

A review of the status of Paradise Lake as an Arizona Surface Water



Arizona Department of Environmental Quality
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Paradise Lake

Design and construction:

Established in 1960, Arizona City is an unincorporated, planned community located in Pinal County near the junction of Interstates 10 and 8 (Fig. 1). Paradise Lake (Fig. 2) was designed and constructed early in the development as an amenity for the residents. Located completely away from any source of surface water it was designed to be filled with ground water from a well on the west side of the lake. The lake itself is five to nine feet deep, bentonite lined to prevent infiltration and constructed with roughly five-foot vertical concrete walls comprising the shoreline (Fig. 3).

There are no designed or constructed surface water inlets or outlets to Paradise Lake. However, accumulated water from street flooding will sometimes flow into the lake on the southwest end (Fig. 4), and the lake has overflowed on one occasion during the regional wet period in the late 1980s. The overflow water exited from a low point on the north east end (Fig. 5) of the lake and flowed through residential streets in a northwesterly direction with the general fall of the terrain.

Ownership and water rights:

At the time of its construction, the Arizona City Club shared a well with the Arizona City Golf Course and Happy Days Park and Racquet Club and pumped water into Paradise Lake under the Beneficial Use principle. With the advent of the Groundwater Management Act (Code) in 1980, a Type II water right was issued by the new Arizona Department of Water Resources. This type of water right cannot be divided and, as a consequence, in 2004 when the Paradise Lake Association assumed ownership and management of the lake, a single water right then covered two financially separate entities. Recently, the owner of the other half of the water right, the Arizona City Golf Course, sold the entire water right to Aqua Capital for 3.2 million dollars without notifying the Paradise Lake Association, leaving them to find water elsewhere.

In 1993, the Arizona Department of Environmental Quality (ADEQ) received a request from Arizona City homeowners to list Paradise Lake as a Waters of the United States, now referred to as a "Surface Water", in the Arizona Surface Water Quality Standards. This request was in response to a plan by the Arizona City Sanitary District to discharge treated effluent to the lake during periods when the golf course did not need all of the water for irrigation. It was assumed by those requesting the listing that the discharge of treated effluent to the lake would degrade water quality. ADEQ granted this request and, during the 1996 Triennial Review of Water Quality Standards, listed Paradise Lake as aquatic and wildlife warm water, full body contact and agricultural irrigation. This listing effectively precluded discharge to the lake due to the cost of treating effluent to meet the assigned standards.

Population and recreation:

As of 2007, Arizona City has 7320 residents with a median age of 41. Eighty two homes are located directly on the lake and 52 more homes are located only one lot removed to lake access. At forty eight acres, Paradise Lake is the largest privately owned lake in the State of Arizona. As such, it provides the residents ample opportunity to boat and fish. A large fountain, situated in the center of the lake, has been recently refurbished and is run during celebrations. Access to the lake is now controlled (Fig. 6), and fishing and boating are by permit only and limited to residents of Arizona City.

Figure 1. Arizona City and Paradise Lake



Figure 2. Paradise Lake.

