

Fish and Pisciculture
In 19th century Sonoma County

By

John Cummings

October 2008

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A new game law approved by the county supervisors in the late 1890s eliminated professional market hunting in the county. During most of the later half of the 19th century, market hunting – the harvesting of local wildlife mostly for the commercial markets of San Francisco, was a normal activity and not usually mentioned in old county newspapers. Two rare exceptions include the reporting of the two-year wildlife take beginning in 1861 of an extraordinary market hunter in southern Sonoma County and northern Marin County (see Table 1), and a note in the fall of 1878 that a dealer in Santa Rosa had shipped almost 2,400 county quail to San Francisco.

Sonoma County in the 19th century was described as a sportsman's paradise with few other places in the state providing better hunting and fishing grounds. The first mention of fishing in the early county was made in an article in the *Sonoma County Journal* in August of 1860 encouraging Petaluma readers to visit Sebastopol for fishing and recreation. The article stated that the nearby Laguna de Santa Rosa offered good fishing, but the species of fish were not identified. Even a Forestville dog named Prince was an outstanding hunter in the late 1870s (see Table 1). The 19 small boys with a single barreled, smooth bore shotgun and a rat terrier reported by the *Sonoma Democrat* to be leaving Santa Rosa after Christmas in 1877 for duck hunting on the Laguna de Santa Rosa were obviously amateur hunters. In contrast to the report of the small boys, two, ten-men teams of expert riflemen from Sebastopol and Petaluma participated in a shooting match of quail and pigeons in the early winter of 1875. There was only a four bird difference in the contest between the two teams and all of the men exhibited expert shooting skills.

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Table 1

A. Julius J. Parson, extraordinary market hunter

1861—1862		1862 – 1863	
quail	3,646	quail	4,432
deer	18	deer	18
hares	58	hares	0
grey squirrels	5	grey squirrels	0
wild cats	27	wild cats	7
grey foxes	9	grey foxes	8
polecats	31	polecats	14
hawks	87	hawks	38
rattle snakes	17	rattle snakes	5
bears	0	bears	45
raccoons	0	raccoons	8

Ref: *Sonoma County Journal*, October 30, 1863

(Note: Ending earlier controversy, the boundary line between Sonoma and Marin counties was not surveyed and established until 1877.)

B. The wildlife kill in Forestville of dog named Prince in the preceding 15 months prior to the early fall of 1879

30 deer, 26 coons, 7 foxes, 9 wildcats and 31 skunks

Ref: *Petaluma Weekly Journal*, September 19, 1879

Indirect and invariably described as the activities of amateurs such as young boys or the activities of “sportsmen,” it appears very likely that fish, especially trout, were caught for both personal and commercial purposes in the early settlement period of the county. Numerous old newspaper reports prior to 1880 describe the abundance of delicious trout in the county’s brooks and streams. Petaluma’s *Sonoma County Journal* reported in the spring of 1860 that a party of three had caught 183 trout in three hours from Novato creek (spelt with small “c” in creek at the time), but the best trout haul that spring was from Copeland’s creek in Sonoma County – 50 trout in a few minutes from one hole. Two years later, the same newspaper reported that a party of four had caught 304 trout in three hours in Copeland’s creek. Six old newspaper reports alone were identified of successful trout fishing in Petaluma creek (now the Petaluma River) including one report in the spring of 1880 of an unusual abundance of trout thought to be from Adobe and Copeland creeks (both creeks had been damned a decade earlier for Petaluma’s water supply). While early anglers successfully caught trout in Petaluma creek, bullheads, sturgeon and once even a carp were commonly caught in the lower creek by Donahue (the southern terminus of the first railroad in the county). Trout were also reported to be abundant in Mark West, Santa Rosa and other nearby creeks. In June of 1872, the editor of Santa Rosa’s *Sonoma Democrat* fished the head of Mark West creek and caught 128 brook trout and an eight-pound salmon-trout (steelhead).

