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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | |  |  |  |  |  |  |  |  |  pH **( parts hydrogen ions)** Enzymes in living organisms have an optimum pH at which they can function. If pH were to shift too high or too low from the optimum range, enzymes will denature (change shape) and lose their function. Usually lethal changes in metabolism will result.The more optimum the pH the healthier the organisms will be in the environment where they are found.  Levels of pH will determine which types of organisms can survive. Some species of organisms (like bacteria) can tolerate wide ranges in pH. Other species of organisms, like certain pollution sensitive insect larva (stoneflies), can tolerate only a very narrow range of pH. A greater diversity of organisms will be supported in areas that maintain slightly above or slightly below a pH of 7. In areas where there is significant amounts of organic matter and high levels of decomposition there tends to be a lowering of pH. Around storm drains where water enters the creek from the street, basic substances commonly enter and raise the pH.  pH measurements are most commonly seen in an acceptable range of 6.0-7.5. Rain water is typically slightly acidic and it is therefore expected that aquatic systems will have a pH under 7. The quarry discharges water from their mining operation and this can sometimes lead to a slightly basic pH. There have been two occasions where the pH was noticeably out of the expected range. Strangely, both occurred during the same year. There appears to be a direct correlation to the number of detrimental incidents at the creek and the length of time our Project Creek Watch has been in existence.We believe that our study has begun the process of minimizing the discharge of contaminants into the creek channel.   |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **Highest pH** measurement - (Soap suds in  entire study site)   |  |  |  | | --- | --- | --- | | Date | pH | Site | | 9/96 | 8.5 | 6 | | **Lowest pH** measurement - (Major fish kill  as a result of herbicides)   |  |  |  | | --- | --- | --- | | Date | pH | Site | | 10/96 | 5.5 | 5 | |   We used to use pH paper (below left) to measure hydrogen ion levels in the creek ([Click here for a Movie](http://docs.google.com/ph.mov)). In the Fall of 2007 we started using [Vernier LabPro](http://www.vernier.com/) (below right) equipped with a [pH sensitive probe](http://www2.vernier.com/booklets/ph-bta.pdf) (below left) which is connected to a laptop running [Logger Pro Software](http://www.vernier.com/soft/). Both methods of collection are very easy to use and provide accurate enough readings for establishing a baseline needed for comparison purposes.   |  |  | | --- | --- | |  |  |      |  | | --- | | Copyright © 2008 Amador Valley High. All Rights Reserved. Reproduction in whole or in part in any form or medium without express written permission of Amador Valley is prohibited. | |