Meeting Notes - 12/01/05

STATUS AND TRENDS PROPOSAL WORKSHOP #3

Existing Data Sets and their Contribution to a Monitoring Program

Capitol Campus Office Building 2 (OB2)
This is next to the Natural Resources Building
Room SL-04

I. Attendees:

01 Cappaert, Marlys (CSC/EPA) 541-754-4467; cappaert.marlys@epa.gov
02 Coffin, Chris (Ecology) 509-454-4257 ccof@ecy.wa.gov
03 Cowen, Jeff (NOAA NWFSC) 206-860-3413; jeff.cowen@noaa.gov
04 Cusimano, Bob (Ecology) 360-407-6596; bcus461@ecy.wa.gov
05 Davidson, Rod (NOAA NWFSC) 206-860-3443; rod.davidson@noaa.gov
06 Fuerstenberg, Bob (King Co. DNR) 206-296-8364; Robert.fuerstenberg@metrokc.gov
07 Haas, Andy (Snohomish Co.) 425-388-3464 x4656; andy.haas@co.snohomish.wa.us
08 Haley, Rick (Skagit Co.) 360-336-9400; rickh@co.skagit.wa.us
09 Higgins, Kollin (King Co. DNR) 206-296-8026; kollin.higgins@metrokc.gov
10 Leonetti, Frank (Snohomish Co.)425-388-3464 4659; frank.leonetti@co.snohomish.wa.us
11 McIntosh, Randy (NWIFC/SSHIAP) 360-528-4369; rmcintosh@nwifc.org
12 McCormick, Frank (USFS/OFSL) 360-753-7667; FMcCormick@fs.fed.us
13 McGowan, Jeff (Skagit Co.) 360-336-9400; jeffmc@co.skagit.wa.us
14 Merritt, Glenn (Ecology) 360-407-6777; gmer461@ecy.wa.gov
15 Monahan, Dylan (Ecology) 360-407-6369; dymo461@ecy.wa.gov
16 Paulsen, Kit (City of Bellevue) 425-452-4861; KPaulsen@ci.bellevue.wa.us
17 Plotnikoff, Rob (Ecology) 360-407-6687; rplo461@ecy.wa.gov
18 Quinn, Tim (WDFW) 360-902-2414; quinntq@dfw.wa.gov
19 Smith, Carol (Conservation Commission) 360-790-7330; bioforsalmon@comcast.net
20 Thornburgh, Kathy (Snohomish Co.)425-388-3464 x4542; k.thornburgh@co.snohomish.wa.us
21 Wagner, Paul (KWA Ecological Sciences) 509-430-0005; pwagner@kwaecoscience.com
22 Wiseman, Chad (Ecology) 360-407-6682; cwis461@ecy.wa.gov

II. Introductory Information

Status and Trends Plan Objectives

To implement the CMS by building a blueprint for what/how to monitor.

1) Monitor habitat and water quality(to complement fish production work by others).
2) Monitor streams and rivers (to complement estuaries work by others)
3) Partnerships at local, state, federal, and triabl levels.

Workshop Objectives

1) To record ideas (including problems and issues) of partipants.
2) To make these notes available for use in developing the MP.

News/Notes:

1) Look for a web site listing our progress for these workshops. It will have...
   a) The Status and Trends Proposal.
   b) Workshops notes.
   c) Links to related sites.
2) The MP review process will be an important step allowing further input.
3) Please send us your list of variables that you collect.
   a) Indicate key variables and/or ones that you must keep.
   b) If it is "all of them", then indicate so.

III. Presentations

Marlys Cappaert
Surface Waters Information Management Database

Marlys discussed how EMAP data is managed, from design of field forms, through data entry, and then through data dissemination. Their goal is to make things usable to not just information technicians, but also to scientists. The process has taken about 18 months for projects involving many interstate collaborators. The bulk of this time was the wait for field data to arrive from various sources. More recent turnaround periods have been much more brief. The Wadeable Streams Assessment (WSA) involved 36 States 57 crews, and 7 benthic laboratories, and one coordinating contractor. Nevertheless, turnaround was 6 months. In projects of smaller scale than national or "Western U.S.", the turnaround time could likely be even more brief than 6 months. EMAP crews who had received data management training saved weeks off the data entry time. As part of the process, Marys prefers to go to the field so that she can see field crew needs first-hand.

