

# *Long Island Breast Cancer Study and the GIS-H (Health)*

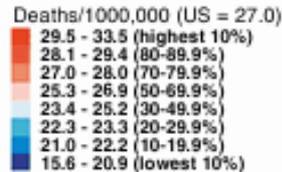
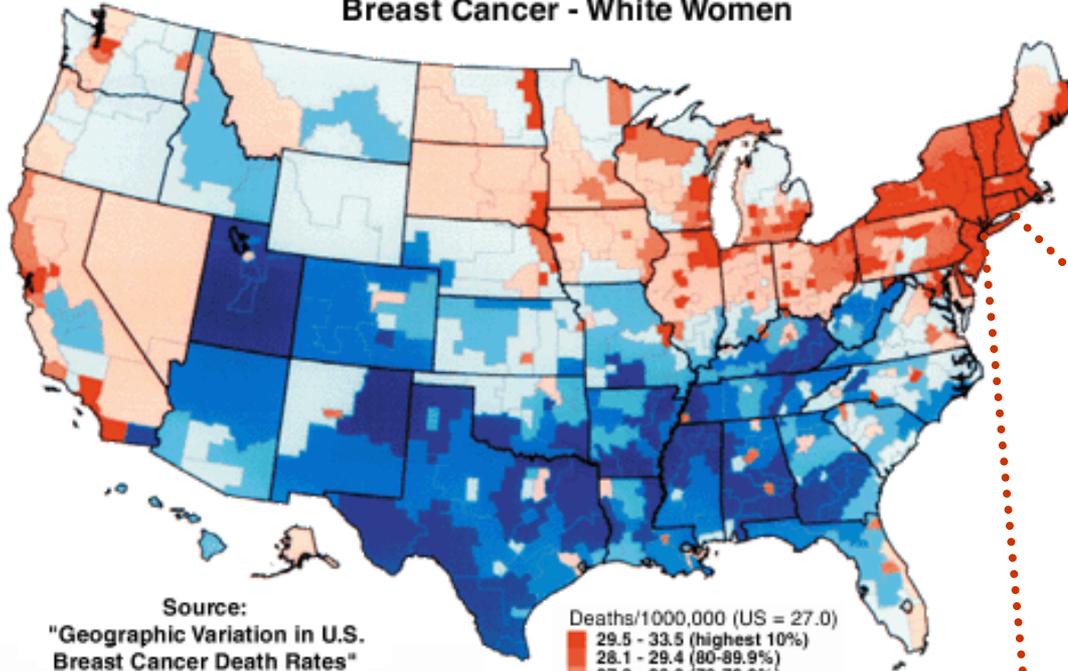


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**Associate Director**

**Epidemiology and Genetics Research Program, DCCPS/NCI**

**COMPREHENSIVE APPROACHES TO CANCER CONTROL**  
**September, 2003 Atlanta, GA**

Mortality Rates by State Economic Area - 1970-92  
Breast Cancer - White Women



Source:  
"Geographic Variation in U.S.  
Breast Cancer Death Rates"

by Susan S. Devesa, Ph.D. & Dan J. Grauman, M.A.

Journal of the National Cancer Institute  
Vol. 87, No. 24, Page 1831, December 20, 1995

The northeastern United States has had high rates of breast cancer.

The Long Island Breast Cancer Study Project (LIBCSP) focuses on Long Island (Nassau and Suffolk counties) in New York.



# *Long Island Breast Cancer Study Project*

- ▶ **Grew out of community's concern**
- ▶ **A multistudy investigation of environmental factors and breast cancer**
- ▶ **NCI developed the GIS-H in response to a law passed in 1993**



# *Public Law 103-43*

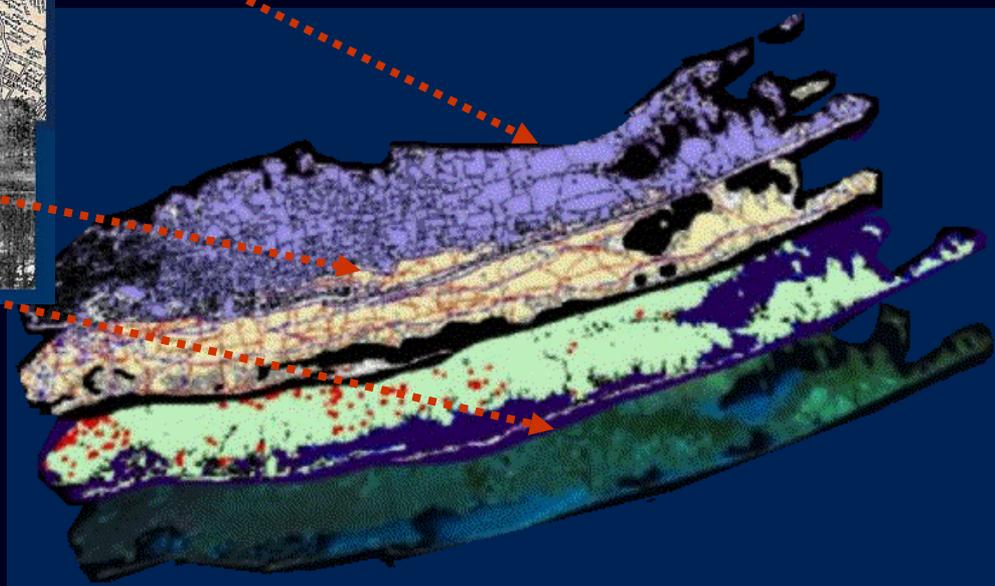
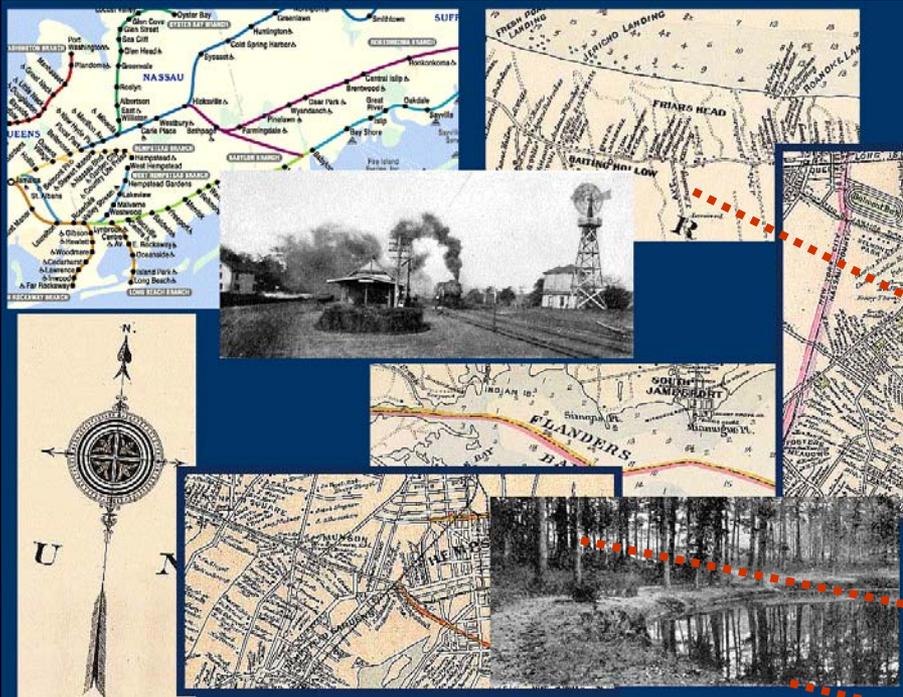
*June 10, 1993*

- ▶ **“The director of the NCI. . .shall conduct a case-control study [of] factors contributing to the incidence of breast cancer in:**
  - ▶▶ **The counties of Nassau and Suffolk, and**
  - ▶▶ **The 2 counties in the northeastern U.S. [that] had the highest age-adjusted mortality rate of such cancer. . .”**

# *Public Law 103-43, GIS Requirement*

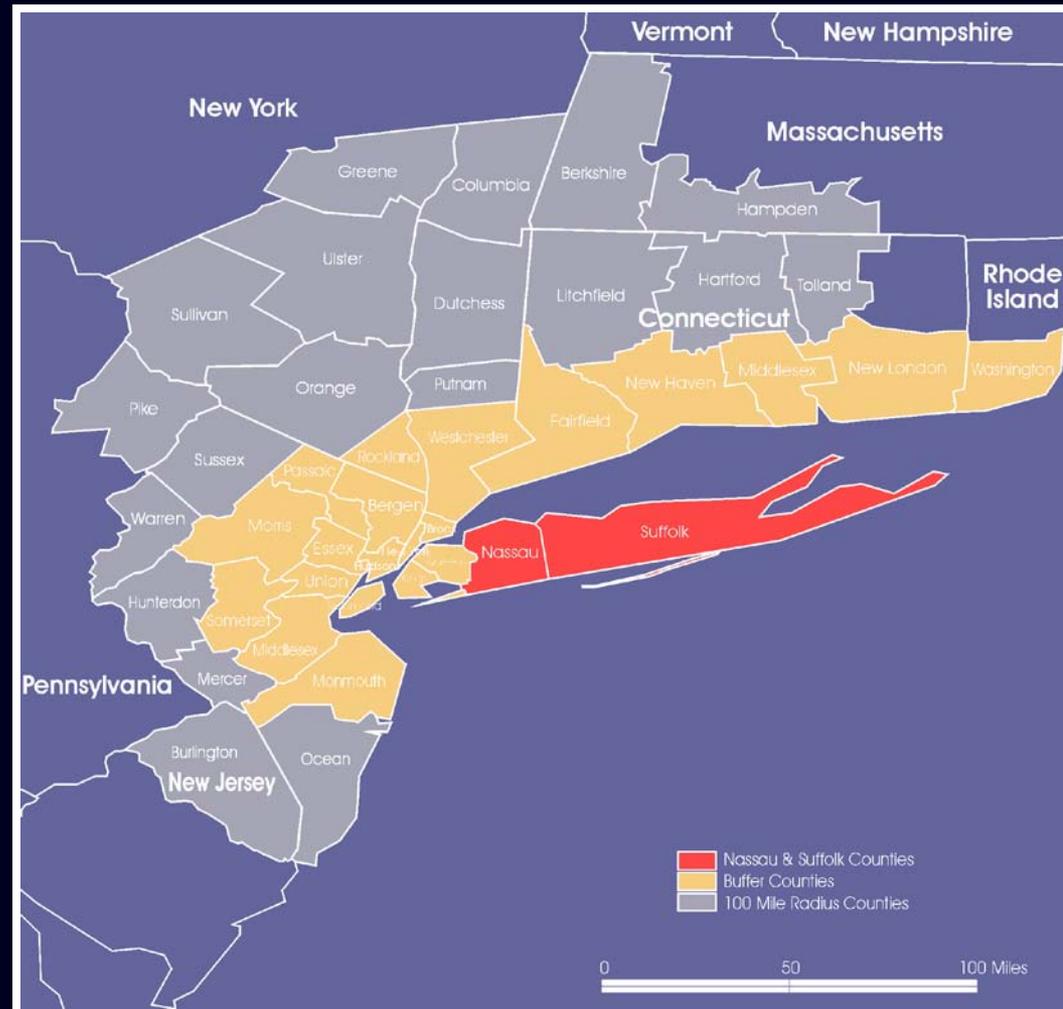
- ▶ **Certain elements of the study ... shall include the use of a geographic system to evaluate the current and past exposure of individuals, including direct monitoring and cumulative estimates of exposure, to:**
  - 1. contaminated drinking water**
  - 2. sources of indoor and ambient air pollution, including emissions from aircraft**
  - 3. electromagnetic fields**
  - 4. pesticides, and other toxic chemicals**
  - 5. hazardous and municipal waste**
  - 6. other factors as appropriate.**

