

NATIONAL DREDGING QUALITY MANAGEMENT (DQM) PROGRAM

National Dredging Meeting
Washington DC
May 2011



Briefing

- Program Status
- Advancements
- Future



Annual Goals

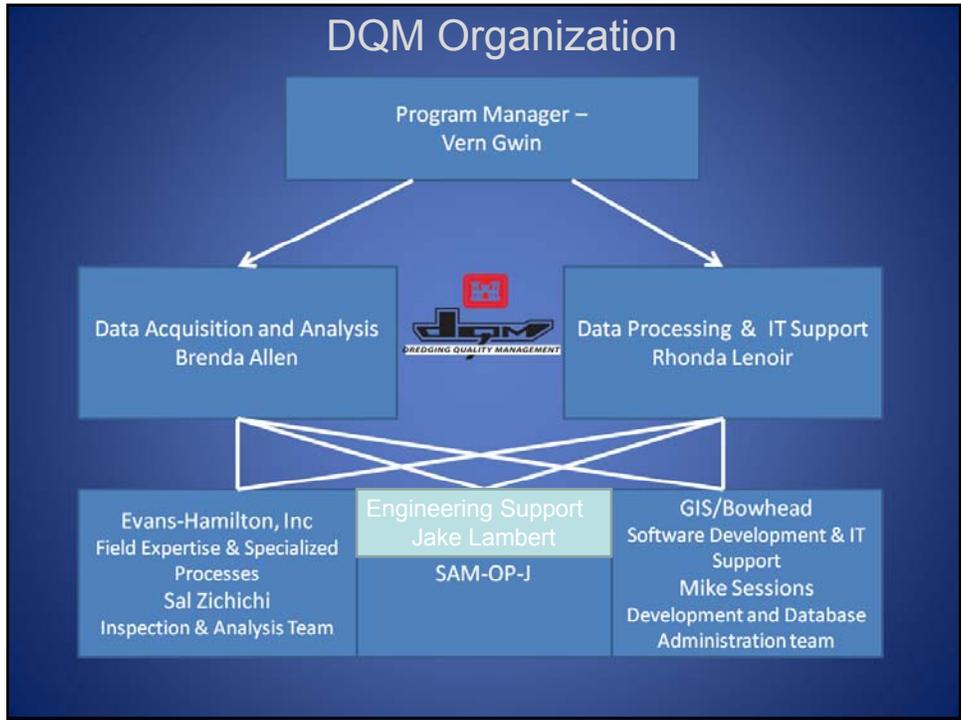
- Integrate Customer input in tool scoping
- Improve the Timeliness of the Data
- Improve Customer Support
- Improve the Dependability of the System
- Improve Partnership with Industry
- Improve Quality of the data

Program Status

Since May 2010.....

- DQM V2.0 Development Completed
- Beta Testing Completed - V2.0 Tools, On-Board Software, Database - Summer 2010
- DQM V2.0 Officially Launched - Fall 2010
- Training to Districts Fall 2010 – Spring 2011
- New DQM Website
- Industry Communication at WEDA meetings
- Evaluation of Scow Real-time Data Transmission
- Initiated V2.1/2.2 Development - Spring 2011 

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Program Advancements

- All Web Based Environment: Tools, Website
- State of the Art Oracle Database
- Near Real-time Telemetry from Hoppers
- Improved Specs: Measurable Increase in Data Quality, Reduced Inspection Time
- Partnerships: Industry, Districts, EPA, BOEMRE

DQM TOOLS

The DQM Viewer is the latest and greatest addition to the USACE dredging tools collection, providing an interactive dashboard application for analyzing dredging projects, graphing load data, managing and requesting disposal plan information, as well as providing data reports.

COMING SOON

- Email alerts for compliance issues
- Viewing/reporting multiple loads
- Dredge plots

THE NATIONAL DREDGING QUALITY MANAGEMENT PROGRAM

The DQM Program is a Corps-developed initiative providing for consistent dredging operations, enhanced safety, and efficiency. Dredging quality management is critical to ensuring that dredging operations are performed in a safe and efficient manner. The data can be used to improve the performance of dredging operations and to support the National Dredging Mission, and increase our understanding of dredging science and technology.

