Presented By: Nathan Keys, Measutronics

# Understanding Overdredging

Using Technology to Enhance Efficiency and Profitability



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## About Measutronics Corporation

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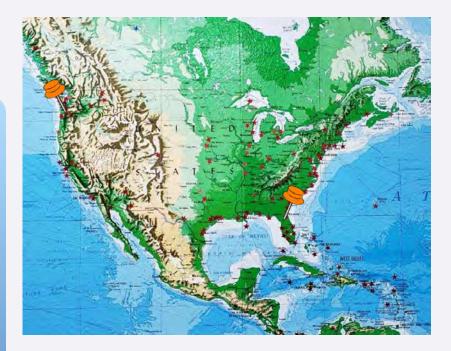
#### DREDGING

- CUTTERHEAD
- EXCAVATOR
- HYDRAULIC PUMP
- CLAMSHELL BUCKET
- DRAGLINE
- HOPPER DREDGE
- DUST PAN
- BUCKET LADDER

- MARINE CONSTRUCTION
- PILE DRIVING
- MATERIAL PLACEMENT (DIKING)
- OBJECT GUIDANCE / PLACEMENT
- STRUCTURAL MONITORING
- WICK DRAINS
- TREMIE POUR
- DRILL RIG GUIDANCE
- VESSEL TRACKING / GUIDANCE

#### **HYDROGRAPHIC SURVEY & U/W INSPECTIONS**

- SINGLE BEAM
- MULTIBEAM
- 2-D SONAR / 3-D SCANNING SONAR







Improving Marine Construction Productivity with 3D Guidance and Visualization Systems



Is the global eccounty continues to improve and populations advance in the coastal areas accord the world, the demand for commercial divelaping services and efficient manner construction regulations are increasing at a stractly paice. Usaw Market Insights (PAI) feas us the design and invite entigone to rearry \$265. Similar by the year 2022: Pari of that growth comes forms kip www.spubling the design global dimension of paice and the strate entities and account prevention and entities and account prevention and environment subanability efforts.

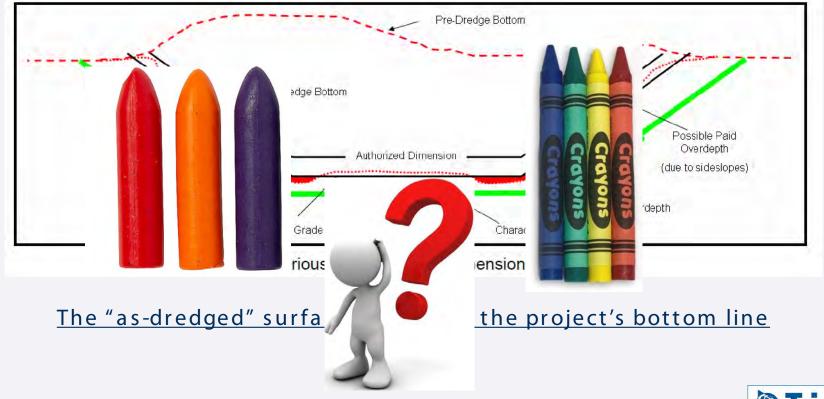
Terror Description of the local division of

(P) Trimble

...precision dredging, reducing that tolerance as much as possible, is important, especially in environmental dredging. There are several issues. For example, if required to remove two million cubic yards, an owner does not want the dredge operator to remove anything more because of sediment management costs. Anything technology developers can do to improve the process and reduce excess dredging, is valuable.