# A Tool for Studying Environment & Breast Cancer



# Geographic Extent

- Nassau and Suffolk counties (red) - detailed health, demographic, environmental data.
- Buffer counties within 50 km - additional environmental data (less precision, detail)
- Extended area within 100 miles of mid-point of counties' boundary line (limited data)



**NATIONAL  
CANCER  
INSTITUTE**

[GIS-H Maps](#) | [Researchers](#) | [Metadata Browser](#) | [Contact Us](#) | [Search](#)  [GO](#) | [Help Desk](#) [?](#)

- Overview
- FAQ
- Reports & Activities
- Advisory Groups
- Links
- NCI
- LIBCSP
- GIS-H Project

# Geographical Information System for Health (GIS-H)

Part of the Long Island Breast Cancer Study Project (LIBCSP)

*A new tool for research on breast cancer on Long Island*



## GIS-H and the Public

- [Go](#) — Find out what is in the GIS-H Data Warehouse using the Metadata Browser
- [Go](#) — View the geographic extent of the GIS-H.
- Use Interactive Maps to look at environmental and demographic information about Long Island

## GIS-H and Researchers

- [Go](#) — What does the GIS-H offer Researchers?
  - A data warehouse providing data from over 60 different sources

[www.healthgis-li.com](http://www.healthgis-li.com)



# Website

- ▶ **Two Sections**
  - ▶ **Public Use**
  - ▶ **Researcher's Use**

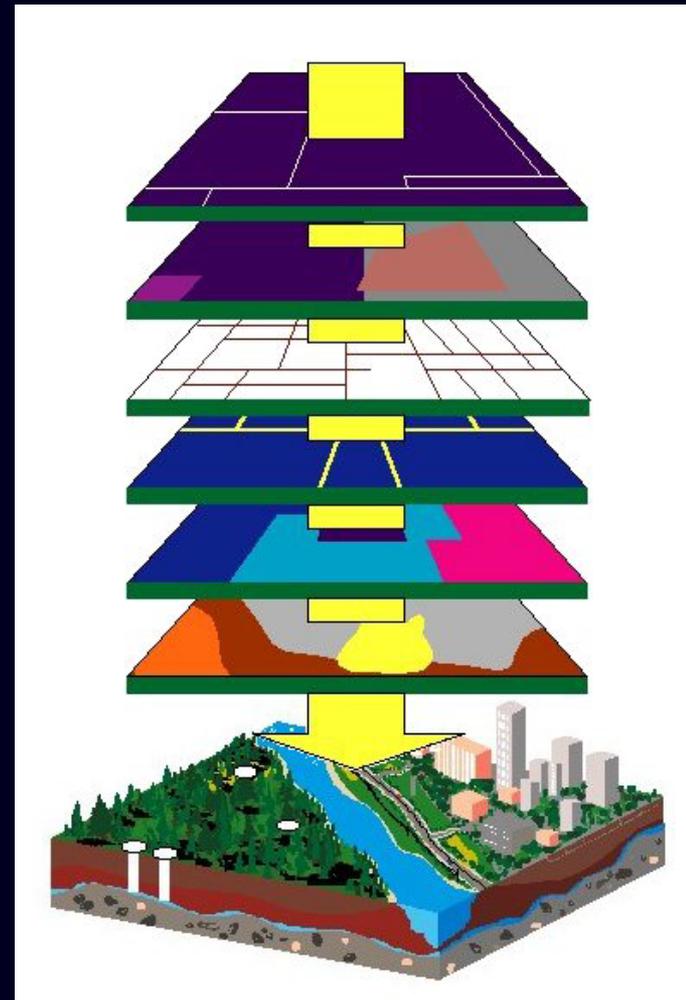


# *Levels of Access*

- ▶ **Public**
  - ▶▶ **Public data**
- ▶ **Secure (for researchers)**
  - ▶▶ **All public data**
  - ▶▶ **Protocol restricted data**
    - **Requires approval for each researcher and project**

# Public Use

- ▶ **ArcExplorer allows the public to:**
  - ▶ create their own maps using publicly available data
  - ▶ use additional interactive features and flexibility, including unique combinations of layers



# *Public Use*

- ▶ **16 interactive maps with up to 9 environmental exposure layers.**
- ▶ **Each will be on the public website.**
- ▶ **Map topics and exposures numbers reflect the interests and concerns of community members.**

# *For Researchers*

- ▶ **Enable researchers to:**
  - ▶▶ **Explore and synthesize available information on potential exposures**
  - ▶▶ **Generate hypotheses**
  - ▶▶ **Identify spatial and temporal clusters of disease**
  - ▶▶ **Evaluate risk factors for breast cancer and other health outcomes (with your addition of data)**
  - ▶▶ **Address methodological issues**
  - ▶▶ **Identify gaps in available information**

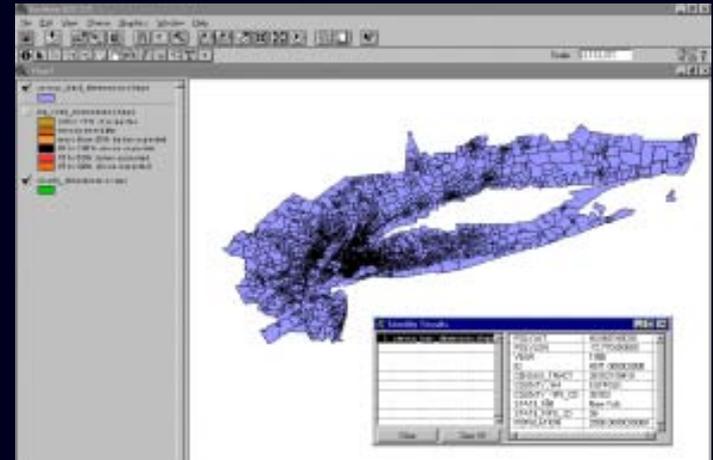


# *What Questions Can Be Addressed?*

- ▶ **What are the rates of breast cancer in the community (overall, in smaller areas)?**
- ▶ **Can we identify clusters of cases, or areas with significantly higher rates?**
- ▶ **Where might exposures of interest (to scientists, to the community) come from?**
- ▶ **Are there correlations -- spatial relationships -- between disease and potential exposures?**
- ▶ **More sophisticated: Are potential environmental exposures linked with breast cancer, taking other factors into account?**

# *Data Included in the GIS-H*

- ▶ **Geospatial**
- ▶ **Demographic and Behavioral**
- ▶ **Health**
- ▶ **Environmental**



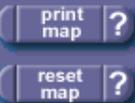
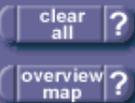


# *Geospatial*

## ▶ **Base Maps:**

- ▶▶ **Cadastral\* data (tax lots, parcels)**
- ▶▶ **Political boundaries**
- ▶▶ **Roads**
- ▶▶ **Railroads**
- ▶▶ **Hydrology (water supply, rivers, streams)**
- ▶▶ **Aerial photography and satellite imagery**

\* Showing property boundaries, subdivision lines, etc.



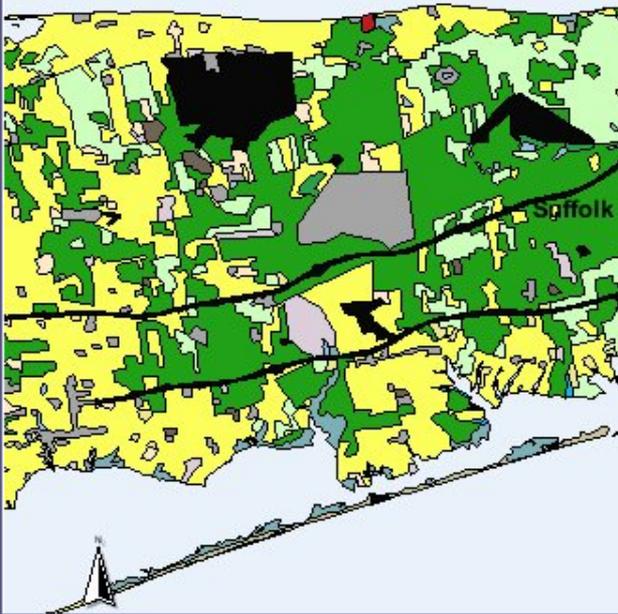
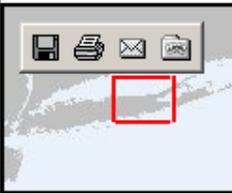
# USGS Land Use

Find an address...

zoom in zoom out zoom last pan identify measure ?

intro search buffer legend layers help ?

Click a point on the map or hold the mouse to draw a rectangle to zoom in



**Legend - Microsoft Inter...**

**USGS Land Use**

- Evergreen forest land
- Mixed forest land
- Deciduous forest land
- Forested wetland
- Cropland and pasture
- Orchards, groves, vineyards, nurseries, and ornamental horticultural
- Other agricultural land
- Shrub and brush rangeland
- Sandy areas not beaches
- Beaches
- Reservoirs
- Streams and canals
- Lakes
- Nonforested wetland
- Transitional areas

## Layers

[Layer Information](#)

Redraw Map

### Display

- Zip Code Boundaries
- County Boundary
- USGS Land Use
- Breast Cancer Incidence by Zip Code

0 5.75 miles

Display Units: Miles

Active Layers: USGS Land Use



# *Demographic and Lifestyle*

- ▶ **Census Data:**
  - ▶▶ **Counts of the population**
  - ▶▶ **Descriptive information about individuals**
    - Age, Race, Gender, Income groupings
  - ▶▶ **Households**
    - Type and age of housing
    - Rural or urban
- ▶ **National Nutritional Health and Lifestyle Survey**



Home > Metadata Browser > FGDC Reports

## FGDC Reports

### FGDC Reports Directory

- Geographic
- 2000 TIGER/Line Files
- 2000 Census County Boundaries
- 2000 Census Minor Civil Divisions
- 2000 Census Place Boundaries
- 2000 Census Tract Boundaries
- 2000 Census Block Groups
- 2000 Census Block Boundaries
- 1998 TIGER/Line Files
- 1992 TIGER/Line Files
- 1990 Census County Boundaries
- 1990 Census Minor Civil Divisions
- 1990 Census Place Boundaries
- 1990 Census Tract Boundaries
- 1990 Census Block Groups
- 1990 Census Block Boundaries
- 1980 Census Tract Boundaries
- NYS Railroad Lines and
- ESRI Zip Code Boundaries

The GIS-H Data Warehouse comprises geographic data from a variety of sources in addition to geographic data that have been developed specifically for the GIS-H. The metadata for geographic information in the GIS-H Data Warehouse follow the [Federal Geographic Data Committee \(FGDC\)](#) guidelines. In cases where data were supplied by commercial or government organizations, the metadata were taken from the metadata supplied by the distributor. Where the metadata were supplied in FGDC format, the GIS-H staff transposed the information to the GIS-H metadata repository. Where FGDC data were not supplied, the GIS-H staff conformed the metadata that were supplied to the FGDC guidelines as much as possible. For data that were created by GIS-H staff, the metadata conform to the FGDC guidelines. The metadata are presented here for the benefit of GIS-H users.

