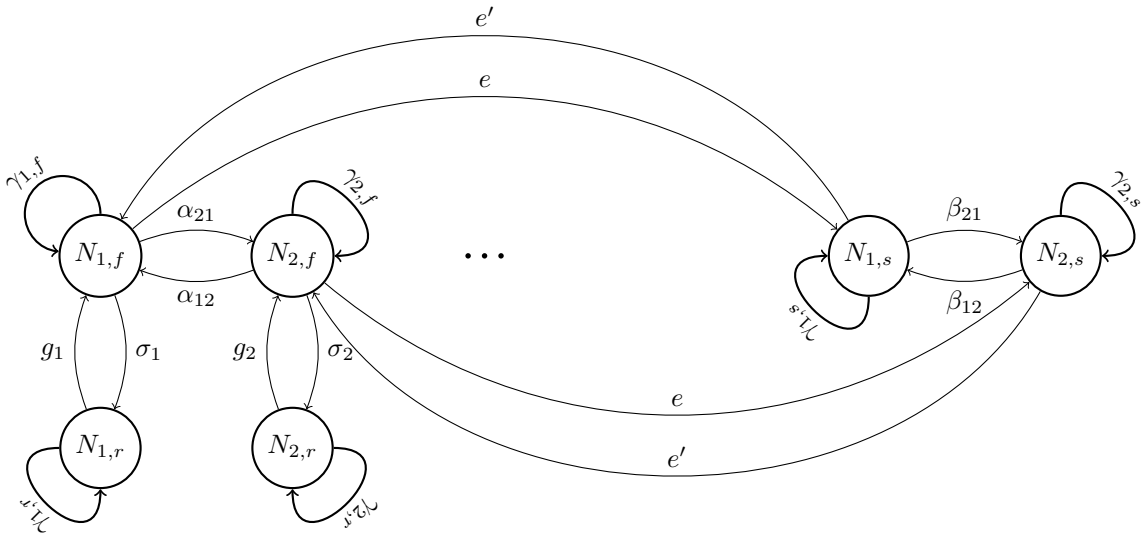
Parameter	Description	Value
$N_{i,.}$	Abundance or biomass (?) of species i. Either free-floating (f), resting (r) or at sea (s)	NA
α_{ij}, β_{ij}	Interaction effect of species j on species i, with $\alpha \ll \beta$	
$\gamma_{i,.}$	growth function of species i	
$r_{i,.}$	growth rate of species i	
g_i	germination and resuspension rate of species i	
σ_i	seed production and sedimentation rate of species i	
e, e'	exchange rate between coast and ocean	

Table 1: Summary of parameters

For now, we assume there is no reproduction.



We have $\gamma_i(N_{i,.}) = \frac{e^{r_{i,\cdot}} N_{i,.}}{1+\sum_j \alpha_{ij} N_{j,.}}$ where $r_{i,.}$ is the growth rate and α_{ij}/β_{ij} is the effect of species j on species i.

We can also fix $\alpha_{ii} \sim 10|\bar{\alpha_{ij}}|$. Interaction parameters could be taken from the beta distributions designed previously for the Granger-causality paper.

$$\alpha_{ij} = \alpha_{min} + (\alpha_{max} - \alpha_{min})\text{Beta}(2,2) \tag{1}$$

with the bounds of the interaction coefficient selected as

$$(\alpha_{min}, \alpha_{max}) = \begin{cases} (0.05, 0.1) & \forall i \neq j, \text{ with probability 0.2 (positive interaction)} \\ (-0.2, -0.1) & \forall i \neq j, \text{ with probability 0.8 (negative interaction)} \end{cases} \tag{2}$$

Wondering if we should not add an immigration/emigration term from the open ocean pool.

Just a note regarding $\alpha \ll \beta$: it's the other way aroung in Griffiths et al. 2015.

There are 2 transfer rates and $(5S + 2 * (S-1)^2)$ parameters. Assuming we have 10 species, that's already 214!