

# ROBERT RAMSDELL

Principal

[DredgingResources.net](http://DredgingResources.net) LLC

## NATIONALITY

United States Citizen

## EDUCATION

BA Mathematics

University of California at Berkeley, 1986

## CONTACT

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GitHub: <https://github.com/rcriii42>

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## EXPERIENCE

2021 to Present

**Principle**

DredgingResources.net LLC - Downers Grove, IL

Work with clients to deliver better dredging projects. Assignments include software development and training for dredging contractors; Estimating, contract review, contractor performance tracking, and construction support for ports; Value Engineering for beach nourishment, capital dredging, coastal protection and operations & maintenance projects for the USACE and others; Design evaluation for purchased and newbuild dredges.

2015 – 2020

**Director of Production Engineering and R&D**

Great Lakes Dredge & Dock Company, LLC (GLD&D) - Oak Brook, IL

Manage Production Engineering Department, with responsibility for estimating, field operation support and Equipment design and analysis. Supervised production estimates and operational support (including site visits) for projects on the US East, West and Gulf Coasts, US Rivers & Lakes, the Middle East, Africa and Asia. Managed department through several corporate reorganizations. Managed research efforts, including a Research Internship program and sponsoring/supporting research by universities and clients.

(Ret. 12/2020)

During my 24 years in the Production Department I developed:

- Evaluations of pump system designs for dredges, booster pumps, and project-specific dredging systems:
  - Dredge and Booster pump newbuilds and upgrades on vessels between 1,700 and 10,000 HP
  - Scofield Island project system design and operating procedures for a 30" diameter, 100,000' long pipeline with 6 booster pumps and over 36,000 HP of pumping capacity
  - Lake Decatur project system design and operating procedures for a parallel pumping system involving 3 (20", 12", and 8" discharge) dredges sharing a 60,000' discharge pipe
- Evaluations of designs for the Dredge Texas cutter upgrade from 2000 to 4000HP, including commissioning, operating procedures for hard rock digging, and crew training
- Clamshell Dredge 58 (220,000# hoist capacity) bucket design and analysis for a new medium-duty bucket, including

innovative removable weight system to tailor the digging capacity to the density and stiffness of the material

- Design and field testing of multiple UXO screening technologies for Cutter Suction Dredges
- Design and field testing of teeth and tooth coatings for digging soft rock
- Planning and execution of multiple soil investigations using Vibracores, SPTs, and rock coring
- An annual 6 week training course in production engineering for GLDD engineering staff. The course was later split into a Basic and Theory course for new (0 - 2 year) and experienced (4 – 6 years) engineers.
- Tech notes on dredge engineering topics ranging from slurry transport to dredge operations.
- Software for calculating the pumping capacity of dredges. The program was originally developed in Visual Basic then upgraded to Python 2 and Python 3.
  - Slurry transport calculations based on the Equivalent Fluid, Wilson V50, Wilson Coarse Particle, Modified Wilson V50, and DHLLDV models
  - Inputs for dredge pipeline with unlimited pipe sections, varied pipe diameters, pipeline elevations, and standard dredging fitting
  - Database of H-Q-Power-NPSH curves with an associated impeller diameter and speed
  - Database of motor/engine power characteristics
  - Database of dredging plant (dredges and booster pumps), including pumps, installed power, and on-board dredge pipe.
  - Output of operating points, expected pressures, pumping velocity, and production. Output System HQ curves and Hydraulic Gradients
  - Automated test suite to ensure continued accuracy of engineering models and program output
- Spreadsheet for calculating Clamshell dredge production in Excel with VBA, including
  - Dredge and bucket parameters embedded the spreadsheet
  - Clamshell Dredge production, cycle time, and hoist load calculations based on the bucket dimensions, bucket weight, dredge dimensions, and dredge hoist capacity
- Software to draw Clamshell Dredge and Backhoe dig patterns first in Visual Basic then upgraded to Python 2 and Python 3
  - Dig pattern based on dredge and bucket dimensions and input cut width and step length
  - Database of dredges and dredge buckets
  - Database of standard dig patterns for dredge/bucket combinations
  - Excel/VBA and Python software to visualize and analyze dredge performance data
  - Automatically import and process logged data from dredge automation systems
  - Generated time-series and other graphs of dredge data for analysis
  - Calculated production parameters to assist in optimization
- Developed Department Sharepoint site including archived memos (over 1000, categorized by date, author, subject, and project number, from the 1970s to the present) and a production wiki with over 300 pages on various dredging topics

2005 - 2015

### Production Engineering Manager

Great Lakes Dredge & Dock Company, LLC - Oak Brook, IL

Recruit and train Production Engineers. Expand department from 5 to 26 engineers, including field staff of 20. Manage technical support for bids, field operations, new dredge design, and equipment modifications. Responsible for advancing the Production Department's technical capabilities and research and development. Traveled extensively in the US, Europe, the Middle East, Africa, and Asia in support of projects and attending international conferences.

