

Illicit Discharge Detection and Elimination: State/Local Partnerships

Part 2: NHDES's program



Stormwater Management in Cold Climates

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Andrea Donlon, NHDES

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 - Methods
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Context of DES Watershed Assistance Section's work

- DES has been conducting investigations in
 - Coastal watershed since 1996
 - Merrimack watershed since 2002
 - Focus on bacteria sources
 - Efforts fall under *N.H. Nonpoint Source Management Plan* (October, 1999)
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Management Plan (2000)

Water Quality Action Plans

Illicit Connections in Urban Areas

WQ-4A Establish on-going training and support for municipal personnel in monitoring storm drainage systems for illicit connections.

WQ-4B Assist Seacoast communities in completing and maintaining maps of sewer and stormwater drainage infrastructure systems.

WQ-4C Eliminate illicit connections in Seacoast communities.



Storm Water Phase II Final Rule

Required minimum control measures

1. Public education and outreach
2. Public participation / Involvement
3. Illicit discharge detection and elimination
4. Construction site runoff control
5. Post-construction runoff control
6. Pollution prevention / Good housekeeping

Methods

- Shoreline surveys
 - Investigations
 - Grant/technical support
 - Outreach
 - DES enforcement referrals are rare
-

Shoreline surveys



Nashua River, Nashua NH

Surveys can be done on foot or by boat.
They are conducted in dry weather and low tide.



Back Channel

We look for all outfall pipes and any sources of pollution.



Souhegan River, Merrimack NH

**We document outfall type, size, location, appearance.
We make note of flow, odors, staining, and floatables.**



Nashua NH

A GPS unit is very helpful for keeping track of location.



Samples are collected from all pipes discharging during dry weather.

DES collects samples mainly for *E.coli* bacteria, but there are a variety of other methods. See NEIWPCC IDDE manual.



Visual signs of pollution are noted.



Oily sheen. Spit Brook, Nashua NH

Example of granite box outfall and grey mat forming at discharge.



North Mill Pond, Portsmouth NH

Toilet paper is
generally a good
sign that
something is
amiss...

...sampling not
necessary.

Franklin NH



Corn and carrots, not typical stormwater components...



Hassel Brook, Nashua NH

Conducting shoreline surveys gets you in tune with other water quality issues that may be present.



Souhegan River, Milford NH



Laconia NH



Souhegan River, Milford NH

Investigations

After an outfall pipe tests high for bacteria, DES follows up the drainage line to begin to locate the source.



This involves pulling drain manholes, checking flow amounts, and grabbing samples.



Route 3 in Merrimack NH



Once the general area is located, smoke testing can identify the specific source.

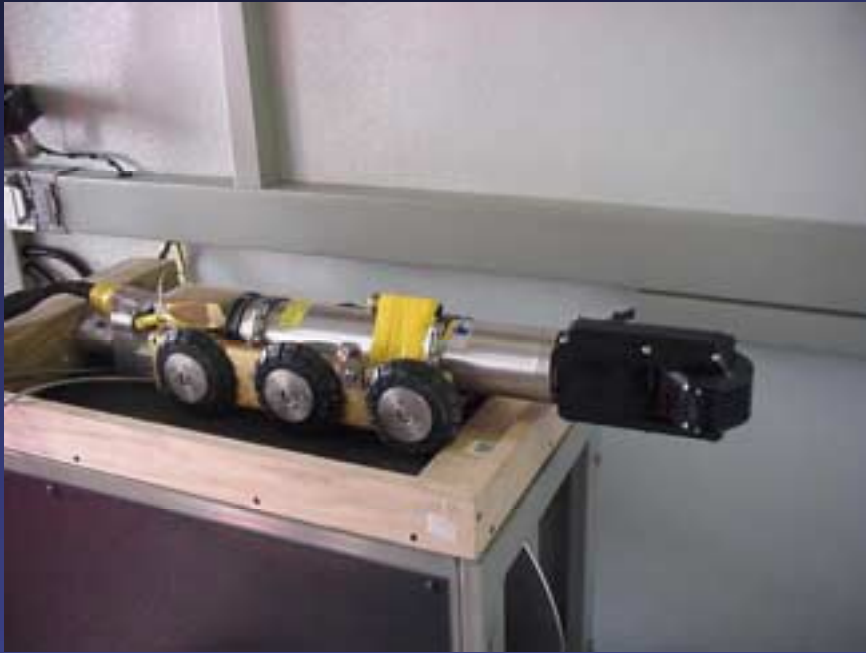


Epping NH

Dye testing can confirm the source.



