

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/SEW/SH/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**



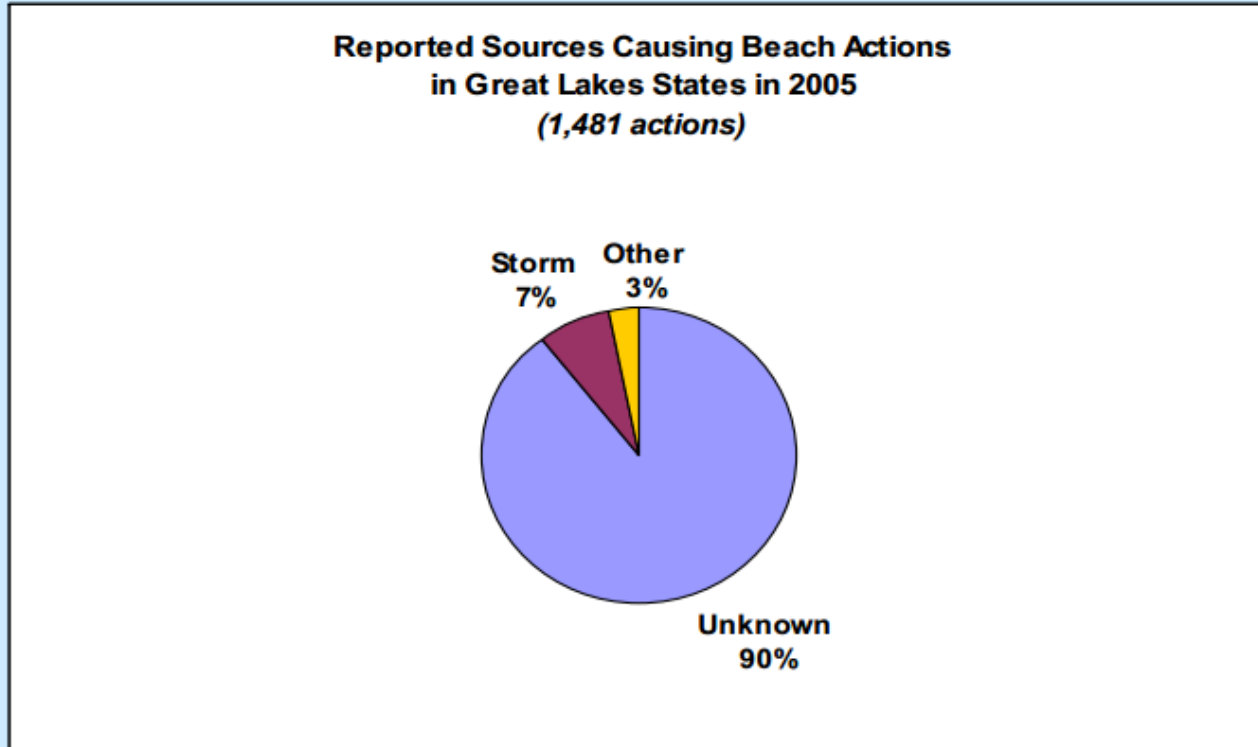
Beach Sanitary Surveys

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.



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

Make it EASY!!!

At the Beach

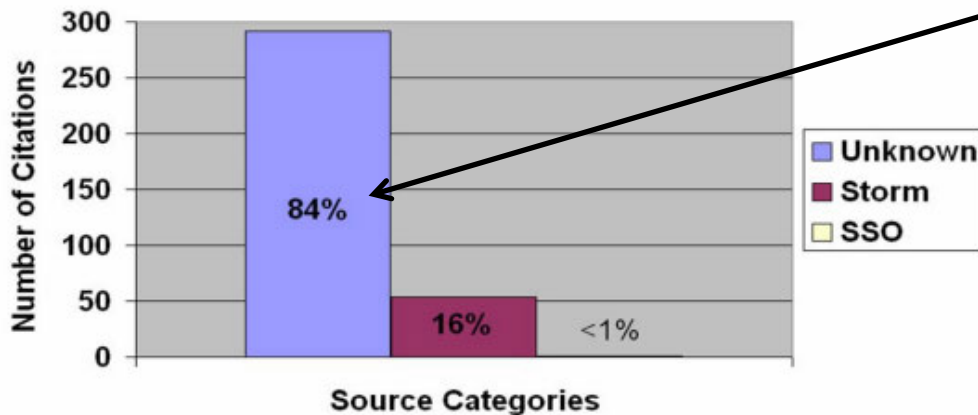
- Collect data while at beach
- Paper copies
- Mobile Device

Back in the Office

- Collect data from Web sites

Why is your beach closed?

