

Subsidence and proposed groundwater rules



Support sustainable groundwater use that doesn't cause subsidence!

Purpose of this presentation

- Share background on subsidence in our area
- Share proposed groundwater production rules
- Share potential impact of groundwater production rules on subsidence
- Share how you can provide your feedback

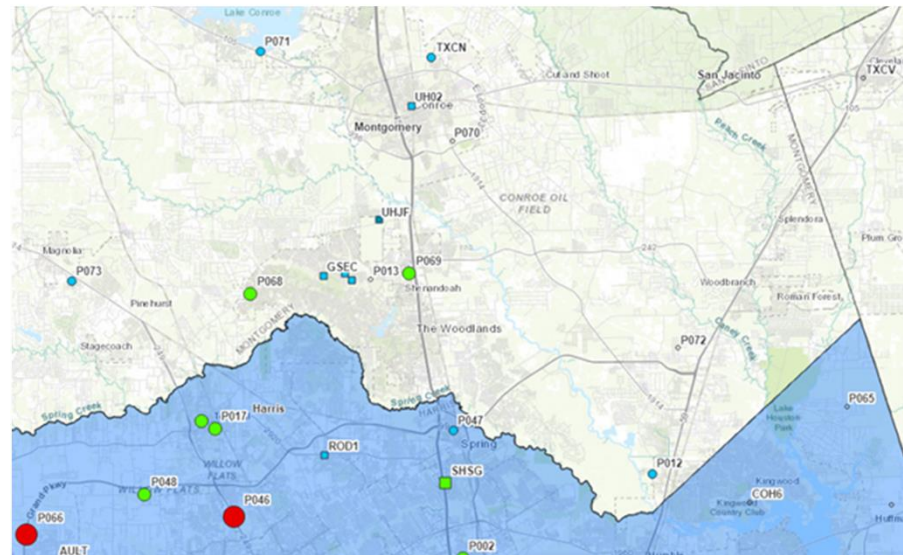
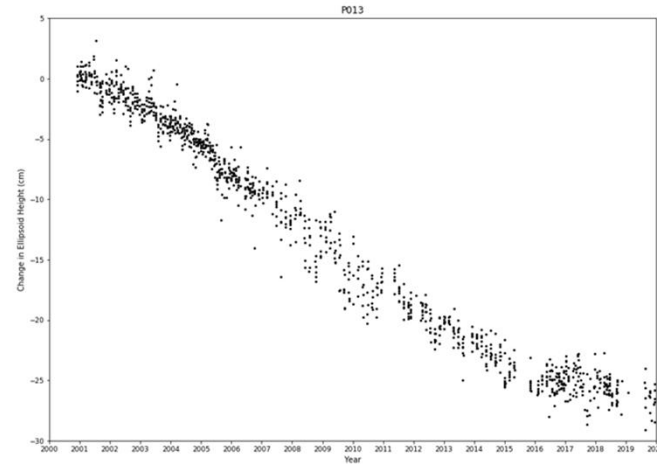
What is subsidence?

- Subsidence is sinking of the ground surface



How is subsidence measured?

