

US EPA ARCHIVE DOCUMENT

# Beach Sanitary Surveys

Old Idea  
New Application

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[http://www.who.int/water\\_sanitation\\_health/bathing/Annapolis.pdf](http://www.who.int/water_sanitation_health/bathing/Annapolis.pdf)

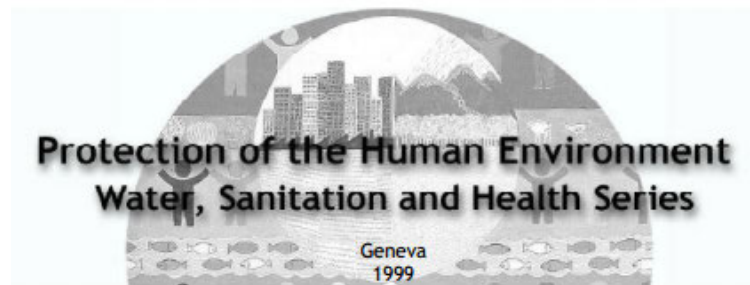


World Health Organization  
Sustainable Development and Healthy Environments

WHO/SDE/WSH/99.1  
Original: English  
Dist.: Limited

**HEALTH-BASED MONITORING OF RECREATIONAL WATERS:  
THE FEASIBILITY OF A NEW APPROACH  
(THE 'ANNAPOLIS PROTOCOL')**

**OUTCOME OF AN EXPERT CONSULTATION,  
ANNAPOLIS, USA CO-SPONSORED BY USEPA**



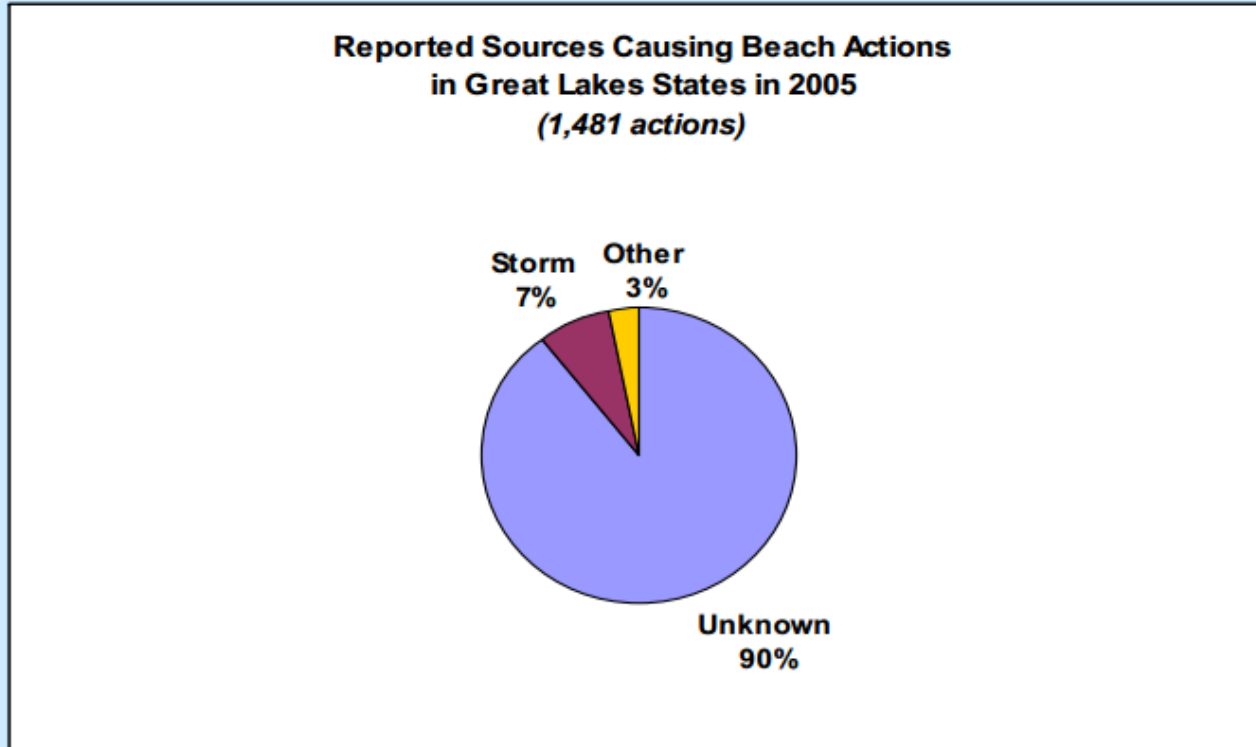
Beach Sanitary Surveys

Impact

Approach

Training

# Do we know what the sources are?



C. Kovatch, USEPA National Beaches Conference, 2006

Can't fix what you don't know.

We didn't know 90% of the problem.



