

MRBP Coordination Meeting

December 2, 2020

9:00 am – 11:00 am (CST)

Join Zoom Meeting

<https://zoom.us/j/92985525456?pwd=N0R0T0lzc3BwTnhLQ1ZSZmU5SGhCdz09>

Meeting ID: 929 8552 5456

Passcode: 838237

Minutes

Attendees (via Zoom roster; 40 omitting duplicates):

- Voting (24): Amy McGovern, Ben Holen, Carroll Schaal, Chris Steffen, Cole Harty, Curtis Tackett, Duane Chapman, Dennis Riecke, Eric Fischer, Heidi Wolf, John Navarro, Josh Leonard, Julie Lively, Jimmy Barnett, Katie Zipfel, Kim Bogenschutz, Kristopher Stahr, Luci Cook-Hildreth, Mark Cornish, Michael Hoff, Mindy M. Barnett, Monica McGarrity, Peter Sorensen, Rob Bourgeois
- Alternates or proxy (7): Eugene Braig, Gregory Hitzroth, Jason Euchner, Jessica Morris, Kevin Irons, Tim Campbell, BJ (Benjamin) Schall
- Coordinator (1): Greg Conover
- Non-voting (6): Doug Jensen, Emily Pherigo, Jessica Howell, Matt Neilson, Neal Jackson, Rebecca Neeley
- Public or unknown (2): Maurice Sadowsky, Kelly (?)

9:00 Welcome (Chris Steffen) to “our first all-virtual meeting.” Strictly business focus this round.

9:10 MRBP Co-chair update (Steffen)

- Committees have all already met. Virtual meetings allowed MRBP members to attend multiple committee meetings.
- Welcome to new education–outreach chair, Greg Hitzroth, IL–IN Se Grant (and thank you, Luci, for your service in that role). Eugene Braig elected first-year co-chair (and thank you for extended service, Tim).
- ANSTF to meet next week (8–10 December), the only of 2020 because of COVID.
 - Two recommendations submitted to ANSTF following the March meeting: (1) increase funding to regional panels; (2) do not revise the national Asian carp plan.
 - ANSTF submitting FY18–19 report to Congress. MRBP 2-page section focused on projects and workshops: carp-sampling workshop, snakehead symposium, and live-bait and ceremonial-release pathway projects. Other panels include mission statements in the report to congress. MRBP lacks; excomm to take up in the near future.
 - Anticipated at ANSTF meeting: VIDA update, developing work plan, and discussion of national framework for early detection–rapid response.

9:15 MRBP Coordinator update (Greg Conover)

- Recounted changing nature of work responsibilities. Extra duties have come to an end, and Greg has more liberty to resume historic roles as large-river coordinator and with MICRA and MRBP.
- MICRA:
 - Finalizing joint strategic plan for management of Mississippi basin fisheries. Update to 1990, '91 agreement. Hoping to initiate an interstate Mississippi River Basin Fishery Commission.
 - Congressional outreach visit may be in person or virtual in February 2021. May seek MRBP assistance. Submit related items to Greg or Brian Schoenung
- Thanked all who volunteer and have volunteered for panel leadership positions.
- Request for member updates was not issued prior to the meeting. Will compile and circulate updates and member directories to follow.
- Panel budget:
 - \$50,000 from USFWS through FY2012
 - \$40,000 FY13–18
 - \$46,000 FY2019
 - Back to \$50,000 FY2020
 - FY2021 budget not yet approved (continuing resolution through 11 December); issued guidance is to expect level funding. May capitalize on remote meetings on FY21 meetings.
- Whack-A-Mussel was returned early in 2020. Shipped in working condition, but received in not-working condition. Manufacturer believes their techs can walk Greg through repairs without necessity to re-ship.