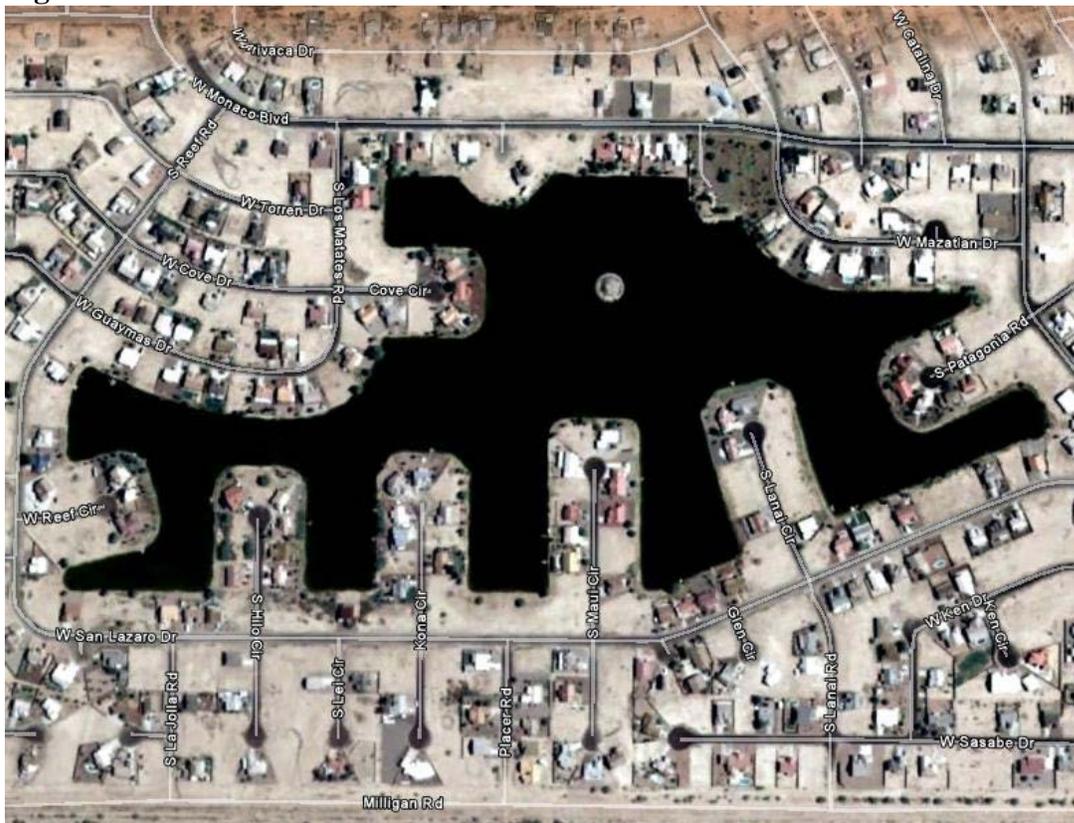


Figure 3. Lake shoreline construction



Figure 4. Lake inflow point



Figure 5. Lake overflow point



Figure 6. Controlled access to Paradise Lake



Surface Water or Waters of the United States designation:

Because of the wholly anthropogenic origin of Paradise Lake, it is now considered to have been listed in error. The main original argument for listing; foreign and interstate commerce due to foreign ownership of property on the lake, is an argument that can be made for almost any created lake. It is important that the State be judicial in using the foreign and interstate commerce clause to list wholly human created, privately owned waters that do not otherwise meet the following requirements for inclusion as Surface Waters:

R18-11-101 (41)

“Surface water” means a water of the United States and includes the following:

- a. A water that is currently used, was used in the past, or may be susceptible to use in interstate or foreign commerce;
- b. An interstate water, including an interstate wetland;
- c. All other waters, such as an intrastate lake, reservoir, natural pond, river, stream (including an intermittent or ephemeral stream), creek, wash, draw, mudflat, sandflat, wetland, slough, backwater, prairie pothole, wet meadow, or playa lake, the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce, including any such water:
 - i. That is or could be used by interstate or foreign travelers for recreational or other purposes;
 - ii. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
 - iii. That is used or could be used for industrial purposes by industries in interstate or foreign commerce;
- d. An impoundment of a surface water as defined by this definition;
- e. A tributary of a surface water identified in subsections (41)(a) through (d); and
- f. A wetland adjacent to a surface water identified in subsections (41)(a) through (e).

As Paradise Lake is wholly human created and privately owned, it could be argued that it is not subject to the foreign and interstate commerce clause. Also, as it is not directly tributary to any listed surface water, it does not meet the tributary portion of R18-11-101 (41).

Tributary connectivity:

Paradise Lake was built on agricultural land (Fig. 7) located in an area known as the Santa Cruz Flats. The nearest Surface Water is Green Wash in the Santa Cruz system, 6.5 kilometers to the south west (Fig. 8). There are no tributaries to or from the lake visible upon ground inspection and none are visible in aerial photos. Any first order, ephemeral washes that may have been present in the area of the lake were probably obliterated when the agricultural fields were leveled prior to the passage of the Clean Water Act.

