

***Appendix 2***

***Population Scoring - Instructions, Guidelines, and Criteria***

# NASSP Scoring - Instructions and Guidelines

The purpose of this document is to provide general guidance in filling out the population worksheet.

## General Guidelines for Scoring:

- When rating a population, try to consider condition over *the most recent ~10 years, or several generations*
- When scoring, try to achieve a balance of absolute and relative (to the ecoregion) condition.
- When rating viability of a population, *consider it within the context of the ecoregion or the ESU/DPS*. The score should be relative to other populations of the same species within the ecoregion or the ESU/DPS (e.g., do not compare to the status of populations in other ecoregions). As a general rule, try to consider the population within the ecoregional boundaries provided in maps. If you feel this is not valid, please make a note of what geography you are considering the population and why.
- Although viability ratings are considered in their ecoregional context, it is still important to try to evaluate the viability of the population, using surrogates like recruits per spawner, or absolute abundance as indirect indicators of viability. A population could be highly viable at low abundance levels, especially if compared to historical abundance. Thus, rating a population's viability should be done in context to its current habitat capacity.
- Score only the populations that you are familiar with or have empirical data to support a score.
- Provide sources and comments to the extent that is possible. Please be sure to add comments on scores of 4 or 5 for viability or life history diversity.
- Keep in mind that you are scoring an aggregate of wild and hatchery fish for each population.

## Certainty Criteria:

- 5 = Excellent – expert is highly certain of rating. High level of confidence based upon multiple years of data, personal involvement in multiple years of surveys or data analysis.
- 4 = Good – expert is fairly certain of rating. A few years of data, little involvement in surveys or data analysis.
- 3 = Moderate level of confidence– expert is moderately certain of rating. Based upon limited data sets, data from adjacent (or nearby) areas, sporadic field observations,
- 2 = Below average confidence – expert has little knowledge or information and little certainty. Limited (e.g., presence/absence) data, some personal knowledge of the area.
- 1 = Low level of confidence - based on very limited data, little or no fish data balanced with knowledge of habitat data, correlations with nearby rivers, anecdotal evidence.

## Viability:

Please provide a rationale for the viability score, particularly for scores of 4 or 5. Please provide an abundance estimate (average over the most recent generations) and a data source. If there is no data source to reference, please provide a range of returning fish (e.g., 500 – 1000; 5,000 – 10,000; or any range that you feel comfortable with) based upon expert opinion.

### **5 = Highly viable population that could be exhibiting high productivity or high abundance**

*Things to consider when rating populations a “5”. One or more of these may apply.*

- Populations receiving a score of 5 are considered to be “highly viable”. A population can be “highly viable” at an abundance that is well below historical levels.
- Simply being more abundant, relatively, than nearby populations in an ecoregion does not, in itself, qualify a population for the status of “highly viable”.
- A population that is not considered “viable” in the **absolute sense**<sup>1</sup> should not be scored a “5”. If it is one of the strongest populations for that species within the ecoregion, consider a score of “3” or “4” and make a comment.
- Within its ecoregion, the population contributes a **significant** amount to overall abundance in the ecoregion or ESU. (e.g., population x contributes 30% to the overall Central Coast Chinook)
- The population may be a source of colonizers to smaller, less productive populations during times of high abundance
- Consistently have abundance levels that are within the upper percentage (10-25%) for that species and ecoregion (or ESU).
- The recent trend is towards maintaining or improving recent and current abundance and productivity.
- This population has high abundance/productivity relative to its habitat capacity. For a watershed of its size, this population has returns that consistently are within the range of natural variation.
- Any other reason? Please put in the “comments” field.

### **4 = above average viability (productivity or abundance are likely to be above average for these populations).**

- The population contributes a significant amount to overall abundance within the ecoregion, but not the most.
- For some years, will have higher than average abundance and/or productivity levels, but generally not the highest.
- The recent trend for this population abundance may have been stable, increasing, or decreasing; overall, however, the population is thought to be “on the high-side of moderately viable.”

### **3 = moderate productivity and moderate abundance**

- Periodically may have high abundance or has moderate levels of production relative to habitat capacity.
- Has abundance levels that are average within the ecoregion for that species.
- The intent of a 3-score is to identify a population that is “middle-of-the-road, moderately viable”.
- If a population is not viable in the absolute sense, but is still one of the strongest of a particular species/ecoregion, then a 3 might be the highest possible.

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<sup>1</sup> For example, NOAA TRT viability standards

**2 = below average viability** (relatively low productivity and low abundance, relative to current habitat capacity)

**1 = critically low viability.** These are obviously not viable populations, usually displaying critically low abundance, although productivity may be low or high, there simply are not enough spawners to allow the population to be considered viable, on a species-by-species basis.

### **Percent Natural Origin Spawners (PN):**

Percent of adult fish (*within “recent” generations*) on the spawning grounds in recent generations that are natural origin fish.

*Criteria:*

5 = 95+% natural origin spawners (no hatchery releases within the recent several generations and generally less than 5% stray hatchery fish on spawning grounds).

4 = 75-95% natural origin spawners

3 = 50-74% natural origin spawners

2 = 25-49% natural origin spawners

1 = 0-25% natural origin spawners

### **Life History Diversity (LHD):**

Diversity of life history types expressed within the population relative to the historical range as well as the range expressed across all populations within the species/race.

*For example:* A Steelhead population would have a high score because of characteristics such as protracted river entry timing, protracted spawning timing, diverse ages at first maturity, diverse ages at smolting, significant percentages and multiple ages of repeat spawners, diverse in-river strategies for selecting overwintering locations by juveniles, and the like. Additional characteristics could include half-pounder life history pattern and contributions to anadromous populations from residents.

*Criteria:*

5 = all historical life history strategies present.

4 = robust, multiple, and/or rare life history strategies, with majority of historical life strategies present

3 = few life history strategies present and modest representation of life history strategies.

2 = few life history strategies present and significantly simplified from historical

1 = extremely simplified or single life history strategy.

## **Guidelines for sources:**

Provide sources to any relevant information that backs up your score. These can be agency reports, published articles or documents, unpublished reports, web-based data.

If there is no documented information to support the score, please make sure that your level of certainty is captured in the “Expert Certainty” score.

## **Guidelines for comments:**

Please provide any comments that you think are necessary to clarify the scores. These are important. If you need more space, please put comments in a Word document, noting the population that it refers to.

## **Using the Worksheet:**

- There are 4 worksheets within the Excel spreadsheet, divided based upon ecoregion.
- Fill out information for each population under the Viability, Percent Natural, and Life History Diversity headings and provide certainty scores for each heading.
- When you click in a cell for scoring, a drop down box provides the appropriate choices.
- If you want to add a population that is not in the database, scroll down to the bottom of the page and add the population name as indicated.
- Add a source for information in the sources column.
- Provide any comments you can in the “comments” column.
- There are notes regarding the previous population scoring process.
- Ancillary information is provided in the last columns of the worksheet:
  - Area of the population unit
  - The HUC4 level watershed that the population unit falls in.
  - The ESU that the population falls in.

- Don't try to print this worksheet without adjusting to an appropriate page size. It could be a 100 page plus document!