

Empowering Real-Time Flood Monitoring with In-Situ's Rapid-Deployable System

Brock Houston, Florida Regional Sales Manager



water
simplified.

Challenges of Flood Preparedness



In-Situ's Mission

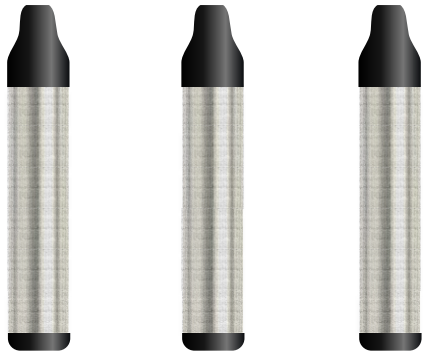


We develop innovative technologies used to monitor and protect the world's water resources



Level Portfolio

Rugged TROLL®



100 200 Baro

Level TROLL®



400 500 700 700h Baro

Aqua TROLL®



100 200

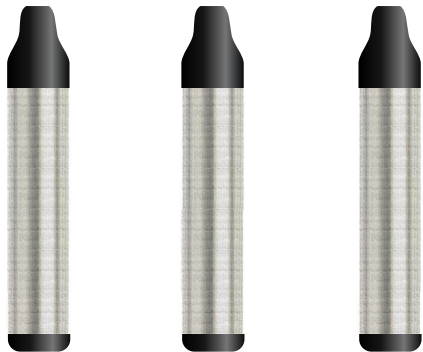
INTR



ING!!!

Level Portfolio

Rugged TROLL®



100 200 Baro

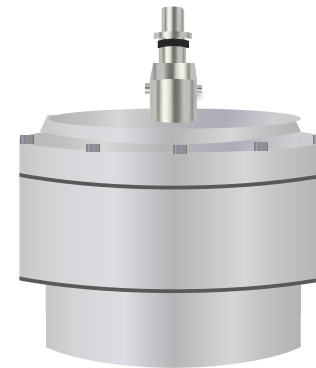
Level TROLL®



400 500 700 700h Baro

Available
now!

Aqua TROLL®



NEW!!

Non-Contact



100 200

Introducing: Level TROLL NC!!

Non-contact radar device for measuring water level

High-quality radar integrated into In-Situ's ecosystem

Quick and Easy Deployments

Available in three ranges:

15 m [49 ft]

30 m [98 ft]

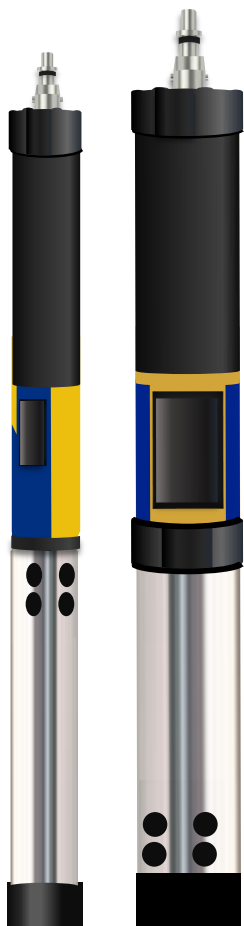
50 m [164 ft]



Environmental Applications

- Flood Management – real-time water level and warnings
- Stream Gaging – stage height in creeks, streams, canals, rivers, and waterways
- Stormwater – water level and flow through culverts and combined sewer overflows (CSOs)
- Surface Water Monitoring – reservoir and lake stage
- Tide Gauging – water surface elevation
- Flow Estimate – simple and stable cross sections



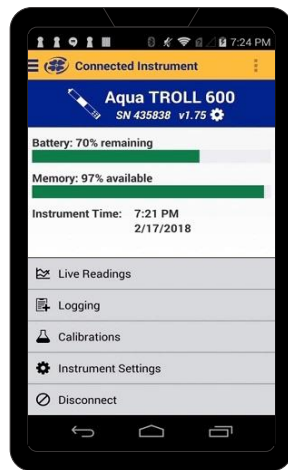


Aqua TROLL



Level TROLL

VuSitu®



HydroVu™



Rugged
Cable



RuggedCable®
Splitter



Desiccant



TROLL® Com Plus



VuLink

Simple Interface - VuSitu



VuSitu Mobile App

Connected Instrument

Level TROLL NC

SN 123456 v1.61

DISTANCE

26.2 m

⚙️

TILT ANGLE

0.7°

✅

SIGNAL TO NOISE RATIO

87 dB

✅

📶 Live Readings

📡 Radar Configuration

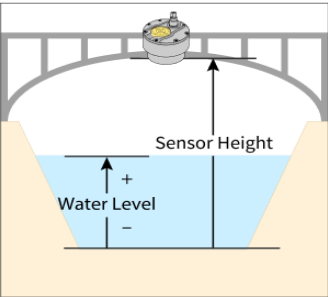
⚙️ Instrument Settings

🚫 Disconnect

Water Level

Level TROLL NC - SN <SN>

View and configure reference settings for Water Level. Use the reference type that's easiest to measure at your deployment site.



Choose Units

Parameter Units

m

⚙️

Choose Reference Type

☒ Measured Water Level

Enter the current water depth.

12

m

⚙️

☐ Fixed Sensor Height

Enter the distance from the sensor face to the lowest point in the body of water.

m

⚙️

Cancel

Save

Radar Configuration

Level TROLL NC - SN <SN>

The echo curve shows all radar signals from a single reading. Adjust radar settings to change how the instrument interprets radar signals.

