

SANITARY SURVEYS FOR WATERSHEDS



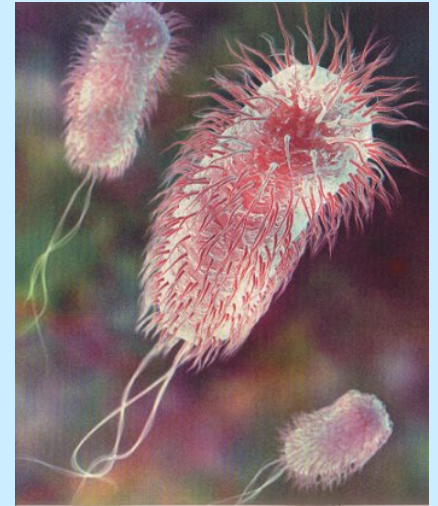
*Knowing your sources of indicator organisms in the watershed and keeping them
all in perspective*

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A sanitary survey is a procedure by which all potential sources of contamination that impact a resource area (such as a bathing beach, shellfish area, drinking water well, etc.) are identified and documented.



Sanitary Survey



The process by which one identifies all potential sources of human pathogens to an area so that an adequate public health assessment can be made along with recommendations for corrective measures when appropriate.

The goal of a sanitary survey is to protect the public health.

This is accomplished by:

- Documenting the risks and sources of risk elements in an area (septic systems, stormdrains, etc).
- Defining conditions that exacerbate the effects of risk factors (rain events, tides, etc).
- Making appropriate recommendations for avoiding or eliminating risks factors.

Key Concepts

- Data Collection and Review
- Identification of Potential Sources of Pathogens
- Public Health Assessment
- Recommendations

TOOLS FOR CONDUCTING SANITARY SURVEYS



- **All your powers of observation and reasoning.**
- **Conventional tools**
- **Non-conventional tools**

