



DEAR Tablet

Introducing Tablets into
DEAR Monitoring Programs



Samsung Galaxy Tab Active 2

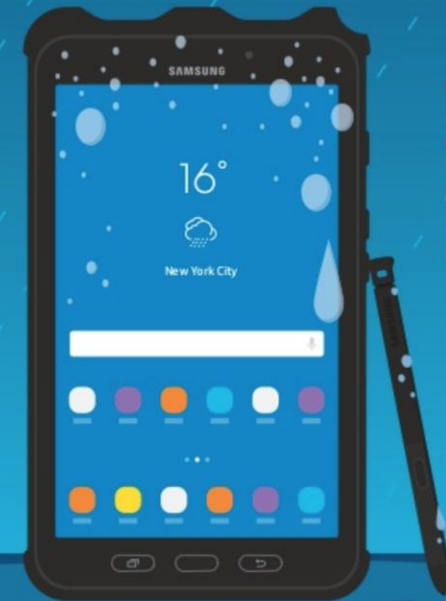
Rugged Tablet, water resistant
and designed for field use.

12/27/2019



Ready to go.
Through anything.

Immersion in water,
blowing rain, dripping
rain, or humidity hasn't
stopped this tablet -
or your work.



- 5 Blowing Rain
- 6 Dripping Rain
- 7 Immersion
- 8 Humidity

Tablet Specs

Samsung Galaxy Tab Active 2

- 8.5 x 5 inches, 14.8 ounces
- IP68 rated against water and shock
- Bright enough for outdoor use
- Glove mode





Tablet Workgroup

Workgroup made up of representatives from ROCs, WAS, Status and Trend program.

12/27/2019



Tablet Workgroup Objectives

Short Term

- Adapt Field Sheets for tablet
- Outline Workflow
- Test equipment in field

Long Term

- Identify and implement tools that take full advantage of tablet
- Potential changes will take a lot of planning and coordination between DEAR programs managers

Tablet Workgroup Progress

Short Term

- ✓ Adapt Field Sheets for tablet
- ✓ Outline Workflow
- ✓ Test equipment in field

Long Term

- ✓ Identify and implement tools that take full advantage of tablet
 - Currently testing ArcGIS Apps for Strategic Monitoring
 - If successful, will expand to other monitoring projects

Field Sheets

Strategic Monitoring

- Adopted Northern ROCs Field Sheet Design
- Data entry workflow similar to Northern ROCs current manual for scanned sheets

Status and Trend Monitoring

- All field sheets have been adapted to tablet friendly PDF versions



Custom Application

Goals:

- Easier data entry
- Improved Data Quality
- Automated Tasks
- Real-time tracking





