

CASE STUDY REPORT #38
LOWER LAGUNITAS PROJECT (KENT LAKE)
LAGUNITAS CREEK

I. Project Description

The Lagunitas Creek watershed is in the coastal mountains of Marin County, California. Runoff from 108 square miles of mostly forest and open land drains in a northerly direction into Tomales Bay.

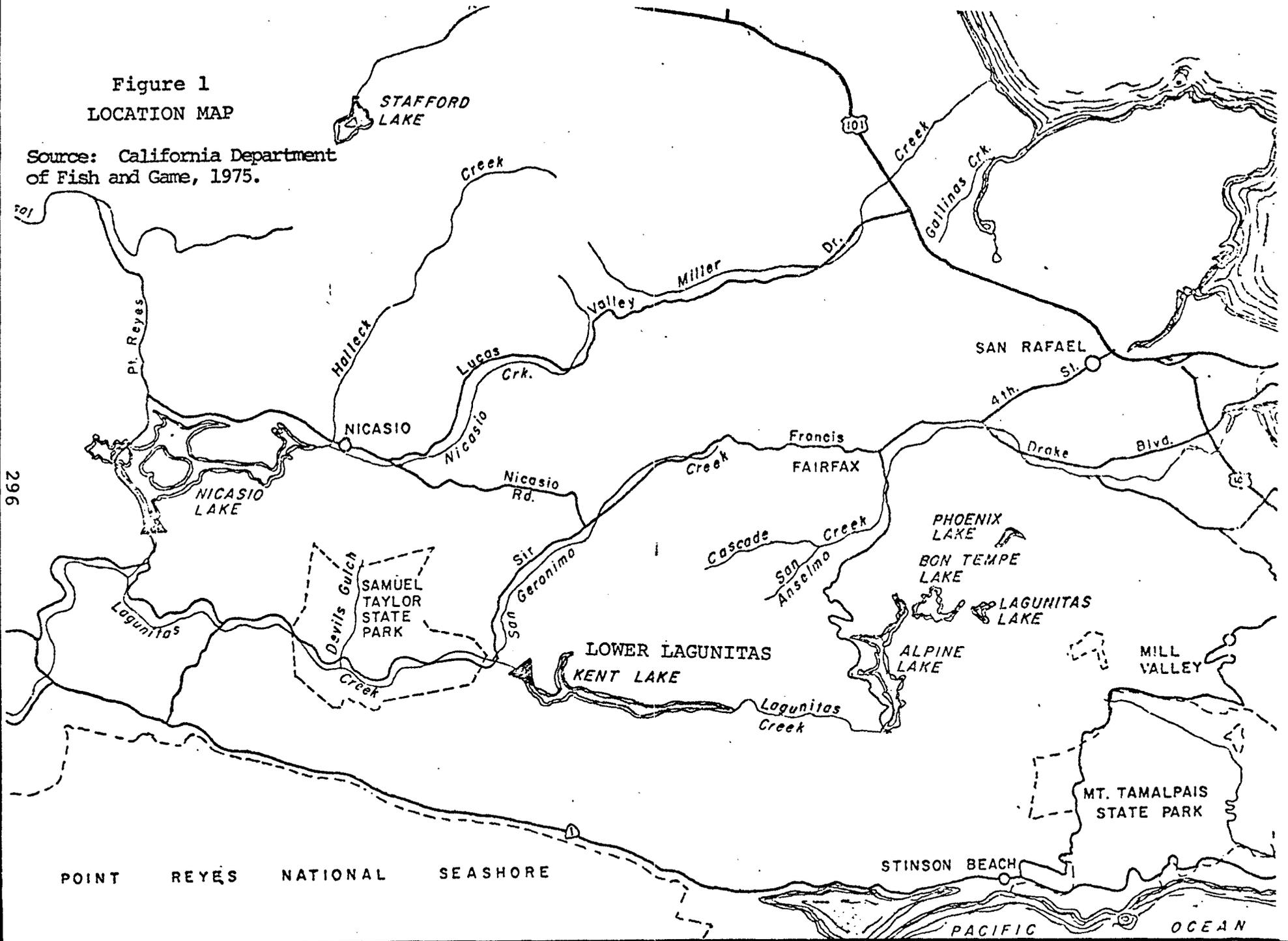
The Lower Lagunitas Project, completed in 1954, consists of Peters Dam, located on the upper reach of Lagunitas Creek, approximately 15 miles upstream from the mouth. The upper reach of Lagunitas Creek has largely been replaced by four impoundments constructed and operated by the Marin Municipal Water District (MMWD). The Lower Lagunitas Project is the farthest downstream of this series of reservoirs, and it has a storage capacity of 16,500 acre-feet covering 265 acres. The reservoir was originally named Lower Lagunitas, but is presently called Kent Lake.

