

# San Tomas Aquino Creek — Water Quality Data Inventory

*Compiled May 3, 2026 · Seven data sources, 1936 – 2026*

## Executive summary

San Tomas Aquino Creek is a chronically biologically impaired urban creek in Santa Clara County. As of the 2024 Integrated Report cycle, the creek is formally listed under Section 303(d) for ammonia (decision 151012) and toxicity (decision 142736).

This inventory compiles seven data sources covering 1936 – 2026 from monitoring stations and wells in or near a defined field site on the lower San Tomas Aquino main stem (centered on a drop structure just north of the Scott Boulevard overpass and including the Scott Boulevard stormwater outfall area). Key observations from across the inventoried sources:

- Total ammonia at lower-watershed (study-area) San Tomas main-stem stations is 2 – 24× higher than at upstream San Tomas stations and at upper- and middle-Saratoga tributary stations across all years sampled (2012, 2018, 2019). The single highest reading (1.2 mg/L at 205R03843, May 2018) is approximately 8× the 2012 baseline at the same reach.
- Researcher field measurements at the drop structure on April 18 and May 1, 2026 show pH (8.9 – 9.5), total residual chlorine (3 – 20 mg/L), and copper (~0.2 mg/L) values that exceed regulatory or screening thresholds by between approximately one and three orders of magnitude. These are the only pH values above 8.5 in the entire inventory.
- Lower-watershed surface conductivity (1020 – 1265  $\mu\text{S}/\text{cm}$ ), chloride (71 – 81 mg/L), and alkalinity (378 mg/L, single 2012 reading) are roughly 2× upstream surface values and 3× the local pre-industrial groundwater chemistry baseline (1966 – 1970) at wells in the study area.
- Detectable nitrite (0.006 – 0.028 mg/L) is present at lower-watershed stations across multiple years, while upstream stations report nitrite at or near non-detect. Detectable nitrite indicates active oxidation of recent ammonia inputs.
- Dissolved-oxygen saturation values at lower-watershed sites range from 78% (2018) to 252% (2019) across years and from 93% to 186% during a single mid-January 2024 winter daytime sampling event — consistent with chronic eutrophication.
- CSCI (benthic invertebrate) bioassessment scores at lower-watershed San Tomas sites are 0.387 – 0.388 in both 2012 and 2018 — well below the 0.62 "likely altered" threshold and effectively unchanged across six years.
- Local groundwater depth records (1936 – 1985) show that the GAMA chemistry samples (1966 – 1970) were collected during a period of historically deep aquifer drawdown (peak drawdown 1957 – 1970), with subsequent recovery of approximately 120 – 180 ft (peak-to-peak) by 1975. One well (06S01W21R004) recorded artesian conditions repeatedly between 1941 and 1946. No groundwater chemistry has been collected at these wells since 1970.
- Inventoried sources do not include data on metals (beyond field copper), volatile or semi-volatile organics, pesticides, toxicity-test results underlying the 303(d) listing, storm-event chemistry, or any synoptic longitudinal sampling. These gaps are detailed in §8.

## 1. Data sources and stations

Seven data sources are inventoried in this document. **(a) SFEI CD3** station downloads (<https://cd3.sfei.org/faq.php>). **(b) SWAMP** station summaries from the SWRCB Surface Water Ambient Monitoring Program. **(c) BASMAA RMC / CEDEN** water-chemistry exports from the California Environmental Data Exchange Network. **(d) GAMA / DWR WDL** groundwater chemistry data for three water-supply wells in the

study area (1966 – 1970). **(e) SCVWD groundwater elevation reports** providing depth-to-water history for four wells in or near the study area (1936 – 1985). **(f) SWRCB 2024 Integrated Report 303(d) factsheets.** **(g) Researcher field measurements** collected April – May 2026 at a drop structure on the San Tomas main stem just north of the Scott Boulevard overpass.

Stations are grouped below by analytical role: field-site stations (within or immediately adjacent to the study area; provide direct evidence about the site), upstream reference stations (provide context for what surface-water chemistry looks like upstream of the study area), and Saratoga Creek tributary stations (a separate sub-watershed that joins the San Tomas main stem within the study area).

