

2022
STATE OF
DONNER LAKE
JUNE 2023



DIPS
DONNER LAKE
INTERAGENCY
PARTNERSHIP FOR
STEWARDSHIP

Contents

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State of Donner Lake

Purpose

Baseline to assess the environmental and economic health of Donner Lake, identify information gaps, and provide the scientific basis for long-term stewardship planning



Photo: cbec

DONNER LAKE INTERAGENCY PARTNERSHIP FOR STEWARDSHIP



DIPS

Overview of Data Collection

Ecological	Community
<ul style="list-style-type: none">• Global Water Center, University of Nevada at Reno• Inconsistent past data• Data collection starting in 2021• Ongoing• Preliminary conditions and recommendations	<ul style="list-style-type: none">• DIPS Core Team• Limited past data• Data collection starting in 2021• Ongoing and expanding• Preliminary conditions



ECOLOGICAL CONDITIONS

- ❖ Sampling Sites
- ❖ General Attributes
- ❖ Chemistry
- ❖ Biology
- ❖ Findings and Recommendations



Donner Lake Summer 2021 & 2022 Sampling Results

Zachary Bess & Dr. Sudeep Chandra

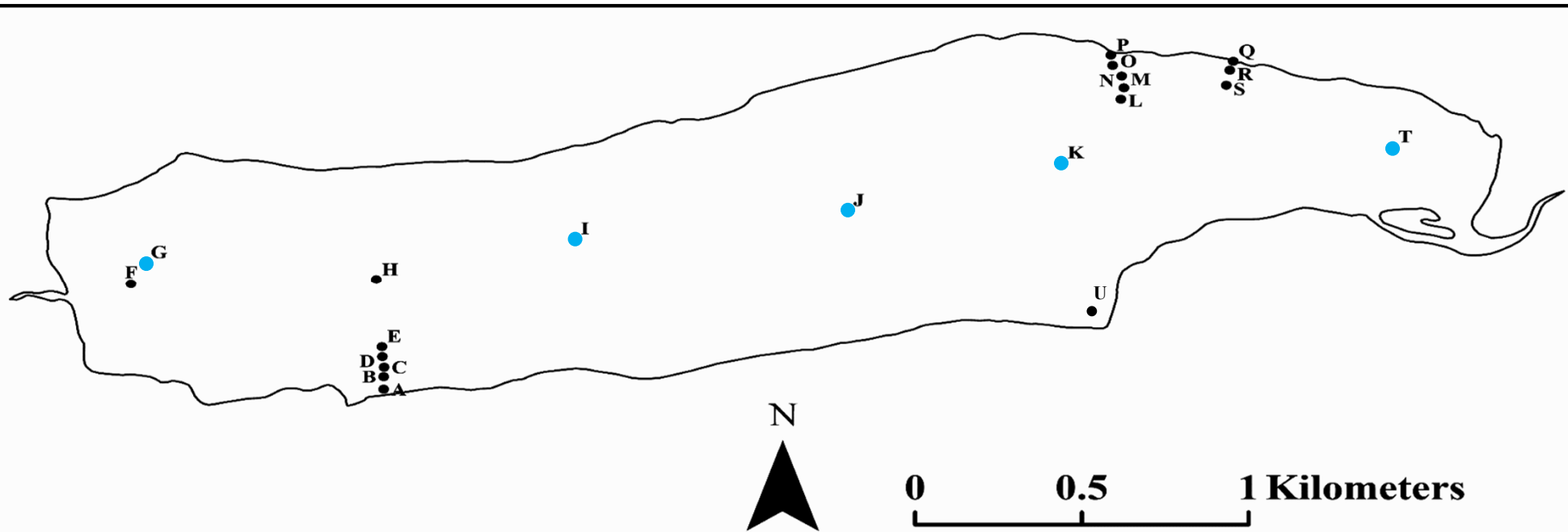


Global Water Center
University of Nevada, Reno

Solutions for sustainabilitysm

**Prepared for the Donner Lake Interagency Partnership for Stewardship
June 15, 2023**

Sampling Locations in 2021 & 2022



Lake Area: 3.4 km²

Shoreline Length: 12.5 kilometers

Max Depth: 71 meters (July 2021)

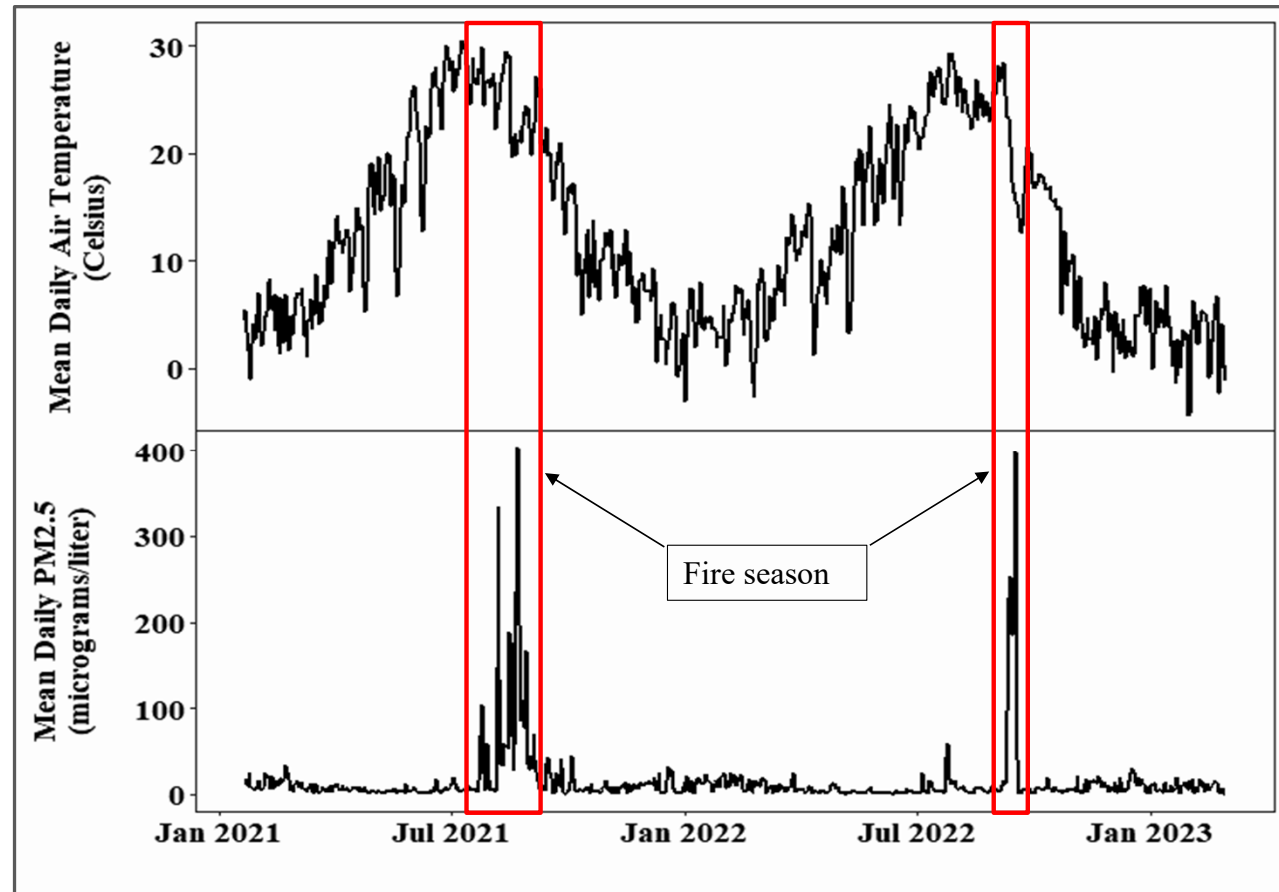
- 2021/22 sampling sites
- 2021/22 & historic sampling sites

2021/22 Sampling Sites

Site	Sampling Activities
A	Nearshore temperature, nearshore oxygen, benthic invertebrates (3 meters depths)
B	Benthic invertebrates (10 meters depth)
C	Benthic invertebrates (20 meters depth)
D	Benthic invertebrates (30 meters depth)
E	Benthic invertebrates (40 meters depth)
F	Gill nets (~20 meters depth)
G	Gill nets, mysid collections in 1978-1980 and 2021-2022 (~40 meters depth)
H	Light profile, secchi depth, nutrient profile, temperature profile, dissolved oxygen profile, chlorophyll <i>a</i> profile (~70 meters depth)
I	Mysid collections in 1978-1980 and 2021-2022 (~60 meters depth)
J	Mysid collections in 1978-1980 and 2021-2022 (~40 meters depth)
K	Mysid collections in 1978-1980 and 2021-2022 (~50 meters depth)
L	Gill nets in 2021-2022, crayfish sampling in 2021 (30 meters depth)
M	Crayfish sampling in 2021 (20 meters depth)
N	Crayfish sampling in 2021 (15 meters depth)
O	Crayfish sampling in 2021 (10 meters depth)
P	Crayfish sampling in 2021 (3 meters depth)
Q	Air particulate concentration (PM _{2.5}), surface radiation
R	Nearshore temperature, nearshore oxygen (~3 meters depth)
S	Gill nets (~20 meters depth)
T	Mysid collections in 1978-1980 and 2021-2022 (~15 meters depth)
U	Gill nets in 2022

Air Temperature & Air Quality – Impacted by wildfire 2021-2022

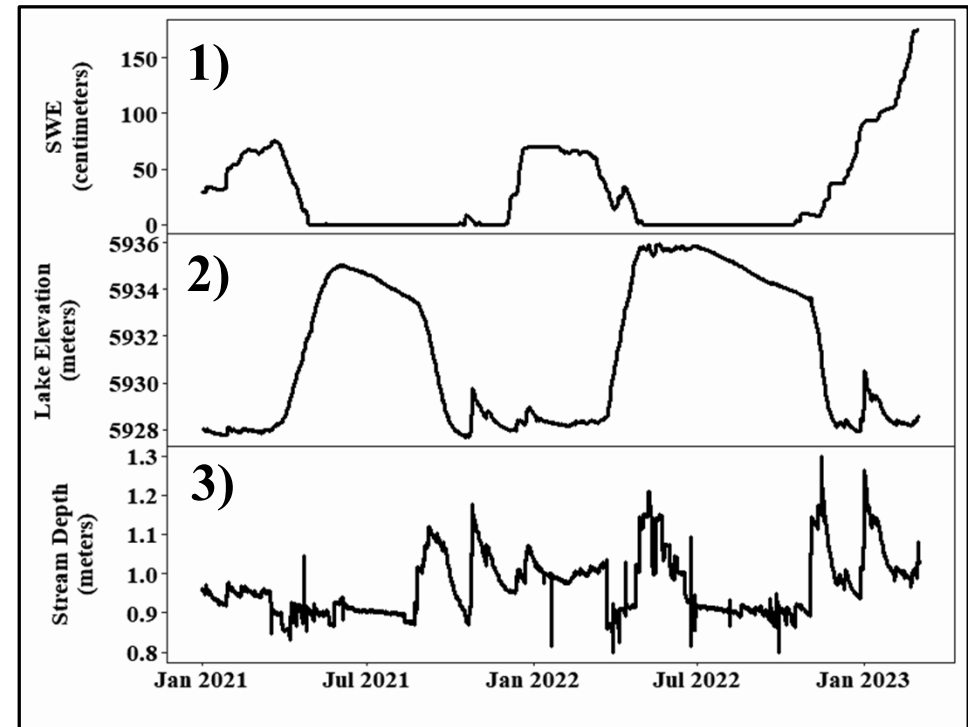
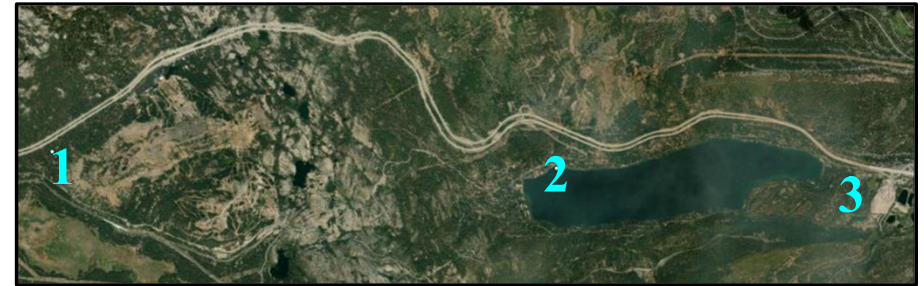
- Temperature exhibits common patterns by season and day/night
- Elevated levels of particles in summer due to wildfires



Data from Purple Air Sensor

Hydrology – Snowpack much higher in 2022/2023 compared to 2021/2022

- Lake elevation rises in April/May correspond with melting of the snowpack and dam control
- Donner creek stream depth decreases in the summers and fall due to the water level regulation of the dam at the lake



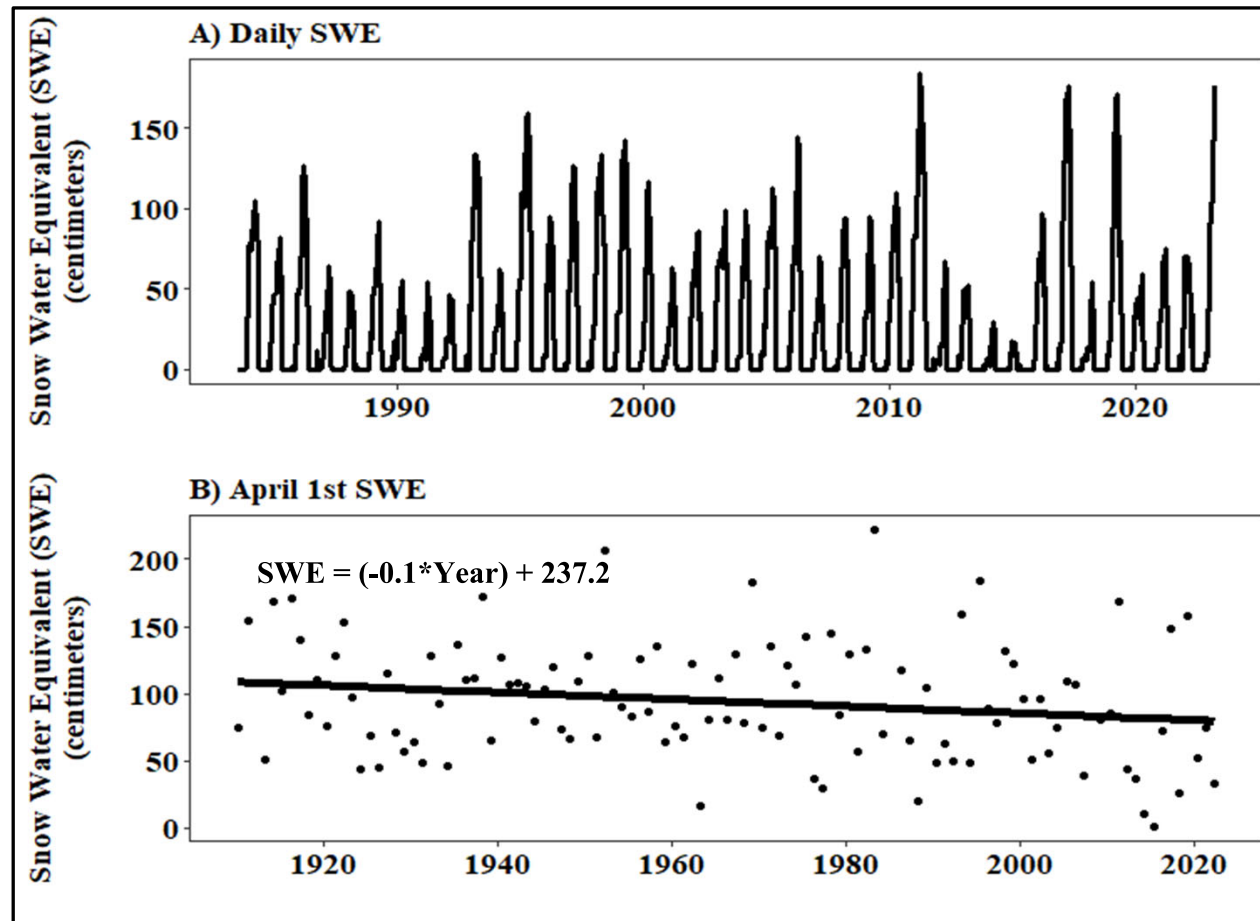
Data from:

Snow water equivalent (SWE) from UC Berkeley's Central Sierra Snow Laboratory: <https://wcc.sc.egov.usda.gov/nwcc/site?sitenum=428>

Lake elevation from USGS: <https://waterdata.usgs.gov/monitoring-location/10338400/#parameterCode=62614&period=P7D>

Donner Creek stream depth from USGS: <https://waterdata.usgs.gov/monitoring-location/10338500/#parameterCode=00065&period=P7D>

Snow Water Content – Slight decline over long-term record



Data from USDA

(https://wcc.sc.egov.usda.gov/reportGenerator/view/customSingleStationReport/monthly/start_of_period/20K10:CA:SNOW%7Cid=%22%22%7Cname/POR_BEGIN,POR_END/WTEQ::value?fitToScreen=false)

Water Clarity – Improved slightly in 2022 versus 2021

Clearer water allows more sunlight to reach submerged aquatic vegetation, which produces oxygen and provides food and habitat

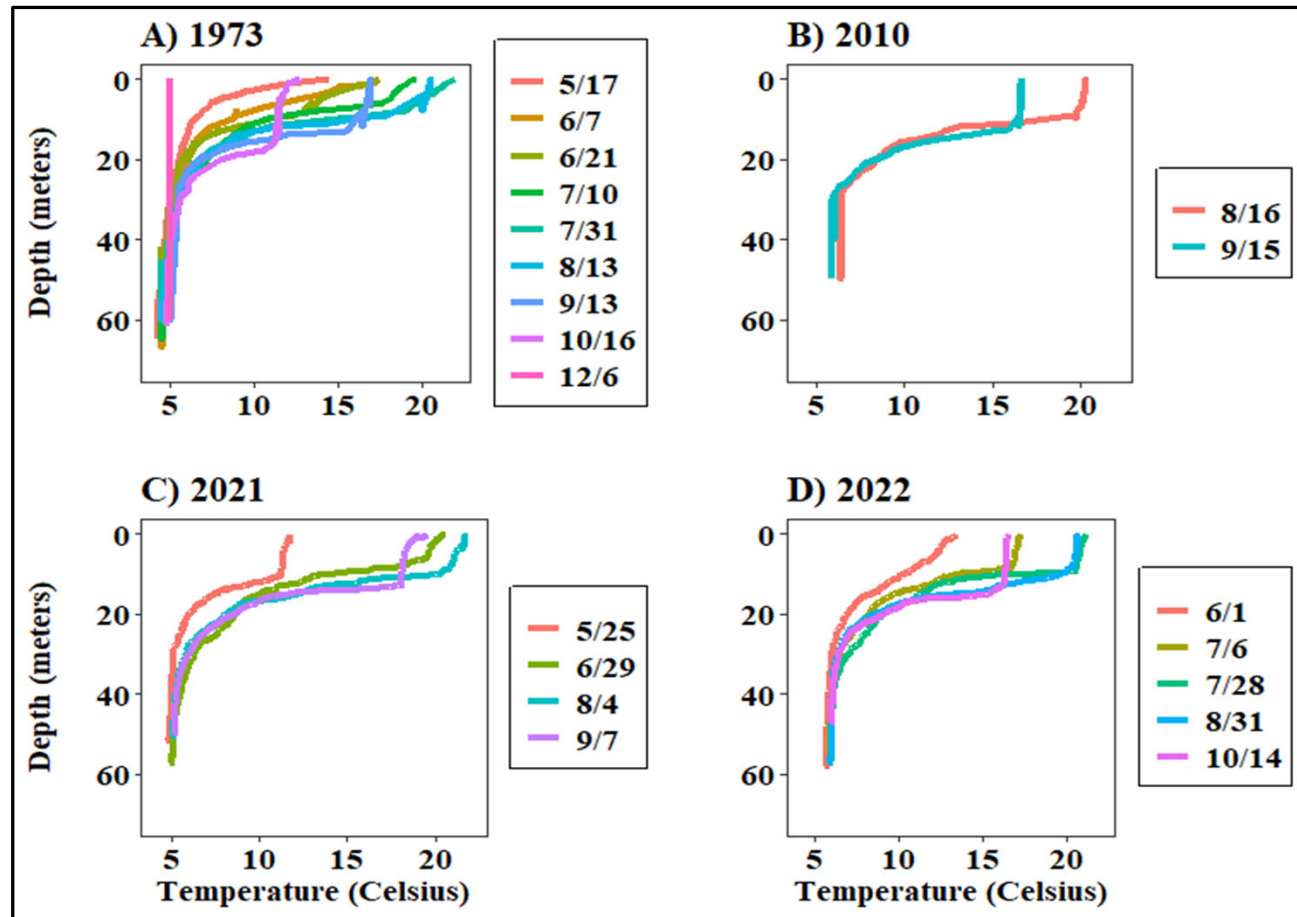
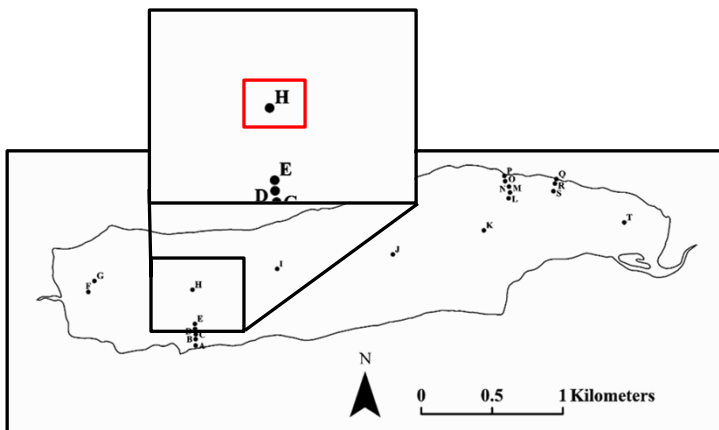
- **Summer 2022** - 1% Photosynthetically Active Radiation (PAR) depth (maximum depth at which algae may grow) up to 23 meters
- **Summer 2021** - 1% PAR depths up to 22 meters
- Mostly stable since 1980s
- **Early 1973** – degraded conditions



