

GIS Applications for DOT Regulatory Compliance

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Example GIS Applications

- Jurisdictional Determination
- Class Location Determination
- HCA Determination
- Risk Assessment
- One Call Management
- Public Awareness Program Management
- Specialty issues – offshore piping



Jurisdictional Determination

- Other presentations addressing new / proposed gathering rules
- Factors include navigable water crossings, public thoroughfares, railroads, length outside operator's property

Class Location Determination

- Structures intended for human occupancy within 220 yards of the pipeline
- “Special” sites, such as outdoor recreation areas, within 100 yards of the pipeline
- Truncate higher classes outside clusters of buildings

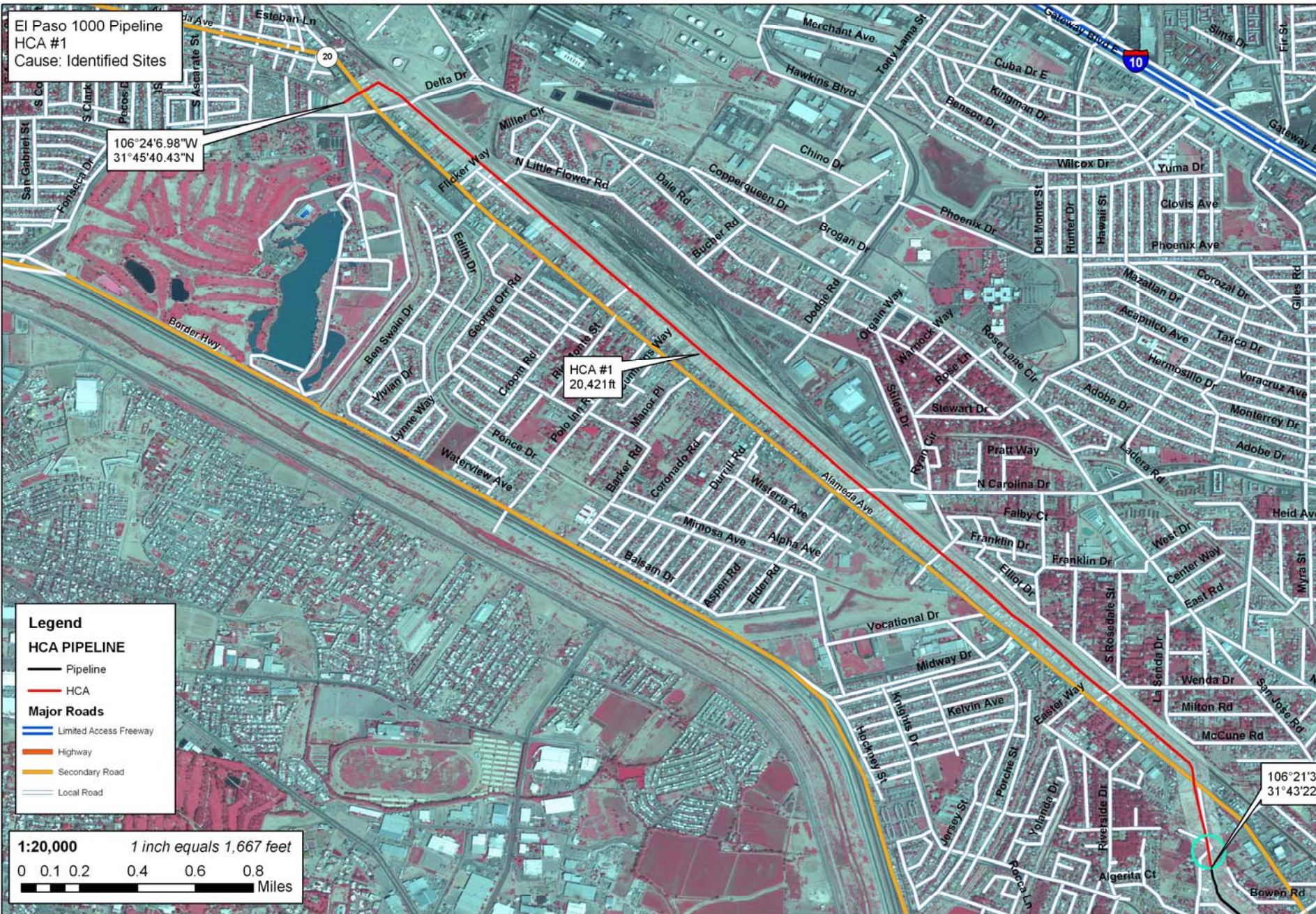




HCA Determination - Gas

- Impact circles
- House counts
- Identified sites
 - Recreation areas
 - Summer schools (20+ people for 10 weeks)
 - Hard to evacuate (prisons, nursing homes, etc.)
- Class Locations

