

Field Surveying 101:

What to do when data doesn't exist

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Agenda

Project Background

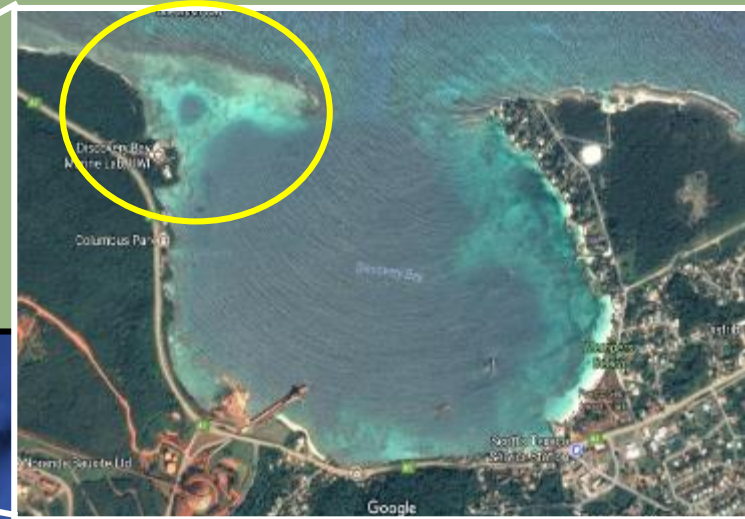
- Lab and Location
- Facilities
- Problem Statement



Field Surveying Methods

- Tide
- Current
- Depth and Bathymetry
- Underwater Obstacles
- Obstacle and Shore Surveying
- Sediment Analysis

The University of West Indies – Discovery Bay Marine Lab



Discovery Bay,
St. Ann, Jamaica

The Site

- University of the West Indies
- Currently hosts summer camps and visiting scientists
- Hyperbaric Chamber
- Protected Fishing Area
- **NO HISTORICAL TIDE, CURRENT, DEPTH, SEDIMENT, OR OTHER HYDROGRAPHIC DATA**