## 1.1 Field-site stations

**Table 1.** Stations and wells located within or immediately adjacent to the field site. Field-site footprint includes the drop structure just north of the Scott Boulevard overpass, the Scott Boulevard stormwater outfall area, and surrounding reach context. Data source abbreviations follow §1.

Station / Well	Description	Latitude	Date(s)	Source
205R00067	San Tomas Aquino, ~300 m d/s Central Expressway	37.3769	Jun 3, 2012	SFEI / BASMAA
Field site (drop structure)	San Tomas, just N of Scott Blvd overpass; field site spans area near Scott Blvd stormwater outfalls	~37.378–37.380	Apr 18 & May 1, 2026	Field measurements
205R03843	San Tomas Aquino u/s Hwy 101	37.3819	May 29, 2018	SFEI + BASMAA
205STQ020	San Tomas at Monroe St (location described in source records)	—	Jan 16, 2024	SWAMP
205R04591	San Tomas between Agnew Rd and Mission College Blvd (N of Hwy 101)	37.3909	May 7, 2019; Jan 16, 2024	BASMAA + SWAMP
06S01W27N003M	Water-supply well, between Central Expy and Scott Blvd (groundwater chemistry)	37.3774	Aug 1966; Oct 1967	GAMA / DWR
06S01W27N004M	Water-supply well, same coords as N003M (groundwater chemistry)	37.3774	Sep 25, 1968	GAMA / DWR
06S01W27N004	Depth-monitoring well, Central Expressway area (likely same well as N004M)	—	1963 – 1985 (n=155)	SCVWD
06S01W28R001	Depth-monitoring well, inland west of creek within site	—	1969 – 1984 (n=87)	SCVWD
06S01W27E002M	Water-supply well, ~800 m N of N003M cluster, just N of Hwy 101 (groundwater chemistry)	37.3846	Oct 15, 1970	GAMA / DWR
06S01W21R002	Depth-monitoring well, Mission College Blvd area (downstream within site bounds)	—	1962 – 1978 (n=147)	SCVWD
06S01W21R004	Depth-monitoring well, Mission College Blvd area (downstream within site bounds)	—	1936 – 1976 (n=235)	SCVWD

## 1.2 Upstream reference stations

**Table 2.** BASMAA / CEDEN stations on the upper San Tomas Aquino main stem, sampled 2013 – 2019 in late spring under dry-weather conditions. Located approximately 6 to 10 stream-miles upstream of the study area.

Station	Description	Latitude	Date	Source
205R00554	San Tomas Aquino, d/s Twin Peaks Rd	37.2467	May 29, 2013	BASMAA / CEDEN
205R03754	San Tomas Aquino at Quito Rd	37.2572	May 8, 2018	BASMAA / CEDEN
205R04614	San Tomas Aquino at Westmont HS / Silaci Dr	37.2733	May 7, 2019	BASMAA / CEDEN

## 1.3 Saratoga Creek (tributary)

**Table 3.** Saratoga Creek stations from upper watershed, mid-watershed (Bowers Park), and tidal reach below Mission College Boulevard. Saratoga joins the San Tomas main stem within the study area.

Station	Description	Latitude	Date	Source
205R03306	Saratoga Creek u/s Via Real (upper watershed)	37.2774	May 9, 2017	BASMAA / CEDEN
205R01091	Saratoga Creek at Bowers Park	37.3581	May 5, 2014	SFEI / BASMAA
205SAR005	Saratoga Creek at Bowers Park (pathogens panel)	37.3576	Jun 30, 2015	SFEI / BASMAA
205R04479	Saratoga Creek u/s Warburton Ave	37.3544	Jun 12, 2019	SFEI / BASMAA
205PS0458	Saratoga Creek ~0.2 mi below Mission College Blvd (tidally influenced)	—	Jun 5, 2023	SWAMP

## 2. Field-site data

This section consolidates all data collected at or in the immediate vicinity of the field site. Each subsection corresponds to a different data source covering the same general area.

