

**Using RAFT-MAP to ensure the shellfish  
is grown in clean, not polluted, water.**



**July 11, 2013**

**ESRI International User Conference  
Kathleen Cheeseman and Gregory Goblick  
Food and Drug Administration, College Park, MD**

# Problem/Solution

- Costs per illness are high

| Hazard (aka pathogen)         | Cost per illness in 2012 |
|-------------------------------|--------------------------|
| Hepatitis A Virus             | \$43,000                 |
| Norwalk Virus                 | \$1,100                  |
| Vibrio vulnificus             | \$3,808,100              |
| Other Vibrios                 | \$5,500                  |
| Campylobacter jejuni          | \$17,800                 |
| Clostridium perfringens       | \$12,500                 |
| Paralytic Shellfish Poisoning | \$175,200                |
| Shigella                      | \$31,800                 |

- Time to complete evaluation are long



- Develop new, faster method to evaluate shellfish growing areas.

- Use wireless transmitters on moored fluorometers
- Use newer generation submersible fluorometers
- Eliminate “data clean up”
- Use a program that integrates preliminary GIS analysis





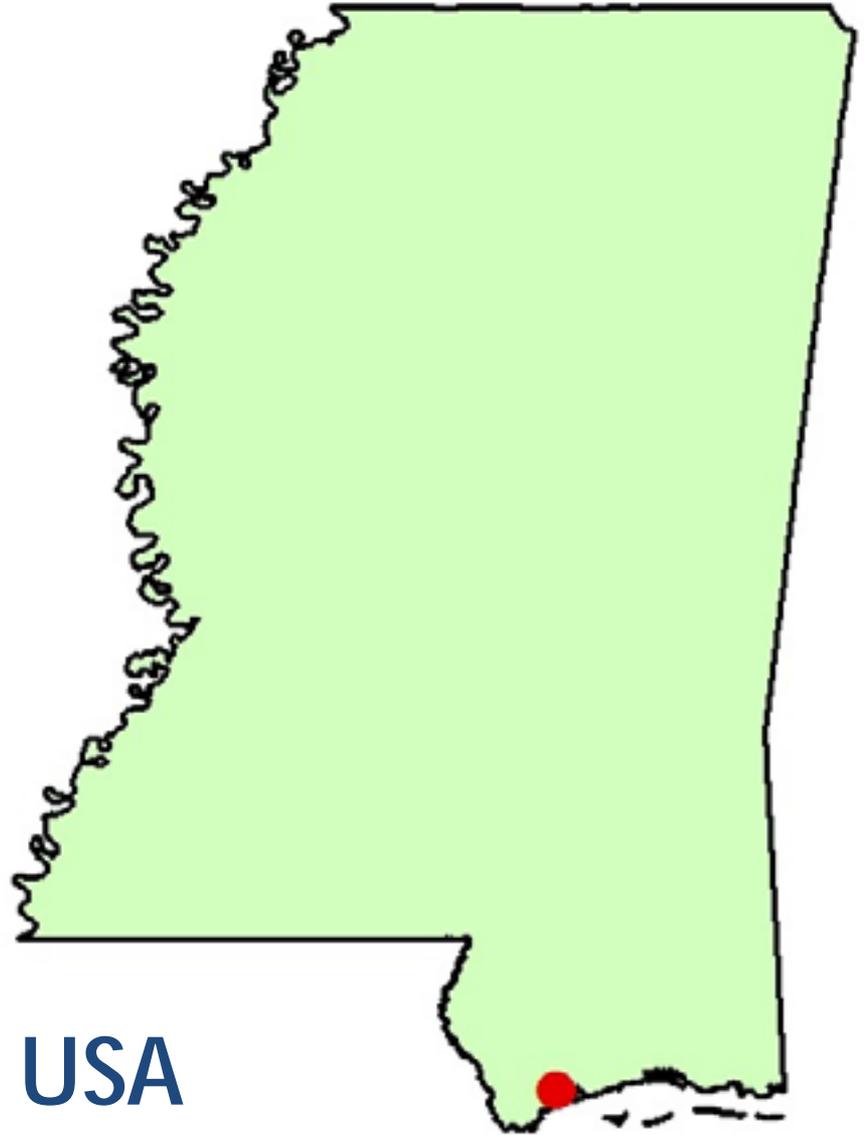
# New Technology (Real Time)