Current Facilities



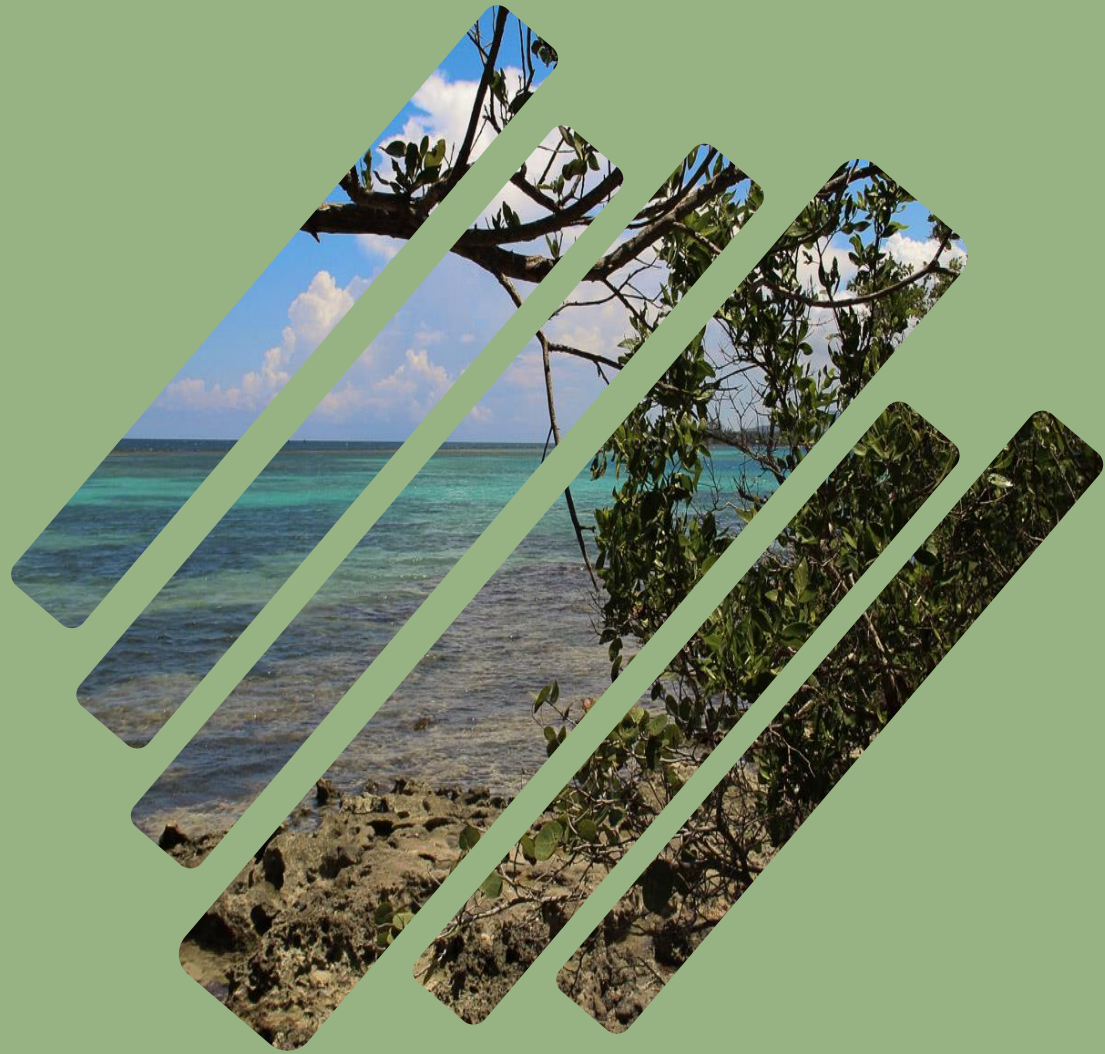
Current Facilities



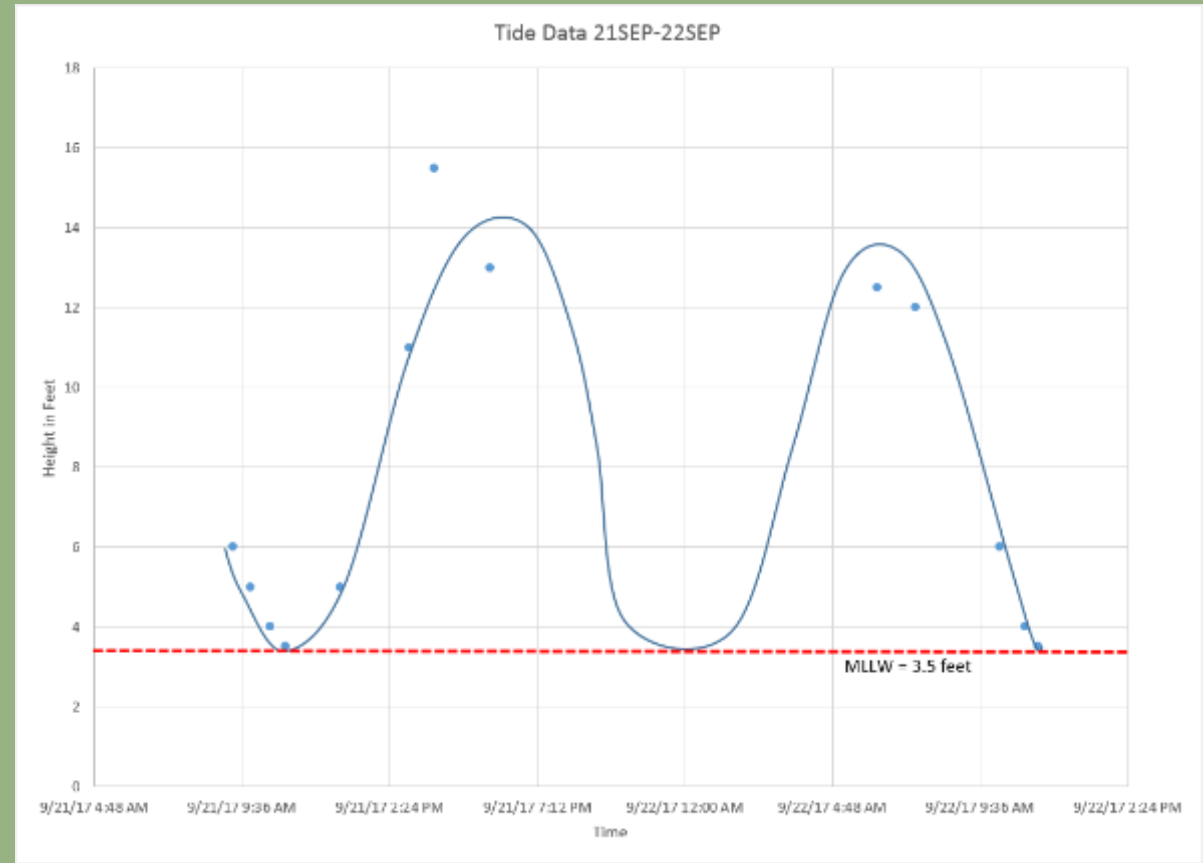
~3 foot diameter
cement cylinder anchors

