Tricks of the Trade List of Items Recommended

The following is a list of items that Jacob discusses in the videos. Jason Mays (USFWS Asheville ES Field Office in North Carolina) added materials to the boots section.

Items for barges

- Rope throw bag
- Cam straps

Auxiliary equipment in packing case left in the pickup

- Digital Multimeter
- Water-tight storage boxes for digital multimeter and water conductivity meter
- Spare electrodes, anodes and cathodes
- Electrodes designed for low conductivity
- Spare anode cables for barge
- Gear operation manuals
- Cardboard padded boxes for battery storage

Buckets

- 3.5 gallon and 5 gallon sizes
- Large PVC bucket handle (removeable)

Dip Nets

- Red electrical tape or paint for marking no-touch zone; good for identifying equipment as well

- Cane foot or Walking foot
  - Attach with a construction adhesive

Sampling Daypack

- This backpack needs to be tough
- Large capacity
- Good to have shoulder strap safety releases

Contents:

- GPS navigation unit
- Hand loop for GPS unit
- D clips
- Small metal datasheet storage clipboard
- Small-sized data sheets (waterproof)
- Calculator
- Mechanical pencils and replacement leads
- Small ruler
- Electrical Output Goal Tables
- Species Code list
- Common equations for data sheet inputs
- Sampling schedule for the day
- Hanging scales in storage cases
- Floy tags
- Spare needles for Floy tags
- PVC bucket handle
- PIT tagging gear (tags and injector)
- PIT reader
- Small bait net
- Ziplock with spare Floy tag needles, twirl bags, ear protection
- Electrofishing gloves
  - Class 0 sizes 9-10 fit most
- Small length board (up to 6”)
- Water Conductivity Meter
- Water Conductivity Meter storage case
- Water Conductivity Meter quick start guide
- Snacks for crew

Personal Gear

- Sunhat (lighter color with cable ear protection tied to the hat)
- Polarized sunglasses, wrap around (have a spare)
- Ear protection (keep several in a canister)
    - Larger diameter
    - Smaller diameter
    - Cable ear plugs
- Digital ear muffs
- Waders
    - Sterilize with disinfectant (Virkon or similar)
    - Wash waders with dishwashing detergent
    - Zipper pulls

    Kangaroo Pouch Contents:
    - Permanent marker
    - Small waterproof notepad
    - Allen wrench for attaching anodes
    - Zip-ties
    - Wrenches for attaching anodes
        - Orange painted to help locate
    - Mechanical pencils
    - Lunch knife

    Wader belt
    - Back support with belt
    - Repairing holes
        - Repair adhesive (e.g., Aquaseal, a UV cure adhesive type)

    Boots
    - Replace factory laces with 550 cord (parachute cord), 72” length; make sure you have extra cord for spares
    - Screw steel studs into rubber soles for traction; rubber lug soles (e.g., Vibram) alone sometimes are not sufficient for good footing
        - Studs are not the universal answer; there is a technique to wading when using studs, you must put full weight on studs or you could slip; deliberate use of studded portion of the boot to establish firm footing.
        - In the high gradient streams of western North Carolina, Jason Mays found that a full studded boots were great on most all types of substrates except really slick bedrock; it is

like being on ice skates; whereas felt soles are better traction for slick bedrock, most rocks have just a little bit of grit to them and the studs bite fine; to accommodate high amounts of bedrock mixed in with heterogeneous substrates, he settled on a half measure by typically placing 6 studs under the big toe quarter of his boot; many biologists do not cover the boot bottom with studs but instead only a portion of the sole, usually near the inside toe; if felts are prohibited or not desired, try the same limited stud pattern directly on rubber lug soles

- Suggested stud patterns

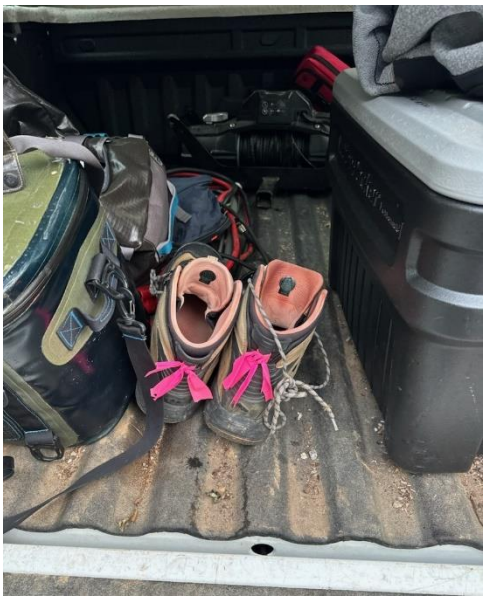
Credit: Jason Mays, FWS

Credit: Jason Mays, FWS

- Wading approach suggested by Jason: reach out with the ball of your foot and test for footing before fully committing; if you decide to shift your full weight on to the spot, then the felt gets the rest of the pressure; it is enough stud and felt to do the job; best of both worlds; also, Jason states that this sole modification helps climbing muddy banks

- Stud material: a FWS fisheries biologist has used commercial carbide studs and sheet metal screws hex head (below); he finds the less expensive wood screws just as effective; screw length is 0.5 inch with a hex type head and a flathead screwdriver slot; these wood screws can last for nearly the duration of a busy field season; note that studs do all out periodically and require replacing; studs can also damage boat decks

- Identification with flagging tape: making with flagging tape helps you find and identify your boots among several pair in the back of the truck



Credit: Jason Mays, FWS

- Dry in a cool, dry place out of sun; sun-dried will make boots hard to get on (stiff)