United States Department of the Interior

FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
Great Lakes Fishery Laboratory
1451 Green Road
P.O. Box 640
Ann Arbor, Michigan 48107

IN REPLY REFER TO:

FYI
① R.E. Keller
~~② W.R. Richards~~
③ ~~W.B. Papageorge~~ 1974
④ ~~H.S. Bergen~~
⑤ E.S. Tucker (File)

May 15, 1974

Dr. E. Scott Tucker
Research Group Leader
Applied Sciences
Monsanto Industrial Chemicals Co.
800 North Lindbergh Boulevard
St. Louis, Missouri 63166

Dear Scott:

Enclosed is the text of a talk by John Hesse of the Michigan Department of Natural Resources. He gives data to show decreased levels of PCB's in fish of at least one area of the Great Lakes. We are continuing research on levels and effects of PCB's in Great Lakes fish.

Thank you again for the list of references on PCB's.

Cordially yours,

Dora R. Passino

Dora R. Passino
(formerly Dora R. May)
Fishery Biologist

Enclosure

CONSERVE AMERICA'S ENERGY

Save Energy and You Serve America!

DSW 196976

STLCOPCB4052240

for Scott-Tucker

APRIL 11, 1974

WATER RESOURCES COMMISSION
BUREAU OF WATER MANAGEMENT
MICHIGAN DEPARTMENT OF NATURAL RESOURCES
STEVENS T. MASON BUILDING LANSING, MICHIGAN 48926
AREA CODE 517, PHONE 373-0927

POLYCHLORINATED BIPHENYLS (OR PCB'S) ARE A GROUP OF COMPOUNDS WHICH HAVE BEEN USED IN A DIVERSE NUMBER OF INDUSTRIAL APPLICATIONS. SOME OF THE LARGER USES HAVE BEEN AS FIRE-RESISTANT HEAT TRANSFER AND HYDRAULIC FLUIDS, INSULATION IN ELECTRICAL TRANSFORMERS AND CAPACITORS, PLASTICIZERS, AND SPECIALTY INKS IN CERTAIN PAPER PRODUCTS.

IN SEPTEMBER 1971 THE PUBLIC WAS FIRST ALERTED TO THE FACT THAT SOME OF OUR GREAT LAKES FISH WERE CONTAMINATED WITH PCB'S. SALMON AND LAKE TROUT IN LAKE MICHIGAN HAD PCB'S IN THE RANGE OF 5 - 15 PARTS PER MILLION (PPM). CHUBS HAD ABOUT 6 - 8 PPM IN SOUTHERN LAKE MICHIGAN BUT WERE LOWER FARTHER NORTH. LIKE DDT, THE FDA LIMIT HAD BEEN SET AT 5 PPM. AN IMMEDIATE BAN WAS PLACED ON THE STATE'S COHO "GIVE-AWAY" PROGRAM. LATER, PCB'S WERE ALSO FOUND TO EXCEED THE FDA LIMIT IN CATFISH FROM SAGINAW BAY AND THIS RESULTED IN CONTROLS BEING PLACED UPON THAT COMMERCIAL FISHERY.

JACK BAILS MENTIONED THAT WE HAVE NOT OBSERVED ANY APPARENT DECLINES IN PCB LEVELS OF LAKE MICHIGAN FISH. WE DO, HOWEVER, HAVE SOME ENCOURAGING INFORMATION THAT PCB LEVELS IN GREAT LAKES FISH MAY SOON BEGIN TO SHOW THE PATTERN OCCURRING FOR DDT AND HG.

THE WATER RESOURCES COMMISSION STAFF HAS BEEN VERY ACTIVE IN SEARCHING OUT THE SOURCES OF CONTAMINATION IN THE STREAMS TRIBUTARY TO THE GREAT LAKES. THROUGH THE USE OF INDUSTRIAL QUESTIONNAIRES, WRC ANNUAL CRITICAL MATERIALS REPORTS FROM INDUSTRY, AND TRIBUTARY AND POINT SOURCE MONITORING PROGRAMS, WE HAVE IDENTIFIED DOZENS OF SOURCES THROUGHOUT THE STATE AND HAVE WORKED OUT AGREEMENTS WHEREBY THE INDUSTRIES SHOWN TO BE LOSING PCB'S HAVE SWITCHED TO REPLACEMENT COMPOUNDS. OUR EFFORTS TO HALT THE SOURCES OF CONTAMINATION HAVE ALSO BEEN GREATLY ENHANCED BY THE VOLUNTARY ACTION OF MONSANTO CHEMICAL COMPANY, THE SOLE U.S. PRODUCER

DSW 196977

STLCOPCB4052241

PCB'S, TO DISCONTINUE THE SALE OF PCB'S FOR USES IN OPEN INDUSTRIAL SYSTEMS WHERE LOSSES ARE MOST LIKELY TO OCCUR. THIS INCLUDED THE DISCONTINUANCE OF SALE FOR HYDRAULIC FLUIDS AND HEAT TRANSFER SYSTEMS, THE TWO LARGEST SOURCES OF LOSSES IDENTIFIED IN OUR SURVEYS.