Water temperature conditions – as expected

Important indicators of climate impacts in the long-term

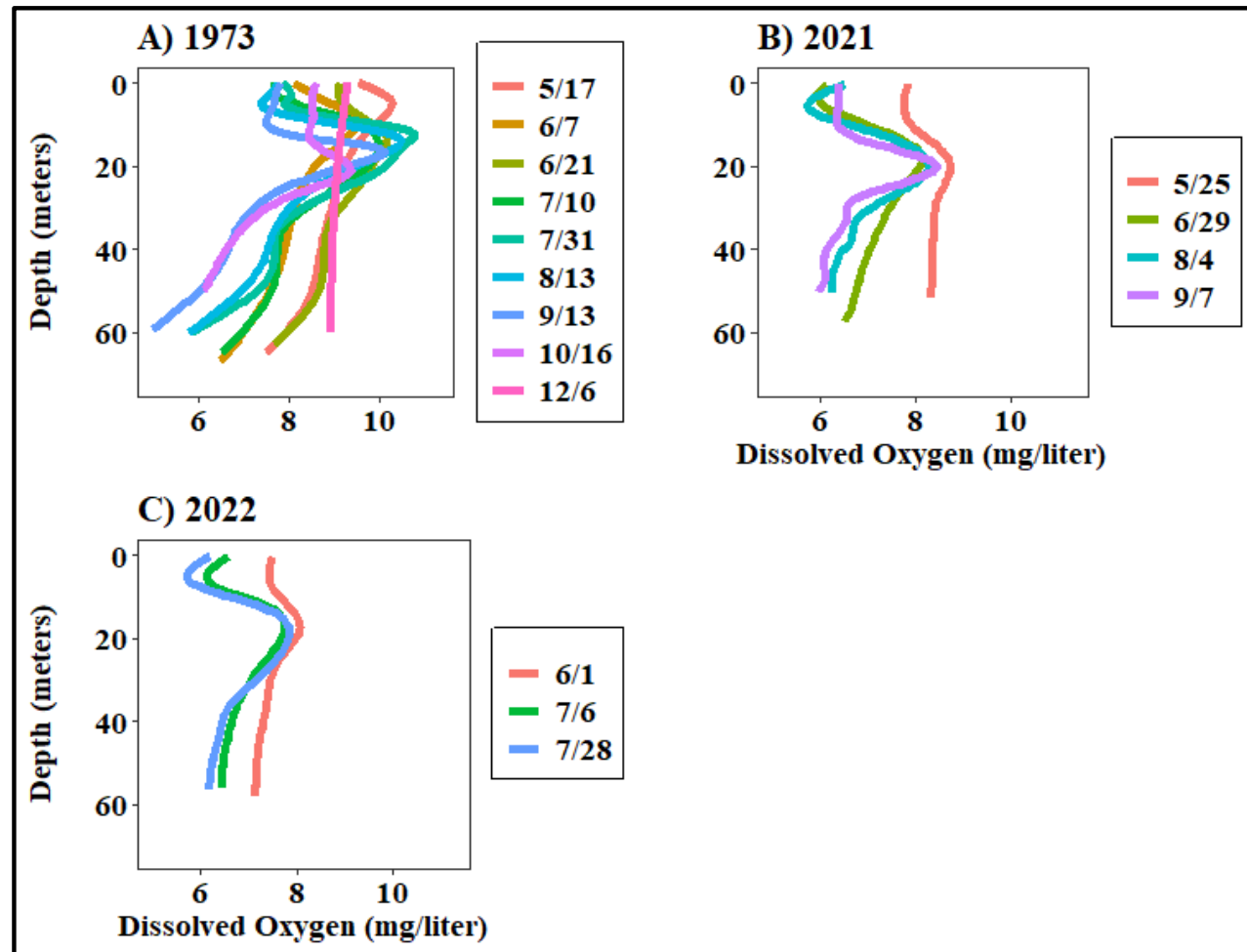
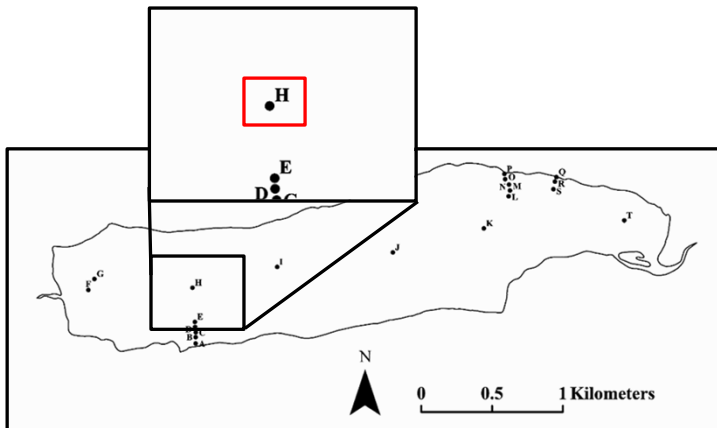
- Upper water column temperatures reach a high in late July/early August ($\sim 22^{\circ}\text{C}$)
- Bottom water column temperatures are consistently $\sim 5^{\circ}\text{C}$
- The zone of physical temperature change in the summer typically occurs at 15-20 meters



Dissolved Oxygen – as expected

Essential for the survival of fish and other aquatic organisms

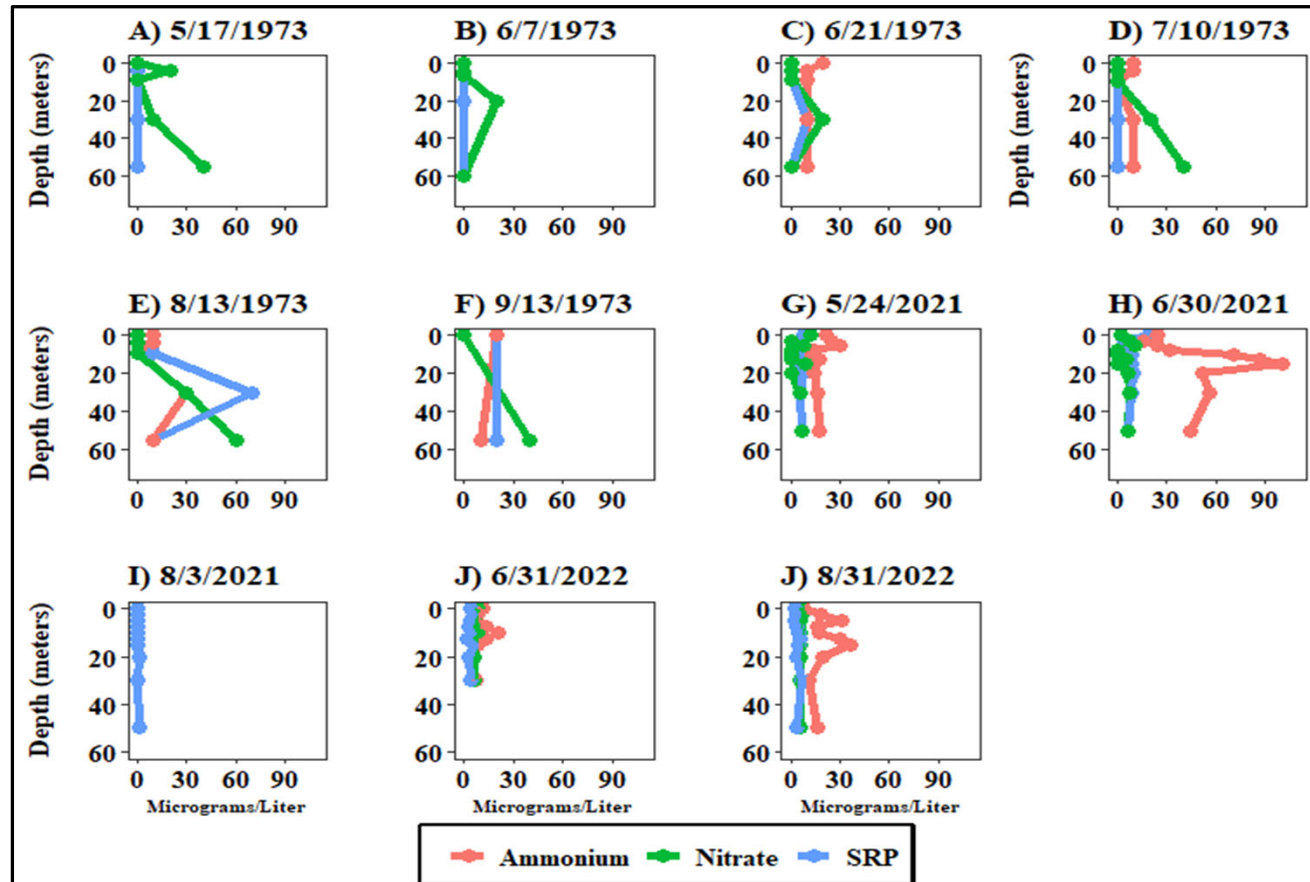
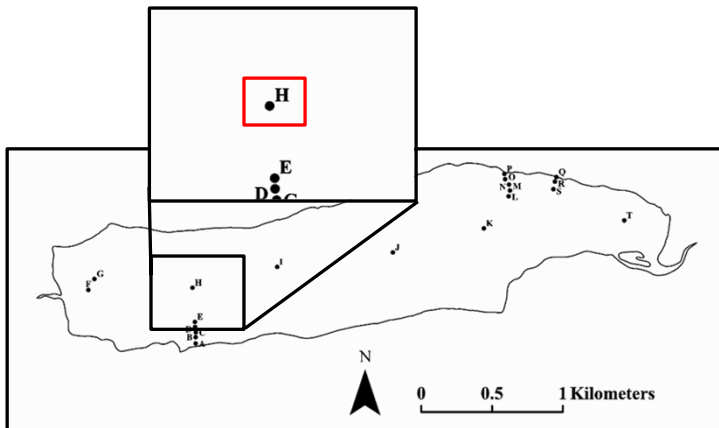
- Highest DO in the middle depths, indicating an area of maximal algal production.
- Deep waters continue to be well oxygenated, common for lakes with lower algal and organic matter



Nutrients – *mostly* as expected

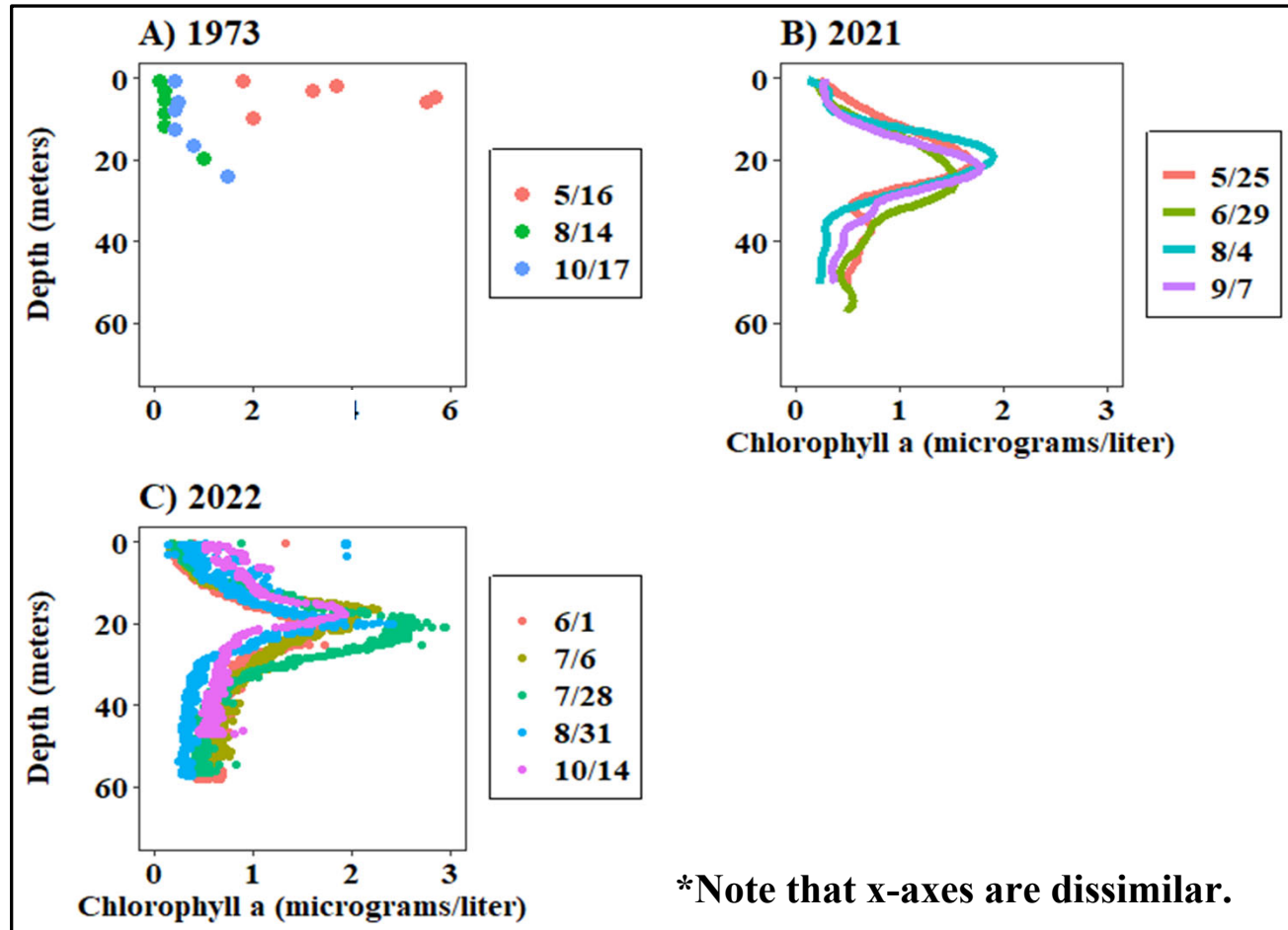
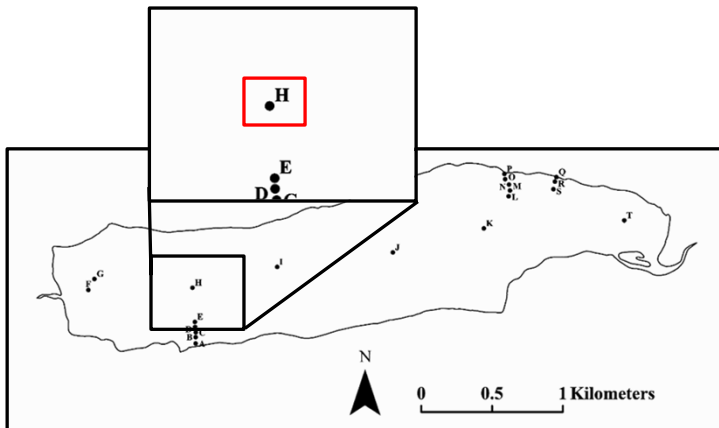
An emerging concern in our watershed, important to track changes with different snowpack conditions

- Nitrate and Soluble Reactive Phosphorus (SRP) concentrations lower than ammonium concentrations in summers of 2021 and 2022
- Bottom water nitrate is very low compared to observations in 1973.



Phytoplankton biomass (algae) – as expected

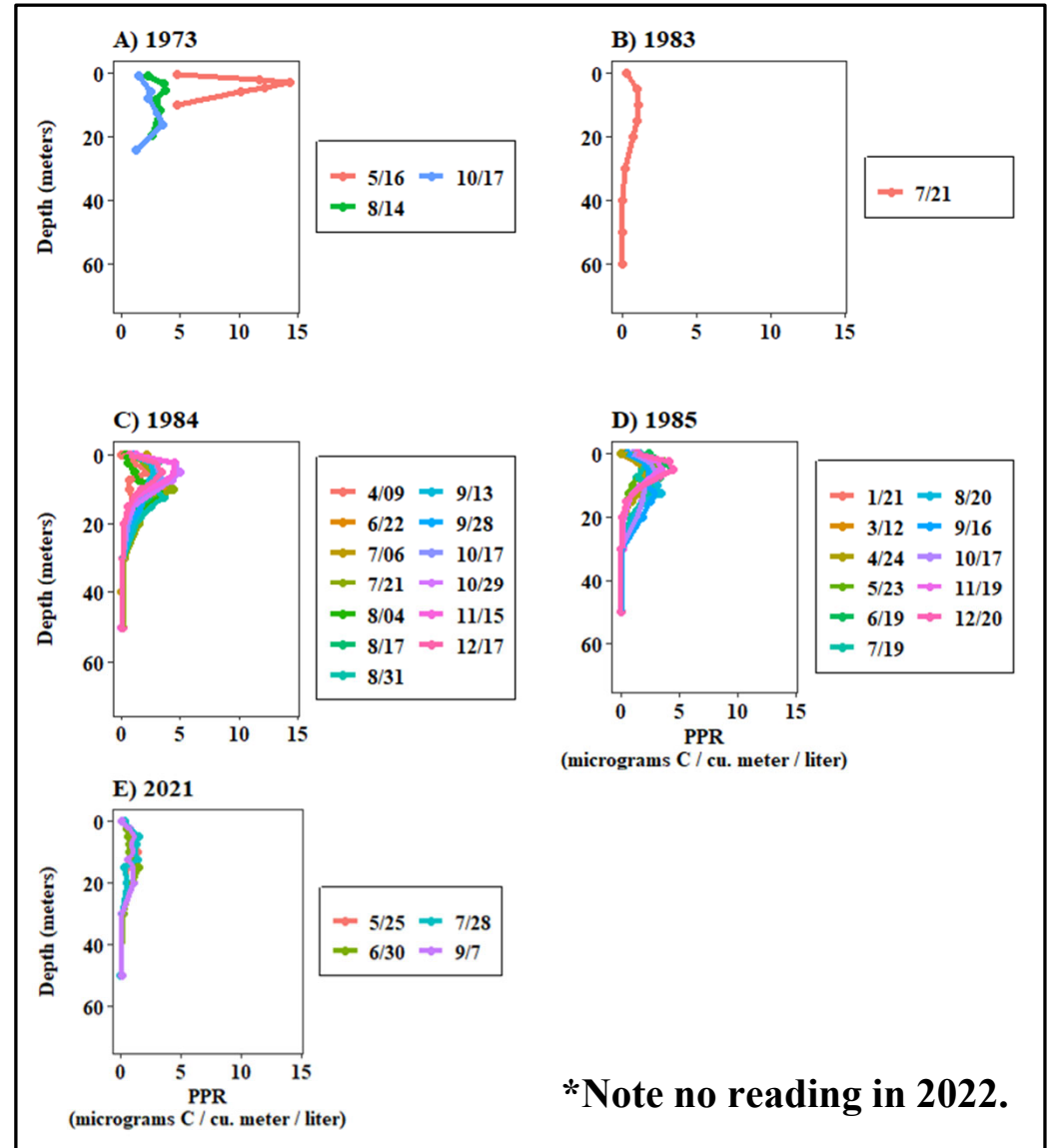
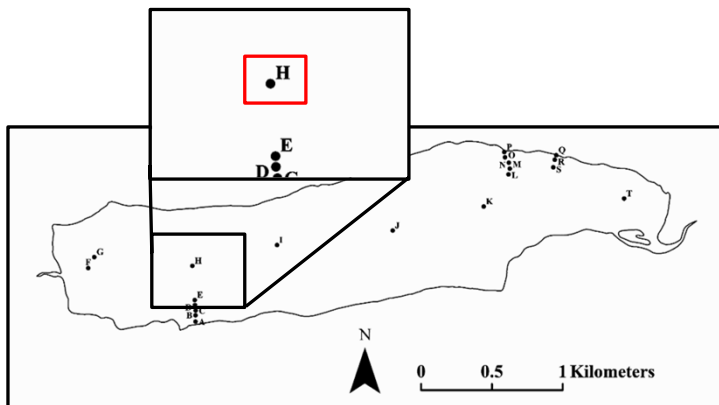
- There is a higher biomass at ~20 meters depth as measured by chlorophyll-a pigment
- Deep chlorophyll maximum at depth in lakes with low nutrient state is common when there are low nutrients and high light conditions



