

New Hampshire's Beach Inspection Program

**It's more than a
walk on the beach.**

North Beach, Hampton

We're Not Just Working on Our Tans!

- Accomplishments of NH's Beach Inspection Program include:
 - Developing a risk-based beach evaluation system and a tiered monitoring plan
 - Naming Hampton Beach as New Hampshire's "Flagship Beach"
 - Utilizing microbial source tracking techniques
 - Adding tributaries to the monitoring program



Risk-Based Beach Evaluations

- Initiated in 2002
 - Updated annually since
- Takes into account three main categories
 - Beach history
 - Microbial pathogen sources
 - Beach use
- Each category assesses specific pollution sources or land uses

Sample of Risk-Based Evaluation Questions

| Criterion | Significance | | | | | |
|--|--------------------------------------|---|----------------------------------|---|---|---|
| | Inconclusive 0 points | X | Low Priority 2 points | X | High Priority 3 points (unless otherwise noted) | X |
| Beach History | | | | | | |
| Rank the significance of historical data by checking the appropriate column. | | | | | | |
| Reported health issues | No reports or Data not available | | ≤ 2 reports | | 3 or more reports per year | |
| Historical exceedance of bacteria standards in previous 10 years | No exceedances or Data not available | | 1-5 exceedances | | > 5 exceedances (4 points) | |
| Historical cyanobacteria advisories | No advisories or Data not available | | < 2 advisories issued | | 3 or more advisories issued | |
| Mean time for public notification | Data not available/not applicable | | < 24 hours | | ≥ 24 | |
| Mean number of days beach affected by advisory during bathing season | Data not available/not applicable | | ≤ 2 days | | > 2 days | |
| Mean high water temperature during swim season | Data not available | | < 60°F | | ≥ 60°F | |
| Wildlife present on beach during inspections | None present or Data not available | | Present at < 50% of inspections | | Present at ≥ 50% of inspections | |
| <i>Beach History total points by category</i> | | | <i>Total Low Priority points</i> | | <i>Total High Priority points</i> | |
| TOTAL BEACH HISTORY POINTS | | | | | | |

Tiered Monitoring Plan

- New Hampshire uses a 2-tiered plan
- Tier I beaches are :
 - Important to the local economy
 - Visited regularly by locals and tourists
 - Highly susceptible to pollution
 - Sampled at least once a week from June through August
- Tier II beaches are :
 - Less frequently visited by locals and tourists
 - Less susceptible to pollution
 - Sampled once every other week from June through August

2004 Beach Sampling Plan

□ Tier I Beaches:

- Seabrook Town Beach
- Seabrook Harbor Beach*
- Hampton Beach State Park
- North Beach
- North Hampton State Beach
- Sawyer Beach*
- Jenness Beach
- Cable Beach
- Pirates Cove Beach
- Wallis Sands State Park
- New Castle Town Beach

□ Tier II Beaches:

- Sun Valley Beach
- Northside Park
- Bass Beach
- Foss Beach
- Star Island Beach



***These beaches were previously assessed as Tier II.**

Tributary Sampling

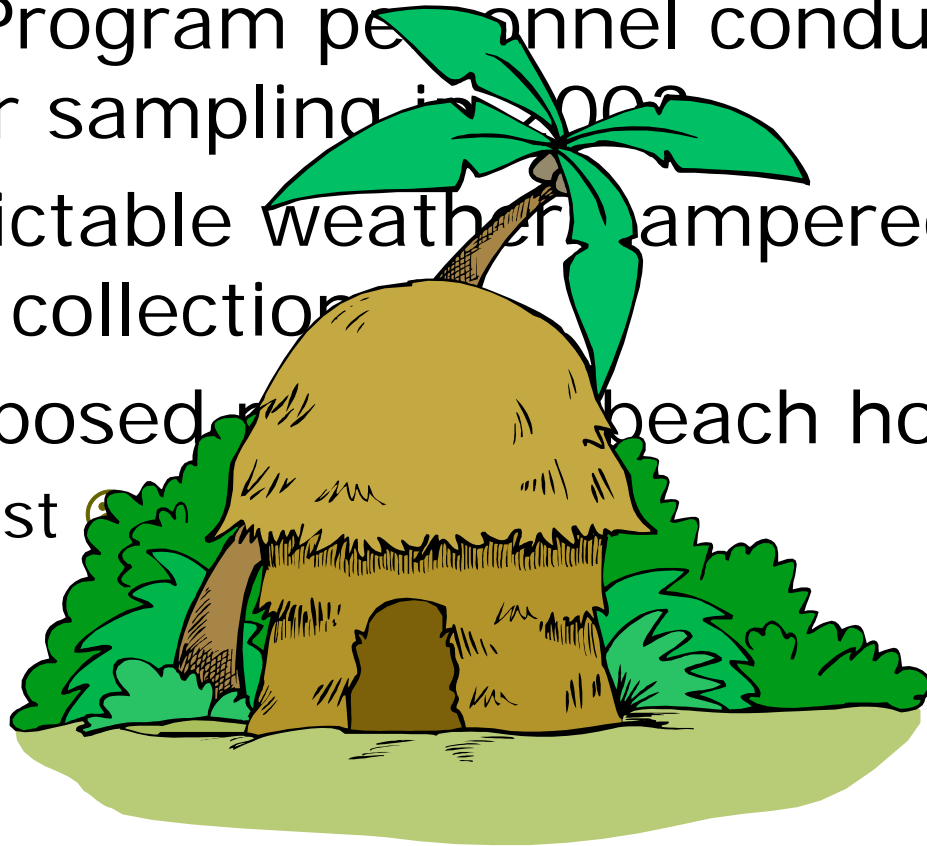
- ❑ The following beach tributaries are sampled on a regular basis
 - Little River (State Beach)
 - Chapel Brook (Bass Beach)
 - Eel Pond Discharge (Sawyer Beach)
 - Parson's Creek (Pirates Cove Beach)
 - Pipe at New Castle (New Castle Town Beach)
- ❑ Regular tributary sampling began in 2003





