

# Sunken Barge ARTHUR J & Tug MADISON Case Study

by

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# July 19, 2012

- Background

- On 19JUL, Sector Detroit was notified by the tug DRUMMOND ISLANDER II that the 110' dredge barge ARTHUR J and tug tender MADISON sank in Lake Huron, in vicinity of Lakeport State Park. The barge was partially submerged in 26' of water with the tender still moored to it, capsized. En route to Pt. Mouillee, DRUMMOND ISLANDER II noticed the ARTHUR J began listing. DRUMMOND ISLANDER II dropped the tow to investigate and the ARTHUR J began to quickly sink, taking the tug tender MADISON with it.



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- Actions Taken:

- Owner MCM Marine hired Marine Pollution Control (MPC) as pollution OSRO. Ryba Marine and John Wellington were hired for salvage response.
- Sector Detroit and STA Port Huron personnel responded to assess the situation.
- COTP issued 100 yd safety zone around the sunken vessels.
- St. Clair County Emergency and MPC placed 800' of hard boom around the barge and tender.
- ICP established at CG Station Port Huron.
- D9 invoked Great Lakes Operational Supplement to the Great Lakes Joint Contingency Plan CANUSLAK between the U.S. and Canada.
- St. Clair County Emergency plugged 10 fuel vents on the barge.



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# Potential Discharge:

- Total Potential: 8000 gallons of fuel
- 1600 gallons of Diesel Fuel reported on board
- 150 gallons of Motor Oil



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# Agencies Involved

- United States Coast Guard
  - Sector Detroit, Station Port Huron, Air Station Detroit, D9 DRAT/PAO, NSFCC & CG Auxiliary
- Michigan Department of Environmental Quality
- St. Clair County Emergency
- Fort Gratiot Fire Department
- Burchville Fire Department
- Port Huron Fire Department
- Marysville Fire Department



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# International Agencies Involved

- Environment Canada
- VTS Sarnia
- Ontario Ministry of the Environment
- CCGC GRIFFON
- Transport Canada – C130



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Trajectory for 8300 gallon diesel spill from collision involving Tug Madison  
 Produced: July 19, 2012 16:00 EDT for next 48 hrs  
 NOAA Emergency Response Division



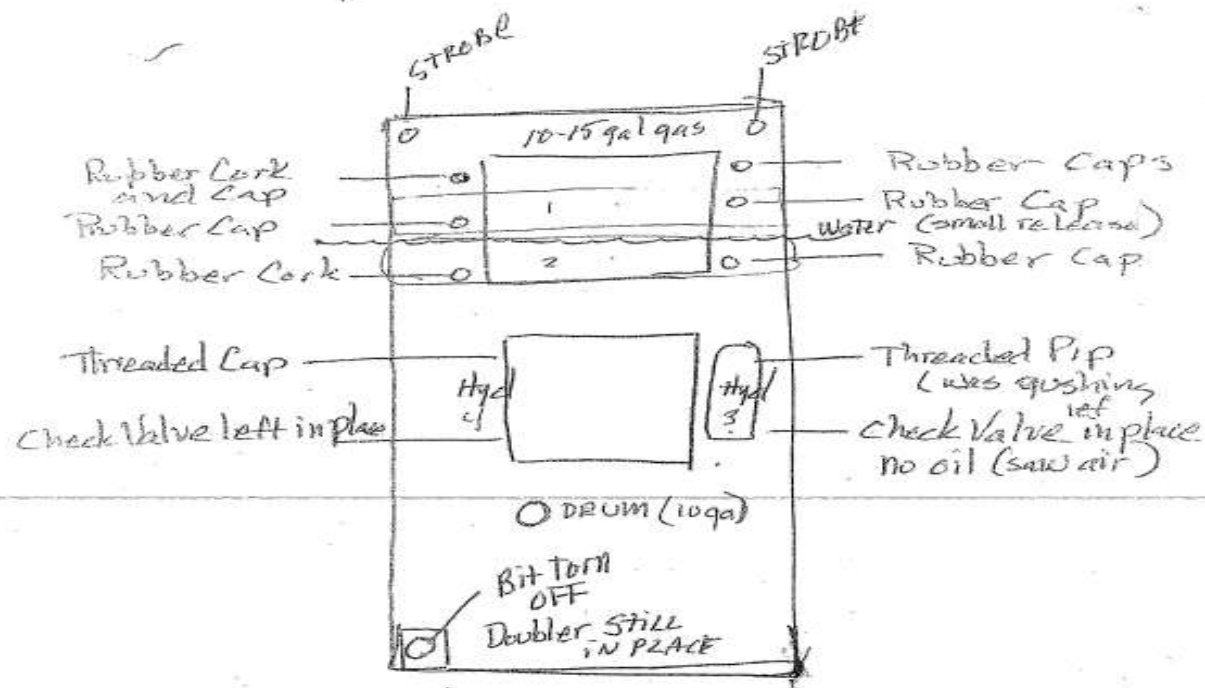
The above map shows the potential regions of visible sheens and shoreline impacts over the next 48 hrs for EITHER a slow continuous release OR an instantaneous release of the entire 8300 gallons. Note that if the release occurs slowly, the likelihood for shoreline impacts is reduced as the diesel will disperse and evaporate fairly rapidly. Light refined products, such as diesel, typically have very high evaporation rates and do not tend to create persistent slicks. If the sheens reach the shoreline in a few hours, a slight staining or greasy film-like bathtub ring is common. These oils usually do not form a stable emulsion and, as a result, do not form a heavy or sticky residual to clean up. Note that lighter refined products do have a relatively high concentration of light aromatic compounds and tend to be more soluble and more toxic than heavier oils. These oils do not generally present an involved cleanup problem. However, they can result in an initial toxic shock to biota and can persist as a biological threat in low energy marine environments.