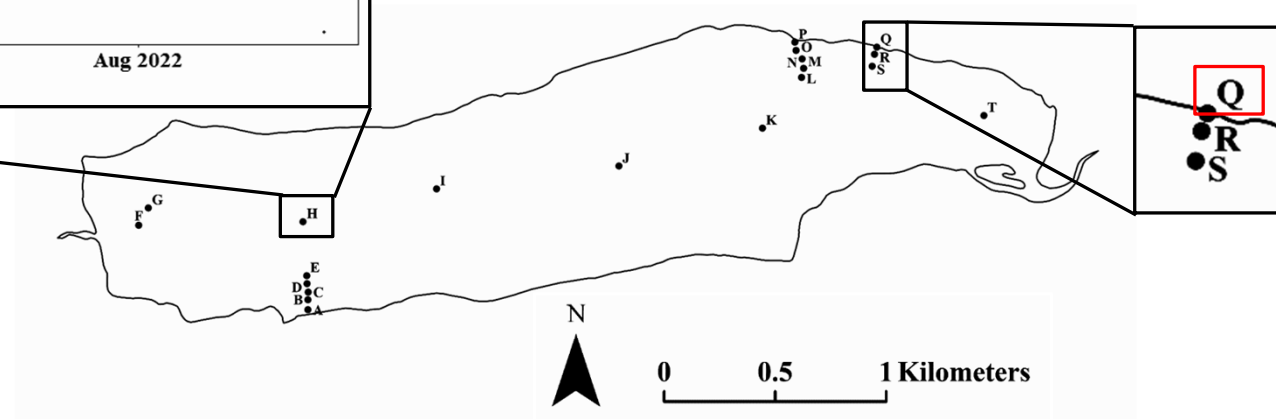
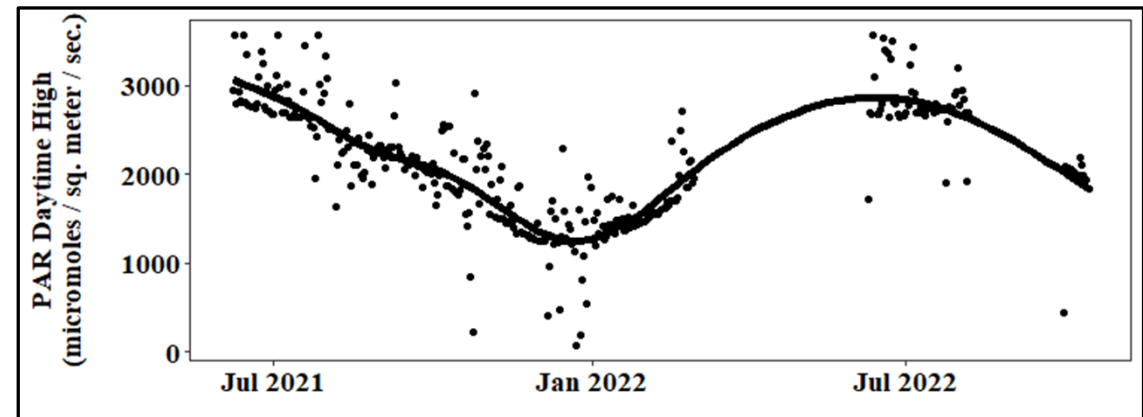
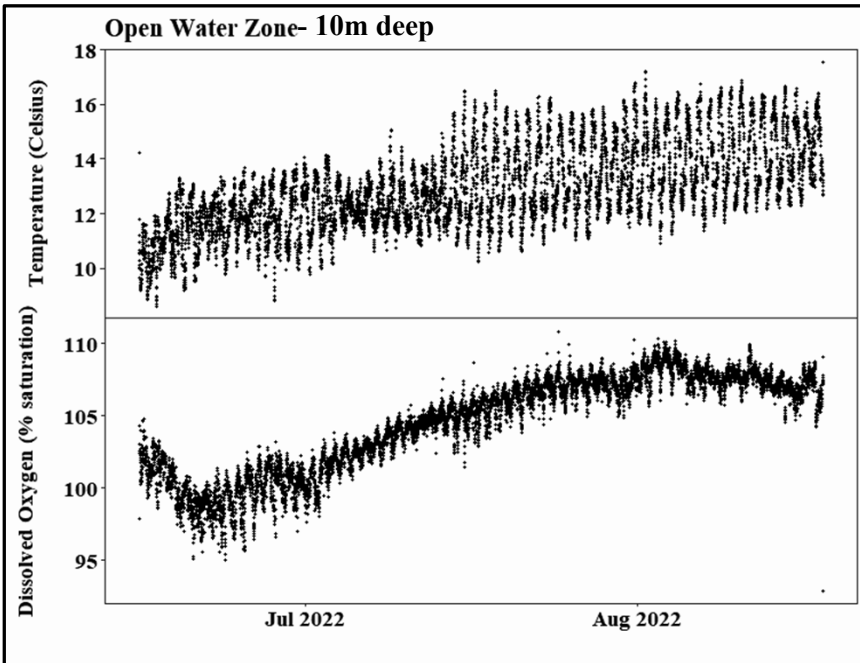
Phytoplankton Productivity (photosynthesis) – Improved Water Quality Over Time

This is the rate at which phytoplankton are making glucose, the energy source for all higher levels in the food web

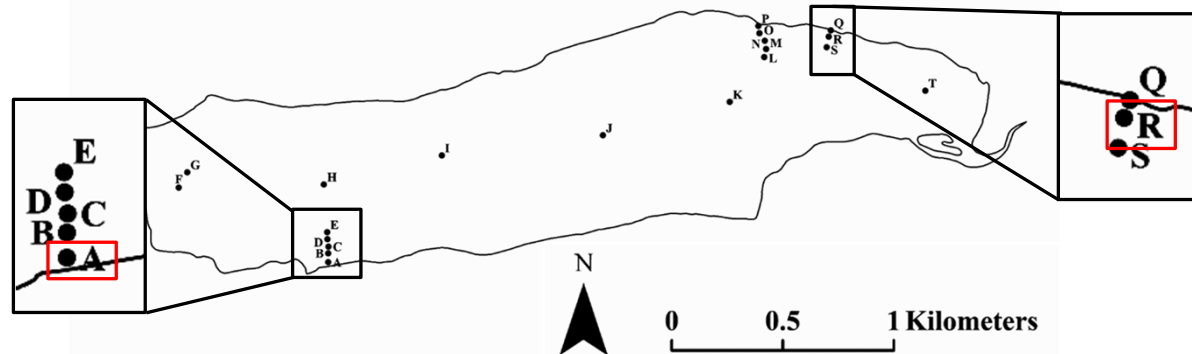
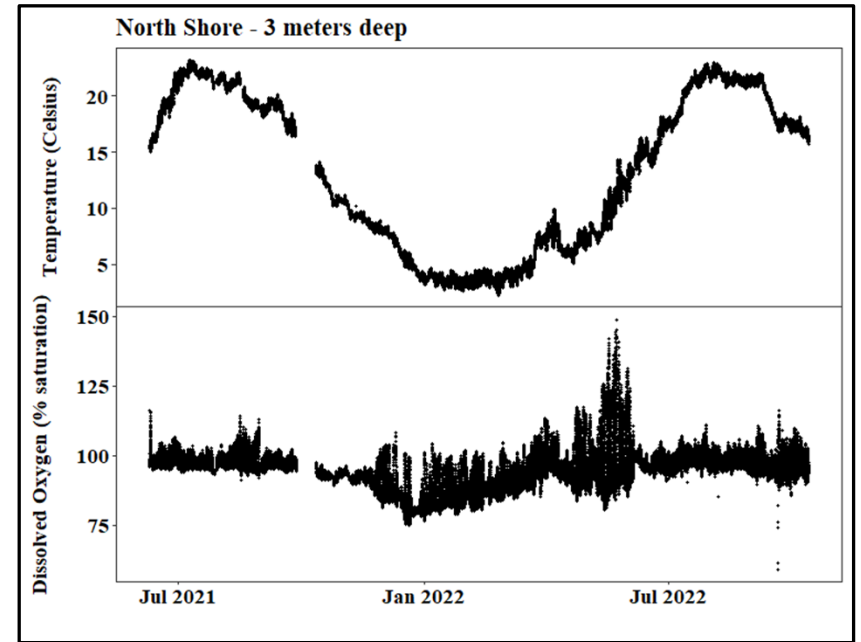
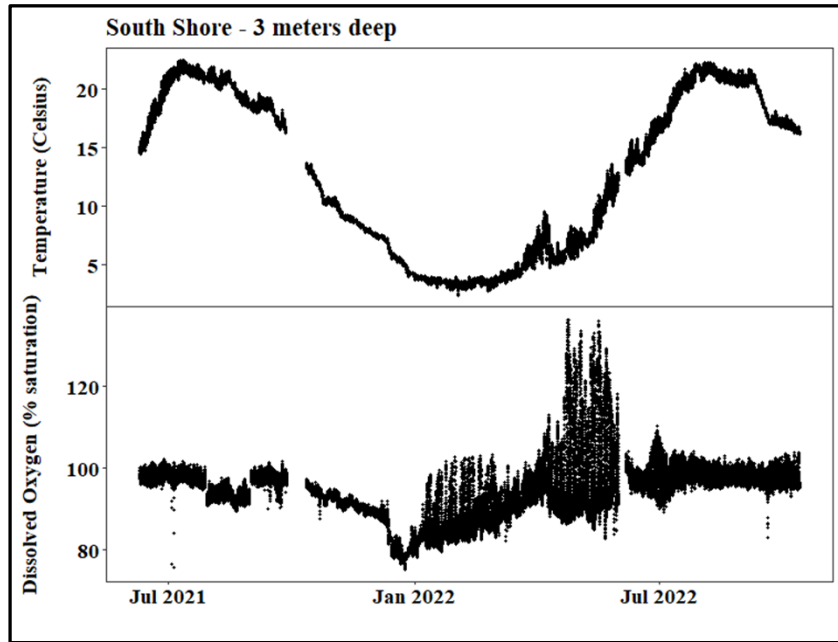
- Phytoplankton productivity at 5-15 meters depth in summer 2021 was ~50% lower than in summer 1984 & 1985
- High productivity in May 1973 corresponds with high phytoplankton biomass (previous slide) and low water clarity



Open Water Oxygen and Temperature – Increases of oxygen due to light (PAR) & nutrient supported algal growth



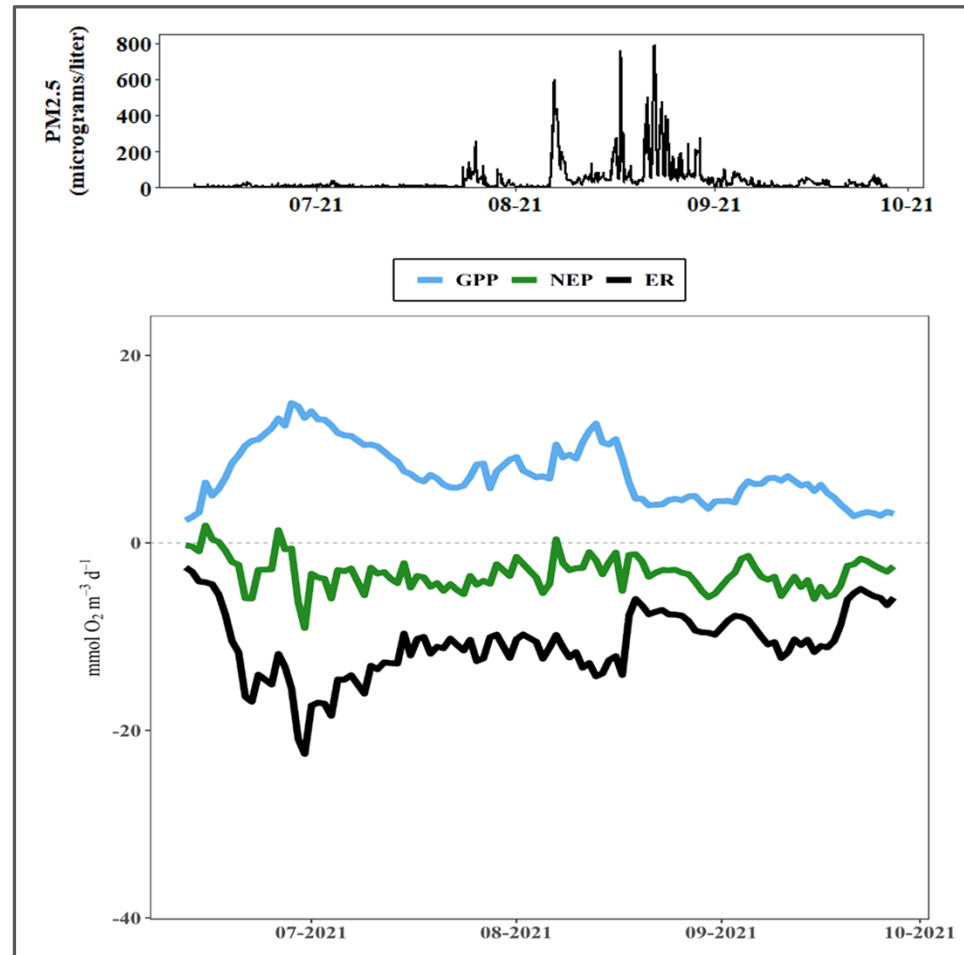
Nearshore Oxygen and Temperature – Similar patterns on North Shore and South Shore



Wildfire season impacts Nearshore Productivity

Water quality changes in oxygen, temperature & light can be used to estimate the amount of production in the lake

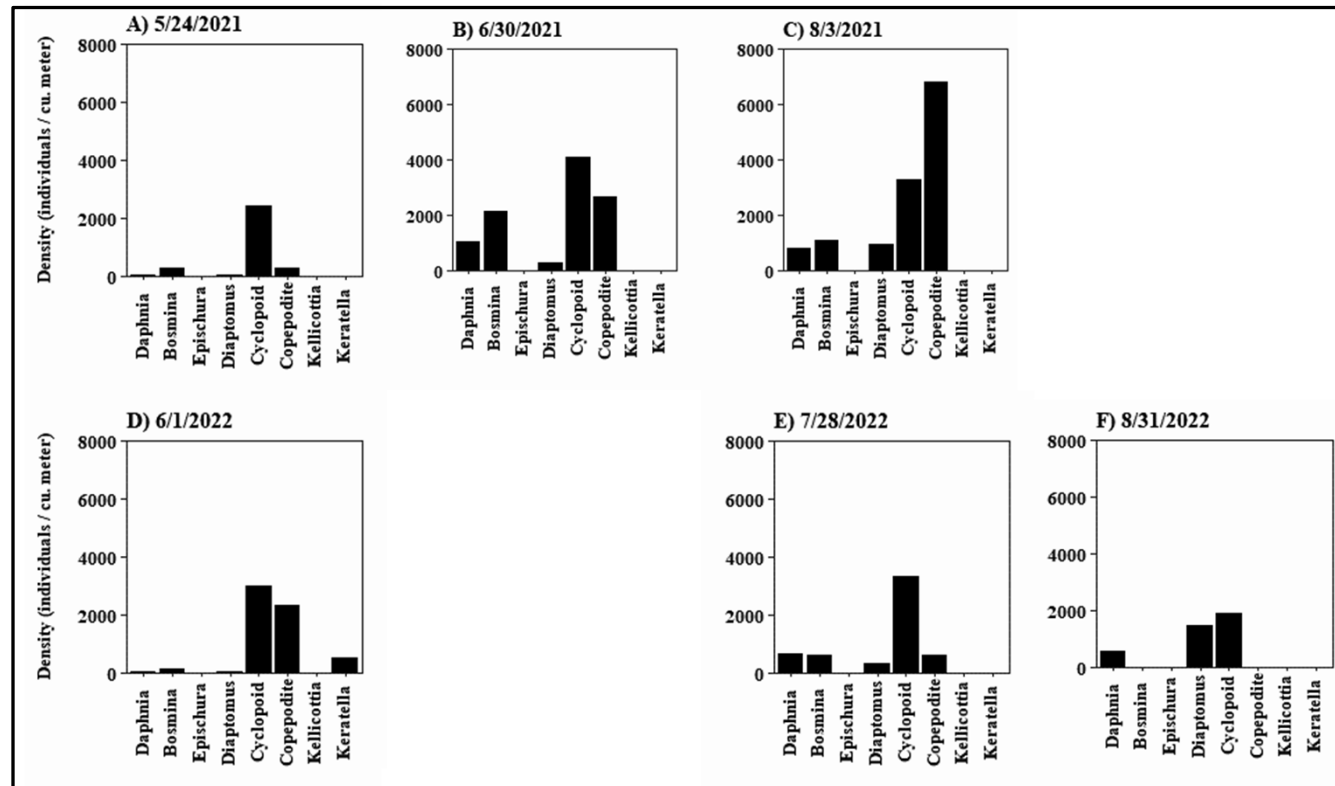
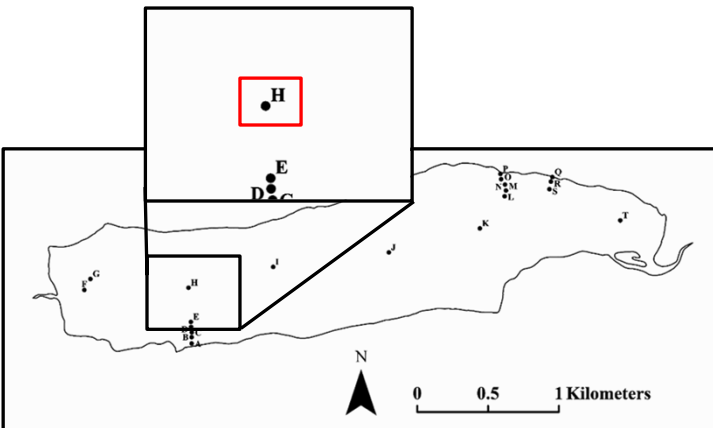
- 2021- Maximum ecosystem gross primary production and ecosystem respiration occurred in late June and early July
- Model development for the summer of 2022 is ongoing.



