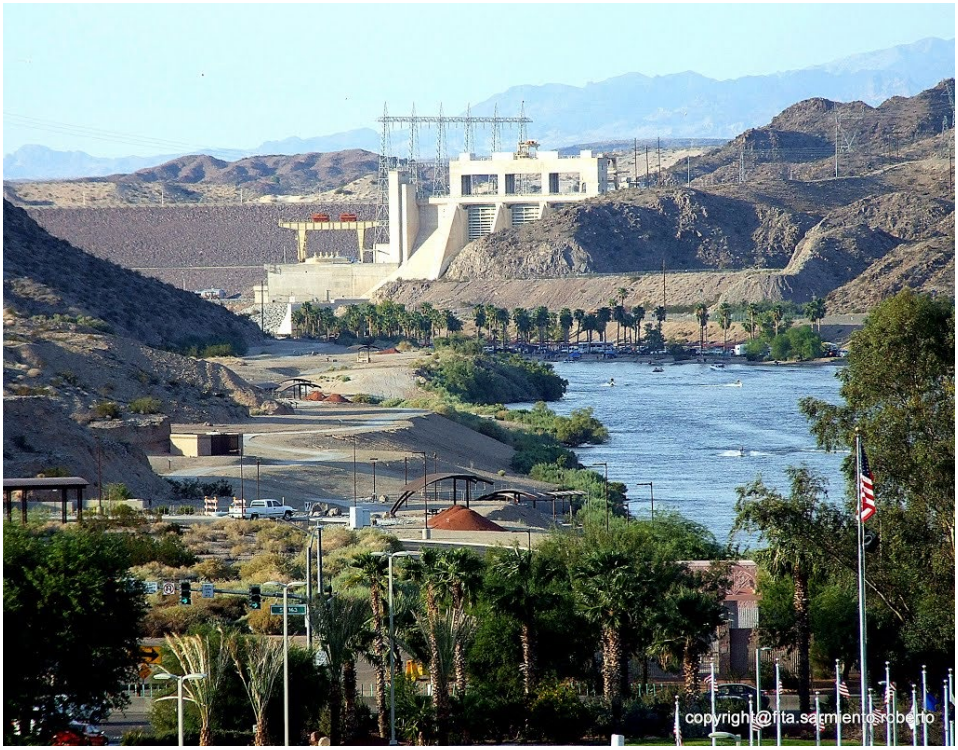

Colorado River-Davis Dam to Interstate 40
Fisheries Management Plan
2020-2030

Matt Chmiel, Aquatic Wildlife Program Manager, Region III
Andy Stites, Aquatic Wildlife Specialist, Region III

Approved [X] by Chris Cantrell D. Andrew Clark acting for Date: 10/1/2020
Chief of Fisheries

Location

The 42 mile stretch of the Colorado River from Davis Dam to the Interstate 40 (I-40) crossing is located along the western edges of Arizona Game and Fish Department Game Management Units 15BW, 15CN, 15CS, and 15D. It begins at river mile 276 at Davis Dam (Pacific Southwest Interagency Committee, 1976) and flows down to the I-40 crossing at river mile 233.9 in Topock, AZ. This section of the Colorado forms the border of Arizona (Mohave County) with both California (San Bernardino County) and Nevada (Clark County) (Figure 1).

