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# RIVER VOICES

OCTOBER 1992

Produced jointly by the US Environmental Protection Agency Region II
and the members of the Hudson River PCBs Reassessment RI/FS Liaison Groups

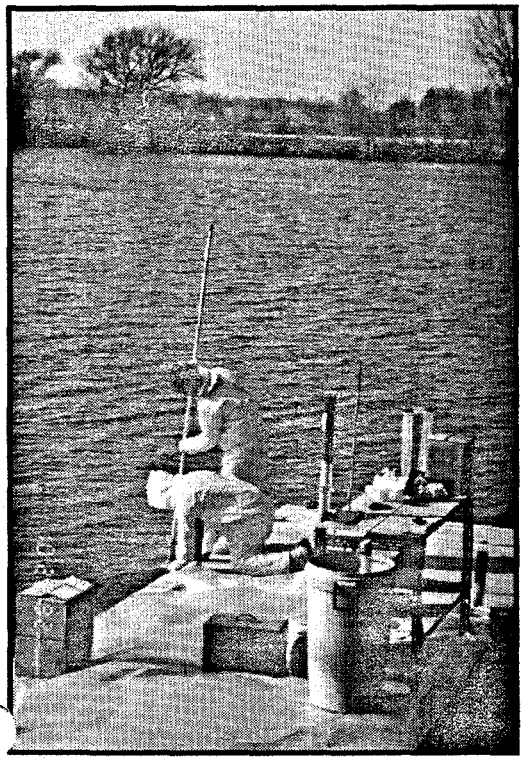
## From The Editor

**River Voices** is an update produced jointly by the US EPA and the members of the four Liaison Groups established under EPA's Community Interaction Program for the Hudson River PCBs Reassessment.

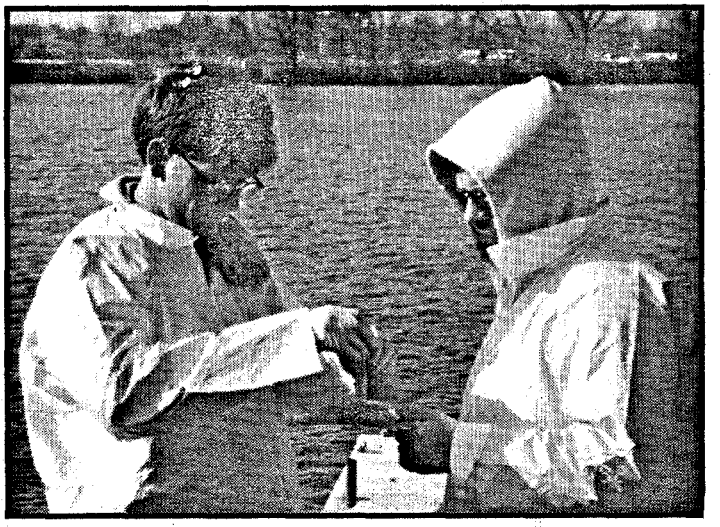
Articles appearing in **River Voices** are the sole opinion of the author whose name appears in the byline, and do not represent or reflect the opinion or policies of EPA. In addition, articles authored by Liaison Group members represent *only* the opinion of the author, and not the Liaison Group or membership as a whole.

Contributed articles published in **River Voices** appear as originally written, and any editing has been done for space consideration only, and with the prior consent of the author.

Dr. Ed Garvey of TAMS Consultants, Inc. displays a sediment core to observers, including Liaison Group members and Assemblyman Bobby D'Andrea, center.



Steve Chillrud & Dave Scheuing show observers how a hand, or "push," core is taken. A capped sediment core ready for slicing can be seen fastened to the table.



Steve Chillrud of Lamont-Doherty Geological Observatory, left, and Dave Scheuing of TAMS Consultants, Inc. demonstrate how a sediment core "slice" is subsectioned for analysis.

(Story on page 3)



10.10229

# NON-CARCINOGENIC EFFECTS OF PCBs

*by: Sonia Bouvier, Hudson River Sloop Clearwater*

New evidence on health effects resulting from exposure to PCBs through the consumption of contaminated fish should increase concerns about the effects PCBs are having on the Hudson River. Although PCB exposure has been linked with cancer, many scientists now believe that the greater threat to human health may be the chemical's effect on reproduction and development.

These scientists are calling for risk assessments to be based not only on the cancerous effects of PCBs, but on other health risks associated with PCB exposure that are much more widespread.

An international group of 21 scientists met at Wingspread in Racine, Wisconsin, in July 1991 to discuss recently observed effects on PCBs and other chemicals in the environment. They issued a statement asserting that PCBs, among other chemicals, can mimic hormones and disrupt the development of fish, birds, and mammals, including humans. The scientists concurred that PCBs and other chemicals have the potential to affect future generations.

A sample of the conclusions of scientists studying these effects is offered below:

In a recent paper Dr. Theodora Colburn pointed to findings that pre-natal exposure to chemicals that accumulate in fish can cause reduced male fertility and affect the respiratory, immune and nervous systems. She concluded that the effects are "more probable and socially devastating than cancer." Wayland Swain has reported that ingestion of PCB contaminated fish by pregnant women leads to premature births, growth retardation, less responsiveness to stimulation and more jerky, unbalanced movement.

