Shoreline Survey Program

DIVISION OF ENVIRONMENTAL HEALTH

Shellfish Sanitation & Recreational Water Quality Section



DEH Shellfish Sanitation and Recreational Water Quality Section

- Morehead City, Wrightsville Bch, Nags Head, (Reidsville), staff of 31.
- 1,300 + water sampling stations coast-wide. Sampled @least 6x/yr. Plus rainfall samples.
- 243 Recreational water quality stations. Post advisories.
- Certify and Inspect 200+ shellfish dealers, processors, 20 crustacea processing facilities statewide.
- Classify shellfish growing areas and make recommendations to DMF for openings and closures
- Shoreline survey for pollution sources
 - 5,000+ septic inspections/yr.

Why all the worry?

Filter up to 50 gallons per day

Concentrate
 pathogenic bacteria,
 toxins, viruses

Often consumed raw or undercooked



Pathogens, viruses, and toxins that can be concentrated in molluscan shellfish



<u>Viruses</u>

- Hepatitis A
- Hepatitis E
- Rotavirus
- Norwalk (Noravirus)

Bacterial Pathogens

- Salmonella sp. (Typhoid, paratyphoid)
- C. botulinum (Low O2)
- Listeria monocytogenes
- Vibrio vulnificus
- Vibrio parahaemolyticus

Natural Toxins

- PSP (Red Tides)
- NSP
- ASP

Other Problems

- Chemicals, Pesticides
- Radioactive

≈85% of seafood related illnesses in the US annually result of consumption of raw shellfish. (*US FDA, 1991)

Shoreline Survey Protocol (Evaluated by US FDA)

Required under the NSSP Model Ordinance

Conducted Triennially for each growing area

NSSP Shoreline Survey Requirements

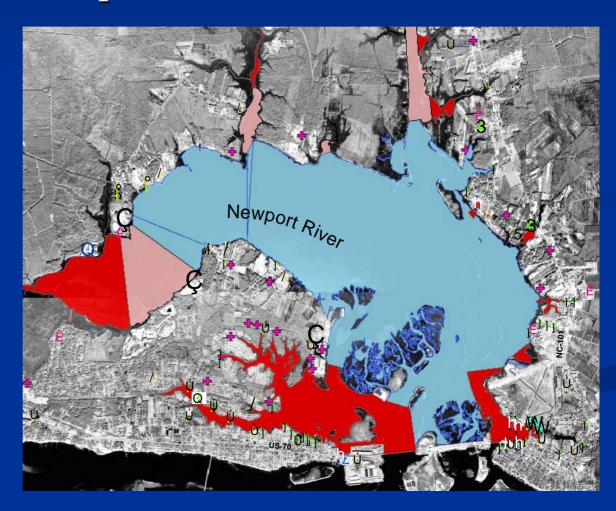
"Identification
 & Evaluation of
 All Actual and
 Potential
 Pollution
 Sources"



Shoreline Survey Requirements

Map actual & potential pollution sources

Written summary



EPA Wetlands Program Grant

- Refine shoreline survey methodology
- Wetland Restoration & Monitoring at North River Farms
- Partnered with NCCF & Duke University Marine Lab
- Also working with NC DOT (stormwater)

Survey Goals

- More accurately assess pollution threats to protect Public Health
- Develop a comprehensive Geographical Information System (GIS)
- Accessibility of Data (IBEAM, NC One Map)
- Improved cooperation and data sharing with other agencies to help protect and improve shellfish growing waters

Shoreline Methodology

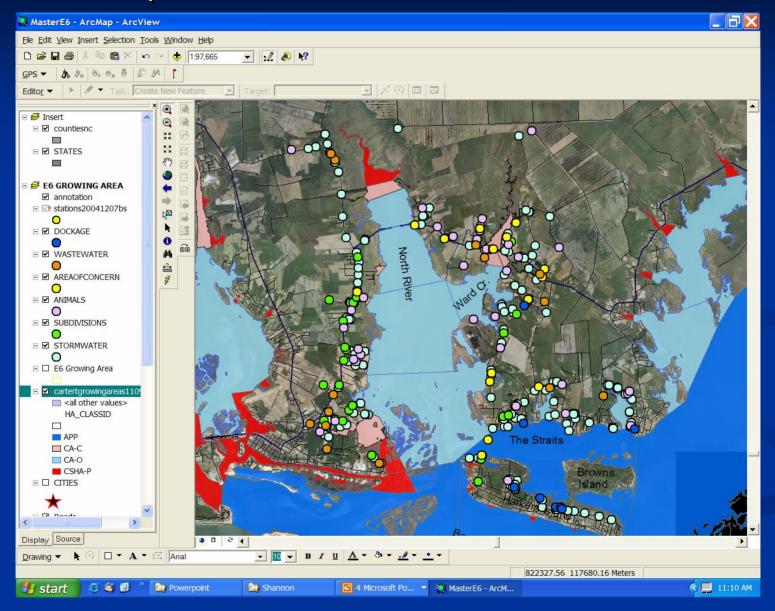
- GPS Data Logger, photos, attributes
- GIS Analyst data entry & analysis

