



Assessing Potential Effects of Walleye Fishing Tournaments on Introducing Invasive Earthworms to Minnesota's Laurentian Forest

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Purpose

- To compare the potential influence of walleye tournaments vs. the general angler population on spread of invasive earthworms.

Main Goals

- Introduce the invasive earthworm problem
- The reason for targeting walleye tournaments
- Compare walleye tournaments and the general angler
- Director Suggestions

Invasive Earthworms

- Earthworms increase the density of soil, creating black “top soil”.
- Multiple species leads to more impact to the region
- Native plants struggle with the altered soil.
- No Regulations
- Gardens and Agriculture?



Non-impacted soil



Impacted soil

Human-Mediated Spread

- Fishing Bait
 - General Anglers
- Spread Rate
 - Human Contribution
- Concentration
 - Boat Landings
 - Lakeshores
 - Roads



Regional Impact and Tournament Fishing

Laurentian Forest



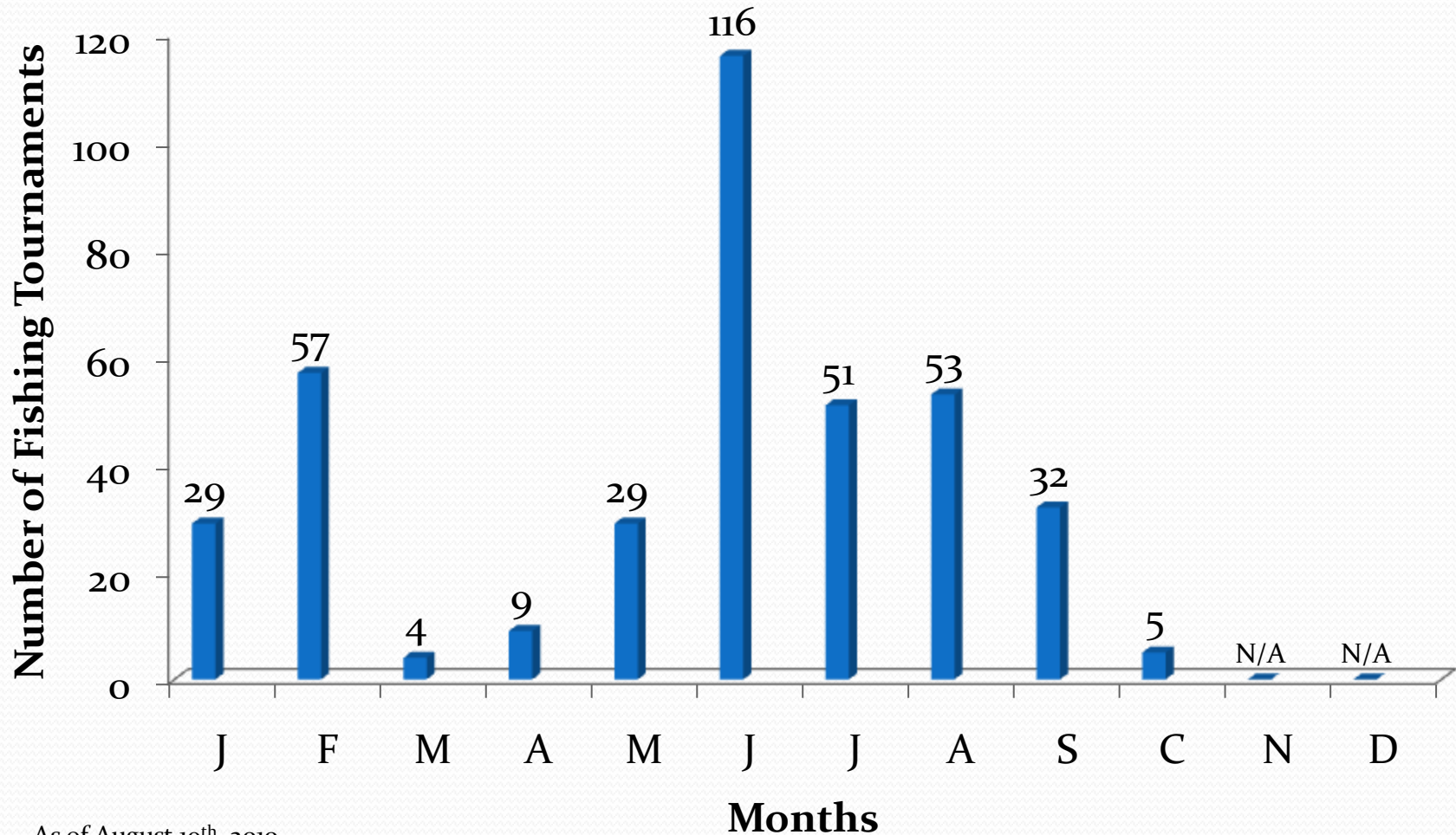
<http://www.dnr.state.mn.us/index.html>



map.lib.umn.edu

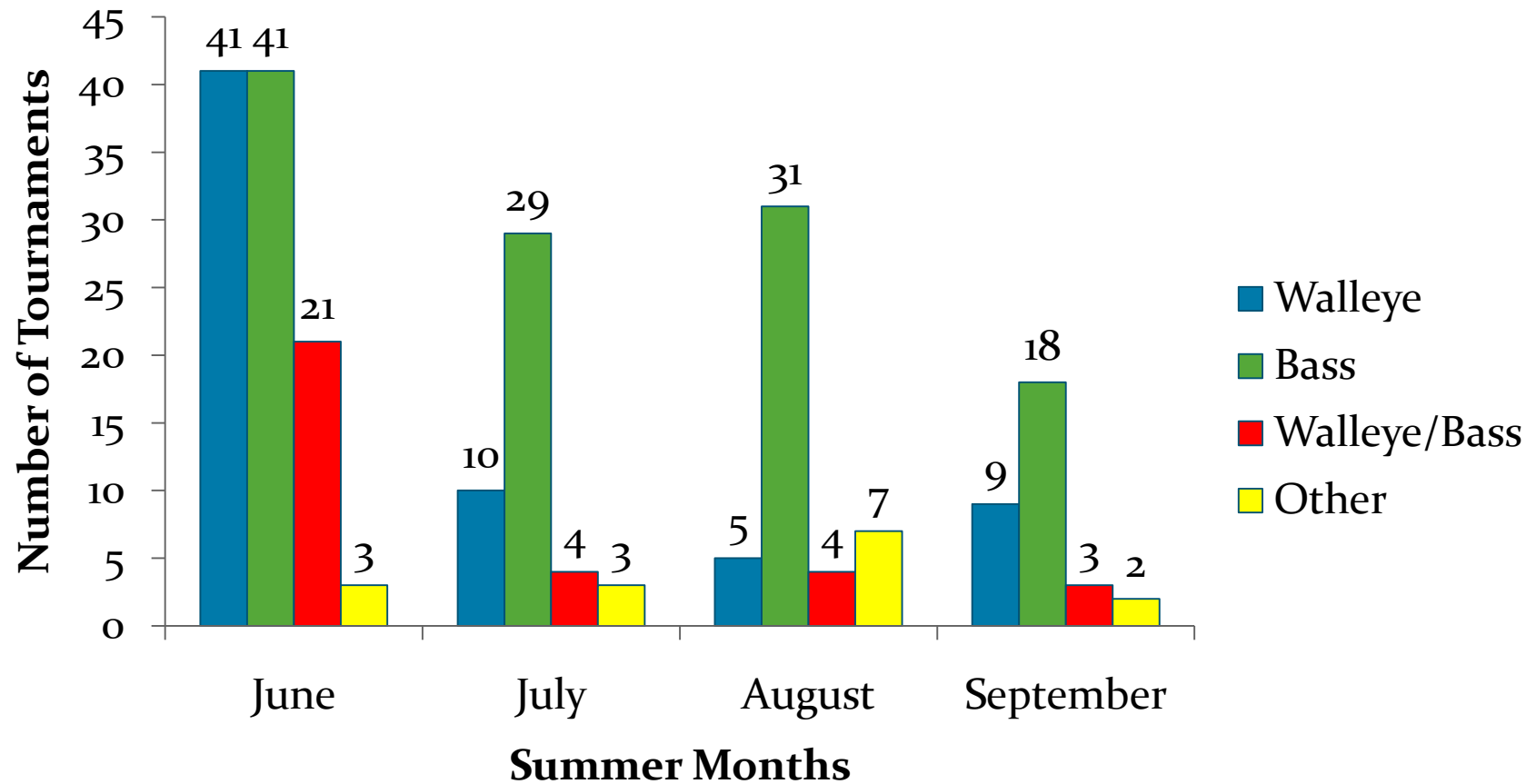
 Duluth

Tournaments in Minnesota

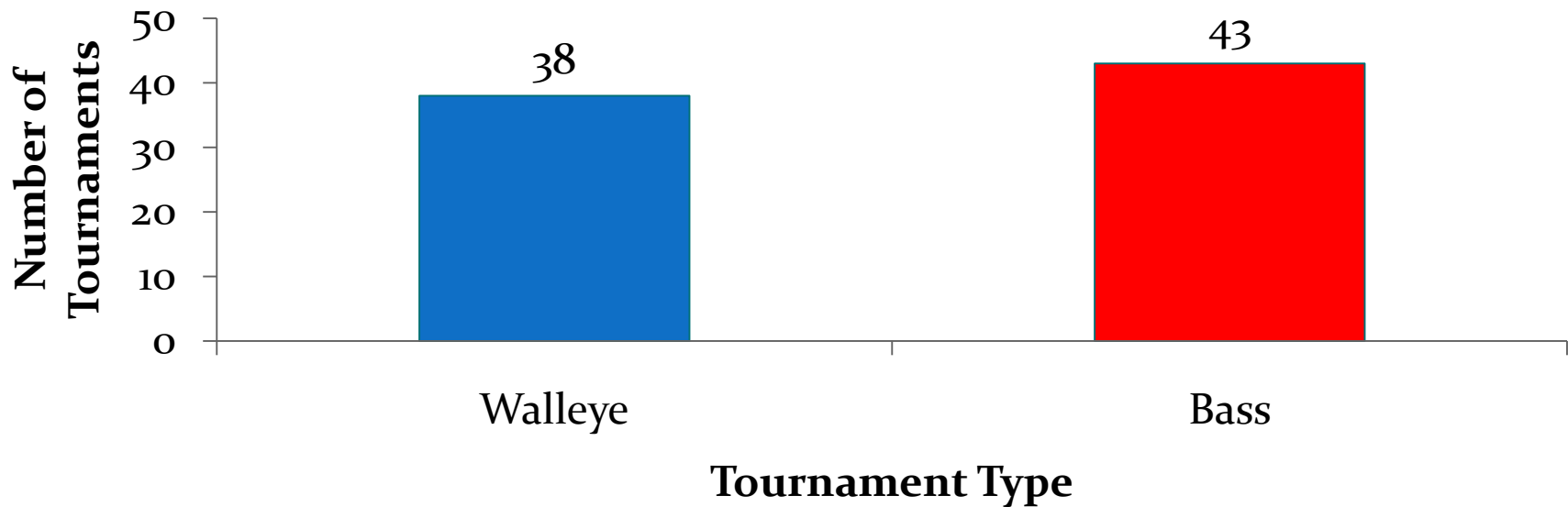


As of August 19th, 2010

Fishing Tournament Season



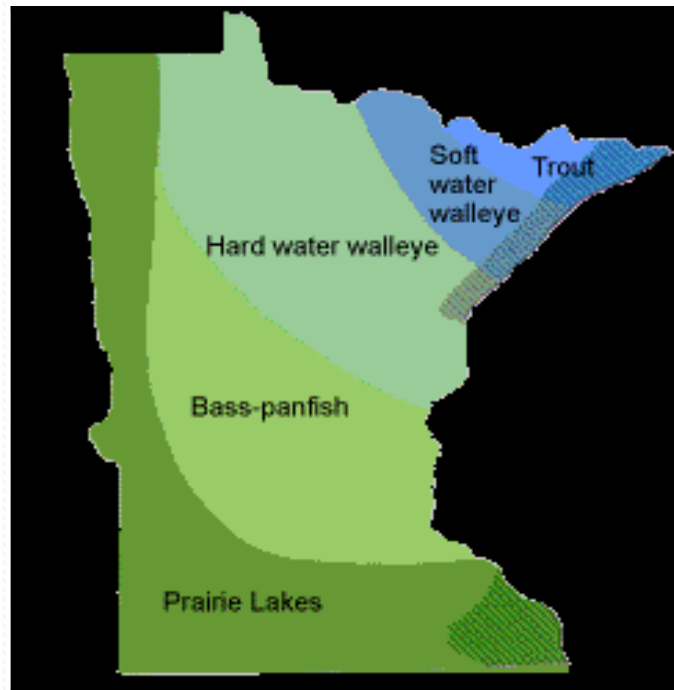
Walleye and Bass Fishing In the Laurentian Forest



