

FLORIDA ONSITE SEWAGE NITROGEN REDUCTION STRATEGIES --- DEPARTMENT OF HEALTH UPDATE



ELKE URSIN

ONSITE SEWAGE RESEARCH PROGRAM COORDINATOR

FLORIDA DEPARTMENT OF HEALTH

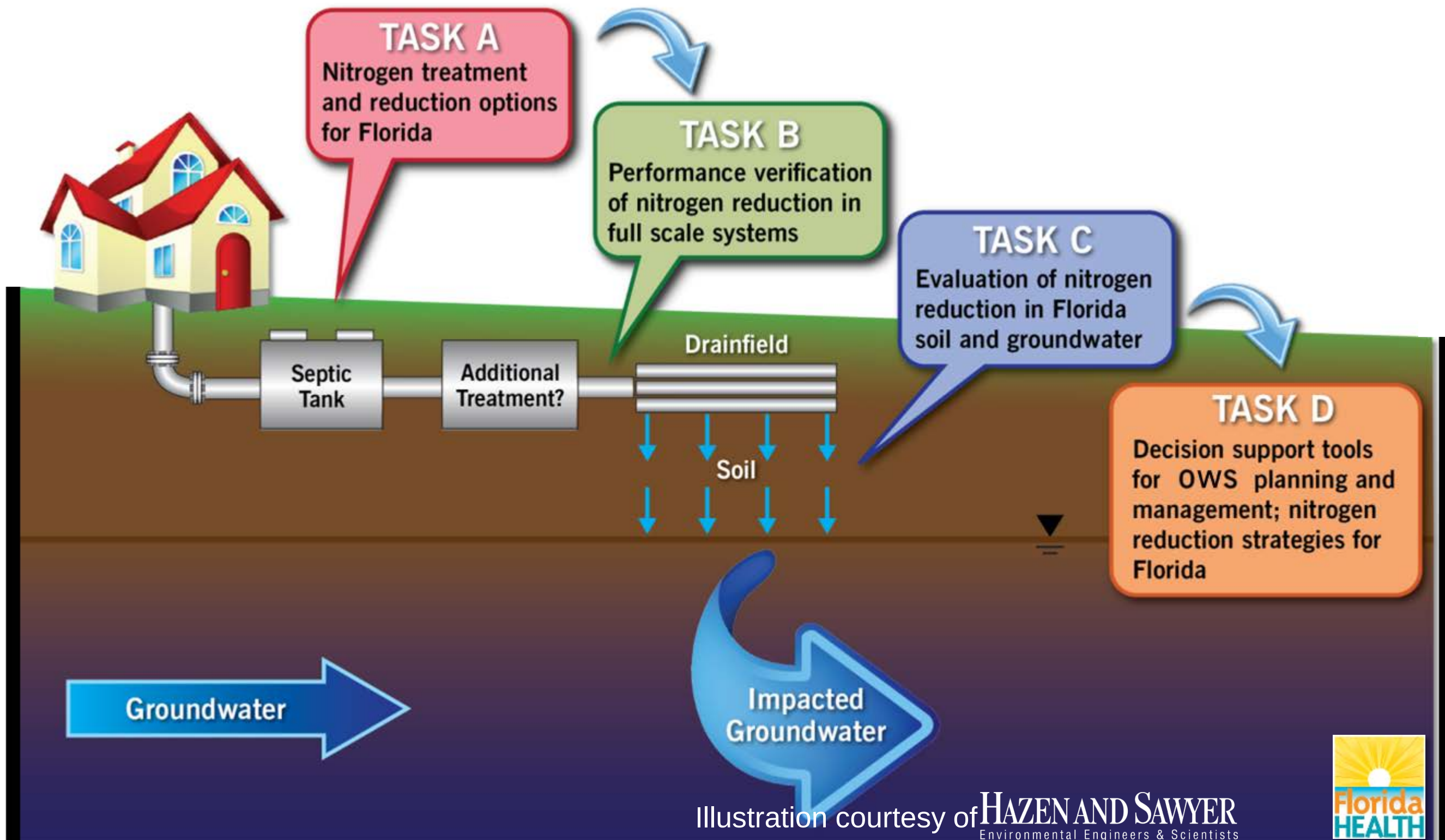
DIVISION OF DISEASE CONTROL & HEALTH PROTECTION

