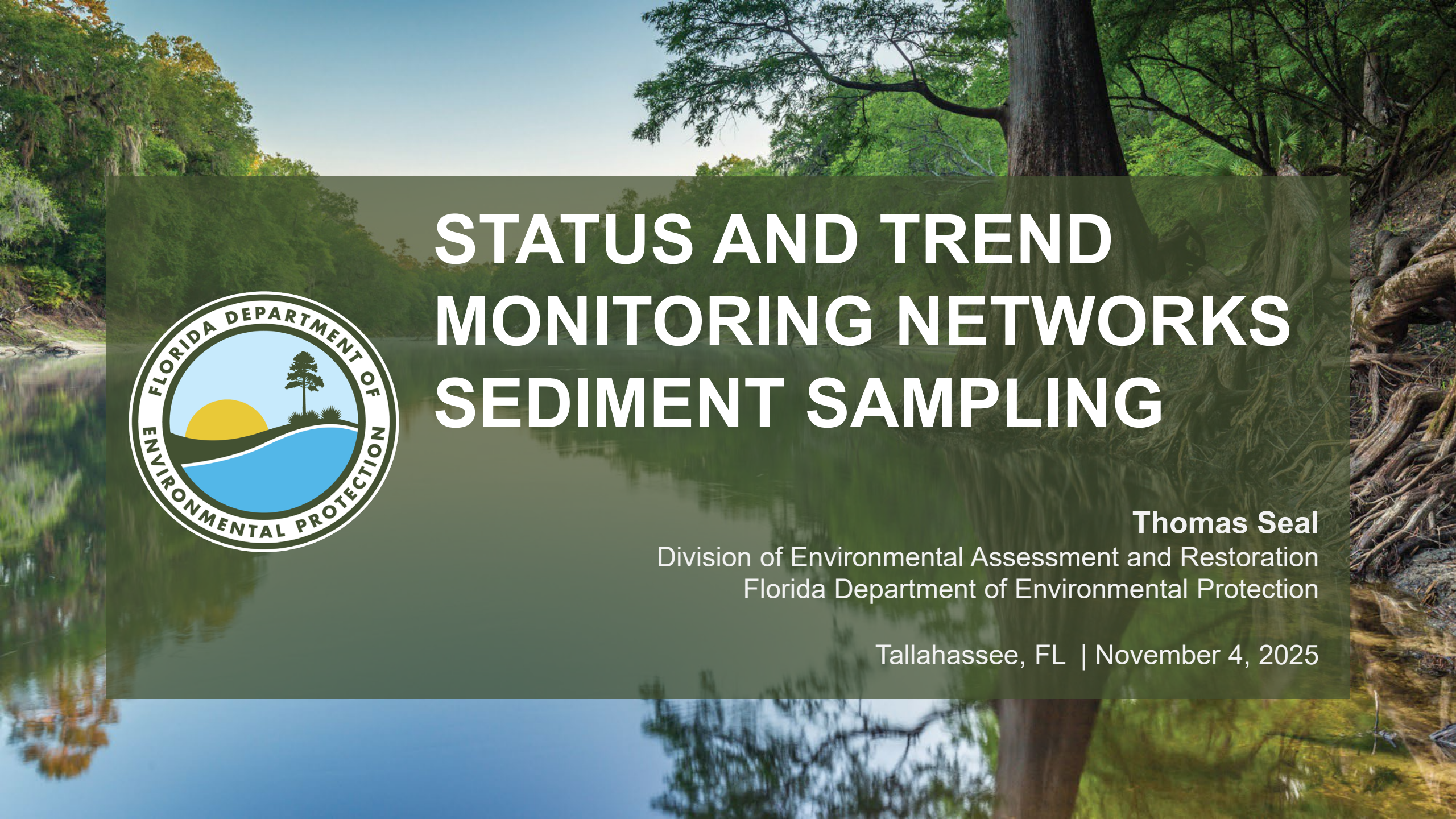

STATUS AND TREND MONITORING NETWORKS SEDIMENT SAMPLING

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SEDIMENT SAMPLING

STATUS NETWORK LARGE AND SMALL LAKES

In the annual Status Network, ideally 180 sediment samples would be collected (90 Small Lake with 15 per zone, 90 Large Lake with 15 per zone). But the annual number is less than 180, due to lack of natural small lakes in some parts of Florida.

Small Lakes are sampled in the center of open water in the lake, whereas Large Lakes are sampled at the provided latitude-longitude value.

SEDIMENT SAMPLING PROTOCOLS
STANDARD OPERATING PROCEDURES

First, read Sediment Sampling Protocols in the Status and Trend Network Sampling Manual (Section 6).

Table FS 4000-1, FS 1000, Table FS 1000-3 (Equipment and Construction).
FS 1000 and Table FS 1000-6 (Containers).
FC 1100 and FC 1300 (Cleaning).
FD 1000 (Documentation).
FS 1000 Table 1000-6 (Preservation/Holding times).

The WMS Sampling Manual is available at:
https://floridadep.gov/dear/watershed-monitoring-section/documents/status-and-trend-networks-sampling-manual.

