Meeting Notes – 10/27/05

STATUS AND TRENDS PROPOSAL WORKSHOP #2
INDICATOR PERFORMANCE, EVALUATION, AND SELECTION

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

I. Attendees

1 Paul Ancich (RFEGAB/Governor's Forum): ancich@rocketmail.com
2 John Arterburn (Colville Tribes): john.arterburn@colvilletribes.com
3 Richard Brocksmith (Hood Canal Coordinating Council): richardbrocksmith@earthlink.net
4 Wayne Chaudiere (Whatcom Co. Cons. Dist): chaudiere@whatcomcd.org
5 Chris Coffin (Ecology); CCOF461@ecy.wa.gov
6 Mike Furniss (USFS PNW Res.): mfurniss@fs.fed.us
7 Rick Haley (Skagit Co.): rickh@co.skagit.wa.us
8 Gretchen Hayslip (EPA-Reg.10): Hayslip.Gretchen@epamail.epa.gov
9 Kollin Higgins (King Co.DNR): kollin.higgins@metrokc.gov
10 Chris Kowitz (Skagit Co.) ckowitz@co.skagit.wa.us
11 Kirk Krueger (WDFW/SSHIAP): kruegklk@dfw.wa.gov
12 Steve Lanigan (USFS/AREMP/PNAMP) slanigan@fs.fed.us
13 Gino Lucchetti (King Co.DNR): gino.lucchetti@metrokc.gov
14 Frank McCormick (USFS, Olympia): FMcCormick@fs.fed.us
15 Glenn Merritt (Ecology): gmer461@ecy.wa.gov
16 Dylan Monahan (Ecology): dymo461@ecy.wa.gov
17 Teresa Moon (SPS S.Enh.Grp): teresam@spsseg.org
18 Dave Peck (EPA-ORD, Corvallis): peck.david@epa.gov
19 Rob Plotnikoff (Ecology): rplo461@ecy.wa.gov
20 Tim Quinn (WDFW/IMW): quinntq@dfw.wa.gov
21 Carol Smith (WCC): bioforsalmon@comcast.net
22 Paul Wagner (KWA, inc.) pwagner@kwaecoscience.com
23 Chad Wiseman (Ecology): cwis461@ecy.wa.gov

II. Introductory Information

A. Discussed focus of Status and Trends Workshop #2:
"Indicators, Performance Evaluation, and Selection"

Field Protocols
Remote Sensing
Analytical Procedures
Results from performance evaluations
Questions –
What variables are you familiar with?
What variables do you trust?
What won't work.

B. Reminder of Remaining Workshops

Workshop #3 "Existing Data Sets…"
Date: December 1, 2005
Location: Bldg. OB-2, Rm. SL-04

Workshop #4 "Data Management and Analysis"
Date: January 5, 2006
Location: Bldg. NRB, Rm. 172

C. Objectives Overview for Statewide Status & Trends Monitoring Plan

- Develop a probability-based sampling framework for state, SRR, and WRIA scales.
- Identify specific metrics or indicators that will be monitored and protocols used.
- Incorporate existing information and monitoring data.
- Develop partnerships to implement the monitoring plan.
- For this group, focus on habitat and water quality indicators for assessment of watershed health and salmon recovery. Others will address fish production.
- Show recovery/deterioration to high-level decision-makers as soon as possible.
- Show status to high-level decision makers (What are the limiting factors that need fixing?)
- Show recovery/degradation to high-level decision-makers as soon as possible: (Are we de-listing or not?, Have the limiting factors been fixed?)

