

LAKE BERRYESSA BOATER OUTREACH PROGRAM SUMMER 2024



Written and Administered by

Alia Brown, Nghi Cao, Olivia Kim, and Alec Levy
Solano Resource Conservation District

1170 N Lincoln Street, Suite 110, Dixon, CA 95620
phone: (707) 678-1655 web: solanorcd.org

PROGRAM PARTNERS



Program Funding: Solano County Water Agency, Napa County, Solano County, CalRecycle, Napa County Flood Control & Water Conservation District, and Cities of Rio Vista, Fairfield, Suisun City, Benicia, Vacaville, and Vallejo

Program Supplies: Napa County, Solano County, California Coastal Commission, and the California Division of Boating and Waterways' Boating Clean and Green Program

Table of Contents

1. Introduction	1
2. Educational Outreach to Boaters	1
2.1: Boater Kits and Premiums	1
3. General Season Summary	2
4. Season Statistics and Survey Responses	2
4.1: Site of survey	2
4.2: Where are boaters visiting from?	3
4.3: Lake Berryessa as a drinking water source	3
4.4: Oil absorbents distributed to boaters	4
5. Legacy Data	4
5.1: Oil absorbents distributed 2006-2024	4
5.2: Boater surveys and kits administered 2008-2024	5
5.3: People educated 2006-2024	5
5.4: Oil absorbents installed 2011-2024	6
5.5: Lake Berryessa as a drinking water source 2009-2024	6
6. Barriers to Boater Outreach	7
5.1: Weather	7
5.2: Interest rates	7
7. Educational Outreach to Recreators	8
8. Community Cleanup Events	8
9. Recommendations for Future Interns	10
9.1: Make note of returning boaters	10
9.2: Ask boaters' opinions	10
9.3: Use software to track boaters' license plates	10
9.4: Monitor social events	11
10. Conclusion	11
10.1: Total boater surveys at each Lake Berryessa site	12
10.2: Historical data from 2013 to 2024	12
11. Photos	13

1. INTRODUCTION

Stored behind the Monticello Dam on Putah Creek, Lake Berryessa is a key reservoir for drinking water, irrigation, recreation, hydroelectric power, and flood control in the surrounding region. As the primary source of drinking water for Solano County, the lake supplies reliable, high-quality drinking water to half a million residents, even during periods of drought. To meet high demands for water, the lake's levels are carefully managed to ensure sufficient water for drinking, agriculture, and ecosystem support. Additionally, Lake Berryessa is a popular recreational destination for boating, fishing, and camping year-round.

Solano Resource Conservation District's Lake Berryessa Boater Outreach Program began in 2006. The program provides one-on-one interactions with recreators at the lake and educates users on the vital role it plays as a drinking water source for Solano County. In the 2024 season, four interns engaged in face-to-face environmental outreach with visitors at five boat launches around the lake. They administered the Dockwalker survey and distributed clean boating supplies to inform boaters on the importance of preventing oil leaks and other pollutants. This report summarizes the efforts, successes, and challenges of the 2024 Boater Outreach Program in promoting water quality stewardship among Lake Berryessa's visitors.

2. EDUCATIONAL OUTREACH TO BOATERS

The boater outreach survey aims to expand respondents' awareness of environmentally sound boating practices and to provide resources for preventing water pollution. The goal this year was to administer 750 boater surveys throughout the season. Beginning with demographic information on zip code and motor type, the survey asks whether boaters are aware of Lake Berryessa's role as a drinking water source. Participants are also asked to identify symbols for oil recycling and sewage pumpouts, and to describe their oil cleanup practices. By the end of the survey, boaters are more familiar with the importance of water quality protection and are encouraged to practice proper oil disposal.

2.1: Boater Kits and Premiums

After completing the survey, respondents receive a free 2024 Boater Kit. Kits include an oil absorbent pillow and sheet, a fuel bib, a California Boating Guide, a handbook on Environmental Boating Laws, various maps of Lake Berryessa and the Delta, and a coupon for a Sirius Signal emergency flare. The recyclable sleeve contains information on proper oil absorbent disposal and contact information for reporting spills.

