

**PCB Deposits in the Fox River
1998, 2000, 2001, 2005**

1998



THE LEAGUE OF WOMEN VOTERS

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For Immediate Release

The ABCs of PCBs: Options for Cleaning Up PCBs From the Lower Fox River
Sponsored by the Appleton Area League of Women Voters
Televised Live Sept. 24 from UW Fox Valley, 6:30 p.m.

Appleton, Wis., Sept. 9, 1998--The Appleton Area League of Women Voters (LWV) has organized and is sponsoring The ABCs of PCBs, a three-hour event that will bring leading technical experts to Appleton to discuss Fox River options on Thursday, Sept. 24, at UW Fox Valley. FOX 11, a media cosponsor will host and broadcast live two-and-a-half hours of the presentation beginning at 6:30 p.m. Time Warner Cable, also a media cosponsor will tape and replay the entire meeting on Cable Channel 4. The event, which will be held in UW Fox Valley's Field House on Midway Road in Menasha, is free and open to the public. The doors will open at 5:30 p.m. The experts will take questions from the public.

"We're glad to have FOX 11 bring their news department to the Fox Valley to cover and host this very important event," said Debra Cronmiller, president of the local League of Women Voters. "Our goal is to provide information to our communities on the options available to us. The League, FOX 11 and Time Warner Cable play an important role in bringing this information to the businesses and residents who are concerned about the Fox River." Teri Barr and Tom Milbourn, FOX 11 news anchors, will host the meeting.

The evening will be divided into three segments. The first will provide an overview of the situation; the second a discussion of clean up option pros and cons and the third will cover the relationship between remedy selection and National Resources Damage Assessment (NRDA).

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ABCs of PCBs/2

Speakers slated to appear include:

Dave Allen, biologist, U.S. Fish and Wildlife Service, Green Bay, Wisc., Field Office;

Mark Brown, consultant, Blasland, Bouck & Lee, Syracuse, N.Y.;

Bill Fitzpatrick, environmental engineer, Wisconsin DNR, Madison, Wisc.;

Jim Hahnenberg, geologist, Superfund Division, U.S. EPA, Region 5, Chicago, Ill.;

Dennis Hultgren, Director of Environmental and Public Affairs, Appleton Paper Company;
Appleton, Wisc.;

David Ludwig, chief scientist, Environmental Group of Exponent, Bellevue, Wash.;

George Meyer, Secretary, Wisconsin DNR, Madison, Wisc.;

Jan Miller, environmental engineer, U.S. Army Corps of Engineers, Great Lakes and Ohio River
Div., Chicago, Ill.;

Bob Paulson, environmental toxicologist, Wisconsin DNR, Madison, Wisc.; and

David Ulrich, Acting Regional Administrator, EPA Region 5, Chicago, Ill.

"We encourage as many of our viewers as possible to attend this meeting in person," said Jim Schuessler, FOX 11 general manager, "but we recognize that many will not be able to. That's why we're proud to bring this program to the community. This is an important forum for anyone who wants to understand the issue and provide input in the initial phase of the Fox River clean up." The deadline for initial phase comments is Sept. 28.

"We think the issue is so important that we're taking the nearly unprecedented move of dropping our commercial network programming for the Fox River forum," said Schuessler. "This is our home and this is an issue that truly hits home for all of us."

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ABCs of PCBs/3

The League of Women Voters is a nonpartisan organization with membership open to men and women of voting age. The organization establishes positions by studying issues and reaching consensus among members. Current local studies include reviewing the feasibility of building a Fox Cities Performing Arts Center, Water Quality of Lake Winnebago and the Fox River, and to review Federal Water Standards. Two-year state studies are covering Land Use, Corrections, Campaign Finance Reform and W2-Children and Families. The League of Women Voters was formed in 1920 to inform women on issues so they could make informed decisions at the polls.

Today the League continues that tradition by hosting candidate debates during election years, monitoring public meetings through its Observer Corps and studying issues of importance to local communities, Wisconsin and the nation.

FOX 11 is owned by Emmis Communications, Inc. with stations in Alabama, Florida, Hawaii and Louisiana.

Time Warner Cable provides cable service to more than 100,000 cable customers from Oshkosh to Green Bay.

PROJECT TITLE AND DESCRIPTION

Title: The ABCs of PCBs: Options for cleaning up the river

Description: The project is to disseminate to the public "unfiltered" information on the options for cleaning up the Fox River. It will consist of an open meeting at which experts will not only present the possible procedures and costs of remediation of the polychlorinated biphenyl (PCB) contamination of the river but also respond to questions from the audience. The experts will be representatives of governmental agencies such as the federal Environmental Protection Agency, the Wisconsin Department of Natural Resources, the Army Corps of Engineers, the federal Fish and Wildlife Service, etc., and of the firms with whom the paper manufacturers have contracted for scientific studies of the problem. The meeting, co-sponsored by the Appleton LWV, the University of Wisconsin-Fox Valley, and Time-Warner Cable, will be held at the UW-FV, September 24, 6:30 - 9:30 P.M..

Background: The Fox River, which flows north out of Lake Winnebago to Green Bay and ultimately Lake Michigan, is vital to the physical and economic health of northeast Wisconsin. A major concentration of paper mills is located along its banks in the thirty-mile stretch from the Fox Cities, of which Appleton is the hub, through the City of Green Bay. Paper-making, which requires ready access to water, has long been a mainstay of the local economy. More recently, tourism and water sports have become significant and growing parts of the economic picture. Furthermore, many of the municipalities in the area depend on Lake Winnebago and the Fox River for their drinking water.

How the PCBs came to be in the river is not a matter of dispute. A waste product of the manufacture of carbonless multi-form paper, they were innocently dumped by the mills from the 1950s through 1970. When the paper manufacturers realized that the polychlorinated biphenyls could be harmful, another method of making the product was developed and the dumping ceased.

The matters in dispute are what is to be done about the PCBs already in the river and who is to bear the cost; a variety of solutions have been proposed. At the very heart of the dispute is whether the Fox River should be declared a federal Superfund site, a declaration which is an imminent possibility. There have been, and will continue to be, opportunities for citizen input. The problem, however, is extremely complex; all of the proposed solutions not only are costly but also have a variety of future ramifications; and unbiased, in-depth information on which citizens can form their opinions has not been widely available.

