



STATUS & TREND SURFACE WATER SAMPLING PROCEDURES

March 2024



Sampling Manual

**Section 5 Surface
Water pages 47-57**

READ ME!

LEARN



Major Topics

- ❖ *When / When Not to Collect Samples*
- ❖ *Field Sheets*
- ❖ *Sample Collection & Documentation*





Major Topics

❖ *When / When Not to Collect Samples*





All Surface Water Sites Sampling Requirements

- ❖ Water at least **10 cm** deep to collect samples
- ❖ Must have $\geq 0.5 \text{ m}^2$ free of attached vegetation at sampling point
- ❖ Collect water quality data **before** collecting sediment or bioassessment data.
- ❖ When wading into a water body, enter the water carefully to avoid disturbing the sediments. Allow disturbed material to settle **before** sample collection.



S&T Sampling Requirements for Flowing Waters (Rivers, Streams, Canals)

- ❖ When sampling from bridge or dock, collect samples from the **upstream** side whenever possible. Do not relocate Trend sites to meet this criterion.
- ❖ Always collect water samples **upstream** from the sampler's body or **upstream** from the boat.
- ❖ If tidally influenced, sample during **falling tide** (approaching low tide). Tide predictions at: http://tidesandcurrents.noaa.gov/tide_predictions



Trend Network



- ❖ All sites are Flowing Waters (Rivers / Streams / Canals)
- ❖ Sampled monthly – Field Measurements & Water Samples
- ❖ Same location
- ❖ Located using **DGPS** and **permanent landmarks** (bridge or gauge)



Trend Sampling Locations



- ❖ Stick with the **historic** location
- ❖ If Trend location is **flooded**, can sample if **safe** to do so



Trend Sampling Locations



❖ Contact QA Officer / PM if any **problems** or changes with the site



Status Resource Types

- ❖ Canals (CN)
- ❖ Rivers (LR)
- ❖ Streams (SS)
- ❖ Large Lakes (LL)
- ❖ Small Lakes (SL)





Status Network Designated Sampling Periods

Table 1 (Page 127 in S&T Sampling Manual)

Month	Confined Aquifers	Unconfined Aquifers	Canals	Rivers	Streams	Large Lakes	Small Lakes
Jan			60				
Feb	120						
Mar							
Apr				90			
May						90	
Jun							
Jul					90		
Aug							
Sep							90
Oct		120					
Nov							
Dec							



Primary Sampling Period



Overflow Sampling Period



Status Site Selection

- ❖ **Random** locations – Maintains statistical validity
- ❖ **All 15 primary sites** must be evaluated **before** alternate sites can be sampled.
- ❖ **Alternate sites** must be **evaluated in order**.
- ❖ **No gaps allowed** in site evaluation. All sites from #1 through highest # sampled must be sampled or excluded.

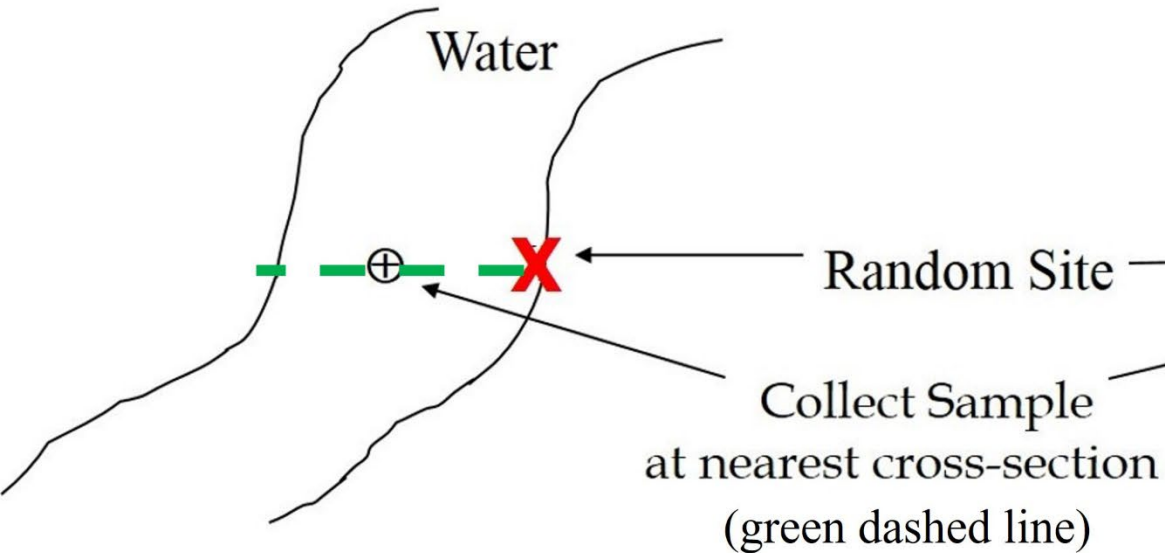


Status Sampling Locations Stream / River / Canal

- ❖ Random location = cross-section of waterbody (**perpendicular** to the bank/flow)
- ❖ Collect in area of waterbody **representative** of the flow (commonly the middle)
- ❖ **Do not** move upstream / downstream
- ❖ If random point on dry land, move ≤ 50 m toward nearest point in the water representative of flow
- ❖ **Do not sample** **Status** sites if **flooded** above banks



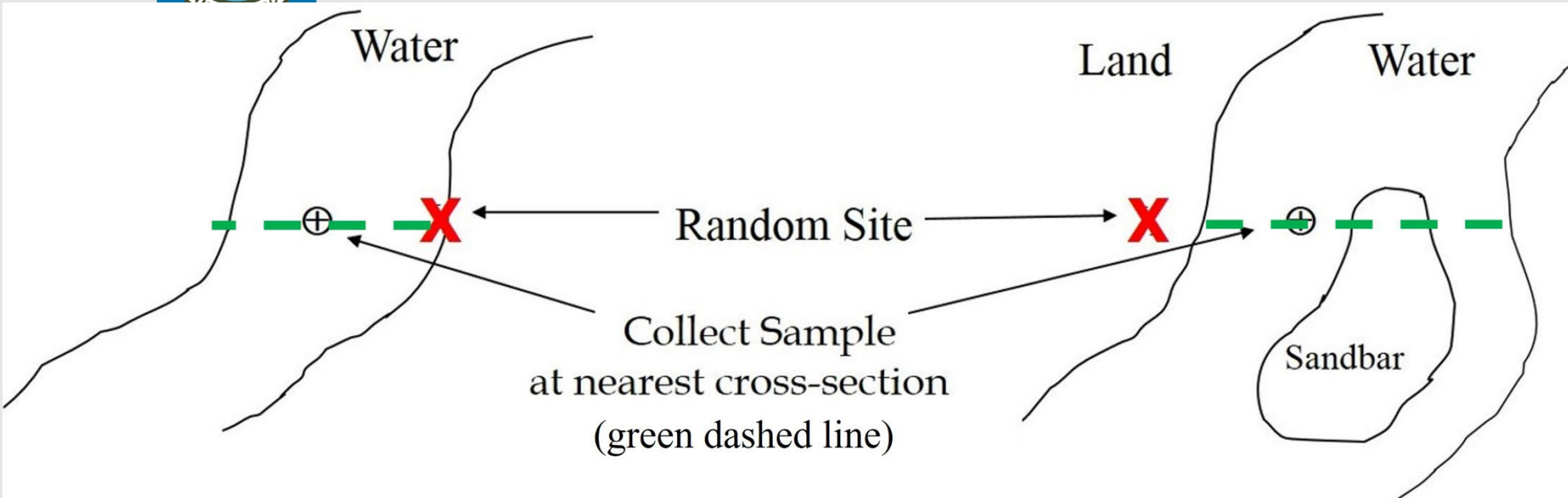
Status Sampling Locations



Left - Point is in water. Move to representative area of cross-section (no distance limit)



Status Sampling Locations



Left - Point is in water. Move to representative area of cross-section (no distance limit)

Right - If you can reach water within 50m, site can be sampled. Move to representative area of cross-section (no distance limit).

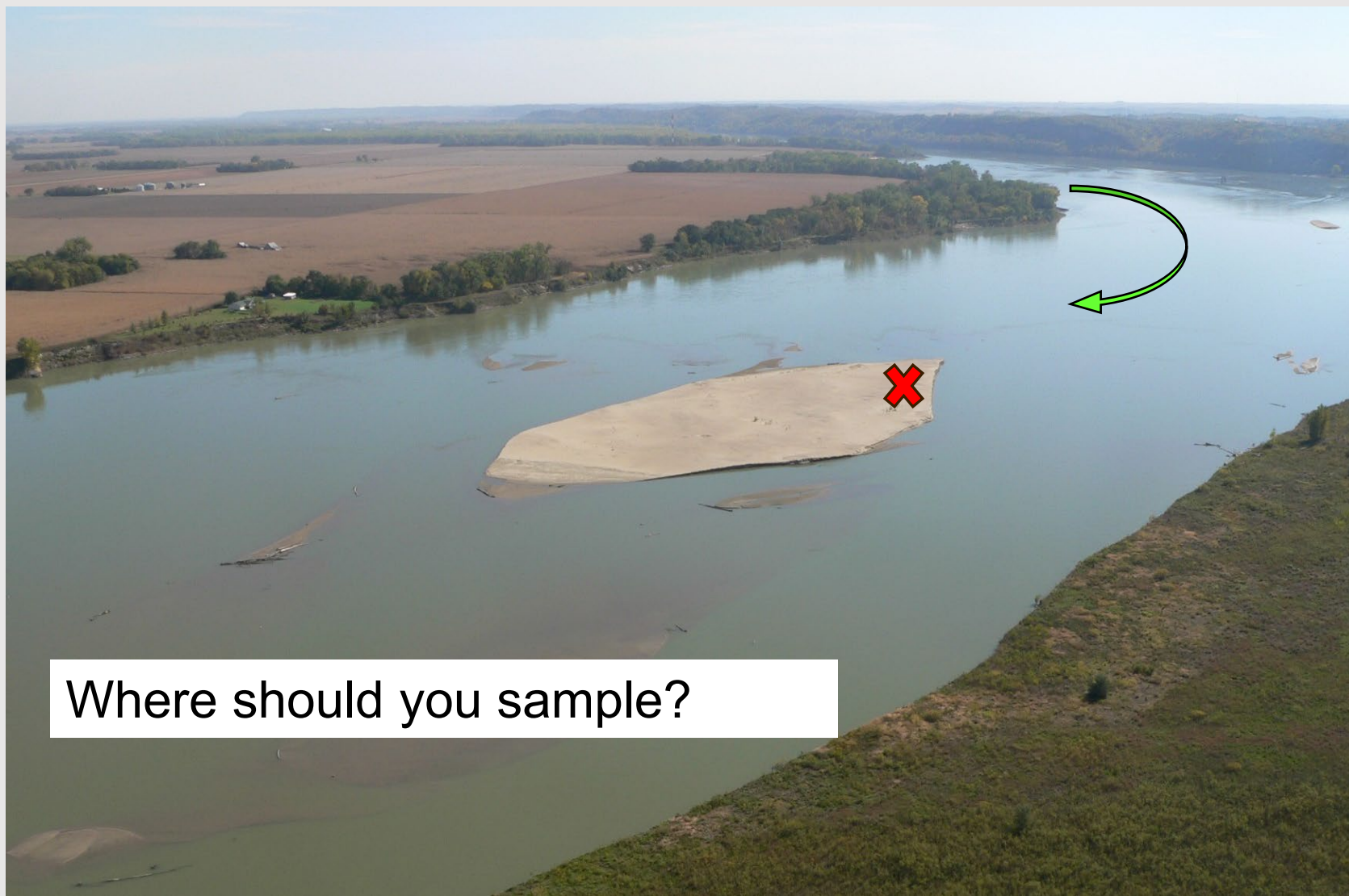
- If you can't reach water within 50m, exclude as **Wrong Resource / GIS coverage incorrect.**

If sampled, where GPS point collected?

