

## **Second Annual Mystic River Water Quality Science Meeting January 7, 2010 Meeting Notes**

### Welcome (Stephen Perkins, Director of EPA's Office of Ecosystem Protection)

- Good Morning and welcome to the second Mystic River Water Quality Science meeting. It is great to see such a big turnout. Thanks to the new Water Quality Monitoring Director at the Mystic River Watershed Association; Patrick Herron, for your efforts in helping with this meeting. Thank you Tom Faber, Todd Borci, Leah O'Neill, Caitlyn Whittle,..... from EPA for pulling this meeting together. Let's also give a special thanks to all of the presenters at today's meeting.
- Again this year, we have a diverse group of people here; from Towns to top notch Universities from State to Federal agencies from non-profits to for profits. I am glad to see a wide range of groups and hopefully this will again lead to some great discussion on water quality.
- The agenda is full with interesting presentations which shows us all the great work that is going on the watershed. New to the agenda this year, we have presentations from Jim DiLorenzo and Joe Lemay from EPA who will share their knowledge on the superfund sites in the upper watershed.
- As all of you know, in 2008 we hosted a Mystic River Summit. At that time, the Mystic watershed had received a grade of a "D" for two years in a row for overall bacterial water quality. Last year we saw a slight improvement as the grade increased to a C-. Last March the Steering Committee kicked-off their first meeting and they have been going strong focusing on all the good work that came out of the Summit.
- At the last Steering Committee meeting in November, the group drafted a mission statement and set 2010 priorities to include improving access to the river and its tributaries as well as creating and conserving open space with a strong outreach, education, and environmental justice focus. This mission calls the group to work together to "restore and protect water quality and wildlife habitat, increase open space and public access to and sustainable recreational use of the river and its tributaries." The Steering Committee also emphasized the need for Agencies and watershed groups to continue ongoing base program work in support of the goal of improving water quality.
- It is good to see some of the Steering Committee members here today. Can members of the steering committee raise your hands. The Steering Committee will need the science and expertise from this group as it moves forward in its mission and priorities. Caitlyn Whittle will tell you more about the Steering Committee toward the end of the meeting.
- This science meeting will continue to provide a forum for those collecting data to share their results that will hopefully lead to more collaboration and better understanding of the problems affecting the Mystic River Watershed.
- The work that you are involved in is critical to the success of the Mystic River Watershed initiative and will help the Steering Committee set future priorities, monitor progress, and assess environmental problems and possible solutions.
- Today's meeting is important and we encourage you all to have robust discussions, exchange scientific and technical ideas, and help us move forward to restore the Mystic. Let this meeting be the beginning of future discussion and collaboration, and we hope you all will continue these discussions into the future. Thank you!

## Introductions

### Monitoring and Science Updates - Recent accomplishments and future directions

(10 minutes each)

#### **MyRWA – Patrick Herron**

- MyRWA is going to continue to work monitoring baseline stations and analyzing baseline data; focusing monitoring efforts on known problems; continue to work on developing a plan for cyanobacteria and nutrients in the watershed (becoming more recognized as a public health threat).
- MyRWA will be collaboration with EPA, Tufts, and DPH among others.
- Main Goals- outreach and advocacy.
- Mass DEP released WQ Assessment Document: Changed watershed boundaries in the Mystic – divided mass in 27 subwatersheds: the Mystic became a subwatershed of Boston Harbor; the Neponset and Weir, both subwatersheds of Boston Harbor. Mass DEP released new watershed assessment and changed boundaries of the Mystic to the Tobin Br.  
*Review the draft here:* <http://www.mass.gov/dep/water/resources/71wqar.pdf>
- \*Trying to understand what this change means\*
- Having the previous cities included (Winthrop, etc.) makes MyRWA a stronger group.
- The cities were originally determined by hydrology and in a way to makes things manageable.
- East Boston and Chelsea are EJ communities and considering the strong work the steering committee is starting to do, MyRWA thinks that changing the boundaries will undermine the work we're trying to do – such as advocating for habitat restoration and WQ in that area.
- Please engage with MyRWA and reach out to DEP to get that area back into the official Mystic watershed for hydrology and pragmatic reasons.