PLANS FOR CARRYING OUT THE PROJECT

The Appleton LWV is organizing the meeting (described above), inviting the speakers/experts, arranging for both pre-meeting publicity and media coverage. It is coordinating with the meeting's co-sponsors, the University of Wisconsin-Fox Valley, which will provide the location, and Time-Warner Cable, which will film and broadcast the proceedings. Following the meeting, copies of the videotape will be made available for loan by the Appleton Public Library. While the meeting is open to anyone wishing to attend, special invitations will be sent to local public officials and to the other Leagues in the Fox Valley.

EXPENSES

Publicity, copying & postage	\$1000.00
Telephone & fax	150.00
Video, taping & editing	1,200.00
Staging: platform, draping, tables	337.00
2' x 16' vinyl banner	266.80
50" x 56" vinyl banner	<u>118.00</u>
TOTAL	\$3,071.00
	\$ 1,871.80

Deb - two copies
of the proposal
and one copy of
the corrected budget
H.A.

Draft Agenda for Public Meeting

① Welcome *Resrey*

1. Introductory Panel (30 to 40 minutes?)

George Meyer, Secretary of Wisconsin DNR
David Ulrich, Acting Regional Administrator, EPA Region 5

These speakers will provide a broad overview of where we are – (1) what is the nature of the contamination in the river? (2) what is the nature of the response (e.g., will this be a Superfund clean-up? How will the clean-up unfold? What opportunities are there for public comment?)?

2. Discussion of Clean-up Option Pros & Cons (90 min?)

The purpose of this discussion is to facilitate informed public participation by providing the public with information from experts on the pros & cons of the various clean-up options being examined for potential use in the Fox River. We hope that speakers will feel free to use overheads and slides to make it plain to members of the public what these clean-up options are (e.g., what is a hydraulic dredge? How is it different from a clamshell dredge?) and what the pros and cons are with respect to each (e.g., Is capping feasible in all parts of the river? How expensive is capping? Is it a proven technology?). We would like to examine all of the potential options – capping/containment, in situ treatment, river relocation, dredging (mechanical/hydraulic/dry), and treatment (chemical/thermal/bioremediation/physical separation/incineration), transportation and disposal of extracted waste (in water CDF, upland CDF, landfill, or beneficial reuse).

Bob Paulson, Wisconsin DNR – discuss the present status of the site & no action option
Jan Miller, U.S. Army Corps of Engineers – present overview of the various treatment options
Mark Brown, BB&L (contractor for the Mills)? – discuss how the clean-up options fit together?
Jim Hahnenberg, U.S. EPA – discuss track record of clean-up options at other sites
Bill Fitzpatrick, Wisconsin DNR – discuss application of clean-up options to the Fox

3. NRDA/mitigation discussion (30 min?)

Dave Allen, U.S. FWS – relationship between remedy selection/clean-up options and NRDA
Steve Perry, BB&L? -- discussion of NRDA and 1,000 Islands and Point AuSable

4. Questions and answers session (30 min.?)

Note: The speakers from BB&L have been invited, but have not accepted yet.

→ Closing statement

Draft Agenda for Public Meeting

Welcome by Dean Perry, U.W. Fox Valley (5 min.?)

Introduction by League moderator of first panel (1 min.?)

Introductory Panel (30 to 40 minutes?)

George Meyer, Secretary of Wisconsin DNR

David Ulrich, Acting Regional Administrator, EPA Region 5

These speakers will provide a broad overview of where we are – (1) what is the nature of the contamination in the river? (2) what is the nature of the government response (e.g., will this be a superfund clean-up? How will the clean-up unfold? What opportunities are there for public comment?)?

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Bob Paulson, Wisconsin DNR – discuss draft RIFS? Options considered, pros & cons, results.

Bill Fitzpatrick, Wisconsin DNR? – address pros & cons of capping & dredging with respect to the Fox River

Jan Miller, U.S. Army Corps of Engineers – track record of dredging & treatment at other sites

Jim Hahnenberg, U.S. EPA –

Mark Brown, BB&L? (contractor for the Fox River Group) – pros & cons of dredging & treatment, capping & , possibly, natural attenuation

Marc Tuchman, GLNPO? – discuss pros & cons of techniques used in Great Lakes (dredging &?)

NRDA/mitigation discussion (30 min?)

Dave Allen, U.S. FWS – relationship between remedy selection/clean-up options and NRDA

Steve Perry, BB&L? -- discussion of 1,000 Islands and Point AuSable

Questions and answers session (30 min.?)

Moderator will read written questions from members of the audience addressed to various speakers.

Client: Appleton League

Length: 30

Start 9/10/98

Stop: 9/24/98

FIND OUT BEFORE YOU SPEAK OUT.

GET UNFILTERED INFORMATION FROM GOVERNMENT AGENCY REPRESENTATIVES AND FROM THE PAPER COMPANIES ON HOW THEY RECOMMEND HANDLING THE PBC CONTAMINATION IN THE RIVER.

EVERYONE'S URGED TO ATTEND THE PUBLIC MEETING BEING HELD THURSDAY EVENING, SEPTEMBER 24, AT 6:30PM..IN THE U-W FIELD HOUSE ON MIDWAY ROAD, MENASHA.

THE ABC'S OF PCB'S: OPTIONS FOR CLEARING UP THE LOWER FOX RIVER..THURSDAY EVENING, SEPTEMBER 24 AT 6:30PM. SPONSORED BY THE APPLETON LEAGUE OF WOMEN VOTERS, TIME WARNER CABLE, U-W FOX VALLEY, AND WLUK TV 11.

9/8/98

Appleton League of Women Voter's
:60

The cleaning of the lower Fox River is a very serious issue that affects most everyone in the Fox Valley. Learn the whole story and find out before you speak out. Get a clear picture at a public meeting, "The ABC's of PCB's: Options for cleaning up the lower Fox."

Everyone is encouraged to attend this important meeting- scheduled for Thursday, September 24th at 6:30 in the U-W Field House on Midway road in Menasha. This is your chance to hear unfiltered information from speakers representing both the government agencies and the paper companies on how to address the handling of PCB contamination in the river.

