Shipping, Handling, and Data Protocols for Wild Captured Black Carp and Grass Carp

Any suspect black carp collected in the wild in the United States and grass carp collected in the Great Lakes Basin, or other novel locations in the U.S., should be immediately reported to the appropriate resource management agency in the state where the fish was collected. These protocols are not intended for grass carp collected from established populations in the Mississippi River Basin or authorized stocking locations. Do not release any suspect black carp, or grass carp collected in the Great Lakes Basin, unless required by state laws or instructed to do so by the resource management agency.

Differentiating black carp from grass carp using diagnostic external characteristics can be very challenging, especially when the two species are not being compared side-by-side. An identification fact sheet is attached for your reference. Careful attention should be given in waters where grass carp are known to occur to confirm that captured individuals are indeed grass carp and not black carp. If you are not positive of the species identification you should report the collection to the appropriate resource management agency to get assistance and further instructions.

Collection information, basic biological data, and digital images should be collected for any suspect black or grass carp as soon as possible after capture. In addition to collection and basic biological data, we are interested in collecting multiple structures and organs from each fish for management and research purposes. Protocols are provided for 1) collection information, basic biological data, and digital images; 2) removal, preparation, and shipment of eyes for ploidy analysis; and 3) preparation and shipment of black and grass carp carcasses.

These protocols are intended to provide resource management agencies, or authorized personnel, with complete instructions for the proper collection, preparation, and shipping of data, samples, and carcasses for the collection of as much biological information as possible. It is important that all collections of black and grass carp (from the identified locations above) are immediately reported to the appropriate resource management agency in the state where the fish was collected.

Any questions regarding these protocols may be directed to Greg Conover (greg_conover@fws.gov or 618-889-9600).
Step 1: Data Collection

1. Fill out Data Collection Form.
2. Record GPS Location (if available, otherwise a description of collection location);
3. Record date of capture, method of capture, and collecting individual or agency. Record fish weight, girth (Figure 1), total and fork lengths, and species (number samples if necessary);
4. Take high resolution digital pictures:
   a. Lateral view of fish’s entire left side (Figure 1),
   b. Close-up lateral view of head (Figure 2),
   c. Dorsal view of head with mouth fully closed taken from directly above the fish’s head (Figure 3);
5. Record name, telephone number, and/or email address for point of contact;
6. E-mail data and digital images to Jennifer Bailey at jennifer_bailey@fws.gov (data will be provided to USGS NAS database managers: http://nas.er.usgs.gov/)
7. Proceed to Step 2.

![Image](image1.png)

Figure 1. Example of step 4.a: Lateral view of fish’s entire left side. Dashed white line indicates location for girth measurement.

![Image](image2.png)

Figure 2. Example of step 4.b: Close-up lateral view of head.

![Image](image3.png)

Figure 3. Example of step 4.c: Dorsal view of head with mouth fully closed.
Step 1: Data Collection Form - Include with Shipment of Eyeball Samples: Do Not Freeze

GPS Location: N: ________________ W: ________________

Date of Capture: _____________

Collector: ____________________ Agency: ____________________

Species: ________________ Capture Method: ____________________

Weight: ________________ Girth: ________________ Sex: ________________

Total Length: ________________ Fork Length: ________________

Notes: __________________________________________________________

_________________________________________________________________

_________________________________________________________________

_________________________________________________________________

Point of Contact: ________________________________________________

Phone: ________________ email: ________________________________

WGL Contact Information: Jennifer Bailey – fish biologist
608-518-0128 (mobile)
jenennifer_bailey@fws.gov

Nikolas Grueneis - fish biologist
608-518-0129 (mobile)
nikolas_grueneis@fws.gov

Shipping Address: Whitney Genetics Lab
Midwest Fisheries Center
US Fish and Wildlife Service
555 Lester Ave
Onalaska, WI, 54650
608-783-8444

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Step 2: Eyeball Removal, Sample Preparation, and Shipping Procedures for Ploidy Analysis

Materials:
• Forceps; scalpel; blunt or curved scissors
• Permanent marking pen
• 50-100 ml plastic containers with leak-proof screw top cap
• Sealable plastic bags to fit several 50-100 ml containers
• Contact lens solution or saline (0.8-1.0% NaCl in DI water)(1 g NaCl per 100 ml of DI water)
• MS-222 or other means of euthanasia
• Cooler or insulated container with ice packs, packing tape to seal cooler

NOTE: Contact the Whitney Lab if you have questions regarding the materials needed or to request assistance with preparing a kit for sample preparation and shipment.

