**December IC-TRT meeting**
December 20-21, 2004
NOAA Fisheries
Boise, Idaho

TRT attendees: R. Carmichael, T. Cooney, P. Hassemer, C. Petrosky, H. Schaller, P. Spruell, M. McClure, P. Howell

Other attendees: C. Baldwin, D. Holzer, E. Seminet, J. Carrell

**I. Business**

A. Michelle is working on the Corps of Engineers Contract status.
1. She will need a statement of work from each TRT member.

B. RSRP meeting in Santa Cruz at the beginning of December
1. Main topic was the anadromous and resident steelhead interactions.
2. All TRTs presented their population criteria
a. RSRP would like to see a cross check to make sure that each TRT has consistent definitions of risk levels.
3. A follow-up workshop is being planned, possibly sponsored by the Science Center

C. Scheduling review of draft recovery plans from Washington State.
1. They are incorporating viability into their report.
2. They will present what they have to the TRT at the next meeting
a. Monday 8:00 am January 18th.

D. Viability criteria update status
1. There is a draft on the website now.
a. includes the July draft and a packet with all of the new work such as the MSAs, populations sizes, MPGs etc.
2. Tom Cooney will circulate an electronic copy to the TRT.

**II. Historical Population Delineation**

A. A packet of historical delineations for Chinook and Steelhead populations was passed out. The TRT went over each one to decide if the designated boundaries were correct.

B. Upper Snake Chinook
1. Lower Payette—is there temperature limitation? Apply temperature screen, then reevaluate
Willow Creeks—is there enough suitable habitat? If not, combine w/ Squaw.
2. Eagle Creek—Lump with downstream moderate-rated areas
3. Mainstem Weiser—should area between We4 an We5 get lumped upstream or downstream?
4. Malheur—extend boundary at M4 down to M3, capturing mainstem but not trib at M3.

5. Boise—lower streams were screened out for temperature

6. Lower Owyhee—double check historic records for presence of Chinook
7. Snake mainstem—Create a Snake River mainstem tribs population, instead of lumping tribs with the Bruneau, if, after applying the temperature screen, there is enough habitat.
8. Big Wood—lump Camas with Big Wood. Also check references for a possible Chinook barrier.
9. Make sure all of the "white islands" on the map are filled in, i.e. those areas are added to the population that is upstream.

C. Clearwater Chinook
1. Big Canyon and Lapwai—combine into one population
2. Lapwai and Potlatch may be temperature limited.
3. Elk Creek—Extend the boundary downstream to fill in a gap.
4. Little N. Fk. Clearwater—Extend the boundary downstream, merging with Elk Creek
5. Upper N. Fk.—combine with Weitas Cr.
6. Fish Creek—combine with the rest of the Lochsa and possible with the mainstem Clearwater, current part of the Lawyer Creek population
7. Lawyer Creek—combine with other smaller tribs in the lower South Fork
8. Upper S. Fk.—Extend the boundary downstream
9. Upper Selway—Extend the boundary downstream to Moose Creek
10. Moose Creek—becomes its own population

D. Upper Snake Steelhead
1. Snake River—include mainstem tribs that are outside of pop boundaries with the upstream pop.
2. South Fork Payette—Deadwood may be naturally blocked. If so that pop may be too small, so divide the Payette into upper and lower pops.
3. Pine—should it be a separate population? If not, we should put in a qualifying statement for lumping with Wildhorse.
4. Should the extinct pops (Pine, Indian, Wildhorse) be lumped with the current Snake R./Hell's Canyon? Linking has big consequences for status review.
5. Lower Owyhee—move boundary up to include the three-pronged trib with high intrinsic rating
6. Snake tributaries
7. lump with Bruneau, then extend boundary downstream to fill in the white gaps.
8. Link white areas between Bruneau and Salmon Falls on the S. side of the Sanke with Salmon Falls population.
9. Link tribs on the north side of the Snake with Big Wood population.

E. Upper Columbia Steelhead
1. Foster, Columbia mainstem, Sanpoil—fix boundary to make areas contiguous
2. Hangman—separate into its own population

3. Spokane—extend the boundary downstream to confluence with the Sanpoil
4. Kettle—extend boundary down to capture downstream tribs and Pend Oreille
5. Okanogan—extend boundary downstream to confluence.

F. Upper Columbia Chinook
1. Okanogan—given the predominance of lakes, divide it into two populations at O5.
2. Hangman—check the accuracy of intrinsic potential
3. Deep Creek—should it go with the Kettle population or the Upper Columbia?
4. Casey: Deep Creek has a barrier at mile 1.
5. For more historical references, refer to Scholls, BPA

G. Deschutes Steelhead
1. Metolius River—there is a question of whether there were fish there historically. Refer to a reference by Nelson.
2. Bear Creek—lump upstream
3. Shitike Creek—ecoregions listed in the table are wrong
4. Crooked River—lump lower and upper populations
5. Willow Creek (Columbia trib?)—were there fish there historically?

H. Crab Creek Steelhead
1. Should Crab Creek be a separate population? There are 2 options:
    a. No, Crab Creek was always dependent on other populations
    b. Yes, Crab Creek was an independent population
        i. A typical population, or
        ii. More like a southern California pop., mostly resident fish
    c. The TRT agrees with b.
2. Which ESU should Crab Creek belong to?
    a. General consensus is with the Upper Columbia
    b. there is more connectivity via tribs with the Wenatchee
    c. this would be consistent with the tendency to lump upstream when we are uncertain
3. Lump the "ladder tributaries" with upstream populations
4. Basins Y1, Y2, and Y3 get lumped with Satus/Topenish population.
5. Is it an option to not link the "ladder tribs" to any population but simply designate them "dependent habitat areas." This could create problems later on.