August 31, 2015

Wakulla Basin Management Action Plan Meeting



FLORIDA ONSITE SEWAGE NITROGEN REDUCTION STRATEGIES STUDY



INSTALL FULL-SCALE SYSTEMS 3 AT ACTUAL HOME SITES

Monitored 7 sites throughout Florida
8 monitoring events over 12-18 months

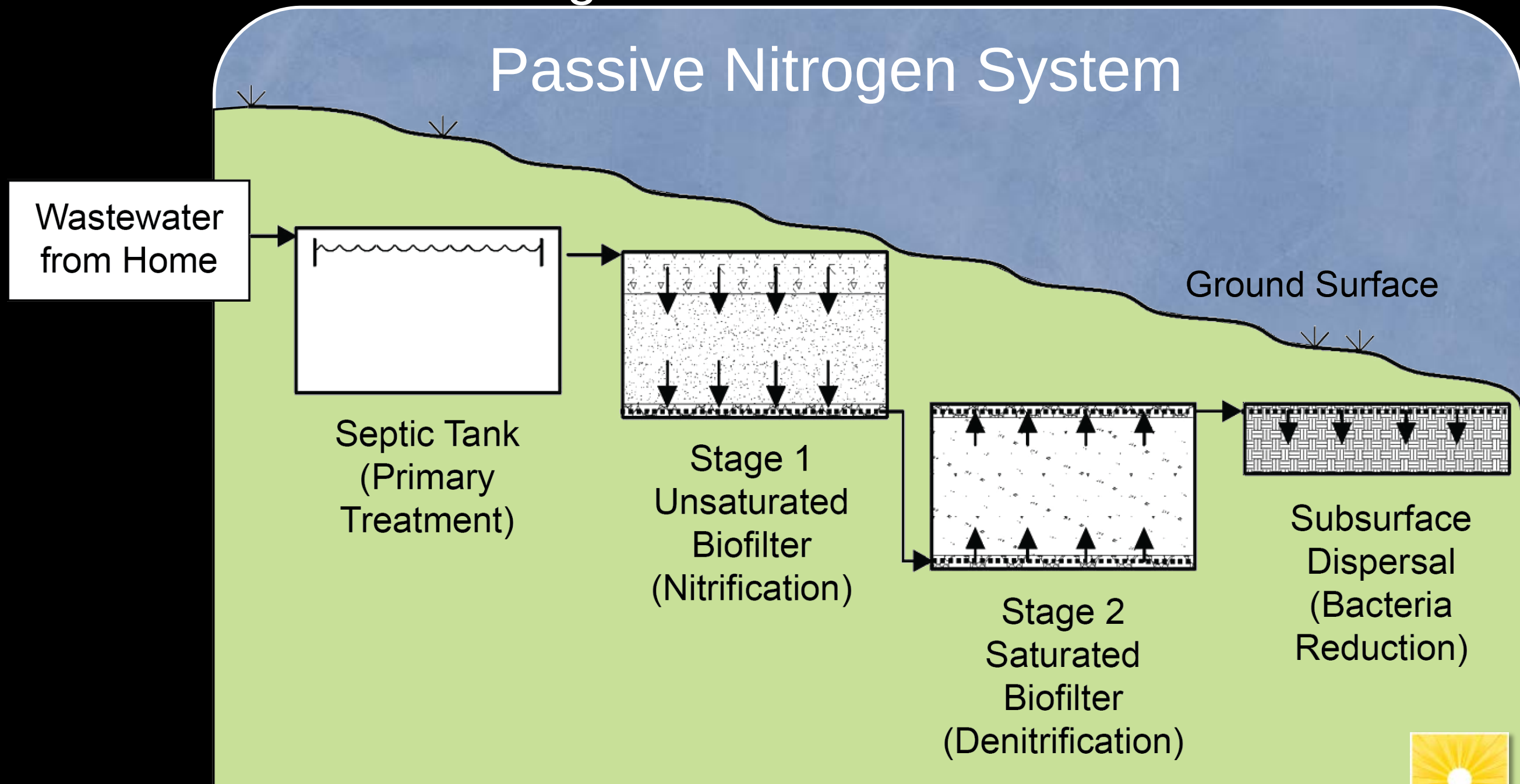
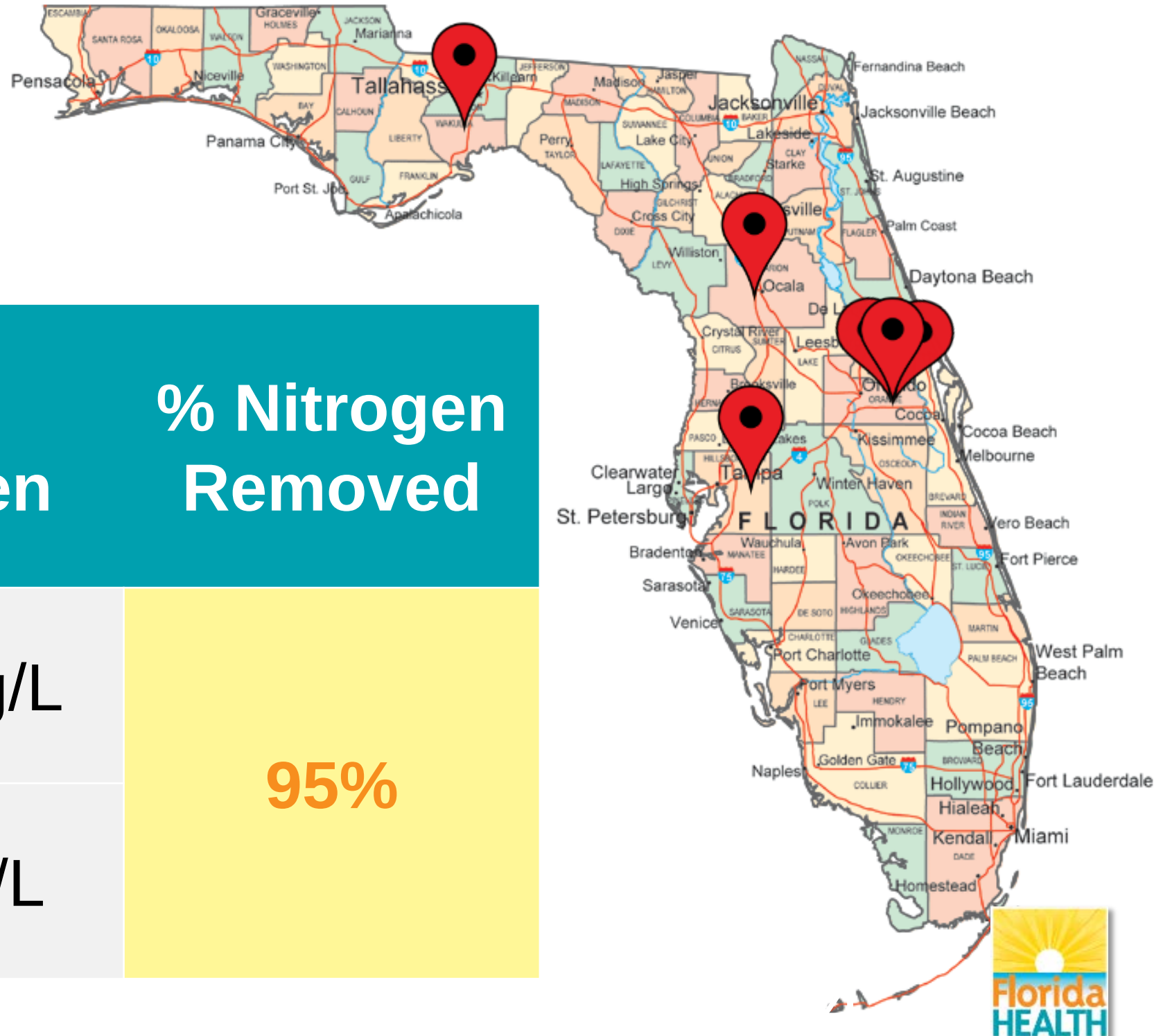


Illustration courtesy of **HAZEN AND SAWYER**
Environmental Engineers & Scientists



NITROGEN REDUCTION AT FIELD SITES



Results
from one
field site:

Total
Nitrogen

% Nitrogen
Removed

Wastewater
Before

54.7 mg/L

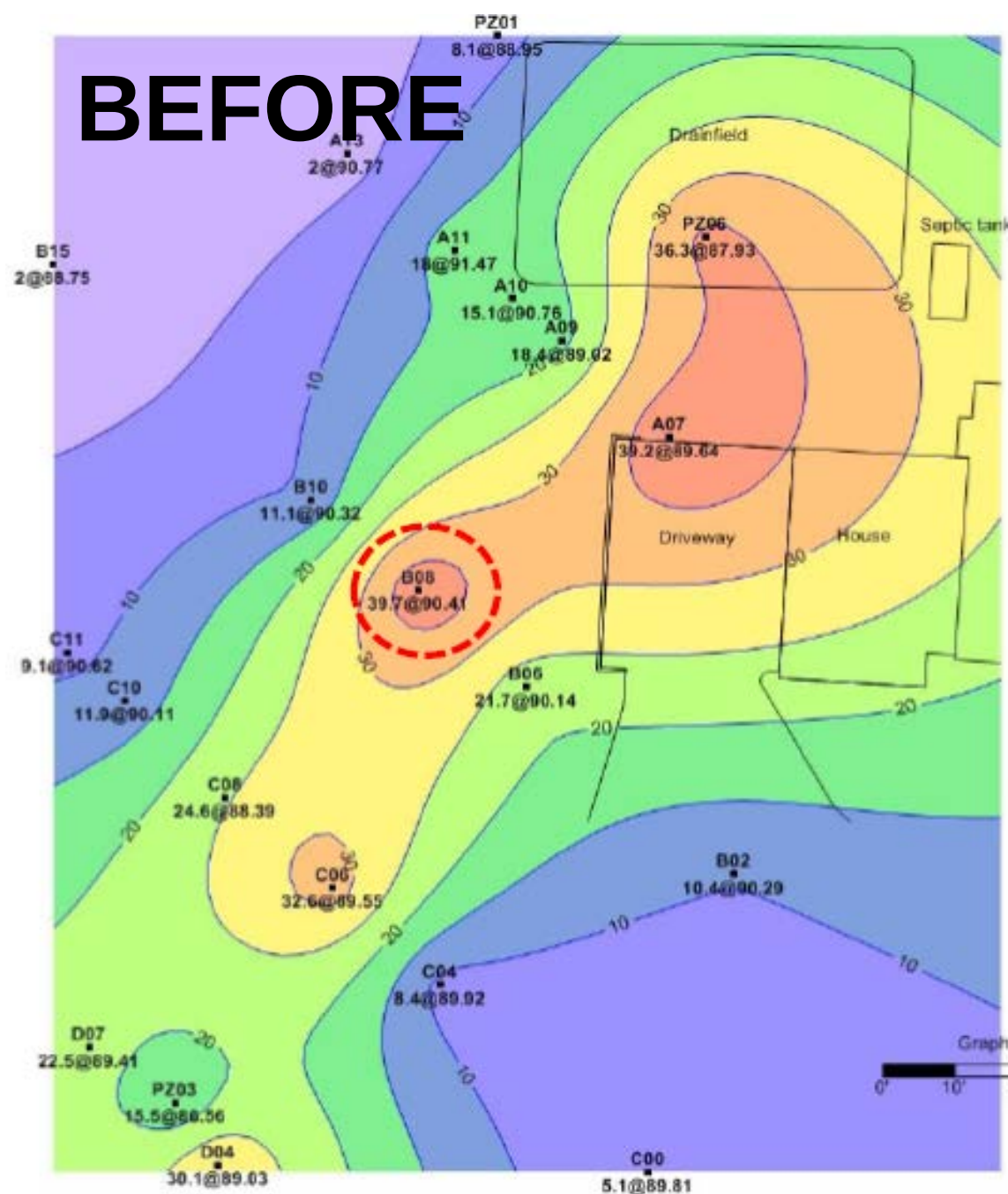
Wastewater
After

2.5 mg/L

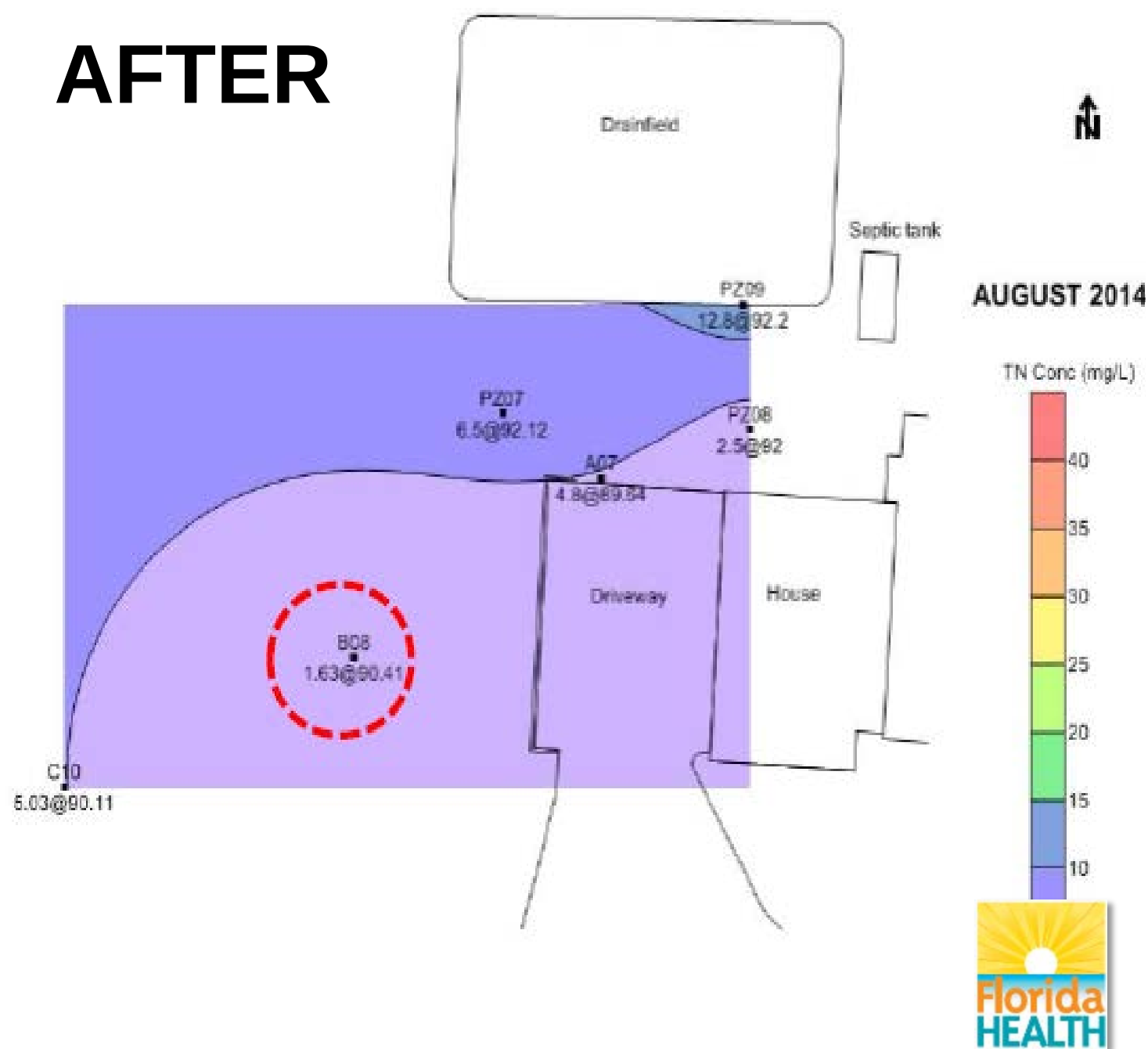
95%

CASE STUDY: GROUNDWATER MONITORING

BEFORE



AFTER



NITROGEN MODEL

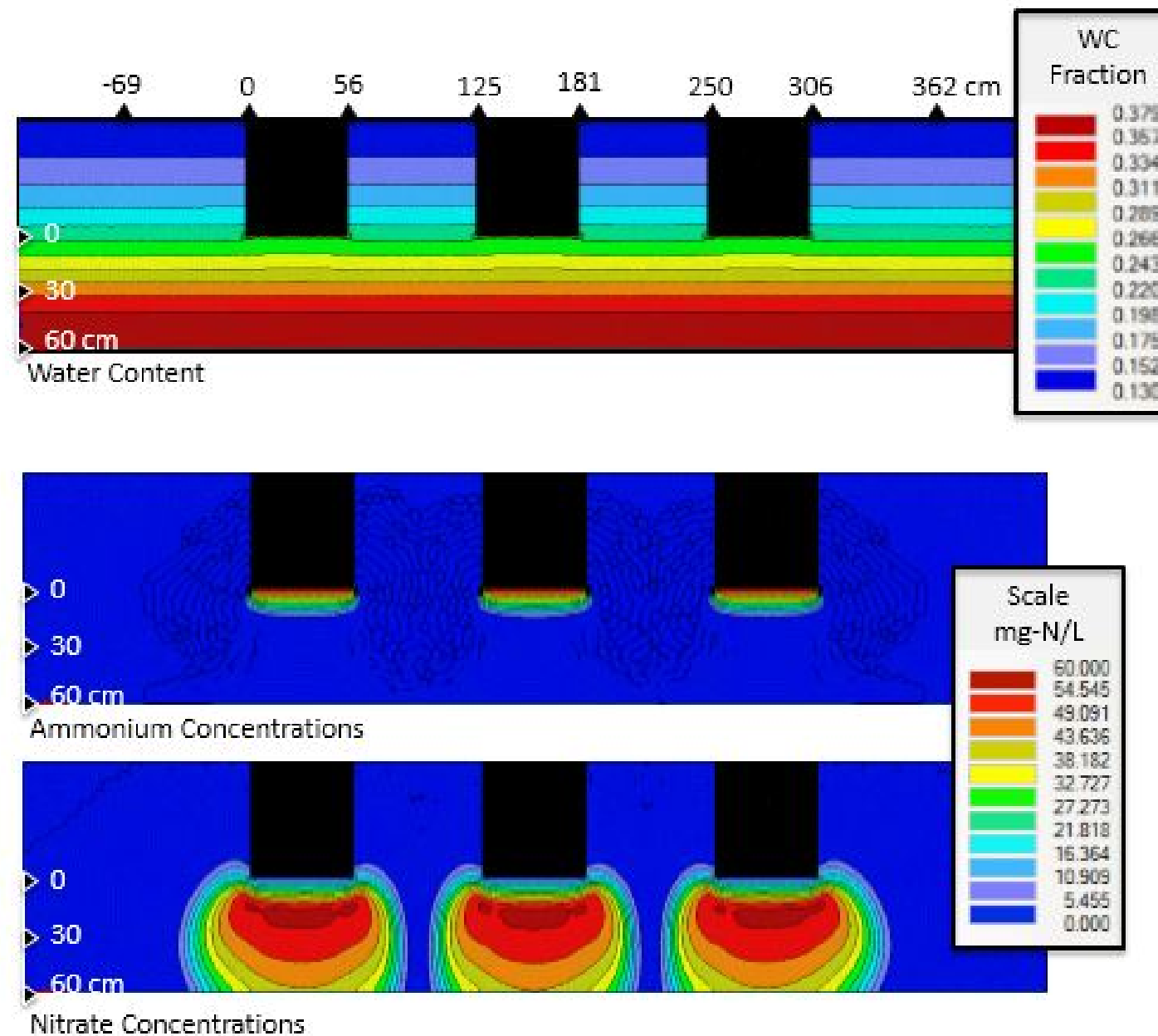


IMAGE CREDIT: COLORADO SCHOOL OF MINES

NITROGEN MODELING

STUMOD

Vadose zone inputs | Vadose zone outputs | Sat. zone inputs | Sat. zone outputs | STUMOD-HPS | Multi-sites I | Multi-sites II | Sensit | CFD I | CFD II

Choose soil type ? Help Caution! Default values ?

Effluent concentration ?

Hydraulic loading rate ?

Treatment depth ?

Soil temperature ?

ET & plant uptake ?

Carbon content functi ?

Select # of soil Layers
No. of Layers ?