It is critical for the users of the GIS-H to understand the limitations of the geographic data in the GIS-H. The user should review the metadata carefully, paying special attention to accuracy, consistency, quality, and use constraints as well as pertinent geospatial specifications. The GIS-H staff transforms the geographic data into a format appropriate for loading into the GIS-H Data Warehouse. The data are stored in Oracle in ESRI's proprietary format and are accessed through ESRI's SDE facility. Any

Expand All Collapse All Help Home  
Frames Contact Us Floating Menu



clear all ?

print map ?

overview map ?

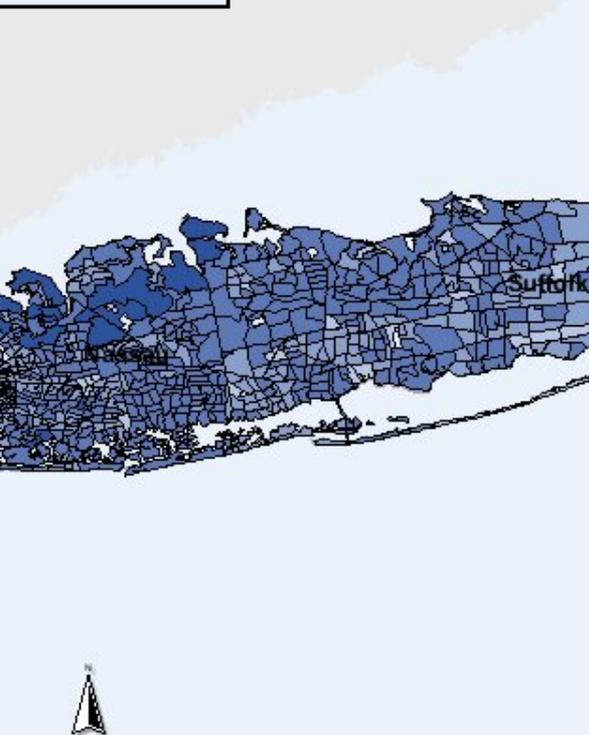
reset map ?

zoom in zoom out zoom last pan identify measure ?

# Long Island Income Demographics

intro search buffer legend layers help ?

Click a point on the map or hold the mouse to draw a rectangle to zoom in



**Legend - Microsoft Internet Explorer**

**1990 Income Demographics**

- 0 - \$24,999
- \$25,000 - 34,999
- \$35,000 - 49,999
- \$50,000 - 99,999
- \$100,000 and Up

**Breast Cancer Incidence by Zip Code**

- More than 100% above expected
- 50 to 100% above expected
- 15 to 49% above expected
- Within 15% of expected
- 15 to 50% below expected
- More than 50% below expected
- Very sparse data
- Rates not available

**County Boundaries**

## Layers

[Layer Information](#)

Redraw Map

### Display

- County Boundary
- 1970 Income Demographics
- 1990 Income Demographics
- Breast Cancer Incidence by Zip Code

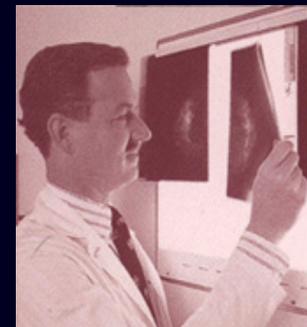
0 15 miles

Display Units: Miles

Active 1970 Income Demographics

# Health

- ▶ **Medical outcomes**
  - ▶▶ **State Cancer Registry (yes and no)**
    - Rates by zip available for 1993-97
    - Others available from registry
  - ▶▶ **Medicare**
  - ▶▶ **Hospital discharges**
- ▶ **Medical facilities**





clear all ?

print map ?

overview map ?

reset map ?

# Long Island Health Facilities

Find an address

zoom in

zoom out

zoom last

pan

identify

measure ?

intro

search

buffer

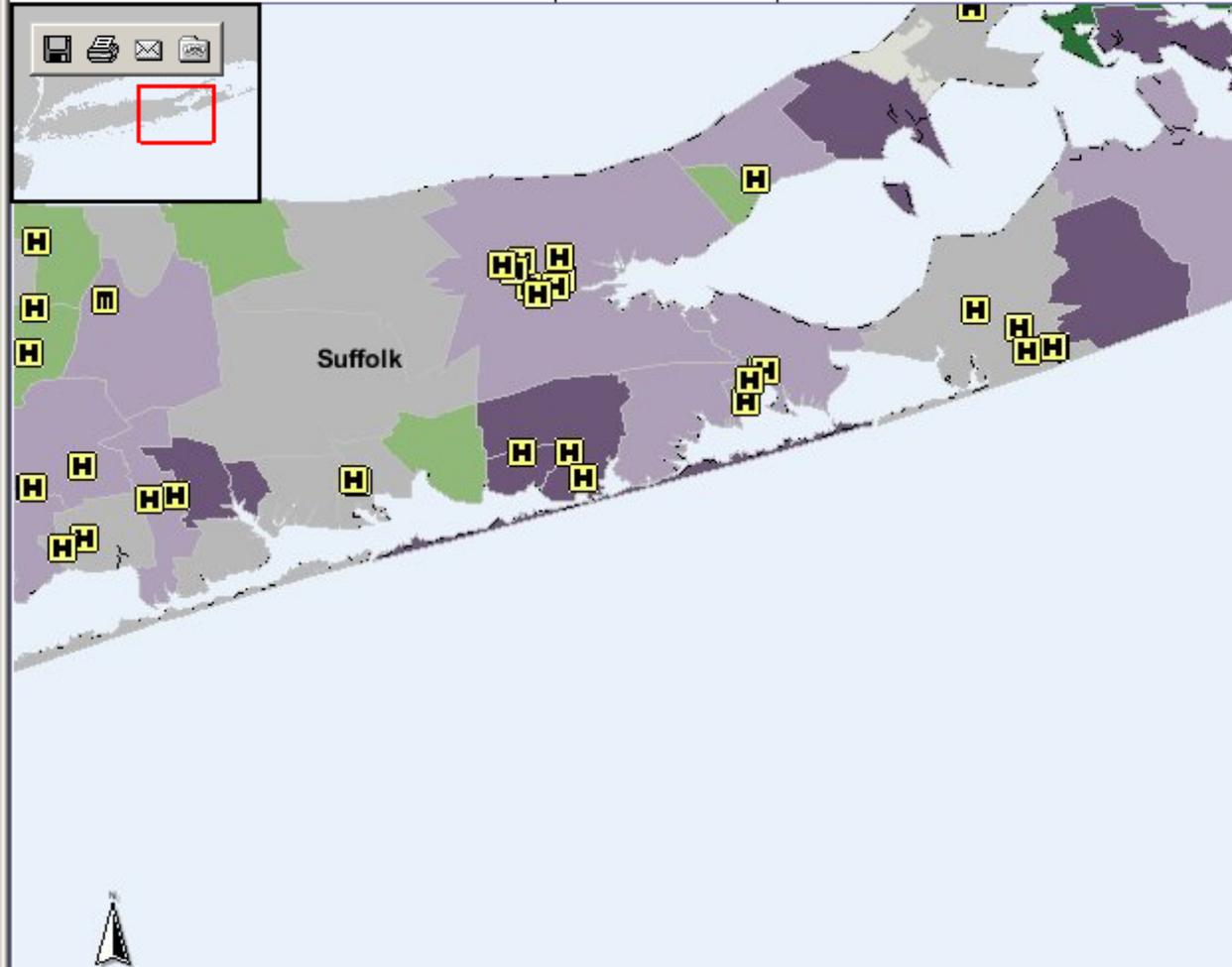
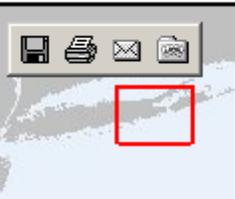
legend

layers

help

?

Click a point on the map or hold the mouse to draw a rectangle to zoom in



## Layers

[Layer Information](#)

Redraw Map

### Display

- Health Facilities
- Mammography Clinics
- Zip Code Boundaries
- County Boundary
- Breast Cancer Incidence by Zip Code

0 | 7 miles

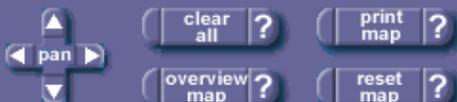
Display Units: Miles

Active Health Facilities

# *Environmental*

- ▶ **Air quality monitoring results**
- ▶ **Drinking water analysis and water use**
- ▶ **Industrial sites, industrial releases and hazardous materials**
- ▶ **Radioactive sites or materials**
- ▶ **Land use and land cover**
- ▶ **Traffic volume**
- ▶ **Weather and climate information**
- ▶ **Other: weather, satellite image maps**

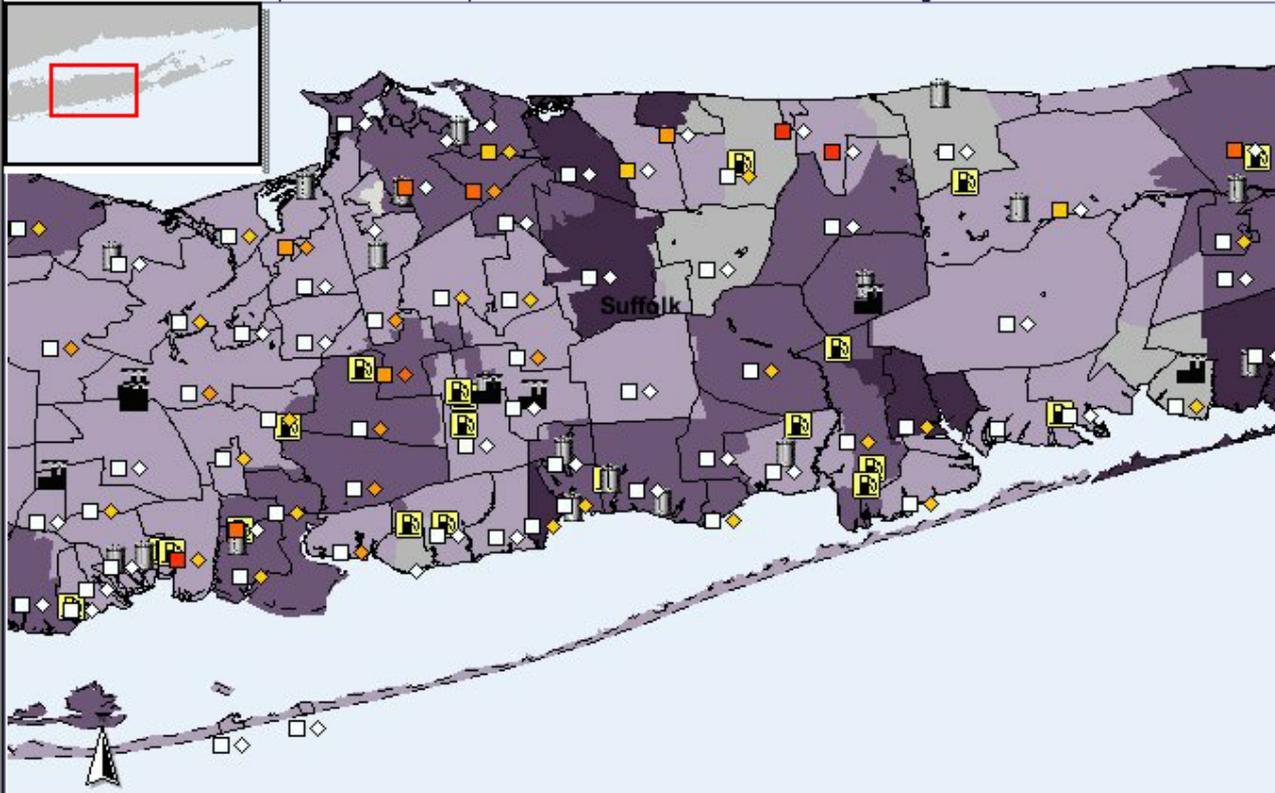




# VOC Detections in Suffolk County Wells

zoom in zoom out zoom last pan identify measure ? intro search buffer legend layers help ?