Several municipalities also use video inspections.



Photos courtesy of Nashua WWTF

Grant/technical assistance

- DES works with town/city to eliminate source.
 - DES conducts follow-up sampling.
 - DES offer grant assistance (coastal watershed only).
 - Enforcement is rare.
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Grants

Coastal Illicit Discharge Elimination and Storm Drainage System Mapping

- NHEP is funding source. DES administers.
 - Coastal municipalities are eligible.
 - Matching funds are required.
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Coastal Grant Recipients

Storm system mapping

- Dover
- Durham
- Exeter
- Farmington
- Hampton
- Newmarket
- Portsmouth
- Seabrook
- Somersworth

Illicit discharge remediation

- Dover
 - Exeter
 - Hampton
 - Portsmouth
 - Rochester
 - Somersworth
-



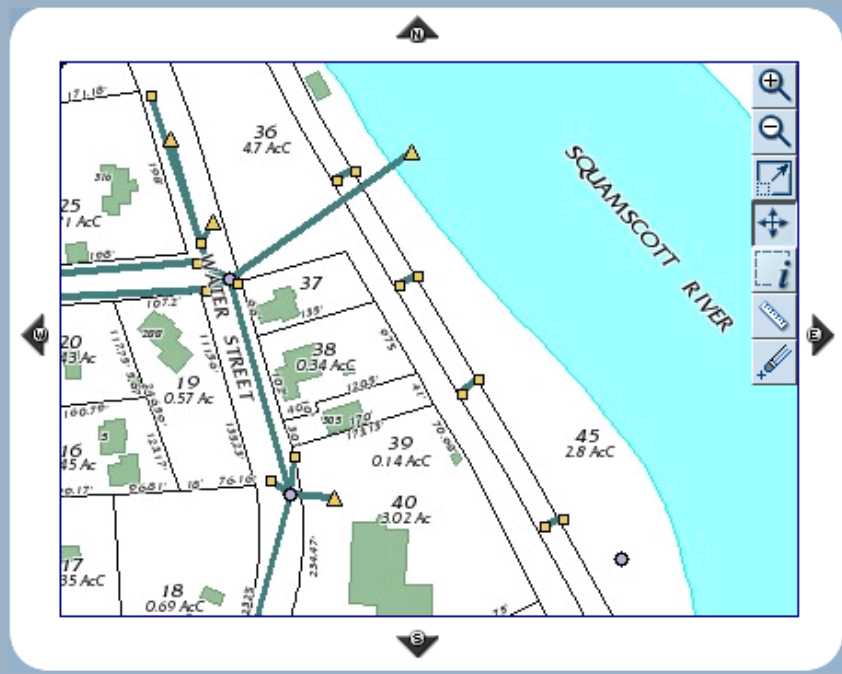
town of
exeter
new hampshire

MAPS
online

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Map Layers

- ☐ index map
- ☒ town boundary
- ☒ taxmap labels
- ☒ text leaders
- ☒ basemap labels
- ☐ hydrants
- ☐ sidewalks
- ☐ poles
- ☐ swimming pools
- ☒ catch basins
- ☒ drain manholes
- ☒ storm outlets
- ☐ sewer manholes
- ☐ water system
- ☒ storm sewer
- ☐ sanitary sewer
- ☐ misc. sewer
- ☒ water bodies
- ☐ aquifers
- ☐ flood zones
- ☐ prime wetlands
- ☒ buildings
- ☐ zoning
- ☒ parcels



Map Size: 400 x 300

Zoom To:
Quick Zoom

[Print Map](#) [Help](#) [FAQs](#)

[Find Property](#) [Find Abutters](#) [General Search](#)

Enter Address:
 Go

or

Enter Owner:
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Watershed Assistance Grants

- Funded with money from EPA under Section 319 of the Clean Water Act
 - Grants must address or prevent nonpoint source pollution problems
 - Applications are due in late November of every year
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For more information on grants

- WAS grants web page:
www.des.state.nh.us/wmb/was/grants.htm
 - 2000 and 2001 final reports to NHEP for coastal grant projects :
www.des.state.nh.us/wmb/was/npspubs.htm
 - Watershed Assistance Grants Database :
[www.des.state.nh.us/OneStop/Watershed NP SGrants Query.aspx](http://www.des.state.nh.us/OneStop/Watershed_NP_SGrants_Query.aspx)
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Outreach

