Top 5 Threats to the Chesapeake Bay

Cookie Monsters

The Chesapeake Bay's watershed has provided a living pantry of resources for generations. However, these days the Bay isn't doing so well. To no surprise, the top five threats to the Chesapeake Bay have one common and persistent component, *humans*. It seems we just can't keep our hands out of nature's cookie jar. This enormous cookie jar spans 64,000 square miles (encompassing six states and the District) and includes more than 100,000 streams, rivers, and creeks. Approximately 17 million people call this watershed home. Our "national treasure" is in need of some time and space to regenerate.

The State of the Bay

The Chesapeake Bay Foundation (CBF) is leading the effort to monitor the progress of the Bay's health. CBF created a set of criteria to determine the overall Health Index of the Bay. Findings were released in a report titled, *State of the Bay*. The Health Index criteria were established based on colonial Bay conditions, circa 1600's. The score at that time would have been 100. In CBF's State of the Bay 2010, the Health Index was 31. At its worst in early 1980, the score was 23. While it is unreasonable to expect to reach 100 given our current population and all that comes with it, there is much room for improvement from our current position. CBF's goal to bring the Bay back to its unimpaired state is 70 or better.

What are the Threats?

1) The Mindset of Watershed Residents

Yes, a cleaner watershed begins and ends with us, the watershed residents. We have done our fair share of detriment to the watershed, and will continue to do so until our actions change and we adopt a more watershed conscious mindset.

2) The Mindset of Watershed Residents

To reiterate the importance of the first threat, we have chosen to make it our number two threat as well. Without a change in mindset, the other threats cannot be resolved. (See #1)

3) Excess Nitrogen and Phosphorus

Nutrients, such as nitrogen and phosphorus from farm *and* homeowner fertilizer application, are transported to the Bay and lead to a decline in water quality. The excess nutrients lead to algal blooms that ultimately block sunlight and prevent submerged aquatic vegetation (SAV) from photosynthesizing. Without SAV providing underwater ecosystems with oxygen and habitat, the water becomes oxygen deficient and cannot support aquatic life.

4) Existing Land Use and Pollutants

Certain land activities such as agriculture, wastewater treatment plants and failed septic systems also add to the nutrients in the Bay. These pollutants aren't alone in the destruction of this ecosystem. Trash is another factor, as are sediments. A previous environmental bulletin, *Sediment and Erosion Control*, provides details on how sediment contributes to the pollution of our waterways. You can find this bulletin and many more covering related topics on GSFC's outreach page at http://code250.gsfc.nasa.gov/environmental/outreach.cfm.

5) Development

Since colonial times, the greatest loss to the watershed took place when 2.7 million acres were developed between 1950 and 1980. The loss of forests and wetlands removes protection from nutrients and allows pollutants quick and dirty access to the Bay. Along with development comes increased impervious surfaces that add additional pollutants (from parking lots, roads and rooftops) and prevent water from entering the groundwater table.

Finding a Solution

All of these factors continuously bring the Bay out of balance. A balanced mindset of human watershed inhabitants is key to accomplishing the goals of cleaning up our watershed. Impaired waterways cast a limiting net on a wide array of recreational activities. Fishing, boating, crabbing, clamming, and waterskiing are just a few. Various pollutants poison the watershed, making areas unsafe for human consumption and recreation. CBF and many state and local governing agencies have made great strides in restoring the Bay, but there is still much to be done. To find out what you can do, visit the CBF website at http://www.cbf.org/.

GSFC environmental bulletin