Click a point on the map or hold the mouse to draw a rectangle to zoom in



## Layers [Layer Information](#)

Redraw Map

- Display
- Cis-12-Dichloroethene Detection by Place
  - MTBE Detection by Place
  - Tetrachloroethene Detection by Place
  - Tetrachloroterephthalic Acid Detection by Place
  - 12-Dichloroethane Detection by Place
  - TRI Water Release
  - Petroleum Tanks
  - Spills
  - Gas Stations
  - Dry Cleaners
  - Suffolk Well VOC Detection

0 6.75 miles

Display Units: Miles

Active Cis-12-Dichloroethene

# *Data Sources*

- ▶ **County Water Authorities and Departments of Health**
- ▶ **State Departments of Environmental Conservation, Health, Labor, and Public Service**
- ▶ **Federal Centers for Disease Control, National Center for Health Statistics, Environmental Protection Agency, Nuclear Regulatory Commission, Geological Survey, Census, Department of Agriculture**

# *Metadata*

- ▶ **Need to understand data limitations**
- ▶ **For each dataset, information on...**
  - ▶▶ **Identification**
  - ▶▶ **Data quality**
  - ▶▶ **Spatial data organization**
  - ▶▶ **Spatial reference information**
  - ▶▶ **Entity and attribute overview**
  - ▶▶ **Distribution**

# Metadata Browser

## FGDC Reports Directory

- [-] Geographic
  - [N] 1998 TIGER/Line Files
  - [N] 1992 TIGER/Line Files
  - [N] 1990 Census County Boundaries
  - [N] 1990 Census Minor Civil Division Boundaries
  - [N] 1990 Census Place Boundaries
  - [N] 1990 Census Tract Boundaries
  - [N] 1990 Census Block Group Boundaries
  - [N] 1990 Census Block Boundaries
  - [N] 1980 Census Tract Boundaries
  - [N] NYS Railroad Lines and Stations
  - [N] ESRI Zip Code Boundaries
  - [N] ESRI Zip Code Centroids
  - [N] ESRI Golf Courses
  - [N] ESRI Cemeteries
  - [N] US Geologic Survey (USGS) 1:100K Digital Line Graphs(DLG)
  - [N] USGS 1:24K Digital Line Graph (DLG)
  - [N] USGS Digital Elevation Models (DEM)
  - [N] USGS Land Use/Land Cover
  - [N] C-CAP Land Cover
  - [N] Suffolk County Water Authority (SCWA) Pipelines
  - [N] SCWA Pressure Zones
  - [N] NCDC Daily Weather Summaries
  - [N] Nassau County Base Maps
  - [N] Suffolk County Base Maps
  - [N] Long Island Traffic Counts
- [+] Imagery

## Source Datasets Directory

- [+] Demographic
- [+] Medical Facility
- [+] Behavioral Surveys
- [+] Air Quality
- [-] Water Quality and Water Use
  - [N] EPA Permit Compliance System (PCS)
  - [N] USGS Relation of Ground-water Quality to Land Use
  - [N] USGS Pesticides in Surface Waters
  - [N] USGS Pesticides in Wells of Suffolk County
  - [N] USGS State Water Use
  - [N] Suffolk County Sewage Treatment Facilities
  - [N] Suffolk County Water Quality for Community Supply
  - [N] Suffolk County Water Quality for Non-community Supply
  - [N] Suffolk County Distribution Drinking Water
  - [N] Suffolk County Carbamate Pesticide Study
  - [N] Suffolk County Private Well Database
- [+] Industrial Sites and Hazardous Materials
- [+] Radioactive Sites or Materials
- [+] Miscellaneous

# *Researcher's Toolbox*

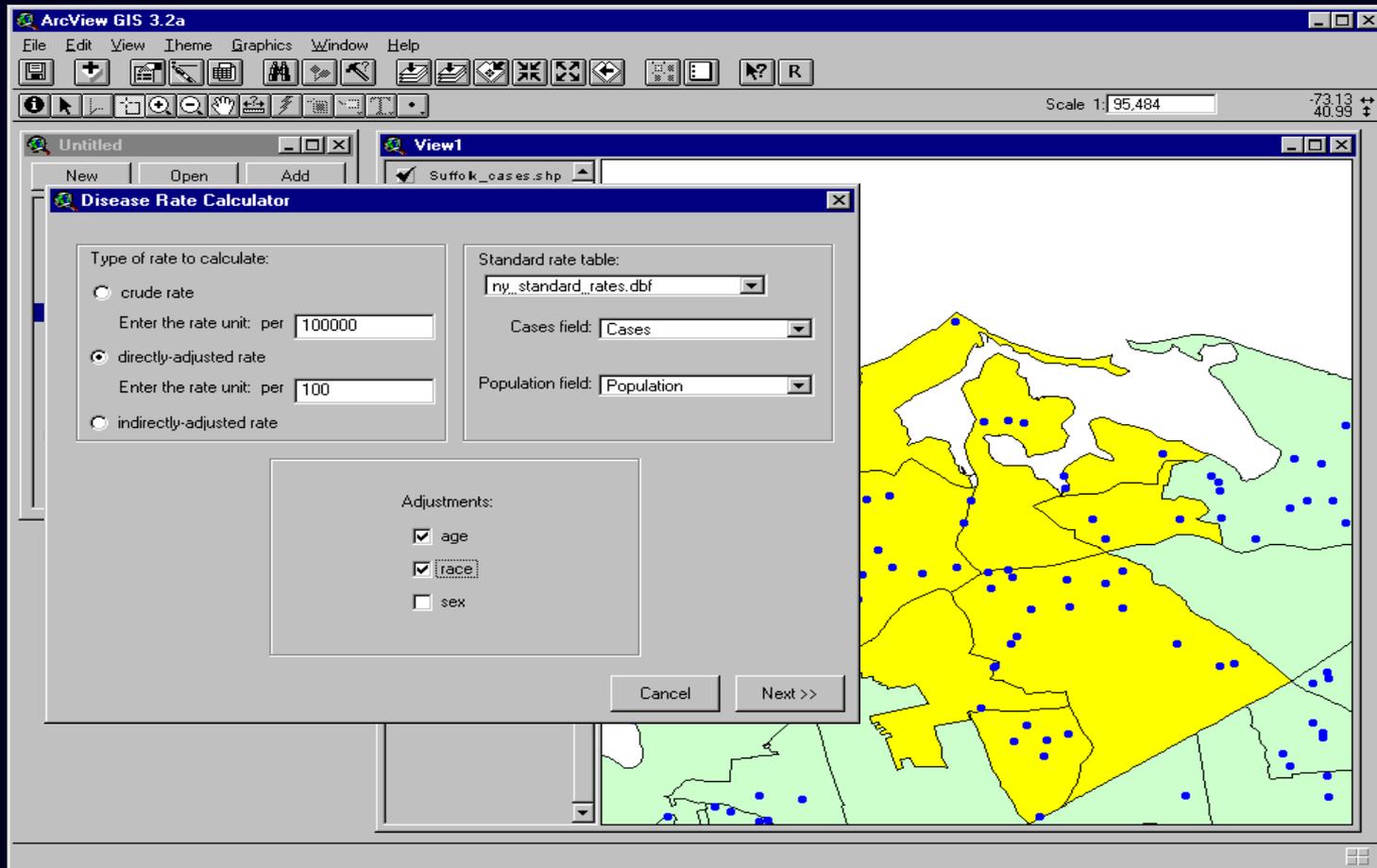
- ▶ **ArcView, Spatial Analyst and 3D Analyst**
- ▶ **Extensions developed especially for GIS-H**
  - ▶ **Add Database Theme and Table Tools**
  - ▶ **Case File Formatter**
  - ▶ **Data query wizard**
  - ▶ **Disease Rate Calculator (graphic)**
  - ▶ **Areal Interpolator (graphic)**
  - ▶ **Cluster Analysis Tool (to facilitate using SaTScan)**
  - ▶ **Empirical Bayes Tool**
  - ▶ **Geographic masking**

# *Researcher's Toolbox*

- ▶ **Additional software for researchers' use**
  - ▶▶ **Adobe Photoshop**
  - ▶▶ **ArcInfo**
  - ▶▶ **SAS**
  - ▶▶ **S-Plus**
  - ▶▶ **WinBUGS**
- ▶ **User's guide**

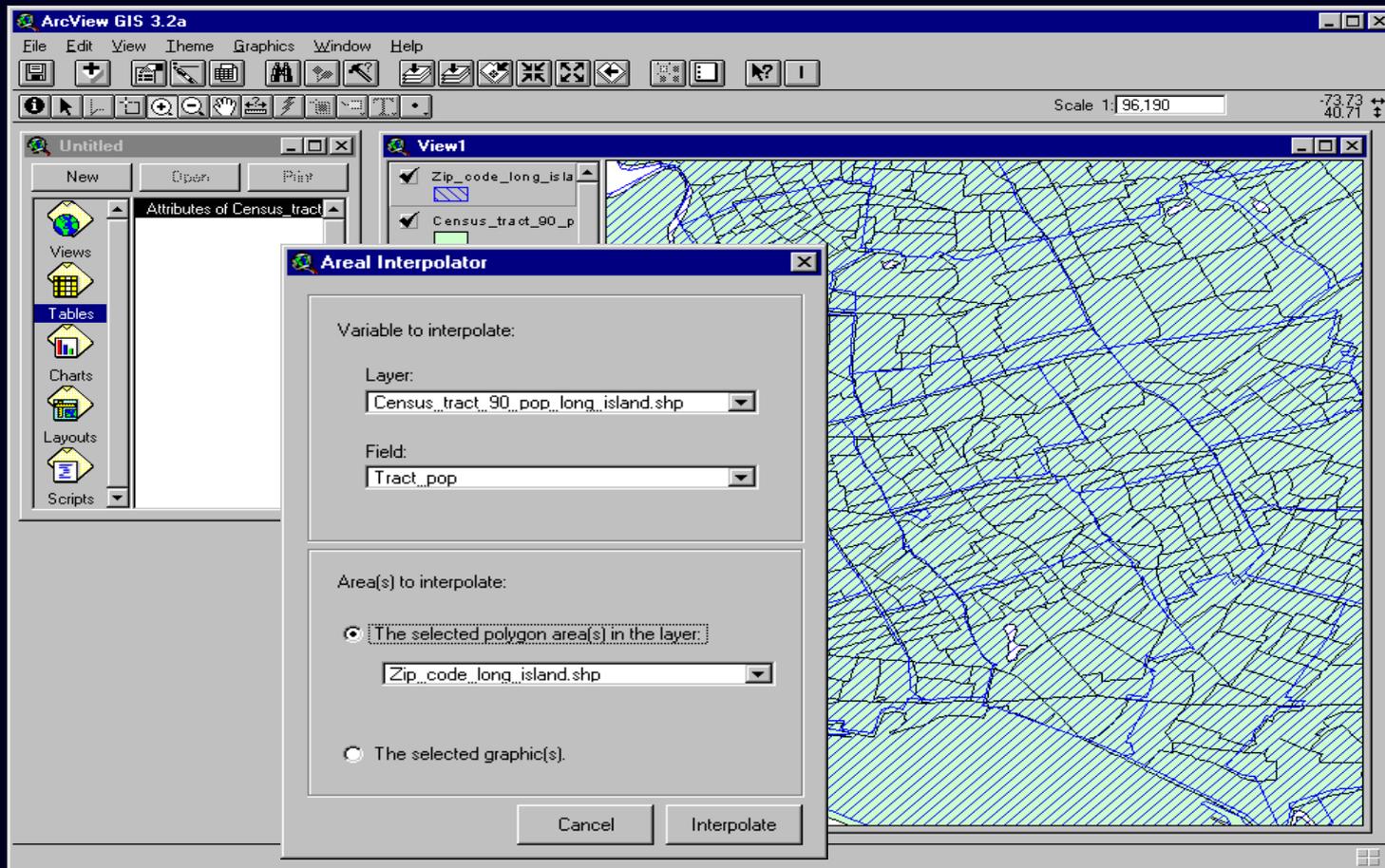
# Disease Rate Calculator

Calculating directly-adjusted rate for selected census tracts.