- DES hosted 2 coastal workshops on IDDE, with NHEP funding.
 - UNH Technology Transfer Center hosted same workshop for Merrimack municipalities.
 - Material presented:
 - Phase II, IDDE requirements
 - How to detect and address illicit discharges
 - Enforcement issues
 - All attendees received NEIWPCC manual and other resources.
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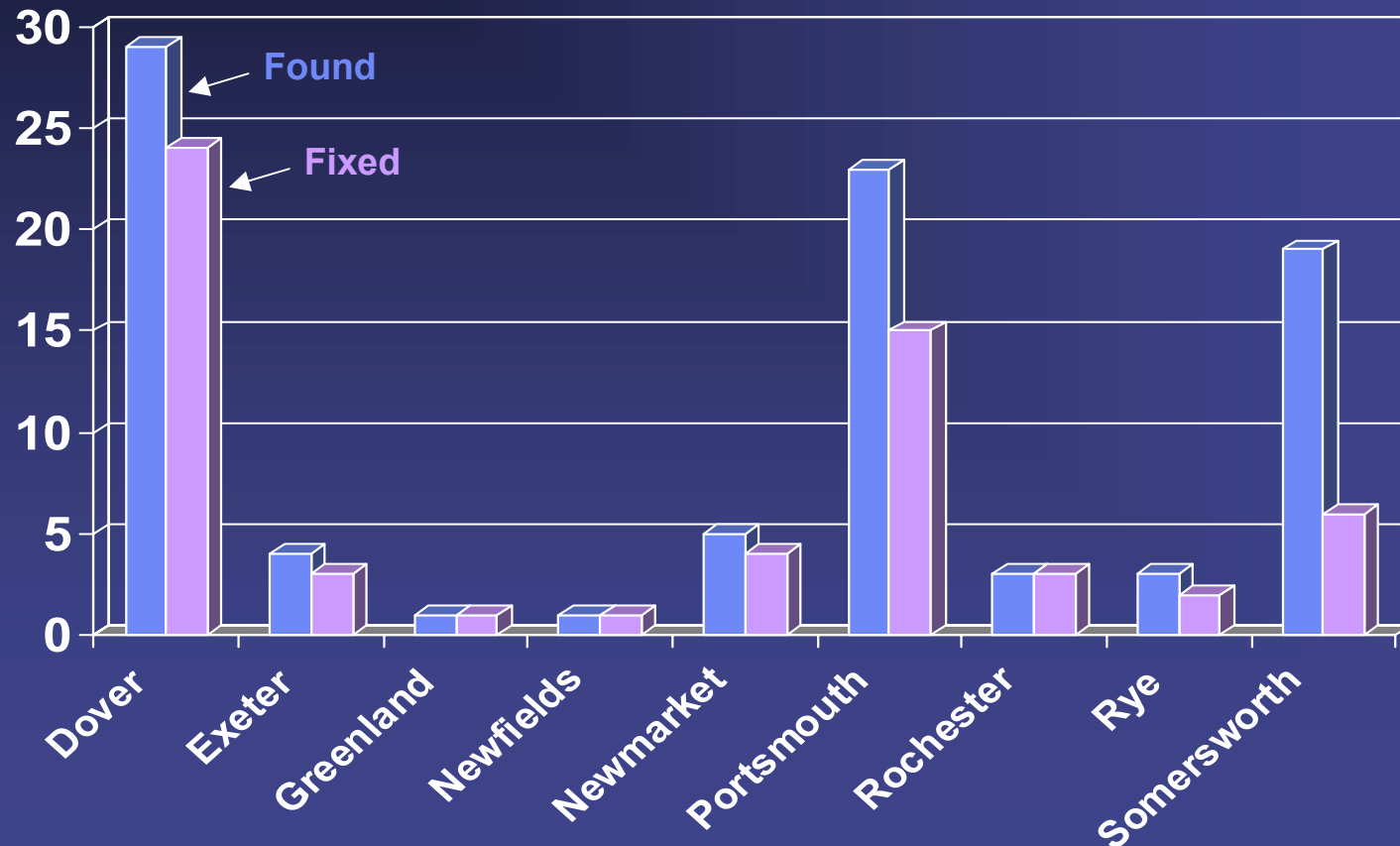
Status of DES work