65 Walleye Tournaments In Minnesota
Makes up 58%

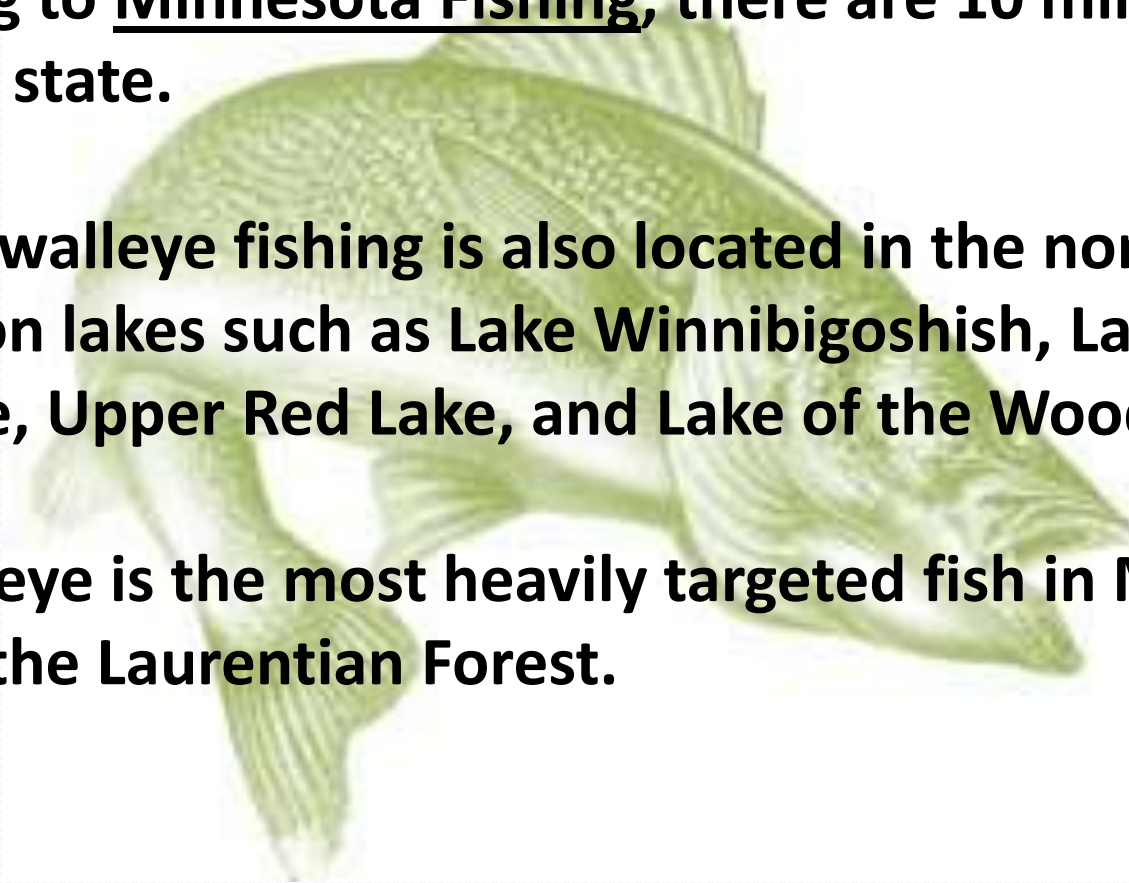
119 Bass Tournaments In Minnesota
Makes up 36%

