

Interior Columbia Technical Recovery Team meeting #6, April 15th and 16th, Portland, OR

Members: Paul Spruell, Michelle McClure, Tom Cooney, Rich Carmichael, Fred Utter, Phil Howell, Charlie Petrosky, Peter Hassemer, Dale McCullough, Howard Schaller, David Johnson, Brett Roper

Non-members: Henry Carson

I. Business

- 1) Status update for general funding from NMFS, BPA and USACE and specific funding for an assistant position at Streamnet.
- 2) Distribution of proposed abstract for a Spokane Symposium Presentation on TRT activities. Members should contact Tom Cooney with comments or suggestions.
- 3) Tentative dates for the Middle Fork Salmon field trip are last week in July / first week in August. This trip will not be mandatory.
- 4) The Lower Granite Dam field trip is scheduled for May 2nd. This trip will not be mandatory.
- 5) Summer meetings have been expanded to three days to include a one-day tour of the watersheds around the meeting site to give members a sense of the habitat and conditions in different basins:
 - June 12th, 13th, and 14th - La Grande, OR
 - July 22nd, 23rd, and 24th - Leavenworth, WA
 - September 23rd, 24th, and 25th - Stanley, ID

II. Genetics subgroup update

- 1) The subgroup attempted to remove some of the hatchery influence “noise” from the Snake River Chinook dendrograms. They hoped to pull out stream/years that looked similar to a pooled hatchery stock standard in the Principle components analysis or dendrogram. They were unable to identify specific stream/years with heavy hatchery influence using this method- the “noise” will remain in the analyses.
- 2) Presentation/Discussion of genetic distance F_{ST} and chi-squared significant difference p-values pair wise matrices. Variation between years was often greater than the variation between streams. Of the total variation:
 - Approx. 98% was due to individuals within a site
 - Approx. 1% was due to the sampling year, and
 - Approx. 1% was due to differences between sitesPossible causes include:
 - Small population sizes/ sample sizes
 - Aftermath from a potentially selective high density-independent mortality in the past (anthropogenic)
 - Life-history characteristics (semelparous)
 - Hatchery influences

The genetic data do support some clear large-scale divisions, but other data types will be needed to differentiate small divisions. The Snake River Spring/Summer Chinook ESU can be divided into the Tucannon, Grande Ronde/Imnaha, South Fork Salmon, and Middle Fork/Upper Salmon for further analysis.

- 3) Next steps:

- complete AMOVA's along node structure
 - create list of completed/pending genetic studies to direct possible further investigation
 - write up results
- 4) Discussion: Results compared with conclusions from other genetic reports: Grande Ronde study and Population Structure of Columbia River Basin report. Dale McCullough will post the latter on docushare soon.

III. Progress on other Data types

- 1) Presentation and discussion of Red Count Correlations
 - Ideas: adjust for age structure of populations, log transform data, and subtract hatchery fraction if known (Rich to send Grande Ronde hatchery proportion data)
- 2) Presentation and discussion of Straying Dispersal Curve
 - a) Curve may be biased to y-axis because of the location of weirs and traps where straying fish could be found. It is impossible to detect small-scale straying of 5 to 25 km because of lack of collection equipment
 - b) Missed strays may not significantly change curve, finding a few fish in a previously unsampled stream wouldn't offset the thousands captured after successful homing
 - c) Possible new straying information
 - Upper Columbia (Tom will provide)
 - South Fork Salmon, Nez Perce data (Charlie will call)
 - Imnaha data (NWFSC to investigate)
 - John Day data
 - Chris Peery's work
 - Fall Chinook Sub yearling Coded-wire tags
- 3) Presentation and discussion of Pair wise Distance Matrix
 - a) Adjustments: Marsh Cr/Bear Valley spawning areas are not contiguous, very limited spawning occurs in lower reaches of Imnaha, Lemhi below Hayden Creek
 - b) NWFSC center and IDFG members to exchange a corrected spawning area map with a printout of spawning area river miles for review.
- 4) Presentation and discussion of Life History analyses
 - a) Adult timing: Bonneville data is not sufficient to augment L. Granite detections, removing data on jacks may improve analysis
 - b) Juvenile timing:
 - Data could be analyzed using a binned chi-squared method instead of general linear model.
 - Attempts should be made to correlate detections at L. Granite with environmental factors such as travel distance, elevation, water temperature, and flow. Differing conditions in brood streams vs. rearing streams for portions of populations may confound these analyses.
 - Stream years should be ranked on several criteria to clarify comparisons: Is one stream consistently later or earlier? Is one stream consistently more or less variable?

