STUDY FINAL REPORT

State: Michigan **Project No.:** F-80-R-4

Study No.: 709 **Title:** Development of fisheries assessment and harvest allocation methods for inland lakes and streams in Michigan

Period Covered: October 1, 2002 to September 30, 2003

Objectives:

1) To lead efforts to produce a research report (white paper) describing the status of fisheries and fisheries management in Michigan, with emphasis on 1836 Treaty-ceded territory.
2) To lead efforts to develop models, databases, and computer systems for 1836 inland treaty case, other tribal fishing issues, and statewide fisheries management.
3) To assist with design of statewide fishery resource inventory program and creel survey.
4) To serve as fisheries research and management expert and general advisor to Fisheries Division for inland treaty court case and other fisheries issues.

Summary: I guided the design and implementation of two statewide fisheries programs: 1) fishery assessment of large, inland lakes (Study 725); and 2) surveys of recreational fishery harvest and effort (Studies 427 and 646). I helped coordinate these two programs with a third statewide program: biological status and trends of inland lakes (Study 712). I was senior author on a major report on the fishery of Houghton Lake. In collaboration with Kevin Wehrly, I helped design, implement, and manage graduate student research into the feasibility of using hydroacoustics gear for fish community inventories in Michigan lakes. I continued to lead Fisheries Division's efforts in cooperative fisheries management with Indian communities in territory ceded in the Treaty of La Pointe in 1842. I served on interview panels for two key Fisheries Division research positions. This will be the final report for this study as it will be transferred to other non-federal funding sources next year.

Findings: Progress for all jobs is reported below.

Job 1. Title: Lead the writing, reviewing, and editing of a research report (white paper) describing the status of fisheries and fisheries management in Michigan, with emphasis on 1836 Treaty-ceded territory.–The federal court case addressing Indian treaty hunting and fishing rights for inland areas was delayed, so the ambitious schedule originally defined for completion of white papers was revised. No work was done on white papers this year. Work on this job will be rescheduled for next year.

Job 2. Title: Lead efforts to develop safe-harvest models, databases, and computer systems for 1836 inland treaty case, other tribal fishing issues, and statewide fisheries management.– Federal Aid Study 691, *Methods for determining safe harvest levels for fish stocks in inland lakes of Northern Michigan,* was designed in 2000 as a pilot study to examine existing methods for calculating safe harvest for fish stocks in inland lakes. We determined that fisheries data were lacking on larger lakes, so we developed a plan to conduct a series of creel surveys and population estimates for select fishes in large lakes. The plan also includes using the population

estimates for walleye to test the lake-size versus walleye abundance regression model used in Wisconsin's 1837 treaty-ceded territory. Future work on large inland lakes was defined and transferred to a new Federal Aid Study (725) to be led by Patrick Hanchin.

Job 3. Title: Assist Fisheries Division with the design of a statewide fishery resource inventory program and creel survey program.–I helped design, evaluate, coordinate, and manage work on two major statewide programs: 1) fishery assessment of large, inland lakes (Study 725); and 2) surveys of recreational fishery harvest and effort (Studies 427 and 646). I helped ensure smooth transition of these programs after retirement of key staff members by serving as advisor to new employees responsible for managing them. I helped coordinate these two statewide programs with a third statewide program – biological status and trends of inland lakes (Study 712). Several meetings were held during the year to help coordinate the 3 programs.

I guided the implementation of the 2002 Angler Survey Task Group's recommended design for a statewide angler (creel) survey based on clerk territories. I led the review of the proposed plan by Management and Basin teams, revised the plan as recommended, and obtained final approval of plan from Management Team. In an effort to help manage the program, I drafted guidelines to help define procedures for selecting lakes and streams to be surveyed (see **Addendum**).

I continued to lead the design and implementation of the statewide program to assess fish communities and fisheries in Michigan's large inland lakes. I was senior author on a special report on Houghton Lake:

> Clark, R. D., Jr., P. A. Hanchin, and R. N. Lockwood. In press. The fish community and fishery of Houghton Lake, Roscommon County, Michigan with emphasis on walleye and northern pike. Michigan Department of Natural Resources, Fisheries Division Special Report, Ann Arbor.

