**Supplemental Table 1.** References used to calculate median nighttime and daytime depths and to assign each individual species to specific diet guilds.

|  |  |  |
| --- | --- | --- |
| **Species** | **Diet Reference(s)** | **Depth Reference(s)** |
| **Fishes** |  |  |
| *Anoplogaster cornuta* | Hopkins et al., 1996 | Clarke & Wagner, 1976 |
| *Ariomma bondi* | Froese & Pauly, 2010 | Cook & Sutton, 2017a,b |
| *Dolicholagus longirostris* | Hopkins et al., 1996 | Cook & Sutton, 2017a,b |
| *Rhynchoconger flavus* | Mochioka & Iwamizu, 1996 | Moore et al., 2020 |
| *Cyclothone acclinidens* | Hopkins et al., 1996 | Cook & Sutton, 2017a,b |
| *Cyclothone alba* | Hopkins et al., 1996 | Miya & Nemoto, 1986 |
| *Cyclothone braueri* | Hopkins et al., 1996 | Cook & Sutton, 2017a,b |
| *Cyclothone obscura* | Burghart et al., 2010 | McEachran & Fechhelm 1998; Cook & Sutton, 2017a,b |
| *Cyclothone pallida* | Hopkins et al., 1996 | Badcock & Merrett, 1976 |
| *Cyclothone pseudopallida* | Hopkins et al., 1996 | Badcock & Merrett, 1976 |
| *Sigmops elongatus* | Lancraft et al., 1988; Hopkins et al., 1996 | Lancraft et al., 1988; Cook & Sutton, 2017a,b |
| *Melamphaes simus* | Hopkins et al., 1996 | Cook & Sutton, 2017a,b |
| *Poromitra gibbsi* | Hopkins et al., 1996 | Cook & Sutton, 2017a,b |
| *Scopeloberyx opercularis* | McEachran & Fechhelm, 1998 | Cook & Sutton, 2017a,b |
| *Scopeloberyx opisthopterus* | Hopkins et al., 1996 | Cook & Sutton, 2017a,b |
| *Scopeloberyx robustus* | McEachran & Fechhelm, 1998 | Cook & Sutton, 2017a,b |
| *Benthosema suborbitale* | Hopkins et al., 1996 | Gartner et al., 1987 |
| *Bolinichthys photothorax* | Hopkins et al., 1996 | Gartner et al., 1987 |
| *Centrobranchus nigroocellatus* | Hopkins et al., 1996 | Gartner et al., 1987 |
| *Ceratoscopelus warmingii* | Hopkins et al., 1996 | Gartner et al., 1987 |
| *Diaphus dumerilii* | Hopkins et al., 1996 | Gartner et al., 1987 |
| *Diaphus lucidus* | Hopkins et al., 1996 | Gartner et al., 1987 |
| *Diaphus mollis* | Hopkins et al., 1996 | Gartner et al., 1987 |
| *Diaphus splendidus* | Hopkins et al., 1996 | Gartner et al., 1987 |
| *Diogenichthys atlanticus* | McEachran & Fechhelm, 1998 | Gartner et al., 1987 |
| *Hygophum benoiti* | Hopkins et al., 1996 | Gartner et al., 1987 |
| *Hygophum taaningi* | Hopkins et al., 1996 | Gartner et al., 1987 |
| *Lampadena luminosa* | Hopkins et al., 1996 | Gartner et al., 1987 |
| *Lampanyctus alatus* | Hopkins et al., 1996 | Gartner et al., 1987 |
| *Lepidophanes guentheri* | Hopkins et al., 1996 | Gartner et al., 1987 |
| *Myctophum affine* | Hopkins et al., 1996 | Gartner et al., 1987 |
| *Nannobrachium lineatum* | McEachran & Fechhelm, 1998 | Cook & Sutton, 2017a,b |
| *Notolychnus valdiviae* | Hopkins et al., 1996 | Gartner et al., 1987 |
| *Notoscopelus resplendens* | Hopkins et al., 1996 | Gartner et al., 1987; Cook & Sutton, 2017a,b |
| *Pollichthys mauli* | Hopkins et al., 1996 | Cook & Sutton, 2017a,b |
| *Vinciguerria nimbaria* | Hopkins et al., 1996 | Cook & Sutton, 2017a,b |
| *Argyropelecus aculeatus* | Hopkins & Baird, 1985; Hopkins et al., 1996 | Hopkins & Baird, 1985; Cook & Sutton, 2017a,b |
| *Argyropelecus hemigymnus* | Hopkins & Baird, 1985; Hopkins et al., 1996 | Hopkins & Baird, 1985; Cook & Sutton, 2017a,b |
| *Sternoptyx diaphana* | Hopkins & Baird, 1985; Hopkins et al., 1996 | Hopkins & Baird, 1985; Cook & Sutton, 2017a,b |
| *Sternoptyx pseudobscura* | Hopkins & Baird, 1985; Hopkins et al., 1996 | Hopkins & Baird, 1985; Cook & Sutton, 2017a,b |
| *Valenciennellus tripunctulatus* | Hopkins et al., 1996 | Hopkins & Baird, 1981 |
| *Chauliodus sloani* | Sutton & Hopkins, 1996a | Sutton & Hopkins, 1996b; Cook & Sutton, 2017a,b |
| *Echiostoma barbatum* | Hopkins et al., 1996; Sutton et al., 1996a | Sutton & Hopkins, 1996b; Cook & Sutton, 2017a,b |
| *Photostomias guernei* | Sutton & Hopkins, 1996a | Sutton & Hopkins, 1996b; Cook & Sutton, 2017a,b |
| *Stomias affinis* | Sutton & Hopkins, 1996a | Sutton & Hopkins, 1996b |
| **Crustaceans** |  |  |
| *Eucopia sculpticauda* | Hopkins et al., 1994; Burghart et al., 2010 | Hopkins et al. 1994; Burghart et al., 2007 |
| *Thysanopoda acutifrons* | Palomares & Pauly, 2022 | Frank et al., 2020 |
| *Acanthephyra curtirostris* | Hopkins et al., 1994 | Hopkins et al., 1994 |
| *Acanthephyra purpurea* | Hopkins et al., 1994 | Hopkins et al., 1994 |
| *Acanthephyra stylorostratis* | Hopkins et al., 1994 | Hopkins et al., 1994 |
| *Systellaspis debilis* | Hopkins et al., 1994 | Hopkins et al., 1994 |
| *Gardinerosergia splendens* | Hopkins et al., 1994 | Hopkins et al., 1994; Burghart et al., 2007 |
| **Cephalopods** |  |  |
| *Bolitaena pygmaea* | Passarella & Hopkins, 1991 | Judkins & Vecchione, 2020 |
| *Japatella diaphana* | Passarella & Hopkins, 1991 | Judkins & Vecchione, 2020 |
| *Stigmatoteuthis arcturi* | McEachran & Fechhelm, 1998 | Judkins & Vecchione, 2020 |
| *Mastigoteuthis agassizii* | Passarella & Hopkins, 1991 | Judkins & Vecchione, 2020 |
| *Pterygioteuthis gemmata* | Passarella & Hopkins, 1991 | Judkins & Vecchione, 2020 |
| *Vampyroteuthis infernalis* | Golikov et al., 2019 | Judkins & Vecchione, 2020 |

