Interior Columbia Technical Recovery Team Meeting
May 16-17, 2007

Members in attendance: Tom Cooney, Michelle McClure, Fred Utter, Howard Schaller, Charlie Petrosky, Pete Hassemer, Casey Baldwin, Phil Howell
Non-members in attendance: Damon Holzer, Don Matheson, Rich Zabel

1. Meeting schedule
    a. June 20-22 in Portland
    b. July 11-18 MF Salmon trip
    c. August 6-7 in Portland
    d. September 6-7 in Boise
    e. October 11-12 in Portland
    f. November 7-8 in Boise
2. Modeling update (Zabel)
    a. Catherine Creek Chinook population
        i. Hatchery influence on spawners
            1. different influence for different time periods (1986-1994 with non-local broodstock) (post 1994, phased out Rapid River broodstock)
        ii. No significant habitat changes in data time period
        iii. Low parr to smolt survivals (lower Granite) in recent years
        iv. Put alternative scenarios in appendices (climate, high/low productivity, etc.)
        v. Plot parr versus spawner
        vi. Double check data set (most up-to-date)
        vii. Construct table with "a" and "b" parameters (best fit) and confidence intervals
        viii. Conclusion
            1. run both scenarios (high/low productivity), append options
            2. include plot of parr versus spawner
            3. if appropriate, run high and low productivity – hatchery fish scenarios for other populations as well
    b. Umatilla River Steelhead
        i. Rich calculated Seo from SARs – produced estimates of smolts by broodstock, then calculated SARs
            1. Harvest the same as Snake River – these are TAC numbers (85-present), and are equivalent for the Umatilla – ratio of SARs to harvest rate (early years A and B run is lumped) – red line inflates returning adults by harvest
            2. Juvenile survival – applied SR in-river survival to 3/8 (i.e. 3 out of 8 dams)
            3. Charlie and Howard will get best estimates to Rich Z. pre-TAC – they already did this for Umatilla fish
            4. Ask Rich C. for harvest estimates, including in-basin harvest

ii. When developed climate relationship – nice fit, and similar variables to Howard's analysis (PDO and WTT, etc.)
iii. Conclusion
    1. Charlie will send data
    2. Proceed with the same for hydro
    3. Rich will put together his spreadsheet for Howard and Charlie to see

c. Wenatchee River Spring Chinook
    i. Unrealistic modeling results
    ii. What do confidence bounds do through time for the various scenarios?
    iii. Rich Z's concern – model appears to plummet and stabilize at very low level – is this appropriate?
    iv. Different approach – no spawner data were used to develop the model (i.e. not bounded by spawner numbers); instead took Chiwawa relationship and doubled capacity
        1. Need to deal with data – double-check that Tom and Rich have same data. Need to look at the entire Chiwawa data set
    v. 2001 – year with large spawner number may have disproportionate effect
    vi. Gap analysis comes up with numbers very close to Rich's
    vii. Howard suggestion – weighted model approach
    viii. Chiwawa is most productive area (has arguably performed better than other areas), Casey says that doesn't have an advantage by size.
    ix. Some disparity may be due to the recent years – appear to be more sensitive to climate than SR populations (i.e. applying only poor SARs from recent years into the future)
    x. Conclusion
        1. Tom will get spawner and SAR data to Rich Z. – they'll go through these data together.
        2. Rich will re-calculate using an approach similar to that in SR (i.e. bounded by spawners).
        3. Tom and Howard will go through hatchery regressions for SARs.
        4. Casey will get latest data for SARs, production, etc. to Rich Z. and Tom.

d. Other issues
    i. Comparison of extinction risk
        1. Wenatchee, Marsh Creek – similar
        2. S. Fork – low compared to Tom's results
        3. Catherine -- lots different (may be due to hatchery fish issue)
        4. Tom and Rich Z. will look at differences – and square away Catherine Creek

e. Results needed
    i. Extinction risk by the model
    ii. Gap (improvement needed in each of the following, to reach TRT criteria):
        1. Density-independent survival
        2. BH “a”
        3. BH “a” & “b”
        4. Hydro alone
    iii. Median spawner number, plus quartiles or 75%/95% confidence limits (box plot to show variability)
    iv. Median productivity (include the same measure of variability)
    v. Scenarios to run
        1. All ocean scenarios (bad, historic, status, baseline)
        2. Hydro scenarios (status, baseline, 100% survival through mainstem, current operations)
        3. Estuary and habitat scenarios—Michelle to get data
            a. Estuary (scenarios incorporating Ed’s data)
            b. Habitat
                i. Kim Kratz’s scenarios
                ii. Max egg-smolt survival – Michelle to circulate options to TRT
                1. density-independent, dependent, capacity, etc.
    vi. List of further modeling runs, documentation, presentation graphics, wrap-up
        1. Add discussion about whether there are actions that might improve BH “a” only – very few actions that will actually affect this
    vii. Other populations to consider for inclusion of modeling effort?
    viii. Other tasks
        1. Target finishing runs by the end of May
        2. Meet by phone or in person early next week

3. Estuary work (Ed)
    a. Proposed matrix model applications
        i. Estimates of apportioning of survival
        ii. Have estimates of improvements in estuarine survival been made?
    b. Current research -- focused in the lower estuary, but moving upriver
        i. Figure out where, when the juveniles are, and where they come from
            1. Emphasis on sub-yearling type
        ii. Food-web data – food selection
        iii. Energy flow – isotope analysis, C/N ratios representing energy flow – phytoplankton and emergent vegetation
            1. 70% of energy flow is dominated through emergent vegetation
                a. much of this element of the system has been lost

        2. restoration of these areas could facilitate a greater diversity of life-history types
            a. Data for Chinook in the Salmon River
    iv. Acoustic tracking to track loses from Bonneville to the river mouth (two years of data). Tagging SR stock.
        1. yearling chinook – 25-30% loss (detection range of 2-3 weeks)
        2. subyearlings – 35-40% loss – increases through the seasons
            a. do some of these hold over?
        3. need to study the efficiency of detectors
c. Plumes as they relate to benefits to salmonids (relative to plume fronts)
    i. Evidence that smaller juveniles are more likely to be inside the plume fronts
    ii. Greater nutrient loading at the plume fronts – no evidence that salmon utilize this phenomenon
    iii. Currently the study is in pre-print -- distribute