

Source Water Protection

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Background

- Last July, Newport News Waterworks approached HRPDC about improving the existing Source Water Assessment Program
- Wanted to update and expand on the existing Source Water Assessment Program
- HRPDC has worked closely with the Newport News Waterworks to update the regional Source Water Assessment Program

Update Process



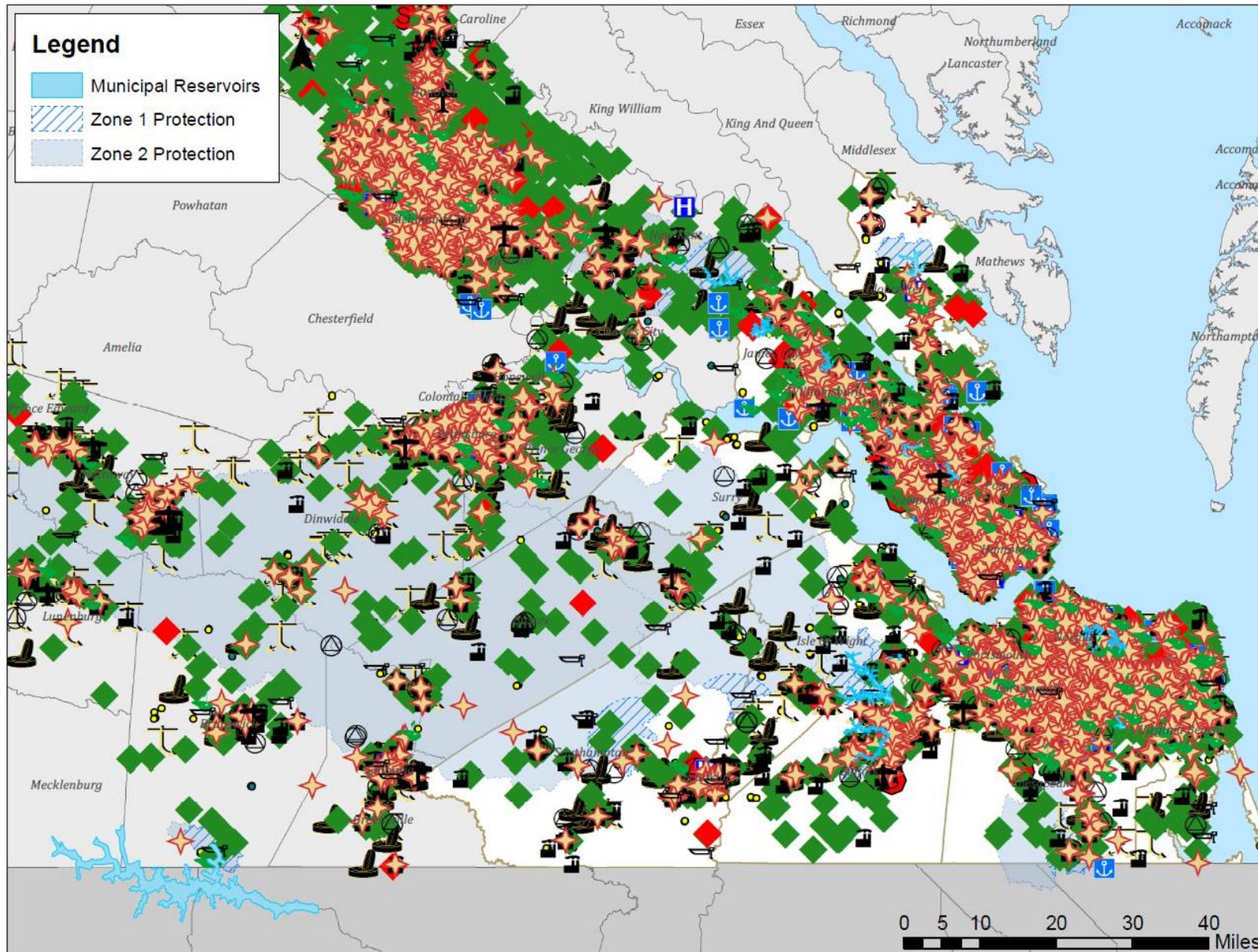
How have we updated the inventory of Potential Sources of Contamination (PSC)?

