National Aquatic Resource Surveys: Monitoring Our State

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What are the National Aquatic Resource Surveys?

• Series of nationwide statistical surveys designed to assess status and changes in quality of the nation’s surface waterbodies.

• Collaboration between EPA, states, tribes, federal agencies, and other organizations.

• Primary questions:
  • What percent of waters support healthy ecosystems and recreation?
  • What are the most common water quality problems?
  • Is water quality improving or getting worse?
  • Are investments in improving water quality focused appropriately?

General Timeline for Previous and Current NARS Assessments

Year 1: Design
Year 2: Field
Year 3 & 4: Lab/Data
Year 5: Report
NARS Design

- **Datasets**
  - Omernik Level III Ecoregions
  - National Hydrography Datasets
  - USFWS Status & Trends

- **Index period**
  - Wetlands: April-September
  - Coastal and Lakes: June-September
  - Rivers and Streams: May*-September
NARS Sampling Indicators

- Biological
- Chemical
- Physical
- Recreational
NARS Sampling Indicators

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NARS Sampling Indicators

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NARS Sampling Indicators

- Biological
- Chemical
- Physical
- Recreational
Primary Components of All NARS Assessments

• Desktop reconnaissance & site evaluation
Primary Components of All NARS Assessments

• Access permission
  • Private landowners
  • Permitting
Primary Components of All NARS Assessments

• Training for primary field crew members
Primary Components of All NARS Assessments

• Travel and equipment arrangements
Primary Components of All NARS Assessments

• Field sampling
  • Physical site access
  • Sample processing: filtering, storage, and shipping
  • Sonde pre- and post-calibration
Primary Components of All NARS Assessments

- Equipment decontamination
Primary Components of All NARS Assessments

• Final data QC & submission
Types of NARS Assessments

- National Lakes Assessment (NL A)
- National Rivers and Streams Assessment (NRSA)
- National Coastal Condition Assessment (NCCA)
- National Wetland Condition Assessment (NWCA)
Map showing sampling locations across the United States for various regions such as Northern Plains, Upper Midwest, Temperate Plains, Southern Plains, Southern Appalachians, Xeric, and Coastal Plains. The map includes a legend with different markers for various surveys, including NLA 2007, NRSA 2008-09, NCCA 2010, NWCA 2011, and NLA 2012.

Survey # Sites
NCCA           108
NLA            139
NRSA           170
NWCA           80
Total: 497
National Lakes Assessment (NLA)

• Conducted 3 times since inception
  • 2007, 2012, and 2017
• Includes lakes, ponds, and reservoirs
• Primary questions:
  • What is the extent of degradation and is degradation widespread (i.e. national) or localized (i.e. regional)?
  • Is lake condition getting better, worse, or staying consistent?
  • Which environmental stressors are most associated with degraded biological condition?

A day of NLA sampling...

- Site Access
- Index Sampling
- Physical Habitat
- Benthic Macroinvertebrates
- Filtering & Sample Processing
National Rivers & Streams Assessment (NRSA)

- Conducted 3 times since inception
  - 2008-09, 2013-14, and currently in 2018-19
- Two categories: Wadeable and Non-Wadeable
- Goals:
  - Determine extent to which rivers and streams support a healthy biological condition
  - Determine whether rivers and streams are getting cleaner and how to invest resources in protection/restoration

A day of NRSA sampling...

- Site Access & Reach Layout
- X-Site Sampling
- Benthic Macroinverts & Periphyton
- Physical Habitat
- Fish Assemblage
- Filtering & Sample Processing
A day of NRSA sampling...

• Bonus at Wadeable Sites:
  • Flow
  • Slope
  • Sinuosity
National Coastal Condition Assessment (NCCA)

• Conducted twice since inception
  • 2010 and 2015

• Includes all waters along the marine and Great Lakes coasts

• Primary Questions:
  • What percent of coastal waters are in good, fair, and poor condition for key indicators?
  • What is the relative importance of key stressors?

A day of NCCA sampling...

- Site access
- X-Site Sampling
- Fish Tissue
- Filtering & Sample Processing
National Wetland Condition Assessment (NWCA)

• Conducted twice since inception
  • 2011 and 2016

• Developed in partnership with USFWS Wetlands Status and Trends program

• Goals:
  • Designed to answer basic questions about extent to which wetlands support healthy ecological condition
  • Provide trends in wetland quantity (i.e. area) and quality (i.e. condition)
A day of NWCA sampling...

- Site Access & Assessment Area Layout
A day of NWCA sampling...

- Assessment Area & Buffer Characterization
A day of NWCA sampling...

- Vegetation
A day of NWCA sampling...

• Soils
A day of NWCA sampling...