Hear all the facts during the public meeting: "The ABC's of PCB's: Options for cleaning up the lower Fox".....Thursday evening September 24th at 6:30 in the U-W Field House, Midway road, Menasha. Sponsored by the Appleton League of Women Voter's, the University of Wisconsin-Fox Valley, Time-Warner Cable, and WLUK Fox 11.

One of our community's major assets, the Fox River, is contaminated with PCBs; about that, there is no dispute. What is at dispute is how to handle the problem. Further, because the solution will affect the community now and into the future, all of us have a right – even an obligation – to provide input to the decision-making bodies.

To assist citizens in giving informed input – input based on fact rather than on slogans and catch phrases – a public informational meeting, “The ABCs of PCBs: Options for Cleaning up the Lower Fox,” is being held at 6:30 P.M. on Thursday, September 24, at the University of Wisconsin-Fox Valley field house. The focus of the meeting – co-sponsored by the Appleton League of Women Voters, the UW-Fox Valley, WLUK FOX 11, and Time Warner Cable – will be unfiltered presentations by representatives of both the government agencies and the paper companies of their recommendations for handling the problem. Time will be allotted during the meeting for questions from the audience.

To insure that its information is disseminated as widely as possible, the meeting will be televised live by WLUK FOX 11. In addition, Time Warner Cable will tape the proceedings for re-broadcast later, and the Appleton Public Library will have copies of the Time Warner tape available to be borrowed.

On behalf of the four co-sponsoring organizations, I urge residents of the Fox Valley to take advantage of this opportunity to get information on the clean-up options direct from the experts. I further urge everyone, having gotten this information, to consider it and to use the comment periods still available.

It's our river and our community – and we are going to have to live with the decisions for a long, long time.

I hope to see many ^{area} residents Sept. 24.

LEAGUE OF WOMEN VOTERS CONSENSUS MEETING
River Leagues: Appleton, Green Bay, Oshkosh, Neenah-Menasha

"Finding Solutions for the PCB Dilemma"

Monday, November 13, 2000
UW Fox Valley Campus Union, 1478 Midway Road, Menasha

Panel Discussion: 6:30-7:45 p.m.
Greg Hill, Wisconsin Department of Natural Resources
Dennis Hultgren, Appleton Papers, representing Fox River Group

Speakers will respond to these questions:

1. What are the goals of PCB cleanup in the Fox River?
 - What level of PCBs in fish tissue is safe?
 - What is the desired time frame to achieve this level?
2. Three principal methods have been proposed for cleanup – dredging, capping, natural recovery.
 - What fraction of the 39-mile river is appropriate for each method?
 - Does the dredging method presuppose Wisconsin landfill site(s)?
 - What are the options if a Wisconsin landfill site is not available?
3. Using data from our Fox River test sites, what do you project as a probable cost for complete remediation?
4. What evidence supports your position? Please include data, tables, or graphs.
 - Model (purpose, basic assumptions of model, how does modeling determine method of cleanup?)
 - Data over time that shows trends (PCB levels in fish tissue, water column, sediments at various levels)
 - Location and concentration of PCBs along river

LWV Consensus: 8:00-9:30 p.m.

1. What, if anything, should be done to clean up the PCBs in the Fox River?
2. If anything is done, who should do it?
3. If anything is done, who should pay the costs of cleanup, landfills, long-term liability?
4. Should local governments accept the responsibility of landfilling PCBs?

PCB Study Committee:

LWV-Appleton: Debra Cronmiller
 LWV-Green Bay: Carol DeGroot, Julie Ameth
 LWV-Neenah/Menasha: Peggy Cox
 LWV-Oshkosh: Kathy Propp, Kay Rill, Jan Scalpone

FINDING SOLUTIONS FOR THE P C B DILEMMA
Sponsored by the "River Leagues"

STATEMENT OF PURPOSE

The Leagues of Women Voters plan to arrive at a position regarding the PCB's in the Fox River with a focus on the environmental impact and consideration of the economic impact.

To arrive at this position, the group formulated three questions for use by each of the four Leagues in coming to a consensus (see attachment).

BACKGROUND INFORMATION

The Fox River has affected the growth and prosperity of the surrounding region tremendously. The Wisconsin Department of Natural Resources (WDNR) received an Environmental Protection Agency (EPA) grant to draft a "Remedial Investigation/Feasibility Study". In that study the WDNR estimated that 59,500 pounds of polychlorinated biphenyls (PCB) remain in 11 million cubic yards of sediment along the lower Fox River.

PCB's are found in the discharge from municipalities, paper mills, and other industrial sources along the river. They are brought into the food chain by fish that feed in the river bottom. Animals that feed on fish carry PCB's up the food chain.

PROJECT GOALS

- *Clean up the PCB's in the Fox River
- *Decrease health risks associated with PCB's
- *Maintain economic and environmental viability of the Fox River area

DESCRIPTION OF THE PROJECT

- *Decrease the PCB levels in the Fox River to minimize the health risk to humans and wildlife
- *Examine the costs and environmental impact of the various options

ACTIONS BY THE LEAGUE

- *Sponsor a four League meeting, with the first half open to the public
- *Using this information, come to a LWV consensus

ACRONYMS AND DEFINITIONS OF PCB STUDY

Polychlorinated biphenyl's - Man-made chemicals that were used as insulators in electrical equipment, as lubricants, coolants and hydraulic fluid in industrial processes, and in the manufacture and recycling of carbonless copy paper. **PCB's are soluble in fat, bind readily with sediment particles and do not easily dissolve in water. Bind to sediment particles one million times more strongly than to water molecules. These molecules eventually sink to the river bottom.**

19 Paper companies involved, affects 37 miles of Fox River

1967 - contamination of the PCB's ceased due to the banning by the federal government.

Corps of Engineers - ongoing project with dredging. Data becoming available from Deposit N.

DNR - Department of Natural Resources. Specific environmental information - impact on flora and fauna, and impact on humans.

EPA - Environmental Protection Agency. Abatement issues, and involved with specific environmental impact.

FRG - Fox River Group. Coalition of 7 paper companies that released PCB's. Appleton Papers, US Papers, WI Tissue, James River, P H Glatfelter, Riverside and NCR (sold).

