

Date: Tue, 18 Jul 2006 18:21:32 -0400

From: David Kemp

To: Juliet Page

Cc: Joe Vorgetts, Tom Dent, Rande Dent, Vince Wheatley, Pat Strott-Wheatley, Maureen Turner, Lori Kemp, Greg Page, David Kemp, Peter Bergstrom, Keith Tate, Marjie Campbell, Chris Phipps

Subject: Mill Creek Dredging

Joe,

As you say, the bacteria contained in sewage degrade rapidly, so removing bacteria that were released last December is not included among the reasons for dredging. But sewage also contains inorganic nutrients (N, K, P) that do not degrade over time. If excess nutrients are present in deposited sediment, they could be released and encourage algae growth when the bottom is disturbed by boating or stormwater flows. Removal of excess fertilizer, if present, would be a minor reason for dredging. But the main reason is, as Juliet says, to remove the sediment that has completely filled in the upper part of the creek (which is now a mud flat at low tide) and has reduced the channel depth by 2 feet in the lower part of the creek. Those of us who can no longer use our boats except at abnormally high tides want our access to the water restored. And those who are threatened with loss of access just five years after the main channel was dredged would be helped by removing the upstream deposits that inevitably flow downhill and downstream into the main channel.

With regard to stirring up sediment in the water column, dredging is performed only in the winter months (October - February) so that turbidity caused by dredging does not affect submerged vegetation during the growing season. In contrast, where the water is shallow, sediment is stirred up by propellers throughout the boating season when turbidity does have an adverse impact on SAVs. It would be interesting to see a study comparing water clarity and SAV growth in: 1) areas that have had a single large dredging event in the winter, and 2) areas that have small bottom disturbances throughout the spring, summer and fall every year from boating activity.

I'm fascinated by the apocalyptic language you use when referring to dredging: "... it has associated impacts that are environmentally devastating. It tends to wipe out all life in the estuarine environment affected.". As you can see in the attached letter from the Corps of Engineers, you are not alone in using this type of language, or in holding the opinion that doing nothing is always best from an environmental perspective. The Fish and Wildlife Service uses similarly sweeping language: "It is the Service's position that this project, located in a Bay tributary, may result in substantial and unacceptable impacts to aquatic resources of national importance."

I've seen the ugly tracks that oyster dredging leaves through patches of seagrass so I can understand where that mindset comes from. The more activity that happens in a grassy area, the more damage is done to the grasses. But the only SAV species present in upper Mill Creek is horned pondweed. This isn't a perennial that is destroyed by being uprooted, it is an annual that propagates by seed. Here's what MDE's own website says about it:

Zannichellia palustris or horned pondweed is found in every state in the continental United States, as well as in Europe and South America. Horned pondweed is widely distributed in Chesapeake Bay, growing in fresh to moderately brackish waters, in muddy and sandy sediments. Horned pondweed generally grows in shallow water but may grow to depths of 5 m (16.4 ft).

Horned pondweed is an annual plant and is one of the first bay grasses to appear in the early spring. By June as water temperatures warm, the plants release their seeds and die back.

Dredging a channel through upper Mill Creek in areas where horned pondweed was growing last spring is not going to keep the species from coming back

next spring. The seeds released by plants throughout the area will disperse and grow just as well, or perhaps better, in a 1m (3 ft) deep channel as they would in the exposed mud. And if a channel were dredged, other species that don't tolerate exposed mud, such as redhead grass or widgeon grass, could be introduced.

I'd like to see the conversation with the regulatory agencies move away from generalities ("doing nothing is always best, dredging is always bad for the Bay") to the specifics of this part of this creek. Is it possible that dredging an area where only horned pondweed currently exists could improve the health of the creek by 1) reducing the amount of sediment stirred up by boating, 2) increasing the diversity of SAV species, and 3) allowing us to hang oyster trays off our piers to filter the water?

Looking forward to Saturday's meeting.

Dave

(Juliet, please discard the version of the COE letter I sent you - the last page was messed up. This one has the correct last page.)

Juliet Page wrote:

Joe,

A bunch of us are going to get together this Sat afternoon at 3pm at my house to discuss the Creek situation. Maybe you'd like to join us? It sounds like you've got some good insight into the biology of the situation.

