Interior Columbia Technical Recovery Team Meeting, December 17-18, 2003
NMFS Office, 525 NE Oregon St, Portland, OR

Members present: David Johnson, Phil Howell, Charlie Petrosky, Rich Carmichael, Fred Utter, Tom Cooney, Michelle McClure, Paul Spruell, Dale McCullough, Pete Hassemer, Howard Schaller
Non-members: Don Martin, Mike Morita, Jessica Piasecke, Damon Holzer, Frank Young (17th) , Carmen Andonaegui, Erik Tinus

Future Meetings Scheduled
January 28-30, 2004: the afternoon on the 28th and the morning on the 30th, Portland, OR
February 26-27: Boise, ID
March 17-18: Portland, OR
April 20-21: Boise, ID
May 18-19: Portland, OR
July: possibly in Missoula, MT
January 8, 2004: meeting, possibly via videoconference, about viability criteria

Population Identification Document
ISAB Comments Summary:
- the ICTRT didn't explain in enough detail how they arrived at the delineations between populations
- there were not enough genetic details
- there should have been more modeling work
- NMFS should have a universal method to use, that is published and applied collectively by all TRT's

Viability Criteria
Expressing Viability Criteria
- Goal: Achieve a clear understanding of what the ICTRT will set as abundance/productivity and spatial structure goals for viability and decide whether to use a) a scoring system or b) a set of criteria for populations
- Three different concepts to look at: a) viability curve: abundance on one axis, productivity on another, based on 5% risk criterion, b) PCC: translate from viability curve to growth rate and/or abundance targets, or c) QAR: combination of historical capacity/productivity estimates and viability curve to set population-specific targets
- The curve will be truncated at 1 and 500 - need to explore equations for different types of populations
- Increasing extinction threshold will be based on number of core spawning areas; discussion on how to define cores for steelhead is needed

Spatial Structure Diversity
- At the last meeting, the ICTRT discussed different life stages and migration timings, potential life history diversity, how that translates into productivity
- Rich went over spatial structure diversity in different parts of the Grande Ronde as an example

- Important characteristics to consider regarding spatial structure diversity are number of stream kilometers available, temperature, connectivity, flows, barriers, and riparian habitat quality; results of good habitat to look for: fish size, number of different life stages and life histories present, raw abundance, spatial distribution relative to potential and rules for clusters
- The evaluation method chosen should be applicable to any river, so that detailed local knowledge is not necessary; also, when making management decisions, it should be a priority to protect different *types* and locations of spawning so a catastrophe would not wipe out an entire population or life history
- For viability consider also: abundance/productivity, spatial issues, diversity (LH, genetic), habitat opportunity

Tom's Method

- Used data from steelhead and chinook reaches which differ widely from each other, physically, looked at parr densities as a function of these physical attributes for the two species, and examined 200-meter segments for flow and gradient information
- For chinook there was a hint of a downward trend of density related to increasing gradient
- Known geographic characteristics were extrapolated to create a map of potential salmon production areas for chinook and steelhead.
- Map appears to show more potential spawning/rearing area than actually exist. Ephemeral streams were wrongly counted as available to salmon, a different way of looking at flow perhaps needed (monthly rainfall, etc, not just width/yearly ppt) to determine which ephemeral streams available.

Day 2 Population Viability/Persistence Scoring

- Given that there exists a range of population situations and ways to express potential and actual spatial structure criteria, how quantitatively should the characteristics be scored?
- Goals of spatial structure: 1. avoid catastrophic extirpation, 2. ensure that natural patterns of gene flow preserved, 3. allow full expression of life histories, and 4. be a measure of stability and catastrophic risk (some overlap with diversity goals)

Examples of Different Risk Categories

> Connectivity/Complexity Risk:

High risk: all fish in one branch, single spawner core area
Medium: spawners in two branches, spawning less than 10 kilometers aggregate
Low: spawners in two or more branches, at least two spawner core areas that are more than 10 kilometers from each other

> Size Risk (spawning kilometers):

High: less than ten kilometers (our smallest population has 52 km)
Medium: medium amount of spawning kilometers
Low: our largest population has 1,200 kilometers

> Stability Risk:

High: relatively high frequency of catastrophes
Medium: frequency of catastrophes in middle range
Low: relatively low frequency of catastrophes

Diversity Measurement

- Look at the amount of ecoregions in a population and any other known diversity issues, such as life histories present
- the ICTRT will explore a system for calculating an ecoregion-based formula to rate diversity of populations, with an extra column or fudge room to add in any other known factors

Strata

- Strata will be written up in reference to four metrics
- A distance matrix (distances between spawning aggregates within populations) and a dendrogram will be created which contrasts within major grouping comparison, as opposed to among groups comparison, to test the strata concept - this will help compare contentious areas in more than one way

To-Do List

- Check spawning and rearing kilometers
- Spatial critieria: writeup, analysis to define $x_{500} \cdot K$
- Check draft for risk associated with size and distribution of captured spawners with abundance/productivity and SP; for example, relative proximity of spawning aggregates
- Michelle & Dale: gaps
- Rich & maybe others: size
- Everyone: have something written up for the next meeting - test run of scoring populations for risk based on different criteria: cover a broad range of risky populations - do at least Grande Ronde, Yakima, upper Columbia, and Clearwater
- Damon: maps