Always collect new location data at **sampling location.**



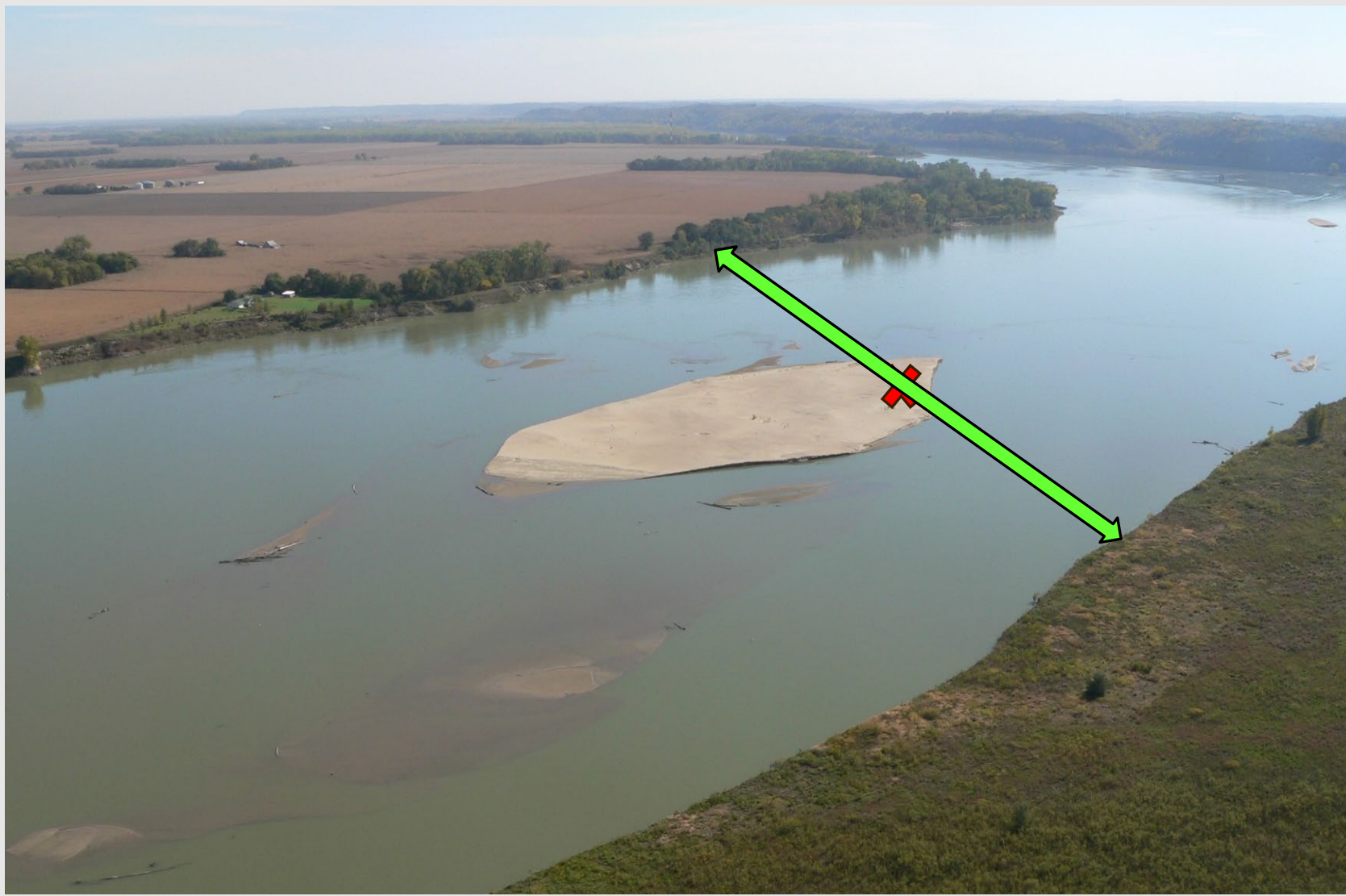
Status Network River



Where should you sample?



Status Network River





Status Network Stream

**Random site location is in a culvert.
We can't sample the stream at this location.**



**Blue Arrows = direction of
stream flow**





Status Network Stream

No sampling!

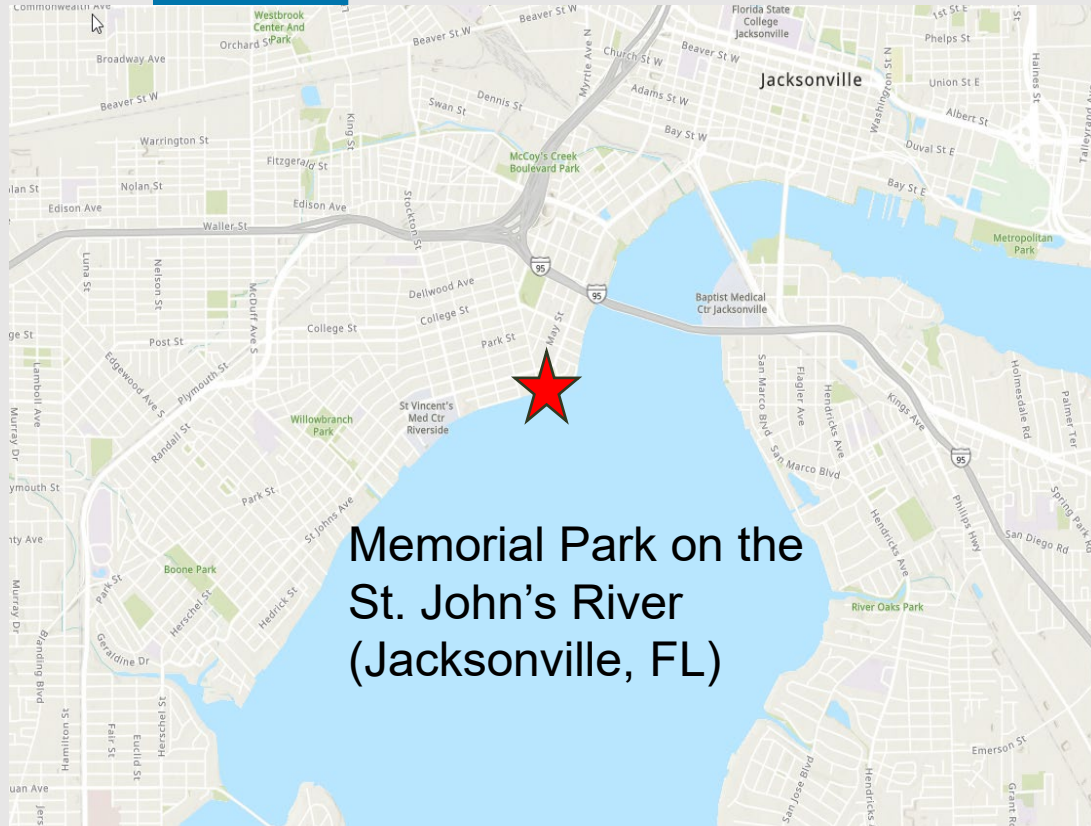
Do not move point upstream or downstream.



Blue Arrows = direction of stream flow



Status Network: Flooding



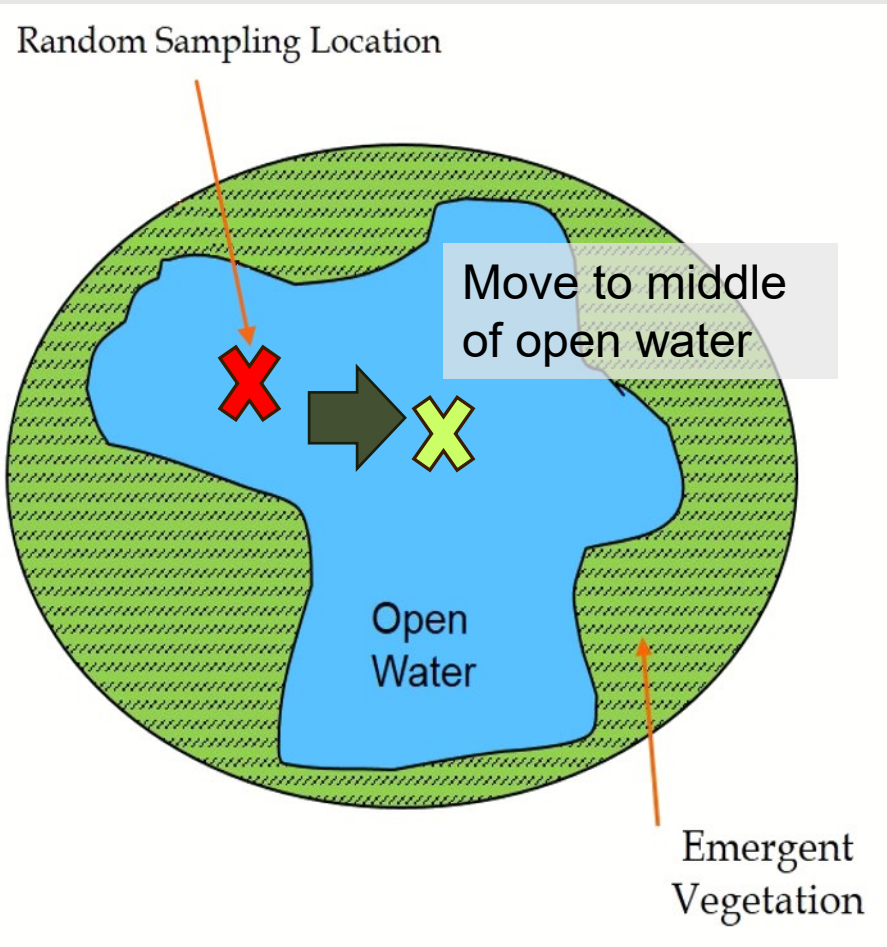
No sampling!

Do not sample Status Rivers / Streams / Canals if flooded above banks.

Exclude as Otherwise Unsamplable / Flood Conditions.



Status Sampling Locations Small Lakes

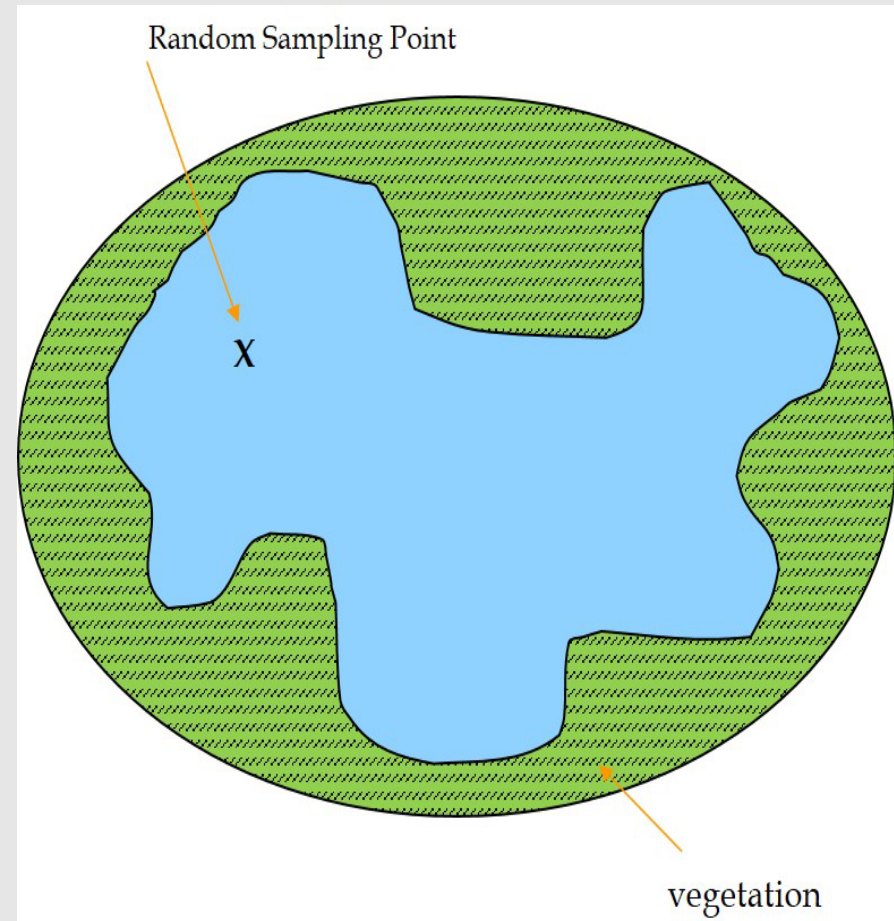


- ❖ Random location represents **whole** small lake
- ❖ Must collect in the **middle** of the **open water**
- ❖ If falls on dry land, move **up to 50 m** toward nearest point in the water. If water is reached, proceed to middle of open water to sample.



Large Lakes

- ❖ Random location = sampling location
- ❖ Use Trimble GPS unit to navigate to the random site locations
- ❖ Must collect sample **at** random location (lat / long)
- ❖ If random location falls **on dry land** exclude site.
Do not move site! Do not sample!