United States  
Environmental Protection  
Agency

Region 5  
Chicago, IL 60604

EPA 905-R-08-002  
May 2008

# 61 beaches

## 2007 Beach Sanitary Survey Great Lakes Pilot Project



[http://water.epa.gov/type/oceb/beaches/upload/2008\\_05\\_29\\_beaches\\_sanitarysurvey\\_pilot-summary.pdf](http://water.epa.gov/type/oceb/beaches/upload/2008_05_29_beaches_sanitarysurvey_pilot-summary.pdf)

# Make it EASY!!!

## At the Beach

- Collect data while at beach
- Paper copies
- Mobile Device

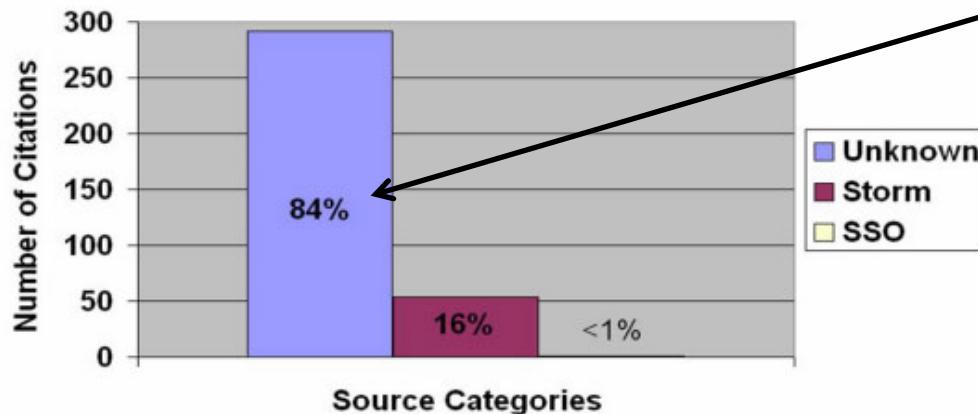
## Back in the Office

- Collect data from Web sites

# Why is your beach closed?

Figure 1.

Sources Identified in the 2006 Beach Survey  
For US Beaches in the 2007 Pilot Sanitary Survey

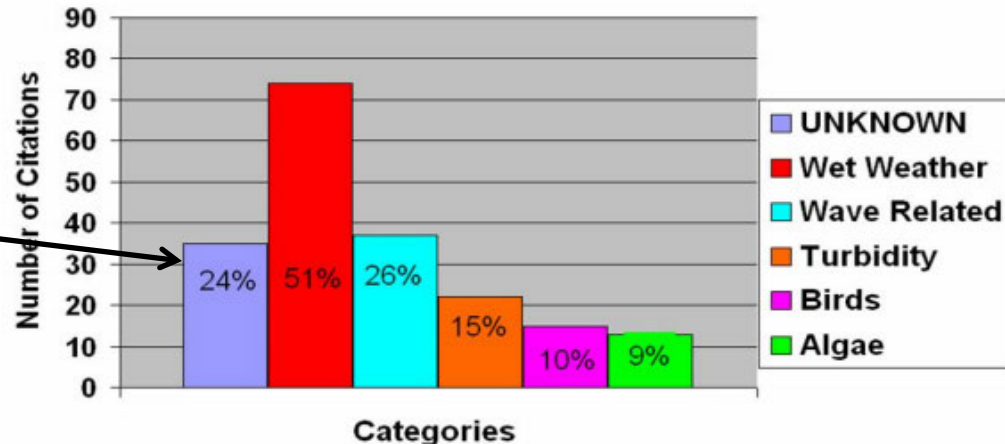


Before Sanitary Surveys  
84% Unknown Sources

After Sanitary Surveys  
24% Unknown Sources

Figure 2

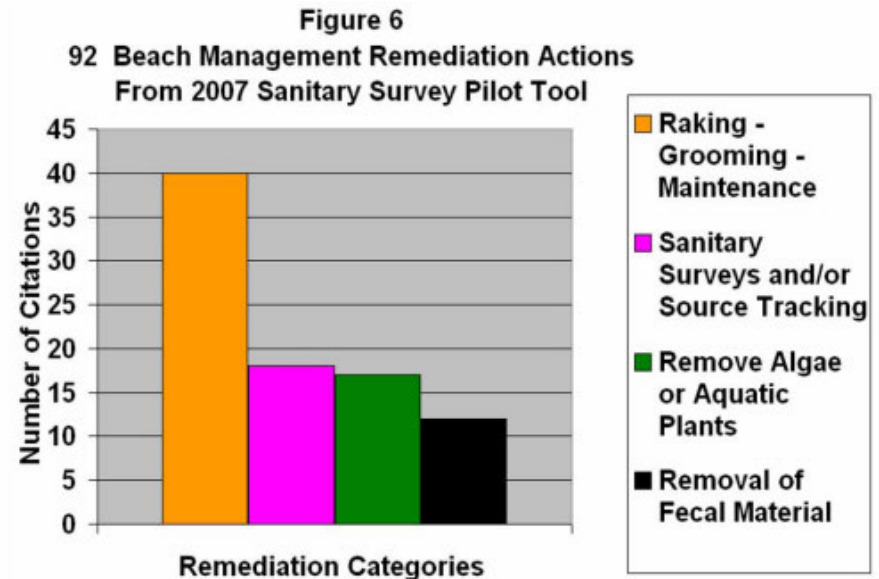
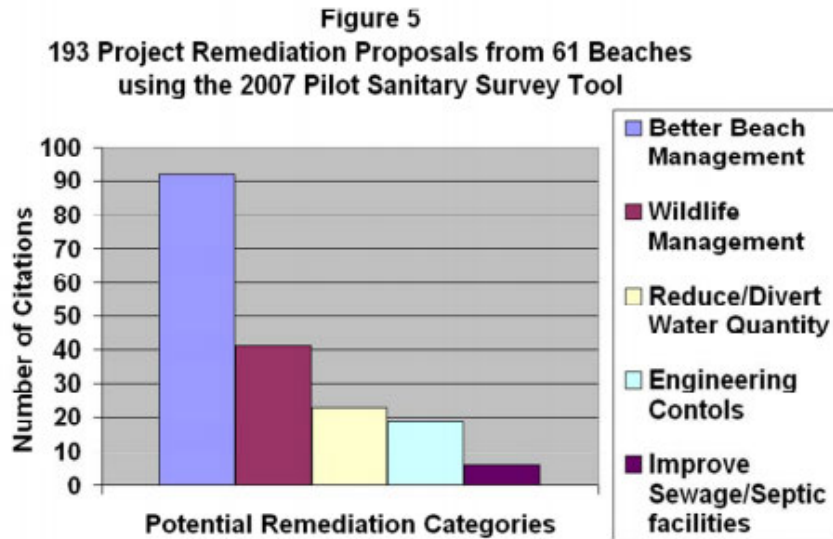
2007 Pilot Survey Report from 36 Beaches  
145 Postings Identified 196 Possible Sources





# What else did we learn?

- Best Management Practice for beaches!



