

# DSC VISION

STOP WORKING  
IN THE BLIND



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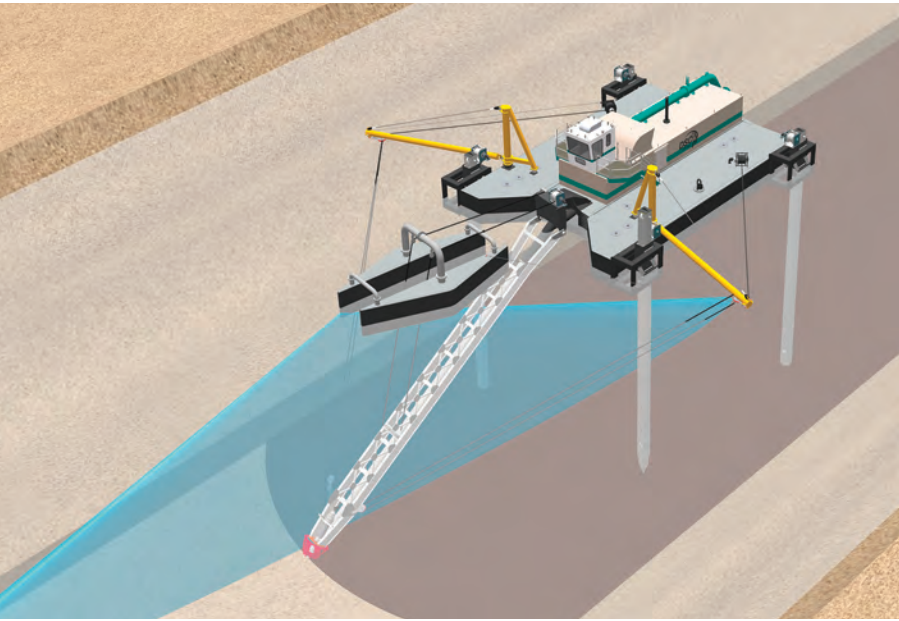


POWERED BY





# We've Put an End to Working in the Blind



DSC VISION is a new, user-friendly underwater visualization system that provides dredge operators and managers with a powerful competitive advantage.

Historically, operators have been forced to rely on dredging experience, machine feel, and subjective instrumentation to manage productivity. With DSC VISION, operators and managers can now leverage **real-time** situational awareness below the waterline to avoid costly under dredging or over dredging, increase safety, and streamline their operations—resulting in significantly reduced project cost and risk.

This revolutionary system combines DSC Dredge software with Trimble GNSS positioning and Teledyne Marine sonar technology to deliver a single, powerful tool that allows operators to see and react to the work area below the dredge in real-time, allowing even new operators to dredge with an unprecedented level of accuracy, confidence, and efficiency.

## DSC VISION delivers:

- **Increased Efficiency** The ability to visualize the changing underwater environment allows operators to move accurately and efficiently, expediting dredge operations and increasing profitability.
- **Return on Investment** Easy-to-follow color-coded progress view puts an end to over-dredging, high spots, and/or the need to go back for additional clean-ups. The ability to surgically dredge decreases operating costs, allowing the technology to pay for itself and more.
- **Operator Confidence** Even new operators can quickly and easily understand and adapt to the technology; more experienced operators work faster with real-time updates allowing for greater control.
- **Mine Planning** The technology creates a map showing where dredging operations have and have not occurred. With a quick scan from the dredge, cave-ins can be detected, and the operator can recover the material left behind.
- **Real-Time Sonar Verification:** Only DSC VISION delivers integrated, real-time updates of the work area via sonar scans to identify progress and help detect target areas before moving the dredge, reducing rework and ensuring the job is completed to specification.
- **Safety:** The guidance and inspection system ensures full situational awareness to locate and identify submerged, partially buried unknown objects, cables, or other hazards under the waterline before and while digging.
- **A Solution for Every Job** DSC VISION can be provided with varying levels of accuracy and bottom detection for jobs of any cost and complexity. The system can be integrated into all processor-controlled DSC Dredge models and can be added to any existing dredge from other manufacturers.
- **Reporting** Full reporting capabilities allow managers to monitor job progress, validate project completion, and compare project efficiency.
- **Remote Access** Real-time remote access to the operator's screen allows for project training, troubleshooting, support, and status updates from anywhere in the world.

# Pairing Best in Class to Revolutionize Dredge Operations

DSC Dredge, a world leader in customized dredging solutions, has partnered with Teledyne Marine, the industry leader in subsea visualization technology, and Trimble, the preeminent supplier of positioning systems for land-based machine operation. By combining these proven best-in-class technologies, and integrating them via DSC VISION software, dredge operators can approach projects with a new level of confidence and efficiency, resulting in increased project profitability.



