**Flood and Flow Committee**

Meeting- January 10, 2019

10:00a.m.

Town Hall, Patagonia, Arizona

**Members Present:** Carolyn Shafer-F&F chair, Kathy Pasierb-FOSC, Dave Ellis-PAWS, Marty Lawrence-TNC, Tina Hall-Paton Center for Hummingbirds,

**Members absent:** Kurt Vaughn-BHN, Kate Tirion-DDFI, Murphy Musick-CRS,

Anne Townsend-FOSC

**Guest speaker:** none

**Guests:** Chris Werkhoben, Ian Waen, Tom Kulibert, Bill O’Brien – Next Gen Engineering

Meeting called to order at 10:00 a.m.

**NEW BUSINESS**

**A.** **Action non-discussion items**

* Approval of minutes Motion-Martin 2nd  -Carolyn

**B.** **Non-Action/discussion items**

**Presentations: none**

**OLD BUSINESS**

**RoadMap:** update -Bill

*Understanding and Managing Water Quality in the Sonoita Creek Watershed*

* Grant writing workshop will be held at the Patagonia Museum classroom at 1pm today. Kathy will attend.
* Patagonia Regional Community Fund (PRCF) grant application was downloaded by Bill on January 7th when the grant cycle opened. Kathy was given a copy of the application. Bill will work on the grant. Kathy will obtain letters of support from non-profits. After the grant is written it needs to be approved by the next town council meeting on Jan. 23rd in order to meet the grant submittal deadline of January 28th 5:00 pm. A non- profit organization with 501(c )(3) status has to be the principal writer of the grant. Kathy will investigate who this will be. Other 501(c) (3) organizations must endorsed the grant with a letter of support. Kathy will write a letter of support on behalf of FOSC. She will contact BHN and DDFI. Martin from TNC has volunteered to write a letter of support.

**FEMA Flood Insurance** update- none

**PAWS** update- Dave Ellis

* PAWS PROJECT: Originally a water study began in May 2018 for the purpose of gathering data on water quality. The project was limited to looking at surface water and non-point source surface water. The equipment for this project is limited in its detection of basic quality of water such as pH (acidity or alkalinity), CaCO3 (Calcium Carbonate – aka Limestone). Heavy metals such as Zinc and lead cannot be detected. To further the investigation of water quality the PAWS project would take a physical water sample and send it to a lab in Tucson for analysis for potential toxic trace metals.
* SONOITA CREEK WATER FLOW METERS- A flow meter installed by United States Geological Survey (USGS) at the Circle Z Ranch was measuring water flow from 1931-1972. The meter was destroyed by a flood in 1972. There is interest in restoring the flow meter to its original location.
* TNC monitored a flow gauge and collected data from 1995-2001. Dave recommended measuring flood flow using flow meters and collecting pressure measurements. The Forest Service (USFS) has two water flow recorders on Harshaw creek and Red Rock Canyon wash. Ideally, PAWS recommend projects that would add to the existing data base of flood and flow of Sonoita Creek. 1. reestablishing the stream flow gauge at Circle Z Ranch 2. Build and install a water level gauge at TNC close to where the previous gauge had been.
* ARIZONA DEPARTMENT OF TRANSPORTATION (ADOT) would like flood water flow data collected from under the Highway 82 bridge in Patagonia. The cost is approximately $12,000 to build a deep, secure platform in which to mount measuring equipment. Dave recommends installing a recorder on this platform under the bridge that will measure the velocity and height of water flowing under the bridge. The data collected from under the bridge would add to the preexisting monitoring areas on Harshaw creek and Red Rock Canyon wash. This would ensure that water flow would be monitored at 3 data points along our major waterways. Devices would be able to obtain data in 15-minute intervals during peak flows. Recording devices cost $300.00. ADOT work on the bridge will begin in 1-2 years. Jon Hays from Arizona Department of Water Quality, (ADEQ) is looking to a flood warning system.
* ARIZONA DEPARTMENT OF WATER RESOURCES (ADWR) online data provides site information for the current activity of South32 mining operations in the Patagonia Mountains. 10 wells have been drilled to inform what the mine is learning about underground water at 4,950 feet in depth. Dave has a map of the location of these wells. (see map). The well plugs have determined the geologic layers as well. There is a 2000 ft thick limestone layer leaving evidence of an ancient lake that once existed in the area. Over geologic time volcanic activity occurred 70 (mya) million years ago.
* FRACTURE ANALYSIS PROJECT. PhD candidate Sean Shrag is looking for a relationship between geologic fracture lines in the Patagonia Mountains and water flowing in local springs. 40 springs have been identified within the Sonoita Creek watershed. The question he is investigating is whether water flowing through fractures might be a source of spring water. A technique for tracking water is to measure the age of water. There are 3 dating methods. Analyze, date and compare the fracture water and spring water for carbon 14, Oxygen-18, and trillium dating

**Other business**

* Mansfield clean-up project: The USFS Forest Service is cleaning up old mine sites at the Mansfield site. (need to see a map of this location) Remediation project tabled until Kurt can talk about the extent to which Borderlands is involved.
* Carolyn reported that the council meeting held on January 9th will be presenting two workshops.
* January 16th flood damage prevention
* January 30th town infrastructure and the waste water treatment plant.

Next meeting: Thursday at 10:00 am February 14, 2019

Meeting adjourned 11:15 am

Respectfully submitted,

Kathleen Pasierb