SEDIMENT ANALYTES
PERFORMED BY THE DEP LABORATORY

- **Metals**: Aluminum*, Antimony, Arsenic, Beryllium, Cadmium, Chromium, Copper, Iron*, Lead, Selenium, Mercury, Molybdenum, Nickel, Silver and Zinc (* = normalizing elements).

- **Nutrients**: Nitrogen (TKN), Total Phosphorous (TP) and Total Organic Carbon (TOC). Last collected in 2019.

- **Organic Contaminants**: PAHs, PCBs and several pesticides were analyzed in Status Network sediments collected in 2017.

PAHs = Polynuclear aromatic hydrocarbons.
PCBs = Polychlorinated biphenyls.

SEDIMENT SAMPLING
EQUIPMENT SELECTION

- Use sampling equipment approved by the Watershed Monitoring Section (WMS) Quality Assurance (QA) officer.
- Dredges are useful in either soft (mud/muck) or hard (sand/gravel) sediments.
- Coring devices are useful in shallow (wadeable) waters.

DREDGES

TYPES USED FOR STATUS NETWORK LAKES

Ponar Dredge

Source: Pine Environmental Catalog

Ekman Dredge

Source: Research Gate

SEDIMENT SAMPLING PROTOCOLS

- Sample surface water before sediments.
- Collect a minimum of three grabs at each site and collect enough sediment to fill provided 500-ml sample jar 2/3 full.
- If you are having trouble collecting a sediment sample (e.g., rocky bottom, vegetation), inform the project manager or QA officer, and note this on the field sheet.

SEDIMENT SAMPLING PROTOCOLS

- If necessary, siphon water out of the sampling device with a sampling syringe and plastic tubing. Remove debris with Teflon® forceps.

- With the provided white high-density polyethylene (HDPE) scoop, collect the top 3-5 cm of sediment from the dredge to focus on the bioactive layer.

SEDIMENT SAMPLING PROTOCOLS

Siphoning water out of Petite Ponar Sampler.

SEDIMENT SAMPLING PROTOCOLS

Remove debris with Teflon® forceps.

SEDIMENT SAMPLING PROTOCOLS

Fill sample jar 2/3 full and seal the lid by wrapping it with black elastic electrical tape to prevent water leakage during shipping.

SEDIMENT SAMPLING PROTOCOLS

- If sample is flocculent (soupy), you may go deeper (>5 cm) with the HDPE scoop. Note this on the field sheet.

- For preservation, store samples on ice for shipment to the Tallahassee DEP Laboratory.

SEDIMENT PORTION OF SURFACE WATER FIELD SHEET

Sediment Sample Collected: ○ NO / ○ YES **Sed. Collection Time** (24hr): _____ ○ ETZ / ○ CTZ

Sed. Collection Depth (m): _____ (total water depth) **Number of Grabs:** _____ (minimum 3)

Sed. Collection Interval: ○ Top 3-5 cm / ○ Other (if top 3-5 cm is too flocculent) _____

Sed. Collection Area Description (e.g. near east shore; central): _____

Sed. Collection Device: ○ Corer / ○ Ekman / ○ Petite Ponar **Device ID:** _____

Dominant Sed. Type (select one): ○ Clay/Silt / ○ Sand / ○ Gravel/Shell Rubble / ○ Organic Muck (very fine grained, flocculent)

Sediment Odors (select one): ○ Normal / ○ Sewage / ○ Petroleum / ○ Hydrogen Sulfide / ○ Other

Sediment Color: _____ _____

Sediment Sample Comments:

Source: WMS Surface Water Field sheet

SEDIMENT SAMPLER CLEANING

Ekman, Ponar, Corer, HDPE Scoops and Forceps.

1. **Rinse**
   Pour tap water over the equipment into dedicated tub or cooler.

2. **Soak** and **Scrub** with brush.
   Use dedicated pump spray bottle of Luminox/Liquinox/DI water to spray inside and out.

SEDIMENT SAMPLER CLEANING

Ekman, Ponar, Corer, HDPE Scoops, and Forceps.

3. Dispose soapy water, rinse tub.
4. **Pour** 5 gallons of tap water over equipment into tub.
5. **Dunk** 4-5 times, work jaws.
6. **Rinse** tub.
7. **Pour** 5 gallons of DI water over equipment into tub.
8. **Dunk** 4-5 times, work jaws.
9. Store in clean bag or container.

USES OF STATUS NETWORK SEDIMENT DATA

Status Network sediment data are evaluated with two statistical tools:

- **First**, WMS uses a **geochemical** normalization tool developed by the department to distinguish sediment metal background levels from elevated values.

- **Second**, WMS uses **biological** sediment guidelines developed by department staff to judge if the metals concentrations in the sediment sample are elevated enough to cause biological harm.

- These two approaches are cited in Chapter 62-780.100, Florida Administrative Code. The sediment chemistry results are submitted alongside WMS water quality data in the biannual Integrated Report submitted by the department to the U.S. Environmental Protection Agency.

THANK YOU

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