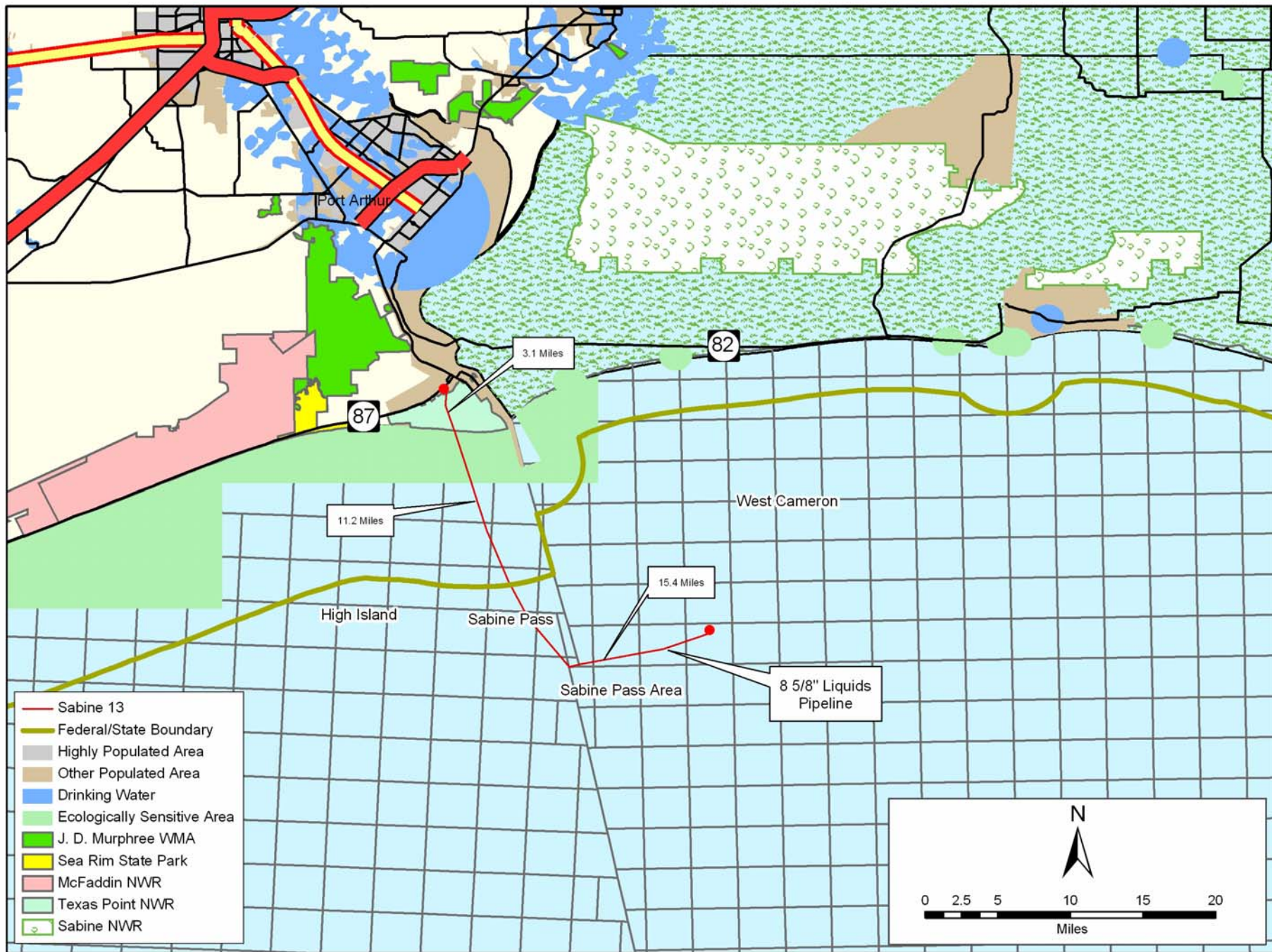




HCA Could-Affect: Liquid

- HCAs already identified and mapped by OPS
- Need to determine if the pipeline could affect them
 - Spill volume / draindown / trajectory
 - Aerial dispersion





Risk Assessment

- Required for both gas and liquid pipeline integrity management programs
- Not just the HCA analysis
- Risk = probability * consequences
 - Probability factors: pipe design, corrosion threats, landslide threats, excavation threats
 - Consequence factors: population density, special sites, size and pressure of pipe,



One Call Management

