**Supplementary:**

**Table S1:** Bimonthly measurements of PNsink flux and δ15N from the 1000 m trap deployed at station 12-2019/station 4-2020 between November 2019 to October 2020.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Date** | **Season** | **δ15NPN** **(‰)** | **δ15NPN SD** **(‰)** | **PN Flux** **(μmol N m-2 d-1)** | **PN Flux SD (μmol N m-2 d-1)** |
| 2-Dec-19 | Spring | 0.88 | 0.26 | 22.16 | 7.1 |
| 16-Dec-19 | Summer | 1.19 | 0.32 | 43.93 | 0.7 |
| 29-Dec-19 | Summer | 3.29 | 0.60 | 40.81 | 5.7 |
| 12-Jan-20 | Summer | 0.83 | 0.51 | 15.30 | 0.7 |
| 26-Jan-20 | Summer | 1.74 | 0.52 | 23.87 | 0.7 |
| 9-Feb-20 | Summer | 1.27 | 0.18 | 26.28 | 2.9 |
| 23-Feb-20 | Summer | 0.17 | 0.42 | 35.44 | 1.4 |
| 8-Mar-20 | Autumn | 0.68 | 0.80 | 21.50 | 0.7 |
| 22-Mar-20 | Autumn | 2.53 | 0.16 | 16.07 | 2.9 |
| 5-Apr-20 | Autumn | 0.62 | 1.67 | 10.86 | 0.7 |
| 19-Apr-20 | Autumn | 7.63 | 2.28 | 11.43 | 2.9 |
| 3-May-20 | Autumn | 1.29 | 2.02 | 4.29 | 0.7 |
| 17-May-20 | Autumn | 0.75 | 1.15 | 5.71 | 0.7 |
| 31-May-20 | Autumn | 5.24 | 0.50 | 49.33 | 7.9 |
| 14-Jun-20 | Winter | 2.88 | 0.39 | 4.18 | 0.7 |
| 28-Jun-20 | Winter | 7.75 | 0.72 | 6.69 | - |
| 12-Jul-20 | Winter | 7.72 | 0.52 | 9.93 | - |
| 26-Jul-20 | Winter | 4.05 | 1.87 | 1.32 | - |
| 9-Aug-20 | Winter | 2.20 | 2.39 | 1.04 | - |
| 23-Aug-20 | Winter | 6.18 | 0.18 | 25.00 | 5.7 |
| 6-Sep-20 | Spring | 7.40 | 0.35 | 11.20 | - |
| 20-Sep-20 | Spring | 2.30 | 0.63 | 4.28 | - |
| 4-Oct-20 | Spring | 6.53 | 2.27 | 1.52 | - |
| 18-Oct-20 | Spring | 2.83 | 1.38 | 3.12 | - |