A separate study found that children of women who had consumed about two or three Lake Michigan fish meals per month for the past 16 years had dose-related reductions in birth weight, gestation period, head size, and altered behavioral development.

Yet another study concluded that pre-natal exposure to PCBs was associated with poor muscle tone and abnormally weak reflexes at birth, delay in development of coordinated movement at 6 and 12 months and poor visual memory at 7 months. The children in this study were tested again at age four and the results still held.

The wealth of evidence pointing to these health risks caused the U.S. General Accounting Office to issue a report in October of 1991 which listed PCBs as a reproductive and developmental toxicant. The report concluded that current regulations of toxic substances based solely on cancer and acute toxicity may not be sufficiently protective of human health.

It recommended that EPA revise its regulations of 30 toxic substances, including PCBs, to protect against reproductive and developmental effects in risk assessments. Existing fish consumption advisories and bans on commercial and recreational fishing on the Hudson are based on the current Food an Drug Administration tolerance level which does not consider these non-cancer health risks.

Under the circumstances, EPA's reassessment of Hudson River PCB contamination should adopt the "weight of evidence" approach now being used by the International Joint Commission (IJC) on Great Lakes Water Quality. The most recent report by the IJC stated that with a "weight of evidence" approach there is no need to wait for scientific certainty to be established, rather that "At some point, the emerging mass of data and information must be accepted as sufficient to prompt...action against environmental contaminants."

Under this standard the IJC has called for the elimination of PCBs and other persistent toxic substances from the environment.

EPA's Phase 1 work report found that "with respect for non-cancer risks, the average daily exposure to PCBs resulting from consumption of fish from the Upper River may be as high as 51 times the reference dose." (i.e., 51 times what is considered acceptable risk). But in the Phase 2 work plan, EPA states that it will not factor this into its decision if the "reference dose" value is not formally promulgated before Phase 2 is completed.

EPA should not turn its back on information which is critical to the health and well-being of all those who live along the Hudson. Neither should EPA be swayed by GE's persistent allegations that PCBs are not a hazard to human health. In order to procure a fair decision which is sufficiently protective of human health, EPA must include the new information on PCBs as reproductive and developmental toxicants in its risk assessments. The fact that people continue to eat PCB contaminated fish from the Hudson is a great cause for concern and increases the urgency for a comprehensive clean-up of PCBs as soon as possible.

***Editor's note***: Because of space considerations, we are unable to print the many academic and scientific research sources cited in this article. However, if you want a listing of those sources, they are available upon request, from either this editor or Hudson River Sloop Clearwater. (***Editor's Response*** on page 4)



10.10230

**EPA ON THE TRAIL OF SCHUYLERVILLE "FISH STORY"**
*by Ann Rychlenski, US EPA, Region 2*

Judy Dean's famous hand-fed fish at the Schuylerville Marina sounded like the stuff that legends are made of. Since the beginning of the Reassessment, we intrepid EPAers have heard rumors of friendly fish at the Schuylerville Marina (home to Citizen Liaison Group Chair Judy Dean). We heard tales of how these finned friendlies would eat from the hands of anyone dangling a piece of bread in their general direction.

Always ready and willing to investigate unusual biota in the Hudson, EPA Community Relations Coordinator Ann Rychlenski undertook the quest for the frenzied feeders of Schuylerville. As you can see by the photo, this is no fish tale! Judy's fish are ***really that friendly and that hungry!*** They may not leap out of the water and offer you a fin in greeting, but they are the most well-mannered diners we have seen at any buffet lately, bar none!

# Phase 2A Coring Nears Completion

*This article, somewhat more technical than those normally appearing in River Voices, has been provided in response to the high level of interest evidenced by CIP members and the public in the Phase 2 sampling program, particularly the coring.*

High resolution coring of bottom sediments from the Hudson River began on August 23, 1992, with the collection of a core at the Piermont marsh, near the Tappan Zee Bridge. Since then, more than of 16 high resolution cores have been collected both on the Hudson as well as on several of its tributaries. Sampling will be completed near the end of October.

The purpose of collecting these samples is to determine the current vertical sediment profile of several geochemical and geotechnical parameters at historic sampling locations on the river. Analyses being performed on the samples include the determination of radionuclide abundance, total organic nitrogen (TON), total carbon/total nitrogen ratio (TC/TN), weight loss on ignition (LOI) and PCB congener abundances. In addition, the sediment grain size distribution will be determined via laser particle analysis.

The term "high resolution" refers to the detail at which these parameters are scrutinized. In general, each high resolution core is sliced at 2-centimeter (cm), or 0.75 inch, intervals for the first 8 cm and at 4 cm (1.5 inch) intervals thereafter. PCB, TC/TN, LOI, grain size and radionuclide analyses are performed on each slice. TON analyses are performed from the 8 cm depth down.