Walking survey

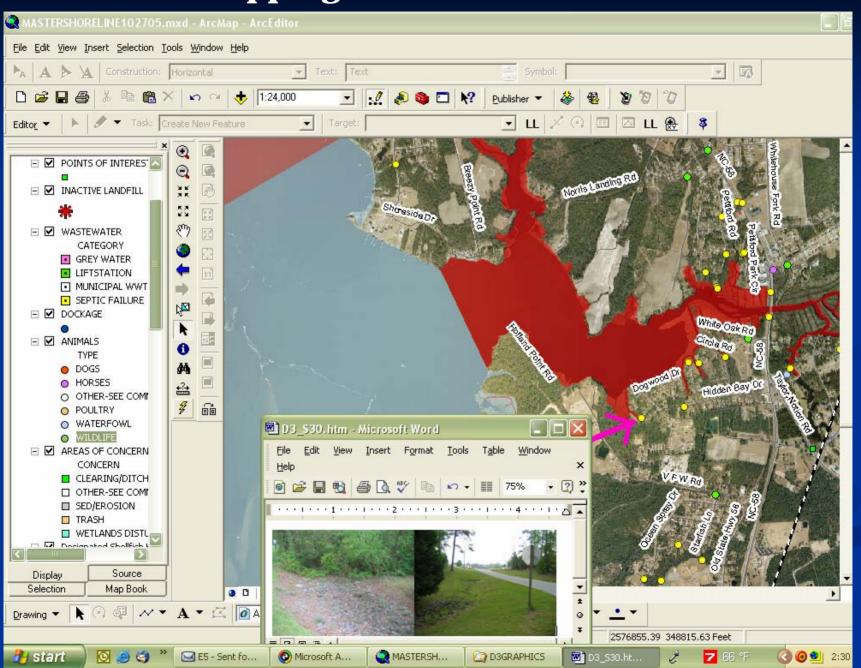




GIS (Geographic Information System)



GIS Mapping and Database Attributes



Pollution Sources

- Septic Systems
- Animal Operations
- Chemical/Toxins







Pollution Sources

- Development Trends
- Marinas and Docking







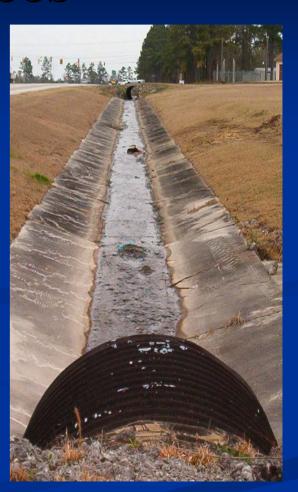
1995

Pollution Sources

- Stormwater Runoff
- Pond discharges

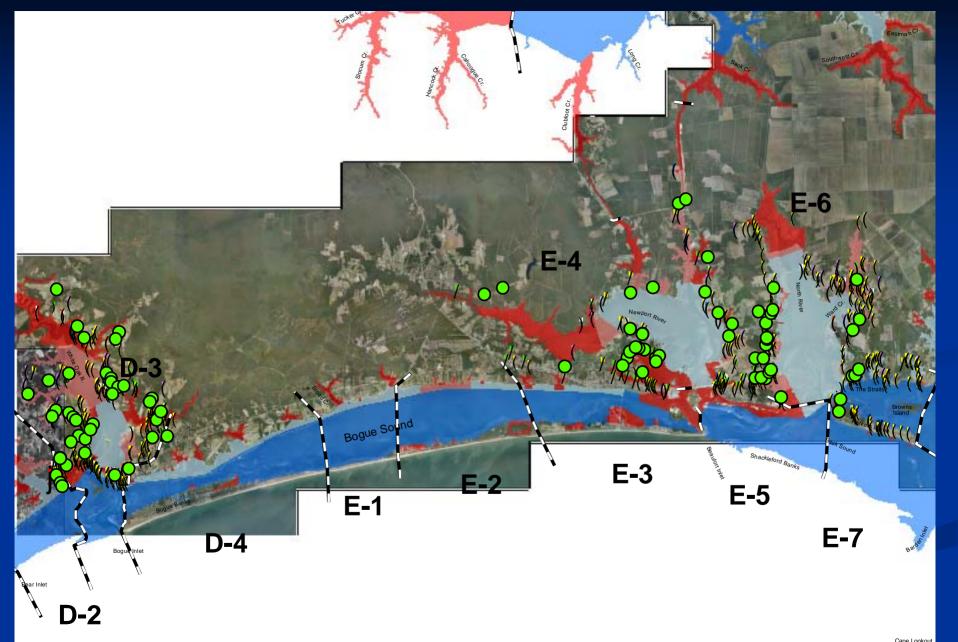
Agriculture/Aquaculture





Urban

Areas Completed using New Shoreline System



Inter-Agency Cooperation

- Interagency Scoping Meetings
- Cross-Training Completed with:
 - NC Division of Water Quality
 - NC Division of Coastal Management
 - NC Department of Transportation
 - NC Division of Land Resources
 - US Army Corps of Engineers
- Potential violations reported to:
 - County EHDs, DENR Agencies, USCG, USACE

Benefits

- Industry
- Recreation
- Environment
- Public Health







Limitations

Grant funding ends this year

GIS Analyst Needed to Continue New Method

Only Three staff dedicated to shoreline survey