Echo curve troubleshooting help >

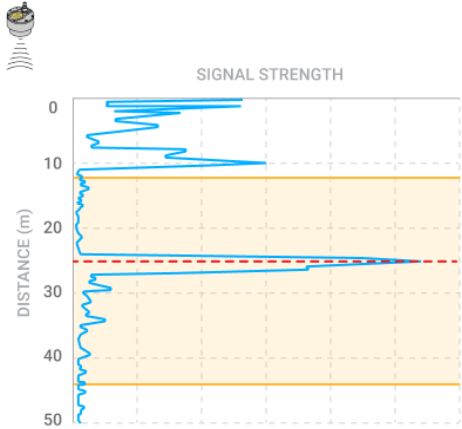
Radar Echo Curve

Active Zone

Distance Reading

26 m

⚙️

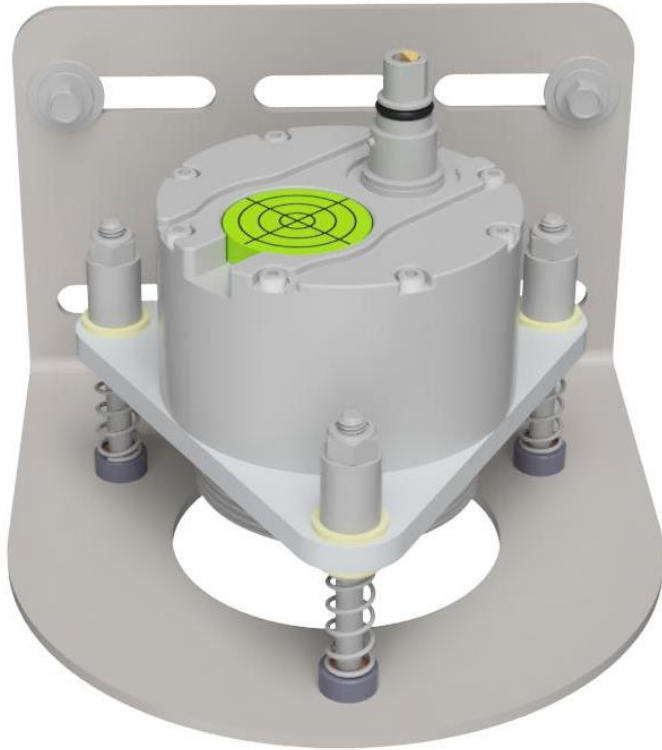


Radar Settings

Save Report



Low Maintenance and Easy to Deploy

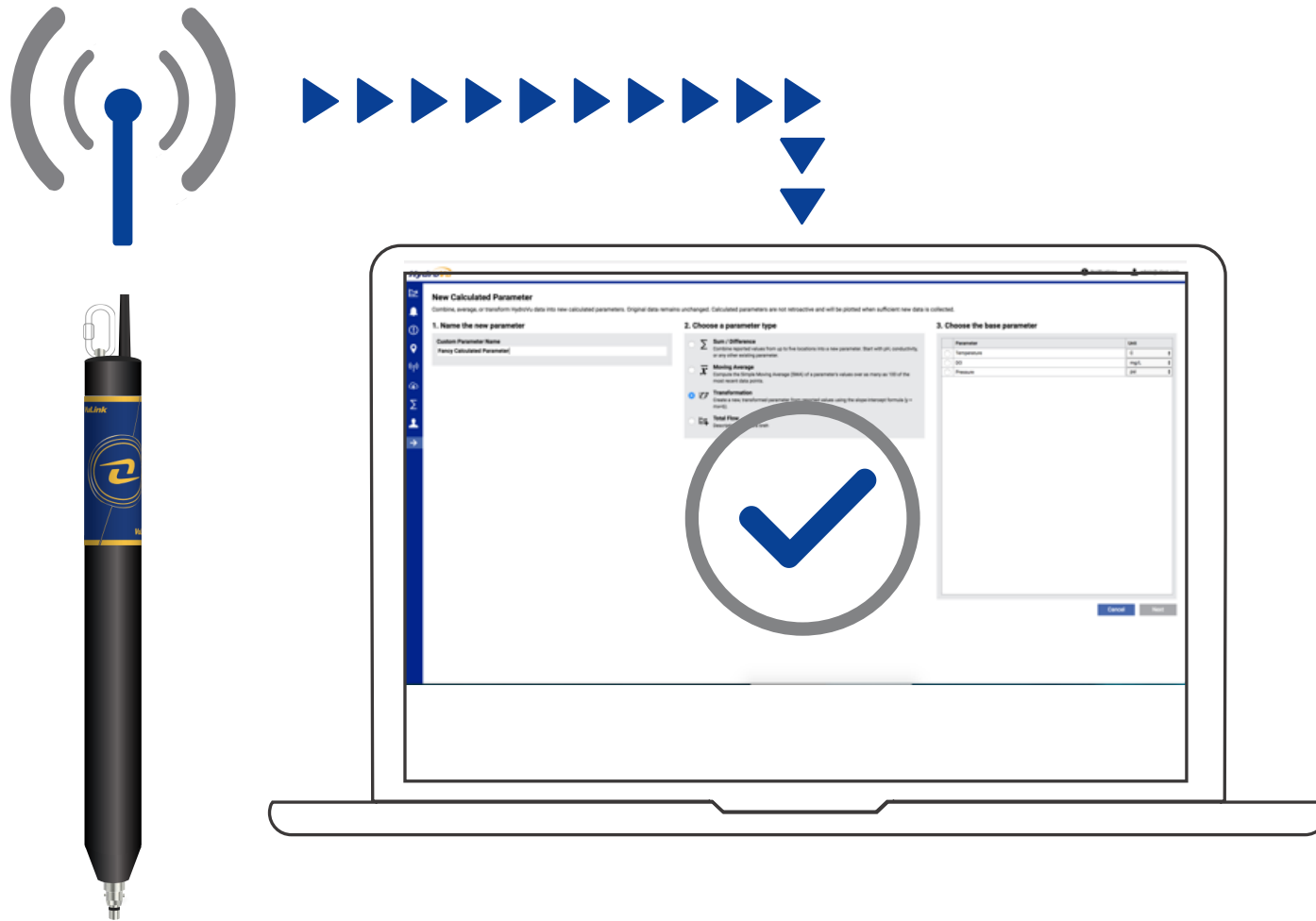


- The Level TROLL NC is easy to setup, requires little to no maintenance, and is quick to deploy
- No recalibration required
- The bubble level on top paired with the In-Situ mounting bracket makes leveling the radar even easier
 - Built-in leveling bolts
 - Multiple mounting holes allow for a variety of deployment needs