HOT SPOT - PCB contamination is usually one foot under the clean sediment. It's a depositional area that was created from downstream. Models that are created have to be able to reflect the movement of sediment. Capping is thought to be a way to stop the contamination.

Natural Recovery – 25 years according to the paper companies. 100 years per the DNR. Goal is to eliminate the fish consumption advisory.

NRDA – state managed natural resources damage assessment (also federal).

RIFS – Remedial Investigation and Feasibility System

Sediment continues to work (water flowing over it). PCB's will continue to be available and it will take 100-125 years for them to "disappear." EPA will make it possible to become a Superfund site and paper companies then went with their own model. This model says 25 years – more depositional rather than erosionable.

SMU 56 and 57 pilot projects – evaluation of environmental dredging in a river system. There are pluses and minuses of dredging – project is not completed. PCB removal in the manner piloted is neither cost effective nor beneficial from a restorative perspective.

Superfund – Feds identify who has to pay. This usually goes directly to litigation, drives the cost up and work done on other sites is not good. Our project is 39x's larger than any other sites they have already worked on. They have used 4 methods of dredging in the following areas – Hudson River, Manistique, Austin, Texas. Prices have increased tremendously from initial budget.

Superfund – province of the US Environmental Protection Agency This should be completed this fall 2000. Scope of the work was changed by the EPA from just the river to also include Green Bay. Water Quality Model – 32 miles of Fox and 7 miles of Green Bay.

HEALTH CARE AND ECOSYSTEM

FACT SHEET FROM THE "RIVER LEAGUES"

POINT

COUNTERPOINT

EPA April 1998 Adverse Health Consequences via fish and game consumption	Fox River Group "Science Provides the Answers for the Fox River"
<ul style="list-style-type: none"> • Impacts on the nervous, immune, circulatory, and hormonal systems, and liver, brain, and skin disorders. 	<ul style="list-style-type: none"> • The Agency for Toxic Substance & Disease Registry (ATSDR) reported, "The overall evidence suggesting that PCBs may represent a developmental hazard for human health is inconclusive."
<ul style="list-style-type: none"> • Possible human carcinogens. Increased risk of cancer and immune system effects among the general population, and workers producing PCB capacitors 	<ul style="list-style-type: none"> • The ATSDR claims that its study is "strong evidence that even long-term human exposure to PCB's is not related to an increase in deaths from cancer or any other diseases."
<ul style="list-style-type: none"> • Sensitive populations, including people who regularly eat contaminated Great Lakes fish, are at an increased risk for PCB exposure. These include: the Hmong, women of child-bearing age, nursing infants and young children, and the elderly • Neurobehavioral and developmental problems – such as impaired responsiveness, short-term memory problems, and reduced mental abilities in the infants and children of mothers exposed to PCB's prior to and during pregnancy. • Three times the chance of having lower IQ scores; twice the chance of lagging at least two years behind in reading comprehension, short-term and long-term memory effects and difficulties in paying attention. 	<ul style="list-style-type: none"> • The National Research Council released a study in August 1999 found no conclusive evidence of a link between PCB's and human or wildlife health concerns. • Angler study of the Fox River for the WDNR's Natural Resources Damage Assessment 1998. Study conducted in Green Bay was unable to detect any difference in fish consumption patterns between Hmong respondents and other respondents. • No conclusive evidence has been found that PCBs are a human carcinogen. An exhaustive study of workers highly exposed to PCBs for many years found no increase in cancer rates. Conclusion: more research is needed. Source: Kimbrough, Doemland and LeVois, 1999. U.S. Department of Health and Human Services; National Research Council

HEALTH CARE AND ECOSYSTEM

FACT SHEET FROM THE "RIVER LEAGUES"

POINT

COUNTERPOINT

EPA April 1998 PCBs have a tremendous impact on natural resources	Sensible Solutions for the Fox River – The Fox River Group 1999
<ul style="list-style-type: none">• Fish and wildlife populations throughout the Great Lakes have shown high levels of PCB build up in fatty tissues, resulting in reduced fertility, deformities (e.g. cross bills in cormorants) physiological abnormalities, and death.	<ul style="list-style-type: none">• PCB levels in fish tissue have dropped below guidelines set by the U.S. Food and Drug Administration (FDA). The FDA sets limits for chemicals in food to ensure a safe food supply for the country. The FDA limit for PCBs in fish sold in stores is two parts per million (ppm). The average PCB contamination in walleye filets from the Fox River is about 1.0 ppm, already below FDA standards by virtue of natural recovery. The only exposure of any potential concern is the consumption of certain fish and wildlife.
<p>The Post Crescent November 9, 1999 U. S. Fish and Wildlife Service report:</p> <ul style="list-style-type: none">• PCB contamination in the river and bay correlates with cancerous tumors in the livers of walleye. Researchers found that 24 % of the walleye from Green Bay had cancerous or pre-cancerous tumors, compared with 6 % from two inland lakes – Winnebago and Patton Lake in Florence County. The incidence of tumors in both cases corresponded with levels of PCB contamination.	
<ul style="list-style-type: none">•	

FISH ADVISORY INFORMATION

Wisconsin's 1999 fish consumption advisory is based on the work of public health, water quality, and fisheries experts from eight Great Lakes states and the Canadian province of Ontario. These scientists have determined how much fish is safe to eat over a lifetime based on the average amount of contaminants found in the fish.






Fish Advisories are in effect in lakes and rivers known to contain certain toxic pollutants. The charts on the following pages describe the precautions you should consider before you decide to eat fish you've caught from waters where contaminants pose a problem.

Meal advice varies for fish of different sizes. Why is this advice different? Because larger fish are usually older and they've had more time to accumulate contaminants in their flesh.

Contaminants such as PCBs build up in your body over time. It may take months or years of regularly eating contaminated fish to build up amounts which are a health concern. Health problems which may result from the contaminants found in fish range from small changes in health that are hard to detect, to birth defects and cancer. The meal advice in the advisory is intended to protect children from these potential problems. Adults are less likely to have health problems at the low levels that affect children. Fish listed as unlimited may be consumed as often as one likes presumably without risk.

