

[illegible]

Differences in Methods

- Protocol-specific equipment and procedures are changed to suit sampling wadeable streams
- Updated NGPN and NPS policies and procedures

Procedures

Field crews will usually include the Aquatic Ecologist and one or two NGPN biological technicians.

All crewmembers should be:

- detail-oriented and organized
- able to swim
- experienced in hiking
- physically fit enough to hike 5 miles a day in hilly terrain
- familiar with at least some stream/riparian monitoring procedures
- able to work compatibly with other crew members for long periods of time

Field crew members will receive a copy of these SOPs and the PIP for Stream Channel Monitoring in the NGPN.

Use the Training Field Personnel SOP to plan and deliver training to everyone who will be working on field crew.

Request Research Permits

Request updated park research permits at least two months before fieldwork. In the winter or early spring prior to field work, the Aquatic Ecologist will use the NPS Research Permit and Reporting System (<https://irma.nps.gov/rprs/>) to verify or request current research permits for all parks to be visited that year. Request first-time and site establishment visit permits four to six months before sampling to allow time to work with park staff on compliance.

Check and Purchase Supplies and Equipment

In early spring, check sampling equipment and supplies against the list in the Equipment and Supply Lists SOP. Do this early enough in case anything needs repair or replacement. Update the equipment inventory to show any new, damaged, or replaced equipment. Keep spare sampling equipment on-hand if possible.

Organize equipment and supplies for use in the field well before sampling begins. Check and correct settings on electronic equipment (GPS receivers, cameras, iPads or laptops, rangefinders, flow

meter). Load the GPS receivers with sampling site locations and names, access points, and other features useful for navigation (see the Using the Global Positioning System SOP).

Calibrate the flow meter in May of every year and double check it two months before the field season (to allow repair time if needed). Follow the instructions in the user manual. If readings fall outside manufacturer specifications, send the instrument to the manufacturer for repairs and calibration. A copy of the manufacturer's calibration and maintenance manual should be in the box with the Flo-Mate. The manual is also on the NGPN file server and the Hach Flow website¹.

All items that will not stay in the field should be easily visible if dropped or misplaced. Use bright paint, flagging, or tape to mark items that might get lost. A pencil or GPS receiver dropped in tall grass or a stream will be easier to find with bright flagging attached.

Prepare Data Sheets and Site Folders

After setting the field season schedule, the Aquatic Ecologist prepares a site folder for each site to be sampled. Each site folder contains:

- Maps of sampling site locations and access
- 1 Standard Transect Assessment Datasheet
- 1 Reach Characterization Datasheet
- 1 Reach Map Datasheet
- 12 Detailed Cross-Section Datasheets
- 1 Discharge Measurements Datasheet
- 3 Photographic Record Datasheets
- 1+ extra full set of extra datasheets
- Clipboards or data sheet carrier
- Pencils and pens

Print or copy all data sheets and maps onto archival-grade, waterproof paper (such as Rite-in-the-Rain or Dura-Copy). Maps should show features useful for field navigation, such as satellite imagery, roads, trails, and streams.

¹ https://www.hachflow.com/pdf/Model_2000_Manual.pdf

Communicate with Park Contacts

When scheduling fieldwork, verify the proposed schedule for each park with the designated park contact and ask:

- Who will be the field crew's primary point of contact while they are in the field?
- Are housing or campground sites available? (make reservations as necessary)
- Will the field crew need keys or other arrangements to access sites?
- Are there any changes to land use or site access routes (land ownership/neighbor relations changes)?
- Were there any recent major rain events, floods, washouts, or other significant hydrologic events?
- Will any park staff be joining NGPN for part or all of the sampling?

Check USGS gage data for stream and rivers to be sampled, and discuss current and forecast weather events with park staff.

Use this opportunity to update park contact information (phone numbers, email addresses, inclusion in email contact lists, etc.). Program NGPN cell phones with phone numbers of park contacts and NGPN staff.

Literature Cited

- Symstad, A. J., R. A. Gitzen, C. L. Wienk, M. R. Bynum, D. J. Swanson, A. D. Thorstenson, and K. J. Paintner-Green. 2012. Plant community composition and structure monitoring protocol for the Northern Great Plains I&M Network - Standard Operating Procedures: Version 1.01. Natural Resource Report NPS/NRPC/NRR—2012/489.1. National Park Service, Fort Collins, Colorado. Available at: <https://irma.nps.gov/DataStore/Reference/Profile/2182546>
- Thornbrugh, D. J., I. W. Ashton, A. R. Jarding, J. S. Mills, and K. Paintner-Green. 2019. Protocol implementation plan for stream channel monitoring in the Northern Great Plains Network: narrative version 1.0. Natural Resource Report NPS/NGPN/NRR—2019/1918. National Park Service, Fort Collins, Colorado.