Zooplankton are highly variable and slightly lower 2022 than 2021

Zooplankton are an important intermediate species in the food chain

- Cyclopoid copepods are consistently the most dense of the lake's zooplankton taxa
- Donner Lake zooplankton community is different from that in Lake Tahoe



Daphnia



Bosmina



Diaptomus

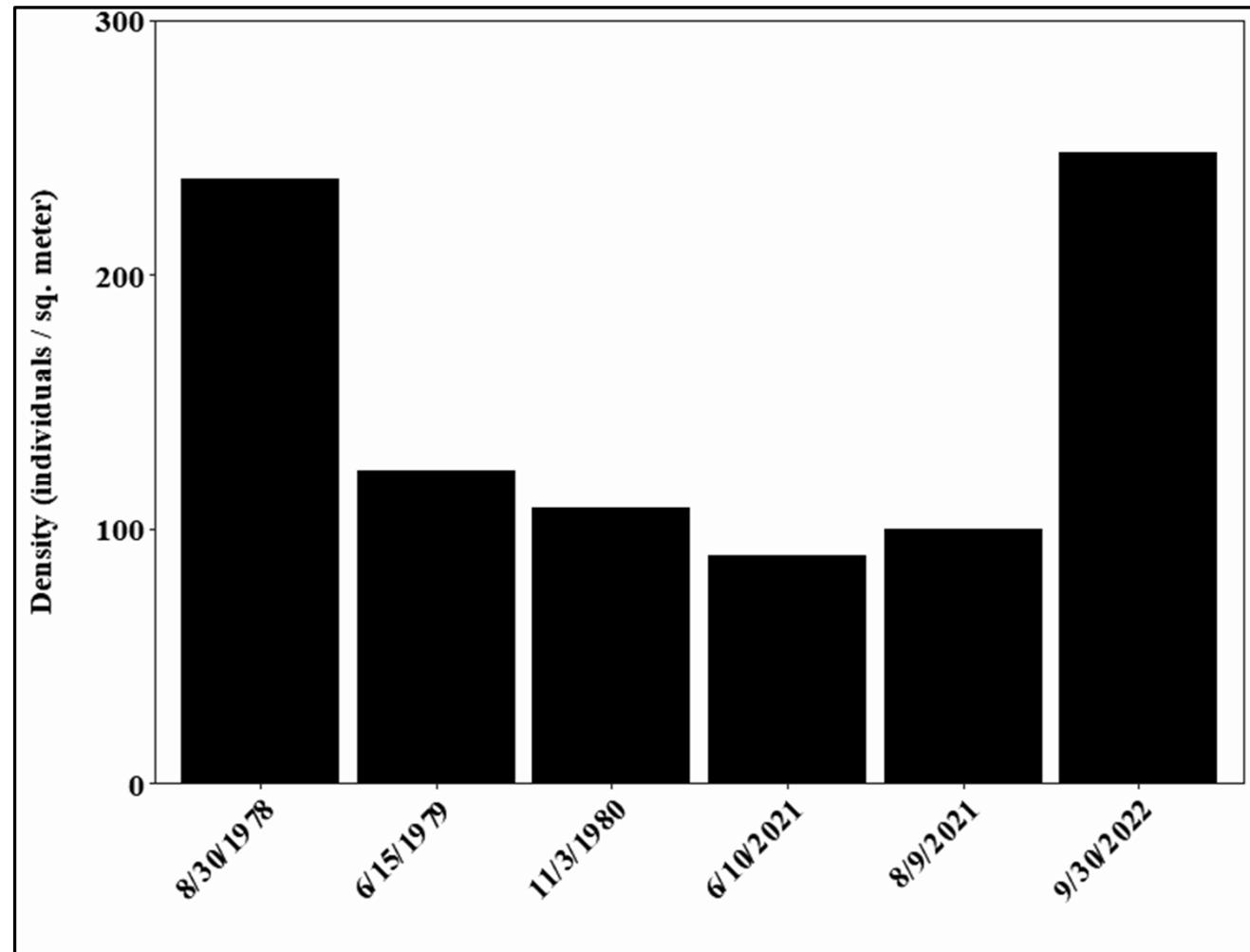
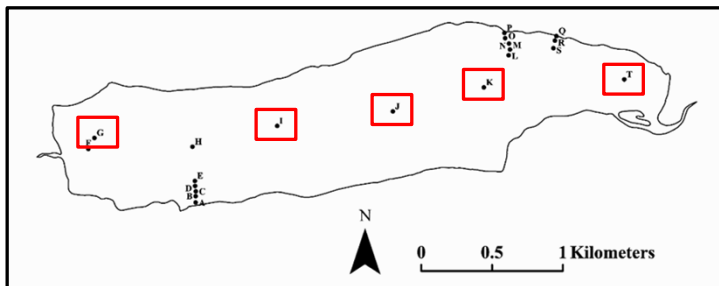


Keratella

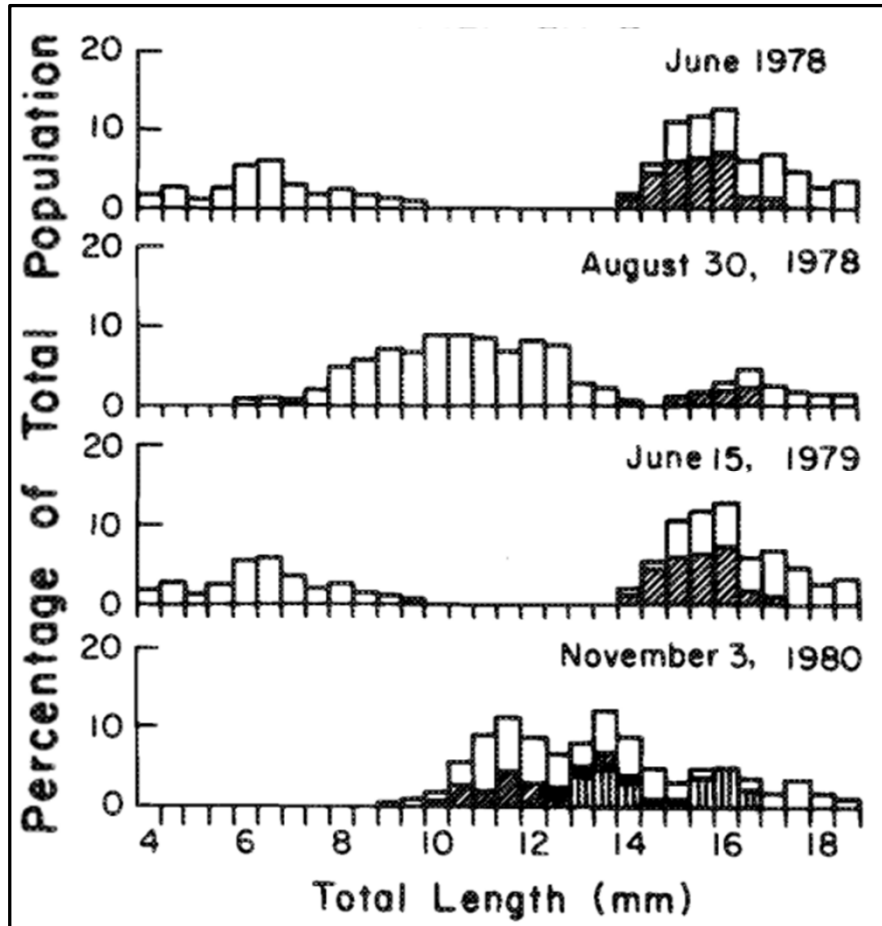
Mysid shrimp density increased dramatically in 2022 compared to 2021

Mysids shrimp, introduced in the 1960s, can impact native zooplankton and fish growth

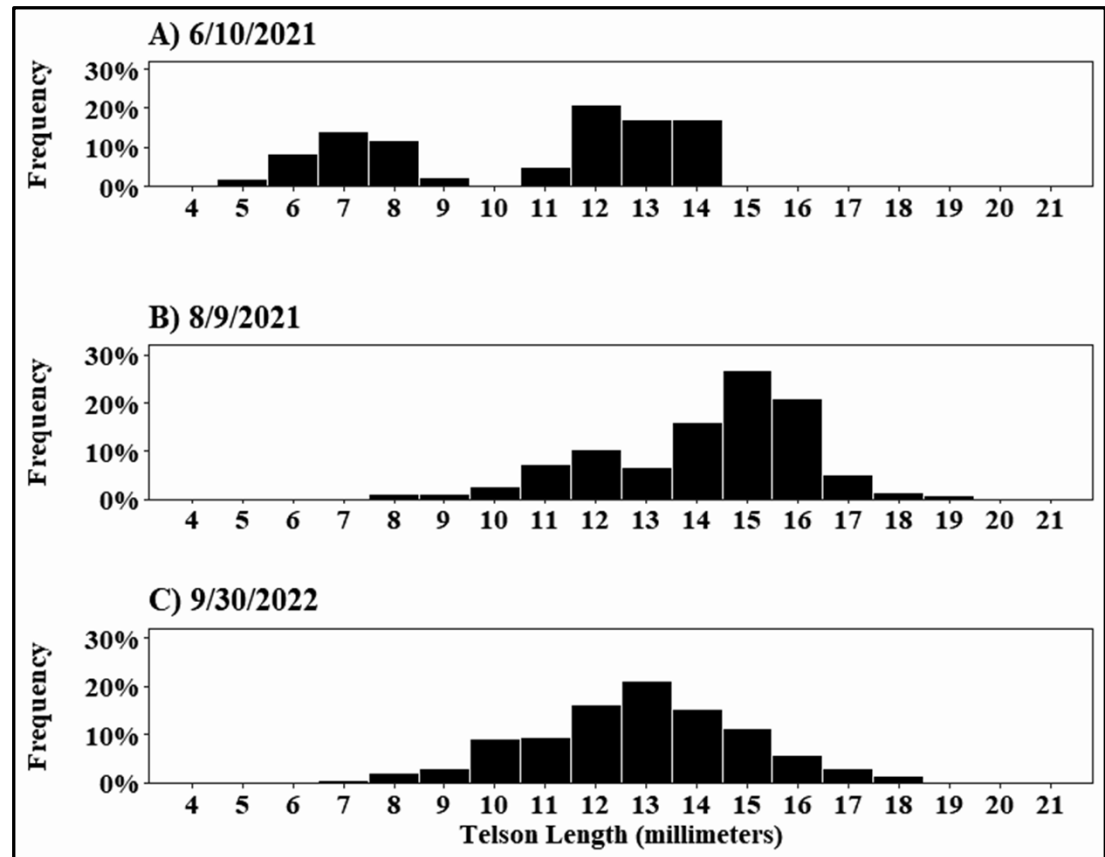
- Densities consistent at 5 sites in 1979, 1980 and 2021
- 2021 show higher densities in the late summer
- Recommend monitoring mysids at least twice per year so calculations on their population growth can be determined



Mysids size structure shows an increase of mysids over the summer and across age cohorts



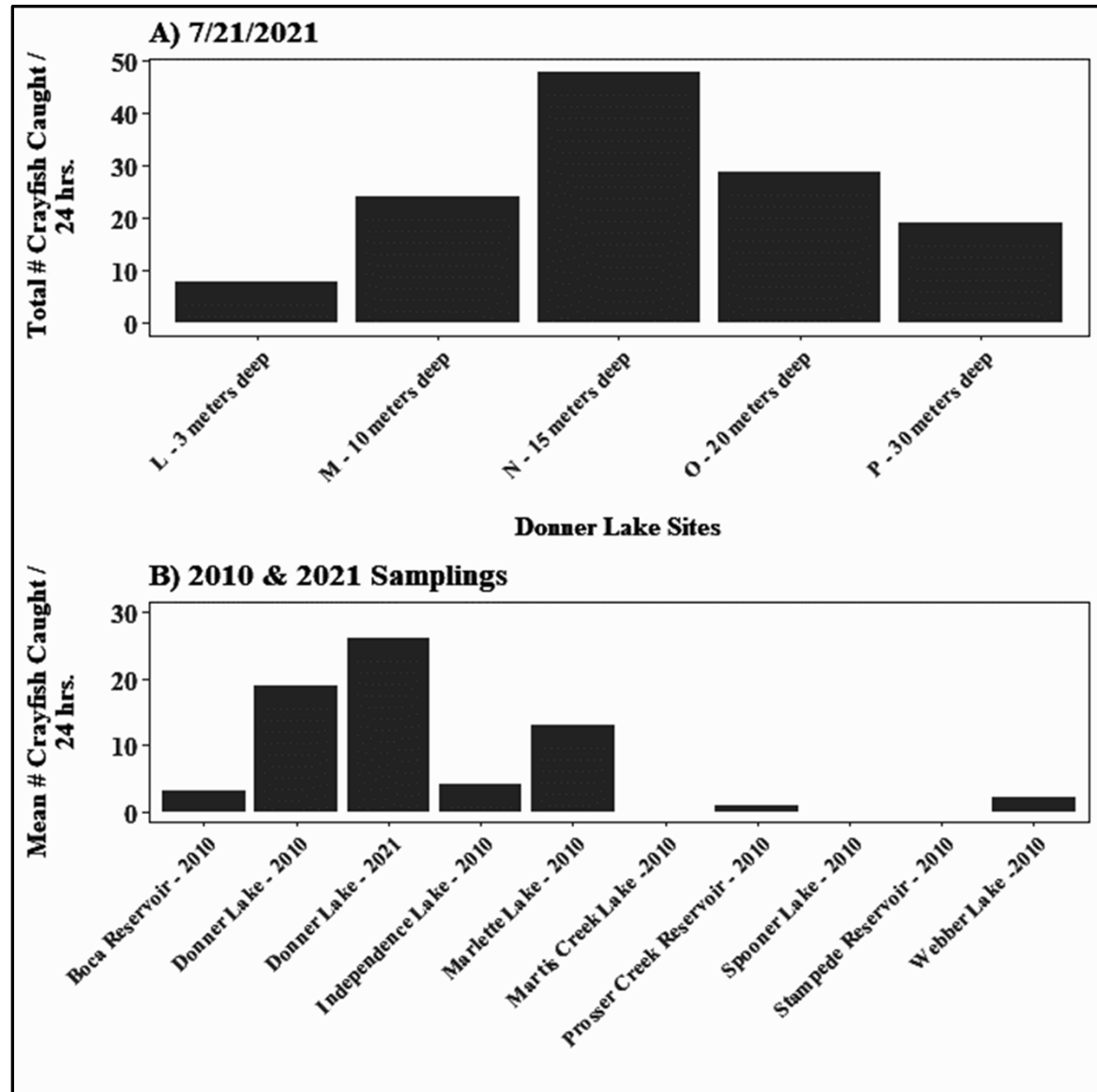
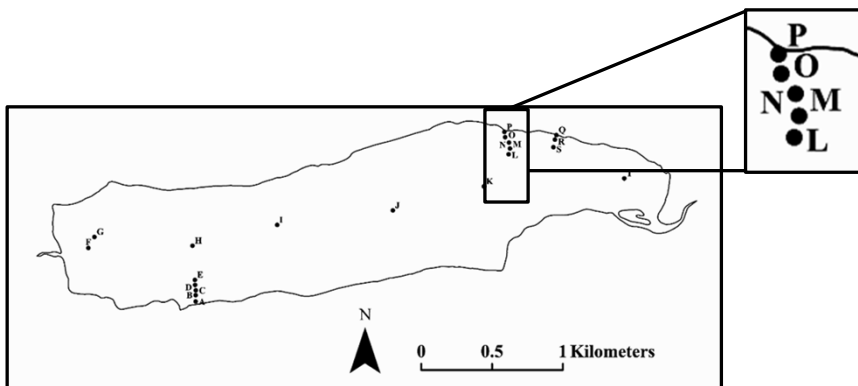
Morgan 1981



Donner Lake has more non-native crayfish than neighboring lakes

Crayfish control bottom invertebrates and algae and can stimulate algal growth by excreting nutrients

- In 2021, crayfish reached their highest densities at 15 meters deep
- Densities in summer 2021 were higher than in summer 2010 and other lakes in the region
- We did not sample for crayfish in 2022 and recommend reinitiating this sampling in 2023



Benthic Invertebrates



Caddisfly



Fly larvae



Oligochaete



Stonefly



Invasive Asian clam

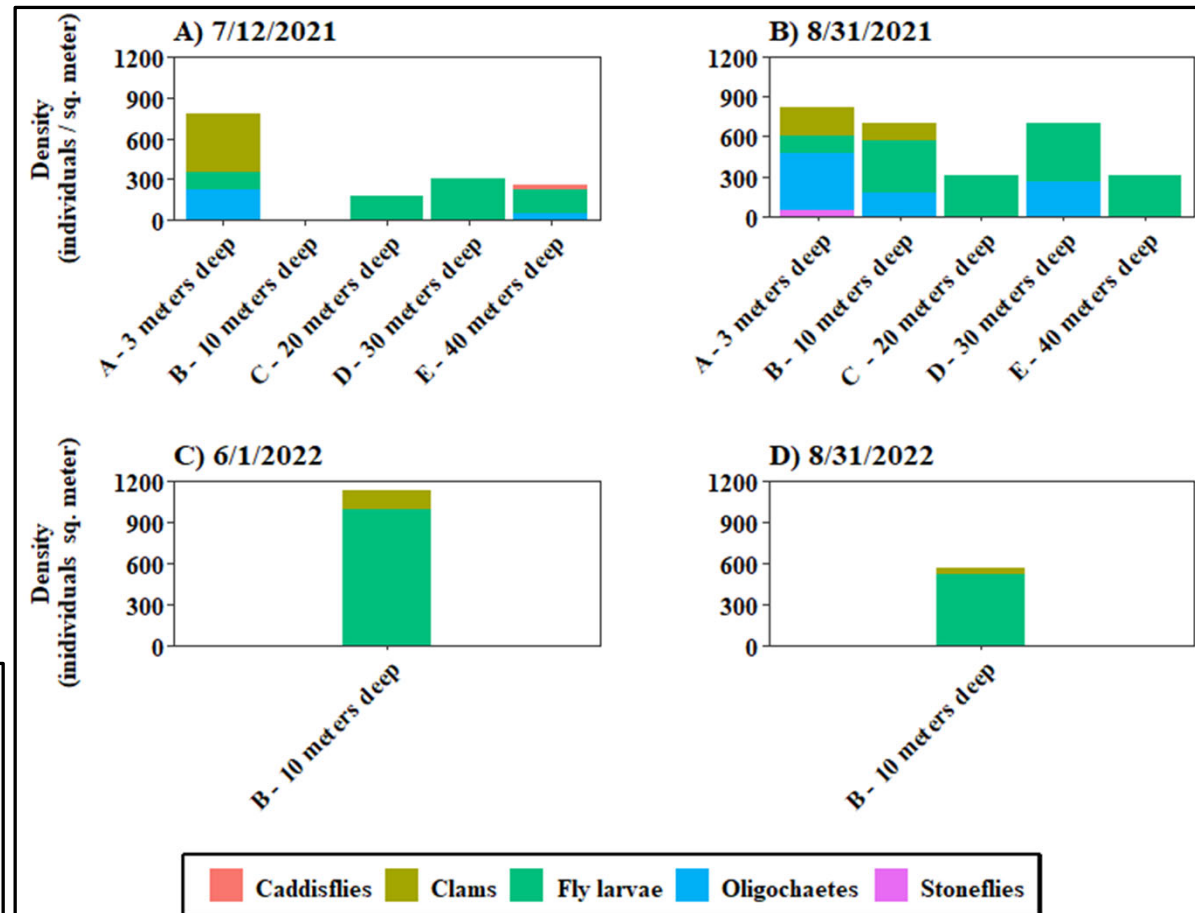
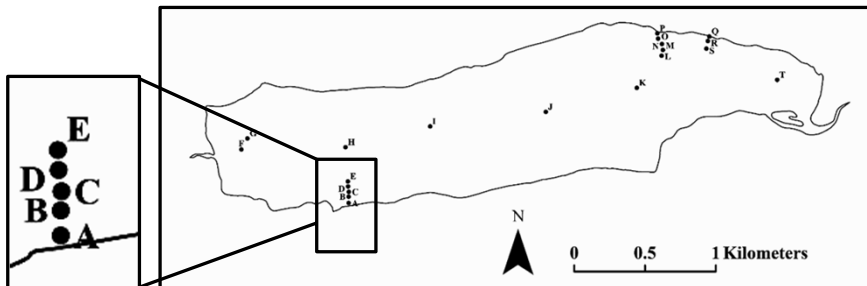


Native *Pisidium* clam

Benthic invertebrates – Fly larvae and clams were most common in Donner Lake in 2022

These can be indicators of overall water quality and biological conditions:

- Caddisflies and stoneflies, which are less tolerant of poor water quality, were less abundant than other Benthic Invertebrates in 2021 and missing in 2022 (10m)
- Clam populations consists of native pea clams (*Pisidium spp.*) and invasive Asian clam (*Corbicula fluminensis*)
- Benthic invertebrate populations vary a great deal around the lake and may not be cost-effective monitoring at this time



Examples of fishes caught in the lake



**Native
Tui
chub**



**Non-
native
Lake
trout**

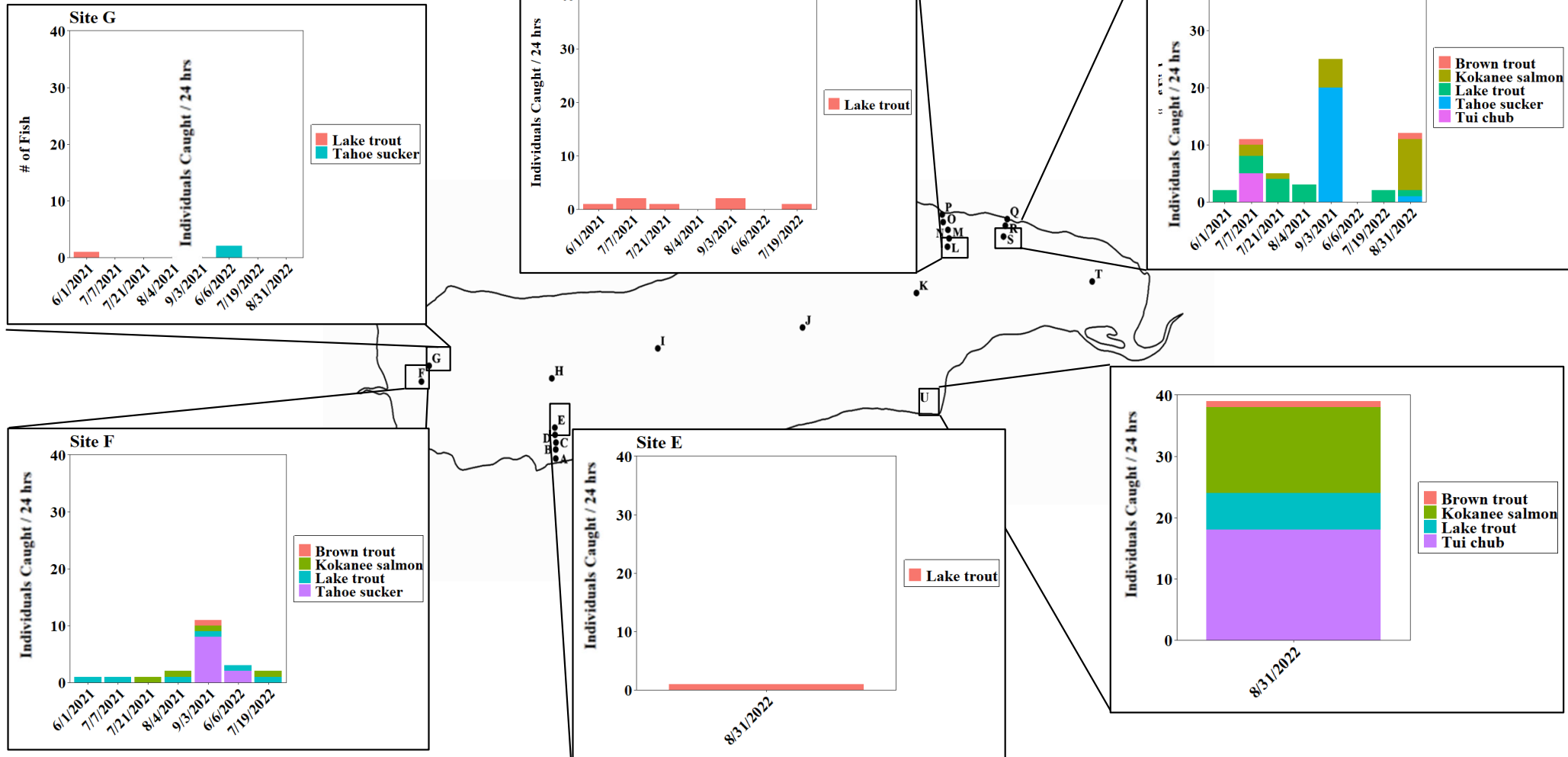


**Non-
native
Kokanee
salmon**



**Native
Tahoe
sucker**

Fish – Catch varies seasonally and interannually with higher catch on east end of lake (Sites S and U)



Two fish species were not captured in Donner Lake in 2021 or 2022

- **Mountain whitefish**

- Previously observed in Donner, Fallen Leaf Lake, and Lake Tahoe gill net catches in the early 2000s.
- Introduced lake trout are highly predatory and may control the populations of whitefish in the lake.