Although the advisory is based on reproductive risks rather than cancer, some contaminants do cause cancer in animals. Your risk of cancer from eating contaminated fish cannot be predicted with

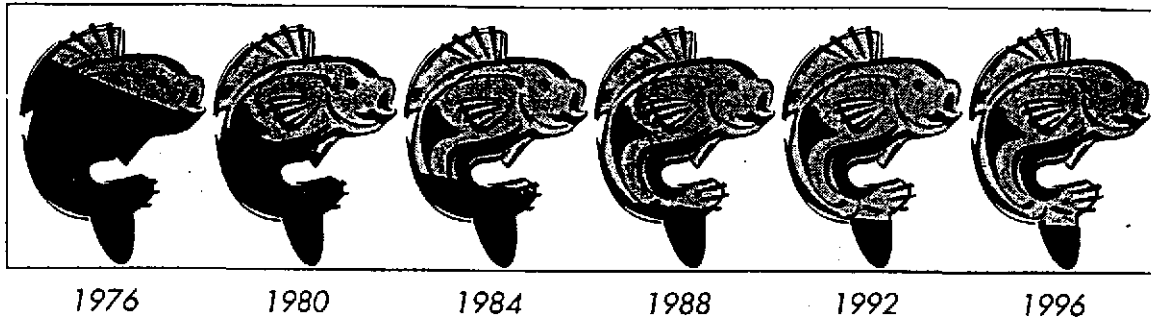
certainty. Cancer currently affects about one in every four people by the age of 70, primarily due to smoking, diet and hereditary factors. At worst, following the EPA methods, it is estimated that approximately one additional cancer case may develop in 10,000 people who follow this advisory over their lifetime.

Meal Advice for Fish with PCB Contamination	
less than .05	 Unlimited number of meals a year
.05-.2	 One meal a week or 52 meals a year
.2-1.0	 One meal a month or 12 meals a year
1.0-1.9	 One meal every two months or six meals a year
more than 1.9	 Do not eat

The tables show each type of fish that has been tested for that location. If a species is not listed, it has not been tested at that location.

- ↪ **Do Not Eat** means no one should eat those fish because of very high contamination
- ↪ **Unlimited** means you can eat as many meals as you like.
- ↪ **One Meal A Week, One Meal A Month and One Meal Every Two Months** are advice for how often to eat fish from these groups.
- ↪ The amount of contaminants in a fish listed in the **“One Meal A Month”** group is four time higher than the amount of contaminants in a fish in the **“One Meal A Week”** group.

The level of PCBs has dropped nearly 80% over the past 20 years.



Declining Amounts of Contaminants in Lake Michigan Fish

The FDA sets limits for chemicals in food to ensure a safe food supply for the country. The FDA limit for PCBs in fish sold in stores is two parts per million (ppm). The average PCB concentration in walleye fillets from the Fox River is about 1.0 ppm. (1)

Advisories only apply to eating your catch and in no way restrict your fishing or other water activities. People who walk by, go boating on, or swim in the Fox River are not at risk from PCB's in the river. The only exposure of any potential concern is the consumption of certain fish and wildlife at levels exceeding those commonly accepted by the experts as safe. An advisory on eating Fox River fish has been in effect for over 20 years.

(1) "Sensible Solutions for the Fox River," The Fox River Group, Page ii.

Note: All other information from "Important Health Information for People Eating Fish From Wisconsin Waters", 1999, Wisconsin Department of Natural Resources

Waterbody/ Fish Species	Unlimited	Eat no more than One meal a week or 52 meals/year	Eat no more than One meal a month or 12 meals/year	Eat no more than One meal every two months or six meals/year	Do Not Eat
Fox River from Little Lake Butte des Morts to the dam at DePere					
Walleye			All Sizes		
Northern Pike			All Sizes		
White Bass			All Sizes		
Yellow Perch		All Sizes			
White Perch			All Sizes		
Smallmouth Bass			All Sizes		
Carp					All Sizes

Waterbody/ Fish Species	Unlimited	Eat no more than One meal a week or 52 meals/year	Eat no more than One meal a month or 12 meals/year	Eat no more than One meal every two months or six meals/year	Do Not Eat
Fox River from the mouth up to DePere Dam					
Walleye			Less than 16"	16-22"	Larger than 22"
Northern Pike			Less than 25"	Larger than 25"	
White Sucker				All Sizes	
White Bass					All Sizes
Black Crappie			Less than 9"	Larger than 9"	
Bluegill			All Sizes		
Rock Bass			All Sizes		
Yellow Perch			All Sizes		
Smallmouth Bass				All Sizes	
White Perch				All Sizes	
Carp					All Sizes
Channel Catfish					All Sizes
Sheepshead			Less than 10"	10-13"	Larger than 13"
Fox (IL) River (including Lake Tichigan)					
Channel Catfish			All Sizes		
Northern Pike			All Sizes		
Carp			All Sizes		

FOX RIVER PCB CONTAMINATION CLEAN UP ALTERNATIVES

LWV River Leagues Meeting Nov. 13, 2000 Summary prepared by LWV-Oshkosh (Kay Rill, Jan Scalpone, Kathy Propp)

The EPA, DNR and paper companies each say any PCB clean up of the Fox River will involve a mix of technologies. Some sediments may be left for natural recovery, some may be remediated in place (in situ), and some sediments may be targeted for removal (ex situ). The principal technologies being considered are natural recovery, capping, and hydraulic dredging with a silt screen.

