Meeting of the Interior Columbia Technical Recovery Team
October 17th, 2006 in Portland

Members in attendance: Tom Cooney, Michelle McClure, Fred Utter, Phil Howell, Rich Carmichael, Howard Schaller, Pete Hassemer, Charlie Petrosky, Casey Baldwin
Non-members in attendance: Damon Holzer, Don Matheson, Chris Jordan, Claire McGrath, Darcy Pickard

1. **TRT November meeting 16-17th in Boise**
2. **Viability Document updates (scheduled to finish draft for additional technical review in early November)**
    a. Outline
        i. Intro
            1. Background (task)
            2. Hierarchical structure
            3. Pop size and complexity assignments
            4. Summary of report content
        ii. Viability criteria
            1. ESU & MPG
            2. Population
                a. A&P
                i. Principles
                ii. Criteria
                iii. Rational
                iv. Example
                v. Uncertainty
                b. SSD
                c. Integration
            3. M&E—consider drafting this section
            4. Attachments
                a. Abundance/productivity (viability curves)
                i. Data
                ii. Methods (includes sensitivity analysis)
                1. approach for defining MaSA/MiSA
                2. add extirpated MPG memo?
                3. criteria for changing viability curve
                a. if adding new dataset(s) shifts the curve more than halfway to an adjacent curve, need to change (update) the curve
    b. Organization
        i. Changed order of main sections (pop size/complexity to front, ESU to MPG to Pop order, added placeholder for M&E
        ii. Added paragraph to intro describing organization
        iii. Attempted to standardize criteria descriptions (general rationale, criteria, methods, uncertainty
    c. Additions

        i. Main document—expanded rationale for some criteria (such as MPG criteria)
        ii. Attachments—added PVA sensitivity analysis
    d. Many edits
    e. To improve
        i. Make formatting consistent between sections (headers, visual differences)
            1. VSP recommendations currently within a box—better to put ICTRT criteria in a box, and use bulleted list for VSP. Other lists (juvenile life-history characteristics, etc.) with no bullets or boxes.
            2. Numbering for tables and figures
    f. Workgroups
        i. Identify sections that would benefit from expanded rationale (Pete, Fred, Phil)
            1. ESU/MPG rationale
            2. A&P general rationale for importance, justification for specific metrics
            3. SSD section—rationale for A goals (spatial structure), justification for choices within specific criteria
            4. identify other sections
            5. draft or outline expanded rationale sections
        ii. M&E (Rich, Charlie, Howard, Michelle)
        iii. Viability curves (Tom, Don)

3. Additional comments and suggestions for the viability draft

    a. Introduction
        i. First two paragraphs – TRT tasks (de-emphasize populations, focus more on ESU viability)
        ii. Definition of extinction-viability-risk-probability of persistence
    b. Hierarchical Levels for Estimating ESU Viability
        i. First two paragraphs – muddy (Fred dealing with)
        ii. Justification for thresholds
        iii. Justification for size categories
        iv. Fall chinook – italicized text should read "based on these evaluations the extent of SR FALL chinook includes 5 MSAs – (reword "mainstem mainstem")"
    c. ESU-level viability criteria – suggest that we meld ESU and MPG level sections
        i. Justification for all MPGs – absent entirely
            1. ESA – "all or a significant portion of its range"
        ii. Justification for increased stringency with smaller numbers of MPGs – not bad, could use some more references
        iii. Organizationally needs to be sorted out
        iv. Summarize the extirpated MPG memo conclusions
    d. MPG-level viability criteria
        i. Justification for one-half or two

ii. Justification for one being highly viable
iii. Justification for spatial distribution
iv. Justification for mean productivity – also rephrase to get at the point that the whole has to be viable (not everything can be on the edge)
v. Justification for all major life history strategies
vi. Re-iterate point about ESU viability is the key

e. Population-level
    i. Brief overview of factors contributing to extinction risk (all 4 VSP)
    ii. Distinguish/explain why can't incorporate all the factors into a single model -- that we tried to take a quantitative approach, and what the pitfalls were there.
    i. A/P
        1. Slightly more detailed version of factors contributing to demographic risk
        2. Justify QET
            a. uncertainty of being at <50 for extended period of time
        3. Whole background for 5% risk – including relative change if use a different risk level
        4. Thresholds – justify 500, describe how and why it's scaled up
        5. Reminder that treatment of uncertainty requires policy input
        6. Need some kind of summation
        7. Some justification for choosing the hockey stick model, given the McElhany result – is it more conservative, just right, what?
        8. Guidance on when to change/update viability curves
    ii. SS/D
        1. Overview of why SS/D is important – needs more references
        2. Justification for historical as the baseline – include in generic overview
        3. Better overview – recognize that these are largely qualitative, we offer them in the spirit of seeking to assist recovery planners know the kinds of things that they should look at
        4. Brief summary of the metrics and what we hope to achieve with them.
        5. Generic overview of low, moderate, high, and how they get summed up -- low risk was near historical, high risk was large deviation from that, and moderate risk was in between.
        6. Goal A