Tahoe trout arrived in the Petaluma market in the early winter of 1875. In the fall of the same year, Chinamen were reported to be catching trout in Santa Rosa creek by illegal means. In the following winter, Chinese fishermen were reported to be not only a hazard to navigation at the mouth of Petaluma creek, but were catching small unmarketable fish to send back to China. (The bank crash which started in San Francisco in the summer of 1875 was followed by numerous local newspaper articles about problems with tramps and beggars, and the forming of an obvious anti-Chinese movement.) By the winter of 1877 it was reported that the Fish Commissioners would distribute 100,000 mountain trout hatched in Berkeley throughout the state. (Three million California brook trout were distributed throughout the state by the early spring of 1880.) The *Sonoma Democrat* reported in early July of 1880 that eastern trout had been caught in Santa Rosa’s Lake Raphine. The early reported catch rates of trout by “sportsmen” were obviously not sustainable and piscicultural changes were well underway in at least three streams in Sonoma County by the 1880s. (The saga of trout in America is a complex story recently described by Poole. Over a century of well intentioned piscicultural tinkering allowed over fished streams to be stocked with European trout and other non-native species. Hybridization, inbreeding and the yearly stocking of hatchery raised fish also occurred. Today, scientists and conservationists have successfully improved habitat and have re-established native trout in some sections of American streams. Probably the best local connection to exotic fish in the county is described by Lynch. Lynch reports that Mr. A.V. LaMotte from his hatchery adjacent to Sonoma creek in Glen Ellen, captured the 30,000 rainbow trout eggs that were shipped to New Zealand by the Leni Fish Company of San Francisco in July of 1883 – an event which formed New Zealand’s trout fishing industry.)

No evidence was found that the salmon runs in the rivers or streams of the county were routinely harvested for commercial purposes. However, the salmon runs in nearby rivers were commercially harvested. Santa Rosa's *Sonoma Democrat* reported in the spring of 1858 that 1,200 barrels of salmon, averaging 100 pounds per barrel, had been caught and packed in salt from the Eel river (about the same number of salted barrels of salmon were taken in the same year from the Sacramento river). In the early fall of the following year, Petaluma's *Sonoma County Journal* reported that 6000 barrels of Eel river salmon were planned to be harvested in the coming season. These two references may indicate that continuous commercial harvesting of salmon from the Eel river may have occurred.

In March of 1863, the *Petaluma Argus* describes the story of the unusual trapping of salmon in pools in the creek adjacent to Petaluma. The migrating salmon had invaded the area on the high tide of Petaluma creek and were subsequently trapped in pools by the low tide. The idea of forming a company to harvest the trapped salmon was abandoned after it was determined that the wagons got stuck in the mud surrounding the pools and could not get close enough to capture the salmon. Fresh salmon from the runs on the Sacramento river were common in Petaluma's market throughout the early settlement period of the county. In a particular heavy run of salmon in the Sacramento river in the spring of 1875, Petaluma's *Weekly Argus* describes the Sacramento river salmon as being a "drug on the market" selling for only 15 or 20 cents each. Runs of salmon (and salmon-trout or steelhead) were clearly abundant at times in the Russian river and its tributaries and the periods of abundance in the river were usually noted in the local newspapers. In March of 1882, a rancher near Cloverdale was reported by the *Sonoma Democrat* to have caught 55 salmon in a small creek that ran through his ranch and another rancher near Cloverdale had caught many salmon from the same run and disposed of the fish in Cloverdale for ten cents per pound. The *Sonoma Democrat* reported in the same year that another rancher living on Mark West creek had caught one-half dozen salmon-trout in the creek. In the following March, one man was reported to have speared 92 pounds of salmon in Sulphur creek. But in the spring of the same year, a party with many empty barrels and lots of salt, caught only one salmon at the mouth of the Russian river and had missed the spawning run of salmon in the Russian river.

In the summer of 1871, Congress funded and promoted the propagation of fish in American waters, especially the raising of Pacific salmon on the East Coast. In the fall of the same year, Petaluma's *Argus* reported that great progress had been made in the artificial culture of fish (pisciculture) and that the culture of trout had been particularly successful. But Sonoma County's Julius Poppe had already introduced European carp (also called German carp) into America in the preceding year and was already successfully culturing carp (see below). By December 1876 the *Argus* noted that fish culture was now important in the state, especially in Sonoma County. The same newspaper a year later advertised that ten acres of land near Petaluma suitable for a fish pond was for sale for \$200 per acre, and the newspaper two years later included at least two additional articles promoting the culture of fish in the county.