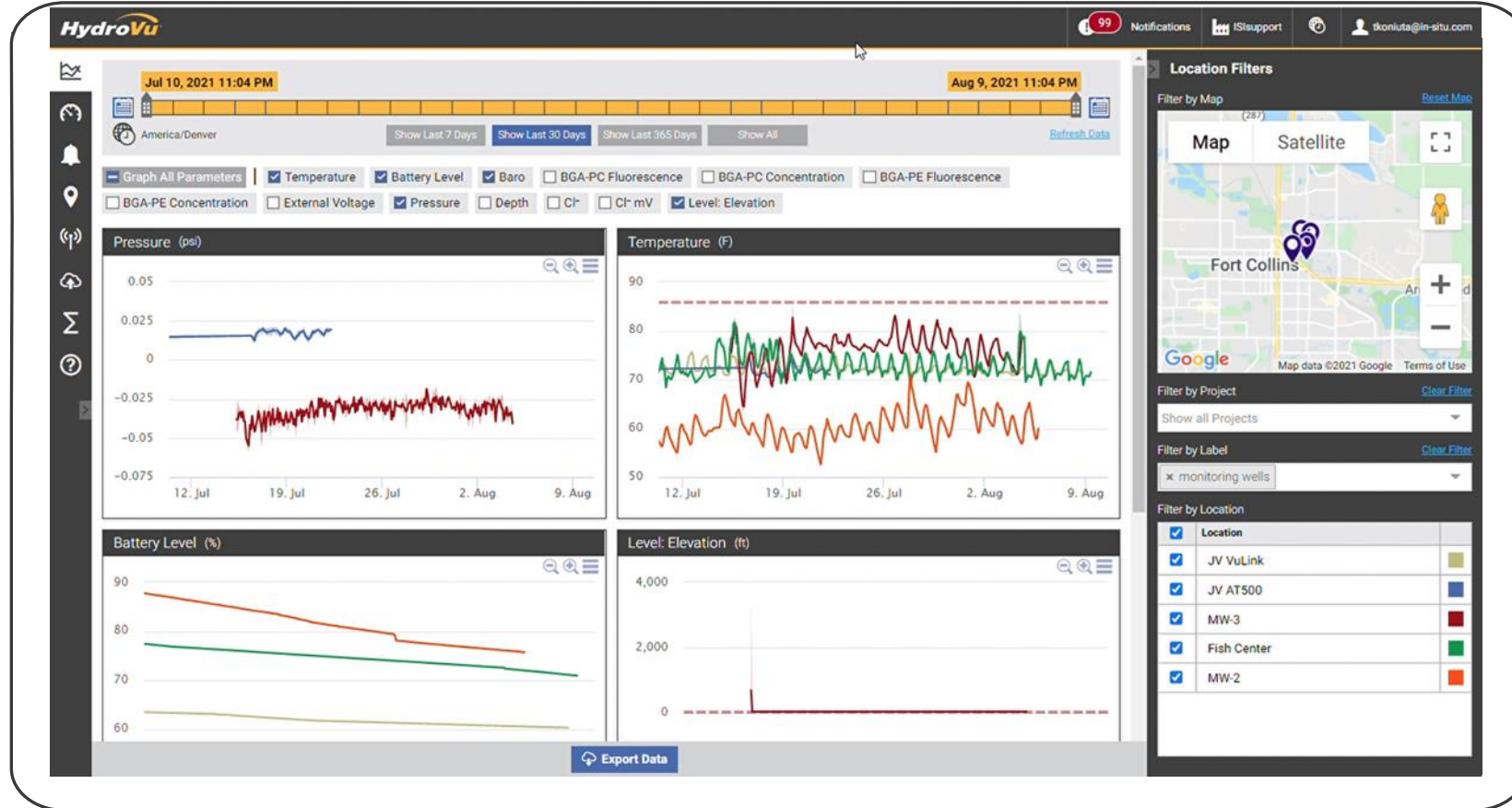
Required Equipment



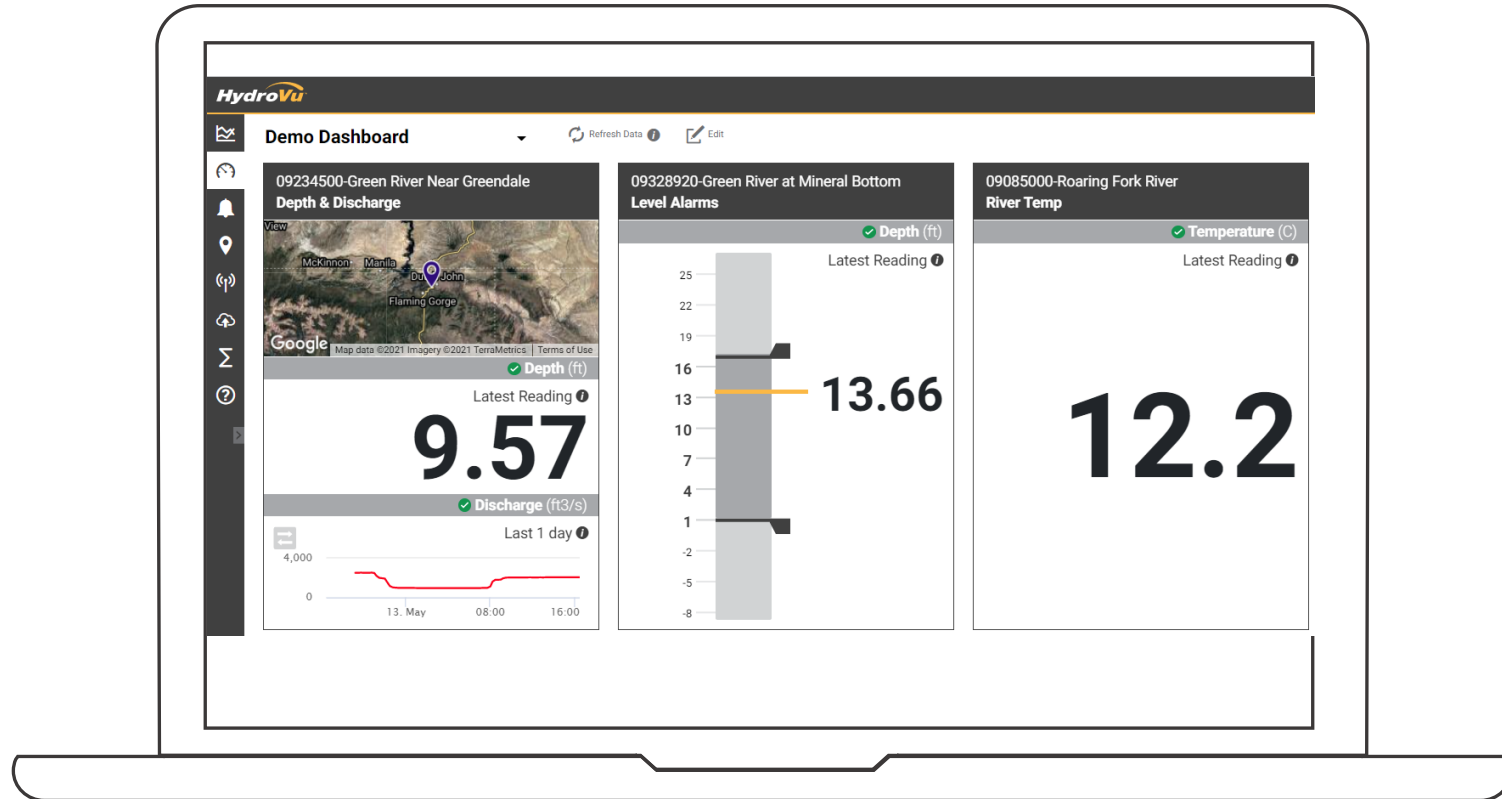
Cellular Connection to the Cloud



HydroVu - Network-Wide Visibility



HydroVu - Dashboards



HydroVu

Multi-Condition Alarms

99 Notifications

Support

Add Alarm

1. Choose a Location for the alarm

Filter by Map
Map Satellite
VIA L Z
Odell Brewing Con
Walmart Supercenter
E Line
OLD TOWN
Map data ©2021 Google
Terms of Use
Clear Filter

Filter by Project
Show all Projects
Filter by Label
x monitoring wells
Filter by Location

Location
<input type="radio"/> JV VuLink
<input type="radio"/> JV AT500
<input type="radio"/> MW-3
<input type="radio"/> Fish Center
<input type="radio"/> MW-2

2. Define the alarm

Location: Location not selected
Alarm Name *

Notes

Alarm Conditions *

Add/Edit Conditions

3. Set up notifications

Send Notifications
☐ When ANY conditions are met
☒ When ALL conditions are met
Notes

Add/Edit Notifications
Cancel Save Alarm

Calculated Parameters

775 Notifications
demo

matthew.trumbo+hvdm@gmail.com

New Calculated Parameter

Combine, average, or transform HydroVu data into new Calculated Parameters. Original data remains unchanged. Calculated Parameters are not retroactive and will be plotted when sufficient new data is available.

- Name the new parameter**

Calculated Parameter Name
 Name Calculated Parameters carefully; they cannot be deleted or renamed.

☒ Make this parameter active
- Choose a parameter type**
 - ☐ **Σ Sum / Difference**