#### **Enforcement update – Todd Borci**

- A lot of enforcement going on in the watershed
- Going to give an update on what we're working on and the enforcement program at EPA.
- There is a municipal permit (general permit) to cover stormwater:
  - initially published in 2003 and expired in 2008 (a 5 year period), but still applicable.
  - it covers stormwater discharges for all the communities in the Mystic.
  - requires stormwater to meet water quality standards.
  - at all times there is compliance work to ensure that the permit is being followed.
- EPA can issue a 308 information request (“pre-enforcement”) – to ask questions, can require documents, sampling, a variety of types of work.
- Next step is Administrative Orders – EPA develops and issues to a municipal or commercial entity.
  - Can order many things under this
  - Make sure water is clean and that stormwater and other discharges don't exceed water quality standards.

- Next step is Judicial Referrals for serious offences and/or in times when work is going to be taking place over a long period of time.
  - While these cases are ongoing, the two parties often settle the complaint before it is filed.
  - They are confidential until settled or the complaint is filed.
- Focused effort in the Mystic started in 2005.
  - Received data from the watershed association that demonstrated a lot of issues in the watershed (like bacteria, etc.).
  - Issued a number of information requests.
  - There were limited resources so EPA met with the state to divide up territory.
- At this point we have issued 13 information requests and EPA has issued 9 Administrative Orders (AOs) to municipalities (most are private entities).
- AOs apply to outfalls that are emitting waters with water quality not meeting water quality standards.
- AOs address SSOs and stormwater issues.
- Data and work from 2008 and this past year-- problems in the watershed – illicit connections, leaky pipes, etc. continue to be a significant problem.
- All of the AOs require tracking for the number of illicit removed and the number of gallons removed per day.
- There is state work that is also ongoing.
- There are other indirect cases that EPA takes, such as the recent enforcement sweep in the island end area.
- Many commercial businesses received orders.
- There is more information in Leah's presentation and there will be data from this past year's sampling.
- There is a map in the back of the room that demonstrates the communities and whether or not there is a current enforcement action ongoing. Folks can see it for a sense of what kind of work is going on in the watershed.

#### **EPA - Tom Faber**

- Discuss monitoring plans for 2010: currently compiling stormwater data display system.
- Stormwater data includes collections from MyRWA, Todd Borci and Leah O'Neill EPA's data.
- Eventually, the data will be displayed in some type of active map or otherwise.
- For next year, there is an order in place for a buoy system that we would like to use to monitor cyanobacteria blooms in the watershed.
- It comes with a website and the system will measure parameters such as DO, pH, temp, conductivity, phycocyanin, chlorophyll, etc.
- We could deploy it in one of the lakes or another location in the Mystic and the data would be on the website real-time with access for the public.
- This way the public could see the data in their waterbodies.
- We will be working with MyRWA to coordinate locations so that the grab samples can be compared to the real-time data to ensure the data is accurate.
- The buoy could be moved to different locations in the summer -- locations haven't been determined.

- We want to hit a location that is susceptible to algae blooms and has access to people swimming (pond?).
- We might start it off in one spot and then move it.
- In past years, EPA has supported MyRWA with bacteria analyses for the hotspot monitoring program and we will continue this work this coming year.

### **MassDEP – Kevin Brander**

- DEP has been involved in the Mystic and Alewife for many years and more intensively over the past three years when DEP secured resources for a bacteria lab in the NERO.
- Two staff people would be collecting samples and analyzing.
- Recently, there have been significant cuts at DEP.
- DEP is still committed to keeping on the cases that were developed with NERO's good work. Early on DEP – Arlington, Belmont, Cambridge, Somerville, Woburn, Melrose
- There is an assortment of enforcement tools, such as information requests (permits, etc.) and high level actions.
- Most are of lower level enforcement requests.
- There is work ongoing in DEP's communities and there are challenges and a lot of work to be done.
- In general, finding and fixing sources of stormwater is not a simple matter.
- There is a lot of investigative work – targeting sampling, tv inspection, field testing, etc.
- More often there is over drain lines from sewer lines.
- These aren't very easy to find and not easy to fix.
- The IDDE program is going to have to be a sustained effort over a long period of time.