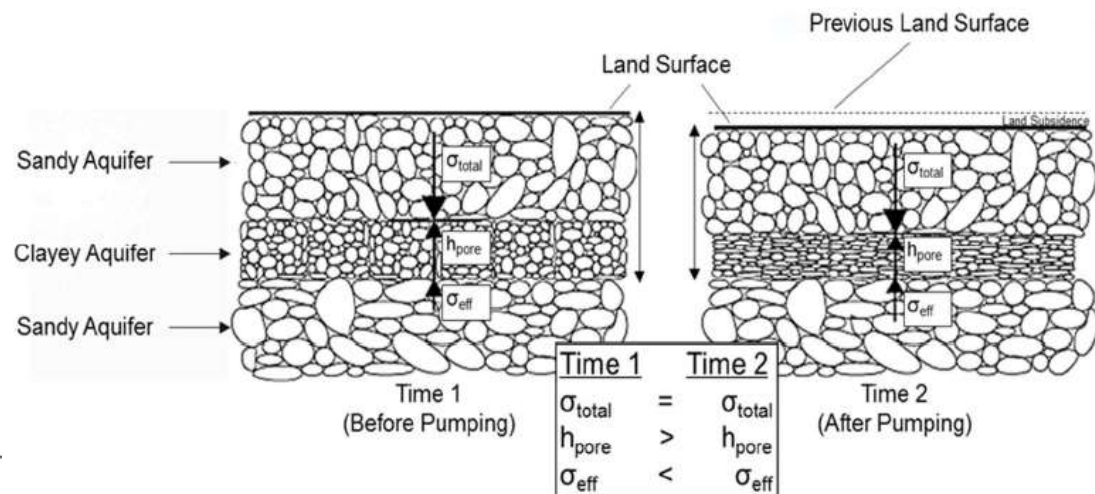
- Subsidence is measured by dedicated stations monitoring the ground height
- There are 14 measuring stations in Montgomery County



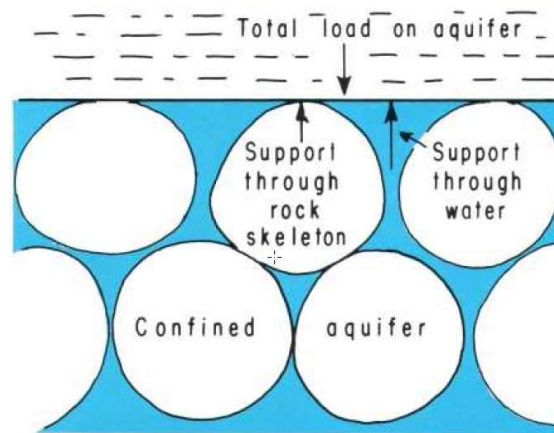
What causes subsidence?

- Subsidence is caused by excessive groundwater use

By lowering the water levels in aquifers, allowing clays to dry out and compact

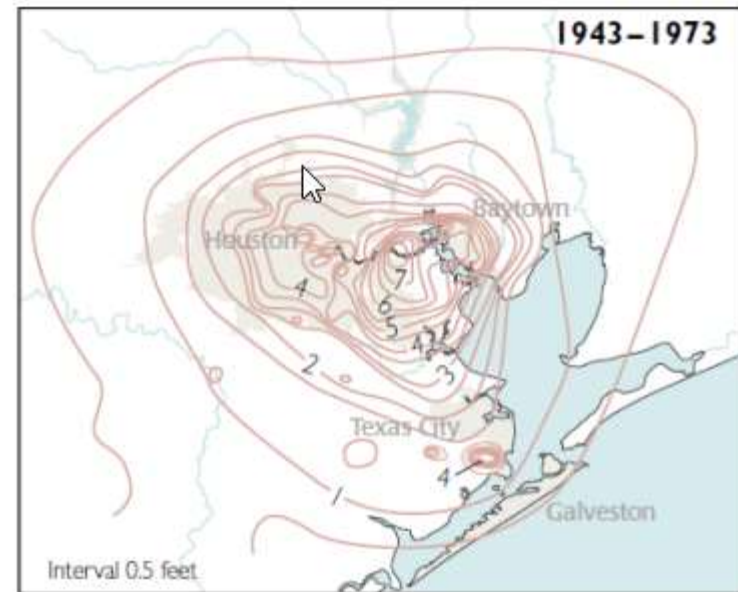


By reducing the artesianal pressure in the aquifer, reducing support for the ground above the aquifer



How is groundwater production related to subsidence?

- The more groundwater is removed the more we are subject to subsidence
- Harris county used to rely exclusively on groundwater, has seen up to 9' of subsidence, causing some neighborhoods to be abandoned



How have we reduced groundwater use?