Available Tools

ArcGIS App

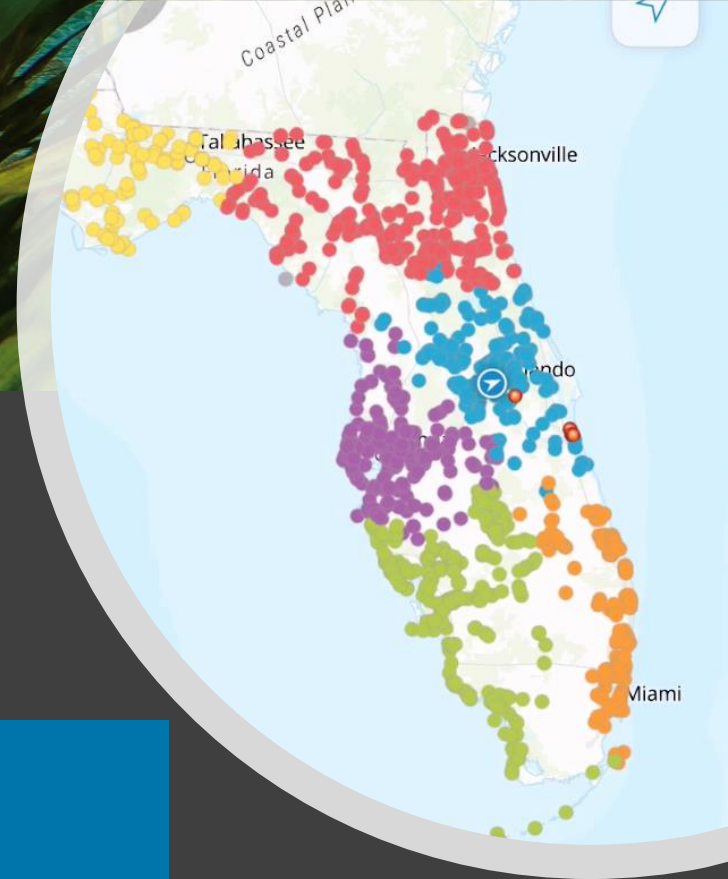
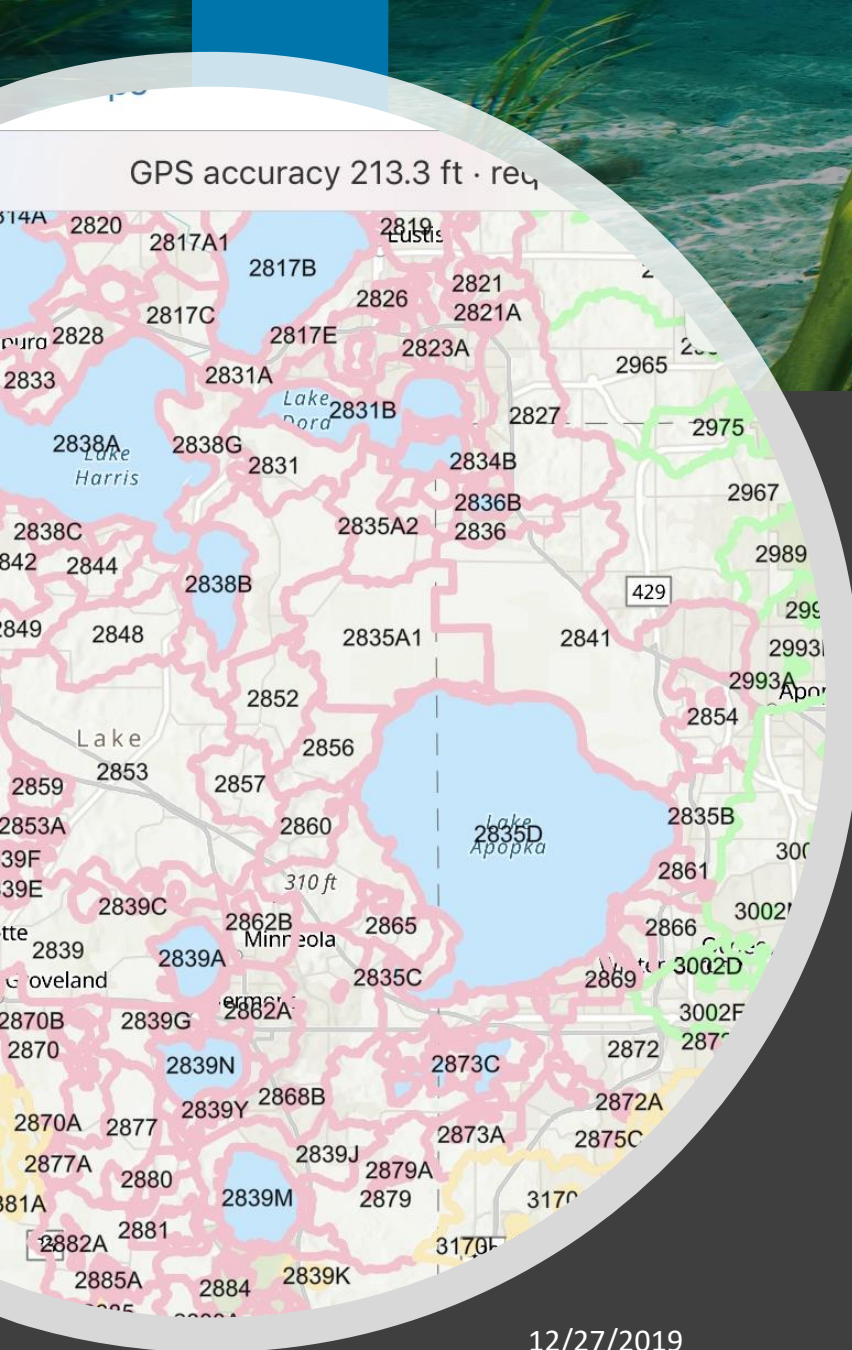
- Collector

