**Metadata**

**Name and contact information of data collectors:**

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**Data collection location:**

* Specimens were collected on the west coast of Vancouver Island within Barkley Sound, British Columbia, Canada near the Bamfield Marine Sciences Centre (48°50'6.94" N, 125°08'7.80" W)
  + Notable locations include near Helby Island (48°51'3.2"N, 125°10'18.4" W) and Scott’s Bay (48°50'08.4" N, 125°08'42.2" W)
* Data from the specimens was collected at the Bamfield Marine Sciences Centre (48°50'6.94" N, 125°08'7.80" W)

**Name of study:** Effects of stipe amputation on blade growth in the Bull kelp *Nereocystis luetkeana*

**Methods used to collect data:**

* All blades on every individual were trimmed to 40 centimeters in length and had holes punched at 10 centimeters from the top of the bulb
* Individuals had their mass and length recorded after being trimmed and hole punched
* Individuals were then cut according to treatment groups:
  + Control: No cut applied
  + Intermediate: Cut at 1.5 meters from the base of the bulb
  + Extreme: Cut in the middle of the bulb
* The portions of each individual that were cut off (amputated) from the blade possessing portions had their mass and length recorded
* The blade possessing portions had a qualitative health/damage rating assessed as follows:
  + - 0 being no damage
    - 1 is rated as having minimal blemishes in the blades
    - 2 is rated as having some blades tattered or discoloured
    - 3 is notable discolouration, decay, or dentation to the blades or overall structure
    - 4 is noted as heavy damage with large amounts of rotting or dentation to the blades or overall structure
* After the health assessment individuals were then suspended in boat slips and left to grow for 6.5 days
* After 6.5 days, the individuals were collected and had the changes in blade growth recorded as noted by how far from the top of the bulb the hole punches had moved from the initial 10 centimeters

**Experimental units:**

* Individuals are single specimens of *Nereocystis luetkeana* 
  + There was a total of 29 individuals of *Nereocystis luetkeana* (*n=29*). They were divided into the control, intermediate, and extreme treatments groups noted in the methods section above. After growth these treatments had the following sample sizes:

|  |  |
| --- | --- |
| **Treatment** | **Sample Size** |
| Control | (*n* = 7) |
| Intermediate | (*n* = 10) |
| Extreme | (*n* = 12) |

* + Due to damage rating being a qualitative characteristic of the individuals, damage ratings had the following sample sizes

|  |  |
| --- | --- |
| **Damage Rating** | **Sample Size** |
| 0 | (n = 13) |
| 1 | (*n* = 10) |
| 2 | (*n* = 4) |
| 3 | (*n* = 1) |
| 4 | (*n* = 1) |

* + All experimental groups were run at the same time, therefore there were 0 replicates for any of the treatment, control, or damage rating groups

**Units of measure for each variable:**

* Spring\_scale\_reading\_kg is measured in kilograms
* Initial\_mass\_g is measured in grams
* Amputated\_mass\_g is measured in grams
* Mass\_remaining is measured in grams
* Per\_amputation\_mass is a percent
* Initial\_length\_cm is measured in centimeters
* Amputated\_length\_cm is measured in centimeters
* Length\_remaining is measured in centimeters
* Per\_amputated\_length is a percent
* Initial\_blade\_length\_cm is measured in centimeters
* Initial\_hole\_length\_cm is measured in centimeters
* Final\_hole\_length\_cm is measured in centimeters
* Growth\_cm is measured in centimeters
* Average\_growth\_cm is measured in centimeters
* Damage\_rating\_5\_point\_scale
  + Qualitative scale with:
    - 0 being no damage
    - 1 is rated as having minimal blemishes in the blades
    - 2 is rated as having some blades tattered or discoloured
    - 3 is notable discolouration, decay, or dentation to the blades or overall structure
    - 4 is noted as heavy damage with large amounts of rotting or dentation to the blades or overall structure

