



Forest Practice Committee Agenda Item #4
Cumulative Effects Asssment
Scope of Review

For the purposes of discussion, the staff has focused on watershed effects, as this field has had the most scrutiny and research done.

Procedural Issues-

Court cases have refined and validated the Board's process. Recently, courts have found in favor of the Department despite numerous challenges.

Technical Issues-

1. Natural systems are complex, natural variability of physical processes is extreme, and our knowledge of these processes is imperfect.
2. On-site control offers the closest linkage to cause and effect, direct mitigation of problem sites, and more direct estimation of associated risks.
3. Approaches for estimating CWEs in California have generally fallen into four categories: indices of land-use intensity, qualitative checklists, narrative discussions, and a research-based approach.
 - A. The primary index of land use intensity is the US Forest Service Equivalent Roaded Area (ERA) method. This approach provides a measure of ground disturbance, but does not directly relate to degraded channel conditions
 - B. Qualitative approach is the approach used in the FPRs, and is highly flexible. This approach relies on the user's expertise and experience, so results may not be reproducible. However, it meets both BOF and CEQA procedural requirements
 - C. Narrative descriptions of topics specified in the BOF's Technical Rule Addendum No. 2. This includes disclosing where continuing significant impacts exist in a basin and, if necessary, a discussion of offsetting mitigations that will be used to reduce overall impacts to insignificant levels.
 - D. Scientific Approachs. A good example is watershed analysis This approach utilizes a screening procedure to determine key issues and concerns, as well as the intensity of analysis needed for the basin under review. Monitoring to track the effectiveness of the prescriptions is an

important component of this process. CEQA mandated CWE questions, however, are not directly addressed with this approach alone. It does not necessarily provide for evaluating the potential of future activities to contribute CWEs

The best synthesis of the scientific literature regarding cumulative Effects is Beschta et al. (1995). Among their findings are the following points:

1. Channel changes following periods of sedimentation or removal of riparian forests along unconstrained watercourse systems are likely to last decades to centuries.
2. Early CWE methodologies attempted to develop a threshold level, beyond which catastrophic changes would occur. Natural systems, however, rarely recognize discrete thresholds and can respond incrementally and interactively to change.
3. Limiting harvest to a certain percent of the basin per year to keep annual sediment levels below a set level is a simplistic approach that does not account for regional or watershed variability, harvest location, yarding system, roading, etc. and assumes a direct causal mechanism between harvest and the magnitude of impact. In most cases, it is not the fact that trees were harvested, but how they were harvested, where on the landscape, methods of roading and yarding, degree of riparian protection, and other factors that determine the impact of a forestry operation.
4. If the accumulation of individual impacts from various forest practices provides the mechanism for causing a particular cumulative effect, then the prevention of potentially adverse impacts at the project level is of fundamental importance to preventing CWEs.
5. CWEs are ownership blind, in that they occur across a wide variety of ownerships and land uses. Basins seldom experience only one type of land use. Urbanization, grazing, agriculture, and other land uses can be important contributors to CWEs. Therefore, other land uses must be incorporated into solutions for cumulative effects.

Legacy Issues

Timber harvesting practices that have contributed to large scale erosion and sediment production include:

- Skidding down draws and otherwise disrupting intermittent stream channels.
- Constructing Tractor roads without waterbars.
- Abandoning road and skid trail crossings without adequate (or, in some

cases, any) drainage.

- Diversion of streams at road and skid trail crossings onto road surfaces and hillslopes.
- Placement of roads and skid trails on unstable terrain.
- Inadequate compaction and other poor road and landing construction practices that created unstable cuts and fills.
- Inadequate drainage design for runoff from road and landing surfaces.
- Placement of roads adjacent to watercourses and sometimes within the high flow channel.

These practices, and many other potentially damaging timber operations, are now prohibited by the FPRs.

The issue of these pre 1974 practices is that they persist in varying degrees within the system, and therefore create a difficult starting point.

Possible Recommendations:

1. Review existing Guidance document, and identify areas of possible improvement.
2. Research new computer modeling to improve analysis (e.g. NetMap)
3. Improve collection of information from on-going analysis to create watershed databases for agencies and public use.
4. Identify thresholds. Thresholds are commonly used to determine if an analysis is needed. "Light touch" forestry may not require in depth analysis, or any.
5. Focus on effectiveness monitoring activities to provide adaptive management approaches.
6. Conduct a survey for examples of cumulative effect analysis to provide a comparative basis for further work.