Soil type layer 2

Soil type layer 3

Run STUMOD Close

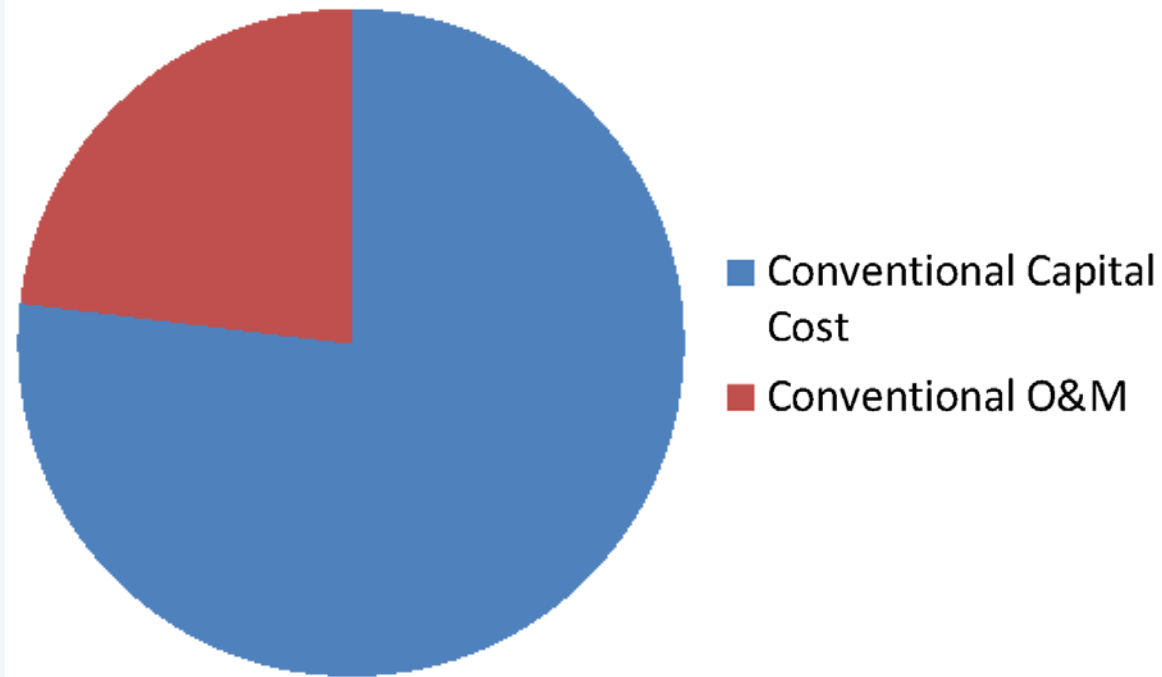
Source: USGS

Florida HEALTH

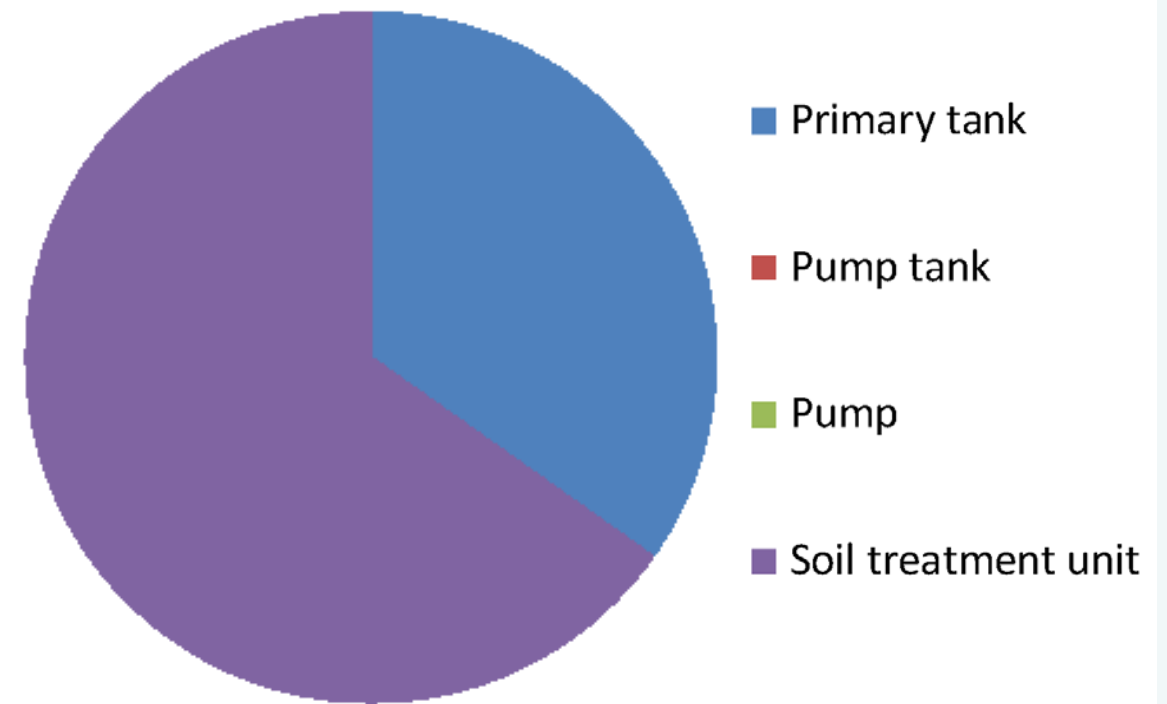
LIFE CYCLE COSTS

CONVENTIONAL

Present Worth (2015 dollars)

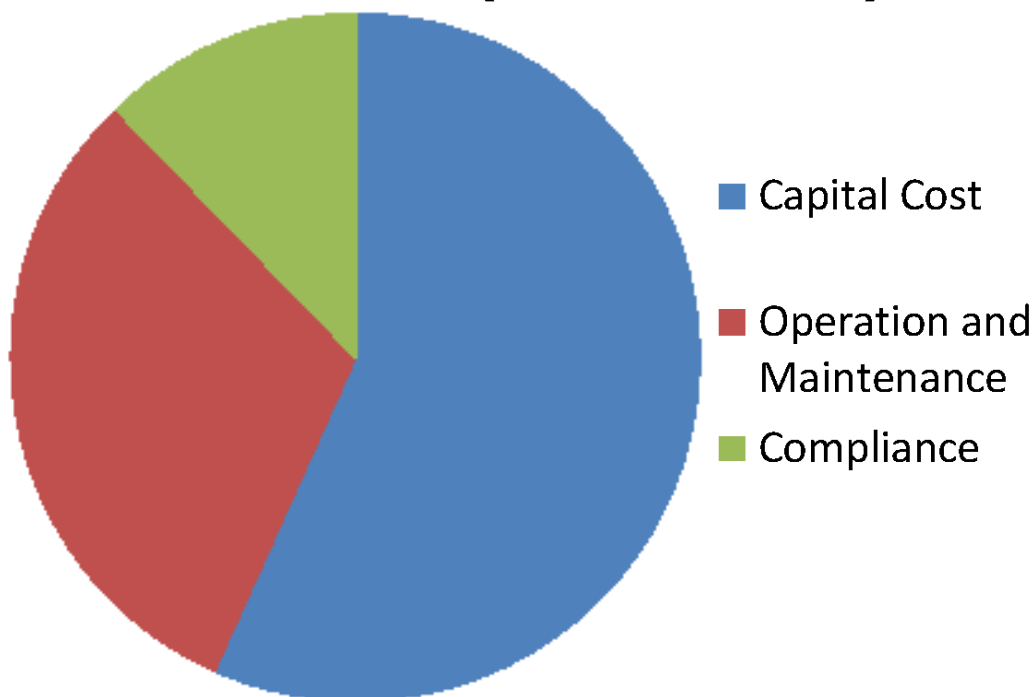


Capital Cost

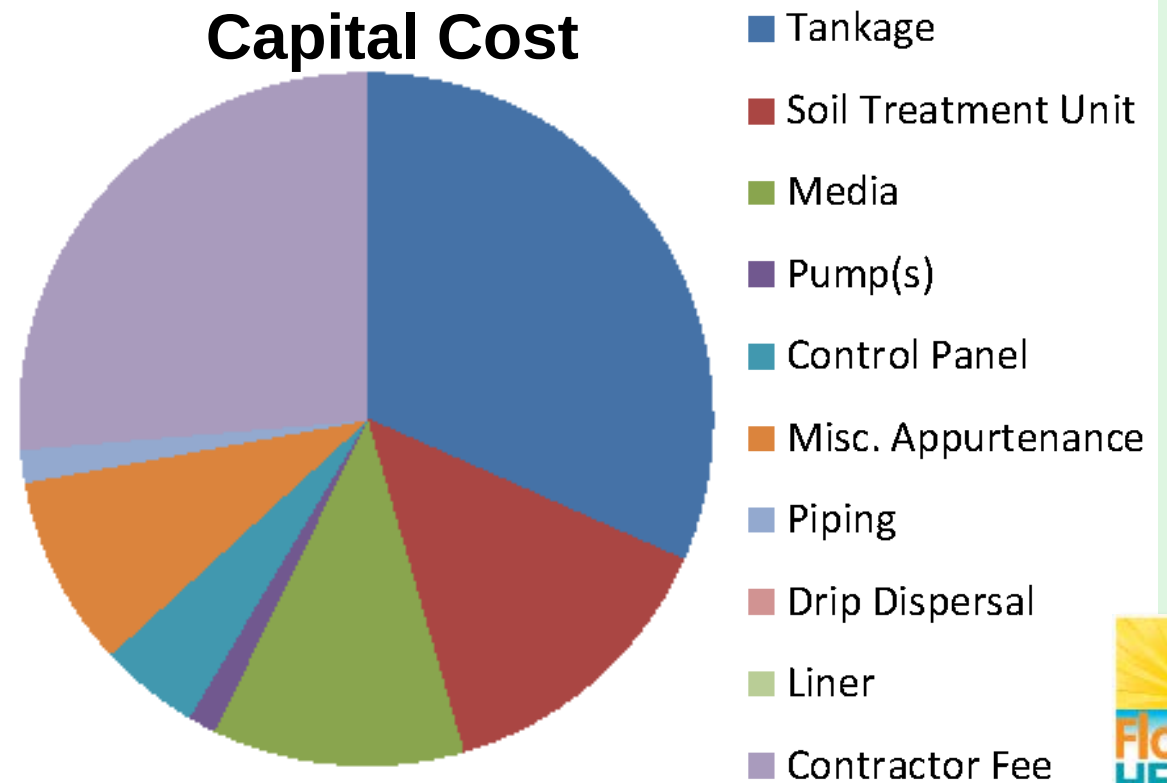


PASSIVE NITROGEN

Present Worth (2015 dollars)



