

Applied Lean Problem-Solving: A State and Local Partnership to Restore Shellfish in Samish Bay

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“How come you aren’t
getting better results?”

“How come you aren’t getting better results?”

- “We’re doing all we can!”
- “We don’t have enough resources!”
- “You don’t understand what we’re up against!”
- “If _____ would just _____, we’d be OK!”

the Legislature	do their part
that other agency	get on the ball
the state	grow up
the locals	fund us
the feds	cooperate
the citizens	

FROM

- Lack of leadership/coordination
- Conflicts over goals & methods
- Lack of accountability
- Lack of resources
- Less than best use of resources

TO

- Unified leadership
- Unified plan
- Accountability
- New tools
- Continuous improvement

By using

- Sponsorship
- Problem-solving thinking
- Not dancing around anything
- Empowering the front-line
- Experimentation & learning loops

Case Study: Samish Shellfish

- Background
- Lining up the Dominoes
 - The Shellfish Coordination Group (“the state family”)
 - Partnership with Skagit County & the CD
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 - The First 90 Days
 - The Second 90 Days
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Pollution Identification & Control (PIC)

FECAL COLIFORM BACTERIA

MANURE

NATURAL SOURCES

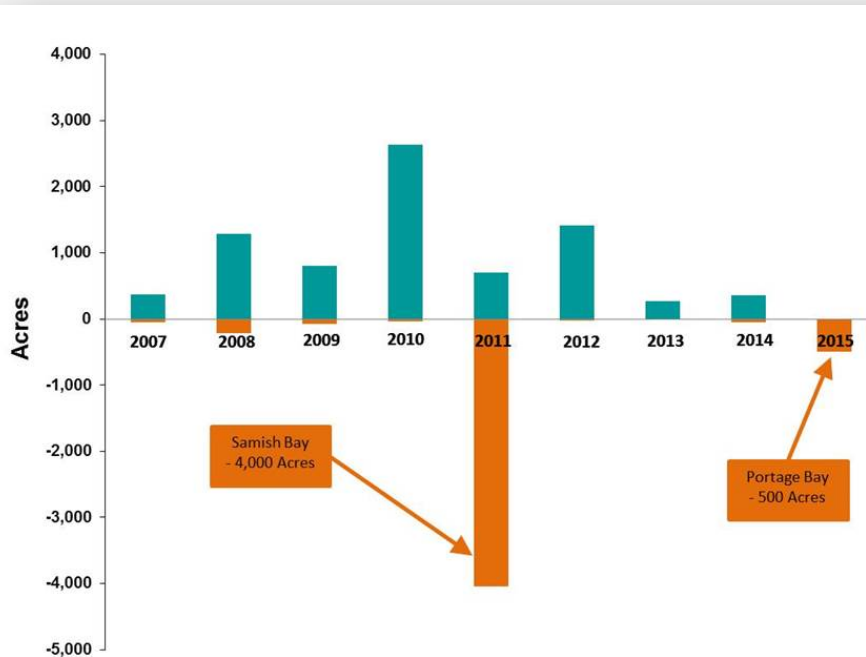
SEPTICS & SEWERS

2.5mi
5km

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNE

Background: *Overall water quality is improving*

Puget Sound Areas
Improved or Declined
2007 – March 2015



- Long term trends show improved water quality
- Poor water quality in Samish Bay and Portage Bay have masked this success



A healthy shellfish industry means:

- Jobs and income
- Clean water & healthy habitat
- Public safety

No other state has done what we have!