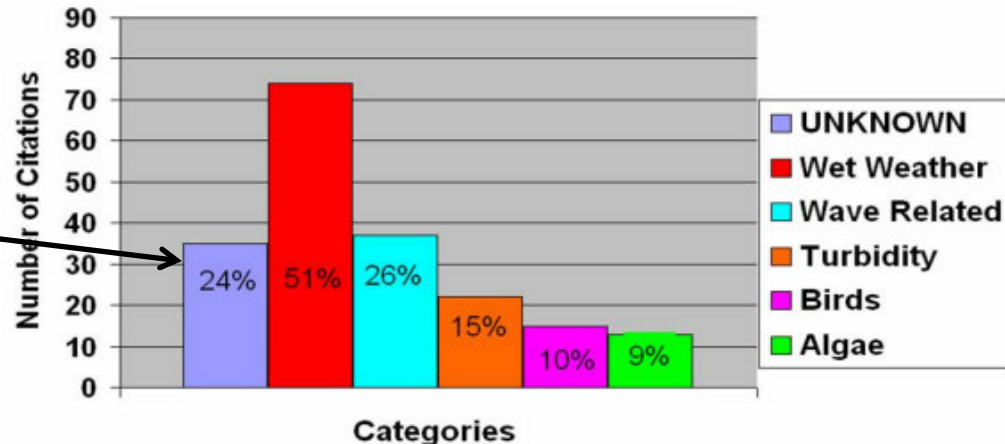
Figure 1.
Sources Identified in the 2006 Beach Survey
For US Beaches in the 2007 Pilot Sanitary Survey



Before Sanitary Surveys
84% Unknown Sources

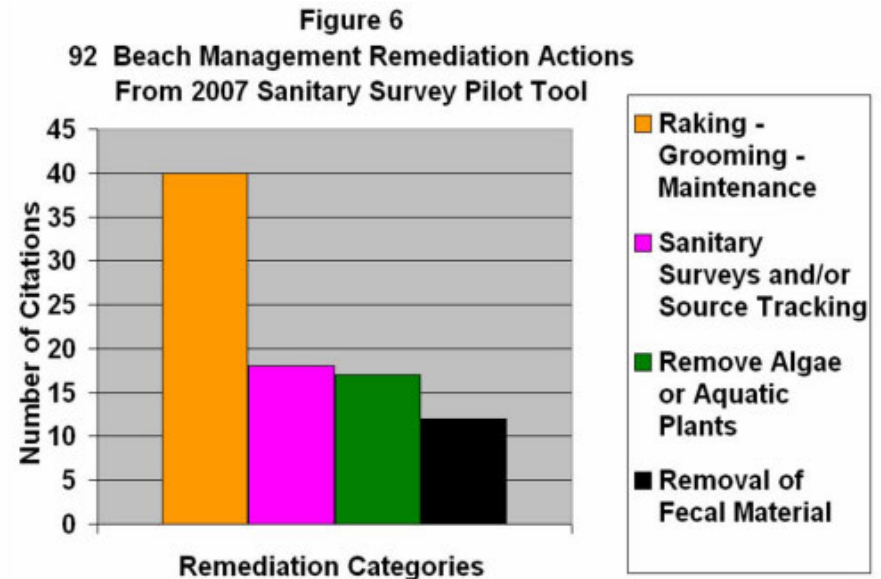
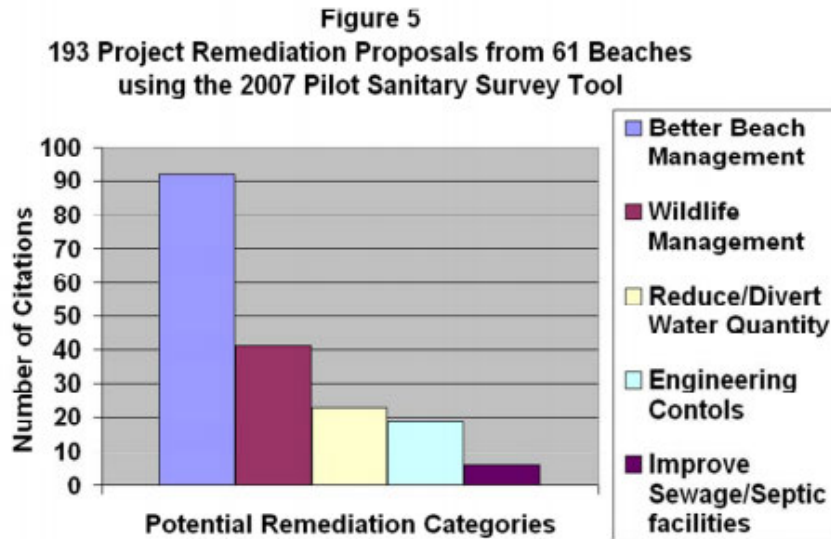
After Sanitary Surveys
24% Unknown Sources