- Hydrology & Water Samples
- Filtering & Sample Processing
Data Download from EPA Website

National Aquatic Resource Surveys

Data from the National Aquatic Resource Surveys

To download the data: The following data are available for download as comma separated values (csv) files. Sort the table below using the pull down menus or headers to more easily locate the data for a specific survey or indicator type. Right click on the file name and select Save Link As to save the file to your computer. Make sure to also download the companion metadata file (.txt) for the list of field labels. Users of the data are encouraged to review the Technical Reports, Field and Laboratory Manuals, and metadata files to understand the types of data available and how they were collected or measured. Click here to view a summary of the available data for each of the surveys.

Recently added: NLA 2007 and NLA 2012 Water Isotope Variables

Filter data by survey:
- All surveys

Filter data by indicator:
- All Indicators

## Data Download from EPA Website

### Filter data by survey:
- Lakes 2007

### Filter data by indicator:
- Landscape Data

### National Aquatic Resource Surveys Data

<table>
<thead>
<tr>
<th>Survey</th>
<th>Indicator</th>
<th>Data</th>
<th>Metadata</th>
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<td>NLA 2007 Basin Landuse Metrics - Data 20061022 (CSV) (1 pg, 307 K)</td>
<td>NLA 2007 Basin Landuse Metrics - Metadata 20091022 (TXT) (1 pg, 4 K)</td>
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<td>NLA 2007 Lake Polygon Shapefile (ZIP) (1 pg, 9 MB)</td>
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<td>Lakes 2007</td>
<td>Landscape Data</td>
<td>NLA 2007 Basin Shapefile (ZIP) (1 pg, 14 MB)</td>
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North Central & West Texas
2007-2018

Only assessed in 2016 NWCA

<table>
<thead>
<tr>
<th>Survey</th>
<th># of Sites</th>
</tr>
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<tbody>
<tr>
<td>NLA</td>
<td>52</td>
</tr>
<tr>
<td>NRSA</td>
<td>61</td>
</tr>
<tr>
<td>NWCA</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>122</td>
</tr>
</tbody>
</table>

Legend
Survey
- NLA
- NRSA
- NWCA

TCEQ Region
- 1
- 2
- 3
- 4
- 8

Esri, DeLorme, GEBCO, NOAA NGDC, and other contributors, Sources: Esri, GEBCO, NOAA, National Geographic, DeLorme, HERE, Geonames.org, and other contributors.
More sampling schedule for 2019

Survey | # of Sites
---|---
NCCA | 11
NLA | 12
NRSA | 19
NWCA | 6
Total | 48
Central Texas
2007-2018

Only assessed in 2016 NWCA

Survey | # of Sites
--- | ---
NLA | 27
NRSA | 36
NWCA | 1
Total | 64
Coastal & East Texas
2007-2018

<table>
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<tr>
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<tbody>
<tr>
<td>NCCA</td>
<td>97</td>
</tr>
<tr>
<td>NLA</td>
<td>48</td>
</tr>
<tr>
<td>NRSA</td>
<td>54</td>
</tr>
<tr>
<td>NWCA</td>
<td>64</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>263</strong></td>
</tr>
</tbody>
</table>
Upcoming Assessments

• 2019 NRSA Season
  • Wrapping up 2018-19 season
  • 39 more site visits

• 2020 NCCA
  • Planning phase underway
  • Should be developing list of sites by late 2019
Tentative 2019 Sites

- 40 Sites
- All regions except:
  - Region 2
  - Region 15
Future of NARS: NARS 2.0

• Tentative plan to increase statistical value of NARS

• Goal: to expand spatio-temporal value by sampling each project more often
  • Shift from once every 5 years
  • Include sites from all four assessment types every year
  • Limited number of sites per assessment per state
NARS Crews Over the Years
Contact Us!

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MARCH 18-21, 2019
SURFACE WATER QUALITY MONITORING TRAINING

Course Description
This is a two-part course covering surface water assessments utilizing the Texas Commission on Environmental Quality’s Surface Water Quality Monitoring guidelines. Both courses will consist of classroom and field-based instruction designed to explain the theory and methodology of SWQM procedures with a hands-on component in local rivers and streams.

Partial: Water Quality & Hydrological Monitoring (Day 1)
Full: Partial + Biological & Physical Habitat Monitoring (Days 1-4)

FOR MORE INFORMATION & TO REGISTER VISIT:
bit.ly/eithtraining

ENVIRONMENTAL INSTITUTE OF HOUSTON
2700 Bay Area Blvd, NOA 1
Houston, TX 77058

For questions, call or email:
281-283-3950
EIH@uhcl.edu

*Cancellation policy: Refunds are not made for early dismissal, failure to attend, absences, or sick days. Refunds less than $8 percent fee will be made if your registration is cancelled before March 4, 2019. Refunds after March 4, 2018 will be subject to a 15 percent fee.

Any individual requiring an accommodation in order to participate in this event will need to contact EIH at 281-283-3950 or via email at EIH@uhcl.edu at least two weeks prior to the event.