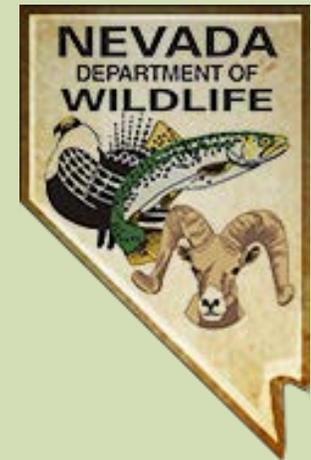


# Lake Mohave Fisheries Survey Results 2019

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# Lake Mohave Survey Methods

- ▶ AZGFD Protocol for Fisheries Management 2004
- ▶ Stratified into thirds
  - ▶ Lower: Mile 0-11.75, Davis Dam to Clam Cove
  - ▶ Middle: Mile 11.75-30, Clam Cove to Twin Cove
  - ▶ Upper: Mile 30-63 Twin Cove to Hoover Dam
- ▶ 50 gill net sites (1 net-night/cove)
  - ▶ Typically 20 sites in the lower and middle sections, and 10 in the upper section.
  - ▶ Seven fixed reference sites
- ▶ 20 electrofishing sites (15 minutes/cove)
  - ▶ 10 in the lower, and 5 in each of the middle and upper sections
  - ▶ Seven fixed reference sites divided throughout

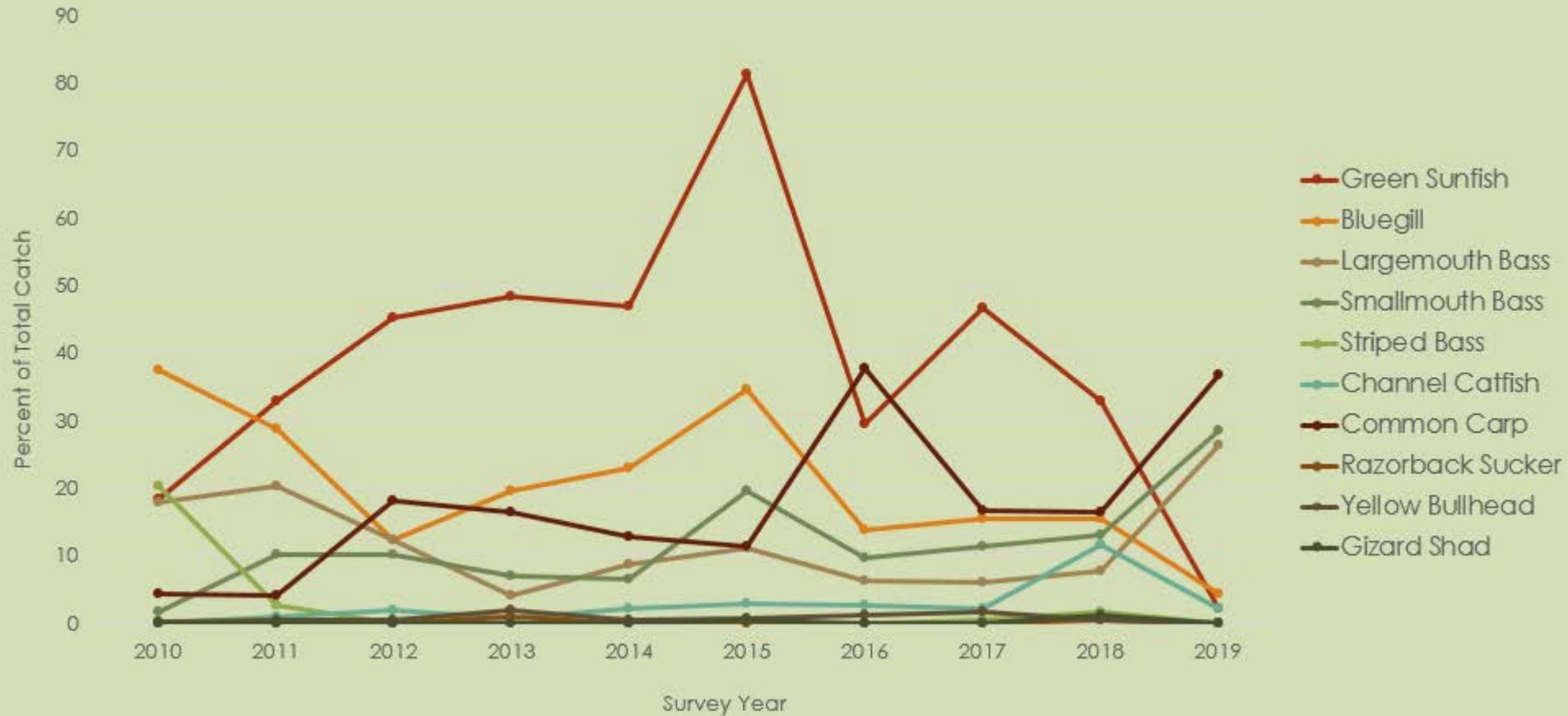
# Electrofishing Species Composition, 2019

