marches extended vertically at 1-2 miny, a rate similar to the global average sea level rise during the late Holocene. In four of the five marshes, intertidal sediment accumulation amounted most along marsh-river margins; in one marsh interior, cyclic sedimentation may indicate the influence of tributary trends. Such large elevations in most marshes approximate 1000-4000 years BP, probably because of increased clearing of fields. The high variability of down-valley patterns suggests that the upper Matapona River basin is not the principal source of marsh sediments in the study area.

BTH 70  Doyle, Martin W.
CHANNEL FORMATION AND EVOLUTION FOLLOWING DAM REMOVAL
DOYLE, Martin W., Earth and Atmospheric Sciences, Purdue Univ, 1397 Civil Eng Bldg, West Lafayette, IN 47907-1397, midye@purdue.edu, STANLEY, Emily H., Center for Limnology, Univ of Wisconsin, 8601 13th St, Madison, WI 53706-1492, and HARBOUR, Jon M., Purdue Univ, 1397 Civil Eng Bldg, West Lafayette, IN 47907-1397
Results of two dam removal studies in southern Wisconsin include fluvial geomorphic monitoring before and after dam removal. Study sites are on the Maquoketa, a low, fine to coarse-grained channel with low-head, run-of-river dams that have been present for over 100 years and have impoundments filled with fine sediment. Both dams were breached in 1999, with subsequent channel incision in the Maquoketa during downstream sediment transport following removal was monitored. Both channels removed large quantities of fine sediment immediately following breaching, resulting in S:5 cm of fine sediment deposition along the periphery of the main channel. The downstream study area is small, 0.5 km, with negligible changes occurring in the impoundment upstream of the headwall. Sediment cores taken in the former impoundments show that one channel has not formed along the alluvial floodplain. Over all, results demonstrate the potential for geomorphic changes likely to follow dam removal, and offer insight and a framework for prediction and modeling efforts.

BTH 71  Persico, Lyman
TRACKING PAINTED PEBBLES IN THE MOAVE: OFF-ROAD VEHICLES AND THEIR IMPACT ON FACULTY TRANSPORT
PERISCO, Lyman, Geology, Univ of Vermont, Perkins Hall, Burlington, VT 05405, lpersico@uvm.edu, NICHOLS, Kyle K., Geology and School of Natural Resources, Univ of Vermont, Burlington, VT 05405, and BIERMAN, Paul, Geology, Univ of Vermont, Burlington, VT 05405
Since February 2000, we have treated 1600 painted pebbles across 4 sites in the Mojave Desert: the Carson Stair, the Eureka Mountains, the Chocolate Mountains, and the Goodenough Deep Space Communications Complex, and Fl Iron. Three sites are in areas not disturbed by humans; the fourth, located in Fl Iron, is on a surface that appears extensively off-road vehicle traffic. Of the first site, we took 10,000 vehicles across its 45 km boundaries, and we estimate that 1.0 mm of pebbles is lost per year. At each site, 400 numbered pebbles, 1-cm diameter, were laid out along orthogonal 50-m lines and surveyed (total station, 1-cm accuracy) 2-4 times a year to quantify pebble displacement and determine if vehicle traffic affects pebble movement. Pebbles are moved short distances by small insects and animal activity. Pebble tracking demonstrates that animal burrowing, as well as tracked and wheeled vehicles move sediment up as well as down gradient. Large vehicles, generating channelized flow, and vehicles disturbing the desert surface, move pebbles greater distances.

The average pebble movement in the 2 natural systems is between 4 and 6.5 cm/year and is about 7 mm/year at the 1 site. At the Chocolate Mountains, the pebble movements of the channel headwall is up to 31.5 meters in at least two transport events. These pebbles were not buried in the bedrock and are still easily found downstream on the channel surface. All data is right skewed with median speeds for natural systems are 2.8 cm/year, while the average speeds are more than the average speeds and cluster closer together because the outliers moved in channels in natural areas. In contrast, the average and median pebble speeds at the disturbed Fl Iron site were both 30 cm/year. Average pebble movement at Fl Iron is not low, but the number of pebbles that have moved great distances, rather a large number of pebbles have been buried by Holohedrus distribution and the presence of off-road vehicles. The average recovery rate, after one year, of pebbles in natural systems is 98%, but only 70% at Fl Iron where vehicles repeatedly disturb the surface.

BTH 72  Lord, Mark L.
ASSESSMENT OF CHANGING LAND-USE PRACTICES ON BASIN SEDIMENT YIELDS AND PROVENANCE IN WESTERN NORTH AMERICA USING MULTIFINGER PRINTING TECHNIQUES
LORD, Mark L., MILLER, Jerry R., YURKOVICH, Steve P., HOLONBRANDER, Larry G. and MACD, Ojai, (1) Geosciences & Natural Resources Mgmt, Western Oregon Univ, Corvallis, OR 97331, (2) Massachusetts Institute of Technology, Cambridge, MA 02139
Computer Science, Northern Kentucky Univ, Highland Heights, KY 41099
The negative impacts of impacts on the systems of the southern Appalachians have become a significant issue in the past decades, however, there have been few attempts to quantify the impacts of land-use changes on alluvial erosion. This investigation used geochronological fingerprinting techniques and sediment mixing models within a small lake basins. The results of a 18 elements. Lead-210 data on the lake sediments, combined with mapped information from air photos obtained in 1965, 1975, 1986, and 2000, indicate that sedimentation rates have increased several fold during the past two decades in response to local development.