*"DSC VISION is going to be a revolutionary product. With powerful solutions from Teledyne and Trimble, the DSC VISION package is going to move dredging into the twenty-first century. It's going to allow customers to operate at a much higher rate and will benefit the entire industry."*

— **William J. Wetta**, SVP of Product Development and Chief Technology Officer, DSC Dredge, LLC



*"From concept to completion, Teledyne, Trimble, and DSC Dredge are providing real-time guidance, diagnostics, and vision, right off the assembly line to the next generation of dredge operators. The real-time data provided by imaging and multibeam sonars will be a game changer for this industry."*

— **Ted Germann**, VP of Emerging Markets and Business Development, Teledyne Marine



*"All three organizations are leaders at what they do. We're now pairing the best of the best into one incredibly powerful package."*

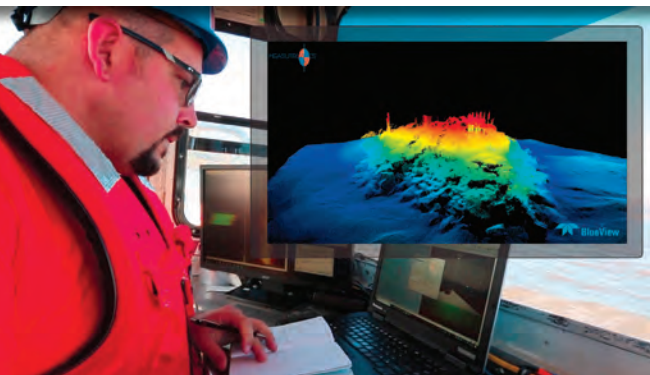
— **Jonathan White**, Product Manager, Civil Engineering and Construction, Trimble





# Proven Hardware Meets Innovative Software

DSC VISION is driven by powerful, proven products perfected by Teledyne Marine and Trimble, which are used by customers around the globe for marine operations. By integrating these components into DSC's software, customers can now experience the best of the best, allowing them to take their dredge operation to a new level of precision and efficiency. DSC VISION is comprised of the following components:



## Teledyne Marine Sonars

Teledyne Marine has long been a leader in sonar imaging technology used to map oceans, waterways, and marine infrastructure for commercial, defense, and academic applications around the globe.

Teledyne Marine continues to lead the way in infrastructure operations, with a line of compact imaging and bathymetric sonars that deliver underwater images and data with the range and resolution required to take on even the murkiest dredging environments. Teledyne Marine offers two sonar options for this system:

**DSC VISION:** a cost-effective, standard resolution sonar for aggregate and other basic dredging operations

**DSC VISION Survey:** a high-end, high-resolution sonar that delivers survey-grade sonar data for environmental and other more complex dredging operations

## Trimble GNSS

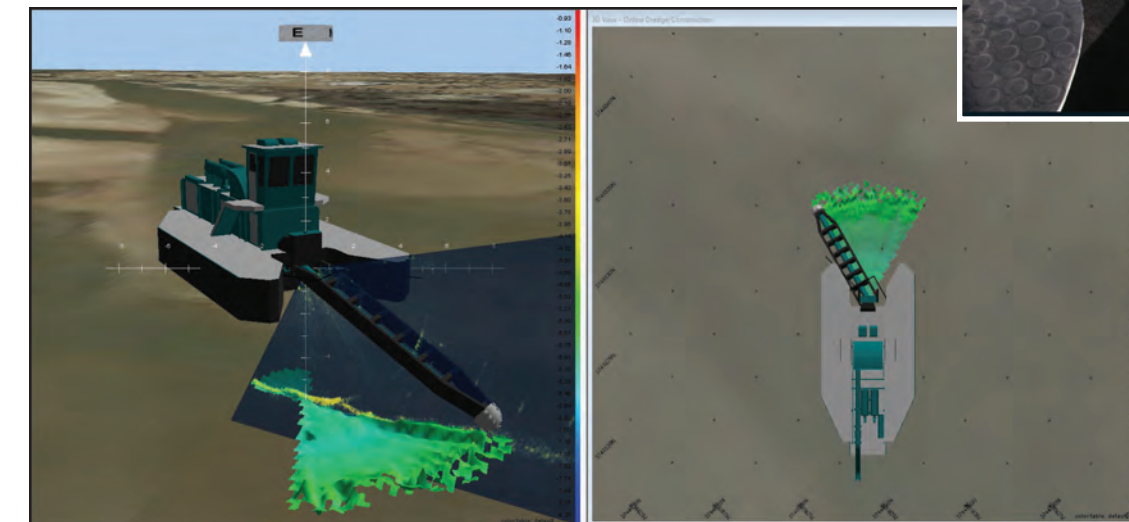
Trimble delivers flexible, high-performance positioning systems to meet the unique needs of dredge and marine construction operations. The portfolio includes marine information systems, GNSS receivers, antennas, radios, and inertial positioning systems, all of which can be used to provide accurate cutter head and sonar positioning.