As well as including many specific articles on the raising of carp in the county, especially the need for an adequate water supply and noting that carp in culture would eat almost

anything, the *Argus* in particular, included numerous articles promoting the culture of fish, but by the spring of 1883, the articles only promoted the importance of family fish ponds throughout the western states – a much more general concept than promoting the superior economic success of the raising of carp in the county.

At least 19 ranchers are known to have raised carp in the early county and an additional rancher is known to have cultured catfish. The names of the pisciculturalists which were specifically identified in old newspaper records and their approximate locations are listed in Table 2. More detailed information on four of the artificial carp culture ranchers follows.

In August 1871, about eight months after the inaugural run of the SF & NP railroad between San Francisco and Santa Rosa (via a San Francisco Bay steamer to Donahue), Julius A. Poppe imported 83 breeding carp from Reinsfel(d)t, Germany. But only five or six fish survived the arduous summer journey from Germany without refrigeration to become the founder population for Poppe's spring fed pond adjacent to Sonoma Creek near Glen Ellen. Julius Poppe was not only the first person in the county to engage in the artificial culture of carp, he appears also to have been the first person to have introduced European (German) carp into America. In mid-December of 1874, Santa Rosa's *Times* (cited by the *Argus*) reported that Julius Poppe had made his first shipment of cultured carp, the largest of which weighed ten pounds. In the following two years, Poppe was reported to have also sold his live carp in Petaluma for \$1.00 per pound or \$5.00 each for pisciculture. While Levi Davis of Forestville was Poppe's first other farmer in the artificial carp raising business in the county, Poppe directly or indirectly supplied the founder populations for all the carp growers in the county and in many other places in the state. Poppe was clearly successful in the carp raising business and eight years after he started he had a sequence of six rearing ponds fed with spring water before the water entered Sonoma Creek. Julius A. Poppe died in late January of 1880, about a year and one-half after he sent two soil samples containing the dreaded grape vine disease, phyloxera, to Professor Hilgaard at the state university in Berkeley.

Levi Davis of Forestville was the county's most successful and enthusiastic promoter in the carp raising business. Beginning in the winter of 1876 with five, ten inch long carp obtained from Julius Poppe and a 2000 square foot pond fed by a spring, Levi Davis began the highly profitable business of pisciculture with carp. Davis also experimented with raising other species of fish including sticklebacks, bass, perch and suckers, but was not very successful with species other than carp. By the winter of 1877, Davis allowed fishing in his pond (\$30 plus an additional fee for the number of fish caught – six fish, \$20; 100 fish, \$150). Davis's pleasant business of raising carp was widely copied in the state. By the late winter of 1880, Davis had four carp ponds with 10,000 "delicious fish" for the markets of San Francisco on less than an acre of his land. Davis in 1880 also had 15 acres of Zinfandel grape vines and was shipping founder populations of carp throughout California and Nevada to meet the increasing demand for breeding carp. In 1880 Davis had received 245 letters concerning carp culture, but by the late spring of the following year he had already received 136 letters and now even with seven carp raising ponds he could not deliver founder populations of carp for all of the orders he had