- Smolt trap data (movement out of tributaries) may be a better indicator of this attribute and represent the stream populations better than Pit tags. Pete will send NWFSC center Idaho smolt trap data.

5) Other data types

- a) Morphology: The center will continue work on Length-at-Age comparisons with additional data from Tom (Tucannon), Eric Tinus (Grande Ronde) and Charlie (Idaho). Russ Kiefer has Snake River basin Fin Ray data.
- b) Rates of parasitism and disease. Fred is interested in investigating this possibility for population differentiation.
- c) Age structure- NWFSC center will begin calculations
- d) Spawn Timing- Terry Elms is reviewing Idaho red count reports to compile
- e) Historic Capacity- estimated by stream order, miles and gradient of spawning habitat. Tom, Howard and NWFSC team will begin calculations.

6) Data void areas

Geographic distance, capacity, and environmental attributes may be the only data available. David will check for Asotin Creek genetic or other data.

IV. Writing – Revised outline and assignments

- 1) Intro- Purpose and Goals (David, Fred and Paul will meet May 7th, Olympia)
- 2) Methods common to all ESU's
 - a) General Approach- Rationales for Population Identification, Larger divisions, and data choices. (Rich, Michelle, Paul, Fred)
 - b) Specific Analyses- written by analyzer(s)
- 3) ESU Specific Write-ups
 - a) Setup / Decisions (Phil has finished draft)
 - b) Current Population Structure
 - 1) Large-scale divisions
 - Analyses/Results in support of divisions
 - Conclusions
 - 2) Within large divisions
 - Analyses/Result in support of further divisions (Grande Ronde analyses to be completed by mid-may)
 - Conclusions
 - c) Historic Populations
 - 1) Known information
 - 2) Our model / suppositions
 - d) Other Issues

V. Summary schedule of Snake River Chinook population ID analyses

| | Tucannon | GrandeRonde /Imnaha | South Fork Salmon | Middle/Upper Salmon | Upper Columbia |
|--------------------------------|---|--|--------------------------|----------------------------|---------------------------|
| Redd Count Correlations | N/A | Rich, Pete, Charlie and Tom to send data by April 23rd NWFSC to complete analysis by April 30 th | | | |
| Spawn Timing | All members compile any available data for June meeting | | | | Tom, May 31 st |

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|------------------------------|---|---|---|---------------------------|
| Age Structure | Tom | Eric Tynus to send data by April 20 th | Charlie to send data immediately, add Nez Perce carcass data when available. NWFSC to start analyses. | Tom, May 31 st |
| Length at Age | ? | Eric Tynus to send data April 20 th | | Tom, May 31 st |
| Adult Return Timing | ? | NWFSC to complete new analysis by mid may | | Tom to check data |
| Dispersal Curve | NWFSC to complete in early may | | | Tom has completed |
| Juvenile Outmigration | NWFSC has smolt trap data, will start analyses | | Pete to send smolt trap data, NWFSC will start analyses | ? |
| Distance Matrix | NWFSC to receive Idaho spawning ground data and fix matrix | | | |
| Genetics | Genetics subgroup to produce fine-scale genetic trees during mid-may work session | | | ? |
| Total | Completed matrices to be distributed by 4th week in may for members to bring their collected thoughts and reactions to the June meeting | | | |

V. Habitat

- 1) Introductory questions
 - a) What are current habitat conditions?
 - b) What might habitat conditions have been historically?
 - c) How do they relate to the fish?
- 2) Presentation on WDFW project to determine historic habitat- Dave Johnson
 - a) Use of backgrounds from old outdoor photographs
 - b) 1870 land surveys including stream width and vegetation cover
 - c) Historic accounts
 - d) Aerial photograph re-shoots
- 3) TRT should develop specific questions that need answering to help direct the project and make it more useful. Tom will circulate the question set from the Sharp document for review.