



National Canyon sandbar *before* the flood



National Canyon sandbar *during* the flood



National Canyon sandbar *after* the flood

WHAT THE FLOOD REVEALED

Here are some of the scientists' findings.

Water Flow. Scientists monitored the bright red dye for information about water flow. The dye moved with the current, allowing them to see and time water movement. They discovered that as the water rose, it flooded into land areas. As the water spread out, it slowed down. They found that even though there was extra water flowing down the river, it actually slowed down in many places. The water moved even slower than when water levels were lower.

Some scientists thought that the increased flow during the flood might wash away some fish, snails, and marsh plants. But that didn't happen. For example, one type of endangered snail survived very well. After the flood, scientists working at Vasey's Paradise were able to determine the size of the snail population and what kinds of food the snails eat.

Five weeks after the flood, scientists studied Anasazi Marsh (Mile 43). They found that the limbs of willow trees had protected the area during the flood. The marsh showed little evidence of flood damage.

Sediment Transport. Observations showed that sediments do move differently during floods. Some evidence came from a study done at Badger Rapids, the rapid closest to the dam at Mile 8. There is little sediment deposition at Badger Rapids. Erosion is a constant threat. Scientists found that 5 weeks after the flood, the beaches near Badger Rapids were wider than before the flood. Scientists inferred that the floodwater scoured sand from the bottom of the river here and deposited most of it on these beaches.

Mile 29, Silver Grotto, is a favorite campsite for Grand Canyon visitors. Scientists found that the width of the beach here expanded by 1.2 to 1.5 m.

Scientists had placed the boulders with radio transmitters and force meters in the river at Lava Falls, Mile 179. They discovered that boulders the size of watermelons and television sets were set tumbling along the riverbed during the flood. Rocks of this size could easily break off pieces of bedrock in the river bottom and crush smaller rocks into pebbles and sand. The amount of energy needed to move boulders weighing a ton or more is only found during times of flood.

National Canyon at Mile 166 was another study site. Scientists collected water samples to observe the amount of sand it held. They found that different parts of the river contain different amounts of sand. The scientists also wanted to know how much of the suspended sand would actually be carried downstream and how much be deposited as sandbars and beaches along the river. They found that only about 10% of the suspended sand settled out.