9:20 AFWA invasive species committee update (Kim Bogenschutz)

- Spring meeting was held March 2020 in Omaha. Reduced attendance and quarantine followed. The September 2020 meeting was virtual.
- Eric Sutton is chair; Kim, co-chair. Invasive species committee has no dedicated staff at present. David Lind tracks legislative activity.
- The Lacey Act remains an important topic of discussion. Developing legislative outreach is on 2020–21 work plan.
- Planning session with fish–wildlife health and law enforcement on animal trafficking, diseases, invasive species, and interrelationships for virtual meeting in March 2021.
- Confident that RAWA will be funded again this year. Hopeful to get related state money to work on invasive species.
- Survey of committee members identified a need to better understand where state invasive species programs lack capacity (e.g., monitoring, education/outreach, funding, control).
 - Related to the recent ANSTF Research Committee survey. Kim has access, and it is info-rich.

- Kim also chairs ANSTF Control Subcommittee (with Don McClane doing much of the coordination). Assessed ANSTF-approved management and control plans. Also recommended that Asian carp plan remain as is with updates to appendices as necessary. The Asian carp plan maintains momentum and funding. Report to be submitted to the ANSTF meeting next week.

9:30 On-going project updates (Tim's project updates were presented from most to least complete, different from sequence given in agenda)

- FY19: SIU microchemistry (Duane Chapman):
 - Approx. \$10,000 as contract to Greg Whitledge.
 - Seeking background data on diverse system tributaries to facilitate determination of fish origin waters using otoliths.
 - Two samples from each of 50 sites on each of two dates. Sites distributed broadly with concentration in western portions.
 - Dependent on MRBP members to collect samples. MRBP members may be specifically asked. Vials/Receptacles and packaging for shipping will be provided.
- FY20: Asian carp workshop video transcription (Tim Campbell)
 - WI Sea Grant worked with MRBP to film carp sampling workshop affiliated with MRBP meeting in KY, April 2019.
 - ADA compliant videos (i.e., fully captioned) produced and posted to WI Sea Grant website.
 - Completed at approx. \$650 contract.
- FY19: Life release pathway (Campbell)
 - Interviewed Buddhist life-release practitioners in the United States.
 - Presented interview portion at MRBP meeting in TX (March 2020).
 - Technical report submitted to Management of Biological Invasions. Presented at the International Conference on AIS (ICAIS). Accepted for publication in ICAIS issue.
 - Now working to survey state managers on perspectives. That will result in a technical report, possibly for publication as well. Categorized current practices and potential scenarios as acceptable, less so, or needing more info.
- FY20: 2021 Administrative support RFP (Campbell)
 - Currently active. Please circulate.
- FY19: Ecostar labeling (Campbell: Appendix A–C)
 - Mike Hoff proposed at the KY meeting.
 - Produce fact sheets/labels to help consumers make less risky aquarium/water garden choices.
 - Potential buy-in from industry in offering guidance rather than outright restriction.

- Three draft labels produced to this point.
- Mike Hoff: Distribution plan not yet finalized. Development related to FY16 federal budget for USFWS. This is a demonstration project, not to implement an operationalized program. Goal is for labels to be understandable by consumers in 20–30 seconds. Supply chain provided feedback, and labels were well received. Roll-out to be considered “phase 2.” Working with Marshall Meyers (to get industry to voluntarily post some labels) and state-agency advisors (Chelsey Blanke, MN; Dennis Riecke, MS). State advisors also help with work on state-specific demonstration/product labels. Doug Jensen assisting with instate work on MN’s.