Update

1. Updated the inventory with current data
2. Removed any PSC's that are outside the source water protection zone
3. Removed PSC's that are no longer active
4. Removed PSC's that are not associated with water pollution
5. Added the following categories: Voluntary Remediation Program Sites, VPDES Outfall Sites, Active Registered Petroleum Tanks

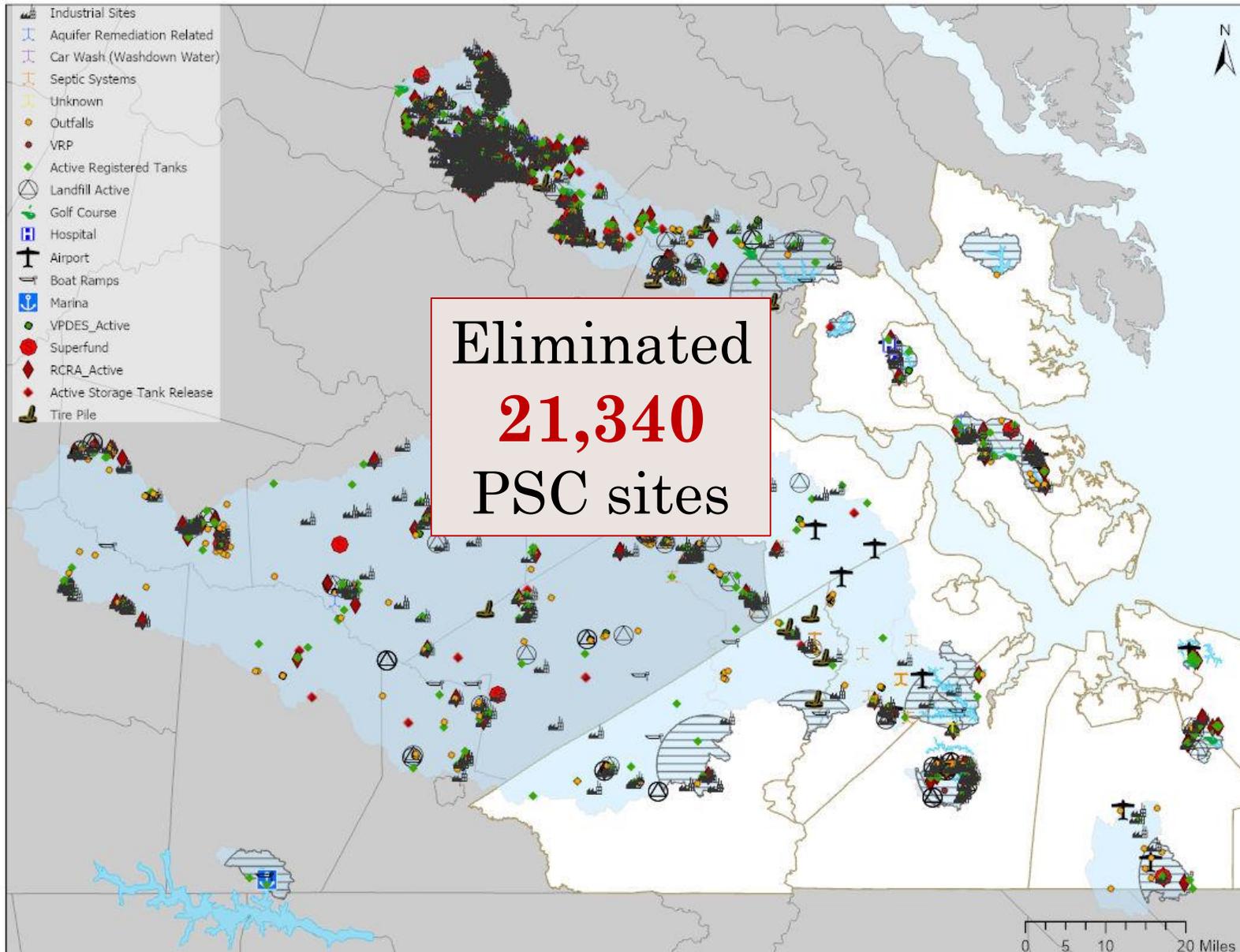
Starting Inventory

PSC
Count:
24,221



Final Inventory

PSC
Count:
2,881



The final inventory is organized into 16 different categories

| Categories | Original | Final |
|-----------------------|-----------------|--------------|
| Industrial | 1,050 | 931 |
| UIC | 575 | 65 |
| Other | 1,759 | - |
| Landfill | 496 | 97 |
| Golf Course | 92 | 17 |
| Hospital | 66 | 17 |
| Airport | 17 | 11 |
| Boat Ramps | 42 | 11 |
| Marina | 68 | 2 |
| VPDES | 289 | 92 |
| Superfund | 54 | 11 |
| RCRA | 4,494 | 538 |
| Storage Tank Releases | 14,968 | 78 |
| Tire Piles | 251 | 15 |
| Registered Tanks | - | 479 |
| Outfalls | - | 351 |
| VRP | - | 29 |
| | | |
| SUBTOTAL | 24,221 | 2,744 |

Update Process



Risk Assessment Method

Originally developed by the Colorado Rural Water Association

Probability of Impact

- Certain
- Likely
- Possible
- Unlikely
- Rare

Impact Level

- Catastrophic
- Major
- Significant
- Minor
- Insignificant

Probability of Impact

An estimate of the relative probability that damage or loss will occur within 1-10 years

| | |
|----------|-------------|
| Certain | • >95% |
| Likely | • 70% - 95% |
| Possible | • 30% - 70% |
| Unlikely | • 5% - 30% |
| Rare | • <5% |

Impact Level

An estimate of the human health concerns and potential volume of the contaminant source.

Catastrophic

- Irreversible damage to water source.
 - Could include the need for new treatment technologies and/or the replacement of existing water source

Major

- Substantial damage to the water source
 - Could include a loss of use for an extended period of time and/or the need for new treatment technologies

Significant

- Moderate damage to the water source
 - Could include a loss of use for an extended period of time and/or the need for increased monitoring and/or maintenance activities