ArcGIS App

- Survey123

Integromat

Microsoft
OneDrive



Collector App

Features:

- Collect and update data using map
- Work offline with downloaded apps
- Collect points, lines, and areas
- Fill out easy-to-use, map-driven forms



12/27/2019

Survey123

Features:

- Easy to use
- Smart forms
 - Calculations, validation rules and skip logic.



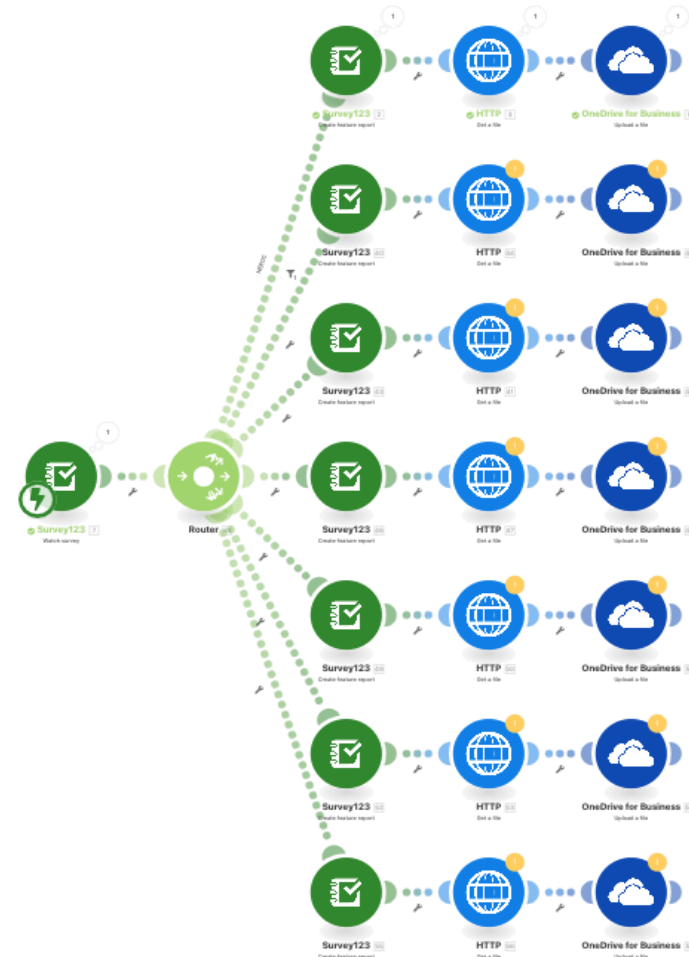
Integromat

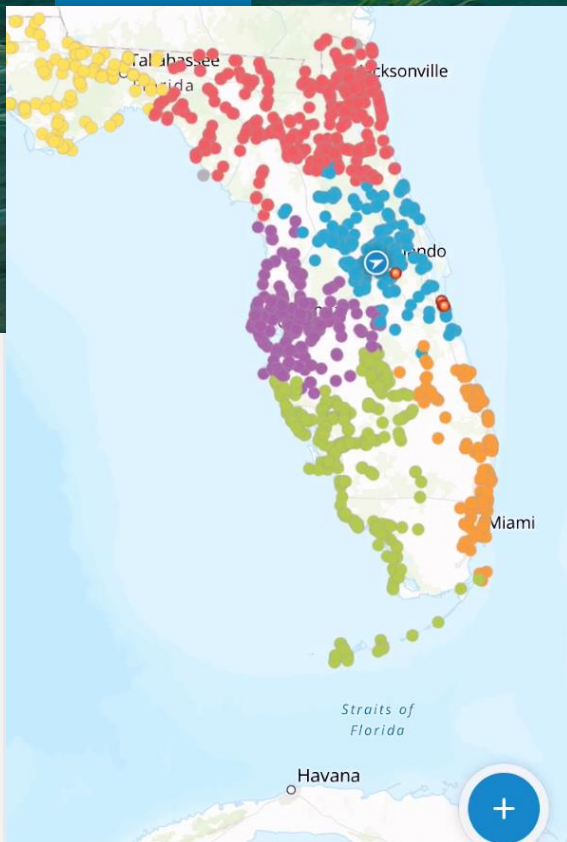
Integromat is a powerful online automation platform.