This report took the majority of my time this year. It was an important document, because it will be the model for future lake reports produced by the large lake program.

In collaboration with Kevin Wehrly, I helped design, implement, and manage research into the feasibility of using hydroacoustics gear for fish community inventories in Michigan lakes. A University of Michigan graduate student, Dan Wyns, conducted field work under our supervision on Crystal Lake, Benzie County, in summer of 2003. Results of this study will help determine if hydroacoustics gears should be a regular part of statewide fisheries inventory programs.

Job 4. Title: Serve as fisheries research and management expert and general advisor to Fisheries Division for inland treaty court case and other fisheries issues.–I continued to lead Fisheries Division's efforts in cooperative management of inland fisheries with Indian communities in territories ceded under the Treaty of La Pointe in 1842. I organized and led a meeting between a contingent of biologists from Great Lakes Indian Fish and Wildlife Commission, Keweenaw Bay Indian Community, and MDNR Fisheries Division in March 2003. The biologists agreed on future procedures for defining total annual safe harvest of walleye and guidelines for sharing that harvest between parties. The biologists calculated harvest guidelines for tribal spearing of walleye in Michigan lakes in spring of 2003 and submitted them to policy makers. The biologists shared data, fisheries management information, and fisheries management concerns. The meeting was considered successful, and the parties agreed to hold similar biologist meetings on an annual basis. I am preparing to turn over most of my responsibilities for 1842 Treaty matters to an internal Fisheries Division biologist, Ed Baker.

I served on interview panels for two key Fisheries Division research positions: Statewide Research Program Manager and Research Station Manager for the Institute for Fisheries Research.

Job 5. Title: Write a performance report annually and a final report upon completion of study.–I completed this report, which will serve as the Study Final Report with respect to Federal Aid to Fish Restoration. This study will be transferred to other funding sources beginning October 1, 2003.

Prepared by: Richard D. Clark, Jr.
Date: September 30, 2003

Statewide Angler Survey:
Guide to Selecting Lakes and Streams to be Surveyed

Procedures Recommended by Fisheries Division Task Group
(S. Thayer, D. Wesander, Z. Su, A. Sutton, R. Clark, R. Lockwood)

September 18, 2003

Fisheries Division adopted a territorial design for the statewide angler survey program (creel survey program). It will be in full operation starting with the 2005 survey year. It utilizes two types of clerks, ***Consent Decree Clerks*** and ***Territory Clerks***. Waters surveyed by ***Consent Decree Clerks*** are defined by a negotiated agreement between the State of Michigan, the United States of America, and five Michigan-based Chippewa Indian Tribes (Enslen 2000). These clerks survey the same Great Lakes waters every year and can only be moved by mutual agreement between parties involved. However, the specific lakes and streams surveyed by ***Territory Clerks*** can be changed every year. The purpose of this guide is to recommend procedures for selecting lakes and streams to be surveyed by ***Territory Clerks***.

There are 28.5 ***Territory Clerks*** (Grand Marais-Alger-Luce clerk is 50% ***Territory*** and 50% ***Consent Decree***). Their locations and territories are illustrated in Figure 1, in relation to Fisheries Management Units, and Figure 2, in relation to important Indian-ceded territories.

The following steps should be used to select lakes and streams to be surveyed by ***Territory Clerks***:

Step 1 – Basin Teams make initial proposals.

Basin Teams are responsible for assigning lakes and streams to clerks as listed in Table 1. Teams must consult to assign waters to the "Multiple-Basin Clerks" (Table 1). The planning year for surveys is from April 1 through March 31, the same as the fishing license year.

As soon as possible, Basin Teams should propose which bodies of water to survey in each of their clerk territories for the next 5 years (from 2005 through 2009). They should consider the following needs in order of priority:

1. 1836 or 1842 Treaty requirements;
2. Tie – Evaluation of high-cost inland stocking sites and general Great Lakes management needs;
3. Statewide resource inventory program needs;
4. Local management needs.

Clearly, a number of these needs can be satisfied simultaneously with some selections.