10:00 Public comment

- Maurice Sadowsky, MJSTI Corp.: Project update—pesticide for Asian carps
 - GLFC funded manufacture last year. Big step forward. Product 3 x more concentrated than possible for Maurice’s lab.
 - Has written an unsolicited proposal to USGS for optimization and increased toxicity testing. Maurice would appreciate any MRBP support for the submission.
 - Received patent US10617119B1 in early 2020 (subsequently searched: <https://patents.google.com/patent/US10617119B1/en?q=us10617119B1>). The technology: coat water-insoluble copper salt in fat with added commercially available slow-water-soluble amino acid; pelletize for Common Carp; fish eat the pellet; lipases strip fat in intestine; amines immediately react with copper; and resultant soluble copper slowly kills the fish.
 - Safe, but the downside is that it takes a long time (3–6 days). Current interest is in increasing toxicity.
 - Currently seeking coauthor to craft manuscript for publication.
 - Contact at maurice@carpfree.com; website: <https://www.carpfree.com/>.

10:05 MRBP Committee Reports (Committee Chairs)

- Prevention and Control Committee (PCC: Jimmy Barnett)
 - 14 met on 18 August 2020 by teleconference.
 - Reviewed FY20 work plan’s four tasks:
 - Bait harvest, production, and transport BMP mini session is on hold until MRBP can hold an in-person meeting. Planning for five speakers dealing with different aspects of pathogens and disease.
 - Developing 2-page fact sheet, overview of Jeff Gunderson’s bait project (as presented to MRBP in Bastrop, TX, March 2020). Will be checked for ADA compliance before sent to Greg for final “look over” and posting to MRBP site.
 - Update PCC page on MRBP site: completed. See <http://www.mrbp.org/prevention-and-control-committee> for useful

- content: BMPs for lake service providers, rapid-response plant module, IL's early detection–rapid response *Hydrilla* plan, and more.
- Compiling list of all state laws/regs that deal with invasive species in wake of Lacey Act changes. Will become a reference document. Only two states (VA and MT) remain to be cataloged.
 - FY21 work plan discussed:
 - Planning to retire in 3–4 meetings and seeking volunteers to chair PCC. Jimmy will mentor the new chair until his retirement.
 - Will continue work on live-bait pathogens.
 - Still wants a standardized boater survey. Will communicate with Tim Campbell to inform development.
 - Completing live-bait pathway fact sheet for posting to PCC page.
 - Compile state laws on injurious species to the fact sheet for posting to the PCC page.
 - Seeking a new list of issues for PCC to address.
 - Only budget item: \$3,000 support to cover travel for mini-symposium speakers once in-person meetings resume.
- Outreach and Education (OE: Greg Hitzroth)
 - Met 18 September 2020.
 - Much of the discussion was covered by Tim's project reports above.
 - Discussed potential for nature-center "residence" for Whack-a-Mussel.
 - Discussed collecting/compiling B-roll video and photos of invasive species resources for use by coordinators and communicators. May seek funding for related student technicians.
 - Interested in hosting a community-based, social-marketing workshop—estimated budget: \$10,000.
 - Discussed updating MRBP logo (while potentially keeping it "retro").
 - Interested in working towards a more "cohesive" website update.
 - OE may act on Duane's stated need for a Black Carp/Grass Carp ID/info publication.
 - Research and Risk Assessment (RRA: Duane Chapman)
 - See written RRA meeting notes submitted by Duane (Appendix D).
 - Black Carp reward program discussion:
 - Neal Jackson (having discussed with other sub-basin coordinators): "Medium level" of support in upper Mississippi (UMR) for using USFWS funds through UMR sub-basin partnership. However, the proposal is not fully developed (only phone discussion to this point) and thus not yet seriously considered. Is not aware of support from other sub-basins coordinators. Needs more formal development from MRBP to move forward.
 - Duane: Trying to be sensitive to states, and has received little feedback from states to this point. The Strawman proposal could be easily assembled, but

present lack of detail makes it difficult to assemble a more substantial proposal.