# Environmental Canine Services LLC

- ▶ Karen & Scott Reynolds
- ▶ Northeastern Region Team & headquarters based in New Hampshire
- ▶ Partnering with FB Environmental to increase client services



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[www.fbenvironmental.com](http://www.fbenvironmental.com)

# Midwestern Region– Lansing, MI

- ▶ Team Leader Daniel Ringel
- ▶ New handler in training Laura Symonds (not pictured)

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Chill'n with buddy Sky



# Western Region– N. California

- ▶ Team Leader – Laurie Leach



[l.leach@ecsk9s.com](mailto:l.leach@ecsk9s.com)

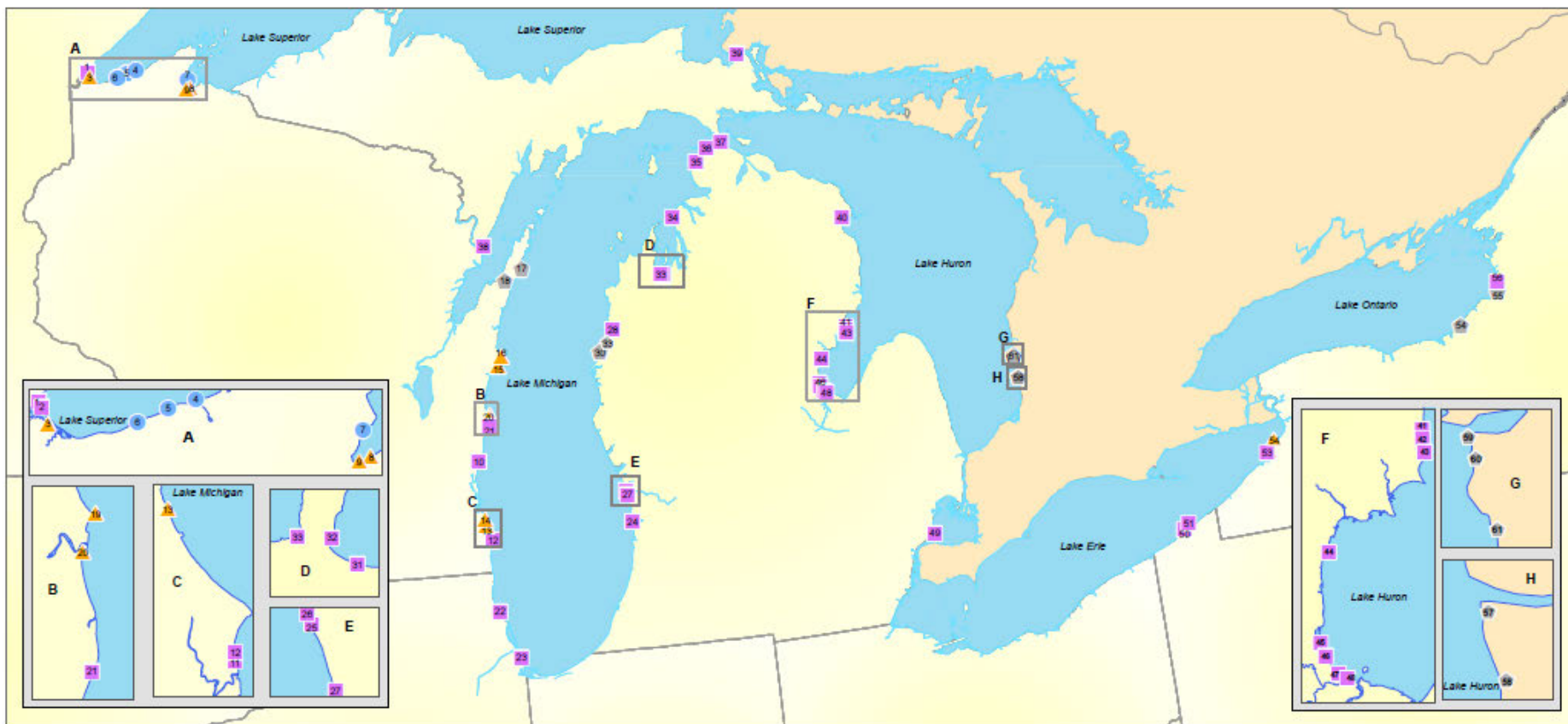
- ▶ Training Coordinator– Gwen Jones



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# GREAT LAKES BEACH SANITARY SURVEY LOCATIONS



## Lake Superior

- Minnesota**  
1 LAKEWALK  
2 NEW DULUTH BOAT CLUB 14TH STREET  
**Wisconsin**  
3 BARKER'S ISLAND INNER BEACH  
4 BRULE RIVER STATE FOREST BEACH #1  
5 BRULE RIVER STATE FOREST BEACH #2  
6 BRULE RIVER STATE FOREST BEACH #3  
7 THOMPSON WEST END PARK BEACH  
8 KREHER PARK BEACH  
9 MASLOWSKI BEACHES