SMP Integromat Workflow

Each monitoring groups
surveys are routed to their
designated folder on the
OneDrive

12/27/2019





New Feature
28.578239°N 81.368139°W 2 mi

Organization ID	21FLCEN
Monitoring Location ID	G2CE0004
Monitoring Location Name	Lake Winyah at center
Primary Type	Surface Water
Secondary Type	Lake
Waterbody Name	
DEP Latitude	28.58
DEP Longitude	-81.37
County	ORANGE
WBID	2997L
DEP District	CENTRAL
Basin Group	GROUP 2
Survey Link	Open in Survey123

[Collect Here](#) +

[Directions](#) 📍



2019 SMP Tablet Demo

Date
Wednesday, September 4, 2019
9:25 AM

Station Details

Organization ID
21FLCEN

WIN Station Name
Lake Winyah at center

Station ID
G2CE0004

County
ORANGE

Latitude
28.58

Longitude
-81.37

✓

Overview

Collector App Transfers Data Directly to Survey123 Form

2019 SMP Tablet Demo

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 Wednesday, September 4, 2019
 9:25 AM

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Organization ID
 21FLCEN

WIN Station Name
 Lake Winyah at center

Station ID
 G2CE0004

County
 ORANGE

Latitude
 28.58

Longitude
 -81.37



**Florida Department of Environmental Protection
 Strategic Monitoring Program
 Field Sheet**
 September 2019

Date Qualified? Yes / No

WIN Station Name: \$(win_station_name) Date: _____
 WIN/Field ID: \$(winfield_id) WBID: _____ Latitude: _____
 County: \$(county) Org ID: \$(org_id) Longitude: _____
 Receiving Body of Water: \$(receiving_body_of_water) RQ-2019- _____

SAMPLING TEAM MEMBERS	WQ MEASUREMENTS	SAMPLE COLLECTION	DOCUMENTATION	PRESERVATION	CLOSURE	SAMPLE EQUIPMENT	
						\$(sample_equipmnt selected:"sample_containers") Sample Container	\$(sample_equipmnt selected:"Carboys") Carboy
\$(samplers selected:"natlie_ayala") Natalie Ayala							
\$(samplers selected:"leif_borman") Leif Borman							
\$(samplers selected:"mike_drennan") Mike Drennan							
\$(samplers selected:"mike_linger") Mike Linger							
\$(samplers selected:"katie_marshall") Katie Marshall							
\$(samplers selected:"ferry_riordan") Ferry Riordan							

COLLECTION METHOD

\$(collection_method | selected:"wading") Wading
 \$(collection_method | selected:"from_shore") From Shore
 \$(collection_method | selected:"other") Other

WATER LEVEL	FLOW	PHOTOS	TIME	WIND	WAVE	TEMP	WIND	WAVE
\$(water_level selected:"low") Low	\$(flow selected:"low") Low	\$(photos selected:"none") None	\$(time selected:"none") None	\$(wind selected:"low") Low	\$(wave selected:"low") Low	\$(temp selected:"low") Low	\$(wind selected:"low") Low	\$(wave selected:"low") Low

BIOL. SAMPLES COLLECTED

\$(bio_samples_choices | selected:"sci") SCI \$(bio_samples_choices | selected:"ha") HA

BIOL. ID NUMBER

BIOL. ID: _____ HA ID: _____ RPS ID: _____ MACROINVERTEBRATE ID: _____ LIMB: _____

NOTES

Duplicate Sample

Time Zone: \$(DuoTime) Time: \$(DuoSampleTime) Field ID: \$(DuoFieldID)

WIN DMT Activity ID: _____

Blank

Time Zone: \$(BlankTimeZone) Time: \$(BlankCollectionTime) Field ID: \$(BlankFieldID)