- Neal: Nick Frohnauer, USFWS, proposed initially. May not need much more development other than logistics (e.g., who's to be recipient?). Once developed feedback would come via UMR ranking process. That would provide feedback sought from states. Perhaps develop a proposal with Nick.
- Kevin Irons: Fish caught up to Dubuque still falls under IL's \$100-bounty program. Southern IL University (SIU) infrastructure supports the bounty program. May be relatively easy if other regions care to emulate (via SIU, MICRA, etc.). (Following Duane's question) Tributaries (like the Des Moines or upper Iowa R.) would be covered.
- Rebecca Neely: Nick initially proposed pools 5a to 26, resulting in overlap with IL's existing program.
- Duane: Not likely many captures from upper reaches in near future, so need for funding is slim. However, hoping program can be expanded beyond UMR. Two questions for MRBP:
 1. How do we feel about our future administrator mailing \$100 checks?
 2. How do we feel about the MRBP funding more broadly than UMR (Missouri, AR's Red and White, Ohio [partly covered], Tennessee and Cumberland [where fish are already present], etc.)?
- Greg C.: Will seek input from voting members.
- Duane to assemble strawman proposal with RRA.
- Silver Carp eDNA/genetics project discussion:
 - Greg C.: Will there be a related FY21 funding request?
 - Eugene: FY21 funding request is realistic. Correspondence presently circulating.

10:35 2021 work plan and ANSTF recommendation development (All)

- Greg C.: There is not "an abundance of funding requests for 2021 at this point." Bring project ideas now or through committee chairs. Should plan to have proposals and make related decisions by the end of February 2021.

10:55 Schedule next MRBP meeting (All)

- Greg C.: Seeking August–September 2021 meeting. If in person, it may be Columbia, MO with a field component.
- Duane: Happy to host (including outing on Missouri R.), but the difficulty is that major airports are remote. August is better for carp than September.
- Greg C.: Excomm needs to circle back, discuss committee reports, and continue momentum to keep committees meeting to identify projects for funding. Seeking MRBP input at the next meeting.

ANSTF task force recommendations rehashed. Chris recapped as above. Chris is glad for excellent remote attendance.

11:00 Adjourn

Appendix A: ECOSTAR Label Proposal

A Proposal to the Mississippi River Basin Panel on Aquatic Nuisance Species

I. PROJECT STATEMENT

ECOSTAR (ECO★) is a rating system for live, nonnative plants and animals considered for use in aquaria, water gardens, schools as instructional aides, aquaculture, and live-food markets. This rating system has been developed to provide information that helps us all protect the environment, by minimizing risk of nonnative species becoming established and harming ecosystems, economies, and human health. ECOSTAR labels on nonnative species containers or means of conveyance in the supply chain will provide information that is available to importers, producers, sellers, and buyers about labeled nonnative species. That information is intended to help us all make wise decisions on plants and animals we wish to sell, buy, and keep.

It will be recommended, as part of the ECOSTAR system, that those in the supply chain review ECOSTAR label risk status [via Habitattitude or other webpage—see Note in Section II below] when they consider importation, production, transport, sale, and purchase of a nonnative species. ECOSTAR uses peer reviewed scientific tools and processes and then shows risk of the assessed nonnative species, and that risk is described within an Ecostar label by jurisdiction in the U.S.

The goal of this proposed project is to protect the environment by providing information, to all in the supply chain, about risk of harm of a nonnative species in jurisdictions and regions within the U.S. The objective of the project is to draft one ECOSTAR label for each of 10 nonnative species. The completed ECOSTAR labels will be submitted to the Outreach and Education Committee of the MRBP, and to the MRBP Executive Committee.

II. PROJECT ACTIVITIES AND OUTCOMES

This project goes beyond the back-end messaging of “don’t let it loose,” by providing the results of risk assessment to inform front-end decisions on what species to use and where to use them. The results of risk assessment and ECOSTAR labeling can be used by a variety of partners to advance information sharing on sustainable species by jurisdiction, region, and within the conterminous U.S. Some of those partner programs include Habitattitude, Don’t Let it Loose, Myrightfish.com, Takeaim.org, and other forums. All of these programs can use information on what species to use and where their uses are scientifically judged to be of low risk. [Note: Inclusion of ECOSTAR labels into various web pages is not an activity included within this proposed project.]

