

MEMORANDUM

To: Groundwater Advisory Council
From: H. Bokuniewicz
Re: Minutes of the meeting 7 June 2010
Date: June 9, 2010

PRESENT

R. Alvey
H. Bokuniewicz
S. Colabufo
S. Jones
D. Paquette
K. Roberts
S. Robles
W. Spitz
S. Terracciano

REGRETS

M. Alarcon
N. Bartilucci
L. Koppelman
R. Liebe
R. Mazza
M. Nofi
A. Rapiejko
K. Willis

1. The minutes of the meeting of 10 May were revised according to comments received and distributed.
2. Rob introduced Sidira Robles who is an EPA Technical Support Team Intern for the summer. Sidira will be working to compile a 3-D aquifer map for Nassau County showing VOC plumes. Large spills will be included. Sidira is a graduate student at the Stevens Institute of Technology and had previously worked in New Jersey as a Brownfield Project Manager.

The VOC mapping project in Nassau County will be done in cooperation with the USGS (Jack Monti). A great deal of data is available but information from the voluntary clean-up program has been the more difficult to collect. The results would be presented at an EPA in-house meeting but perhaps it could be done as a webinar. If all goes well, they will consider expanding it to Suffolk.

It was pointed out that the DEC has \$200,000 for a statewide study of brownfields and, perhaps, Nassau County could be done as a pilot study.

3. The DEC will probably declare a (NY) regional drought based on rainfall upstate. The USGS "Water Watch" shows that a number of drought indicators are below normal in upstate NY but above normal on Long Island. This had been an odd winter for snowfall apparently with snowfall in Maryland exceeding that in Buffalo.
4. Although a symposium on a nitrogen budget for Long Island never materialized, we (SBU) are involved in two projects to examine nitrogen inputs to the Long Island Sound and hope to propose a new one to the Long Island Sound Study. There are four groups involved in this work, almost twenty people in all. Besides SBU, there are investigators

from the USGS (both Coram and Woods Hole) and University post-doctoral fellows from Barcelona. (The University encourages international collaboration and it is useful to keep the LI situation before the broader, professional community).

One continuing project involves the use of naturally-occurring radium to estimate groundwater underflow. Radioactive radium is found at elevated concentrations in groundwater and, if found in surface water, like Long Island Sound, its measured concentration can be used to calculate the groundwater input. Taking into account all the sources and sinks of radium, a substantial groundwater input is needed to balance the budget. Along the shoreline this amounts to about 14×10^{13} L/year, much larger than the Connecticut River input (but this is not all freshwater, but a mix of saltwater and freshwater). There seemed to be substantially more groundwater entering the Sound at the shoreline in July than there was in April although the reason for this is not yet clear.

West of Port Jefferson, the Sound shoreline is embayed by what probably originated as glacial tunnel valleys. Although the deeper parts of the bays are “capped” with silt and clay, submerged, groundwater seepage occurs near the shore. Resistivity measurements in Northport Harbor and Manhasset Bay show fresh groundwater underneath the sea floor dozens of meters from the shore. Seepage was measured at some locations but calculated underflow should be greatest in the south western shoreline of Manhasset Bay, a conclusion supported by the resistivity measurements. Nitrogen is found as nitrate in the fresher groundwater but as ammonia in saline groundwaters.

We plan to sample the Sound for radium again this summer (27 July to 6 August). The USGS (Woods Hole) is also planning to continue their investigations but on the south shore of Long Island. As a follow-up of earlier work done in October 2009, they will be working (21-25 June) in Patchogue Bay and Great Cove in Islip. Geoprobe measurements are to be done in addition to other sampling. As a practical matter, Patchogue is hoping to expand its sewage treatment plant.

Our (SBU) proposed study is to examine northshore bays and harbors. In a preliminary study we concluded that nitrogen added to the open water of (Port Jefferson) Harbor is likely to be utilized by the zooplankton, trapped in the harbor sediments and denitrified. The proposed study would be intended to examine the role of bays and harbors in the nitrogen budget of the Sound. It would consist of (open) water-quality sampling, hydrodynamic modeling, underflow measurements to get estimates of assimilative capacity.

It was suggested that the Suffolk County Department of Public Works (Ben Wright) might be interested in this work also. There are old, deep well records around Port Jefferson Harbor that might be of use. Biological studies might also be considered. Benthic community structure might be an indicator of submerged groundwater seeps; this has been found elsewhere. Also, nuisance algal blooms in Northport Harbor are a cause for concern and are related to nutrient inputs. Karen Chytalo (DEC) has been engaged in this issue.

(As an aside, the story was told that during prohibition, contraband liquor was rumored to be spirited from boats in the harbor to Northport speakeasies through the sewer pipe).

5. Our proposal to the Water Reuse Foundation was turned down. It was viewed as a: “modeling project for wastewater disposal for a specific site. It does not build on experience in other states that use reclaimed water for salt water barriers; and this is a good entry to NY and NE issues, however not meaningful to majority of subscribers”. The DEC report on water reuse on Long Island has not yet been released.
6. The Groundwater Foundation is offering a webinar on 15 June at 2 PM titled “Quantifying U.S. Groundwater Reserves” by Kevin Dennehy of the USGS. They are charging \$35.00.
7. A USGS report on the impact of development on aquatic insects has been released. This is the result of a multiyear effort at 10 urban locations in other parts of the country. The conclusion is that aquatic insects’ populations are sensitive to even low levels of development. These species are preferred forage species for fish.
8. The USGS (Troy, Pat Philips) is releasing a study showing elevated levels of pharmaceuticals in NY stream downgradient of manufacturing plants. The study is expected to be published in ES & T.
9. A USGS press-release is pending concerning the record high groundwater levels on Long Island. The elevations are 2.5 feet above normal on average and reach a maximum of 9 feet above normal. A half million homes are estimated to be in areas where the depth to groundwater is less than 11 feet.
10. There seems to be a growing, national movement for some independently operated group to monitor groundwater conditions and utilization. Steve might be able to report on this at a future meeting.
11. Sewers have been proposed to solve the recent flooding problems in the Nissequoque. Dredging to deepen the northeast branch will be done to enhance stormwater stream flow. It seems, though, that parts of the river are not only silted up but effectively dammed by culverts up to a half-mile from the stream. In addition, an old system of storm sewer and retention basins may no longer be effective but plugged by debris and roots or collapsed.
12. At the Remediation Product Management meeting of the EPA some information was presented on a new USGS method to use tree cores to detect the presence of VOC contamination in the groundwater (Don Relesky? Joel Berken?). Rob may be able to provide more details at a future meeting.
13. The next meeting will be Monday, September 20, 2010.