Eyeball Sample Preparation for Overnight Shipment – Do Not Freeze:

1. Euthanize fish with an overdose of tricaine methanesulfonate (MS-222) or sharp blow to head.
2. Label a small, plastic container with collection date, species, and sample number (e.g. 25MAR13, black carp, #12).
3. Use forceps to hold the eyeball steady. Taking care not to puncture the eyeball, insert scalpel blade between the eyeball and socket wall with the blade pointed outward toward the socket wall. Cut around the circumference of the eyeball until the eyeball moves freely in the socket.
4. Use the blunt or curved scissors to reach behind the eyeball and cut the optic nerve. Once the optic nerve is cut, you should be able remove the eyeball and trim off any excess tissue.
5. Remove the other eyeball and place both eyeballs in the labeled container.
6. Pour contact lens solution or saline into the labeled container until full. Both eyeballs should be completely immersed. Close lid tightly. Maintain at 4 to 8°C. Do Not Freeze.

Contact Whitney Genetics Lab on day of collection or as soon as possible to make Overnight Shipping arrangements. (Jen: 608-518-0128 or Nick: 608-518-0129) Shipping address included on Data Collection Form

1. Pack samples in a Ziploc bag to prevent leakage and then enclose in a sealed, insulated cooler with ice packs to maintain 4 to 8°C. Include collection data form with package. Tape lid securely.
2. Ship priority overnight to Whitney Genetics Lab (address on data collection form).
3. Email confirmation of shipment and tracking numbers to jennifer_bailey@fws.gov; include digital images and GPS sampling location with this email.
**Step 3: Carcass Preparation and Shipping Procedures**

Several external and internal samples will be analyzed from both black carp and grass carp collections. Fish may be shipped whole to the USGS lab for processing, however for large specimens it may be necessary to ship only the head (Figure 4). When possible, the entire gut from all black carp and gonads from Great Lakes Basin grass carp should accompany head shipments.

*Note: The USGS lab may be contacted to discuss shipping options, instructions for the collection of gut or gonad samples, and payment of shipping fees as needed.*

![Grass Carp](image)

**Figure 4.** Dashed white line indicates approximate location for severing head from large specimens. Cut should be made far enough behind the head to include several vertebrae and pectoral fins.

**Carcass Sample Preparation for Overnight Shipment:**

If possible, *ship samples immediately on ice on same day of catch*. Otherwise, freeze the carcass before shipping. *Note: Prior to freezing Great Lakes Basin grass carp, gonads should be pulled and weighed whole when possible. Include a subsample of the pulled gonads that have been maintained at 4C – 8C (refrigerated, not frozen) with the carcass shipment.*

1. Pack entire specimen (with eyes extracted) in an insulated container with plenty of ice packs, frozen water bottles, or ice to keep cool. Do **NOT** use dry ice for shipping.
2. Include collection data (and sample number if necessary) in double ziplock bag in container.
3. Seal container to contain leaks. If using a styrofoam cooler within a box, make sure the lid is taped and sealed securely.
4. Ship immediately or keep frozen until Overnight Priority shipping arrangements are made.

**Carcass Shipping Procedures:**

1. Contact Columbia Environmental Research Center personnel to make Overnight Priority (for morning delivery) shipping arrangements.
2. Do **NOT** ship samples until arrangements have been made for receipt of package.
3. Ship specimen in sealed, insulated container (see sample preparation instructions above) priority overnight to the attention of Duane Chapman or Joe Deters.
4. Email confirmation of shipment and tracking numbers to (dchapman@usgs.gov).
CERC Contact Information:  Duane Chapman
573-875-5399
573-289-0625 (mobile)
dchapman@usgs.gov

Joe Deters
573-875-5399
573-239-9646 (mobile)
jdeters@usgs.gov

Shipping Address:  Duane Chapman or Joe Deters
Columbia Environmental Research Center
U.S. Geological Survey
4200 New Haven Road
Columbia, MO 65201
573-875-5399