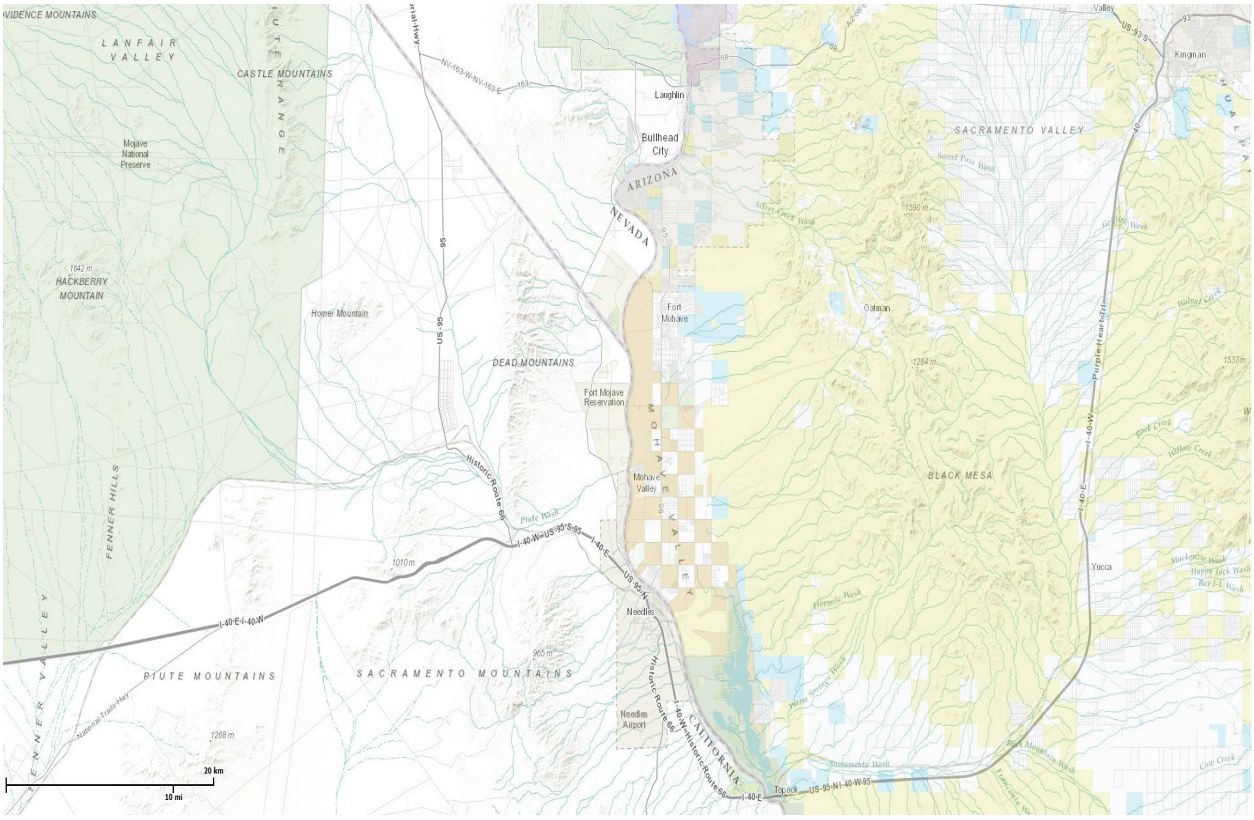

Figure 1. Location Map of Colorado River-Davis Dam to I-40.

Management Prescription

The Arizona Game and Fish Department (Department) has developed approaches for coldwater and warmwater species management in Arizona under a Coldwater Strategic Vision Document (AGFD 2019a) and Warmwater Strategic Vision Document (AGFD 2019b). Using these documents, fisheries management in this section of the Colorado River will focus primarily on Rainbow Trout *Oncorhynchus mykiss*, Striped Bass *Morone saxatilis*, and Channel Catfish *Ictalurus punctatus* fisheries. However, opportunities are also available for Largemouth Bass *Micropterus salmoides*, Smallmouth Bass *Micropterus dolomieu*, Black Crappie *Pomoxis nigromaculatus* and Sunfishes *Lepomis sp*. Undesired species present in this stretch of river include Common Carp *Cyprinus carpio*, Black Bullhead *Ameiurus melas*, Yellow Bullhead *Ameiurus natalis*, Goldfish *Carassius auratus*, and various Tilapia species. There will be no active management to reduce the numbers of these species, but they will be removed opportunistically. Razorback Sucker *Xyrauchen texanus*, Flannelmouth Sucker *Catostomus latipinnis*, and Bonytail Chub *Gila elegans* are the three native species present in this reach. Restoration and conservation efforts for these native populations will take place in partnership with the Lower Colorado River Multi-Species Conservation Program (MSCP), Bureau of Reclamation (BOR), Bureau of Land Management (BLM), U. S. Fish and Wildlife Service (FWS), and other partners and stakeholders.