Case Study: Samish Shellfish

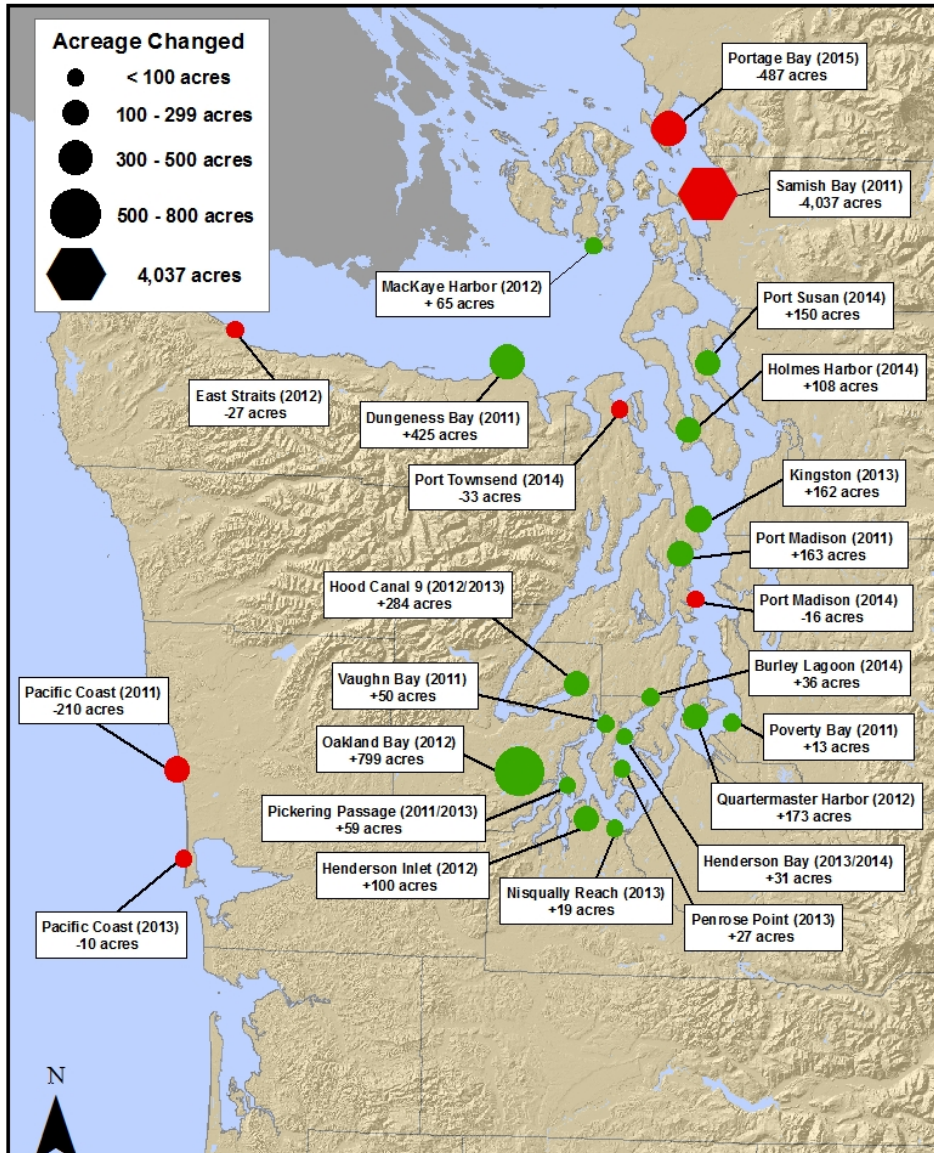
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Shellfish Coordination Group

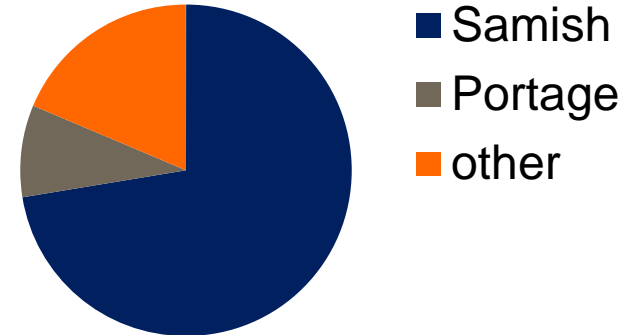


Why focus on Samish?

Washington Shellfish Growing Area Reclassifications: 2011 - April 2015



Total acres needed



- Local engagement
- No clear answers
- Focused effort could help us statewide

Problem-Solving Thinking

Winning a Shellfish Upgrade for Samish Bay **DRAFT**

Recommend printing on 11x17 paper

BACKGROUND

- Shellfish harvesting is an important part of the economy and culture around Samish Bay.
- Fecal coliform** bacteria contamination has been an ongoing problem for decades
- Near-shore septic system fixes in 1990s led to improved conditions
- Rain event in April, 2008 led to shellfish bed closure; continued storm sampling revealed true scope of the problem
- Clean Samish Initiative (2009):** 20+ partner organizations (Local, state, fed, tribes, ag groups, shellfish growers) in locally-led effort
- Nearly 4000 acres of Samish Bay downgraded from Approved to Conditionally Approved in April, 2011

CURRENT STATE (based on input from Clean Samish Initiative)

TOOLS: Pollution Identification and Correction (PIC)

Program and key tool of "source identification"

- Common-sense approach to locate pollution sources
- Use water quality data to locate "hot spots"
- Work with landowners in area to find and fix problems
- Designed to be cooperative
- Uses many agencies with different expertise

Ecology Inspections

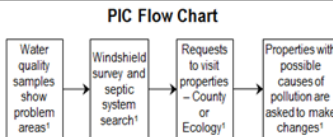
- 350 initial and follow-up inspections
- 67 warning letters, 1 Notice of Violation, 10 Administrative Orders, 5 Notices of Penalty

Pollution Correction - Livestock

- Technical assistance to 76 landowners
- 51 farm plans (Structural practices to contain sources, management recommendations to protect properties)

STATUS after 5 years of efforts:

- Over 100 agricultural BMP projects have been completed
- About 110 septic system repairs
- Peak fecal coliform loadings (number of bacteria delivered to Samish Bay) during storms down 5-10 fold since 2009
- Freshwaters still don't meet water quality standards
- Shellfish bed closures still occurring



- "Source identification" has worked in smaller basins
- Samish basin is much larger & more complex...
- ...So methods were modified for local conditions
- Is this an opportunity?**

Partner Roles:

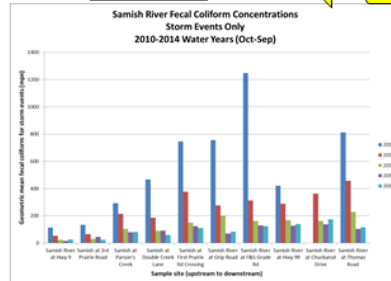
- Skagit County**
 - Project Lead
 - PIC Program
- Skagit Conservation District**
 - Conservation Plan development
 - Education/Outreach
 - Liaison with WSCC
- Samish Indian Nation**
 - Thomas Creek WQ & restoration
- WA State Department of Ecology**
 - Landowner Inspection/Referral
 - Enforcement
- WA Department of Health**
 - Shellfish growing area regulation
- Puget Sound Partnership**
 - State Agency Coord./Shellfish Init.
- US EPA**
 - Funding, technical support
- Many other state, tribal, NGOs

Year-to-Year improvement:

- 2010-2011 = 50% improvement
- 2011-2012 = 50% improvement
- 2012-2013 = 25% improvement
- 2013-2014 = 0 % improvement

This is a typical pattern!