Project Objective

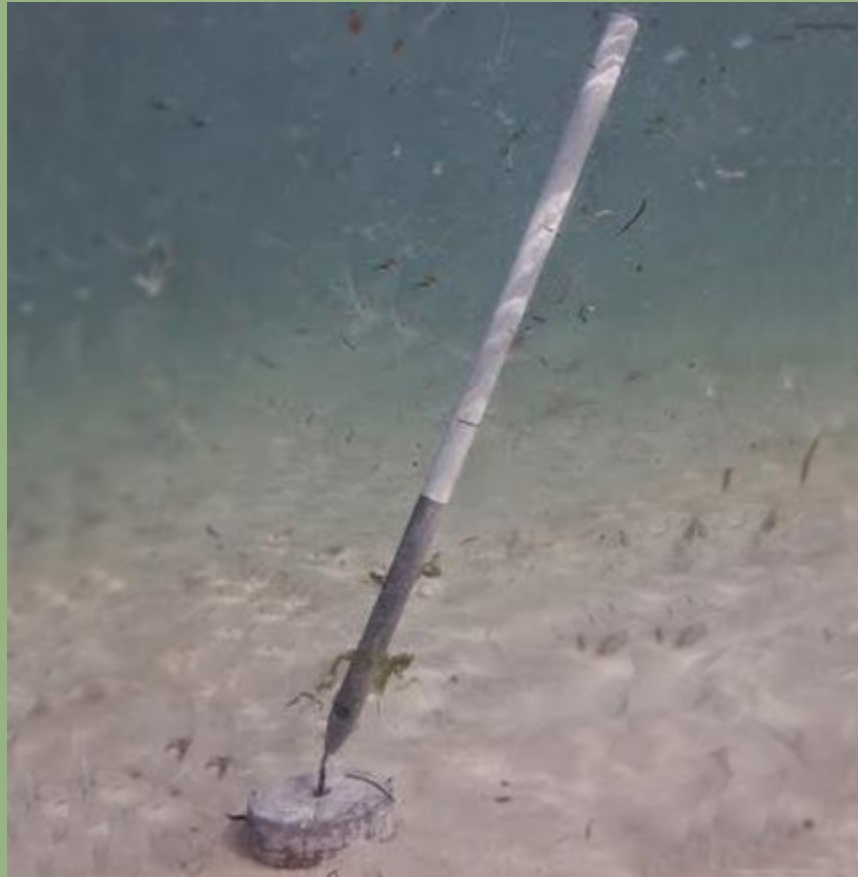
Redesign the current piers and launching ramp at the Marine Lab to increase capacity and functionality.