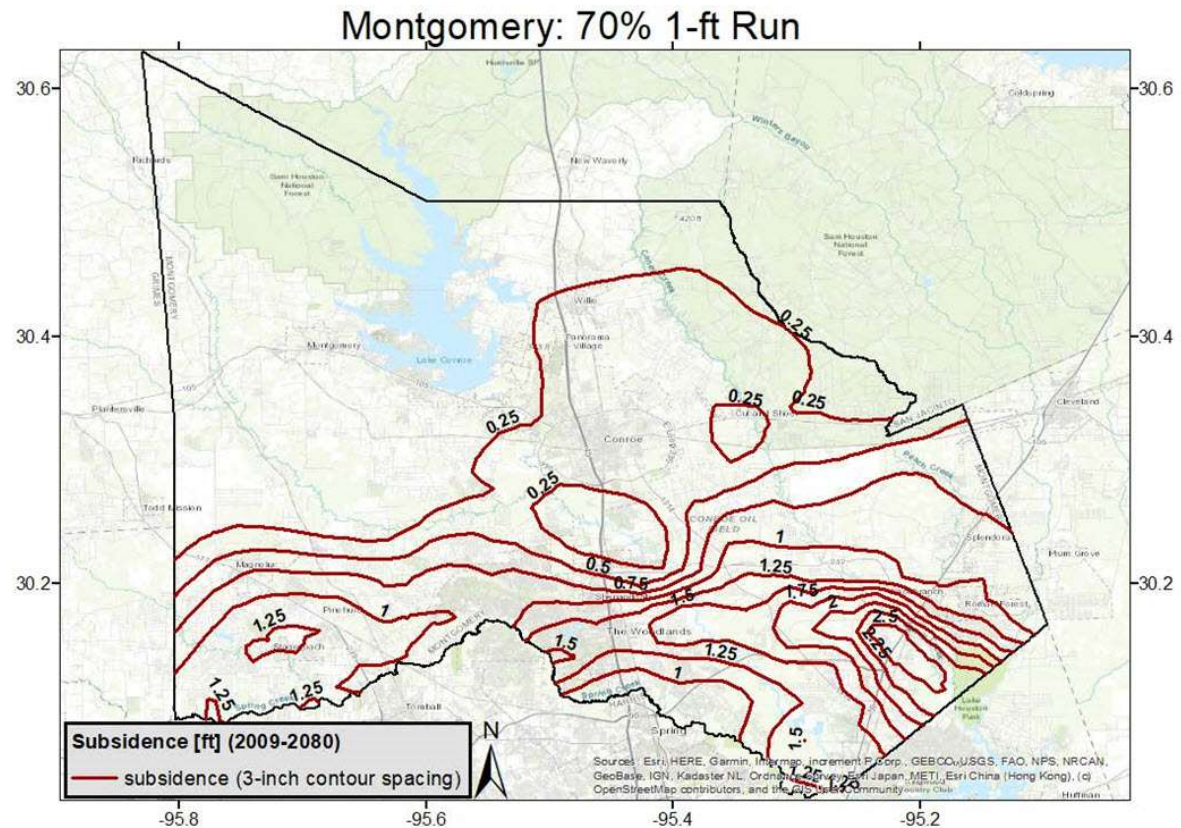
- A surface water treatment plant was installed in 2015 to supply 30 million gallons of water per day of treated water from Lake Conroe
- Since startup the groundwater rules have been changed by LSGCD and some participants in the project are no longer paying

What are the new proposed groundwater rules?

- The proposed rules will increase the annual groundwater production about 50% more than the sustainable production level
 - Sustainable ~64000 ac-ft
 - Current production ~98000 ac-ft
 - Proposed ~97000 ac-ft
- The new rules allow up to 1 foot of AVERAGE subsidence in each county, so 40% of the county can have NO subsidence, but the other 60% can average 1.7' and still meet the rules.

