



**Alamo Lake
Fisheries Management Plan
2019-2029**

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Approved [] by Chris Cantrell

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Aquatic Wildlife Branch Chief

Date: 4/30/19

Location

Alamo Lake is located on the Bill Williams River approximately 35 miles upstream of the confluence of the Bill Williams River and the Colorado River at Lake Havasu and approximately 35 miles north of Wenden on Alamo Road (Figure 1). Alamo Lake is approximately thirty-five miles north of Wenden on Alamo Road. Alamo Road is a paved road which is accessed at Wenden from Highway 60. The road terminates at Alamo Lake State Park.



Figure 1. Location Map for Alamo Lake.

Management Prescription

The Arizona Game and Fish Department (Department) has developed concepts under a Strategic Vision Document (AGFD 2019) to help guide warmwater fisheries management in Arizona. Using these concepts, fisheries management at Alamo Lake will focus primarily on a high quality Largemouth Bass *Micropterus salmoides* fishery, secondarily for Black Crappie *Pomoxis nigromaculatus* as a featured species and thirdly on a general opportunity fishery for Channel Catfish *Ictalurus punctatus*. Tilapia will be allowed to persist to provide forage for predatory fish as well as opportunity for the dedicated bow angler.

Objective 1: Maintain the Largemouth Bass population to meet or exceed High Quality Concept standards.

Objective 2: Maintain the Black Crappie population to meet or exceed Featured Species Concept standards.

Objective 3: Maintain the Channel Catfish population to meet or exceed General Opportunity Concept standards.

Objective 4: Maintain angler satisfaction at 80%.

Monitoring activities, including community-wide or species-specific electrofishing surveys and angler creel surveys will be used to determine if aforementioned management objectives are being met. Objective guidelines to meet objectives are listed in Table 1 below.

Table 1. Alamo Lake Objectives and Adaptive Management Strategies:

<i>Objective 1 - Maintain the Largemouth Bass population to meet or exceed High Quality standards as listed in the Warmwater Sportfisheries Strategic Vision Document.</i>			
Parameters	Objective Guideline	Trigger point to address unmet objectives	Strategies if Objectives are not met
Electrofishing Catch Rates	Spring electrofishing CPUE ¹ \geq 100 fish/hour of electrofishing.	Mean CPUE drops below 100 fish/hour for three consecutive samples or Mean CPUE drops below 10 fish/hour in any year	<ul style="list-style-type: none"> ● Reevaluate survey method and/or equipment ● Stocking ● Regulation Changes

Mean Relative Weight of Largemouth Bass	Mean relative weight $90 < W_r < 105$.	Mean relative weight drops below 90 for three consecutive samples.	<ul style="list-style-type: none"> ● Prey Stocking ● Regulation Changes ● Increase Aquatic Habitat ● Increase mean size of prey
Size Distribution	PSD ² between 40-70, PSD-P between 10-40.	Three consecutive sampling events showing population below management guideline.	<ul style="list-style-type: none"> ● Stocking ● Regulation Changes ● Increase Aquatic Habitat ● Increase mean size of prey
Largemouth Bass - Angler Catch Rates	Largemouth Bass CPUE of no less than .5 fish per hour for anglers targeting Largemouth Bass.	Overall CPUE drops below .5 Largemouth Bass per hour for two consecutive creel surveys.	<ul style="list-style-type: none"> ● Stocking ● Regulation Changes ● Outreach/Education
<i>Objective 2 – Maintain the Black Crappie population to meet or exceed Featured Species Concept standards as listed in the Warmwater Sportfisheries Strategic Vision Document.</i>			
Black Crappie - Angler Catch Rate	Black Crappie angler catch rates no less than 1 fish per hour for anglers targeting Black Crappie.	Overall CPUE drops below 1 Black Crappie per hour for two consecutive creel surveys.	<ul style="list-style-type: none"> ● Stocking ● Regulation Changes ● Outreach/Education
Size Structure	Multiple age classes captured during sampling events	Three consecutive sampling events showing population below management guideline.	<ul style="list-style-type: none"> ● Reevaluate survey method and equipment ● Stocking ● Regulation Changes

Objective 3 – Maintain the Channel Catfish population to meet or exceed General Opportunity Concept standards as listed in the Warmwater Sportfisheries Strategic Vision Document.

Channel Catfish - Angler Catch Rates	Channel Catfish catch rates no less than 1 fish per hour for anglers targeting Channel Catfish.	Overall CPUE drops below 1 Channel Catfish per hour for two consecutive creel surveys.	<ul style="list-style-type: none"> ● Potential Stocking ● Potential Regulation Changes ● Potential Outreach/Education
Size Structure	Multiple age classes captured during sampling events	Three consecutive sampling events showing population below management guideline.	<ul style="list-style-type: none"> ● Reevaluate survey method and equipment ● Stocking ● Regulation Changes

¹ CPUE=Catch Per Unit Effort (fish per hour) ² PSD=Proportional Size Distribution

Objective 4 – Maintain an overall angler satisfaction at 80%

Angler Satisfaction	Angler Satisfaction >80%	Angler satisfaction drops below 80% for two consecutive creel surveys.	<ul style="list-style-type: none"> ● Stocking ● Regulation Changes ● Outreach/Education ● Increase Aquatic Habitat ● Increase Access
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Background

Alamo Lake was created with the completion of Alamo Dam in 1968. The lake lays between Alamo Dam and the confluence of the Big Sandy and Santa Maria Rivers. It is approximately 3,680 acres in size at a surface elevation of 1,125 feet. The purpose of the dam is for flood control and water storage from runoff events. The lake is characterized by large fluctuations in surface elevation (Figure 3) due to irregular runoff events. Increases of water elevations of up to seven vertical feet in twenty-four hours have been documented.

High inflows and corresponding high surface elevations during the late 1970's and 1980's increased the size of the lake to near its full pool. This helped foster a large increase in the Largemouth Bass population establishing the lake as one of the premier fisheries in Arizona. As an example of its popularity, bass-fishing tournaments became increasingly popular, with an average of 864 boats participating in 26 events annually from 2003 through 2006. Black Crappie were first captured in

the lake in 1995 and have since become a highly sought-after species due to their size and abundance in the lake. Both species tend to be highly variable in abundance, Mean size, and Mean condition. This variability is most likely due to the irregular inflow and fluctuating surface elevation. Other species of interest to anglers include Channel Catfish, Tilapia *Oreochromis spp.*, and several species of sunfish *Lepomis spp.*

Alamo Dam is operated by the U.S. Army Corps of Engineers primarily for flood control. Operation of the dam is guided by the U.S. Army Corps of Engineers (USACE) Alamo Dam Water Control Manual (U.S. Army Corps of Engineers 2003) which was developed in 2003. The Water Control Manual sets a target elevation of 1,125 feet for Alamo Lake and recommends corresponding releases to maintain that elevation.