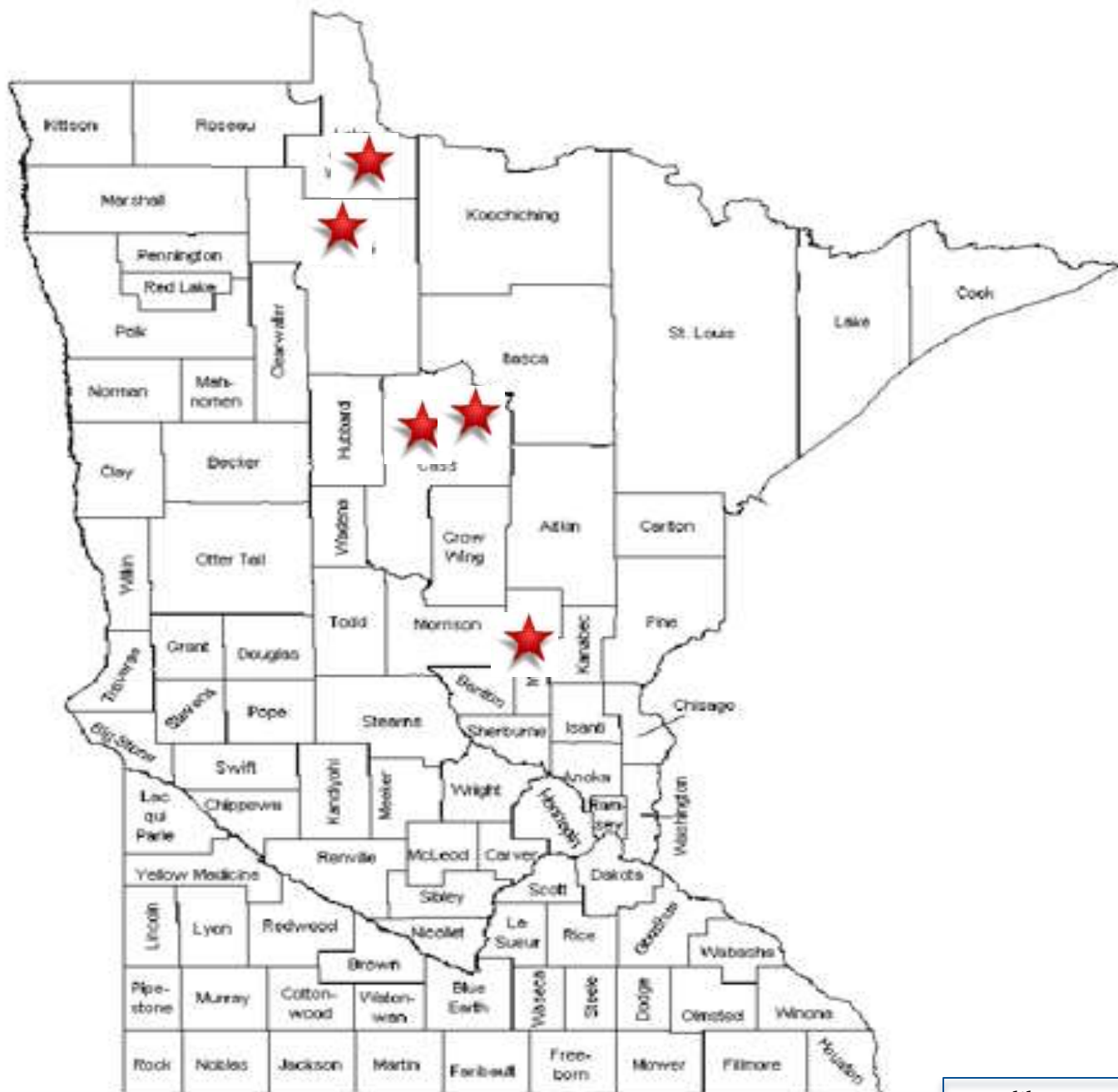
Walleye Areas and The Laurentian Forest



Walleye Fishing in the Laurentian Forest

- According to Minnesota Fishing, there are 10 million walleye within the state.
- The best walleye fishing is also located in the northern part of the state on lakes such as Lake Winnibigoshish, Lake Mille Lacs, Leech Lake, Upper Red Lake, and Lake of the Woods.
- The walleye is the most heavily targeted fish in Minnesota, as well as in the Laurentian Forest.





Methods

How to Attack This Research?