# DSC VISION

## DSC VISION Operator Interface

DSC Dredge, Teledyne Marine, and Trimble have created a turnkey, data-rich visual interface to efficiently guide dredge operators across the bottom of any lake, river, or reservoir. This joint effort has resulted in an easy-to-use, seamless interface that increases the efficiency and effectiveness of any operator by placing critical environmental data at their fingertips.

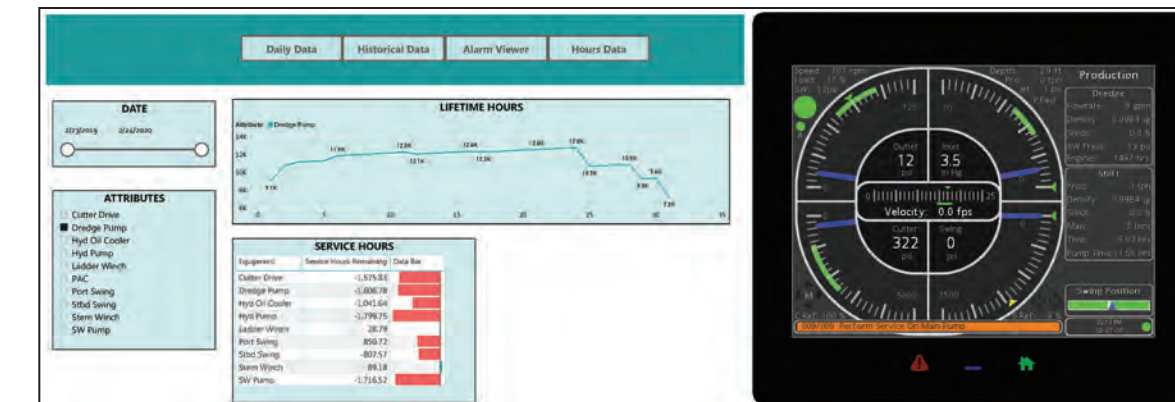


As illustrated to the left, this simplified software view illustrates:

- *(Left window)* Three dimensional dredge model with sonar profile imagery of the bottom. This provides the operator with a vision of both pre and post dredging operations.
- *(Right Window)* Plan (bird's eye) view of the real-time sounding data being mapped as it is collected by the sonar. This provides the operator the current conditions under the cutter head with confirmation of the removal of material.