Table 2

Pisciculturalist in 19th century Sonoma County

A. W. Barnes	- raised carp in Green Valley
Mr. Billings	- raised carp in Green Valley
A. L. Carpenter	- raised carp at an unknown location
Levi Davis	- raised carp beginning in the winter of 1876 near Forestville with founder stock from A. J. Poppe. Davis also experimented with pisciculture of other species of fish.
J. C. Field	- raised carp northwest of Petaluma beginning in the winter of 1877
J. D. Grant	- raised carp south of Healdsburg beginning in the early summer of 1880
John L. Hodges	- raised carp in upper Dry Creek
H. P. Holmes	- raised carp near Santa Rosa
A. V. LaMotte	- raised carp and trout next to Sonoma Creek near Glen Ellen
L. D. Latimer	- raised carp near Windsor beginning in the summer of 1876
Mr. Keiser	- raised carp near Healdsburg. Note: Julius Poppe supplied founder stock of carp in the winter of 1878 to number of German farmers near Healdsburg, but only Keiser was specifically named in the old newspapers.
J. A. Kleiser	- raised carp near Cloverdale
Chas. Newell	- raised carp south of Healdsburg
John Oliver	- raised carp near Forestville beginning in the winter of 1876
Julius A. Poppe	- raised carp adjacent to Sonoma Creek near Glen Ellen beginning in the summer of 1871
Sylvester Scott	- raised carp near Cloverdale
Wm. Stevens	- raised carp near Sebastopol
Major J. W. Sullivan	- raised carp in Green Valley
Samuel Talmadge	- raised carp in the Laguna de Santa Rosa north of Sebastopol
Mr. Russell	- raised catfish from the Laguna de Santa Rosa on his ranch on Sonoma Mountain beginning in the summer of 1880

received. Davis was now shipping his carp throughout the western states and the Sandwich Islands (now Hawaii). But by the spring of 1884, Davis was reported to be in the fruit business and was no longer raising carp.

Alfred V. LaMotte, like Julius Poppe, lived in the Sonoma Valley adjacent to Sonoma Creek near Glen Ellen. While a known culturalist of carp, LaMotte's ranch also included raising trout and growing grapes. LaMotte invested in the Leni Fish Propagating Company of San Francisco and in July of 1883 supplied the company with the 30,000 rainbow trout eggs that the company shipped to Auckland, New Zealand. The rainbow trout caught today in New Zealand are descendants of a founder population of exotic rainbow trout raised in the Sonoma Valley.

Beginning with Samuel Talmadge, generations of Talmadges are most famous in Sonoma County for being in the hop business. In 1888, Samuel Talmadge built the old stately Victorian mansion seen today on the corner of Beaver and Cherry streets in Santa Rosa. With 25 acres of hop vines, Samuel Talmadge was the "boss" (biggest) hop grower in the Laguna de Santa Rosa in 1880. In the spring of the year Talmadge also had extensive fish ponds surrounded by irrigated strawberry patches and had contracted to clear and set some 50 acres of grape vines on his Laguna ranch. Talmadge leased his Laguna ranch to Chinese on shares in the spring of 1885 and was reported by *Petaluma's Argus* to be going to take it easy for a few years. But by the winter of 1887 it was reported in the *Argus* that Samuel Talmadge had sold his Laguna ranch and that the new owners proposed to work the ranch only with white men.

The population of the entire Petaluma Township in the fall of 1875 was nearly 5,000 and when fresh salmon and cod were available in Petaluma's market, the native California fish sold for about 10 cents per pound – one tenth the price of Poppe's cultured exotic carp. Few local Petalumans would have been able to buy Poppe's carp selling at the time for the very expensive and novelty price of \$1.00 per pound. A county deputy sheriff at the time was making wages similar to a shipwright at Mare Island – about \$4.00 per day. (The state's average male teachers at the time were making only \$33.17 per month and the state's female teachers averaged only \$14.40 per month.)

The overall agricultural productivity of Sonoma County made great changes in the period when the business of carp culture was popular. When the craze of pisciculture with carp began, the county was the leading fruit producer in the state, but its chief agricultural crop was wheat. The county experienced a hop and grape vine boom in the early 1880s, but more acreage was devoted to sugar beets than to hops at the time, barley acreage now exceeded wheat agricultural acreage, and chicken and egg production had just taken off and would soon become a major crop in the county. In addition, the exotic cultured carp had escaped from their rearing ponds on the farms and had become naturalized in atlocal streams early in the carp raising business. Agricultural carp would have had to compete with the fish catching of local fisherman. In short, just about every species and variety of agricultural crops were tried in the early county, but like hemp and many other potential crops such as tobacco and citrus fruits, many alternative crops proved to be non-economic to raise and carp culture was simply one of them.