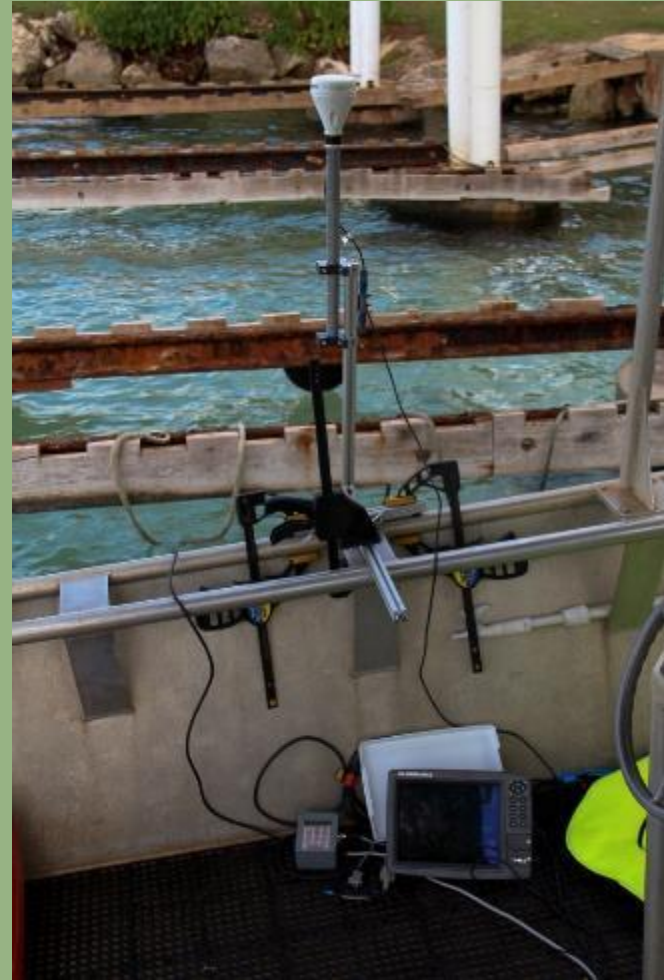
Tidal Measurements: PVC Pipe with Annotations



Current Measurements: Tilt Current Meter



Bathymetry: Depth Finder with Integrated GPS



Bathymetry: Depth Finder with Integrated GPS



Bathymetry: “The Magic Ball” (Deeper Sonar Pro +)