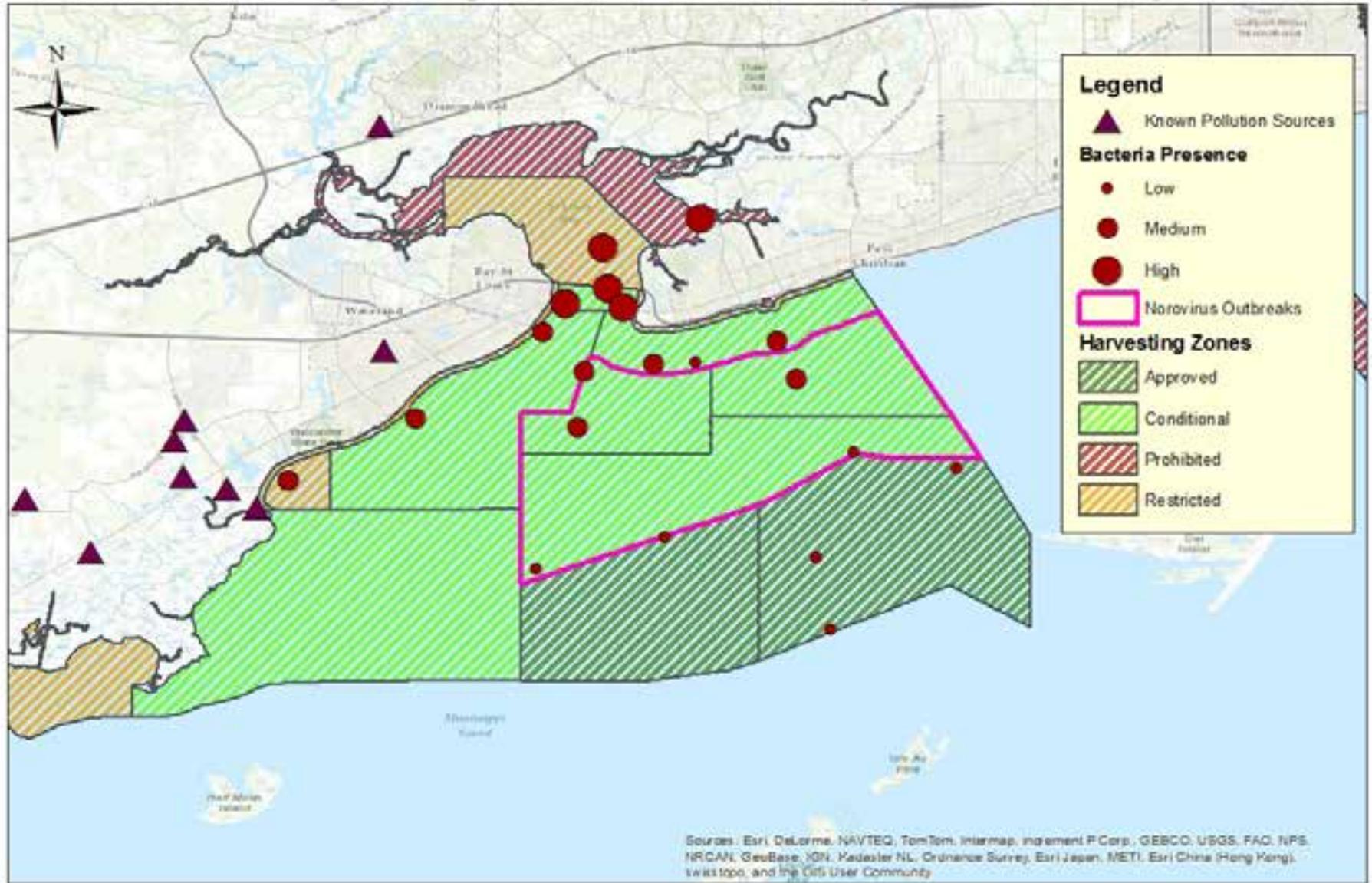
Current Readings

|                    |                             |
|--------------------|-----------------------------|
| latitude:          | <input type="text"/>        |
| longitude:         | <input type="text"/>        |
| signal:            | 928                         |
| concentration:     | 17.56                       |
| dilution:          | 99.2027334051036            |
| Calibration:       | 2040 on 2/15/2011 8:56:31   |
| track name:        | Track-112-20110328          |
| track start:       | 13:12:42                    |
| track time:        | 3 minutes 27 seconds        |
| track min conc:    | 17.54                       |
| track max conc:    | 17.82                       |
| project name:      | coos bay north bend wwtp dy |
| project min conc:  | <input type="text"/>        |
| project max conc:  | <input type="text"/>        |
| selected min conc: | <input type="text"/>        |
| selected max conc: | <input type="text"/>        |