Official promotion of pisciculture with carp was rapidly discontinued in America when it became widely understood that the exotic fish frequently escaped from their farm ponds into local waters. (In many cases, non-native carp and catfish had also been introduced directly into waterways.) Petaluma's *Argus* printed a long article in the spring of 1894 entitled "Carp Must Go." The article stated that the once thought to be good eating the exotic fish have proven to be worthless food fish. Opposing sportsmen argued that the exotic "garbage fish" had disastrously replaced good eating native California fish such as trout, perch and a great variety of salt water fish. In addition, opposing sportsmen claimed that the foreign "hog fish" were destroying the food of migrating ducks and, especially the carp, must be exterminated from the streams of California.

Despite many decades of carp eradication programs, carp have become naturalized in many American streams and are now even commercially harvested in places throughout America. U.S. sportsmen are today even catered too and promoted in places by numerous carp fishing derbies and carp are often the major or only species of fish in some waterways in America. It is normal today to buy cultured salmon and other species of fish in our local markets. The artificial raising of carp and catfish is still today a multiple, million dollar American industry, especially in ethnic areas. About one-half of the catfish rearing ponds in the U.S. are presently co-cultured with carp. The culture of carp exists today in many countries throughout the world, but their total production is very small compared to China. Chinese artificial culture of carp dates back about 3,000 years and the country currently produces about 90 percent of the Worlds production of carp – over 500 tons per year.

Starting with the bank crash in San Francisco in the summer of 1875, the overall economic conditions in the county were very poor in most of the later 19th century, but the date is unknown when the artificial culture of carp disappeared from the county. The last known local newspaper reference in the county apparently specifically refers to the fine carp rearing ponds of A. C. Carpenter and dates to the spring of 1884 – only 13 years after Julius Poppe introduced European carp into Sonoma County.

A few years after Julius A. Poppe began culturing European carp in the Sonoma Valley in the summer of 1871, his exotic carp escaped from his spring fed pond, became naturalized in the adjacent Sonoma Creek and were subsequently regularly caught in the creek and in the brackish salt waters of lower Sonoma and Petaluma creeks. By the time Julius A. Poppe died in early 1880 exotic carp were regularly caught in at least two county creeks.

While the Laguna de Santa Rosa is the largest tributary of the Russian River, the two bodies of water present entirely different aquatic habitats. In contrast to the river, the Laguna is a slow moving and warm water stream and its resident fish are described separately from the river.

According to the *Petaluma Weekly Argus*, the Fish Commissioners intended to stock the Russian River with "delicious catfish" to kill off all the suckers in April 1879. A month

later the commissioners were reported by the same newspaper to be intending also to introduce non-native shad into the river. According to Petaluma's *Daily Courier* the common fish in the Russian River in the winter of 1895 included pike, carp, salmon-trout and hard mouth bass (shad were curiously not included and the runs of salmon were also excluded).

According to Santa Rosa's *Sonoma Democrat*, the big storm that hit the region in late January of 1878 caused the levee of the carp rearing pond of A. Barnes in Green Valley to give way and to stock the Laguna de Santa Rosa with about 2,000 carp (worth nearly \$1,500 at the time) in the winter eight years later, the same newspaper reported that the Laguna was alive with carp and stated that the levee of the carp rearing pond of Mr. Billings of Green Valley had also given way in the big storm of January 1878 and had stocked the Laguna with carp. While in 1886 the *Democrat* stated that no one had deliberately put carp in the Laguna, the *Democrat* was cited in May of 1879 by the *Petaluma Weekly Argus* in reporting that E. Howe of Fulton had placed 25 young carp in the lower Laguna at its junction with Mark West Creek. Despite this apparent discrepancy and the presence of a newt called "water dogs" which destroys the young carp, carp were clearly abundant in the Laguna by the mid-1880s and there were numerous reports in local newspapers to support this conclusion. In February of 1880, the *Democrat* reported that Jack Peterson's young son had been pulled into the waters of the Laguna de Santa Rosa while fishing from a crossing bridge. Carp fishing in the Laguna was frequently reported to be fine sport about this time and the *Petaluma Weekly Argus* reported in the spring of 1887 that boys simply shoot the lazy fish in the Laguna while the carp were in the tules.

