Lagoon size can be predicted

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(PhysOrg.com) -- The size of Santa Barbara area lagoons can be predicted, according to a new study by UC Santa Barbara scientists, who say that their research could help protect the endangered steelhead trout.

Steelhead trout in Southern California are one of the most endangered species on Earth, according to the National Marine Fisheries Service. The lagoons that they use as nurseries may be critical for their survival. Steelhead fish are an ocean-going species that returns to lagoons and streams to spawn.

Concern for the survival of the steelhead prompted Andrew Rich, a doctoral student in Earth science at UC Santa Barbara, to study lagoons in the Santa Barbara area with his advisor, Edward Keller, professor of Earth science. Rich recently presented the results of their study at the annual meeting of the Geological Society of America.

Their analysis of 23 small coastal lagoons near Santa Barbara indicates that the variability of lagoon area, length, volume and average width can be explained by the variability of the slope of streams above the lagoon and total annual rainfall. Rich studied the precipitation in each watershed, the slope of the streams flowing into each lagoon, and then mapped the surface and depth of each lagoon to determine its volume.

Rich explained that because lagoons are potentially important nursery habitat for endangered southern steelhead trout, better understanding of lagoon structure and processes will assist in habitat evaluation and restoration efforts for steelhead.

The Southwest Regional Office of the National Marine Fisheries Service has an optimistic view of restoration, as published in their steelhead recovery plan. "Despite encroaching urbanization and other threats," the plan states, "the fish are incredibly resilient and recovery of the species is possible, but will require the cooperation and dedication of many stakeholders."

Provided by UC Santa Barbara