Ingestion rate of zooplankton
Z	Zooplankton biomass
ρ_{chl}	Chlorophyll synthesis regulation term
Q_p	Cellular nutrient quota (N:C)

Parameters	Definition
G	Grazing rate
R_{chl}, R_N, R_C	Respiration rates of phytoplankton
T_{func}	Temperature-response function of phytoplankton
ζ	Cost of biosynthesis