Species	Number caught (n)	Percent (%) of total catch	CPUE (fish/15 minutes)
Common Carp	35	36.8	3.5
Smallmouth Bass	27	28.4	2.7
Largemouth Bass	25	26.3	2.5
Bluegill	4	4.2	0.4
Channel Catfish	2	2.1	0.2
Green Sunfish	2	2.1	0.2
Total	95	100	9.5

# Percent of Species Composition From Electrofishing

Percent (%) of Total Catch		
	2010-2018	2019
Green Sunfish	42.36	2.1
Bluegill	22.22	4.2
Common Carp	15.26	36.8
Largemouth Bass	10.42	26.3
Smallmouth Bass	9.88	28.4
Striped Bass	2.77	0
Channel Catfish	2.72	2.1
Razorback Sucker	1.41	0
Yellow Bullhead	0.78	0
Gizzard Shad	0.17	0

# Percent of Species Composition While Electrofishing Over 10 years



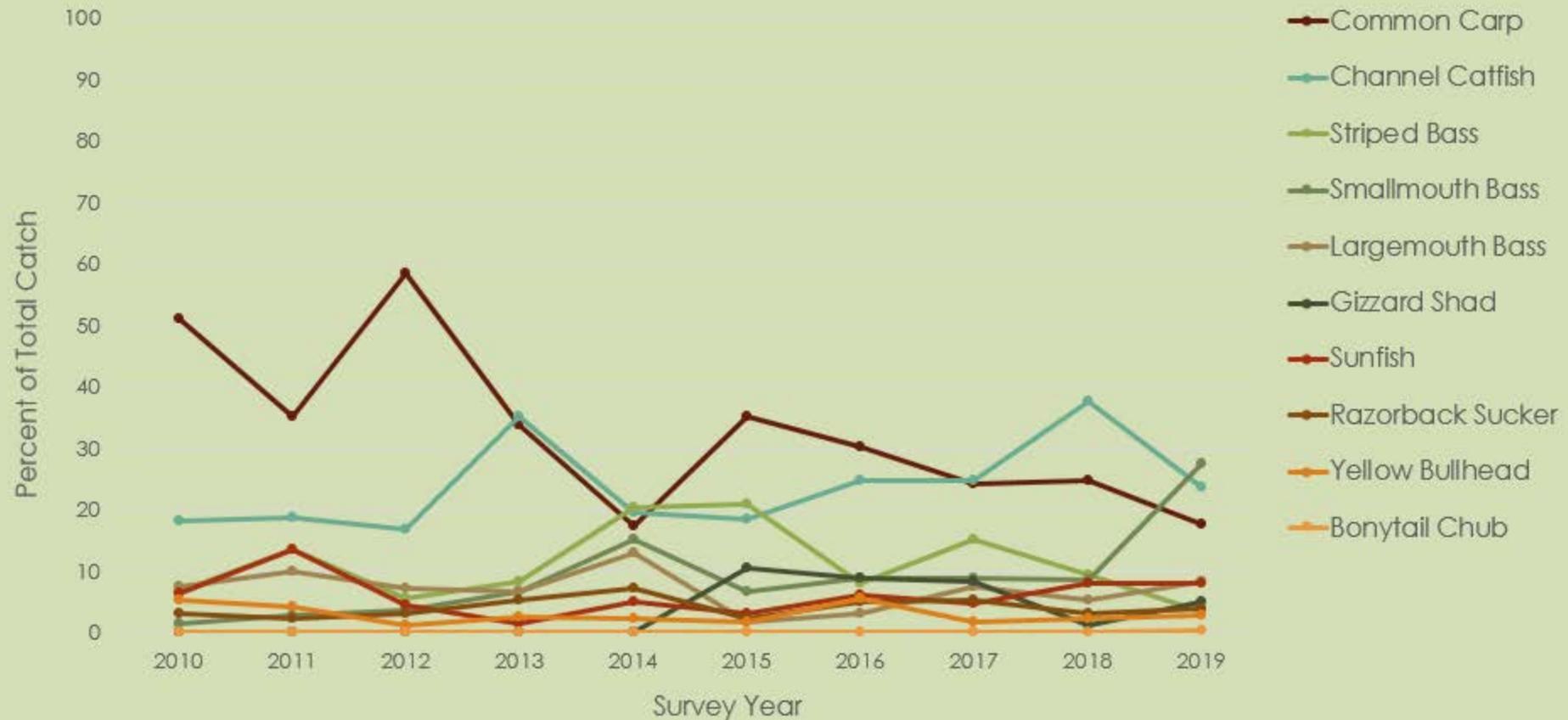
# Gillnetting Species Composition, 2019

Species	Number caught (n)	Percent (%) of total catch	CPUE (fish/net night)
Smallmouth Bass	72	27.4	1.41
Channel Catfish	62	23.5	1.22
Common Carp	46	17.5	0.90
Largemouth Bass	22	8.4	0.43
Green Sunfish	16	6.1	0.31
Gizzard Shad	13	4.9	0.25
Razorback Sucker	10	3.8	0.20
Striped Bass	9	3.4	0.18
Yellow Bullhead	7	2.7	0.14
Bluegill	5	1.9	0.10
Bonytail Chub	1	0.4	0.02
Total	263	100	5.16