# *Areal Interpolator*

Interpolating zip code population from census tract population.



# Cluster Analysis

Checking for clusters of sample cases  
uses SatScan software as cluster analysis engine.

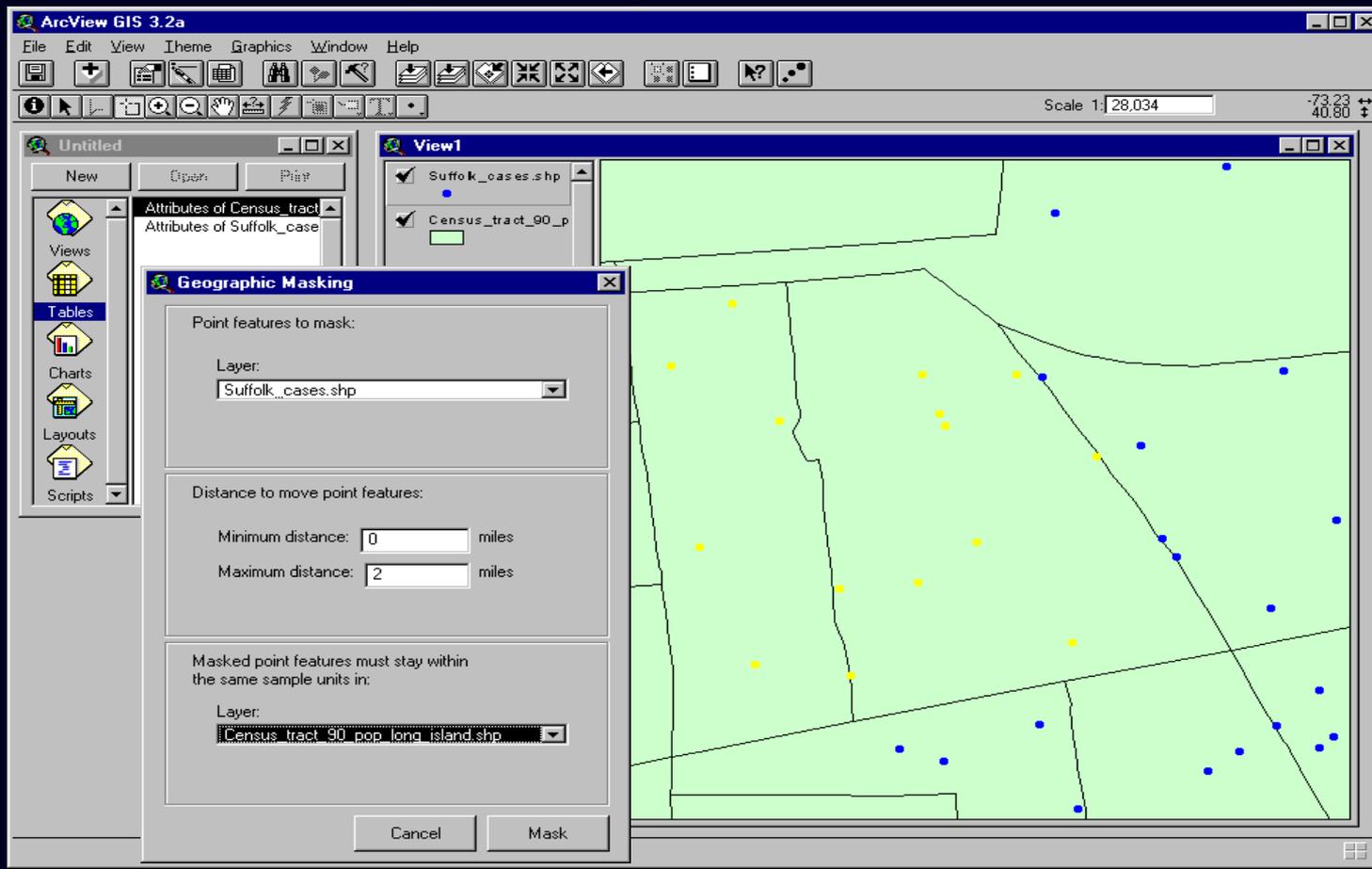
The screenshot displays the ArcView GIS 3.2a interface. The main window shows a map of Suffolk County, Massachusetts, with census tracts outlined in black and filled with a light green color. Numerous blue dots are scattered across the map, representing individual sample cases. A 'Cluster Analysis' dialog box is overlaid on the map, with the following settings:

- Case/control layer:** Suffolk\_cases.shp
- Population layer:** Suffolk\_cases.shp
- Location ID field:** Tiger\_id
- Case/control flag field:** Flag
- Time field:** Year
- Probability model:** Bernoulli (selected)
- Type of analysis:** Purely spatial (selected)
- Scan for areas with:** High rates (selected)
- Coordinates:** Latitude/longitude (selected)
- Monte Carlo replications:** 999
- Output:** Show result in: A new View (checked)

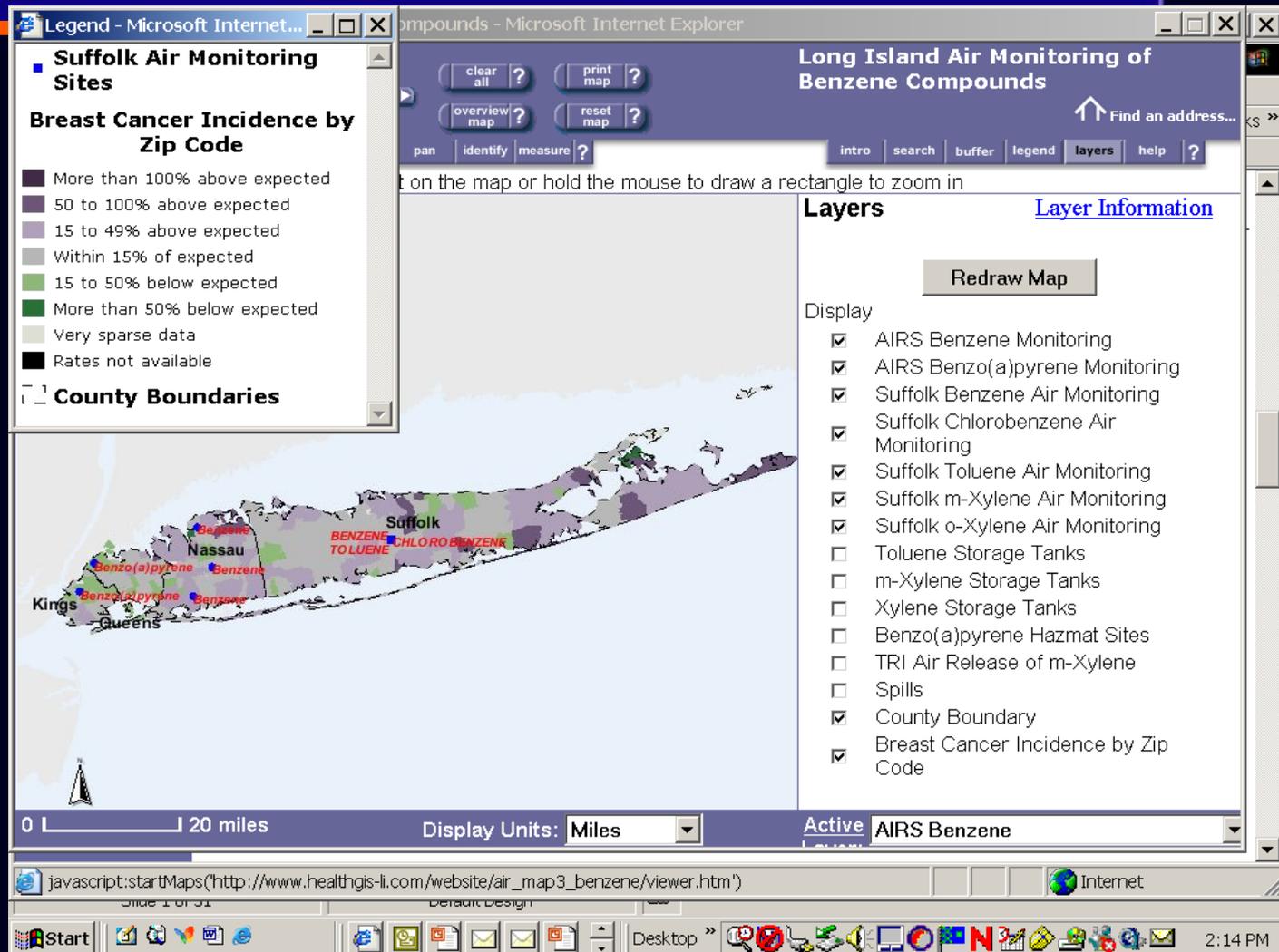
Buttons at the bottom of the dialog box include 'Cancel', 'Find Clusters', and 'Additional Options >>'. The ArcView interface also shows a menu bar (File, Edit, View, Theme, Graphics, Window, Help), a toolbar, and a status bar with a scale of 1:351,914 and coordinates -72.93, 40.58.

# Geographic Masking

Masking selected (in yellow) sample cases  
using random perturbation method.