            a. Justification for why the three metrics that we have are included
            b. Data that are needed to respond to Goal A metrics
            c. A.1.a – why the number of MSAs and why we like non-linear better than linear, also why we've made some populations not be able to reach VL risk for this metric
            d. A.1.b – Justification for why range reduction matters
            e. A.1.c – Justification for gaps
        7. Goal B
            a. Greater explanation and justification for maintaining natural levels of diversity
            b. Brief description of the kinds of data that are needed to respond to Goal B metrics, (??what to do with situations with no historical data??)
            c. B.1.a – justification for levels
            d. B.1.b – justification for going with historical phenotype, rather than just "adapted to current situation"
            e. B.1.c – explanation that historical baseline not needed.
            f. B.2 – stronger justification of why risk increases with increasing #, during, "type" of hatchery fish.
            g. B.3
                i. Add discussion of why NA in some cases to table
                ii. ?? Some discussion of potential future approaches?? – give to M and E group
        1. B.4 – justification for numbers
    iii. Generating pop level risk rating
        1. More info on why we allow moderate SS/D, but not moderate A/P
        2. Re-visit ESU is the most important level, populations are a mechanism to get there.
        3. What is overall population risk – review of the principles

f. M&E section
    i. define ideal set of information for viability assessments
    ii. identify weaknesses in current available data
    iii. Possible topics
        1. General discussion of intent of this section
            a. Focus on info that would improve criteria or the ability to measure against them. Some of these factors would also benefit identification of actions, etc. (ESU level, MPG level, Pop level)

2. Need more information on what would improve or refine the actual criteria
    a. Identify specific criteria (e.g., hatchery cont. criteria, number of pops/mpg—dispersal rates, rates of catastrophe, ect.)
3. Info that would allow application of criteria
    a. e.g., population level estimates of snake steelhead abundance
4. Info that would improve status assignments
    a. Recommendations on additional attributes that could reduce level of uncertainty
5. highlight priorities and key areas
    a. develop language for information gaps
6. phone call during the first week of November
    a. develop into a 3-4 page narrative

g. Conclusion—wrap-up – ADD
    i. Foreshadow current status assessments, other TRT products
h. Note – edits/revision from previous versions have not yet been included (e.g. Hassemer December 2004 edits not there).

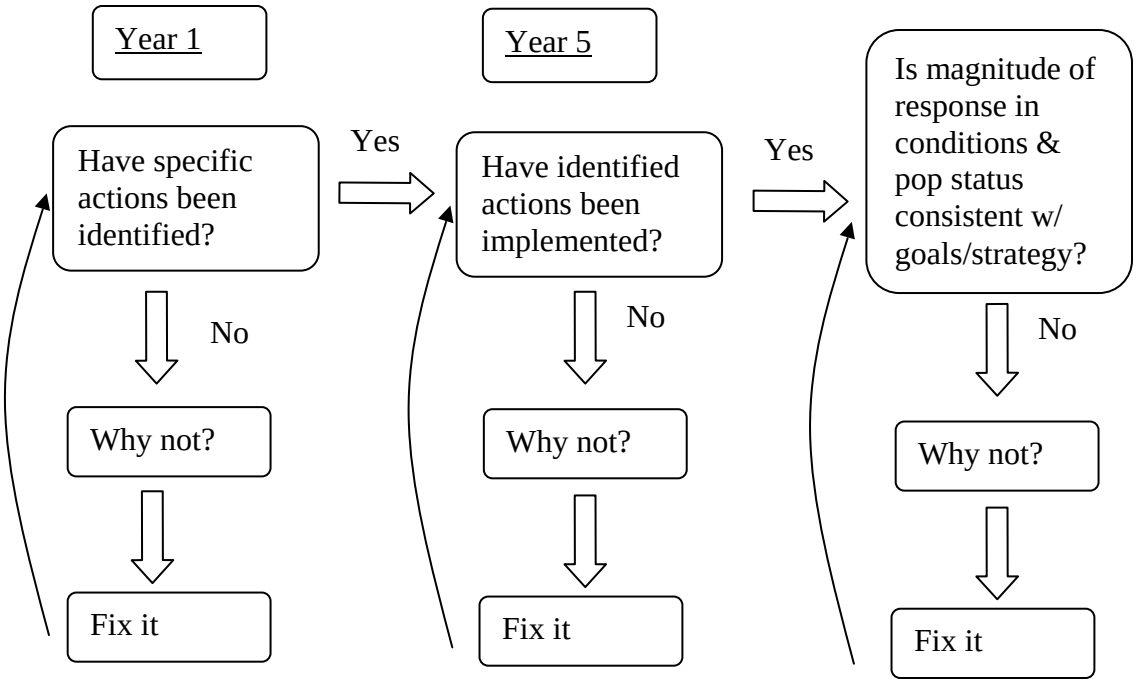
4. Viability draft workgroup (have pieces to Tom by Nov. 8th)

a. ESU language at beginning—Pete
b. MPG and ESU level concerns--Michelle
c. Metapopulation and extinction definitions—Tom
d. Goal A/B language—Michelle
e. B.4 selectivity (justification for numbers) selectivity depends on strength of selection (give a sense of magnitude)—Paul
f. Pop-level risk rating and conclusion wrap-up—Pete
g. QET—Tom