- Who to Interview?
 - Directors
- Sample Size?
 - Number of tournaments
 - Regional Size
- Summarizing Data?
 - Comparisons
 - Trends
- What does data mean?
 - Conclusions



Comparative Data and Results

8 Questions Answered By Tournament Directors

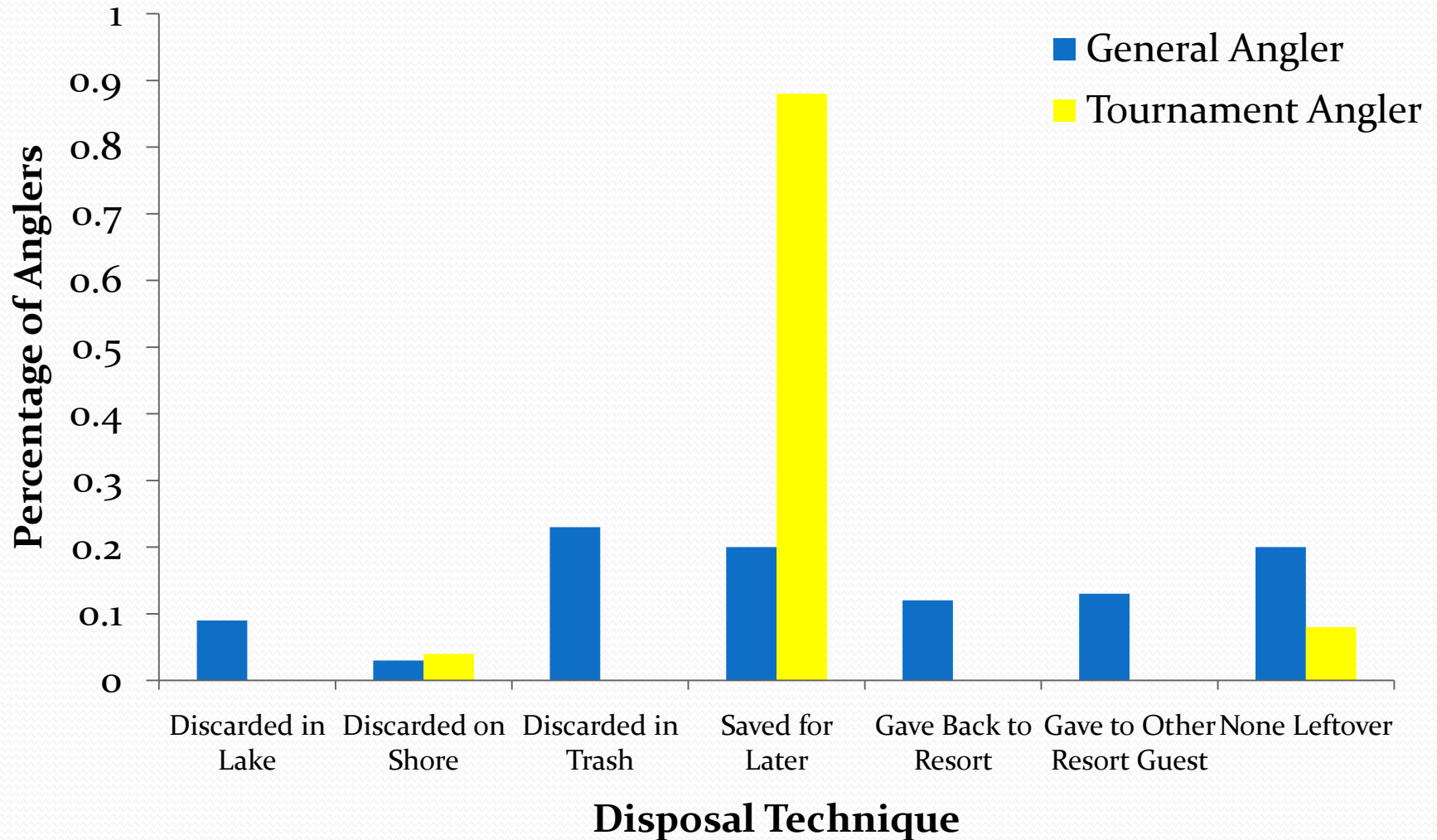
- 1.) What type of bait do you usually use for your tournament?
- 2.) Do some or most of your fisherman bring/buy their own bait before the tournament?
- 3.) What would you say the most common practice is among your fisherman, in terms of disposing their unused bait?
- 4.) Do you think tournament anglers would dispose of their bait properly if they were asked to do so?
- 5.) Do tournaments have regulations on how to dispose of their unused bait?
- 6.) On terms of invasive species, do tournaments regularly reinforce the issue of washing anglers boats after they leave the water?
- 7.) Do you know that earthworms are an invasive species in Minnesota's hardwood forests?
- 8.) Personally, how do you think would be a good way to get anglers at tournaments to dispose of their bait properly?

