

**Restoration Advisory Board (RAB) Meeting
Recreation Center
U.S. Army Soldier Systems Center
May 12, 2005
Meeting Minutes**

I. Attendance

RAB Members Present

Robert Campbell	Massachusetts Department of Environmental Protection (MADEP)
Marco Kaltofen	Co-Chair, Community Member
Steven Lubic	Representative of Natick Board of Selectman
Joel McCassie	Co-Chair, Environmental, Safety, and Health Office (ESHO), U.S. Army Soldier Systems Center (SSC)
Elizabeth McCoy	Employee Member, Natick Soldier Center
John McHugh	Restoration Officer, ESHO, SSC
A. Richard Miller	Community Member
Leo Pessin	Community Representative
James Straub	Massachusetts Department of Conservation and Recreation (DCR)
Dr. Harlee Strauss	Community Representative
Dr. Kannan Vembu	Representative of Natick Board of Selectmen
Christine Williams	U.S. Environmental Protection Agency (EPA)

RAB Members Absent

Dr. Charles Czeisler	Community Member, Lakewood Association
Tony Doheny Jr.	Community Member
Sid Gantman	Community Member
James Fitzgerald	Community Member

Others in Attendance

Michelle Bonanca	ESHO, SSC
James Connolly	ESHO, SSC
Ann Marie Desmarais	Environmental Insight
John Dwinell	Lake Cochituate State Park Supervisor
Stacey Forman	Recorder, ICF Consulting
Stacey Greendlinger	U.S. EPA
Meg McVey	ICF Consulting
Ken Munney	U.S. Fish and Wildlife Service
Bryan Olson	USEPA
Kevin Palaia	Environmental Consultant, ICF Consulting
Jeffrey Pickett	Environmental Consultant, MACTEC
Harold Prebensen	ESHO, SSC
Amy Rosenstein	Environmental Consultant, ICF Consulting
Cornell Rosiu	U.S. EPA
Kathleen Thrun	Environmental Consultant, ICF Consulting
Jerry Whitaker	SSC Public Affairs Office

II. Handouts

1. Presentation: Comments on Sediment Risk Management Technical Memorandum U.S. Army Soldier Systems Center (SSC)

III. Meeting Minutes

Mr. McCassie called the meeting to order at 7:10 pm and asked if there were any comments, changes, or revisions to the March 24, 2005 RAB meeting minutes.

Mr. McCassie stated that he would like to point out on page three, the second paragraph down, the last sentence should read that there are “no” documented spills or releases associated with the two buildings. He indicated that this change has already been corrected in the electronic minutes.

The minutes were accepted.

General Comments

Mr. McCassie asked for general comments.

Mr. Miller made a comment announcing bicycling activities in Natick and passed around a flyer for those interested in copying down the website address.

Mr. McHugh wanted to remind the RAB that there will be a soil removal at Buildings 62 and 68 in the June to July timeframe, and a soil removal associated with Building 13/14 in the July to August timeframe. He also stated that the Army will update the facility’s community relations plan, and will be conducting interviews with some of the residents of the town in support of this updated plan.

Mr. Kaltofen asked if the Army contacted the neighbors closest to where the soil removal work will be done.

Mr. McCassie replied that they have tracked down the resident’s names and will be sending out letters informing them.

Mr. Kaltofen asked for the electronic map from the last RAB presentation, and Mr. McCassie said he would supply the map electronically to Mr. Kaltofen.

Response to Comments on Sediment Risk Management Technical Memorandum

Mr. McHugh indicated that he had hard copies of the response to comments package in case any RAB members wanted one.

Mr. McCassie asked for everyone to introduce themselves and their affiliation. Introductions commenced.

Mr. Leo Pessin announced that this would be his last RAB meeting.

Mr. Palaia introduced the presentation, and indicated that the discussion would be on the response to comments on the Draft Final Sediment Risk Management Technical Memorandum, with focus on comments associated with human health risk assessment (HHRA) fish ingestion pathway. The Proposed Plan for the sediment would not be discussed tonight, but at a later meeting.

Mr. Palaia presented the first slide, which discussed the background, including:

- ♦ January 2004 - EPA requested fish consumption HHRA
 - Adult recreational, largemouth bass fillet data
- ♦ April 26, 2004 - Draft Work Plan provided to regulators/RAB for review
 - Described type of fish data used, type of fish evaluated, how fish ingestion rates would be calculated, creel survey to be used.
- ♦ August 27, 2004 - Final Work Plan provided to regulators/RAB
 - Incorporated EPA/MADEP comments.
 - No RAB comments were received on the Draft Work Plan.
- ♦ October 2004 RAB Meeting - ERA results presented
- ♦ November 2004 RAB Meeting - HHRA results presented
- ♦ December 9, 2004 – Draft Final Sediment Risk Tech Memorandum
 - Sent to RAB, regulators, Cochituate State Park, Mass DCR/DPH, town of Natick

Dr. Vembu asked if someone could explain why EPA requested the fish consumption study.

