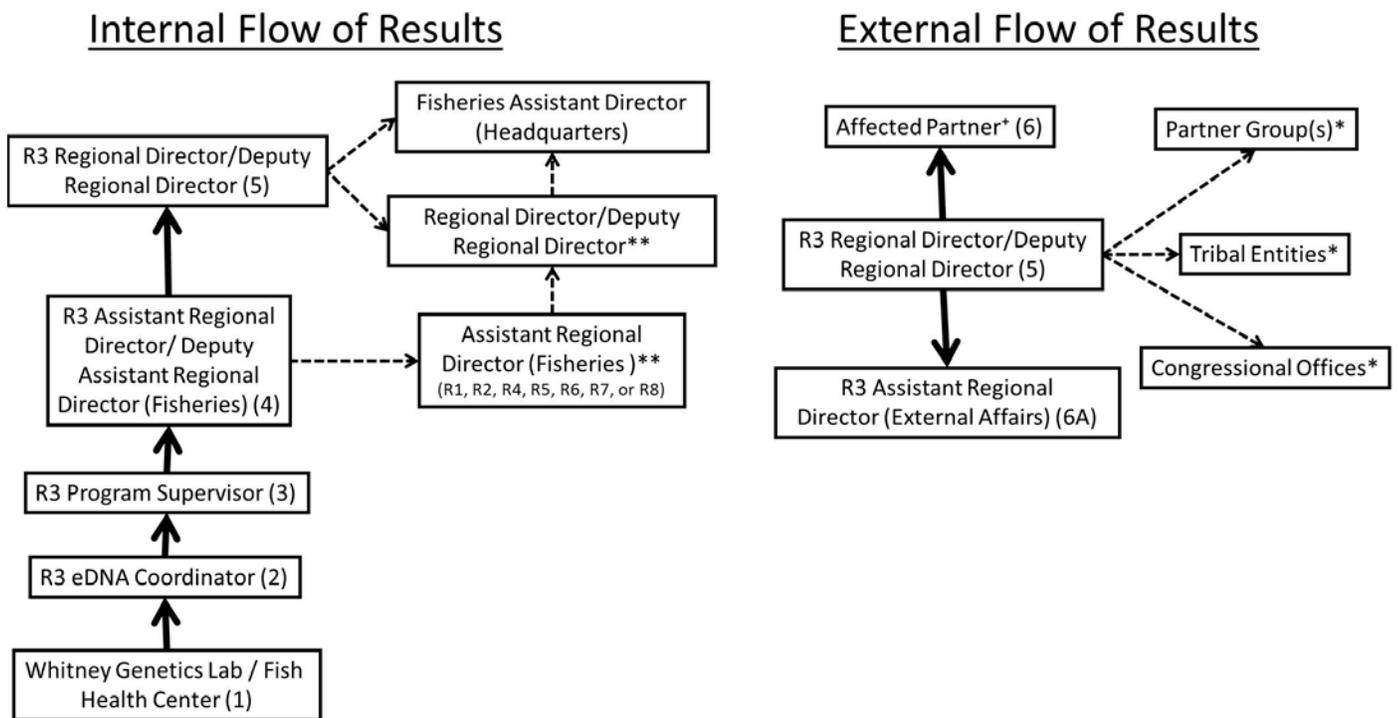


Standard Operating Procedure: Notification of U.S. Fish and Wildlife Service eDNA Results

This Standard Operating Procedure (SOP) is intended to guide U.S. Fish and Wildlife Service (Service) employees involved in the sampling and analysis of environmental DNA (eDNA) as they disseminate the results of early detection and monitoring for Bighead and Silver carp genetic surveillance. Included is a flowchart (Figure 1) depicting how information will be transmitted through the Midwest Region, as well as specific guidance relating to the format and types of information that will be crucial to include as eDNA results are communicated. Further guidance regarding Service eDNA sampling can be found in the Great Lakes SOP (Great Lakes Sample collection) and the Asian Carp Regional Coordinating Committees Monitoring and Response Plan and other regionally specific plans. All eDNA sampling should be completed in accordance with the *Quality Assurance Project Plan; eDNA Monitoring of Bighead and Silver Carp* (QAPP; 2013).



*Affected Partner refers to an entity, such as a state, province, or tribe, who has management authority of the body of water being sampled.

*Partners Group(s), Tribal Entities, and Congressional Offices communication will be carried out as determined appropriate by the Region 3 (R3) Regional Director/Deputy Regional Director. See “Post Analysis Coordination” section for further detail.

**Information sharing cross regionally within the Service, communication will be carried out as determined appropriate by the R3 Assistant Regional Director and R3 Regional Director/Deputy Regional Director.

- - - Dashed lines indicate situation dependent lines of communication based on case specific information.