PARTNERSHIP

USACE
EPA
Dredging Contractors
Local District

<http://dqm.usace.army.mil> 1-877-848-8024

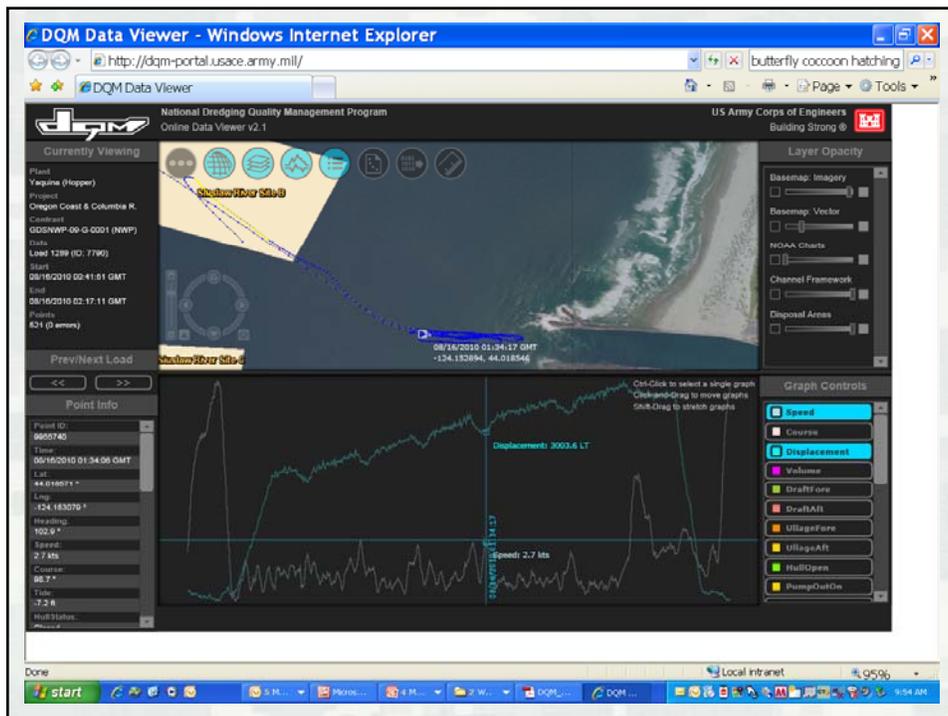
DATA ACQUISITION

- Telemetry
- Hull Status
- Fore and Aft Draft - Displacement
- Fore and Aft Weight - Volume
- Slurry Velocity and Density
- Dredgehead Depth - Z
- DQPS - Position (Lat/Long), Course, Heading, Speed, Time, Dredgehead position

SCOW PROFILES AVAILABLE

- Tracking position and hull status
- Monitoring tracking - draft and displacement tables
- Volume tracking - monitoring volume sensors and slurry volume tables

New DQM Website



DQM TOOLS

The DQM Viewer is the latest and greatest addition to the USACE dredging tools collection, providing an interactive Silverlight application for selecting dredging projects, graphing load data, managing and requesting disposal plot information, as well as providing data exports.



Selecting a Load



Viewing a load with graphs



Disposal Plot

COMING SOON

- ▶ Email alerts for compliance issues
- ▶ Viewing/exporting multiple loads
- ▶ Dredge plots



V2.0 Disposal Plot

National Dredging Quality Management Program Disposal Plot



Load Information	Overview												
District: Portland Contract ID: GDSNWP-09-G-0001 Project Area: Oregon Coast & Columbia R. Load Start Time: 8/15/2010 5:41 PM (UTC -7) Load Number: 1289 Plant Type: Hopper Plant Name: Yaquina Δ Displacement (LT): 1199.3 Δ Volume (CY): 735.1 State Plans: NAD83 / Oregon South													
Start Time: 8/15/2010 7:07 PM (UTC -7) Latitude/Longitude: 44.023452 / -124.160925 Easting/Northing: 3958590.59 / 879999.33 Fore/Aft Draft: (ft.): 13.7 / 12.2 Fore/Aft Bin: (ft.): 5.5 / 5.8 Displacement (LT): 3224.8 Volume (CY): 883.90													
End Time: 8/15/2010 7:13 PM (UTC -7) Latitude/Longitude: 44.026527 / -124.164614 Easting/Northing: 3957670.56 / 881161.66 Fore/Aft Draft: (ft.): 7.1 / 18.2 Fore/Aft Bin: (ft.): 18.5 / 17.5 Displacement (LT): 2025.5 Volume (CY): 128.80													
Disposal Detail 	<table border="1"> <thead> <tr> <th>Wall Station</th> <th>Average Draft (FD)</th> </tr> </thead> <tbody> <tr> <td>Open</td> <td>8.2 - 9.2</td> </tr> <tr> <td>Close</td> <td>9.2 - 10.2</td> </tr> <tr> <td>Disposal Event</td> <td>10.2 - 11.2</td> </tr> <tr> <td>Open</td> <td>11.2 - 12.2</td> </tr> <tr> <td>End</td> <td>12.2 - 13.2</td> </tr> </tbody> </table>	Wall Station	Average Draft (FD)	Open	8.2 - 9.2	Close	9.2 - 10.2	Disposal Event	10.2 - 11.2	Open	11.2 - 12.2	End	12.2 - 13.2
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End	12.2 - 13.2												