 Combine reported values from up to five locations into a new parameter. Start with pH, conductivity, or any other existing parameter.
 - ☐ **X̄ Moving Average**
 Compute the Simple Moving Average (SMA) of a parameter's values over as many as 100 of the most recent data points.
 - ☒ **↗ Transformation**
 Create a new, transformed parameter from reported values using the slope-intercept formula ($y = mx + b$).
 - ☐ **Total Flow**
 Use flow rates to determine total volume.
 - ☐ **∇ Flow from Depth**
 Create a parameter that converts depth to flow via a lookup table. You must provide at least two known correlations between depth and flow.
- Choose the source parameter**

	Parameter	Unit
<input type="radio"/>	Specific Conductivity	µS/cm ▾
<input type="radio"/>	pH	pH ▾
<input type="radio"/>	Turbidity	NTU ▾
<input type="radio"/>	Velocity	m/s ▾
<input type="radio"/>	Total Positive Flow	m³ ▾
<input type="radio"/>	Flow Rate	m³/s ▾
<input type="radio"/>	Doppler Steam In	Unspecified ▾
<input type="radio"/>	PulseIn_24h	Units ▾
<input type="radio"/>	PulseIn	Units ▾
<input type="radio"/>	Pressure	psi ▾
<input type="radio"/>	Level: Depth to Water	m ▾
<input type="radio"/>	Actual Conductivity	µS/cm ▾
<input type="radio"/>	Salinity	psu ▾
<input type="radio"/>	Resistivity	Ω·cm ▾
<input type="radio"/>	Density	g/cm³ ▾
<input type="radio"/>	Total Dissolved Solids	mg/L ▾
<input type="radio"/>	pH MV	mV ▾
<input type="radio"/>	ORP	mV ▾
<input type="radio"/>	% Saturation O₂	% sat ▾