Boaters who installed a new oil absorbent in their engine compartment immediately after the survey received one of three additional premiums. Of the 757 boaters surveyed, 138 chose to install the absorbent on site. This year, ski flags and T-shirts were the most popular rewards, making up 61.2% and 29.9% respectively of all premiums distributed.



Figure 2.1: 2024 Boater Kits on display

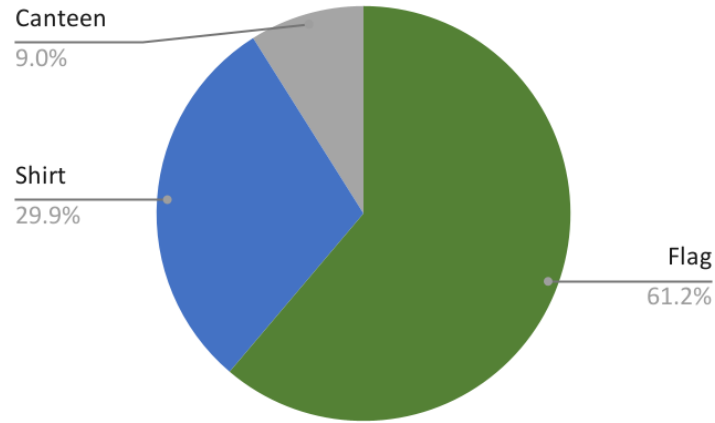


Figure 2.2: Premium selected by boaters who installed an oil absorbent on site

3. GENERAL SEASON SUMMARY

Between May 11th and September 2nd, interns distributed 757 boater kits, surpassing the program goal. They educated 2,046 people on the importance of safeguarding Lake Berryessa from oil pollution and facilitated 138 oil absorbent installations. The following section goes into further detail about site statistics and survey responses from this season.

4. SEASON STATISTICS AND SURVEY RESPONSES

4.1: Site of survey

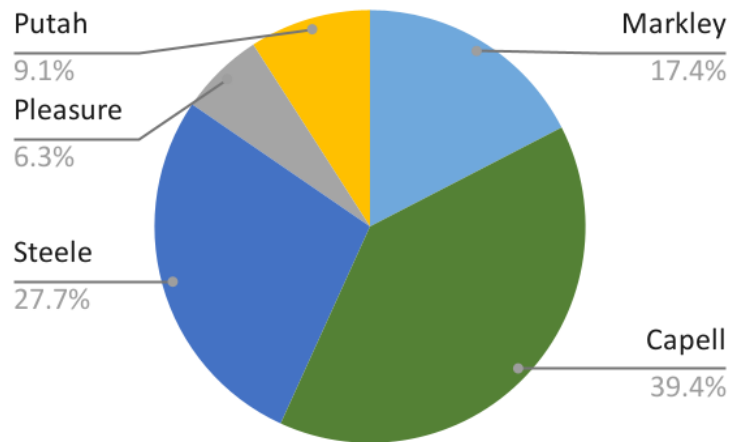


Figure 4.1: Site where each survey was conducted

Figure 4.1 shows that nearly 40% of all surveys were collected at Capell Cove. More outreach took place here since boaters typically frequent Capell for lower launch prices and the broken payment terminal, which allowed boaters to launch for free until it was repaired in early August.

4.2: Where are boaters visiting from?