The framework for the proposed ECOSTAR labeling system includes

- Risk of Establishment:
 - Climate match (or other tools)
 - Habitat match
 - Life-history requirements
 - Other
- Risk of Impacts:

- o Includes information on invasion history, and available trade data (e.g., evidence of substantial trade will be noted, so that propagule pressure will be included if available)
- o Scientifically demonstrated and projected
- Risk Management
 - o Could include risk management actions

Planned categories for ECOSTAR labels are:

- High Risk – Not recommended, unless under covenants, BMPs, pledges, or other risk management requirements.
- Medium Risk – Caution is needed.
- Low risk – Minimal invasiveness risk.

Each ECOSTAR label will use a standardized format illustrated in the Appendix. The final format will be adapted, based on results of the pilot testing

Activities: *Draft ECOSTAR LABELS*

Budget: \$15,000

| Output | Completion Date |
|--|---|
| 1. Draft two ECOSTAR labels (one per species). | Within 3 months of project approval. Use those labels for the activity described in Output 2 (below). |
| 2. Pilot test, using in-depth interviews, two labels to assure that they are communicating appropriately to the intended target audience. The interviewees will represent different stakeholder types related to eco-labeling. | Months 3-4 after project approval |
| 3. Complete 10 ECOSTAR labels, using the input gathered during the pilot testing. | Months 4-9 after project approval |
| 4. Deliver a presentation, via webinar, that summarizes the 10 ECOSTAR labels to the MRBP Outreach and Education Committee (Committee). | Approximately the 9 th month after project approval |

| | |
|---|---|
| 5. Submit a final report that provides an overview of the project, the 10 species ECOSTAR labels, and ECOSTAR label template. | Within 90 days after delivering the presentation described in Output 2 (above). |
|---|---|

III. PROJECT STRATEGY

A. Project Team/Partners

The project team consists of Michael Hoff, Marshall Meyers, Bret Shaw, and Hannah Hoff.

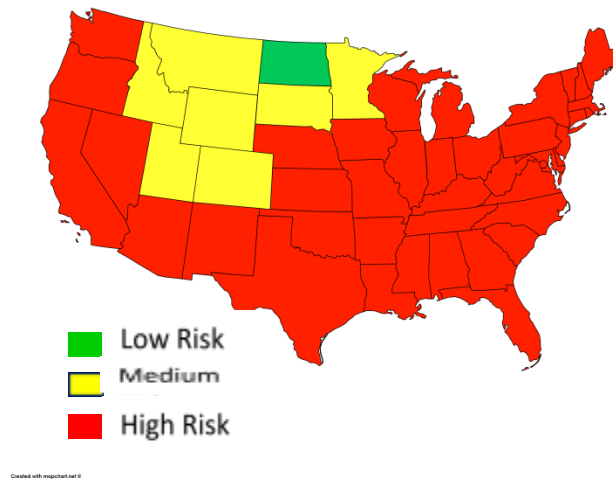
B. Project Impact and Long-Term Strategy

The ECOSTAR labels will be demonstration of a product that all in the supply chain can understand, within 30 seconds, risk of a nonnative species by jurisdiction and region within the conterminous U.S.

Appendix
Provisional Template for Species X ECOSTAR label

[Note: This template may be revised as the result of interviews conducted under Output 2 of Section II above]

1. Common Name (Scientific Name)
2. Picture of Species



3. Map of Risk
4. Additional Information
 - This buying guide does not provide information on local and state regulations for buying and keeping species x. Therefore, it is imperative that you consult your local and state regulations for buying and keeping live specimens of species x.
 - If you legally buy and keep species x in any location, then never release the species into the environment, and use caution so that the species cannot escape into the environment.
 - Recommended alternatives to species x include....

