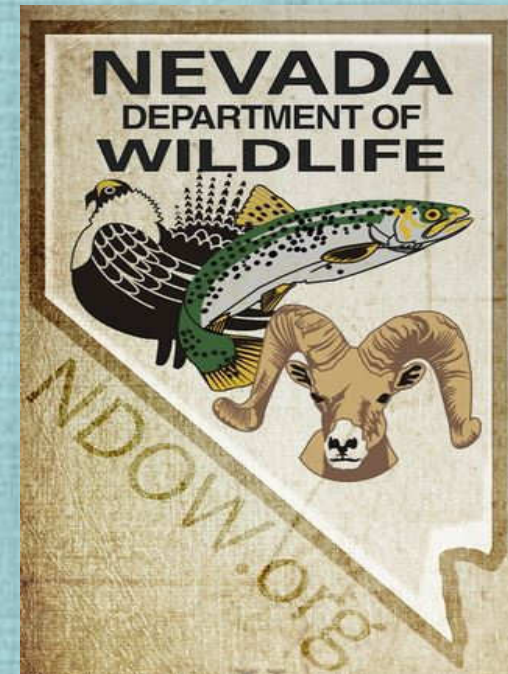
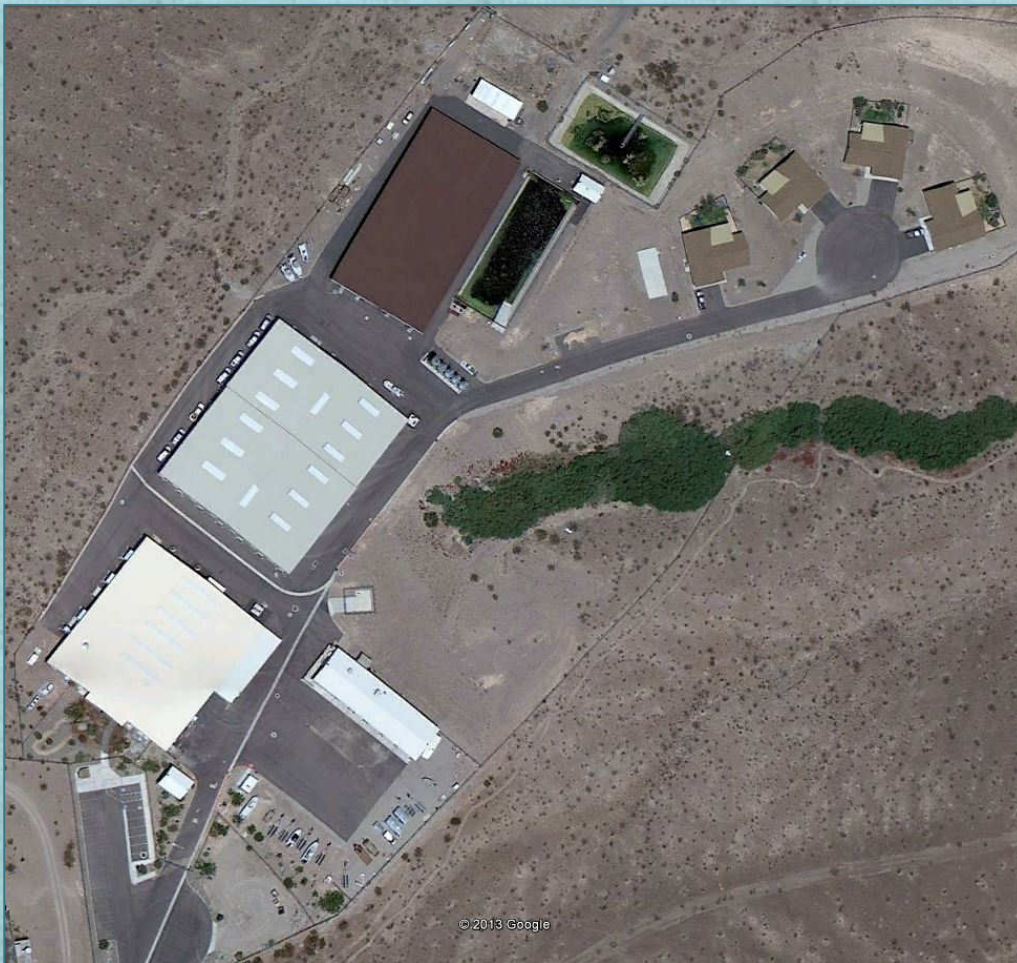