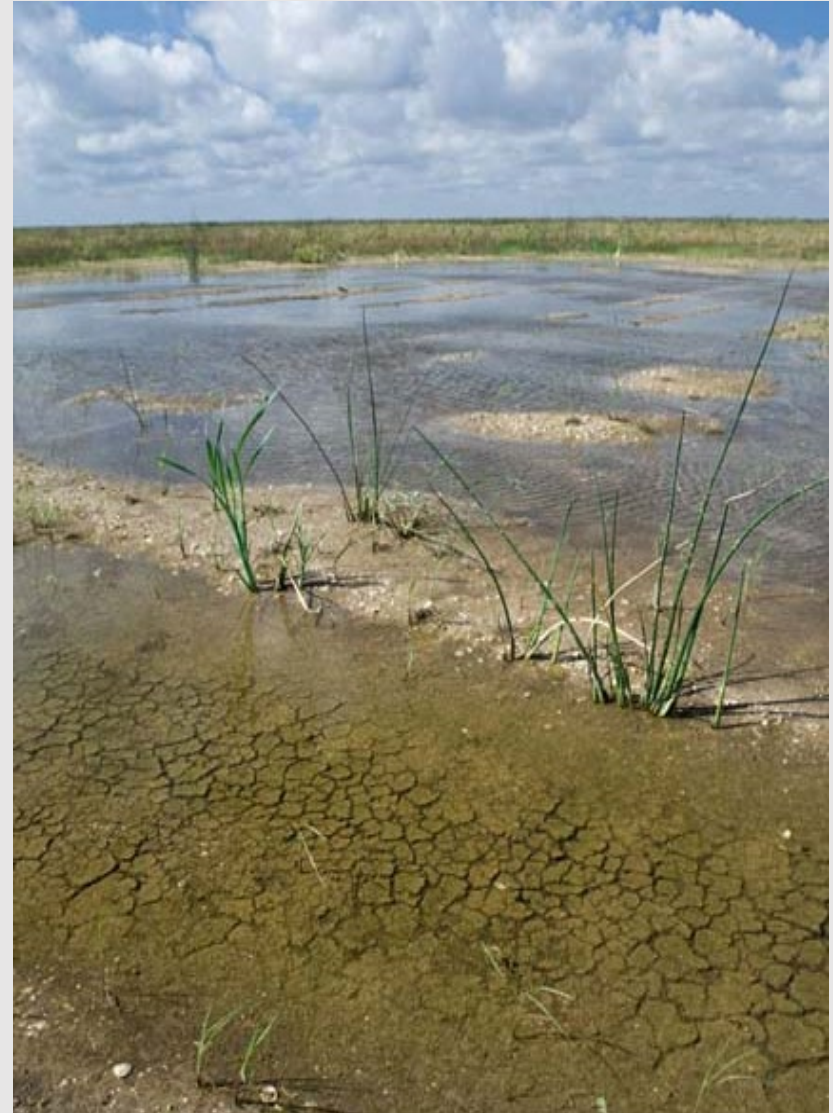




Sampling Requirements All Lakes

❖ Consider:

- SIZE
- DEPTH
- OPEN WATER
- TIDAL INFLUENCE





Sampling Requirements All Lakes

❖ SIZE

- **Large enough** to sample?
 - SL = 4 to < 10 hectares
 - LL = ≥ 10 hectares
 - Consider area with water present during index period.

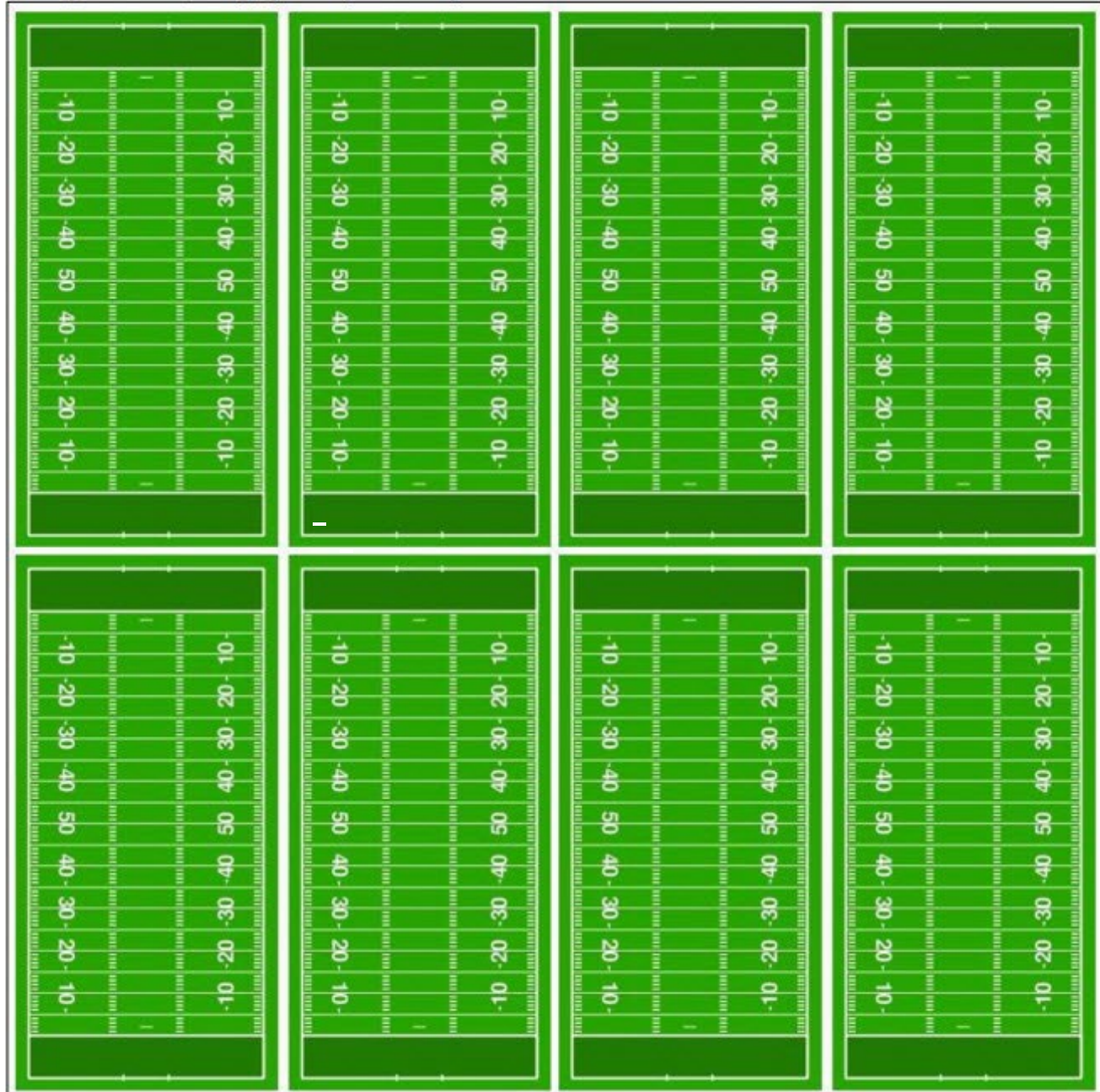




Figure 22. How to estimate the size of a small lake. One hectare is about two football fields side by side. Small lakes must be at least four hectares, or eight football fields side by side.

4 hectares = 9.88
acres (8 football
fields)

10 hectares = 24.71
acres (18 football
fields)



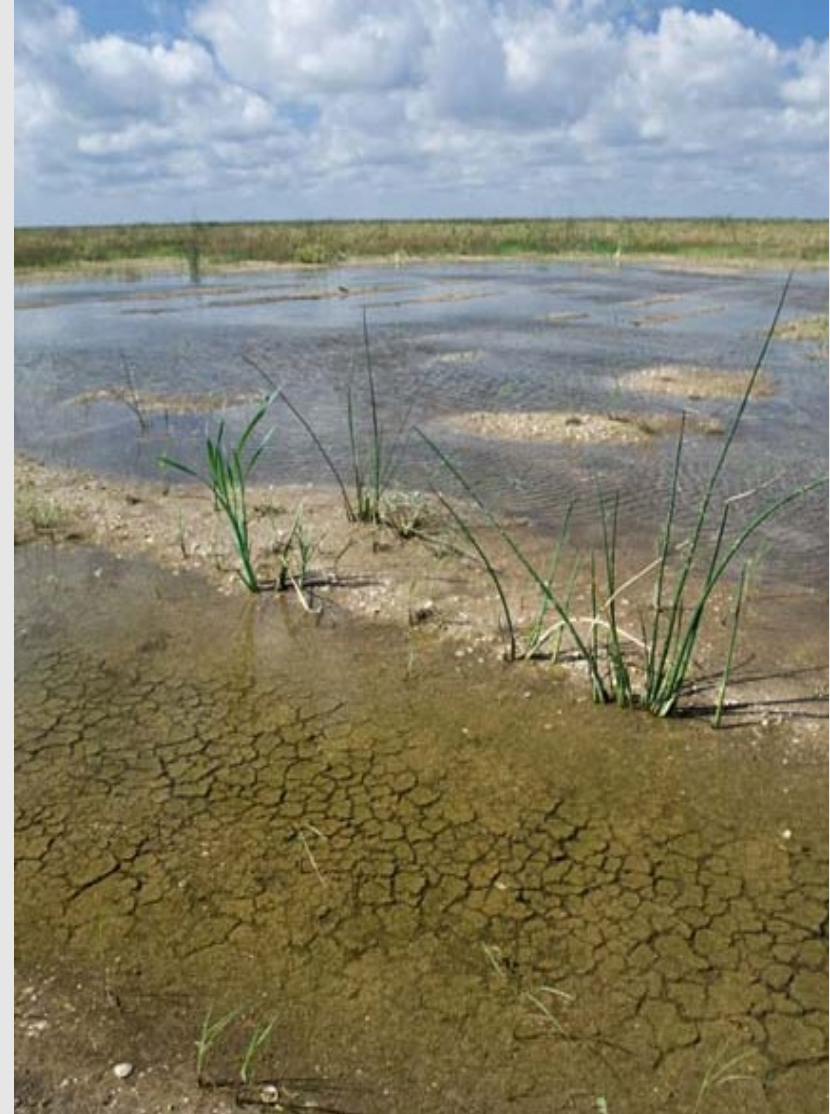


Sampling Requirements All Lakes

❖ SIZE

❖ DEPTH

- Lake's deepest point ≥ 1 m?
- Sampling point ≥ 10 cm deep?





Sampling Requirements All Lakes

❖ SIZE

❖ DEPTH

❖ OPEN WATER

- Sampling point $\geq 0.5 \text{ m}^2$ free of attached vegetation?



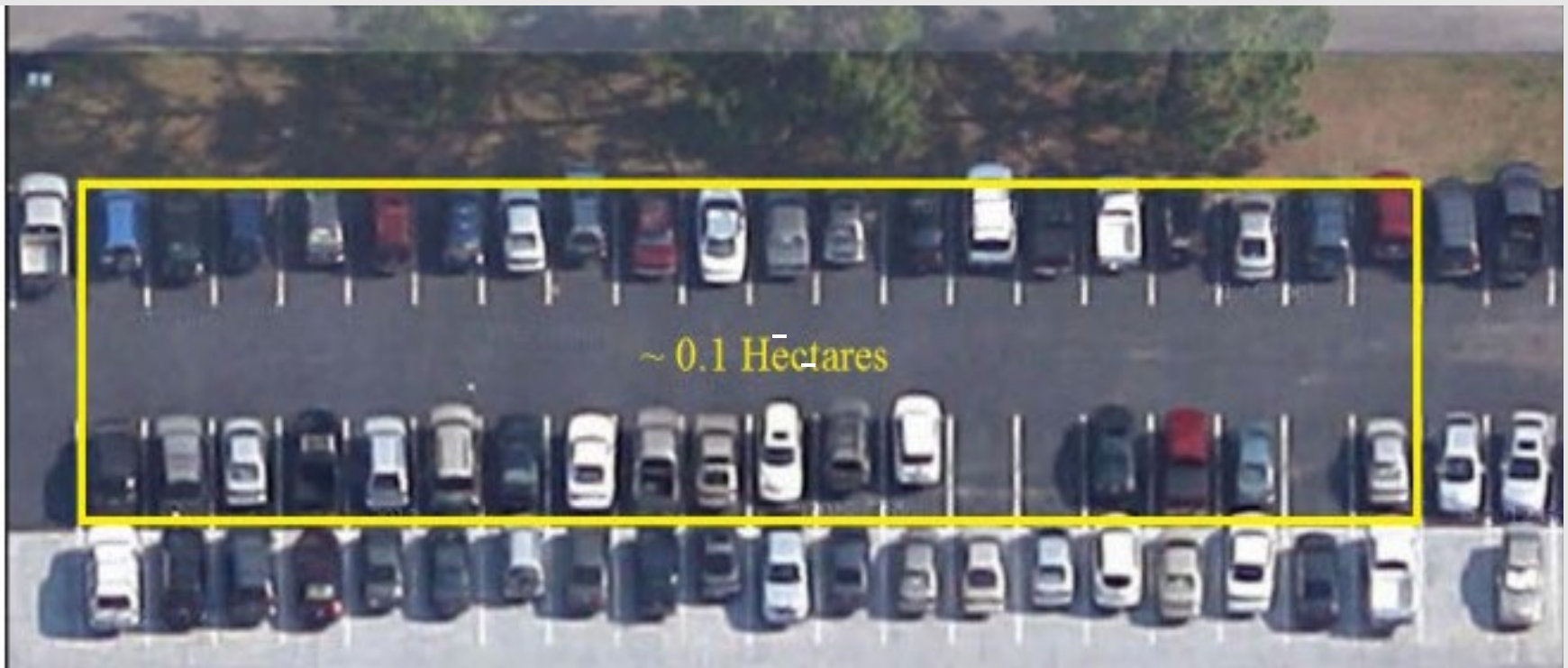
(0.5 m^2 = height x length of two 48 qt coolers from DEP lab)

- $\geq 0.1 \text{ ha}$ (0.25 acres, 1000 m^2) total open water?