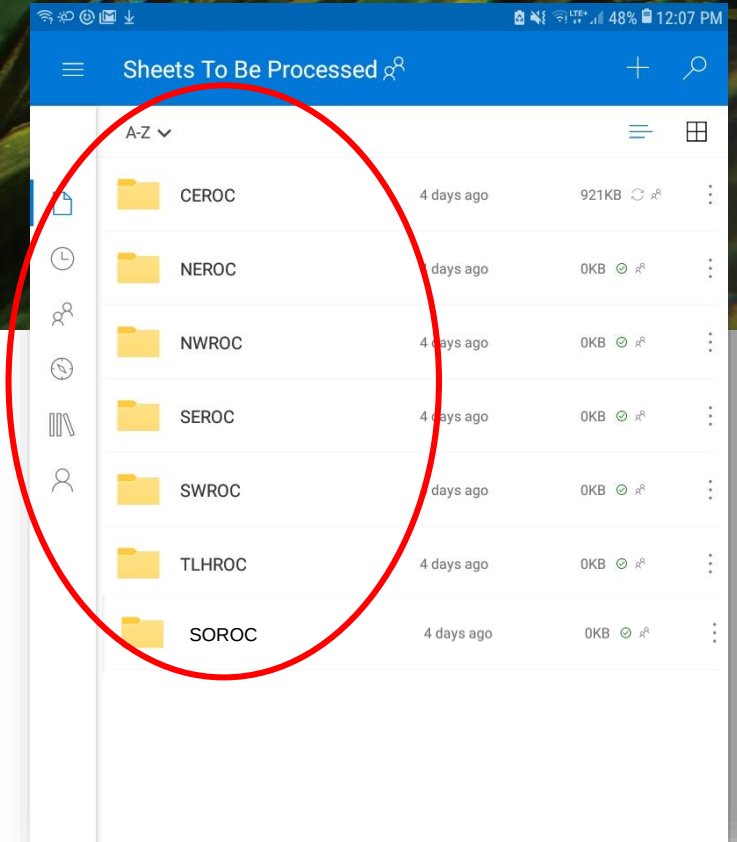
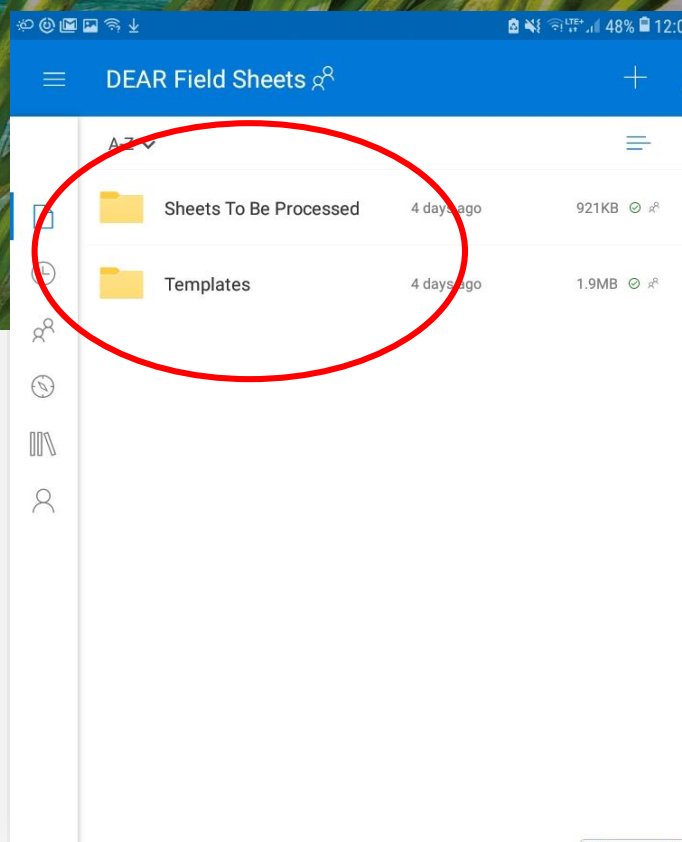
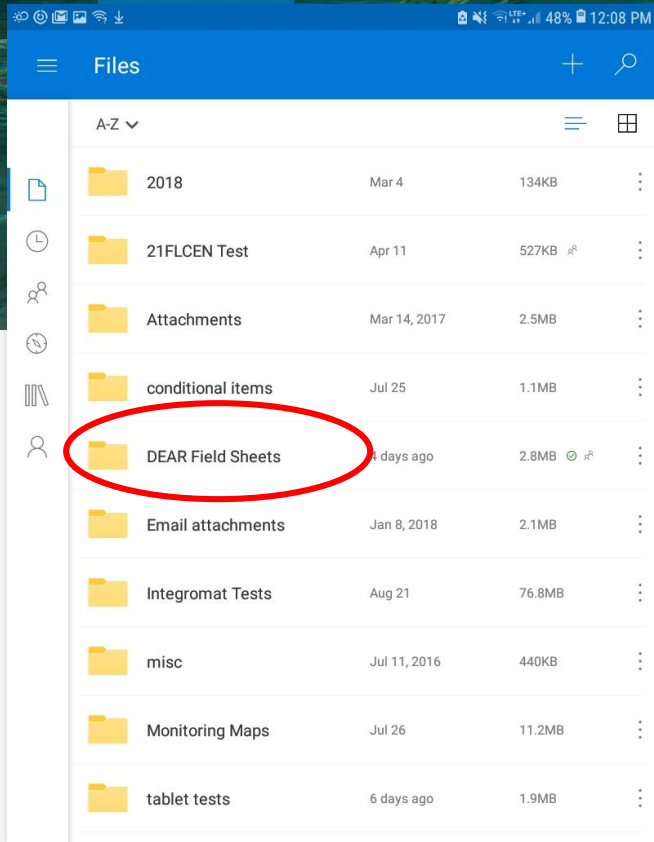
DI Source: \$(DI_Source) Location: \$(DI_Location)