**JANUARY 2012**  
**ST. LOUIS BAY, MS, USA**



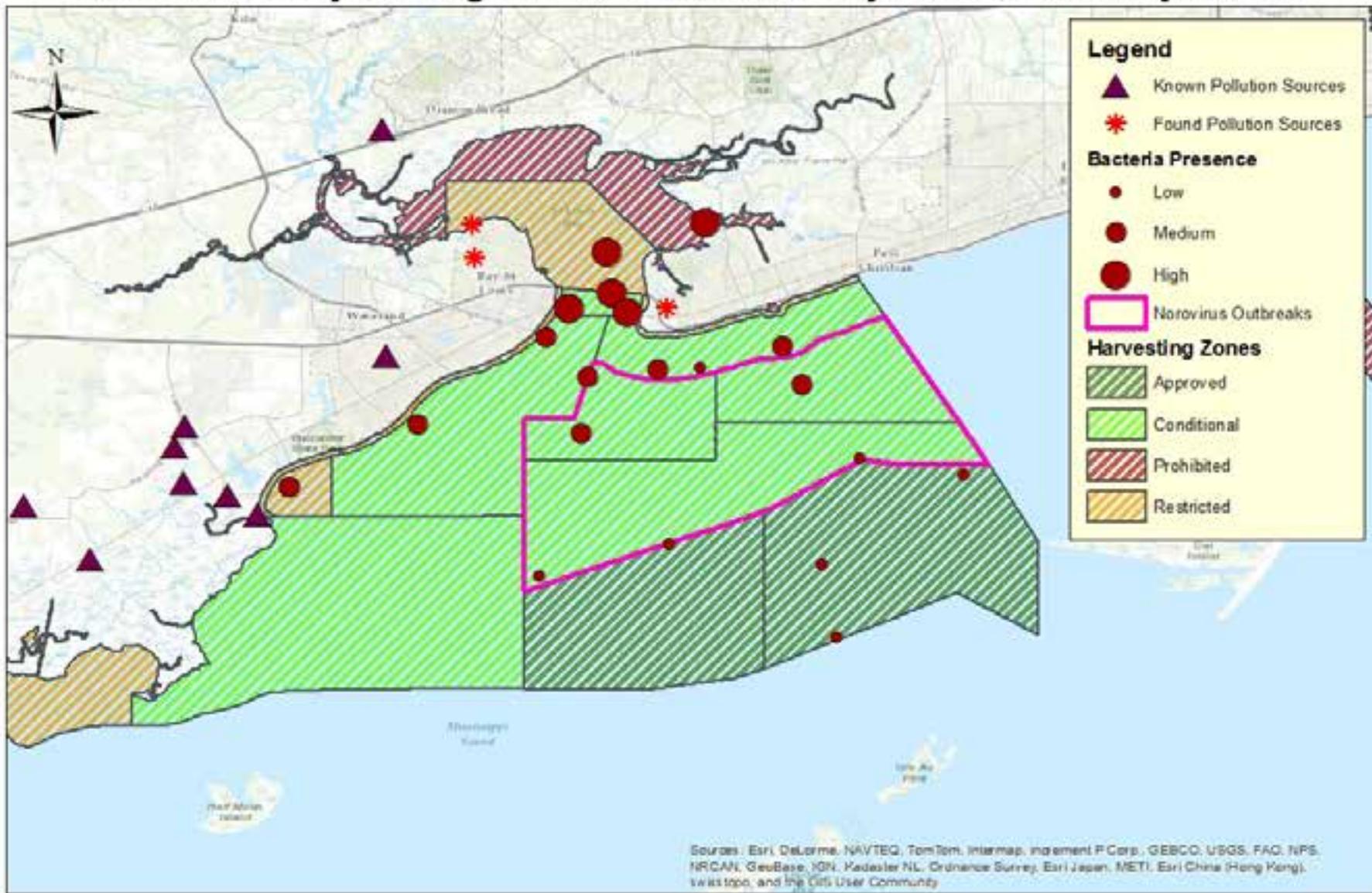
# St. Louis Bay Background Water Quality Data, January 2007