- Is your pipe potentially affected by a dig location?
- Beware reliance on geo-referenced addresses
- Beware unsophisticated GPS users
 - $30^{\circ} 30' 30''$ isn't $30^{\circ} 30.30'$ isn't 30.3030°
 - NAD 83 isn't NAD 27, etc.
- Some web-based dig notification tools are in use



Public Awareness Programs

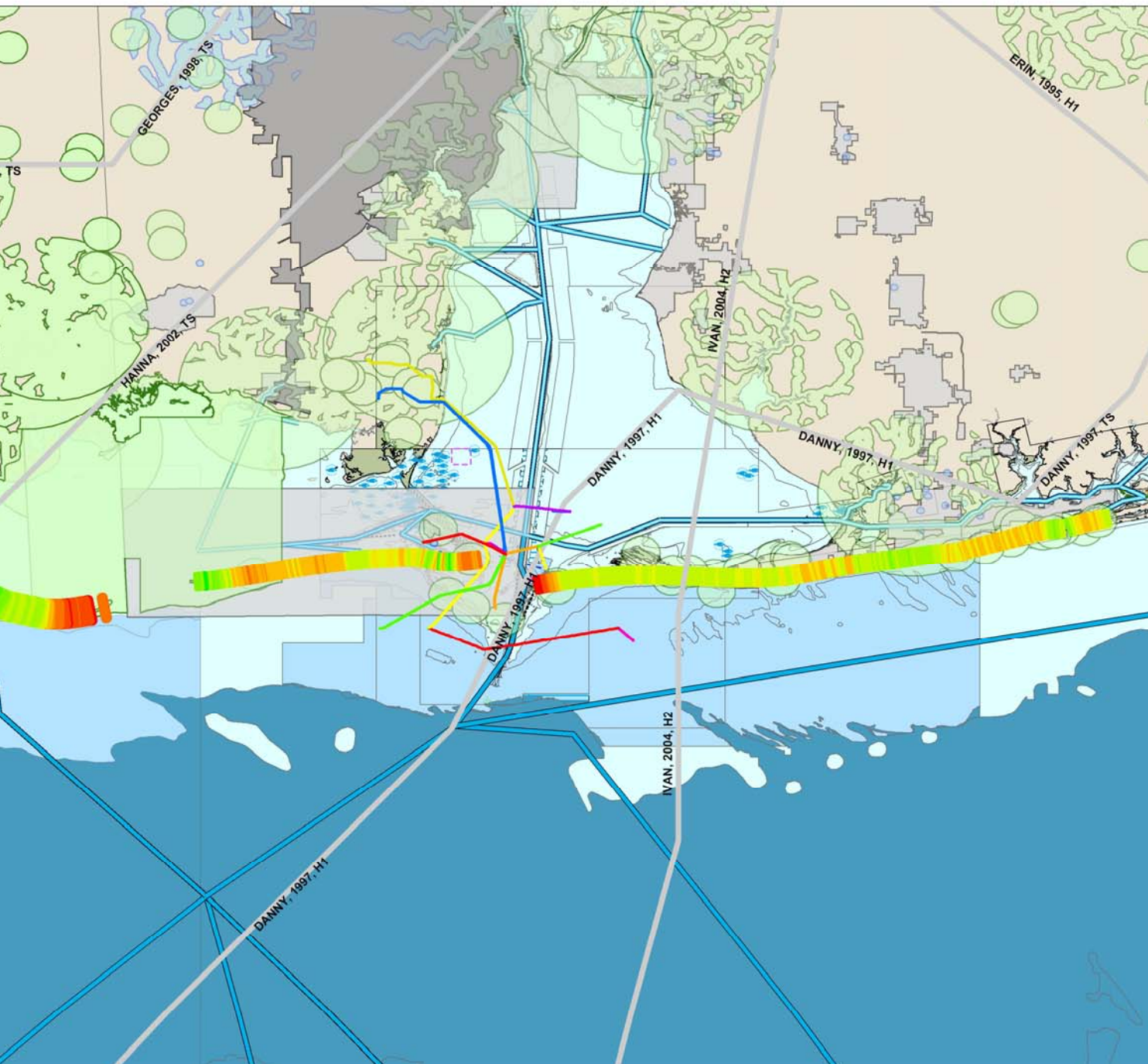
- Who gets the mailings about your pipeline?
- Who do you need to “liaise” with?
 - What public responders are in the area?
- What reach does your public service announcement have?
- Which areas are being effectively reached?
- Some web-based tools are in use