#### \*\*\*\*\*Handout:

- DEP was very busy in the Mystic in 2009- devoted a lot of time to the watershed.
- Aberjona, Hollis Brook, Ell pond, Mill Brook.
- Program was very active.
- DEP is very happy to sit down with communities or MYRWA to talk about specific issues, or IDing and eliminating connections and where we'll go from here.
- DEP will stay active in all the communities, but will be hamstrung from starting new activities.
- There will be challenges, but still participating in this group and the Steering Committee and look forward to working together to improve environmental health.

### **MWRA – Kelly Coughlin**

- Program from 2008 continued into 2009 and will continue into 2010.
- There are 17 sampling locations in the Mystic River area.
- \*\*\*\*\*SEE MAP (Presentation)\*\*\*\*\*
- Monitoring is part of larger harbor monitoring – 45 stations harborwide.
- Three locations are monitored year round for eutrophication measures in addition to bacteria to look at impact of CSOs on water quality.
- Monitoring is year round but most of monitoring is from April – December.
- It is random with regard to weather.
- Measurements – indicator bacteria (enterococci, E. coli), fecal coliform, secchi disk, DO, temp, conductivity, eutrophication, nutrients, suspended solids, etc.

- Dryweather-- No big change in 2009 from 2008.
- Wetweather-- Improvement in WQ in the lower mystic and the mystic mouth from 2008 to 2009. (Would have expected to see higher numbers given the wet year we had.)
- Alewife Brook – single E. coli samples on a given day.
- In early part of year there were high counts with a lot of wet weather, but later in the year there were low counts. Typically there would be higher counts for the entire stretch of Alewife regardless of weather.
- For the mainstem – there are higher counts upstream than is typically seen.
- At the dam, there were lower counts than expected given the rainfall. This is a site downstream of the Malden River. There is typically high counts in wet weather.
- Downstream section – Malden R (typically a dirty site) and Somerville Marginal Outfall. Lower counts than expected given the rain. Would typically see high counts at this location in dry weather.
- There is relatively good water quality this year.
- There is more work going on to investigate.
- There are no plans to change the Somerville Marginal facility – near the Rt. 28 bridge and by the marina.
- The stormwater system upstream will be affected by development.
- There is not a lot of data for that outfall.
- Data isn't all pulled together for 2009 since there is sampling thru the end of December.
- Eutrophication issues in the mystic are significant. Secchi depth ranged from 1m to 1.5m.
- Cyanobacteria can be a proxy for nitrogen loading issues.
- Water clarity is relatively poor in the downstream area.
- Malden River/Mystic Confluence low as .7m (secchi depth) in summer months.
- In the summer algae blooms can be pretty significant.
- Ammonium levels and chlorophyll levels are some of the highest seen in the harbor monitoring.
  - Ammonium levels- 38 umol/L in February and March in upper Mystic; midsummer levels 1 umol/L or less.
  - Chlorophyll levels 44 ug/L to 28 ug/L.
- There is a big difference upstream of the dam vs downstream where the water is flushing.

### **Cyanobacteria Monitoring - Roger Frymire**

- Three years ago there was a large bloom on the Charles that raised public awareness.
- Two years ago DPH published guidelines on the visual scum, cyanobacteria levels.
- Given the guidelines, there has been limited monitoring for two years in the Charles and Mystic.
- This year, Roger received a microscope from EPA so he has been doing cell counts and species identification.
- Two interns who sampling and taking samples and Roger did cell counts on them.
- Five waterbodies had suspected blooms in the past.
- Wedge Pond in Winchester where there is a town beach. Cell counts of 126K compared to state guidance of 70k cells/ml. This site was posted and stayed posted for 4-5 weeks until the town treated the pond with copper sulfate to kill the cyanobacteria.