Management objectives and adaptive management strategies have been set under the Intensive Use and General Opportunity approaches. Monitoring activities, including community-wide or species-specific fish surveys and angler creel surveys will be used to determine if management objectives are being met. Guidelines to meet objectives are listed in Table 1 below.

Objective 1: Maintain an Intensive Use Rainbow Trout fishery during months where water quality allows.

Objective 2: Maintain a General Opportunity fishery for Striped Bass, Largemouth Bass, Smallmouth Bass, Channel Catfish, and sunfish.

Objective 3: Maintain populations of native Razorback Sucker, Flannelmouth Sucker, Bonytail Chub, and Speckled Dace through restoration and conservation actions with other partners and stakeholders.

Objective 4: Maintain a high level of angler satisfaction with 80% of those interviewed rating the fishing as fair, good, or excellent during creel surveys.

Table 1. The Colorado River (Davis Dam to I-40) Objectives and Adaptive Management strategies:

Parameters	Objective Guideline	Trigger point to address unmet Objectives	Strategies if Objectives are Unmet
Objective 1: Maintain an Intensive Use Rainbow Trout fishery during months where water quality allows.			
Angler Catch Rates	Maintain an angler catch rate of 1 fish/hour	Catch rates drop below 0.5 fish/hour during assessment of catch rates on a 5 year rotational basis through creel surveys	• Increase number and/or frequency of trout stocked to meet demand • Lower the daily bag limit
Objective 2: Maintain a General Opportunity fishery for Striped Bass, Largemouth Bass, Smallmouth Bass, Channel Catfish, and sunfish.			
Population Structure	Ensure an adequate forage base for all fish species	It is determined there is not an adequate forage base based on periodic general monitoring surveys every 3 years	• Stock fish to meet demands • Stock forage base fish • Increase the amount of artificial habitat
Objective 3: Maintain populations of native Razorback Sucker, Flannelmouth Sucker, Bonytail Chub, and Speckled Dace through restoration and conservation actions with other partners and stakeholders.			
Population Structure	Maintain healthy population sizes for native fish species	Two consecutive sampling events showing the population below management guidelines	• Increased stocking of native species • Pursue ways in increase diversity of forage
Objective 4: Maintain a high level of angler satisfaction with 80% of those interviewed rating the fishing as fair, good, or excellent during creel surveys.			
Angler Satisfaction	A minimum of 80% of anglers rate fishing as fair, good or excellent	Creel census shows less than 80% of anglers rate fishing as fair, good or excellent	• Increase stocking rates • Increase size of fish stocked • Increase or modify efforts for angler education, preferably at the lake

Background

Davis Dam was completed in 1951 and forms the 28,400 surface acre Lake Mohave. Releases from Davis Dam provide flow to the Colorado River between Davis Dam and I-40. Flows range from 2,000 cubic feet per second (cfs) to over 20,000 cfs and temperatures vary from 12.0°-17.0°C (Paulson et al., 1980). This section of the Colorado River corresponds with the Lower Colorado River Multi-Species Conservation Partnership (MSCP) Reach 3-1. This area also includes Topock Marsh (MSCP Reach-2) which is managed under a separate plan.

Boating use is very high in this section of the Colorado River. The high boating traffic has led to multiple sites for recreation including the Mohave County Park District Davis Camp which brings in over 200,000 visitors annually ("Davis Camp History", n.d.). There are multiple opportunities for fishing on the water as well as from shore. The fishery is primarily Rainbow Trout, Striped Bass, and Channel Catfish but provides opportunities to fish for other species as well.

Productivity/Water Quality

Little primary productivity and or benthic sampling has occurred by the Department since 1998. Other partner agencies such as U.S. Geological Survey or Arizona Department of Environmental Quality have collected data more frequently. Efforts are underway to collect existing productivity and benthic data so that it may facilitate data driven decisions regarding fish management.