ALTERNATIVE	PRO	CON
I. NATURAL RECOVERY		
<p>NATURAL RECOVERY leaves the contaminated sediments in place. Older deposits containing PCBs are gradually buried under layers of progressively cleaner sediments being washed into the river from upstream, thus isolating higher PCB concentrations from the biological community. The biologically active layer of sediment is the top 4"; 85% of the PCB mass is buried under 1 foot or more of sediment. Natural recovery is based on data that shows PCB levels are declining in sediment, in fish tissue, and in the water column.</p>	<ul style="list-style-type: none"> • Costs the least of any alternative • Does not disturb the buried PCBs • Eliminates the need for removal, treatment, and landfill disposal. • Preserves the biological community. • Short recovery period of 25 years, according to paper company model. 	<ul style="list-style-type: none"> • Allows PCBs in the top 4" of sediment to enter the food chain, primarily through fish. • Leaves PCB "hot spots" (areas of concentrated deposits). • Requires regular monitoring of PCB levels in fish, sediments, and water column that could be expensive. • Long recovery period of 100 years (too long to wait), according to DNR model.
II. IN SITU technologies deal with PCBs in place. They include (A) capping, (B) containment, and (C) other in-place treatments. Most of these technologies are in the development stages and have only been applied on a small scale at a limited number of sites.		
<p>A. CAPPING is the placement of a covering over an area of contaminated sediment. The covering may be constructed of clean sediments, sand or gravel or may involve a more complex design using geotextiles, liners, and multiple layers. Capping depths proposed for the Fox River range from 4-12 inches. This is the technology most favored by the paper companies.</p>	<ul style="list-style-type: none"> • Keeps PCBs and contaminated sediment out of the water column • Imitates natural recovery • Eliminates need for landfilling • Doesn't stir up PCBs which may be covered by sediment. • Can restore desirable fish habitat by enhancing river bottom • Is among the least expensive options 	<ul style="list-style-type: none"> • Inappropriate in shallow water, navigation channels needing to be dredged, and areas with strong water currents and erosive forces (most of the Fox River, according to DNR). • Requires continued monitoring and maintenance because of possible contaminant release from flooding, aquatic organisms, stream bank erosion, navigation and recreational forces.
<p>B. CONTAINMENT involves complete isolation of a portion of the waterway. Physical barriers include sheet pile, cofferdams, and stone and earthen dikes.</p>	<ul style="list-style-type: none"> • Eliminates need for landfilling • Does not stir up PCBs in sediments • Can be used for disposal of other contaminated sediments, treatment residues or various fill materials. 	<ul style="list-style-type: none"> • Potential for contaminant migration • Applicable only at limited sites (such as abandoned boat slips and turning basins). Other structures may alter hydraulic conditions in waterway.

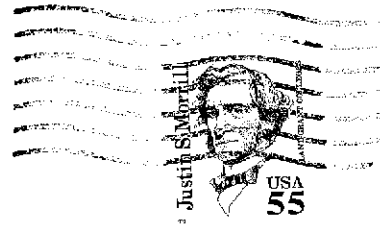
ALTERNATIVE	PRO	CON
<p>C. OTHER IN PLACE TREATMENTS:</p> <p>1. Biological treatment involves injecting PCB eating micro-organisms into the sediments.</p> <p>2. Chemical treatment involves breaking down the PCBs and altering their composition.</p> <p>3. Thermal treatment of underwater sediments involves heating PCBs with radio waves.</p> <p>4. Immobilization alters the sediment physical or chemical characteristics to reduce the potential for contaminants to be released into the surrounding environment. Binders used to immobilize contaminants in sediments include cements and thermoplastics.</p>	<ul style="list-style-type: none"> • Eliminates need for landfilling. • Does not stir up PCBs in sediment • May be less expensive than off-site treatment 	<ul style="list-style-type: none"> • Still in experimental stages • Tests of Biological treatment at Sheboygan Superfund site inconclusive. • Chemical treatment not proven or available commercially, and chemicals may be contaminants in themselves. • Thermal processes have not been shown to work. • Immobilization unsuccessful in the Manitowoc River project. • Difficult to determine dosages and effectiveness (non-homogeneous distribution of contaminants in sediments) • Process may have negative impact on water quality • Difficult to treat deeper sediments. • May be ineffective under water-saturated and varying temperature conditions
<p>III. EX SITU METHODS remove sediments containing PCBs from river: (A) hydraulic dredging used with silt screen, (B) mechanical dredging with clamshell bucket, and (C) dry removal. These sediments must be treated in another location (see IV Treatment Options).</p>		
<p>A. HYDRAULIC DREDGING USED WITH SILT SCREEN. This is dredging with a special dredge with suction tubes and a dredge cutter head. A silt screen will be placed downstream of the dredge to catch suspended sediments. This method has been used in the pilot projects on the Fox River.</p>	<ul style="list-style-type: none"> • Reduced release of sediments • Has a proven track record in the Manistique River 	<ul style="list-style-type: none"> • Large amounts of contaminated water are drawn off and must be treated on site. • Water discharged would not meet federal or state standards. A waiver of water quality rules would be necessary.
<p>B. MECHANICAL DREDGING WITH CLAMSHELL BUCKET. Equipment used is an open bucket capable of digging into the sediments and bringing up what stays in the bucket.</p>	<p>This is the fastest and least expensive of the dredging options</p>	<ul style="list-style-type: none"> • Treatment method will roil sediments which will be carried downstream with the current. • Living organisms will be exposed to PCBs and sediments until settling takes place. • Turbidity is aesthetically unpleasing.
<p>C. DRY REMOVAL involves building a coffer dam to receive sediments at a location near shore. Draw off the water and use standard earth moving equipment to remove sediments.</p>	<p>Possible in suitable location where there is a widening of the river or a bay.</p>	<ul style="list-style-type: none"> • Water removed would have to be treated • Much of the area is not suitable for this method especially downstream of the DePere dam where there is a "hot" deposit. • Costs of building and removing dam must be added to total costs.