- A week prior, high counts were found at Horn Pond, a backup water supply (and not recreational water). Woburn treated it with copper sulfate. A day after treatment, it was down to 10,000 with visible scum on the shore. Three weeks later, count was back up over 70k, but that was at the end of July.
- Didn't have a confirmatory sample afterwards for treatment or posting again.
- Shannon Beach in upper mystic lake: the first week got 73k, but high flows and possible impacts of treatment (copper sulfate) washing downstream. There wasn't a count over 70k again. In mid-July the beach was closed for shigella outbreak.
- Blessing of the Bay boathouse, Somerville (high recreational access pond) didn't ever get counts over the 70k guidelines.
- In the past, seen counts 70 – 100k thru the summer.
- In 2008, there was a bloom in the entire lower mystic fresh water section in mid-November when the water started to cool off. Bloom cell count of 1.6M. Bloom was of a species not commonly seen.
- Also sampled Bell Pond in Melrose. In past years has had a very thick scum layer. Not very much microcystis. At one point when there was a bloom, got a cell count of 195k in what looked like a clear section. In a cloudy area, got 16M for cell count. Sample in thick scum, inferred a cell count of 96M cells/ml. The majority component there was spirulina which is a food supplement in clean mid-western lakes. Sold as bluegreen algae high protein food supplement.
- Sampled in Spy Pond, Arlington. There have been blooms the past few years. Posted two years ago. This year DPH got a federal grant to sample at 5 sites, one of them was Spy Pond, which was sampled over 12 weeks on a weekly basis. Got good baseline data. Started June 18 – September. Bloom appeared fairly suddenly on July 28. Pond is eutrophic for other algae. Arlington treated the pond with sonar in the end of June. By killing off other green plants in the pond, released phosphorus which led to the cyanobacteria bloom and posted from the end of July into October.
- In other ponds where there are a large quantify of other plants, we don't tend to see so much cyanobacteria.
- Went with DPH for 7 of their dates, met their consultant at Spy Pond and took a split sample to do counts.
- The correlations between counts aren't very close. Close to 50% difference on samples.
- On one date, they found more than Roger.
- Also did splits with the other samples, and the data isn't out yet.
- Will try to do closer analysis of that data.
- Maybe next year there can be a third lab to do three-way splits to try to see who is right.
- We know there are high counts, but we don't know for sure how high they are.
- This year the Charles didn't have any large scale blooms.
- There were two samples that went over the DPH guidelines, in late June and in September. They correlated well with low flow times.
- It could be a lack of flushing and longer dwell time and build up of heat which can lead to the blooms.
- In the September bloom, almost entirely microcystis on Boston side. On the other side, another algae. Completely different populations.

**EPA's Stormwater Monitoring and Research Effort Summary -  
Todd Borci & Leah O'Neill**

- Last year 2008 data was presented at the Science committee meeting.
- After that, applied for two grants thru EPA's Office of Research Development.
- Used these grants to continue sampling in the Mystic.
- These are two year grants, so they are still in the first year of them.
- This year the sampling was expanded outside the Mystic and with testing for many more parameters.
- Often a site was tested for 20 different parameters to try to get a handle on what is going on because just finding bacteria will not give the source.
- Goal was to try to identify the most cost-efficient and effective screening parameters for folks to use, as well as get information for the enforcement program, do bacteria source tracking, broaden sampling locations, and do additional collaboration.
- Went into testing with bacteria sampling with ammonia and surfactant (emulsifiers, soap, detergents) sampling to try to best identify the sources.
- Tested many analytes (E.coli, enterococci, ammonia, surfactants, K, free and total Chlorine, total P, F, Pharmaceuticals, and urine test strips --- try to compare results over many split samples analyzed in different ways.
- Would compare results from a test kit to lab results and if it would identify thresholds previously determined.
- It is very expensive to test pharmaceuticals so there was effort to do cost effective screening to find which would be useful.
- There is a lot of caffeine sampling. There may be background levels of caffeine, so they've added metabolic products to see if there is an improvement to the typical pharmaceutical screens out there.
- Some ADD and bipolar drugs that seem to have a long life-span.
- There is a nicotine metabolic byproduct.
- If you're doing limited sampling, the bacteria sampling, ammonia, and surfactants are the easiest and most cost-effective to use. Recommendation of these kits.
- They'd be within the threshold of what you're looking for.
- By using these methods, you'd be cutting costs in half.
- They are sufficient for screening to determine whether or not there are bacteria counts that there might be of human origins.
- In the test kits the thresholds are different. These are good for a screening tool.
- For screening and low cost methods, these would be what we recommend.
- No metal testing because the kits are not cost effective. No optical brightener testing because results may not be accurate or even useful.
- Results of the pharmaceuticals are not completed because a QA/QC check is required.
- A location on Island End River: Both Chelsea and Everett have AOs and have been working toward the problems prior to the order and will continue to work there.
- Mill Brook in Arlington: There is a bridge by Mystic Street. Both sides of the bridge there was high bacteria, but there was a milky substance... turned out to be paint.
- Algae plume downstream of the bridge, very high counts, was SSO. DEP issued notice to the Town.
- Somerville-Amelia Dam: CSO outfall, MWRA removed 1 sewer block.