DI Type: \$(DI_Type) Equipment ID: \$(EquipmentID)

UIMS EVENT ID: _____ WIN Import ID: _____
 Enter Field Parameters, Verify Station ID in UIMS DMT: QC Station ID, Field Parameters in UIMS DMT:
 Scan/Save Field Sheets: Migrate Data to WIN: Verify Data in WIN:

Overview

From Survey123, Integromat Generates a Field Sheet and saves it to the OneDrive



Integromat to OneDrive

Each ROC's sheets will be saved to their respective OneDrive folder.

Advantages

Improved Data Quality

- Certainty of sampling location
- Reduced Transcription Errors
- Validation Tools
- Calculations
- Increased potential for automation

Improved Efficiency in Field

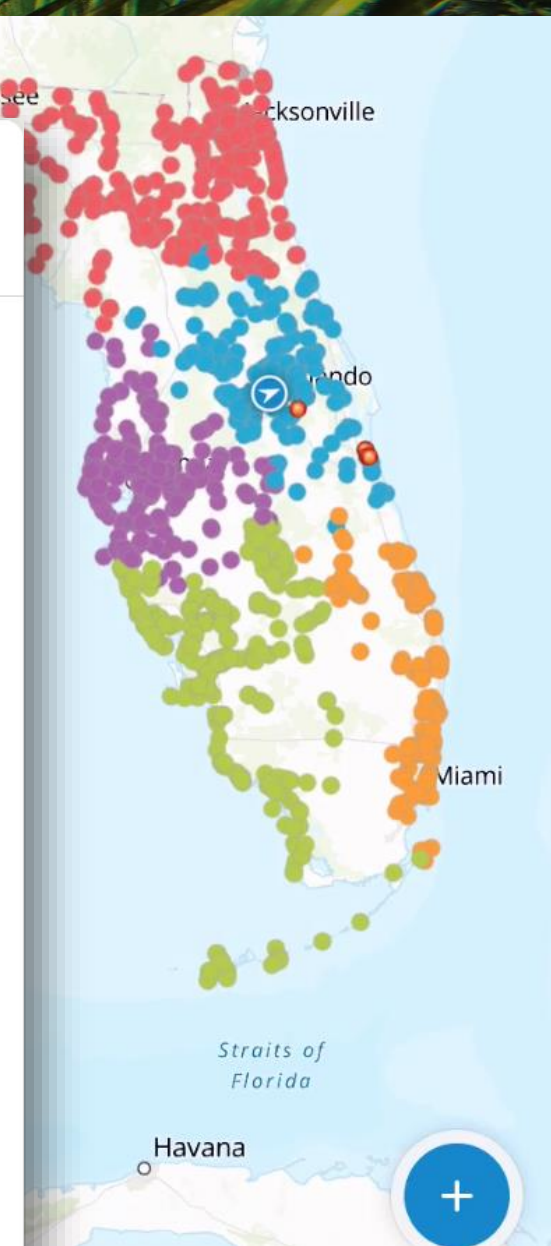
- GPS
 - Navigation
 - Custom GIS layers
- Field Sheets/Clipboard/Pens
- Camera
- Plant ID reference material
- Google Playstore Applications
 - Measuring apps, weather, etc.

