**Table S2.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| REGION | Lanternfish δ15Nphe  | Lanternfish δ15Nglu | Dragonfish δ15Nphe  | Dragonfish δ15Nglu |
| **North Pacific Subtropical Gyre (Hawaii)** | -1.2 ± 1.2 | 14.7 ± 1.8 | -2.9 ± 0.5 | 17.5 ± 0.6 |
| **Tasman Sea** | 2.6 ± 0.9 | 19.7 ± 0.9 | 1.6 ± 0.2 | 20.4 ± 0.4 |
| **Gulf of Mexico** | -1.3 ± 1.0 | 16.4 ± 1.1 | -0.8 ± 1.0 | 18.0 ± 2.1 |
| **Mid-Atlantic Ridge**  | -2.4 ± 2.5  | 17.7 ± 4.8 | -1.5 ± 2.6  | 19.9 ± 1.0 |
| **California Current** | 4.7 ± 1.5 | 21.9 ± 1.6 | 3.4 ± 0.8 | 24.0 ± 0.2 |