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### Oil Budget

- 1 - 1500 gal - Diesel
- 2 - ~100 gal - Diesel
- 3 - 10 gal - Hyd.
- 4 - 10 gal - Hyd.

bit broken off



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# July 20 – 23, 2012

- Transport Canada's National Aerial Surveillance Program Pollution plane conducted overflights.
- Shoreline assessment crews combed the shoreline to assess impact of oil discharge.
- Salvage operations commenced. Deck barge with 150 ton crane arrived on scene.
- AIRSTA Detroit conducted overflights.
- MI DEQ and D9 IMT arrived at ICP.



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The image displays two screenshots of the US Navy's Electronic Warfare (EW) software interface, specifically the Electronic Warfare (EW) system. The interface is divided into several sections:

- Map View:** The main display area shows a map of the Gulf of Mexico. The left screenshot shows a map with a green target area and a table of data. The right screenshot shows a map with a green target area and a table of data.
- Data Table:** A table of data is displayed on the right side of the map. It contains columns for 'Altitude', 'Object', 'Coverage', and 'Range'. The table lists various objects and their associated data.
- Control Panel:** A control panel is located at the bottom of the interface. It includes buttons for 'Map', 'Data', 'Coverage', 'Range', and other functions. There are also checkboxes for 'Display', 'Data', 'Coverage', and 'Range'.
- Target Information:** A section on the right side of the interface provides information about the target. It includes fields for 'Target Name', 'Target Type', 'Target Location', 'Target Altitude', 'Target Range', and 'Target Status'.

The interface is designed to provide a comprehensive view of the electronic warfare environment, allowing users to monitor and analyze threats in real-time.



# July 20 – 23, 2012

- Safety zone increased to 500 yds.
- 25' dredge pipe floating 300 yds from site recovered.
- Shoreline crews discovered soiled oil pads and sorbent boom.
- Several attempts at lifting the dredge were unsuccessful.
- MPC collected and replaced sorbent boom around the barge.
- Divers collected debris on the lake bottom.
- Tug MADISON dewatered and salvaged and brought to Blue Water Aggregate shoreside facility.





# Salvage of the Tug Madison



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# Shoreline Pictures -Community