## Lake Michigan

- Wisconsin**  
10 UPPER LAKE PARK BEACH  
11 NORTH BEACH  
12 ZOO BEACH  
13 BENDER BEACH  
14 GRANT PARK BEACH  
15 NESHOTAH BEACH  
16 POINT BEACH STATE PARK - CONCESSION STAND BEACH  
17 WHITEFISH DUNES BEACH  
18 SUNSET PARK BEACH STURGEON BAY  
19 DELAND PARK BEACH  
20 GENERAL KING PARK BEACH  
21 KOHLER ANDRAE STATE PARK NORTH BEACH  
**Illinois**  
22 HIGHLAND PARK ROSEWOOD BEACH  
23 JACKSON PARK BEACH

- Michigan**  
24 TUNNEL PARK  
25 GRAND HAVEN CITY BEACH  
26 GRAND HAVEN STATE PARK  
27 ROSY MOUND RECREATION AREA  
28 ONEKAMA  
29 SUNDLING PARK  
30 MAGDOON CREEK  
31 TRAVERSE CITY STATE PARK BEACH  
32 EAST BAY PARK BEACH  
33 BRYANT PARK BEACH  
34 NORWOOD PARK  
35 CROSS VILLAGE BEACH  
36 WILDERNESS STATE PARK  
37 MACKINAW CITY LIGHTHOUSE PARK  
38 HENES PARK

## Lake Huron

- Michigan**  
40 STARLITE BEACH  
41 DYER RD. BEACH  
42 SINGING BRIDGE BEACH  
43 TWINING RD. BEACH  
44 WHITE BEACH  
45 SOUTH LINWOOD BEACH TOWNSHIP PARK  
46 BRISSETTE BEACH TOWNSHIP PARK  
47 BAY CITY STATE RECREATION AREA  
48 WENDON BEACH  
**Canada**  
57 BAYFIELD MAIN BEACH  
58 BAYFIELD SOUTH BEACH  
59 GOODRICH MAIN BEACH  
60 GOODRICH ST. CHRISTOPHER'S BEACH  
61 GOODRICH ROTARY COVE BEACH

## Lake Erie

- Ontario**  
50 BEACH 2  
51 BEACH 10 (BUOY BEACH)  
**New York**  
52 EVANS TOWN PARK  
53 LAKE ERIE BEACH

## Other

- Michigan**  
39 ST. MARY'S RIVER-SUGAR ISLAND TOWNSHIP PARK  
46 PIER PARK

## Lake Ontario

- New York**  
54 FAIR HAVEN BEACH STATE PARK  
55 SELKIRK SHORES STATE PARK  
56 SANDY ISLAND BEACH STATE PARK

## PRIORITY

- High  
Medium  
Low  
Not Applicable

0 10 20 40 60 80 Miles

# Impact of Sanitary Surveys

## Before 2007

84% to 90% unknown sources

## After 2007

24% unknown sources

## Now

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< 20% unknown sources at 488 beaches

69 beaches mitigation measures

133 beaches with predictive modeling



# Great Lakes Beaches

## Legend

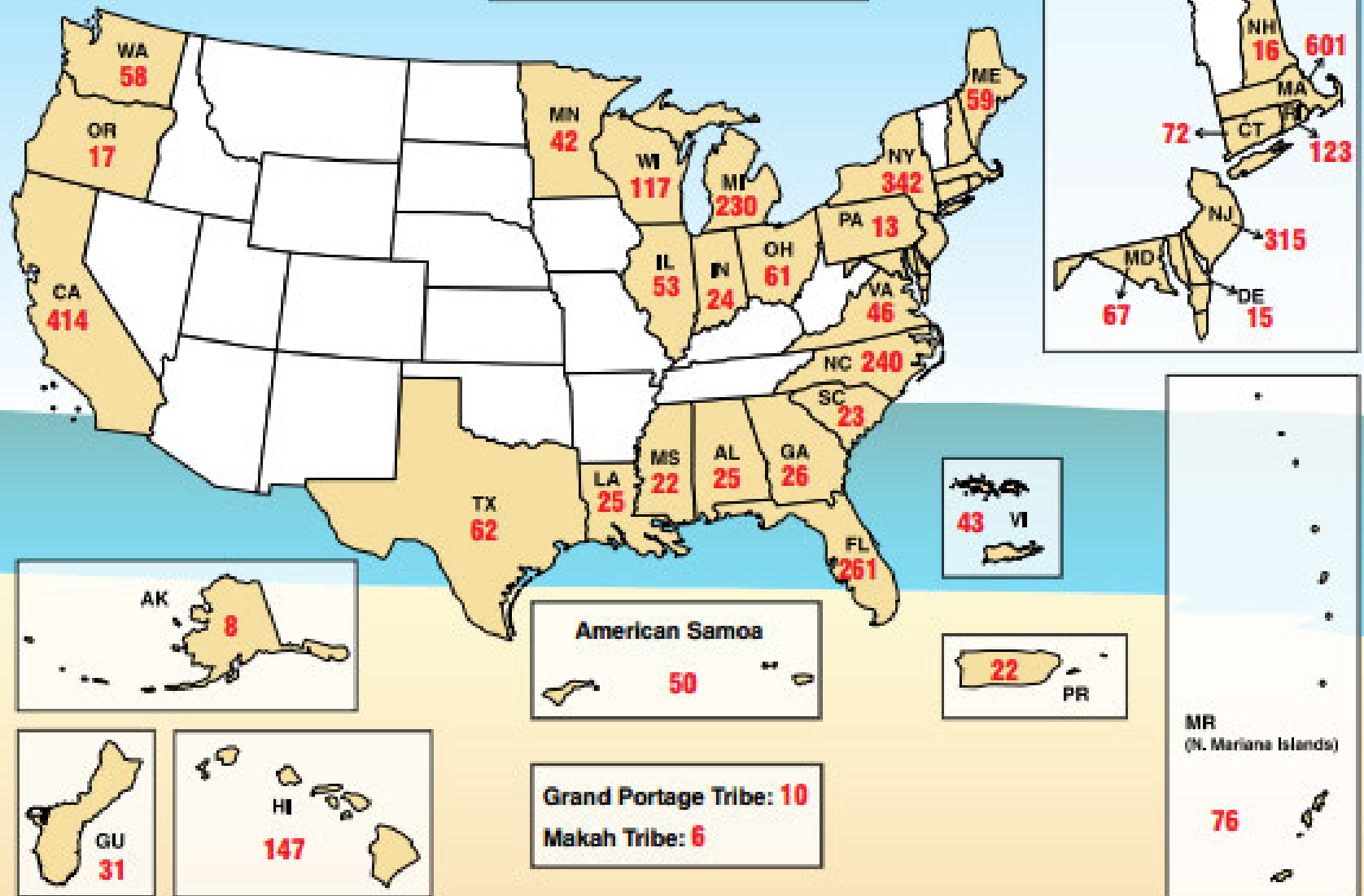
- Great Lakes Beaches
- ▲ Annual or Routine Sanitary Surveys
- Beach Contamination Mitigation Projects
- Rapid Testing or Predictive Models