Mr. Palaia replied that as part of the Tier III ecological risk assessment (ERA), the EPA had requested that the Army provide them with all the fish data collected, including fillet and wholebody data for largemouth bass, bluegill, pumpkinseed, and American eel. Following their review of the data, EPA required the Army to do an adult recreational ingestion pathway study on largemouth bass.

Ms. Williams added that the study was for completeness to fully evaluate sediment risk associated with SSC.

Dr. Vembu asked if the study was just part of a routine requirement and not specific to certain concerns that the EPA may have had.

Ms. Williams replied that it was just routine.

Mr. Palaia stated that the Draft Final Sediment Risk Management Technical Memorandum was provided to the RAB and regulators for review in December 2004, and it describes the results of the fish ingestion risk assessment, along with some additional ecological risk evaluations. The Army allowed for a 60-day comment period, and other than some regulator comments, no comments were received from the RAB members, the Massachusetts DCR or DPH, the town of Natick, or the Cochituate State Park during the form comment period. However, during the March 24, 2005 RAB meeting, some RAB members indicated that they did have comments on the report. The RAB subsequently emailed comments to EPA and the Army. Those comments were addressed, and some of the key issues would be addressed in tonight's presentation. The two key concerns were the adequacy of the fish sampling data, and the adequacy of the fish ingestion rate that was derived from the local creel survey.

Ms. Rosenstein then presented a slide on the HHRA process used during the fish ingestion risk assessment, including:

- ◆ EPA risk assessment guidance and approved Work Plan were followed
- ◆ Fish fillet data from SSC and other Lake locations were used
- ◆ A range of potential site-related risks were estimated, including:
 - “Average” = Central tendency estimate (CTE)
 - “High end” or “Worst case” = Reasonable maximum estimate (RME)
- ◆ Uncertainties to support risk management decisions were considered
 - Conservative nature of exposure assumptions and risk estimates

Ms. Rosenstein then presented a slide addressing the comments associated with the adequacy of fish data, including:

- ◆ Largemouth bass fillet data are a representative native species; only legal-sized fish (> 12 inches) were used in a recreational fishing scenario.
- ◆ Largemouth bass are likely to represent higher PCB concentrations over time because: they are higher in the food chain; they consume other fish; they live longer in the lake than smaller and stocked fish; and, they were collected in the Fall, when they are heavily feeding/gorging in preparation for the winter
- ◆ Lake Cochituate is an excellent bass fishery with frequent tournaments (which are required to be catch and release)
- ◆ Stocked species (e.g., trout and salmon) were not collected because:
 - South Pond is not stocked; only Middle and North Ponds are stocked
 - Stocking is done mostly in Spring (May); sometimes in Fall (Sept-Oct); last two years only trout and (few) salmon were stocked
 - Stocked fish (trout and salmon) have short residence time. Stocking times are published on the internet and newsletters and are generally fished out in 2 to 3 weeks, based on:
 - Massachusetts Division of Fish and Wildlife (DFW) observations
 - SSC sampling program (Oct. 2001) – only 6 trout were observed (all on Middle/North Pond) of about 800 total fish observed; no salmon were observed in any ponds

Dr. Strauss asked if there were no trout in South Pond.

Ms. Rosenstein replied no trout were observed in South Pond during the SSC sampling program, and that an electro-fishing technique was used, which has an approximately 20 foot radius where all fish within that radius would be affected and sampled.

Dr. Strauss asked if there was no stocking of trout in the past two years.

Ms. Rosenstein replied that there has been stocking of trout in Middle and North Ponds only, but not in South Pond.

Mr. Palaia stated that in Middle and North Ponds, a larger number of trout are stocked during the Spring, with a smaller number in the Fall. Only 6 trout were observed in Middle and North Ponds during SSC's six day and night sampling program, which occurred after a Fall stocking program. No trout were found in South Pond.

Mr. Miller asked when the electro-fishing took place.

Mr. Palaia replied that it occurred in October.

Dr. Strauss asked if trout had ever been stocked in South Pond.

Mr. Palaia replied that he did not think so.

Mr. Straub stated that good access points are needed to stock the ponds, such as the boat ramp at the State Park on Middle Pond or the wall at the North Pond. He stated that stocking isn't a water quality or depth issue; it's just an issue that there are no good access points on South Pond. He stated that fish can travel between ponds.

Ms. Rosenstein then presented a slide on the comments associated with the fish ingestion rates used in the assessment, including:

- ◆ EPA prefers the use of site-specific ingestion rates over EPA generic rates, which are not as likely to reflect local conditions. MADFW personnel were contacted to find out if there were site-specific surveys, and there were two surveys from Lake Cochituate, one in 1994 and one in 1997. The HHRA used the 1994 survey.
- ◆ 1994 Lake Cochituate winter creel survey
 - Largest/most complete survey specific to recreational anglers on Lake Cochituate
 - Winter ingestion rates are likely higher than in other seasons
 - Interviewed all anglers (licensed and unlicensed)
 - Completed before MADPH fish consumption advisory; published data show that fish advisories result in lower harvest rates
 - “Catch and release” ethic strong in recreational anglers in Massachusetts
- ◆ The SSC calculated ingestion rates are similar to ingestion rates in other published studies, including the Maine angler study. The Maine study had a 90th percentile lakes/ponds ingestion rate of 18 grams/day, which is similar to the 16 grams/day used in the SSC assessment. The Maine study was published in 1993, and was based on surveys of licensed anglers in Maine during 1989 and 1990.