### 2.1 Researcher field measurements (April – May 2026) — drop structure

Field measurements collected by the researcher on two dates approximately two weeks apart. Method: Verify 17-in-1 drinking-water test strip kit; calibrated handheld meters used for pH and TDS. Strip and meter readings reported as generally consistent with one another for parameters measured by both methods on each date. The chlorine test strip range is 0 – 20 mg/L.

**Table 4.** Researcher field measurements at the drop structure on the San Tomas main stem just north of the Scott Boulevard overpass.

Parameter (units)	Apr 18, 2026	May 1, 2026
pH (none)	8.9 – 9.43	9.25 – 9.5
Total residual chlorine (mg/L)	3 – 10	~10 – 20

Parameter (units)	Apr 18, 2026	May 1, 2026
Copper (mg/L)	not reported	~0.2
TDS (mg/L)	469 – 506	505 – 607
Hardness (mg/L as CaCO <sub>3</sub> )	>425	>425
Alkalinity (mg/L as CaCO <sub>3</sub> )	>240	>240
Iron (mg/L)	0.3	~0.3

## 2.2 Lower-watershed San Tomas surface chemistry (SFEI / BASMAA, 2012 – 2019)

Three SFEI / BASMAA stations sit in or near the field site: 205R00067 (Central Expressway, 2012), 205R03843 (u/s Hwy 101, 2018), and 205R04591 (Agnew Rd / Mission College Blvd, 2019). The 205R04591 station was also sampled by SWAMP in January 2024 (sonde parameters only — see §2.3).

**Table 5.** Surface-water chemistry, bioassessment, and field water-quality data at lower-watershed San Tomas stations in or near the study area. Values from SFEI CD3 (2012) and BASMAA RMC / CEDEN exports (2018, 2019).

Analyte (units)	205R00067 — Jun 3, 2012	205R03843 — May 29, 2018	205R04591 — May 7, 2019
Ammonia as N (mg/L)	0.15	1.2	0.34
Nitrate as N (mg/L)	0.25	0.57	0.45
Nitrite as N (mg/L)	0.012 (DNQ)	0.006	0.028
TKN (mg/L)	0.36	0.75	0.80
Total P (mg/L)	ND (<0.01)	0.046	0.043
OrthoP (mg/L)	0.008 (DNQ)	0.013	0.007 (DNQ)
Chloride (mg/L)	71	72	81
Free chlorine (mg/L)	0.16	0.03	0.04 (DNQ)
Total residual Cl (mg/L)	0.12	0.03	0.07 (DNQ)
Chlorophyll-a, benthic (mg/m <sup>2</sup> )	112	261	121
AFDM, benthic (g/m <sup>2</sup> )	141	228	224
DO (mg/L) / saturation (%)	16.08 / 194.5	7.20 / 78.7	20.50 / 251.7
pH (none)	8.16	7.77	8.41
SpC (µS/cm)	1093	1020	1064
Temperature (°C)	24.96	19.7	25.4
Alkalinity (mg/L as CaCO <sub>3</sub> )	378	not reported	not reported
CSCI	0.388	0.387	not reported
ASCI_D	0.829	0.49	not reported
ASCI_H	0.761	0.39	not reported

QA flags: 2018 ammonia at 205R03843 carries flag VGB (matrix spike outside control limits, batch accepted on LCS/RPD); 2019 ammonia at 205R04591 has no QA flag.

### 2.3 SWAMP sonde measurements (January 2024)

Two SWAMP stations on the San Tomas main stem in or near the study area were sampled the same day (Jan 16, 2024), with four discrete samples each, all collected during winter daylight hours. These records contain field water-quality (sonde) parameters only — no nutrients, no metals, no other inorganic chemistry.

**Table 6.** SWAMP sonde parameters at two lower-watershed San Tomas stations, single sampling event Jan 16, 2024 with four discrete samples per station.