ALTERNATIVE	PRO	CON
IV. TREATMENT OPTIONS FOR PCB-CONTAINING SEDIMENTS REMOVED FROM RIVER		
A. LANDFILL CONTAINMENT places PCB material where it will not be in contact with the environment. Possibilities are land filling in (1) an engineered landfill (2) an upland site specially prepared for the contaminated sediment, or (3) an in-water location such as Reynard Island		
1. Engineered land fill	<ul style="list-style-type: none"> • Engineered sites are state of the art with liners and technologies designed to reduce the possibility of leakage. • PCBs would be attached to sediment, and are not water soluble, so should not migrate beyond landfill. • Monitoring wells would check for leachate. 	<ul style="list-style-type: none"> • The closest landfills have passed resolutions barring the deposits. • The "not in my back yard" problem could occur.
2. Upland site	<ul style="list-style-type: none"> • Material would be confined where it would not be likely to get into the environment. 	<ul style="list-style-type: none"> • Landfill would have to meet EPA standards and would be costly. • Finding a location that would not be contested might be difficult. The "not in my back yard" problem could occur.
3. In-water site such as Reynard's Island at the mouth of Green Bay.	<ul style="list-style-type: none"> • Close to area of removal • Reduces transportation costs 	<ul style="list-style-type: none"> • Public opposition is likely. • Leaking is possible and has occurred at Reynard's Island. • Part of the river would be off limits to the public forever.
B. INCINERATION		
	<ul style="list-style-type: none"> • PCBs break down into simpler, less toxic molecules at temperatures of 3000 degrees F. • An incinerator is available in Michigan. 	<ul style="list-style-type: none"> • Materials would have to be shipped to Michigan. High transportation cost. • Heavy toxic metals such as mercury and lead will be released into the atmosphere. • Treatment is energy intensive, would be costly.
C. THERMAL DESORPTION		
involves heating and mixing sediments in a chamber that volatilizes the contaminants in steam. The steam is then condensed into a liquid which can be more easily incinerated than the sediments.	<ul style="list-style-type: none"> • Could eliminate problem of land filling sediments. • Used in clean up of Waukegan Harbor in Illinois 	<ul style="list-style-type: none"> • Experimental technology that has not been field tested extensively. • No guarantee that material could be returned to the environment. (Mercury was still present in one case and incomplete combustion produced harmful dioxins and furans in another.
D. CHEMICAL, BIOLOGICAL, IMMOBILIZING TREATMENTS (See In Place Treatments)		
		<ul style="list-style-type: none"> • Unproven, ineffective, or unworkable (see In Place Treatments)

PCBS



The League of Women Voters
of Appleton, Wisconsin
P.O. Box 1281
Appleton, WI 54912



Mariys Fritzell
1015 Nawada Ct.
Appleton, WI 54911-5156

This is your study material for the
PCB consensus meeting
Monday, November 13, 6:30 PM,
at the UW-Fox, 1478 Midway Rd.

LWV-Appleton Water Quality Study
November 17, 2001
Appleton Public Library
9:30-11:30

1. Background:

The River Leagues consensus on the PCB's in December 2000 suggested a state water quality tax, similar to the forestry tax, to improve the state's water resources and to provide a predictable, dependable and equitable funding source.

At the LWV-State convention, this general study idea was modified to the evaluation of funding mechanisms to address issues of water quality around the state.

Before substantive discussion can occur on the topic of financial resources dedicated to the topic of water quality, the state Water Quality committee thought it wise to begin with an overview of the state of the states water quality.

2. Our focus:

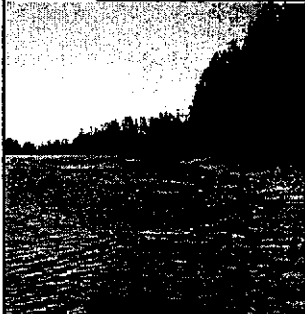
Today we hope to cover some of the material regarding the state's current water quality.

Additionally, working from direction of the State committee, an assignment of local fact finding missions regarding specific information on our local water basin in the areas of quality of surface water and ground water. Issues having to do with storm water management, point and non-point pollution, invasive species, habitat restoration, dams, monitoring of water, fish consumption advisories, drinking water quality and supply, loss of wetlands and any other related topics are to be compiled and reported back to the State Committee in February, 2002.

3. Next steps

Who will take which pieces? How do we break the pieces apart for our basin?

Wisconsin's Water Quality




The State of the State's Water Resources

Lisa Helmuth
Wisconsin Department of Natural Resources

Toft Point,
Door County

Introduction

- State of Wisconsin's Resources
- Monitoring & Assessment
- Key Areas



Peshigo Harbor State Wildlife Area, Marinette Co

Abundant Resources

- 55,000 miles of rivers & streams
- 15,000 + inland lakes, 944,000 ac
- 1,700 mi² Great Lakes estuaries and bays
- 1,000 Great Lakes shoreline
- 5.3 million acres wetlands
- 2 quadrillion gallons of groundwater

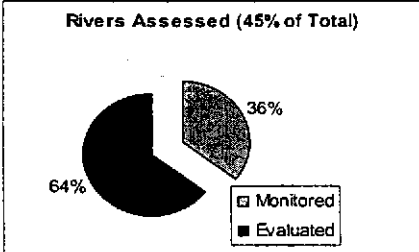
How WI Reports Quality

- Clean Water Act 305(b) main vehicle for water quality reporting
- Clean Water Act 303(d) List
- Integrated Plans - Watershed Tables and Narratives
- Fishery Management Plans, project reports