WIN Stations

Station information populated from a file that is updated weekly by Curtis Musson.

12/27/2019

New Feature	
28.560695°N 81.339199°W	
0.2 mi	
Organization ID	21FLCEN
WBID	3168Y7
Monitoring Location ID	G4CE0151
Monitoring Location Name	LAKE THERESA @ CENTER
DEP Latitude	28.56070
DEP Longitude	-81.33920
County	ORANGE
Primary Type	Surface Water
Secondary Type	Lake
DEP District	CENTRAL
Basin Group	GROUP 4
Waterbody Name	
Survey Link (Existing Station)	Open in Survey123
Survey Link (New Station)	Collect at new Station in Survey123



Reduced Transcription Errors

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Station Details

Date
Monday, Septe... 1:18 PM

Organization ID
21FLCEN

WBID
2838D

WIN Station Name
.IDAY SPRING ABOVE PUMP HOUSE

Station ID
G1CE0029

County
LAKE

Latitude
28.7406227

Longitude
81.8176127

Receiving Body of Water
Ocklawaha

Reduced Transcription Errors

Barcode Scanning to
confirm matching WIN
IDs on bottle and label.

12/27/2019

The image shows a smartphone screen displaying an 'Inspection' form. The form includes fields for 'Date & Time of Inspection' (08/05/16, 12:25), 'Permit Number' (with a barcode icon), 'Name' (with a refresh icon), 'Purpose of Inspection' (Routine), and 'Smoke Free?' (Yes/No). A yellow callout bubble with the text 'Barcode question' points to the barcode icon. At the bottom, a blue bar contains a white checkmark icon and a yellow circle with the number '1'. The background of the slide features a close-up of green reeds.



Validation Tools

Constraints/rules can be added to ensure accurate data entry.

▼ **Field Measurements**

Sample Depth

Total Depth

Secchi Disk Depth

DO mg/L

DO Saturation

Temperature

pH

Specific Conductivity

Salinity

Total Depth > Sample Depth

Total Depth > Sample Depth

! Total Depth must be greater than the sample depth.

Total Depth

1



$0 \leq \text{pH} \leq 14$



Blank Type

☒ Field Blank ☐ Equipment Blank ☐ Field Cleaned Equipment Blank

Blank Field ID

FB100119



Blank Type

☐ Field Blank ☒ Equipment Blank ☐ Field Cleaned Equipment Blank

Blank Field ID

EB100119



Blank Type

☐ Field Blank ☐ Equipment Blank ☒ Field Cleaned Equipment Blank

Blank Field ID

EB100119



Calculations

Field IDs Generated Automatically based on Blank Type and Date.

Automation

Eliminates:

- Printing/Scanning Field Sheets
- Manual field calculations

Future possibilities:

- New data entry processes
- Automated, real time tracking
- Public facing maps



Offline Connectivity

Collector

Current instance of map
is saved to device

Offline, user accesses
most recent instance of
map

Survey123

Download Survey while
on data connection

If data connection is
lost, surveys saved to
Outbox

OneDrive

Mark Folders as “access
offline”

Files automatically
update when
connection is restored.



Next Steps

- Continue field testing and deploy for official use.
- Expand to other SMP forms
 - Biology sheets
 - Calibration logs
 - Etc.
- Expand to other Monitoring Projects

