

Standard Operating Procedure (SOP) #3

Training Observers

Version 1.03 (March 21, 2022)

Change History

New Version #	Revision Date	Author	Changes Made	Reasons for Change	Previous Version #
1.01	7/26/2012	Greg Kudray	Clarify safety policies and procedures including personnel roles and responsibilities	Safety	1.0
1.02	5/7/2021	Kim Weisenborn/ Amanda McCutcheon	Updated to NRR formatting; updated SOP references and external links; updated reference material links for equipment and software	Formatting needed to be applied; SOPs references needed to be updated because some had been removed or renumbered within the protocol; links were not provided for reference material or referred to equipment that is no longer used	1.01
1.03	3/21/2022	Kim Weisenborn	Updated content to refer to new PACN I&M SharePoint.	PACN data is no longer stored on a networked server (I:\ drive) and is now stored on the PACN SharePoint site.	1.02

Only changes in this specific SOP will be logged here. Version numbers increase incrementally by hundredths (e.g., version 1.01, version 1.02) for minor changes. Major revisions should be designated with the next whole number (e.g., version 2.0, 3.0, 4.0). Record the previous version number, date of revision, author of the revision, changes made, and reason for the change along with the new version number.

Purpose

This SOP outlines the requirements and training procedures that field staff and office analysts should follow. All field personnel should learn how to operate survey gear such as Ricoh camera, field filtering apparatus, YSI water quality monitoring sonde, and Global Positioning System (GPS). Some parks and specific sites may require staff to have additional training for field activities such as helicopter operations and motorboat operations. Office personnel need to know (1) data management principles, infrastructure, and practices associated with this Vital Sign, (2) SOPs associated with field data collection practices, and (3) analysis and reporting principles outlined in the SOPs associated with this protocol.

Field Personnel

Field personnel must be familiar with all chapters and SOPs associated with field data collection and methods. Field personnel must complete Operational Leadership Training and other safety trainings as required. All field personnel will participate in training on the use, care, and maintenance of the water quality instrumentation. The PACN Aquatic Ecologist is responsible for ensuring adequate training is received by all field personnel for the tasks they are assigned to do as part of this monitoring effort. The PACN Aquatic Ecologist will spend at least one sampling event each year with all field personnel to ensure compliance with processes and procedures outlined in the Water Quality protocol.

NPS Motorboat Operator Certification

All employees slated to operate motorboats must pass the NPS motorboat operator course prior to conducting field operations. Exceptions may be granted for personnel operating a boat under the supervision of an NPS motorboat operator instructor. All motorboat operators must be familiar with reference materials required of an NPS motorboat operator (Table SOP 3.1).

Table SOP 3.1. Required reference materials for DOI motorboat operator.

Reference	Location
DOI Motorboat Operator Certification Course (MOCC) Manual, DOI DM 485, Chapter 22	https://training.fws.gov/courses/programs/watercraft-safety/MOCC-Student-Manual(v2017-10-30).pdf (accessed 9 July 2021), https://www.hsdl.org/?view&did=487922 (accessed 9 July 2021)
U.S. Coast Guard Navigation Rules	Amalgamated International & U.S. Inland Navigation Rules (uscg.gov) (accessed 21 March 2022)
Maloney, E.S., and C.F. Chapman. 1996. Chapman Piloting: Seamanship & Small Boat Handling, 62 nd ed. William Morrow and Company.	I&M Library

NPS Helicopter Operations Certification

All employees slated to use helicopters for field access must pass the DOI A100 and A200 training courses prior to conducting field operations. All field personnel engaging in helicopter operations must be current and familiar with requirements of an NPS flight certification.

SOPs Associated with Field Data Collection Practices

The PACN Aquatic Ecologist will ensure that all field personnel thoroughly and adequately understand the SOP's associated with the water quality monitoring protocol. Chapters and SOPs related to these practices and procedures include Chapter 3 (Field Methods), [SOP #5 Selecting Water Quality Sampling Stations through SOP #11 Post-field Work Procedures and Equipment Maintenance](#).