■ Coastal watershed

- Shoreline surveys mostly complete
- Follow-up work with municipalities continues



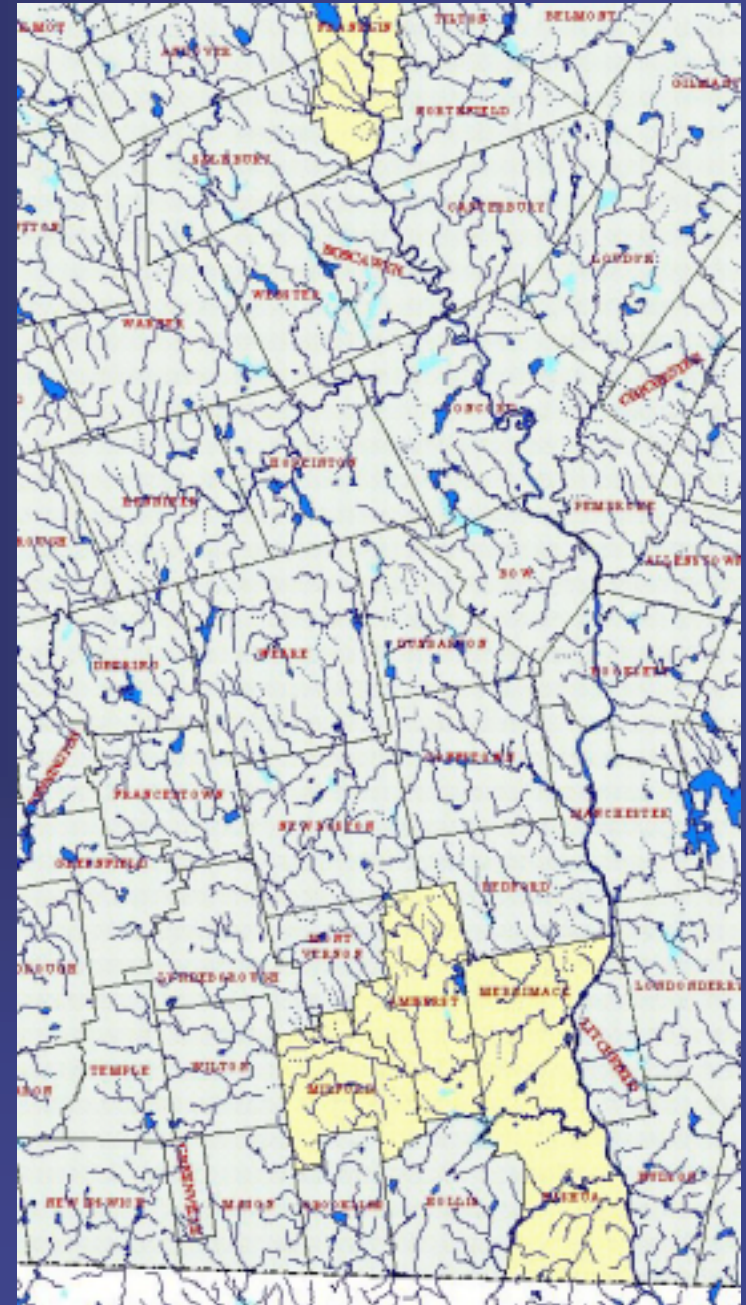
Coastal NH illicit discharges found and fixed 1996 — Oct. 2003



Status of DES work

■ Merrimack watershed

- All of Nashua complete
- Winnipiesaukee River complete
- Souhegan River, Merrimack to Milford
- Merrimack River main stem from MA border up to Souhegan River complete
- Next year: Town of Auburn