The inflow into Kent Lake is influenced by the three upstream dams (Alpine, Bon Tempe and Lagunitas.) (see Figure 1).

The four Lagunitas Creek reservoirs are operated by the water district in conjunction with Nicasio Reservoir irrigation and domestic water usage.

Figure 1
LOCATION MAP

Source: California Department
of Fish and Game, 1975.



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POINT REYES NATIONAL SEASHORE

STINSON BEACH

PACIFIC OCEAN

II. Pre-Project

Stream flows in Lagunitas Creek have been regulated since 1872 when Lagunitas Dam was constructed on the uppermost reach of Lagunitas Creek. Other upstream reservoirs prior to the construction of Peters Dam were Alpine (1914) and Bon Tempe Dam (1949).

No records of stream flows prior to flow regulation by Peters Dam were found for Lagunitas Creek near the Lower Lagunitas Project dam site. A spot stream flow measurement at the future dam site was made by Department of Fish and Game in June of 1951. The flow was estimated to be between 0.75 and 1.0 cfs on this date.

Observations of fishlife in Lagunitas Creek and surveys of the estimated amounts of suitable spawning area for salmon and steelhead were conducted by the Department of Fish and Game in June of 1951. It was reported that "many steelhead and silver salmon fingerlings were seen, but none smaller than about two inches in length". The stream survey of the 15 miles of creek channel below the Lower Lagunitas dam site to Tomales Bay was divided as follows:

"7.75 miles containing fair amounts of suitable appearing spawning gravel, 5.0 miles of deep water where the bottom was obscured (influenced in part, at least, by small diversion dams) and 2.25 miles of channel through muddy tide flats at the south end of the bay."

It was also reported that there were numerous gravel beds suitable for spawning upstream of the dam site.

Lagunitas Creek was noted for its winter sport fishery for silver salmon and steelhead in the tidewater area of Lagunitas Creek where fishing is permitted. The Department of Fish and Game wildlife protection officers estimated the sport fishery produced by these runs accounted for an estimated 2,163 angler days during the 1954-55 winter season. This creek provided one of the most accessible high quality silver salmon and steelhead fisheries for the heavily populated Marin County and San Francisco area.

III. Project Development

A water rights application for unappropriated water on Lagunitas Creek was first filed by the MMWD in May of 1940. The Department of Water Resources issued a permit in September of 1940 for the storage of 30,000 acre-feet per annum. The district originally planned to store this appropriated water behind the existing Alpine Dam constructed in 1914. Enlargement of this dam in 1942 brought the storage capacity to 9,450 acre-feet, leaving a balance of 20,550 acre-feet per annum of MMWD appropriative water without storage. When water demands increased during World War II, the MMWD found that Alpine Dam could not be raised as high as planned due to a weak foundation at the dam site. In 1948, without making an application or securing a permit, the district constructed Bon Tempe Dam impounding 4,500 acre-feet. In order to provide

for storage of the remainder of the appropriative water in 1951, the district applied to the Division of Water Resources for permission to change the point of diversion under their application (9892). The district petitioned to reduce the storage at Alpine dam site to 9,450 acre-feet per annum and collect the balance of the 30,000 acre-feet per annum for storage as follows:

4,500 acre-feet per annum in the existing Bon Tempe Reservoir.

16,050 acre-feet per annum in the proposed Lower Lagunitas Reservoir.