- **Paiute sculpin**

- While not likely to be caught using the gill net sampling technique we used, the stomachs of lake and brown trouts did not contain sculpin. These highly efficient predators may control the numbers of sculpin in the lake.

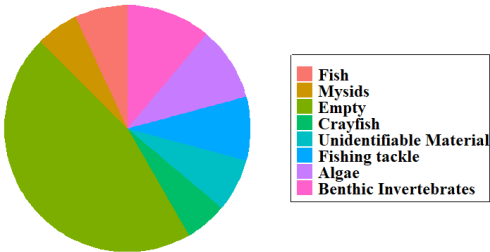


Stomach contents of lake trout, kokanee salmon, and brown trout

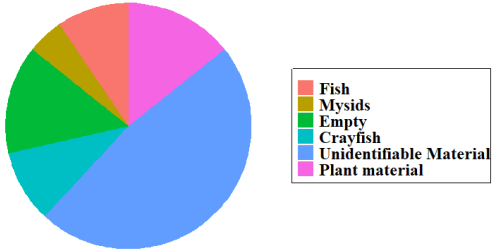


Lake
trout

A) 2021 - Lake trout (n = 23)

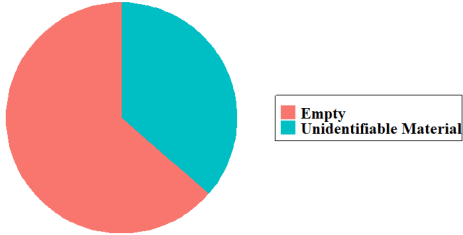


D) 2022 - Lake trout (n = 13)



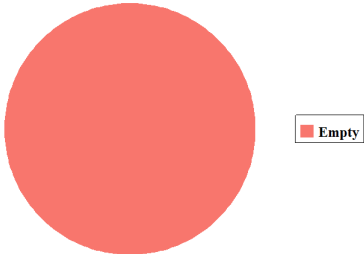
Kokanee
salmon

B) 2021 - Kokanee salmon (n = 11)

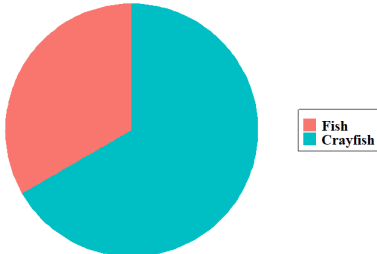


Brown
trout

C) 2021 - Brown trout (n = 2)



E) 2022 - Brown trout (n = 2)



Summary of 2023 Findings and Recommendations:

- Physical and chemical measurements of Donner Lake in 2022 are mostly similar to 2021

RECOMMENDATIONS:

- Continue monitoring water quality profiles for oxygen, temperature, nutrients, chlorophyll a
- Continue monitoring for clarity & light profiles
- Continue to model summer ecosystem productivity in the nearshore and offshore

- Biological structure remains highly variable (e.g. zooplankton trends, fish catch, invasive species) and the native mountain whitefish were still not observed in Donner Lake.

RECOMMENDATIONS:

- Continue to collect and determine zooplankton composition and density
- Initiate night samplings at 3-5 collection sites twice a year (June and November) for mysid shrimp to determine density and growth rate
- Reinitiate crayfish sampling from shallow to deep waters, and discontinue benthic invertebrate collections
- Continue gill net fish sampling at key times of year (June and October)

COMMUNITY CONDITIONS

- ❖ Local population growth
- ❖ Facilities & Infrastructure
- ❖ Recreational Use
- ❖ Trash and Waste
- ❖ Transit
- ❖ Other



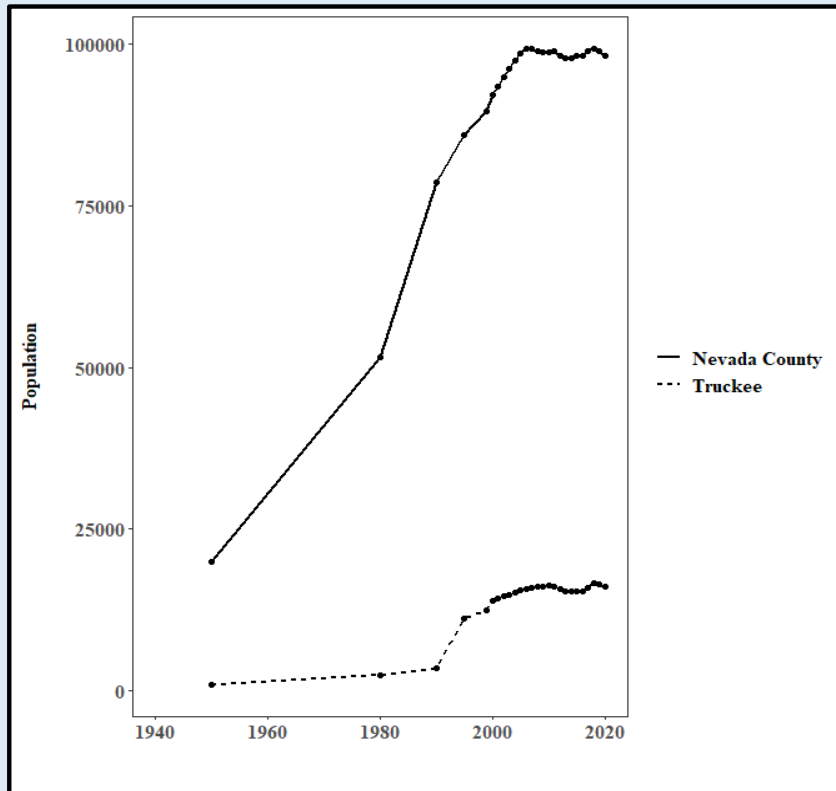
Notes on the organization of this report

- ❑ This section of the 2022 State of Donner Lake is primarily related to the following Goals from the DIPS Stewardship Plan
 5. Recreational Use and Capacity
 6. Transportation, Safety, and Parking
 7. Community Health
- ❑ Relevant background information on population growth and infrastructure has not been updated since the 2021 State of Donner Lake and are indicated with a light blue background.
- ❑ Updated data on recreation, transportation, and community health has white background.



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Population growth in Truckee and Nevada County since 1950



Data from mynevadacounty.com

(www.mynevadacounty.com/378/Demographic-Information-About-the-County)

- Population in Nevada County grew significantly from ~1980 to 2005
- Population in Truckee grew significantly from ~1990 to 2005



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Facilities and Infrastructure: Zoning

Table. Total acres of land zoned for each generalized purpose.

Zoning Group	Total Acres
Forest	1,780
Residential	1,047
Recreation	481
Commercial	33
Other	594
Lake	834
Total	4,769

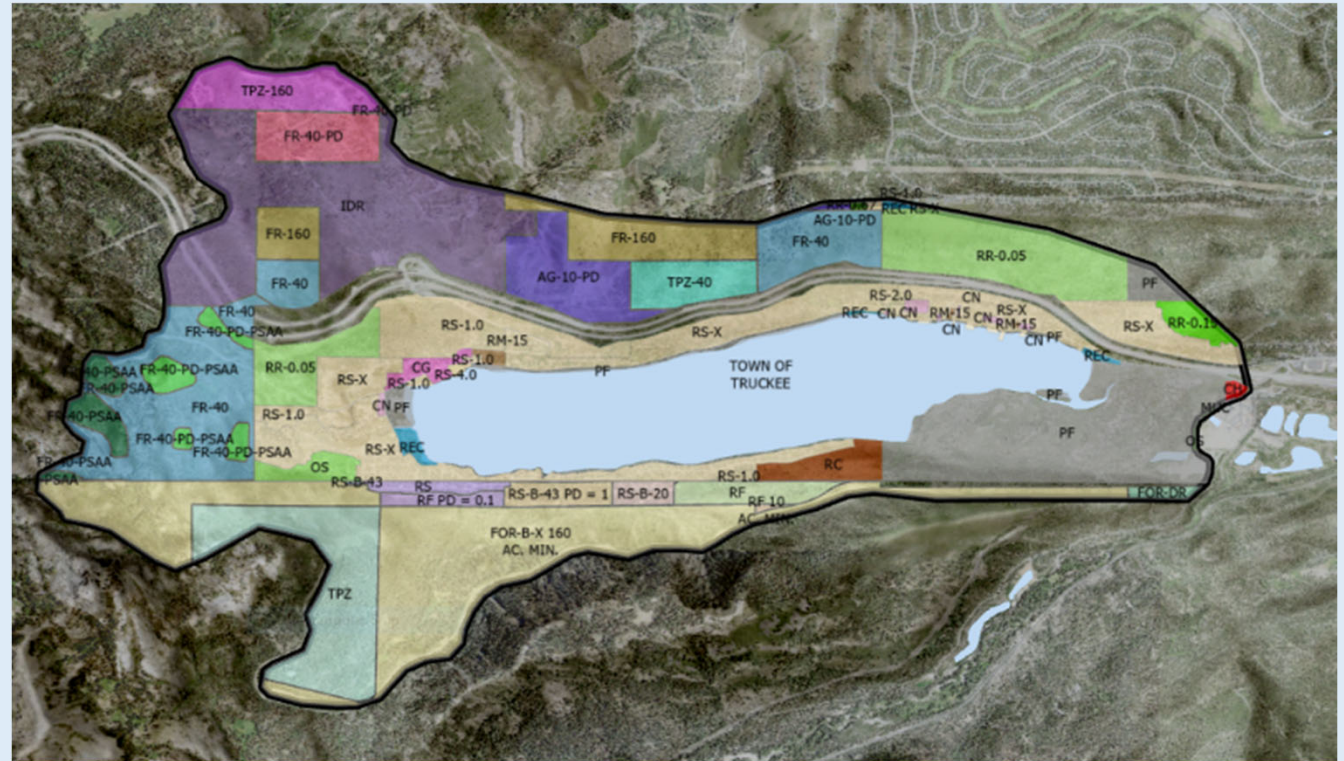


Figure. Nevada County, Placer County, and Town of Truckee combined zoning classification map. See appendix for zoning codes.



Facilities and Infrastructure: Housing Supply

Table. Total available housing stock by type of dwelling as of 2022.

Type of Dwelling	No. of Housing Units
Apartment	12
Condo	105
Multi-Family Residential	8
Single Family Residential	883
Unknown	6
Miscellaneous Residential	42
Total	1,056

Source: Town of Truckee as of 3/3/2022

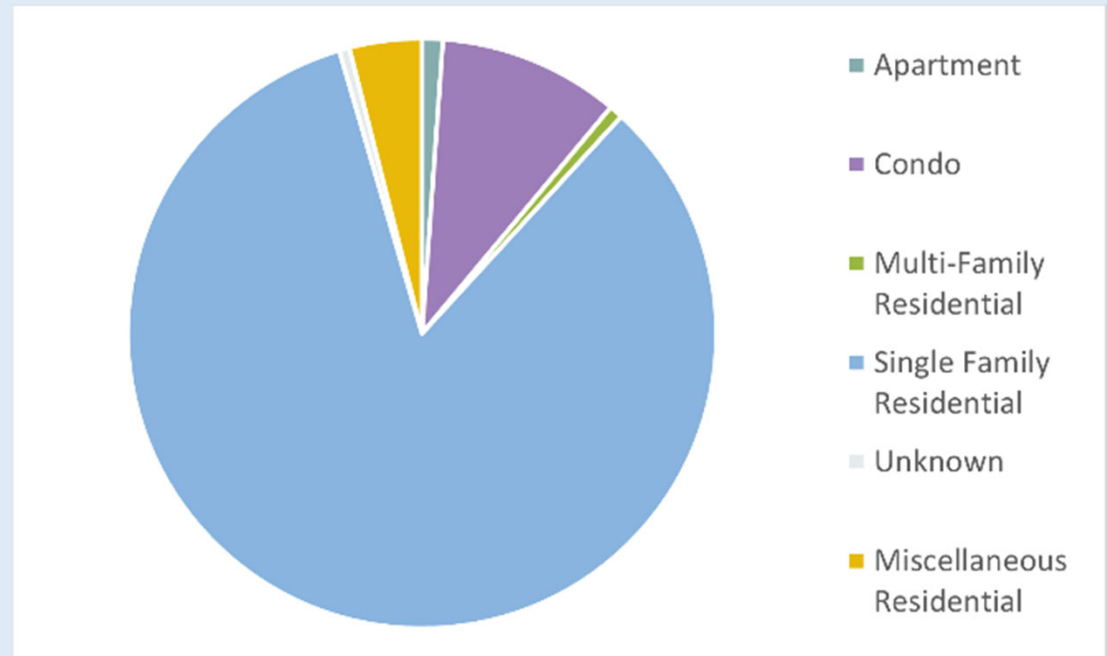


Figure. Proportion of available housing stock by type of dwelling as of 2022.



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Facilities and Infrastructure: Public and Private Docks

Table. Number of docks by private versus public owner.

Owner	Total
Truckee Donner Rec and Park	37
Private	225
Total	262

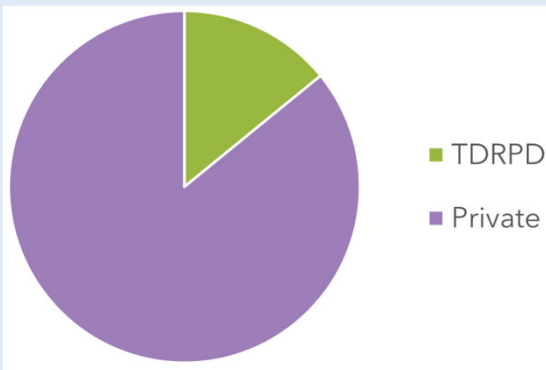


Figure. Proportion of total docks that are private versus public.



Figure. Private and public docks within the Donner Lake study area.

Source: TDRPD, Town of Truckee as of 3/3/2022



Facilities and Infrastructure: Roads and Bridges

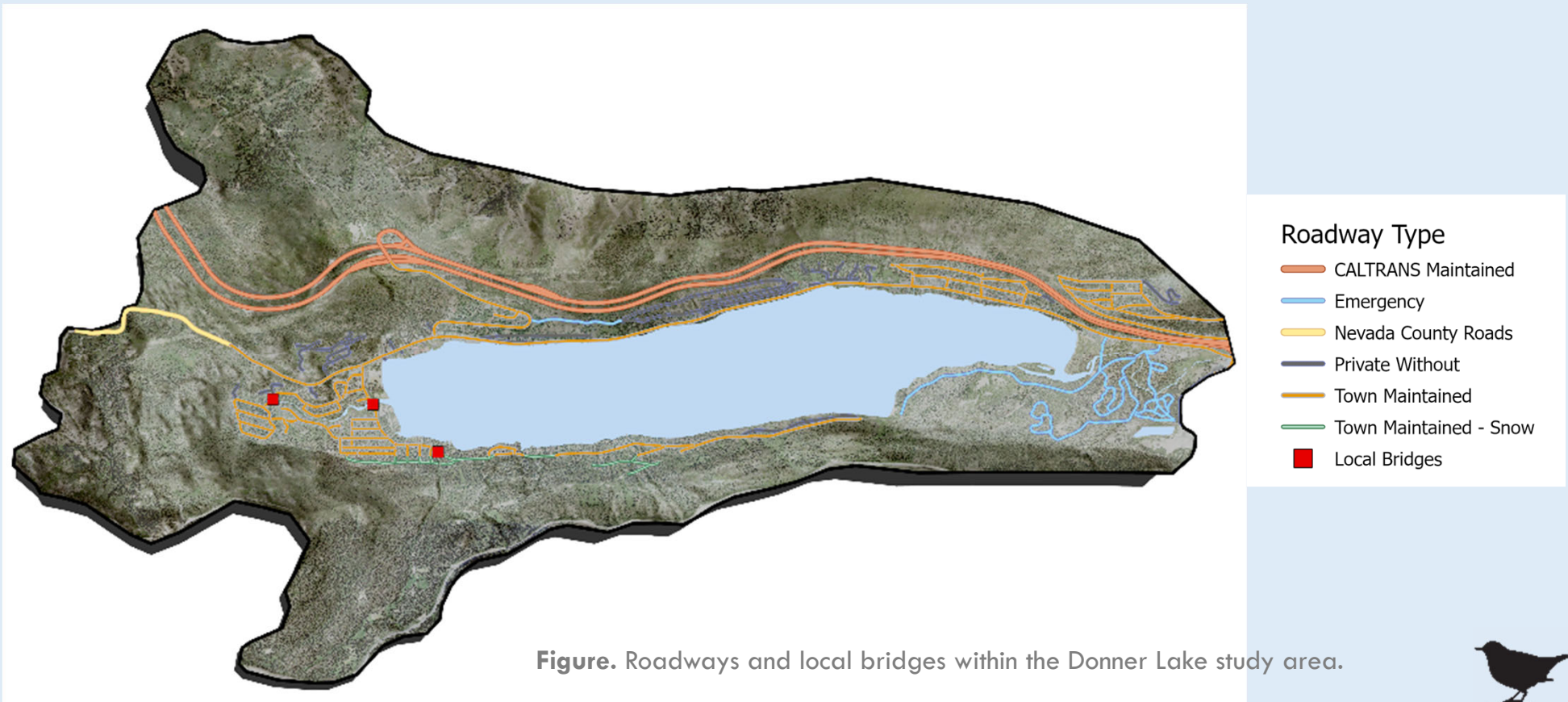


Figure. Roadways and local bridges within the Donner Lake study area.

Source: Town of Truckee as of 3/3/2022



Facilities and Infrastructure: Impervious Surfaces

Table. Acres of impervious surface by type of surface.