Mr. Palaia stated that it is important to point out the Maine study used survey data from 1989 and 1990, which is five years prior to the creel survey used for the SSC risk assessment.

Ms. Rosenstein then stated that there are uncertainties inherent in all risk assessments. She presented a slide on the uncertainties in the SSC HHRA, including:

- ◆ Conservative nature of exposure estimate = possible overestimation of risk
 - RME scenario assumes 100% of all recreational fish caught and eaten from Lake Cochituate are exclusively from SSC area, and assumes catching and eating fish for 30 years exclusively from SSC.
 - These are unreasonable assumptions because;
 - Fishing is prohibited from the fenced shoreline of SSC
 - SSC outfalls are less than 5% of the total lake area
 - Main public boat ramp access is on Middle Pond
 - Assumes all recreational fish ingested are largemouth bass
 - Assumes catch is not shared among family members.

- Assumes no loss of PCBs from cooking (studies show an average of 10-40% loss of PCB's from cooking).

Ms. Rosenstein then presented a second slide on the uncertainties in the SSC HHRA, including:

- ♦ Possible underestimation of risk
 - Assumed only fillets ingested; other parts of fish may be consumed.
 - Fish ingestion rates and risks could be underestimated if higher ingestion rates did exist in the South Pond of Lake Cochituate near SSC.

Mr. Kaltofen asked if there were data for PCB content for whole (un-filleted) fish, for the purpose of determining what the actual differences in consumption and risk would be if the other parts are being consumed.

Ms. Rosenstein stated that it depended on the age and species of the fish, but studies have shown that 50-75% of contaminants could be contained in other parts of the fish.

Mr. Kaltofen asked that if we looked specifically at the data we developed for this lake, what the percentage would be.

Mr. Palaia replied that the Tier III ERA calculated the whole body concentration of largemouth bass from the measured concentration in the fillet portion and the measured concentration of the remainder (or offal) of the fish. He stated that these data are included in the Tier III ERA report, and he thought that the fillet concentrations were approximately 40 to 60 percent of the whole body concentrations.

Mr. Kaltofen commented that the amount of PCBs ingested would increase if other parts of the fish were consumed.

Dr. Strauss stated that she would guess it would be much higher.

Mr. Kaltofen commented that when he had tested fish and looked at carcass versus fillets, he had seen about a 4 to 10 times increase, and he was not getting his head around the 40 percent increase.

Mr. Palaia stated that he would have to look back at the data to be certain, but stated that he thought that the fillet concentrations represented about 40 to 60 percent of the whole body concentration (not that the whole body concentrations were 40 percent higher than the fillet). [Note: after subsequent review of the data, the fillet concentrations for the largemouth bass samples used in the SSC HHRA generally range from about 20 to 60 percent of the calculated whole body concentrations, but vary depending on the size the fish.]

Mr. Kaltofen stated that there could be a substantial underestimation of the risk, and it should be quantified to see if the results are sensitive to that kind of change.

Ms. Rosenstein replied that fillet data were used for the site and the other locations, and both cases have a similar percentage, so the risks would increase similarly at the site and the other locations.

Mr. Kaltofen asked whether the same percentages could be used at site versus background.

Ms. Rosenstein stated that we have the data, and would need to check to see if the fish were the same weight at site versus reference. The weight of the fish would make a difference.

Mr. Kaltofen commented that it sounds like we have the data for this calculation, and we could do this calculation. Mr. Kaltofen stated that he asked some Native Americans in Natick how they prepare their fish, and that they do not always fillet it, thus the Army may have an error in their calculated ingestion rate.

Mr. Palaia replied that it is an uncertainty that the Army has acknowledged in the report, but it is not an "error".

Mr. Kaltofen replied that it is an uncertainty we could address.

Mr. Palaia also stated that it is important to point out that there are other uncertainties, for example cooking method of the fish: some studies find that cooking the fish reduces the PCB concentrations by an average of 10 to 40 percent. The SSC HHRA assumed no loss of PCBs through cooking. Additionally, another extremely conservative assumption that has made for the RME scenario is that one person fishes exclusively from SSC for 30 years and catches the fish with the highest PCB concentration every time. These are other key uncertainties that have likely overestimated the actual risk.

Mr. Kaltofen commented that that's how the RME scenario is done.

Dr. Strauss commented that it is also not true that it is the highest concentration, rather the upper value of the mean.

Mr. Palaia agreed with Dr. Strauss's comment. He stated that there are a number of uncertainties and you could quantify each of those, but there is only so much that the budget allows to go that route.

Ms. Williams asked if Mr. Kaltofen or Dr. Strauss were asking for a Monte Carlo analysis to change all the different parameters throughout the whole risk assessment. She stated that type of analysis is costly.