Sampling Requirements All Lakes



0.1 hectares = 2 rows of 20 parking spaces with a
2- lane road between them



Sampling Requirements All Lakes

- ❖ SIZE
- ❖ DEPTH
- ❖ OPEN WATER
- ❖ TIDAL INFLUENCE?
 - **Exclude as Wrong Resource / Estuary if directly connected to oceanic waters**





Status - Small Lake

Assume that size/depth requirements are met for the small lake, and it is not tidally influenced.
Could you sample this lake?

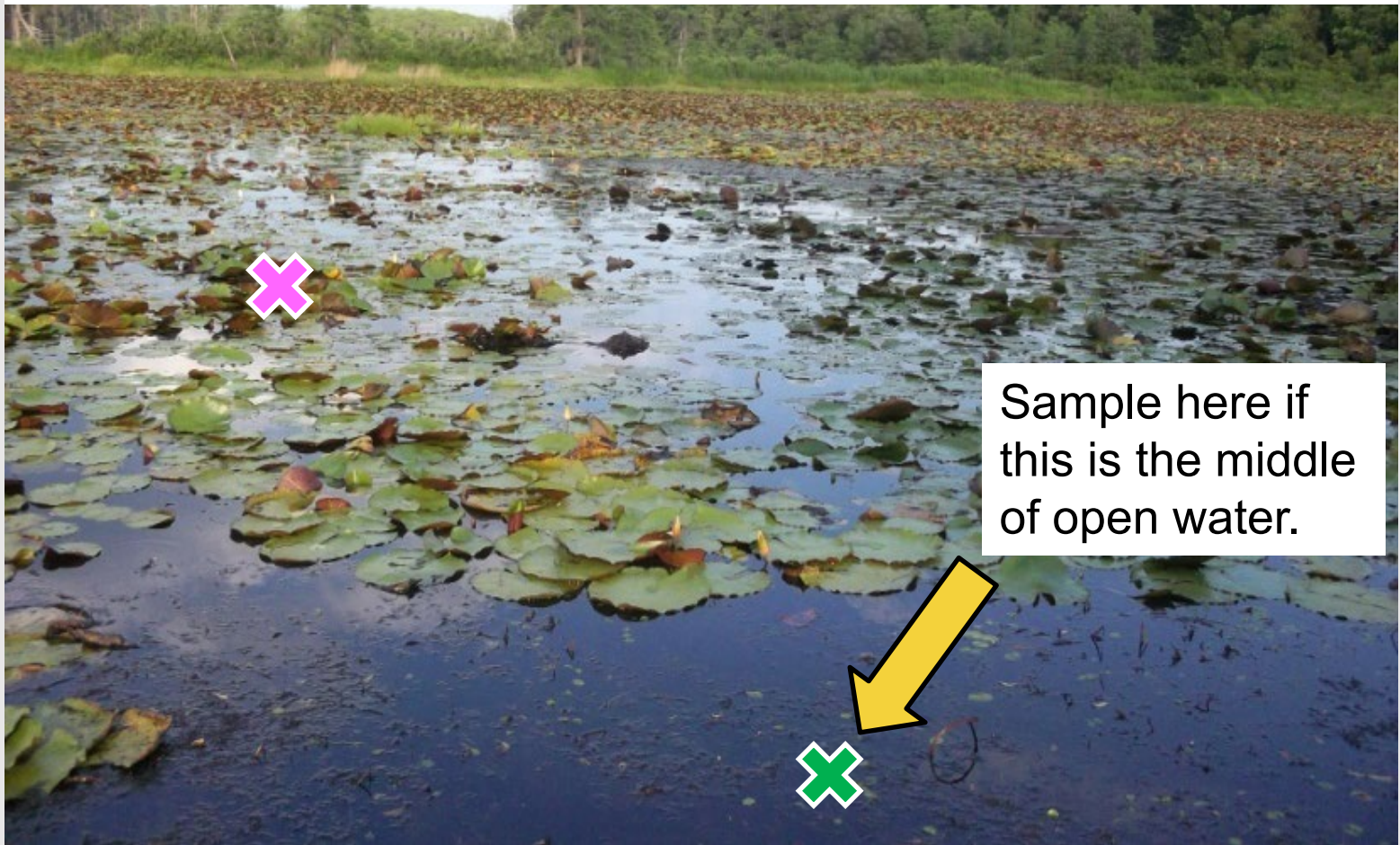




Status - Small Lake

Yes - you can sample!

For Small Lakes - sample in middle of open water.



Sample here if
this is the middle
of open water.



Status - Large Lake

Drought conditions are present such that the large lake is < 10 hectares





Status - Large Lake

For Large Lakes:

❖ If in drought conditions and wetted area of the lake is obviously less than 10 hectares, the site should be excluded as:

Dry > Random location dry during index period.

No sampling!
No moving site! ✖



Status - Large Lake

Drought conditions are present such that the large lake is < 10 hectares





Status - Large Lake

For Large Lakes:

❖ If in drought conditions and wetted area of the lake is obviously less than 10 hectares, the site should be excluded as **dry** even if selected random location is in the water.

Dry > Random location dry during index period.



No sampling!
Exclude as dry!



Status - Large Lake

Assume the large lake is ≥ 10 hectares.
Can we move these sites to wetted areas?





Status - Large Lake

For Large Lakes:

❖ Must collect sample **at** random location (lat / long)

❖ If random location falls **on dry land** exclude site.

Do not move site! Do not sample!

Wrong Resource



No sampling!

Dry → X





Major Topics

- ❖ *When / When Not to Collect Samples*
- ❖ *Field Sheets*
- ❖ *Sample Collection & Documentation*



We're in the documentation business

The background of the slide features a dark blue field with glowing circuit-like patterns and faint, semi-transparent code snippets. The code includes Python-style comments and variable assignments, such as `#selection at the end -add back the deselected mirror modifier object`, `mirror_ob.select= 1`, and `mirror_mod.use_x = False`.

Not Documented?
NOT DONE!

Not the assumption business



Field Sheets

❖ Use Survey123 Status & Trend Surface Water form to complete field sheets & custody sheets

FL DEP Status and Trend Networks - Surface Water

Primary (Surface) Field Measurements

Surface Sample Collection Depth (meters)

Secchi Depth (meters)

Select "VOB" if secchi visible on bottom.

☐ VOB

Total Depth (meters)

Surface Temperature (°C)

Surface D.O. (% SAT)

Surface D.O. (mg/L)

Surface Specific Conductance (µmhos/cm)

Surface pH (SU)

Surface Measurements - Expand this section to add qualifiers and comments to data for individual field parameters

FL DEP Status and Trend Networks - Surface Water

Water Sample Collection Device: *

☐ Direct Grab w/ Sample Bottle ☐ Van Dorn

Access Method for Water Sample Collection: *

Water Sample Inventory & Preservation Details

Bottle group for water samples? *

☐ A ☐ B ☐ C ☐ D
☐ E ☐ F ☐ G ☐ H

Trend Network - Core Parameters

Chlorophyll container filled? (BP-1L) *

Lab test: CHL5UITE-W

☐ YES ☐ NO

Nutrients container filled? (P-500ML) *

Lab tests: W-NH3 / W-NO2NO3 / W-S-T-P / W-TKN / W-TOC

☐ YES ☐ NO

Metals container filled? (P-500ML) *

Lab tests: W-HARD / W-ICP / W-ICPMS

☐ YES ☐ NO

Anion / Phys. Aggregate container filled? (P-1L) *

Lab tests: ALKALINITY / TURBIDITY / W-CL-IC / W-COLOR / W-COND / W-F / W-SO4-IC / W-TDS / W-TSS

☐ YES ☐ NO

Microbiology container(s) filled? (P-250mL or P-125ML) *

Lab test: ECOLI-18-QT

☐ YES ☐ NO

FL DEP Status and Trend Networks - Surface Water

Sediment collection depth (meters) *

(Total water depth.)

Sediment collection Interval: *

☐ Top 3-5 cm ☐ Other (if top 3-5 cm is too flocculent)

Sediment collection device: *

☐ Hand Corer ☐ Ekman Grab ☐ Petite Ponar Grab

Sediment collection device ID: *

Number of sediment grabs: *

(minimum 3 grabs required for Status Network)

Sample collection area description: *

(e.g. near east shore; central)

Dominant Sediment Type *

(select only one)

☐ Clay / Silt ☐ Sand ☐ Gravel / Shell Rubble ☐ Organic Muck

Sediment Odors *

(select only one)

☐ Normal ☐ Sewage ☐ Petroleum ☐ Hydrogen Sulfide
☐ Other

Sediment Color: *



Field Sheets

❖ Paper field sheets are available on the Watershed Monitoring Information Center.

❖ Keep copies in vehicles as back up



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
STATUS & TREND NETWORKS FIELD SHEET - SURFACE WATER
Effective: January 2024

Collection Agency: _____ Project Name: _____ Date: _____

Trend Network Station Name: _____

OR

Status Network Random ID: _____

Waterbody Name: _____ RQ: _____

Waterbody Type: ☐ CANAL / ☐ RIVER / ☐ STREAM / ☐ LARGE LAKE / ☐ SMALL LAKE

Sampling Team Member Names	Field	Measurements	Water Sample	Collection	Documentation	Sample	Preservation	Field / Equip.	Blank Collection	Sediment Sample	Bioassessment	Signatures
	Measurements	Water Sample	Collection	Documentation	Sample	Preservation	Field / Equip.	Blank Collection	Sediment Sample	Bioassessment	Signatures	

Additional Personnel / Visitors On-site: _____

Weather Conditions: _____

Photos Taken: ☐ Yes / ☐ No (Required for all Status stations. Required annually for all Trend stations.)

Water Level: ☐ Low / ☐ Normal / ☐ High / ☐ Flooded Above Banks (DO NOT sample for Status CN / LR / SS)

Flow: ☐ No Flow / ☐ Flowing / ☐ NA

Tide: ☐ Rising / ☐ Falling / ☐ Slack / ☐ NA

QA/QC Blank Collected at this station? ☐ None / ☐ Field Blank / ☐ Equip. Blank

QA/QC Blank Field ID: _____ Collection Time (24 hr): _____ ☐ ETZ / ☐ CTZ

Van Dorn Equip. ID / Name: _____ Cleaning: ☐ Lab-Cleaned / ☐ Field-Cleaned

Bioassessment Data Collected: ☐ None / ☐ HA / ☐ SCI / ☐ RPS / ☐ LVS / ☐ LVI

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: _____



Station Information

General Info

- Use the most recent version (January 2024)
- Station name
- Sampling date
- Waterbody name & type



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION STATUS & TREND NETWORKS FIELD SHEET - SURFACE WATER

Effective: January 2024

Collection Agency: _____ Project Name: _____ Date: _____

Trend Network Station Name:

OR

Status Network Random ID: _____

Waterbody Name: _____ RQ- _____

Waterbody Type: ☐ CANAL / ☐ RIVER / ☐ STREAM / ☐ LARGE LAKE / ☐ SMALL LAKE



Signatures

Sampling Team Member Names	Field Measurements	Water Sample Collection	Documentation	Sample Preservation	Field / Equip. Blank Collection	Sediment Sample Collection	Bioassessment Data Collection	Signatures / Initials
Vanna Dorn								
Print Whole Name								

❖ Record names / signatures of **all** samplers on the paper form.