Productivity/Water Quality

The USACE contracts the U.S. Fish and Wildlife Service (USFWS) to take certain water quality measurements on a monthly basis at Alamo Lake. Of the common parameters measured, pH usually ranges from 7.5 to 8.5, surface water temperature usually ranges from a low of about 50 degrees Fahrenheit in the winter to 90 degrees Fahrenheit in the summer, conductivity usually ranges from 700 to 800 microsiemens per centimeter, and surface dissolved oxygen usually ranges from 6 to 10 parts per million.

There is a fish consumption advisory for Largemouth Bass, Black Crappie, and Channel Catfish caught at Alamo Lake. This advisory is the result of elevated levels of mercury found in the flesh of these species. Details of the advisory can be found in the Arizona Fishing Regulations booklet or at <https://azdeq.gov/fca>.

Very little is known about nutrient levels in Alamo Lake. A better understanding of nutrient inputs, specifically phosphorus and nitrogen, into the lake under different conditions and the corresponding changes in primary productivity of Alamo Lake could help managers understand trophic connections and the associated effect on sportfish populations. The Department recommends coordinating with the USFWS to acquire additional water quality measurements, specifically phosphorous and nitrogen levels.

Forage/Prey

Management of forage fishes in Alamo Lake should focus on maintaining a diverse forage base to support a healthy predatory fish population. Threadfin Shad *Dorosoma petenense*, a mostly pelagic fish, are the main forage for larger predatory species, and Alamo Lake populations can vary annually. The underlying biological causes for variability in the Alamo Lake Threadfin Shad population is unknown at this time. Small individuals of other species (i.e. sunfishes and tilapia) also provide forage for larger predatory fish.

Surveys conducted prior to 2014 were species-specific surveys, primarily targeting Largemouth Bass. Community-wide surveys have been conducted since 2014 to collect data on species-specific abundance and species composition in the lake, which will help to better quantify forage fish abundance. Forage fish have comprised at least 50% of the total catch during fall electrofishing since complete surveys of the fish community began. Electrofishing surveys from 2014 to 2018

indicate Threadfin Shad have increased in proportion of catch (Figure 4). In 2018, the Region 4 Aquatic Wildlife Program began to measure total length (mm) and wet weight (g) of Threadfin Shad sampled to gain a better understanding of the population. With additional surveys, managers hope to better understand the connection between the abundance of shad and other forage fish, as well as lake conditions, both biotic and abiotic.

If after several years of community-wide surveys, biologists are still unable to understand the connections between lake conditions and forage abundance, alternative survey methods may be required. One possible alternative survey method to assess pelagic fish populations is hydroacoustic sonar, which has been utilized nationwide to accurately assess abundance of pelagic fishes. We recommend research the efficacy and efficiency to establish standard sampling through the use of hydroacoustics to better assess forage base moving forward.

The Department is unaware of any data collected on non-fish forage sources (i.e. plankton, macrophytes, crayfish, invertebrates, etc.) in Alamo Lake. An increased understanding of the links between aforementioned forage sources could help better inform fisheries management in Alamo Lake.

Habitat

At most lake elevations, the amount of fish habitat is not generally considered a limiting factor to the sport fishery. Periodic large inflows (due to rain events or snow melt) inundate many trees (cottonwood, willow, and mesquite), which provides abundant fish habitat. Fluctuating water levels periodically inundate non-woody shoreline vegetation, further providing fish habitat. Aquatic vegetation in Alamo Lake is encountered infrequently, largely due to large fluctuations in in the water level during the course of the year. However, during periods of prolonged low water levels, the fishery would benefit from the placement of artificial habitat structures. These structures would be in very deep water during high run-off events, but low water years are more common than high water years. The Department will explore the feasibility of artificial habitat placement when appropriate.

Reservoir habitat assessment relies on accurate bathymetric maps. Management of Alamo Lake would significantly benefit from a high-resolution bathymetric map accessible on ArcGIS. Bathymetric maps allow for the quantification of area of chosen depths that are available to fish when the reservoir is at different water levels. This would allow managers to calculate estimated changes in habitat due to fluctuating water levels and model the fish population response to habitat changes. For example, with a GIS referenced bathymetric map with one-foot contour intervals, the amount of suitable spawning habitat between 5 and 12 feet deep can be calculated and displayed on a map. In addition, the water level - water storage relationship can be used to predict surface water rates of decline based on inflow-outflow rates in the reservoir, which further affects spawning opportunities for reservoir fish. Alamo Lake is in need of an updated bathymetric map for these reasons, as well as other reasons related to water storage and flood control purposes. The best time to make a useful bathymetric map would be when the lake is near full pool or at least above elevation 1,125 feet. It is recommended that the Departments and our partners prioritize this project as it is time sensitive.

Species

Fish species in Alamo Lake include Largemouth Bass, Black Crappie, Channel Catfish, Bluegill Sunfish *Lepomis macrochirus*, Redear Sunfish *Lepomis microlophus*, Green Sunfish *Lepomis cyanellus*, tilapia, Common Carp *Cyprinus carpio*, Yellow Bullhead *Ameiurus natalis*, and Threadfin Shad. Anglers target Largemouth Bass, Black Crappie, and Channel Catfish, as well as tilapia and sunfishes to a lesser degree.

Largemouth Bass:

Fall electrofishing surveys are conducted annually to assess their population. These surveys have primarily targeted Largemouth Bass prior to 2014. The national standard for assessing Largemouth Bass populations call for spring nighttime sampling however, so future population sampling will switch over to the spring months. Fall sampling is still valuable and spot check type surveys to assess recruitment may still be done in the fall.

Largemouth Bass are relatively abundant in Alamo Lake when compared to other waters in southwest Arizona. Mean catch per unit effort (CPUE, average number of fish caught per hour of electrofishing) for Largemouth Bass caught during electrofishing surveys at Alamo Lake from 2014 to 2018 was 127.2 bass per hour. Mean CPUE for each year is shown in Figure 5.

The Largemouth Bass population in Alamo Lake is characterized by a relatively high abundance of individuals less than sixteen inches (406 mm) long (Figure 7). There are less large bass in Alamo Lake when compared to other Region IV waters (i.e. Lake Havasu, Mittry Lake, Colorado River backwaters). Genetic testing in 2013 revealed the genetic proportion in Largemouth Bass at Alamo Lake comes almost entirely from the Northern Strain. Many of the waters listed above have higher proportion of Florida Bass genetics. While genetic composition does not directly equate to total length, Florida Bass have been found to achieve the best growth over a 3-yr period because of genetic influences rather than environmental factors (Inman et al. 1977). Based on discussions with anglers, current management of Largemouth Bass in Alamo Lake focuses on high angler catch rates over mean size of fish. Therefore, no stocking, forage augmentations, or regulation changes are recommended at this time. If angler desires change, options include: stocking of Florida Bass to increase genetic influence on the population or changing management of forage fish to increase mean size.