Sample collection is quite simple, beginning with the repositioning of a sampling boat at an historic sampling location. These locations are identified from detailed notes taken from previous studies by the Lamont-Doherty Geological Observatory. In general, the sites are situated in quiet bays and backwaters off the main river channel. Once a site is re-occupied and the boat securely anchored in position, a water depth reading is taken to determine the length of pipe to attach to the hand-push core sampler. The actual sampling device is a 3-foot piece of clear plastic tubing 2-1/2 inches in diameter attached to a brass check valve. The tubing is where the core sample will be collected. The entire apparatus is lowered to just above the sediment surface, then pushed into the river bottom until substantial resistance is encountered or until a sufficient length of core is within the core tube. The check valve on the coring apparatus performs a dual purpose: first, as the core is being collected, the valve lets water out of the tube and thereby allows sediment to enter the tube; and second, after the core is collected, it creates a vacuum which keeps the sediment in the core tube as it is raised to the surface. A plastic cap is placed over the bottom of the core tube before it breaks the surface of the water and is securely taped onto the tube. The brass check valve is then removed from the tube and a plastic cap is taped onto the top of the tube, allowing the water above the sediments to remain in the tube. This weight of water helps to dampen the jostling of the upper surface of sediment in the tube, keeping the sample intact during transport to the laboratory.

Further processing of the sample back at the laboratory involves the slicing of the sample into smaller lengths as mentioned previously. First, the water above the sediment is siphoned off the sample with a length of plastic tubing. The sample is then placed above a rubber plunger with the same diameter as the inside of the core tube. The plastic bottom of the core tube is then untaped and removed and the sample is placed on the plunger. The core sample is then extruded by pushing the plunger through the core tube until the upper surface of the sediment is at the top of the tube. The proper length of sample is then forced out of the tube and sliced off with a stainless steel plate. From this shorter section of core, all of the corresponding sub-samples are taken and placed into separate pre-cleaned sample jars for shipment to analytical laboratories.

## EDITOR'S RESPONSE TO BOUVIER ARTICLE

The review copy of the Phase 2 Work Plan did not state that a reference dose (RfD) needed to be promulgated prior to the completion of Phase 2 in order to be factored into the decision-making process. The language included in the review copy was trying to explain that there is presently no RfD, and that although EPA was trying to get an RfD promulgated, there is a possibility that it may not. In that case, EPA's Environmental Criteria Assessment Office (ECAO) will be contacted for assistance in establishing an RfD for this project. If, as a result of this process ECAO still cannot establish an RfD, then, and only then, would EPA not calculate the non-carcinogenic risk. The language in the Final Phase 2 Work Plan has been revised to minimize this confusion.

# EPA'S RESPONSE TO PUBLIC COMMENT ON THE REASSESSMENT RI/FS

*by Doug Tomchuk*
*Remedial Project Manager, US EPA Region II*

As part of the Community Interaction Process, the public is given the opportunity to comment on the documents that EPA generates for the Reassessment. All of these comments are given serious consideration based on their merit. Of course, this does not mean that every comment will be incorporated into EPA's plans, but there have been significant revisions made as a result of comments. The Phase 1 Responsiveness Summary responds to, and in many cases concurs with, the comments that were received on the Phase 1 Report. In addition, the review copy of the Phase 2 Work Plan incorporated many comments that were made prior to the release of that document.

Several specific examples of revisions that were made in response to comments can be seen in the Final Phase 2 Work Plan. EPA received numerous comments on the review copy of that plan, and has made several significant changes based on these comments. Some of the biggest changes can be seen in the ecological risk assessment. To begin with, EPA has eliminated the reconnaissance survey that was originally proposed. The plan now calls for surficial sediment sampling at ecologically sensitive areas, which should yield even more valuable information. In addition, a benthic invertebrates study will be conducted to determine if there are any observable biotic effects from the PCB-contaminated sediments.

The changes in the Phase 2 Work Plan with respect to the modeling effort are not as drastic as with the ecological risk assessment, but the Final Phase 2 Work Plan explains the proposed work much more clearly. One important aspect of the modeling did get changed after discussions with the Steering Committee and the Scientific and Technical Committee. EPA believes that it would be very helpful and that it should be possible to project the biouptake/bioaccumulation model to resident fish in the freshwater portion of the lower Hudson. Therefore, EPA has included this as part of the modeling effort.

Several concerns were raised with respect to the baseline human health risk assessment as presented in the review copy of t he work plan. These concerns are hopefully clarified in the final version of t he work plan. For example, EPA does plan to conduct Monte Carlo analyses to define exposure concentrations if there is sufficient data to do so; and, EPA does intend to calculate the risk from non-carcinogenic toxicity.

EPA believes that its plans to characterize the PCB problem in the Hudson River will provide sufficient information for decision-making purposes, and appreciates the comments that the public has provided that have assisted the Agency with these plans.

## IF YOU CARE ABOUT THE HUDSON RIVER AND ITS FUTURE, GET INVOLVED IN THE COMMUNITY INTERACTION PROGRAM

If you have any comments to an article appearing in **River Voices**, are interested in joining one of the four Liaison Groups, are interested in attending one of our meetings as an observer, or if you just want to know a little more about this program, contact:

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