Parameter (units)	205STQ020 — Jan 16, 2024 (n=4)	205R04591 — Jan 16, 2024 (n=4)
DO (mg/L), range	11.4 – 14.5	8.7 – 15.8
DO saturation (%), range	132 – 161	93 – 186
pH (none), range	8.00 – 8.25	7.88 – 8.42
SpC (µS/cm), range	1104 – 1265	801 – 1120
Temperature (°C), range	13.1 – 22.5	15.1 – 23.1

## 3. Local groundwater data

Two distinct groundwater datasets cover the study area: water-quality chemistry from three wells sampled by DWR in 1966 – 1970 (§3.1), and depth-to-water (groundwater elevation) records from four wells spanning 1936 – 1985 from SCVWD (§3.2). Per researcher's note, the local groundwater system in this area is understood to include a shallow aquifer at approximately 30 ft and a deeper aquifer at approximately 100 ft. Land surrounding the wells was largely agricultural during the 1936 – 1970 sampling period; subsequent industrial development of the parcels postdates these measurements.

### 3.1 Pre-industrial groundwater chemistry (GAMA / DWR, 1966 – 1970)

Three California DWR-monitored water-supply wells fall within the field-site footprint. Wells 06S01W27N003M and 06S01W27N004M are at the same coordinates (37.3774, -121.9688), in the reach between Central Expressway and Scott Boulevard, near where current-day stormwater outfalls from the Scott Boulevard parcels enter the creek. Well 06S01W27E002M (37.3846, -121.9688) is approximately 800 m north (downstream) of that cluster, just north of Hwy 101. All three wells are listed as "Water Supply, Other" — typically meaning industrial, agricultural, or non-potable use — with total depths, screen depths, and screen lengths all listed as unknown. The analyte panel is the standard DWR water-quality suite of the era and does not include metals beyond Mg/K, organics, ammonia, or other parameters most directly relevant to current investigation questions.

**Table 7.** Pre-industrial groundwater chemistry from three DWR-monitored water-supply wells within the field-site footprint, sampled 1966 – 1970. "—" indicates the parameter was not analyzed in that sampling event.

Parameter (units)	N003M — Aug 1966	N003M — Oct 1967	N004M — Sep 1968	E002M — Oct 1970
Alkalinity (mg/L as CaCO <sub>3</sub> )	122	177	186	189
Boron (mg/L)	0.1	0.2	0.1	0.1
Chloride (mg/L)	18	14	14	15
Potassium (mg/L)	1.2	—	—	1.1

Parameter (units)	N003M — Aug 1966	N003M — Oct 1967	N004M — Sep 1968	E002M — Oct 1970
Magnesium (mg/L)	17	13	16	14
Nitrate as N (mg/L)	1.3	—	—	0.02
pH (none)	8.0	8.4	8.4	8.3
Sulfate (mg/L)	49	—	—	29
TDS (mg/L)	236	—	—	238

This is the entirety of the available data for these wells; no records exist after 1970 in GAMA / WDL.

### 3.2 Groundwater depth history (SCVWD, 1936 – 1985)

Santa Clara Valley Water District groundwater-elevation reports document depth-to-water at four monitoring wells within the field site: 06S01W21R002 and 06S01W21R004 in the Mission College Boulevard area (downstream within site bounds), 06S01W27N004 in the Central Expressway area (upstream within site, likely the same physical well as GAMA chemistry well 06S01W27N004M), and 06S01W28R001 inland west of the creek within the site. Depth ranges in all four wells indicate they monitor the deeper aquifer system; screen depths are not reported, so confined-vs-unconfined aquifer assignments cannot be confirmed from these data alone. Coordinates are not provided in the SCVWD reports; spatial assignments are based on PLSS section descriptors and the maps included in the source PDFs.

**Table 8.** Summary of SCVWD groundwater elevation records at four wells within the field site. Negative depth-to-water indicates artesian conditions (water above land surface).