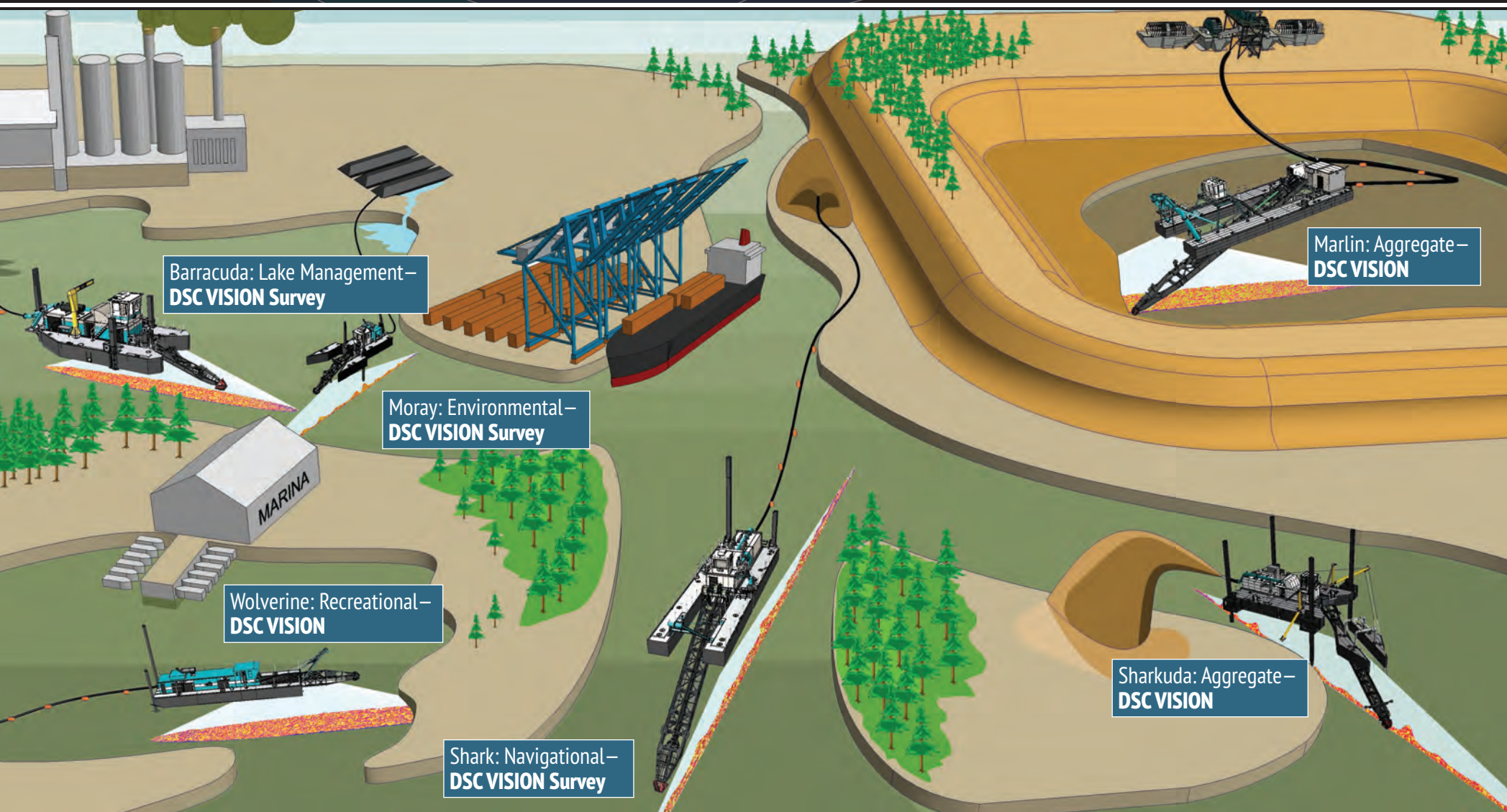
## Real-Time Monitoring with Dredge RX

DSC has extended its Dredge RX remote connectivity into the DSC VISION system allowing projects to be monitored and updated anywhere in the world. DSC has also integrated the DSC VISION system into its dredge control system to assist the operator in dredge navigation and production.





# A dredge for every solution



# A solution for every dredge

Inaugural Launch

## SHARKUDA® and DSC VISION: Extraordinary Solutions for Ordinary Challenges



At DSC Dredge, we're known for designing and building dredges that boost your efficiency and lower your costs. Our latest example of this is the SHARKUDA®, designed to excel in areas otherwise difficult to access. SHARKUDA® incorporates two newly patented technologies: the new walking carriages allow the dredge to continually move forward without anchors for continuous, uninterrupted production; and the new swinging ladder allows for wide deep swings to operate more efficiently than any other conventional dredge on the market. Available with diesel or electric power, the SHARKUDA® can reach dredging depths down to 43 feet (13.1 m). Standard discharge sizes range from 12 inches (300 mm) to 18 inches (450 mm). Ideal dredging applications include aggregate mining, lake management, river dredging, contract dredging, environmental clean-up, and coastal restoration.

The SHARKUDA® is also among the first of our dredges to be installed with the new DSC VISION solution. Bringing these powerful technologies together for this operation proved to be highly successful, delivering a one-of-a-kind operator experience that integrated truly cutting-edge dredge, sonar, machine control, and a highly intuitive user interface to deliver a game-changing, best-in-class experience.

### Standard SHARKUDA® Features:

- Diesel or electric power
- Hull-mounted heavy-duty dredge pump
- Offers a higher efficiency than swinging ladder and conventional dredges
- PLC operating system
- Custom features, sizes and designs available
- Patented Spud Glider system
- Dredging depths up to 43 ft. (13.1 m)
- Various discharge sizes

*"We selected DSC's SHARKUDA Dredge based on its innovative technology and increased production efficiency. DSC's sales and service teams have been extremely attentive to our specific needs in order to provide a quality product for our project."*

—Page Riley, Phillips and Jordan, Inc., SHARKUDA® Owner

*"DSC's craftsmanship on their dredges exceeds any others on the market."*

—Charlie Machell, RK Hall Aggregate Manager, SHARKUDA® & DSC VISION Owner

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