For more information:

...[add important references that can provide additional information]

Appendix B: ECOSTAR Interview Form

ECOSTAR Project Interview Form

BACKGROUND INFORMATION

ECOSTAR is a rating system for live, nonnative plants and animals considered for use in aquaria, water gardens, schools as instructional aides, as well as for aquaculture, live-food markets, and others in various supply chains. This rating system has been developed to provide information that helps all of us protect the environment by minimizing the risk of nonnative species becoming established and harming ecosystems, economies, and human health. ECOSTAR labels appearing on nonnative species containers, or other means of conveyance in supply chains, will provide nonnative species risk information to importers, domestic producers, sellers (wholesale and retail), and ultimate consumers. That risk information is intended to help all of us make wise decisions on plants and animals we wish to import, sell, buy, and keep.

The goal of our project is to protect the environment by providing science-based information, not only to the supply chain, but also ultimate consumers about the risk of harm of a nonnative species may have in jurisdictions and regions within the lower 48 states of the U.S. The objective of our project is to draft ECOSTAR labels for some nonnative species.

We are asking you to review three ECOSTAR draft labels (attached to this message), and then answer the 10 questions that follow. The three attached ECOSTAR labels have been produced using peer-reviewed scientific tools and processes. However, we are seeking your expert input to help guide modifications of the format and content of ECOSTAR labels that will be produced as the final products of our project. These label products will be made available to partners and stakeholders for outreach and educational programs.

Interviews conducted under this project are intended so that our team receives input on ECOSTAR draft labels from selected individuals representing different aspects of supply chains, and from several graphic designers. You are being asked to complete the following interview form, by:

- Reviewing the attached PowerPoint file containing ECOSTAR draft labels for three species, and
- Answering questions in this interview form.

INSTRUCTIONS

Please answer the following 10 questions. Return the completed interview form to me [Michaelhhoff@comcast.net] within two weeks. Please contact me, if you have any questions about completing this interview form.

INTERVIEW QUESTIONS ABOUT ECOSTAR LABELS (see attached PowerPoint File for the labels)

1. What does the information in the ECOSTAR labels **tell you about risk of the Freshwater Angelfish to your home state?**
 - a. Is the risk Low, Medium or High?
 - i. **Answer:**
2. What does the information in the ECOSTAR labels **tell you about the risk of the Rio Grande Cichlid to your home state?**
 - a. Is the risk Low, Medium or High?
 - i. **Answer:**
3. What does the information in the ECOSTAR labels **tell you about risk of the Water Hyacinth to your home state?**
 - a. Is the risk Low, Medium or High?
 - i. **Answer:**
4. What does the information in the ECOSTAR draft label **tell you about risk of the Freshwater Angelfish to the lower 48 states?**
 - a. Is the risk None, Some, Much, Most, or All?
 - i. **Answer:**
5. What does the information in the ECOSTAR draft label **tell you about risk of the Rio Grande Cichlid to the lower 48 states?**
 - a. Is the risk None, Some, Much, Most, or All?
 - i. **Answer:**
6. What does the information in the ECOSTAR draft label **tell you about risk of the Water Hyacinth to the lower 48 states?**
 - a. Is the risk None, Some, Much, Most, or All?
 - i. **Answer:**
7. Specifically, **what do you like about the ECOSTAR labels?**
 - a. For example: Format, Text, Map
 - i. **Answer:**

8. Specifically, **what do you recommend changing** in the ECOSTAR labels to make it quicker and easier to understand the risk of the species to your home state or to the lower 48 states?
 - a. For example: Format, Text, Map
 - i. **Answer:**

9. What taglines for ECOSTAR do you prefer and why?
 - a. ECOSTAR: Buy low-risk plants and pets
 - b. Buy ECOSTARS -- low risk plants and pets
 - c. Buy ECOSTARS, which are low risk plants and pets
 - i. **Answer:**

10. Do you have any further suggestions for how to create labels to encourage any and all in the supply chain to purchase low risk plants and animals?
 - i. **Answer:**

Appendix C: ECOSTAR Example Labels



Freshwater Angelfish (*Pterophyllum scalare*)

ECOSTAR: Buy low-risk plants and pets

Risk Summary: The Freshwater Angelfish is not native to the United States and is a low risk of causing harm to U.S. waters.