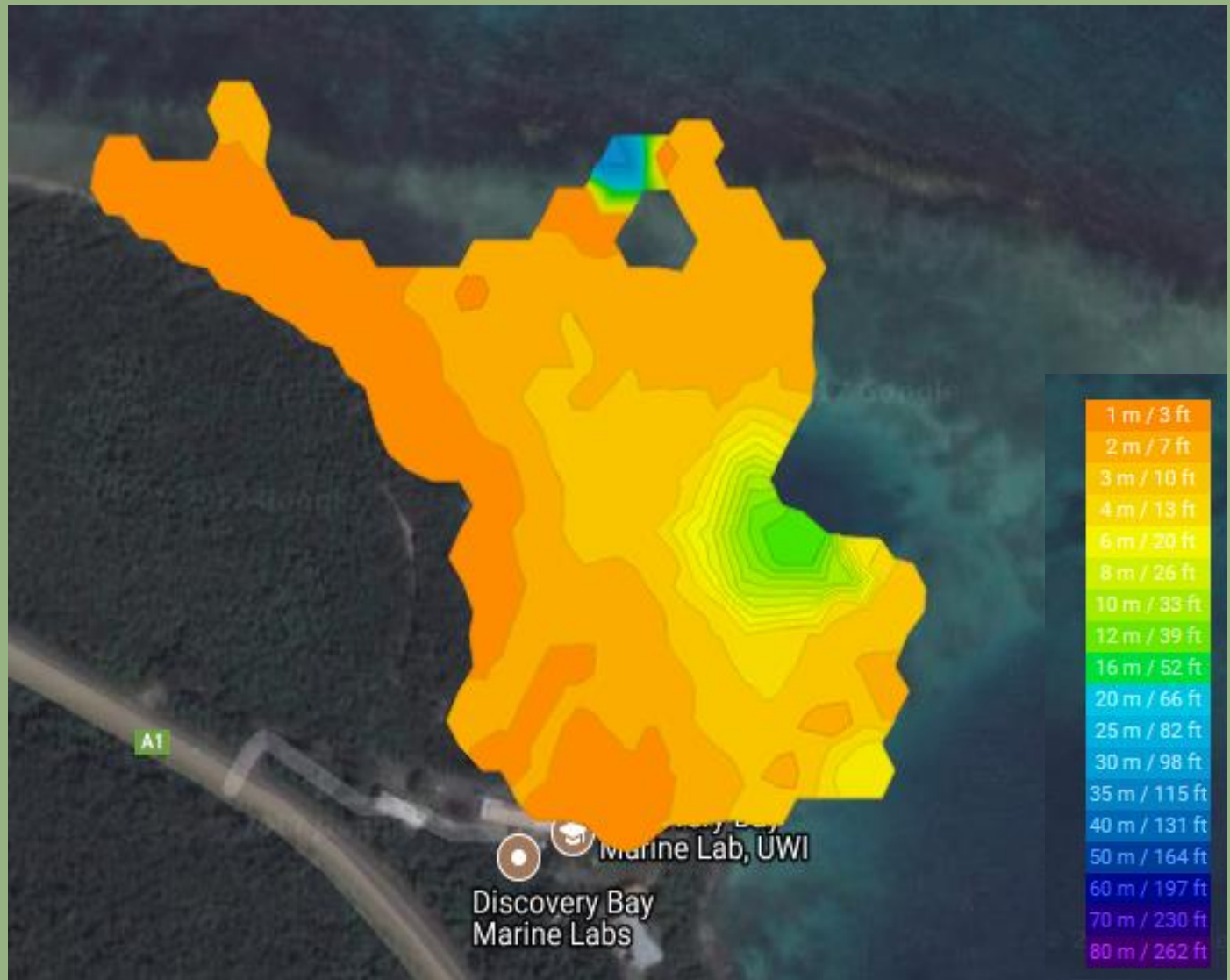


Bathymetry Results

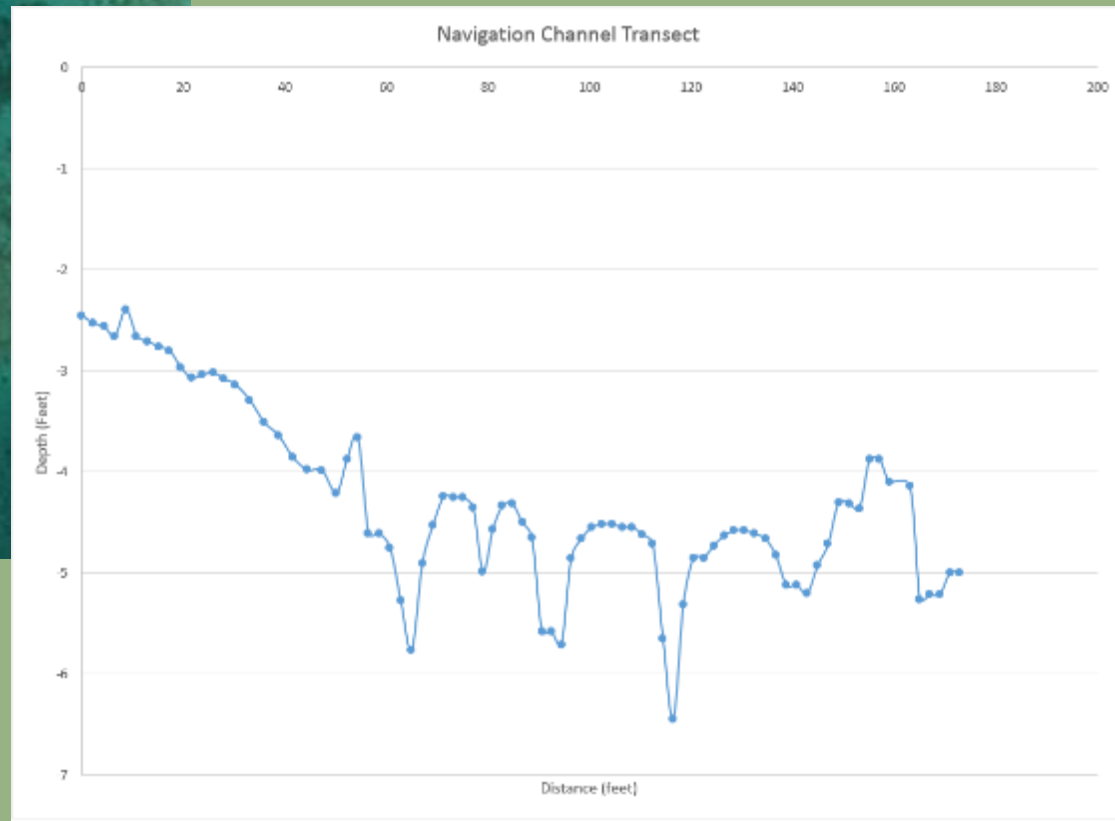
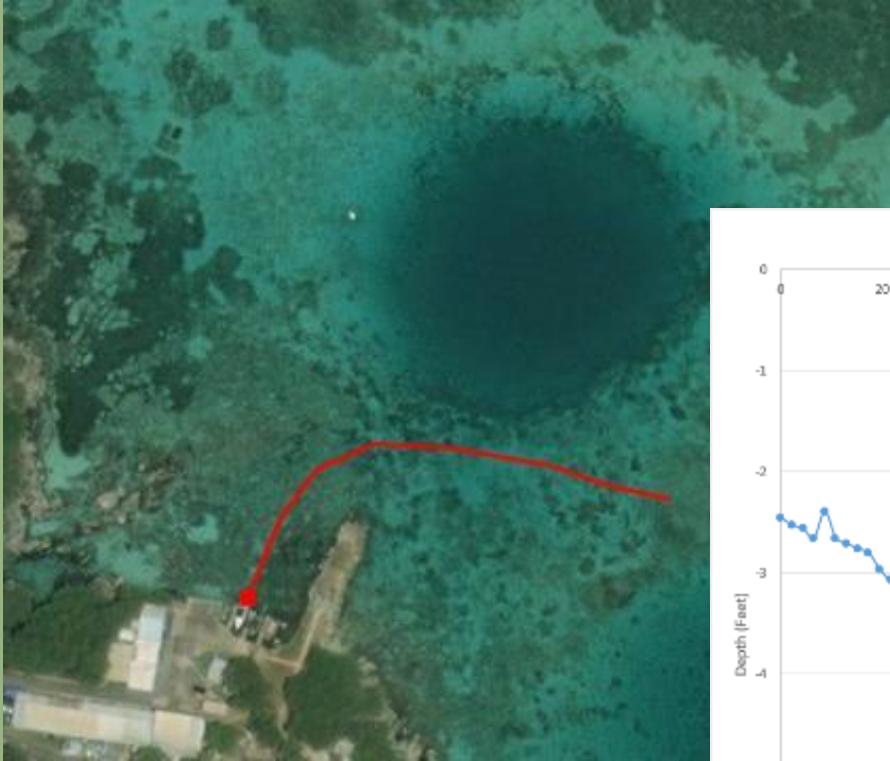