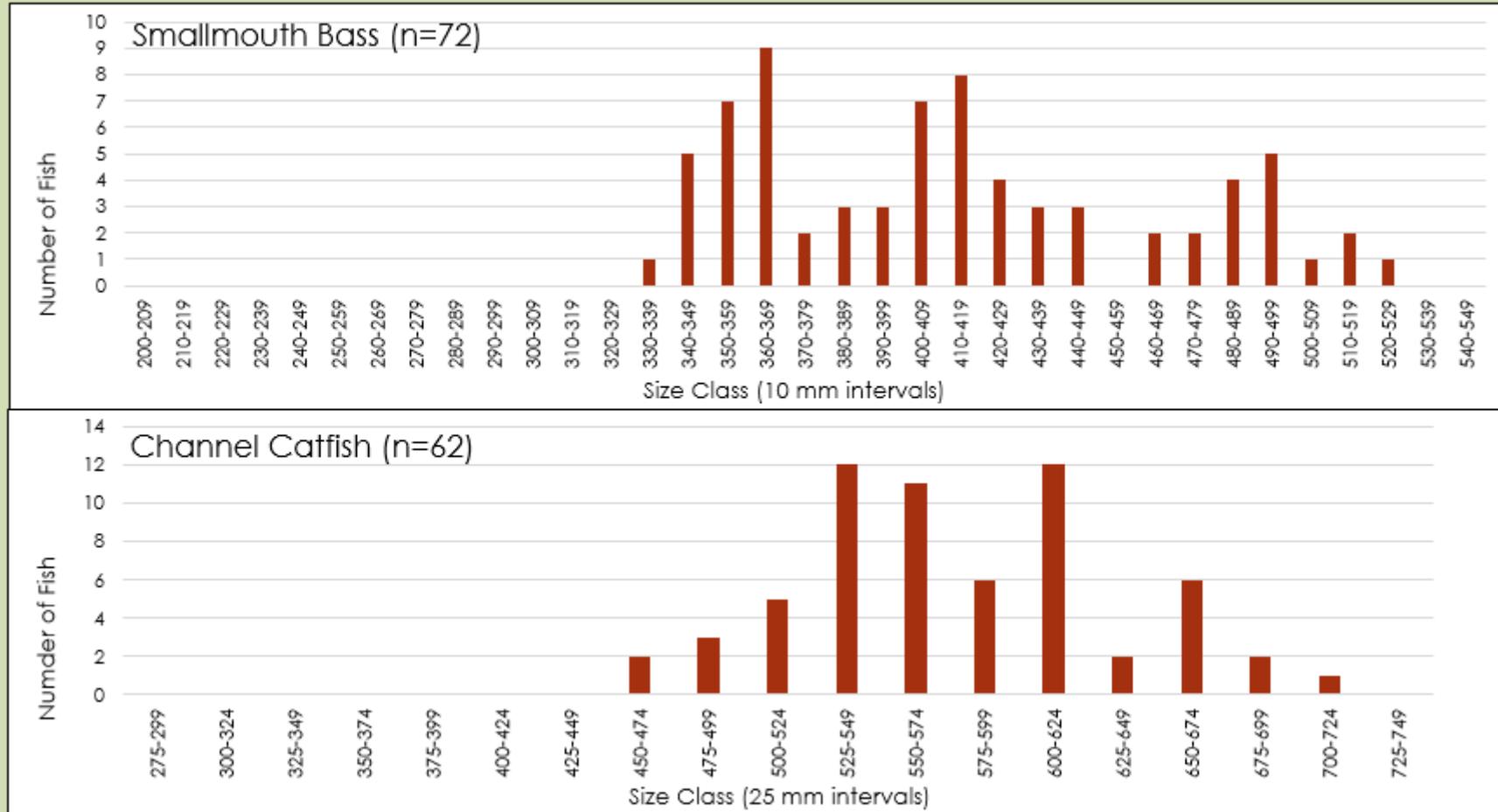
# Gillnetting Species Composition

Percent (%) of Total Catch		
	2010-2018	2019
Common Carp	33.7%	17.5%
Channel Catfish	23.3%	23.5%
Striped Bass	11.4%	3.4%
Smallmouth Bass	6.5%	27.4%
Largemouth Bass	6.5%	8.4%
Gizzard Shad	6.3%	4.9%
Sunfish	5.6%	8.0%
Razorback Sucker	3.9%	3.8%
Other (Bonytail, Bullhead, Rainbow, Threadfin)	2.8%	3.1%

# Percent of Species Composition in Gillnets Over 10 years



# Length Frequency Distribution



# Proportional Size Distribution (PSD)

- PSD for Largemouth, Smallmouth Bass, and Channel Catfish sampled by gillnet

SPECIES	Total No. of Fish Caught	No. of Stock-Size Fish <sup>a</sup>	PSD <sup>b</sup>	PSD S-Q <sup>c</sup>	PSD Q-P	PSD P-M	PSD M-T	PSD T
<b>Smallmouth Bass</b>	62	62	100	0	77	23	0	0
<b>Channel Catfish</b>	72	72	100	0	8	60	28	4
<b>Largemouth Bass</b>	22	22	100	0	32	59	9	0

<sup>a</sup> Stock-size Fish = Channel Catfish >279 mm, Smallmouth Bass >179 mm, and Largemouth Bass >199mm.