Well	Within-site location	Period	n	Deepest reading	Shallowest reading
06S01W21R004	Mission College Blvd area (downstream within site)	1936 – 1976	235	126.6 ft (Sep 1957)	–20.6 ft (May 1942, artesian)
06S01W21R002	Mission College Blvd area (downstream within site)	1962 – 1978	147	179.9 ft (Jul 1967)	8.2 ft (Mar 1975)
06S01W27N004	Central Expressway area (upstream within site)	1963 – 1985	155	200.5 ft (Sep 1967)	22.7 ft (Apr 1975)
06S01W28R001	Inland west of creek (within site)	1969 – 1984	87	142.7 ft (Jul 1970)	20.3 ft (Mar 1975)

Across all four wells, the deepest measurements (peak drawdown) cluster in 1957 – 1970 (one well in 1957, two in 1967, one in 1970). All four wells show their shallowest reading in March or April 1975 — a rise in the local water table of approximately 120 to 180 ft (peak-to-peak) over roughly a decade, consistent with the regional pattern of aquifer recovery following onset of imported State Water Project water and managed recharge programs in the late 1960s.

Well 06S01W21R004 documented artesian conditions (water above land surface) eleven times between March 1941 and April 1946, peaking at –20.6 ft in May 1942. The same well's record shows that artesian conditions had ceased by the late 1940s, with depth-to-water progressively increasing through the 1950s. Per researcher's note, the historic Saratoga Creek channel may persist as a buried drainage feature in this area, where it was too

deep to be diverted at Monroe Street; the artesian conditions documented in 21R004 in 1941 – 1946 are consistent with a deep aquifer that historically had sufficient head to discharge upward toward the surface.

The GAMA water-chemistry samples in §3.1 were collected during 1966 – 1970, which coincides with the period of deepest recorded drawdown and the early phase of aquifer recovery shown in these depth records.

## 4. Upstream and tributary reference data

This section presents data from stations upstream of the study area (San Tomas Aquino main stem, §4.1) and from the Saratoga Creek tributary watershed (§4.2). These data are used in §6 as context against which lower-watershed observations can be compared.

### 4.1 Upstream San Tomas Aquino reference (BASMAA RMC / CEDEN)

Three BASMAA stations on the upper San Tomas main stem, sampled in 2013, 2018, and 2019 during late spring under dry-weather conditions. Each station was sampled once.

**Table 9.** *Upstream San Tomas Aquino main-stem reference chemistry from BASMAA / CEDEN, late-spring dry-weather sampling 2013 – 2019.*

Analyte (units)	205R00554 — May 29, 2013	205R03754 — May 8, 2018	205R04614 — May 7, 2019
Ammonia as N (mg/L)	0.055 (DNQ)	ND	0.14
Nitrate as N (mg/L)	0.028 (DNQ)	0.32	0.11
Nitrite as N (mg/L)	ND	ND	0.002 (DNQ)
TKN (mg/L)	0.20	0.31	0.25
Total P (mg/L)	0.01	0.02	0.02
OrthoP (mg/L)	0.089	0.019	0.015
Chloride (mg/L)	13	59	56
Free chlorine (mg/L)	0.02	0.03	0.08
Total residual Cl (mg/L)	0.02	0.02	0.03
Chlorophyll-a (mg/m <sup>2</sup> )	70.7	7.1	38.7
AFDM (g/m <sup>2</sup> )	215.7	12.6	25.5
DO (mg/L) / saturation (%)	11.2 / 110	9.3 / 96	10.0 / 97
pH (none)	7.57	7.6	8.3
SpC (µS/cm)	527	626	607
Temperature (°C)	14.3	16.5	13.8

### 4.2 Saratoga Creek tributary

The upper Saratoga station (205R03306) provides upstream tributary reference. Three additional stations (Bowers Park 2014, u/s Warburton 2019, tidal below Mission College 2023) provide mid- and lower-Saratoga context. Saratoga values from earlier years across the SWRCB Integrated Report record (2012 – 2019) consistently report ammonia in the 0.05 – 0.06 mg/L range across multiple stations.

**Table 10.** Saratoga Creek tributary chemistry. Abbreviations: nm = not measured at this station; nr = not reported in the source download. SpC value at 205R01091 noted in §7.2.