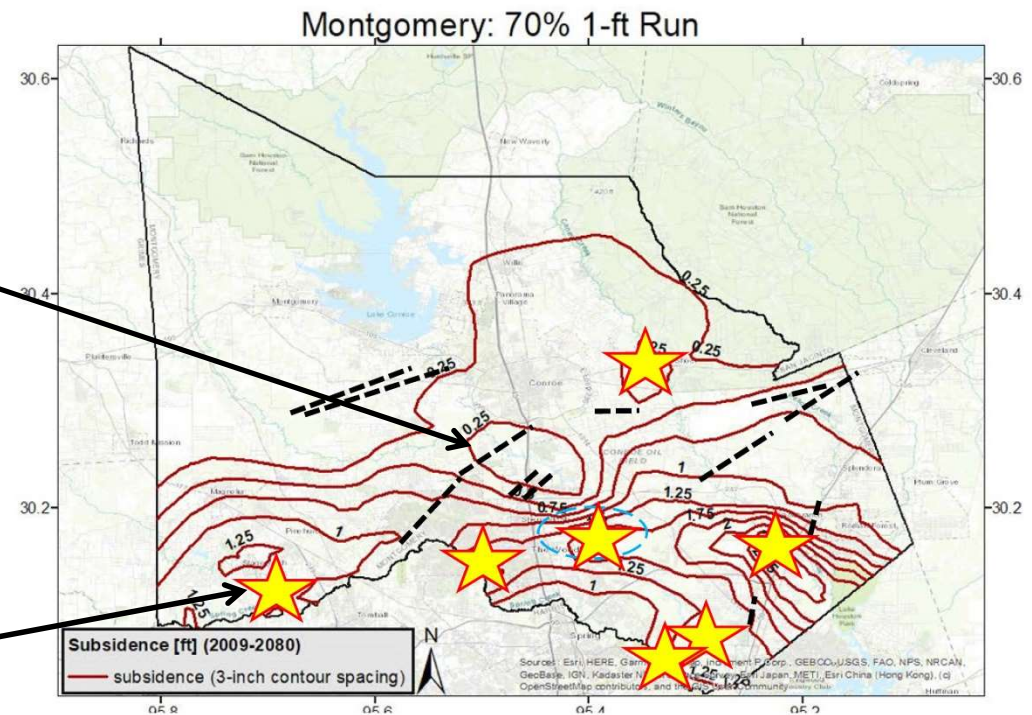
What is the forecast subsidence from the new rules?

- Up to 3' of subsidence in Southeast Montgomery County



What is the impact of the forecast subsidence?

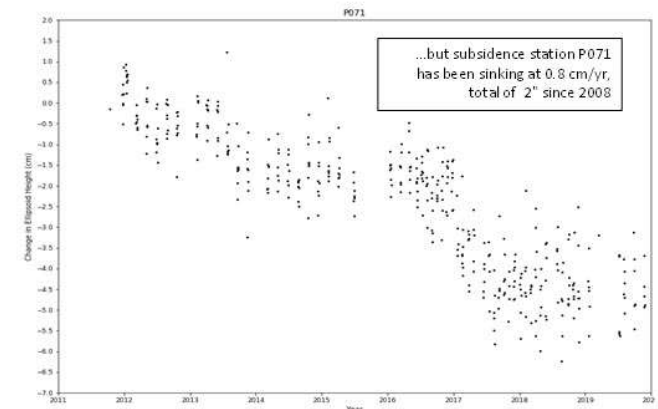
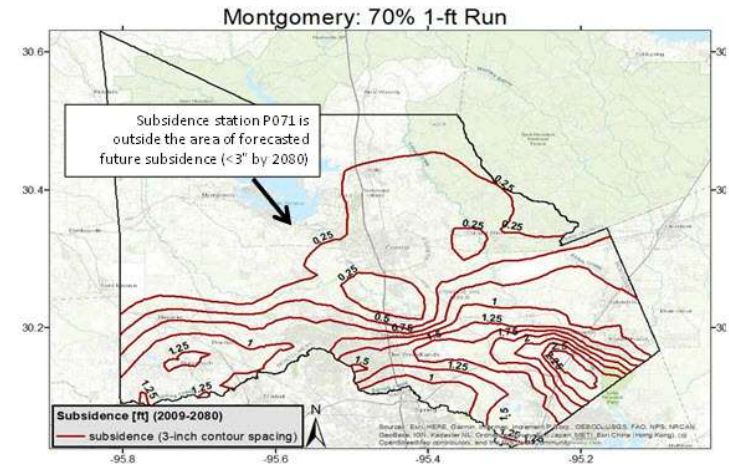
- Subsidence near fault lines will activate faults, causing home, business, road damage
- Higher subsidence in some areas will cause flooding