Source: State of Mississippi



# St. Louis Bay Background Water Quality Data, January 2012



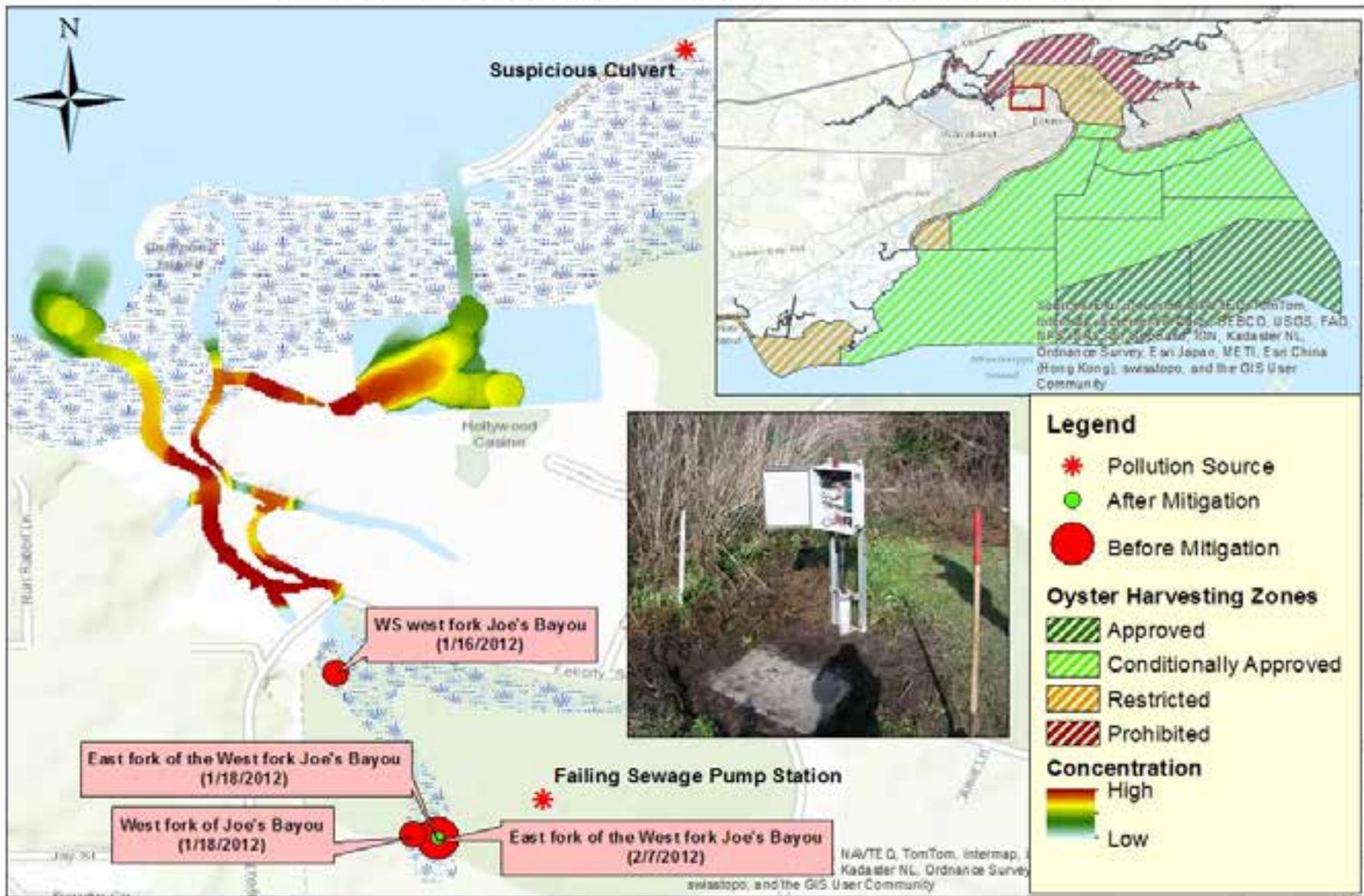
