**S5 Table**. Decomposition rates (average ± SD) and residence times reported for different types of marine detritus.

|  |  |  |  |
| --- | --- | --- | --- |
| **Organic carbon sources**  | **Decomposition** **% d-1** | **Residence time****d to 50%** | **Source** |
| *S. latissima* | 0.74 ± 0.71|| | 68|| | This study |
| *L. hyperborea* | 0.76 ± 1.1 | 66 | This study |
| Seagrass (*Posidonia*) | 0.58 ± 0.13 | 88 | (1) |
| Seagrass (*Thalassia*) | 1.6 | 57 | (2) |
| Seagrass (*Haladule*) | 0.37 ± 0.14 | 136 | (3) |
| Seagrass (*Halophila*) | 5.1 | 9.7 | (4) |
| Seagrass (*Cymodocea*) | 0.41 | 120 | (5) |
| Seaweed (*Caulerpa*) | 7.1 | 7 | (6) |
| Seaweed (*Fucus*) | 3.5 | 14 | (7) |
| Seaweed (*Piliayella*) | 1.5 | 34.3 | (8) |
| Seaweed (*Cladophora*) | 1.4 | 35.7 | (8) |
| Seaweed (*Ulva*) | 0.4 ± 0.1 | 125 | (9) |
| Mangrove (*Avcennia*) |  | 15 | (10) |
| Mangrove (*Rhizophora*) |  | 57 | (10) |
| Mangrove (*Ceriops*) |  | 77 | (10) |
| POM (marine snow)\*X | 11.9 ± 1 | 4 ± 1 | (11)  |
| POM (diatoms & flagellates) | 10 | 5 | (12) |
| POM (ascidian) |  | 3.5 | (13) |
| POM (*Acartia tonsa* carcasses) | 3.9 | 12.9 | (14) |
| POM (*Acartia tonsa* feces) | 1.4 | 34.7 | (14) |
| POM (copepod feces) | 30.2 | 1.7 | (15) |
| POM (zooplankton feces)¥ | 19 | 2.67 | (16) |
| DOM (marine snow) | 25 ± 4.3 | 2 | (13) |
| DOM (bacteria) X | 2.8 | 18 | (17) |
| DOM (diatoms refractory) | 0.08 ± 0.007 | 606 | (18) |
| DOM (diatoms labile) | 1.6 ± 0.6 | 30 | (18) |
| DOM (labile DOC) |  | 10 ± 15 | (19) |
| DOM (labile DOC) |  | 1.0 ± 1.5 | (19) |
| DOM (DOC)# | 0.12 | 387 | (20) |

|| averaged across regions. \* Aggregates that include bacteria, plankton, flagellates, and detritus. ¥Fecal pellets of *Acartia*, *Evadne*, *Podon*, and calanoid copepods. #50 m depth collection. X Surface ocean.

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