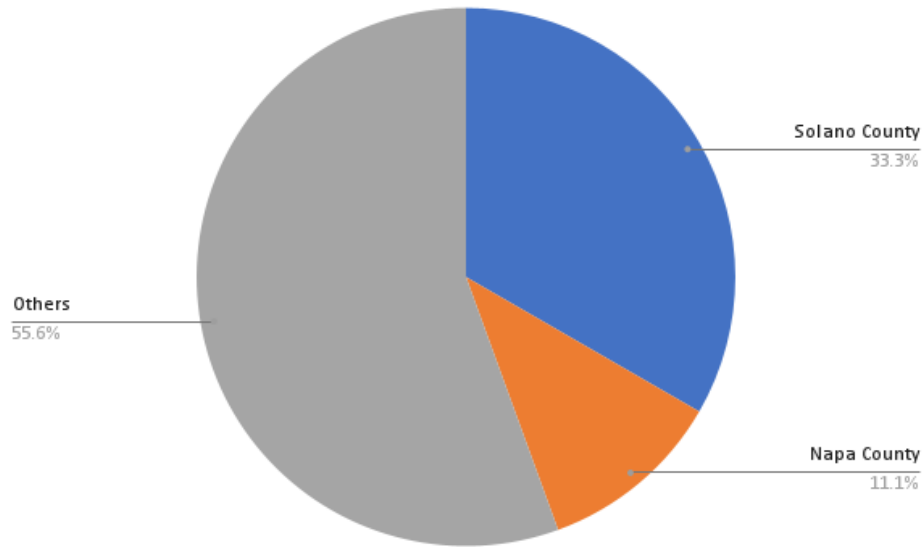


Figure 4.2: County of origin for survey respondents

Nearly half of the boaters came from Solano and Napa County, showing that Lake Berryessa is a popular destination for locals. This data was pulled from the Solano County Water Agency’s zip code data (from the onset of the season through Labor Day). It is consistent with prior years’ data.

4.3: Are boaters aware that Lake Berryessa is a drinking water source?

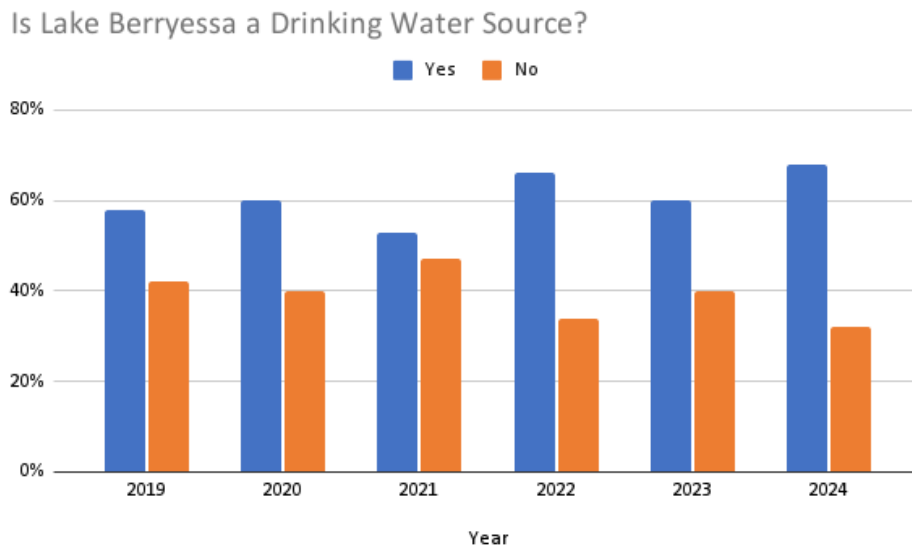


Figure 4.3: Bar chart of respondents who think Lake Berryessa is a drinking water source

More than 30% of boater respondents from this year were not aware of Lake Berryessa’s status as a drinking water source. This is a slightly lower rate than in previous years.

