

Precautionary Principle: Subtle And Serious (Newsletter)*

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The precautionary principle's most widely accepted definition came from the 1992 Rio Conference, or "Earth Summit." The essence is when there is scientific uncertainty that severe or irreversible harm to humans or the natural environment might occur by a human action it is up to the action's proponent to demonstrate such harm would not occur. (See http://en.wikipedia.com/wiki/Precautionary_principle for details).

Because the principle is presented as a moral and political imperative it is taken seriously by regulators, particularly when the issue is raised by project opponents. There is much wrong with both the concept and application of the principle, but this newsletter addresses the implicit ethical responsibility towards maintaining natural systems' integrity. Maintenance of biodiversity is frequently the trigger to apply the precautionary principle in opposition to industrial projects.

The beliefs that natural systems are static, change is bad, and man-caused change is particularly bad are endemic and based on scientific ignorance. Natural ecosystems are dynamic, resilient, and stable. Stability does not mean natural systems do not change naturally, but that change is normal and unavoidable with multiple stable points of varying duration.

Recent well-known examples include the eruption of Mt. St. Helens in southwest Washington on May 18, 1980, the summer of fires in Yellowstone National Park in 1988, and the Asian Tsunami of December 26, 2004. Each was a natural occurrence causing massive destruction of terrestrial and aquatic ecosystems and loss of human lives. Yet in each case, immediately after the event, plants and animals began their redevelopment trajectories. Today we can see differences if we compare before and after pictures, but every one of these affected areas is still a fully functional ecosystem. Biodiversity might be different (depending on the metric used), but the fundamental ecosystem functions of energy transfer and nutrient processing have never ceased. Natural ecosystems can change and become different, but different does not imply better or worse; those are human values and not inherent to these systems.

Careful observation of change in natural systems teaches us is that every system has multiple stable equilibria. Some stable points endure longer than

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others, but stability is relative and not invariant. A biodiversity snapshot at one time and place differs from a snapshot at a different time or place only by the subjective values we ascribe to them. If you want to test this on a personal level, stop maintaining your lawn. Allow native grasses and forbs to grow, and observe how your neighbors react. Telling them, and the city code enforcer, you are maintaining high biodiversity does not produce approval.

We need to better educate everyone (children and adults) about the dynamic nature of natural systems and teach them that change is not inherently bad. Concepts such as the precautionary principle express our fear of change and uncertainty about the future. We will never know enough to be certain that any given action is risk free. Because we cannot predict the future required permits are issued with monitoring conditions. Risk is to be managed, not feared and avoided. We need to explain this logically and effectively during the permitting process so we are not caught trying to prove a negative in the precautionary principle.