Mr. Kaltofen stated that he asked for a specific look at one possible underestimate of the risk, after he was fairly certain that people eat them that way.

Ms. Williams asked if Mr. Kaltofen was speaking of the fish with the guts.

Mr. Kaltofen replied no. He meant the guts out and the head off, with the rest on the grill.

Ms. Williams asked if the Army has that data, with no guts, no head, and the skin on.

Mr. Palaia replied that he did not believe the Army had largemouth bass fillet data with the skin on.

Ms. McVey stated that it would be possible to compare concentrations of PCBs in fillets (skin-on and skin-off) in bass and similar fish through other studies, although the data that had been collected for the SSC study can't be broken up that way.

Dr. Strauss added that it's a factor of two between skin-off and skin-on.

Mr. Kaltofen stated that he is wondering where the suggestion from the RAB is going.

Ms. Williams reminded the RAB that this costs money, and it would be interesting to look at the

uncertainty associated with how the fish is prepared (e.g., whether the skin is on or if it is an intact carcass). She also stated that if that is the way people actually consume it, she wants to know what types of risks are associated with it. Ms. Williams asked where Dr. Strauss got her factor of two from.

Dr. Strauss replied that she has spent a lot of time looking at reports and it is listed in the uncertainties section of the Housatonic study.

Ms. Rosenstein stated that the discussion sounds like something that could be further addressed in the uncertainty discussion of the report. We can pull the data together for the full body that we have for the report.

Mr. Kaltofen commented that this is not without precedent, as the Florida Fish and Wildlife requires you do eviscerated samples because that is how it is prepared.

Dr. Vembu asked if the volume and mass of PCB-contaminated sediments was known.

Mr. Palaia replied that that has not been calculated yet. He stated that at this point, there is no cleanup goal of what would be considered contaminated, so it is hard to calculate the volume and mass of what would need to be remediated. However, there is a good understanding of what the PCB concentrations are, after collecting approximately 200 sediment samples from SSC and across the lake, so calculations could be made.

Ms. Williams asked what the PCB concentration ranges in sediments at SSC were.

Mr. Palaia replied that PCBs have been primarily detected in sediments at the Main Outfall, with an average total Aroclor concentration of approximately 1 part per million (ppm) or less, and a high total Aroclor concentration of about 4.5 ppm. At other locations across South Pond and Middle Pond, total Aroclor concentrations have been observed up to approximately 2.6 ppm, depending on the location. He stated that there are other non-Army impacted locations that have PCBs in the sediments.

Mr. Kaltofen asked if the type of PCB Aroclors were the same at the site and off-site locations.

Mr. Palaia replied that, in general, Aroclor 1260 has been detected around SSC.

Mr. Kaltofen asked if analysis had been done for total PCBs, as opposed to just Aroclors.

Mr. Palaia had replied that total PCBs were calculated via PCB homologue analysis for a limited set of samples.

Mr. Kaltofen asked if the analysis was the high resolution method, and if there was a detectable difference in the results from the different methods.

Mr. Palaia stated that he was not sure if it was the high resolution method, and that the total PCBs (via homolog analysis) are generally higher than just the individual Aroclor concentrations.

Mr. Kaltofen asked higher by how much.

Mr. Palaia replied that it varies by sample, but he thought that it might be approximately two times, or possibly less.

Mr. Kaltofen commented that for a given sample if we're finding 1 to 4 ppm Aroclors, then we

might see approximately 2 to 8 ppm total PCBs.

Mr. Palaia replied that was possible, but pointed out that there are only a limited number of samples that have both the Aroclor and the total PCB (via homologue) analyses.

Mr. Kaltofen commented that the Army should take more samples.

Ms. Williams replied that that also costs money.

Dr. Vembu stated that one of his concerns is the upper bound of 16 grams per day. He asked how long is that going to continue to be the upper bound for samples taken this year or next year, and if that limit is going to be the same or will it be lower or higher if you don't know what the total PCBs is in the sediments.

Ms. Rosenstein replied that it is the upper bound fish ingestion rate that is 16 grams per day, and not the concentration of PCBs in the fish.

Mr. Palaia added that the 16 grams per day is the amount of fish a person is estimated to ingest per day. can ingest, it is not tied to the concentrations in the sediment.

Dr. Vembu asked how the PCBs are tied to the sediment.

Ms. Rosenstein replied that you would use the actual fish data that was collected to determine if the PCBs in fish will change each year. The data that are being used here are to decide if there is a risk now and in the future from ingesting fish.

Mr. McHugh stated that the Army did do a quick comparison to MADEP fish sample data from their 1995 study of Lake Cochituate, and they were in a similar range.

Mr. Palaia added that the MADEP study was in 1995 and they sampled largemouth bass from South Pond. He stated that the MADEP study had a small data set; it included essentially one composite sample composed of three largemouth bass fillet samples.

Mr. Campbell added that it was a much smaller study than the Army's, and on the basis of the MADEP 1995 study, the fish consumption advisory was put in place.

Mr. Palaia stated that a difference with the MADEP study was that they only analyzed for individual Aroclors - they did not analyze for total PCBs, which would be more representative of the total amount of PCBs present than a combination of single Aroclors.

