

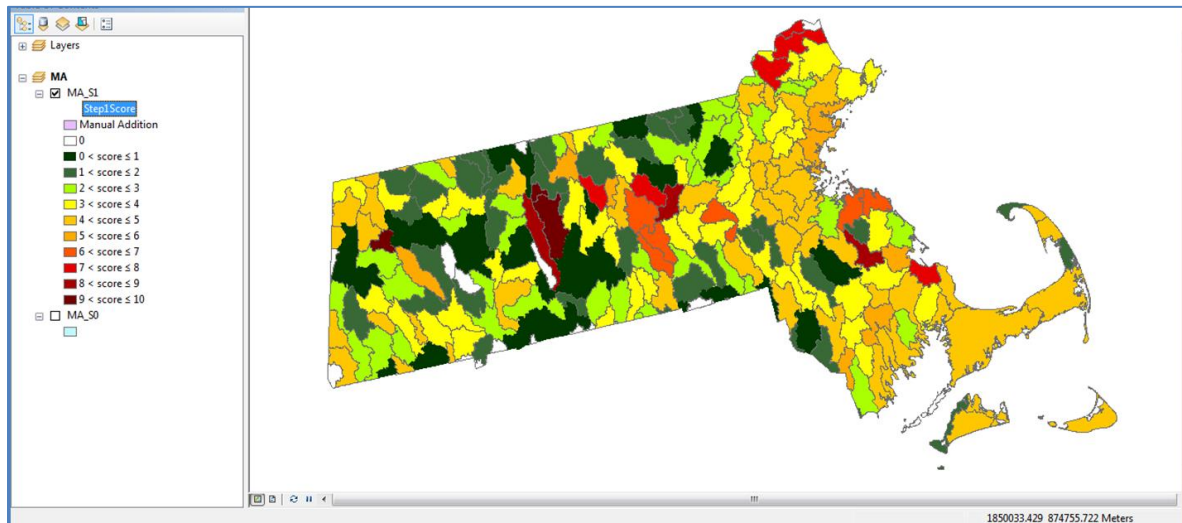


WATERShed Characterization And Prioritization for Environmental Results

Mission Statement: Recognizing resource limitations, *WATERSCAPE* facilitates public engagement and eases the setting of TMDL priorities by enabling States and Tribes to quickly visualize maps and compare alternative prioritization scenarios that reflect their own value system

How *WATERSCAPE* Works

1. Developed by Esri for EPA as add-on to ArcGIS
 - No additional cost to user beyond ArcGIS license
 - Full Esri GIS capabilities maintained, e.g. add roads or county borders as locational aids
 - Scale: HUC12 from Release 2 NHDPlus, clipped at State borders (coterminous US)
2. Combines two types of “scored” State-normalized HUC12 data on properties (e.g., values/stressors) of interest in order to identify priority watersheds
 - Relative Intrinsic Score - percentile ranking of the density of each property of interest in each HUC12 in the State compared to the density of that property in other HUC12s in that State
 - Assigned Weighting Score – a value of 0-100% is assigned to each property by the user to reflect the desired extent to which that property should factor into the overall HUC12 selection vs. other properties, i.e. each property’s relative importance to the user
3. User then selects all or some of the HUC12s identified
 - Manual selection option available to supplement scored selection
4. Tool comes pre-loaded with State-specific HUC12 study areas and over two dozen key property data layers with their state-normalized intrinsic scores included



Example product for MA - User assigned the following weightings to Designated Use Categories:
Aesthetics: 5% Aquatic Life Harvesting: 10% Fish, Shellfish, & Wildlife Protection: 5%
Public Water Supply: 50% Recreation: 30%

Properties Included (as of May 2014)

Drinking Water (source: fall 2010 SDWIS)

- Source water protection areas for surface water intakes
- Population served by surface drinking water systems
- Ground water well density

Designated Uses – parent categories (source: Jan 2014 Attains 305(b) summaries)

- Drinking water
- Recreation
- Agriculture
- Aesthetic
- Aquatic harvest
- Industrial
- Fish/shellfish/wildlife
- Exceptional uses

Impaired Waters – parent categories (source: Jan 2014 Attains 303(d) summaries)

- All impairments
- Nutrient-related (algal growth, ammonia, noxious aquatic plants, nutrients, and organic enrichment/ oxygen depletion)
- All except nutrient-related
- Pathogens
- All except pathogens
- Sediment
- All except sediment
- Temperature
- All except temperature

Incremental Nutrient Yield – (source: USGS SPARROW 2012 HUC12 analysis)

- Nitrogen – from agriculture sources
- Phosphorus – from agriculture sources

Category 1 Waters – all designated uses being met (source: Jan 2014 Attains 305(b) summaries)

Impervious Cover – (source: EPA ORD Integrated Climate and Land Use Scenarios (ICLUS) Project)

- 2010
- 2040

Environmental Justice – % low income and % minority (source: Census Bureau)

Economic Stress – composite index of families in poverty, unemployment rate, educational attainment, per capita income, and housing affordability (source: Census Bureau)

Properties Under Development

Climate change – sets of plausible future flow estimates from NHDPlus *Futures* Project under development in partnership with USGS

Habitat

- Aquatic and wetland T & E species
- Fish habitat degradation

Recovery Potential - first-order screening

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