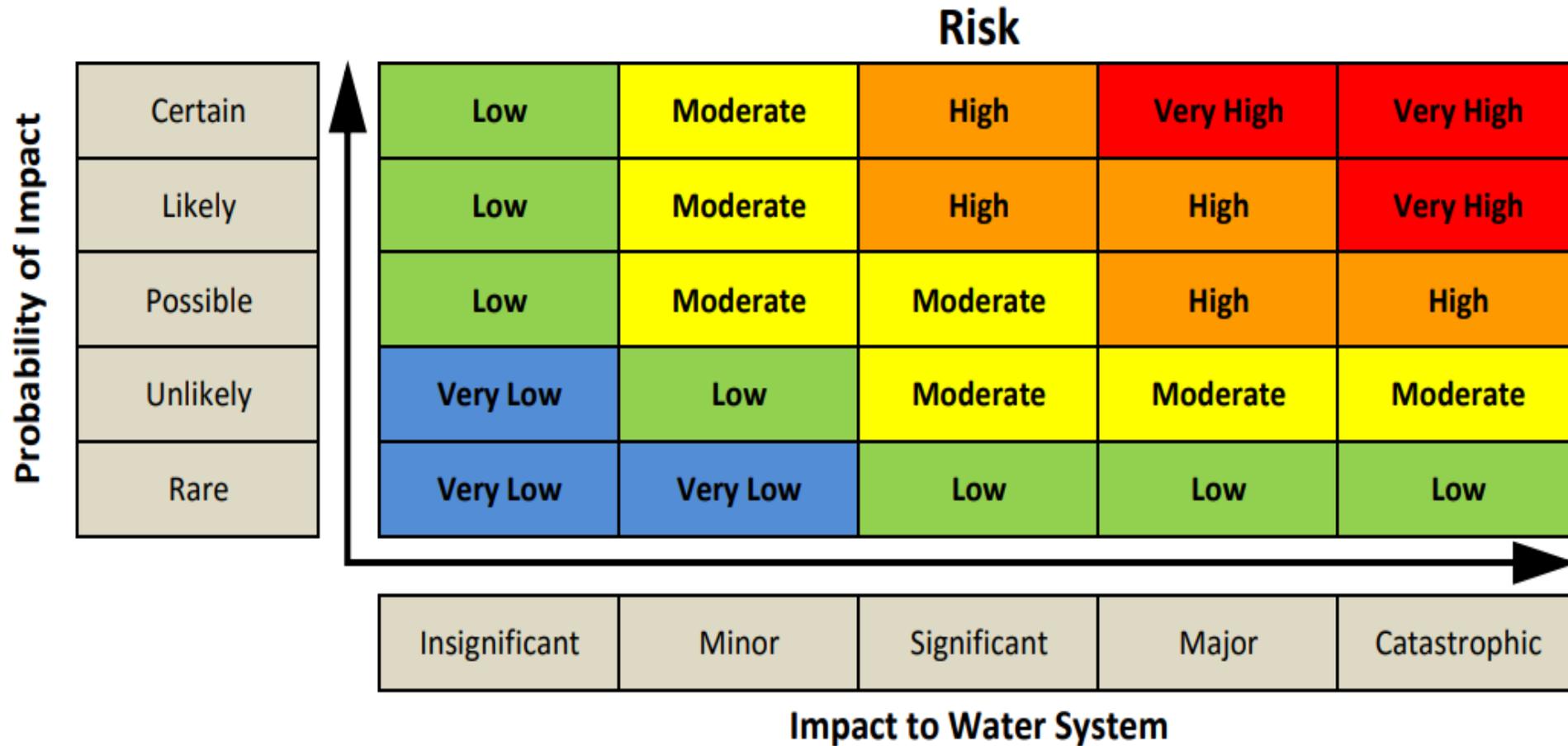
Minor

- Minor damage resulting in minimal, recoverable, or localized efforts
 - Could include temporarily shutting off an intake or well and/or the issuance of a boil order.

Insignificant

- Damage that may be too small or unimportant to be worth consideration
 - Could include the development of administrative procedures to maintain awareness of changing conditions

