Journal of Student Research on Puget Sound

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

Developing curiosity and confidence through student-led scientific research on the waters of the Salish Sea
Background Information

• Trophic level: Carnivore

• Predators: Birds, Sea Otters, Humans, Raccoons, Seals, Fish.

• Prey: algae, dead animals, coral, polyps, mud and sand.

• Substrate: Wet Sand, under rocks, near the shoreline. The wetness of the sand keeps them moist which is essential for them to live.
• Question: At what tidal height do you find the most shore crabs?

• Hypothesis: If we look for crabs at each tidal height starting at 0, then we will find the most crabs at 0 because the habitat most suits their living style.

Research Question
• (425) 347-5634 · 806 5th St, Mukilteo
• 5/13/14
• Tidal height: -1 11:00 AM
• Jacob Lybeck, Stuart Terrell
1. Start on tidal line at +1, three, six, nine, meters place quarter meter quadrants.
2. Pick up rocks smaller than a basketball, count all crabs regardless of species in the quadrant.
3. Record substrate and habitat of the quadrant.
4. Start on tidal line at 0, three, six, nine, meters place quarter meter quadrants.
5. Pick up rocks smaller than a basketball, count all crabs regardless of species in the quadrant.
6. Record substrate and habitat of the quadrant.
7. Start on tidal line at +2, three, six, nine, meters off line place quarter meter quadrants.
8. Pick up rocks smaller than a basketball, count all crabs regardless of species in the quadrant.
9. Record substrate and habitat of the quadrant.
10. Start on tidal line at +2, three, six, nine, meters off line place quarter meter quadrants.
11. Pick up rocks smaller than a basketball, count all crabs regardless of species in the quadrant.
12. Record substrate and habitat of the quadrant.
13. Start on tidal line at +3, three, six, nine, meters off line place quarter meter quadrants.
14. Pick up rocks smaller than a basketball, count all crabs regardless of species in the quadrant.
15. Record substrate and habitat of the quadrant.
Materials

- Ipad: to take pictures of the procedure.
- Quadrats: where will be searching for the crabs.
- Clip board: hold the paper.
- Paper to record data: record our data and keep it organized.
- Profile line: Measure off the profile line and put down our quad racks.
- Sight: to see the crabs.
Number of crabs at each tidal height.

<table>
<thead>
<tr>
<th>Tide height</th>
<th>0</th>
<th>+1</th>
<th>+2</th>
<th>+3</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 METERS AWAY FROM PROFILE LINE</td>
<td>0</td>
<td>3</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>6 METERS AWAY FROM PROFILE LINE</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>9 METERS AWAY FROM PROFILE LINE</td>
<td>0</td>
<td>9</td>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>0</td>
<td>12</td>
<td>25</td>
<td>16</td>
</tr>
</tbody>
</table>
Number of crabs at each tidal height

Number of crabs at each tidal height
Number of crabs at each tidal height
Percent of crabs at each tidal height

- 0% at 0 meters
- 90% at 1 meter
- 90% at 2 meters
- 100% at 3 meters

Legend:
- 9 METER
- 6 METER
- 3 METER
In the end, our hypothesis was incorrect. We predicted the crabs would be most populated at the tidal height of 0, which in reality, we found 0 crabs at that level. We found the most crabs at tidal height +2. We found a total of 25 crabs, which is almost half of all the crabs we found. The most crabs were found 9 meters off the profile line. At the tidal height of +1, there was a total of 12 crabs found and 16 crabs were found at +3. The substrate of +2 was rocky, but also wet enough for the crabs to survive. At 0, there were almost no rocks and too wet, and at +3, it was rocky, but too dry.
• This study is important because it helps us understand where carbs are more populated on the beach. This will help us take care of the crabs ecosystem.

Why is this study important
• http://www.arkive.org/common-shore-crab/carcinus-maenas/
• http://eattheinvaders.org/blue-plate-special-asian-shore-crab/
• http://oregontidepools.org/speciesguide/shorecrabs