Figure 1: The flow of information from the Whitney Genetics Lab (WGL) / Fish Health Center (FHC) within the Service to the Regional Director (RD), and then from the RD externally to our affected partner. Numeric order of the primary flow of results information noted at each step.

Data sharing from FWCO's and Service Whitney Genetics Laboratory (WGL)

- Once sample processing is complete and positives identified, results will be communicated through the flowchart (Figure 1) within Region 3 (R3) Fisheries to the Assistant Regional Director (ARD) level. Reporting internally to the eDNA Coordinator level as the results are determined by the Whitney Genetics Lab (WGL) will help streamline the process and allow time for the eDNA Coordinator to prepare for disseminating the results up and out to the affected partner
- All eDNA results information is to be kept confidential, being transmitted as shown in the flow chart (figure 1). Any potential communication with partner groups or other entities outside the Service will not occur prior to informing the affected partner. For further information on the dissemination of results to others, see the "Post Analysis Coordination" Section below.
- eDNA results information will be formatted as described in the Results Procedure Section (below) by the eDNA Coordinator and prepared as a briefing for the Fisheries Deputy Assistant Regional Director (DARD), and ARD.
- Once briefed, the R3 Fisheries ARD will brief the R3 Regional Director (RD), or Deputy Regional Director (DRD), which will allow the RD or DRD to provide input and disseminate the results as appropriate to affected partner and partner group(s) as outlined in the Post Analysis Coordination Section (below).
- The communication and briefing process from eDNA Coordinator to RD and/or DRD should occur quickly. This will allow R3 to disseminate results promptly and maintain our responsiveness to affected partner and partner group(s).
- When communications are made which transmit results or data from one step to the next in the flowchart (Figure 1), the person sending it must confirm receipt of the information via email response to ensure the message was received and maintain a record of the exchange.
- Communication of results beyond the eDNA Coordinator will only be made once all samples from the sampling event are fully analyzed.

Results Procedure:

- The sampling event data will be packaged together by the eDNA Coordinator in a uniform template to be used to inform the affected partner. Sampling events are defined by the geographic boundaries sampled or by the number of samples taken.
- Data and maps related to the sampling event will be provided to the eDNA Coordinator from each respective Fish and Wildlife Conservation Office (FWCO) upon their completion.
- The analysis results associated with each sampling event will be provided to the eDNA Coordinator by the WGL once processing at the lab is completed.
- The eDNA Coordinator, as part of gathering this information, will compare the datasets provided by the WGL and the FWCO to ensure the data matches each other, i.e. labeling and unique identifiers match, and combine them to create the final data package to be sent to the affected partner.
- The data package to be sent to the affected partner will include:
 - Geo-referenced map indicating all sites eDNA samples were taken, highlighting those sights that were determined to be positive for eDNA (Example included as Appendix A). This map will be formatted as a .jpeg file indicating positive results as red triangles (silver carp), blue squares (bighead carp) and negative results at yellow circles.
 - Digital Excel file with each sample uniquely identified. Data columns will include: Sample ID, Latitude and Longitude in decimal degrees, Date of Collection, Water Body Name, Silver Carp Results, and Bighead Carp Results.

- A transmission memo from R3 Fisheries ARD to the affected partner relating a summary of the information that has been collected and our proposed next steps (Memo template attached as Appendix B). This memo will be sent via email for timeliness as well as in hard copy.
- A press release template with eDNA specific language will also be included in the transmission to assist the affected partner as needed (Appendix C).

Post Analysis Coordination

- The data package of results will be emailed from the Deputy Regional Director (delegated to Assistant Regional Director or Deputy Assistant Regional Director as appropriate) directly to the affected partner point of contact (as determined by the affected partner). The Deputy Assistant Regional Director will follow up with secondary communication via telephone and /or email to the affected partner point of contact to ensure the data was received.
- Following transmission of the data package to the affected partner we will be prepared to work with them, to assist in interpreting the results or supporting further sampling if possible, understanding that in some cases the affected partner may not decide to carry out follow up investigation. We will also assist as requested in a partner led press release sharing the results with the general public.
- When notifying the affected partner, the data package will also be transmitted via email to our website manager and External Affairs Office. The Service External Affairs team will be prepared to assist the affected partner with outreach or press release materials upon request. This transmission will start a 5 business day waiting period at the end of which the results will be posted to a Service website. However, upon written request from an affected partner, the Service will extend the timeframe for up to an additional 5 business days. The request will specify the reason(s) for the extension (e.g. new geographic area of eDNA detection, high number of positive results, etc.), the name and position of the requesting official, and the number of additional days requested. See appendix D for further information regarding Service External Affairs role in eDNA results notification process.
- The website manager will review the materials and format them as needed to prepare them for posting on the FWS public website: www.fws.gov/midwest/fisheries/eDNA.html
- The results will be posted concurrent with any press releases issued by affected partner, **OR** by 3 PM CST on the fifth business day after delivery of the data package to the affected partner, whichever comes first, unless more time is requested by the partner. This is to ensure transparency in the system and to not restrict information sharing.
- Immediately upon posting the results online, the website manager will inform the ARD/DARD, who will then inform the affected partner via confirmed email.
- In addition, Partner Groups, Tribal Entities and Congressional Member Offices will be notified on a case dependent basis.
 - Partner Groups – Groups, such as the Asian Carp Regional Coordinating Committee, the Council of Great Lakes Fisheries Agencies, the Affected Great Lakes Fishery Commission Lake Committee, the Mississippi River Interstate Cooperative Resource Association, etc. will be notified via email and/or phone call from the DRD (delegated to ARD as appropriate) to their chairperson upon issuance of a press release by the affected partner.
 - Tribal Entities – Notifications will be made to each Tribe’s leadership respectively as an affected partner when sampling has taken place within or in direct proximity to tribal lands. In this case, they will receive the same data package via email as any other affected partner (See Results Procedure section). If the samples were taken in treaty waters, but not in proximity to tribal lands, their leadership will be notified via email and/or phone