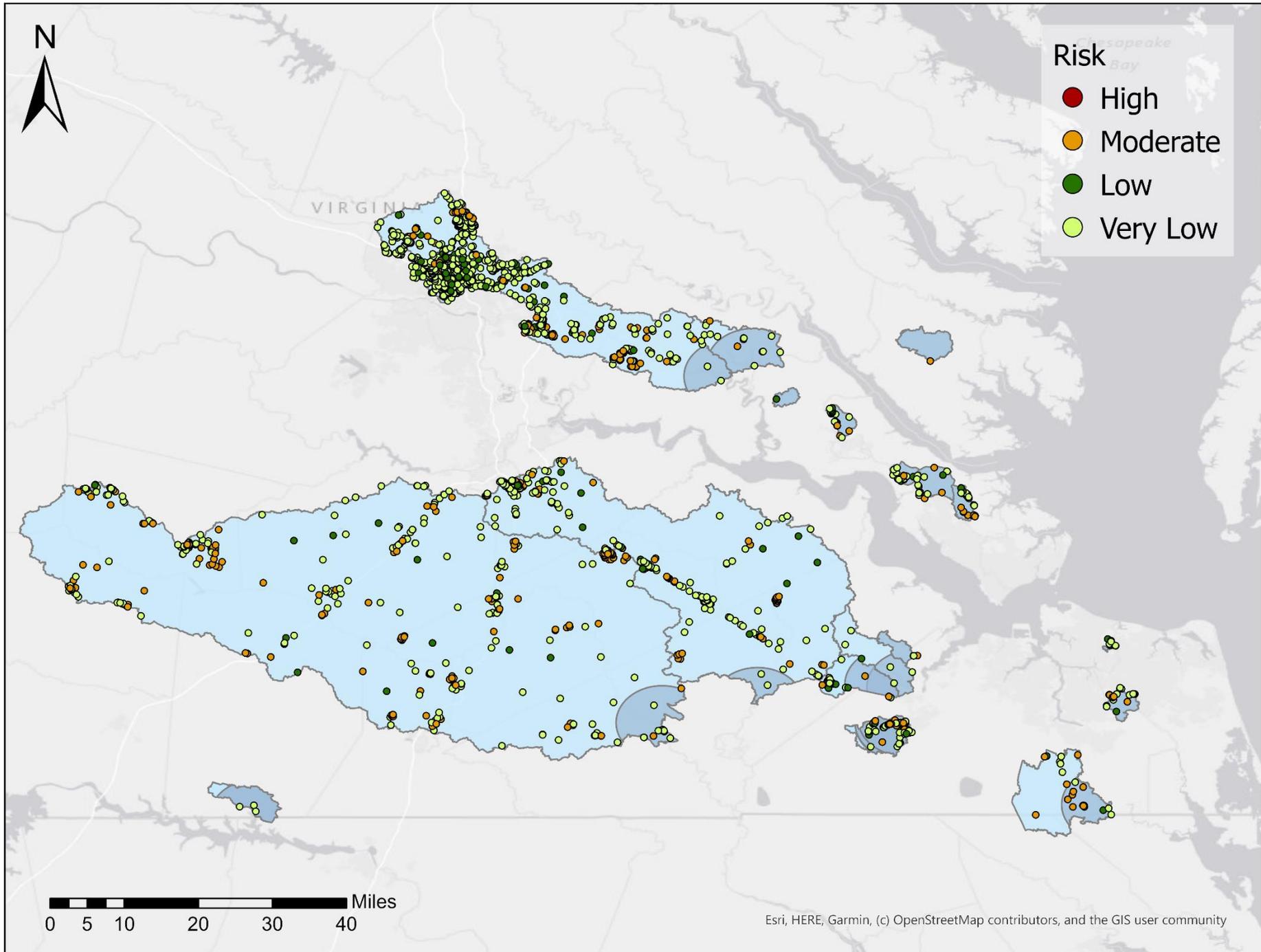
Risk Assessment Matrix



Risk For Each PSC Category

| Category | Zone 1 Risk | | | Zone 2 Risk | | |
|---|-------------------|----------------------------|-----------------|-------------------|----------------------------|-----------------|
| | Impact Level (Z1) | Probability of Impact (Z1) | Risk (Z1) | Impact Level (Z2) | Probability of Impact (Z2) | Risk (Z2) |
| RCRA | | | | | | |
| Conditionally Exempt Small Quantity Generator (CESQG) | Insignificant | Unlikely | Very Low | Insignificant | Rare | Very Low |
| Small Quantity Generator | Minor | Unlikely | Low | Minor | Rare | Very Low |
| Large Quantity Generator (LQG) | Significant | Unlikely | Moderate | Minor | Rare | Very Low |
| Transport, Storage Disposal Facility (TSD) | Significant | Unlikely | Moderate | Significant | Rare | Low |
| Transfer Facility | Significant | Unlikely | Moderate | Minor | Rare | Very Low |
| Transporter | Significant | Unlikely | Moderate | Minor | Rare | Very Low |
| Unspecified | Minor | Unlikely | Low | Minor | Rare | Very Low |
| Petroleum Release | | | | | | |
| All | Minor | Unlikely | Low | Minor | Unlikely | Low |
| Superfund | | | | | | |
| Currently on NPL | Significant | Possible | Moderate | Minor | Unlikely | Low |
| Not on NPL | Minor | Unlikely | Low | Insignificant | Unlikely | Very Low |