**Supplemental Table 2.** Outputs from final multiple linear regression models examining variation in the δ13C and δ15N values of vertically migrating and non-migrating micronekton in the Gulf of Mexico. Independent variables include body length (mm), median nighttime depth of occurrence (m), daytime depth of occurrence (m), water column depth (m), and water type (Loop current water or Gulf common water).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Isotope/Migration | Independent Variable | Slope | Std.  Error | *t* ratio | *p*-value |
| **δ13C: Vertical Migrators** | Body length | 0.30 | 0.04 | 7.06 | <0.001 |
|  | Water Type | 0.33 | 0.08 | 4.28 | <0.001 |
|  | Water column depth | -0.10 | 0.03 | -2.97 | <0.01 |
|  | Body length\*Water Type | -0.15 | 0.07 | -2.18 | <0.05 |
|  | Intercept | -19.35 |  |  |  |
|  |  |  |  |  |  |
| **δ13C: Non-migrators** | Median nighttime depth | 0.35 | 0.06 | 5.92 | <0.001 |
|  | Body length | 0.24 | 0.05 | 4.54 | <0.001 |
|  | Median nighttime depth\*Water type | -0.32 | 0.10 | -3.23 | <0.01 |
|  | Water column depth\*Water type | 0.42 | 0.15 | 2.79 | <0.01 |
|  | Median nighttime depth\*Body length | 0.25 | 0.09 | 2.73 | <0.01 |
|  | Water column depth | -0.12 | 0.05 | -2.41 | <0.05 |
|  | Intercept | -19.19 |  |  |  |
|  |  |  |  |  |  |
| **δ15N: Vertical Migrators** | Body length | 0.69 | 0.09 | 7.91 | <0.001 |
|  | Water type | -0.68 | 0.13 | -5.16 | <0.001 |
|  | Body length\*Median nighttime depth | -0.31 | 0.07 | -4.35 | <0.001 |
|  | Median nighttime depth | 0.34 | 0.08 | 4.17 | <0.001 |
|  | Median daytime depth | -0.25 | 0.07 | -3.64 | <0.001 |
|  | Median nighttime depth\*Water Type | 0.30 | 0.13 | 2.39 | <0.05 |
|  | Intercept | 8.32 |  |  |  |
|  |  |  |  |  |  |
| **δ15N: Non-migrators** | Median nighttime depth | 0.89 | 0.09 | 9.70 | <0.001 |
|  | Body length | 0.34 | 0.09 | 3.80 | <0.001 |
|  | Median nighttime depth\*Water column depth | -2.79 | 0.09 | -2.96 | <0.01 |
|  | Intercept | 8.33 |  |  |  |

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