National River and Stream Assessment 2013-14

Survey Design for Selection of Sites

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What flowing waters are included in the NRSA?

- All streams and rivers within the 48 contiguous states that have flowing water during the study index period
- Run-of-the-river ponds and pools
- Great Rivers
What flowing waters are not included in the NRSA

- Portions of tidal rivers up to head of salt
- Reservoirs except run-of-the-river reservoirs
Data Quality Objectives

• National estimates
  – Estimate the proportion of rivers and streams (± 5%) in the conterminous U.S. that fall below the designated threshold for good conditions for selected measures with 95% confidence.

• Ecoregions
  – Estimate the proportion of rivers and streams (± 15%) in a specific ecoregion that fall below the designated threshold for good conditions for selected measures with 95% confidence.
Survey design requirements

- National design: 1800 sites
  - Rivers: Strahler order 5th and higher: 900 sites
  - Streams: Strahler order 1st to 4th: 900 sites
- Nine Ecological Reporting Regions: 200 sites/region
  - Rivers: 100 sites/region
  - Streams: 100 sites/region
- Revisit sites in 2013-14: 192 sites, 4/state
- Repeat sites from NRSA 2008-9: 810 sites
  - Rivers: 405 sites, 45/region
  - Streams: 405 sites, 45/region
Survey Design Site Allocation

- NRSA 2008-9 Repeat Design: 806 sites
  - Rivers: 416 sites – 319 visited once; 97 visited twice
  - Streams: 390 sites – 295 visited once; 95 visited twice
  - Total Revisits: 192 sites
- New Sites Design: 1012 sites
  - Major rivers: 216
  - Other rivers: 220
  - Large streams (3rd & 4th order): 230
  - Small streams (1st & 2nd order): 346
- Proportionally allocated to states by Ecological Reporting Region and design categories above
NRSA14 Planned River and Stream Sites

NRSA 2013-14 Sites by State

Number of states

Number of sites by state
NRSA14 Planned New River and Stream Sites

Ecological Reporting Regions
- Northern Appalachians
- Southern Appalachians
- Coastal Plains
- Upper Midwest
- Temperate Plains
- Southern Plains
- Northern Plains
- Western Mountains
- Xeric

Planned River and Stream Sites

*based on Omernik Ecoregions
NRSA14 Planned New Other River Sites
NRSA14 Planned New Large Stream Sites

Ecological Reporting Regions:
- Northern Appalachians
- Southern Appalachians
- Coastal Plains
- Upper Midwest
- Temperate Plains
- Southern Plains
- Northern Plains
- Western Mountains
- Xeric

*Based on Omernik Ecoregions

Planned New Large Stream Sites
NRSA14 Planned New Small Stream Sites
NRSA14 River and Stream Sites
Repeated from NRSA 2008-9
NRSA14 Stream Sites
Repeated from NRSA 2008-9

Ecological Reporting Regions
- Northern Appalachians
- Southern Plains
- Southern Appalachians
- Northern Plains
- Coastal Plains
- Western Mountains
- Upper Midwest
- Xeric
- Temperate Plains

*based on Omernik Ecoregions

NRSA 09 Stream and NRSA 09 Stream Revisit Sites
State Specific Designs

- National design is stratified by state to enable state-specific designs to be implemented
- State-specific designs
  - Will include sites necessary to meet national design requirements
  - Will incorporate state requirements
  - Integrated design will replace national design for state
- States requesting state-specific designs
  - Arizona, Indiana, Kansas, Oklahoma, Oregon, Vermont, Virginia
  - Have not been completed yet