Cancel
Next

Customer Beta Examples

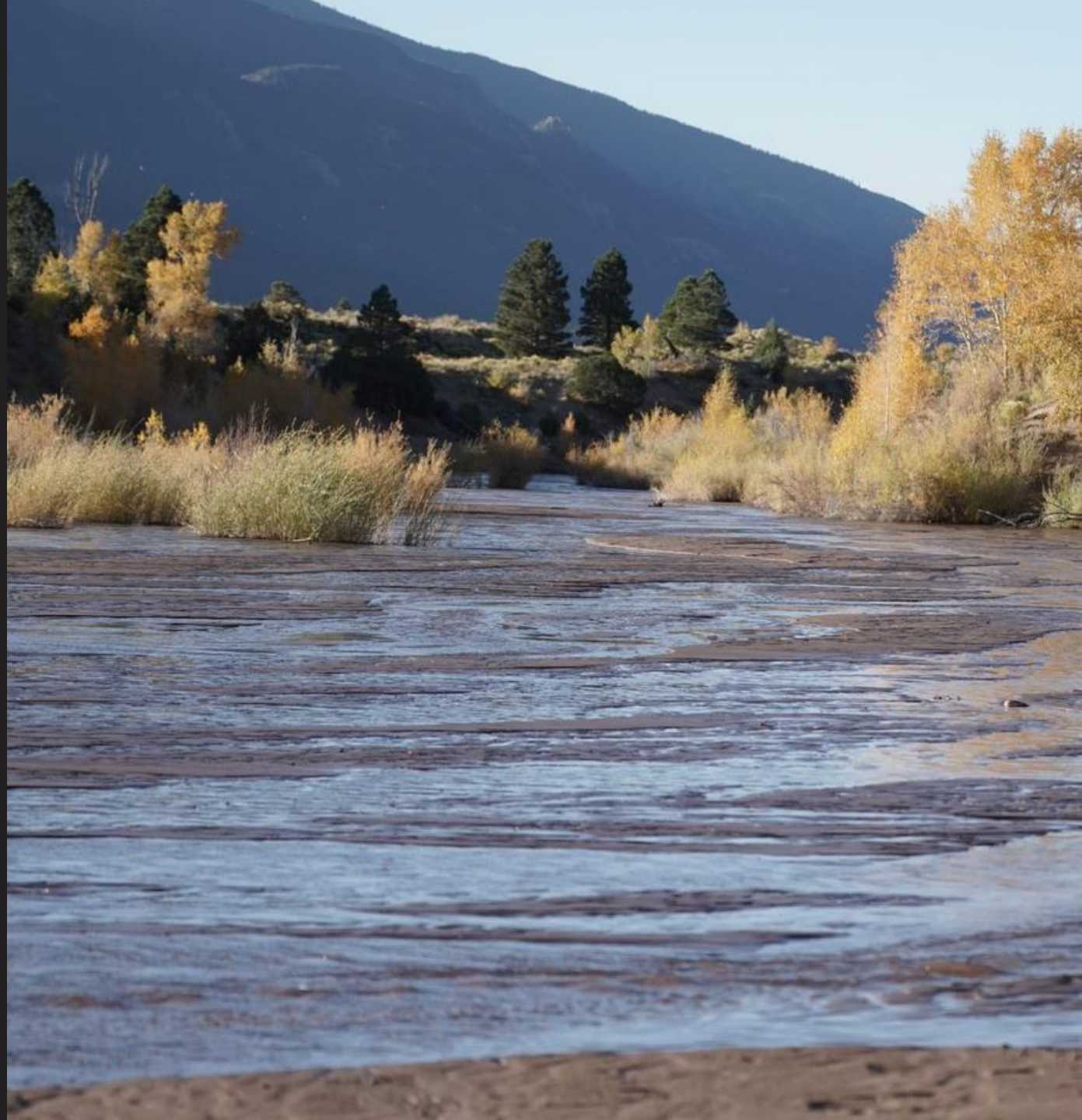
Stormwater Flow

Tide Gauging