10/2/16/2011 10:58:47 - 1790

All latitude and longitude coordinates are in WGS84 using the NAD83 datum.

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DQM Data Export

LoadID	LoadNum	PlantType	PlantNam	DistrictId	ContractN	ProjectAr	PointID	Time (GM)	Easting	Northing	Speed (kn)	Course (d)	Heading	Tide (ft)	DraftFore	DraftAft
1	7790	1289	Hopper	Yaquina	NWP	GOSNWP- Oregon Ct	9555455	#####	3956762	881700.6	2.3	133.6	117.3	-8.1	7.07	10.09
2	7790	1289	Hopper	Yaquina	NWP	GOSNWP- Oregon Ct	9555456	#####	3956802	881666.8	2.9	124.9	117.2	-8.1	7.08	10.06
3	7790	1289	Hopper	Yaquina	NWP	GOSNWP- Oregon Ct	9555457	#####	3956890	881627	3.9	116.3	123.2	-8.1	7.15	10.04
4	7790	1289	Hopper	Yaquina	NWP	GOSNWP- Oregon Ct	9555458	#####	3956929	881377.3	4.6	124.9	125.7	-8.1	7.02	10.01
5	7790	1289	Hopper	Yaquina	NWP	GOSNWP- Oregon Ct	9555459	#####	3957003	881516.7	5.3	123.4	127.2	-8.1	7.03	9.99
6	7790	1289	Hopper	Yaquina	NWP	GOSNWP- Oregon Ct	9555460	#####	3957085	881447.1	5.7	132.8	128	-8.1	7.09	9.96
7	7790	1289	Hopper	Yaquina	NWP	GOSNWP- Oregon Ct	9555461	#####	3957171	881372.5	6.2	138.4	129.7	-8.1	7.02	9.94
8	7790	1289	Hopper	Yaquina	NWP	GOSNWP- Oregon Ct	9555462	#####	3957261	881293.8	6.4	131.2	131.5	-8.1	7.1	9.93
9	7790	1289	Hopper	Yaquina	NWP	GOSNWP- Oregon Ct	9555463	#####	3957352	881207	6.8	133.1	131.7	-8.1	7.08	9.92
10	7790	1289	Hopper	Yaquina	NWP	GOSNWP- Oregon Ct	9555464	#####	3957445	881116.4	6.9	134.3	132.7	-8.1	7.06	9.9
11	7790	1289	Hopper	Yaquina	NWP	GOSNWP- Oregon Ct	9555465	#####	3957540	881024.3	7.2	135.5	133	-8.1	7.02	9.9
12	7790	1289	Hopper	Yaquina	NWP	GOSNWP- Oregon Ct	9555466	#####	3957635	880929.3	7.2	135.2	132.9	-8.1	7.02	9.89
13	7790	1289	Hopper	Yaquina	NWP	GOSNWP- Oregon Ct	9555467	#####	3957731	880831.3	7.5	132.2	133	-8.1	7.06	9.88
14	7790	1289	Hopper	Yaquina	NWP	GOSNWP- Oregon Ct	9555468	#####	3957827	880732.7	7.3	134.1	133.4	-8.1	6.96	9.88
15	7790	1289	Hopper	Yaquina	NWP	GOSNWP- Oregon Ct	9555469	#####	3957923	880633.5	7.6	133.2	133	-8.1	6.98	9.87
16	7790	1289	Hopper	Yaquina	NWP	GOSNWP- Oregon Ct	9555470	#####	3958020	880533	7.4	134.8	132.9	-8.1	7.01	9.89
17	7790	1289	Hopper	Yaquina	NWP	GOSNWP- Oregon Ct	9555471	#####	3958117	880433.9	7.6	134.5	132.7	-8.1	7.01	9.88
18	7790	1289	Hopper	Yaquina	NWP	GOSNWP- Oregon Ct	9555472	#####	3958214	880332.9	7.5	134.5	132.7	-8	7	9.88
19	7790	1289	Hopper	Yaquina	NWP	GOSNWP- Oregon Ct	9555473	#####	3958312	880230.1	7.7	139.1	132.9	-8	6.97	9.89
20	7790	1289	Hopper	Yaquina	NWP	GOSNWP- Oregon Ct	9555474	#####	3958415	880126.4	7.9	134.3	132.9	-8	6.94	9.85
21	7790	1289	Hopper	Yaquina	NWP	GOSNWP- Oregon Ct	9555475	#####	3958520	880015.6	8.4	135.2	133.4	-8	7.06	9.81
22	7790	1289	Hopper	Yaquina	NWP	GOSNWP- Oregon Ct	9555476	#####	3958629	879901	8.4	139.8	133.9	-8.1	7.18	9.83
23	7790	1289	Hopper	Yaquina	NWP	GOSNWP- Oregon Ct	9555477	#####	3958741	879783.7	8.9	137	133.9	-8	7.11	9.81
24	7790	1289	Hopper	Yaquina	NWP	GOSNWP- Oregon Ct	9555478	#####	3958854	879666.4	9.4	134.4	134.4	-8	7.24	9.8

