STEP 7: Interpret the CL exceedance information.

Interpretation of CL exceedance must consider the type of CL (empirical vs. modeled), the site specificity of the data used in calculating the CL, and the quality of the deposition estimates. Management recommendations will vary with the reliability or certainty of the CL exceedance estimates.

For example, the CLs of acidity for surface waters provided on the portal are based on water chemistry measurements from specific sample sites and have a high level of reliability. Coupled with modeled-deposition information, CL exceedances for surface water have one of the higher levels of certainty which allows land managers to develop target loads. Target loads represent a policy or management decision about the amount of deposition that is an acceptable level of resource protection, and will be discussed further in the Target Load Strategy). On the other hand, the terrestrial CLs of acidity for forested ecosystems are created from geospatially extrapolated information that is acceptable for understanding risk across the landscape, but does not have the adequate site specificity necessary to make management recommendations. Exceedance of the CLs of acidity for forested ecosystems should therefore only be used for creating a monitoring plan to gather site-specific data.

You should now have a list of CLs that represent forest resources of concern, as well as information on the relationship between deposition and the CL (the CL exceedance). Your exceedance information may have changed as you refined your analyses (through investigation of exceedance metrics, empirical N CL guidance, or the use of local/regional CLs and deposition information). Review all CL exceedance information and decide whether the extent and severity of the CL exceedances indicate a potential for harm to the forest:

- *If the CL exceedance information suggests that the area is at low risk of any detrimental effects from S and/or N, conduct a deposition trend analysis to determine whether deposition has increased or decreased in recent years.*
  - *If the recent deposition trend is decreasing, continue to monitor NADP reports for deposition trends in the future. If deposition starts to increase, address possible needs for field measurements (e.g., water chemistry) in the next planning cycle and review the "Monitoring Strategy" in the Critical Loads section of the Air Quality Portal.*
  - *If the recent deposition trend is increasing, your exceedance metrics are likely underestimating the risk of detrimental effects. In this situation it is recommended that you proceed as though there is a higher risk of detrimental effects and implement instructions in the boxes below.*
- *If the CL exceedance information suggests a risk that the area is experiencing detrimental effects from S and N, implement instructions in the boxes below according to the type of CL used.*
- *If multiple CLs are in exceedance and indicate a risk of detrimental effects, review the "Interpreting Multiple CL Exceedances Protocol" and implement instructions in the boxes below.*

Surface Water CLs AND Reliable Empirical Nutrient N CLs (including lichen results from Mediterranean CA, PNW, Sierras) AND Appropriate Regional CL Efforts

Nationwide surface water CLs and reliable empirical nutrient N CLs (as determined in Step 2) have lower associated uncertainty because they were calculated with site-specific/locally relevant data. In addition, you may have access to regional CL results based on site-specific data.

***Deposition ≥ CL** : CL is exceeded, ecosystem is currently impacted, or likely to be in the future.*
Action: IDENTIFY a TARGET LOAD to protect or restore key components of the ecosystem per FS Directives. Go to the "Target Load Strategy."

Critical Loads of Acidity for Forested Ecosystems AND Other Empirical Nutrient N CLs

These CLs were developed to assess regional differences in exceedance, not for land management decision-making. They should be used to guide further monitoring and/or research experiments in areas of predicted exceedance.

***Deposition ≥ CL** : CL exceedance is possible.*
Action: Create a plan for collecting site-specific water chemistry, soil chemistry, and/or lichens as appropriate to refine analysis and confirm exceedance predictions. For other empirical nutrient N CLs you may want to work with FS research scientists to develop an N experiment or gradient study that will improve reliability of the CLs. Go to the "Monitoring Strategy."