

Southeast Coast Network

National Park Service
Inventory & Monitoring Program



Standard Operating Procedure (SOP) # 1.2.3

Field Water Quality Measurements for Coastal Assessments

Please cite this as:

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Summary

The following Standard Operating Procedure (SOP) outlines the procedure for collecting water quality field measurements during Coastal Assessments. The purpose of this SOP is to ensure that field teams are collecting data that are comparable across parks and years as well as data collected by the USEPA Coastal Assessment Program and other programs using the same or similar data collection techniques. The techniques and procedures outlined in this SOP are based on the USEPA National Coastal Assessment Field Manual (2010); much of the information herein is modified only slightly from USEPA instructions.

Revision Log

Previous Version #	Revision Date	Author	Changes Made	Reason for Change	New Version #

Equipment/Materials list

- Data sonde (YSI 6600,650, cable)
- Extra batteries for sonde
- Secchi Disk
- Data Sheets (Hydrographic Profile Form, and Field Calibration Sheet)

Secchi Disk

1. Remove sunglasses, hats or other devices used to shade the eyes.
2. Slowly lower the Secchi disk on the shady side of the boat until it is no longer visible and note the depth using the markings on the line (interpolate between markings to the nearest 0.1 meter).
3. *If the disk hits the bottom, meaning the Secchi depth is greater than the water depth, note this on the datasheet by marking the “Yes” circle under “Clear to Bottom?” and recording the depth of the water in both the “disappears” and “reappears” boxes.*
4. Slowly raise the Secchi disk until it just becomes visible and note the depth.
5. Perform steps 1 and 2 two more times, noting both disappearance and reappearance depths each time.
6. Record all six measurements on the Hydrographic Profile Form.
7. Flag any measurements that the team feels needs further comment or when a measurement cannot be made.
8. Repeat the entire process if the three sets of measurements vary by more than 0.5 m.

Field Measurements using YSI 6600 Multi-Probe Sonde

1. Ensure that the instrument has been calibrated prior to use according to SECN SOP 1.2.9 Fixed-Station Water-Quality Data Sonde Deployment and Retrieval.
2. Measure the total water depth to the nearest 0.1 meters and record on the hydrographic profile form.
3. Lower the sonde in the water and measure DO, pH, temperature, and salinity/ conductivity at the following depths: 0.1 m below the surface, 0.5 m below the surface,

every 1 meter from depths of 1 to 10.0 meters, and every 5 meters thereafter if the site is greater than 10 m. Take the last set of measurements at 0.5 m from the bottom.

4. Repeat the full sets of measurements at each of the same depth intervals as the probe is retrieved.
5. The first set of measurements will be placed in the “downcast” section of the data sheet. Take measurements at the same depth intervals on the return cast to the surface and record in the “upcast” section. Flag any measurements that the team feels needs further comment or when a measurement cannot be made.
6. After all in situ measurements have been completed for the sampling day, perform a post-measurement calibration check of the pH and conductivity probes. Record these values on the Hydrographic Profile form.

Field Calibration – QC Checks
Coastal Assessment – Southeast Coast Network

Station Name

Date: (MM/DD/YYYY)	Time: (HH:MM)	QC'd By:
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Parameter	Temp (°C)	Salinity	pH 7	pH 10	DO (%)	Depth (m)
Standard:			7.0	10.0	100.0	0.0
Measured:						
Calibrate:						

Date: (MM/DD/YYYY)	Time: (HH:MM)	QC'd By:
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Parameter	Temp (°C)	Salinity	pH 7	pH 10	DO (%)	Depth (m)
Standard:			7.0	10.0	100.0	0.0
Measured:						
Calibrate:						

Date: (MM/DD/YYYY)	Time: (HH:MM)	QC'd By:
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Parameter	Temp (°C)	Salinity	pH 7	pH 10	DO (%)	Depth (m)
Standard:			7.0	10.0	100.0	0.0
Measured:						
Calibrate:						

Date: (MM/DD/YYYY)	Time: (HH:MM)	QC'd By:
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Parameter	Temp (°C)	Salinity	pH 7	pH 10	DO (%)	Depth (m)
Standard:			7.0	10.0	100.0	0.0
Measured:						
Calibrate:						

Recorded By:

Computer Entry By:

Check here for Comments ☐ and write comments on back of form.

**Hydrographic Profile
Coastal Assessment – Southeast Coast Network**

Station Name

QC Check	Time: (HH:MM)	QC'd By:
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Parameter	Temp (°C)	Salinity	pH 7	pH 10	DO (%)	Depth (m)
Standard:			7.0	10.0	100.0	0.0
Measured:						
Calibrate:						

Date: (MM/DD/YY)	Time: (HH:MM)	Instrument #:
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Repetition 1	Depth (m)	Temp (°C)	pH	DO (mg/l)	Salinity (o/oo)	Secchi Depth (m) Down
Repetition 2	Depth (m)	Temp (°C)	pH	DO (mg/l)	Salinity (o/oo)	Up

Recorded By:	Computer Entry By:
_____	_____

Check here for Comments ☐ and write comments on back of form.

Literature Cited

U.S. EPA. 2010. National Coastal Assessment: Field Operations Manual. U. S. Environmental Protection Agency, Office of Research and Development, National Health and Environmental Effects Research Laboratory, Gulf Ecology Division, Gulf Breeze, FL. EPA 620/R-01/003. pp72.