| Deleted from NPL | Insignificant | Rare | Very Low | Insignificant | Rare | Very Low |
| VPDES | | | | | | |
| POTW | Significant | Unlikely | Moderate | Significant | Unlikely | Moderate |
| ICIS-NPDES MAJOR | Significant | Unlikely | Moderate | Significant | Unlikely | Moderate |
| ICIS-NPDES NONMAJOR | Significant | Unlikely | Moderate | Significant | Unlikely | Moderate |
| ICIS-NPDES UNPERMITTED | Significant | Unlikely | Moderate | Significant | Unlikely | Moderate |
| BIOSOLIDS | Minor | Unlikely | Low | Minor | Unlikely | Low |
| DES PRETREATMENT PROGRAM | Significant | Unlikely | Moderate | Significant | Unlikely | Moderate |
| Unspecified | Significant | Unlikely | Moderate | Significant | Unlikely | Moderate |

- Determined by subcommittee of drinking water utility directors
- Determined for each PSC category (and in some cases subcategories)
- Determined for both surface water and groundwater drinking water sources



Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

Next Steps

- Inventory Map Packages
- Corrections Database
- **Frequency for updating data – updates every 1 or 2 years?**
- Public Outreach (would find grants for)
 - Signs that cars/trucks are entering a source water protection zone
 - One pagers with emergency contact information for private industry