(Survey123 *Signature* – use initials)



Photo Documentation

All Status & Trend Sites

Additional Personnel / Visitors On-site: _____

Weather Conditions: _____

Photos Taken: ☐ Yes / ☐ No (Required for all Status stations. Required annually for all Trend stations.)

Water Level: ☐ Low / ☐ Normal / ☐ High / ☐ Flooded Above Banks (DO NOT sample for Status CN / LR / SS)

Flow: ☐ No Flow / ☐ Flowing / ☐ NA

Tide: ☐ Rising / ☐ Falling / ☐ Slack / ☐ NA

❖ Recommend taking photos with Survey123

- Photos will be stamped with station ID, date, and direction (N / E / S / W) in lower-left corner.
- Photo files will be automatically named and transferred to DEP One Drive.



Photo Documentation

All Status & Trend Sites



- ❖ Photos at **all** Status & annually at Trend sites (more frequently if changes have occurred)
- ❖ Four photos required at all sites: N, E, S, W.
- ❖ Additional photo of sample location required if sampling from shore or on a structure.
- ❖ Upstream / downstream photos are helpful.
- ❖ Be sure to add (meaningful) labels (camera)



Photo Documentation

Sampling point on the Structure

NOT View from the Structure





Water Characteristics

Sampling Pt. Measurements / Observations

Photos Taken: ☐ Yes / ☐ No (Required for all Status stations. Required annually for all Trend stations.)

Water Level: ☐ Low / ☐ Normal / ☐ High / ☐ Flooded Above Banks (DO NOT sample for Status CN / LR / SS)

Flow: ☐ No Flow / ☐ Flowing / ☐ NA

Tide: ☐ Rising / ☐ Falling / ☐ Slack / ☐ NA

QA/QC Blank Collected at this station? ☐ None / ☐ Field Blank / ☐ Equip. Blank

❖ Qualitative Water Level

❖ Qualitative Water Flow (flowing waters only)

❖ Qualitative Tide (note the NA)



Quality Assurance / Control

QA/QC Blank Collected at this station? ☐ None / ☐ Field Blank / ☐ Equip. Blank

QA/QC Blank ID: _____ Collection Time (24 hr): _____ ☐ ETZ / ☐ CTZ

Van Dorn Equip. ID / Name: _____ Cleaning: ☐ Lab-Cleaned / ☐ Field-Cleaned

❖ Equipment Blanks

❖ Field Blanks





Field Sheet

Complete bioassessment & sediment info

Bioassessment Data Collected: ☐ None / ☐ HA / ☐ SCI / ☐ RPS / ☐ LVS / ☐ LVI

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:





Field Measurements



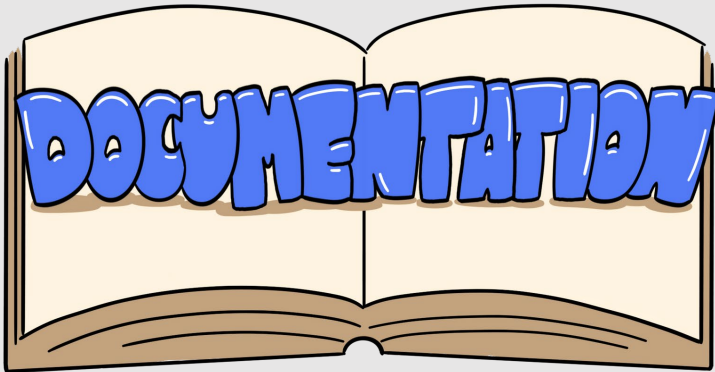
Field ID: _____		Project Name: _____		Date: _____	
Water Sampling Equipment: ☐ Direct Grab with Sample Container ☐ Van Dorn: _____ # of Grabs: _____ Equipment ID _____					
Collection Method: ☐ Wading / ☐ From Shore or Structure / ☐ Canoe or Kayak / ☐ Air Boat / ☐ Boat / ☐ Boat / ☐ Boat / ☐ Boat / ☐ Boat /					
Field Meter ID: _____					
Depth Measurement Device: ☐ Field Meter Listed Above / ☐ Other _____					
DATA COLLECTION DEPTHS: Total depth < 0.1 m → no data collection. Total depth ≥ 0.1 m and < 0.6 m → surf. meas. & sample at mid-depth. Total depth ≥ 0.6 m & < 1.5 m → surface meas. & sample at 0.3 m. Total depth ≥ 1.5 m → surface meas. & sample at 0.3 m, bottom meas. 0.5 m above bottom.					
PRIMARY (SURFACE) SAMPLE Collection Time (24 hr): _____ ☐ ETZ / ☐ CTZ ☐ Check here if Secchi depth visible on bottom (S qualifier needed). ☐ Check here if bottom measurements not collected because total depth < 1.5 m.					
PARAMETER	VALUE	QUALIFIER(S)	RESULT COMMENT		
D.O. (mg/L)					
D.O. (% SAT)					
Temp (°C)					
pH (SU)					
Sample Collection Depth (m)					
Secchi Depth (m)					
Total Depth (m)					
Sp. Cond. (umhos/cm)					
BOTTOM SAMPLE (FIELD MEAS. ONLY) Collection Time (24 hr): _____ ☐ ETZ / ☐ CTZ					
PARAMETER	VALUE	QUALIFIER(S)	RESULT COMMENT		
D.O. (mg/L)					
D.O. (% SAT)					
Temp (°C)					
pH (SU)					
Sample Collection Depth (m)					
Sp. Cond. (umhos/cm)					
SAMPLE COMMENTS					
PRIMARY (SURFACE):					
BOTTOM:					
OFFICE USE ONLY					
Reviewed By: _____			Date: _____		
WIN ID: _____	SBIO-Visit: _____	HA-ID: _____	RPS-ID: _____	Macro-ID: _____	



Record Measurement Device Info

Field Meter ID: _____

Depth Measurement Device: ☐ Field Meter Listed Above / ☐ Other _____



- ❖ Field Meter Name
- ❖ Measurement Device
- ❖ Compare this info with the calibration logs

Same Meter IDs must be used on Field Sheet and Calibration Log





Major Topics

❖ *When / When Not to Collect Samples*

❖ *Field Sheets*

❖ ***Sample Collection & Documentation***





Sample Collection Depth

All Status & Trend, All Resource Types

No Sampling if Total Depth is _____?

No Sampling if Total Depth is < 0.1 m.

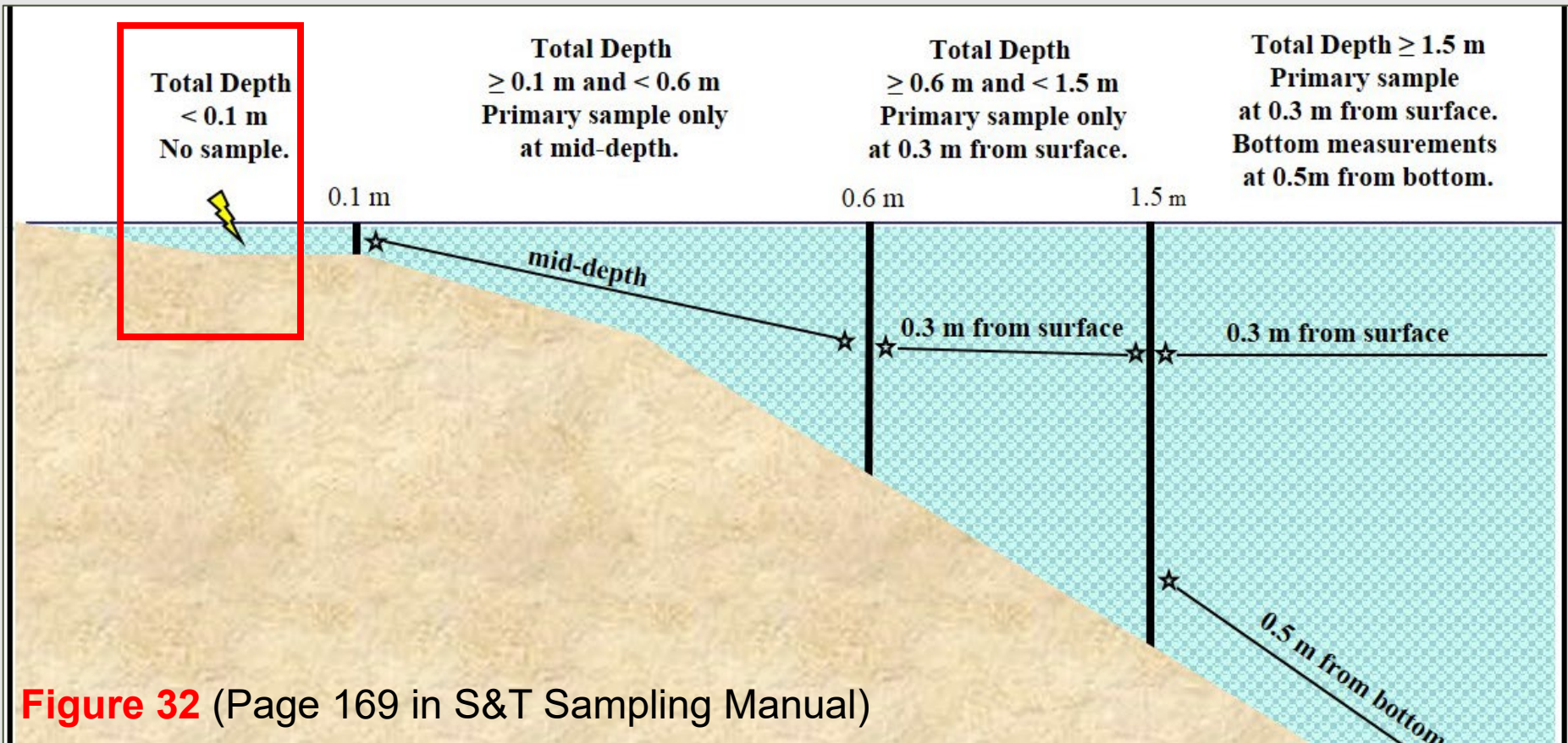


Figure 32 (Page 169 in S&T Sampling Manual)



Sample Collection Depth

All Status & Trend, All Resource Types

When Depth ≥ 0.1 m and < 0.6 m:

- Primary samples taken at **mid-depth**.
- No bottom sample.
- Record Total, Sample, Secchi depth to nearest **0.01 m** (measure twice)

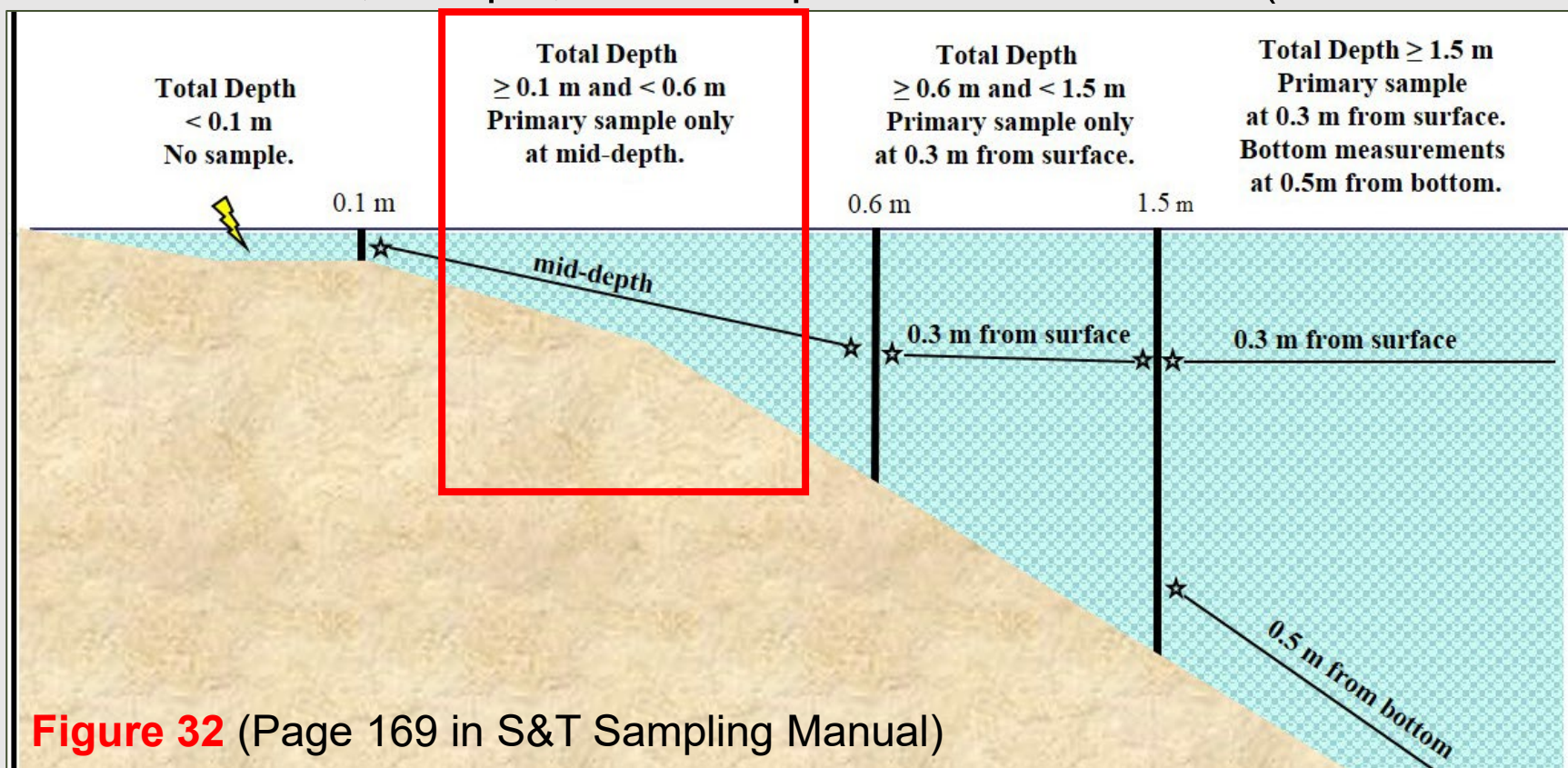


Figure 32 (Page 169 in S&T Sampling Manual)



Sample Collection Depth

All Status & Trend, All Resource Types

When Depth ≥ 0.6 m and < 1.5 m:

- Primary sample **0.3 m** below the surface.
- No bottom sample.
- Record Total, Sample, Secchi depth to nearest **0.1 m** (measure twice).