The *Sebastopol Times* reported in April of 1896 that attorney J. S. Saunders had written the State Board of Fish Commissioners of San Francisco about placing striped and black bass in the Laguna de Santa Rosa to destroy all of the carp if possible. If the commissioners agreed to this request, R. X. Ryan of the San Francisco and North Pacific Railroad Company had offered to transport the young bass free. The *Sebastopol Times* supported introducing the bass into the Laguna and noted that in a few years the Laguna de Santa Rosa "will be one of finest fishing points in the county." The subsequent placing of a half-dozen pairs of black bass in the Laguna near the Scammon ranch (the 35 acres of the Scammon ranch were for sale in 1887 for at least \$8, 000) was successful and was in keeping with the anti-carp movement described towards the end of the preceding pisciculture section of this paper. In the spring of 1896, both the *Sebastopol Times* and Santa Rosa's *Press Democrat* condemned the illegal fishing of black bass in the Laguna with "giant powder" (dynamite) and in the late fall of the same year the *Sebastopol Times* reported that a four pound black bass had been caught in the Laguna.

One evening in mid-May of 1899, Sebastopol residents Jim Johnston and John Boswell went fishing for catfish in separate boats in the Laguna near the Scammon place. Coming home in the twilight, Jim Johnston was rowing the lead boat and met the terror of the Laguna, a sea faring monster that the Chinese all feared ("heap lot fish basket"). Thinking of his wife and children, Jim rowed very fast and followed the electric lights of

Sebastopol to the boat landing near the spring board next to the Laguna. (The frightening monster that Jim met in the Laguna was undoubtedly a large surfacing carp.)

Santa Rosa's *Sonoma Democrat* reported in May of 1879 that E. A. Howe of Fulton had placed 700 or 800 young catfish in the Laguna which he had obtained from the U.S. Fish Commissioners (1/3 near Jack Peterson's ranch, 1/3 in the lower Laguna at the Archer place above the long bridge and 1/3 in the creek below the Forestville railroad station). The same newspaper two weeks later reported that Col. J. B. Rue and Captain Chas. Adams had received 500 catfish from Mr. Redding, the Fish Commissioner, and put some in Matanzas Creek, but accompanied by J. H. P. Morris of Sebastopol, most of the fish had been placed in the Laguna de Santa Rosa near Captain Scammon's ranch. Despite a complaint in the *Democrat* in August 1880 that rather than being legally protected for the first five years, the young catfish were now being regularly caught while fishing in the Laguna. (Apparently perch were also introduced into the Laguna at this time, but no further mention of perch in the Laguna was found.) The *Petaluma Weekly Argus* reported in the spring of the following year that over 100 catfish, 10 to 18 inches in length, were caught in the Green Valley Laguna (Grey's Lake, the north Laguna opposite Green Valley) and a month later, 25 catfish were selected out of 100 taken from Grey's Lake for a founder population of Mr. Russell's fish pond on his ranch on Sonoma Mountain. There are numerous old local newspaper reports about this time which clearly establish that in the Laguna lake (Grey's Lake) water temperatures were cool and that catfish (and carp) were considered to be good fishing sport on the Laguna. (Even though the *Petaluma Weekly Argus* reported in early June of 1882 that dead fish were floating on the Laguna in the late spring of almost every year, an event that nobody has explained. The proposed Laguna drainage project of the Gold Ridge Soil Conservation of the late 1940s included a benefit to wildlife by having fewer fish going "bottoms up" and floating on the Laguna nearly every late September. The pollution of the Laguna phenomenon apparently from very low oxygen levels, had changed from the late spring to the early fall in the about 40 years between these two reports.)