WHILE ANNUAL PCB SALES DOUBLED BETWEEN 1960 AND 1970 WITH THE DEVELOPEMENT OF NEW INDUSTRAIL USES, THE 1971 SALES DROPPED BACK TO THE PREVIOUS 1960 LEVELS AS A RESULT OF MONSANTO'S VOLUNTARY ACTION. ONE PROBLEM THAT WE SEE IS THAT MANY INDUSTRIES HAVE LARGE ENOUGH INVENTORIES OF PCB'S, THAT THEY HAVE NOT YET BEEN FORCED INTO A SWITCH-OVER TO SUBSTITUTES. THIS IS WHERE OUR SURVEILLANCE PROGRAMS HAVE BEEN SPEEDING UP THE ELIMINATION OF PCB USE.

NOW I WOULD LIKE TO BRIEFLY DESCRIBE WHY WE FEEL PCB'S MAY SOON START DECLINING IN OUR GREAT LAKES FISH. SURVEYS IN 1971 IDENTIFIED THE SAGINAW RIVER AS HAVING BY FAR THE HIGHEST PCB LEVELS IN THE WATER OF ANY TRIBUTARY IN THE STATE. WE IMMEDIATELY SAMPLED FISH FROM THAT RIVER AND FOUND CORRESPONDINGLY ALARMING LEVELS IN THE FISH FLESH. GIZZARD SHAD AVERAGED NEARLY 100 PPM, CARP ABOUT 30 PPM, AND PIKE SLIGHTLY OVER 10 PPM.

IN AN INTENSIVE SEARCH FOR SOURCES IN THIS WATERSHED WE FOUND 10 MAJOR SOURCES. BY MID-1972 MOST OF THE DISCHARGES HAD BEEN CURTAILED. DATES FOR TOTAL ELIMINATION FROM THESE SOURCES WERE SET FOR LATE 1972 OR EARLY 1973 AND HAVE SINCE BEEN COMPLETED. BY OCTOBER 1972 THE CONCENTRATIONS IN THE RIVER WATER WERE NEARLY NON-DETECTABLE. FISH WERE SAMPLED AGAIN IN AUGUST 1973 AND WE WERE DELIGHTED TO FIND THAT CONCENTRATIONS IN ALL SPECIES TESTED WERE NOW BELOW THE 5 PPM LIMIT. THIS INCLUDED SAMPLES OF SHAD, CARP, AND PIKE AMONG SEVERAL OTHER SPECIES.

ALTHOUGH CATFISH FROM SAGINAW BAY SAMPLED IN THE SPRING 1973 HAD NOT YET SHOWN ANY PCB DECLINE, THE DRASTIC DROP OBSERVED IN THE RIVER FISH IS INDEED ENCOURAGING. WHILE IT SEEMS REASONABLE THAT A RIVER WOULD BE PURGED FASTER THAN A BODY OF WATER THE SIZE OF SAGINAW BAY OR LAKE MICHIGAN, THE QUICKNESS AT WHICH THE DDT RESPONSE WAS OBSERVED IN LAKE MICHIGAN FISH AFTER THE 1969 DDT BAN

DSW 196978

STLCOPCB4052242

MAKES US QUITE HOPEFUL A DOWNWARD TREND FOR PCB'S IN THESE WATERS WILL NOT BE FAR OFF.

IN ADDITION, A NEW DEVELOPMENT WHICH SHOULD GIVE US FURTHER LEVERAGE IN ELIMINATING PCB CONTAMINATION WAS THE INCLUSION OF PCB'S ON EPA'S TOXIC SUBSTANCES LIST AS PRESENTED IN THE JULY 6, 1973 FEDERAL REGISTER. THIS HAS RESULTED IN THE DEVELOPMENT OF FEDERAL EFFLUENT STANDARDS FOR PCB'S. BEFORE, WE HAD NO LEGISLATIVE EFFLUENT LIMITS. THE PROPOSED STANDARDS ARE NOW GOING THROUGH THE PROCESS OF PUBLIC HEARINGS. OUR AGENCY, WAS AMONG THOSE TESTIFYING THIS WEEK IN WASHINGTON TO INSURE THAT RESTRICTIONS WILL BE ADEQUATE TO MEET RECOMMENDED RECEIVING WATER CRITERIA (NAS, 1973) FOR PROTECTION OF AQUATIC LIFE AND FISHERY RESOURCES.

DSW 196979