5. New Attachment A

a. Updating the Snake River chinook v&a estimates (incorporating new datasets)
    i. Test limits—does the new curve exceed half of the distance to the adjacent curve? (check at abundance of 500 and 1,000)
        1. updated curve for SRSS does not meet this test
        2. is it fair for the test to rely on a 3% change up but a >10% down?
        3. consider implementing a time limit (when to update)
            a. use SRSS as an example of an ESU that would require an updated curve
        4. generate variance and autocorrelation for the SAR series
            a. how is this impacted by the window of years used
b. clarify exclusion of “worst-fit” model
c. consider moving the section on the model mechanics up

6. **Upper Columbia plan review**
    a. Lack of acknowledgement on hatchery/genetic issues
        i. Lack of SSD tied primarily to distribution
    b. Lack of logical linkage (problem to solution)
    c. Lack of clear adaptive management structure
        i. Need an explicit method to check progress
        ii. Incentives for pushing objectives
    d. Need expanded prioritization (by location—MSA, etc.)
    e. Interface b/w science and policy
        i. More clearly state policy versus science (ex. harvest section)
    f. Habitat section
        i. Not linked to VSP parameters (or recovery criteria)—makes it difficult to monitor progress
        ii. Objectives had no targets (were more like goals)
        iii. Strategy section was weak in actual strategy
        iv. Appendix M not fully utilized within the document
        v. Modeling was not corrected for modified action plans
        vi. Approaches differ from TRT criteria
            1. Reclassification--the plan <10% risk (and moderate/moderate) for threatened
            2. SSD criteria are altered
    g. Workgroup for further review (Phil, Casey, Michelle, Tom)
        i. Conference call November 1st (Casey to send out comments)
            1. Michelle to email tasks
            2. develop flow chart (as below)—Michelle



3. response to review questions
    a. habitat—Casey
    b. integration—Tom
    c. hatchery—Michelle
    d. status and goals—Michelle & Casey
4. compilation of non-question comments—Casey
5. overview (step 2): issues of general concern—Tom
    a. intermingling of policy/statements of goals
    b. general connection of limiting factors to status
    c. adaptive management
6. Tasks to be accomplished by Oct. 31st

7. CSMEP: Status and Trends Simulation Model & Preliminary Results

a. How does data quality affect results of putting a dataset through a rule set?
    i. Evaluate sensitivity of viability criteria to input data quality
    ii. Make monitoring design recommendations
b. Test Snake River Spring/Summer chinook ESU
c. Input data
    i. 60-yr time series of abundance
        1. based on TRT simulation output data
    ii. productivity
        1. 50/50 age structure used
        2. did not calculate productivity when abundance <10% of population mean (to eliminate zeros)
        3. did not implement the 75% density dependent rule (delimiting)
    iii. plot x,y and both subtractive error terms (used a range of data from different risk categories)
    iv. SSD inputs
        1. simulated data based on 4 risk scores (32 x 12 x 60 matrix)
        2. plug into integration table to identify SSD viability for each population
d. Evaluating monitoring design
    i. low, moderate, high (for all 32 populations)
    ii. set up to include bias (not yet run) and variability
e. AP measurement error
    i. Assumed lognormal error
    ii. User input CV determines magnitude
    iii. CV decreases as monitoring increases
    iv. Calc from noisy abundance data (for productivity)
    v. Currently ignoring measurement error in age-structure
f. SSD measurement error
    i. Each of 12 metrics belong to one of four possible risk categories
    ii. Error and rule set interpretation can lead to misclassification
    iii. Rate of misclassification can be described by a multinomial distribution

iv. More precise monitoring methods will result in a greater probability of choosing the correct category
v. Recognizes that some metrics are more prone to error/variability

g. Simulation
    i. 60 years
    ii. 1 decision every 10 years (20, 30, 40, 50, 60)
    iii. 100 runs
    iv. 500 decisions for each population

h. Future work
    i. compare SRSS status quo monitoring design to low, mod, high
    ii. consider biased monitoring methods or alt error structures based on feedback
    iii. explore spatial and temporal correlations in the data
    iv. compare cost of alternative monitoring designs
    v. consider selecting representative populations to look at groups instead of individual populations
    vi. consider adjustment for marine survival
        1. MPG-specific SAR rates
    vii. Alternate methods for generating productivity
        1. consider using absolute number for low cutoff
        2. generate productivity using a delimited approach (high cutoff)
    viii. think about the variety of alternatives for estimating productivity surrogates for steelhead populations
    ix. meet to discuss viability curve, miscategorization (SSD), surrogates for AP, data (taken on the ground) needed
        1. status quo (current monitoring, etc.) – Meet Nov. 15 (Boise)
        2. viability curve, AP – meet November 2 (Portland)