A correspondent for the *Petaluma Weekly Argus* in the early spring of 1885 claimed that Sebastopol was becoming famous for its catfish – a lazy man's fish that was easily caught with little skill. The article went on to state that strangers in Sebastopol all had fishing poles. The staff of the *Argus* sponsored a party of prominent Petalumans on a fishing trip to the Laguna de Santa Rosa in the late spring of the same year. The fishing trip was a repeat of a very successful expedition sponsored by the same newspaper a few years earlier. Part of the 1885 party fished in the deep holes at the mouth of Santa Rosa Creek just before the creek emptied into the Laguna and caught a total of about 100 fish, mostly catfish, but some carp. But the rest of the 1885 party fished from a boat in deep cold waters of the Laguna lake called Grey's Lake and were most successful catching a good many catfish, a few trout, some carp and a many sunfish. (Grey's Lake was a Laguna lake which once existed between what is now Guerneville and River roads, but was filled in beginning in the early 1940s. The Grey's Lake section of the Laguna was also known at the time as the Green Valley Lake, the Santa Rosa Lake and by the turn of the century, the lake became locally know as Ballard Lake.)

(From the turn of the 20th century on, fish species in the Russian River and in the Laguna appears to have been primarily determined by the needs of sportsmen. The *Sebastopol Times* reported at the end of April in 1902 that the California northwestern railroad's fish hatchery near Ukiah was raising steelhead to replenish the fish in Knights Valley (in the middle reach of the Russian River's drainage basin). It was reported in mid-March of 1919 that the state Fish and Game intended to stock the Russian River with fish, however, the species of fish were not reported in the 1919 article. In early January of 1930 it was announced that local sportsmen planned to introduce Eastern trout in the Russian River and two years later, Sebastopol's council leased ten acres of its land on Calder Creek to the county sportsmen's club for a bass rearing pond to stock the Russian River. Black bass fishing in the river and in the Laguna was often reported to be good as late as July of 1945. The California Department of Fish and Game used electrofishing in the Laguna as part of the environmental studies for Santa Rosa's alternative waste water disposal projects on October 3, 1972. The department caught 14 fish and observed 20 fish in total including Western roach, Western suckers, Pacific lamprey and unidentified larvae. Of the 18 species of fish collected in the Laguna with gill and seine nets in the spring and summer of 1988, ten were introduced species not native to the Laguna and, as expected, the assemblage of fish in the Laguna were all warm water species typical of similar streams in Northern California. All three of the most abundant species of fish in the Laguna were non-native fish and one of the most abundant species of fish caught was carp. The 1988 report, however, did not mention the larvae caught earlier by the state department of fish and game.

This historical research paper on species of fish in the central county clearly establishes that catfish and shad were first introduced into the Russian River in the spring of 1879 and that carp were both accidentally introduced into the Laguna de Santa Rosa in the winter of 1876 and deliberately again in the early spring of the following year. In the spring of 1879 catfish were introduced into Matanzas Creek and also into the Laguna. Black bass were deliberately released into the Laguna in the spring of 1896. Research did not establish the exact year when carp became naturalized in Sonoma creek and in the lower Petaluma creek and only that the carp had accidentally escaped from Julius A. Poppe's rearing pond soon after he started raising European carp in the early 1870s. Without question, the changes in species of fish in the streams of the county dates to the 19th century.

BIBLIOGRAPHY

- Brown and Caldwell. 1973. EIR for Alternative Waste Water Projects for the City of Santa Rosa.
- Coursey, Chris. 2005. Better days ahead for work of art. *Press Democrat* May 6, 2005.
- LeBaron, Gaye. 1994. Address all answers to the Great Norabel. *Press Democrat* November 27, 1994.
- Lynch, Robert. 1997. The Sonoma Valley Story – Pages Through the Ages. Sonoma Index Tribune Inc. 311 pp.
- Microfilm files of county newspapers
Sonoma County Journal
Petaluma's Argus and its predecessors
Petaluma's Courier
Sonoma Democrat
Sebastopol Times
- Poole, Robert E. 2007. Fish Story. *Smithsonian* 38:5, 2007.
- Reynolds and Proctor. 1897. Illustrated Atlas of Sonoma County, California.
- Waaland, Marco, Michael Fawcett Ph.D., Jenifer Nelson, David W. Smith Ph.D. 1990. Current Conditions and Ecology of the Laguna Ecosystem. In History, Land Uses and Natural Resources of the Laguna de Santa Rosa. Prepared by David W. Smith Consulting, December 1990.