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



s.reynolds@ecsk9s.com

www.fbenvironmental.com

Midwestern Region– Lansing, MI

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

d.ringel@ecsk9s.com



Chill'n with buddy Sky

Western Region– N. California

- ▶ Team Leader – Laurie Leach



l.leach@eck9s.com

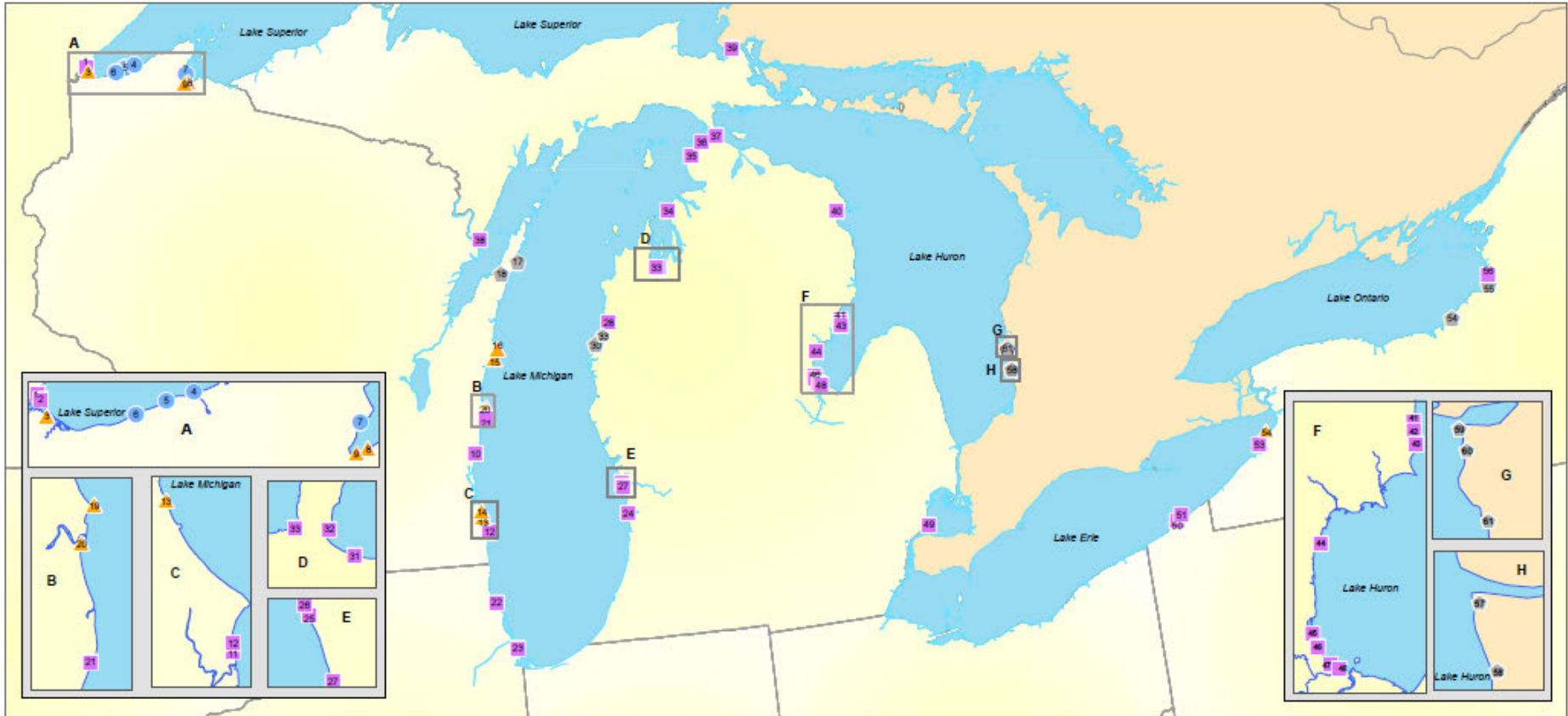
- ▶ Training Coordinator– Gwen Jones



g.jones@eck9s.com



GREAT LAKES BEACH SANITARY SURVEY LOCATIONS



Lake Superior

- Minnesota**
 1 LAKEWALK
 2 NEW DULUTH BOAT CLUB/14TH STREET
Wisconsin
 3 PARKER'S ISLAND INNER BEACH
 4 BRILLE RIVER STATE FOREST BEACH #1
 5 BRILLE RIVER STATE FOREST BEACH #2
 6 BRILLE RIVER STATE FOREST BEACH #3
 7 THOMPSON WEST END PARK BEACH
 8 KOEHLER 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 WOODLAND 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 MA GOON CREEK
 31 TRAVERSE CITY STATE PARK BEACH
 32 EAST BAY PARK BEACH
 33 BRYANT PARK BEACH
 34 NORWOOD PARK
 35 CROSS VILLAGE BEACH
 36 WILDFINNESS 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 TWING RD. BEACH
 44 WHITE'S BEACH
 45 SOUTH LINWOOD BEACH TOWNSHIP PARK
 46 BRISSETTE BEACH TOWNSHIP PARK
 47 BAY CITY STATE RECREATION AREA
 48 WENDNA BEACH
Canada
 57 BAYFIELD MAIN BEACH
 58 BAYFIELD SOUTH BEACH
 59 GODERICH MAIN BEACH
 60 GODERICH ST. CHRISTOPHER'S BEACH
 61 GODERICH ROTARY COVE BEACH