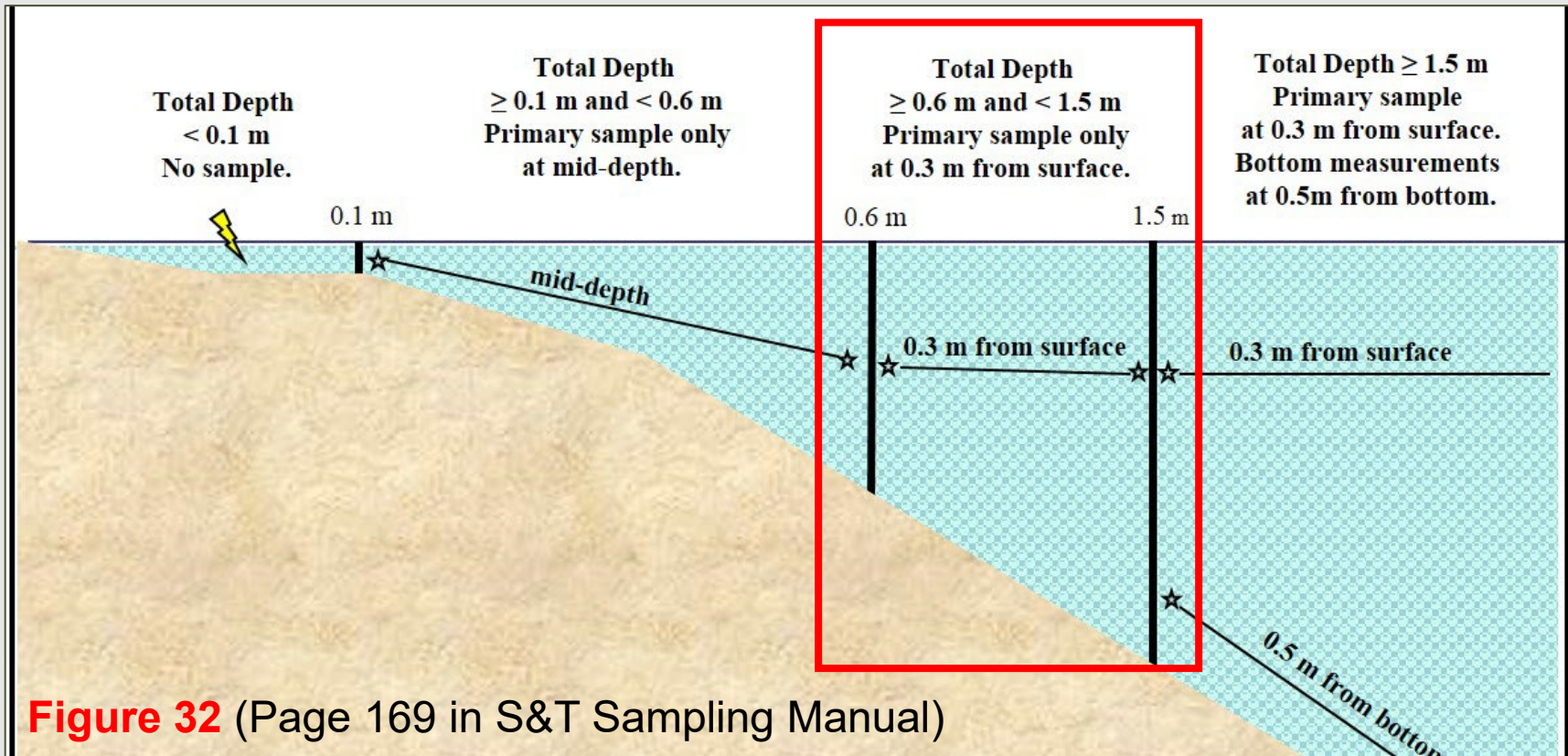


Figure 32 (Page 169 in S&T Sampling Manual)



Sample Collection Depth

All Status & Trend, All Resource Types

When Depth ≥ 1.5 m:

- Primary sample **0.3 m** below the surface.
- Bottom field measurements **0.5 m** from the bottom.
- Record Total, Sample, Secchi depth to nearest **0.1 m** (measure twice).

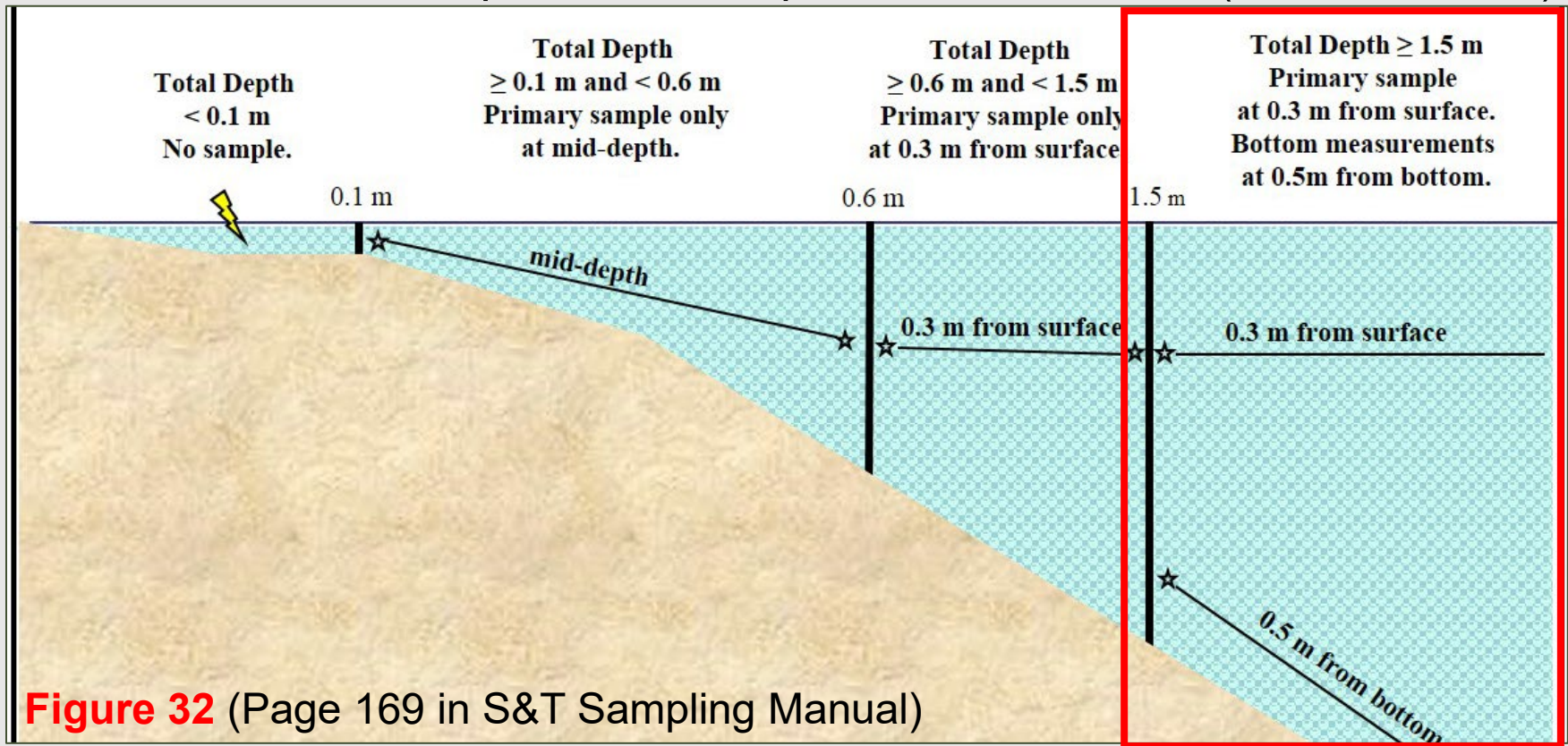


Figure 32 (Page 169 in S&T Sampling Manual)



Field Measurements

Record field measurements to the number of decimal places indicated in **Table 6** (Page 133 in S&T Sampling Manual)

Notice that all digits are displayed for all field parameters **except** depth.

Pay attention to **field measured depth** to determine decimal places.

Parameter	Number of Decimal Places to Record	Calibration / Verification Frequency	Acceptance Criteria
pH (FT 1100)	All Digits Displayed	<u>Daily</u> : IC, ICV, CCV.	± 0.2 SU
Specific Conductance (FT 1200)	All Digits Displayed	<u>Daily</u> : IC, ICV, CCV.	$\pm 5\%$
Dissolved Oxygen (mg/L and % Saturation) (FT 1500)	All Digits Displayed	<u>Daily</u> : IC, ICV, CCV.	± 0.3 mg/L
Temperature (FT 1400)	All Digits Displayed	<u>Quarterly</u> : CCV.	± 0.5 °C
Turbidity (FT 1600)	All Digits Displayed	<u>Daily</u> : CCV. <u>Quarterly</u> : IC, ICV, secondary standard verification.	0.1 – 10 NTU: $\pm 10\%$; 11 – 40 NTU: $\pm 8\%$; 41 – 100 NTU: $\pm 6.5\%$; > 100 NTU: $\pm 5\%$
Depth	<u>Calibrations & Verifications</u> : 2 for electronic devices; 1 for manual devices. <u>Field Measurements</u> : 2 if total depth < 0.6 m; 1 if total depth > 0.6 m	<u>Daily</u> : IC, ICV for Sondes. <u>Quarterly</u> : Verify Sondes & Electronic Devices. <u>Every 6 months</u> : Inspect Manual Devices.	<u>ICV</u> : $\pm 5\%$ or ± 0.05 m, whichever is greater. <u>Electronic Device Verification</u> : $\pm 10\%$. <u>Line Increments</u> : $\pm 10\%$. <u>Total Length of Lines</u> : $\pm 5\%$.