Step 2 – Technical Committee reviews selections.

Basin Team's initial proposals are submitted to a ***Statewide Angler Survey Technical Committee*** for review (see below for committee description). This Committee combines the proposals from the 4 Basin Teams into a statewide proposal and determines if the selections are feasible considering statistical designs and known financial resources. For example, if there were too many large inland lakes proposed in a given year, there might not be enough money for airplane counts. In addition, this Committee makes sure the selections satisfy statewide needs as directed by the Management Team. These would include the needs listed above in **Step 1**.

The Technical Committee either suggests specific changes to, or accepts Basin Team proposal as submitted.

Step 3 – Final Solution is created.

If Basin Team's initial proposal is feasible and acceptable from a statewide perspective, then it becomes the Final Solution for that 5-year period.

If changes to a Basin Team's initial proposal are recommended by the Technical Committee, then the Team and Committee resolve differences and agree on a Final Solution for that 5-year period.

Step 4 – Year 1 of Final Solution is implemented.

Everyone involved in implementing the survey is given a copy of the Final Solution prior to budget planning for the first fiscal year involved in the 5-year plan (about February 1, 2004 for fiscal and survey planning years of 2005). Statistical designs for the individual lakes and streams to be surveyed in the first survey planning year are developed from February 1 to November 30 of the year prior to the survey planning year (e.g. February 1, 2004 to November 30, 2004 for surveys to be conducted April 1, 2005 through March 31, 2006).

Step 5 – Years 2-5 of current Final Solution become years 1-4 of next Final Solution.

Bodies of water to be surveyed in years 2-5 of a current Final Solution automatically move up to years 1-4 in the next Final Solution. Basin Teams and Technical Committee should meet every year to reaffirm or revise those selections and to make new selections for year 5 of the next Final Solution. This cycle continues *ad infinitum*.

To get the process started, the Fisheries Division Management Team should establish a ***Statewide Angler Survey Technical Committee***. This committee should include:

a. biologists and technicians responsible for implementing the statewide angler survey (currently – Sarah Thayer, Donna Wesander, Zhenming Su, and Al Sutton).
b. survey consultants (currently – Rick Clark and Roger Lockwood). Consultants would continue as long as needed, but would eventually be phased out.
c. biologists with responsibilities for priority, statewide issues that rely on results of angler survey (currently at least: Jan Fenske, tribal fishing issues; Kevin Wehrly, statewide status and trends issues; others?)

The purpose of this committee would be to review the list of lakes and streams assigned to ***Territory Clerks*** by Basin Teams. They should ensure the selections are technical feasible from the standpoint of

statistical design criteria and financial resources. They should help with long-term planning and coordination of angler surveys with other statewide programs and ensure proper priorities are followed in the selections.

References

Enslen, R. A. 2000. Stipulation for entry of consent decree. United States of America, et al., Plaintiff, v. State of Michigan, et al., Defendants. Case No. 2:73 CV 26. United States District Court, Western Michigan, Southern Division. 72 p.

