Interior Columbia Technical Recovery Team Meeting
May 15-16th 2006

Members in attendance: Pete Hassemer, Michelle McClure, Tom Cooney, Howard Schaller, Charlie Petrosky, Rich Carmichael, Paul Spruell
Non-members in attendance: Don Matheson

1. Calculating MSA equivalents for populations with one MSA
    a. Use total or branch area?
        i. Consider sizing populations on branch area versus total area?
2. Gaps
    a. *Required Survival Rate Changes* paper
        i. Incorporates updates and comments to original gaps paper
            1. Incorporates modified tables
        ii. Anticipate distribution to remand group later this week
        iii. Add a table describing contents of each model to clarify
        iv. PDO model – include a variable "d"
        v. Develop prospective modeling methods for multiple index and explicit delayed effects model
            1. discuss pros and cons of models
        vi. Get results for 2nd model before distribution
        vii. MPG narratives based on first model
            1. Write up (and/or table) of both model results (show range for each population)
        viii. Dealing with "other" populations
            1. Add "extirpated," "no data", and "in progress" notations
        ix. Consider changing title to indicate that the gap in this paper relies on A&P (also add/strengthen SSD language to front – where can other viability criteria addressing SSD be found)
        x. Add Grande Ronde SSD results to table
        xi. Use "ocean survivals" instead of "ocean conditions" under "Current Projected Gaps"
        xii. Eliminate "They are generally large" sentence from Current Observed Gaps section.
        xiii. Consider using three gaps categories (leave "current" in header, but remove from category names)
            1. Observed gaps, Direct hydro-adjusted gaps, Projected gaps under alternate ocean survivals
                a. Generate a flow chart that describes these categories and adjustments (with general lifecycle description) and directs to table sections (linked to columns)
                    i. Second part – gradient table characterize time periods for ocean and hydro scenarios
        xiv. Development of alternative scenarios for other ESUs
            1. McNary and John Day for MC Steelhead (post 1996 only until model is developed)
            2. For bullets after the three categories – Hydro adjustment, ocean adjustment, future degradation, and other factors affecting the gap
        xv. Page 4, ESU Viability section
            1. Table with each ESU – summary

xvi. “Achieving biological viability criteria” section
1. Add sentence concerning lack of tables for sockeye (and SR Steelhead if applicable – or add this table when data are ready)
2. Combine 2nd and 3rd bullets on page 5
3. Add summary paragraph for general conclusion

xvii. ESU Statistics tables
1. Add footnote describing lack of values in uncertainty adjustment
2. Change “baseline” to “observed”
3. Make language consistent, call everything “Abundance and Productivity” gaps

xviii. Fall Chinook (p. 21)
1. Clarify top bullet on p. 5

b. *Calculating Population Productivity Gaps* paper
i. Updated narrative to gaps calculations
ii. Describes calculating alternative climate and hydro effects
1. Expanded to incorporate Howard and Charlie’s model (placeholder)
a. Step 1: evaluate S3 calculation – how is S3 affected by using alternative values for “d” (instead of average)?
i. In years with no “d” estimate, used Monte Carlo simulation to select “d” values from time-series (in years of very low water, used a subset of values).
b. Step 2: looked at estimate of S3 and subtract estimates of delayed in-river mortality, and used that time series of S3 to fit to climate etc. variables
i. When delayed mortality was explicitly removed, correlation with water travel time dropped
c. Alternative model – PDO, upwelling, water travel time (April 15 – may 30 timeline), and sea surface temperatures
i. Looked for best-fit model (best r-squared) – using AIC/BIC
ii. Evaluated evidence of autocorrelation
1. PDO variable was most highly correlated (May)

iii. Develop methods sections for modeling efforts
i. Developed model with three variables: water travel time, May PDO, and April upwelling

3. Spring Chinook Lifecycle Model
a. Two changes with new runs
i. New relationship for 3rd year survival (ocean 1)
1. previous model used Apr, May and June PDO
2. new model uses water travel time and upwelling
ii. used 2001 “d” for low flow years and geomean “d” of other years for prospective simulations

b. Variable “d” scenarios for various hydro scenarios
i. Water travel times
1. Generated for UC and MC Sthd

c. Next steps for modeling
i. Multiple index model
1. need to develop for all ESUs – Charlie will calculate and provide for UC, the WTT, and for Mid-C steelhead