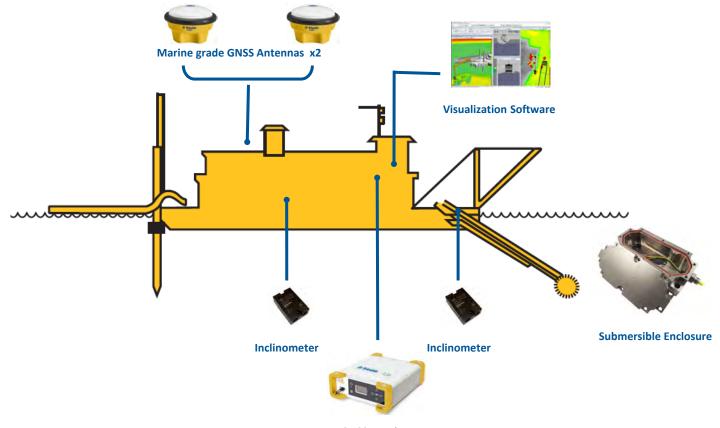
> Dr. Donald Hayes, Research Environmental Engineer, U.S. Army Engineer Research and Development Center

### Paid or unpaid overdepth



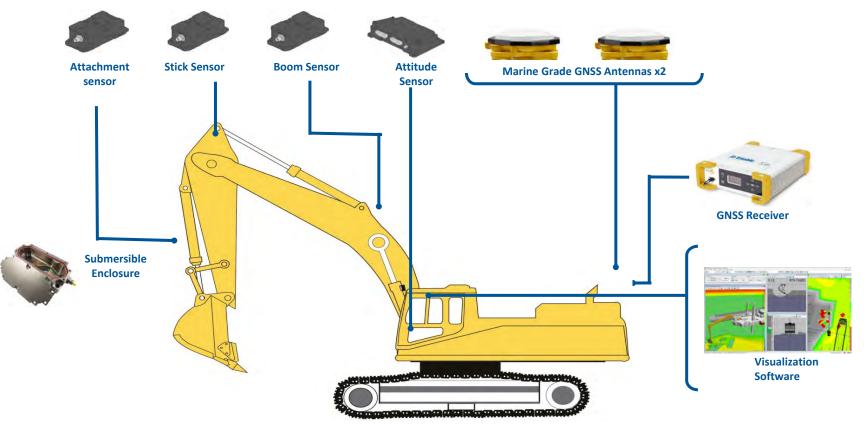


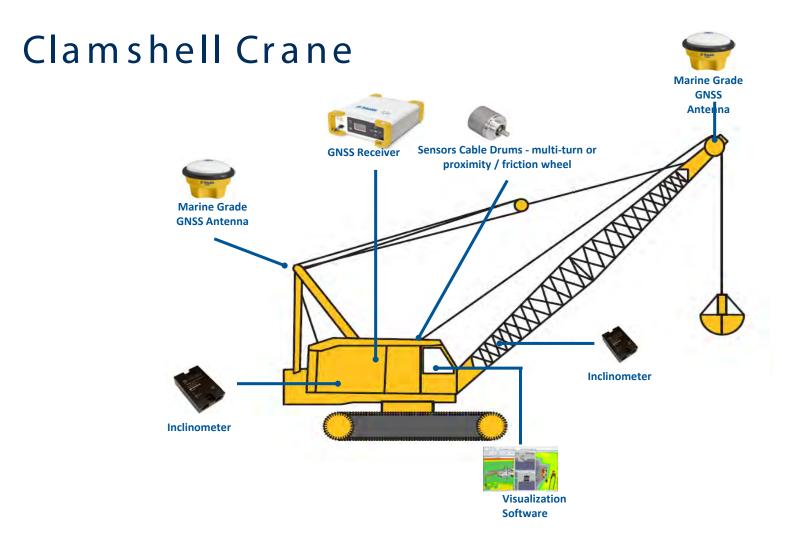
#### Cutterhead Dredge



**GNSS Receiver** 

#### Marine Excavator





## Calibration / Tolerances



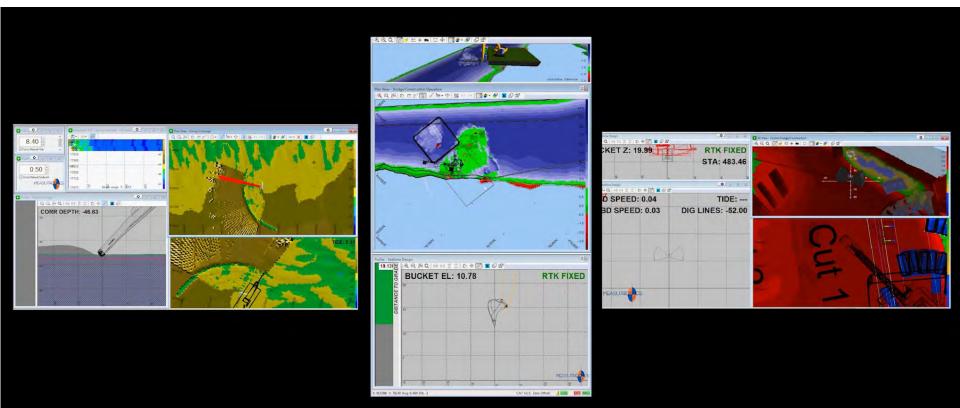
#### **ERROR BUDGET INPUTS**

GNSS Horizontal: +/- ~0.03'/0.01m (RTK) <u>GNSS Vertical</u>: +/- ~0.06'/0.02m (RTK) GNSS Heading: +/- ~0.10° (2m baseline)

Inclinometer: +/- 0.01°- 0.50° Attitude:+/- 0.01°- 0.50° Rotational Encoders: +/- 0.01°- 0.20°

FINAL ACHIEVED ACCURACY: f {<u>OPERATOR</u>, SENSOR QUALITY, LEVER ARMS, ENVIRONMENTALS, MATERIAL TYPE, ETC.}

### Using Guidance Solutions

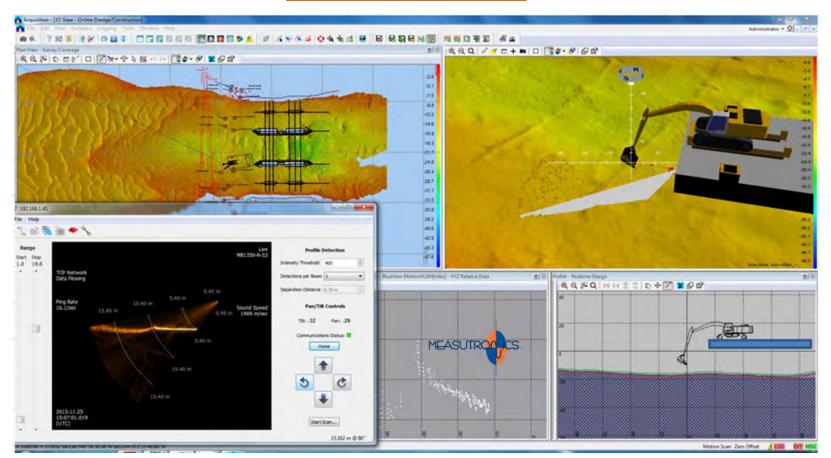


#### Traditional MB SONAR Collection





### Verification: "As-Building" – Nov, 2015



### "As-Building" Solutions





### "As-Building" Solutions



## "As-Building" Solutions



#### Next steps

- Download your copy of the Overdredging whitepaper
- Watch the video(s):

Understanding Overdredging



https://www.westerndredging.org/webi nar-machine-guidance-formanagement-of-over-dredgingjuly-15 Tappan Zee Bridge Case Study



https://www.youtube.com/watch?v =6Lux5gSmYyE Continuum of Innovation



https://www.youtube.com/ watch?v= 4VyI9Cm1EY





Improving Marine Construction Productivity with 3D Guidance and Visualization Systems

INVERSION OF THE PAPER



As the global economy continues to improve and populations advances in the constal areas across the sends the denside for commercial density genorios and efficient manner construction capabilities are increasing at a steady pace. Finaut-Minkel (mights (FM) fets is at the drougner minist et agree to manify SIGS tablicity the year 2022: Part of that growth comes from key drivers pushing the drougner dirustry multicaling the global admands for energy, state entities fouries, and as cosistal protection and environmental sustainability efforts.



#### Next steps

- Download your copy of the Overdredging whitepaper
- Get in contact to learn more:

#### EMAIL



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#### WEBSITE



Measutronics.com

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# Thank You

#### Questions?

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#### **GET KIDS INTO SURVEY**



