Flow365 Monitoring Program Flow Status Scale Explanation

The Flow365 Program uses a 0-6 scale for you to track what’s happening at your site. The zero is considered "no flow" and means there is no standing, moving, or flowing water at all. The scale goes all the way up to six, which is considered "flood flow": when the banks of the river are overflowing and the water is rushing onto it's floodplain.

This scale helps us understand how rain and seasonal flow are affecting Tucson’s rivers. Now, let’s go over the details of each stage in this scale, so that when you see flow at your site, you'll know what number on the scale to match it with:

0 - No Flow: No Water Present

The photo above is along the Rillito River looking upstream at Campbell Ave. The monitor here recorded 0, or no flow. **This means there was no water at her site – no ponding, no flow, no water at all. And note that wet sand, though a sign of recent rain, is *not* counted as presence of water.**

Recording zeros is essential when there is no flow. It helps us determine how long a site has been dry, and helps us accurately record the first day that flow begins after a dry period.

1 - Ponding: Standing Water Present

This photo is from the Pantano Creek at Tanque Verde Road. The monitor here recorded a level 1 for ponding, and you can see why! **On the left side of the photo, there is standing water that is not flowing.**

You'll see ponding when flow starts to dry up, but you might also see it before flow begins; it all depends on your site and how much rain there's been in your area.

Recording the observation of ponding is important to capture either way, so be sure to get out to your site as much as possible to collect data on all of the stages of flow.

2 - Trickle: Slightly Flowing Water

This is where it can get tricky – what really defines a "trickle"? This photo is of Rillito at Country Club Rd. **One of the things to note about this photo and a trickle is that it can be defined by how much water is moving versus standing still.** A trickle is the stage between ponding and low flow, so this is most likely where water is drying up and beginning to slow down and disconnect, creating ponds. You can see in the background that this is also a very shallow flow, most likely going to dry up to create ponds soon.

A trickle typically has very **shallow flow – water is just creeping along the surface,** without a lot of force. Trickling flow also doesn't reach much of the channel area. As you can see in the photo, **there is much more sand than there is water.** This is also a sign that the water is drying up, making this trickling water instead of low flow (level 3).

3 - Low Flow: Shallow Flowing Water

This photo is along the Cañada Del Oro at 1st Ave. As you can see from the photos, low flow (3) and trickle (2) are very similar, but there are slight differences. With low flow, **there is more water present, and more water flowing.** The photo above is still shallow water, and it even has a bit of sand in the middle there, another indication of low flow. (Sand will be less visible in the channel the higher up on the scale we go.)

The sand also tells us one other thing: that the channel is higher in the middle of the channel in the foreground, since the flow follows the path of least resistance near the lines of vegetation on the edges of the photo. This means **water is flowing at the lowest point in the channel,** so it has the potential to slow down and become a trickle (decrease to level 2). Or, with more water from rain or snowmelt, it could advance into level 4: moderate flow.

4 - Moderate Flow: Deep Flowing Water

This is the Rillito at Craycroft Rd. The first difference you can see from level 4 (moderate flow) and level 3 (low flow) is the amount of water. **This is no longer shallow flow. It has much deeper and much more water in the channel compared to stage 3.** There is also much less sand visible, because the water is filling more of the space in the river.

However, the whole channel is not filled with water. This is the difference between level 4 and level 5 (high flow). **Let's check out level 5 to see what it looks like when water reaches its banks.**

5 - High Flow: Bank-To-Bank Flowing Water

This is one of our private property sites along Sabino Creek. This part of our river system is smaller than others you might see around town, so it may not take as much water for the area to fill up and become level 5 (high flow) or even flood flow (level 6). **But wherever you are in the watershed, the concept is the same: the water is touching both banks of the creek or river, but is not flowing over them.**

In the foreground, the water reaches the edge of the creek bank. We know this because the water is reaching out of the frame of the photo. This side of the creek is not bound by rock (like in the background), so a small beach of sand and other debris has formed. But, on the other side, a wall of rock lines the edge, so the creek has reached its bank on both sides.

6 - Flood Flow: Over-Bank Flowing Water

What happens when the creek overflows its banks and goes into the floodplain? That is flood flow, our last level in the Flow365 Flow Scale. This photo is from flood flow along the Tanque Verde Creek at Houghton Rd. The creek is flows under the road, you can see the bridge in the top left corner, but the water has reached over its banks and is flowing onto the road in this area, even around and through the plants (the road is covered in water, in the foreground, where monitors will typically park to get to this spot).

In many areas, plants line the banks of our creeks and rivers; for others there may be a concrete-lined channel. Either way, **when water comes up over those banks – whether flowing through the plants or on the other side of those concrete walls – it is flooding!**