1) Design of field forms - using Teleform software

2) Sample tracking (e.g., with Great River's study) -
   Each lab checks boxes adjacent to samples that they receive (can't make up new names).

3) Entry of field data
   a) using Teleform software.
      - Scanner (about $15k - one time cost)
      - 3 Operators
      - Workstations
   b) Optical character recognition with human checks.
   c) The same system has been used for about 10 years.

4) Verification and Validation of data
   a) Forms checked at least 4x each
      - Field crew recording
      - Crew lead review
      - Entry technician (Teleform)
      - Validation script (SAS)
   b) Considering adoption of "Browser-Based QA"
      - needs investment to proceed
      - would run SAS code via internet GUI
      - would click buttons for tests desired
      - benefit: consistent script regardless of user (repeatable).
      - benefit: version control

5) Distribution of data
   a) data is managed using SAS
   b) data is acessed by users though a web page:
      - "Contents" file provides metadata
      - Download formats: spreadsheet or SAS
      - "News" on page: project status; special analyses
        (e.g. fish distribution maps)
   c) ultimate distribution of archived data - STORET.
   d) cataloging of field data forms:
      - Images of all submitted field forms can be downloaded/browsed from www.
      - We prefer paper forms
        * No loss of data due to dead batteries
        * Paper accommodates variable training levels of various crews

   e) site summaries - distilled data reports for landowners.

Q&A:

Q1) “What is percentage of EMAP budget that is devoted to information management?”
A1) “I'm not exactly sure, but I've heard the recommendation that at least 20% of a budget should go toward information management. This could go up if performing an ongoing effort rather than a finite-life project. There is an immediate payback for this investment!”

Q2) “Could you provide these types of services for a Washington State Status and Trends program?”
A2) “Our operation works for EPA-ORD. The mission of ORD has been unclear or in debate. Is it to provide technical transfer? Is it limited to strictly research?”
Frank McCormick - “You might have an avenue through the Regional EMAP. Check with Gretchen Hayslip.

Q3) “Can your system handle electronic formats? We use PDAs and have rules for filtering field data entry.”
A3) “Oregon crews submitted their data in electronic format, after designing their system to match ours. We prefer the paper forms because you can glean extra information by looking at the form later.”
Paul Wager - “We have been using paper forms for some projects and data loggers for others. It has been our experience that the electronic field forms are much more prone to have missing data.”

Q4) “Do you have different data censoring standards for electronic vs. paper data?”
A4) “No.”

Comment 1 (Frank McCormick) - It would take tremendous effort to invent this system from scratch. If you can figure a way to borrow the technology/training from Marlys' group, do so! Also, consider data life. Ensure that there is version control. Make sure formats used can be accessed in the future.

Rod Davidson and Jeff Cowen

Status and Trends Monitoring Database for Salmonids in the Wenatchee Sub-Basin

Rod Davidson - Background to Project/Data

1) Goals of Integrated Status and Effectiveness Monitoring Program (ISEMP)
   a) Measure population trends for listed fishes.
   b) Determine effectiveness of restoration projects.

2) Goal of Status and Trends Database
   a) track protocols
   b) integrate with GIS
   c) provide Easy access to data through a web interface.
   d) serve biologists, natural resource managers, and land use planners.
   e) Provide a template for a database repository, including metadata for protocols

3) Database Design (Oracle)
   a) Designers
      - NOAA
      - U.S. Bureau of Reclamation
   b) Process
      - Building scripts to translate data into Oracle.
      - We are seeking view of data definitions via email.

4) Field Collectors
   a) Forest Service
   b) Yakamas
   c) Dept. Ecology
   d) Chelan County Conservation District
   e) Washington Dept. Fish & Wildlife
   f) private contractors

5) Data Types
   a) Habitat
   b) Macroinvertebrates
      - community
      - food source
   c) Water Quality
   d) Steelhead Redds
   e) Smolt Traps
   f) Formats of receipt:
      - MS-Access
      - Spreadsheet

6)Challenges
   a) spreadsheets in unidentical formats
      - some matrix, some not
      - matrix data requires extra work
   b) site identifiers not consistent on all datasets
      - comment from auduience:
        "It is helpful if data managers provide a list of "EVENTS"
        or site information for which data recorders are required to use."
   c) distinguishing between integer and floating point records.
   d) capturing <u>all</u> codes/translations for each survey type.
      (e.g., it is and non-ITIS codes for macroinvertebrates).
   e) distinguishing between raw and calculated data.
   f) some solutions
      - Providing placeholders for Bureau of Reclamation's protocol definitions.
      - Time-stamping constant values (e.g. coordinates of a monument)
      - Have cooperators work from a common site file.