4.4: Oil absorbents distributed to boaters

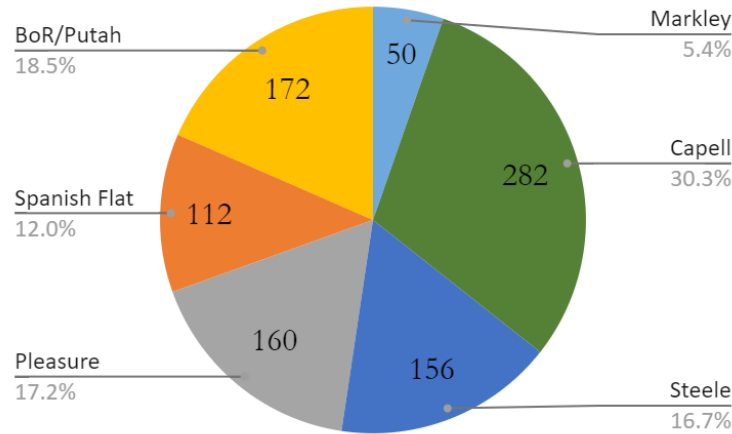


Figure 4.4: Oil absorbents restocked at each site

In addition to conducting surveys, interns also restocked the free oil absorbent pillow stations at each boat launch as needed. Capell was most frequently in need of restock, aligning with its trend of being the most popular concession this season.

5. LEGACY DATA

The Lake Berryessa Boater Outreach Program has operated from 2006 to 2024. Over the past 19 years, interns have distributed 10,570 boater surveys and kits and educated 27,618 individuals about water stewardship.

5.1: Oil absorbents distributed to boaters 2006-2024

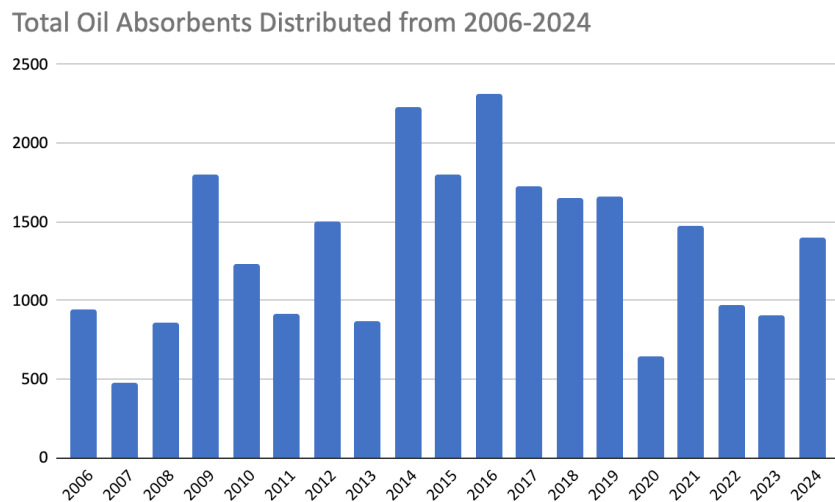


Figure 5.1: Total amount of oil absorbents distributed

Interns have distributed a total of 16,751 oil absorbents throughout the course of the program, with a maximum of 2,310 in 2016 and a minimum of 476 in 2007.

