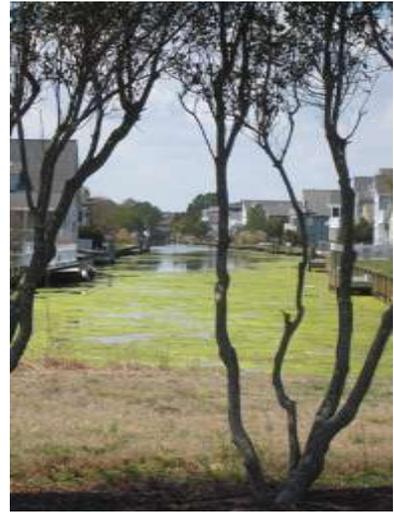


## Canal Water Quality by George Junkin, Chairperson Water Quality Committee

The algae blooms in our canals this year are the worst I have ever seen. They came earlier in the year and cover more water than in the past years. The primary cause for the algae blooms is excess nutrients in the water. The reason that the blooms occur mainly in the east ends of our canals is that the canals are dead ended and get no tidal flushing in the ends. This causes the excess nutrients to stagnate in the dead ends.

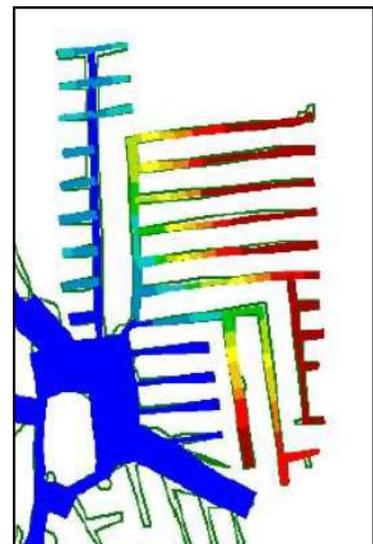


### What can we do about it?

The *first* thing to do is to reduce the amount of nutrients that enter the canals. The main source of nutrients is from rain water runoff. Homeowners should do everything they can on their property to restrict rain water runoff into the canals from their roofs and from their decks, patios and driveways. The Town has passed ordinances to limit rain water runoff. Homeowners can create rain gardens and use pervious (porous) materials on their property to keep rain water from entering the canals. The Town has obtained grants to create rain gardens in the Route 1 center median (to be completed this spring) and on the west side of Route 1, along the pedestrian walkway (to be started and completed this spring). The Town is pursuing grant funds to create rain gardens on the east side of Route 1 in the future. The Water Quality Committee is also conducting a survey of all storm drains along Town right of ways throughout the community to assess what can be done to slow the speed of storm water into our canals and thus stop the nutrients before they enter the canals. These rain gardens significantly reduce the amount of nutrients that enter our canals. Homeowners should also not allow any outside shower water from entering the canals and should minimize the amount of fertilizer used on their property.

The *second* thing to do is to increase circulation in our canals. The design of the canals causes the dead ends to become stagnate. The Entrex Study shows the scope of this stagnation. The areas shown in red have essentially no circulation. The Tidal Pump designed by South Bethany resident and former Council Member, Lloyd Hughes, would be the best approach to increase circulation but it costs over \$7 million. The second best approach is to use diffusers in the dead ends of the canals (the red areas in the figure).

**EPA document EPA-833-B-09-00, *Stormwater Wet Pond and Wetland Management Guidebook*, recommends**



diffusers. "Air can be introduced into the pond or wetland through various systems to facilitate biological decomposition of pond muck, de-stratify thermal layers in the water and improve the ecological health of the system. In general air promotes biological activity, which reduces the amount of available nutrients for algae."

### **Next Steps**

The Town has applied for an EPA grant to install a pilot diffuser system in one of our canals to assess the benefits that can be obtained from a diffuser system. The award date for this grant is late this summer. The Town Council voted on April 13, 2012 to authorize expenditure for a pilot diffuser system in the event that the Town is unsuccessful in obtaining grant funds. Visit the Town of South Bethany Water Quality web page at <http://southbethany.org/canalwaterqualitypdf.php> to obtain additional information about the diffuser project and keep up to date on its status.