The mean estimated relative weight of Alamo Lake Largemouth Bass caught during electrofishing surveys from 2014 to 2018 was 96. Mean relative weight for each year is shown in Figure 6. The Departments Warmwater Sportfisheries Strategic Vision objectives for a high quality fishery are estimated mean relative weight between 90 and 105.

Black Crappie:

Alamo Lake currently offers Black Crappie anglers the opportunity to catch large numbers of fish and chances at trophy-sized fish. To date, no species-specific surveys have been conducted to assess the Black Crappie population in Alamo Lake. Specialized equipment (i.e. hydroacoustics

or floating modified fyke nets) would significantly aid in conducting a species-specific Black Crappie survey.

Channel Catfish:

Based on results from the 2010 - 2011 creel survey, Channel Catfish were the third most popular species for anglers in Alamo Lake (Table 4). The Department conducted a species-specific Channel Catfish survey in June 2009 using baited hoop nets. Based on the 2009 survey results, Alamo Lake Channel Catfish were abundant (indicated by high catch rates of 51 fish/net night) and small (mean total length =364 mm) (Table 2). Spot surveys using baited hoop-nets or other netting that targets Channel Catfish should be performed every five to ten years to assess the population.

Undesirable or Invasive Species:

Currently there is no recorded aquatic invasive species in Alamo Lake. We recommend continuing to monitor Alamo Lake by the AIS program along with public outreach and education to maintain an aquatic invasive species free lake.

Access

Vehicle access to Alamo Lake is primarily from the south using Alamo Road. Alamo Lake is approximately thirty-five miles north of Wenden on Alamo Road. Alamo Road is a paved road which is accessed at Wenden from Highway 60. The road terminates at Alamo Lake State Park. The southwest half of the lake is managed by Arizona State Parks. The park has two paved boat ramps, primitive and improved campsites, RV sites, restrooms, showers, and a small convenience store. The rest of the lake is managed by the Department as a wildlife area. Primitive camping is allowed on the wildlife area and boats can be launched from the shore in some areas. Any maintenance or repairs to existing boat ramps will be coordinated with Arizona State Parks.

One area of need in the future to increase access to Alamo Lake during drought conditions may be to extend the boat ramps. Currently, all concrete boat ramps become unusable around lake elevation 1,080, after which the only ways to launch a boat are on gravel and dirt landings. Extending the concrete boat ramps would allow for safe access to Alamo Lake.

Catch

The Department conducted a creel survey at Alamo Lake from September 2010 through August 2011. Based on data, 17,700 angler use days were estimated annually at Alamo Lake. Largemouth Bass are the most targeted and caught species of fish in Alamo Lake (Table 4 and Figure 8). During the 2010 - 2011 creel survey of Alamo Lake, over 60% of all anglers surveyed targeted Largemouth Bass and an estimated 69,787 were caught, of which an estimated 9,171 bass were kept (harvested), resulting in an estimated harvest rate of 13%. The mean angler CPUE for Largemouth Bass at Alamo Lake was estimated at 0.59 fish caught per hour of fishing. Estimated catch and harvest for other species at Alamo Lake is shown in Figure 8. Black Crappie were the second most targeted species in Alamo Lake (Table 4). Estimated harvest rates for Black Crappie and Channel Catfish were 64% and 82%, respectively. The mean estimated CPUE for Black

Crappie and Channel Catfish was 0.08 and 0.04 fish per hour, respectively. The catch rates during the creel survey period for Black Crappie and Channel Catfish were likely not an accurate representation of the fishery because many anglers do not even attempt to catch them during their visit to Alamo Lake (Table 4). Both species require specialized techniques to catch them effectively and fishing for them is somewhat seasonal in nature so many of the anglers are not effectively targeting them, leading to the very low catch rates reported in the creel survey. Though the analysis was not performed for the 2010 - 2011 creel survey, species-specific catch rates should be used to better assess individual fisheries in future creel surveys. The Department will attempt to perform creel surveys on a five-year basis starting in fiscal year 2021.

Satisfaction

During the 2010 and 2011 creel survey, anglers were asked to rate their fishing experience at Alamo Lake (Figure 9). Seventy-five percent of the people interviewed rated their fishing experience as “Fair” or better, which is under the goal of 80% for quality fisheries in Warmwater Sportfisheries Strategic Vision Document. This is likely due to the lower catch rates for anglers than they would prefer. Satisfaction is directly correlated to number of fish caught. Anglers would likely benefit from education on fishing technique to target fish in Alamo Lake could make them better able to utilize the fishery and be more satisfied with their experience. Two other areas that can influence higher catch rates includes placement of fish habitat and development of new access points. If we can increase fishing success we can improve angler satisfaction. A future creel survey will need to take place within the next 2-3 years to get up to date angler information.

Literature Cited

- Anderson, R. O. and R. M. Neumann. 1996. Length, weight, and associated structural indices. In: *Fisheries Techniques, 2nd ed.* (Murphy, B. R. and D. W. Willis, Eds.). pp. 447-482. Bethesda, MD: American Fisheries Society.
- Arizona Game and Fish Department. 2019. Warmwater Sportfisheries Strategic Vision Document. Arizona Game and Fish Department, Statewide Sportfish Program, Phoenix, Arizona.
- Inman, C. R., R. C. Dewey and P. P. Durocher. 1977. Growth comparisons and catchability of three largemouth bass strains. *Fisheries* 2(5) 20-25.
- U. S. Army Corps of Engineers. 2003. Water control manual: Alamo dam and lake, Colorado River Basin, Bill Williams River, Arizona