Microbial Source Tracking

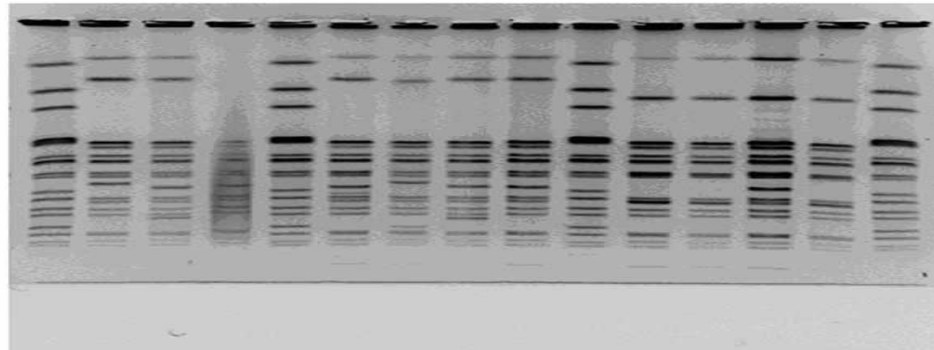
- ❑ Beach Program personnel conducted wet weather sampling in 2002
- ❑ Unpredictable weather hampered the sample collection
- ❑ We proposed a beach house
 - Request



MST, continued



- Stations sampled include
 - Little River (North Hampton State Beach)
 - Chapel Brook (Bass Beach)
 - Parson's Creek (Pirates Cove Beach)
- Samples were analyzed for *E. coli*
- *E. coli* isolates were ribotyped to produce a "fingerprint" of its DNA



MST, continued



- ❑ Compared the “fingerprint” to the UNH known source species DNA library
- ❑ The most commonly identified source species were humans and wildlife