Forage/Prey

The current food base in this section of the Colorado River has hit a capacity high enough to be considered a nuisance. This food base is comprised of multiple aquatic invertebrate larvae including black flies, midges, and three species each of caddisflies and mayflies. There has been extensive treatment overtime for blackflies which, at times, forced the Department to adjust the size of trout stocked from their own hatcheries.

The population of aquatic invertebrates dramatically increased to the point that they became a nuisance and outside parties began funding Department to purchase trout in order to administer top down control. Moving forward, the Department will systematically increase the number of trout stocked into the lower Colorado River between Davis Dam and I-40. Currently 80,000 Rainbow Trout are stocked annually by the FWS Willow Beach National Fish Hatchery and the Department. Additional subcatchable fish will be introduced into the system to see how the prey base responds. Based on the response of the prey base, the number of stocked trout will be increased incrementally to a level that the current prey base will sustain. Taking advantage of this abundant prey base may result in a Blue Ribbon Rainbow Trout fishery.

Threadfin Shad have not been documented in this stretch of the Colorado River since 1990, despite being plentiful downstream in Lake Havasu and having no impediments to upstream movement. Although they were once plentiful in this part of the system, they are no longer considered a significant source of prey from Davis Dam to I-40. Specific to the reach, a lack of sediment input resulting in visual cover to avoid predation from Striped Bass may be a factor.

Habitat

Habitat is varied below Davis Dam and includes channelized flowing sections as well as slower backwaters. Channelized sections of the river as well as the main channel are fairly fast flowing (>0.5 m/s) and have a mostly cobble substrate. Backwaters, such as Laughlin Lagoon, are shallow (<1 m) and support lush stands of aquatic vegetation and softer substrates. Backwater areas are fairly rare, with the majority of habitat being in the main channel. Throughout this stretch of the Lower Colorado there are also several jetties and private docks providing shelter and habitat for fish species. Additions of artificial habitat to benefit fish are unlikely in this stretch due to significant obstacles to permitting and concerns of impacts to native threatened and imperiled species. Localized improvements may be possible if done in combination with angler or boating access.

Species

The sport fishery in this section of the Colorado River is largely composed of Rainbow Trout which are stocked during winter months, a transient Striped Bass population, and Smallmouth Bass. In backwaters and protected areas, Largemouth Bass, sunfish and catfish are common. Carp is perhaps the most numerous species in the reach and can be found in most available habitats. Native sucker species such as the Flannelmouth and Razorback are maintaining modest populations in this reach. The Flannelmouth Sucker population resulted from one stocking of 611 individuals by the Department in 1976 (Mueller and Wydoski 2004). The Razorback Sucker population is a result of numerous stockings of larger adults (<300 mm) over multiple years by the BOR, FWS and the MSCP. Other species present include Black Crappie, Black and Yellow Bullhead, Goldfish, Tilapia, and Bonytail Chub. Bonytail are stocked regularly, but do not persist for very long following stockings.

Rainbow Trout:

The emphasis for this reach will be for a seasonal Rainbow Trout fishing opportunity that provides anglers with catch rates at or above 1 fish per hour. The Department will coordinate with the Willow Beach National Fish Hatchery (WBNFH) and the FWS Arizona Fish and Wildlife Conservation Office (AZFWCO) in Flagstaff on trout stockings. Current stocking rates will be adjusted to take advantage of the tremendous food base, while not depleting it or harming the native fish populations. In addition to the catchable size trout, sub catchable trout will be stocked in incremental increases yearly. No special regulations designed to protect trout will be pursued at this time.