Tables and Figures

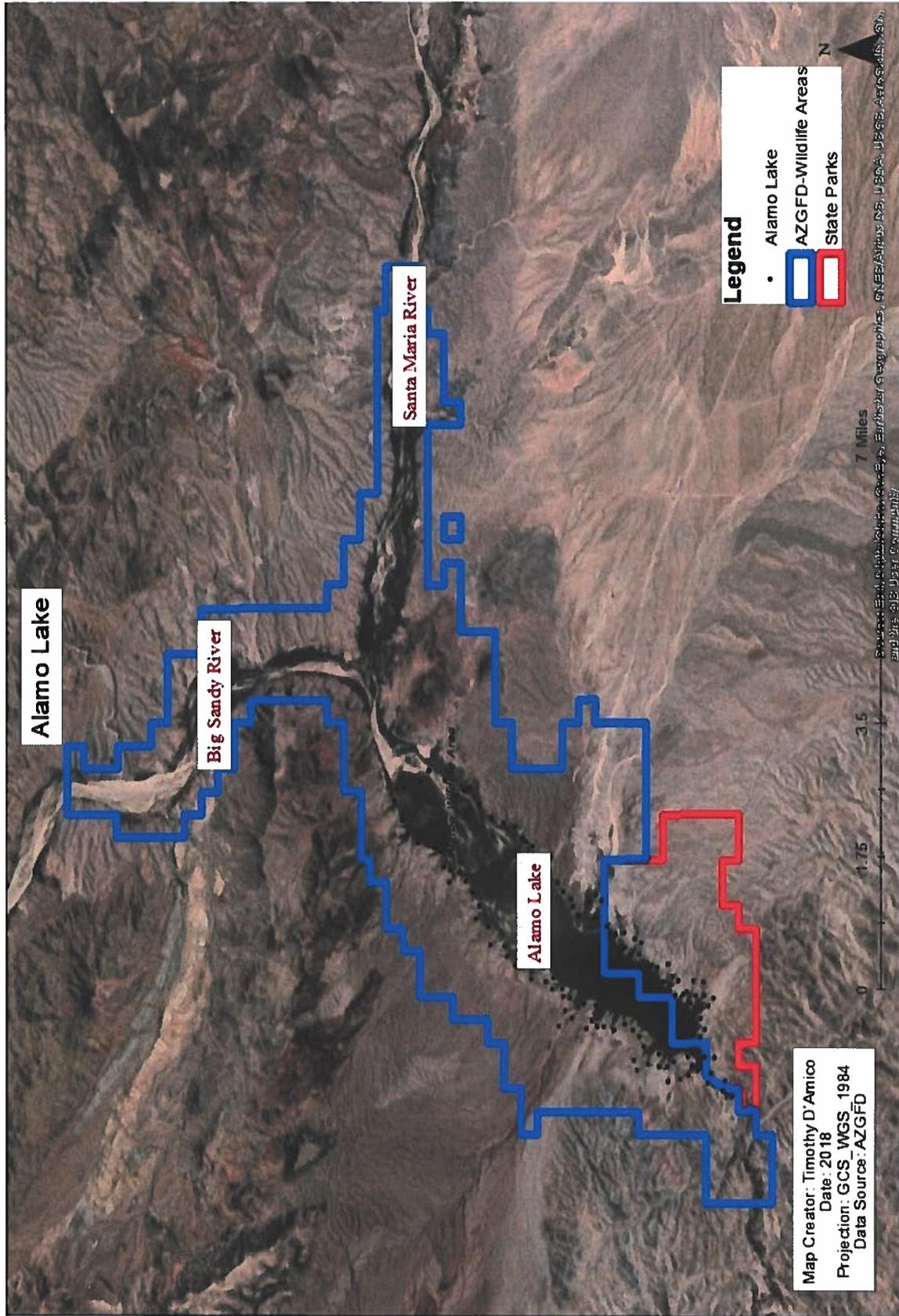


Figure 2. Management responsibility boundaries at Alamo Lake.

Alamo Lake Elevation (1968 - 2018)

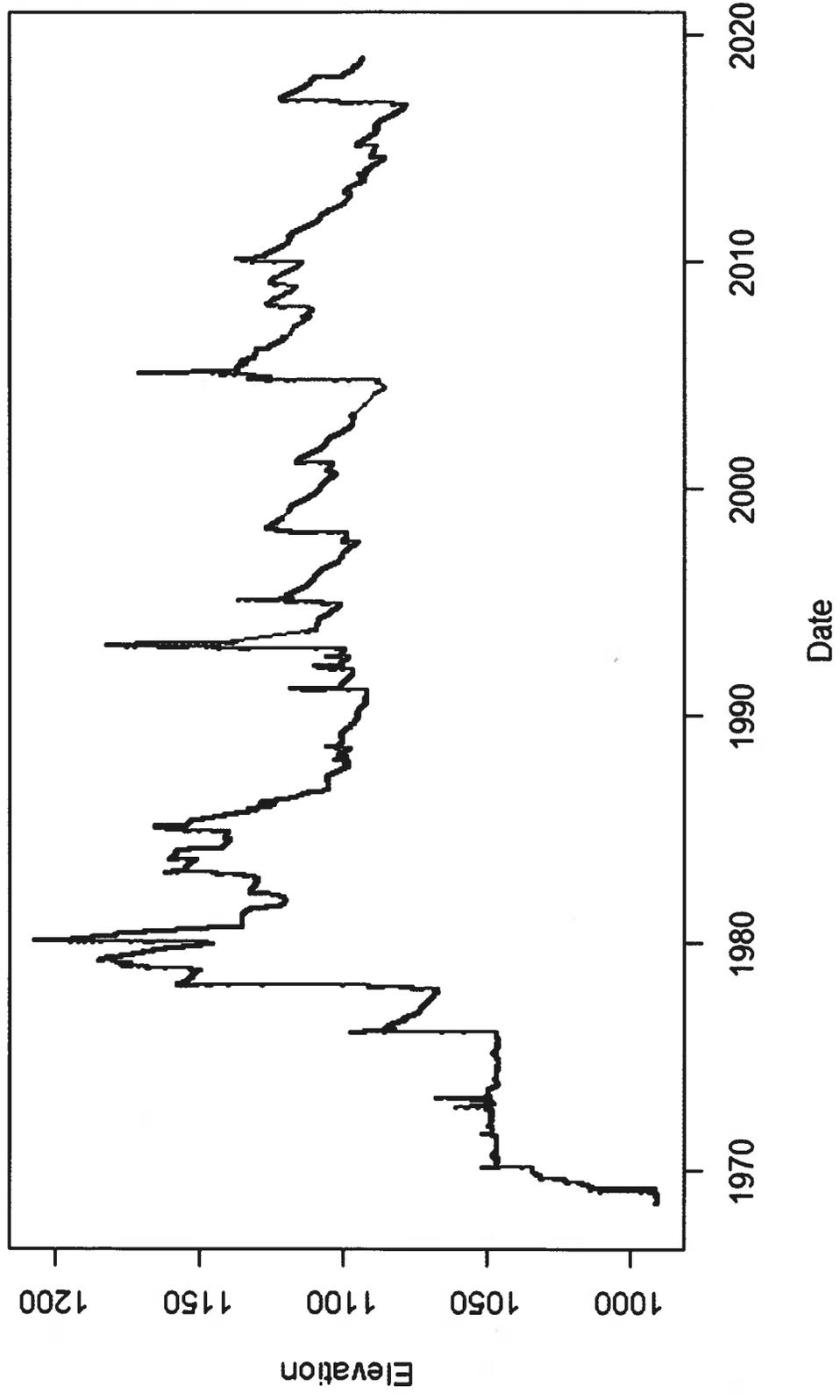


Figure 3. Surface elevation of Alamo Lake from 1968 to 2019.