MST Results Table – Source Species

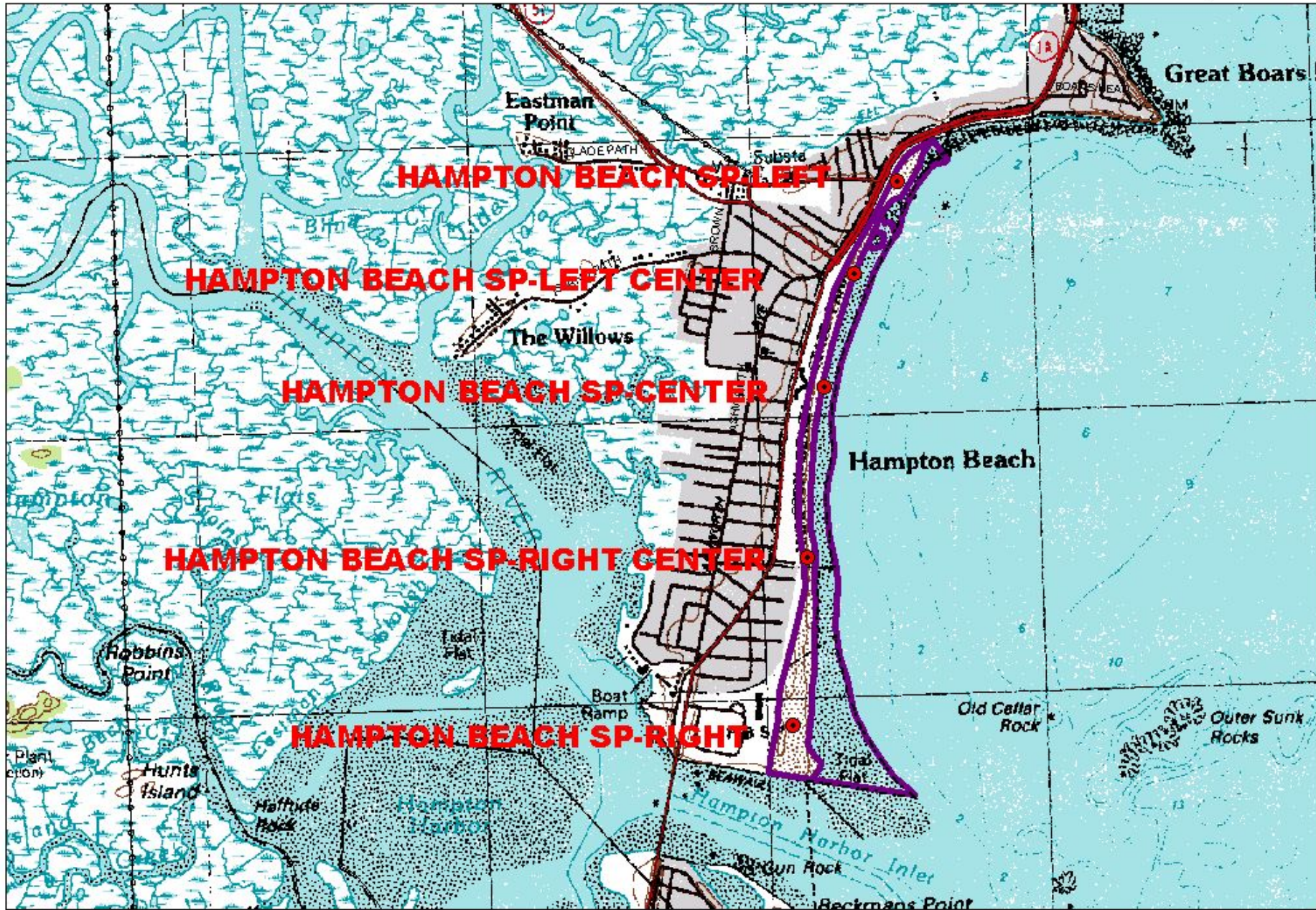
Table 3. Source species identified for *E. coli* isolated from water samples during storm events from 3 sites along the Atlantic coast, NH: 2003.

| Site | Sample Date | Storm Stage | Total Isolates | Source Species | | | | | | | | | | | | | Identified Isolates | |
|-----------------------|-------------|-------------|----------------|----------------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|----------|----------|---------------------|----|
| | | | | Alpaca | Cow | Coyote | Deer | Dog | Fox | Goose | Gull | Horse | Human | Otter | Raccoon | Sparrow | | |
| PS 5 | 8/1/03 | Peak | 0 | | | | | | | | | | | | | | | |
| | | Post Peak | 8 | | 1 | | 1 | | 1 | | | | 1 | | 1 | | | 5 |
| | | End | 6 | | | | 1 | | | | | 1 | 1 | | | | | 3 |
| | | Total | 14 | 0 | 1 | 0 | 2 | 0 | 1 | 0 | 0 | 1 | 2 | 0 | 1 | 0 | | 8 |
| | 9/16/03 | Post Peak | 11 | | 1 | | 1 | | | | | | 1 | | 2 | 1 | | 6 |
| | | End | 10 | | | | 2 | | 2 | | | | 3 | | | | | 7 |
| | | Date Total | 21 | 0 | 1 | 0 | 3 | 0 | 2 | 0 | 0 | 0 | 4 | 0 | 2 | 1 | | 13 |
| | | Site Total | 35 | 0 | 2 | 0 | 5 | 0 | 3 | 0 | 0 | 1 | 6 | 0 | 3 | 1 | | 21 |
| PS 11 | 8/1/03 | Peak | 10 | | 1 | | | | | | | 2 | | | | | 5 | |
| | | Post Peak | 7 | | | | | | | | | 1 | | | | | 3 | |
| | | End | 6 | | | | | | | | | | 1 | | | | 1 | |
| | | Date Total | 23 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 5 | 0 | 0 | 0 | | 9 |
| | 9/16/03 | Post Peak | 14 | | | 2 | 1 | | | 1 | | | 2 | 1 | 4 | | | 11 |
| | | Site Total | 37 | 0 | 1 | 2 | 2 | 0 | 0 | 4 | 0 | 0 | 7 | 1 | 4 | 0 | | 20 |
| PS 12 | 8/1/03 | Peak | 5 | | | 1 | | | | | | | 1 | | | | 2 | |
| | | Seep | 4 | | | | | | | | | | 1 | 1 | 1 | | 3 | |
| | | End | 2 | | | | | | | | | | | | | | 0 | |
| | | Date Total | 11 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | | 5 |
| | 9/16/03 | Post Peak | 12 | 1 | | | | | | | | | | | 7 | | | 8 |
| | | End | 15 | | | | | | 1 | 2 | | | | 1 | 2 | 2 | | 8 |
| | | Date Total | 27 | 1 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 9 | 2 | 0 | | 16 |
| Site Total | 38 | 1 | 0 | 1 | 0 | 1 | 2 | 0 | 1 | 1 | 3 | 9 | 2 | 0 | | 21 | | |
| OVERALL TOTALS | | | 110 | 1 | 3 | 3 | 6 | 1 | 5 | 4 | 1 | 2 | 16 | 10 | 9 | 1 | 62 | |