Type of Impervious Surface	Total Acres
Structures	67
Paved Driveway	36
Paved Parking	14
Paved Road	151
Total Acres of Impervious Surfaces	201

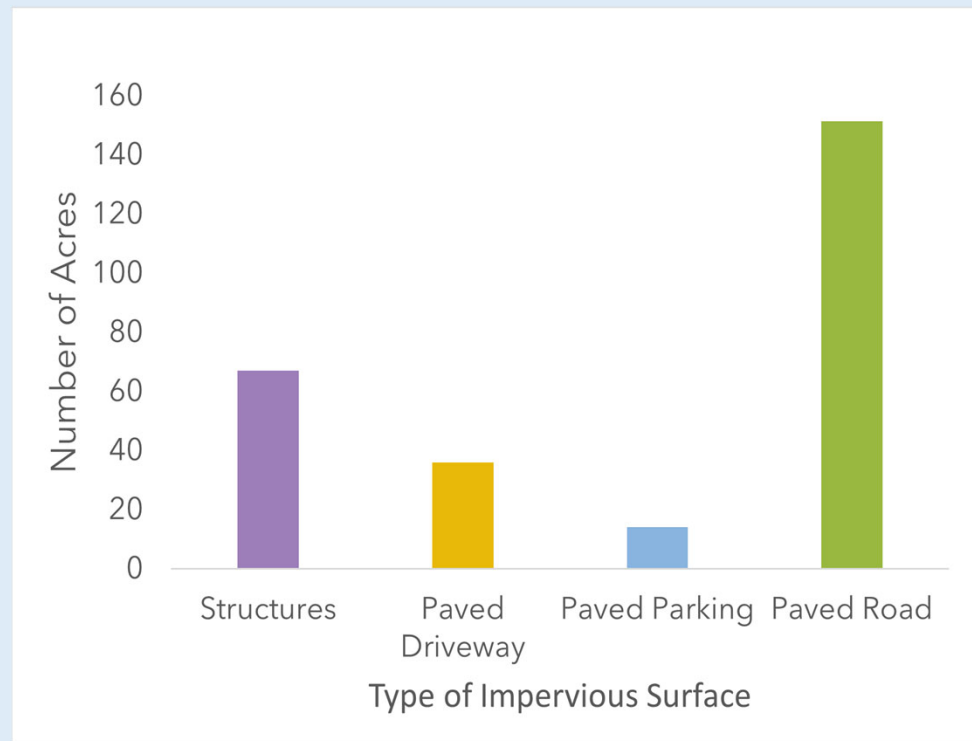


Figure. Acres of impervious surface by type of surface.

Source: Town of Truckee as of 3/3/2022



Facilities and Infrastructure: Impervious Surfaces

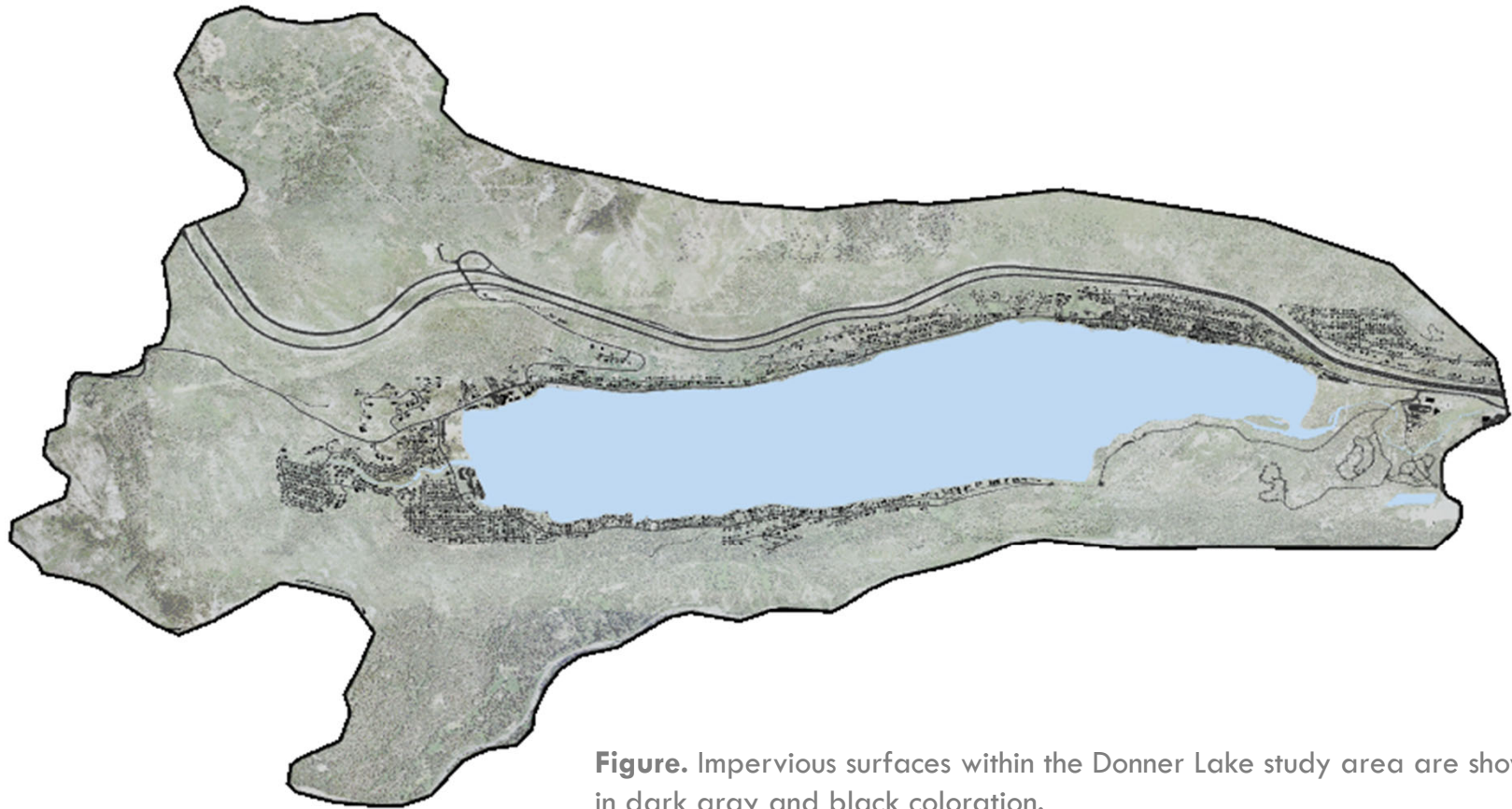


Figure. Impervious surfaces within the Donner Lake study area are shown in dark gray and black coloration.

Facilities and Infrastructure: Unpaved Roads

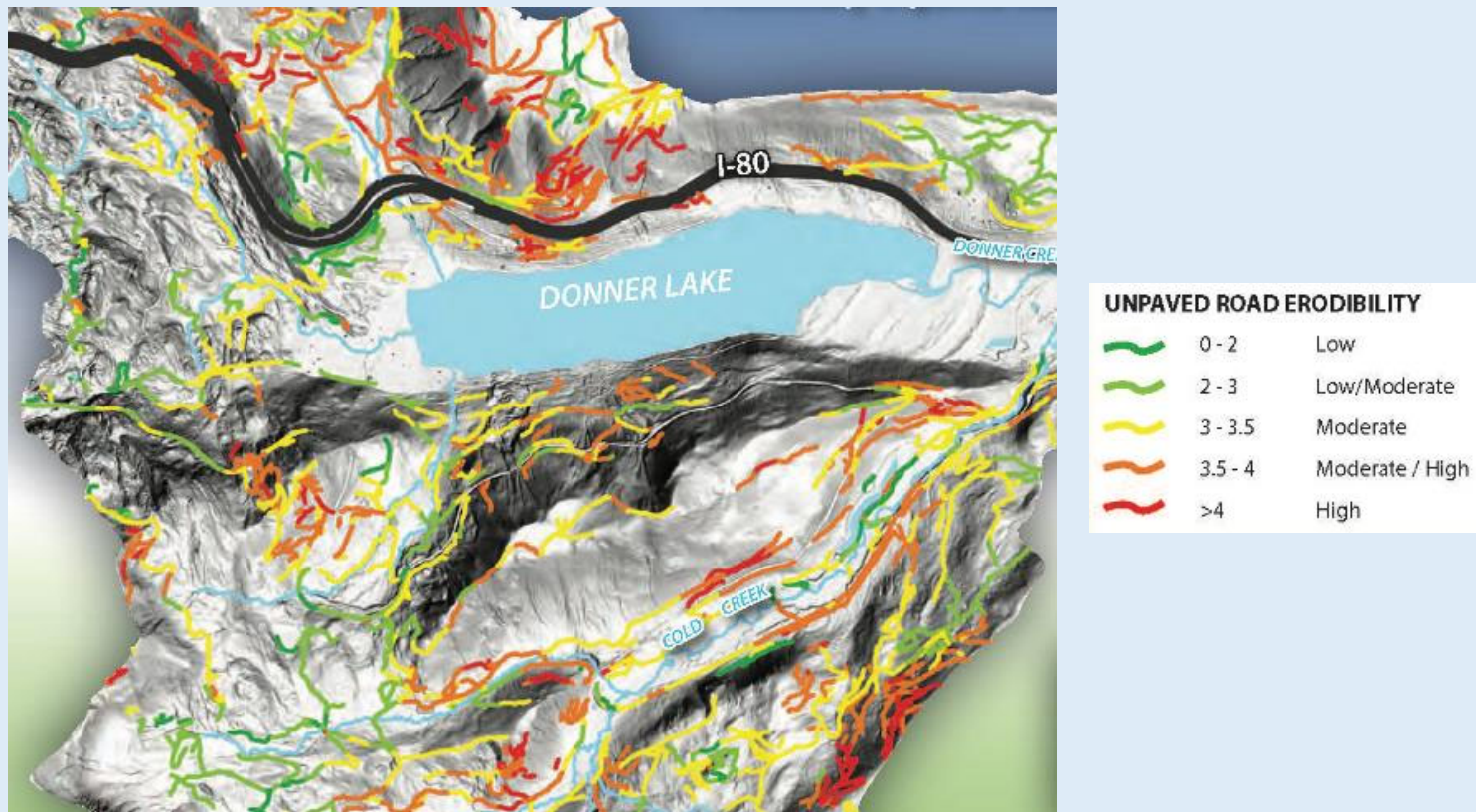


Figure. Unpaved roads within the Donner Lake study area.

Source: Donner Basin Assessment, 2018



Facilities and Infrastructure: Stormwater

Table. Donner Lake Basin stormwater infrastructure total count, linear feet, and square feet.

Stormwater Infrastructure	Count	Linear Feet	Square Feet
Outfalls	156		
Storm Manholes	9		
Inlets	221		
Culverts (includes driveway culverts)	711	31,650	
Ditches	652	81,882	
Large Detention Basins (includes I-80 basins)	11		86,000

Source: Town of Truckee as of 3/3/2022



Facilities and Infrastructure: Stormwater and Points of Diversion

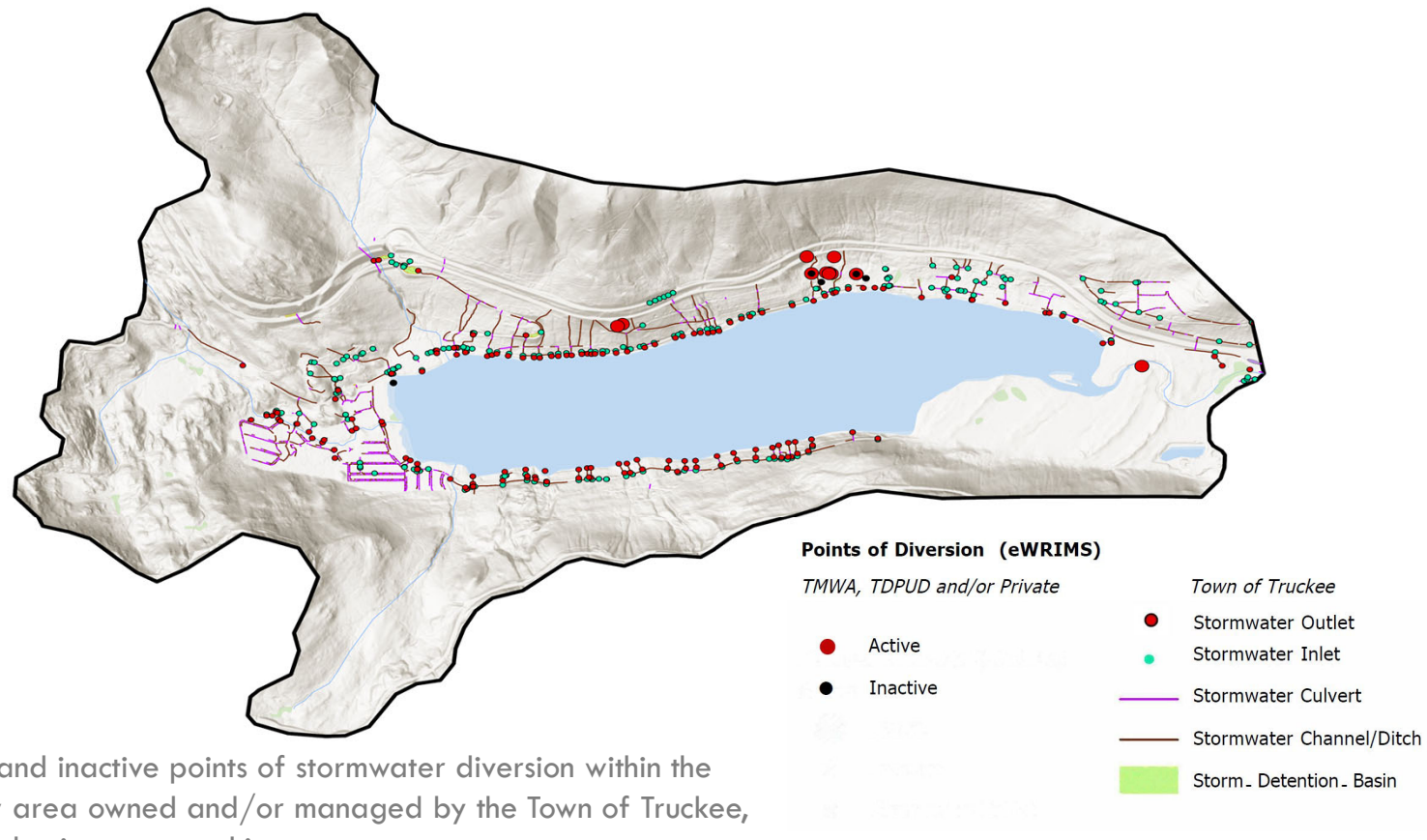


Figure. All active and inactive points of stormwater diversion within the Donner Lake study area owned and/or managed by the Town of Truckee, TMWA, TDPUD and private ownership.

Source: Town of Truckee as of 5/29/2023



Facilities and Infrastructure: Donner Lake Dam

- Dam raises water level roughly 12 feet above natural lake level.
- Donner Lake is heavily regulated and managed for downstream water supply, flood control, and recreation.
 - The maximum permissible storage elevation is 5,935.8 feet to avoid flooding local properties.
 - Lake levels typically peak between late May and early July.
 - Lake levels cannot be drawn down below 5,932 feet prior to September 1st for recreational uses.
 - In winter, water surface elevation is typically ~6 feet lower than in summer for flood control purposes.
 - In spring, dam operators can begin storing additional water supply.

Source: Donner Basin Assessment, 2018

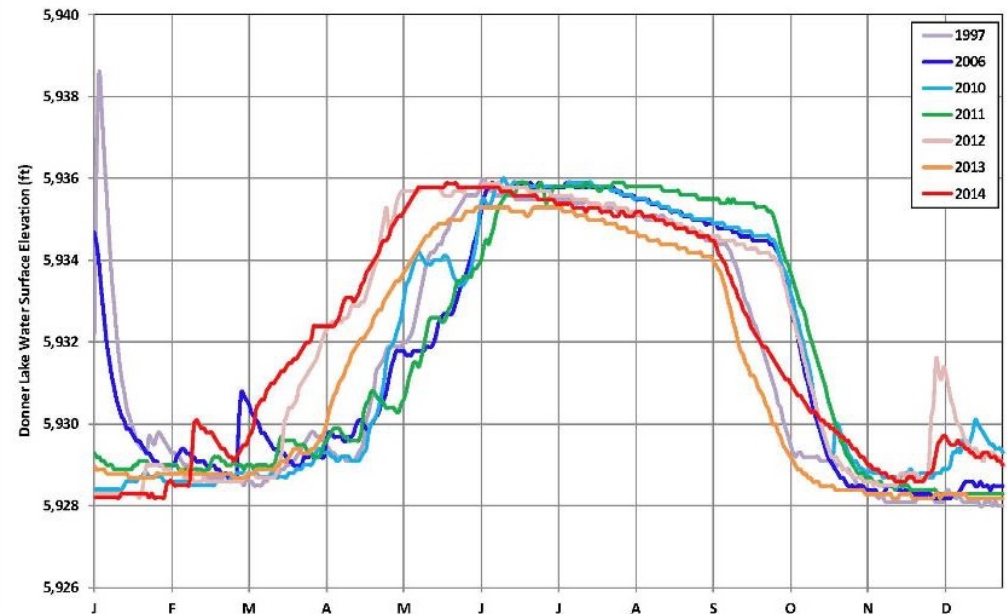


Figure. Donner Lake levels for select years



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Facilities and Infrastructure: Of Major Land/Water Rights Owners

Organization	Existing Infrastructure
Donner Lake Property Owners Association	Donner Lake Beach (private)
California State Parks	High Sierra Crossing Museum; Administrative Offices; Pioneer Monument; 2 residential duplexes; 2 residences; 2 developed trailer pads; 1 undeveloped trailer pad; 1 mobile home site; 2 maintenance buildings; 18.5 miles of non-motorized trails; 4.4 miles of paved roads; 24 miles of unpaved roads; 1-mile lakeside interpretive trail; 1.5 miles of frontage on Donner Lake and Donner Creek; 78 picnic sites (3 ADA); 3 comfort stations at day use areas (1 ADA); 147 campsites (12 ADA); 6 comfort stations or restroom/shower buildings for campers (5 ADA); Campfire center; 60 car parking lot at Visitor Center (3 ADA); 15 car parking lot at China Cove (1 ADA); ~75 paved parking spaces (2 ADA) and 75 roadside/dirt parking throughout Day Use area; 5 bridges (1 vehicle public, 1 vehicle operations/pedestrian, 1 pedestrian, 2 in Lakeview Canyon);
Tahoe Donner Association	2 small sheds, boat house building, boat storage/camp building, check-in kiosk, dumpster storage structure adjacent to boat house; 11 boat and trailer parking spots, 34 regular parking spots, boat launch, storage racks to accommodate 150 kayaks and SUPs, 3 floating docks (1 fishing, 1 boat dock, 1 swim dock) secured with chains to lakebed
Truckee Donner Land Trust	Johnson Canyon info kiosk and dog waste station, Donner Summit Canyon dog waste station, Creekside Woods dog waste station
Truckee Donner Recreation and Park District	37 public piers; 2 boat lane-wide boat ramp; fish cleaning station; parking lot (undetermined number of spots); all-access fishing pier (Shoreline Park); West End Beach: tennis court, boat storage, pavilion, entrance gate, staff building/restrooms, basketball court, beach volleyball court, playground, picnic areas, horseshoe pits, parking lot (# spaces unknown)
Truckee Meadows Water Authority	1 dam
Truckee Sanitary District	7 main lift stations convey sewage from South Shore Drive, through 11,200' of force mains, clockwise around the lake to discharge at Deerfield Dr., wetwell for sewage collection, drywell with two independent pumps, 10,000 gallon overflow tanks

Facilities and Infrastructure: Planned Improvements

Table. Planned improvements in Donner Lake study area by major land and water rights owners.

Organization	Planned Improvements
California State Parks	Road and Trail Management Plan: Improve 10 mi, decommission 2.5 mi, remove 3.3 mi of “volunteer”, convert 4 mi, construct 9.1 mi of new, align with Donner Lake Rim Trail, new trailhead at Coldstream Valley Rd, improve connection between Summit and Lakeview Canyons
Tahoe Donner Association	Deck expansion to begin Fall 2023
Truckee Donner Land Trust	Forestry and wildfire resilience and restoration work Billy Mack Canyon (Summer 2022/2023) and Creekside Woods (Summer 2022); Discussion of parking lot and bathroom at Johnson Canyon, Completion of Donner Rim Trail no planned dates
Truckee Donner Recreation and Park District	Boat ramp improvements: \$2.1 million from State - ramp extension on both ramps, new bathroom, parking lot paving, ADA upgrades potential for Fall 2023; Pier Renovations - piers #15, 17, and 23 Fall 2022
Truckee Meadows Water Authority	Money allocated within next 5 years to assess need to dredge Donner Lagoon - may not be used; no additional dam repairs anticipated in near future
Truckee Sanitary District	Capital Improvement Plan to upgrade the plumbing (FY 2025) and electrical components (annually for 5 years) at the stations, Cathodic protection coatings (annually for 5 years) to reduce structural corrosion of the dry wells, increasing capacity at lift station 1B (FY 2023-2024)

Recreational Use: Large events

Table. Events in the Donner Lake study area by year.

