Sampling

|  |  |  |
| --- | --- | --- |
| Formation | N colonies | N zooids (avg per colony) |
| NKLS | 66 | 615 (9) |
| NKBS | 263 | 2934 (11) |
| Tewkesbury | 107 | 1050 (9) |
| Waipuru | 15 | 156 (10) |
| Upper Kai-Iwi | 21 | 170 (8) |
| Tainui | 19 | 155 (8) |
| SHCSBSB | 50 | 400 (8) |

NOTE: rounded down

Normality tests for each trait

* All fail the shapiro test (i.e., significantly different from normal)

|  |  |
| --- | --- |
| Trait | Shapiro p-value |
| LN zooid height (zh) | < 2.2e-16 |
| LN median process width at base (mpw.b) | 1.391e-07 |
| LN cryptocyst width at midline (cw.m) | 0.02664 |
| LN cryptocyst distal width (cw.d) | 1.302e-05 |
| LN operculum width at midline (ow.m) | < 2.2e-16 |
| LN operculum height (oh) | < 2.2e-16 |
| LN cryptocyst side length (c.side) | 0.001001 |
| LN operculum side length (o.side) | < 2.2e-16 |

P and G correlation within each formation results

NKLS: .96

NKBS: .96

Tewkesbury: .98

Waipuru: .94

Upper Kai-Iwi: .97

Tainui: .98

SHCSBSB: .95

Means that P is an excellent predictor of G

Change in G across formations:

NKLS to NKBS: 5.25˚

NKBS to Tewksbury: 5.47˚

Tewkesbury to Waipuru: 23.74˚

Waipuru to Upper Kai-Iwi: 27.52˚

Upper Kai-Iwi to Tainui: 32.69˚

Tainui to SHCSBSB: 23.03˚

Change relative to G max:

NKLS to NKBS: 73.15˚

NKBS to Tewksbury: 36.81˚

Tewkesbury to Waipuru: 112.56˚

Waipuru to Upper Kai-Iwi: 153.95˚

Upper Kai-Iwi to Tainui: 156.75˚

Tainui to SHCSBSB: 53.85˚

Three formations with smaller sizes:

NKBS

Waipuru

Upper Kai-Iwi

O’Dea & Okamura 1999, Amui-Vedel et al 2007, and DiMartino & Liow 2021 find zooid size varies with temperature.

Amui-Vedel et al 2007 find longer zooids in July than January (i.e., in warmer than colder) in nature, but in the laboratory had longer and sider zooids in cooler (14˚C) than wamer (18˚C) temperatures

O’Dea & Okamura 1999 found zooid length, width, and area are temperature-dependent, where zooids were longer, wider, and more area in cooler temperatures

DiMartino & Liow 2021 found larger zooids at higher ∂O18 values