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Data QA so we can...



SUMMARY REPORT

Hopper Dredge Type

Dredge Name
Dodge Island: 03/25/2010 04:04:33 - 03/25/2010 18:45:29

Contract ID
SAW-W91200-09-B-0033

Time Jump Issues

Start Time Jump	End Time Jump	Length of Jump (Seconds)
03/25/2010 18:37:30	03/25/2010 18:38:31	61

Load Number Issues

Time of Load Change	Previous Load	Current Load
03/25/2010 06:57:30	169	0
03/25/2010 08:57:33	0	169
03/25/2010 10:41:54	170	0
03/25/2010 10:42:00	0	170

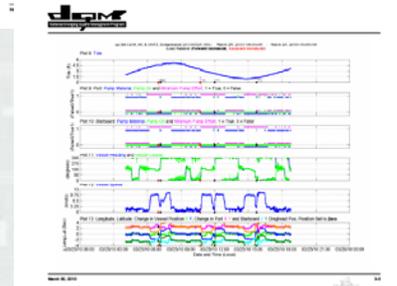
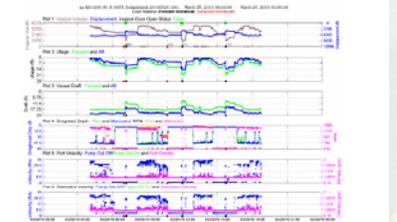
DAILY LOAD SUMMARY

Load Num	Start Time	End Time	Volume	Emps	X Pos	Y Pos	Volume	A Volume
169	03/25/10 06:57:30	08:57:33	281.4	302910 110	-18.0229	33.7081	1123.4	1451.8
170	03/25/10 11:52	-18.0284	33.70205	3813.4	302910 11.99	-18.0287	33.7081	1123.4
171	03/25/10 11:59	-18.0286	33.70205	1123.4	302910 18.42	-18.0286	33.7082	1247
172	03/25/10 18:42	-18.0286	33.7082	1247	302910 18.43	-18.0286	33.7083	1044.1

