**README 28 February 2019**

**M. S. deVries\*, S. J. Webb\*, J. R. A. Taylor. *Proceedings of the Royal Society B: Biological Sciences.* “Functional consequences of morphologically plastic jaws in juvenile purple sea urchins ” (\*equal authorship)**

There is one data file associated with this manuscript, “**urchin\_data\_deVriesWebbTaylor.csv**”.

This file contains the data for all of the analyses conducted in this manuscript, including urchin growth, jaw length, test diameter, and feeding efficiency, for the focal species, *Strongylocentrotus purpuratus.* For detailed descriptions of how the animals were collected, refer to the Electronic Supplemental Material. Each column title in the spreadsheet is described below.

ID: The unique identifier given to each individual used in the study.

treatment: The treatments assigned to each individual. Abbreviations are listed below:

H: high food - individuals experienced constant food supply for 3 months

L: low food - individuals supplied with food every 12-14 days for 24 hours for 3 months

HL: high/low food - individuals experienced high food treatment for 3 months and then were switched to low food treatment 2 additional months

LH: low/high food - individuals experienced low food treatment for 3 months and then were switched to high food treatment for 2 additional months

sample.period: The time at which external animal measurements were made and animals were sacrificed depending on their treatments. M = month.

M3: 3 month sample period during which the high and low treatment individuals were sacrificed and measured

M5: 5 month sample period during which the high/low and low/high individuals were sacrificed and measured

mass.initial.g: Initial mass (units: g) measured at the start of the experiment.

mass.final.g: Final mass (units: g).

mass.gowth.g: Absolute change in mass (units: g).

mass.growth.percent: Percent change in mass.

test.height.mm: Test height (units: mm) measured at the 3 month sampling point. This variable was used in the calculation of gonad index described below.

test.diameter.initial.mm: Initial test diameter (units: mm) measured at the start of the experiment.

test.diam.3month.mm: Test diameter (units: mm) measured at the 3 month sampling period.

test.diameter.final.mm: Final test diameter (units: mm).

tdgrowth.3mo.mm: Absolute change in test diameter (units: mm) at 3 months compared to the start of the experiment.

tdgrowth.3mo.percent: Percent change in test diameter at 3 months.

tdgrowth.3to5mo.mm: Absolute change in test diameter (units: mm) between 3 months and 5 months.

tdgrowth.3to5mo.percent: Percent change in test diameter (units: mm) between 3 months and 5 months.

jaw.length.final.mm: Final jaw length (units: mm) as measured from the base of the jaw to the base of the tooth.

jaw.growth.mm: Jaw growth (units: mm) as measured from the base of the jaw to the fluorescent tag line.

jaw.initial.calculated.mm: Initial jaw length (units: mm) calculated by subtracting jaw.growth.mm from jaw.length.final.mm.

jaw.growth.percent: Percent jaw growth calculated from jaw.growth.mm divided by initial.jaw.length.calculated.mm.

jaw.length.test.diameter: jaw length to test diameter ratio calculated by dividing jaw.length.final.mm by test.diameter.final.mm.

gonad.mass.g: Gonad mass (units: g) measured in the individuals sampled at 3 months.

gonad.index: Body size corrected measure of gonad weight. See Electronic Supplementary Material for the reference.

Equation (1)

kelp.mass.initial.g: Initial mass (units: g) of the kelp pieces given to each individual urchin during the feeding efficiency trials.

kelp.mass.final.g: Final mass (units: g) of the kelp pieces given to urchins during the feeding efficiency trials.

kelp.consumed.mass.g: Mass of kelp consumed (units: g) or the final kelp mass subtracted from the initial kelp mass.

kelp.consumed.rate: Mass of kelp consumed divided by the observation period of 3 hours.

kelp.consumed.rate.finalbodymass: Rate of kelp consumed corrected for final body mass (units: g/hr).

bite.size.mm: maximum bite size calculated as the mean diameter of the three largest, discernable bites found on the kelp blades after the 3 hour observation period.