Offshore Pipeline Burial Inspections

- Must have a risk-based periodic inspection program for GOM PL's in less than 15' of water at low tide
- Risk factors include proximity to hurricane tracks, erosion risks, location of navigation channels, etc.





Overview Map, 85-Mile Radius
 4.6 Meter = 15 Feet
 Created by: DecM Modified: 3/2007
 Modified by: BR



- Pipeline 85 mile Radius
- Cyclones 1991-2005
- Shipping Lane
- Highly Populate Area
- Other Populated Area
- Drinking Water
- Ecologically Sensitive Area

DepthAreaFeature

Depth below Mean Low Low Water / m

- | | |
|-----------|------------------------|
| 0 - 5.0 | Bundles(Mobile_Bay,AL) |
| 5.1 - 10. | BUNDLE_01 |
| 10.1 - 15 | BUNDLE_02 |
| > 15.1 | BUNDLE_03 |

Erosion Rate m/yr

- | | |
|---------------|------------|
| -9.16 - -8.00 | BUNDLE_04 |
| -7.99 - -6.00 | BUNDLE_05 |
| -5.99 - -4.00 | BUNDLE_06 |
| -3.99 - -2.00 | BUNDLE_07 |
| -1.99 - -0.50 | BUNDLE_07A |
| -0.49 - 0.00 | BUNDLE_08 |
| 0.01 - 0.50 | BUNDLE_09 |
| 0.51 - 2.00 | BUNDLE_10 |
| 2.01 - 4.00 | BUNDLE_11 |
| 4.01 - 6.00 | BUNDLE_12 |
| 6.01 - 8.00 | BUNDLE_13 |
| 8.01 - 10.00 | BUNDLE_14 |
| | BUNDLE_15 |

NOAA Navigational Charts: 11377, 11378 c. 2005,2006
 NOAA Tropical Cyclone Tracks 2004,2005,2006
 NPMS Population Data 2000 Census
 NPMS Navigable Waterways 2002



1:400,000
 1 inch equals 33,333.3 feet

0 1.5 3 6 9 12 Miles

A scale bar with markings for 0, 1.5, 3, 6, 9, and 12 miles.