Jeff Cowen - The Hydrology-based Web Interface

1) Description of component data
   a) National Hydrography Data (NHD) 1:100k layer
   b) GPS coordinates of sample sites
   c) Upstream trace
      - see "What' happening upstream"
      - ties information to restoration projects
        - 66 by State
        - 62 Federal
        - 3 Non-profit
      - Create "Data Cart" of sites located upstream
        - Pick Start/End dates
        - Pick Variables and Summaries

2) Metadata Report
   a) Every record is tagged with a "protocol" that is defined in detail in a hotlink.
   b) User decides if it is valid to combine data from different protocols.
      - Users will be required to acknowledge differences in protocols
      - Target audience is 1st the Upper Columbia Regional Technical Team (UCRTT).
      - Security Features could be enabled to only allow access to certain users.

3) Habitat Queries:
   a) Setting up habitat queries for the UCRTT using Oracle.
      - intend to link with EPA codes using a SAS integrator in Oracle.
        - pick e.g., "Fish Cover"
        - pick a time-frame
        - pick sites
        - pick transects.

Q&A:

Q1) Is there information on restoration activities in this system?
A1) We are building cross-walks with another system that houses the restoration work.

Q2) What is planned for snorkel data?
A2) We will include this information.

Q3) Your system is less centralized than Marlys'.
    Do you have any thoughts on this relative to QA/QC?
A3) You might direct questions like this to Mike Ward (Terraqua, Inc.).
    He oversees QA/QC for the project.

Q4) What are the costs of this system relative to the entire project?
A4) You might direct questions like this to Chris Jordan (NOAA-Fisheries).

Q5) Do you have plans for data analysis?
A5) The plan is to reproduce the EPA analyses.

Q6) Why didn't you use SAS?
A6) Ideally, we will use SAS through the interface that we mentioned earlier.
    In the interest of standardization, we don't want to re-write code.

Q7) Question-Did you stratify upstream for evaluating effectiveness?
A7) No, our goal was to provide a tool for users, not to analyse the data.
    Plotnikoff - “For the Status and Trends plan that we are addressing in this workshop, we are NOT looking at local or site-specific effects. Rather, we are evaluating larger areas on the scale of WRIA, SRR, and the state.”

IV. Workshop Discussions - How to Proceed

1) Emphasize “status” first. “Trends” cannot be determined without first knowing status.
2) Consider a standard “core” set of metrics (e.g. EMAP).
    a) This could be augmented with existing or other data.
3) To augment with separate data...
    a) don't combine data but combine assessments
    b) evaluate scoring criteria (e.g. good, fair, poor) in consistent ways.
        • how were criteria evaluated for LFAs and other reports?
    c) compare measures/assesments through a set of “index”/“calibration” sites.
4) Consider time
    a) optimal sampling season for each indicator and overall.
    b) Need rules to know how far back to consider historical data.
        • last 5 years?
        • last 1 year?
        • it will depend on reporting requirements.
    c) monitoring framework design
        • 3-year panel?
        • 5-year panel?
        •multiple panels?
5) Evaluate interest of locals to participate with field effort.
    a) fears of alienating existing sites: site classification was discussed as a tool to use existing site data.
        - evaluate at the ecoregion+size class (for example)
        - report at the WRIA, SRR, State levels.
    b) fear of overworking staff: with funding, about 2-3 sites per county per year was discussed as a reasonable effort.
    c) communicate throughout the planning process.
6) Determine how to fund a monitoring program.
    a) educate people
        - there is no statewide or large-scale probability monitoring now happening.
        - needed to feed the State of the Salmon report.
        - needed to answer: “ What good are the restoration funds doing?”
        - discuss short-term benefits.
    b) search various sources