Capital Cost

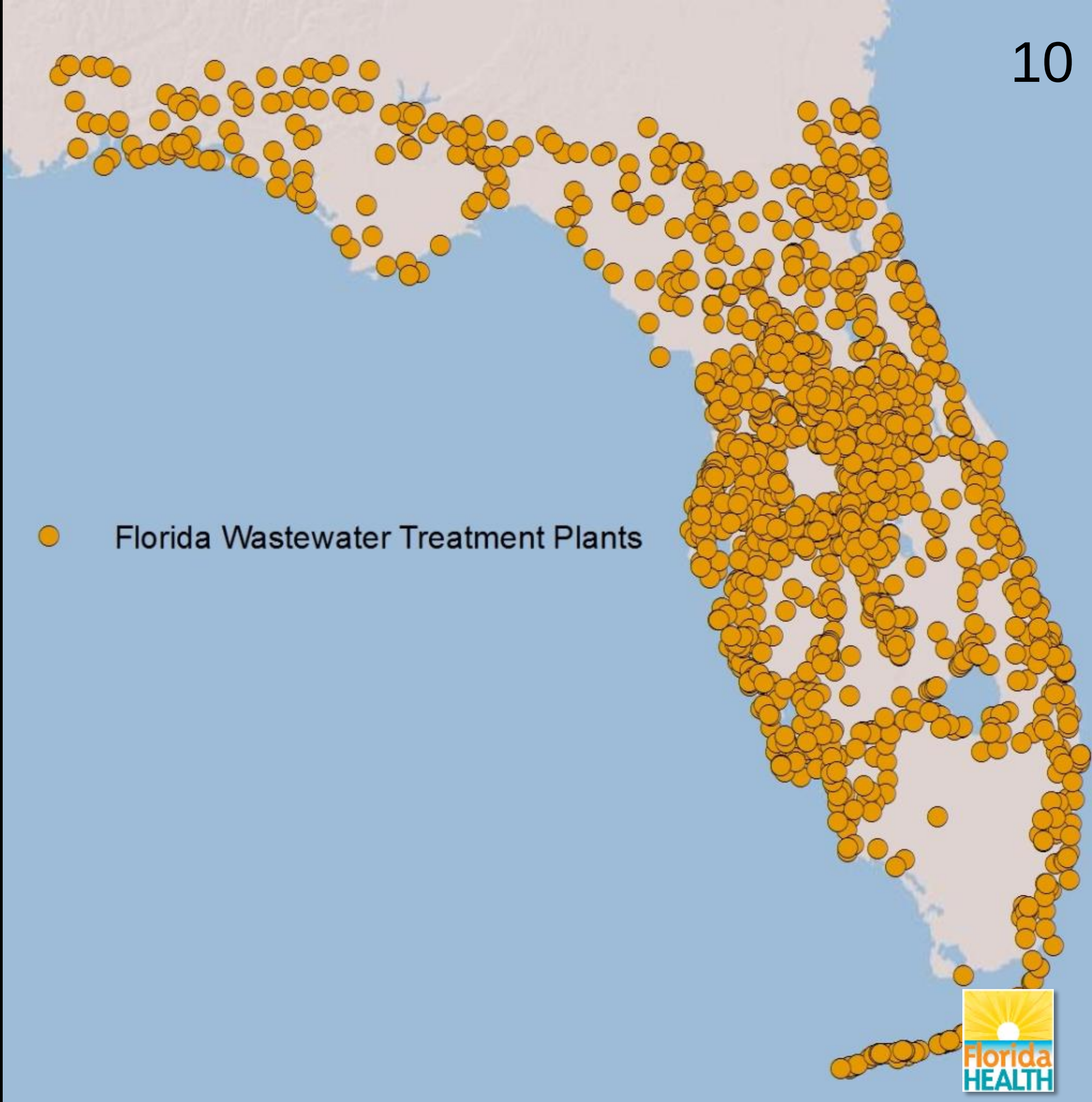


TRANSFORMATIVE TOOLS



floridahealth.gov/FLWMI

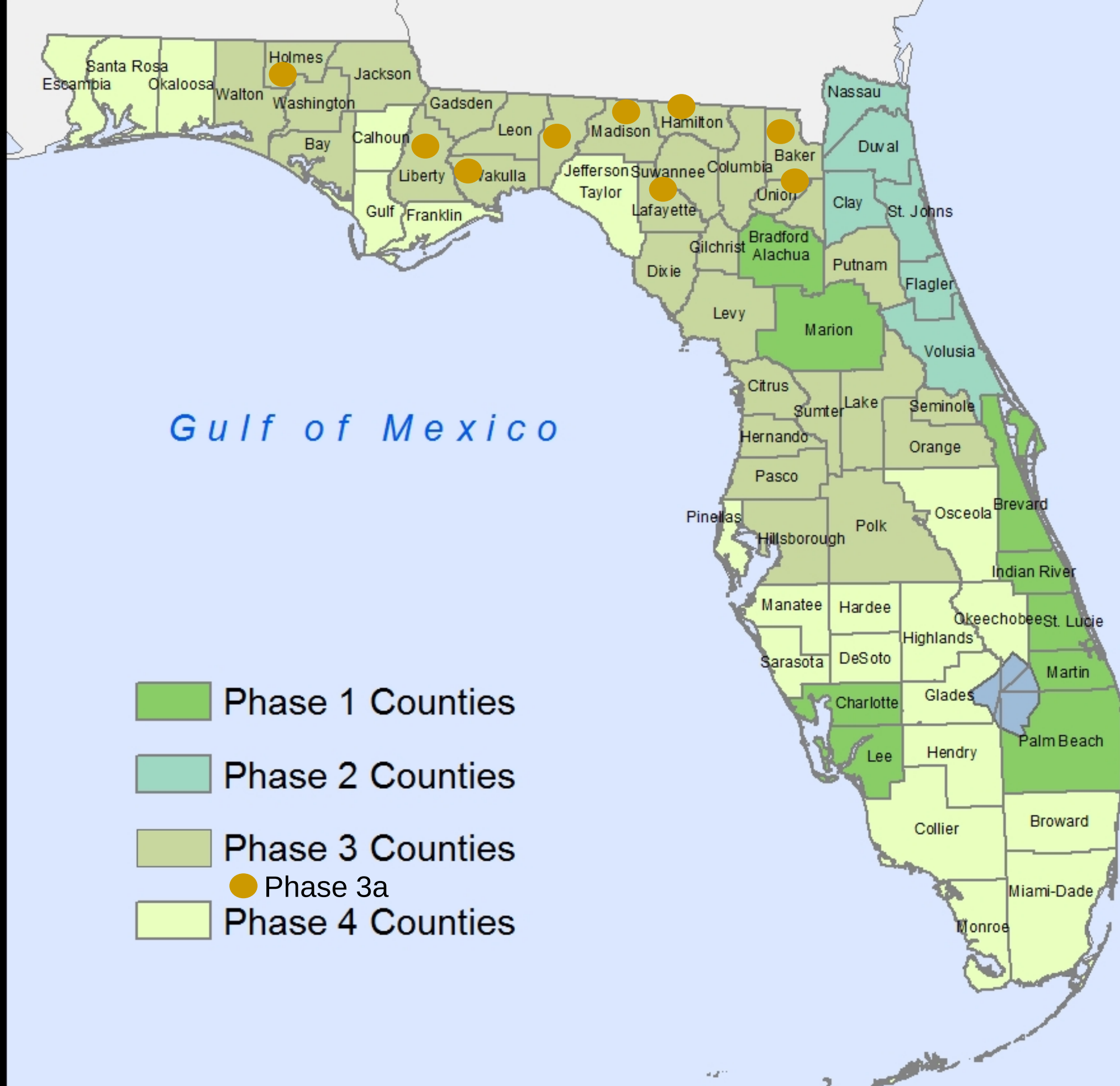
WHERE DOES IT GO?