Analyte (units)	205R03306 — May 9, 2017 (upper)	205R01091 — May 5, 2014 (Bowers Park)	205R04479 — Jun 12, 2019 (u/s Warburton)	205PS0458 — Jun 5, 2023 (tidal)
Ammonia as N (mg/L)	0.049	0.055 (DNQ)	0.058 (avg)	nm
Nitrate as N (mg/L)	0.18	0.076	1.6	nm
Nitrite as N (mg/L)	0.001 (DNQ)	ND	0.019 (avg)	nm
Total P (mg/L)	0.065	0.021	0.022 (avg)	nm
Chloride (mg/L)	21	85	93.5 (avg)	nm
Alkalinity (mg/L as CaCO <sub>3</sub> )	nr	430	nr	328
Free chlorine (mg/L)	0.04	0.03 – 0.04	nm	nm
Chlorophyll-a (mg/m <sup>2</sup> )	17.3	170	34.7 (avg)	nm
AFDM (g/m <sup>2</sup> )	90.3	440	34.2 (avg)	nm
DO (mg/L) / sat (%)	11.5 / 109	19.4 / 213	nr	13.26 / —
pH (none)	8.27	7.77	nr	8.3
SpC (µS/cm)	458	123 (see §8.2)	nr	927
CSCI	nr	nr	nr	0.445

Pathogens panel at 205SAR005 (Bowers Park, June 30, 2015): fecal coliform 700 MPN/100 mL; total coliform 5000 MPN/100 mL; E. coli 700 MPN/100 mL.

## 5. Regulatory record (SWRCB 2024 Integrated Report)

### 5.1 San Tomas Aquino Creek (factsheet 01829)

- Waterbody ID: CAR2055004020080624165713. Listed Category 5 (impaired, TMDL required).
- Newly listed pollutants in this cycle: Toxicity (decision 142736); Ammonia (decision 151012).
- Past-cycle listing: Trash (decision 99866).
- Other pollutants assessed: "Do Not List — insufficient information," with most lines of evidence based on a single sample at a single site.
- Sediment sample referenced: station 205STQ010 (San Tomas, 250 m u/s Mission College Blvd) sampled July 17, 2018 — anthracene below probable effect concentration (PEC = 845 µg/kg dry weight).

### 5.2 Saratoga Creek (factsheet 00686)

- Waterbody ID: CAR2055004019990218133956. Listed Category 4a (impaired, TMDLs developed).
- Past-cycle listings with TMDLs: Diazinon (70031); Trash (99865).
- Ammonia: "Do Not List — insufficient information." Lines of evidence span WY2012 – WY2019; all assessed samples reported 0 of 1 exceedances of the applicable threshold.

### 5.3 Reference values cited in this inventory

**Table 11.** Regulatory and screening reference values used in the observations section. NRWQC = National Recommended Water Quality Criteria. BLM = Biotic Ligand Model.

Parameter	Reference value	Source
Un-ionized ammonia (NH <sub>3</sub> as N)	0.025 mg/L (annual median)	Basin Plan, Region 2, §3.3.20
Total residual chlorine — acute (CMC)	0.019 mg/L	EPA NRWQC
Total residual chlorine — chronic (CCC)	0.011 mg/L	EPA NRWQC
Copper — chronic (hardness-adjusted, ~425 mg/L)	approx. 0.020 – 0.025 mg/L	EPA hardness-based BLM-equivalent calc.
pH — surface water	6.5 – 8.5 (typical Basin Plan range)	Basin Plan, Region 2
Iron — secondary (aesthetic) standard	0.3 mg/L	EPA Secondary Drinking Water Std.
CSCI — likely-altered threshold	< 0.62 (reference cond. ≈ 0.92+)	CA SWAMP / SCCWRP
Benthic chlorophyll-a — nuisance	commonly cited at ~100 – 150 mg/m <sup>2</sup>	EPA / SWAMP nutrient guidance

## 6. Observations across data sources

This section collates data points that stand out relative to (a) regulatory or screening thresholds, (b) other values within the inventory, or (c) the local groundwater chemistry baseline. Each item is presented as a data observation; interpretations of cause are not attempted here.