Lake Erie

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

Other

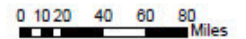
- Michigan**
 39 ST. BART'S RIVER-SUGAR ISLAND TOWNSHIP PARK
 46 PIER PARK

Lake Ontario

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

PRIORITY

- High (purple square)
 Medium (blue triangle)
 Low (yellow triangle)
 Not Applicable (grey square)



Impact of Sanitary Surveys

Before 2007

84% to 90% unknown sources

After 2007

24% unknown sources

Now

< 20% unknown sources at 488 beaches

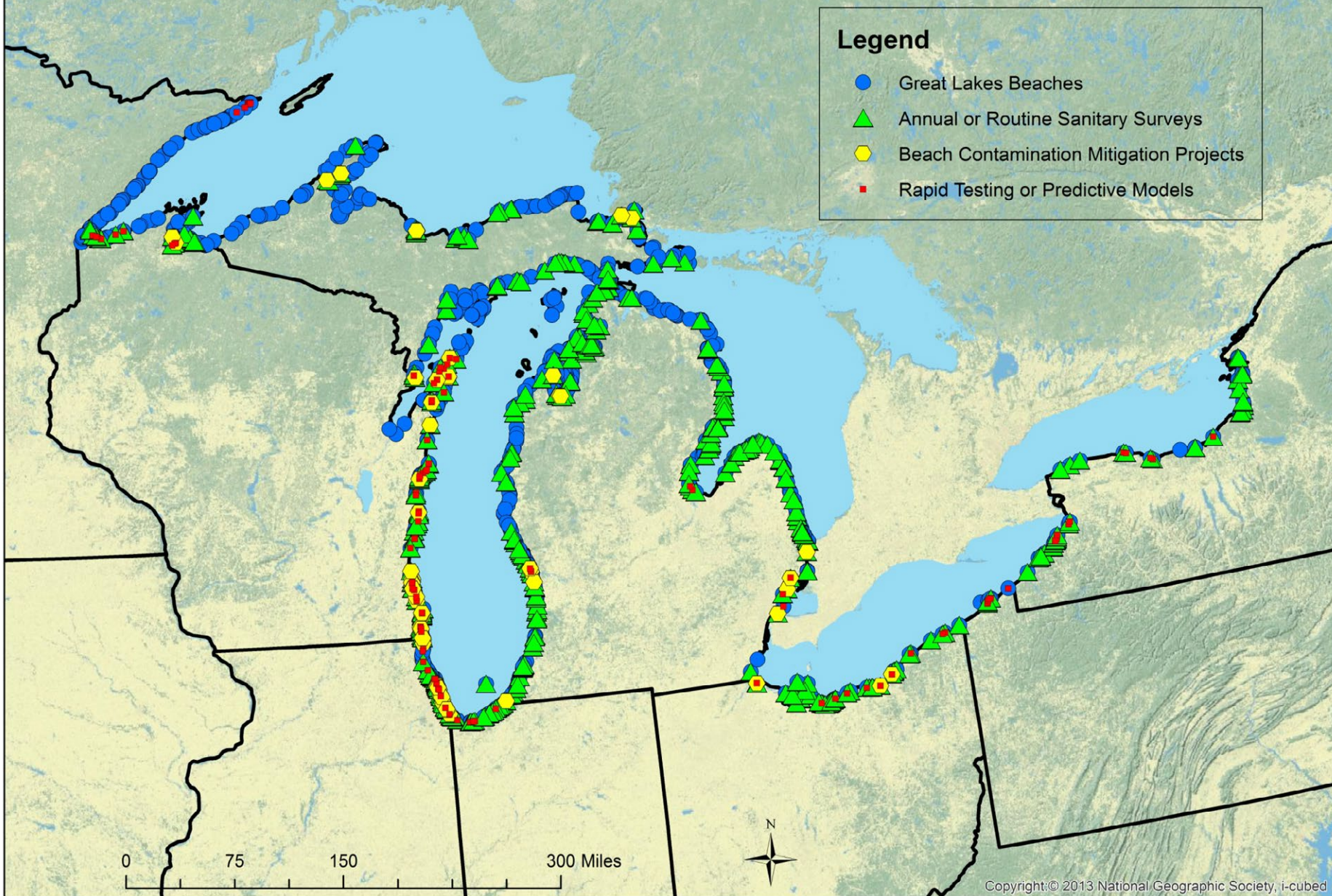
69 beaches mitigation measures

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

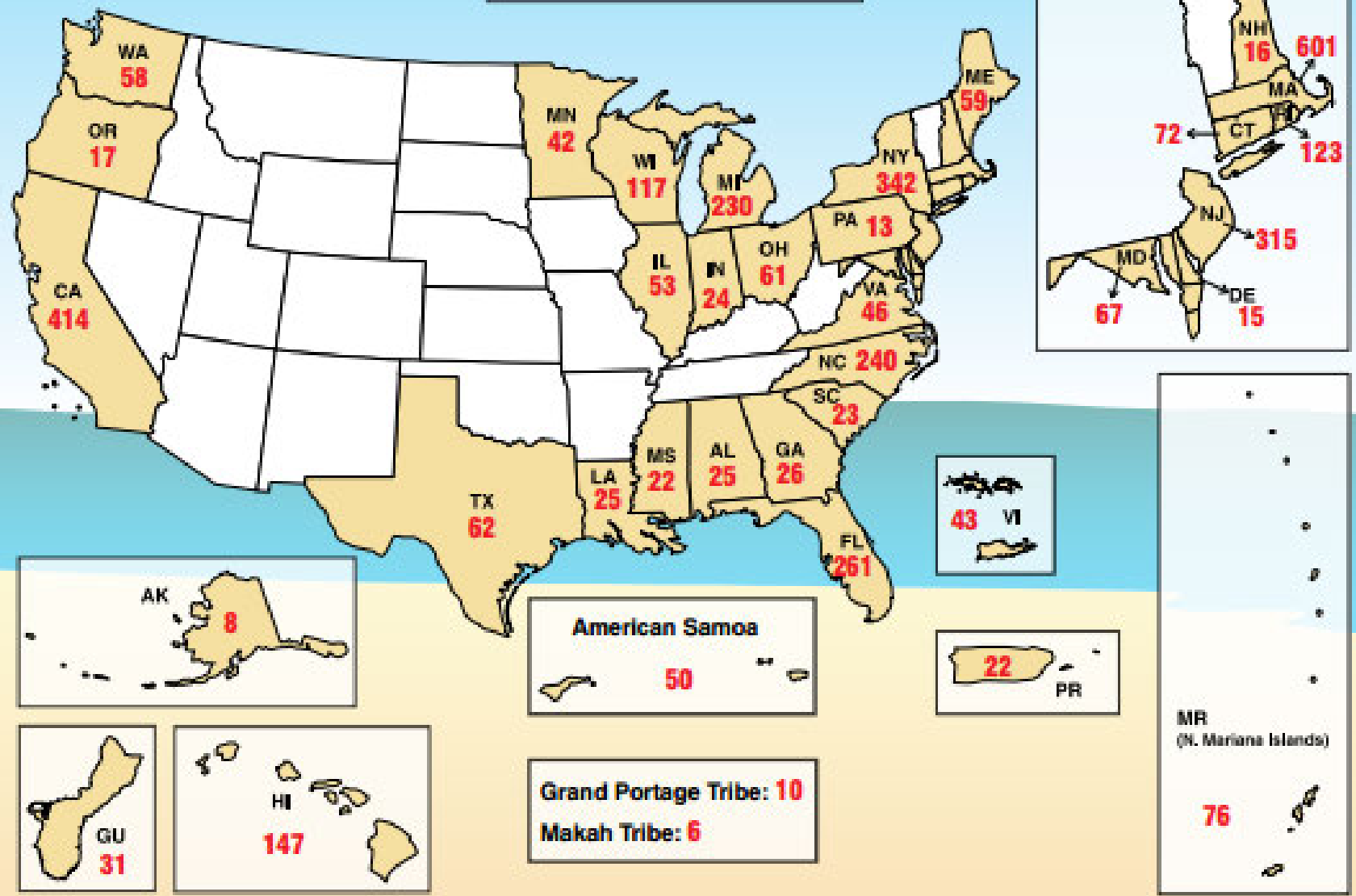


0 75 150 300 Miles