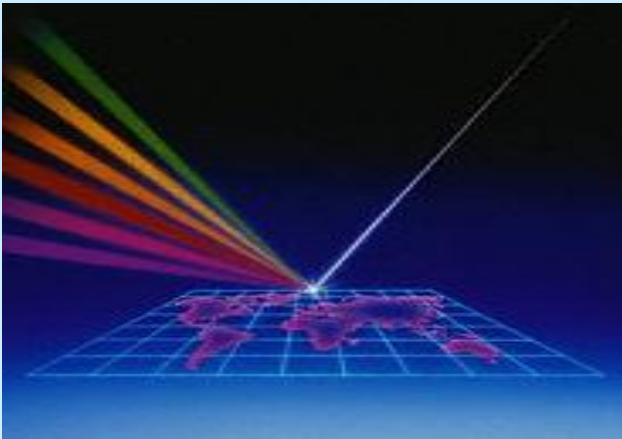
BEFORE YOU LEAVE THE OFFICE LET YOUR DIGITS DO THE AMBULATING

CHECK THE AVAILABLE RESOURCES



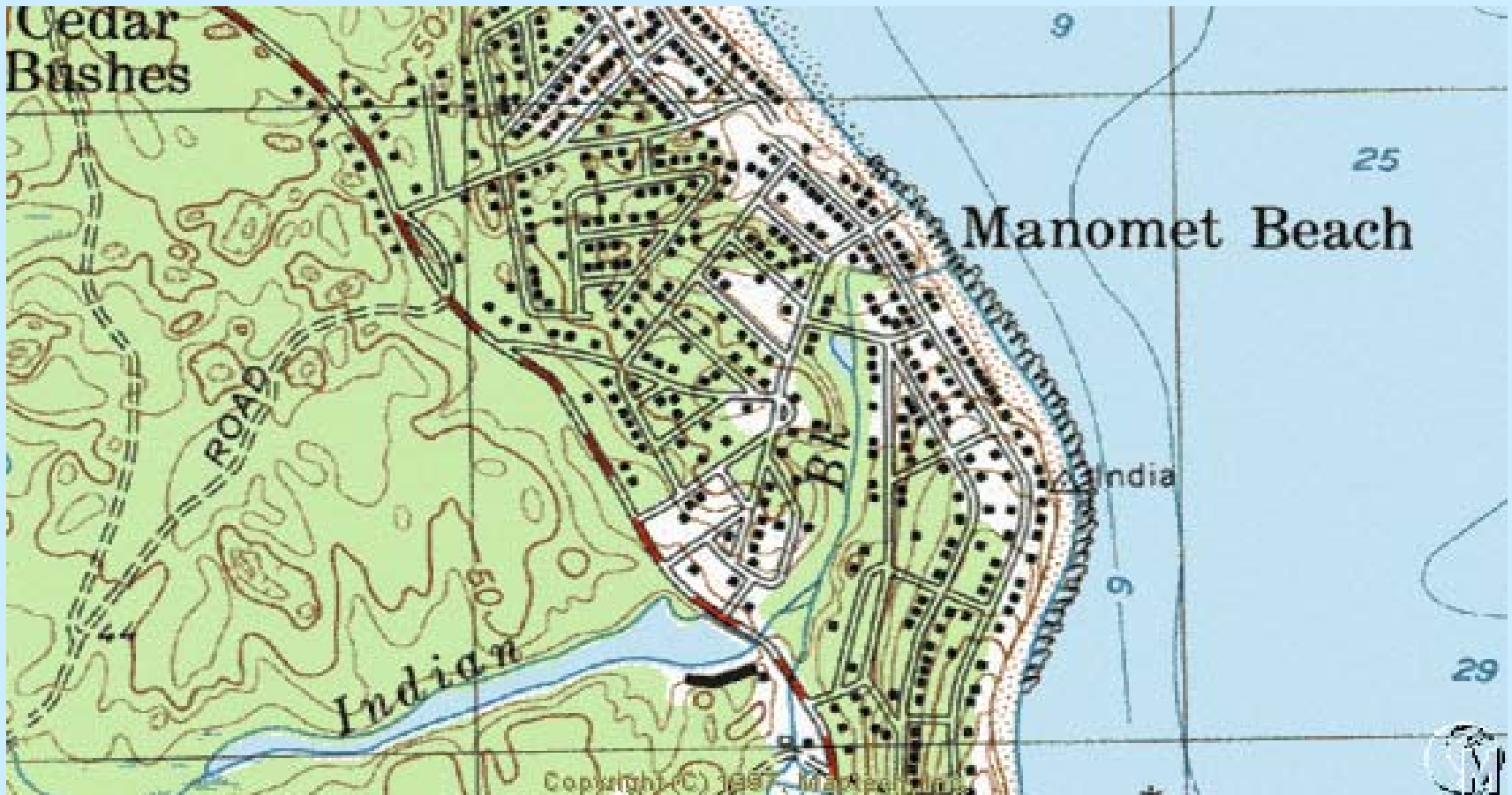
- **On the web** - maps, articles, orthophotos etc..
- **In the town hall** - licensing information, DPW stormdrain maps, septic system information, historic documents
- Historic data sets and maps (sometimes buried deep in the archives)
- **Shellfish Sanitary Surveys** available from the Division of Marine Fisheries.
- **Old Timer's Club**

Tools for Conducting Sanitary Surveys **MAPS**



- Topographic (Misc. software packages available)
- Orthophoto (MASS GIS, MIT website etc.)
- GIS with various overlays
- Bathymetric charts (for water dilution calculations)
- Soils
- Local Maps (local permit tracking software sometimes available)

Topographic Maps



After you leave the office

or

Walking the beat

Take with you:

- Maps for marking
- Camera
- Boots or swimsuit
- Sample Bottles
- Instruments (thermometer, DO meter, GPS, etc.)
- All your powers of observation!

SOURCES OF FECAL INDICATORS NEAR BEACHES

- **Wastewater treatment plant outfalls**
- **Stormwater discharges (pipes and swales)**
- **Runoff foci loci**
- **Stream inputs**
- **Wildlife**
- **Septic systems (cross connected with storm drains)**
- **Domestic animals**
- **Marine craft discharges**
- **Sediments**
- **Wrack**

Less Obvious things to look for in and around bathing beach areas that might explain high indicator counts

- **Areas of sediment (especially light fluffy sediment)**
- **Deltas**
- **Excessive wrack or windrows**
- **Bird feeding stations**
- **Adjacent marshes or bridges**
- **Scat**

KNOW YOUR BUGS !



- Factors affecting the survival (National Indicator Study)
- Protected habitats in your survey area
- Alternate sources in your survey area

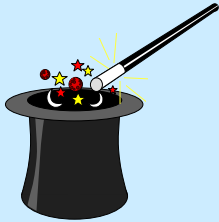
Not Understanding Something About the Indicator Organism Itself Can Lead to:

- Wasting time chasing the wrong sources.
- False conclusions.
- Inappropriate recommendations for corrective actions.
- Frustration and red faces.

Data and Information Analysis

or

*Separating the Wheat
from the Chaff*



**Logic Statistical
Comparison**

EXPERIENCE

The written sanitary survey should include

- A description of all potential sources of contamination in the watershed(s) that contribute to the bathing beach water.**
- All data that support conclusions relative to the importance (or lack thereof) of the potential sources.**
- Physical conditions (such as weather-wind or rain, tides or currents) that alter the potential for the source to have significance.**
- Estimates of the volume of water available to dilute the contamination (integrating tide, current, wind data)**
- Epidemiological data if available.**

Final Helpful Hint

There are a number of “unconventional” sources of fecal indicator organisms which must be investigated and the data incorporated into the sanitary survey. These include wrack, sediments, animal feces, storm drain dregs, and others. **Don't Ignore them!**

Questions ?