Mr. Kaltofen asked if total PCBs were analyzed for in fish.

Mr. Palaia answered yes.

Mr. Kaltofen asked if it included the World Health Organization (WHO) list of PCBs.

Mr. Palaia replied that the analysis included a list of the 33 congeners considered to be the most toxic, and that list went through EPA review and an EPA chemist's review as to which congeners to analyze for.

Mr. Kaltofen asked which list is the 33 congeners.

Dr. Strauss stated that it's probably a combination of TEQ's and some of the non-TEQ

chlorinated lists.

Mr. Kaltofen asked if it was a custom list.

Mr. Palaia stated that the list is presented in the Tier III ERA Report, which could be looked at after the RAB meeting if desired.

Mr. Miller stated that he felt a sense of urgency that the door on this report was closing and it was time to put things in writing. Mr. Miller questioned if ice fisherman take home most fish for eating. He stated that he has noticed oriental families or small families who seem to be fishing for their food (possibly eel), and he had a particular concern that they are not English speaking, and there are many oriental languages. He stated that the latest advisory poster is very graphic, but he thinks those groups have a strong expectation that they can eat fresh water fish. The place that he has seen the most of this population is on both sides of Route 135 at Horseshoe Dam, in Fisk Pond and in South Pond. He stated that this is not where the Army's sediment issue is, but he expects that the fish don't stay totally local. He stated that he has seen the fishermen from the car and there may be more places that are equally or more significantly populated by this group of people. He also feels that the ice fisherman could be more significant, because they seem to be missing from calculations of risk.

Mr. Palaia stated that the creel survey that was performed in the winter incorporated any fisherman out there, including licensed and unlicensed, which differs from mail surveys. Creel surveys would catch some of the non-English-speaking population.

Mr. Miller stated that he votes no on that because he has never seen an oriental ice fisherman on Lake Cochituate.

Mr. Palaia stated that he was just saying that if they were out there, then the creel survey would have included them.

Ms. Rosenstein then presented a slide summarizing the results/conclusions of the HHRA for fish ingestion, including:

- ◆ Both SSC and other lake location RME risks exceed EPA's acceptable levels
- ◆ Changing the fish ingestion rate would not change the relative risks of ingesting SSC fish versus fish from other lake locations
- ◆ Generally conservative exposure assumptions were used to estimate the RME (high end) exposure and risk

Mr. Kaltofen stated that he has a general question for EPA - if he is at a generic site which has a source of PCBs, can the site generally look at surroundings to find their clean-up level, if there are other PCB sites nearby?

Ms. Williams replied that she could not answer that off the top of her head. She stated that at SSC there is an indication that there may be a PCB source on the site, and the Army's investigation found that there are low levels of PCBs in the sediments at the MSO. EPA asked for a fish consumption pathway to be included with the swimmer and the wader pathways for human health, and EPA is currently looking at all the risk assessments. She stated that as part of risk management, EPA does not require clean-up below background. It is the incremental risk that we are dealing with. So the Army looked at all three ponds and got sediment data for the risk assessment and is in the process of evaluating all that data.

Mr. Kaltofen stated that he is having trouble with the incremental risk factor, and he is concerned whether the PCBs associated with the MSO are presumed to be staying in that vicinity, that is, they are not mobile. He asked if that was a correct assumption.

Mr. Palaia replied that is generally correct, however, there may a little bit of transport.

Mr. Kaltofen stated that there are other sites in this lake system that have PCB contamination which we cannot show are a result of the things happening at the Army. He asked why the presence of another PCB site on the lake, not at the SSC, means that the Army does not have to cleanup PCBs that are related to their property. He stated that PCBs related to the Main Outfall MSO did not come from other parts of the lake, and that background is what would be there were it not for the influence of the Army Labs.

Ms. Williams stated that preliminary evaluation (EPA is still evaluating the assessments) of the risk assessments for the swimmers and the waders show that there is no unacceptable risk at the MSO or anywhere else along the SSC shore. She stated that it is very difficult to clean up sediments and get a reduction of concentrations in fish when you only have 5, 6, or 7 ppm PCBs in very localized areas. She stated that it is difficult to show a risk reduction for the amount of money the Army would have to spend. She stated that the Army has VOCs in ground water and EPA would really like them to clean that up – the VOCs in the ground water are a much higher risk than the low levels of PCBs in the sediments.

Mr. Kaltofen commented that being a Springvale Well Field user, he agreed with Ms. Williams comments about the need to clean up the ground water, but he thinks we are missing the point with the sediments. He stated that there are people consuming contaminated fish, and they should stop. We can stop it by cleaning up or by preventing people from eating the fish, and now neither of those things are happening.

Ms. Williams stated that the Army has signage warning against the consumption of fish at the facility.

Mr. Miller stated that the signage is not working because people are still eating the fish. He stated that the system is not working, because you are failing to prevent people from taking contaminated fish home to their families.

Mr. McCassie stated that he knows at the boat ramp there used to be signs and questioned if there are any other signs on the lake.