- "We've done all the easy stuff."
- Often, an initial approach - "Plan A" - goes well, but finishing requires a different approach... "Plan B."



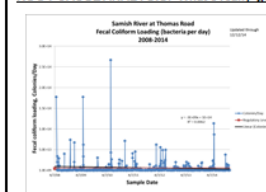
TARGET: Return Samish Bay Shellfish Growing Area to "Approved" status and bring freshwaters of the Samish Bay Watershed into compliance with state water quality standards for fecal coliform.

- This is a current snapshot of some preliminary thinking
- It needs major input from others, particularly those out in the field
- Our goal is to work toward a common, shared understanding

Owner: Julie Horowitz
Lead, Shellfish Coordination Group

Reviewer: Maia Bellon
Date: 2/10/15 Version 3-4

ROOT CAUSE ANALYSIS: What's really going on?



% of rain events that lead to "confirmed" closures:

- January: 0/3 = 0%
- February: 0/2 = 0%
- March: 4/6 = 67%
- April: 3/5 = 60%
- May: 4/4 = 100%



Problems are 100% seasonal

- All rivers see a "fall flush" (though levels are worse here)
- Spring problem causes more closures & is unique to Samish (& Whatcom)

The upcoming Spring season is an opportunity to define and test "Plan B."

What if we could launch an expanded, comprehensive effort to find out on the ground the root causes of the remaining problems... AND how to fix them?

We need to get out and find answers to these "root cause" questions:

- Exactly where and how is fecal coliform bacteria getting into the water?
- Do we have practices that effectively prevent this from occurring?
- Are there better practices out there? (Cheaper, easier, more likely to get used?)
- Do our "fixes" stay fixed? (If not, can we figure out how to address that?)
- Can we collaborate better between and among all state and local partners?
- Are there additional resources we haven't tapped?
- Are there new ways we could do our work to expand our reach and impact?
- Are there ways we could win greater trust & collaboration from landowners?

HYPOTHESIS: The local experts on the front lines of this problem - working together, and with free reign to test innovative, out-of-the-box solutions - could discover how to take this effort the last mile & win an upgrade.

FUTURE STATE: A short-term, flexible, data-driven improvement effort, run by a joint team of front-line staff and landowners

January:

Gain consensus on problem, root cause & solutions

February:

- All partners agree on goals, measures & plan
- Identify all "hotspots"
- In prep: knock on all the right doors, get support

March through May (meeting weekly):

- Quickly put solutions in place to address identified problems
- Review data to make sure solutions are working
- If not, adjust & put improved solutions in place
- Keep improving the approach weekly

June:

Make sure effort worked, adjust for fall; make sure new plan is sustainable

COUNTERMEASURES / Next Steps

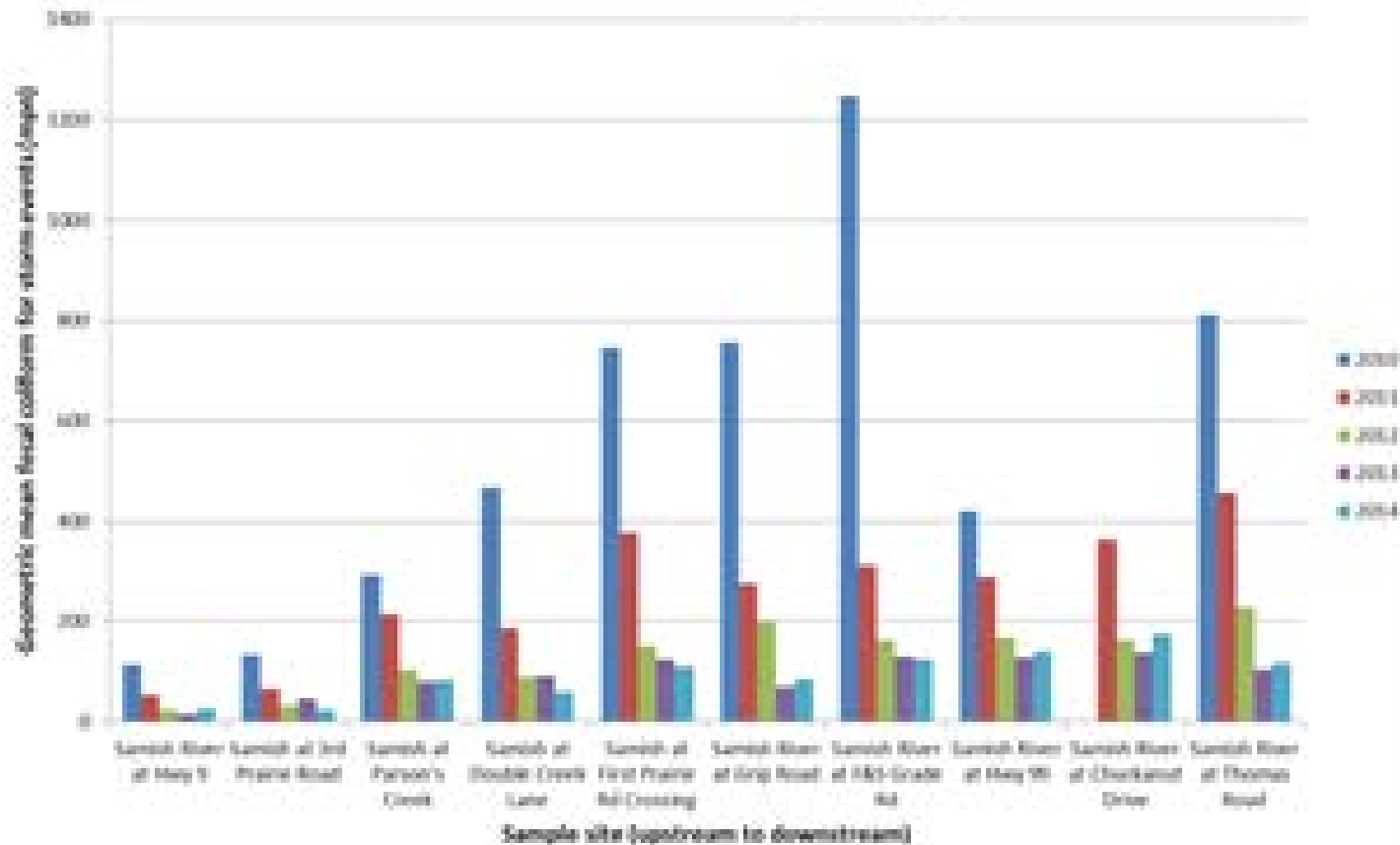
WHO (lead in bold)	WHAT	START	END	DONE
Julie , SCG, County, CD	Gain consensus 1) on the problem & 2) on plan to move forward	12/19/14	2/5/15	✓
Julie , Dan, Carolyn, Stew	Plan multi-day workshop & kick-off event	1/12/15	2/20/15	
Stew , team, sponsors	Develop plan (at workshop) for "stepped up" improvement effort	2/25/15	2/27/15	
Karen , team	Carry out plan, including weekly improvement cycle	3/2/15	6/2/15	
Team , Dan, Carolyn, SCG	Report back on results, recommend next steps		6/4/15	

FOLLOW-UP / CONTINUOUS IMPROVEMENT

[Team needs to develop a plan to make sure their identified solutions are really working, and adjust accordingly if they are not.]