- Woburn- New Boston St. had elevated ammonia levels. Waiting on the results of the pharmaceuticals to figure out problem.
- Stoneham—high E.coli and enterococci levels
- Mill outfalls – high ammonia and surfactant levels. Grey bacterial plaque on the pipe.
- Summary: 2000 samples over the course of 2 years

Maps and charts will be posted on the web at [www.epa.gov/ne/mysticriver](http://www.epa.gov/ne/mysticriver)

### **Priority list of critical pollutant source locations that impair water quality in the Mystic River Watershed (Patrick Herron)**

- There are 15 Sites we should focus on across the Mystic
- Focus on bacteria source tracking, well documented sites over time, and traceable issues.
- This list will not include superfund issues, CSOs, SSOs, or nonpoint source runoff of nutrients.
- This is the start of conversation about these sites.
- Patrick has spoken with Todd and Kevin. If you're with a municipal or a private company, you can correct or update the info Patrick has.
- First site is in upper Aberjona (Woburn, Winchester): The Aberjona has three baseline sites that guide the monitoring. A lot of nutrient and bacteria loading going on in this area that is challenging to understand. It isn't coming from a single pipe. It's coming from nonpoint sources, wetlands, superfund sites. Will require coordination between many parties to help us get our hands around this. Problematic because as the Aberjona comes down into the lake, it reaches Shannon Beach where there was a Shigellosis outbreak that shut down the beach.
- Sweetwater Brook (Stoneham) – high bacteria counts at many outfalls over multiple years. There is a history of SSOs as well. Stoneham has been working hard to address the SSOs.
- Russell Brook in Woburn – between Horn Pond and Wedge Pond. Issues in Wedge pond are from Horn Pond Brook and Horn Pond. One site in the middle there is a culverted stream that is Russel brook. There is a history of high hits there. Trying to resolve what the real issues are. EPA and DEP have both visited this area with high and low hits. For MyRWA, trying to maintain WQ in Wedge pond for swimming activity.
- Mill brook in Arlington – All of these sites have had high hits recently and for a long time. An area that needs attention and improvement. There is strong documentation from baseline site that WQ standards are not being met and haven't been met in a while. Last month there was an off-the-charts hit. Greater than 10k counts.
- Winn's Brook in Belmont – A more polluted baseline site. Very rarely do samples meet secondary baseline standards. Belmont is under some type of order under DEP and is spending a lot of money to try to fix these issues.
- Wellington Brook in Belmont – not a baseline site, but it is a site where throughout five years of data there have been high hits from many outfalls. There are 15 sites here.
- Meetinghouse Brook in Medford – At Condon Hatch Shell. A slow moving stream. Sample here on a monthly basis. It is a relatively small stretch that comes right from the city. For nine years, the data show that more than half the samples do not meet water quality standards. It is not the highest input in the system, it deserves to be fixed.