# Lake Mead Razorback Sucker Augmentation Lake Mead Hatchery



C.R.A.B. Meeting  
January 7<sup>th</sup>-8<sup>th</sup>, 2015  
Todd Wright

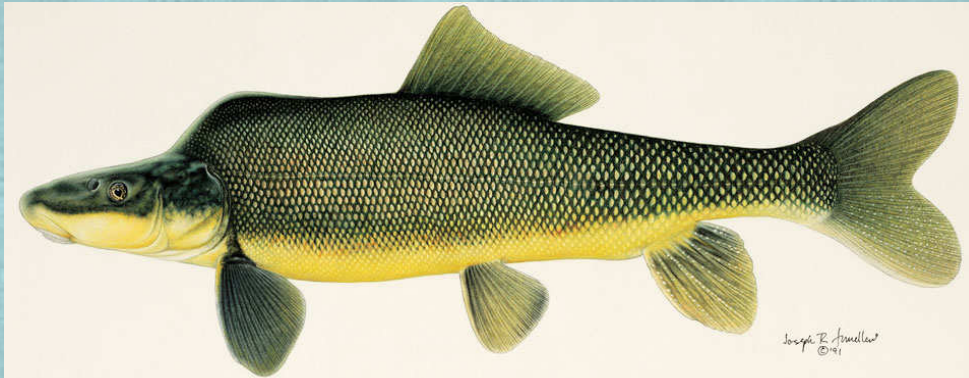
# 2014 LMH Staff Additions

Staffing changes occurred 1x during 2014

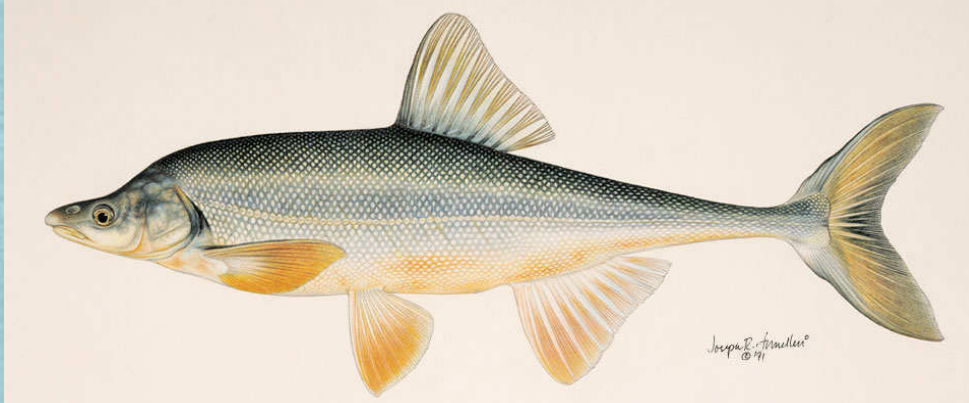
- **NDOW Conservation Aid Eric Laux started in the role of the Fish Hatchery Technician at LMH on November 24<sup>th</sup>.**
- **Eric also filled in for me during shoulder surgery from June until August**