Alamo Lake Species Composition

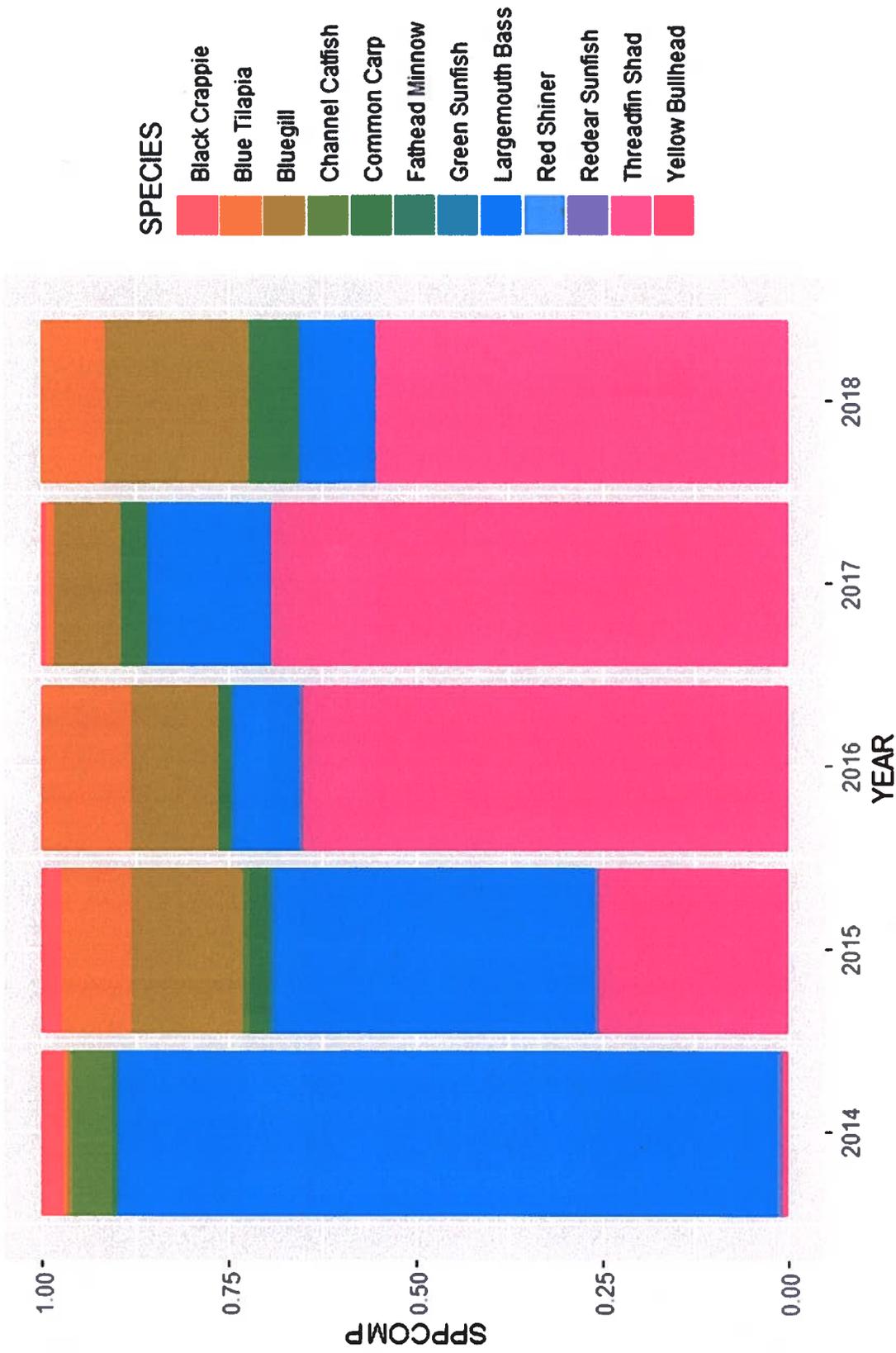


Figure 4. Relative species composition of fish captured during Alamo Lake electrofishing surveys (2014-2018).

Alamo Lake Largemouth Bass (2014-2018)

