

$$\begin{aligned}
& m_{sed_1} \left(\frac{ds_{sed_1}}{dt} \right) + m_{bio_1} \left(\frac{ds_{bio_1}}{dt} \right) + m_{DOC_1} \left(\frac{ds_{DOC_1}}{dt} \right) + v_1 \left(\frac{dc_1}{dt} \right) = \\
& - Qc_1 - QC_{sed}s_{sed_1} - QC_{bio}s_{bio_1} - QC_{DOC}s_{DOC_1} - \alpha(c_1 - c_2) \\
& - v_1\mu_{photo}c_1 - v_1\mu_{bio_a1}c_1 - v_1\mu_{hydr}c_1 - v_1\mu_{vol}c_1 \\
& - m_{sed_1}\mu_{bio_sed1}s_{sed_1} - m_{bio_1}\mu_{bio_biota1}s_{bio_1} \\
& - m_{DOC_1}\mu_{bio_DOC1}s_{DOC_1}
\end{aligned}$$