# Fish Reared at LMH



**Razorback Sucker**  
*(Xyrauchen texanus)*



**Bonytail Chub**  
*(Gila elegans)*



**Flannelmouth Sucker**  
*(Catostomus latipinnis)*

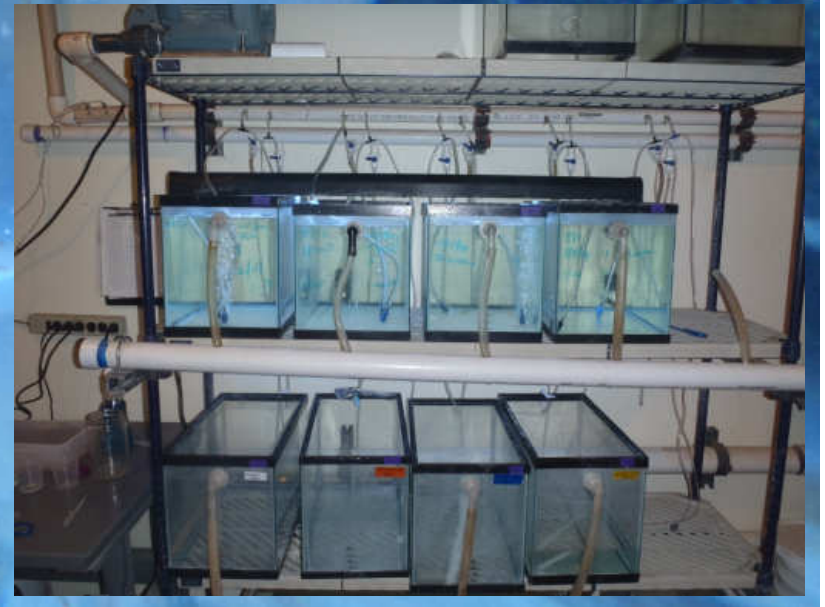
# Larval Collection

2014

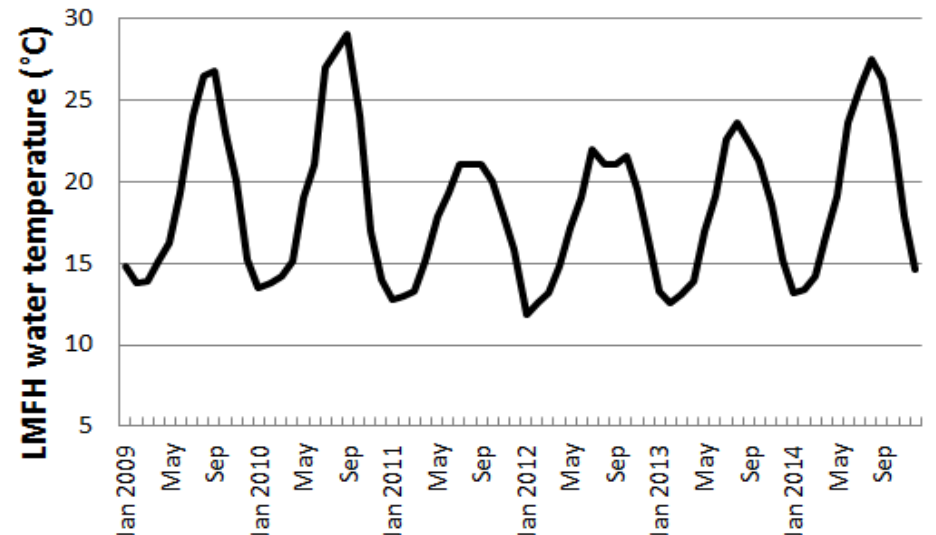