**III. ESU-level viability criteria- metapopulation modeling of impacts of catastrophes.**

A. Presented modeling results of RAMAS simulations that apply catastrophes to viable and maintained populations.

1. Compared different types of catastrophes

a. No catastrophe
b. Low productivity catastrophe impacting vital rates
c. Uncorrelated catastrophes impacting K
d. Correlated Permanent Catastrophes impacting K
e. Correlated Catastrophes impacting K with recovery

2. Compared including maintained populations with viable populations.
    a. Including maintained populations reduced risk
3. Compared scenarios used to select which populations are viable.
    a. Random
    b. 1x only
    c. 2X & 3X
    d. Proportional (1X,2X,3X)

B. Comments from the TRT about results

1. Would like to see a hierarchical approach done
    a. population level analysis
    b. MPG level analysis
    c. ESU level analysis
2. Sensitivity analysis for
    a. Impacts of dispersal vs. no dispersal at all
        i. We need to lower our dispersal values
    b. Variance/ Lambda combinations
3. Model a realistic example based on an ESU.
4. Figure out a way to get a metric from RAMAS that tracks each individual population through the simulation.
    a. So you know the proportion of populations achieving criteria
    b. Set minimum values of what constitutes occupied.
    c. How do you decide the viable threshold?
5. Extend the time frame to beyond 100 years and plot an aggregate summary that is cumulative along with progress of each population.
    a. Also, maybe assign Spring or Summer to each population to see which ones are left at the series end.
6. Try a range of maintained values and their recovery success.
    a. Extreme: lambda <1
    b. Less extreme: lambda around 1
7. Keep in mind that the model is a measure of numbers and distribution—not diversity. It should not be the last word in the decision-making process
8. Definition of catastrophe—Do we need one, or can we just use a range of scenarios, including a scenario in which two pops are completely wiped-out?

    Rich thinks the RAMAS definition (75%) is not a true catastrophe.

9. Michelle will distribute a document that explains the model's parameters.

**IV. Next steps for viability technical report**

A. The July draft and packet of new pieces is up on the web

1. The TRT does not have a problem with showing people a working draft.

2. Would like to have a full document by March.

3. Strategy is to finish and then work on flow and organization.

B. Tom presented a table with the missing components of the report. (See table 1)

1. Work groups were formed to work on various tasks (See table 2)

2. More information is needed on which metrics to use with the viability curves because people will want to use the curves with their data

3. Tom would like to develop a decision tree for determining how to decide if a viability curve is adequate, similar to planners' adaptive management plans.

Table 1. Parts of the Viability Technical Report that need to be done

| **Additions/Holes** | **Relevant Analyses** | **Reconcile** | **Other** |
|---|---|---|---|
| Integrate across spatial structure diversity criteria to population level risk (evaluate and writeup) | | Integrate population size and population complexity categories or reconcile potential confusion in text | |
| Develop more specific recommendations/examples for evaluating abundance/productivity against appropriate viability curves | Test alternative models against hypotheticals | | Writeup – test results<br><br>Writeup – examples of applying alternatives to selected populations |
| Narrative: Individual mpgs – examples of low risk scenarios, id key populations, etc – bulk up appendix with brief narratives | Ramas results | | Writeup – among population diversity measures<br><br>Ramas results writeup |
| Treatment of extirpated MPGs in MPG/ESU viability criteria – whats required or what are the implications?? | Identify and characterize population structure in extirpated areas (Clearwater, above Hells Canyon, upper Columbia | | |
| Integrate historical diversity perspectives | Historical diversity indices | | Writeup – historical diversity/spawner distributions |
| Integrate across all four VSP parameters at the population level | | | |

Table 2. Work Groups and Goals for next meeting

| **Task** | **Details** | **Work group** | **Goals for Next meeting** |
|---|---|---|---|
| Integration | Integrate across ALL criteria to pop level | Paul, Rich, Phil, Pete **Jan 10th 1pm -** Boise IDFG | Jan - Conceptual approach(es) |
| A&P | Curves, pop/mpg specific guidance, examples, | Tom, Howard, Charlie, Rich, Michelle<br><br>**Jan 6th** 10am – FWS Vancouver | Pop/ MPG specific curves/<br>Sensitivity tests of alternative metrics (series length, etc) , incorporating sm/sp and SAR info, rec on pops without info |
| Description MPG | MPG narratives, extirpated treatments, refining and modifying ESU level criteria | Tom, Michelle, Paul, Phil Phone: **Dec. 23rd 9am** | Updated RAMAS runs, draft extirpated pops/mpgs language, example of mpg narrative |
| Spatial/Diversity - | Gaps in individual criteria, gaps etc – historical diversity, occupancy, integration across s/d, incorporate/polish additional genetics perspectives | Michelle, Fred, Casey, Howard, Dale, Pete<br><br>Integration – call **Jan 7th** 2pm<br><br>Emails on genetics/occupancy | Conceptual approach – integrating across s/d criteria, update on occupancy definitions, languages |
| Monitoring – Adaptation, improving criteria | Next steps | | |

**V. Population-level abundance and productivity criteria**

A. Evaluating current status

1. Setting a target of where you should be
2. How well will a given scenario achieve our objectives?

B. Metrics that could be used

1. Population growth rates
2. Return per spawner
3. a combination of SAR and smolts per spawner

C. Back-calculates the past 20 years to see if there is enough intrinsic potential. Paul Mc Elheney has come up with an easy test based on lambda.

D. Tom plotted the best estimate of adult returns per spawner for the Wenatchee, Methow, and Bear Valley

1. Tom's table shows the effects of applying different curves to datasets
2. PCC target changes as a function of where (what year) you start
3. Casey suggested using a 12-year mean instead of a 4-year mean