Source: State of Mississippi

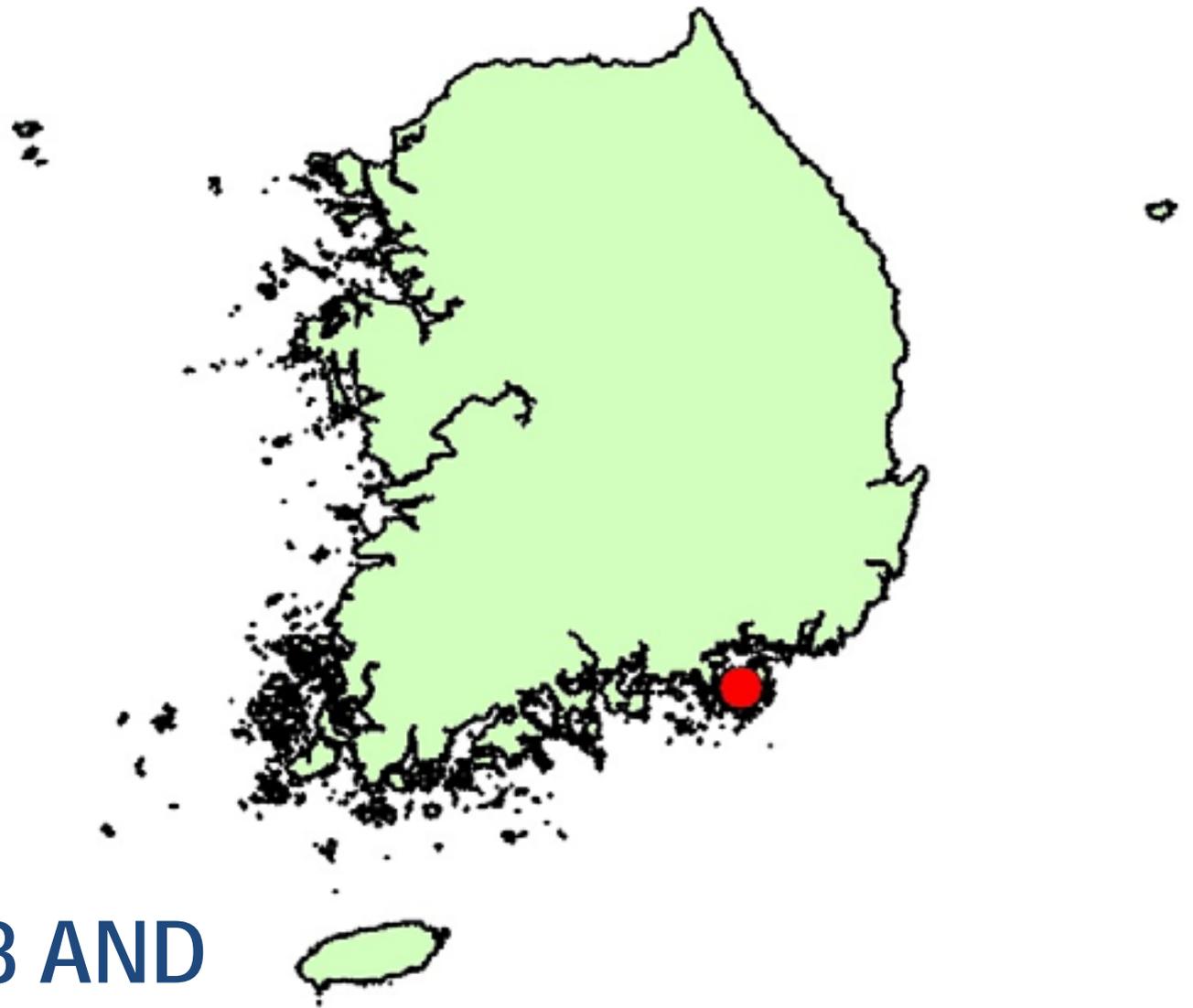


# St. Louis Bay Pollution Sampling, January 2012



# Joe's Bayou Source