



NORTH CENTRAL DIVISION OF THE AMERICAN FISHERIES
SOCIETY



Walleye Technical Committee

Chair: Dale Logsdon
Chair Elect 2018: Mark Ermer
Past Chair: Jeff Koch
Secretary: Hilary Meyer
Thursday July 26th, 2018
Lakeside Lab, Milford, Iowa

- Meeting was called to order at 8:30 am by Chair Elect Mark Ermer
- The joint technical committees discussed meeting location for the 2019 meeting
- Mark Ermer said he's willing to plan the meeting in eastern South Dakota in 2019, but is also willing to consider other ideas. Anywhere from Yankton to Webster is an option on the eastern side of South Dakota
- Jason DeBoer asked if Patrick Hanchin would still be interested in hosting the meeting, since he proposed hosting it the previous year
- Keith Koupal mentioned that we ask folks on the eastern side of the Midwest so that people can travel that might not be able to make it this far west
- Steve Gilbert mentioned doing the meeting in 2020 at the Kemp Field Station
- Mark Ermer will get ahold of Patrick to find out if he's interested in hosting, and figure out travel logistics

The ETC and The CTC groups broke off from the WTC at 8:37 am

- Meeting minutes from the past meeting will be approved at the winter meeting or through e-mail
- Hilary Meyer discussed the meeting registration totals. We had 59 attendees and brought in \$3980 in registration fees. Still waiting on catering bill to figure out what our final costs are. Will update this as soon as the bills are all submitted.
- Mark Ermer discussed future symposium. There was the thought that the Ohio Midwest would be harder to get everyone to for a walleye symposium. The thought is to wait until Minnesota or Illinois.
- Steve Gilbert thought it was a good idea to wait until 2021 in Minnesota because that meeting should be relatively well attended
- Mark Ermer said that Dale was willing to put something together for the MN meeting.
- Mark brought up the chair elect. Hadley nominated Lawrence Eslinger and Lawrence accepted the nomination.
- Hilary will send out an email to the members to see if there is any interest from other folks.

New Business

- Dan Isermann mentioned the AFS journals discussion that we started in Nebraska. The AFS journals are changing, slowly. There is a new editor in chief for North American Journal of Fisheries Management. They are starting to accept more small scale, but well researched journal articles. Transactions is upping their rejection rates, to increase their impact factor.
- AFS is trying to start a grey literature service for state reports that aren't quite publication worthy
- Todd Caspers gave an update on ND walleyes. Walleye populations in the state are doing very well.
- Steve Gilbert (Wisconsin)-Lots of new hiring recently, 10 techs and 6 biologists. They are finally fully staffed.

- Three vacancies for fish techs. Look for announcements at: Wisc.jobs, they're currently recruiting. Good news now that re-alignment is completed within the DNR.
- Bill McKibbin- (Minnesota)
 - o Mille Lacs population estimate was conducted this year
 - o External push to reduce bag limits in the state, so they are moving forward on that (from 6 to 4 fish)
 - o Statewide angler survey results should be coming back
 - o Evaluated large fingerling evaluations stocked in MN Lakes. Basically found that increased stockings were not really doing much for helping recruitment
 - o Mille Lacs has had 6 population estimates over the past 12 years. Marc Bacigalupi was guessing that the population estimates of spawning adults was 500,000-800,000 (but closer to 500,000). Most of the biomass has been coming from the 2013 year class. Policy is to protect the 2013 year class until they have another good year class
- Ben Parnell (Missouri)- winter lasted through mid April and affected hatchery production.
- Andy Jansen (Iowa)- Rebecca Krogman is looking at a stocking evaluation between fry and fall fingerling stockings. Looking at cost effectiveness as well. River strain stocking evaluation, need to figure out if they can intensively rear them in their hatchery.
 - o Lost of work through Iowa State looking at hauling practices, also some bass mortality
 - o See submitted report below for more information on walleye related projects in Iowa.
- Joe Rydell (Nebraska)-provided some extra eggs to Colorado and Kansas from their annual egg take. Most reservoirs are dependent on stocking programs. Working on stocking more advanced fish in some of the southern reservoirs.
- Bill McKibbin mentioned that we should think about a yellow perch symposium at the Midwest meeting in addition to a walleye symposium.
- Hilary Meyer encouraged people to recruit folks working on yellow perch to join in with the walleye technical committee.
- Joe Rydell- Nebraska has a grant program through the state to start working on the sandhill lakes for lake renovations. Could be some new presentations and work coming up that would be of interest to this group.
- Mark Ermer adjourned the meeting at 9:22am

STUDY 7041

An Evaluation of Walleye Stocking Strategies in Tributary Reservoirs

OBJECTIVE

By 2019, evaluate stocking contribution and cost effectiveness of two Walleye stocking strategies for tributary reservoirs and identify management techniques that will increase Walleye density to management goals in selected Iowa reservoirs.