Everyone - Joe is a resident in Divinity Cove. ~Juliet

Date: Mon, 17 Jul 2006 09:55:13 -0400

To: Joseph Vorgetts

From: Juliet Page

Subject: Re: Fwd: DEPARTMENT OF HEALTH LIFTS ADVISORY FOR MILL CREEK IN ARNOLD

Cc: Greg Page - Divinity Cove

Hi Joe,

Thanks for the e-mail. I'm just about to run out the door, but wanted to point out one thing you might not be taking into consideration - the survey data has showed that the headwaters of mill creek, which once were wetlands and provided all the ecological benefits you mention - are silting in and drying up. The survey results (on our website) have indicated areas where the bottom has filled up by 2 FEET in the last 5 years. Study results show that half of the new volume of runoff / deposition is the direct result of the sewage spill. The reason for the low water clarity (results also on the website) is because of lack of tidal flushing in mill creek. Also Sally Horner at AACC did a study of

Dividing creek that showed that the SAV and other habitat came in better after dredging because of the improved tidal flushing. I don't have that online, but I think it might be on the AACC website somewhere.

I've got to run off to work. I'll get back to you with more info later.
Thanks, ~Juliet

At 12:49 PM 7/16/2006, you wrote:

Hi Juliet:

I have been following this issue as it has developed. I certainly empathize with your concern, and that of all the other concerned citizens in our neighborhood. Therefore, I think it is important that we carefully think through the possible options for improving the existing situation of pollution in Mill Creek. I have made an effort to do so, and so far, I do not see where dredging is going to provide solutions to any problems.

These are my reasons, which are based on a lot of past experience working on water quality issues with the South Carolina Water Resources Institute and with dredging work with the Army Corps of Engineers. For starters, in general I am not a fan of dredging for any purpose, because it has associated impacts that are environmentally devastating. It tends to wipe out all life in the estuarine environment affected. Where biological pollution (i.e., pollution from sewerage runoff) is the concern, dredging does not provide either a short or long term remedy, and in fact, can delay the natural process that eliminate coliform bacteria, and other pollutants associated with sewerage runoff. This is because dredging always injects huge amounts of sediment into the water column. The suspended sediment contains an enormous amount of organic matter, and reduce light penetration into the water column. Combined, the most important impact of the of the presence of more organic matter and reduced light is an increase of biological oxygen demand (BOD), which lowers dissolved oxygen (DO). When DO is lowered, this slows and may even stop the natural processes that eliminate pollution from sewage runoff and other sources. Also, if the DO becomes low enough over a broad enough area, this can trigger fish kills and die-off of other organisms such as shellfish. These dead organisms then contribute another big slug of organic matter that is introduced into the water column and this ends to further increase BOD and lower DO. Therefore, by dredging, it is entirely possible to create what is called a negative feedback loop. The more one tries to fix the problem with dredging, the worse it gets. That in effect, could turn a short term problem into one of much longer duration. In the end, the pollution that one is seeking to eliminate by dredging can in fact persist much longer as a result. This would translate into having to endure the lost aesthetics and reduced recreational use for a longer period of time, as well as the the possible negative impact on home values in the area.

It seems that there is a perception by some that Mill Creek is a cesspool, as a result of the recent pollution events, and that the only way to eliminate this problem is to remove the residue by dredging. In

my view this perception is incorrect for the reasons I have outlined above. I think it is important to keep in mind that sewage does not accumulate in sediment the way some pesticides, PCBs and heavy metals do. These compounds can remain unchanged in the sediment for decades or perhaps even centuries. But sewage, which is biological waste, is degraded rapidly over time. The latest water quality results are consistent with this view.

With regard to dredging, the summary and conclusion of this discussion is that sometimes "to do nothing" is the best option--much the same as doctors follow the admonition: "First, do no harm."

If there is a need to do anything, what I think we should be focusing on is the cause(s) of the recent sewage pollution events in Mill Creek. In particular, what I think may be most needed, is better monitoring of runoff to increase the likelihood of early detection of events that contribute to such pollution, so that preventive remedial action can occur sooner. Also, better inspection may be needed to detect and correct antiquated piping systems, eminent mechanical failure of lift pumps, and electrical backup systems for lift stations that can compensate when there are power failures.

I don't pretend to have all the answers, and would welcome the opportunity to review any expert opinions that recommend the dredging option. But until I see some compelling evidence for that option, I must demur.

Regards.

Joe Vorgetts