<sup>b</sup> PSD = Proportional Size Distribution: Channel Catfish >409, Smallmouth Bass >279 mm, and Largemouth Bass >299mm.

<sup>c</sup> Fish quality index: S-Q=Stock to Quality, Q-P=Quality to Preferred, P-M=Preferred to Memorable, M-T=Memorable to Trophy.

# Physical Condition (relative weight $W_r$ )

SPECIES	Size Class (mm)	No. of Fish	Mean Relative Weight ( $W_r$ )
Smallmouth Bass	Pre-stock (150-179)	0	-
	Stock (180-279)	0	-
	Quality (280-349)	6 	96.7
	Preferred (350-429)	43 	99.6
	Memorable (430-509)	20 	94.8
	Trophy (>510)	3 	94.7
Total		72	97.8
Channel Catfish	Pre-stock (150-279)	0	-
	Stock (280-409)	0	-
	Quality (410-609)	48 	115.3
	Preferred (610-709)	14 	118.0
	Memorable (710-909)	0	-
	Trophy (>910)	0	-
Total		62	115.9
Largemouth Bass	Pre-stock (150-199)	0	-
	Stock (200-299)	0	-
	Quality (300-379)	7 	95.5
	Preferred (380-509)	13 	104.4
	Memorable (510-629)	2 	95.2
	Trophy (>630)	0	-
Total		22	100.9

# Key Survey Points

- ▶ We have A LOT of Smallmouth Bass
- ▶ We need bigger sample sizes
- ▶ Larval shad trawls this spring
- ▶ More survey sites?
- ▶ Fall surveys?

# Willow Beach Creel

- ▶ Goals
  - ▶ Measure changes in shoreline vs. boat angler use
  - ▶ Track angler place of origin, angler use hours, catch rate, species and size of fish caught
  - ▶ Three creel days per month
  - ▶ Two on high use days and one on low use days
- ▶ Stratified access-point survey
  - ▶ Primary sampling unit was a 12-h day from 0600-1800, with a secondary 4-h survey block
  - ▶ Survey days were stratified into high angler use days (Fri-Sun) and low angler use days (Mon-Thurs)

# Willow Beach Creel Results

Contact Creel Interviews	2017	2018	2019
Number of days surveyed	24	30	14
Number of interviews/groups	208	170	90
Mean group size	1.6	1.8	1.7
Mean trip length (hours)	3.7	3.9	3.8
Fishing pressure (angler hours)	1153	1223	618

Reported Home State	Percent of Anglers	Number of Anglers (n=160)
Nevada	89.3	143
Arizona	5.0	8
California	2.0	3
Other	3.7	6

# Willow Beach Creel Results

- Shoreline anglers 73.1% (n=117) vs. boat anglers 26.9% (n=43)
- Percentage of anglers' target species while fishing at Willow Beach

Target Species	Shore	Boat
Rainbow trout	57.3%	30.2%
Striped bass	11.1%	20.9%
Both striper and trout	27.4%	32.6%

\*About 4% of shore anglers fished for catfish or "anything"

# Willow Beach Creel Results



- Catch rates for Rainbow Trout and Striped Bass

Catch rate (fish/angler hour)	Shore	Boat	Total
Rainbow Trout	$87/256.5=0.3$	$36/59.25=0.6$	$123/315.25=0.35$
Striped Bass	$0/57=0$	$13/61=0.2$	$13/118=0.1$
Both (trout/striper)	$0/105=0$	$1/41=0.02$	$1/146=0.007$



# Key points and Next Year

- Composition of anglers fishing from shore and boating did not drastically change from '17-'19.
- Angler origin seems to have leveled out around 85-90% of anglers from Nevada.
- We do not capture the creel data for anglers catching Striped Bass from shore.
- For 2020: more creel days and measure all harvested fish

Thanks to all the partners!