APPROACH 1

Evaluate contribution of stocked Walleye to selected Iowa reservoirs.

OBJECTIVE

To evaluate recruitment to age-0 and age-1 from two reservoir Walleye stocking strategies (i.e., fry and freeze branded 8-in. fingerlings stocked in the main basin) and create an index to evaluate fry recruitment prior to 8-in. fingerling stocking.

APPROACH 2

Assessment of cost effectiveness of a reservoir Walleye stocking program.

OBJECTIVE

To determine the cost/benefit ratios of two reservoir Walleye stocking strategies (i.e., fry and freeze branded 8-in fingerlings stocked in the main basin).

APPROACH 4

Develop management guidelines for reservoir walleye stockings in Iowa.

OBJECTIVE

To prepare a completion report with recommendations for walleye stocking in reservoirs.

STUDY 7041 ANNUAL REPORT

Approach 1: Evaluate contribution of stocked Walleye to a reservoir fishery

Walleye were stocked at two sizes (fry and advanced fingerling) during FY2018 in order to evaluate which size-at-stocking yields more fish. Fry stocking entails early summer stocking of millions of fish, but with high mortality; advanced fingerling stocking entails fall stocking of tens of thousands of fish, with lower mortality. Differential mortality rates, especially over the first winter, can result in variable effectiveness of each stocking strategy. The objective of this approach was to evaluate which size was most effective in contributing to the Walleye stock in several fisheries across the state.

During FY2018, the stocking evaluation comparing Walleye *Sander vitreus* size at stocking continued at several locations across the state. A total of 10.7 million Walleye fry and 34,988 8-inch advanced fingerlings were stocked into 6 study lakes as part of this evaluation (Table 1). Notably, the advanced fingerling stocking was canceled at Lake Icaria using data from this study as a guide; initial nighttime electrofishing catch rates of fry-stocked Walleye were high, indicating fry stocking success and a lack of need for additional fish. Advanced fingerlings harvested from two ponds at Rathbun Fish Hatchery ranged in relative weight from 71.9-111.2 (mean 93.3) and in total length from 190-262 mm (average 228 mm). Fingerling marking (i.e., removing left pectoral fin) was used to differentiate fingerling-stocked fish from fry-stocked fish.

Nighttime electrofishing was conducted immediately prior to and following advanced fingerling stocking in the fall, as well as the following spring (

Table 2). The number of shoreline transects (sites) differed between lakes based on surface area. Each transect was sampled for 900 seconds pedal time driving at approximately 5 kph (i.e., walking speed). Walleye were successfully captured at all study locations both pre- and post-stocking in fall 2017 (note; Icaria was not sampled a second time). During FY2016, several analyses were based on the assumption that unmarked fish measuring less than 300 mm were Age-0 (in the fall) or Age-1 (in the spring). Ongoing age estimation of spring- and fall-sampled fish less than 300 mm indicates this assumption was not accurate (Figure 1). Furthermore, growth differed by location, making assumptions about fish age without structure examination unreliable. Finally, literature review revealed that Walleye recruitment to stock is more typically evaluated when fish reach sexual maturity rather than survival to the first fall or to

Age 1. For instance, adult Walleye abundance patterns in Wisconsin were determined based on fish exceeding 15 inches (Beard et al. 1997; Nate et al. 2000); in Iowa this length may be achieved as early as Age 2 but more likely Age 3 based on age estimates from Big Creek Lake. This requires final evaluation of each study lake's Walleye population to be delayed at least 2 years to obtain more accurate results. When the youngest stocked year-class reaches Age 2, spring electrofishing will be used to capture all adult Walleye at study sites for evaluation of stocking origin and age.

Literature cited

Beard, T. D., Jr., S. W. Hewett, Q. Yang, R. M. King, and S. J. Gilbert. 1997. Prediction of angler catch rates based on walleye population density. North American Journal of Fisheries Management 17:621-627.
 Nate, N. A., M. A. Bozek, M. J. Hansen, and S. W. Hewett. 2000. Variation in walleye abundance with lake size and recruitment source. North American Journal of Fisheries Management 20:119-126.