5.2: Boater surveys and kits administered 2008-2024

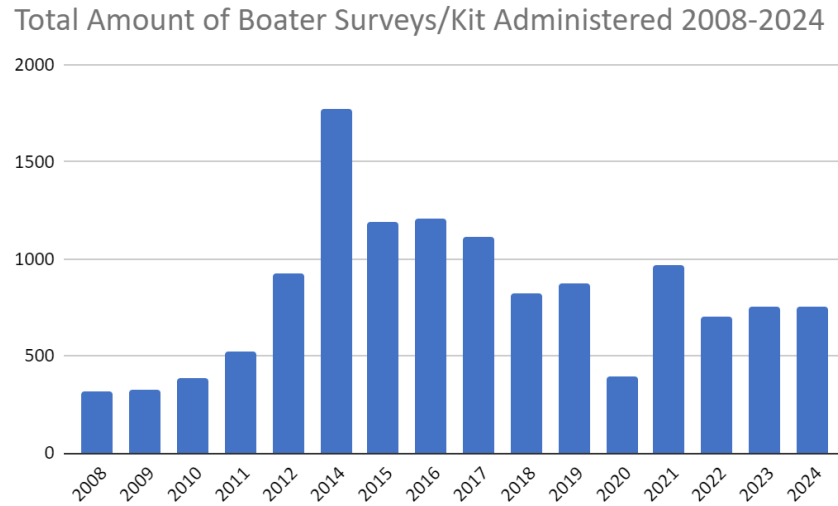


Figure 5.2: Total amount of boater surveys and kits administered

Since interns started distributing boater kits in 2008, they have administered 10,570 surveys and kits. The annual number has remained around 750 surveys and kits since 2022.

5.3: People educated 2006-2024

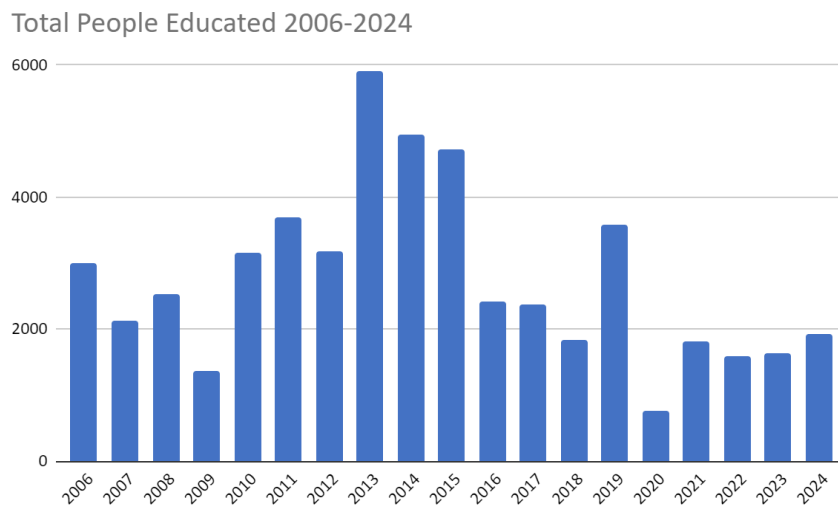


Figure 5.3: Total number of individuals educated by interns

Interns have educated 27,618 boaters and recreators about protecting Lake Berryessa from oil pollution over the past 19 years.

5.4: Oil absorbents installed 2011-2024

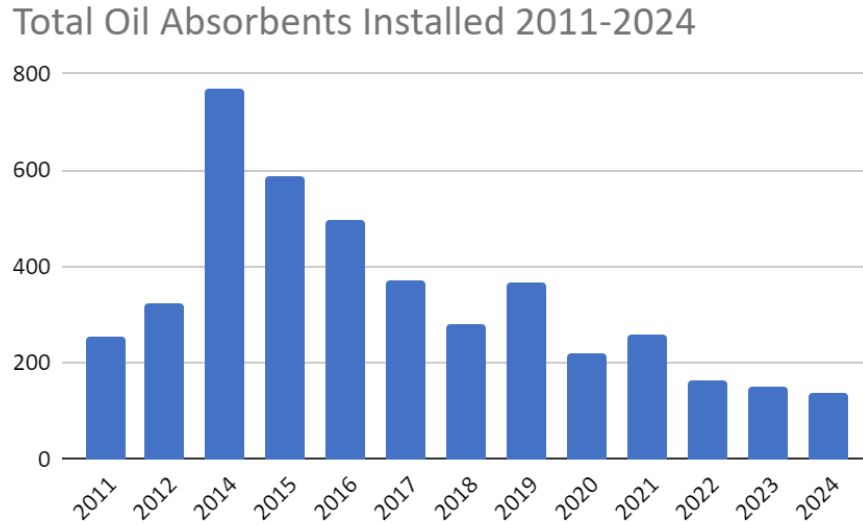


Figure 5.4: Total number of oil absorbents installed on site

Since interns started facilitating installs in 2011, boaters have installed 3,802 oil absorbents on site. Install rates have remained approximately the same since 2022.

