Map Review Group: Steelhead Worksheet

1. Does NetMap IP model output reflect well your sense of relative habitat values?

Circle areas that are poorly reflected on map. Make notes on large format maps provided with your initials.

Bear River

Mainstem **Yes ____ No ____**

Tributaries **Yes ____ No ____**

Queets

Mainstem **Yes ____ No ____**

Tributaries **Yes ____ No ____**

Hoh

Mainstem **Yes ____ No ____**

Tributaries **Yes ____ No ____**

Quillauyte

Mainstem **Yes ____ No ____**

Tributaries **Yes ____ No ____**

2. **How would you define the range of scores in the high, medium and low IP bins for Steelhead? Maximum suitability =1 and Lowest suitability = 0 (bins) define high, medium, and low IP for Steelhead?**

High=

Medium=

Low=

3. **What additional intrinsic parameters would *significantly* improve the Steelhead IP model?**

Lists of intrinsic variables are provided below. Circle key variables and suggest information sources to build HS curves, if possible.

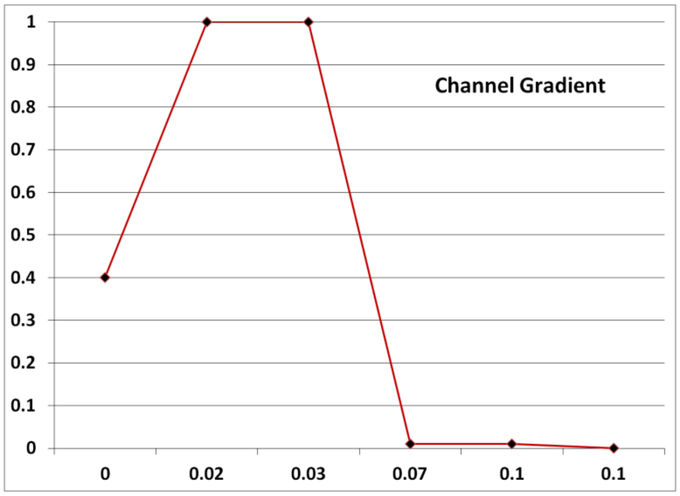
4. **Are separate sub-regional models within the OWC Study area needed for Steelhead?**

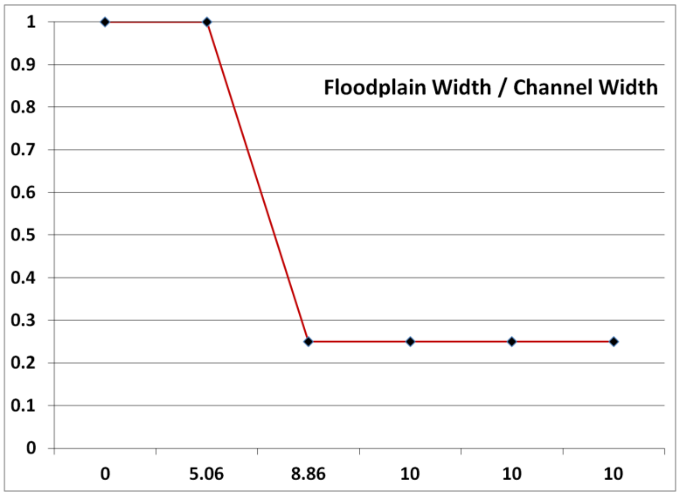
The current model uses hydrologic properties that are divided into regression regions according to Kresch, 1998 (see wall maps)

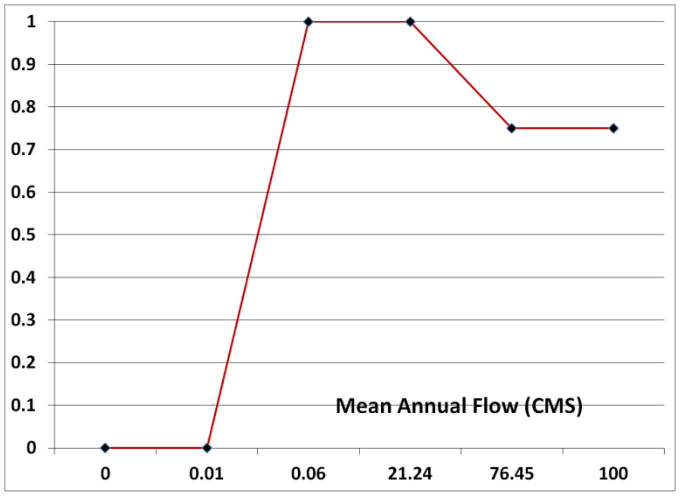
Your confidence in this answer: High___ Medium ____Low ____

Steelhead HS Curve Reference Sheet

Channel Gradient						
Suitability	0.4	1	1	0.01	0.01	0
Gradient	0	0.02	0.03	0.07	0.1	0.1
Weighting Scheme	1					
Floodplain Width / Channel Width						
Suitability	1	1	0.25	0.25	0.25	0.25
Constraint Index	0	5.06	8.86	10	10	10
Weighting Scheme	1					
Mean Annual Flow (CMS)						
Suitability	0	0	1	1	0.75	0.75
Flow	0	0.01	0.06	21.24	76.45	100
Weighting Scheme	1					







Lists of Intrinsic Variables

Table 2 from 2008 PNAMP. Examples of some hydrogeomorphic and climatic variables related to habitat quality that can be obtained from a modeled stream network and digital elevation models (DEM) (Sheer et al., in prep.).

Variable	Source
Channel gradient [1,2]	From DEM [3,4]
Mean annual flow [1,2]	Regression of gauge data to drainage area (DEM) and mean annual precipitation [3]
Channel constraint [1,2]	Valley-width index (ratio of valley to channel width, with channel width based on regional regression to mean annual flow) correlated with field inventoried constraint categories. Valley width estimated from DEM3,6
Mean Summer (August) Low Air Temperature [1]	Parameter-elevation Regressions on Independent Slopes Model (PRISM)1
Valley-width transitions (e.g., from confined to unconfined channels) [5]	From DEM5
Tributary confluences [5]	From DEM5

[1] Agrawal et al. (2005) ; [2] Burnett et al. (2003, 2007); [3] Clarke et al. (2008) [4] Davies et al. (2007) [5] Benda et al. (2004, 2007); [6] Hall et al. (2007).

Table B9 from 2008 PNAMP. Intrinsic variables suggested by workshop participants. (In addition to table 2 above.)

- Temperature (Agrawal et al., 2005; Cooney and Holzer, 2007)
- Erosion, sediment deposition potential (Benda et al., 2007; Cooney and Holzer, 2007)
- Downstream variation in valley confinement (Benda et al., 2007)
- Downstream variations in channel gradient (e.g., upstream of a fan or earthflow, Benda et al., 2007)
- Tributary confluences (Benda et al., 2007)
- Basin soils, geology (Cooney and Holzer, 2007)
- Patch size, abundance, separation distance between high IP zones (Benda et al., 2007)
- Climatic attributes, such as mean annual snow fall, or 100-year, 24-hour storm intensity
- Hydrologic attributes, such as 100-year peak discharge, mean annual low flow, skew of the flow duration curve
- Proportion of watershed in wetlands
- Elevation
- Downstream variation in confinement
- Tributary confluences
- Patches of habitat surrounding stream reach
- Distance from the ocean
- Measuring connectivity of high quality patches