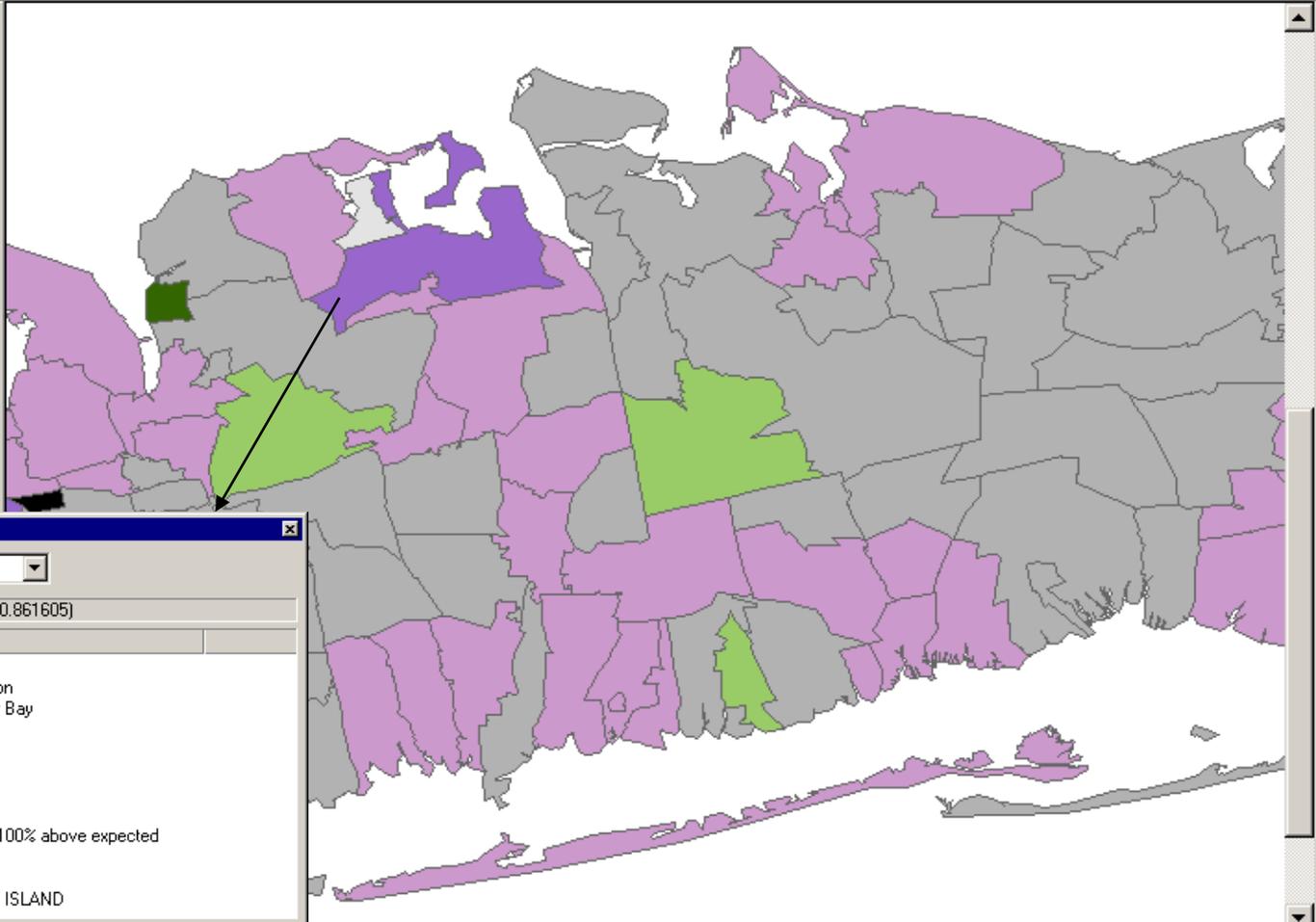


# Examples of Maps



Layers

- Inactive Hazardous Waste Sites
- TRI Facilities - Air Release - Arsenic
- LI Breast Cancer Rates 1993-97
  - 15 to 49% above expected
  - 15 to 50% below expected
  - 50 to 100% above expected
  - Rates Not Available
  - more than 50% below expected
  - very sparse data
  - within 15% of expected



Identify Results

Layers: <Top-most layer>

LI Breast Cancer Rates 1993-97 Location: (-73.537692 40.861605)

Field	Value
FID	204
Shape	Polygon
PO_NAME	Oyster Bay
STATE	36
ST_ABBREV	NY
ZIP	11771
OBSERVED	54
EXPECTED_P	34.8
DIFFERENCE	50 to 100% above expected
INDIR_RATE	1.552
DIFF_CLASS	1
AREA	LONG ISLAND





clear all ?

print map ?

overview map ?

reset map ?

Find an address...

zoom in

zoom out

zoom last

pan

identify

measure ?

intro

search

buffer

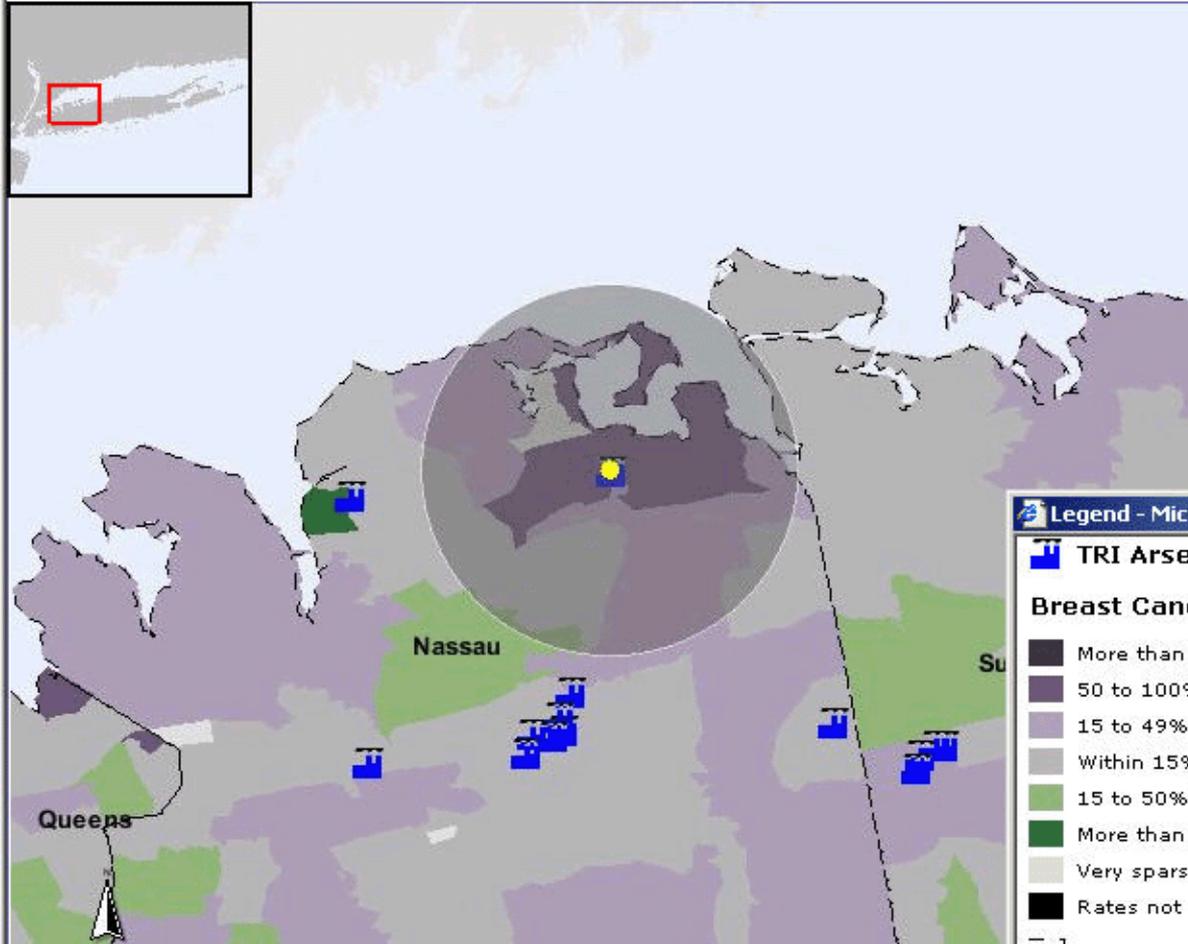
legend

layers

help

?

Choose a layer and a distance to highlight features around your selection



### Search Results - TRI Arsenic Air Release

Click to zoom to the location on the map.

Records 1 - 1 of 1

UIN: NYD065939902  
 Facility Name: MILL MAX MFG  
 Address: 190 PINE HOLLOW RD  
 City: OYSTER BAY  
 County: NASSAU  
 Zip Code: 117710300  
 Contaminant: ARSENIC

#### Legend - Microsoft Internet Explorer

##### TRI Arsenic Air Release

##### Breast Cancer Incidence by Zip Code

- More than 100% above expected
- 50 to 100% above expected
- 15 to 49% above expected
- Within 15% of expected
- 15 to 50% below expected
- More than 50% below expected
- Very sparse data
- Rates not available

##### County Boundaries

0 4.75 miles

Display Units: Miles



# TRI Air and Land

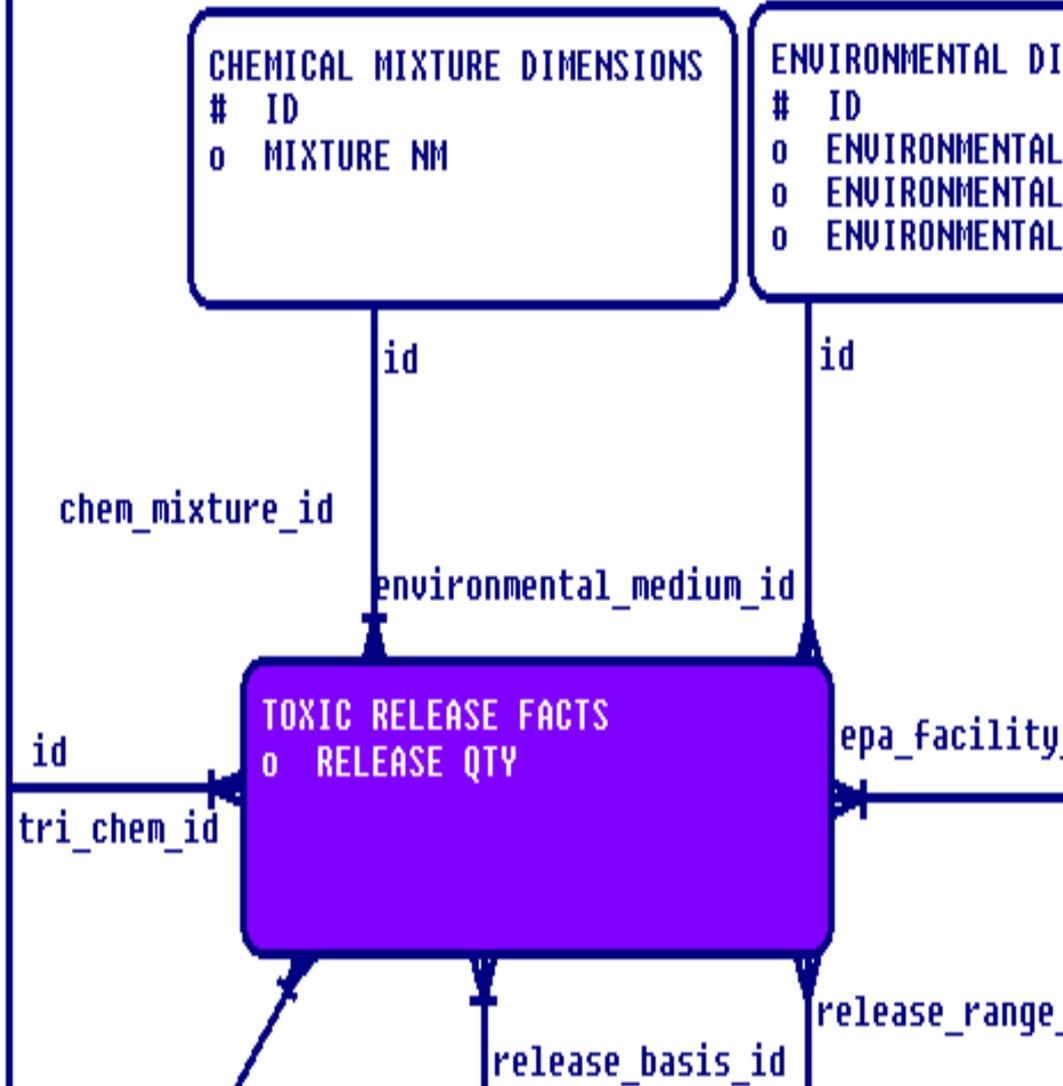
## GIS-H Data Warehouse Directory

- Air Quality
- Demographic
- Geospatial
- Hazmat Sites
- Industrial Facilities
  - TRI Air and Land**
  - TRI General Information
  - TRI Water
- Mixed Environmental
- Radioactive Sites or Materials
- Water Quality