0 75 150 300 Miles



**Figure 1: Number of monitored coastal recreation beaches by state**

**Total = 3,762 Beaches**





# Consider National Impact of Sanitary Surveys



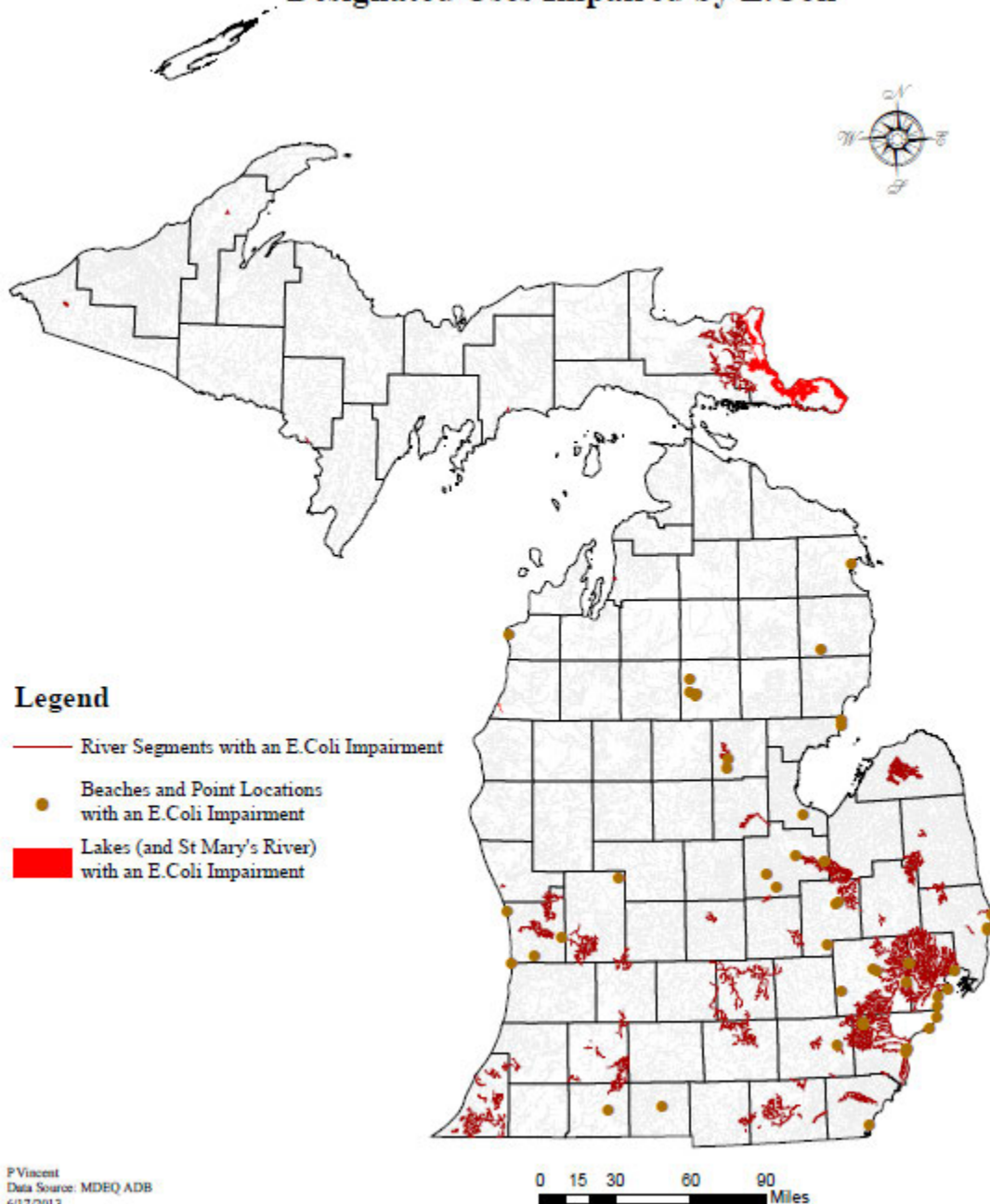
40% of monitored beaches  
report actions

