



Invasive Crayfish Collaborative November Meeting - Summary Notes

November 7, 2018
10:30am - 12:30pm

NOAA Great Lakes Environmental Research Laboratory
4840 S State Rd
Ann Arbor, Michigan

Facilitated by Pat Charlebois, Greg Hitzroth, & Lian Lucansky, Illinois-Indiana Sea Grant

Workshop PowerPoint presentations will be made available once the ICC website has launched.

10:30 Welcome and Introductions

Charlebois introduced herself and the other facilitators, and asked members to introduce themselves to the other attendees. She then reviewed meeting goals, including the new approach of an open discussion format, as opposed to a strictly objective-driven meeting.

10:40 ICC Activities – Status of Deliverables

Charlebois reminded attendees of the thirteen deliverables of the grant to Illinois-Indiana Sea Grant for establishing the ICC, and gave an update on the status of these deliverables. They are as follows:

1. Identify and recruit ICC members: *completed*
 - a. We've worked to recruit industry but have had few takers.
 - b. We gathered names of possible new members after our last meeting.
2. Conduct a member needs assessment: *completed*
3. Host a kickoff workshop and three subsequent meetings: *ongoing*
 - a. Kickoff workshop has been completed, the November 3rd meeting is the second, and the last two meetings have yet to be planned.
4. Publish an ICC Website: *ongoing*
 - a. The website (invasivecrayfish.org) is completed and we are working on obtaining EPA-GLNPO approval to make it public.
5. Establish an ICC listserv: *completed*
6. Host four webinars: *ongoing*
 - a. One webinar has been delivered and will be archived soon. The second webinar on crayfish control is being scheduled.
7. Host an Invasive crayfish symposium at IAGLR: *completed*
8. Identify high-risk invasive crayfish species: *ongoing*
 - a. Reuben Keller, Loyola University Chicago, is working on this.
9. Identify research needs: *completed*



10. Identify outreach needs: *completed*
11. Establish a framework for best management practices (BMPs): *pending*
 - a. The BMPs themselves are for management or mitigation of established populations.
 - b. The framework is for finding the elements that are most critical to determining the BMPs.
 - i. e.g., cost, effectiveness, existing registration
12. Produce an outreach tool for crayfish buyers and sellers: *pending*
13. Host an experiential learning workshop for teachers: *pending*
 - a. We are in the process of finding an appropriate venue.

10:55 Outreach Needs & Prospective Outreach Tool (20 min)

Hitzroth outlined the outreach themes from the ICC needs assessment by Adam Landon, Illinois Natural History Survey. The Assessment asked for members to identify research and outreach needs that the ICC should address. The themes are as follows:

- Develop **educational materials** that convey to stakeholders appropriate methods for the safe **handling and/or disposal of unwanted pet and/or bait**. Also to establish a code of conduct for care and disposal of invasive crayfish.
- Develop **educational materials** that convey to stakeholders the diversity of **native and non-native crayfish**. Many people are interested in the general ecology and biology of these invasive species.
- Make **new and existing educational materials accessible** to diverse stakeholders with respect to language, academic content, and availability.
- Conduct targeted **outreach to biological supply companies and pet traders** that are marketing live invasive crayfish, determine the prevalence of the practice (especially for emerging species of concern) and strengthen partnerships with industry.
- Develop **guidelines** for the establishment of new, and enforcement of existing, **non-release laws surrounding** invasive crayfish (e.g., Wisconsin NR40), and to conduct targeted outreach to convey the difficulties of managing invasive crayfish to **decision makers**.
- Develop **mechanisms** for the engagement of **trained citizen scientists** in invasive crayfish identification and reporting.
- Establish **protocols** for the rigorous **evaluation of current (and future) outreach campaigns** with respect to their relative abilities to change stakeholders' knowledge, attitudes, behaviors related to invasive crayfish spread, mitigation and management.
- **Compile information** for managers regarding the state of knowledge surrounding best practices **for invasive crayfish control and monitoring** and their relative efficacy.