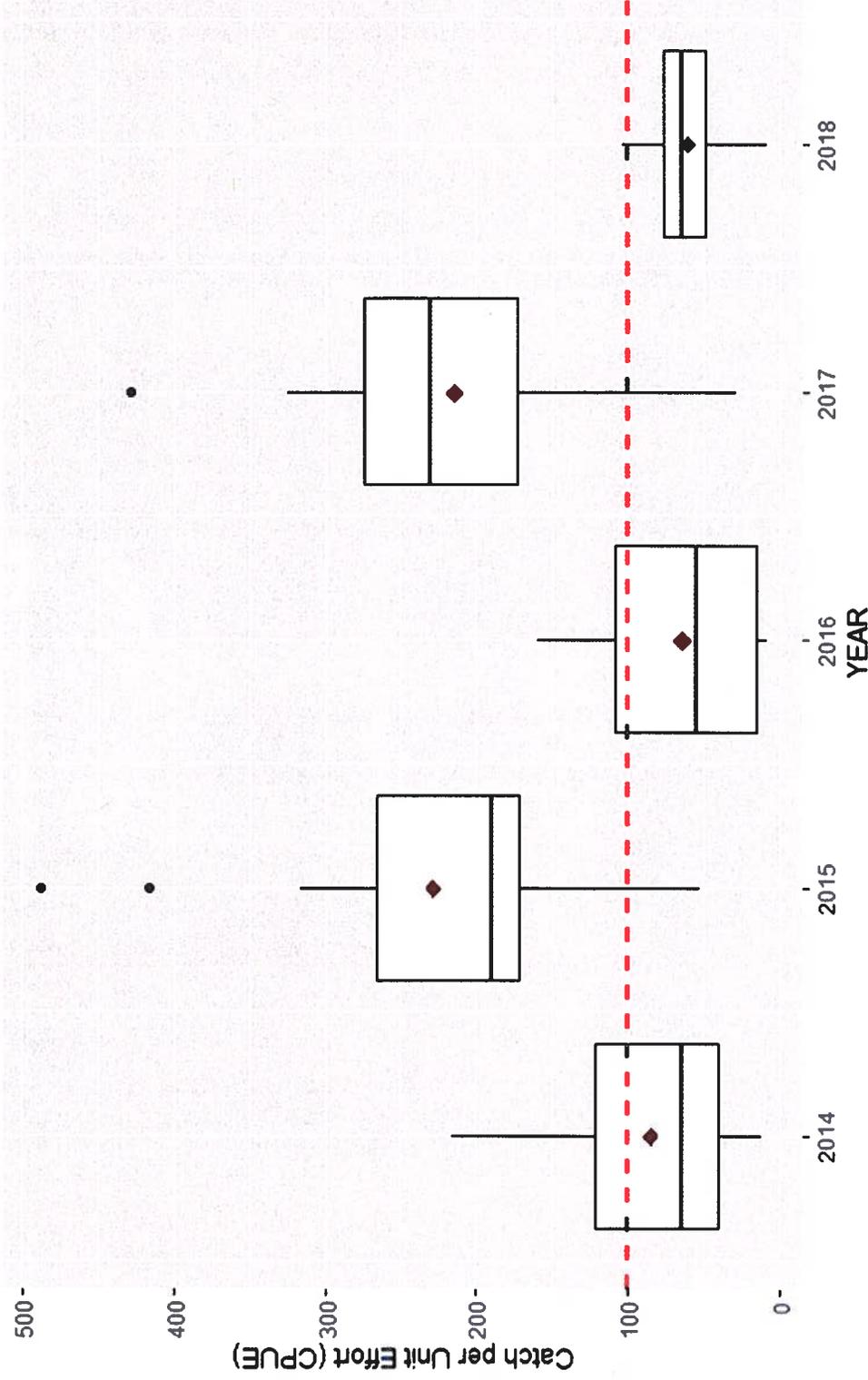


Figure 5. Alamo Lake Largemouth Bass catch per unit effort (CPUE = number of fish per hour) from 2014-2018. White box represents interquartile range (IQR); 25%-75% of sample) as well as median (solid black line). Whiskers represent 1.5 x IQR. Annual mean CPUE is represented by red diamonds. Warmwater Strategic Vision CPUE metrics for “high quality water” (CPUE \geq 100 fish per hour) are represented by dashed horizontal red line.

Alamo Lake Largemouth Bass (2014-2018)

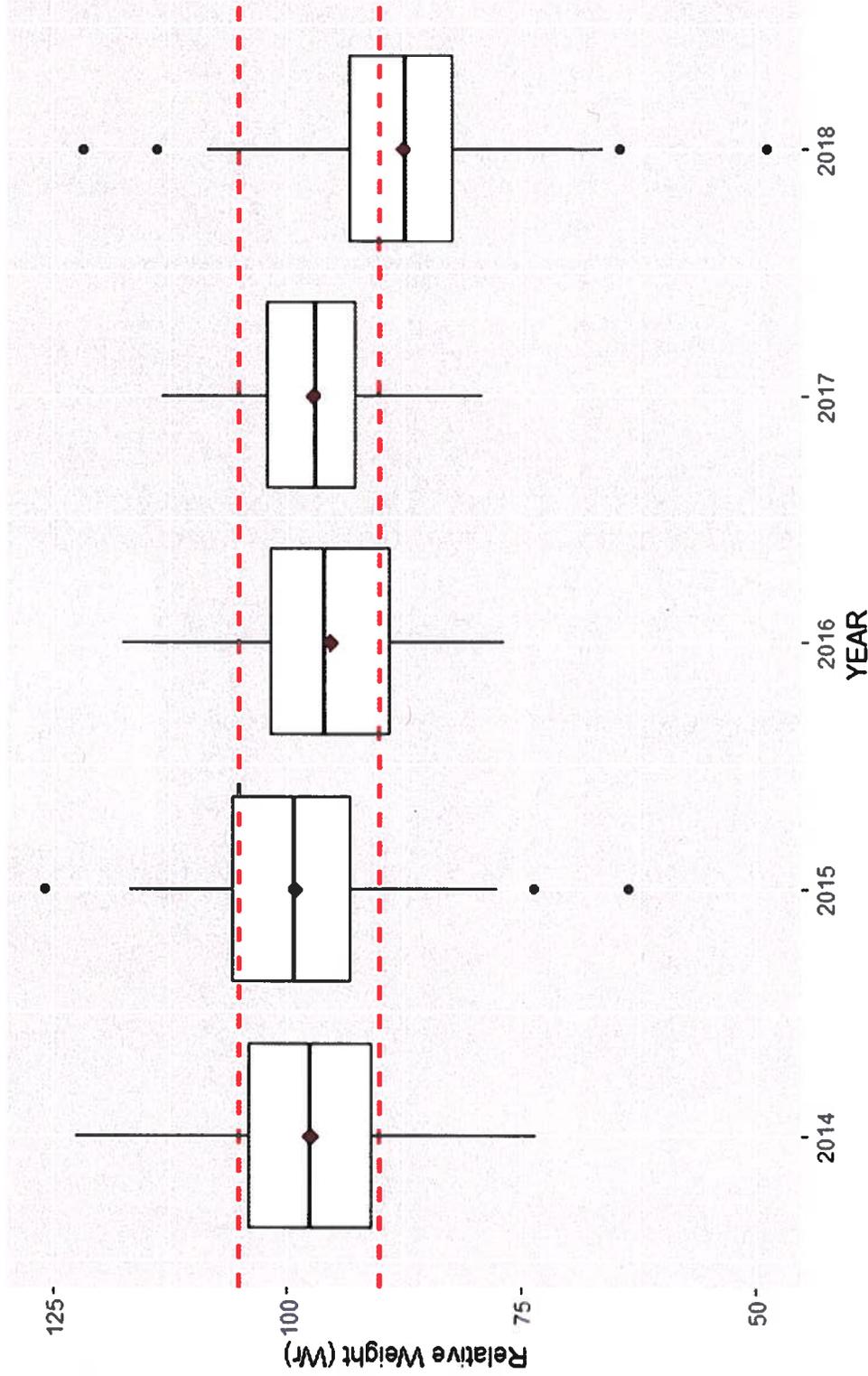


Figure 6. Alamo Lake Largemouth Bass relative weight (W_r) from 2014-2018. White box represents interquartile range (IQR; 25%-75% of sample) as well as median (solid black line). Whiskers represent 1.5 x IQR. Annual mean W_r is represented by red diamonds. AGFD Warmwater Vision W_r metrics for “high quality water” ($90 \leq W_r \leq 105$) are represented by dashed horizontal red lines.