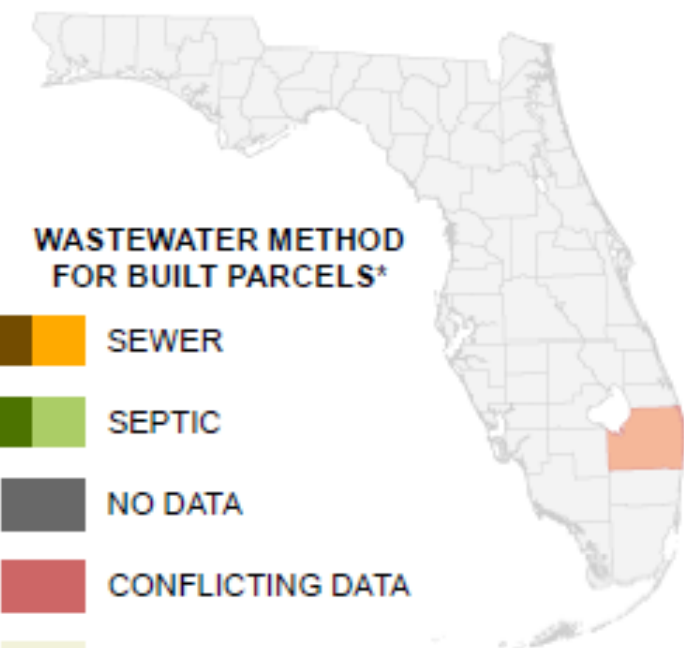
HIDDEN GEMS

DATA SILOS

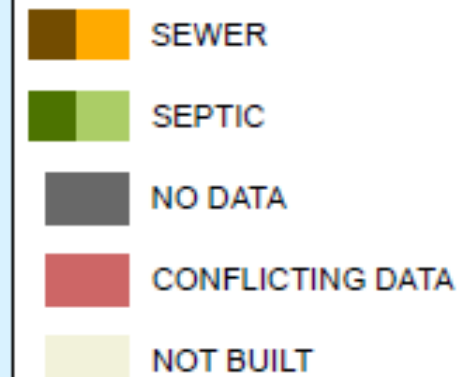


Florida Water Management Inventory

Palm Beach County Wastewater 2015



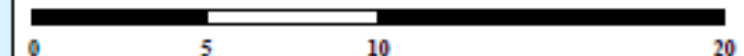
WASTEWATER METHOD FOR BUILT PARCELS*



Interstate
 US Highway
 State Road

* Includes parcels with unknown Built status. Percentages do not include parcels where wastewater is not applicable.

Miles



SEWER PARCELS

315,731 Known (77.7%)
 38,754 Likely (9.5%)

SEPTIC PARCELS

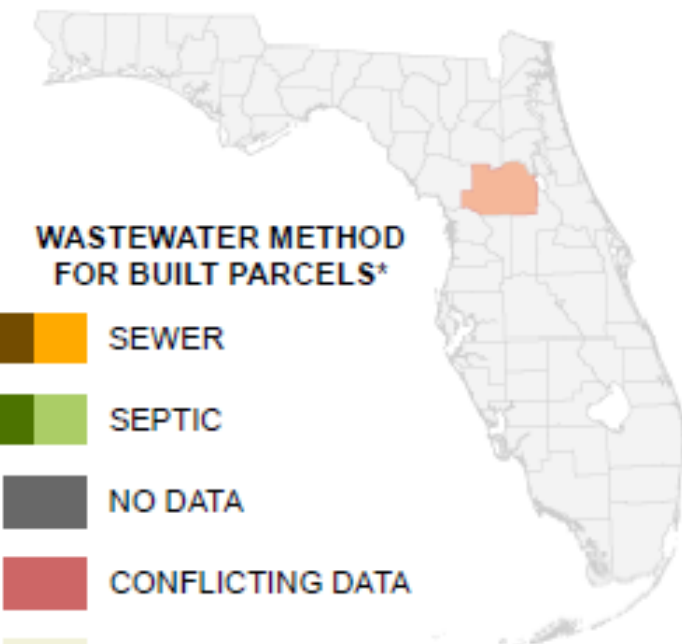
14,996 Known (3.7%)
 29,002 Likely (7.1%)

UNKNOWN PARCELS

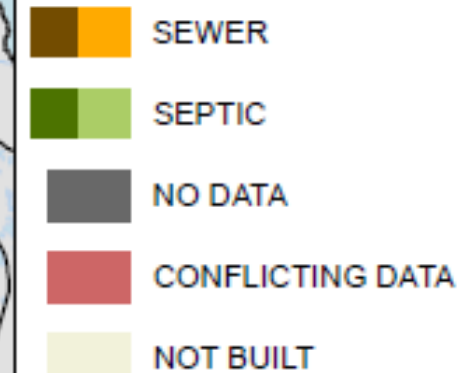
3,706 Conflicting Data (0.9%)
 4,359 No Data (1.1%)

Florida Water Management Inventory

Marion County Wastewater 2015

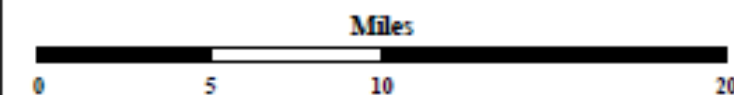


WASTEWATER METHOD FOR BUILT PARCELS*



Interstate
 US Highway
 State Road

* Includes parcels with unknown Built status. Percentages do not include parcels where wastewater is not applicable.