Year	Event	Organizer	Date	Location
2018	July 4th Fireworks	Truckee Donner Rec and Park	7/4	West End Beach
	Donner Lake Triathlon	Big Blue Adventure	7/21-22	Donner Lake
	Donner Lake Open Swim	US Masters Swimming Club	8/11	Donner Lake
	25th Anniversary Picnic	Multiple	9/8	West End Beach
2019	Fourth of July Fireworks	Steve Randall	7/4	West End Beach
	Donner Lake Triathlon	Big Blue Adventure	7/20-21	West End Beach
	Donner Lake Open Swim	Jessie Kiltz	8/10	Donner Lake
2020	NONE			
2021	Donner Lake Triathlon	Big Blue Adventure	7/24	West End Beach
	Donner Lake Open Swim	Sierra Nevada Masters	8/14	Donner Lake
2022	Fourth of July Fireworks	Truckee Donner Rec and Park	7/4	West End Beach
	Donner Lake Triathlon	Big Blue Adventure	7/23-7/24	West End Beach
	Donner Lake Open Swim	Sierra Nevada Masters	8/13	Donner Lake



Source: Town of Truckee as of 3/13/2023

Recreational Use: Paid Admissions by Year

Table. Total paid usership of recreation facilities.

Organization	2018	2019	2020	2021	2022
TDA*	41,852	36,614	42,586	39,930	35,374
TDRPD	54,648	55,451	55,776	51,368	41,441
State Parks**	237,852	258,625	278,546	331,801	342,985
Total	334,352	350,690	376,908	423,099	419,800

* TDA limited admissions with a reservation system starting in 2022.

** State Parks user estimates based upon day use, overnight use, and annual passes. Does not include non-paying walk-ins which are estimated to make up a significant proportion of usership.

Source: TDA, TDRPD, State Parks as of 3/20/2023

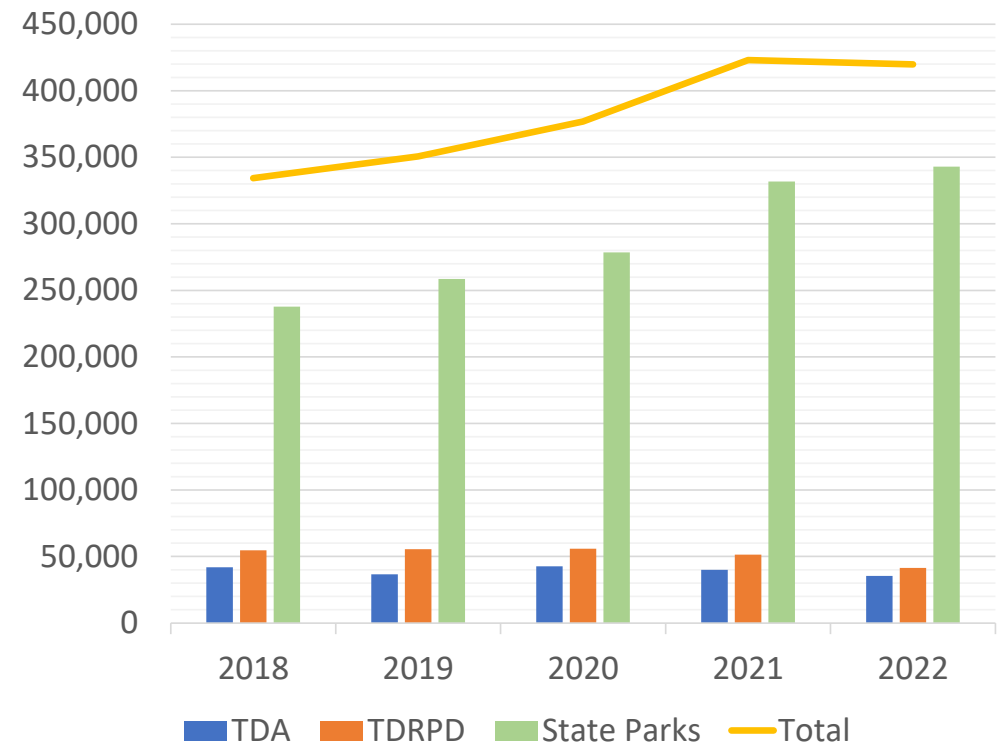


Figure. Total paid usership of recreation facilities.



DONNER LAKE INTERAGENCY PARTNERSHIP FOR STEWARDSHIP **DIPS**

Recreational Use: Paid Admissions by Month (May-Sept)

Table. Total paid users by month between 2018-2022 for TDA*, TDRPD, and State Parks**.

Month	2018	2019	2020	2021	2022
May	12,782	11,446	16,170	33,181	21,542
June	54,975	56,923	54,399	101,611	60,683
July	112,724	106,045	109,673	144,961	113,746
Aug	72,207	88,835	101,915	60,675	89,662
Sept	33,842	37,358	48,316	21,342	43,964

* TDA limited admissions with a reservation system starting in 2022.

** State Parks user estimates based upon day use, overnight use, and annual passes. Does not include non-paying walk-ins which are estimated to make up a significant proportion of usership.

Source: TDA, TDRPD, State Parks as of 3/20/2023

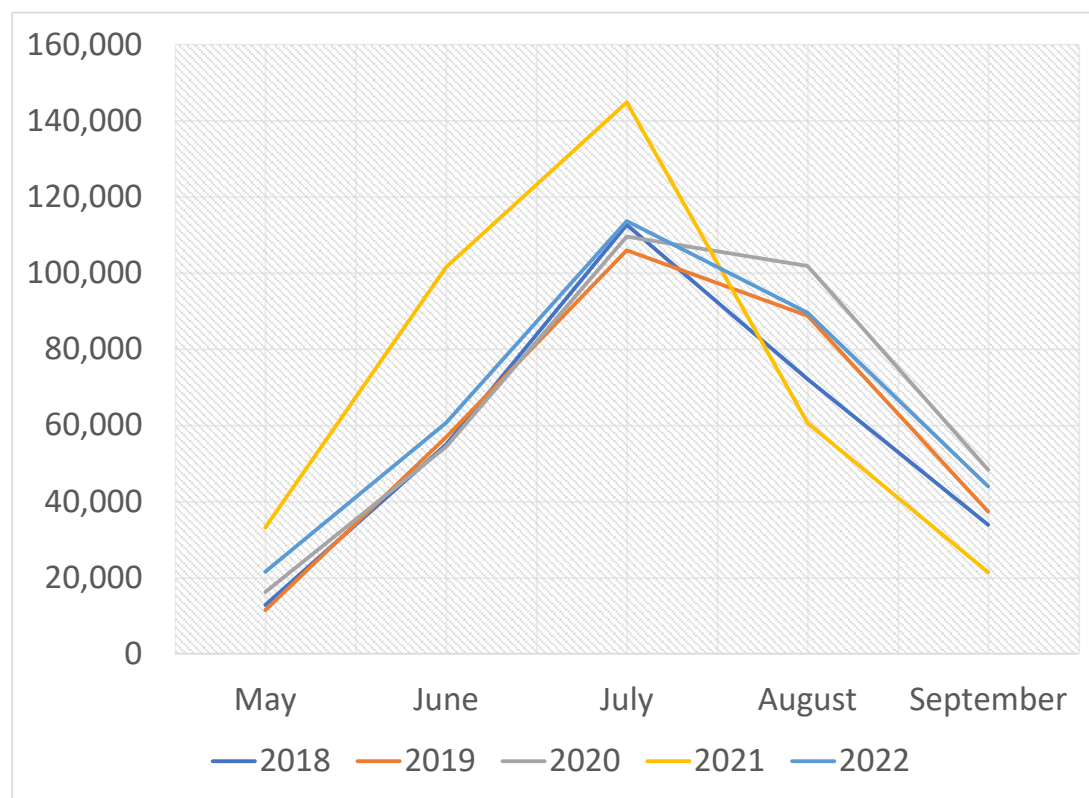


Figure. Number of paid users by month between 2018-2022 for Tahoe Donner Association, Truckee Donner Recreation and Parks District, and California State Parks.



DIPS

DONNER LAKE INTERAGENCY PARTNERSHIP FOR STEWARDSHIP

Recreational Use: Boat Launches at Public Boat Ramp

Table. Total number of boat launches at TDRPD boat ramp.

Month	2018	2019	2020	2021	2022
May	0	16	305	162	149
June	351	538	402	589	460
July	692	527	1064	830	867
Aug	516	448	571	760	408
Sept	448	571	446	458	157

* TDRPD Data – combined pass holder and drop-in boat launches.

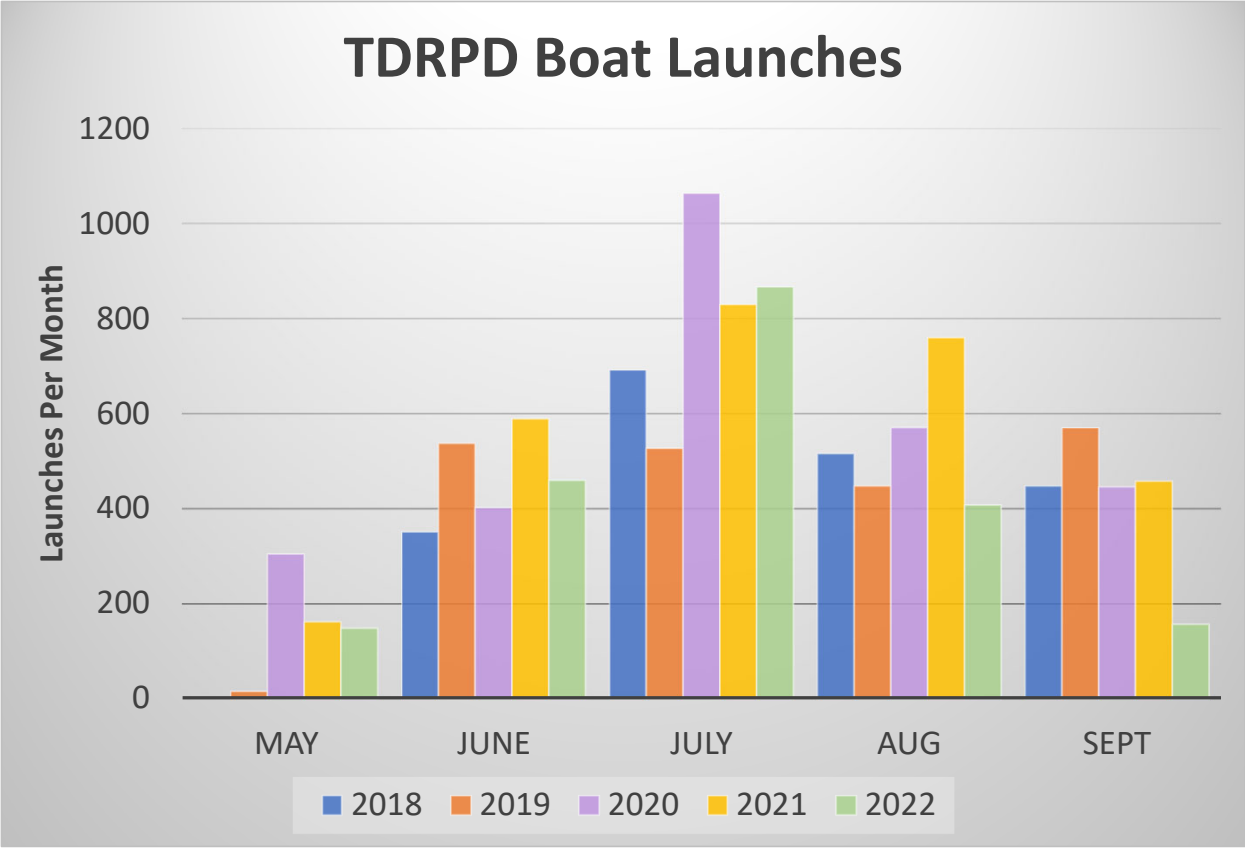


Figure. Total number of boat launches at TDRPD boat ramp.



Recreational Use: Watercraft Rentals

Table. Total number of watercraft rentals by year.

Year	TDA	TDRPD*
2018	5,784	2,408
2019	4,883	2,143
2020	1,821	0
2021	3,218	0
2022	4,401	1,512

*TDRPD suspended boat rentals for 2020 and 2021.

** Watercraft rental data not yet provided by Donner Lake Watersports.

Source: TDRPD and TDA as of 3/20/2023

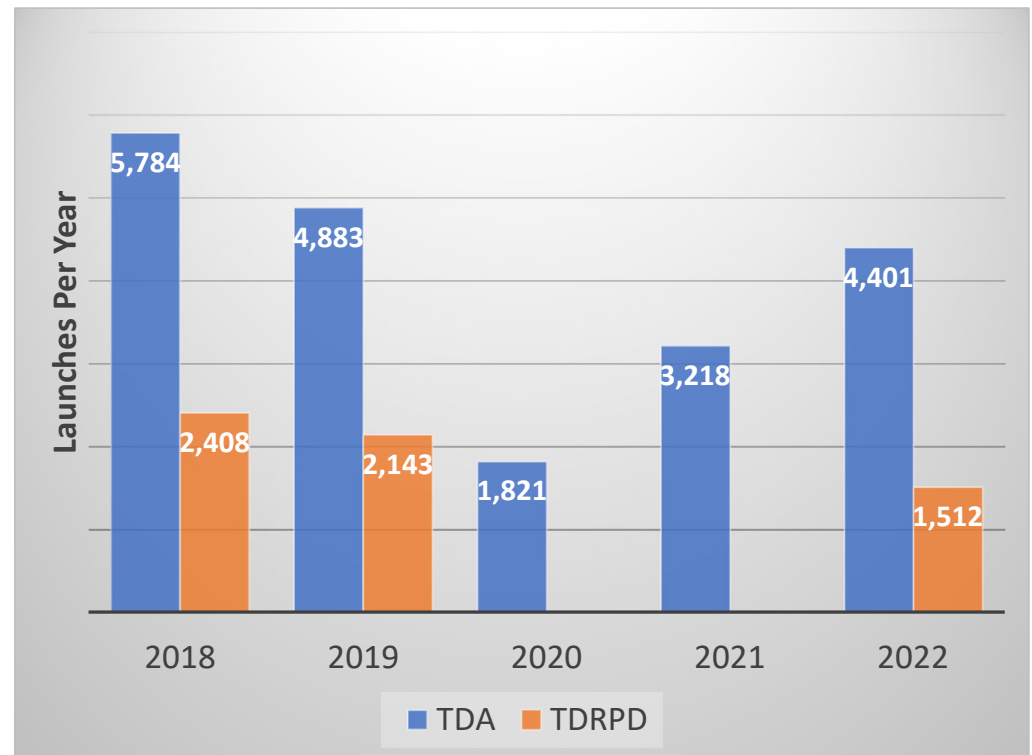


Figure. Total number of watercraft rentals by year.



DIPS

DONNER LAKE INTERAGENCY PARTNERSHIP FOR STEWARDSHIP

Transit: Public Transit Route

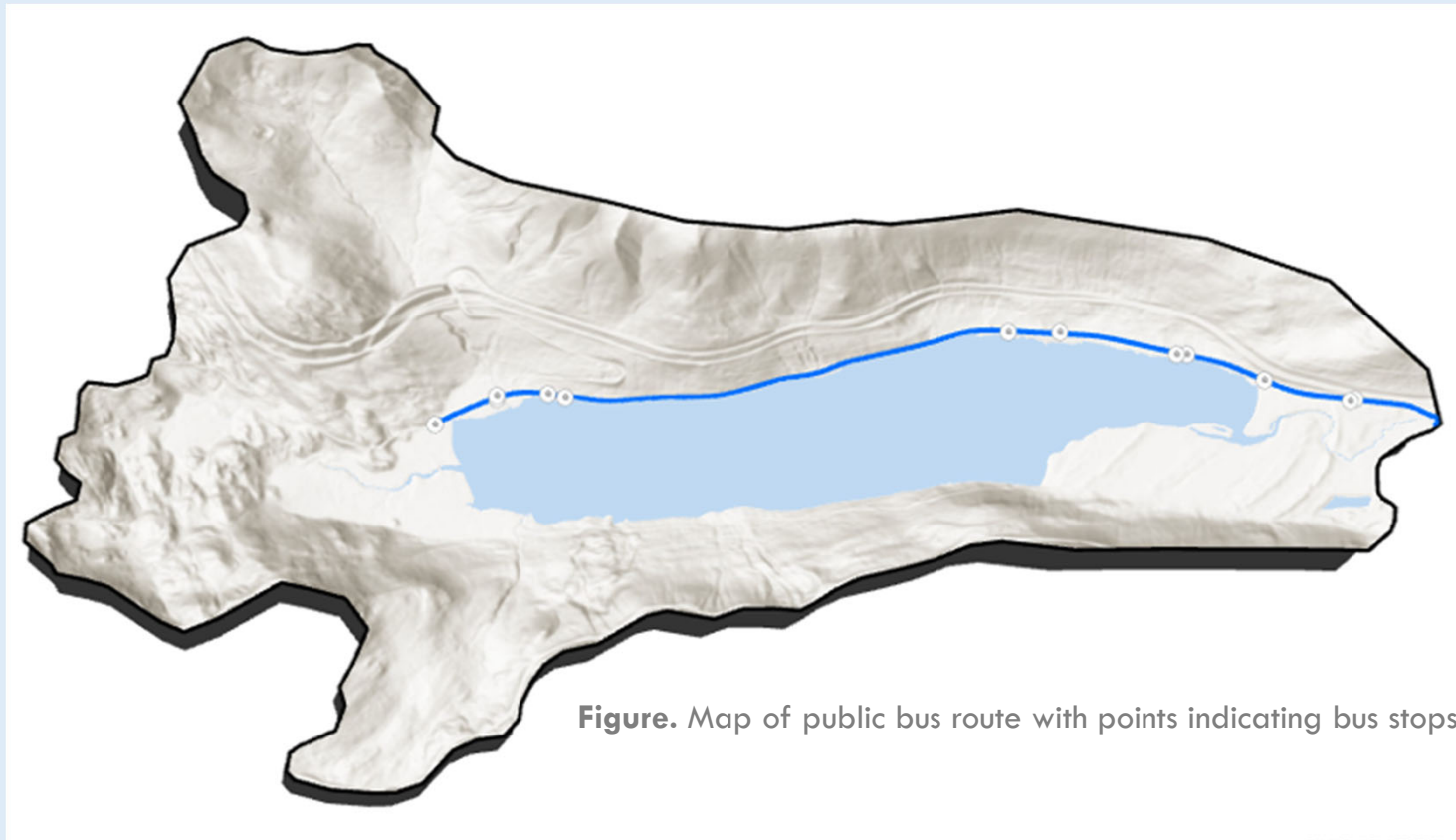


Figure. Map of public bus route with points indicating bus stops.

Source: Town of Truckee as of 3/3/2022



Transit: Public Transit Ridership

Table. Number of bus riders onboarding and offboarding within the Donner Lake study area by year (July-June).

Year (July-June)	Onboard	Offboard
2018-2019	2,499	2,221
2019-2020	1,772	1,677
2020-2021	1,307	2,478
2021-2022	3,020	2,740

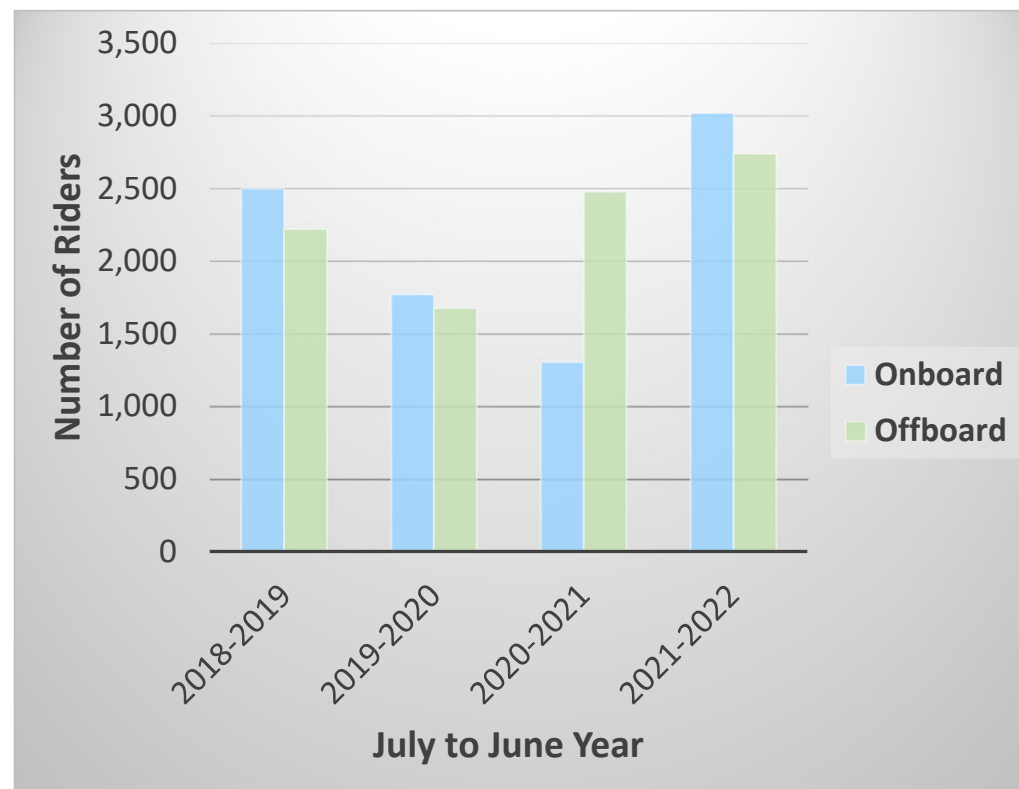


Figure. Number of bus riders onboarding and offboarding within Donner Lake study area by year (July-June).

