Supplementary Information for:

Quantification of multiple simultaneously occurring nitrogen flows in the euphotic ocean

by

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Legends for Supplementary Figures

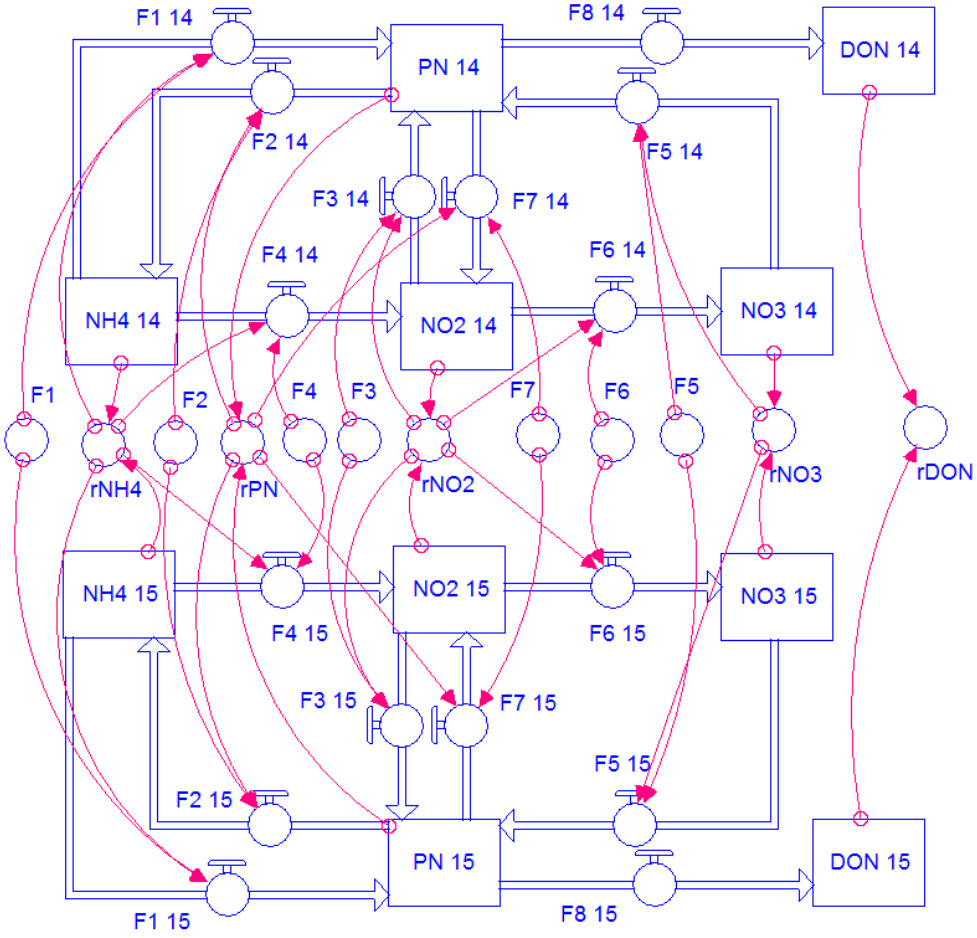
Supplementary Figure 1. The STELLA model (Version 9.14) for high nutrient case.
Supplementary Figure 2. The STELLA model (Version 9.14) for low nutrient case.

Legends for supplementary figures

Supplementary Figure 1. The STELLA model (Version 9.14) for high nutrient case. The Fi (i = 1~8) indicates rate of the relevant N processes. By multiplying F with corresponding time variable (i.e., rNH4, rNO2, rNO3 and rPN) the F of ^{15}N (i.e., Fi15) can be obtained. Similarly, Fi14 can be obtained by multiplying F by (1 − r). Meanwhile, NH_4^+, NO_2^-, NO_3^- and PN pools were separated into two compartments (i.e., ^{14}N and ^{15}N). DON leakage is the residual of mass conservation.