**Abbreviations used in the data file:**

* cm = Centimeters
* kg = kilograms
* g = grams
* Per = percent

**Description of data in columns and rows:**

* Individual: The identification number assigned to a single kelp specimen
* Plot: The number assigned to the boat slip in which individuals were grown in
* Damage\_rating\_5\_point\_scale: The qualitative assessment of damage to the portions of the individuals that were suspended in the boat slips.
  + Ratings are as follows:
    - 0 is a healthy individual
    - 1 is rated as having minimal blemishes in the blades
    - 2 is rated as having some blades tattered or discoloured
    - 3 is notable discolouration, decay, or dentation to the blades or overall structure
    - 4 is noted as heavy damage with large amounts of rotting or dentation to the blades or overall structure
  + These ratings were applied only to the portions of individuals suspended in the water and are not necessarily representative of the entire specimen.
* Holdfast\_presence\_absence: Whether there was a holdfast present or whether it was absent on the individual when collected
* Treatment: The treatment group the individual was in
  + 1 = Control, no abscission
  + 2 = Intermediate, cut 1.5 meters from the base of the bulb
  + 3 = Extreme, cut in the middle of the bulb
* Spring\_scale\_reading\_kg: The reading in kilograms on the spring scale when the individual was weighed after it had its blades trimmed to 40 cm. This includes the weight of a 6-kilogram garbage bin that was used to hold the individual.
* Initial\_mass\_g: The mass of the spring scale reading minus 6 kilograms from the garbage bin to obtain the mass of entire individual after it had its blades trimmed to 40 cm, measured in grams
  + For individuals that were small enough to fit in a smaller bucket, their mass was recorded on a 5-kilogram digital scale
* Amputated\_mass\_g: The mass of the portion that was cut off (amputated) from the segment possessing the blades, measured in grams using a 5-kilogram digital scale
* Per\_amputated\_mass: The mass of the amputated portion divided by the initial mass of the individual, measured as a percent
* Initial\_length\_cm: The initial length of the individual as measured from the top of the bulb to the bottom of the holdfast. If the holdfast was not present this was measured from the top of the bulb to the end of the stipe. This is measured in centimeters
* Amputated\_length\_cm: The length of the portion that was cut off (amputated) from the segment possessing the blades, measured in centimeters
* Per\_amputated\_length: The length of the amputated portion divided by the initial length of the individual, measured as a percent
* Blade\_number: The identification number of the blade on an individual that had its growth measured in centimeters
* Initial\_blade\_length\_cm: The initial length the blade was cut to of an individual, measured in centimeters using the top of the bulb as the reference of 0 centimeters
* Initial\_hole\_length\_cm: The length a hole was punched at on the blade of an individual, measured in centimeters using the top of the bulb as the reference of 0 centimeters
* Final\_hole\_length\_cm: The length the initial hole was recorded to be at for the blade on an individual, after 6.5 days of growth, measured in centimeters using the top of the bulb as the reference of 0 centimeters
* Growth\_cm: The final hole length minus the initial hole length of a blade on an individual. This was the growth of the blade after 6.5 days, measured in centimeters
* Average\_growth\_cm: The average of Growth\_cm of the 5 blades on an individual, measured in centimeters, the data for an individual replicate for a given treatment
* Mass\_remaining\_g: The initial mass minus the amputated mass for an individual, measured in grams
* Length\_remaining\_cm: The initial length minus the amputated length for an individual, measured in centimeters

**Date and time of data collection:**

* The trimming, hole punching, and initial length and mass data was recorded on 2021-11-6, 1100h – 2021-11-7, 0030h
* The individuals were suspended in the boat slips on 2021-11-7, 1100h- 2000h
* The mass and length recordings of amputated segments was recorded on 2021-11-8, 1300h-1630h
* Individuals were collected from the boat slips and had their growth measured on 2021-11-14, 1100h – 1600h