

State of California
California Department of Fish & Wildlife
North Central Region

Indian Valley Reservoir,
Lake County

2017 Creel Census



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Introduction

In 2017, the California Department of Fish and Wildlife (CDFW) conducted a creel census at Indian Valley Reservoir (IVR), Lake County. The creel survey was conducted to gather information on the fishery at IVR, which experienced a four-year drought in which IVR almost completely dried up (Figure 1). Data collected from anglers will better assist CDFW to manage the recreational fishery present at IVR, including the decisions about future stocking strategies for the reservoir.



Figure 1. Indian Valley Reservoir, December 2016 (Photo by Angie Montalvo).

IVR is located on North Fork Cache Creek, approximately 20 miles west of Williams in Lake County, California near State Route 20 (Figure 2). IVR sits at 1476 feet above mean sea level. IVR was constructed to provide long-term irrigation storage for Yolo County and flood control on the Cache Creek watershed. The earth and rock-filled dam was completed in 1975 by Yolo County Flood Control District (YCFCD) in cooperation with the United States Bureau of Reclamation. IVR is approximately six miles long and one mile wide with a drainage area of 121 square miles. At gross-storage capacity, the reservoir holds 300,600 acre-feet of water and has

a surface area of 3,975 acres (DFG Files 1991). Species that have been found in IVR include: Sacramento pikeminnow (SPM) (*Ptychocheilus grandis*), largemouth bass (LMB) (*Micropterus salmoides*), black crappie (BCR) (*Pomoxis nigromaculatus*), Sacramento sucker (SS) (*Catostomus occidentalis*), channel catfish (CCF) (*Ictalurus punctatus*), redear sunfish (RES) (*Lepomis microlophus*), threadfin shad (TSH) (*Dorosoma petenense*), smallmouth bass (SMB) (*Micropterus dolomieu*), green sunfish (GSF) (*Lepomis cyanellus*) rainbow trout (RT) (*Oncorhynchus mykiss*), common carp (CC) (*Cyprinus carpio*), California roach (*Lavinia symmetricus*), hardhead (*Mylopharodon conocephalus*), riffle sculpin (*Cottus gulosus*), bluegill (BG) (*Lepomis macrochirus*), white crappie (*Pomoxis annularis*), and kokanee salmon (*Oncorhynchus nerka*) (KOK) (DFG Files 1985 and 1991; Ewing 2013 and 2017).