CHEMICAL DIMENSIONS  
 ID  
 CHEMICAL NM  
 NATIVE CHEMICAL ID  
 CHEMICAL CATEGORY  
 ACTIVE YEAR  
 INACTIVE YEAR  
 CAAC IND  
 CARC IND  
 R3350 IND  
 METAL IND  
 FEDS IND  
 ECO TOX IND  
 CARCIN IND  
 MUTAGEN IND  
 REPRO TOX IND  
 DEVEL TOX IND  
 NEURO TOX IND  
 RENAL TOX IND  
 HEPATIC TOX IND  
 GI TOX IND  
 CARDIOVAS TOX IND  
 PULMON TOX IND  
 HEMAT TOX IND  
 OTHER CHRON TOX IND  
 ACUTE TOX IND  
 THYROID TOX IND

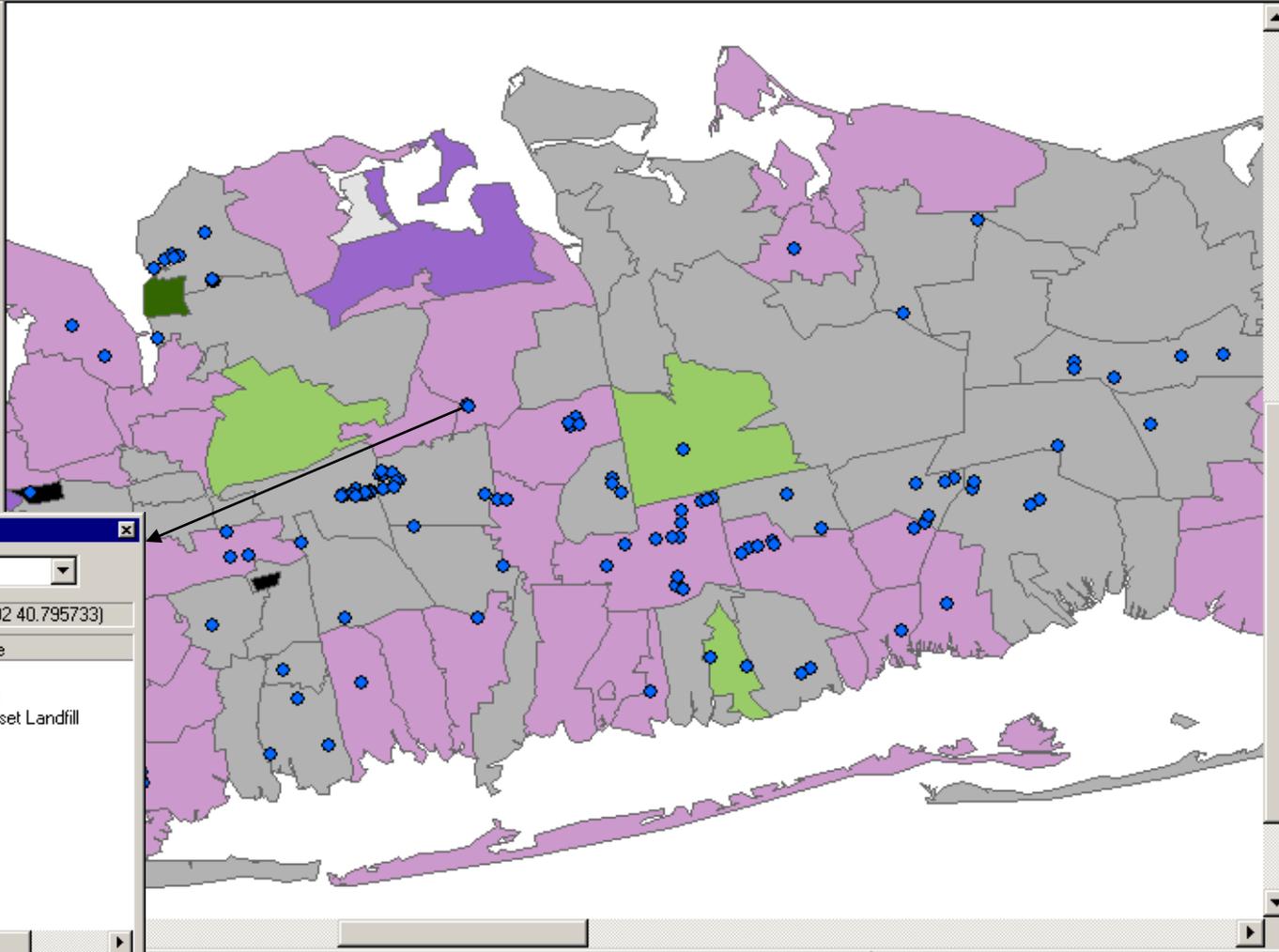
CHEMICAL MIXTURE DIMENSIONS  
 # ID  
 0 MIXTURE NM

ENVIRONMENTAL DI  
 # ID  
 0 ENVIRONMENTAL  
 0 ENVIRONMENTAL  
 0 ENVIRONMENTAL



**Layers**

- Inactive Hazardous Waste Sites
- TRI Facilities - Air Release - Arsenic
- LI Breast Cancer Rates 1993-97
  - 15 to 49% above expected
  - 15 to 50% below expected
  - 50 to 100% above expected
  - Rates Not Available
  - more than 50% below expected
  - very sparse data
  - within 15% of expected



**Identify Results**

Layers: <Top-most layer>

- Inactive Hazardous Waste
  - Cerro Wire and Cable
  - Syosset Landfill

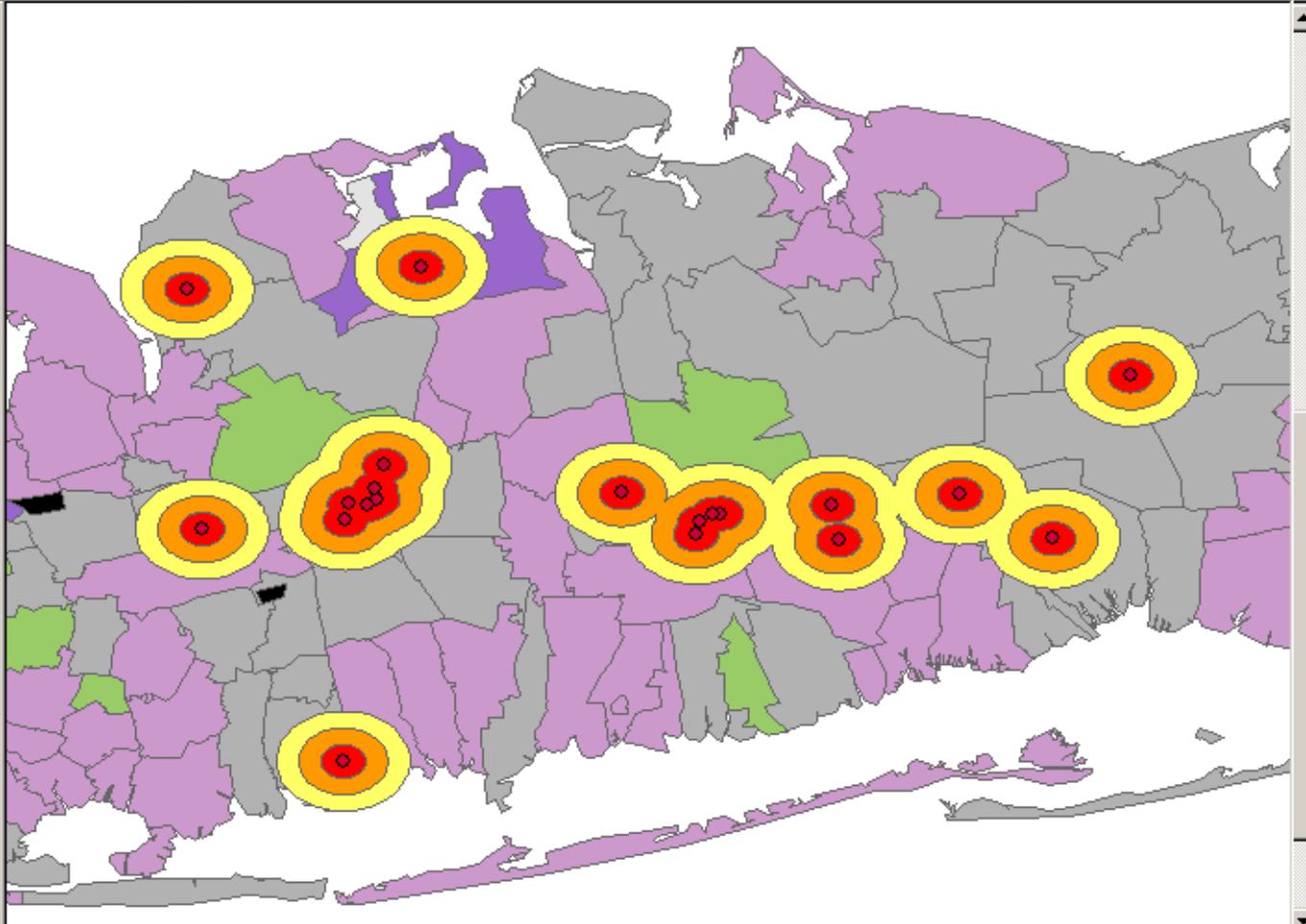
Location: (-73.511502 40.795733)

Field	Value
FID	7
Shape	Point
SITE_NM	Syosset Landfill
ID	9
SHAPE_FID	0



**Layers**

- Inactive Hazardous Waste Sites
- TRI Facilities - Air Release - Arsenic
- Buffer of TRI Sites
  - Buffer Distance
    - 0.5 miles
    - 1.0 mile
    - 1.5 miles
- LI Breast Cancer Rates 1993-97
  - 15 to 49% above expected
  - 15 to 50% below expected
  - 50 to 100% above expected
  - Rates Not Available
  - more than 50% below expected
  - very sparse data
  - within 15% of expected



Legend - Microsoft Internet Explorer

### Breast Cancer Incidence by Zip Code

- More than 100% above expected
- 50 to 100% above expected
- 15 to 49% above expected
- Within 15% of expected
- 15 to 50% below expected
- More than 50% below expected
- Very sparse data
- Rates not available

Microsoft Internet Explorer

## Long Island Population Density

pan identify measure ? intro search buffer legend layers help ?