5.5: Awareness of Lake Berryessa as a drinking water source 2009-2024

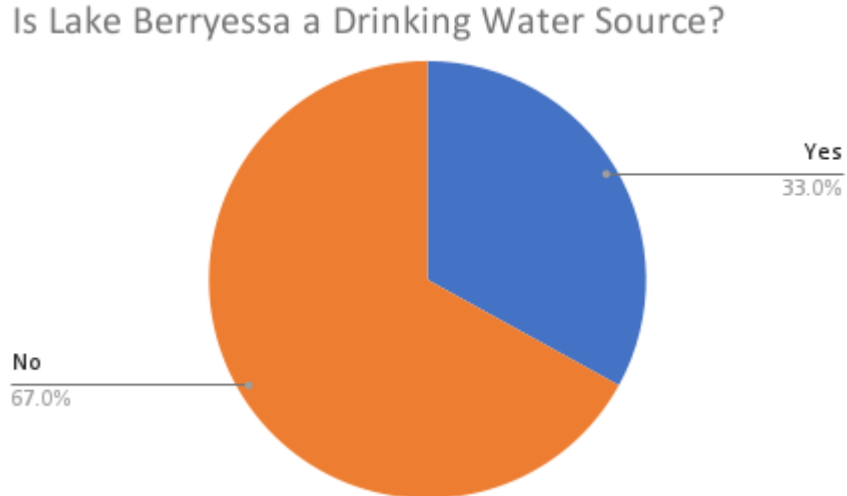


Figure 5.5: Boaters and recreators' response to LB as drinking water source

Figure 5.5 uses survey data collected from 2009 to 2011 and 2016 to 2024. In these years, 67% of boaters and recreators were not aware that Lake Berryessa is a drinking water source.

6. BARRIERS TO OUTREACH

6.1: Weather

Highly variable weather was one barrier to interns' success reaching boaters this season. Over the course of the summer, temperatures ranged from 73 degrees with rain to 109 degrees, inhibiting turnout when weather was extreme. As a safety measure, interns are required to leave when temperatures reach 105 degrees, further reducing survey numbers on particularly hot days. This obstacle was most impactful during the long Fourth of July weekend when temperatures exceeded 105 degrees by 1pm on all four days of outreach.

At a broader level, this summer was reported to be the warmest summer on record with an average temperature of 80.3 degrees, according to the National Weather Service (see Figure 6.1). Extreme heat advisories were announced on several days, which cautioned people to stay inside. These warnings may have contributed to lower survey numbers on particularly hot days.



Figure 6.1: Summer weather summary in Sacramento

6.2: Interest Rates

Another notable obstacle could be interest rates, which have more than doubled since 2022 from 2.5% to 5.5%. High interest rates result in higher borrowing costs, causing people to spend less so that the demand for goods and services eventually drops. High interest rates lead to slow business as consumers spend less.

2024's relatively high interest rate of 5.5% may have affected survey numbers by disincentivizing boaters from spending on all the costs associated with visiting the lake including car and boat fuel, launch fees, boat maintenance, and vessel use tax.

Year	Interest Rate	Number of Surveys
2019	2.5%	878
2021	0.25%	970
2023	5.25%	755
2024	5.5%	757

Figure 6.2: Interest rates vs. boater surveys over the years

Figure 6.2 shows that between 2019 and 2021, lower interest rates corresponded with high survey numbers. However, in 2023 and 2024, interest rates nearly doubled, correlating with a decrease in surveys. The table highlights that years with interest rates of 2.5% or lower saw interns conducting 800+ surveys, while interest rates of 5% or higher aligned with fewer than 800 surveys. This trend indicates a correlation between higher interest rates and reduced survey activity.