Table 1. Locations where Walleye fry and advanced fingerlings were stocked for Study 7041 during 2017.

Lake	Surface area (ac)	#	Fry			#	Advanced fingerling		Date
			Density (#/ac)	Mark	Date		Density (#/ac)	Mark	
Lake Icaria	647.8	2,000,000	3,087	N one	4/2 4/17	0	0	-	-
Rearing Pond East		100,000		C TC	4/2 8/17				
Rearing Pond West		200,000		C TC	4/2 8/17				
Lake Macbride	889	2,820,000	3,172	N one	4/2 7/17	9,445	10.6	Left pectoral clip	10/2 3/17-10/25/17
Little River Lake	743	2,200,000	2,961	N one	4/2 7/17	7,813	10.5	Left pectoral clip	10/2 3/17-10/25/17
Rearing Pond		150,000		C TC	4/2 8/17				
Pleasant Creek Lake	401.1	1,230,000	3,067	N one	4/2 5/17	4,103	10.2	Left pectoral clip	10/2 4/17 and 10/25/17
Twelve Mile Lake	594.7	2,000,000	3,363	N one	4/2 7/17	6,807	11.4	Left pectoral clip	10/2 3/17-10/25/17
Lake Manawa	746.8	2,333,870	3,125	N one	4/2 6/17	7,862	10.5	Left pectoral clip	10/2 3/17 and 10/24/17
TOTAL		13,338,870				43,577			

Table 2. Number of sites (i.e., shoreline transects) sampled for Walleye using nighttime electrofishing during fall 2017 and spring 2018.

Lake	Surface area (ha)	# of Sites	Sampling Dates		
			Fall pre-stock	Fall post-stock	Spring 2018
Lake Icaria	647.8	6	10/2/17, 10/9/17, 10/12/17 and 10/16/17	-	5/15/18
Lake Macbride	889	8	10/16/17	11/2/17	4/24/18
Little River Lake	743	7	10/13/17 and 10/19/17	11/1/17	5/16/18
Pleasant Creek Lake	401.1	5	10/17/17	11/1/17	4/23/18
Twelve Mile Lake	594.7	6	10/12/17 and 10/18/17 and 10/19/17	11/3/17	5/11/18
Lake Manawa	746.8	8	10/12/17	10/30/17	5/9/18

* Two sites not sampled during Spring 2018 due to time/staff limitations.

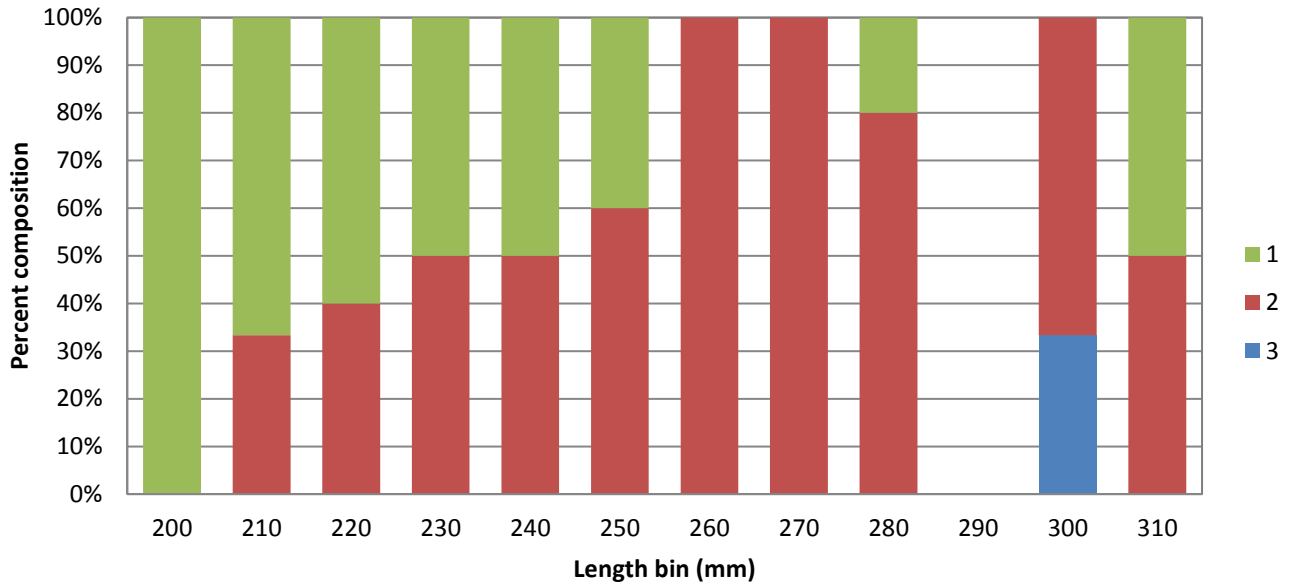


Figure 1. Age of unmarked Walleye fry between 200 and 310 mm total length, sampled from Lake Icaria during 2017 with nighttime electrofishing.