SEWER PARCELS

36,955 Known (22.7%)
 1,061 Likely (0.7%)

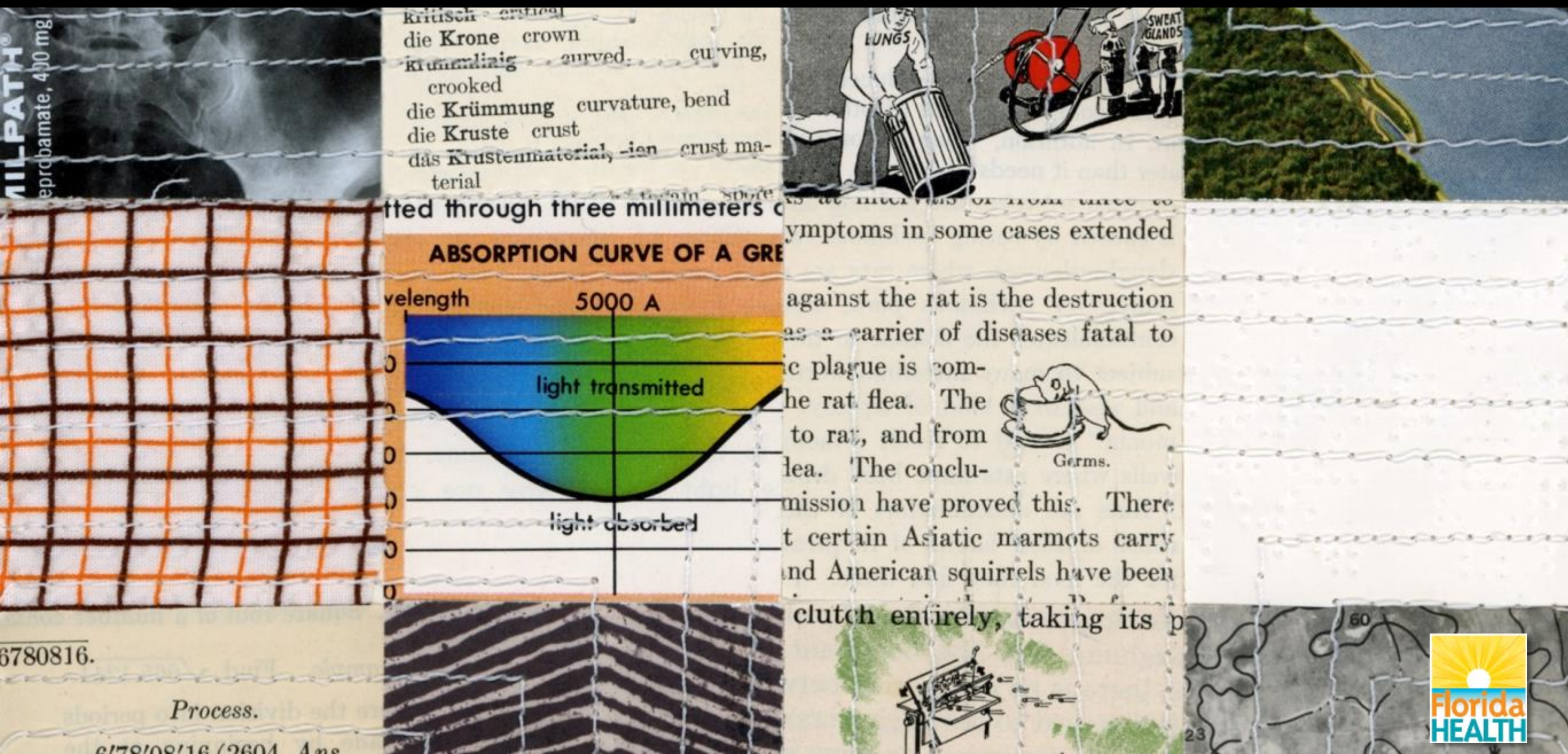
SEPTIC PARCELS

94,220 Known (57.8%)
 23,726 Likely (14.6%)

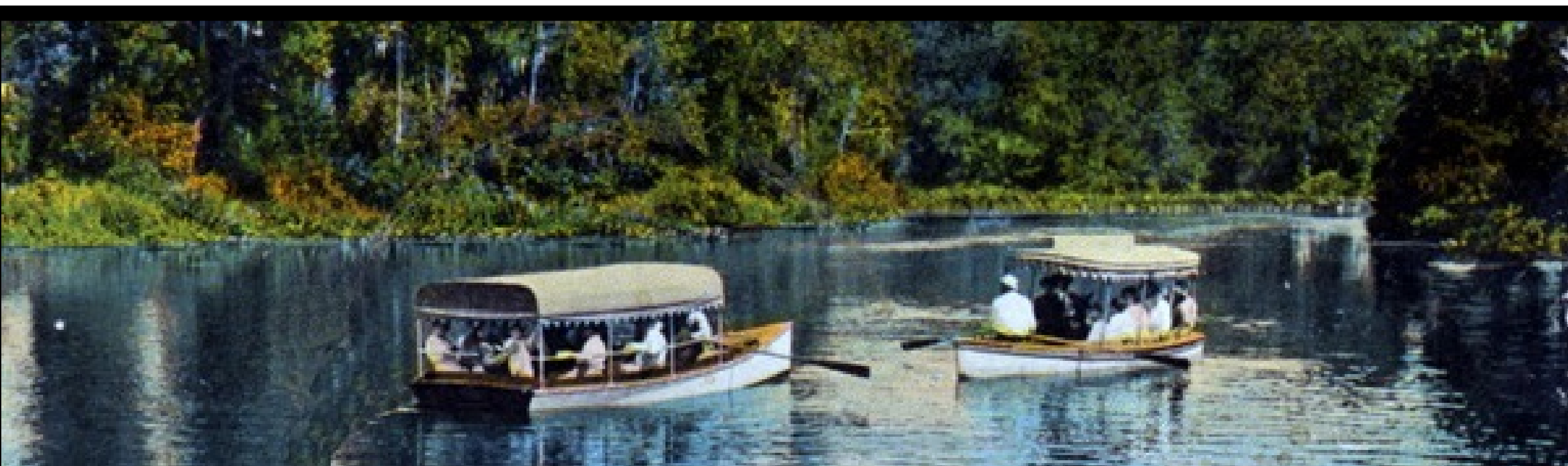
UNKNOWN PARCELS

171 Conflicting Data (0.1%)
 6,809 No Data (4.1%)

STITCHING IT ALL TOGETHER



WHAT'S NEXT FOR WAKULLA SPRINGS?



ELKE URSIN

Onsite Sewage Research Program Coordinator

Florida Department of Health

Division of Disease Control & Health Protection

Elke.Ursin@FLhealth.gov

