

MINNESOTA POLLUTION CONTROL AGENCY
Division of Water Quality

Proposed Polychlorinated Biphenyls Sampling Program
June 16, 1975

The objectives of the polychlorinated biphenyl (PCB) field sampling program are to determine the source or sources of PCB's to the Mississippi River and to determine the extent of the problem. To accomplish these objectives the field sampling program will include surface water sampling, bottom sediment sampling, fish flesh sampling, ~~WTP sludge sampling~~ air sampling, and point source discharge sampling. The location of the study area is that segment of the Mississippi River from Elk River, Minnesota to Lock and Dam No. 4 near Alma, Wisconsin (Figure 1). The study segment was divided into sub-segments in order to delineate specific problem areas and facilitate data analyses (Figure 2, Table 1).

A surface water sample will be taken in each of the sub-segments at two-week intervals. Water samples will be collected in 250 ml hexane-rinsed glass bottles which have glass stoppers. Direct bottle sampling should be used whenever possible. Composite or split samples will not be used because the low levels of PCB's may be altered by adsorption to the sample container walls.

Up to 2 or 3 bottom sediment samples will be taken in each of the sub-segments (Figure 2, Table 1). Samples will be collected by either a stationary core sampler or a Shipeck grab sampler. The sediment samples will be transferred to either a hexane-rinsed glass bottle with a glass stopper or all metal cap or to aluminum foil. The first sediment sampling trip should identify critical sub-segments which may require additional sampling in the future.

Fish flesh samples will be taken in all sub-segments where it is reasonably possible (Figure 2, Table 1). Fish will be collected by boom shocking or any other suitable equipment. Two species of sport fish and two species of rough fish will be included in each sample. Five individuals of each species will be collected to make a total fish sample of twenty individuals. The species of sport fish which may be used are walleye, sauger, white bass, channel catfish and small-mouth bass. Rough fish species which may be used are carp, buffalo, gizzard shad, and freshwater drum. Fish removed from the river for the sample should be large enough to be considered of edible size by sport fishermen. Only the edible fish fillet should be used for the PCB analyses. Frequency of sampling and areas or sub-segments for specific intensive sampling will be determined after the initial sampling trip.

Sludge samples will be taken at the major wastewater treatment plants in the study area which burn or incinerate the sewage sludge. If high levels of PCB's are found in the sludge, air sampling of the incinerators may be necessary to determine if these are major sources.

Point source discharge sampling will be conducted on all known or suspected sources of PCB's. The exact procedures or frequency of sampling will be determined for each discharger. Possible methods of sampling may include grab sampling once every two weeks or over a 24 hour period.

DSW 345915

TABLE 1

**Description of Sub-Segment
and Sampling Areas for PCB Investigations**

A. St. Croix River

1. Taylors Falls to Stillwater
2. Stillwater to Prescott, Wisconsin

B. Minnesota River

1. Jordan to Shakopee
2. Shakopee to confluence with Mississippi River

C. Mississippi River

1. Elk River to Coon Rapids Dam (Mile 866)
2. Coon Rapids (866) to St. Anthony Falls (Mile 854)
3. St. Anthony Falls (Mile 854) to Lock and Dam #1 (Mile 848)
4. Lock and Dam #1 (848) to Wabasha St. Bridge (Mile 840)
5. Wabasha St. Bridge (Mile 840) to Rock Island RR Bridge (Mile 830)
6. Rock Island RR Bridge (Mile 830) to Lock and Dam #2 (Mile 815)
7. Lock and Dam #2 (Mile 815) to Lock and Dam #3 (Mile 797)
8. Lock and Dam #3 (Mile 797) to Pepin (Mile 765)
9. Pepin (Mile 765) to Lock and Dam #4 (Mile 753)

