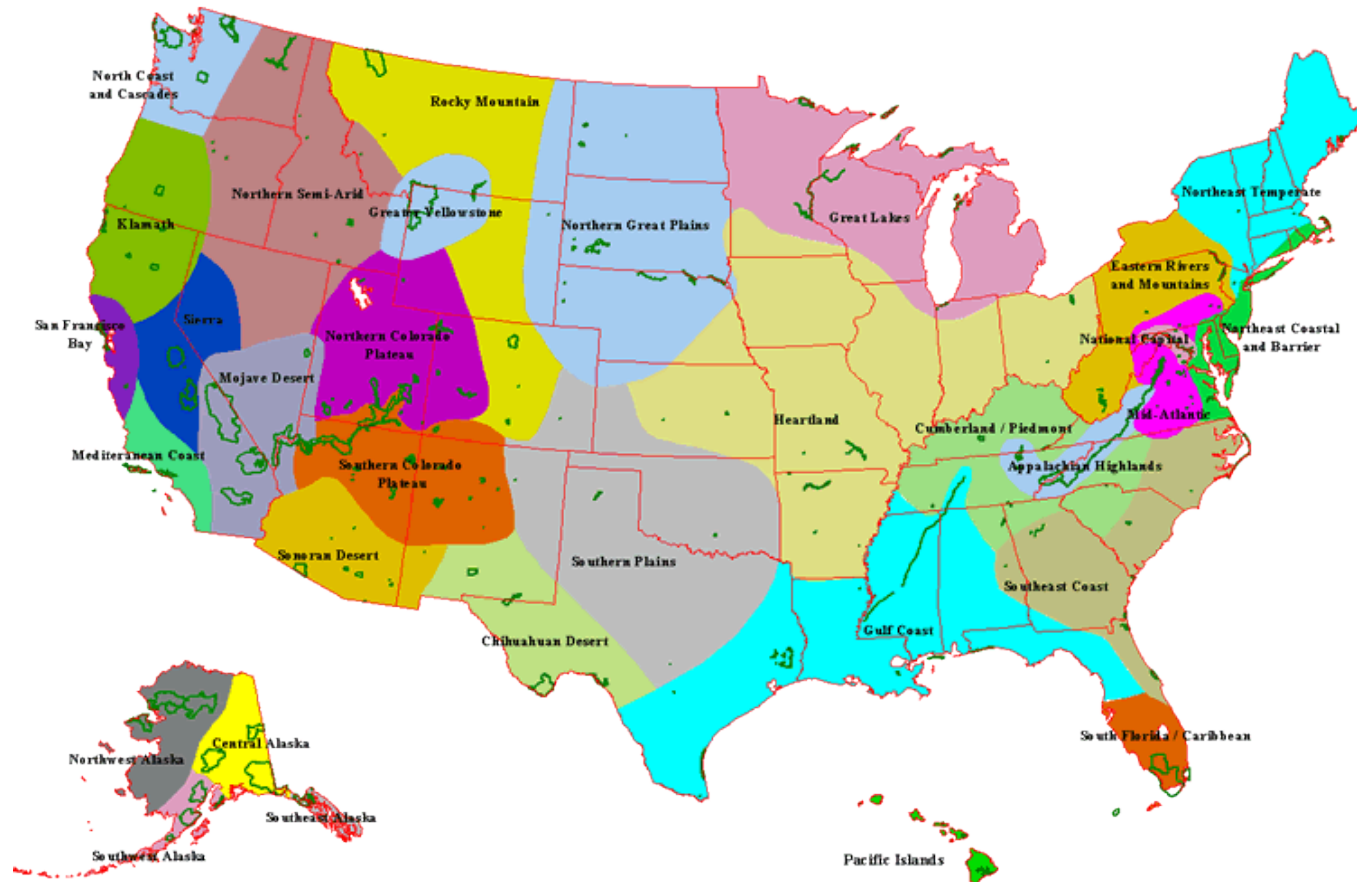


Service-wide Water Quality Monitoring

- Part of the Water Resources Element of the Natural Resource Challenge
- Program Development, Implementation and Administration Integrated With Park Vital Signs Monitoring
- WQ Monitoring Drivers:
 - Clean Water Act: 303(d) listed waters; special designation waters (e.g., ONRW)
 - Stressor / threat-based needs

Park Vital Signs Monitoring Networks



Networks Funded in FY-01/-02

- North Coast and Cascades
- Northeast Coastal and Barrier
- Heartland
- Sonoran Desert
- Cumberland/Piedmont
- Central Alaska
- National Capital
- Northern Colorado Plateau
- San Francisco Bay
- Appalachian Highlands
- Greater Yellowstone
- Mediterranean Coast

Funding Status

- FY-01/-02: \$1.275 million; 12 Networks
- FY-03: \$1.775 million; 17 Networks
 - Southwest Alaska
 - Northeast Temperate
 - Southern Colorado Plateau
 - Pacific Islands
 - Great Lakes
- FY-04: \$2.9 million; 32 Networks

Network Monitoring Process/Approach

- Planning/Prioritization
- Design
- Implementation
- Example Approaches
 - NPS Inhouse
 - Cooperative Agreements
 - Interagency Agreements
 - Other

Integration With Vital Signs Monitoring

- 3-Phase Monitoring Plan Requirements
- Program Implementation and Administration
- Annual Administrative Reports and Workplans
- Report To Congress
- State of the Parks Reports

Monitoring Plan: Phase I:

- Report due Oct. 1, 2002
- Required Content
 - Administrative Structure
 - Data/Information Compilations
 - Overview of Resources
 - Conceptual Model(s) of Ecosystems, incl. water quality
 - Overview of Management Issues
 - Water Quality (standards problems, 303(d), special protection designations, issues/threats)
- **Peer Review Required**

Monitoring Plan: Phase II

- **Report Due April 1, 2003**
- **Required Content**
 - Vital Signs Selected
 - Vital Signs Considered & Not Accepted
 - Water Quality Constituents Selected
 - Measurable Monitoring Objectives Developed
 - Management Action “Trigger Points” Identified
- **Peer Review Required**

Monitoring Plan: Phase III:

- **Report Due April 1, 2004**
- **Detailed Monitoring Plans**
 - Sampling Design
 - Approach
 - Protocols
 - Data Management Plan
 - Data Analysis and Reporting Plan
 - QA/QC Plan
 - Staffing Plan
 - Schedules
 - Budgets
- **Peer Review Required**

Vital Signs Administrative Reports and Workplans

- **Admin. Report & Draft Workplan: Nov. 8, 2002**
- **Final Workplan: Jan. 31, 2003**
- **Separate sections: VS monitoring; WQ monitoring; inventories; prototype programs**
- **More Detail than last year for Water Quality**
 - What is currently being done
 - Objectives
 - Scheduled activities
 - Who will be doing the work
 - Budgets
- **Satisfies requirements for Report to Congress prepared by WRD**
- **GYN cited as good example***

GUIDANCE

- **Programmatic – Under Vital Signs Program Umbrella (Fancy, NRID / I & M)**
(General content of Vital Signs workplans & reports, schedules to meet etc.)
- **Technical - Specific to Water Quality Component**
(More detailed discussion & considerations in planning steps, detailed monitoring plan contents, CWA drivers, monitoring parameters, data management)

Detailed Technical Guidance

- www.nature.nps.gov/im/monitor/handbook.htm
- www1.nrintra.nps.gov/wrd/wqmtg/links.htm
 - **Priority Impaired & Pristine Waters (Part A)**
 - **Detailed Study Design and QA/QC (Part B)**
 - **Parameter/Protocol Guidance (Parts C & D)**
 - **Data Reporting and Archiving (Part E)**

Data Management

- **STORET**
 - WRD will maintain and assist
 - Web accessible data retrieval
- **Natural Resource Database Templates (MS Access)**
 - Projects - Why
 - Stations – Where
 - Metadata - How
 - Results – What, When, Who
- **NWQMC Recommended Standard Water Data Elements**
- **STORET & NPS required metadata elements**

Water Quality Data Management

- NPS/EPA STORET

- States are responsible for developing and enforcing water quality standards on all lands within their boundary (Clean Water Act)
- Complies with ITFM and NWQMC metadata recommendations
- NPS-77 Guideline: NPS water quality data to STORET
- STORET Web Site: <http://www.epa.gov/storet>

- Natural Resource Database Templates

- Projects - Why
- Stations - Where
- Metadata - How
- Results - What, When, Who



Natural Resource WQ Database Templates Status

- Projects and Stations Almost Done
- Metadata and Results Being Developed During Summer 2002

The image displays two screenshots of Microsoft Access database templates. The left screenshot shows the 'STORET Project Entry Template' with the following data:

- Project ID: ABLI0001
- Project Name: Monitoring of Sinking Spring by the Kentucky DEP
- Start Date: 5/25/1995
- Project Duration: Ongoing
- Project Purpose: Data were collected by James Webb, Kentucky Department of Environmental Protection (KYDEP), to analyze the water quality of historic Sinking Spring. Concerns had been raised that external land uses are threatening the physical, chemical, and biological characteristics of Sinking Spring. Using EPA grant funding, KYDEP initiated monitoring in 1995. Samples were analyzed by either a lab at the Kentucky Geological Survey or the KYDEP.

The right screenshot shows the 'STORET Station Entry Template' with the following data:

- Station ID: ANIA_FWS_SLA
- Name: 300 M FROM THE W SHORELINE OF SURPRISE LAKE AND TRIBUTARY 1
- Primary: Lake
- Est. Date: (empty)
- Latitude: 56 55 52.3849
- Longitude: 158 6 55.9152
- Geopositioning Method: Interpolation-Map
- Geopositioning Datum: North American Datum of 1927
- Decimal Degrees Latitude: 56.9312180277778
- Decimal Degrees Longitude: 158.115532
- Scale: 1:63,360
- Elevation: (empty)
- Units: (empty)
- Method: (empty)
- Datum: (empty)
- County: LAKE AND PENINSULA (B)
- State: AK
- HUC: 19020702
- NRCS ID: (empty)
- Water Depth: (empty)
- Units: (empty)
- Station Description: (empty)
- Travel Directions: (empty)

At the bottom of each screenshot, the record number is displayed: 'Record: 1 of 769' for the project template and 'Record: 2 of 41' for the station template.

SUMMARY

- Handouts
 - Project & Station Entry Templates
 - Parameters List (Core, Category 1 & 2, Drivers)
 - Overhead
 - Vital Signs Guidance (FY02-03) Reports (Fancy, May/02)
 - Water Quality Component Team (WRD-WOB, Ft. Collins)
 - Bill Jackson – Branch Chief
 - Gary Rosenlieb – WQ Team Leader
 - Roy Irwin – Contaminants Specialist
 - Barry Long – Hydrologist
 - Pete Penoyer – Hydrologist
 - Dean Tucker - Data Manager