

[illegible]

Differences in Methods

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

Introduction

This SOP explains training for crew members. Training includes measurement and habitat assessment techniques, emergency procedures and safety, and National Park Service rules and ethics.

All crew members must participate in training before field sampling and be able to demonstrate proper sampling techniques before collecting data without close supervision. Before participating in any field work, they will review the protocol narrative and applicable SOPs. The Project Lead/Aquatic Ecologist, crew leads, and crew members should work closely to plan relevant and complete trainings.

Teach and practice measurement and assessment techniques in realistic conditions. Schedule at least one field day before each field season for in-stream training on field safety, measurement techniques, habitat assessments, and data collection. Include all field crew leads and technicians in this training, regardless of prior experience.

Plan for additional in-office or field training covering safety, administrative processes and policies, information technology policies, working in stream and river environments, and wilderness/backcountry procedures and navigation.

Throughout training, emphasize to crew members their critical role in providing high quality data for managing NPS resources. Stress that all the details in the protocol and SOPs are there to help them collect high quality, consistent data. Encourage them to refer to the documentation throughout the field season – they are expected to do so frequently. Staff and crew members follow the collection methods, reporting requirements, and quality assurance procedures summarized below and in the Data Management SOP. This approach will provide field measurement data that meet data quality values (DQVs) and measurement quality objectives for stream channel monitoring, listed in Table 4 and Table 5 of the DQS (Thornbrugh 2019).

Procedures

Equipment Use and Maintenance

Trained crew members should be proficient in the proper use, maintenance, and storage of project equipment, including:

- GPS receiver (see the Using the Global Positioning System SOP)
- digital camera and memory card

- sighting compass
- clinometer
- laser rangefinder (see the Reach Selection and Establishing Index Sites SOP)
- top-set wading rod for use with current velocity meter (see the Discharge Measurements SOP)
- current velocity meter (e.g., Flo-Mate, Marsh McBirney)
- radio (see Radios section below)

Radios

Training on radio use will include:

- care and maintenance (including battery charging)
- understanding the list of radio frequencies and channel labels provided with the radio
- preferred channels for communication within the crew vs. between the crew and other entities (park HQ, etc.)
- radio etiquette
 - last name vs. call numbers
 - when initiating a call, identify receiver first and then yourself
 - acknowledge that message is received and understood
 - keep conversations short
 - properly close out exchange

Field navigation with map, compass, and GPS

Field crew members must be able to independently navigate in the field using a map, compass, and/or GPS. After training, they must demonstrate proficiency in:

- identifying basic features of a GPS receiver
- collecting point locations with a GPS receiver
- correctly identifying a site
- navigation to and from sites
- understanding the correspondence between a map and GPS

- navigation using a compass and map

Protocol Specific Forms and Handouts

Provide all crew members with the following, with training as needed:

- Protocol narrative and SOPs
- Magnetic Declination and Compass Use handout
- Using the Clinometer to Measure Slope handout
- Tick bite instructions
- Wilderness ethics handout
- State emergency telephone numbers list
- Gear check-out and inventory form
- Field season schedule

General NGPN- and NPS-Required Training

Newly hired crew members must meet all current NPS and NGPN general training requirements before participating in any fieldwork. Coordinate new hire training with the Project Lead, Network Coordinator, and Administrative Clerk as these requirements change frequently. They include policies on computer use, timekeeping, performance management, harassment, and travel. Much of this is available in the NGPN seasonal crew handbook.

Operational Leadership (OL) is the foundation of NPS safety and risk management. All crew members should attend OL training and are encouraged to apply the principles of OL to all field and office activities.

Special considerations for the Aquatic Ecologist

The Aquatic Ecologist will keep his/her training current. In addition to the regular crew member training, their training will include:

- discrimination, harassment, supervision, and whistleblowing
- records management
- defensive driving
- wilderness first responder/first aid
- EQuIS data entry and management

Safety and Health

Fieldwork involves significant risks to personal safety and health. Field crews will be working in remote areas and around potentially fast flowing water – they must stay aware of their safety and prepare for emergencies. The NGPN Stream Channel Monitoring Job Hazard Analysis SOP (JHA) lists potential hazards and procedures for safely working in streams and rivers. Review the JHA as a group before beginning fieldwork, and add to or modify it as needed.

The NGPN Stream Channel Monitoring Equipment and Supply Lists SOP includes required and recommended safety and personal protective equipment. Ensure these items are available and used throughout fieldwork, and replace them as needed.

Every crew member has the right to refuse to participate in any operation that he or she feels is unsafe. Everyone is encouraged to identify potential hazards or unsafe actions, and to work with crew and protocol leads to find safe ways to proceed. This includes stopping work-in-progress to make changes, or canceling work altogether.

General Guidelines

The JHA lists specific requirements and procedures for fieldwork. Important guidelines include:

- Two crew members must be present during all sampling. Never leave anyone alone in the field.
- Crew members must be in good physical and mental condition to participate in fieldwork. Fatigue, distraction, or illness may put the entire team at risk.
- Use caution when sampling on foot in or near swift or deep water, especially when walking on riprap. Rocks can shift unexpectedly, causing serious falls.
- Wear a personal flotation device (PFD, or life vest) when working or walking in or around streams and rivers.
- Wear professional quality, breathable waders with a wading belt when working in wadeable streams or rivers.
- Do not try to collect measurements or samples from vertical or near vertical banks.
- Minimize exposure to water and sediments. Surface waters and sediments may carry toxic substances or pathogens.

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.