Historically, WBNFH has provided the catchable trout with occasional supplemental stockings by the Nevada Department of Wildlife (NDOW). In fiscal year 1999, the WBNFH experienced cutbacks and began to scale back the numbers of trout produced at the facility. Although numbers were being scaled back in that timeframe, the total pounds stocked were near the same. Larger, catchable size trout averaging near 12 inches were being produced and stocked in the reach. Operations at WBNFH continued to struggle with infrastructure issues however and by 2008, the discovery of quagga mussels in Lake Mead just upstream added even more challenges to trout

production. By 2009, WBNFH only stocked approximately half the numbers of trout (approximately 24,000) they had in 2000. Up to 45,000 had been the normal stocking numbers. WBNFH experienced two significant losses of trout from equipment failure, one in August and another in November 2013. The collapse of one of the two water intake pipelines (August) and then the later temporary dewatering of the other (November) killed thousands of trout in the raceways and required the immediate release of the surviving trout to the river. This emergency stocking of 11,000 rainbow trout took place on November 21, 2013.

The presence of small (< 150 mm) fish in summer electrofishing samples during the 90s suggests limited reproduction may occur at times within this stretch of river. However, no successful recruitment of Rainbow Trout has been documented in this reach (Liles 1997). A fingerling trout stocking program was attempted in 1976 and continued for several years when the abundance of aquatic larval blackflies provided a rich food base. Supplemental stockings of catchable trout were made irregularly through 1987 by NDOW. Annual stockings of larger sized trout in the vicinity of Needles, California, per the request of the California Department of Fish and Game, continued as well through the mid 1980's. The regular stocking of 8" trout was resumed in 1988 due to the belief that with the decline in food base organisms (larval blackflies) a fingerling only program could not provide the desired fishery.

Striped Bass:

Striped Bass will be managed to a limited extent by creel surveys once every 5 years and by maintenance of regulations consistent with neighboring reaches. No supplemental stockings are proposed. The emphasis will be to manage to ensure adequate forage base for all fish species. No special regulations are purposed.

Between 1962 and 1969 a program was conducted by the Arizona and California Game and Fish Departments to create a Striped Bass fishery in the Colorado River (Arizona-California-Nevada) between Davis and Parker Dams. Ninety-three thousand Striped Bass fingerlings and yearlings were introduced during this period (Edwards 1974). Historically, spawning apparently occurred in that portion of the river from Davis Dam to approximately 16 km downstream in April through mid-June (Edwards 1974). Spawning "runs" were common during these periods and attracted large numbers of anglers. The Bullhead City Chamber of Commerce annually sponsored a Striped Bass derby starting on Memorial Day and concluding on Labor Day. A cash prize was awarded for the largest (heaviest) Striped Bass caught as well as a monthly drawing. The number of Striped Bass entered into the Derby greatly decreased, with a general decline from 1980 through 1988 (Liles 1990). From 1981 onward, the 1 to 5 pound size class was predominant, except in 1985 when only 21 fish in that class were entered. Participation by the bait & tackle shops located along the river varied. The area open to entrants was increased in 1988 to include not only the previous boundaries of 1-40 to Davis Dam but also all of Lake Mohave from Davis Dam to Hoover Dam. By 1989, the Derby was canceled due to lack of interest. The large Striped Bass "spawning runs" that were common during spring in the 1970's and 1980's had largely disappeared after 1990. To that point, Striped Bass in the Colorado River exhibited an accelerated life history as compared to other populations of the species (Edwards 1974). By the sixth year of life, growth was recorded at approximately 20% more in length than the average of various other native and introduced

populations. Individuals greater than 20-pounds are not common from this stretch. The species readily attains such weights and individuals in this class or larger are annually caught in both upstream reservoirs and in Lake Havasu downstream.

Striped Bass appear to be a lower component of surveys since 2000. This could be attributed to the habitats sampled however, as stripers prefer the open, colder water of the main channel and are not easily sampled. Most samples since 2000 have been trammel nets set in backwaters and protected areas. Striped Bass continue to be the main predatory sportfish in the focus area offering anglers a chance at a 4 to 5 pound fish.

Largemouth Bass, Smallmouth Bass, Channel Catfish, Black Crappie and Sunfishes:

These species will be managed to a limited extent by periodic creel surveys once every five years and by maintenance of regulations consistent with neighboring reaches. No supplemental stockings are proposed. The emphasis will be to manage to ensure adequate forage base for all fish species. No special regulations are proposed.