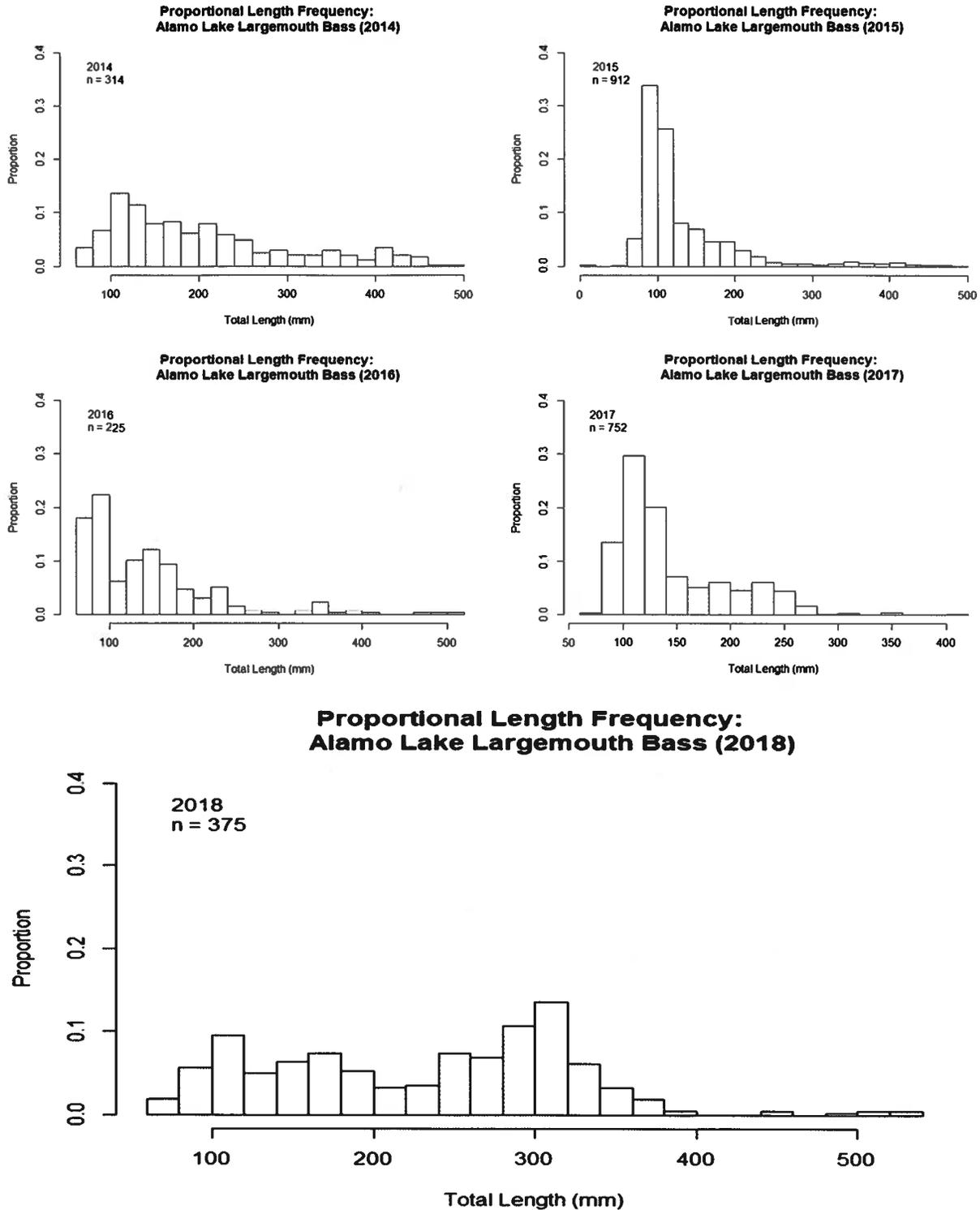


Figure 7. Length-frequency distribution of Largemouth Bass captured during Alamo Lake electrofishing surveys (2014-2018). There are multiple size classes of Largemouth Bass based on 2018 fall electrofishing surveys.

Alamo Lake Creel Survey (Sept. 2010 to Aug. 2011)

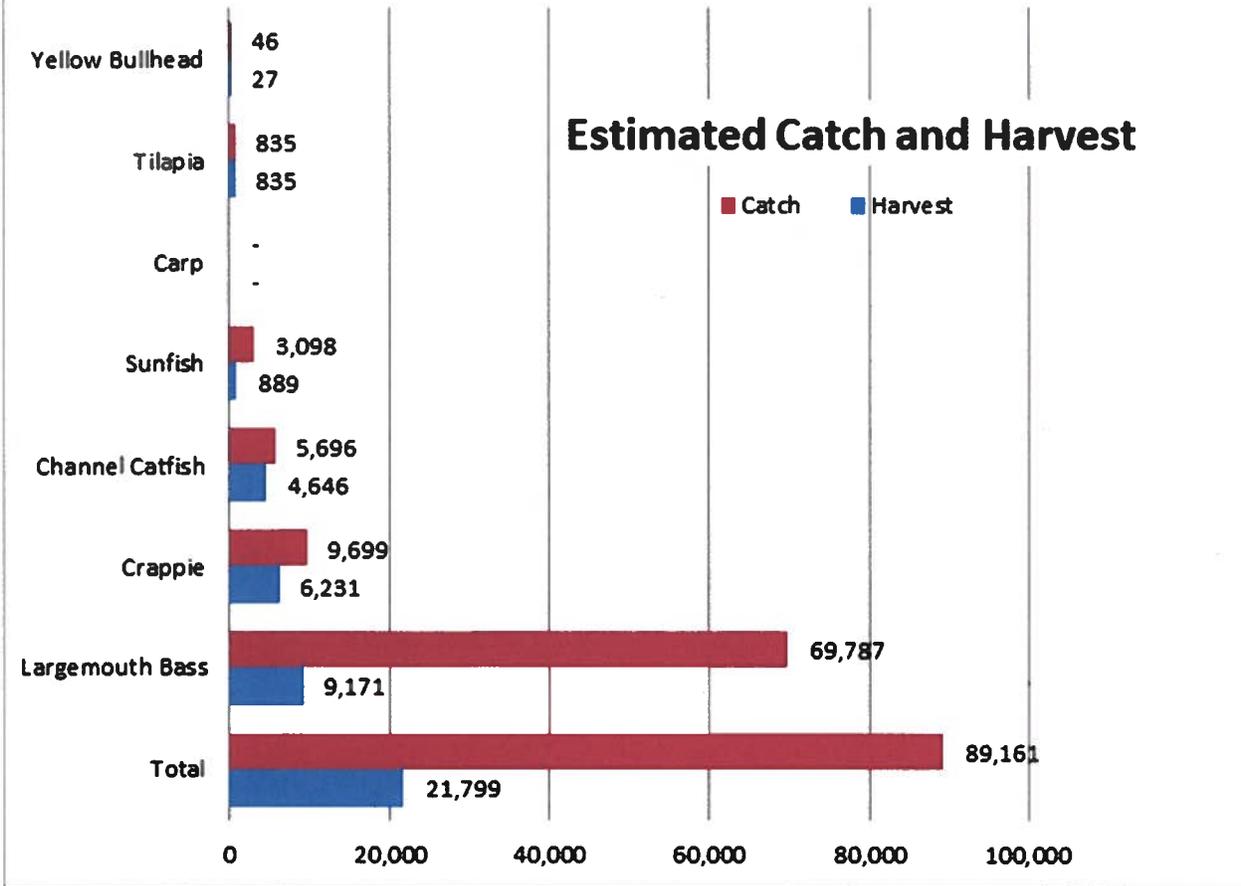


Figure 8. Total catch and harvest per year of various species at Alamo Lake estimated from a creel survey in 2010-2011.