Operating Survey Gear

The PACN Aquatic Ecologist is responsible for ensuring that all field personnel have adequate and proper training in calibration and use of all field equipment associated with this protocol.

- YSI water quality monitoring sonde and YSI datalogger: Field personnel must be familiar with the operation of the YSI sonde and YSI handheld datalogger in the field. See [SOP #6 YSI EXO Sonde Operation and Calibration](#).
- Ricoh Camera: Field personnel must be familiar with the operation of the Ricoh camera. See [SOP Using Ricoh GPS Camera](#), located in [Data Management SOP Documents](#) folder in SharePoint, on Ricoh camera operation for information on how to set up the camera for surveys.
- GPS: Field personnel will need to learn how to operate the GPS to navigate to various waypoints. See [SOP #4a Using Garmin® GPS Units](#) and practice using the unit before heading out into the field.

Reference materials related to operating survey gear can be found in Table SOP 3.2.

Table SOP 3.2. Survey gear reference materials.

Reference	Location
Operator manual for YSI EXO2 and EXO Handheld	I&M Library; and exo-user-manual-web.pdf (ysi.com) (accessed 21 March 2022)
Operator manual for Ricoh Camera	I&M Library; and see the Ricoh G800SE Camera Manual , and SOP Using Ricoh GPS Camera , located in Data Management SOP Documents folder in SharePoint
Operator manual for GPS to be used in the field (models vary).	I&M Library; and see Garmin Support (accessed 21 March 2022)

Computer Software

All field and office personnel should be familiar with using Microsoft Word, Microsoft Excel, Microsoft Access, and Instrument software Programs (Table SOP 3.3).

The PACN Aquatic Ecologist will ensure that all personnel utilizing instrument software will be fully familiar with the applications and functions.

Table SOP 3.3. Computer software references.

Reference	Location
Microsoft Word® manual or third party manual	I&M library; and https://support.office.com/en-us/word (accessed 21 March 2022).
Microsoft Excel® manual or third party manual	I&M Library; and visit https://products.office.com/en-us/excel (accessed 21 March 2022).
KorEXO® Software manual	I&M Library; and exo-user-manual-web.pdf (ysi.com) (accessed 21 March 2022).
GeoJot+ Core Photo Processing Software guidance	I&M Library; and see data management SOP Processing Images with GeoJot+ Core® Software , located in Data Management SOP Documents folder in SharePoint
DNR Garmin	I&M Library; and see SOP #4b Downloading and Uploading Data to/from a Garmin GPS .

Office Personnel

All office personnel associated with this protocol will read and be familiar with all chapters and SOPs of the Water Quality Monitoring Vital Signs Protocol.

Data Management Principles, Infrastructure, and Practices: PACN: All office personnel will be familiarized with the PACN I&M Program infrastructure and practices. All office personnel will be required to read and be familiar with the PACN data management principles and infrastructure, which can be found in Chapters 4 (Data Handling, Analysis and Reporting) and 6 (Operations Requirements) of the protocol narrative.

In the Water Quality Monitoring Protocol, the chapters and SOPs associated with data management include: Chapter 4 of the protocol narrative, [SOP #12 Workspace Setup and Project Records Management through SOP #20 Data Analysis and Reporting](#).

SOPs Associated with Field Data Collection Practices: All office personnel will need to be familiar with all chapters and SOPs associated with field data collection and methods. Chapters and SOPs related to these practices and procedures include Chapter 3 of the protocol narrative (Field Methods), [SOP #5 Selecting Water Quality Sampling Stations through SOP #11 Post-field Work Procedures and Equipment Maintenance](#).

Sound Statistical Background for Analyses: All office personnel will be familiar with Microsoft Office®, and in particular, MS-Word®, MS-Excel® and MS-Access®. Other statistical software office personnel may need to be familiar with will be described by the PACN Aquatic Ecologist.