III. Presentations

A. Steve Lanigan

1) Aquatic and Riparian Effectiveness Monitoring Prog. (AREMP)

Panel Design to randomize 6th field HUCs and about 6 sites/HUC
Biology (in-channel): fish/amphibians/invertebrates/periphyton
Upslope and Riparian: IVEMP with sat images: veg classes and seral state, road density/crossings
Decision Support Model-
- Create a response curve for each attribute with upper node, lower node and action between nodes.
- Cumulative scores for attributes provides a watershed condition score.
- Curves were developed from local meetings with mostly fish biologists. DSM allows aggregation of data.
- Funding is about half of expected – Options:
  - Fewer attributes (check for redundancy)
  - Reduce staff (been done already)
  - Fewer sites (checking this)
  - GIS as alternative for field measures (see work of Dan Miller)
  - Use shared data (e.g. with common methods, crosswalks, common GIS layers)

2) Pacific Northwest Aquatic Monitoring Partnership (PNAMP)

Comparison Study in John Day Basin (www.reo.gov/monitoring)

B. Mike Furniss "On the use of regional channel-based indicators for monitoring" - see Reid & Furniss white paper.

Mike suggests that monitoring the driving variables at the first link of the cause and effect chain (e.g., up-network or in small stream catchments) can more likely yield results that are readily usable.

C. Dave Peck

EMAP-West

965 sites, > 200 "candidate" references sites
Focus on biological indicators (multimetric approach) – generate MMIs
- Fish/Amphibians
- Invertebrates
- Periphyton (eventually)
- Description of Extent, Relative Risk
- What EMAP is NOT
  - Not a census – it is a "Gallup Poll" of populations of streams.
  - Not for 303d listings – it is for 305b status reporting
  - Not a replacement for targeted monitoring – it is a complement to it

- Metric selection/ Indicator Development
  - Picking Biological Indicators to make multi-metric indices (MMIs)
  - Evaluating Indicator performance
    - Signal:Noise
      - Chemical variables – see handouts
      - Habitat variables – see handouts
      - Biological Indicators – see handouts
    - Responsiveness for biological indicators (Least vs. Most disturbed)
  - Variance components (design alternatives)
  - Status Estimation –
  - Trend Detection - Refer to
    - Larsen, D.P., P.R. Kaufmann, T.M. Kincaid, and N.S. Urquhart, 2004. Detecting persistent change in the habitat of salmon-bearing streams in the Pacific Northwest. Can. J. Fish. Aquat. Sci. 61:283-291. http://tinyurl.com/bp7fv
      - 10 to 15 years to detect trends for most indicators.
      - Run each indicator through the variance component model to estimate the time required to get trend answers.
- Lessons Learned
  - 500m max reach length has shown missing information
  - The legal holding times are sometimes more stringent than necessary.
  - Sample size constraints
    - For extent (stream miles), look for 50 sites, and at least 4 sites in each stratum.
    - For Relative Risk estimates, need at least 5 sites each in "Good" and "Poor"

IV. Workshop Discussions

A. Examine the limiting factors that have been described for listed fish.

1. 2005 Report to Congress (NOAA), Chapter 2
   http://www.nwr.noaa.gov/Salmon-Recovery-Planning/PCSRF/
2. The Limiting Factors Analysis of the Washington State Conservation Commission
   http://salmon.scc.wa.gov

B. Pick appropriate indicators by region ("bin")

1. Use of politically-based bins (e.g., ag, forest, urban) was discouraged due to trouble accounting for cumulative effects.
2. To account for differences from up-network areas to valleys, analysis of sites within bins (e.g. ecoregions or watersheds) should be segregated according to natural classes (e.g., ecoregion, slope, elevation).
3. Score indicators differently for each region and class.

C. Maximize efficiency by eliminating costly and redundant indicators.

1. Look at correlations to find redundant metrics, use cheaper replacements if valid.
2. Drop expensive metrics (e.g., metals analyses, fish/vertebrate community analyses)
3. Drop unfeasible analyses (e.g. fish/vertebrate community sample permits issues)
4. We seek a small but powerful set of indicators. Fewer measures:
   + allows for easier training
   + allows for greater consistency

D. How to combine data from different places or times

1. Report broad categories e.g., "good", "fair", "poor"
2. Evaluate each limiting factor according broad categories (e.g., "Good" and "Bad" ; estimating "Fair" might not even be necessary) see how many river miles increase/decrease for each.
3. Calibrate assessments so that different scientists can make the same call at a given site.
4. Use Relative Risk as a way to communicate degree of problems to managers AND scientists.
5. Invest in information management and detailed metadata so people know what they are comparing.
6. Look at ranking.