Photo: Daniel Marmion. Licensed under Creative Commons BY-NC-ND 2.0
Available at: <https://www.fishbase.org/species/386984/p/0/06/4730567208>
(October 6, 2020).



Map created from information at: <https://www.fishbase.org/species/386984/p/0/06/4730567208>
<https://www.ecostar.org/low-risk-plants-and-pets>

Take Action By:

- Consulting local and state regulations prior to buying and keeping specimens of Freshwater Angelfish.



Rio Grande Cichlid (*Herichthys cyanoguttatus*)

ECOSTAR: Buy low-risk plants and pets

Risk Summary: The Rio Grande Cichlid is not native to the United States and is a high risk of causing harm to some of the waters in the U.S. (red states on the map).



Photo: Charles & Olin. Licensed under Creative Commons CC BY-SA 2.0. Available: <https://www.fishbase.org/species/20967/m@AQICAG9245> (October 6, 2022)



Map created from information at <https://www.fishbase.org/species/20967/m@AQICAG9245> and <https://www.fishbase.org/species/20967/m@AQICAG9245> (October 2022)

Take Action By:

- Either buying Rio Grande Cichlids in green states or choosing a low-risk alternative to Rio Grande Cichlid, such as the Cockatoo Cichlid (*Apistogramma cacatuoides*).
- Consulting local and state regulations prior to buying and keeping specimens of Rio Grande and Cockatoo Cichlids.



Water Hyacinth (*Eichhornia crassipes*)

ECOSTAR: Buy low-risk plants and pets

Risk Summary: The Water Hyacinth is not native to the United States and is a high risk of causing harm to waters in most of the U.S. (red states on the map). It is illegal to buy, sell, transport, or trade Water Hyacinth across state lines.



Photo: Andreu Gueles. Licensed under Creative Commons BY-NC 4.0
Available: <https://www.gettyimages.com/photos/2491028> | October 8, 2020.



Map created from information at <https://www.fws.gov/bioma/2013/01/can-you-identify-the-most-dangerous-invasive-species/>

Take Action By:

- Choosing a low-risk alternative to Water Hyacinth, such as Pickerelweed (*Pontederia cordata*).
- Consulting local and state regulations prior to buying and keeping specimens of Water Hyacinth and Pickerelweed.

**Appendix D: Research and Risk Assessment Committee
Meeting Notes**

Old Business

I. Sampling workshop videos now available on-line.

II. Capture techniques summary for all life stages – USFWS pub?

From Emily Pherigo: Jeremy Hammen (former USFWS employee from our office), Scott Collins and Nathan Lederman (IL DNR) continue to work on a publication that Scott Collins presented at the last MRBP meeting in Texas. There is no timeline for when that will be completed. Nathan Lederman also maintains Appendix L of the Illinois River Monitoring and Response Plan which has the objective to create a living document (i.e., a continually updated as new data becomes available) describing specifications of sampling gears utilized to deplete, detect, or monitor adult, juvenile, and larval Invasive Carp populations in the Illinois River watershed. At this time, Nathan is probably the best contact regarding these projects.

III. Deterrence/Barriers -

Suski 2011 last review – need updated summary – Peter says would be good now Teleost fish or broaden to other species like zebra mussels. There is a lot of research on barrier technology going on right now, and the committee voted to hold off 18 months on pushing for a review document, to hopefully include several new studies at that time. This could be a review document or a special issue of a journal.