Largemouth bass are limited to the few backwaters and protected areas found in this reach. Shallow areas with abundant emergent and submerged vegetation favor the species. Areas were this is found are relatively difficult for anglers to access and fish. Warmer, shallow water with plentiful prey such as sunfish, crayfish, various bird species and occasional threadfin shad create conditions to make a quality Largemouth Bass fishery.

Common Carp, Black and Yellow Bullhead, Goldfish and Tilapia:

These species are not desirable in this reach and will be removed as encountered.

Native Species:

Restoration and conservation of Razorback Sucker, Flannelmouth Sucker, and Bonytail Chub will be in partnership with the MSCP, BOR, FWS and other partners and stakeholders. Actions regarding these species will be consistent in the fulfillment of Department commitments to recovery plans and programs.

Speckled Dace are prevalent in the Colorado River above Lake Mead, but are absent below. Although there are no historic records below Davis Dam, an introduced population of Speckled Dace would likely persist and balance the food web of this section of the Colorado River.

Access

There are a number of boat launches in this reach as it is a fairly popular recreation area. There are boat launches at Mohave County Park Davis Camp, Bullhead City Community Park, Jack Smith Park, and Needles Launch Ramp. In addition, there is shore access along the river including Davis Camp, Bullhead City Community Park, Rotary Park, and Don Sullivan Park. Efforts will continue

in conjunction with partners and stakeholders to properly sign and develop fishing access points where feasible.

Catch

Desired catch rates for this fishery are 1 fish per hour. The most recent roving creel survey took place in the winter of 2015-2016 in partnership with AZFWCO and NDOW. Rainbow Trout were the most desired and most caught fish followed by Striped Bass (Figure 2, 3). A roving creel will be performed every five years.

Satisfaction

During creel surveys and interactions with anglers, Department staff will ask a standardized question regarding the angler's satisfaction with the fishery on a scale of 1-5. Satisfaction of 80% is the goal of the fishery. During the 2015-2016 creel survey 62.6% of anglers rated their experience as extremely satisfied or satisfied (Figure 4). Only 5% were rated as extremely dissatisfied (Figure 4).

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Tables and Figures

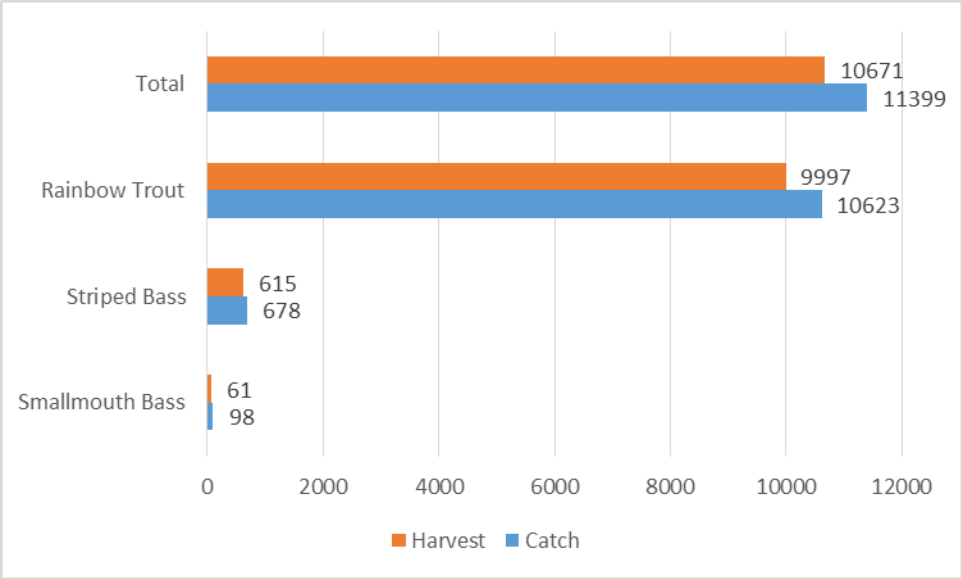

Figure 2. Estimated catch and harvest of fish in the Colorado River from Davis Dam to I-40 during the November 2015-March 2016 Creel Survey.