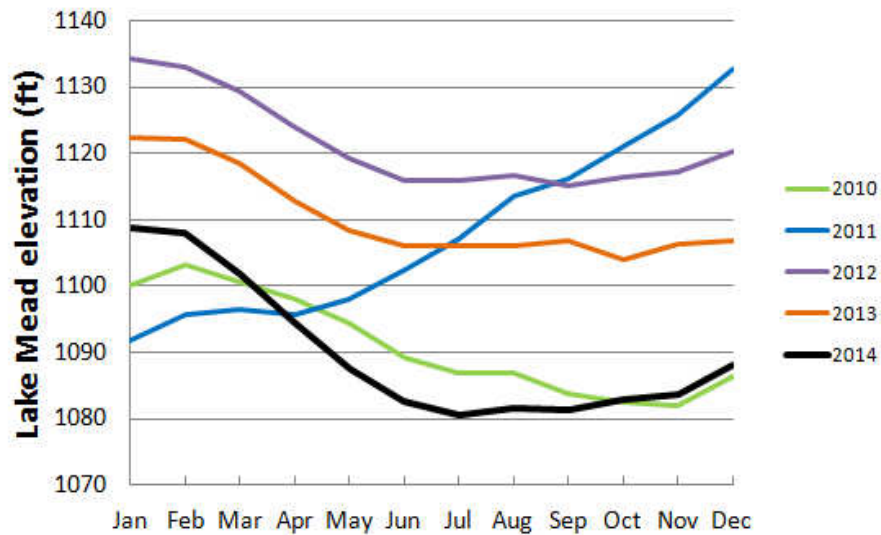
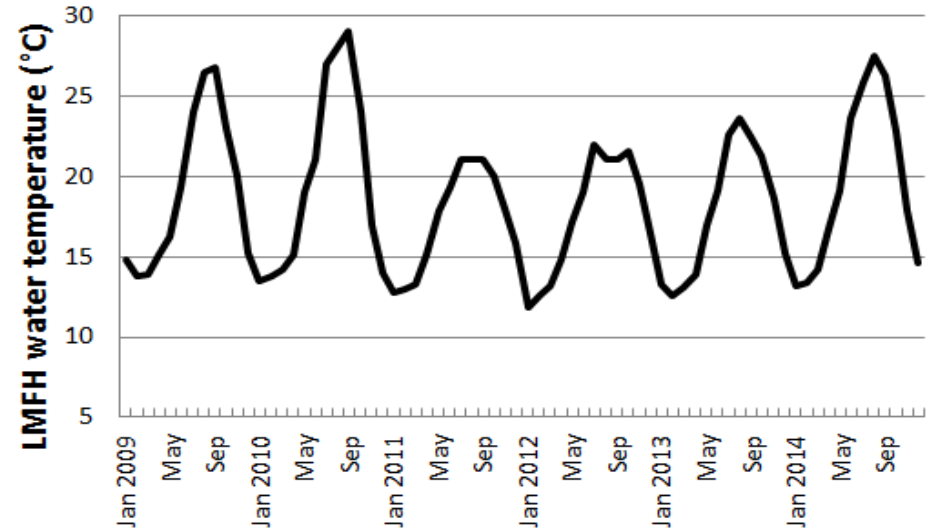
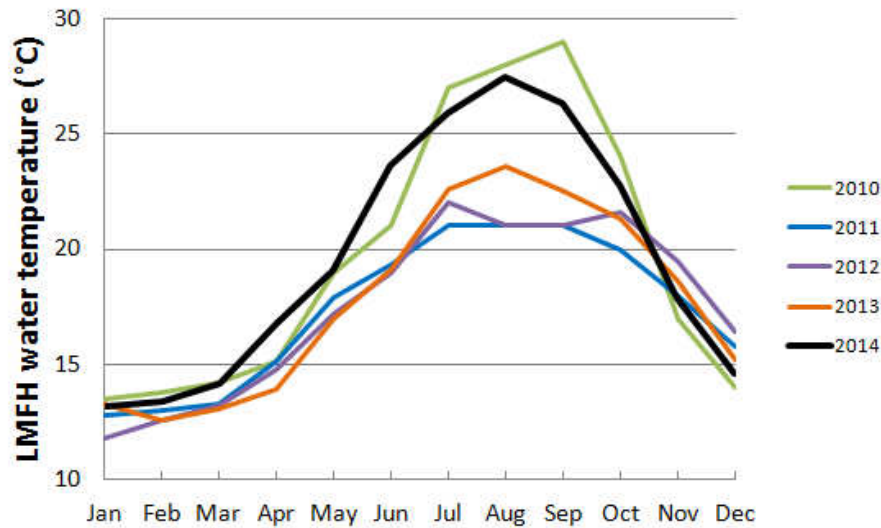
	Feb	Mar	Apr	May	Totals
LV Bay	12	16	15	0	<b>43</b>
Echo Bay	0	5	16	0	<b>21</b>
Overton	0	14	13	0	<b>27</b>
CRI	0	0	0	12	<b>12</b>

