

points at which there is equal probability between groups can describe a potential threshold that would evenly divide Exceptional and Satisfactory index values and also Moderately Degraded and Severely Degraded index values. Based on proportional odds logistic regression, a threshold between Exceptional and Satisfactory conditions was identified at 82 index points. The threshold between Moderately Degraded and Severely Degraded conditions was identified at 36 index points (Figure 28). These thresholds recognize the observed range of index values within disturbance groups, as opposed to the simple bisection, which uses the entire range of index values, regardless of the observed range. Recognition of the observed range of values is a more empirical method that is recommended. The crossover for highly stressed and reference membership probabilities is at 59 index points. We have less confidence in this potential general threshold because of the influence of the mid-stress distribution.

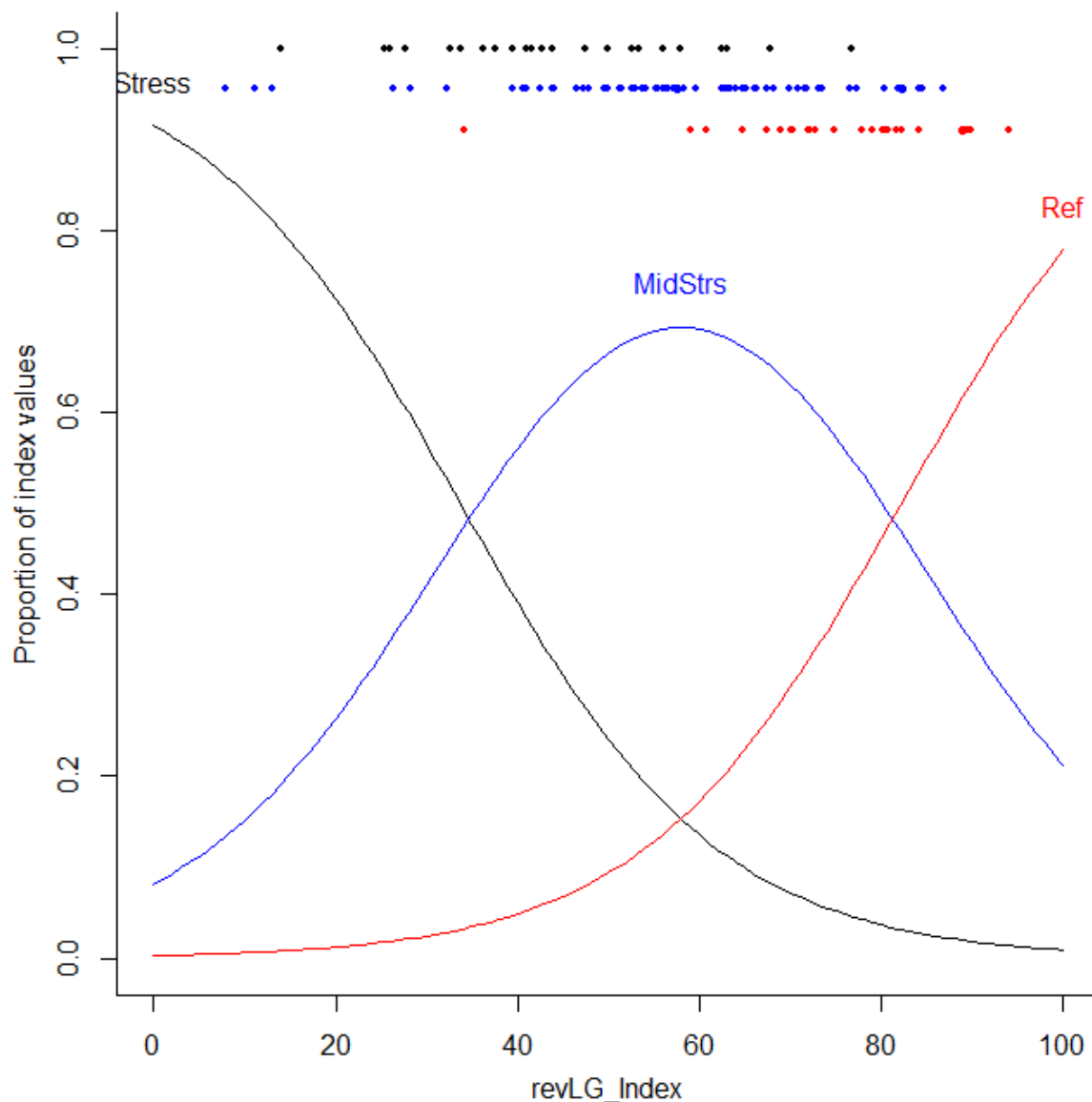
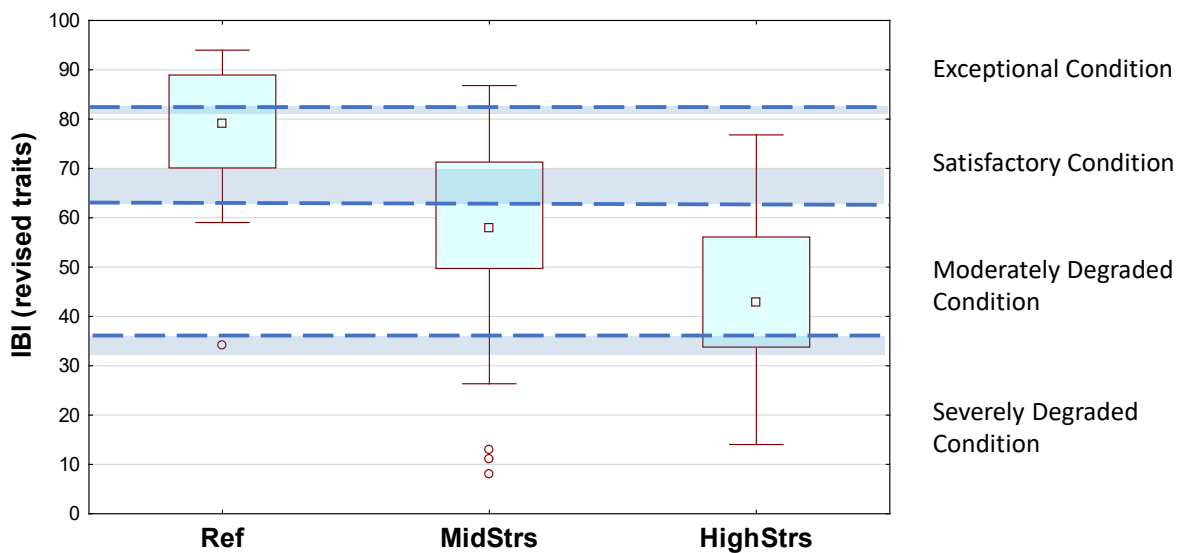


Figure 28. Proportional odds logistic regression graph, showing probability of membership in the highly stressed (Stress), moderately stressed (ModStrs), and reference (Ref) disturbance categories. Actual data points for the revised index are plotted at the top of the graph.

Based on the analyses described above, thresholds for the low gradient, multihabitat IBI with revised traits are as in Table 17 and Figure 29. The map in Figure 30 shows the spatial distribution of sites in the four biological condition categories based on the recommended thresholds. These thresholds are preliminary and are subject to further review, refinement, and approval by MassDEP and RI DEM before they are applicable in biological assessment programs.

*Table 17. Threshold ranges and recommended SNEP IBI values for indication of biological conditions in low gradient streams.*

	General unimpacted conditions		General impacted conditions	
	Exceptional Conditions	Satisfactory Condition	Moderately Degraded Condition	Severely Degraded Condition
Index threshold range	81.5 - 82		63-70	31.5 - 36
Recommended index threshold	82		63	36



*Figure 29. Low gradient SNEP index distributions plotted by disturbance category and showing recommended thresholds (dashed lines) and threshold ranges (shaded bars) to describe index values associated with narrative condition categories.*