**Oakes and Sessa - proofs round 2**

Explanations of the requested changes are written in italics:

**Pg. 2, Lines 93-94:** *We changed the wording of this sentence to emphasise the differences between net collected samples and trap collected samples in response to Reviewers comments about sediment trap clarification*

Current: “Pteropod samples can be collected live, using plankton nets, or dead, in sediment traps.”

Change to: “Pteropods can be collected using plankton nets, which sample a living population, or using sediment traps, which captures marine detritus falling through the water column.”

**Pg. 3, Line 85:** *The first part of this sentence is unnecessary and should be removed so it doesn’t confuse the reader:*

Current: To compare among and between pteropod shells from different samples, shell diameter was used as a metric for size, and shell thickness and amount of shell material were used as metrics for calcification.

Change to: Shell diameter was used as a metric for size, and shell thickness and amount of shell material were used as metrics for calcification.

**Pg. 4, Line 26:** *There must be a C after the degree symbol to clarify the units temperature is measured in:*

Current: Calcareous plankton were wet-picked, and left to dry in a 40° oven for 24 h,

Change to: Calcareous plankton were wet-picked, and left to dry in a **40°C** oven for 24 h,

**Pg. 5, Fig 2 caption:** changes have been highlighted in bold. *We have changed ‘faces’ to walls’ to make the figure captions consistent with the text. We added a sentence to explain the three shells in this figure represent a range of shell conditions ranked on the Limacina Dissolution Index. We added the LDX numbers to our descriptions of shell condition for increased clarity.*

Current: Light microscope (a, e, i), and scanning electron microscope images of the external (b, c, f, g, j, k) and internal (d, h, l) faces of H. inflatus shells from the Cariaco Basin. Light microscope images show the shell changing from pristine and glassy to opaque and white with increasing dissolution. This change is accompanied by an increase in pocking on the shell surface to reveal the tops of the prismatic crystals (c, g) and then the whole prismatic layer (k). The topography on the internal face is due to the terminations of the cross-lamellar crystals intersecting with the internal face (d, h). These become more distinct as dissolution increases the porosity of the internal face (l).

Change to: Light microscope (a, e, i), and scanning electron microscope images of the external (b, c, f, g, j, k) and internal (d, h, l) **walls** of H. inflatus shells from the Cariaco Basin. **Selected shells represent three examples of shell condition, ranked using the Limacina Dissolution Index (LDX).** Light microscope images show the shell changing from pristine and glassy **(LDX = 0)** to opaque and white **(LDX = 2.5)** with increasing dissolution. This change is accompanied by an increase in pocking on the **external shell wall** to reveal the **edges** of the prismatic crystals (c, g) and then the whole prismatic layer (k). The topography on the internal **shell wall** is due to the terminations of the cross-lamellar crystals (d, h). These become more distinct as dissolution increases the porosity of the internal **shell wall** (l).

**Pg. 6, Lines 60 - 62:** *The wording of this sentence was misleading: ‘up to LDX rankings of 2.5’ doesn’t make it clear that this is up to and including 2, with the change occurring at rankings of 2.5 and higher. We have reworded this to ‘LDX rankings of 2.0 and lower’ to clarify the correct point on the LDX scale that these changes are seen.*

Current: Scanning electron microscopy showed the majority of the dissolution was concentrated on the outside of the shell up to LDX rankings of 2.5.

Change to: Scanning electron microscopy showed that, on specimens with LDX rankings of 2.0 and lower, the majority of the dissolution was concentrated on the outer shell wall.

**Pg. 10, Lines 14 - 17:** Based on comments from the reviewers regarding swimmers, *we wanted to make it clear that because the swimmers enter the trap live, they would not have undergone dissolution from the microbial breakdown of organic matter that occurs in dead pteropods. Swimmers could still undergo dissolution associated with ocean acidification in certain ocean basins. We feel the new sentence structure clarifies this.*

Current: These results could have been further complicated by the presence of swimmers, which would have entered the trap live and therefore would not have undergone any dissolution in the water column.

Change to: These results could have been further complicated by the presence of swimmers, which would have entered the trap live and therefore would not have undergone any dissolution associated with microbial breakdown in the water column.

**Pg. 10, Line 43: *T****his is a grammatical change based on the specific meanings of “happen” and “occur”; this should be**‘occurred’ as we specify the timescale of the change:* [*https://ell.stackexchange.com/questions/1135/difference-between-to-occur-and-to-happen*](https://ell.stackexchange.com/questions/1135/difference-between-to-occur-and-to-happen)

Current: associated changes in shell condition likely **happened** on timescales of 2 weeks or less,

Change to: associated changes in shell condition likely **occurred** on timescales of 2 weeks or less,

**Pg. 10, line 104:**  *WORMS has just updated the taxonomy of Euthecosomata, based on a study by Rampal, 2019. Heliconoides inflatus and Limacina retroversa are now in the same superfamily, Limacinoidea, not the same family:* [*http://www.marinespecies.org/aphia.php?p=taxdetails&id=605965*](http://www.marinespecies.org/aphia.php?p=taxdetails&id=605965)*;* [*http://www.marinespecies.org/aphia.php?p=taxdetails&id=140227*](http://www.marinespecies.org/aphia.php?p=taxdetails&id=140227)

replace “family” with “superfamily”