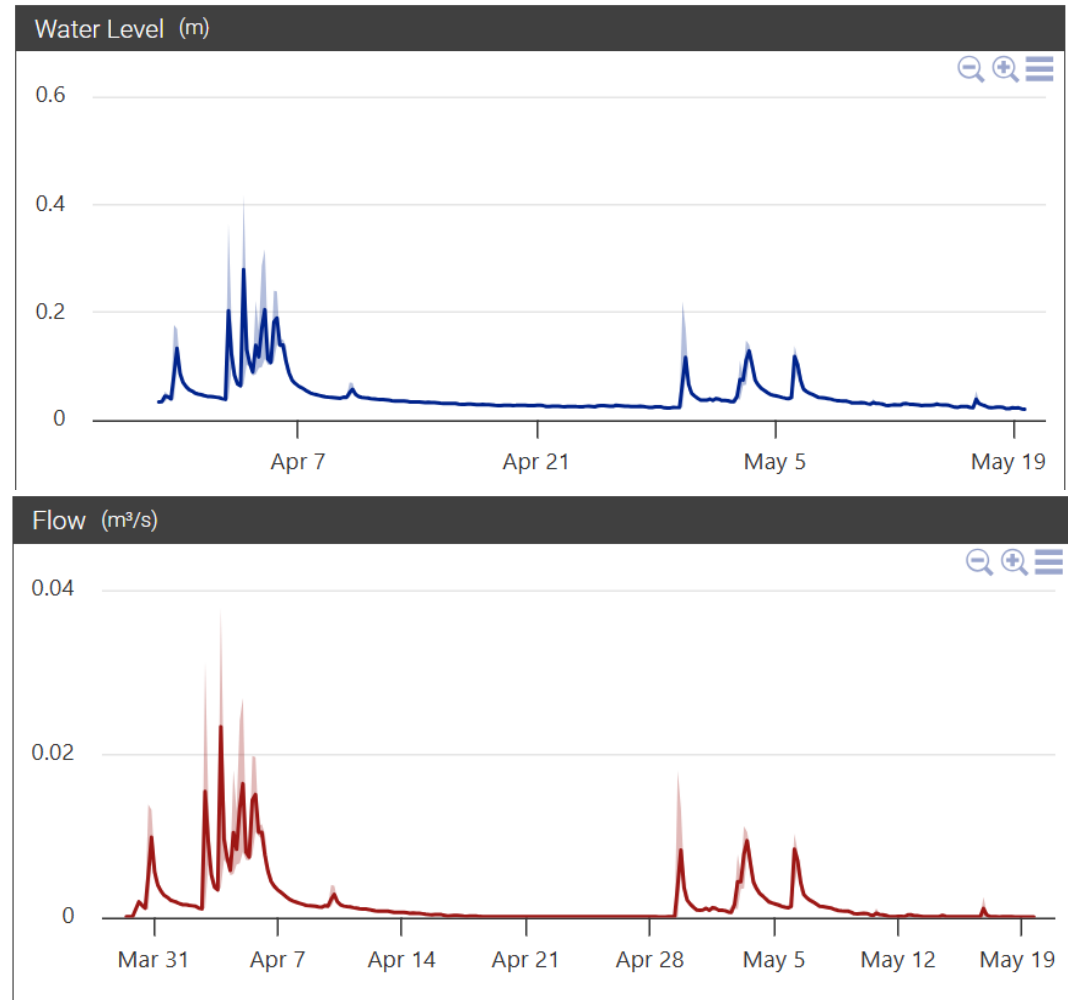
Effluent Monitoring



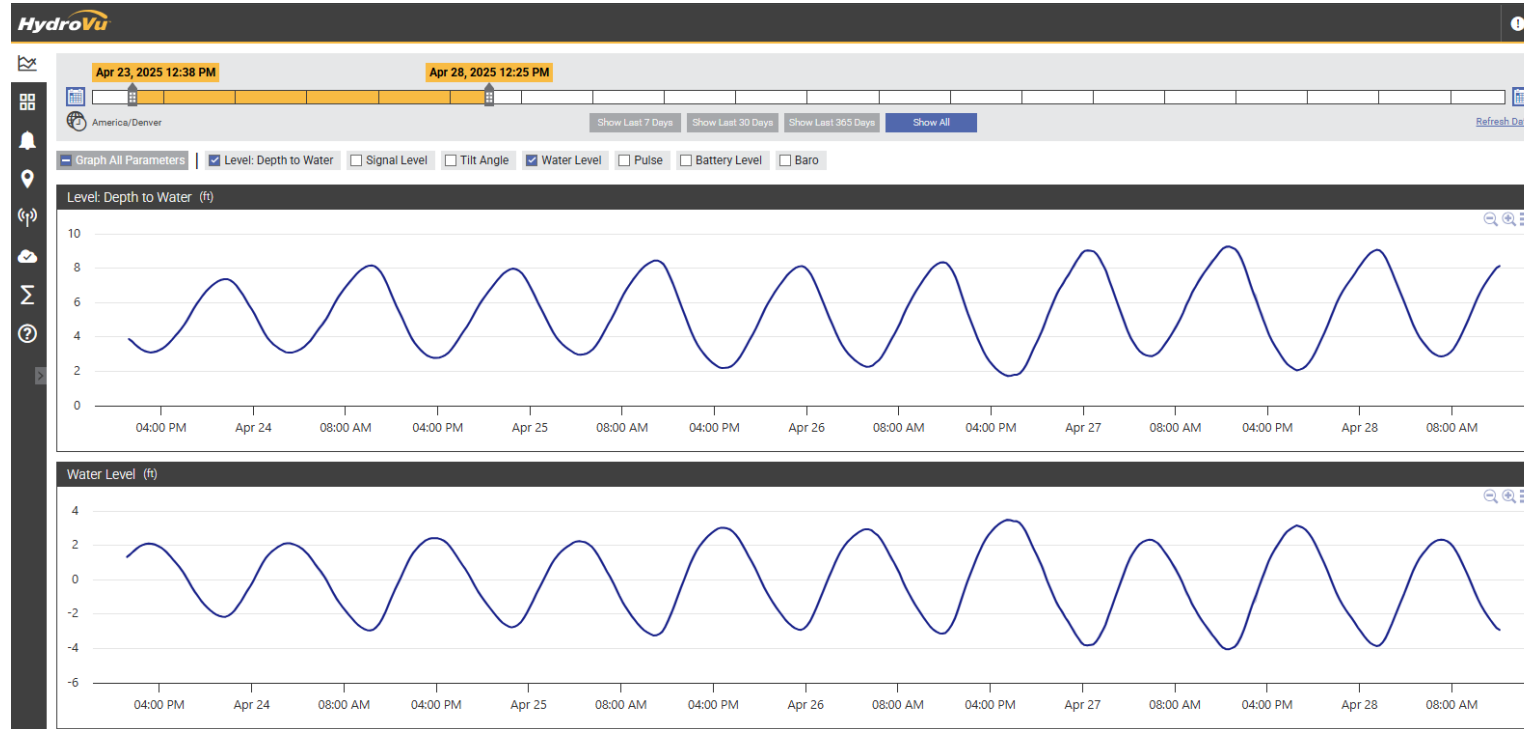
water
simplified.