Total: **103**

NDOW also received **4,469**  
larval Razorback Suckers from  
Willow Beach on 5/30/2014



# Lake Elevation and Hatchery Water Temperatures



# Native Fish on Station



# LMH Razorback Sucker on Station

Tank	Species	Year Class	Origin	# of Fish	Mean TL (mm)
TE1	RBS	2014	Lake Mead	30	144
202	RBS	2012	Lake Mead	183	303
203	RBS	2014	Lake Mohave	2,000	159
204	RBS	2014	Lake Mohave	2,100	159
206	RBS	2010-2011	Lake Mohave	99	353
207	RBS	2011	Lake Mead	137	371
401	RBS	2010-2011	Lake Mohave	440	421
402	RBS	2010	Lake Mohave	321	417
403	RBS	2010-2011	Lake Mohave	432	424
404	RBS	2010-2011	Lake Mohave	316	441
405	RBS	2010-2011	Lake Mohave	300	426
406	RBS	2010-2011	Lake Mohave	303	429
407	RBS	2010	Lake Mead	410	404

**Total Fish 7,071**

**Total Lake Mead RBS 760**

**Total Lake Mohave RBS 6,311**



# LMH Flannelmouth Suckers on Station

Tank	Species	Year Class	Origin	# of Fish	Mean TL (mm)
201	FMS	2012	CR below Davis Dam	29	233
208	FMS	*	Lake Mead-CRI	25	406
<b>Total Fish</b>				<b>54</b>	

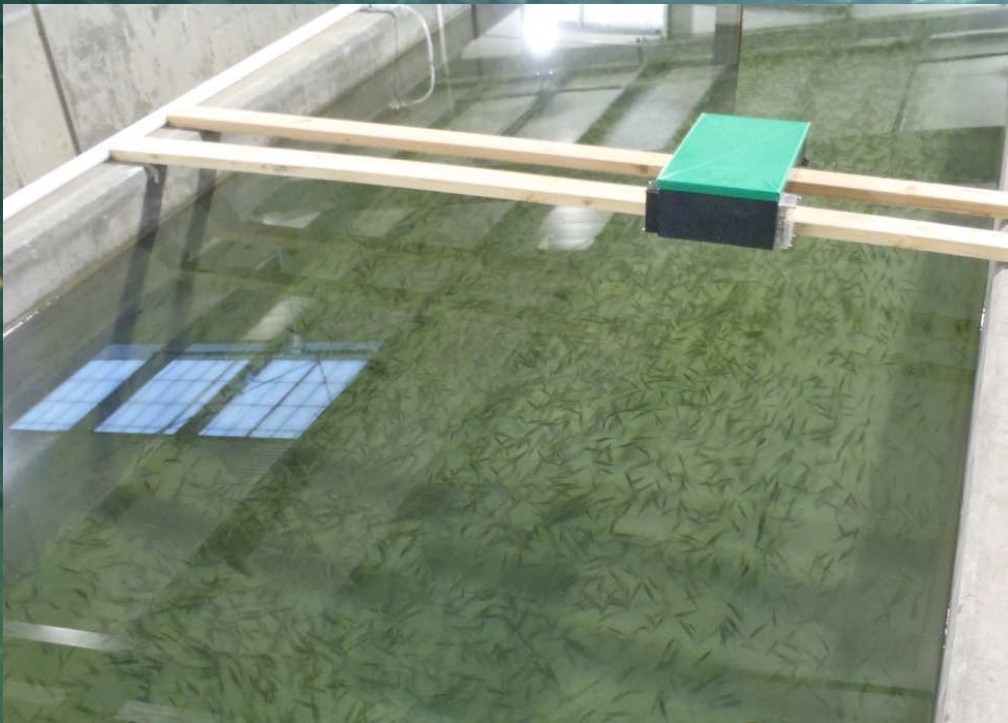
\*Actual year class is unknown. 2014 is when collection efforts took place from the Colorado River inflow (CRI).