Figure 7. 1954 aerial photograph of the Paradise Lake area

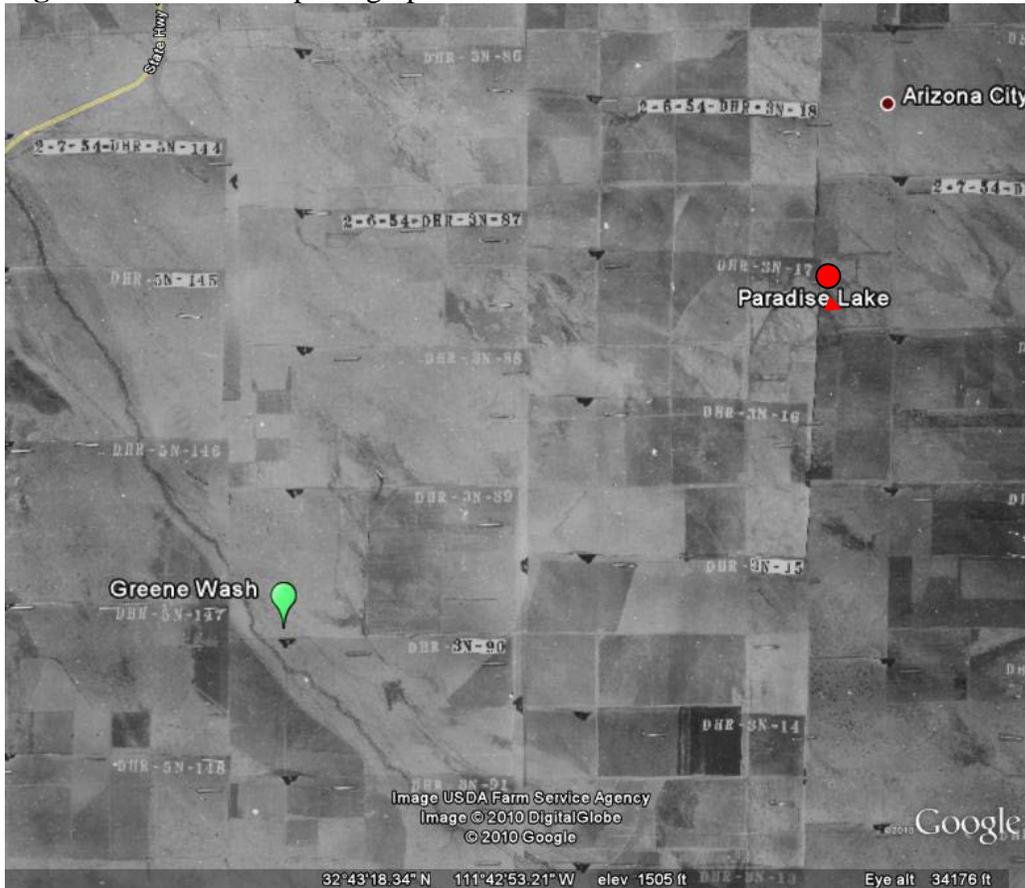
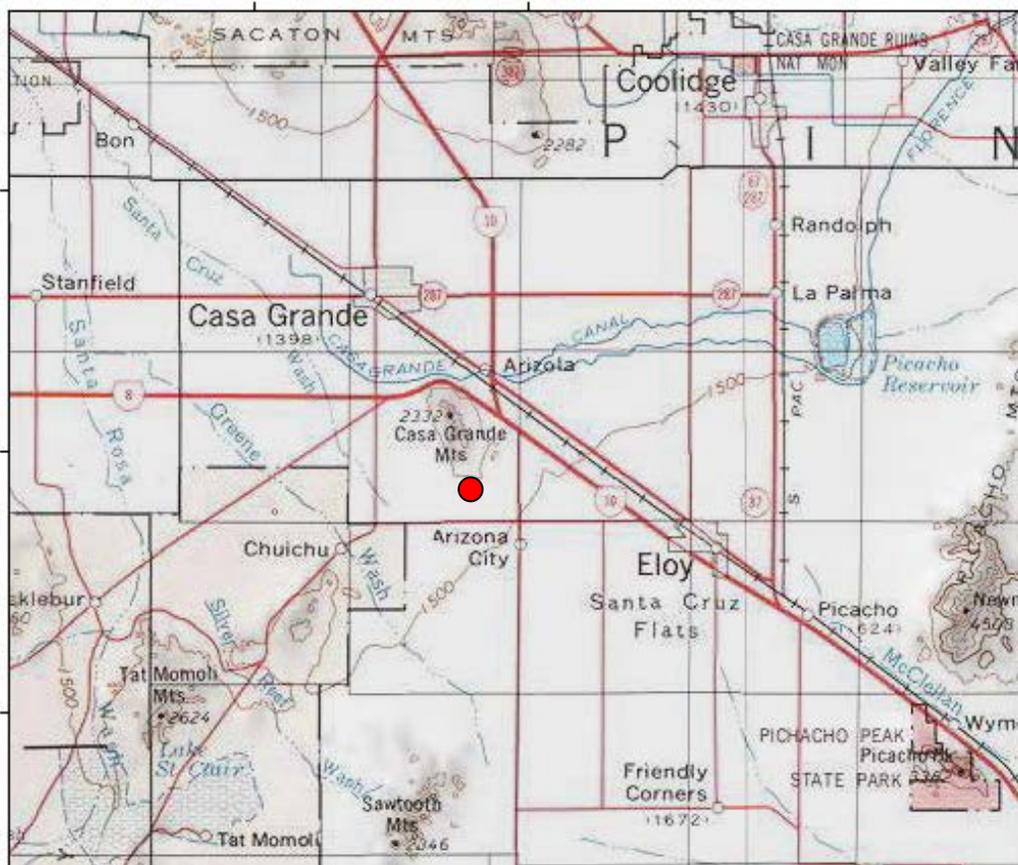


Figure 8. The nearest waterbody to Paradise Lake is Greene Wash



Discussion and conclusion:

Being of wholly anthropogenic origin, privately owned and having no significant nexus with any Surface Waters in Arizona, Paradise Lake does not meet the requirements for inclusion in Appendix B of the Arizona Surface Water Quality Standards. However, as access, though limited, still occurs, water quality must be maintained in order to protect human as well as aquatic life. Under Arizona's Aquifer Water Quality Standards found at R18-11-405 and 406, discharges that may affect ground water quality are required to meet standards that are protective of the drinking water use and "shall not cause or contribute to a violation of a water quality standard established for a navigable water of the state". Also, because Paradise Lake is considered a recreational impoundment, wastewater discharged to the lake will require a reuse permit and be required to meet the most stringent class A+ Reclaimed Water Quality Standards found at R18-11-301 through 309. Compliance with the requirements of these two programs will provide significant protection for human and wildlife use of Paradise Lake.