Rivers Assessment

➔ 24,760 miles assessed out of 55,000

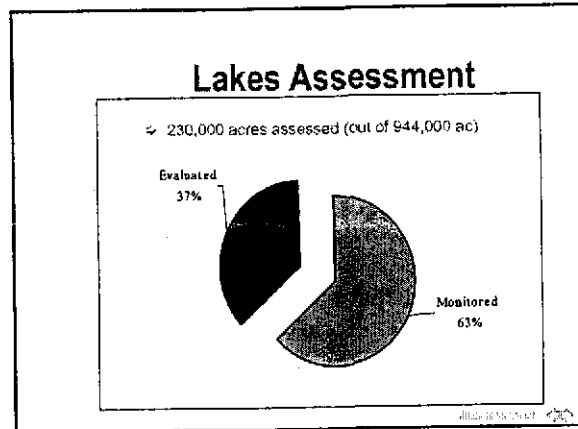
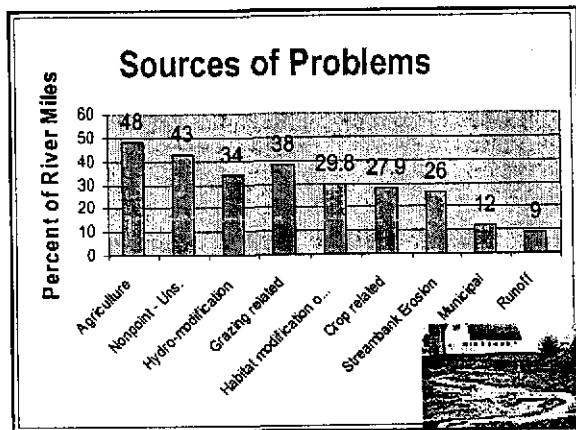
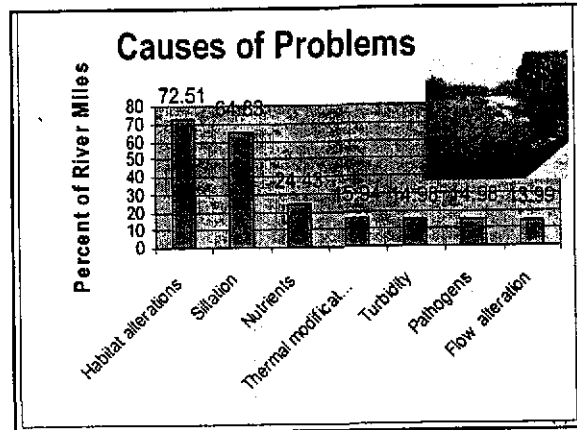
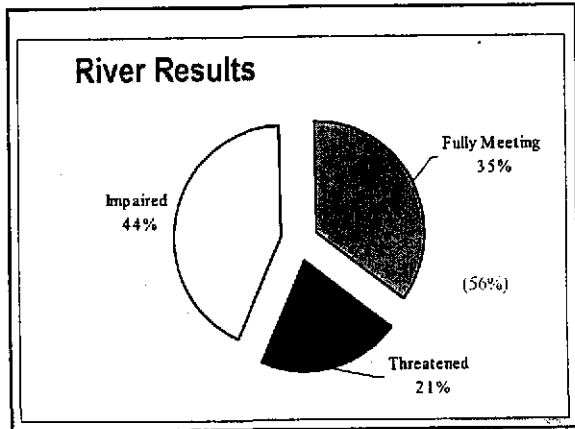
Rivers Assessed (45% of Total)



Category	Percentage
Monitored	64%
Evaluated	36%


Potential and Designated Uses

- Aquatic Life Use Support (Cold, WWSF, WWFF, LFF, LAL)
- Fish Consumption Advisory
- Secondary Contact Recreation*
- Drinking Water Supply*




Lakes Designated & Potential Uses

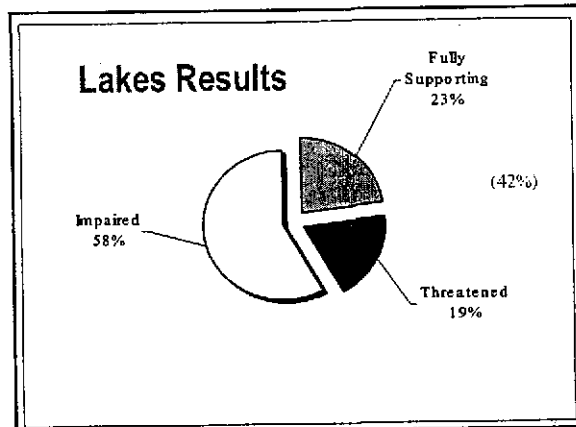
- » Aquatic Life Use Support
- » Fish Consumption Advisory
- » Secondary Contact Recreation
- » Drinking Water Supply*



Lake Superior
Brook Trout



Lake Sturgeon



Lake Trophic State (2000)

Trophic Status of Lakes			
	Number	Size (ac)	Percent
Hypereutrophic	2	8665	0.08
Eutrophic	55	63118	0.58
Dystrophic	60	16149	0.15
Mesotrophic	51	10823	0.10
Oligotrophic	30	9080	0.08
Total Assessed	201	107943	1.00

22
112
429

771

Monitoring Water Quality



- Surface Water Monitoring
 - ◆ Baseline Monitoring
 - ◆ Volunteer Monitoring
 - ◆ Contaminated Sediment
 - ◆ Special Projects
 - ◆ Long-Term Trend Work (continuous flow stations)
 - ◆ Partner Work (USGS, Counties, etc.)
- Groundwater Monitoring
 - ◆ Drinking Water Monitoring
 - ◆ Source Water Assessments
 - ◆ Public Health Monitoring

Baseline Monitoring



- Standardized Techniques
- Habitat, Macroinverts, Fish
- Stratified Random Sampling
 - ◆ Non-wadeable streams
 - ◆ Wadeable streams
 - ◆ Wetlands
 - ◆ Lakes

Groundwater

- 70 % population uses g.w. for drinking water
- industrial, commercial, agricultural
- G.W. is stream baseflow
- GW/SW interaction

Groundwater Issues

*Draw down
to 100 feet*

- Quantity
 - ◆ Dane County
 - ◆ Fox-Wolf Area
- Quality
 - ◆ Nitrate
 - ◆ Pesticides (Atrazine)
 - ◆ Arsenic (naturally occurring)
 - ◆ Radionuclides

Wetlands

- Current tracking - Wisconsin Wetland Inventory (1970s+)
 - ◆ continually updated
 - ◆ behind on updates
 - ◆ used for regulatory purposes
- EPA Grant to pilot classification scheme to help with: evaluate, monitor, track status and change

*Mercury -
not being tested
generally*

*5 million
acres*

*1/2 of prev. acc. levels
± monitor*

*Rate of loss -
over 200 yrs.*

Key Areas - No Order

- NPS Issues:
 - ◆ CAFOs/Animal Waste
 - ◆ Urban/Stormwater Runoff
- Invasive Exotic Species
- Dam Maintenance, Restoration, Removal
- Habitat Restoration
- Monitoring

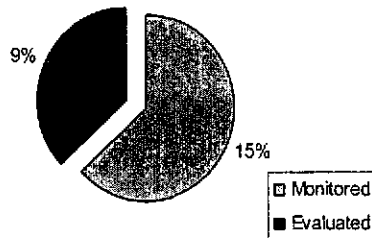
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Percent of Total Stream Miles Assessed



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Percent of Total Lake Acres Assessed



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Summary

- Waters assessed mostly good
- Threats and impairments from
 - ◆ CAFOs/Animal Waste
 - ◆ Dams/Hydrologic Modifications
 - ◆ Habitat Loss/Degradation
- Only small fraction of waters have been assessed + dated information
- Greatest need is for monitoring

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