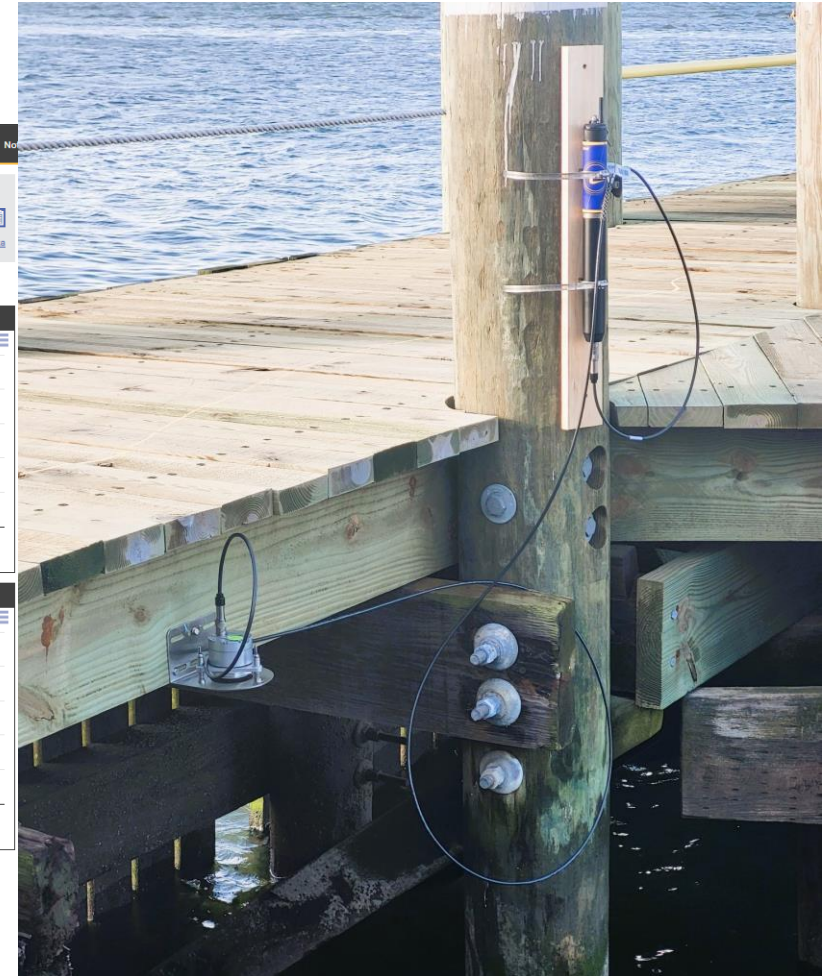
Stormwater Level and Flow



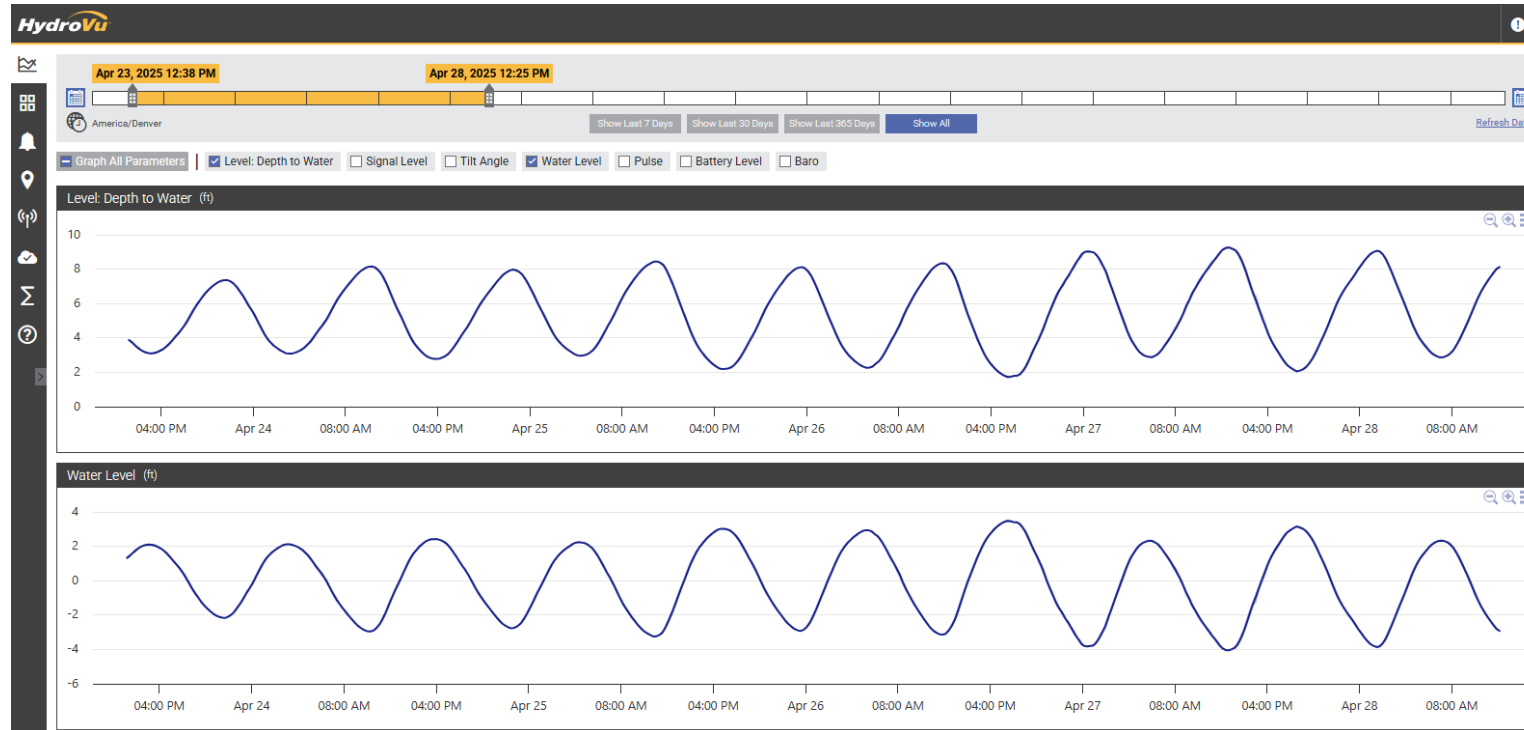
Tide Gauging



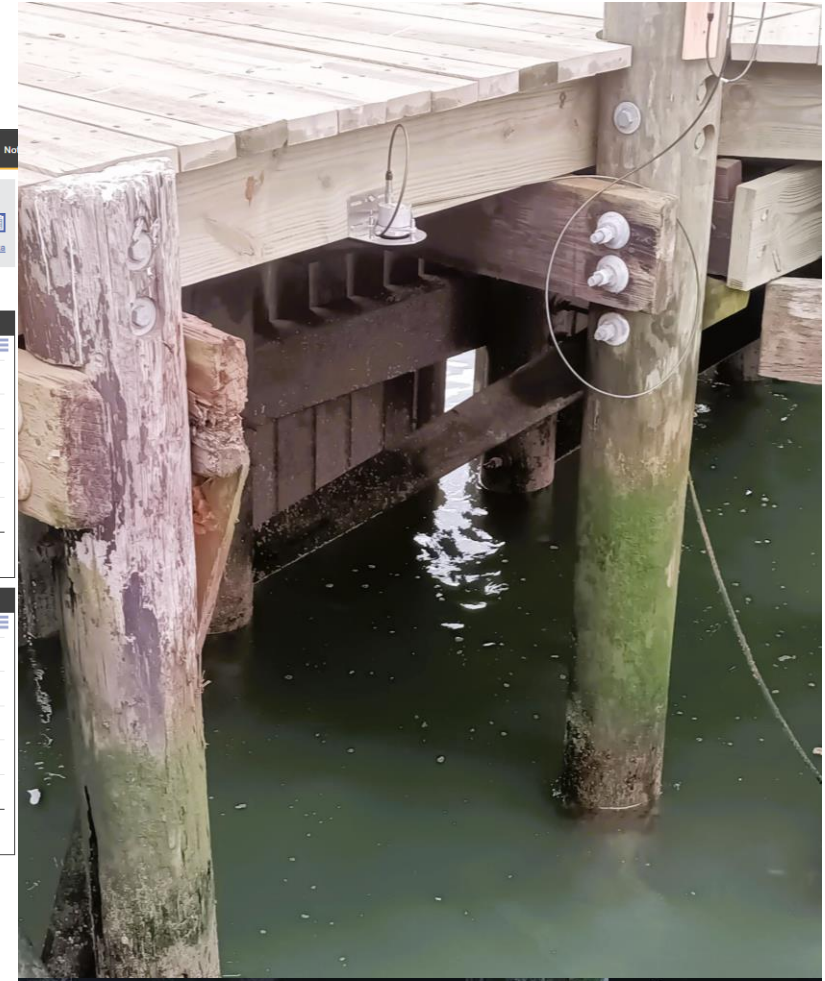
1-minute Surface Water Elevation data for Tide Gauging