7. EDUCATIONAL OUTREACH TO RECREATORS

In addition to boater outreach, interns also visited the Oak Shores Day Use Area to speak to recreators this season. Accompanied by the costumed mascot Bilgee the Bilge Pad, interns administered 24 surveys and educated 118 recreators about the importance of protecting Lake Berryessa from pollution. Of the 24 surveys conducted, 37.5% of respondents were not aware of the lake’s role as a vital drinking water source. Respondents were eager to share their strategies for keeping the lake clean and to pose for a picture with Bilgee.



Figure 7.1: Bilgee at Oak Shores

8. COMMUNITY CLEANUP EVENTS

Over the course of the boater outreach season, interns helped organize and implement two major cleanup events coordinated by Solano RCD. The first event was the 4th annual World Environment Day Cleanup which took place on June 1st at Lake Berryessa and Lake Solano. The event gathered a group of 110 people who removed 270 pounds of trash from the lake. They also planted 500 grasses, sedges and wildflowers at Lake Solano. Interns aided in the setup of the event at Lake Solano and distributed necessary equipment to the volunteers. Additionally, they assisted in the trash removal process at both lake sites.



Figure 8.1: World Environment Day participants celebrate their hard work

The second cleanup event of the season was the 40th annual Coastal Cleanup Day on September 21st. Coastal Cleanup Day is a world-wide initiative to remove trash from inland and marine waterways. At Lake Berryessa the interns hosted two cleanup sites with one at Markley Cove and the other at Steele Canyon. Between these two sites and an additional Boy Scout troop's site at the lake, 112 volunteers gathered to collect over 800 pounds of trash and 50 pounds of recycling from the shorelines. The event was a major success thanks to everyone's hard work and drive to preserve California's drinking water.



Figure 8.2: Volunteers gather at Markley Cove



Figure 8.3: Hundreds of pounds of trash at Steele Canyon

9. RECOMMENDATIONS FOR FUTURE INTERNS

9.1: Make note of returning boaters

At the end of the summer, interns reflected on how the program can increase survey numbers by 10% next season. The 2024 boater outreach season started off very strong with high numbers of surveys almost every weekend. However, interns began to notice a dropoff in numbers around the halfway mark of the summer. While the data reflects a decrease in the total surveys collected, the number of boats approached did not plummet in the same manner. Many of the boaters later in the season had already been surveyed in weeks prior at several of the more frequented sites such as Steele and Capell. It may be beneficial to take note of the number of returning boaters that get approached at each site to demonstrate the continued efforts of the team throughout the season.

New Boaters vs. Returning Boaters at Capell Cove (8/31-9/2)

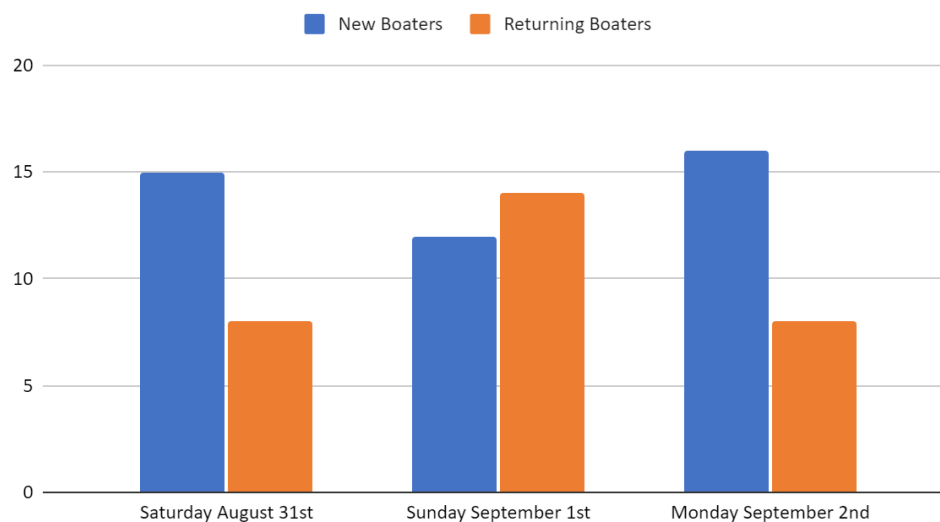


Figure 9.1: New and returning boaters at Capell Cove on Labor Day Weekend

9.2: Ask boaters' opinions

It could be beneficial to engage with boaters and gather their opinions on the factors that influence their boating experiences. Asking boaters about their considerations and preferences when thinking about coming to the lake would help understand why survey numbers fluctuate.