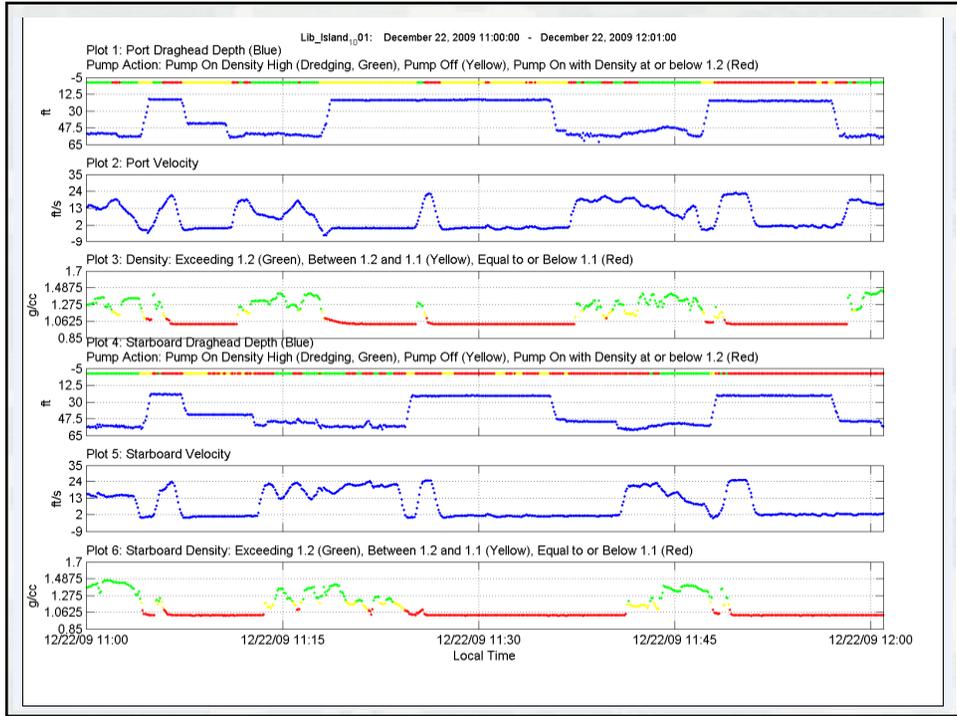
RESULTS OF VISUAL CHECK

Field _____ **Status** _____
No apparent issues.

March 26, 2010



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Standardized EPA Reporting

EPA Vessel Monitoring Data

Project Information

Contract: SAC-W912HD-10-C-0006
 Placement Area: Example Norfolk Site Type: 102
 Profile: Monitoring
 Coordinate Type: LL
 State Plane Datum:

* Optional field, data may not be required for project
 ** State Plane Datum not required when Coordinate Type is LL

Load Number: 62

Vessel Name: Glenn Edwards * Type: Hopper * Technique: Bottom Dump
 Ton Vessel Name:
 Vessel Captain:
 Estimated Volume: 10850
 Material Description: sand
 Material Source: North Turning Basin
 Disposal Start Time: 03:08:10:00:07:13
 Disposal End Time: 03:08:10:00:10:09
 Disposal Start X: -79.757484
 Disposal Start Y: 32.654909
 Disposal End X: -79.757596
 Disposal End Y: 32.654938
 Observed Water Depth:
 Comments:

Position/Sensor Data

Sample Date Time	Vessel X	Vessel Y	Fore Draft	Aft Draft	Avg Draft	Vessel Speed	Vessel Heading	Vessel Course	Hull Status
03:07:10:00:00:04	-79.754631	32.6549	23.55	23.23		5.4	191	181	Closed
03:07:10:00:00:15	-79.754684	32.654933	23.56	23.23		5.3	191	193	Closed
03:07:10:00:00:26	-79.754745	32.654956	23.53	23.32		5.3	192	190	Closed

QC Legend: OK, Error, Range Error, Suspect, QC



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Future ()²

- V2.1 Dredging Analysis Tool
 - ▶ Multiple Load Disposal Plots
 - ▶ Email Alerts
 - ▶ Multiple Load Export Capability
 - ▶ Customized Export Capability
 - ▶ Dredge Plots
 - ▶ Internal Database improvements
- Near-Real Time Scow Data
- Pipeline Evaluation



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Future ()²

- V2.2 – Matlab Cycle Analysis, Dredge State
 - ▶ EPA and BOEMRE Reports web accessed
 - ▶ GIS Integration
 - ▶ Turtle Plots web accessed
- QA reports web accessed
- DQM Payment Estimates - Real-time Status
- National DQM Technical Advisory Team
 - ▶ Address need for Additional Parameters, Specs
 - ▶ Work with Industry on Tech Issues
 - ▶ Develop Scope for next Generation Tools



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**THE NATIONAL
DREDGING QUALITY MANAGEMENT
PROGRAM**

The DQM Program is a partnership between the Corps and the dredging industry for automated monitoring of dredge activities.

Onboard sensors provide near-real-time data that allows for immediate response to emerging situations.

Districts can use the web-based DQM software to view, analyze, report on, and export dredging data.

The data can be used to improve business practice, ensure environmental compliance, and increase our understanding of dredging science and technology.



<http://dqm.usace.army.mil>

1-877-840-8024