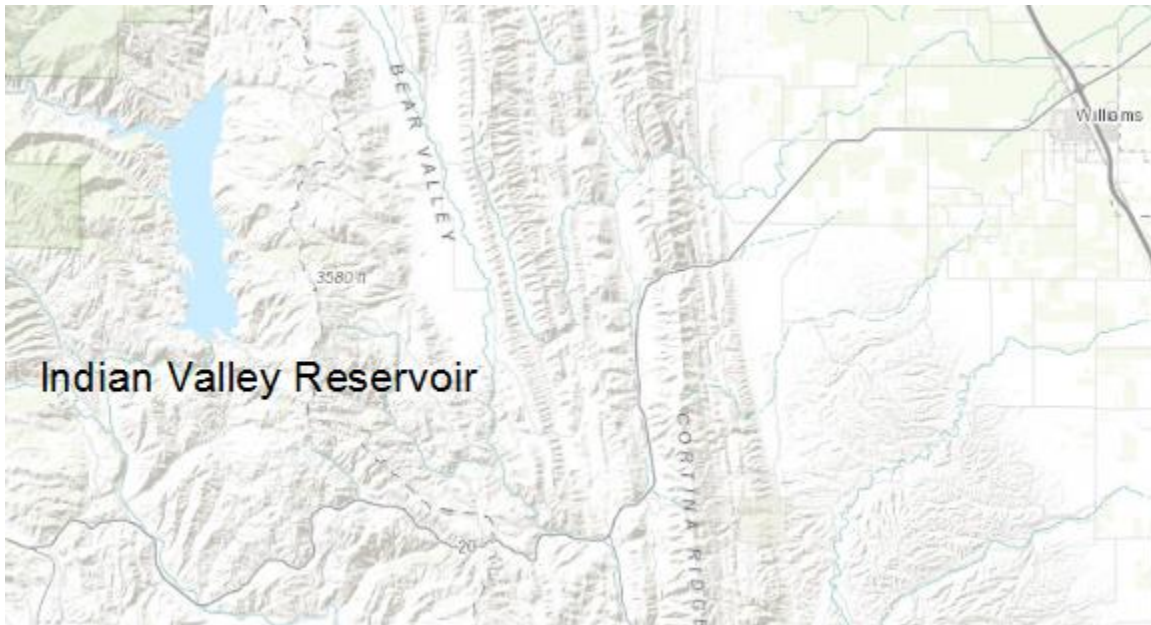


Figure 2. Indian Valley Reservoir, Lake County.

IVR and surrounding area are used year-round for recreational activities including: hunting, fishing, hiking, off-highway vehicle use, swimming, camping, and wildlife viewing. Recreational boating is permitted and there are multiple undeveloped, and one concrete launch ramps, but IVR is limited to a 10 mph speed limit.

Table 1 indicates the total number and weight, as well as individual fish size, for RT and kokanee stocked in IVR from 2001 - 2013. No fish were stocked from 2014 – 2016 due to drought conditions and/or fish availability. RT were stocked in October of 2017 after the creel was completed.

Table 1. Fish stocking data for Indian Valley Reservoir, Lake County (2001 - 2013).

Date	Species	Number	Weight	Size
4/9/2001	Kokanee	53,400	120	Fingerling
11/7/2001	Eagle Lake rainbow trout	6,750	4,500	Catchable
11/8/2001	Eagle Lake rainbow trout	6,750	4,500	Catchable
4/2/2002	Kokanee	50,000	250	Fingerling
10/3/2002	Eagle Lake rainbow trout	7,650	4,500	Catchable
10/9/2002	Eagle Lake rainbow trout	7,200	4,500	Catchable
5/5/2003	Kokanee	50,000	250	Fingerling
10/8/2003	Eagle Lake rainbow trout	8,100	4,500	Catchable
10/9/2003	Eagle Lake rainbow trout	5,850	4,500	Catchable
3/15/2004	Kokanee	49,950	135	Fingerling
10/14/2004	Eagle Lake rainbow trout	8,100	4,500	Catchable
4/4/2005	Kokanee	50,440	130	Fingerling
10/17/2005	Eagle Lake rainbow trout	10,800	4,500	Catchable
10/18/2005	Eagle Lake rainbow trout	10,800	4,500	Catchable
5/3/2006	Kokanee	20,500	60.7	Fingerling
10/23/2006	Eagle Lake rainbow trout	9,000	4,500	Catchable
10/27/2006	Eagle Lake rainbow trout	8,550	4,500	Catchable
5/7/2007	Kokanee	19,865	145	Fingerling
5/7/2007	Kokanee	12,672	64	Fingerling
10/24/2007	Eagle Lake rainbow trout	8,100	4,500	Catchable
11/1/2007	Eagle Lake rainbow trout	7,650	4,500	Catchable
4/7/2008	Kokanee	50,048	272	Fingerling
4/29/2009	Kokanee	25,110	135	Fingerling
4/29/2009	Kokanee	25,152	131	Fingerling
6/2/2010	Kokanee	50,004	304.9	Fingerling
6/11/2010	Kokanee	67,817	929	Fingerling
4/18/2011	Kokanee	50,112	288	Fingerling
1/17/2012	Rainbow trout	3,900	3,000	Catchable
3/8/2012	Rainbow trout	3,600	3,000	Catchable
4/23/2012	Kokanee	49,987	304.8	Fingerling
4/30/2013	Kokanee	25,006	179.9	Fingerling
		762,863	68,199.3	