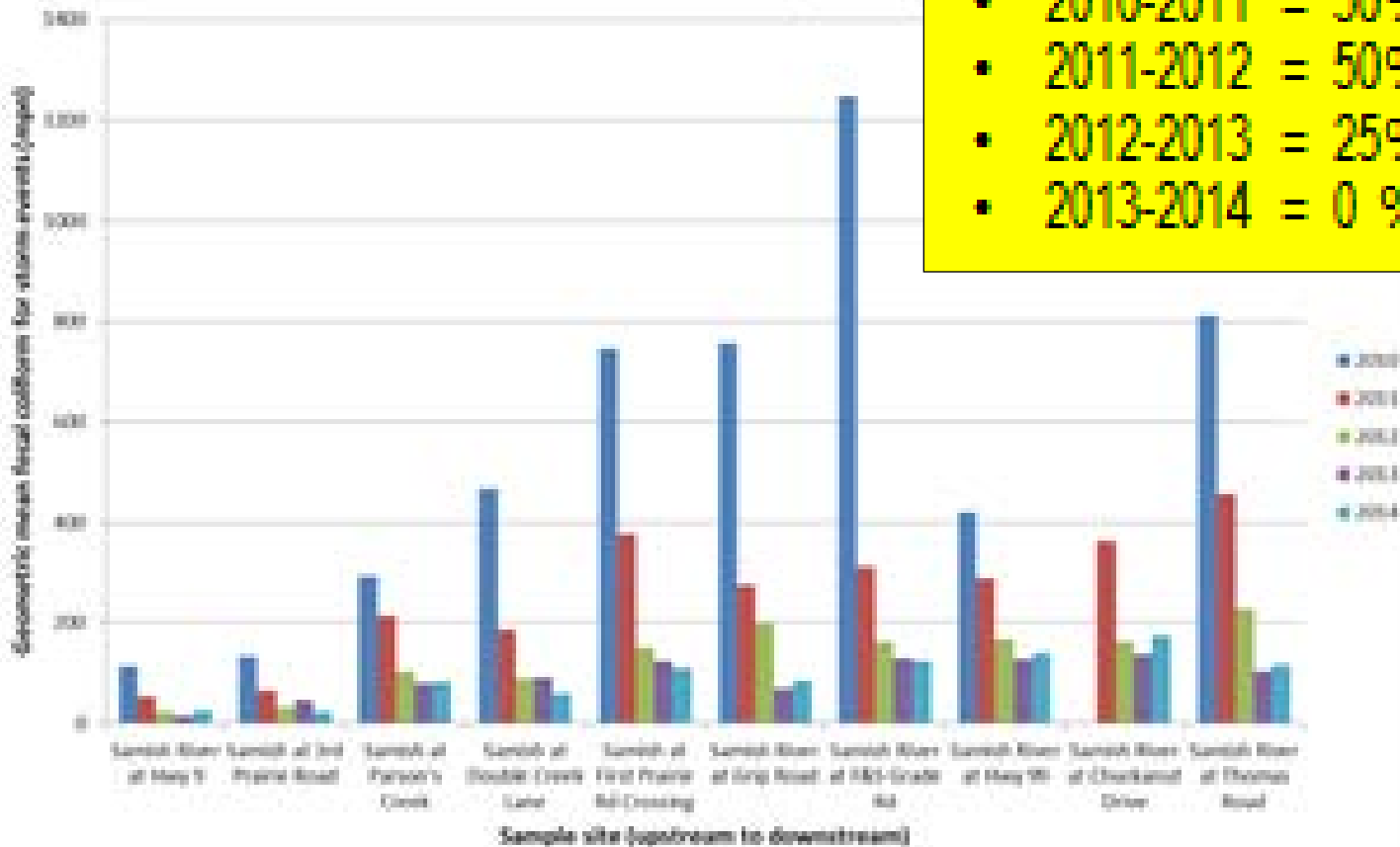
Problem-Solving Thinking

**Samish River Fecal Coliform Concentrations
Storm Events Only
2010-2014 Water Years (Oct-Sep)**



Problem-Solving Thinking

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State & Local Partnership?



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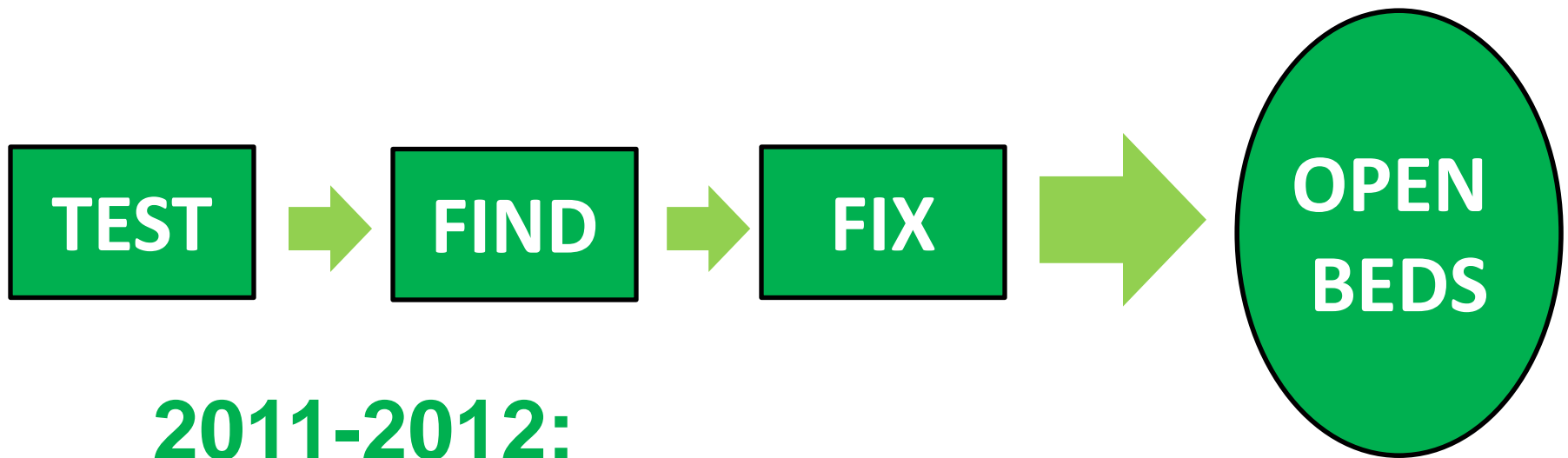
“Mud on their boots”