Tracking, January 2012

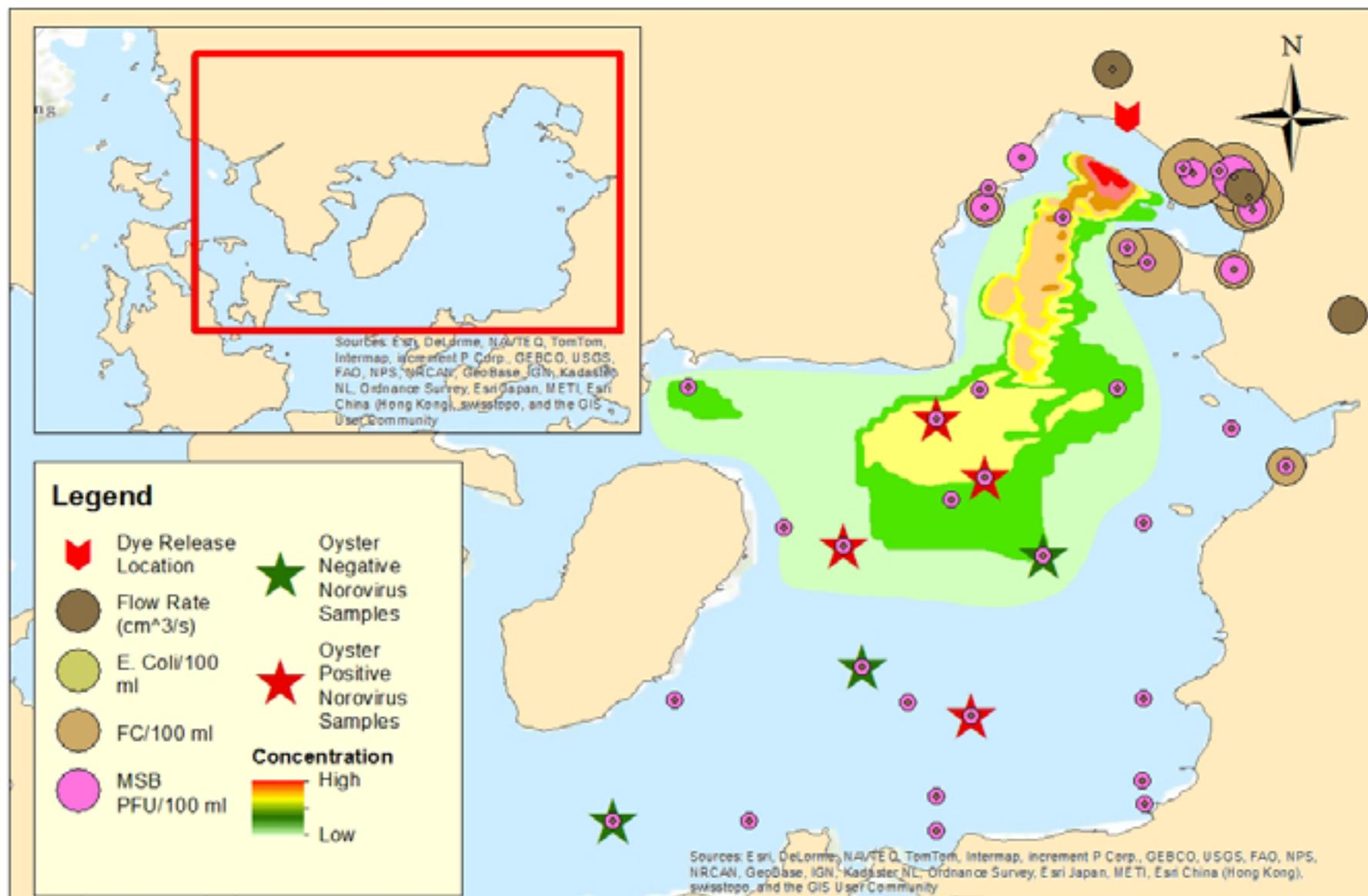




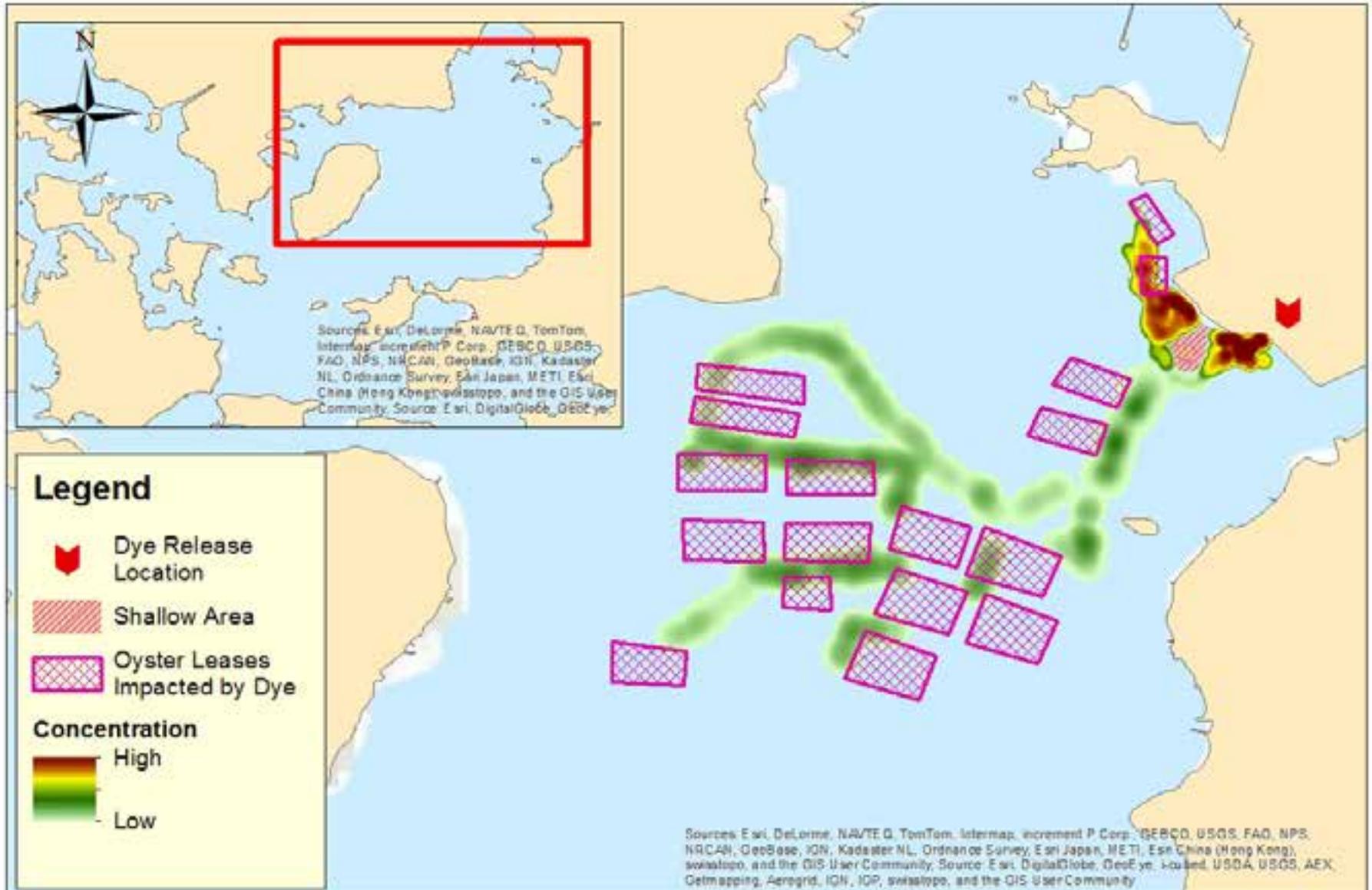
**APRIL 2008 AND  
MARCH 2012**