- call from the DRD (delegated to ARD as appropriate) either upon issuance of a press release by the affected partner or when the results are posted on the FWS website.
- Congressional Member Offices – Congressional Office contacts will be notified upon issuance of a press release by the affected partner on their behalf. Notification will be made via email and/or phone call from DRD (delegated to ARD as appropriate).

Appendix A:

Example geo-referenced map of negative results, although none occur on this example, positive Silver carp results should be highlighted as red triangles and positive Bighead carp results should be highlighted as blue squares.



Appendix B:

Dear (Insert name of Partner),

Enclosed with this letter you will find the U.S. Fish and Wildlife Service (Service) Whitney Genetics Lab results relating to the recent Environmental DNA (eDNA) sampling which occurred in (Enter Name of Sampling Location or Water Body). These results are presented geographically to provide an overview of the locations where each individual sample was collected, as well as indicating those that were found to be positive for Asian Carp eDNA (include if positives are found). Additionally, there is a table provided which identifies each individual sample collected by unique identifier and its corresponding data.

If one or more samples were positive for Asian carp eDNA, use this paragraph:

Of the X samples taken, positive results were found in X samples. Of those, X were positive for silver carp and/or X were positive for bighead carp. Working with you as our partner, we would recommend that...

If no samples were positive for Asian carp eDNA, use this paragraph:

After reviewing the data, you will see that none of the water samples collected in this effort were found to be positive for Asian carp eDNA. We will keep you apprised as further information is collected through future sampling efforts.

Please be aware that these results will be posted on our public website no later than (Enter approximate time (noon) and date of posting if no press release is issued), 3 business days after the transmission of this message. Upon your request, we will work with you to interpret these results and issue a press release.

Include if more than one affected partner:

This information has also been sent to (Enter names of other affected partner) as affected partners. Please work together with the Service and the other affected partners to coordinate next steps in responding to these results and providing information to the public to ensure a clear and consistent message.

Please contact eDNA Coordinator XXXX at (Phone and email) if you have any questions.

Appendix C:

FOR IMMEDIATE RELEASE

Month XX, XXXX

Contact(s):

Name of Agency, Contact Name, Phone Number

Name of Partner Agency, Contact Name, Phone Number

MAIN TITLE

Subtitle

Analysis of water samples taken from [insert water body] on [insert date] have tested positive for the presence of Asian carp environmental DNA, also known as eDNA. Out of [insert total number of water samples] water samples collected by the [insert agency], [insert number] have traces of genetic material from [insert Asian carp species, e.g. bighead and/or silver].

The eDNA samples were collected as part of an extensive monitoring effort in [insert all water bodies sampled]. The samples were processed by the U.S. Fish and Wildlife Service's Whitney Genetics Lab in La Crosse, Wisconsin.

[Insert agency VIP quote explaining what the positive eDNA findings mean]

In response to the positive findings [insert next steps].

eDNA can be left in the environment in the form of scales, cells, feces or mucus. At present, eDNA evidence cannot verify whether live Asian carp are present, whether the DNA may have come from a dead fish, or whether water containing Asian carp DNA may have been transported from other sources such as bilge water, storm sewers or fish-eating birds. The U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers and the U.S. Geological Survey are leading a multi year Asian Carp Environmental DNA Calibration Study (ECALS), funded through the Great Lakes Restoration Initiative, to improve the understanding and interpretation of Asian carp eDNA results. For more information on ECALS, please visit www.asiancarp.us/ecals.

eDNA results from this sampling event can be viewed at: www.fws.gov/midwest/fisheries/eDNA.html

For more information on the science of eDNA in the fight against Asian carp, watch the video at: <http://youtu.be/xXwply6ahQ8> .

[Insert agency boiler plate]

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Appendix D. U.S. Fish and Wildlife Service External Affairs Flow Chart