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Hitzroth then opened the discussion regarding the various outreach tools we would want to develop based on this needs assessment. The group also discussed key audiences to address that maybe haven't been addressed by current outreach campaigns. Input from the group discussion included:

- **ID guide**
 - Include species of concern: *Procambarus clarkii* (red swamp), *Faxonius rusticus* (rusty), *Pacifastacus leniusculus* (signal), *Procambarus fallax* f. *virginialis* (marmorcrebs/marbled), *Cambarellus shufeldtii* (Cajun dwarf), *Cambarellus patzcuarensis* (Mexican dwarf), *Cherax destructor* (common yabby) and *Cherax albidus* (white yabby). *C. albidus* was discussed as being ecologically similar to *C. destructor* (common yabby).
 - *Cherax quadricarinatus* (red claw) was discussed as being of low concern.
 - Perhaps the resource should be geared toward students to use in the field with their classes, alongside a resource for teachers guiding their students through such a resource.
 - Perhaps it should be created for people involved in species in trade - pet owners, pet shops, etc.
- **Outreach in addressing behavior**
 - Create educational material encouraging behavior change - such as eating invasives responsibly, not buying them, not releasing your bait, etc.
- **Key audiences**
 - Restaurants or establishments/individuals who consume live food.
 - Teachers and classrooms, which we feel are most likely to receive red swamp crayfish.
 - Pet trade, because almost anything can be ordered on online stores.
 - Marbled crayfish are perhaps the biggest species of concern because of easy proliferate in home aquaria, which could lead to high propagule pressure from one source.

11:15 Break & Box Lunches (working lunch)

11:35 Moving Research Forward (45 min)

Charlebois initiated a discussion about the best way for the ICC to promote research. She then gave four possibilities or examples for how the ICC could do this, and asked for feedback. The following are those possibilities and member's thoughts:

- Identifying and setting research priorities
 - Identifying basin-wide priorities is helpful/necessary to secure money for the future and try to achieve certain goals.
 - Large/main research questions about crayfish in the Great Lakes still need to be answered.



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- Research priorities are useful for researchers because they are something to point to when applying for funding, and also because the process of creating them is useful to go through.
 - This process can take multiple years, as it did with the Invasive Mussel Collaborative.
- There are two main tracks of research priorities: 1. social science side of human behavior, such as how they're spread and effective prevention 2. biology/ecology questions, such as risk assessments.
- How specific should the priorities be? For example, do we want to specify a) generic research on crayfish control or b) red swamp crayfish control using CO₂? This is something to revisit.
- Beginning a grants program to fund research
 - It makes sense for the ICC to fund basin-wide/bigger picture projects because states often don't want to fund multi-state research.
 - The Invasive Mussel Collaborative, working with GLRI funds, does have a one-time grant RFP to answer a fairly specific research question - this process took around 3 years and is not yet completed.
 - From a research perspective, there isn't a lot of grant money available that allows you to do more freestyle research surrounding invasive species.
- Facilitating discussion between researchers and agencies to promote research
 - Intentionally creating space for agencies and researchers to tackle invasive crayfish has been very valuable for Michigan, and led to collaboration for much needed research around control techniques.
 - It may make sense for research conversations to be broader and regionalized because even a state across the Great Lakes will likely be the most relevant research out there on management practices or on a particular species.
- Continuing with webinars on past or present research
 - The webinars were helpful for background information, especially the other sources discussed in the webinar.
- Other input about the function of the ICC
 - We have a unique collaborative because invasive crayfish can still be stopped from spreading, our job here isn't mitigation and control, and doing important research could keep us from being in that position.
 - Sending out emails with new/past research was helpful for the non-crayfish experts in the room.
 - Conducting a systematic review may be helpful such as the number of papers on individual topics (e.g., life history, CO₂ control methods) for each species. This helps us to identify the knowledge gaps, particularly in our Great Lakes Basin.
 - This may help us with identifying and prioritizing research needs.
 - Could a systematic review of regulations be possible to help us identify holes or weaknesses in regulations?
 - TNC has already done this work for the Great Lakes region.