Skagit
Conservation
District



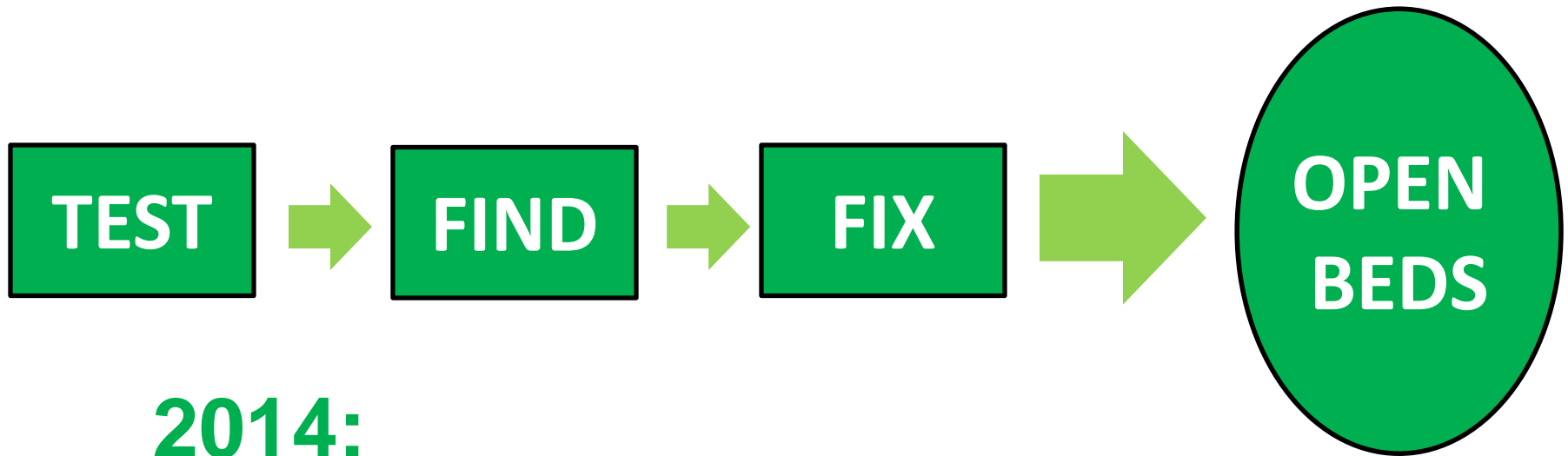
Clean Samish Initiative



2011-2012:

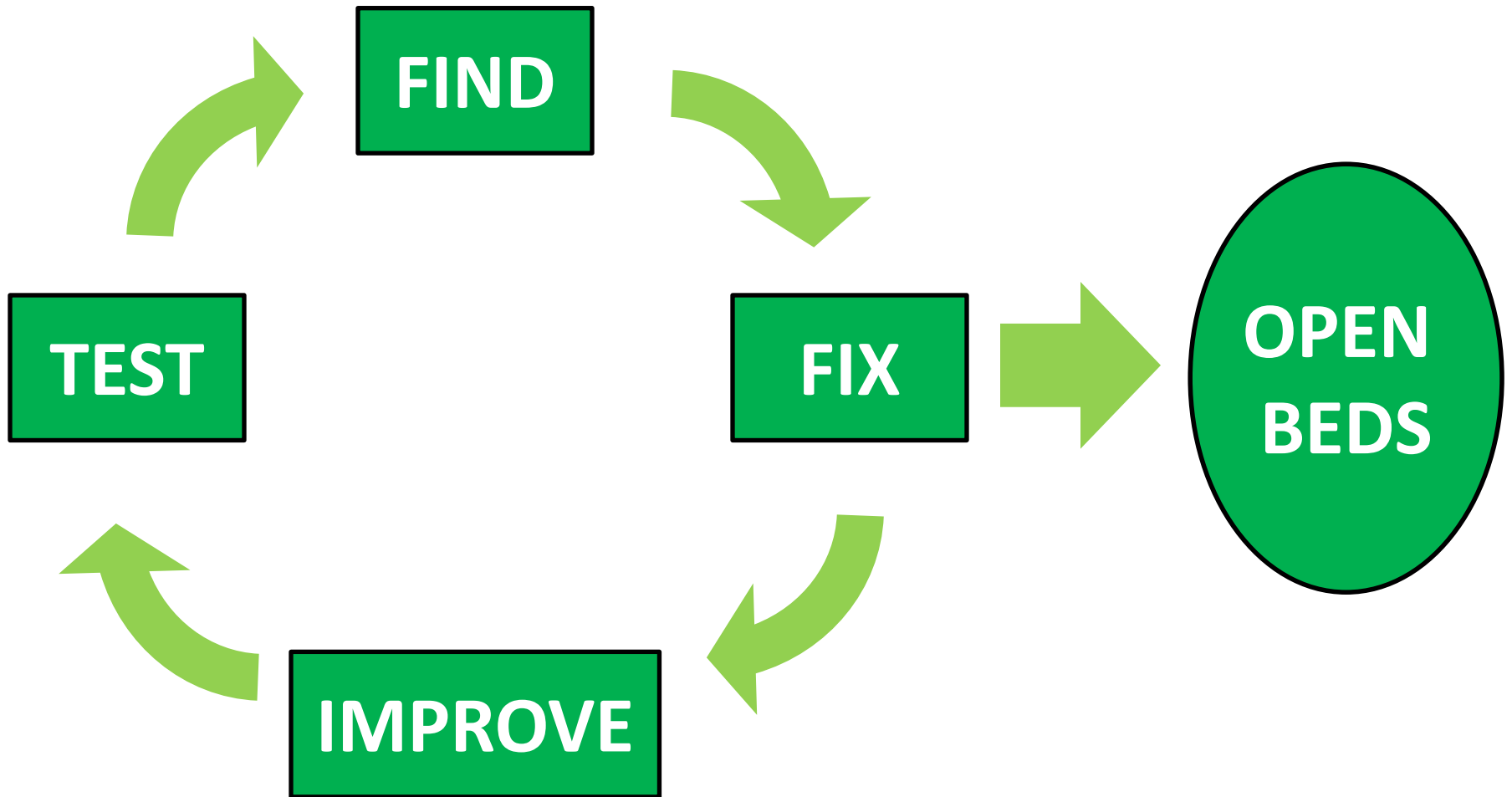
- Fixed most of the problem

Clean Samish Initiative



2014:

- Hardest problems left
- Little or no progress



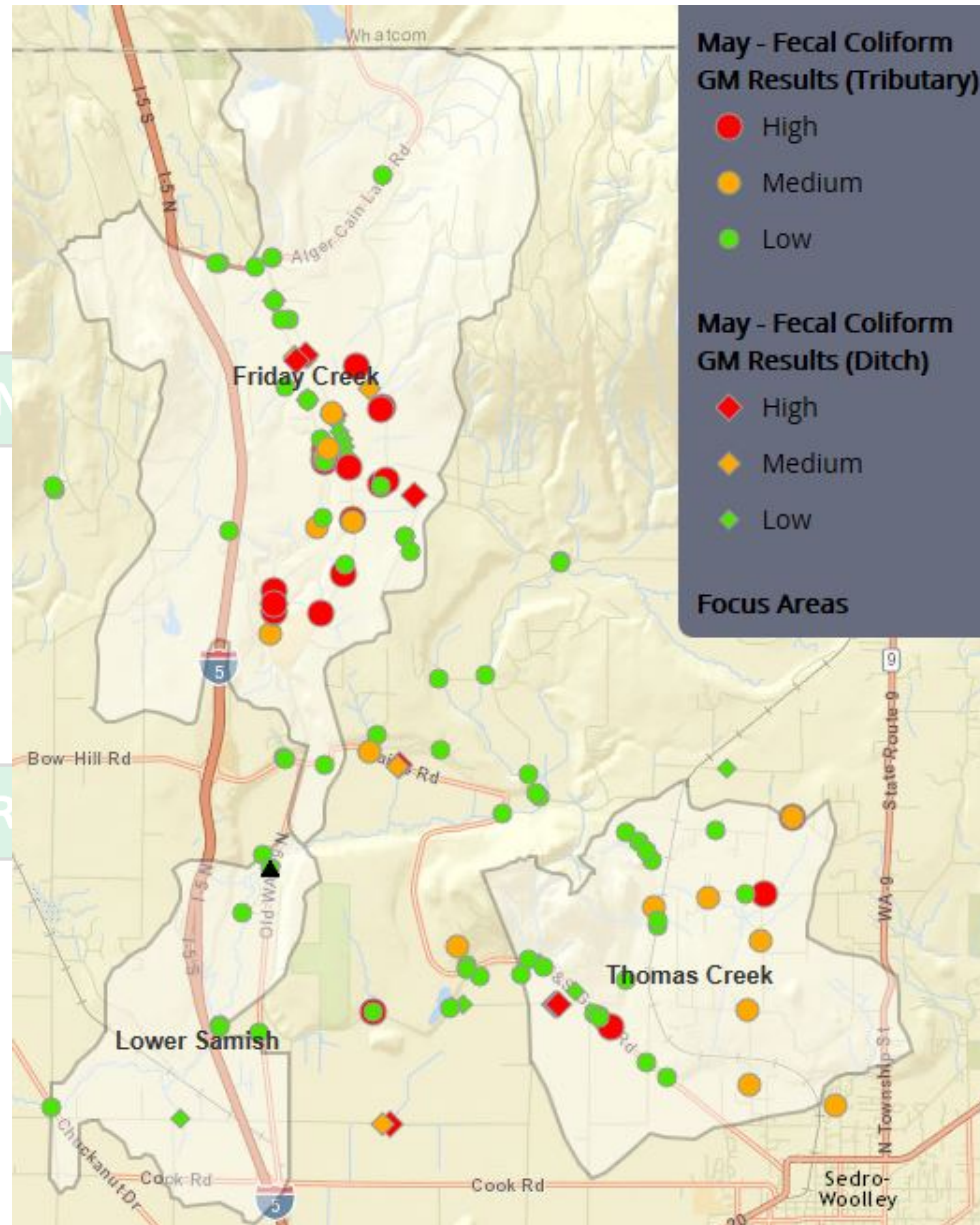
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What we did