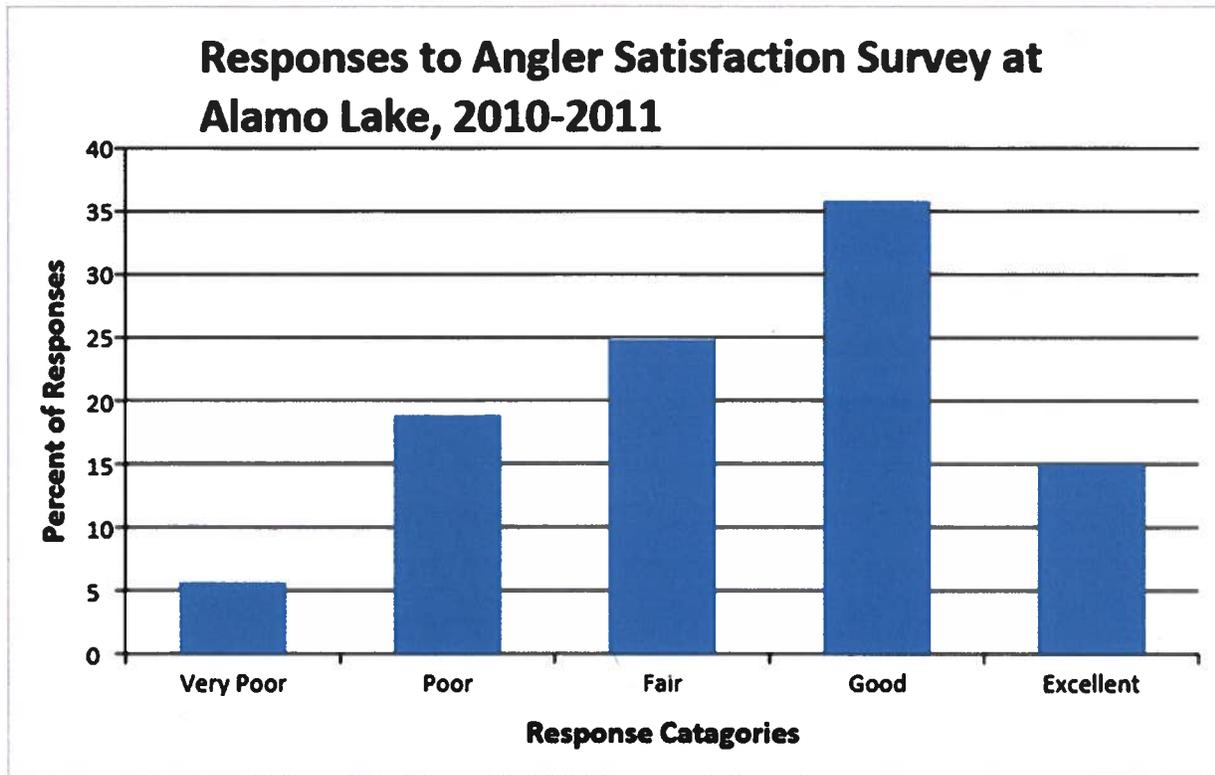


Figure 9. Responses to angler satisfaction survey at Alamo Lake, 2010-2011.

Table 2. Number, relative abundance, relative biomass, catch per unit effort and size of Channel Catfish (ICPU) sampled in hoop net set at Alamo Lake during June of 2009.

SPECIES	Number Sampled	% of Total	Catch per Effort	Weight Sampled (kg)	% of Total	Min Length (mm)	Max Length (mm)
ICPU	408	82	51.0	170.75	92	219	657

SPECIES	Avg. Length (mm)	Std. Dev.	Avg. Weight (g)	Std. Dev.
ICPU	364	74	419	331

Table 3. Estimated catch and harvest with percent harvested by species and angler type.

Species	Boat Anglers			Shore Anglers			Overall (Boat+Shore)		
	Estimated Fish	Species %	Mean* Fish/hr.	Estimated Fish	Species %	Mean* Fish/hr.	Estimated Fish	Species %	Mean* Fish/hr.
Catch									
Largemouth Bass	59,493	80.1%	0.648	10,294	69.3%	0.267	69,787	78.2%	0.589
Black Crappie	9,683	13.0%	0.097	16	0.1%	0.002	9,699	10.9%	0.082
Channel Catfish	3,319	4.5%	0.038	2,377	16.0%	0.077	5,696	6.4%	0.044
Sunfish Species	975	1.3%	0.014	2,123	14.3%	0.071	3,098	3.5%	0.023
Blue Tilapia	835	1.1%	0.014	0	0.0%	0.000	835	0.9%	0.012
Yellow Bullhead	0	0.0%	0.000	46	0.3%	0.004	46	0.1%	0.004
Total:	74,305	100.0%	0.810	14,856	100.0%	0.421	89,161	100.0%	0.750
Harvest									
Largemouth Bass	6,683	41.0%	0.072	2,488	45.1%	0.063	9,171	42.1%	0.071
Black Crappie	6,215	38.2%	0.070	16	0.3%	0.002	6,231	28.6%	0.060
Channel Catfish	2,321	14.3%	0.026	2,325	42.1%	0.073	4,646	21.3%	0.033
Sunfish Species	227	1.4%	0.004	662	12.0%	0.041	889	4.1%	0.010
Blue Tilapia	835	5.1%	0.014	0	0.0%	0.000	835	3.8%	0.012
Yellow Bullhead	0	0.0%	0.000	27	0.5%	0.002	27	0.1%	0.002
Total:	16,281	100.0%	0.187	5,518	100.0%	0.181	21,799	100.0%	0.186
% Harvested									
Largemouth Bass	11.2%			24.2%			13.1%		
Black Crappie	64.2%			100.0%			64.2%		
Channel Catfish	69.9%			97.8%			81.6%		
Sunfish Species	23.3%			31.2%			28.7%		
Blue Tilapia	100.0%			0.0%			100.0%		
Yellow Bullhead	0.0%			58.7%			58.7%		
Overall:	21.9%			37.1%			24.4%		

* Based on the mean of individual angler fish/hour rates.

* Below the 1/1,000th level of precision.

Table 4. Species Preference by Anglers during 2010 - 2011 Creel Survey of Alamo Lake

Species Sought	Boat	Shore	Total
Largemouth Bass	56.6%	26.9%	51.5%
Black Crappie	18.4%	3.8%	15.9%
Channel Catfish	3.0%	17.5%	5.5%
Sunfish species	0.1%	3.1%	0.6%
Blue Tilapia	1.7%	0.0%	1.4%
Anything	7.8%	33.8%	12.3%
Largemouth Bass & Other	10.9%	14.4%	11.4%
Black Crappie & Other	1.3%	0.6%	1.2%
Common Carp & Blue Tilapia	0.3%	0.0%	0.2%