IV. Jon Amberg: Advancements in CO2 for barriers (not just for Asian carps)

Carbon Dioxide-Carp
A New Tool for AIS Control

The benefits to using carbon dioxide (CO2) as a control for aquatic invasive species are as follows:

- Non-physical
- Inexpensive
- Widely available
- Repurposed
- Natural occurrence
- No highly toxic residues
- Low risk to human health
- Non-proprietary
- Can be used as a deterrent or lethal control

More than 25 publications in just the past few years

- Primarily focused on Asian carp but applicable to other fishes

Fish seek out the areas with the lowest CO2 concentrations

- Effective as a deterrent

- Has been demonstrated in lab studies and in field (actually treated a navigation lock)

Can be deployed under ice to enhance winter kill

- Serves as an alternative to rotenone
- Inject through holes
- Results in complete kill if 100 ppm

Currently registered with EPA to use as a deterrent for Asian Carp and as a lethal control under ice

Working to remove the limitations “Asian car and under ice” so that it can be used for other species and in open waters

Demonstrated that you can achieve lethal levels in ponds in MI

Demonstrated that CO₂ kills adult invasive mussels

Demonstrated that CO₂ will deter veligers from settling

EPA is currently reviewing data to expand the current label

To obtain a label for using CO₂ to control fish you can contact the following: Kim Fredricks (kfredricks@usgs.gov) or Jon Amberg (jamberg@usgs.gov) with USGS or Teresa Lewis (Teresa_Lewis@fws.gov)

Answers to some questions I had for Jon: Re: expense – about \$100 to cycle a lock. [Sounds like a lot but depends on the lock. TN river locks (exclusive of KY Lake Dam, which is 4678 times) cycle about 1350 to 2800 times a year, so that would be \$135,000 to \$280,000 per year – probably much less than full-time electricity would cost] Expense of materials to distribute the CO₂ would be much less expensive than most other types of barriers, but there would be some engineering costs to determine locations for diffusers, and other minutia of applications. Amberg suggested that it is unlikely that mussels in tailraces would be affected.

V. Water Chemistry for otolith microchemistry evaluations

Funded Greg Whitley (SIU) for this: The plan is to collect two samples (one for stable isotopes, one for trace elements) from each site on each of two dates. First collection would be in late spring (April/May/June) if weather/river conditions allow and a second collection later in the summer. The rationale behind this timing is to collect samples when YOY fish (various species) are typically present, since the main aim of otolith chemistry is often to identify natal location.

This contract has been let. To avoid travel costs we intend to work with state and federal agencies in the needed areas to collect the samples. Between now and March, you may be contacted to help collect samples from the various locations that have been identified as places where more samples are needed. Sample collection is simple, basically collecting two bottles of water on two different occasions. Sample

bottles and a protocol would be sent to you, along with a return addressed label. No refrigeration will be required for these samples.

The contract and proposal are available to anyone who desires to see it. I have distributed this contract to members of the Research and Risk Assessment Committee

VI. **eDNA workshop**, next step will be a decision tree for use by managers. Richter, Sepulveda, and others are working toward this goal now.

VII. **Black Carp Reward (bounty) program**

UMR Asian carp working group is interested in providing bounty for this, and MO RIVER working group *might* also be interested in assisting. The mechanism for this is as yet not set, and the new MRBP administrative person might be a good person to administer the rewards. Currently, fish are provided to USGS from the different parts of the range. USGS would work with the fishers and states to receive the fish and would provide information to MRBP regarding where to send \$100 reward checks. USGS would provide shipping but cannot provide rewards.

VIII. **Silver carp Genetic analysis of basins**

Substantial discussion over whether this activity would be valuable for managers. After much discussion it was determined that this is a likely There are funds available and this would be a good project to get handle on how to focus efforts. Chris and Matt and Eugene will develop tractable questions regarding spawning sources of fish, and the Committee will revisit this to determine if we will request funding.

IX. **Carp Literature database available**

How to publicize and increase availability. Currently 7000 references.

No additional project funding requests at this time.