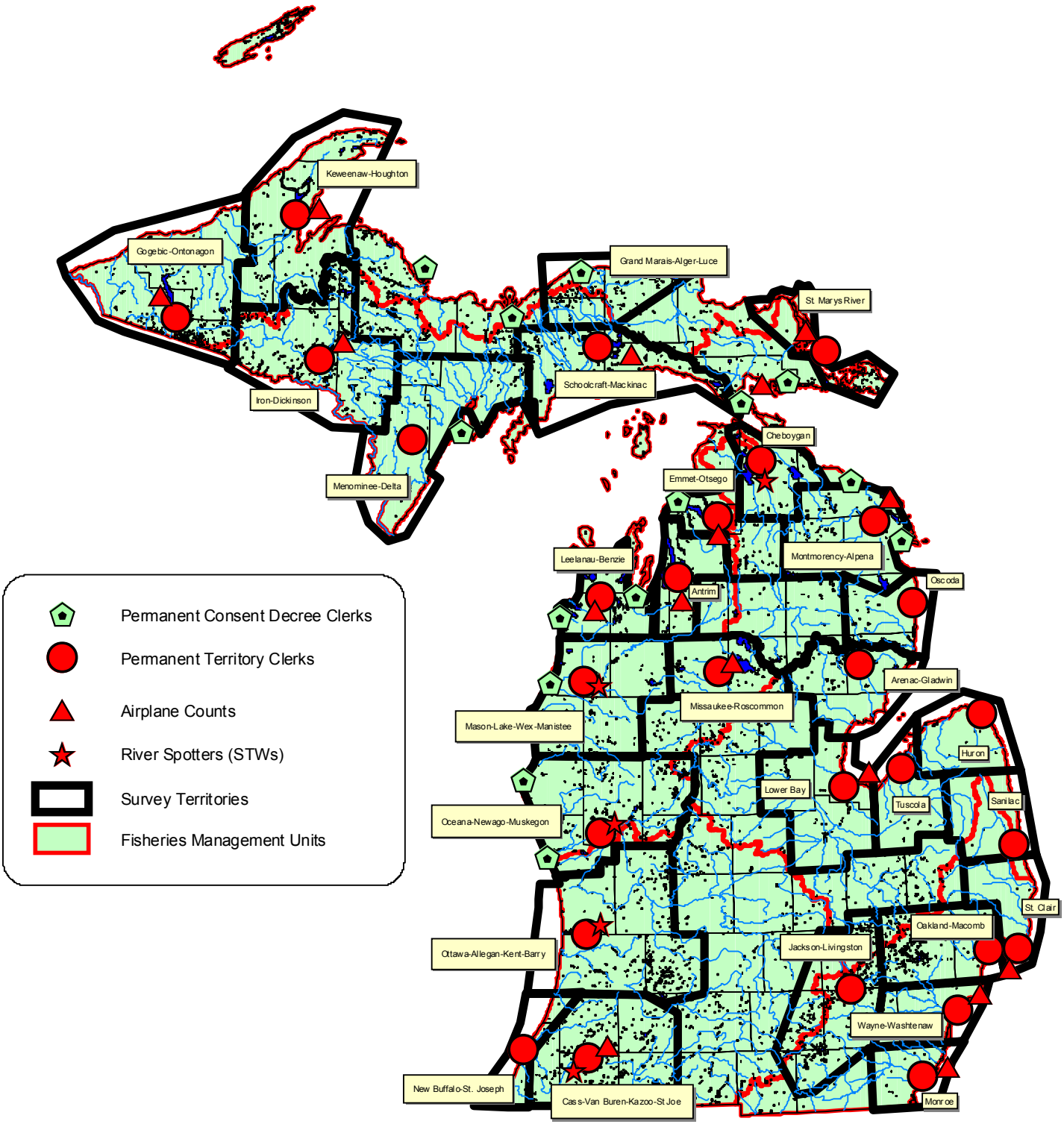

Figure 1. - Territory Boundaries for Angler Survey in relation to Fisheries Management Unit boundaries.