Click on the map or hold the mouse to draw a rectangle to zoom in

### Layers

[Layer Information](#)

Redraw Map

Display

- Zip Code Boundaries
- County Boundary
- 1970 Population Density
- 1970 Female Population 21 Years and Older
- 1970 American Indian Population
- 1970 Black Population
- 1970 Chinese Population
- 1970 Filipino Population
- 1970 Japanese Population
- 1970 Other Racial Populations
- 1970 White Population
- 1990 Population Density
- 1990 Female Population 21 Years and Older
- 1990 American Indian Population
- 1990 Asian Population
- 1990 Black Population

0 | 9.25 miles Display Units: Miles Active 1970 White Population

Draw AutoShapes Slide 48 of 53 Default Design Desktop 7:56 AM

The screenshot shows a web browser window titled "Legend - Microsoft Internet Explorer" and "Hazardous Waste Sites on Long Island". The browser address bar shows "http://www.nceh.nih.gov/...". The page has a navigation menu with "intro", "search", "buffer", "legend", "layers", and "help". The main content area displays a map of Long Island with various colored regions and markers. A legend on the left side of the map lists:

- Active Hazardous Waste Sites (blue diamond)
- Inactive Hazardous Waste Sites (red circle)
- EPA Hazardous Waste Sites (yellow triangle)
- Breast Cancer Incidence by Zip Code
  - More than 100% above expected (dark purple)
  - 50 to 100% above expected (light purple)

The map shows several active hazardous waste sites (blue diamonds) and inactive sites (red circles) scattered across the island. EPA hazardous waste sites are marked with yellow triangles. The background is shaded in purple to indicate areas with elevated breast cancer incidence. A scale bar at the bottom left shows "0" to "4 miles" and "Display Units: Miles". A "Layers" panel on the right side of the map includes a "Redraw Map" button and a "Display" section with the following checked items:

- Active Hazardous Waste Sites
- Inactive Hazardous Waste Sites
- EPA Hazardous Waste Sites
- Zip Code Boundaries
- County Boundary
- Breast Cancer Incidence by Zip Code

The browser's status bar at the bottom shows "Done", "Slide 49 of 50", "Default Design", and "Internet". The Windows taskbar at the very bottom shows the Start button, several application icons, and the system tray with the time "8:08 AM".



clear all ?

print map ?

overview map ?

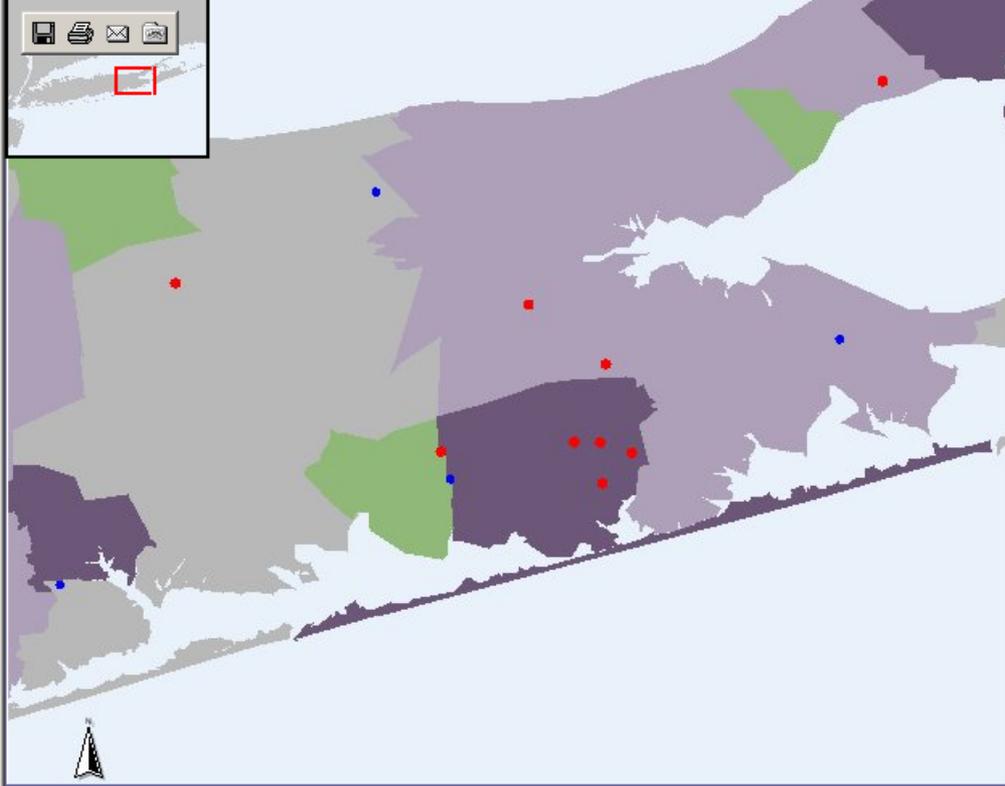
reset map ?

# Hazardous Waste Sites on Long Island

zoom in zoom out zoom last pan identify measure ?

intro search buffer legend layers help ?

Click a point on the map or hold the mouse to draw a rectangle to zoom in



## Layers

[Layer Information](#)

Redraw Map

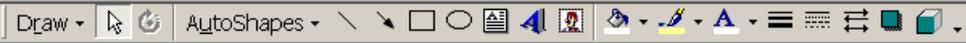
### Display

- Active Hazardous Waste Sites
- Inactive Hazardous Waste Sites
- EPA Hazardous Waste Sites
- Zip Code Boundaries
- County Boundary
- Breast Cancer Incidence by Zip Code

0 4 miles

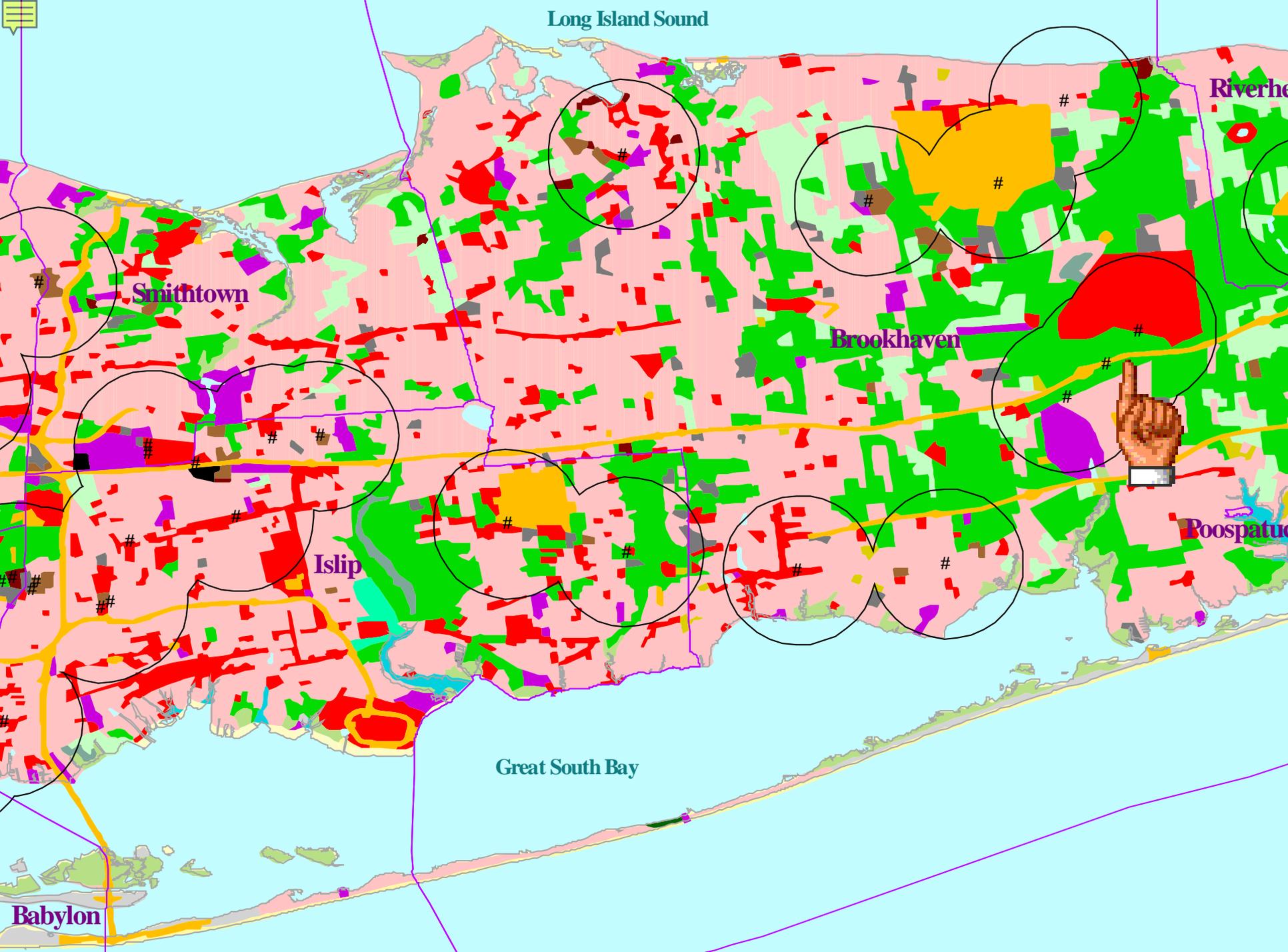
Display Units: Miles

Active Hazardous Waste Sites



Slide 47 of 53

Default Design



Long Island Sound

Riverhead

Smithtown

Brookhaven

Islip

Poospatuc

Great South Bay

Babylon

# *What is Availability of GIS-H?*

- ▶ **Available now to researchers with approved projects**
- ▶ **Public mapping features available soon**

# *Important Issues*

- ▶ **Data are imperfect**
  - ▶▶ **Examples: addresses, sparse data, data collected for other purposes**
  - ▶▶ **Potential exposure not necessarily actual exposure**
  - ▶▶ **Time frame and latency of cancer**
  - ▶▶ **Substitutions and additions may be recommended as we go along**
- ▶ **The website will not include software to keep**
- ▶ **The eye is not a good analytic tool**
- ▶ **Confidentiality**

**NATIONAL  
CANCER  
INSTITUTE**

GIS-H Access  
Data Services  
Software  
NCI Grant Information

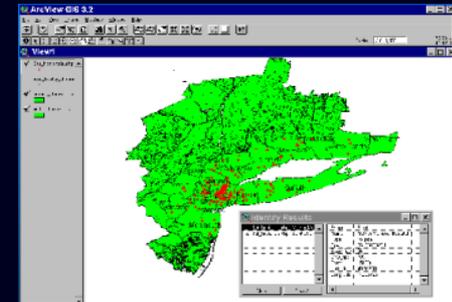
Home > [Researchers](#) > GIS-H Access

## GIS-H Access

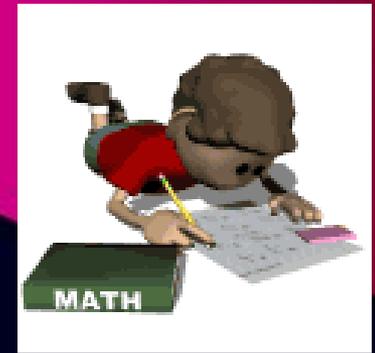
-  [GIS-H Software Use Application](#)  
 Application for researchers to request use of software licensed through the GIS-H. Researchers identify the software packages they would like to use in conjunction with the GIS-H Data Warehouse.
-  [GIS-H Data Warehouse Use Application](#)  
 Application for researchers to request use of GIS-H Data Warehouse. Includes information necessary to provide researcher with a secure id and to set up the user with appropriate user names, passwords, and data access. Additionally, researchers may specify restricted datasets that they would like to access. Access to unrestricted data is automatic with approval for GIS-H Data Warehouse access. Access to restricted data requires additional approvals.
-  [GIS-H Data Use Agreement Form](#)  
 User agreement for the use and handling of private or restricted datasets. *(coming soon)*

## *In Summary, the GIS-H is ...*

- ▶ **Comprehensive, integrated data warehouse (> 80 datasets)**
- ▶ **Flexible and expandable**
- ▶ **Can integrate external datasets**
- ▶ **Sophisticated researcher's toolbox**
- ▶ **Community input and access**
- ▶ **Systematic attempt to include high quality data, comprehensive metadata**
- ▶ **A prototype and resource for future studies**



*Apply!*



- ▶ Access to researcher site is limited to investigators with approved protocols
- ▶ For additional information, visit GIS-H website

[www.healthgis-li.com](http://www.healthgis-li.com)

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