



Invasive Crayfish Collaborative Great Lakes

Invasive Crayfish Collaborative Workshop: Summary Notes

November 14, 2024

10:35am - 12:00pm CT

Upper Midwest Invasive Species Conference, Duluth, Minnesota

10:35 - 10:50, Welcome and Introduction

The session began with introductions, delayed slightly due to cleanup from the prior workshop. Natalia Szklaruk (Illinois-Indiana Sea Grant) introduced the Invasive Crayfish Collaborative (ICC) and the implementation process for the ICC's five-year strategic plan projects, referencing NOAA's impact-feasibility model. 2025 projects were determined from an impact-feasibility ranking activity sent to ICC members in August 2024.

10:50 - 11:20, Discussing Project 1: Risk Assessments and Decision-Making Tools

Szklaruk introduced two high-priority projects that received very high feasibility and impact scores for 2025 implementation: Strategies 1.1.4 and 1.2.2 (see [Five-Year Strategic Plan](#)).

1.1.4. Expand and refine decision-making tools for crayfish managers and incorporate updated research findings.

1.2.2. Perform risk assessments for invasive crayfish species and develop a framework for species surveillance.

To deepen understanding of decision-making and the nature of navigating complex situations as a natural resource manager, participants received a mock scenario about two non-native crayfish species appearing in the same region. Species A is aggressive, known for its territorial nature. It quickly displaces native species, causing a ripple effect throughout the system. Species B is less aggressive but masters of disguise. It is a primary-secondary burrower and is more difficult to detect. Workshop participants were tasked with prioritizing natural resource management actions with limited funds. A brief planning session encouraged small group discussions.

11:00 - 11:20, Roundtable Discussion

The discussion revolved around key themes in invasive crayfish management:



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Monitoring Techniques:

- eDNA (highly accurate) and trapping (cost-effective) emerged as complementary tools for first steps in crayfish management. **Having an eDNA library for crayfish markers could be highly useful for managers.** eDNA can help managers determine invasion front as well as where the crayfish detection lands on the invasion curve. eDNA kits have been created and can be sent out to participatory science programs. Gretchen Hansen from UMN and Eric Larson from UIUC are potential contacts for eDNA kits.
- Michigan employs 20 meter trap lines along shorelines, but challenges arise with larger waterbodies.

Species-Specific Strategies:

- Emphasis on using the community to monitor Species A due to its ease to find and sample for. Community members with low expertise could be trained to recognize Species A.

Invasion Front Identification:

- Finding the leading edge of the invasion front is a very important first step.
- Work smarter not harder - trap at connection points rather than the entire possible source

Tools for Managers:

- What should an EDRR plan look like?
 - Standard Operating Procedures (SOPs) for crayfish management are used by USFWS. **Creating a separate SOP for invasive crayfish specifically would be useful.**
- Participants expressed concern about what the ICC will be doing in terms of minimizing repetitive work. Collaborate with organizations that are willing to loan tools, such as USFWS.

11:20 - 11:25, Discussing Project 2: Crayfish Workshops and Trainings

Szklaruk transitioned the discussion to workshop planning, which was also identified as a project the ICC members ranked high in feasibility and impact. Below are the following strategies that were identified as high-priority (see [Five-Year Strategic Plan](#)):

- 1.2.3.** Organize a training workshop for broad-spectrum monitoring programs to teach and promote standard crayfish sampling techniques and reporting. (Experts)



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4.1.2. Establish standard crayfish sampling and host training workshops for invasive species management groups and enforcement agencies. (Non-experts)

Szklaruk asked the group to discuss effective formats for workshops and trainings, as well as the possible needs for various audiences attending the workshops.

11:25 - 11:55, Roundtable Discussion

The discussion revolved around targeted training, key content, and hobbyist engagement:

Targeted Training:

- Smaller, core audiences benefit more from focused training than sessions with broad sessions. A smaller audience could benefit from more focused training, allowing them to learn how to train others that they work with.
- Recurring, annual workshops could improve accessibility. Full day workshops are needed (e.g. 9-3).
- Teaching experts how to teach non-experts could be valuable.

Key Content

- Phenotypic differences need to be discussed more thoroughly at beginning of workshop. Because crayfish in the aquarium trade come in a WIDE variety of colors and patterns, it's important to learn about the anatomical differences between crayfish species.
- Is there a need to learn how to ID ALL native crayfish AND invasive? Maybe just the most common for each state.
- Create a small list of key traits to focus on, rather than learning all the parts of the organism and potentially becoming overwhelmed.
 - List of important features that are not difficult to ID with a live, moving crayfish: areola, rostrum, gonopods, chela.
- Because it's possible to find a potential invasive crayfish at any life stage, training on different sized crayfish and different forms is crucial. Form 1 is easier to learn; Form 2 is easily confused with other crayfish species.

Supporting Hobbyists and Retailers:

- Create a matrix outlining "order of operations" for handling invasive crayfish in retail to increase ID confidence level.
 - Step 1: Learn common name in trade



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- Step 2: Learn scientific name
- Step 3: Possible colorations
- Step 4: Key ID features
- Research to create a global library on crayfish in the retail trade is coming...
- ICC could engage with Facebook groups to reach hobbyists and aquarium societies.
- Develop a list of priority species, key characteristics, and put it in a guide for hobbyists.
- Aquarium hobbyists have a shared cultural importance on scientific names. Supporting hobbyists with ID workshops can increase scientific labeling in aquarium trade.

11:55 -12:00, Closing remarks

Szklaruk made closing remarks and offered to stay after to discuss other high-priority projects, such as expanding crayfish field guides.

Workshop Attendees

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