

Seeing the Forest for the Trees: An Analysis Of Cumulative Impact in Environmental Documents

The other day I glanced through a random back issue of *Park Science*. Several articles and resource issues caught my attention: Urban Development Near Parks; Man and the Biosphere; The Boundary Approach to the Analysis of Nature Reserves; Biodiversity Task Force; and Ecosystem Management in the Parks.

All of these current topics are ultimately concerned with the analysis of cumulative impact. Each, in its way, is an attempt to grapple with a bigger picture: each considers a holistic approach to park resources and the multitude of influences that affect them.

Many of these relatively new issues, however, are theoretical or conceptual in nature – few are solid enough to be dealt with in our day-to-day, working world. My day-to-day working world often deals with environmental compliance, primarily compliance with the National Environmental Policy Act (NEPA). An analysis of cumulative resource impacts in the environmental assessment (EA) process would be a relatively down-to-earth way to tackle some of these bigger-picture concerns. What's more, it's a legal requirement to do so.

Cumulative Impact and NEPA

Attempts at analyzing cumulative impact are quite new, and no one has written the definitive book on how to go about it. The NPS, USFS, BLM, and numerous states are currently trying to deal with cumulative impact in the planning process. Major planning efforts in Big Cypress, Denali, Wrangell-St. Elias, and Yellowstone all have addressed recently the cumulative impacts in controversial arenas.

The new interest in cumulative impact analysis has come about largely through intervention of the courts. Numerous agencies have been handed a court order for a cumulative impact analysis and/or an Environmental Impact Statement incorporating such an analysis. In virtually every court case I've read about, if the plaintiffs ask for cumulative impact analysis then the court has ordered it. The reason for this is that the need for such an analysis is cited numerous times in the NEPA regulations. Although these regulations date from 1979, this language is only now being discovered.

The Council on Environmental Quality's (CEQ's) definition of cumulative impact, as stated in the NEPA regulations, is at the heart of the matter. The definition states that cumulative impacts are "the impact on the environment which results from the incremental impact of the action *when added to other past, present, and reasonably foreseeable future* actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time". 40 CFR §508.7; emphasis added.

To say the least, this is a rather comprehensive definition. Nearly anything which has or will affect the resources of concern needs to be examined and considered. A simple way of defining the analysis of cumulative impact, sometimes mentioned in the literature, is that the analysis should cover all impacts over both space and time.

Cumulative Impacts and Olympic EAs

In 1988, four development concept plans were completed for four areas on the west side of Olympic NP. An

attempt was made in the environmental assessments for these documents to address cumulative impacts on particular resources. The most important resources of concern were elk, anadromous fish, and old growth forest stands. Cumulative impact was addressed in two, somewhat related areas: 1) in the presentation of existing resource conditions and impacts *outside* of the park boundary; and 2) in the presentation of *past* resource impacts.

1) Resource Conditions and Impacts Outside the Park Boundary

From an ecosystem perspective, the park boundary was considered to be almost meaningless. Elk and salmon do not recognize the administrative boundary in their movements. Old growth stands don't migrate, but existing old growth harvesting policies outside the park are isolating remaining old growth communities in the park. Politically, of course, the park boundary is quite real. How far one may go in the EA in presenting external concerns depends on the particular park, and its local politics.

In dealing with trans-boundary, cumulative concerns we presented information in three ways.

A) *Relevant Region-Wide Resource Information.* Stating the simple fact that salmon move up the river into the park leads the reader to an understanding that "park" fish can be (and are) impacted by downstream non-park actions. Elk also move in and out of the park. We simply tried to show that the park is not an island – that there is a common, regional resource base. Apparent enough to us, perhaps, but often not understood by readers. It needs to be spelled out.

B) *Watershed Information.* In an attempt to present more realistic resource "boundaries," we presented the percentage of a watershed that was inside and outside the park. This was simply done by outlining the four major river watersheds on a regional map and computing the areas both inside and outside the park. This information was presented, for example, by stating that: "In the Quinault River watershed, 52% of the land area is within the park; 48% in other ownership." The idea being that the NPS, even under the most preservation-oriented management of resources, can only influence 52 percent of the land base on which the resources depend.

Presenting watershed information makes sense for anadromous fish; for elk and old growth even a watershed "boundary" is artificial, however, it comes much closer to portraying an ecological unit than a straight park boundary created along section lines.

C) *Graphics.* We tried to visually portray a cumulative impact approach. A map of existing conditions included extensive areas outside of the park boundary. Any "external" human activity which contributes to impacts on a common resource base, even if the details of the impact are sketchy, can be presented graphically, e.g., areas of oil and gas development, sub-divisions, upstream dams – all can be germane to the issues being examined in the EA. The areas don't have to be precisely located on the map, either. A bubble diagram approach, showing the general area and the type of impact could be adequate. In the Olympic case, the biological isolation of detached park units could be visually portrayed by surrounding the unit in a sea of precisely mapped clear cuts.

2) Past Resource Impacts

Documented, past resource impacts, and the sub-

sequent current resource conditions resulting from them, also were presented. The critical thing that this information does is to establish a historic or "pristine" baseline from which to measure additional impacts stemming from the NPS proposal. For example, in one watershed, harvest figures for sockeye salmon declined from 25,000 to 30 (or a 99.8% reduction) from 1949 to the present. Although harvest figures do not necessarily represent population figures, this sad fact goes a long way in saying that we better be darn careful that NPS impacts do not add any more reductions to the runs.

To me, this baseline is perhaps the most important factor that cumulative impact analysis can contribute. Hypothetically, we might currently have a sockeye run of, let's say, 100 fish. With this information, standing alone, it could be said that an estimated "small" reduction from an NPS proposal would not be considered a significant impact. But when looked at in a historical perspective, knowing the run used to have, say, 10,000 fish, it's quickly apparent that there has already been a significant past impact, and any additional impact from our proposal would compound an existing significant impact.

The presentation of past impacts should avoid fixing "blame," but the causes for the impact, such as "reduction of spawning habitat due to siltation from roading and logging activity," should be brought out. In some cases, years of continuous impact were presented: "significant change in natural forest vegetation has resulted from extensive logging over the past 90 years." The extinction of species in the ecosystem, the ultimate past impact, was stated as well (for wolf).

It might be an uphill endeavor to convince supervisors, superintendents, or regional staff of the necessity of a cumulative impact approach to EAs. The resource protection arguments are the strongest to me, but the legal/CEQ argument mentioned here might convince others. I believe that the result, however, is worth the effort — the more NPS people and public reviewers that are thinking in a bigger picture, the clearer the bigger picture will become.

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