

The SWF and the Environment

One of the loudest objections from opponents of the SWF is that it might harm the environment. Environmental issues are complex and subject to numerous regulations and regulating agencies. As the SWF has been developed and throughout the process of applying for a regular operating permit, the CCSD has employed talented experts – biologists, hydrologists and engineers – to address environmental issues. C4H2O supports the District’s efforts to solve Cambria’s water security issues while minimizing any negative impacts of water and wastewater operations on the environment of San Simeon Creek.

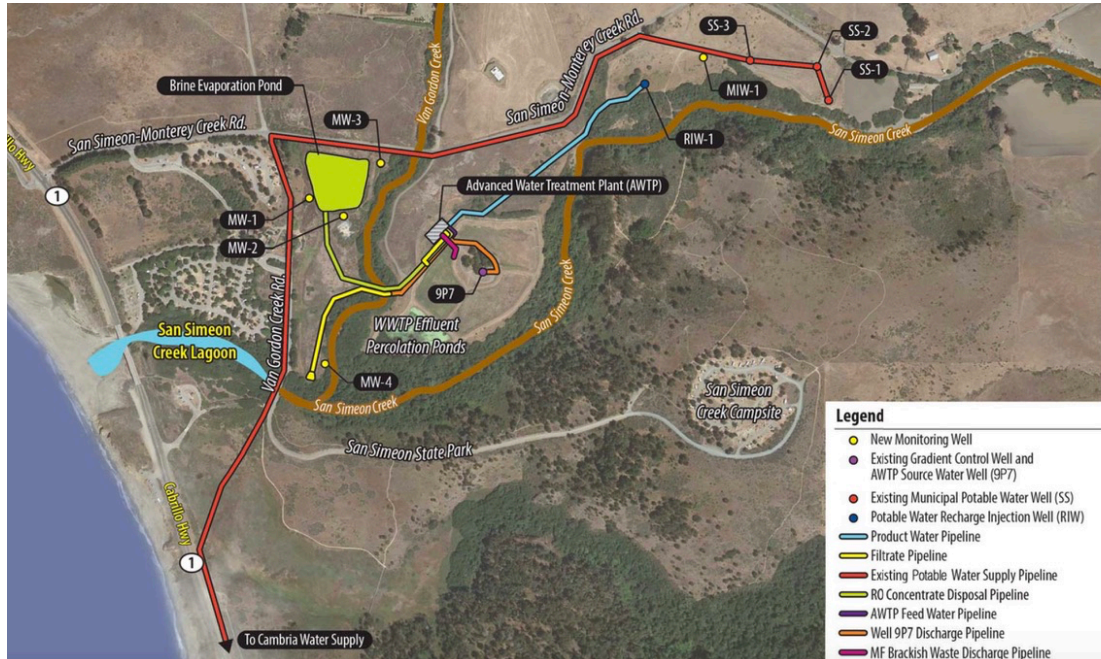
The following discussion is intended to provide context about the San Simeon Creek environment focusing on a deeper dive into how the SWF may affect the habitat of one species—steelhead. To understand how the SWF may impact steelhead, it is necessary to understand how the SWF operates in connection with the aquifer.

General Description of SWF Operations

It’s important to view CCSD operations at the lower reaches of the creek as a system of which the SWF is a part. The CCSD extracts water from wells drawing on the San Simeon Creek aquifer. The District is licensed to extract up to 799 acre-feet of water from the aquifer with limitations on how much can be withdrawn during dry periods. The SWF does not impact the license or increase the amount of water that may be extracted. Further, when the State Department of Water Resources issued the license, the department in conjunction with the California Department of Fish and Wildlife considered and approved the impact of permitted groundwater extraction on the environment.

During the rainy season, there is substantial surface water flow in the creek, fully charging the aquifer. During the dry season, the creek dries up and surface flow ceases in the lower reaches. This historical pattern predates any CCSD water extraction activities. Water continues to flow below the surface but charges the aquifer at a rate less than the rate of extraction. As a result of seasonal differences and extraction, the aquifer is partially depleted during dry months. During a period of extreme drought, as in 2013 and 2014, well levels drop perilously low, potentially leading to subsidence. One of the SWF’s chief benefits is to protect against this.