Bathymetry Results

	A	B	C
1	Latitude	Longitude	Depth
2	18.46902	-77.41517	1.25
3	18.46902	-77.41516	1.28
4	18.46903	-77.41516	1.31
5	18.46905	-77.41516	1.34
6	18.46906	-77.41516	1.34
7	18.46907	-77.41516	1.34
8	18.46908	-77.41515	1.34
9	18.46909	-77.41515	1.34
10	18.4691	-77.41515	1.36
11	18.46911	-77.41516	1.39
12	18.46913	-77.41516	1.42
13	18.46913	-77.41516	1.42
14	18.46914	-77.41516	1.42
15	18.46915	-77.41516	1.36
16	18.46915	-77.41516	1.31
17	18.46915	-77.41516	1.25
18	18.46916	-77.41516	1.25
19	18.46917	-77.41516	1.23
20	18.4692	-77.41514	0.87
21	18.46921	-77.41514	0.82
22	18.46921	-77.41515	0.84
23	18.46922	-77.41514	0.79
24	18.46922	-77.41515	0.68
25	18.46924	-77.41519	0.76
26	18.46924	-77.4152	0.68
27	18.46925	-77.41521	0.73
28	18.46925	-77.41523	0.82
29	18.46925	-77.41523	0.79
30	18.46925	-77.41524	0.87
31	18.46925	-77.41526	1.09