Figure 1: Number of monitored coastal recreation beaches by state

Total = 3,762 Beaches



Consider National Impact of Sanitary Surveys



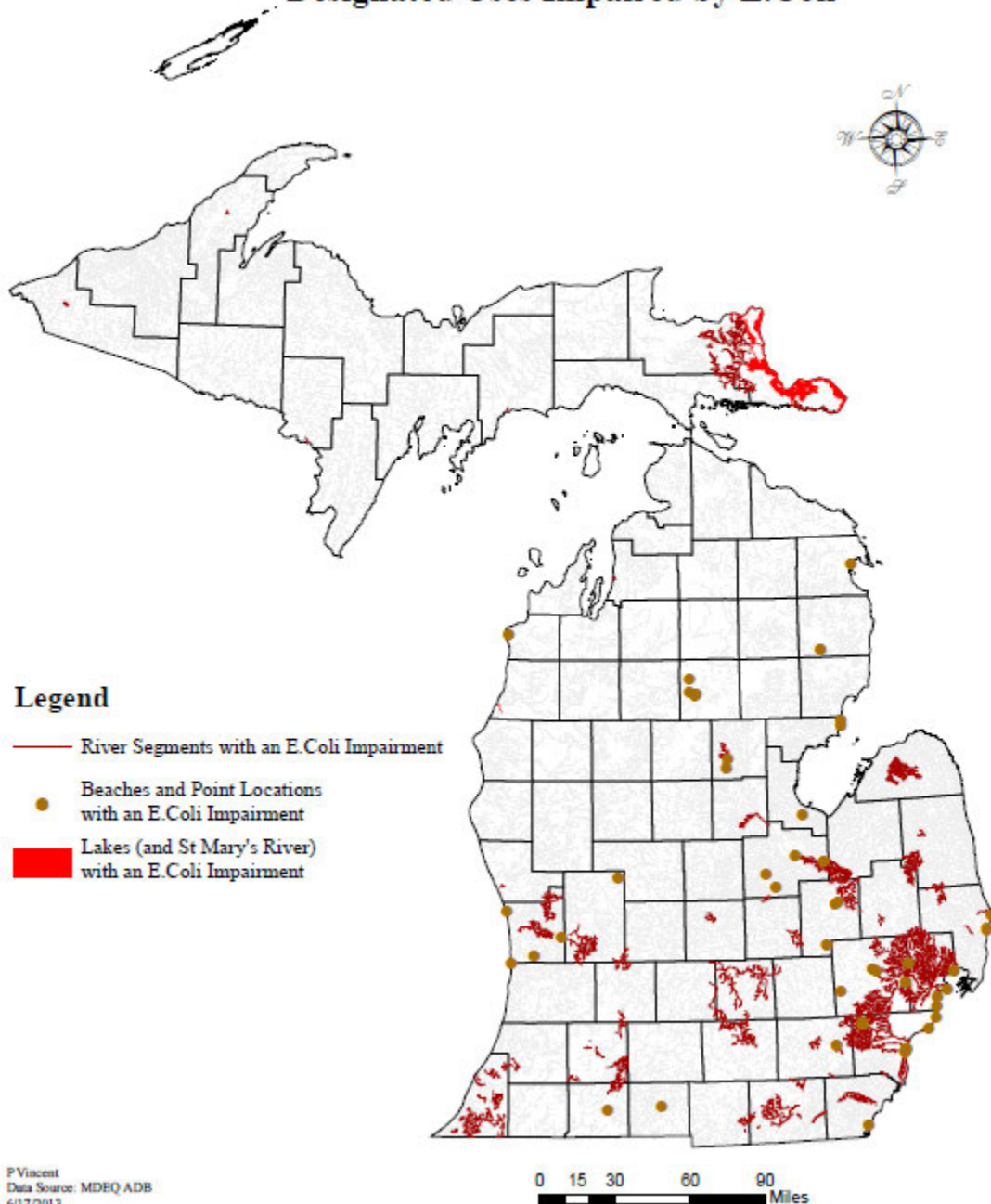
40% of monitored beaches report actions

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

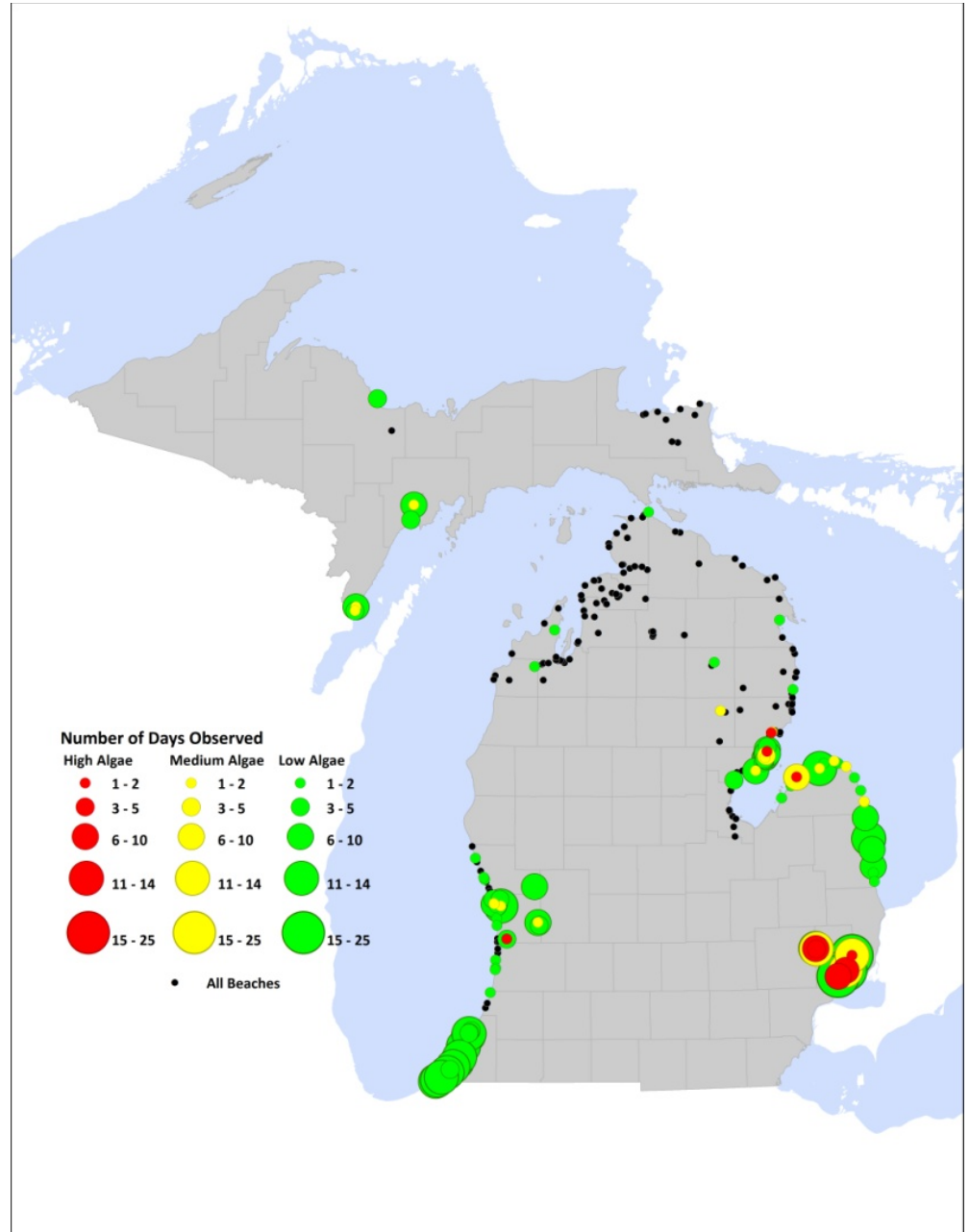
Identifying sources at 17 of 19 GL beaches (89%)