Question #3.

Director Response vs. Guest Response

- Director Response
 - What would you say the most common practice is among your fisherman, in terms of disposing their unused bait?
- Resort Guest Response
 - How did you discard of your earthworm bait?

General Angler vs. Tournament Anglers



DNR Monitoring



apexcamera.com

- At Boat Landings
 - Check Boats
 - Reinforce Regulations
- Permits
 - 3-5 Signatures Needed
 - Strict Process

Director Suggestions

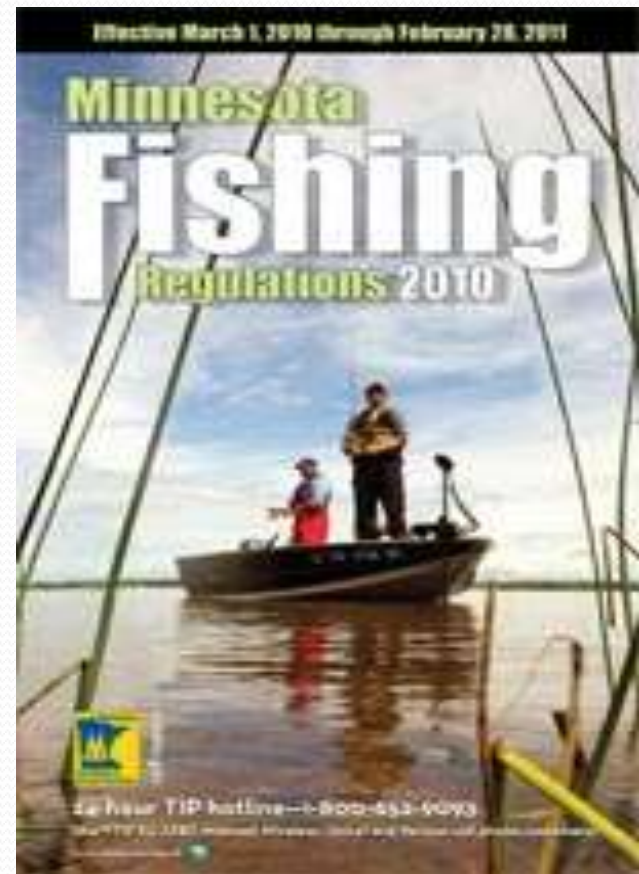
Question #8.