ii. Variable “d” – need to run for PDO
iii. Multi-factor with fixed “d”
iv. Variability adjustment due to variable “d” – need to factor some of the extra variability out of S3
v. Need to impose a frequency of low water years – is this affecting the likelihood
vi. Articulate comparison between matrix extinction risk “gaps” and viability curve gaps
    1. look at R/S at 20% of equilibrium for alignment with the Hockey-Stick model
vii. Alternate approach for R/S outputs – to deal with he potential for shifting on the BH curve
    1. Zabel suggestion
        a. a/b = asymptote for BH curve
        b. choose a range (proportion of a/b), then get range of spawners over which to look
            i. Tom and Rich to identify a population specific range (with enough points across the range of model runs)
viii. Check hydro number in model
ix. 4-way comparison
x. Historical comparison within PDO
    1. compare 1946-2001 to the whole series, then PDO45 vs. multiple index45
xi. Using fixed hydro parameters in prospective models
xii. Write-up tasks
    1. Rich to finish chinook populations in the next 2 weeks
    2. Charlie & Howard to provide upstream steelhead survival rates / travel times by 5/24
    3. methods for multiple index model
    4. methods for variable “d”
    5. Model write-up – include both model results, potential factors affecting differences, implications if the result is correct
        a. Factors affecting the difference
            i. BH function issue – more points near origin, looks higher
            ii. Frequency of low water years – last priority
            iii. Different “historical” – Rich
            iv. Check out influence of variable and fixed “d” in both models
            v. Extra variability from variable “d” – Rich
            vi. Different hydro number in multiple index model – Rich
            vii. Using fixed hydro parameters in prospective models
                1. connect high transport and low in-river survival with low water years, variable “d” – Howard and Charlie to provide in-river proportion and survival to Rich
                2. Draw from a distribution for hydro parameters in prospective models for non-low water years – Rich
                    a. One for current status, and one for current operations – Michelle to rework with Rich – Howard to send it
                    b. % transported and in-river survival (1995-2005, except 2001)
                3. Get a fixed hydro and variable hydro scenario
    6. Phone conference / check-in next Friday (5/26)

xiii. Additional notes
1. difference between "current ops" impact (PDS vs. MI model) – possibilities
a. frequency of extremely low flow events differ between time frames
b. greater effects of density dependence as shift higher with other improvements

d. Key for labels in Rich's output
i. Multi-factor model
1. Hydro
a. Current – 1996-2001
b. Recent – 1980-2001 (same as status)
c. BiOp mean – BiOp projected
2. Climate
a. Historical – 1946-2001
b. Bad – 1977-1997
c. Recent – 1977-2001
d. Current – 1980-2001
ii. PDO model
1. Hydro
a. Current – 1996-2001
b. BiOp mean – BiOp projected
c. BiOp optimistic – BiOp projected plus 1 SE
d. BiOp pessimistic – BiOp projected minus 1 SE
e. Status – 1980-2001
2. Climate
a. Historical – 1901-2001
b. Bad – 1977-1997
c. Recent – 1977-2001
d. Current – 1980-2001

e. Distribution of gaps report
i. Revised report with blanks for now (include PDO multipliers and current observed)
1. Include section about modeling issues that need to be resolved (i.e. Bev-Holt issues, variable vs. fixed "d", frequency of low water years, different historical periods, etc.)

4. Steelhead modeling (prioritize SRSS chinook)
a. Currently have population specific estimates for 4 populations, generic estimate for remaining "a" populations. No population specific estimates for "b" run—generic (average) estimate only.
b. Upstream steelhead survival rates – by Friday (5/19)
i. Charlie and Howard to provide time variant upstream survival rates
c. Overwinter survival rates – Wednesday next week (5/24)
i. Tom C. to track down rainbow overwinter survival
ii. Rich C. and Charlie to provide additional data if available
d. Other in-basin survival data – supply by Wednesday (5/24) (Rich Z. follow-up)
i. Rich C. and Rich Z. will collaborate
ii. Charlie to provide PIT-tag release data
e. Rich to develop a list of specific life stages needed, and all will contribute as able (list by 5/24)

    f. Rich to distribute S3 spreadsheet for steelhead
    g. Set up phone check-in for end of next week (5/26)

5. Fall Chinook
    a. Consider developing two life history models
        i. Predominantly subyearling life history (as in the Connor paper)
        ii. More yearlings
    b. Use reasonable parameters where possible, do sensitivity analyses for unknowns
    c. Work on a matrix approach
    d. Parallel approach to matrix modeling – evaluate how different hydro actions may benefit certain life history types – Tom C.
    e. Week of June 5th – meeting with hydro folks inc. Ken T., Steve S., Bill M., Steve H., Billy C.
        i. Pull data together by the end of May at the latest
            1. Smolt counts – Tom C.
            2. In-river survival/harvest (spreadsheet)
            3. Aggregate estimates spawners at lower granite – Tom C.
            4. 5-years of pit-tag data – Rich Z.
            5. Pit-tag data showing strays between different areas (contact Jay Hesse, Nez Perce) – Tom C.
            6. Harvest rates – in-river and ocean – Tom C. provide to Rich Z.
        ii. Tom C., Howard, and Rich Z. to write up hypotheses about life history patterns and approaches prior to meeting