That's 1,500 beaches

About 80% report unknown  
sources

That's 1,200 beaches

## 2012 Waterbodies with Designated Uses Impaired by E.Coli



# Sanitary Surveys

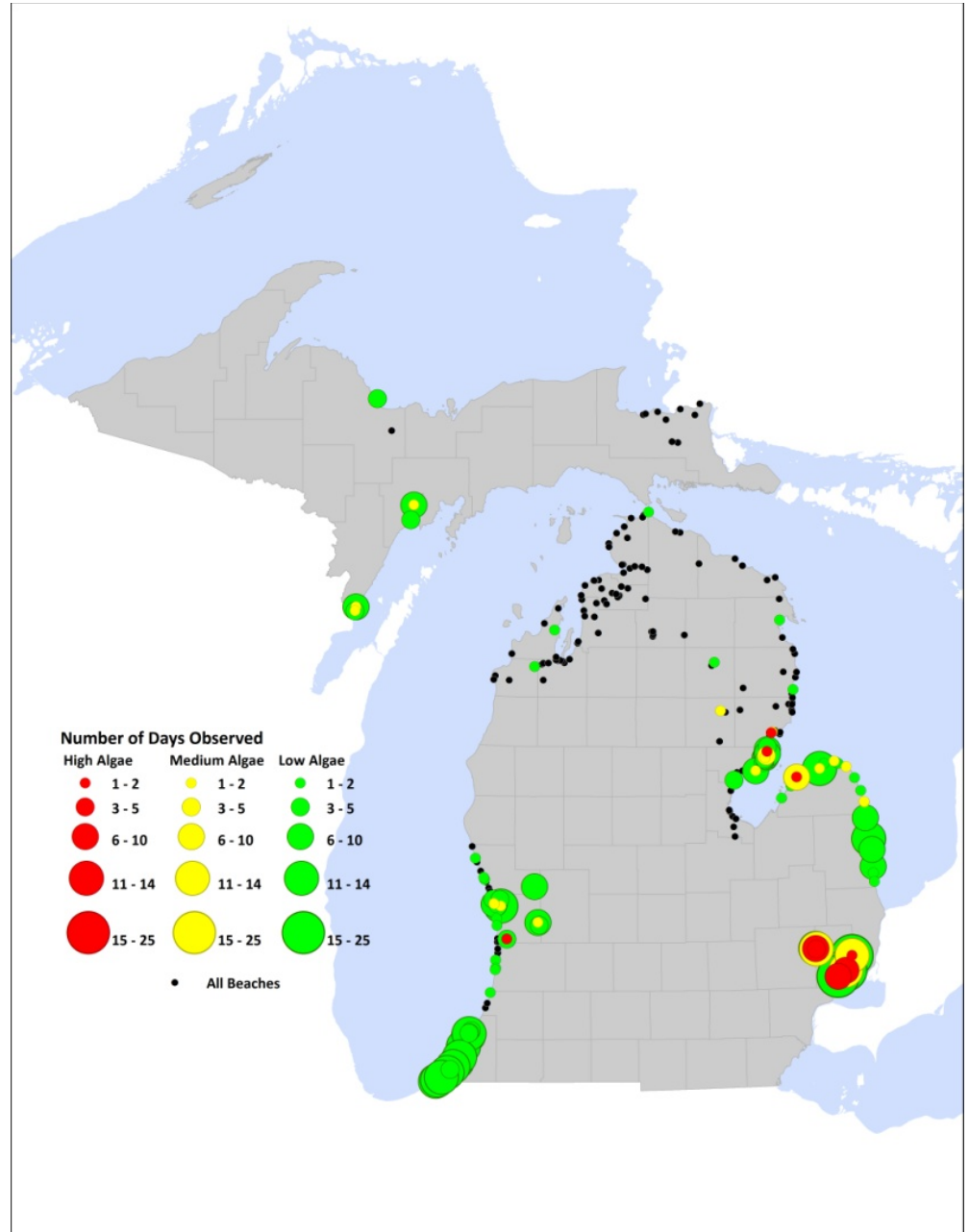
Identifying  
sources at  
17 of 19 GL  
beaches (89%)

*AND*

11 of 24 inland  
beaches

# Other Uses?

## Sanitary Surveys and Algae Monitoring



# Sanitary Survey Stats

3,424 at 252 GL beaches in 2011

3,804 at 238 GL beaches in 2012

2,304 at 176 GL beaches in 2013

254 at 21 inland lake beaches in 2012

+ 682 at 64 inland lake beaches in 2013

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10,468 at 316 beaches in Michigan in 3 yrs

*Get a database and website!*



## Detroit River - Belle Isle Beach

[\(Change Beach\)](#)

Monitoring Point:

Surveyor(s):

Survey Performed On:  at:  :

Surveyor Affiliation:

General Beach Conditions

Water Quality

Bather Load

Potential Pollution Sources

### Air Temperature

Air Temperature:  ° F

### Wind

Wind Speed:  mph Direction (e.g., E or 90°):

### Last Rain Event

Occurred  hours ago and measured

Intensity:

### Weather Conditions

Weather Conditions:



## Detroit River - Belle Isle Beach

[\(Change Beach\)](#)

Monitoring Point:

Surveyor(s):

Survey Performed On:  at:  :

Surveyor Affiliation:

General Beach Conditions

Water Quality

Bather Load

Potential Pollution Sources

### Water Temperature

Water Temperature:  ° F

### Color

☐ Change in Water Color? Description (if checked):

### Odor

Water Odor:  Description (if other):

### Turbidity

Turbidity:  NTU:





## Detroit River - Belle Isle Beach

[\(Change Beach\)](#)

Monitoring Point:

Surveyor(s):

Survey Performed On:  at:  :

Surveyor Affiliation:

General Beach Conditions

Water Quality

Bather Load

Potential Pollution Sources

### Number of People

In the water:

Out of the water:

Total People: 0

### Activities

Activity:

Description (if other):

# of People:

Add

Activity

Number Of People

### Comments / Observations



## Detroit River - Belle Isle Beach

[\(Change Beach\)](#)

Monitoring Point:

Surveyor(s):

Survey Performed On:  at:  :

Surveyor Affiliation:

General Beach Conditions

Water Quality

Bather Load

Potential Pollution Sources

### Source of Discharge

Name of Source:

Latitude:

Longitude:

Pollution Conduit:

Description (if other):

Amount:

Flow Rate:

Volume:

Characteristics:

Add

Name

Conduit

Amount

Flow Rate

Volume

Characteristics

### Bacteria Samples

Did you collect any bacteria samples from the sources listed in the table above? ☐ Yes ☒ No

### Floatables



# Products from Sanitary Survey

CLEAN BEACHES

Sources Identified

Sources Corrected or Eliminated

Develop Forecast Models

Develop BMPs for Beaches

Redesign Beaches

# Basic Approach

Beaches with or without monitoring data

- Annual Sanitary Survey to determine if monitoring is needed
  - Use maps
  - Visit beach in person
  - Look at watershed

**Identify Beach**



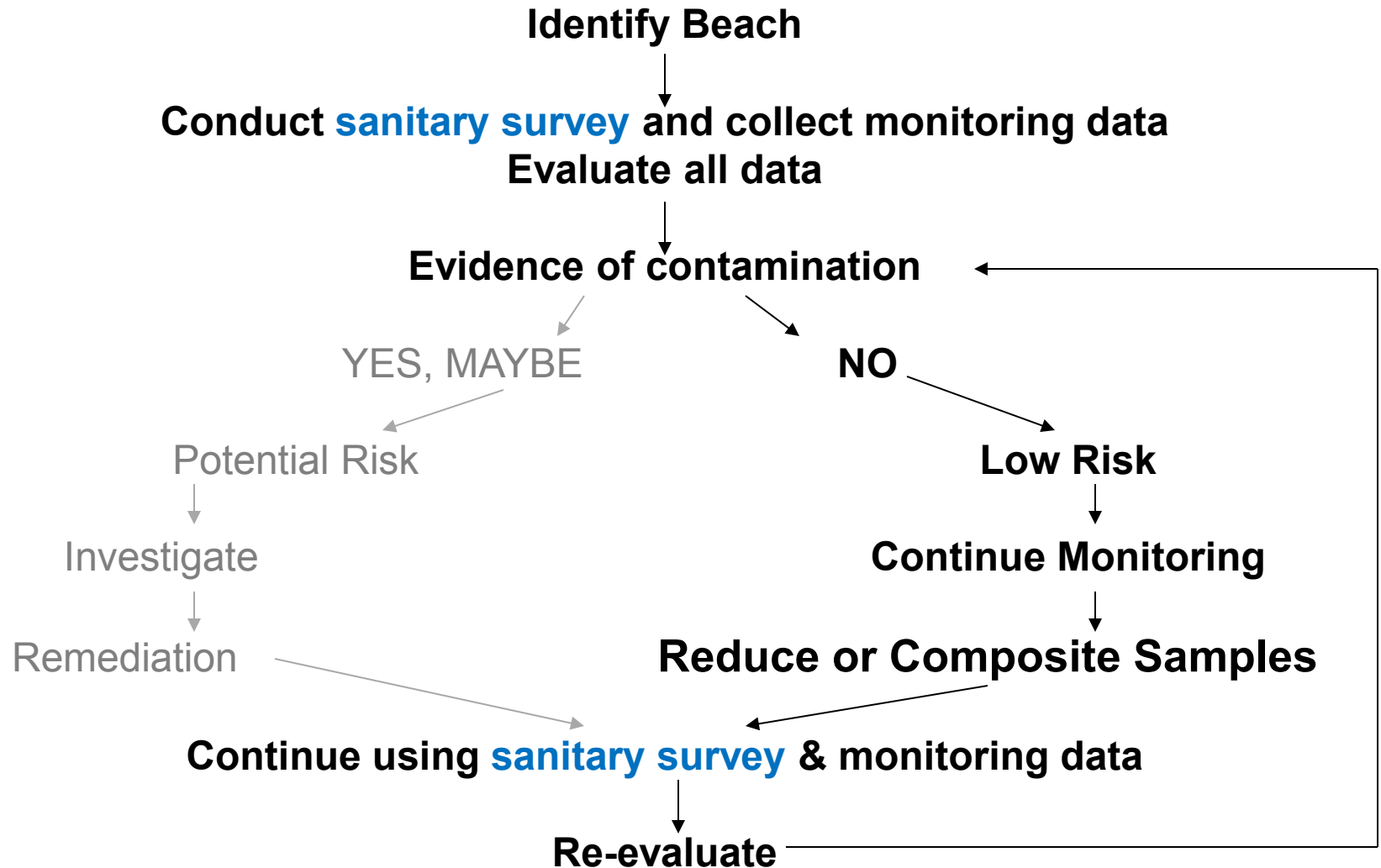
**Conduct Sanitary Survey**

# Next Approach

Beaches with monitoring data that consistently meet water quality standards

- Routine Sanitary Survey to put bacteria data into context
  - Look at potential sources that may have an impact
  - Look for strengths of the beach that help water quality