D. Crow River

At confluence with Mississippi River

E. Rum River

At confluence with Mississippi River

F. Vermillion River

At confluence with Mississippi River

G. Cannon River

At confluence with Mississippi River

H. Rush River

At confluence with Mississippi River

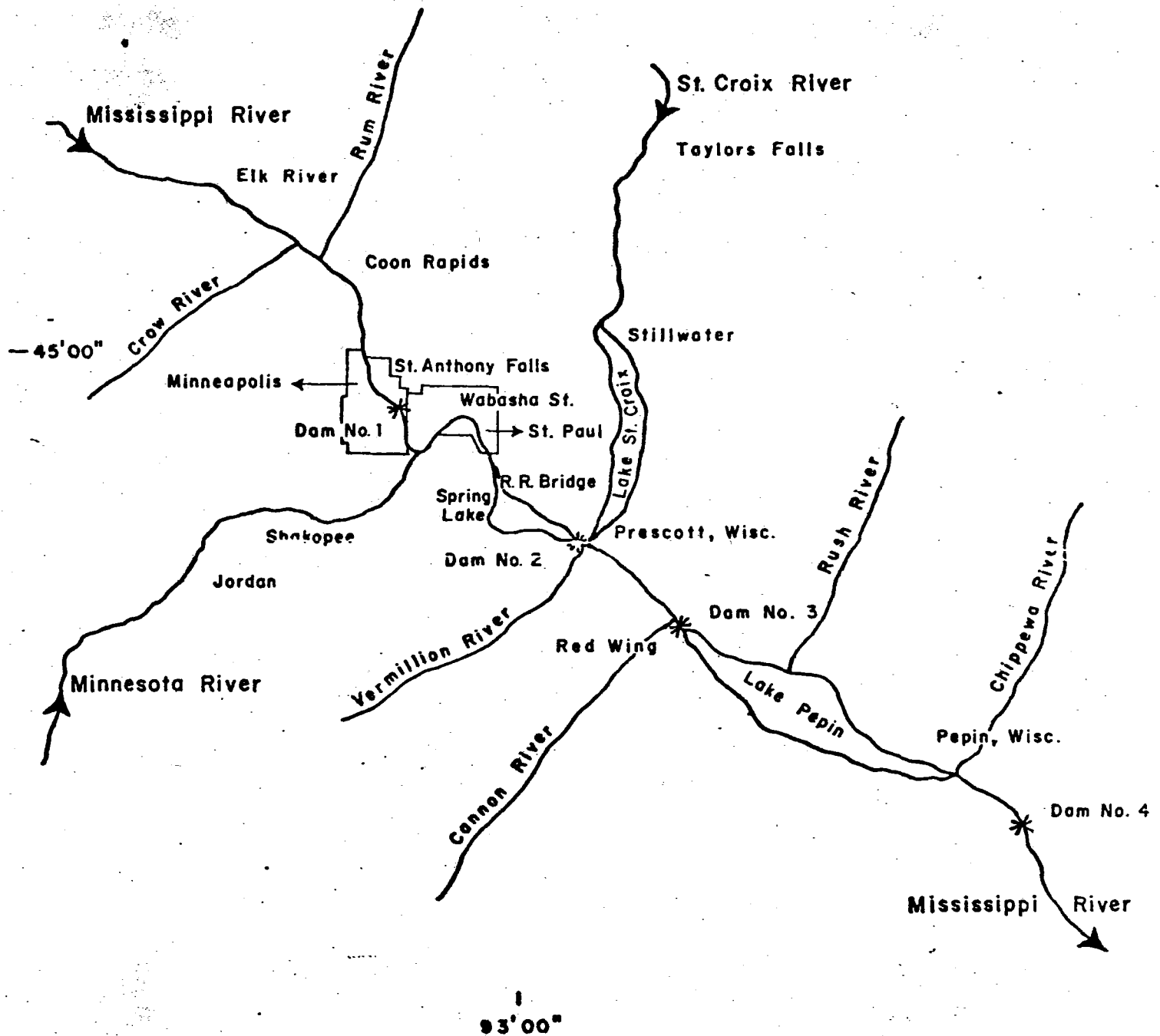
I. Chippewa River