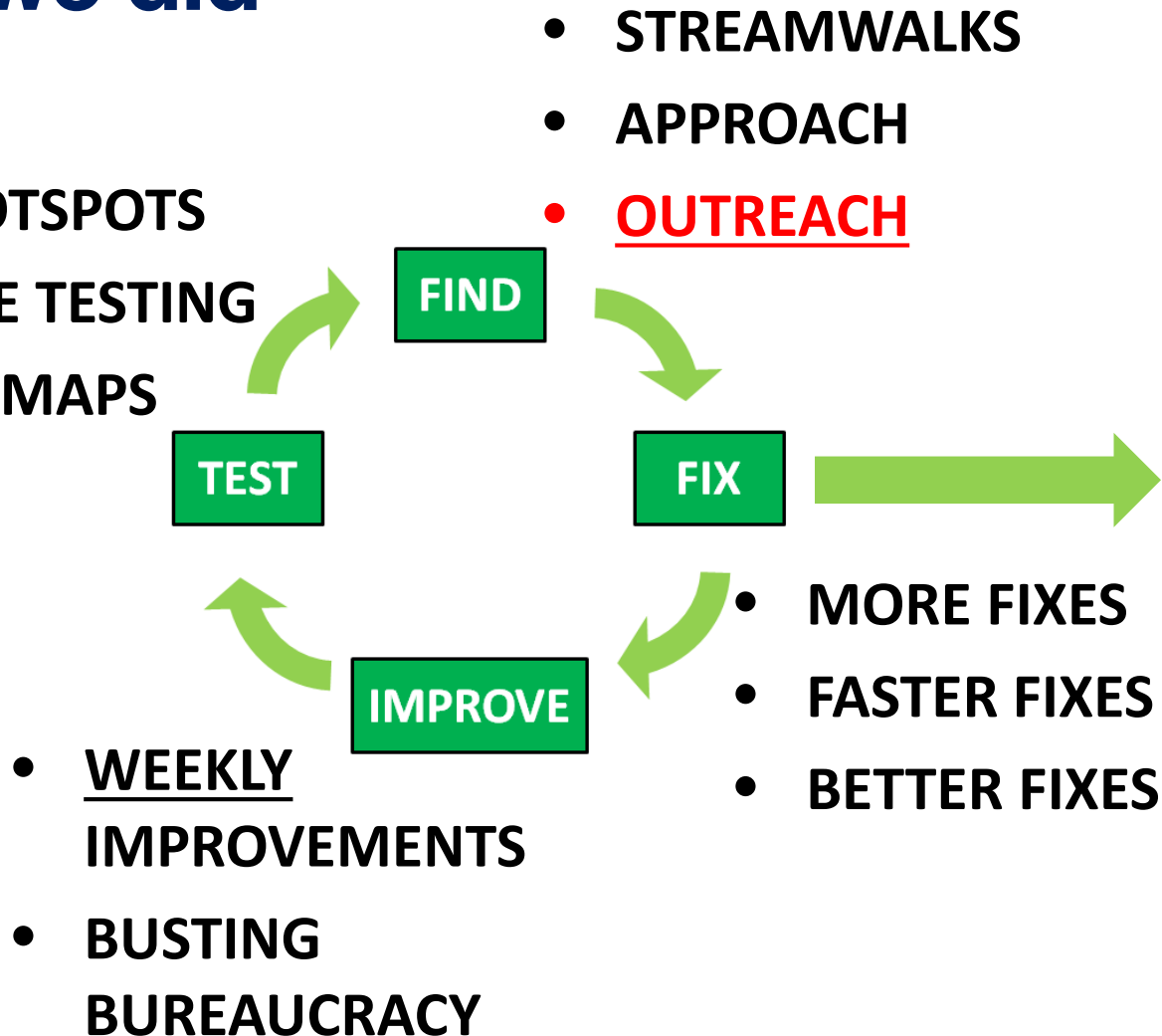
- **HOTSPOTS**
- **MORE TESTING**
- **NEW MAPS**

TEST



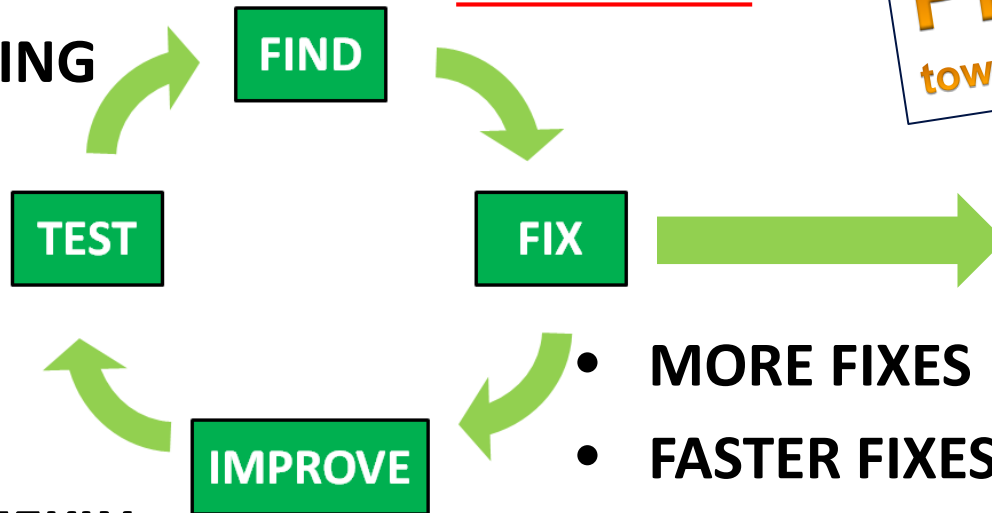
What we did

- ID HOTSPOTS
- MORE TESTING
- NEW MAPS



What we did

- ID HOTSPOTS
- MORE TESTING
- NEW MAPS



- STREAMWALKS
- APPROACH
- OUTREACH

- WEEKLY IMPROVEMENTS
- BUSTING BUREAUCRACY

- MORE FIXES
- FASTER FIXES
- BETTER FIXES

Impacts at the County Level

Finding & fixing bacterial sources:

- Best management practices installed
- Problems identified in streamwalks
- Septic fixes

Finding & fixing bureaucratic obstacles:

- Progress on access issues
- Beefed up approach on septics
- Faster turnaround on fixes (solar fencing idea)

Impacts at the State Level

- Opportunities for collaboration – and tough conversations – have improved our work
- Local teams welcome our involvement
- We can impact problems that initially seems “beyond our control”
- Lean problem-solving works... even on tough, complex problems with real conflicts

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