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

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
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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



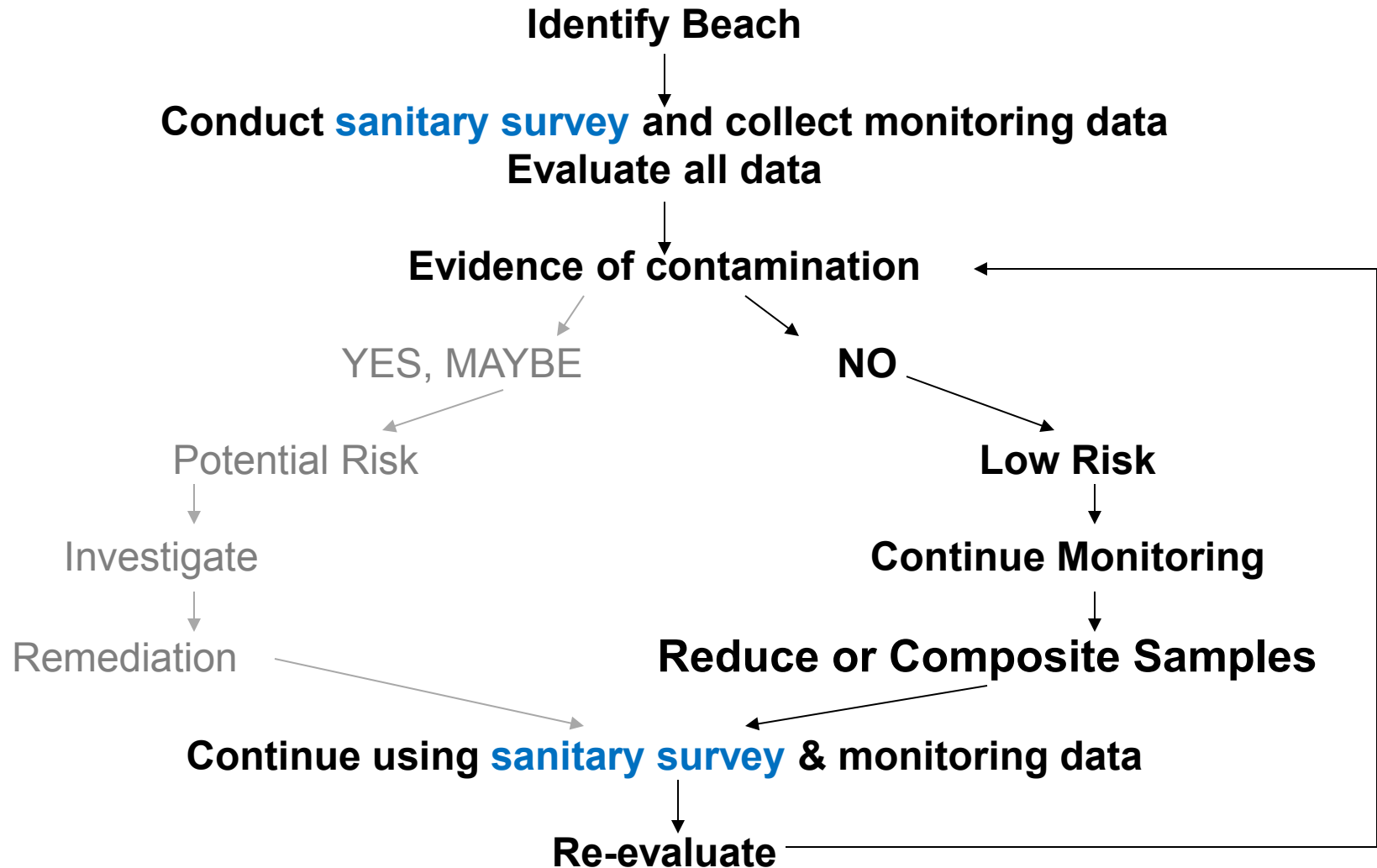
Conduct Sanitary Survey