**HANSAN-GEOJEMAN AREA, SOUTH KOREA**

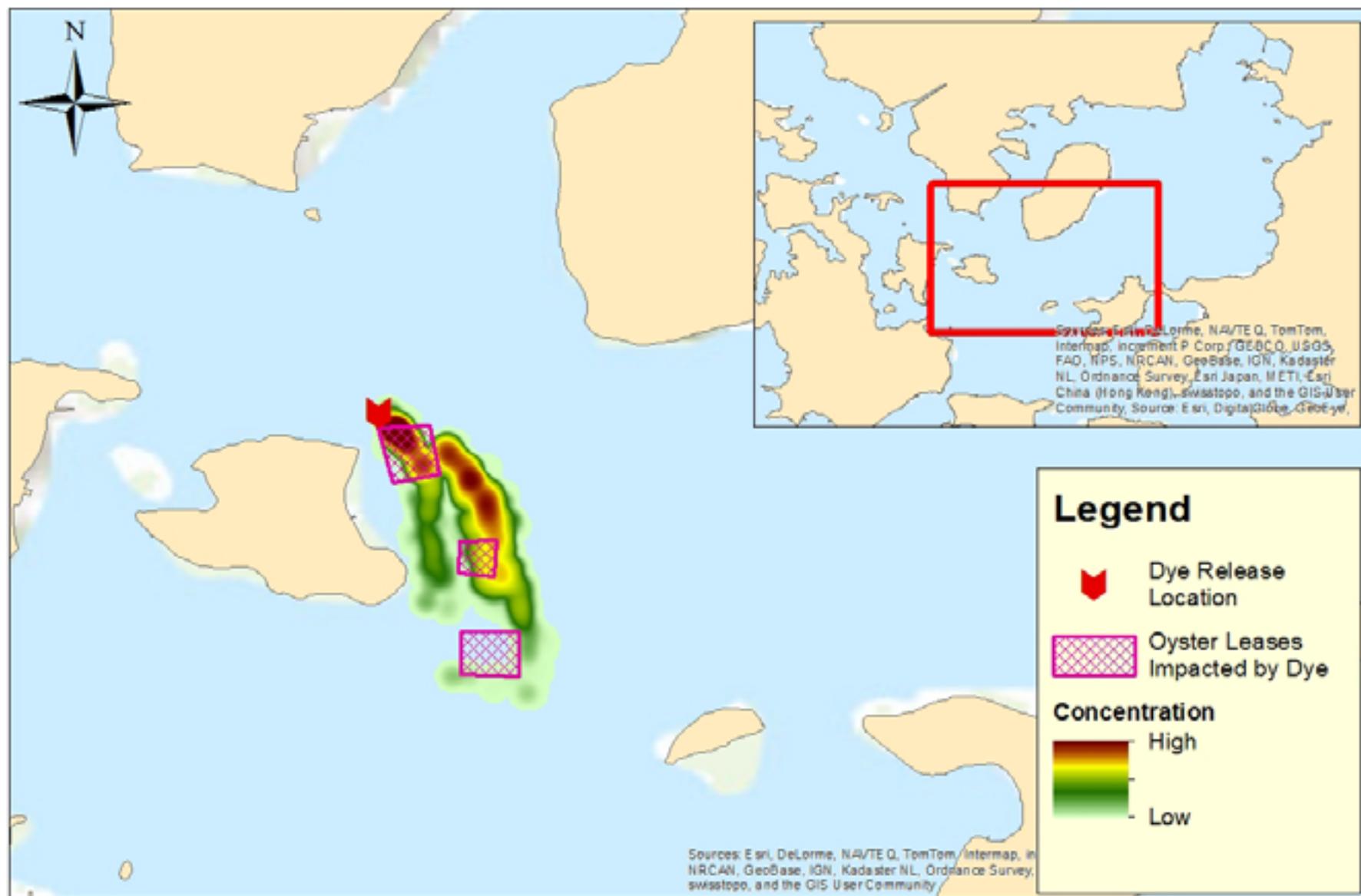
# Wet Weather Survey: Korea Hansan-Geojeman, April 2008



