

## SELECT RESILIENCE TERMINOLOGY

### LAKE TAHOE WEST RESTORATION PARTNERSHIP

April 4, 2017

**Resilience:** The capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks. Source: Walker, B.H., C.S. Holling, S.R. Carpenter, and A. Kinzig. 2004. Resilience, adaptability, and transformability in social-ecological systems. *Ecology and Society* 9(2): 5. URL:

<http://www.ecologyandsociety.org/vol9/iss2/art5>

- Applicable not only to ecological systems but to social-ecological systems.

**Adaptability:** The capacity of a social-ecological system to learn, combine experience and knowledge, adjust its responses to changing external drivers and internal processes, and continue developing within the current stability domain or basin of attraction. Source: Berkes, F., J. Colding, and C. Folke, eds. 2003. *Navigating Social-Ecological Systems: Building Resilience for Complexity and Change*. Cambridge University Press.

**Transformability:** The capacity to create a fundamentally new system when ecological, economic, or social structures make the existing system untenable. Walker et al, *ibid*.

**Engineering resilience:** A system's speed of return to equilibrium following a shock. Source: Pimm, S.L. 1984. The complexity and stability of ecosystems. *Nature* 307: 321-326.

- *Note this assumes that existence of a system equilibrium, in contrast to the system dynamism assumed in the first definition of "resilience" above. Engineering resilience seeks to maintain or return to the same conditions in the same system.*
- *Note the similarity with persistence (see below).*

From Fisichelli et al 2015, "Is 'Resilience' Maladaptive? Towards an Accurate Lexicon for Climate Change Adaptation." *Environmental Management*. DOI 10.1007/s00267-015-0650-6

- **Persistence:** An approach to climate change adaptation that focuses on the persistence of current conditions.
  - *Note that the conditions would not change, nor the system.*
- **Autonomous change:** An approach to climate change adaptation in which a resource responds to change with no management response intended to drive the system toward a specific state.
  - *Note that conditions as well as the system could change.*
- **Directed change:** An approach to climate change adaptation where management responses intend to drive the system toward a specific desired new future state.
  - *Note that conditions could change, while the system would remain the same.*