Supplementary Figure 2. The STELLA model (Version 9.14) for low nutrient case. The Fi (i = 1~6) indicates rate of the relevant N processes. Yet, Fi is determined by rate constant (ki, i = 1~5) and reactant concentration， which is a time variable. Fractionation between ^{14}N and ^{15}N was not considered, thus, ki is for both ^{14}N and ^{15}N. Similar to high nutrient case, NH_4^+, NO_x^- and PN pools were separated into two compartments (i.e., ^{14}N and ^{15}N). DON leakage is the residual of mass conservation. The output, delta, in this case stands for $\delta^{15}N$.

Supplementary figures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PN 14
F8 14
DON 14
F2 14
F5 14
F3 14
F7 14
F4 14
F6 14
NH4 14
NO2 14
NO3 14
F1
F2
F4
F3
F7
F6
F5
rNH4
rPN
rNO2
rNO3
rDON
NH4 15
NO2 15
NO3 15
F4 15
F6 15
F3 15
F7 15
F5 15
F2 15
PN 15
DON 15
F1 15
F8 15

Fig. S1

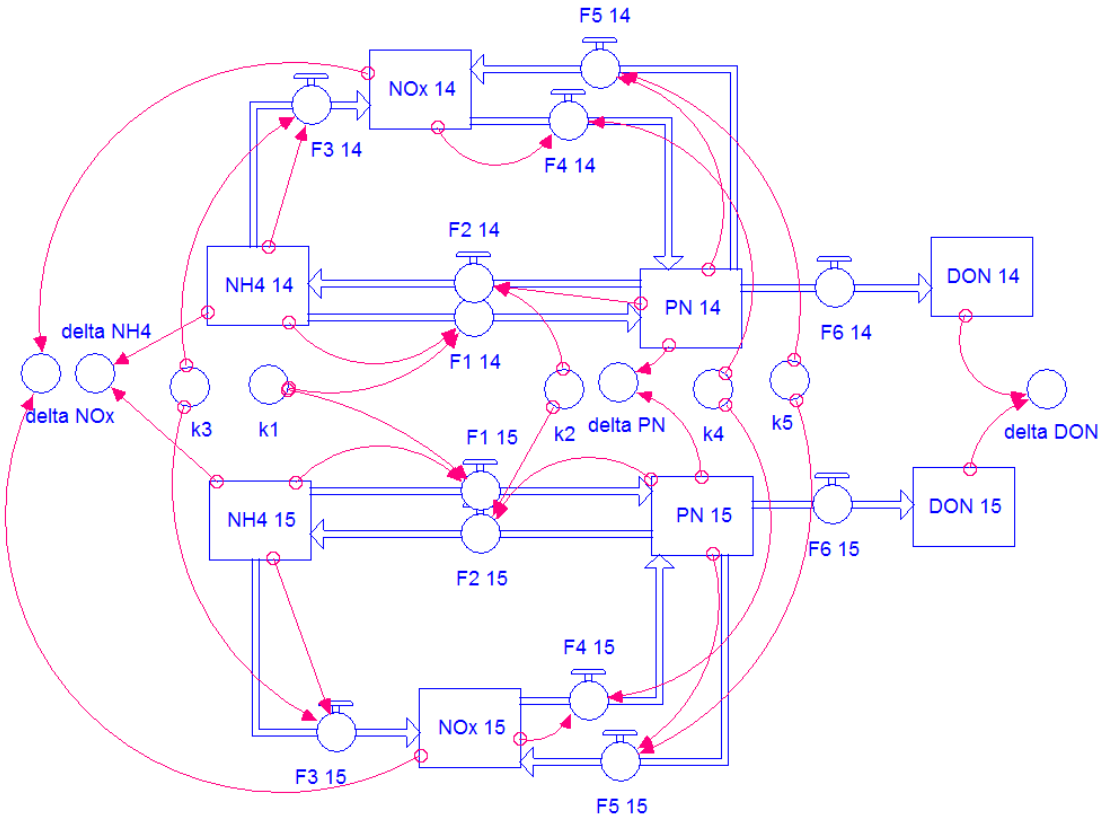
F5 14
NOx 14
F3 14
F4 14
F2 14
NH4 14
PN 14
DON 14
F6 14
delta NH4
F1 14
delta NOx
k3
k1
F1 15
k2
delta PN
k4
k5
delta DON
NH4 15
PN 15
DON 15
F6 15
F2 15
F4 15
NOx 15
F3 15
F5 15

Fig. S2