ANGLER AWARENESS OF THE NEW ZEALAND MUDSNAILS IN MICHIGAN RIVERS

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• New Zealand mudsnails (NZMS) are native to New Zealand, yet world-wide invader

• Established populations are found in Australia, Asia, Europe & North America

• Came to America’s west coast in the mid 1980s
Suspected to have traveled to Michigan’s inland waters via angler vectors

- Can survive weeks out of the water on a damp surface
REASON FOR CONCERN

- Densities of >200,000/square meter in the western U.S.
- Outcompete native macroinvertebrates
- Parthenogenic
OBJECTIVES

1. Understand angler movement between rivers

2. Explore the relationship between angler awareness and action

3. Document what actions are being taken by anglers
Angler ID Number: _______________  Angler initials indicating consent: _______________

Year: ______  Month: ______  Day: ______  Time (24 hour clock): ______

River: _______________  Access point: ___________________________  Surveyor initials: _______________

Survey Type (Circle one):  Incomplete Trip  Complete Trip

Fishing Mode (Circle one):  Wading  Boat  Shore

1) Which ZIP code do you live in?

2) What type of footwear will you be using during your fishing trip?
   Boot-foot felt sole  Boot-foot other sole
   Stocking-foot felt sole boot  Stocking-foot other sole boot
   Other _______________

3) Have you fished another river within the past 2 days?
   Yes  No
   If Yes, which river or rivers did you fish? _____________________________

4) Do you plan to fish another river within the next 2 days?
   Yes  No
   If Yes, which river or rivers: _____________________________

5) Have you fished in a Western State?
   Yes  No
   If Yes, where and when was your most recent trip _____________________________

6) Do you disinfect or clean your waders between fishing trips?
   Yes  No
   If yes, how: _____________________________

7) Are you aware that invasive New Zealand mudsnails were detected in Michigan Rivers in 2015?
   Yes  No
   If yes, how did you hear about the infestation? _____________________________

8) Have you taken this survey during a previous fishing trip?
Between summer 2016 and fall 2017, 308 surveys were conducted.

- We categorized open-ended responses into discrete categories.

- Used angler zip codes to establish the home range of anglers.
Anglers traveled an average of 190.9 miles.

The furthest angler traveled 1364 miles.
ANGLER SURVEY: TRAVEL OTHER RIVERS

Fishing Trips Around Pere Marquette

- Manistee
- Rogue
- Muskegon
- Betsie
- Grand
- White
- Au Sable
- Au Gres
- Bear Creek
- Little Manistee
- Platte
- Chagrin
- Clinton River
- Ohio
- St. Joe
- Baldwin
- Paint Creek
- Ruby Creek
- Thornapple

Legend:
- Yellow: Past Two Days
- Gray: Next Two Days
ANGLER SURVEY: AWARENESS

- 52.3% (n=161) of angler reported being aware of NZMS
  - 62 became aware via the NZMS signs placed at access points
  - 13 MI DNR
  - 12 Trout Unlimited
  - 29 fellow anglers/ word of mouth
ANGLER SURVEY: ACTION

• 56.5% (n=174) of ALL anglers reported taking steps to decontaminate their waders between fishing trips

• Of the 161 anglers that reported being aware of NZMS
  • 87 reported taking no actions to decontaminate their waders
No significant difference in (decontamination) action taken by anglers aware and unaware of NZMS infestation.
ANGLER SURVEY: DECONTAMINATION

Decontamination Techniques

- Rinse: 42%
- Soap: 19%
- Bleach: 12%
- Dry: 10%
- Scrub: 6%
- Wash: 6%
- Power Wash: 2%
- Alcohol: 2%

1%
ANGLER SURVEY: FAILURE TO ACT

• Many potential reasons why anglers may not decontaminate
  • Lack of knowledge
  • Do not understand the consequences/potential for harm
  • Feel powerless to impact change
  • Do not believe it will affect them
  • Do not want to damage their waders with harmful chemicals
Conclusions

- Angler movement may tell us which rivers are at risk of future infestation

- Awareness of NZMS ‘problem’ is insufficient by itself to spur action

- Certain outreach may be more effective

- Anglers may be decontaminating for other reasons (other AIS species)
QUESTIONS?