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- Communicating and conducting outreach of simple messages about what we want people to do with crayfish.

12:20 Member updates

Nick Boucher, GLERL, updated members on the GLANSIS Crayfish Profiles, which are user-friendly detailed guides that include information about a species's ecology, identification, common names, regulations in Great Lakes, non-indigenous populations and their distribution, among other details. Currently they contain rusty crayfish, red swamp, marble, and common yabby. They have also created ~10 profiles that are still under review, based on the risk assessments that the USFWS has generated.

Sara Thomas, Michigan DNR, spoke about their management techniques and progress during the summer of 2018. They concluded that trapping isn't effective for eradication, but it is for detection. There are now 35 populations in Michigan, mostly in urban habitats - retention and golf course ponds. Michigan's management has revolved around two of the most populated areas, where they have set many traps and taken e-DNA. They've removed many by trapping, and conducted a CO₂ field trial in August in hopes that the CO₂ would encourage them to leave the pond and make them easier to trap. This did not work as predicted, likely because of runoff from a large storm a few days before. In the future they will be looking into sound and chemical control methods. The public has been very supportive, including lots of news coverage.

12:30 Next Steps & Adjourn

Charlebois announced that the next webinar about control will be before the end of the year. She also encouraged use of the Google Group/listserv if there are things you would like share with the group.



ICC Meeting Attendance
November 7, 2018

Nick Boucher

University of Michigan Cooperative
Institute for Great Lakes Research
NBouc@umich.edu

Jeremy Bates

Wisconsin Department of
Natural Resources
Jeremy.Bates@wisconsin.gov

Lindsay Chadderton

The Nature Conservancy
LChadderton@TNC.ORG

Pat Charlebois

Illinois-Indiana Sea Grant
charlebo@illinois.edu

Mael Glon

The Ohio State University
Glon.1@osu.edu

Seth Herbst

Michigan Department of Natural
Resources
Herbsts1@michigan.gov

Gregory Hitzroth

Illinois-Indiana Sea Grant
Hitzroth@illinois.edu

Dane Huinker

Wildlife Forever
DHuinker@wildlifeForever.org

Doug Jensen

Minnesota Sea Grant
DJensen1@umn.edu

Reuben Keller

Loyola University Chicago
RKeller1@luc.edu

Eric Larson

University of Illinois
ErLarson@illinois.edu

Sarah LeSage

Michigan Department of
Environmental Quality
LeSages@michigan.gov

El Lower

University of Michigan Cooperative
Institute for Great Lakes Research
ELower@umich.edu

Lian Lucansky

Illinois-Indiana Sea Grant
Lucansk2@illinois.edu

Cathy McGlynn

New York State Department of
Environmental Conservation
Catherine.McGlynn@dec.ny.gov

Amy McGovern

US Fish and Wildlife Service
Amy_McGovern@fws.gov

Sandra Morrison

U.S. Geological Survey
SMorrison@usgs.gov

John Navarro

Ohio Department of Natural
Resources
John.Navarro@dnr.state.oh.us

Nick Phelps

University of Minnesota
Phelp083@umn.edu

Rebecca Redman

Illinois Department of Natural
Resources
Rebecca.Redman@illinois.gov

Sara Stahlman

Pennsylvania Sea Grant
Sng121@psu.edu



Invasive Crayfish Collaborative Great Lakes

Rochelle Sturtevant

Minnesota Sea Grant

Rochelle.Sturtevant@noaa.gov

Sara Thomas

Michigan Department of Natural
Resources

Thomass35@michigan.gov

Ceci Weibert

Great Lakes Commission

CWeibert@glc.org

Kate Wyman-Grothem

U.S. Fish and Wildlife Service

[Katherine_Wyman-Grothem@fws.g](mailto:Katherine_Wyman-Grothem@fws.gov)

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