Mr. Miller asked if there were any signs near Route 135, where he sees the fishing activity.

Ms. Greendlinger stated that she knows there are various entities that manage the lake and asked if there are materials handed out at the boat ramps.

Mr. Straub stated that DCR has it posted at the boat ramp and the cartop launch area, both in a universal language and in English, warning the public that the consumption of fish is harmful to people. He stated that materials aren't handed out because the Lake Cochituate State Park has about 150,000 visitors a year.

Dr. Strauss asked if the South Pond could be managed as a catch and release fishery only.

Mr. Straub replied that DCR could highly recommend it being a catch and release, but DCR could not enforce it.

Dr. Strauss asked if it could be posted that way.

Mr. Straub replied that legally DCR can not; any of the fish which you have bought a license for are game fish - you can catch and keep.

Mr. Dwinell stated that the DCR budget does not allow for extensive policing of anglers on the lake. He said that they have recently received signage from MADPH and MADFW. He stated that a lot of the contamination in the lake is not just PCBs. He stated that they do recommend catch and release in the Fish and Wildlife brochures and when people get their licenses, however, we can not stop someone from catching a legal game fish. We can recommend that they don't eat the fish from South Pond, but there is nothing stopping the fish from traveling north of South Pond.

Dr. Strauss stated that she is not sure she understands this yet, and asked if it is possible to put catch and release for all of Lake Cochituate.

Mr. Straub replied that there are catch and release programs for trout unlimited state-owned streams, but there are no catch and release limitations on legal game fish like bass, bluegill, or American eel. He stated that the fishing tournaments on Lake Cochituate are catch and release only, and that the consumers of fish at the lake are not typically using the facilities at the boat ramp. He stated that the State tries to inform the people of the hazards, but we can't stop people from eating what they want to eat. Maybe that's a community outreach program.

Ms. Greendlinger asked if it is Mr. Straub's opinion that the consumption that is happening on Lake Cochituate is subsistence consumption.

Mr. Straub stated that he has seen people taking buckets full of fish home, mainly the smaller fish like bluegill and perch, but he didn't know if they are living on the fish, but they are consumed.

Mr. Miller stated that these fish are starting to look like cigarette packages to him - we know they are not good for your health, but we can't tell people to stop eating the fish. The main difference is that we think putting up two signs on a section of the lake where people are not fishing is equivalent to the national campaign for smoking cessation. The bottom line is that people are eating the fish, and the signage isn't where it's supposed to be. The reality of the problem is that there are many people we aren't catching this way. He doesn't want to fill up the state park with signs that are bigger and bigger but, there is a large population of people who don't read the signs and we can't put numbers down that assume that they will.

Dr. Strauss states that one of the issues seems to be ice fishing and how representative is that population. She asked that if you are fishing during ice fishing season, what are you fishing for.

Mr. Dwinell stated the fish are bass, trout, salmon, and pickerel.

Dr. Strauss stated that if people are coming home with buckets of sunfish and perch, you would not catch those species in the ice fishing season.

Mr. Dwinell stated those are summer fish.

Dr. Strauss stated that there are two type of populations each season, and asked if those people going home with buckets of fish are shore fishing or are any of them in the South Pond.

Mr. Dwinell replied yes that they are mostly shore fishing at the cove across from SSC, Pegan

Brook Cove, or at any easy access point.

Dr. Strauss mentioned that the open space people are building better trails so that's only going to increase as the accessibility gets better.

Mr. Kaltofen asked if any of the fishers are non-English speakers, because he had made a comment that the study is biased against the non-English speaking population because 100 percent of the population interviewed were English speaking.

Mr. Miller stated that there are Orientals, Hispanics, and Portuguese.

Mr. Kaltofen asked if any are significant.

Ms. Rosenstein replied that the fish ingestion rate may underestimate the risk, while some of the other parameters may overestimate the risk. The question comes back to the risk at the outfall locations at SSC versus the risk of eating fish caught at all the other lake locations.

Mr. Kaltofen asked why use an ingestion rate at all.

Ms. Rosenstein replied that you need an ingestion rate to calculate the absolute risk, and also to help evaluate what the relative risks are.

Mr. Kaltofen stated that if risks go up equally at the reference site and the subject site, as the consumption rates go up, why have the ingestion rate, isn't that just a waste of money. He asked if the process is insensitive to how much fish is consumed.

Ms. Williams replied no, but the point of the process is to see whether or not there is a risk attributable to the Army at the Army's shoreline (outfalls). She stated that it is a matter of the actual risk calculations - that if you change an ingestion rate similarly for two equations that are the same, they are both going to go incrementally up or down; that's the way the risk assessment is done.

Dr. Strauss stated that the focus was on the Army outfall and if the sediments around that outfall are harmful and people are catching fish in that area, then isn't that an issue for the Army to clean up.