Study Recommendations: This study should be revised by extending the end date to June 30, 2021, to allow for accurate evaluation of Walleye recruitment to adult size (at least Age 2).

STUDY 7041 ANNUAL REPORT

Approach 2: Assessment of cost effectiveness of a reservoir Walleye stocking program

Stocking provides recreational fishing opportunities for species that may not be available to anglers otherwise; in Iowa most Walleye fishing opportunities are provided through hatchery production and stocking. The cost effectiveness of every stocking program depends on two major factors: the survival of stocked fish and the initial cost of hatchery production. The survival of stocked fish was immediately assessed based on survival to the first fall in order to establish immediate comparisons between fry and advanced fingerlings, then again following the first winter, as part of the first approach. Hatchery production costs can then be applied to obtain a cost per fish by stocking strategy, with the objective of identifying the most cost effective strategy for future stocking efforts.

Before and after advanced fingerling stocking in October, Walleye were sampled via nighttime electrofishing at each study lake. The ratio of unmarked to marked fish was then used to estimate number of recruits from fry stocking relative to the known number of advanced fingerlings stocked. This approach assumes that survival in the fall constitutes recruitment; however, longer-term recruitment would be more accurate and will be assessed in the future. At least one more year of data collection is needed to accurately calculate cost effectiveness of fry versus fingerlings based on the study lakes examined. Results from fry-stocked Walleye sampling indicated that Lake Icaria did not require an advanced fingerling stocking; due to fish shortages, the advanced fingerling Walleye stocking allocation

was subsequently cut (Figure 2). Continuing analysis of fall and spring ratios between fry-stocked and fingerling-stocked fish indicate that some study lakes consistently have fry success over time (e.g., Lake Icaria) whereas other study lakes consistently have fingerling success (e.g., Lake Manawa; Figure 3).

