

These notes are in the following order:

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5. Sewage Treatment Plant Effluent Testing Presentation, Bet Zimmerman, Environmental Services Division (ESD)
6. Update on the Upton Ecological Reserve, Bet Zimmerman, ESD
7. Presentation on Research on Eco-Systems and Climate, George Hendrey, Earth Systems Science Division
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9. Presentation on Peconic River Native Plant Phyto-extraction Screening Summary, Skip Medeiros, Group Manager, Peconic River
10. Agenda Setting

## **1. Attendance**

See Attached Sheet

### Others Present:

P. Bond, H. Carrano, A. Carsten, J. Clodius, J. D'Ascoli, K. Geiger, J. Granzen, T. Green, K. Grigoletto, G. Hendrey, L. Hill, M. Holland, S. Kumar, S. Layendecker, R. Lee, J. Lister, M. Lynch, T. Maugeri (facilitator), S. Medeiros, A. Rapiejko, T. Sheridan, K. White

## **2. Correspondence and Handouts**

Items 1 - 4 were mailed with a cover letter dated November 8, 2002. Items 5 and 6 were included in the folders and items 7 and 8 were available at the meeting as handouts.

1. Draft agenda for December.
2. Draft notes for November.
3. Final notes from October.
4. Copies of letters from Dr. Paul and Candee Swenson, both dated November 18, 2002.
5. Revised draft agenda
6. Copy of presentation on Eco-Systems and Climate, George Hendrey
7. Copy of Sewage Treatment Plant Effluent Testing presentation
8. Copy of the presentation on the Peconic River Native Plant Phyto-extraction Summary.

## **3. Quorum**

The meeting began at 6:34 p.m. A quorum was established when 55% of the 27 member organizations (15) were in attendance.

#### **4. Administrative**

Reed Hodgkin was unable to attend the meeting, Terri Maugeri facilitated. An update on the Upton Reserve by Bet Zimmerman was added to the agenda.

The November notes were approved unanimously with no changes or additions.

#### **5. Sewage Treatment Plant Effluent Testing Presentation, Bet Zimmerman, Environmental Services Division**

Bet Zimmerman reviewed the testing that is done at the Laboratory's Sewage Treatment Plant. She discussed the different types of tests that are conducted and why. The Lab monitors over 200 parameters quarterly, 900 parameters annually. Since 1998, over 1600 parameters have been monitored with 21 occasions where the permit limits were exceeded, and with only one occurrence in 2002. She said that a tour of the STP could be arranged for interested CAC members.

Bet also talked about the WET (Whole Effluent Toxicity) test that was developed in 1995 by the EPA. It measures whether effluent is toxic to aquatic life. The water flea (*Daphnia*) and Fathead Minnow are exposed to different effluent sample strengths and the effects are studied. The Laboratory began using the test in 1998. Zimmerman said that the test is very sensitive and they get false negatives and false positives and that many variables affect the results. She said if effects are shown it doesn't constitute a permit violation, it is an indicator that more information is needed. Over all, Zimmerman said the results are inconclusive and they are working with the NYSDEC to run additional tests. She pointed out that these are lab-raised organisms and that the tests are a conservative indicator that can be used to assist with management decisions.

CAC members asked questions about the testing upstream, whether the *Daphnia* are indigenous to the Peconic, about the number of organisms used per test, and if the effluent samples were taken before or after the UV light disinfection process at the STP.

#### **6. Update on the Upton Ecological Reserve, Bet Zimmerman, ESD**

Zimmerman also updated the CAC on the Upton Ecological and Research Reserve. The boundaries have been posted and a Fire Management Plan has been completed. Populations of deer, breeding songbirds, small mammals, and Tiger Salamanders have been surveyed.

The research projects within the Reserve include an assessment of leaf removal on woody plant growth, invasive plant species, effects of insect defoliators on forest health, and the effects of prescribed burns on the survival of the orange-striped oak moth larvae.

Additional activities in the Reserve included summer research programs with Suffolk Community College and high school students, outreach through Earth Day and Summer Sundays, and partnerships with the Technical Advisory Group, The Nature Conservancy, and the Central Pine Barrens Wildlife Task Force, among others.

The Reserve management, outreach, and educational initiatives will continue in 2003.