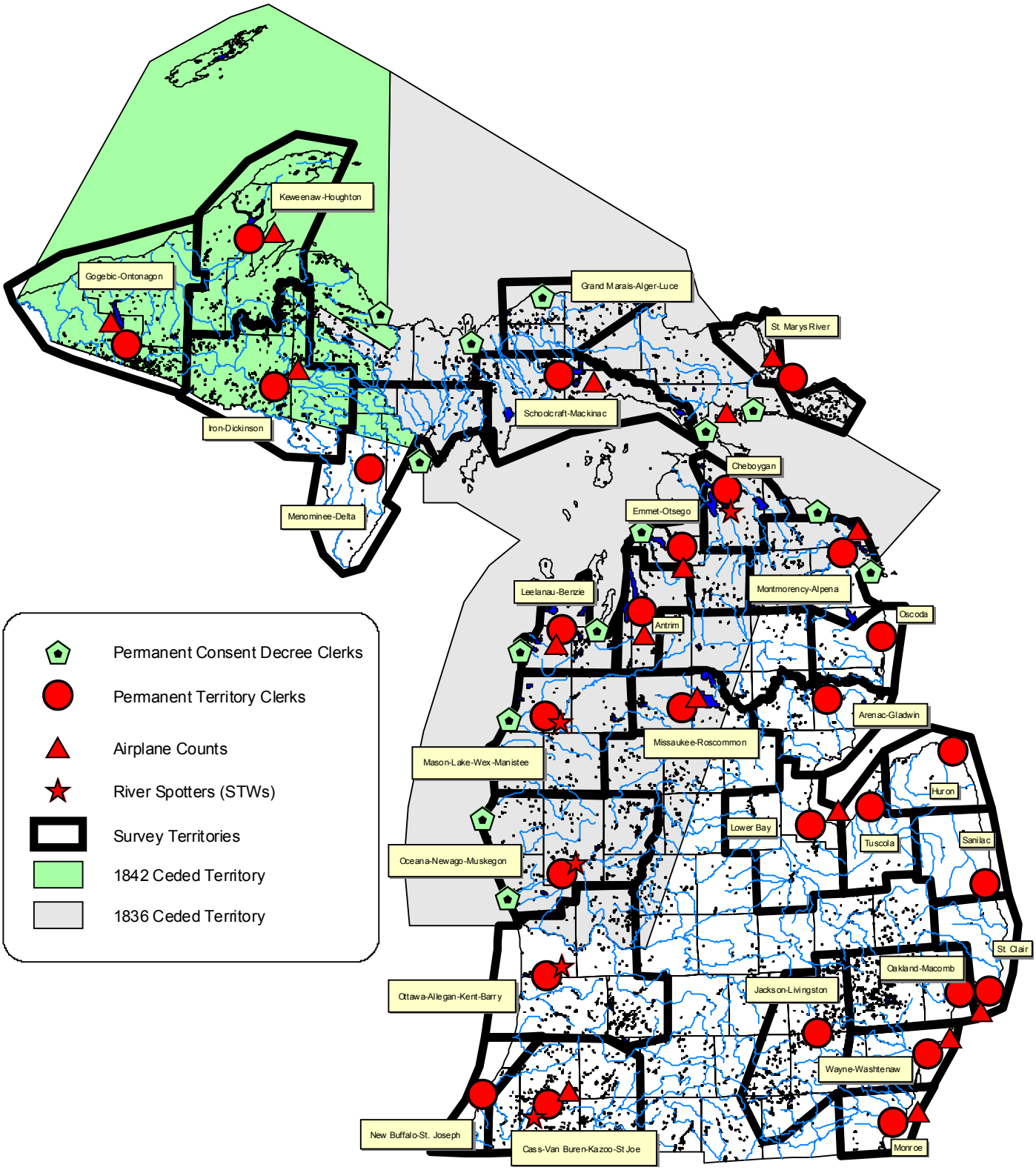

Figure 2. - Territory Boundaries for Angler Survey in relation to treaty ceded territories.

Table 1.–Survey Clerk responsibilities for each Basin Team.

Basin Team Responsible	Clerk Territory
Lake Erie	St. Clair
	Oakland-Macomb
	Wayne-Washtenaw
	Monroe
Lake Huron	Montmorency-Alpena
	Oscoda
	Arenac-Gladwin
	Lower Bay
	Tuscola
	Huron
	Sanilac
Lake Michigan	Iron-Dickinson
	Menominee-Delta
	Schoolcraft-Mackinac
	Antrim
	Leelanau-Benzie
	Missaukee-Roscommon
	Mason-Lake-Wex-Manistee
	Oceana-Newaygo-Muskegon
	Ottawa-Allegan-Kent-Barry
	New Buffalo-St. Joseph
	Cass-Van Buren-Kazoo-St Joe
Lake Superior	Gogebic-Ontonagon
	Keweenaw-Houghton
	Grand Marais-Alger-Luce (50%)[1]
Multiple-Basin Clerks	
Lake Superior & Lake Huron	St. Marys River
Lake Huron & Lake Michigan	Cheboygan
	Emmet-Otsego
Lake Erie & Lake Michigan	Jackson-Livingston

[1] Clerk spends 50% of time as Consent Decree Clerk.