The California Water Code provides that anytime after notice of a permit, application or license is given, an applicant, permittee or licensee may change the point of diversion, place of use, purpose of use from that specified in the application, permit or license, but only on the permission of the State Water Resources Control Board. Before permission is granted, the petitioner shall establish to the satisfaction of the department that the change will not impair the rights of others, and also that the change does not increase the quantity of water to be taken under the original appropriation.

The petition was protested (July 1951) by a group of downstream riparian water right holders who felt that they could be affected by this change. Grounds for the protest were that the dam would constitute a public and private nuisance and during proposed minimum releases, fish and game dependent on the stream flow would be endangered.

The Department of Fish and Game conducted an investigation of the Lower Lagunitas Project area in June 1951 to determine the possible effect of the dam on the fishery resources of Lagunitas Creek. Recommendations made as a result of this investigation were based on the size of the creek channel and the amount of spawning gravel available. These recommendations were:

"1. Request a minimum flow equal to the amount noted on the day of the investigation (e.g., 1 cfs) or the natural flow of the stream, whichever is less, from the period April 1 to October 31 annually, to provide adequate habitat for juvenile fish.

"2. To provide for adult SH and SS spawning through the period November 1 to March 31 annually, there should be enough more water to permit spawning on the stretches of gravel observed to be exposed on June 12, 1951. This amount would be a minimum of 5 cfs (or the natural flow of the stream, whichever is less)."

These Department of Fish and Game minimum instream flow recommendations were never incorporated in the terms of any water rights permit issued to the district since all permits had already been issued and it was not possible to file protest at that time.

The MMWD had made agreements with the downstream ranchers who held riparian water rights on Lagunitas Creek to get them to withdraw their protests. The amounts of the releases to satisfy downstream water rights would hopefully be sufficient to maintain fish life on Lagunitas Creek.

IV. Post Project

Records of instream flow releases made at Peters Dam to Lagunitas Creek were not discovered.

The effectiveness of water releases from the Lower Lagunitas Project for maintaining fishlife depends heavily upon weather conditions and the amount of runoff present in any year.

Lagunitas Creek streamflow below its confluence with Nicasio Creek (approximately 10 miles downstream from Peters Dam) has been augmented since 1961 by releases from Nicasio Dam. Streamflows on Nicasio Creek are regulated according to terms set forth in an agreement between Department of Fish and Game and MMWD (see Case Study Report #37).

Streamflows above the confluence with Nicasio Creek depend on Peters Dam releases for downstream water rights. Poor water conditions have been observed along this section of Lagunitas Creek through Samuel Taylor State Park. A Department of Fish and Game field note dated April 1955 stated that the department will have to negotiate releases from Kent Lake in order to maintain the numbers of fingerlings, silver salmon and steelhead observed along this section of Lagunitas Creek.

The spawning migrations of silver salmon and steelhead on Lagunitas Creek have been surviving as indicated by observations of spawning activity made by different fishery agencies. A U. S. Bureau of Sport Fisheries and Wildlife memorandum dated

January 11, 1975 reported 69 adult silver salmon in an approximate 150-yard stretch of Lagunitas Creek in the vicinity of Samuel Taylor State Park. Spawning activity including redd construction was observed.

V. Conclusion

The Lower Lagunitas project was completed in 1954 in conjunction with Bon Tempe Dam and Alpine Dam to develop water rights on Lagunitas Creek originally acquired by the MMWD in 1940. All Lagunitas Creek water developments are operated for purposes of municipal and industrial supply in the water district. None of the water storage in Lagunitas Creek is allocated as instream flow reservations for fish and wildlife.

The Department of Fish and Game conducted a pre-project investigation to determine instream flow needs by making a short instream flow study and judging the situation in reference to known regional characteristics.

Because the water rights for the project had already been legally obtained by the district, the Department of Fish and Game did not have an opportunity to protect the water rights during the project development phase. However, there is a required instream flow release at Lagunitas Dam to satisfy downstream riparian water rights. This minimum 2 cfs flow maintains some fish habitat. The Department of Fish and Game

post-project observations have indicated that streamflows resulting from this release do not always satisfy fish and wildlife requirements in Lagunitas Creek, especially during the dry season.

The effectiveness of the method used to determine in-stream flow needs in Lagunitas was never tested in this case because fish and wildlife conservation were not included as a project objective.

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