Applying Bathymetric Data: Transect Depth Plot



Obstacle Mapping: Mask & Fins, U/W Camera & GPS



Obstacle and Shore Surveying: Laser Range Finder



Obstacle and Shore Surveying: Laser Range Finder



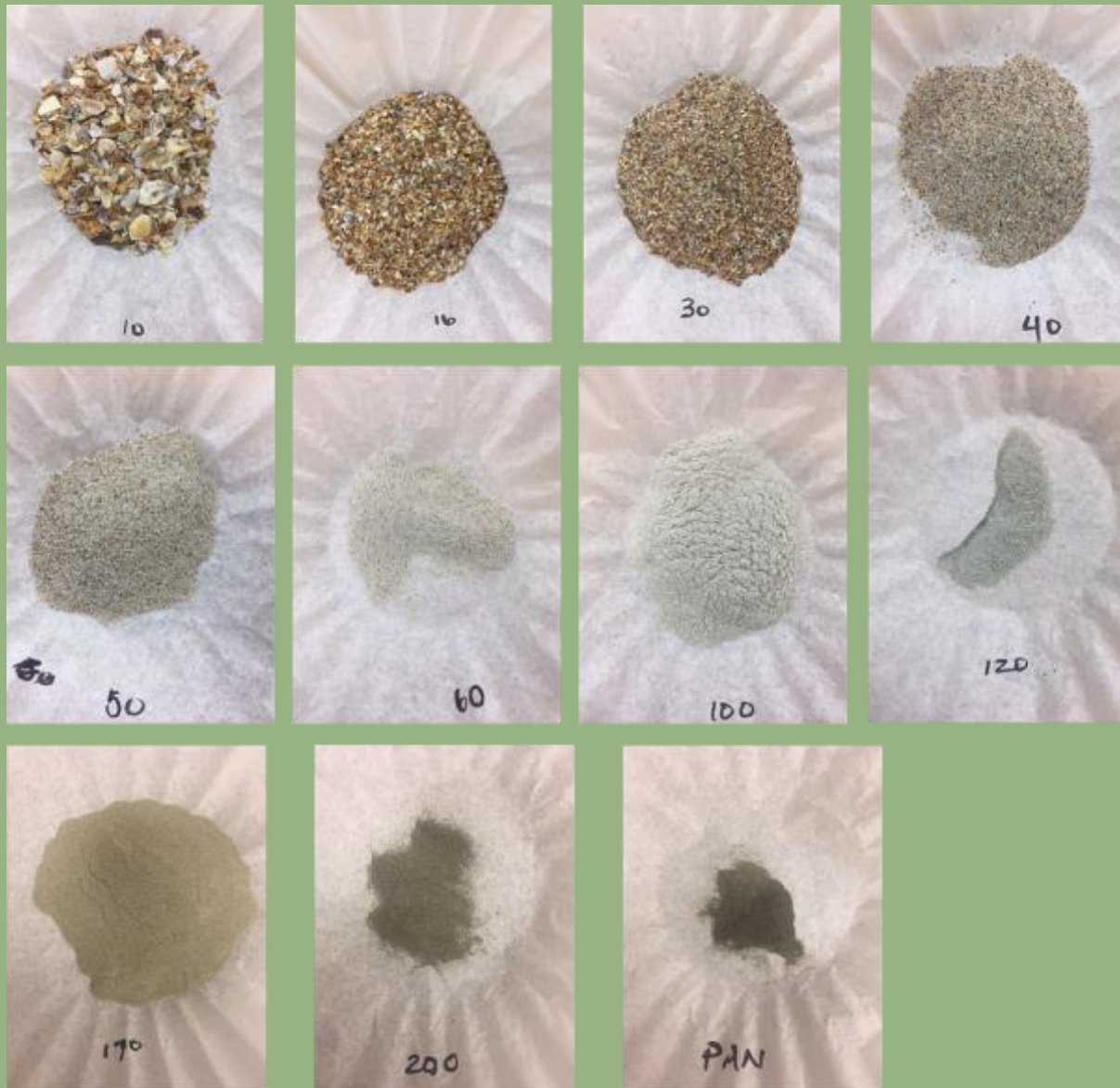
Sediment Samples: Clamshell Scoop



Sieve Sediment Analysis



Sieve Sediment Analysis



Conclusion

- When pre-existing data doesn't exist, it's still possible to get a good site survey in a relatively short period of time.
- Technology makes the data collection and analysis easier than ever before.



Questions?



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