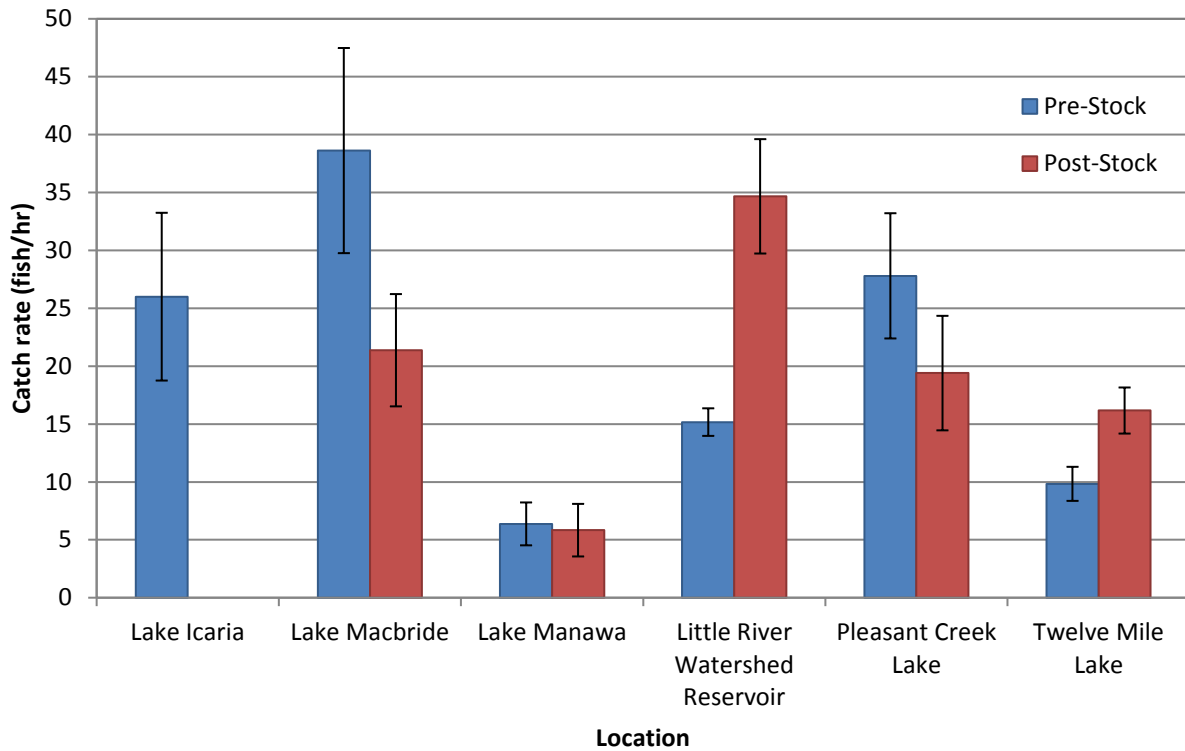


Figure 2. Catch rate pre- and post-stocking of advanced fingerling Walleye in fall 2017, at six stocked locations across Iowa. Standard error bars are shown.

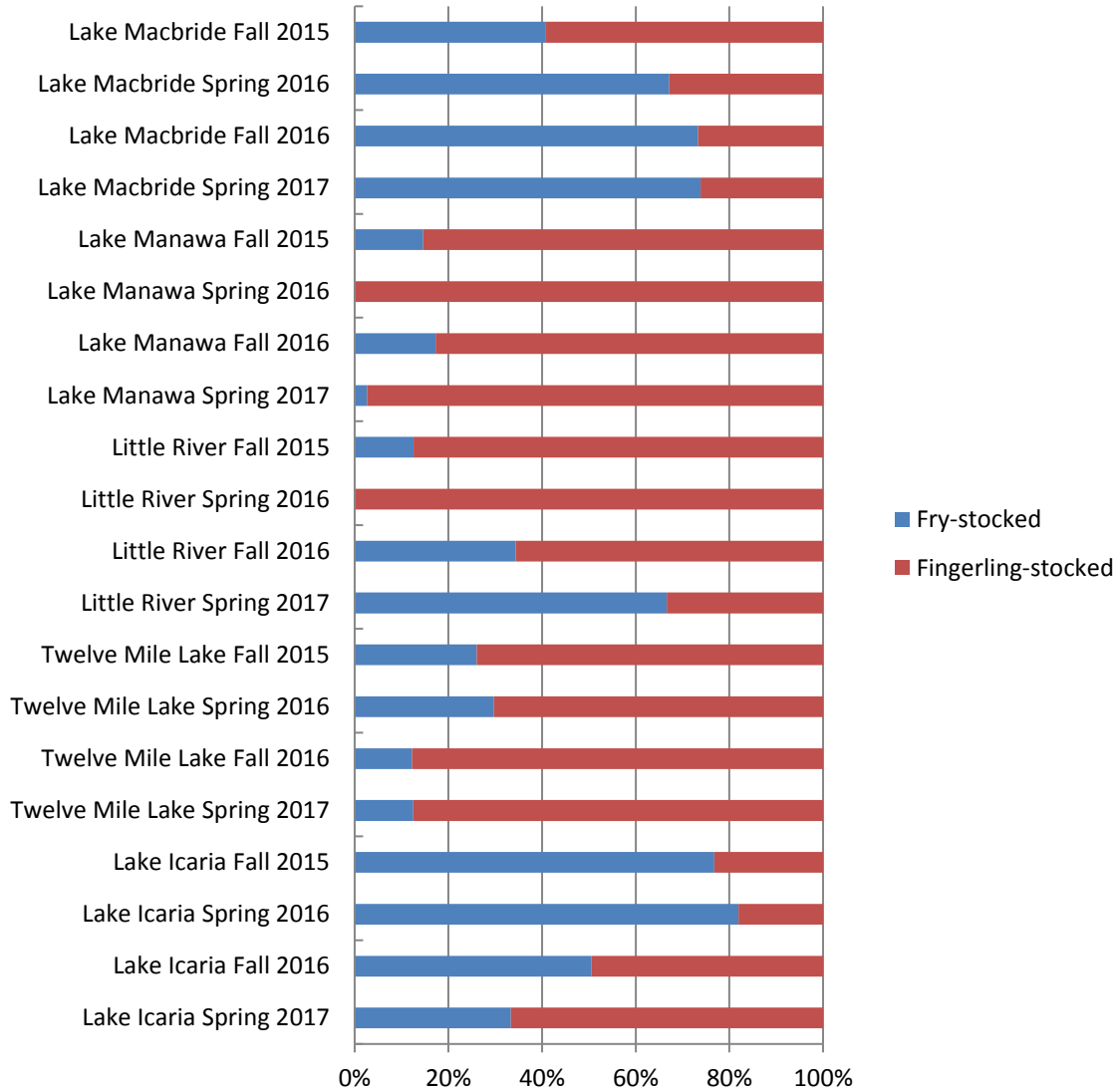


Figure 3. Proportion of catch of Walleye <300 mm captured in fall (after fingerling stocking) and the following spring 2015-2017, indicating potentially disproportionate overwintering mortality by lake.