Ms. Williams stated that it's an issue of the entire lake system. If you have fish and sediment contaminated with PCBs at Pegan Cove, and if you clean up one side of the Lake, you have to clean up on the other side of the Lake because if the fish are moving back and forth, you are still going to have the PCBs in the fish. She stated that clean up of the entire lake is not a CERCLA action item. It's an urban watershed, voluntary kind of clean-up, like Lake Champlain. The State, the town of Natick, the highway system, and other parties would need to chip in for the action, which is beyond EPA's CERCLA program.

Mr. Miller stated that he is still having trouble understanding the situation. He stated that assume, hypothetically, that two-thirds of the PCB contamination is at SSC and one-third is elsewhere in South Pond, and that fish are caught along the SSC shoreline and other shorelines and they circulate to different areas of South Pond. Assuming that we can't clean the whole lake at once, why should we ignore the well-studied area of the lake that might have two-thirds the contamination, just because we can't prove that it is 100 percent of the contamination. The argument we have heard, the one-third that isn't at SSC would require a lake-wide clean-up, which we could not accomplish under this contract.

Ms. Williams stated that there is a group at EPA that is not part of the CERCLA group that deals with the state of Massachusetts and urban watersheds. She offered to get a contact name for somebody in that group if people were interested in bringing comments to their attention.

Mr. Miller stated that he wouldn't live long enough to handle that one. He stated that we can't even get the best organized and funded corner of the lake cleaned up. He stated that we need to go near the shores of SSC, where the fishermen are and ask them what the impacts of the signs are. He stated that he thinks that the signage has a very low impact on the risk, mostly because they are not posted where the people are fishing.

Mr. McHugh stated that tonight we are focused on risk assessment, and that this might be an area where CERCLA does not require remedial action. He stated that outside of the CERCLA process, the Army wants to work with the community to be a good community member and because it's also an abutter to the lake.

Mr. Kaltofen stated that he has questions regarding the whole body versus fillet data, and given that we are talking about a limited amount of fish, he would really like to see chains of custody, the laboratory data sheets, and field notes.

Mr. Palaia replied the raw data tables for all the fish that were caught are presented in the Tier III ERA Report, copies of which were provided to the RAB members.

Mr. Kaltofen stated that the data in the report are tabulated, and he would like to see the original field notes, the original chains of custody, and the original lab reports to be sure of which analyses were specified, how many times, and whether Aroclors or total PCBs were analyzed for each sample.

Mr. Palaia stated that it might take some effort to retrieve some of that information and that he would need to speak to the Army about this request.

Mr. Kaltofen stated the chain of custody is pretty basic – sampling was only over six days and nights.

Mr. Palaia stated that the data are available; it just might take some effort to retrieve it.

Mr. Miller stated that he made a comment in his letter regarding what happens if the state park no longer has fish that the people can eat. There are no reparations made for the loss to the public or the park. He stated that we can't attach the whole blame to the Army and he understands that, but he is concerned that the blighted section of the lake is affecting other things - we couldn't drop the water level in the lake because of the risk of this sediment. He stated that we are considering the lake as a receptacle, the lake and the people will be paying for this for a long time, and he hopes the EPA will see that this ought to be a policy question.

Ms. Williams stated that she really thinks the Army is working hard to reduce the impacts on the lake, including maintaining their oil water separators, pumping and treating the T-25 Area ground water, reducing VOCs entering the lake, and planning on doing more for remediation of ground water at Buildings 22 and 36 and the water supply well area. She stated that the Army is reducing the impacts to the lake and has done an admirable job of doing that. She stated that she understands that it is difficult to look at the effects the PCBs are having on the lake and the fish, and that it is something that she doesn't think CERCLA is the program to get it cleaned up - there are other programs out there between MADEP and EPA, and we can certainly look into it.

Mr. Miller concurred that he has seen a lot of good clean up activities being done by the Army,

but that is getting back to what it should have been. Meanwhile, there is the damage and we should address the damage as well as the correction. Ignoring it seems to be grossly wrong and we have a lake that can show it is hurting.

Mr. Kaltofen stated that he also wanted to add that the Army has made good progress on the ground water contamination. He stated that it is difficult to think about losing this productive fishery for the amount of time we are going to lose it, and he fears that there are things that we should be doing that we are going to miss because this process hasn't given us the best analysis. He stated that maybe reduced sedimentation is the thing that will most reduce risk of PCBs to this lake, but other sites have actually optimized with higher sedimentation rates to reduce sediment-based risk. He stated that we have underestimations of risks that have drastic results. Because we have only spoken to English speaking anglers, this study is racially-biased and there are consumption patterns that may have been missed. He stated that issue needs to be acknowledged. He knows that in the official comment, it was said that this is not a biased survey, but clearly it is a biased study if it is missing populations. There is a scientific uncertainty that needs to be corrected.

Ms. Rosenstein stated that there is uncertainty involved in conducting any risk assessment, and in this case, it could result in an underestimation of the risk. However, it is important to point out that there are other factors that significantly overestimate the risk, and those are also important to consider.