Methods

For this survey, a total of seven days were sampled in 2017 from March through May. Data was collected on hours fished, species, number of fish caught, fishing method, gear used, and angler satisfaction. The numbers of days in which the creel census occurred varied from month to month and survey start and end times were randomly stratified. Due to this survey being conducted while two other CDFW projects in Lake County were occurring, survey days were restricted to weekdays only. If anglers had fish in possession and were willing to allow data collection, CDFW would determine total length (mm) and species. A standard series of questions was asked to determine angling effort, catch rate, size of fish, and species of fish released, if applicable (Appendix 1). In addition, each angler was asked a series of between one and three “yes or no” questions to determine angler satisfaction. Each angler was asked, “Are you satisfied with your angling experience today?” Anglers that caught fish were also asked “Are you satisfied with the size of the fish?” and “Are you satisfied with the number of fish?” Results were compiled to calculate percent of anglers satisfied with these criteria.

Results

A total of 17 anglers were surveyed during the seven day survey period. The surveyed anglers combined for a total angling effort of 50.25 hours and 36 fish caught. This equated to 2.96 hours fished per angler and a catch per unit effort (CPUE) of 1.40 fish per hour (Table 2).

Table 2. Catch Statistics for Indian Valley Reservoir, Lake Co. (2017).

Total Hours Fished	50.25
Total Number of Anglers	17
Average Hours Fished per Angler	2.96
Total Fish Caught	36
Number of Fish per Angler	2.12
Total CPUE (Fish per Hour)	1.40

The primary angling gear used by anglers was lures (70.6%). Fishing with bait was the second most popular response (17.6%). The use of multiple gear types was cited by 11.8% of respondents. No anglers reported using flies as a type of gear used (Figure 3).

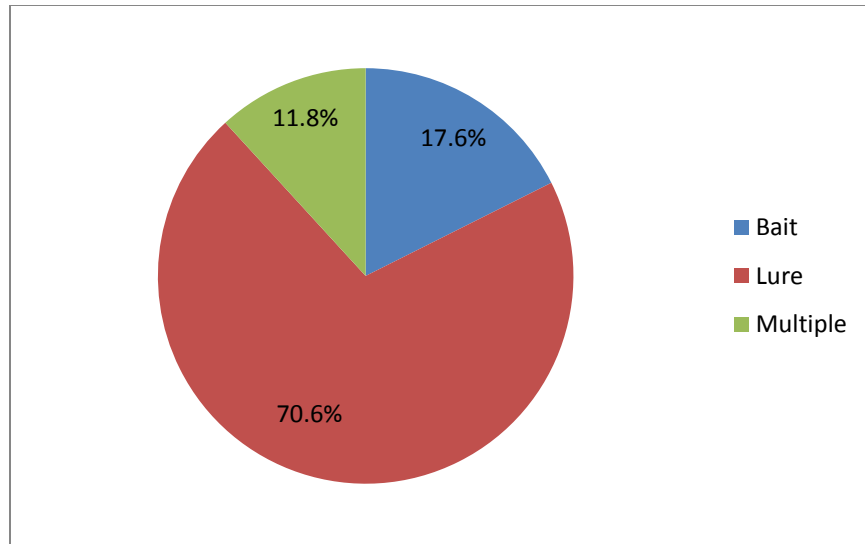


Figure 3. Gear used by anglers at Indian Valley Reservoir, Lake County, 2017.

Thirteen anglers reported fishing from shore while the remaining four anglers fished from a boat. A total of 36 fish and three different species were caught during the survey period. All 36 fish were released. LMB was the greatest single species caught during the survey period (n = 34; 94.4% of catch), followed by SPK (n = 1; 2.8% of catch), and SMB (n=1; 2.8% of catch).

Overall, 82.4% of anglers surveyed reported that they were satisfied with their fishing experience. For anglers who caught fish, 77.8% were satisfied with the size of their fish and 66.7% were satisfied with the number of fish they caught (Table 3).