UPSTREAM area is sinking
more than DOWNSTREAM area
(flooding is likely)

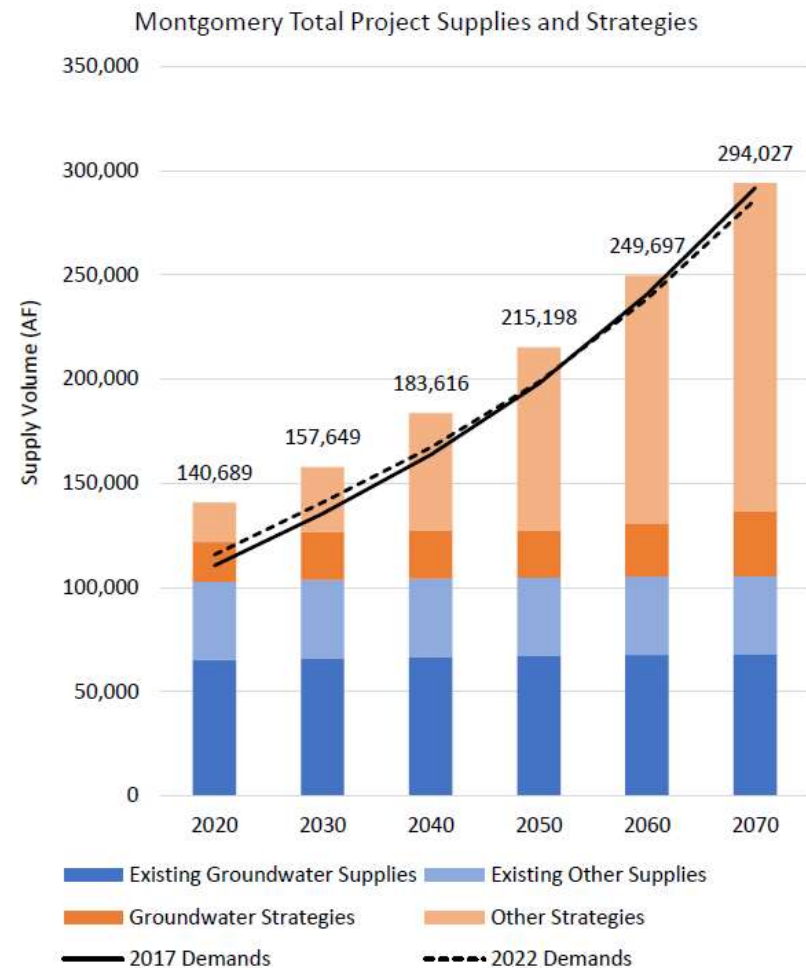
How accurate is the subsidence model?

- The subsidence model (HAGM) is thought to UNDER predict subsidence, so sinking may be worse than forecast
- For example, monitoring site P071 is forecast to have <3" of subsidence from 2008 to 2080, but has ALREADY seen 2" of subsidence!



What is the alternative to the new proposed groundwater rules?

- Demand for water is expected to double by 2080, so eventually alternatives to groundwater will be required.
- Lake Conroe and Lake Livingston were built to supply alternative water sources
- We just need to use them!



What can you do?

- Let the Lone Star Groundwater Conservation District know what you think
- Email: info@lonestargcd.org
- Or during public comment periods at monthly LSGCD meetings:
<https://www.lonestargcd.org/meetings-1>
 - Insert kill shot comments?
- Comments MUST be provided by July 19



For more information

- Stop our sinking: StopOurSinking.com
- Reduce flooding:
<https://reduceflooding.com/>, search for
subsidence to find the latest information