### 6.1 Ammonia

- Upstream San Tomas ammonia (BASMAA, 2013/2018/2019): ND, 0.055 (DNQ), 0.14 mg/L.
- Upstream and middle Saratoga ammonia (BASMAA + IR record, 2012 – 2019): consistently 0.05 – 0.06 mg/L across multiple stations and years.
- Lower-watershed San Tomas ammonia: 0.15 mg/L (2012, Central Expy), 1.2 mg/L (2018, u/s Hwy 101), 0.34 mg/L (2019, Agnew/Mission). Lower-watershed values exceed upstream values by approximately 2× to 24× depending on year.
- San Tomas Aquino Creek was newly listed for ammonia (decision 151012) in the 2024 Integrated Report cycle.
- Pairing the 2018 lower-watershed ammonia with the 2026 field pH range (8.9 – 9.5) at typical creek temperatures yields un-ionized NH<sub>3</sub>-N values an order of magnitude or more above the Basin Plan objective (0.025 mg/L). The 2018 sample did not have paired pH data, so this combination is hypothetical.

### 6.2 Chlorine

- Field measurements at drop structure (April – May 2026): total residual chlorine 3 – 20 mg/L. EPA acute and chronic criteria are 0.019 mg/L and 0.011 mg/L.
- BASMAA / SFEI free-chlorine values across all reviewed creek stations and years range 0.02 – 0.16 mg/L. All exceed the EPA chronic criterion (0.011 mg/L).

- The 2012 upstream value (0.16 mg/L free / 0.12 mg/L total residual at 205R00067) is the highest of the BASMAA / SFEI chlorine values; the May 2026 field values are 1 – 2 orders of magnitude higher than that.

### 6.3 pH

- Field measurements at drop structure (April – May 2026): pH 8.9 – 9.5, exceeding the typical Basin Plan upper bound of 8.5 on both dates.
- All other pH values in the inventory (BASMAA / SFEI / SWAMP, 1966 – 2024) fall in the range 7.57 – 8.42. The April – May 2026 readings at the drop structure are the only pH values in the inventory above 8.5.
- GAMA groundwater pH from four samples at three local wells (1966 – 1970): 8.0, 8.4, 8.4, 8.3 — within typical Bay Area carbonate-rich groundwater range, all below 8.5.

### 6.4 Conductivity, TDS, hardness

- GAMA groundwater TDS at the local wells (1966 – 1970): 236, 238 mg/L (only two of the wells reported TDS). Specific conductivity for water of this composition would be approximately 350 – 400  $\mu\text{S}/\text{cm}$ .
- Upstream San Tomas surface conductivity (BASMAA, 2013 – 2019): 527 – 626  $\mu\text{S}/\text{cm}$ . Upper Saratoga: 458  $\mu\text{S}/\text{cm}$ .
- Lower-watershed San Tomas surface conductivity: 1093 (2012), 1020 (2018), 1064 (2019), 801 – 1265 (Jan 2024 SWAMP). Lower-watershed values are approximately 2 $\times$  upstream values and approximately 3 $\times$  the implied pre-industrial groundwater baseline.
- Field measurements at drop structure: TDS 469 – 607 mg/L; hardness >425 mg/L.

### 6.5 Chloride

- GAMA groundwater chloride at the local wells (1966 – 1970): 14 – 18 mg/L.
- Upstream San Tomas surface chloride (BASMAA): 13 mg/L (Twin Peaks 2013), 56 – 59 mg/L (Quito Rd 2018, Westmont HS 2019).
- Saratoga chloride: 21 mg/L upper watershed (2017), 85 – 93.5 mg/L Bowers Park / Warburton (2014, 2019).
- Lower-watershed San Tomas chloride: 71 – 81 mg/L. Lower-watershed values are 4 – 6 $\times$  the local groundwater baseline.

### 6.6 Phosphorus

- Upstream San Tomas total P (BASMAA): 0.01 – 0.02 mg/L.
- Upper Saratoga total P (BASMAA, 2017): 0.065 mg/L — the single highest total-P reading among non-tidal stations in the inventory.
- Lower-watershed San Tomas total P: ND (2012), 0.046 (2018), 0.043 (2019). Lower-watershed values are 2 – 5 $\times$  upstream San Tomas values.