Study Recommendations: This study should be revised by extending the end date to June 30, 2021, to allow for accurate evaluation of Walleye recruitment to adult size. Hatchery costs will continue to be collected to calculate the cost per fish accurately each year through 2019.

STUDY 7041 ANNUAL REPORT

Approach 4: Develop management guidelines for reservoir walleye stockings in Iowa.

The summarization of findings in this study is essential for communicating information to management biologists for application. The objective of this approach is to formally develop management guidelines for reservoir walleye stocking. Although data collection is ongoing for the majority of study locations, final data are available for Big Creek Lake (Polk County). Data analysis and summarization for Big Creek Lake was initiated during FY2018 in the form of a manuscript entitled "Effects of intensive fry and advanced fingerling Walleye stocking, and subsequent Gizzard Shad invasion in a central Iowa impoundment." This manuscript is currently being drafted for submission to the peer-reviewed North American Journal of Fisheries Management. Findings from the manuscript will be provided as part of the completion report.

Study Recommendations: This study should be revised by extending the end date to June 30, 2021, to allow for accurate evaluation of Walleye recruitment to adult size. This approach specifically will be completed at the end of the study, summarizing all findings through 2021.

1) Evaluation of Interior River Fingerling Walleye Stocking Strategies

Contact: Greg Gelwicks, (563) 927-3276, gregory.gelwicks@dnr.iowa.gov

Walleye fingerling stocking has greatly increased Iowa's interior river walleye populations over the last 20 years. This has resulted in an increasingly popular fishery that has brought walleye fishing opportunities close to home for many Iowa anglers. The success of this program has also increased demand for two inch long, Mississippi River strain walleye fingerlings. Limited hatchery capacity has made it difficult to consistently produce enough fingerlings of the size and genetic strain requested for the program. Providing information needed to more efficiently utilize our limited hatchery production capacity and exploring the potential of alternative fish culture systems in meeting the demands of the river walleye program is the focus of this study.

Available pond culture space has been a limiting factor for producing Mississippi River strain fingerling walleye to stock in interior rivers. Recent research at the Rathbun Fish Culture Research Facility has shown promising results raising walleye fingerlings using an alternative method, intensive fry culture. Intensively reared walleye fry are stocked into recirculating tanks and trained on formulated feed from day 1 post-hatch, instead of stocking them into ponds where they feed on zooplankton (extensive culture). Evaluating the relative contribution of intensively reared fingerlings to interior river walleye fisheries will determine whether this production method could help further improve river walleye fisheries.

Study sites were selected on four Iowa rivers to evaluate the relative contribution of intensively reared walleye fingerlings to interior river Walleye populations. Extensively reared fingerlings were marked, hauled, and stocked alongside intensively reared fingerlings to serve as a control. Walleye fingerlings produced by this culture method are known to survive and contribute to river walleye fisheries if river conditions are favorable. Intensively cultured walleye fingerlings were marked with a circle freeze brand and extensively cultured fish were marked with a bar brand. Between 44,000 and 57,500 marked intensively and extensively cultured walleye fingerlings were stocked annually in the Wapsipinicon, Maquoketa, and Cedar rivers during June 2015-2017, and in the Shell Rock River in June 2016. Study sites were sampled in late-September and October each year to determine survival and growth of walleye fingerlings. Preliminary results indicate that intensively reared fingerlings contribute to interior river walleye populations at a lower rate than extensively reared fingerlings. Intensively reared fingerlings have accounted for 20% or less of branded young-of-year fish sampled during fall at most sites during most years. River conditions were not conducive to survival of walleye fingerlings raised by either culture method in some rivers each year. We will continue to mark and stock walleye fingerlings raised by each culture method and monitor their survival and growth. The resulting information will guide production and stocking decisions for walleye fingerlings that will provide the greatest benefits for sustaining and improving walleye fisheries in Iowa rivers.