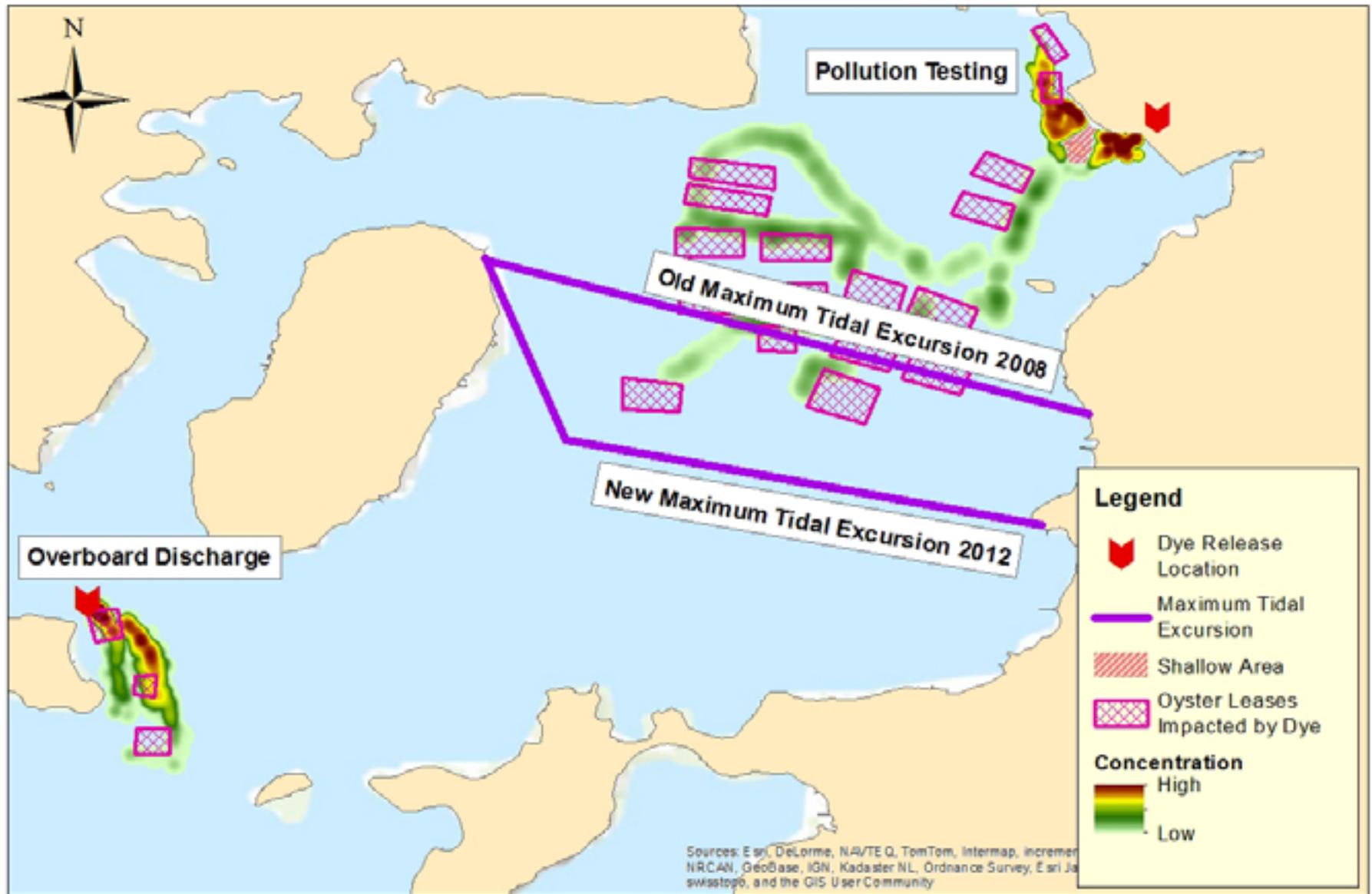
# Pollution Testing Site: Korea Hansan-Geojeman, March 2012



# Overboard Discharge Site: Korea Hansan-Geojeman, March 2012



# Korea Hansan-Geojean, March 2012



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# The Future

- RAFT-MAP becomes one application within a growing CFSAN GIS Program
- This year and next
  - Adding an enterprise geodatabase
  - Obtaining an “Authority to Operate” (ATO) Certificate.
  - Developing user documentation to support both file and enterprise geodatabase workflows.
  - Rolling out to FDA Shellfish Specialists in the field
  - Rolling out to our state/foreign partners in the Interstate Shellfish Sanitation Conference (ISSC)
- Longer Term (FY16+)
  - Support more instrumentation (oil)
  - Incorporate in to our emergency response. Typical response close it all – but that might not be necessary.



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# Acknowledgements

- Field Studies/RAFT-MAP Data Collection:
  - Julie Anbarchian<sup>1</sup>, Yaping Ao<sup>1</sup>, CDR Kevin Calci<sup>2</sup>, and CAPT William Burkhardt III, PhD<sup>2</sup>
- GIS Map Production:
  - Joshua Clayton<sup>1</sup>, Sarah Peters<sup>1</sup>, and Guilan Huang<sup>1</sup>

<sup>1</sup>FDA Center for Food Safety and Applied Nutrition (CFSAN)

<sup>2</sup>FDA CFSAN Gulf Coast Seafood Laboratory



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See you at the ESRI Federal Conference for:  
RAFT-MAP – How was it made?