2000 - 2004

### Senior Production Engineer

Great Lakes Dredge & Dock Company, LLC - Oak Brook, IL

Overall responsibility for production estimates of US and international dredging projects; Supervising and training Production Engineers; Evaluating productivity of new and modified equipment; Evaluating and revising production models.

1994 – 1995 and 1997 - 1999

### Production Engineer

Great Lakes Dredge & Dock Company, LLC (GLDD) - Oak Brook, IL

Responsible for production estimates of projects using cutter suction (CSD), trailing suction hopper (TSHD), clamshell, and dipper dredges; Developing and maintaining computer programs to aid in production analysis; Tracking ongoing dredging projects and using the data to verify and update production models.

1995 - 1996

### Project Engineer/QA Engineer

Great Lakes Dredge & Dock Company, LLC – Copenhagen, Denmark

Led a team of engineers on the Øresund Fixed Link Project. Responsible for development and implementation of hydrographic survey procedures, including operating procedures for then-new RTK GPS positioning; Developing and implementing an on-site QA system; Positioning of Dredge Chicago; Reporting of dredge performance; Planning dredging activities; Supervising the dredging works in the absence of the Site Supervisor.

1991 - 1994

### Project Engineer

Great Lakes Dredge & Dock Company, LLC (GLDD) – Baltimore, MD

Responsible for planning dredge operations, supervising engineering staff, positioning of dredges on job site, conducting surveys to monitor dredge performance, reporting of dredge performance, and maintaining survey and positioning equipment. Responsible for developing and maintaining survey and positioning software. Frequently supervised all work on the project in the absence of a Superintendent. Worked with clamshell and cutter suction dredges on maintenance, new work, and beach replenishment projects at various sites in Maryland, Virginia, North Carolina, Pennsylvania, and Florida.

1989 - 1991

### Field Engineer

Great Lakes Dredge & Dock Company, LLC (GLDD) - Baltimore, MD & Oak Brook, IL

Assisted Project Engineer in his duties, primarily by conducting daily surveys, maintaining electronic positioning and survey equipment, and positioning and planning dredge operations. Worked on cutter suction, clamshell, and trailing suction hopper dredges on maintenance and new work projects in Maryland, Virginia, North Carolina, Ohio, and Puerto Rico.

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## ORGANIZATIONS

### Western Dredging Association (WEDA)

- Board of Director, 2013 - 2023
- Technical Paper Committee, past Chair
  - Solicit papers, prepare program and proceedings for the annual Dredging Summit and Expo
  - Instituted peer-review process for papers
  - Increased diversity on the committee and among volunteers at the Expo through recruitment
- Education Committee, past Co-Chair
  - Instituted a program of monthly webinars on dredging-related topics
  - Instituted WEDA Fellowship program – 6 month fellowship for a student in a related field to assist with educational efforts
  - Spearheaded effort to write Code of Conduct and submit to full WEDA Board

### World Organization of Dredging Associations (WODA)

- Member Safety Commission – starting work in 2021
- Technical Paper Chair for WODCON XXI World Dredging Conference in 2016
  - solicited papers, managed reviews, organized the program, and prepared the proceedings
    - 120 peer-reviewed papers from around the world, presented in 30 sessions
    - 8 focused panel discussions
    - 4 pre-conference continuing education courses
- Member, Paper Committee for WODCON XX (Brussels, 2013), WODCON XXII (Shanghai, 2019), WODCON XXIII (Copenhagen, 2022)

## American Shore and Beach Preservation Association

- Science and Technical Committee – current member

## Texas A&M Dredging Short Course

- Lecturer – Safety, Production Engineering, and Cost Estimating – Most recently in January, 2024

## International Natural and Nature-Based Features Guidelines Project

- Contributor – Chapters on Construction Considerations and Sub-Aquatic Vegetation
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## SKILLS

### Dredging

Operations (Optimization, analysis, troubleshooting, training)

Production Engineering:

- Cutter Suction, Trailing Suction Hopper, Clamshell, Backhoe, Dustpan dredges
- Slurry Transport (modeling, testing, optimization)
- Centrifugal Pumps (selection, testing, operation)
- Cutting Theory (sand/clay/rock modeling, testing, optimization, spillage)

Geotechnical (analysis, sampling, testing)

### Programming

Open Source Projects: <https://github.com/rcruii42>

Python (development, testing, data analysis, GUI frameworks)

SQL (SQLite, SQL Server, stored functions/procedures, testing)

Javascript

VB/VBA (development, excel automation)

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## PUBLICATIONS

### Books

Edited the book: [Slurry Transport Fundamentals, A Historical Overview & The Delft Head Loss & Limit Deposit Velocity Framework](#) 2<sup>nd</sup> Edition, Sape A. Miedema - Author, Robert C. Ramsdell – Editor, June 2017, ISBN: Ebook: 978-94-6186-697-4, Book: 978-94-6186-690-5

### Articles

Ramsdell, R. C., Miedema, S. A., Remme, J. J., "[Principles of Production Engineering Models](#)" Proceedings of the Twenty- Second World Dredging Congress, WODCON XXII, Shanghai, CHINA, April 25-29, 2019.