Depth & Water Characteristics

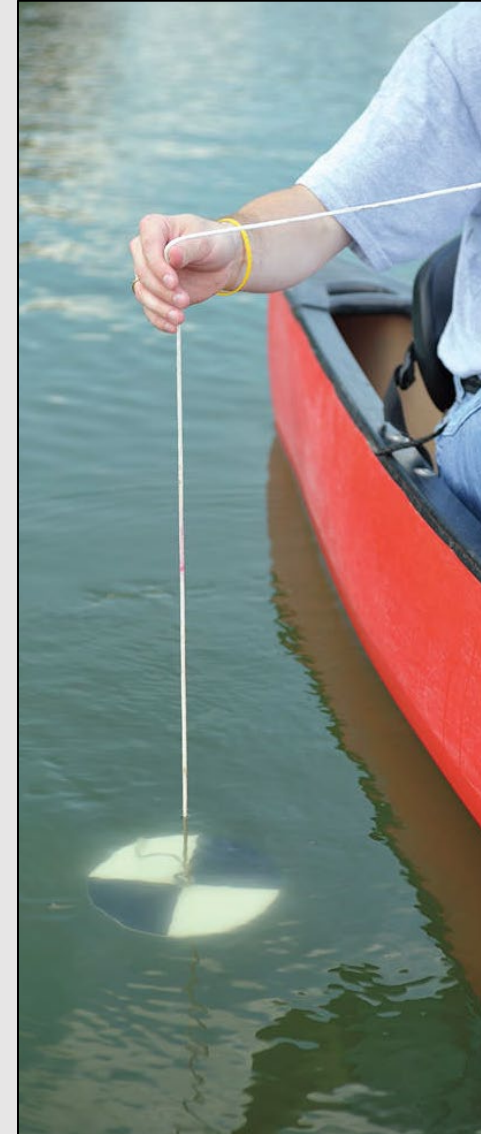
Field Indicators

Total & Sample Depths

- Measure using manual / electronic device

Secchi Depth

- Measure on shady side of boat / body
- Remove sunglasses
- Record the depth at which disk disappears
- Lower the disk slightly further. Raise the disk till it reappears and record that depth
- Average these two depths
- * Visible on bottom? Add "S" Qualifier and result comment.
- * Swift currents / choppy water affect the accuracy? Add "J" Qualifier and result comment.





Field Indicators

Info about the data collection

Collection Time

All of the following times must be the same:

1. Primary collection on field sheet
2. Sample container
3. Custody sheet

PRIMARY (SURFACE) SAMPLE		Collection Time (24 hr): PRIMARY ☐ ETZ / ☐ CTZ	
☐ Check here if Secchi depth visible on bottom (S qualifier needed). ☐ Check here if bottom measurements not collected because total depth < 1.5 m.			
PARAMETER	VALUE	QUALIFIER(S)	RESULT COMMENT
D.O. (mg/L)			
D.O. (% SAT)			
Temp (°C)			
pH (SU)			
Sample Collection Depth (m)			
Secchi Depth (m)			
Total Depth (m)			
Sp. Cond. (umhos/cm)			
BOTTOM SAMPLE (FIELD MEAS. ONLY)		Collection Time (24 hr): ☐ ETZ / ☐ CTZ	
PARAMETER	VALUE	QUALIFIER(S)	RESULT COMMENT
D.O. (mg/L)			
D.O. (% SAT)			
Temp (°C)			
pH (SU)			
Sample Collection Depth (m)			
Sp. Cond. (umhos/cm)			



Field Indicators

Info about the data collection

❖ Bottom field measurements should have their own sample collection time.

(Different time than primary collection time.)

PRIMARY (SURFACE) SAMPLE		Collection Time (24 hr): _____ ☐ ETZ / ☐ CTZ	
☐ Check here if Secchi depth visible on bottom (S qualifier needed).			
☐ Check here if bottom measurements not collected because total depth < 1.5 m.			
PARAMETER	VALUE	QUALIFIER(S)	RESULT COMMENT
Sample Collection Depth (m)			
Secchi Depth (m)			
Total Depth (m)			
Temp (°C)			
D.O. (% SAT)			
D.O. (mg/L)			
Sp. Cond. (umhos/cm)			
pH (SU)			
BOTTOM SAMPLE (FIELD MEAS. ONLY)		Collection Time (24 hr): <u>unique</u> _____ ☐ ETZ / ☐ CTZ	
PARAMETER	VALUE	QUALIFIER(S)	RESULT COMMENT
Sample Collection Depth (m)			
Temp (°C)			
D.O. (% SAT)			
D.O. (mg/L)			
Sp. Cond. (umhos/cm)			
pH (SU)			



Comments

Info about the data collection

**We love
comments!**



**Remember
Qualifiers!**

PRIMARY (SURFACE) SAMPLE		Collection Time (24 hr): _____ ☐ ETZ / ☐ CTZ	
☐ Check here if Secchi depth visible on bottom (S qualifier needed).			
☐ Check here if bottom measurements not collected because total depth < 1.5 m.			
PARAMETER	VALUE	QUALIFIER(S)	RESULT COMMENT
D.O. (mg/L)			
D.O. (% SAT)			
Temp (°C)			
pH (SU)			
Sample Collection Depth (m)			
Secchi Depth (m)			
Total Depth (m)			
Sp. Cond. (umhos/cm)			

BOTTOM SAMPLE (FIELD MEAS. ONLY)		Collection Time (24 hr): _____ ☐ ETZ / ☐ CTZ	
PARAMETER	VALUE	QUALIFIER(S)	RESULT COMMENT
D.O. (mg/L)			
D.O. (% SAT)			
Temp (°C)			
pH (SU)			
Sample Collection Depth (m)			
Sp. Cond. (umhos/cm)			

SAMPLE COMMENTS	
PRIMARY (SURFACE):	
BOTTOM:	

Result Comments

Result Comments

Sample Comments



Sample Bottles / Containers

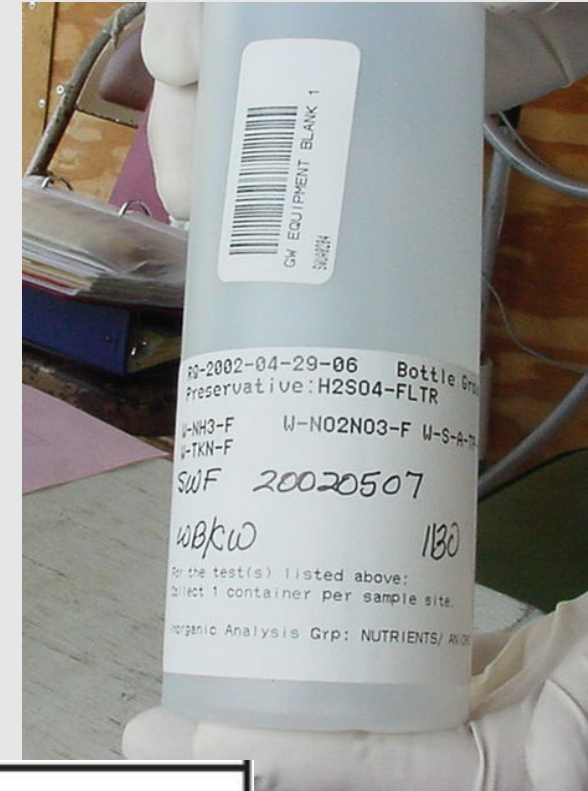


- ❖ All containers provided by lab are new / certified clean
- ❖ **Do not pre-rinse containers**
- ❖ Do not touch inside of containers or the threads on the neck



Sample Container Labels

- ❖ Place Station ID Label vertically on all sample containers
- ❖ Record date, time & sampler initials on Lab ID label
- ❖ **Date / Time on sample bottle must match primary field measurement date / time**



PRIMARY (SURFACE) SAMPLE		Collection Time (24 hr): PRIMARY ☐ ETZ / ☐ CTZ	
☐ Check here if Secchi depth visible on bottom (S qualifier needed).			
☐ Check here if bottom measurements not collected because total depth < 1.5 m.			
PARAMETER	VALUE	QUALIFIER(S)	RESULT COMMENT
D.O. (mg/L)			
D.O. (% SAT)			



Labeling

Station ID barcodes on sample details page

Place Station ID Label Here	 Z4-SS-13049 Z4SS1907 Z4-SS-13049	Comments:					
		Sulfuric Acid Lot #:					
		Nitric Acid Lot #:					
Matrix: ☐ W-SURF-FRESH / ☐ W-SURF-SALT		☒ Grab					
Date Collected	Time Collected	D.O. (% SAT)	Temp (°C)	pH (SU)	Sample Depth (m)	Sp. Cond. (umhos/cm)	
PRIMARY	☐ ETZ ☐ CTZ						
Check Boxes for Each Container Submitted to Lab				Preservation		# Bottles	Bottle
Lab Test Codes				(Must be completed within 15 min)		sent to	

(Barcodes auto-generated on field sheets
produced by submitting data with Survey123)



Sample Collection

General



- ❖ **Always wear gloves** when handling sample containers & equipment

- ❖ Collect water samples on **upstream** side of boat / body



- ❖ **Avoid disturbing** the sediments or wait for sediments to settle

- ❖ Collect water samples **BEFORE** collecting sediments or performing bioassessment



Sample Collection Methods



Direct Grab
(preferable)

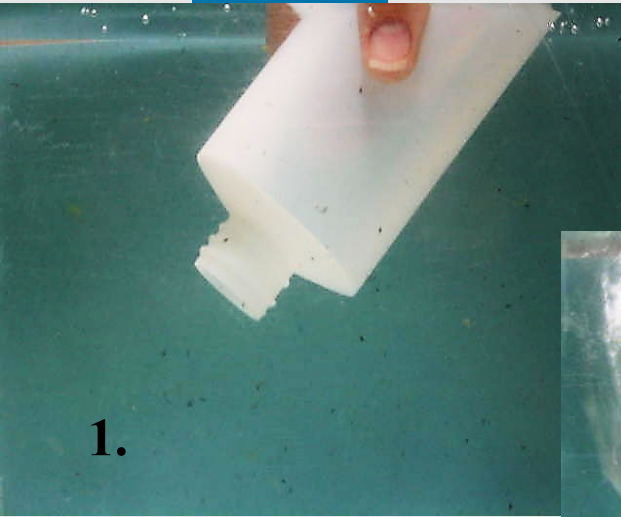


Van Dorn

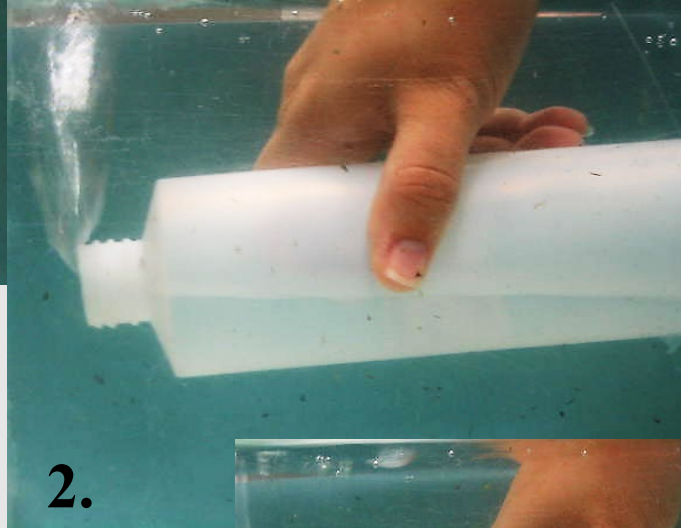


GRAB SAMPLES

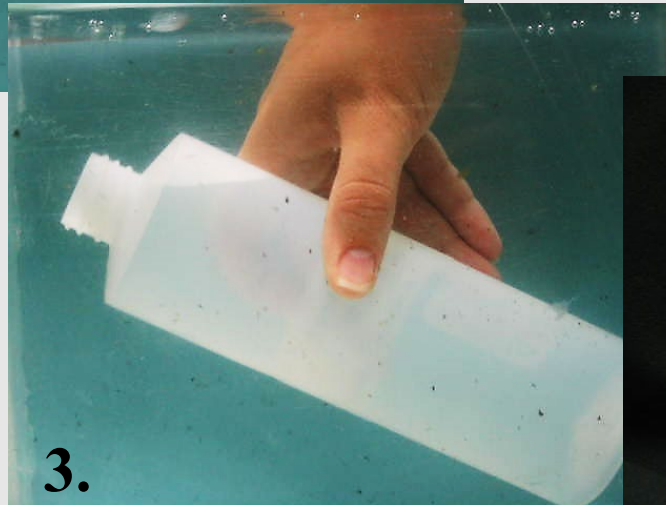
1.



2.



3.