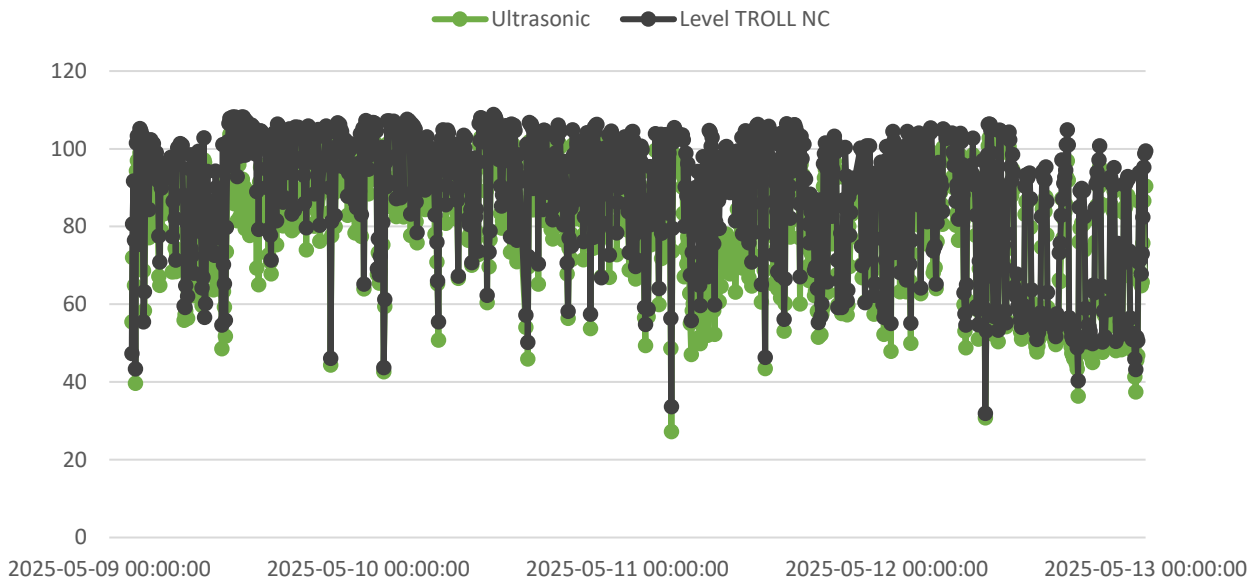
Tide Gauging



1-minute Surface Water Elevation data for Tide Gauging



Effluent Monitoring Comparison



- Level TROLL NC against competitor Ultrasonic
- Beta Customer: “*The Level TROLL is a bit more stable*” and requires much less maintenance
 - Ultrasonic requires weekly troubleshooting and calibration

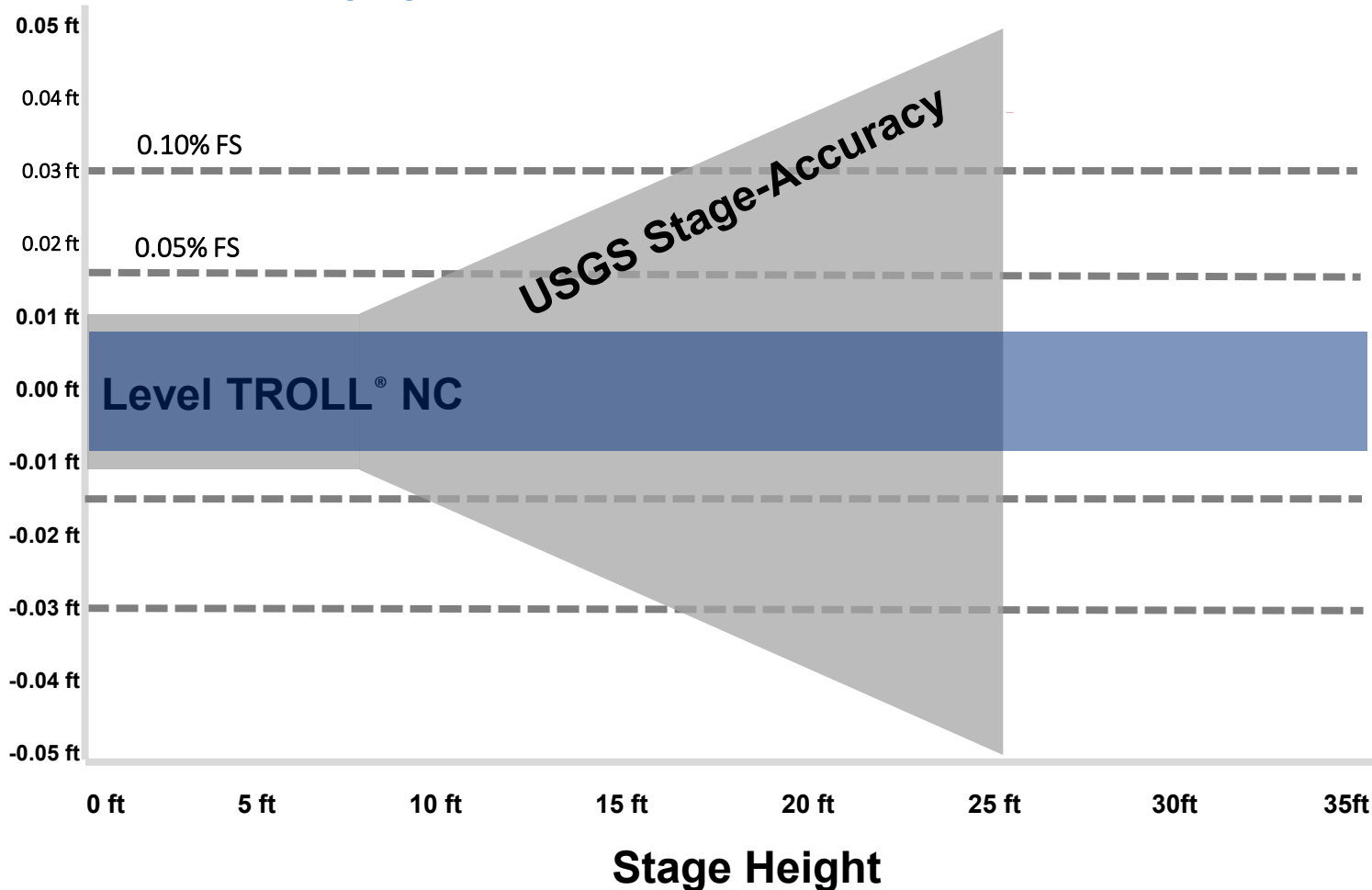
Questions?



water
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USGS Stage Accuracy

<https://pubs.usgs.gov/tm/tm3-a7/tm3a7.pdf>



- Office of Surface Water Stage-Accuracy Requirements
 - 0.01 ft or 0.10% of the effective stage
- The Level TROLL® NC exceeds the USGS surface water specification
 - Accuracy: ± 0.006 ft (± 2 mm) FS
 - Resolution: 0.001 ft (0.5 mm)