- Winter Hill Brook in Somerville, just at border of Medford and Somerville. A history of high hits. Medford has examined this area. Medford feels that the problem is in Somerville's court. Needs resolution.
- Malden River – A baseline site in the culverted section with a number of high hits.
- MWR205 in Somerville – a site that will be resolved since MWRA is working hard to help Somerville. The high hits at this site (just below the Amelia Earheart dam) in May 2009 – 100k E. coli. Dry weather flow.
- Island End River in Chelsea – an issue. A sheen of oil in this area for a long period of time. It's unclear who the ownership of these pipes is- could be Everett, Exxon, or Chelsea.
- ChEx17 an outfall in Chelsea – history of high bacteria
- Mill Creek in Chelsea – has benefit of tidal flush. There are a number of outfalls at this site with high bacteria.
- Constitution Beach in Boston – a swimming area for Chelsea, East Boston. It is an important resource for them. MyRWA looked at bacteria counts coming from BWSC pipes in there. Still needs to be resolved. Not sure if work by BWSC has been completed there or if MassPort has work there.
- Sales Creek (Winthrop, Revere, Suffolk Downs) – a bifurcated stream that has reaches in a variety of areas. Goes thru Suffolk Downs into Belle Isle Marsh. It is an abused system. Significant trash and dumping. Water covered with film at the trailer park. Clay material off of Suffolk Downs. Belle Isle Marsh is an important salt marsh.
- There is a handout and it will be posted online.
- Is there a game plan on how to attack these areas? This is the beginning stages of conversation and hoping to sit in rooms with these parties to help them if they need it to help with the resolutions. They are often expensive. MyRWA hoping to help advise the solutions. At this point there isn't a game plan for each site in particular.

#### EPA Superfund sites in the Upper Mystic

##### **Olin Chemical (Jim DiLorenzo)**

- Site is located at the head of the Mystic in Wilmington.
- Superfund is an extremely strong regulatory statute formed in response to large toxic sites discovered in 1970s. It is multimedia, multicontaminant.
- There aren't many cleanup numbers, but it relies on existing federal and state regulations to develop clean up plans. It is a risk-based program.
- It looks at potentially impacted medium at the site and potential exposure pathways – human and ecological health.
- EPA manages sites thru the National Priorities List (NPL), a housekeeping for all sites.
- There are 1270 sites nationally, 118 in Region 1, 31 are in MA.
- Three are in the Mystic – in the upper portions of the watershed: Olin, Industriplex, Wells G&H.
- Industri-plex and Wells G&H were listed in 1983 as part of the initial listing.
- The Olin site was listed in 2006 – the most recent in the region.
- Sites are rarely listed to the NPL at this time.
- A lot of sites are listed to the DEP level. They get to federal level when they are truly complex with chemicals, legal issues.

- Wells G&H and Industriplex are in the future use/monitoring levels.
- Olin has just started and is out of the gate.
- Working on studying and identifying contamination and future options.
- Unknown is the impact of surface waters coming off the property.
- Olin – a chemical manufacturer for rubbers and plastics. Ceased operations in 1986.
- There have been a number of cleanup activities – a cap and slurry wall.
- Problems are from liquid chemical waste discharged to pits during the 50s, 60s and 70s.
- A “south ditch” was connected to the watershed from the pits.
- A lot of the chemicals would flow thru the south ditch tributary into the east ditch along the MBTA commuter line and goes thru a series of culverts into a drainage way.
- There is a component that flows over into some surface water bodies.
- A large groundwater plume that extends to the west for about ¾ of a mile.
- Area is highly urbanized.
- The flow at this area is split between the Mystic/Aberjona River watersheds and the Ipswich River.
- The boundary can fluctuate seasonally.
- Both watersheds have been compromised by the chemical loading.
- The Town of Wilmington’s drinking water supply that was taken offline when plumes were found in 2003.
- Unsure of the GW flow off to the east direction, which is toward the Mystic.
- Surface water tributaries run off in the Southeastern direction.
- Will be looking at a large area surrounding the site.
- It will be delineated by the extent of GW impacts and surface water impacts toward the Mystic.
- Target Analyte list—242 chemicals
- Potential impacts: chemical loading, surface water – elevated ammonia, NDMA. There is a large analytical list of compounds – VOCs, degreasers, solvents, PCBs, metals. Specialty compounds are those that were used at the site.
- Superfund sites have their own lifespan and can tend to go on for a long time.
- There has been a lot of work and progress at Wells G-H and Industriplex.
- For more information on these 3 sites, refer to [www.epa.gov/region1/superfund](http://www.epa.gov/region1/superfund)