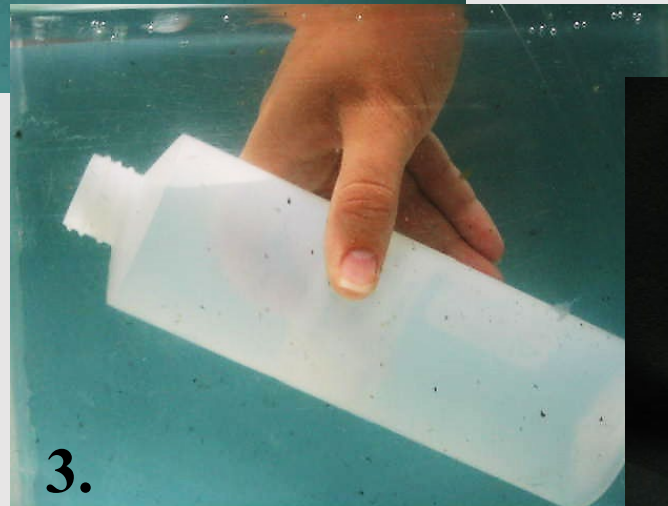
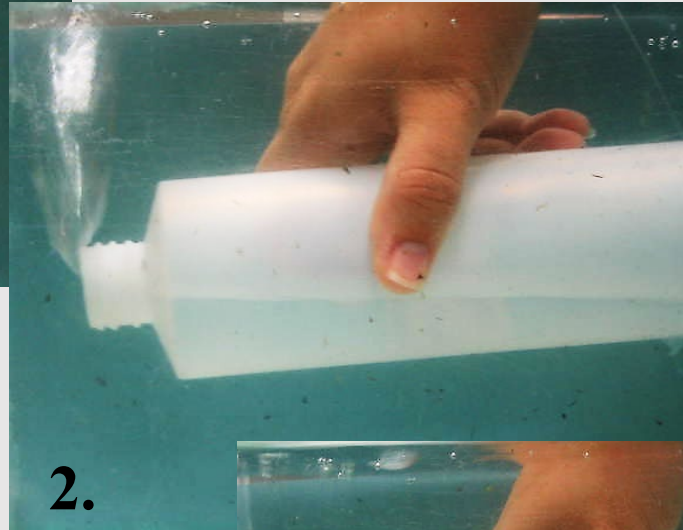
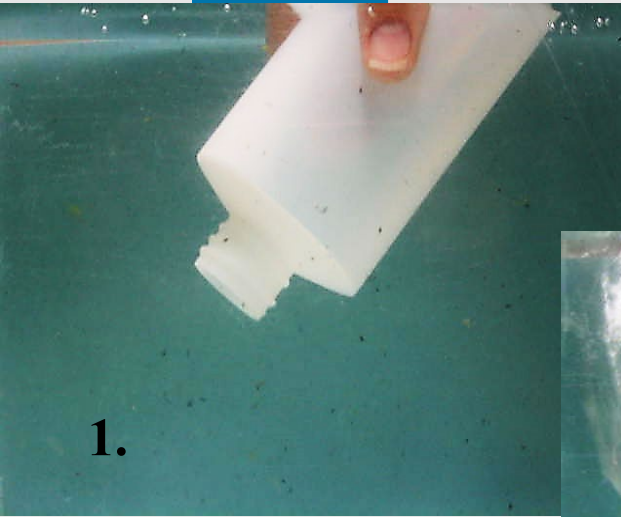


Leave Head
Space

4.



GRAB SAMPLES



What's wrong with these pictures?

Leave Head Space





Van Dorn Sampler

Sampler
*Vanna
Dorn*





Now that we are ready to sample, let's identify some components of the Van Dorn:

- Body
- End Caps
- Trip Mechanism
- Rope
- Messenger
- Drain Valves



Van Dorn Sampling

Deployment Prep

- ❖ Consider the depth of the water body and if deployment at 0.3 m will disturb sediments.
- ❖ Place a mark on the line at the appropriate sampling depth.
- ❖ Rinse 1st
 - Flush open device for good velocity systems
 - Or capture device and rinse/release away/downstream from the sample location
- * Remember to flush water through spigot/stopcock.





Van Dorn Sampling *Deployment*

- ❖ Once rinsed, lower the open device into the water referencing the marked line
- ❖ Send messenger down to close
- ❖ Retrieve the device





Van Dorn Sampling

Filling Sample Bottles

- ❖ Agitate to minimize settling of particulates
- ❖ Release some water through spigot before filling containers
- ❖ Fill Containers leaving headspace
 - Allow water to flow continuously & fill in rapid succession
 - OR
 - Stop / start flow between each container after agitating Van Dorn to uniformly mix contents





Van Dorn Sampling

Filling Sample Bottles

- ❖ Fill Microbiology containers last
- ❖ When filling microbiology containers do not stop flow before or during the filling process
- ❖ Take care to avoid touching the inside of the containers or the threads
- ❖ Secure container lids





Van Dorn Sampling

Grabs

- ❖ All sample containers filled / preserved (including on ice) **within 15 min** of first grab collection
- ❖ Record **number of grabs** needed to fill all sample bottles





Van Dorn Sampling

Documentation



Field ID: _____ Project Name: _____ Date: _____

Water Sampling Equipment: ☐ Direct Grab with Sample Container
☐ Van Dorn: _____ # of Grabs; _____ Equipment ID

Collection Method: ☐ Wading / ☐ From Shore or Structure / ☐ Canoe or Kayak / ☐ Air Boat /
☐ Boat - Gasoline Motor / ☐ Boat - Electric Motor / ☐ Other _____

❖ **Select** water sample collection device type on field sheet.

❖ Record **Equipment ID** and **# of grabs** collected with the Van Dorn.

Same Equipment IDs must be used on Field Sheets and in Cleaning Log





Sample Preservation Order

Follow the Order on SW Details Page!!

Check Boxes for Each Container Submitted to Lab				Preservation (Must be completed within 15 min of sample collection)	# Bottles sent to Lab	Bottle Group
Parameter Suite	Lab Test Codes Trend Core	Lab Test Codes Status Core	Lab Test Codes Special Projects			
Chlorophyll (BP-1L)	☐ CHLSUITE-W	☐ CHLSUITE-W		☐ Ice		
Nutrients (P-500ML)	☐ W-NH3 / W-NO2NO3 / W-S-T-P / W-TKN / W-TOC	☐ W-NH3 / W-NO2NO3 / W-S-T-P / W-TKN / W-TOC		☐ 2ML H ₂ SO ₄ ☐ pH < 2 ☐ Ice		
Metals (P-500ML)	☐ W-HARD / W-ICP / W-ICPMS	☐ W-HARD / W-ICP / W-ICPMS		☐ 2ML HNO ₃ ☐ pH < 2 ☐ Ice		
Anion / Phys. Aggregate (P-1L)	☐ ALKALINITY / TURBIDITY / W-CL-IC / W-COLOR / W-COND / W-F / W-SO4-IC / W-TSS	☐ ALKALINITY / TURBIDITY / W-CL-IC / W-COLOR / W-COND / W-F / W-SO4-IC / W-TSS		☐ Ice		
Microbiology (P-250ML or P-120ML)	☐ ECOLI-18-QT	☐ ECOLI-18-QT		☐ Ice		
Toxins (P-125ML/BG-250ML)		☐ W-MCYST-AA / W-SAXTN-MS	☐ W-MCYST-AA / W-SAXTN-MS	☐ Ice		
Molecular (QPCR-P-500ML)			☐ PCR-BACR / PCR-DG3 / PCR-GFD / PCR-GULL2 / PCR-HF183	☐ Ice		
Tracers (BG-500ML)			☐ W-E8321-DI / W-E8321-MS	☐ Ice		
BOD (P-1L)			☐ OV-BOD-UN	☐ Ice		
Pesticides (BG-500ML)			☐ W-PSNP-TQ / W-TR-SQ-R	☐ Ice		
Filtered Nutrient (P-125ML)			☐ W-PO4-F	☐ Field Filtered w/ syringe & 0.45 um PES filter ☐ Ice		



SW Sample Details Page

Check Boxes for Each Container Submitted			Preservation (Must be completed within 15 min of sample collection)
Parameter Suite	Lab Test Codes Trend Core	Lab Test Codes Status Core	
Chlorophyll (BP-1L)	☐ CHLSUITE-W	☐ CHLSUITE-W	☐ Ice
Nutrients (P-500ML)	☐ W-NH3 / W-NO2NO3 / W-S-T-P / W-TKN / W-TOC	☐ W-NH3 / W-NO2NO3 / W-S-T-P / W-TKN / W-TOC	☐ 2ML H ₂ SO ₄ ☐ pH < 2 ☐ Ice
Metals (P-500ML)	☐ W-HARD / W-ICP / W-ICPMS	☐ W-HARD / W-ICP / W-ICPMS	☐ 2ML HNO ₃ ☐ pH < 2 ☐ Ice
Anion / Phys. Aggregate (P-1L)	☐ ALKALINITY / TURBIDITY / W-CL-IC / W-COLOR / W-COND / W-F / W-SO4-IC / W-TDS / W-TSS	☐ ALKALINITY / TURBIDITY / W-CL-IC / W-COLOR / W-COND / W-F / W-SO4-IC / W-TDS / W-TSS	☐ Ice

??
mistake

If you make a mistake, document what occurred.

- Helps lab staff determine how to prepare & analyze samples.
- Helps data users understand if data are appropriate for inclusion in reporting / statistical analyses.



After Collecting Samples



RQ-2020-_____ Collected By (Agency Code): _____
 Project Name: _____ Sampler Names: _____
 Customer: AMBIENT Lab Project ID: ☐ SW-TREND / ☐ STATUS / ☐ BMAP

Lab Page ____ of ____

Place Station ID Label Here	Comments:
	Sulfuric Acid Lot #:
	Nitric Acid Lot #:

Matrix: ☐ W-SURF-FRESH / ☐ W-SURF-SALT		☒ Grab	
Date Collected	Time Collected	D.O. (% SAT)	Temp (°C)
	☐ ETZ ☐ CTZ		

Parameter Suite	Check Boxes for Each Container Submitted to Lab			Preservation (Must be completed within 15 min of sample collection)	# Bottles sent to Lab	Bottle Group
	Lab Test Codes Trend Core	Lab Test Codes Status Core	Lab Test Codes Special Projects			
Chlorophyll (P-1L)	☐ CHLSUITE-W	☐ CHLSUITE-W		☐ Ice		
Nutrients (P-500ML)	☐ W-NH3 / W-NO3 / W-S-T-P / W-TKN / W-TOC	☐ W-NH3 / W-NO3 / W-S-T-P / W-TKN / W-TOC		☐ 2ML H ₂ SO ₄ ☐ pH < 2 ☐ Ice		
Metals (P-500ML)	☐ W-HARD / W-ICP / W-ICPMS	☐ W-HARD / W-ICP / W-ICPMS		☐ 2ML HNO ₃ ☐ pH < 2 ☐ Ice		
Anion / Phys. Aggregate (P-1L)	☐ ALKALINITY / TURBIDITY / W-CL-IC / W-COLOR / W-COND / W-F / W-SO4-IC / W-TSS	☐ ALKALINITY / TURBIDITY / W-CL-IC / W-COLOR / W-COND / W-F / W-SO4-IC / W-TSS		☐ Ice		
Microbiology (P-250ML or P-120ML)	☐ ECOLI-18-QT	☐ ECOLI-18-QT		☐ Ice		
Toxins (P-125ML @ 0.250ML)		☐ W-MCYST-AA / W-SAXTN-MS	☐ W-MCYST-AA / W-SAXTN-MS	☐ Ice		
Molecular (QPCR-P-500ML)			☐ PCR-BACR / PCR-DG3 / PCR-GFD / PCR-GUL2 / PCR-HF183	☐ Ice		
Tracers (BG-500ML)			☐ W-E8321-D1 / W-E8321-MS	☐ Ice		
BOD (P-1L)			☐ OV-BOD-UN	☐ Ice		
Pesticides (BG-500ML)			☐ W-PSNP-TQ	☐ Ice		
Filtered Nutrient (P-125ML)			☐ W-PO4-F	☐ Field Filtered w/ syringe & 0.45 um PES filter ☐ Ice		

Matrix: SEDIMENT	Date Collected:	Time Collected:	☐ ETZ / ☐ CTZ
Check Boxes for Each Container Submitted to Lab			
Parameter Suite	Lab Test Codes Trend Core	Lab Test Codes Status Core	Lab Test Codes Special Projects
Metals & Nutrients (G-500ML)		☐ S-HG-TDA / S-ICP-TO / S-ICPMS-TO / S-TKN / S-TOC / S-TP	
			☐ Ice

Matrix: BIOLOGICAL	Date Collected:	Time Collected:	☐ ETZ / ☐ CTZ
Check Boxes for Each Container Submitted to Lab			
Parameter Suite	Lab Test Codes Trend Core	Lab Test Codes Status Core	Lab Test Codes Special Projects
Macroinvertebrate (P-2L)	☐ MI-FW-QLDC		☐ MI-FW-QLDC
Algal ID (P-150ML)	☐ ALGAL_ID		☐ ALGAL_ID
			☐ Buffered Formalin (10%) ☐ Ice



Documentation Completion

- ❖ Survey123 field sheets
- ❖ Trimble files
- ❖ Photos
- ❖ QA Report
- ❖ All logs:
 - Calibration
 - Depth
 - Temperature
 - Cleaning logs

Let the project manager know when all files are complete & available for review

Questions?



Contact Your Project Manager