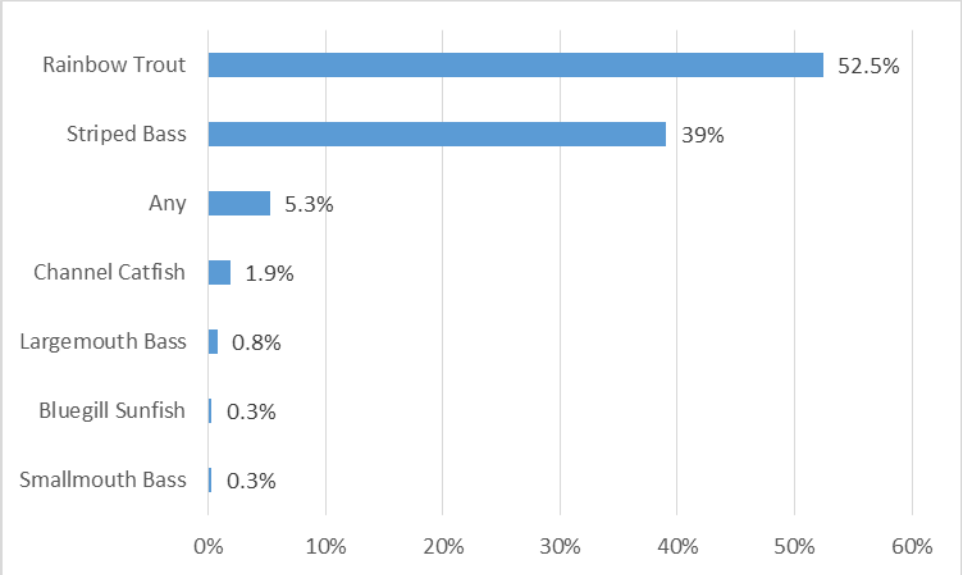

Figure 3. Species preference by anglers from Colorado River Davis Dam to I-40 during the November 2015-March 2016 Creel Survey.

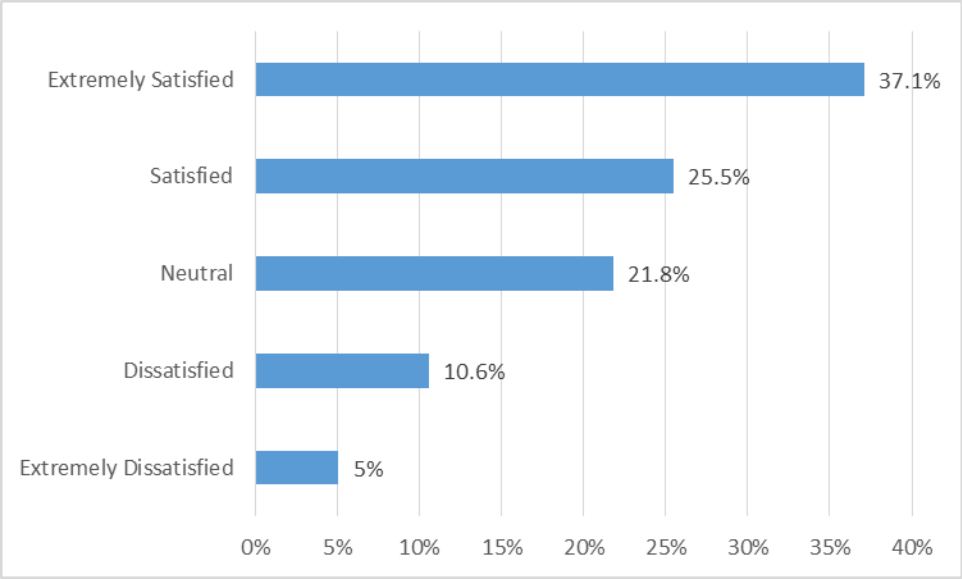

Figure 4. Satisfaction ratings from Colorado River Davis Dam to I-40 during the November 2015-March 2016 Creel Survey.