### 6.7 Nitrite

- All upstream BASMAA stations report nitrite as ND, DNQ, or  $\leq 0.002$  mg/L.
- Lower-watershed San Tomas nitrite: 0.012 mg/L DNQ (2012, 205R00067), 0.006 mg/L (2018, 205R03843), 0.028 mg/L (2019, 205R04591).
- Lower- and middle-Saratoga nitrite: ND (2014, 205R01091), 0.019 mg/L average of two replicates (2019, 205R04479).

- Lower-watershed nitrite values (range 0.006 – 0.028 mg/L) are higher than upstream nitrite values by a factor of roughly 5 – 30. Detectable nitrite indicates active nitrification — recent ammonia oxidation — at the time of sampling.

## 6.8 Alkalinity

- GAMA pre-industrial groundwater alkalinity at the three local wells (1966 – 1970): 122 – 189 mg/L as CaCO<sub>3</sub> (mean ~169).
- 2012 SFEI San Tomas at Central Expy (205R00067) alkalinity: 378 mg/L — roughly 2× the local groundwater baseline.
- 2014 SFEI Saratoga at Bowers Park (205R01091) alkalinity: 430 mg/L.
- 2023 SWAMP Saratoga below Mission College (205PS0458, tidal): 328 mg/L. (Tidal water can be lower-alkalinity than upstream tributaries due to bay-water mixing.)
- BASMAA / SWAMP alkalinity is not measured at the lower-watershed San Tomas study-area sites in 2018, 2019, or 2024. The single 2012 value (378 mg/L) at 205R00067 is the only modern alkalinity reading from the study-area reach in the inventory.

## 6.9 Dissolved oxygen and saturation

- Upstream BASMAA DO saturation (2013 – 2019): 96 – 110%.
- Lower-watershed San Tomas DO saturation: 194.5% (2012), 78.7% (2018), 251.7% (2019).
- SWAMP Jan 2024 lower-watershed San Tomas DO saturation (winter daytime): 132 – 161% (205STQ020) and 93 – 186% (205R04591). Values >130% in mid-January are unusual.
- Saratoga 2014 (Bowers Park) DO saturation: 213% — also a daytime value.

## 6.10 Bioassessment scores

- CSCI scores: 0.388 (lower-watershed San Tomas 2012), 0.387 (lower-watershed San Tomas 2018), 0.445 (Saratoga tidal 2023). All three are below the typical "likely altered" threshold of 0.62; reference condition is approximately 0.92 or higher.
- ASCI scores at lower-watershed San Tomas declined from near-reference in 2012 (D 0.83 / H 0.76) to clearly altered in 2018 (D 0.49 / H 0.39).

## 6.11 Algal biomass

- Upstream San Tomas chlorophyll-a (BASMAA): 70.7, 7.1, 38.7 mg/m<sup>2</sup>. AFDM: 215.7, 12.6, 25.5 g/m<sup>2</sup>.
- Lower-watershed San Tomas chlorophyll-a: 112 (2012), 261 (2018), 121 (2019) mg/m<sup>2</sup>. AFDM: 141, 228, 224 g/m<sup>2</sup>. The 2018 chlorophyll-a value is the highest in the inventory.

## 6.12 Variability across years at lower-watershed sites

- Several parameters at lower-watershed San Tomas sites show large year-to-year swings rather than steady values: ammonia 0.15 → 1.2 → 0.34 mg/L; DO saturation 194% → 79% → 252%; chlorophyll-a 112 → 261 → 121 mg/m<sup>2</sup>. Each value is from a single grab on a single day.

## 6.13 Historical groundwater hydrology context

- The 1966 – 1970 GAMA chemistry samples were collected during the period of greatest historical aquifer drawdown in the four wells with depth records (peak drawdown 1957 – 1970; one well in 1957, two in 1967, one in 1970).

- By 1975 the local water table had risen 75 – 165 ft across the four wells with records, reaching its shallowest measurements across the entire 1936 – 1985 record. No comparable local groundwater chemistry has been collected since 1970, so the chemistry of the recovered aquifer is not represented in this inventory.
- Well 06S01W21R004 documented artesian conditions in the 1940s. The current relationship of the deeper aquifer to surface water and to the buried historic Saratoga Creek channel cannot be characterized from the existing record.