



# Tongass National Forest Spectrum Model – Key Constraints

Eric Henderson



# Overview

- What is a constraint?
- Constraints and description of their use in Spectrum



# What is a constraint?

- Sideboard or limitation on achieving the main objective
- For example:
  - Main Objective: maximize present net value to the forest
  - Constraint: Make sure that no more than 20% of any watershed is in an open state at any time



# Key Constraints

1. High Volume Strata
2. Normal Operability
3. Management Implementation Reduction Factors (MIRF)
4. Regulation Class 3 Harvest (forest-wide)
5. Precommercial thinning
6. Minimum timber
7. G/M, Legacy, Old growth retention
8. Watershed openings
9. Regulation Class Management Intensity



# 1. High Volume Strata

*Description:* Limits the amount harvest in the high volume strata to be proportional to its occurrence

*Rationale:* Prevents the model from harvesting all high volume early on and leaving none for future decades



## 2. Normal Operability

*Description:* Limits harvest in Normal operability to no more than its proportional occurrence on the ground

*Rationale:* Prevents the model from harvesting all normal lands early on and leaving none for future decades



### 3. Model Implementation Reduction Factor (MIRF)

*Description:* Causes the model to leave a proportion of each volume strata/operability class unharvested (Model Implementation Reduction Factor)

*Rationale:* Factors established to adjust the ASQ estimates to a level more reflective of what is likely to be found during implementation on the ground (e.g., an eagle nest that is not known until the project area is surveyed)



## 4. Regulation Class 3 Harvest

*Description:* Limits the proportion of harvest in Regulation Class 3 to historic levels

*Rationale:* Prevents the model from scheduling high levels of Regulation Class 3 lands in later decades



## 5. Precommercial Thinning

*Description:* Limits precommercial thin activity to no more than 6300 acres per year

*Rationale:* Causes the model to stay within reasonable budgetary limitations



## 6. Minimum Timber

*Description:* Causes the model to harvest a timber volume reflective of the alternative being modeled

*Rationale:* Ensures that the harvest level is within the design of the alternative



## 7. G/M, Legacy, Old Growth Retention

*Description:* The model will leave reserve trees and/or reserve patches in sensitive VCUs

*Rationale:* Causes the model to meet vegetation retention objectives created by standards and guidelines



## 8. Watershed Openings

*Description:* Limits the model to cause no more than 20% of a watershed to be in an open state due to harvest activity

*Rationale:* to minimize cumulative watershed impacts from harvest operations



## 9. Regulation Class Management Intensity

### *Description:*

Reg Class 1: Max 40% less than 20 years old

Reg Class 2: Max 30% less than 35 years old

Reg Class 3: Max 20% less than 50 years old

*Rationale:* to meet the adopted visual quality and adjacency objectives of each Land Use Designation



# Discussion