Journal *of* Student Research *on* Puget Sound

Glacier Peak High School
11th & 12th Grade
Snohomish, WA

Developing curiousity and confidence through student-led scientific research on the waters of the Salish Sea

Aggregating Anemones

Created By:
Kayla Petz
Katie Williams

Research Question

* What is the correlation between the size of an aggregating sea anemone and the tidal zone it is located in?

Background Information

Aggregating anemone (Anthopleura Elegantissim)

* 2-5 cm in column diameter
* The stinging capsules are concentrated at the bases of its tentacles
* The color depends on the algae living in its tissues

* Belongs to the Cnidarian Phylum

Background Information

* Commonly located in the middle intertidal zone of semi protected rocky shores of both bays and outer coast from Alaska to Baja California.

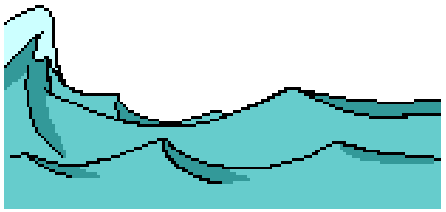
Background Information

* The aggregating anemone is a carnivore, feeding on small crustaceans such as copepods, isopods, amphipods, and other small animals that contact the tentacles.

* It is preyed upon by the nudibranch, which usually attacks the column. Snails which attacks the tips of the tentacles, and by sea stars that can engulf an entire small anemone.

Materials

* IPad; camera and data table
* 1/4 x 1/4m quadrats
* Metric measuring tape
* Tidal line
* Profile line



Procedure

1. Starting off at the tide line in between the -2 to the -1 tideline.
2. Place 1/4 meter quadrant on a boulder containing aggregating anemones to the left of the profile line.
3. Measure the diameter of each anemone in cm.
4. Record data.
5. Repeat each step while ascending the tideline.

Hypothesis

* If you measure the diameter of aggregating anemones in different tidal zones then you will find that the size of the aggregating anemone will be greater in the low tide zone because they have more opportunities to obtain nutrients.

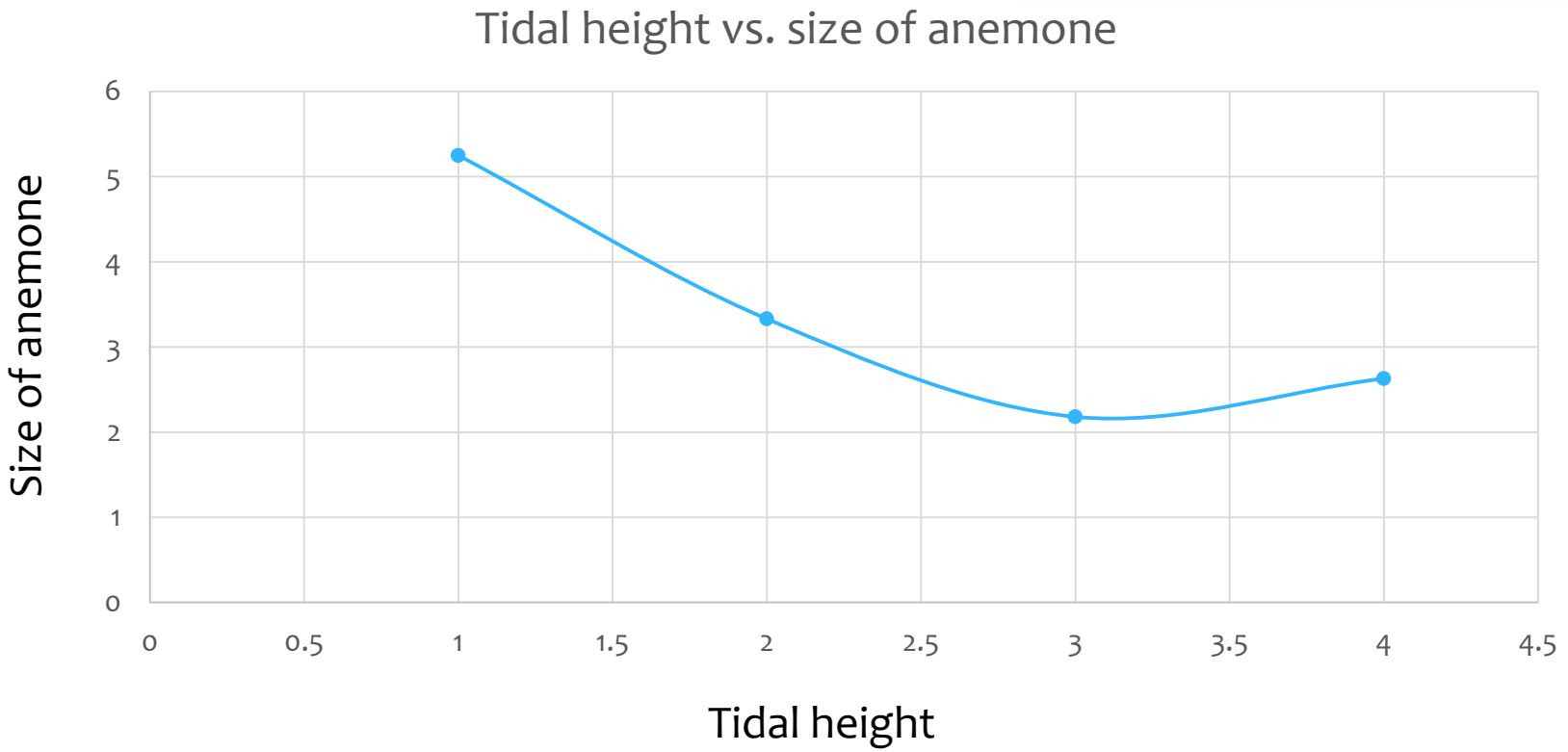
Location of Research

* Location: 609 Front Street Mukilteo WA
* Date of collection: May 14, 2014
* Low tide: -1.6ft @ 11:19am
* Group Members: Kayla Petz and Katie Williams

Size of anemones vs tidal height

Tidal Height	Distance from Profile Line	Average Diameter
-2 to -1	75ft	5.25cm
-1 to 0	80ft	3.33cm
0 to 1	80ft	2.18cm
2 to 3	30ft	2.63cm

Analysis


Tidal height vs. size of anemone
Size of anemone
0
1
2
3
4
5
6
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
Tidal height

Conclusion

* Our hypothesis was proven correct. The size of the anemone was greater in the -2 to -1 then 0 to 1. -2 to -1 was 5.25cm and the 0 to 1 was 2.18cm. But we noticed that there are more aggregating anemones on boulders in the high tide zones. But there are more aggregating anemones in the sand in the lower tidal zones. If we had the opportunity to redo this experiment I would find more aggregating anemones in the low tide zone.

How will this research help scientist?

* This research will give scientists an idea of what could happen due to global warming. If the coastal waters rise then the size of aggregating anemones will rise, the anemones will consume more phytoplankton that other organisms need to live. The anemones will dominate the coastal marine environment disrupting the natural food web.

References

* http://www.racerocks.com/racerock/eco/taxalab/anthopleurae/wynnel.htm
* http://www.weatherforyou.com/reports/index.php?forecast=tides&place=Mukilteo&state=WA&zipcode=98275&country=us&county=53061&zone=WAZ507&icao=KPAE