Table 3. Angler Satisfaction as a Percentage Answering Yes or No, Indian Valley Reservoir, Lake Co. (2017).

	<u>Yes</u>	<u>No</u>	<u>Percent Satisfied</u>
Overall Angling Experience	14	3	82.4%
Size of Fish	7	2	77.8%
Number of Fish	6	3	66.7%

Discussion

IVR is home to a wide variety of fish species and provides a great recreational fishery for those wanting to fish in Lake County. It appears that the statewide drought from 2013 – 2016 may have had a negative effect on the overall population of the fishery, especially the KOK and RT fishery. In the fall of 2016, IVR was reduced down to a small strip of shallow, turbid water.

Loss of habitat used for cover and spawning, as well as increased competition for the remaining forage fish are a few negative results from the reservoir drawdown.

The CPUE for the creel survey was 1.40 fish per hour, which is good. No RT or kokanee were caught. For both kokanee and RT, it is likely the significant decrease in oxygen levels, available coldwater, and inflow into IVR contributed to a lack of kokanee reported caught the last seven years (Personal Communication). It is difficult to evaluate the success of the RT and kokanee stocking program due to the low angler usage, lack of yearly monitoring, drought conditions, and increased water demand.

The sizes of fish caught were not collected due to the fact that all the anglers released their catch. Although no sizes were collected, the general consensus from anglers who had caught black bass indicated the majority caught were under two pounds (Personal Communication). Although the sizes were down from the 2013 survey, it is possible with the great number of small and/or juvenile fish seen in the 2017 general fish survey and by the recreational anglers, that IVR will be back producing the unofficial reports of eight-plus pound LMB in a few years (Knight 1989).

Overall satisfaction of the fishery, size of the fish caught, and numbers of fish caught were all high (82.4%, 77.8%, and 66.7%, respectively). These percentages are satisfactory across the board. A larger angler sample size may have provided CDFW with a more reliable assessment of the angler satisfaction values since only 17 anglers were sampled.

Although CDFW considers IVR to be a viable fishery, it is likely the reservoir is underutilized, at least during the weekdays. If feasible, CDFW will consider gathering angler usage data on weekend days rather than weekdays in the future. The 11-mile dirt road to IVR from Highway 20 is rough and seasonal and there are few campsites at the reservoir. These complications might deter a lot of anglers from IVR, especially those with large families and/or those towing a boat. High winds, which are a regular occurrence at IVR, can be very dangerous for boat anglers. This could also be a big deterrent for anglers entertaining the possibility of fishing there.

In the spring of 2013, CDFW conducted a boat-based electrofishing survey at IVR yielding 10 different species with 147 fish collected (Ewing 2013). In the spring of 2017, roughly the same transects sampled in the 2013 survey were sampled, yielding seven different species and 107 fish collected. With the 2016/2017 historically wet winter filling IVR and great amount of forage fish such as TSH seen during the 2017 general fish survey, and structure available for warmwater fish such as LMB, it is possible that the IVR fishery will be able to recover from the drawdown. Future evaluations/surveys will be conducted at IVR to determine how well it recovers from the four-year drought and drawdown.

References

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Ewing, B. 2013. Indian Valley Reservoir General Fish Survey, Spring, 2013. California Fish and Wildlife Region 2 Fish Files. Unpublished.

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Knight, Terry. 1989. The Outdoorsman. Lake County Record-Bee. May, 10.
Lake County Boat Launching Ramps-County Map. BoatRampsLocator.com. 2004 – 2006.

Appendix 1. Indian Valley Reservoir Creel Data Sheet.

R2-Recreational Fishery Evaluation Study
Interview Report Form

Date:
Start:

Water:
Stop:

Angler Satisfaction
Questions Yes/No

Angler	Boat/Shore	Hrs fished	Gear Lure, Bait, Fly	Fish caught Species	Kept					Released Species	Number	Overall experience	Numbers	Size
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