# Sanitary Surveys & Monitoring

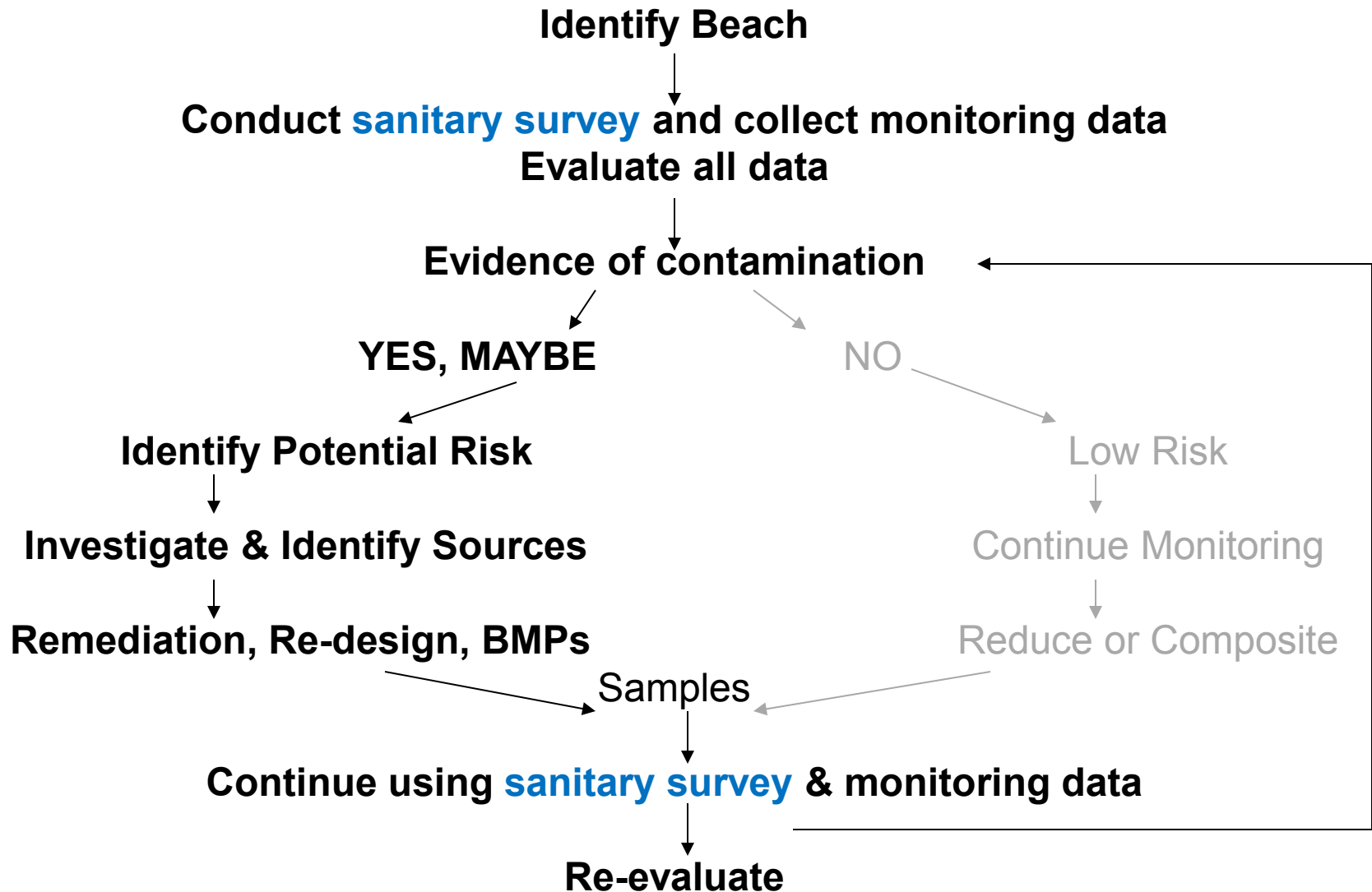


# Intense Approach

Beaches with monitoring data that DO NOT consistently meet water quality standards

- Routine Sanitary Survey to put bacteria data into context
- Why is the beach closed?
- What and Where is the source of contamination?
- Impact at least 40% of Nation's Beaches
  - That's 1,500 Beaches!!

# Sanitary Surveys & Monitoring



# Daily and Annual Training

Beachnet listserv

<http://www.great-lakes.net/glba/beachnet.html>

Great Lakes Beach Association Conferences

<http://www.great-lakes.net/glba/2012conference.html>

2012

Mission Point, Mackinac Island



Toronto 2014



2013

Blue Harbor Resort,  
Sheboygan Wisconsin



# Sanitary Survey Videos

- Healthier Beaches
- <http://www.youtube.com/watch?v=GoCEsXTgKxI>
- Sanitary Survey Part 1 – Urban Beach
- <http://www.youtube.com/watch?v=FMuMrfGliH4>
- Sanitary Survey Part 2 – Rural Beaches
- <http://www.youtube.com/watch?v=P3OiRFdCo0M>
- Working Together – Clean Water – Clean Beaches
- <http://www.youtube.com/watch?v=Phzklkub6o8>



# Beach Model Videos & Web Site

- Beach Models – Predicting Water Quality
- <http://www.youtube.com/watch?v=2qJco1NJF5A>
- Developing models
- [http://www.youtube.com/watch?v=6d3hNk3jG\\_8](http://www.youtube.com/watch?v=6d3hNk3jG_8)
- Virtual Beach 3.0 web site
- <http://www2.epa.gov/exposure-assessment-models/virtual-beach-vb>