Top 4 Director Suggestions

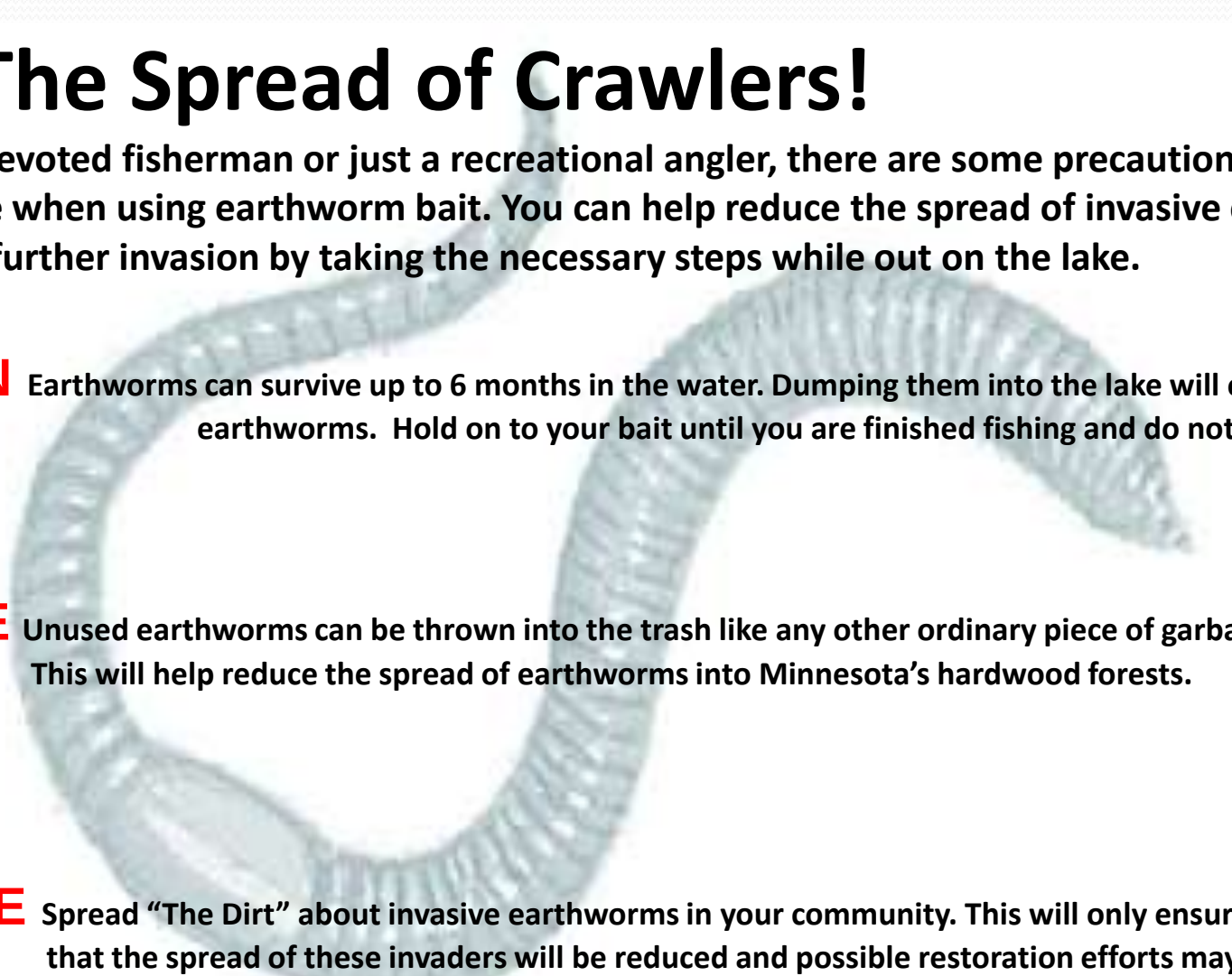
- Add into Minnesota Fishing Regulations 2010 Handbook
- Tournament Regulation
- Rules Meeting
- Disposal Site

Minnesota Fishing Regulations 2010

- Invasive species section
- Earthworms are not considered an “aquatic invasive”
- Read by most anglers



Stop The Spread of Crawlers!



If you are a devoted fisherman or just a recreational angler, there are some precautions that need to be in place when using earthworm bait. You can help reduce the spread of invasive earthworms and prevent further invasion by taking the necessary steps while out on the lake.

CONTAIN Earthworms can survive up to 6 months in the water. Dumping them into the lake will only spread the earthworms. Hold on to your bait until you are finished fishing and do not dispose on the land.

DISPOSE Unused earthworms can be thrown into the trash like any other ordinary piece of garbage. This will help reduce the spread of earthworms into Minnesota's hardwood forests.

EDUCATE Spread "The Dirt" about invasive earthworms in your community. This will only ensure that the spread of these invaders will be reduced and possible restoration efforts may take place .

Rules of Fishing Tournaments In Minnesota

- Inspection and removal of exotic organisms

-Inspection and removal of exotic organisms including, but not limited to, species such as zebra mussels or Eurasian water milfoil, as provided by Minnesota Statutes, section 18.317, from boats and trailers entering and leaving water accesses is required.



Rules Meetings





UNUSED WORMS? TRASH 'EM!

Help prevent the spread of invasive earthworms in Minnesota's hardwood forests.

Dispose of your unused earthworm bait in the trash.

www.greatlakeswormwatch.org

Containers at Landings



Summary

Summary of Main Goals

- Invasive Earthworms
 - Disrupt Soil Composition
 - Low Species Diversity
- Walleye Tournaments
 - Highly Targeted
 - High Abundance
- Results
 - Save for Later
 - Highly Monitored
- Director Suggestions
 - Minnesota Handbook
 - Regulations
 - Rules Meeting
 - Disposal Containers



Conclusion

After analyzing tournament anglers disposal techniques of unused bait and their general behavior, it is determined that tournament anglers have lesser impacts on introducing invasive earthworms vs. the general angler population.

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QUESTIONS?