New Hampshire's Flagship Beach

- Hampton Beach was nominated as NH's Flagship Beach in 2002
- Working with the local community and State Parks to reduce pollution
 - Litter is a big problem, especially before the official "beach season" begins
 - Animal wastes have been reduced through public education
- DES added two new sampling stations
 - There are now a total of five stations

HAMPTON BEACH STATE PARK - HAMPTON



Accomplishments, continued

- ❑ Beach open signs are posted at key locations

- ❑ DES produces a Flagship Beach report annually
 - Discusses water quality issues
 - Makes observations and recommendations to improve beach quality

OPEN

THIS BEACH IS OPEN FOR
SWIMMING AND RECREATION
AND
MEETS STATE STANDARDS FOR
ACCEPTABLE BACTERIA LEVELS

IF INTERESTED IN LEARNING MORE ABOUT WATER
QUALITY AT PUBLIC BEACHES PLEASE CONTACT:

NHDES
PO BOX 95, 6 HAZEN DR
CONCORD, NH 03302-0095
603-271-8803 or 603-271-3414
email: sullivan@des.state.nh.us
scott@des.state.nh.us
web address: www.des.state.nh.us/
www.epa.gov/waterscience/beaches/data.html

IF INTERESTED IN LEARNING OF CURRENT BEACH
ADVISORIES AND CONDITIONS CONTACT NHDES OR:

EARTH 911 @
www.newhampshire.earth911.org/waterquality/index.asp


NHDES

Goals for Hampton Beach

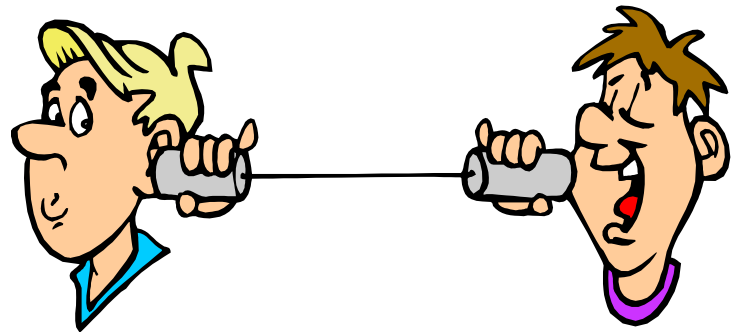
- ❑ Post beach open signs at all access points
 - DES identified 33 access points!
- ❑ Organize an Adopt-a-Beach team
- ❑ Continue to identify and remediate potential sources of pollution



Lake Michigan Adopt-a-Beach Program

Beach Program Collaborations

- Annual request for information from towns
 - Identify and locate pollution sources
- Cooperating with State Parks Division
 - Development of beach advisory protocol
- Within DES
 - Shellfish Program
 - Coastal Investigations
- UNH
 - Dr. Stephen Jones, Jackson Estuarine Laboratory



Program Improvements

- ❑ Incorporated a quicker analytical method for Enterococci in 2004
 - Previous method took 48 hours
 - **New method is ready in 24 hours!**
- ❑ Improved the Beach Program website
 - Go to www.nh.gov/Beaches and click on "Current Advisories"
- ❑ Prepared water quality reports for every coastal beach for 2004 data
- ❑ Progress towards a state-wide Adopt-a-Beach Program

Many Thanks

- Many groups and people helped us reach these goals
 - EPA New England: Matt Liebman, Warren Howard, Bob Varney and their whole crew!
 - NHDRED, State Parks: Tom Mattson (until 2003), Johanna Lyons, and many others
 - Town Officials and Beach Managers (there are just too many to name – you know who you are!)
 - And, of course, those who did the grunt work, our interns – Allison Mackey (2004), Kristin Conte (2003), and Courtney Bergman (2002)

Help us keep NH's beaches clean so residents
and visitors can safely enjoy them!



Seabrook Town Beach, Seabrook