The San Simeon Creek aquifer consists of two parts, the upper and lower basins. These basins are separated by a water mound. Our drinking water is extracted from the upper basin, and highly treated wastewater is introduced to the lower basin. The SWF purifies water from the lower basin and injects it at the mound. Most of the water thus injected flows to the upper basin where it is eventually extracted for drinking water.



SWF Layout from the SEIR. Note that the Brine Evaporation Pond has been eliminated

Does the SWF Consume Water?

In and of itself, the SWF does not consume water. It purifies a brackish mix that is made up of highly treated wastewater, creek underflow and a small amount of sea water that intrudes into the aquifer. Approximately 92% of the treated water is available for injection. The remaining 8% brine waste is actually less than the amount of seawater in the brackish mix. If anything, the SWF adds to the fresh water supply.

The injection process moves water from the lower basin to the upper where it can be extracted for the community's use. Ultimately, most of that potable water is used and returned to the wastewater plant where it is treated again and pumped to the lower basin. In fact, the CCSD wastewater plant pumps more water to the San Simeon Creek aquifer than it extracts for drinking water. Thus, the SWF is an efficient water **reuse** facility.

Where does the wastewater go?

During the dry season, Cambria's wastewater is the primary source of water for the San Simeon Creek lagoon. The photo below shows the healthy lagoon at the driest point before rain fall starting the 2019-20 rainy season.



San Simeon Creek Lagoon on November 23, 2019 – the day before the first rain of the 2019-2020 season

What About Steelhead?

The National Marine Fisheries Service published a report, the *South-Central California Steelhead Recovery Plan*, providing a wealth of information relevant to the San Simeon Creek environment. In its introduction the report cites water conservation, efficiency and **reuse** as key actions coastal communities can take to promote steelhead recovery.

Causes of steelhead population decline range from climate change to invasive species to dams and reservoirs to other human actions including over-fishing.

Steelhead are anadromous fish meaning they leave fresh-water habitats to live in the ocean and then return to spawn. High winter flows allow both the exit and return for spawning. Eggs are laid in suitable gravelly areas. Fry are hatched, grow to smolts, and the cycle repeats itself. As juveniles, most steelhead live in shaded, spring-fed pools of cool water in the upper reaches of the creek. However, some of the juveniles migrate to lagoons – an adaptation to the variability of California’s coastal environment. That migration must occur before surface flow ceases.

The report identifies specific threats to the steelhead lifecycle in the San Simeon Creek environment. They include: Agricultural Development, Groundwater Extraction, Levees and Channelization, Roads, Recreational Facilities. From that list, only groundwater extraction relates to CCSD operations. The corresponding critical recovery action is, “Develop and implement operating criteria to ensure the pattern and magnitude of groundwater extractions ... provide the essential habitat functions to support the life history and habitat requirements of adult and juvenile steelhead.”

There were a number of investigations related to Cambria's first water license that determined with the possible exception of the lower reaches of Van Gordon Creek, the CCSD water extractions had no upstream impact. Therefore, CCSD operational impact is effectively limited to the well fields and areas downstream. As discussed above, the CCSD provides more water to the downstream environment than it extracts. While that is not the sum total of the environmental impact of the water operations, it is a useful context to consider the environmental impact of the SWF.

Conclusion

A complete discussion of the SWF impact on the habitat and environment of San Simeon Creek is beyond the scope of a position statement. In fact, it exceeds the capability of the C4H2O Steering Committee as well as most, if not all, of the so-called environmentalists who oppose the SWF. This is a topic that has consumed and will continue to consume countless hours of expert review and analysis. The purpose of this paper is to provide background to illuminate some of the issues involved. And further to discuss not only problems, but existing and future mitigations and solutions.