9.3: Use software to track boaters' license plates

Interns can use a software system to help track boaters' license plates. This way, we can avoid approaching the same boaters twice. Interns can enter the license plate numbers into a spreadsheet as they walk up to the boaters. During the following weeks, while approaching the boaters, they can check the spreadsheet. Moreover, the spreadsheet can be shared for future interns so they know which boaters have already installed the oil absorbent from last year and the interns can ensure the boaters receive a fresh oil absorbent for the new season. This method could save time for the interns and ensure a better experience for the boaters, ultimately benefiting the program in the long run.

A	B	C	D	E
Boater's License Plate	Did boater install?	Date	Notes to future Interns	
1SAM123	Yes	6/6/24	Advice boater to dispose used oil absorbent in red container	
2SAM123	No	6/7/24	Talk to Boater again	
3SAM123	No	6/8/24	Advise boater to dispose of used oil absorbent in red containers	
4SAM123	Yes	6/9/24		
5SAM123	No	6/10/24		

Figure 9.3: An example of the spreadsheet

9.4: Monitor social events

It's important to monitor events on social media such as the Bass Tournament Event at Markley Cove. For example, interns were able to conduct more than 15 surveys at one such event alone. It is also recommended that future interns check out postings from the kiosk near the oil absorbent restock stations across the lake. Supplemental events have proved successful and could be a helpful tool to reach new boaters.

10. CONCLUSION

Lake Berryessa is a vital source of water for drinking, recreation, agriculture, and land stewardship in Solano County. For the past 19 years, the Solano Resource Conservation District's boater outreach interns have performed one-on-one outreach to reduce oil pollution and safeguard the lake as a drinking water source for half a million people.

This 2024 season, interns administered 757 boater surveys and educated 2,046 visitors about proper motor oil disposal and water conservation. Of all the respondents, 30.9% were unaware that the lake serves as a drinking water source. 198 of the boaters surveyed were visiting from Solano County with Fairfield, Vacaville, and Vallejo being the most common cities of origin. These findings highlight the essential role of the Boater Outreach Program in protecting Lake Berryessa's drinking water for residents of Solano County by educating visitors and promoting personal responsibility in water pollution prevention.

Lake Berryessa Site	Totals
Capell Cove	298
Steele Canyon	210
Markley Cove	132
Putah Canyon	69
Pleasure Cove	48
Total Boater Surveys	757
Total Surveys (Boater + Recreator)	781
Total People Educated	2046

Figure 10.1: Total boater surveys at each Lake Berryessa site

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
# of interns	6	6	14	12	16	3	2	3	3	3	4	4
Total Boater Surveys	1568	1670	1195	1210	1115	825	878	391	970	703	756	757
Total Recreator Surveys	325	300	392	265	224	107	86	-	-	-	64	24
Bilge Pad Installs	646	521	653	1100	606	822	778	257	499	267	151	138
Install Rate	51%	50%	57%	50%	41%	48%	58%	28%	37%	23%	20%	18%

Figure 10.2: Historical data from 2013 to 2024

11. PHOTOS



Olivia connects with a friendly boater



Steele boater installs oil absorbent



Capell boater wearing her new shirt



Bilgee with new friends at Oak Shores



Friends at Steele with their new kits



Alia in action at Steele



Boater prepares to install oil absorbent



Intern table setup



Jerry from San Francisco with his new kit



Vacaville boater installs oil absorbent



Fairfield father and son wave ski flag



Boater poses in front of intern tent