At confluence with Mississippi River

DSW 345916

Figure I

DELINEATION OF PCB STUDY AREA



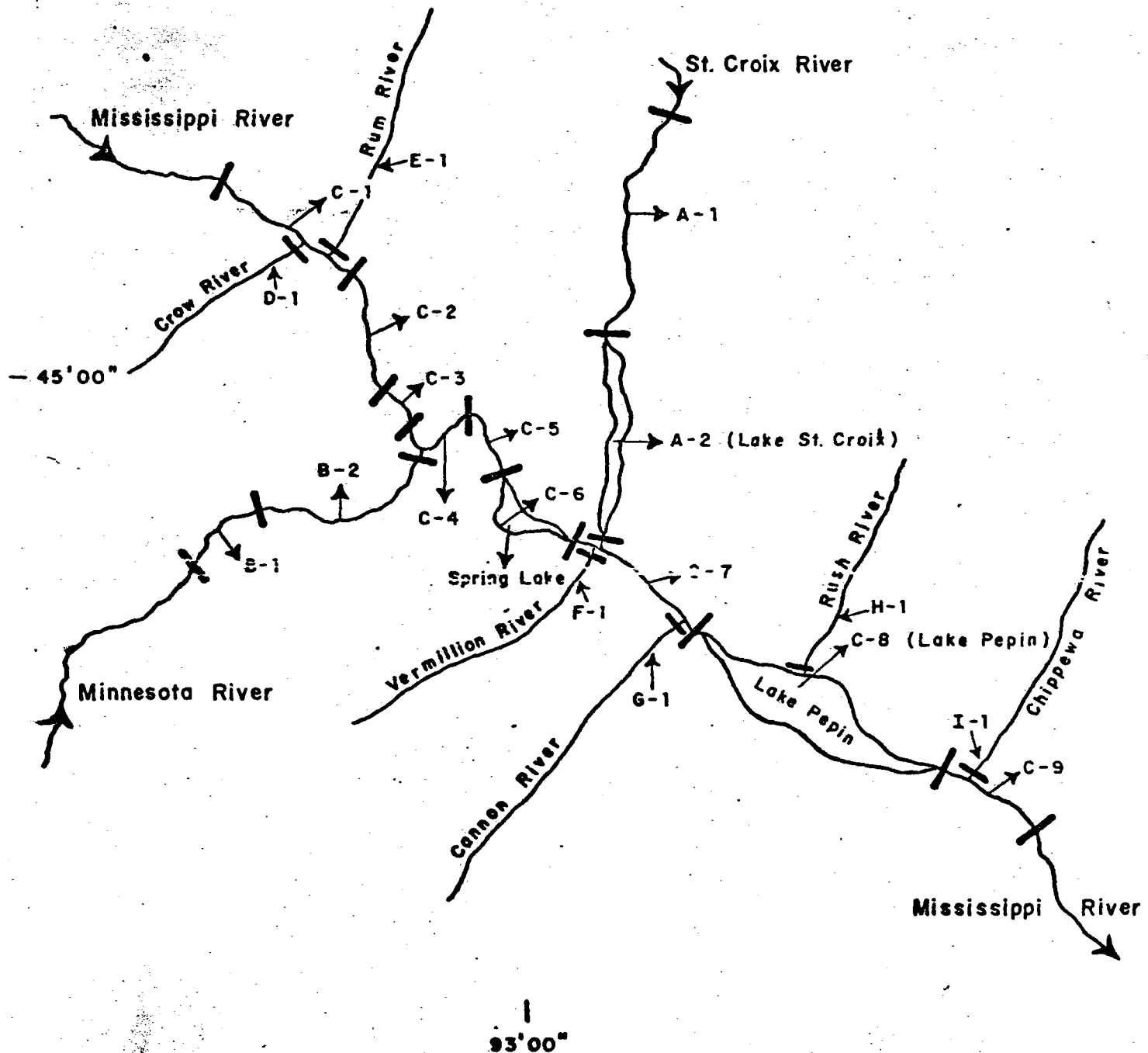
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Figure II

DELINEATION OF SUB-SEGMENT AREAS
FOR PCB INVESTIGATIONS



DSW 345918

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