Werkhoven, J. J., Nieuwboer, B.J., Ramsdell, R.C., Miedema, S.A. "[CSD Spillage Model for Sand and Rock](#)" Proceedings of the Twenty-Second World Dredging Congress, WODCON XXII, Shanghai, China, April 25-29, 2019.

Werkhoven, J. J., Nieuwboer, B.J., Louis, A. A., Miedema, S.A., Ramsdell, R.C., "[A Pseudo-Analytical Model For CSD Spillage Due To Rotational Velocity-Induced Flows](#)", Proceedings of the WEDA Dredging Summit & Expo, Norfolk, Virginia, USA, June 25 – 28, 2018.

Miedema, S. A., Ramsdell, R. C., "[A Head Loss and Limit Deposit Velocity Framework](#)", Journal of Marine Environmental Engineering 10(1):45-69, June, 2017.

Davis, M. and Ramsdell, R.C. "[One Company's Journey to Safety Excellence](#)," Proceedings of the Wester Dredging Association Dredging Summit & Expo., Vancouver, BC, Canada, June 26-29, 2017.

Miedema, S.A. & Ramsdell, R.C. "[A Comparison of Different Slurry Transport Models for Sands and Gravels](#)". Proceedings of the Twenty-First World Dredging Congress, WODCON XXI, Miami, Florida, USA, June 13-17, 2016.

Ramsdell, R. C., Miedema, S. A., "[DHLLDV – Open Source Software for Slurry Transport](#)", Proceedings of the Twenty-First World Dredging Congress, WODCON XXI, Miami, Florida, USA, June 13-17, 2016.

Miedema, S. A., Ramsdell, R. C., "[The Delft Head Loss & Limit Deposit Velocity Framework \(DHLLDV\)](#)". WEDA Journal of Dredging Engineering Vol. 15(2), June, 2016.

Miedema, S. A., Ramsdell, R. C., "[The Limit Deposit Velocity Model, a New Approach](#)", Journal of Hydrology & Hydromechanics, submitted., December, 2015 .

Miedema, S. A., Ramsdell, R. C., "[The Delft Head Loss & Limit Deposit Velocity Model](#)" Hydrotransport (p. 15). Denver, USA, September, 2014.

Miedema, S. A., Ramsdell, R. C., "[An Analysis of the Hydrostatic Approach of Wilson for the Friction of a Sliding Bed](#)", WEDA/TAMU Dredging Seminar (p. 21). Toronto, Canada, June, 2014.

Miedema, S. A., Ramsdell, R. C., "[A Head Loss Model for Slurry Transport Based on Energy Considerations](#)", World Dredging Conference XX, Brussels, Belgium, June, 2013

Ramsdell, R. C., Miedema, S. A., "[An Overview of Flow Regimes Describing Slurry Transport](#)", World Dredging Conference XX, Brussels, Belgium, June, 2013

Ramsdell, R.C., Puro D.E., "[Equipment Trials in Dredging Operations](#)", Proceedings of the Western Dredging Association (WEDA XXXII) Technical Conference and Texas A&M University (TAMU 43) Dredging Seminar, San Antonio, Texas, June 10 – 13, 2012

Ramsdell, R. C., "[Technical Inputs to Dredging Cost Estimates](#)", Proceedings of the Western Dredging Association (WEDA XXXI) Technical Conference and Texas A&M University (TAMU 42) Dredging Seminar, Nashville, Tennessee, June 5-8, 2011.

Ramsdell, R. C., Miedema, S. A., Talmon, A. M., "[Hydraulic Transport of Sand/Shell Mixtures](#)", ASME 2011 30th International Conference on Ocean, Offshore and Arctic Engineering, December, 2010

Ramsdell, R. C., "[Data Logging on the Wilmington Harbor Project](#)", Proceedings of the Western Dredging Association (WEDA XXIII) and Texas A&M University (TAMU 35) Dredging Seminar, Oakbrook, Illinois, April, 2003

Ramsdell, R. C., "[Development of a Hydrographic Survey System using RTK GPS](#)", Proceedings of the Western Dredging Association (WEDA XIX) and Texas A&M University (TAMU 31) Dredging Seminar, Louisville, Kentucky, June, 1999