### **Industri-Plex (Joe Lemay)**

- January 2006 Operable Unit 2 (OU2) ROD (Record of Decision) outlined.
- On 11/24/2008, a OU2 settlement was reached between EPA and defendants. They are responsible for implementing the design and clean up of the OU2 remedy that was selected by EPA under the 2006 ROD. Operable Unit 1 (OU1) Consent Decree in 1989.
- 1850s-1960s Industri-plex was chemical and glue manufacturing facility. Soils primarily contaminated with arsenic, lead and chromium.
- Industriplex and Wells G&H are connected by the Aberjona River which flows thru the middle of the Wells G & H site.
- Groundwater water plumes contain arsenic, ammonia, benzene, VOCs, low DO, and high conductivity.
- Remedy in 1986 was primarily a remedy to cap the contaminated soils on the site.

- Arsenic lead and chromium in the soils and discharge into HBHA( Horn Pond Holding Area).
- There are 105 acres of a permeable cap and another 5 acres of an impermeable cap.
- Remedy in 2008 was from further investigation of GW from the site – where it flows now or has historically flowed.
- The result was an expansion of the site boundaries.
- There are four animal hide piles on the site,
- Animal waste degradation promotes biological activity and reducing conditions which help mobilize arsenic and ammonia in the ground water.
- Groundwater plumes discharge to the HBHA Pond, and contamination migrates downstream.
- There will be OU2 enhanced bioremediation to address benzene in the West hide pile.
- There will be OU2 institutional controls to protect people from GW exposures and restrict drinking water.
- There will be OU2 primary and secondary treatment cells with periodic dredging within the HBHA Pond to intercept groundwater plumes, treat contaminants of concern, and reduce contaminant migration downstream.
- There will be OU2 institutional controls to protect workers from exposures to soils and restrict excavation in the former Mishawum lakebeds.
- There will be OU2 dredging and restoration of contaminated sediments along the shoreline of wetlands.
- The schedule for IP OU2: Surface Water Monitoring Plan approved in 2009. Remedial Design Work Plan approval est. 2010. 100% Remedial Design completion est. 2012. Remedial Action construction completion est. 2014. Continuous EPA coordination with community and City of Woburn.

### **Mystic Steering Committee Update - Caitlyn Whittle**

- The mission of the committee is to select priorities that represent each of the stake holders.
- The goal is to have a cross agency collaborative information exchange group combining all local, state, and federal government.
- The meetings will be open to the public.
- There are three unique subcommittees: one is science, one is municipal, and one is business.
- It had been voted by the members of the committee that the mission of the collaboration between agencies will be to increase public's use of open space as well as to promote public outreach and awareness.

### **Next steps and recommendations (All)**

- EPA proposes establishing a work group for those directly involved in monitoring assessment to continue to work after this meeting. This group will gather ideas and information to be discussed at annual meetings. The group will provide updates to the steering committee. The work group is not meant to be exclusive. Proposed members would be MyWRA, MWRA, Mass DEP, Tufts, USGS and EPA. The group would work

together on data compiling, stormwater monitoring, cyanobacteria updates, etc.  
Comments? Suggestions?

- Suggestion: Consultants missing from this group

### **Future Recommendations**

- One suggestion is hold presentations on efforts communities may have made (success stories) in order to appreciate the work involved in remediation and clean up to avoid fatalistic mentalities of WQ problems.
- Track progress we are making
- Possible full day event to allow for more time
- Have fewer presentations and allow for more discussion
- Have a round table discussion within a 30 minute timeframe, perhaps by conference call.
- How will science or monitoring influences Mystic River Steering Committee open space priority such as where it is safe to swim and fish.