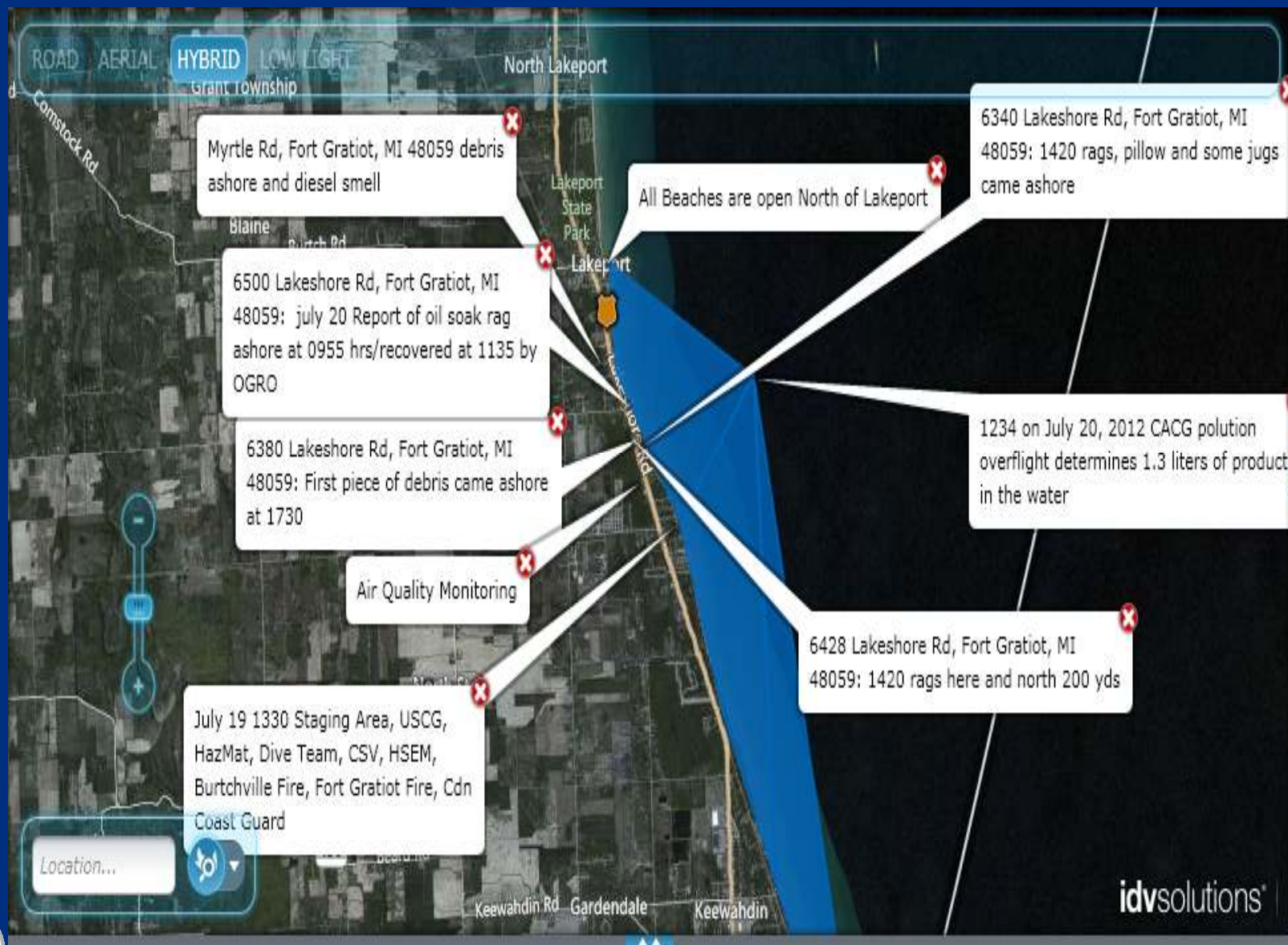
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# Debris - Collect



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# July 20 – 23, 2012

- Beaches previously closed by St. Clair County were re-opened.
- CCGC GRIFFON on scene to provide onsite security.
- Divers install fittings on tanks for fuel removal.
- UC approves fuel removal plan.
- Fuel removal operations commenced. 3400 gallons of oily water and 625 gallons of diesel removed from the ARTHUR J.
- ARTHUR J only raised 18” due to the poor integrity of deck plates inhibiting air pumping operations.
- Fuel totes offloaded at Malcolm Marine.



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# July 24 – 27, 2012

- D9 DRAT demobilized
- Shoreside OSRO team continued to collect debris – mostly unsoiled sorbent boom that got loose from salvage site due to weather.
- ARTHUR J completely submerged with the exception of the spuds still above the waterline.
- Additional lighting was added to the hard boom on site.
- Housing structure separated from barge – dive ops recovered the structure.
- Dive ops found additional fuel in forward port tank.



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# July 24 – 27, 2012

- 540 additional gallons of diesel fuel removed from barge.
- 44 thirty gallon bags of debris removed from the shoreline.
- PIAT requested by IC.
- Hydraulic fuel from port hydraulic tank pumped off the barge.
- CCGC GRIFFON demobilized.
- Salvage Plan updated during weather delay.



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# July 27 – 31, 2012

- Shoreline assessment and cleanup continued.
- Overflights continued with assistance from CG AUX.
- Salvage Group determined spuds on the dredge were inhibiting the refloating efforts, so spuds were removed from the barge.
- Barge was refloated on 30 JUL 2012.
- Divers conducted bottom survey of hull. 4" fracture found in the forward port hull bottom. Divers completed temporary repairs.



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# July 27 – 31, 2012

- Completed hull inspection. Voids and engine room verified to maintain watertight integrity for transit.
- ARTHUR J towed to Malcolm Marine dock for repairs.



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# Cost Documentation

- USCG Costs: ~ \$9,000.00
- PRFA Costs: \$74, 566.59
  - MI State: \$5, 156.37
  - St. Clair County: \$69,410.22



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# Lessons Learned

- Salvage takes time! Weather caused several days of delay.
- Great coordination between USCG, Canada and local port partners led to a cohesive IC efforts.
- CG AUX provided tremendous support in the enforcing of the safety zone and providing overflights.
- Overflights by the USCG and Canada provided the ICP with great on scene overview.
- Shoreline assessment is dynamic – debris was washing up on the beaches daily.
- Communication could be spotty at times – 800 MHz radios recommended for future responses.
- St. Clair County Emergency has the resources and capabilities for initial response.



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