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

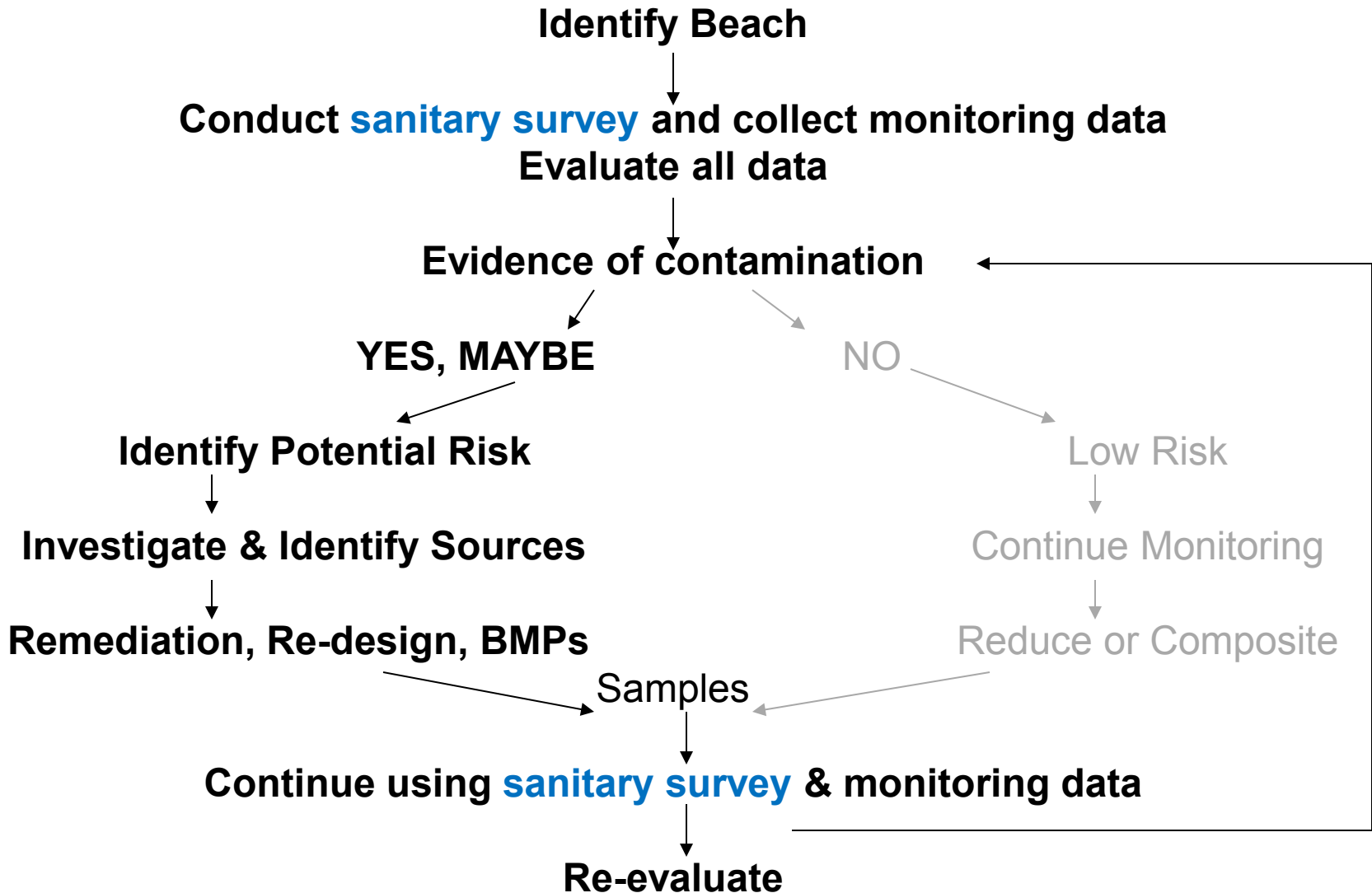


Intense Approach

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=GoCEsXTgKxl>
- 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

- Virtual Beach 3.0 web site
- <http://www2.epa.gov/exposure-assessment-models/virtual-beach-vb>