Source: Town of Truckee as of 3/13/2023



Transit: Other Initiatives

2023 Transit Initiatives

Town of Truckee microtransit program will begin serving all of Donner Lake in April 2023

TDA continues to run shuttles between Tahoe Donner and the Tahoe Donner Beach Club

E-bike share location for the east end of Donner Lake to launch in Summer 2023

Town of Truckee and TDRPD discussing potential shuttle options for July 4th

Town of Truckee completed paving parallel parking on east end of Donner Lake early summer 2023

Source: Town of Truckee as of 6/26/2023



Trash and Waste: Trash Collection

Table. 2022 trash collection by month for State Parks and TDRPD* in cubic meters.

Month	TDRPD Shoreline & Boat Ramp	TDRPD West End Beach	State Parks
June	20	82	82
July	20	163	163
Aug	25	204	204
Sept	20	82	82
Oct	25	76	102
Nov-May	0	0	87
Totals	110	607	720

Combined CSP/TDRPD Annual Trash (m³) 1437

* TDRPD only collects June through October each year.

** August had an extra week of collections in 2023

Source: TDRPD and CA State Parks as of 3/20/2023

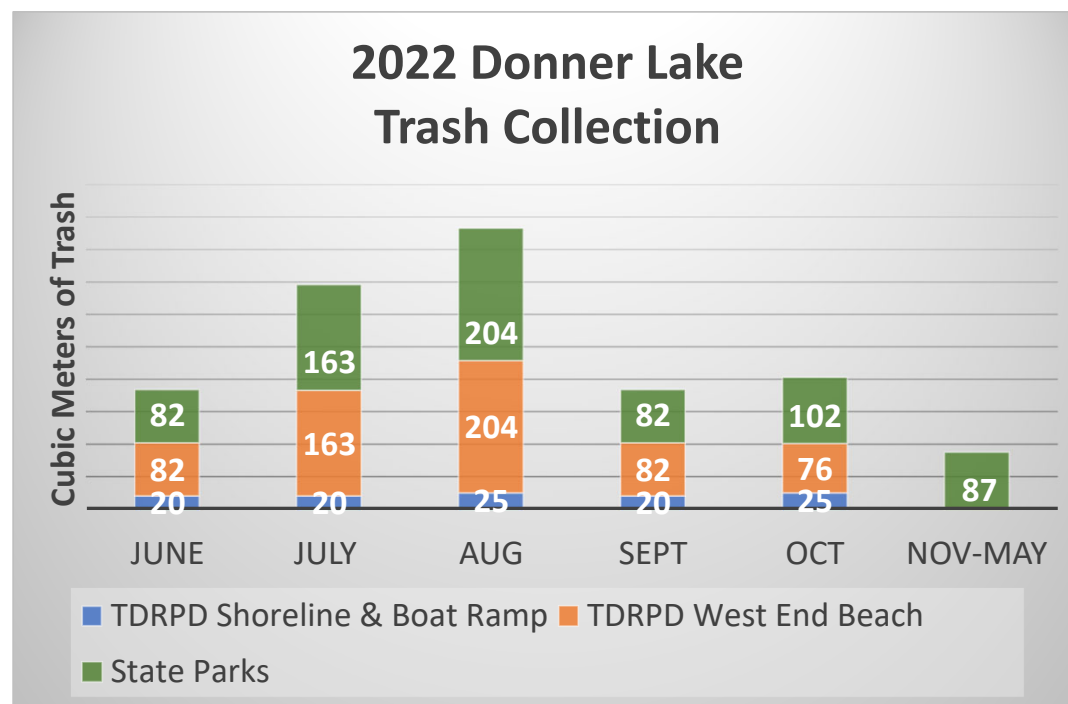


Figure. Total trash collection by month for State Parks and TDRPD. November through May quantities are based on monthly average during this period.



DIPS

Trash and Waste: Underwater Trash

Table. 2022 underwater trash collection by material type.

Material Type	Total Weight (lbs)	Total Count (#)
Glass/Ceramic	3,426	1,622
Rubber	1,622	460
Metal	1,108	1,531
Wood	319	285
Plastic	206	2,410
Cloth	162	245
Paper/Cardboard	2	197
Foam Plastic	0.2	14
Other	11	112
TOTAL	6,857	6,876

- In 2022, Clean Up The Lake conducted 6 miles of nearshore underwater cleanup and 5 deep-water dives
- Litter concentrations were generally highest near public boat launches and docks, especially near piers on the North side of the lake
- Some litter collected will be used for a public art installation at the TDRPD Public Boat Ramp
- Clean Up The Lake is exploring partnering with Tahoe Regional Planning Agency to provide AIS management support through SCUBA-enabled surveys, monitoring, and remediation

Source: Clean Up The Lake, Donner Lake Monitoring, FY22 Summary



Trash and Waste: Sewage Flows

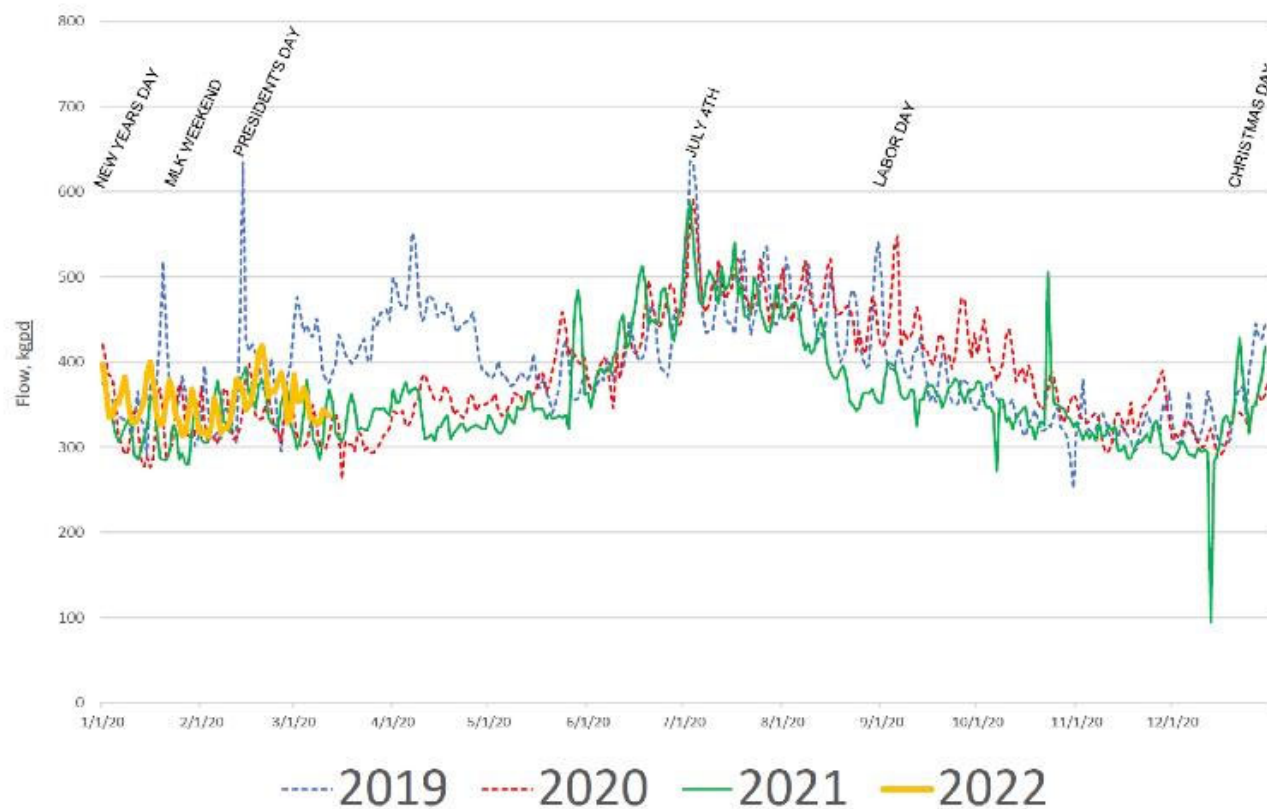


Figure. TSD daily sewage flows within the Donner Lake study area.

Source: TSD as of 3/13/2023



Trash and Waste: Other Initiatives

Ongoing programs

Since 2021, the Town of Truckee contracts with regional nonprofit Clean Tahoe for regular litter removal throughout town, including Donner Lake

Keep Truckee Green organizes ongoing community clean-up efforts, including:

- Annual Truckee Day events
- Truckee Litter Corps days
- “Grab-a-Bag” program with area businesses

Increasing coordination between State Parks, TDRPD, and Town to organize volunteer litter pick-up events



Other: Calls for Service

Table. Calls for Service from Donner Lake area to Truckee Police Department by year and cause for call.

Cause for Call	2018	2019	2020	2021	2022
Boat	41	60	36	34	46
Parking	76	57	60	80	48
Noise	51	59	53	58	42
Total	168	176	149	172	136

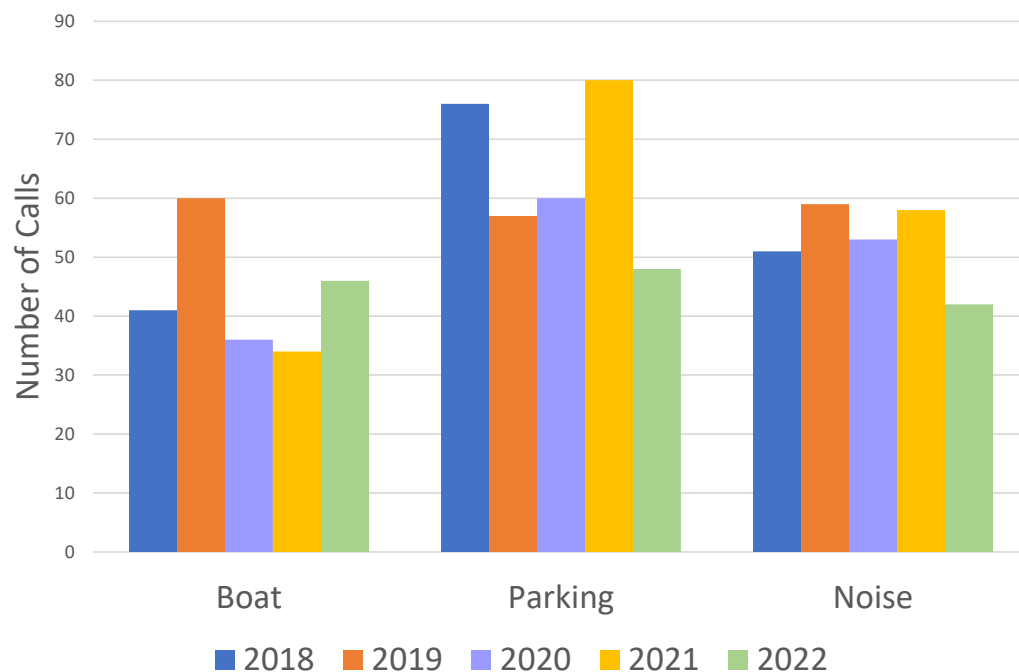


Figure. Calls for Service from Donner Lake area to Truckee Police Department by year and cause for call.

Source: Town of Truckee as of 3/13/2023



Other: Businesses and Tax Revenue

Known Businesses As of 2022

- Donner Lake Realty, Inc.
- Donner Lake Inn B&B
- Donner Lake Village
- Truckee Donner Lodge
- Donner Memorial State Park
- Loch Leven Lodge
- Pub at Donner Lake
- Donner Lake Marina
- Donner Lake Kitchen
- Donner Lake Gift Shop
- Little Truckee Creamery
- McCarthy Sign Shop
- Stick's Market
- Truckee Overhead Door
- Richards Motel

Table. Donner Lake study area Business and Industry tax revenue.

Fiscal Year	Town of Truckee 1% Sales Tax Revenue
FY 21/22	\$4,224.00
FY 20/21	\$3,620.00
FY 19/20	\$2,741.00

* July 1 – June 30 fiscal year reflective of Business and Industry in Donner Lake Area (4 businesses)

Source: Town of Truckee as of 3/3/2022



Other: Development Permits

Table. Total development permits issued by type for 2018-2020.

Type of Permit	Count
New Commercial	2
Deck	49
Demolition	17
Driveway	5
Grading	13
Residential Addition	21
Residential - New Other	4
New Single-Family Residence	26
Dwelling Conversion	2
Total	139

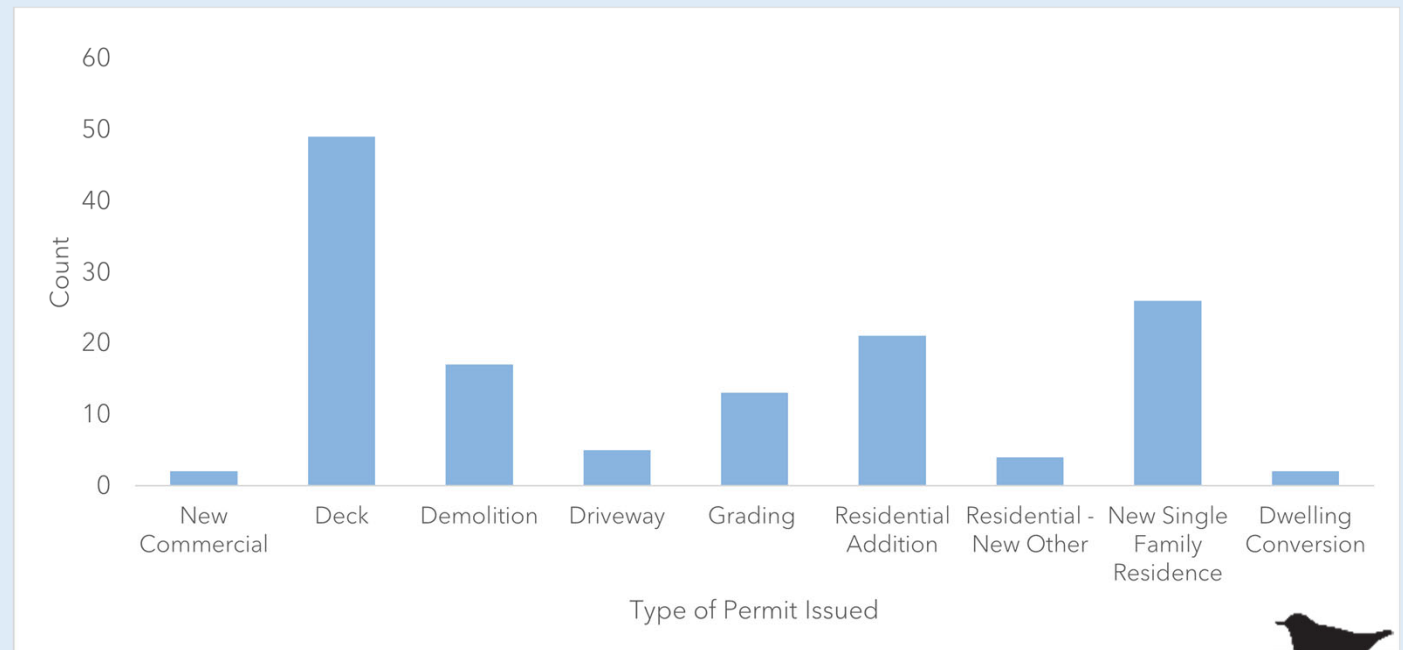


Figure. Total development permits issued by type for 2018-2020.

Source: Town of Truckee as of 3/3/2022



Other: Short Term Rental Supply vs Complaints

Table. Short Term Rental Location by Units vs Complaints.

Short Term Rental Location	Units	Complaints
Donner Lake	130	56
Town of Truckee Outside of Donner Lake	956	151
Total	1,086	207

- Registered STRs in Donner Lake Study area
- All Other Registered STRs in Town of Truckee

Figure. Proportion of available number of short term rentals within and outside of Donner Lake study area.

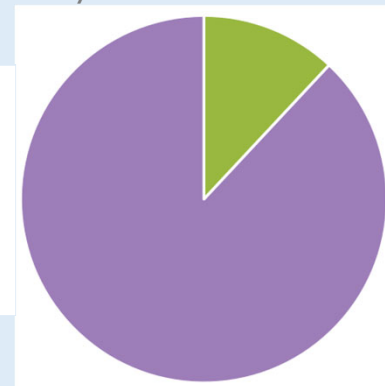
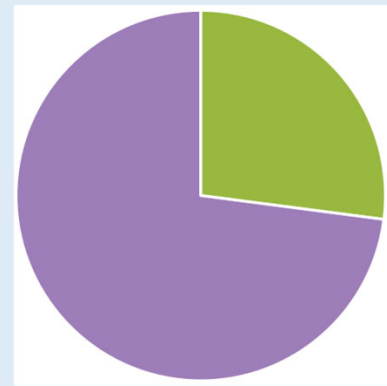


Figure. Proportion of complaints made towards short term rentals within and outside of Donner Lake study area.



Other: Public Outreach

Ongoing programs

Starting in 2021, Sustainable Truckee Ambassadors provide information to residents and visitors on how to recreate responsibly, inspire people to take care of our environment, and monitor use in highly trafficked areas including Donner Lake public piers.

- Sponsored by Truckee Trails Foundation, Visit Truckee Tahoe, Town of Truckee, Nevada County, and others

Visit Truckee Tahoe produces visitor guides that reinforce messaging that is relevant to Donner Lake, including:

- Visitor's Guide to Black Bears and Food Storage
- Visitor's Guide to Wildfire Season in Truckee-Tahoe
- Visitor's Guide to Truckee-Tahoe Boating, Water Recreation & Sustainability
- Visitor's Guide to Winter Weekend Traffic in Truckee-Tahoe

Several DIPS members utilize awareness and motivational messaging developed by the Take Care Tahoe campaign to address key impacts humans are having on our environment, including: litter, dog waste, bears, fire safety, aquatic invasive species, backcountry safety, trail use, and runoff.



DIPS

Summary of Findings and Recommendations

- ❑ More than 1/3 of the study area is open space, but there is intense development on the boundaries of the lake.
- ❑ Annual usage during the study period appears highest in 2021, as evidenced by recreational admissions, boat launches, public transit ridership and calls for service. This is despite a significant fire season in summer 2021.
- ❑ Monthly usage is highest during the summer months, as indicated by trash and waste. But more could be done to understand usage during other seasons.
 - ❑ Active RFP for Donner Lake Peak Recreational Use Assessment for Summer 2023 and Winter 2023/24 for improved peak use data breadth and accuracy



Appendices

1. Acronyms and Abbreviations
2. Zoning Codes

Appendix 1 Acronyms and Abbreviations

Caltrans	California Department of Transportation	Town	Town of Truckee
State Parks	California Department of Parks and Recreation, Sierra District, Donner Memorial State Park	Truckee PD	Truckee Police Department
DIPS	Donner Lake Interagency Partnership for Stewardship	TRWC	Truckee River Watershed Council
HOA	Homeowners Association	TSD	Truckee Sanitary District
TART	Tahoe Area Rapid Transit	TTF	Truckee Trails Foundation
TDA	Tahoe Donner Association	TTSD	Tahoe Truckee Sierra Disposal
TDLT	Truckee Donner Land Trust	UPR	Union Pacific Railroad
TDRPD	Truckee Donner Recreation and Park District	USFS	U.S. Forest Service
TMWA	Truckee Meadows Water Authority	VTT	Visit Truckee Tahoe



Appendix 2 Zoning Codes

Zoning Type	Town of Truckee	Acreage	Nevada County	Acreage	Placer County	Acreage
Commercial	CG (General Commercial)	19.2				
	CH (Highway Commercial)	4.06				
	CN (Neighborhood Commercial)	9.84				
Forest	RC (Resource Conservation)	44.02	FR (Forest)	722	FOR (Forest)	623.36
			TPZ (Timberland Production Zone)	168	TPZ (Timberland Production Zone)	222
Other	MUC	0.23	AG (General Agriculture)	122		
			IDR (Interim Development Reserve)	472		
Recreation	PF (Public Facilities)	435.62				
	OS (Open Space)	28.59				
	REC	16.61				
Residential	RS (Single Family Residential)	606.5			RF	69.09
	RR (Rural Residential)	289.03			RS	75.79
	RM (Multi-Family Residential)	6.67				
Lake		834.4				