#### **7. Presentation on Research on Eco-Systems and Climate, George Hendrey, Earth Systems Science Division**

George Hendrey is an ecologist at the Laboratory. Most of his work is done in the field and he is currently researching increasing carbon dioxide in the atmosphere. Hendrey said that the amount of CO<sub>2</sub> in the atmosphere is increasing very rapidly. He described the green house effect and how energy from the sun is absorbed by the Earth's surface and re-radiated in infrared rays. There is concern that the increase of CO<sub>2</sub> in the atmosphere is driving the warming affect. Some of the consequences of the warming trend include a rise in the number of heat waves, glacial melting, more days with extreme precipitation, rising ocean temperatures, and rising sea levels.

Hendrey said that there are a lot of things that interfere with global temperature including variations of the solar cycle and volcanic activities, but that humans are having a big effect on the planet because of their energy use. He talked about predictions from climate modeling if the increased warming trend continues. It is predicted that the world will be warmer and wetter, snowfall will be reduced, there will be increased drought in some areas, the costs for maintaining water supplies will increase, and migration patterns of marine organisms will change.

Hendrey said the processes of carbon cycling in the biosphere are extremely complicated. He explained the terrestrial ecosystem structure and function and said that modeling future responses of this complicated system requires information on how the systems will respond under future conditions. He talked about sequestering carbon in terrestrial ecosystems and explained about the Laboratory's FACE (Free-air Carbon Dioxide Enrichment) Program research projects that are attempting to evaluate the consequences of increased CO<sub>2</sub> exposure. There are four FACE experiments that are located at Duke University in North Carolina, in Arizona, Nevada, and Wisconsin and Lab researchers have contributed to the construction of many other FACE projects around the world. Researchers hope to learn how to stabilize CO<sub>2</sub> in the atmosphere as a result of the data learned from the FACE projects.

## **8. Community Comment**

There were no comments from the audience.

## **9. Presentation on Peconic River Native Plant Phyto-extraction Screening Summary, Skip Medeiros, Group Manager, Peconic River**

Skip Medeiros reminded the CAC that this study was recommended at the Workshop that was held in December of 2000 to look at innovative technologies that might spare the wetlands and still cleanup the river. He said there wasn't a strong sense that engineered phyto-extraction would be able to cleanup the river, but it was agreed that the native plants should be looked at before the concept was completely dismissed.

Skip talked about the requirements that phyto-extraction needs in order to be successful. He said that the interest was in the above ground portion of the plant because for it to be a successful alternative to sediment removal there should be no excavation or disturbance of the sediment. If the below ground portion of the plant had an active affect on phytoremediation by sequestering contaminants there, then each time the plant was harvested it would be the equivalent of repeatedly excavating the area. Skip said that the bioaccumulation factor and the above ground biomass of the plants have to be high and that the species of vegetation also is important. The report concluded that there were different vegetation types dominating different areas of the site, that mercury, silver, copper, and cesium-137 detection rates varied by plant species, and that it would take decades to centuries for cleanup to be achieved using the native wetland plants found on the site.

The study was peer-reviewed by the Regulatory Science Institute as if it were a scientific research process. They concluded that the study sampling protocol was appropriate and that based on the data provided the metals do not seem to be viable subjects for phytoremediation if only present flora are used.

Skip said that phytoremediation has been carefully considered and extensively studied. He said that neither BNL nor DOE plan to further entertain phyto-extraction as a viable option for cleanup of the Peconic River sediment.

CAC members asked questions about the variable rate of contaminant removal for the different types of plants, the cost of the study (Skip responded that there was about \$50,000 in sampling costs), and if they were supposed to make a recommendation regarding the results of the study. Member Talbot thought it would be appropriate to make a recommendation, Member Giacomaro suggested endorsing the findings of the study. The CAC unanimously agreed to support the findings in the Summary of the report.

## **10. Agenda Setting**

- OU V – Risk Assessment, early input into Proposed Remedial Action Plan
- Update on the BGRR, HRBR, BMRR reactors D & D
- ISO 14001
- Education Program at the Laboratory
- g-2
- Update on budget when appropriate

Member Sprintzen asked about a presentation about the P2 Program. Jeanne said that she was working with George Goode and that they would have a proposal for the next meeting.

Update on Accelerated cleanup and the impact of the budget. Marge said they may not know what the funding is yet but the impact of the flat rate could be looked at and she said that it would definitely be on the agenda.

Update on the top to bottom review process and where Brookhaven is in that process.

Update on search for the Laboratory Director.

Update on draft RA.

Meeting was adjourned at 8:47 p.m.