Mr. Straub stated that there is a statewide fish consumption ban, so even if SSC did not exist, the lake would still have an advisory/ban on the consumption of fish [Note: the statewide fishing ban, based on mercury, refers to consumption by pregnant women only]. He stated that in all waters, there are atmospheric depositions that are still harmful for consumption, and unfortunately we will still live with these advisories. He stated that he thinks information is the way we need to be going here, and he agrees that the communities using this lake still need to be informed. He stated that he is not sure how well you can clean this lake up; even if SSC wasn't here you would still have PCB sources. For example, he stated that he has found a fossil fuel problem at a site on the lake, and some of the outfalls coming from the town of Natick have contamination issues. He cautioned the RAB to keep in mind that there is a New England-wide advisory on fish consumption [Note: the statewide fishing ban, based on mercury, refers to consumption by pregnant women only].

Dr. Vembu asked if, based on the quantity of PCBs we are talking about, will we be dealing with this for the next how many years.

Mr. Palaia stated we have an understanding of the PCB concentrations along the SSC shoreline and along other non-SSC impacted areas, but there are other non-Army impacted areas that haven't been sampled that could have contamination.

Mr. Pessin asked what the status of the Eurasian milfoil was and would it choke off the living fish of this pond before we have the chance to address the PCBs.

Mr. Straub stated that the growth rate of the milfoil is about five times greater than that of native plants, and the milfoil plants are doing very well. He raised the question about what the milfoil plants are bringing up out of the sediments, since milfoil is a rapid accumulator and it is pulling nutrients out of the water and sediments a lot faster than the natives plants are. He asked what the effect of that might be. He stated that at other sites, milfoil has been used to suck nutrients out of the sediment and then it's harvested and disposed of. He stated that he doesn't know if these plants are doing that in the Lake or if that has been looked at.

Mr. Pessin asked what the town is doing about it.

Mr. Miller stated that the decision is not the town, it is the state.

Mr. Straub stated that the state had a proposal in to mitigate the milfoil, but it was opposed in the court setting and they are currently going through some legal matters for that.

Dr. Strauss stated the hearing is this summer, June 27th through 29th.

Mr. Miller stated that the milfoil might be removing materials from the sediment, not protecting them.

Mr. McHugh stated that he has been providing the data for the risk assessment for the facility data and the reference locations to the Massachusetts DPH deputy commissioner. MADPH is the one that issued the fish advisory initially.

Mr. Kaltofen asked if anyone else has questions or comments on PCBs.

Mr. Miller stated that if we haven't been looking at the transfer of the sediment contaminants through the milfoil, it is time to consider it.

Mr. Straub stated that he is sure there are studies out there, for example, in the Great Lakes.

Ms. Thrun stated that metals (not PCBs) are typically transferred to aquatic plants like milfoil.

Mr. Miller stated that we shouldn't be ignoring that transfer mechanism, because South Pond has been the worst infested with milfoil. He stated that the nets that were used to catch the milfoil from getting into North Pond have not been up all winter, so there has been a way for milfoil to float through. He also stated that he has been told that it hasn't been increasing much in Middle Pond.

Mr. Straub stated that he thinks Mr. Miller is wrong, because, as of today, the milfoil on Middle Pond is doing very well.

Mr. Miller replied that he would then worry about the lack of the net, and is concerned about how much is being transferred between ponds.

Mr. Kaltofen then thanked Leo Pessin very much for all the meetings he has come to, and wished him good luck.

Mr. Miller stated that Lake Cochituate has four highways that come across the Lake and three are getting rebuilt, surface reconstruction, or more. He stated that a question came up during meetings with Mass highway regarding a wooden V-shaped weir in the storm drain that goes into South Pond near the Route 9 bridge abutment. He asked if anyone at the RAB needed to have that weir maintained.

Mr. McCassie stated that the Army used a polypropylene weir at that location in the past.

Mr. Miller stated just for the record, the bridge is at the west edge of this causeway and right to the left, and sounds like we have no particular need for it.

Mr. Straub stated that the Town of Natick may have been doing their Phase II storm water study, but he did not think that it is theirs.

Mr. McHugh wanted to set the June meeting and suggested June 16th.

Public Comments

Dr. Strauss stated that the Friends of the Natick Public library book sale is on May 21 and 22, and she is looking for volunteers.

The meeting was adjourned at 8:50 pm.

Action Items

1. Mr. Kaltofen asked for the electronic map from the last RAB presentation, and Mr. McCassie said he would supply the map electronically to Mr. Kaltofen.
2. Mr. Kaltofen stated that he has questions regarding the whole body versus fillet data, and given that we are talking about a limited amount of fish, he would really like to see chains of custody, the laboratory data sheets, and field notes.

Mr. Palaia replied the raw data tables for all the fish that were caught are presented in the Tier III ERA Report, copies of which were provided to the RAB members.

Mr. Kaltofen stated that the data in the report are tabulated, and he would like to see the original field notes, the original chains of custody, and the original lab reports to be sure of which analyses were specified, how many times, and whether Aroclors or total PCBs were analyzed for each sample.

Mr. Palaia stated that it might take some effort to retrieve some of that information and that he would need to speak to the Army about this request.

Mr. Kaltofen stated the chain of custody is pretty basic – sampling was only over six days and nights.

Mr. Palaia stated that the data are available; it just might take some effort to retrieve it.