Case studies



Merrimack River, Nashua NH

Somersworth, NH

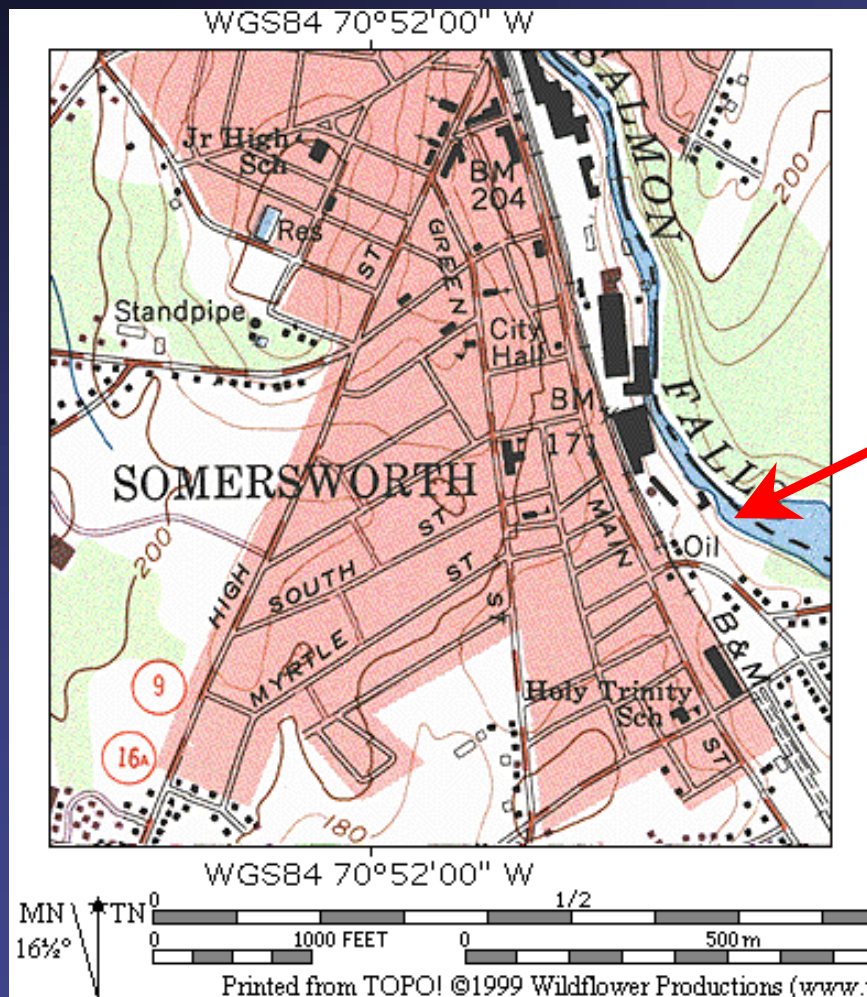


View from top of pipe (SW1000)



Suds!

SW1000 drains much of the central part of Somersworth. Consistent high bacteria levels.



Somersworth

- DES did extensive sampling along city streets.
- DES narrowed down location of sources.
- DES & City conducted smoke testing.
- City took it from there.
 - Smoke, dye, TV testing
 - Completed fixes
 - Received grant money



Somersworth's approach

- Illicit discharges have been found by both DES and City personnel. City has been doing extensive smoke testing as part of storm system mapping effort.
 - If problem can be corrected within the building, property owner pays for fix.
 - If fix involves digging up the street, City pays.
 - In cases where the City feels the property owner made error, owner pays.
 - Somersworth has used grant money to pay for fixes and appreciates the sampling efforts of DES.
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Dover, NH



**Buildings
formerly
connected to the
storm drainage
system.**

Dover tries to fix all illicit before paving projects are done.



Chestnut St., Dover

Dover's approach

- Dover has been fixing illicit discharges for many years.
 - All discharges were missed during sewer separation project in the 1970's. City feels it is most efficient to do fix themselves.
 - City handles all costs.
 - City feels the grant program has helped accelerate detection and remediation.
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Franklin, NH

Not a Phase II small MS4

This pipe discovered during a DES shoreline survey, high bacteria.



Winnepesaukee River, Franklin NH

Source was traced to an apartment building and law firm.

- Building owner/tenants paid for excavation costs.
- City waived sewer connection fee, since they had been paying water and sewer bills all along.

**Follow-up sampling has shown both low and high bacteria levels.
There may still be an intermittent source in the line.**





Pipe located by staff of Franklin Health Officer. Follow up by DES.

- Source traced to a single house.
- Course of action still to be determined.



Pemigewasset River, Franklin NH

Franklin's approach

- Health Officer conducts shoreline investigations every other year during dam drawdown periods.
 - City approaches property owner to look for voluntary compliance.
 - Enforcement sought under public health ordinance.
 - Property owner pays but City waives sewer connection fees or gives rebates on sewer service.
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Questions?



See also <http://www.des.state.nh.us/StormWater/>
and <http://www.des.state.nh.us/wmb/was>