# LMH Bonytail Chub on Station

Tank	Species	Year Class	Origin	# of Fish	Mean TL (mm)
210	Bonytail	-	Imperial Ponds	70	-
410	Bonytail	2014	Achii Hanyo	6,000	100
801	Bonytail	2013	Achii Hanyo	5,300	239
802	Bonytail	2013	Wahweap Hatchery	35,000	148
<b>Total Fish</b>				<b>46,370</b>	



# Native Fish Growth



# Growth

## Razorback Sucker Growth

Raceway	Raceway Type	Year-Class	Origin	Initial TL	Final TL	Days of Growth	Growth (mm/day)
TE1	8' Fiberglass	2014	Lake Mead	20	144	225	0.55
202	20' Fiberglass	2012	Lake Mead	114	303	365	0.52
203	20' Fiberglass	2014	Lake Mohave	64	159	124	0.77
204	20' Fiberglass	2014	Lake Mohave	64	159	124	0.77
206	20' Fiberglass	2010-2011	Lake Mohave	285	353	365	0.19
207	20' Fiberglass	2011	Lake Mead	211	371	365	0.44
401	20' Fiberglass	2010-2011	Lake Mohave	358	421	365	0.17
403	40' Fiberglass	2010-2011	Lake Mohave	350	413	365	0.17
404	40' Fiberglass	2010-2011	Lake Mohave	365	441	365	0.21
405	40' Fiberglass	2010-2011	Lake Mohave	347	426	365	0.22
406	40' Fiberglass	2010-2011	Lake Mohave	356	429	365	0.20
407	40' Fiberglass	2010	Lake Mead	332	404	365	0.20
409	40' Fiberglass	2010	Lake Mohave	331	417	365	0.24

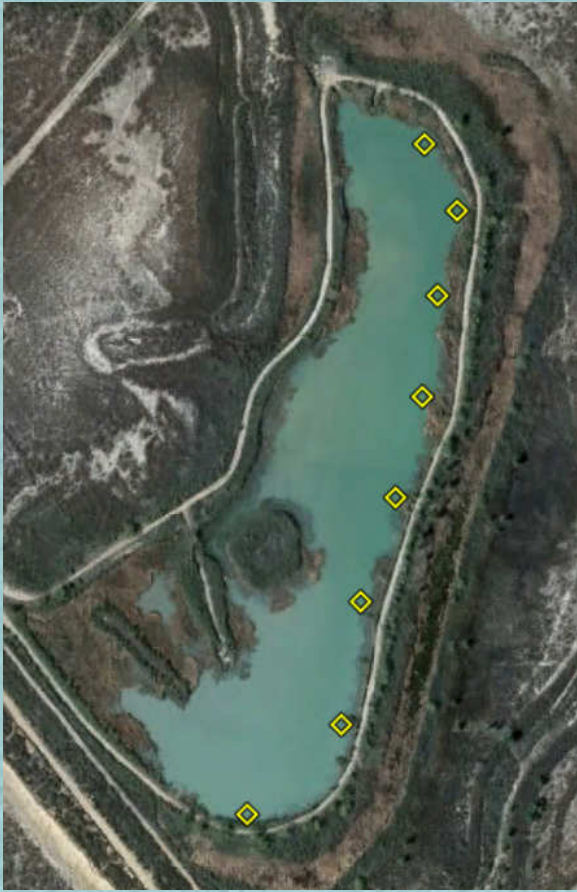
## Flannelmouth Sucker Growth

Raceway	Raceway Type	Year-Class	Origin	Initial TL	Final TL	Days of Growth	Growth (mm/day)
201	20' Fiberglass	2012	CR below Davis Dam	151	230	365	0.22
209	20' Fiberglass	*	Lake Mead-CRI	388	406	365	0.05

## Bonytail Chub Growth

Raceway	Raceway Type	Year-Class	Origin	Initial TL	Final TL	Days of Growth	Growth (mm/day)
801	80' Concrete	2013	Achii Hanyo	150	239	294	0.30
802	80' Concrete	2013	Wahweap Hatchery	78	148	309	0.23

# Sampling Events



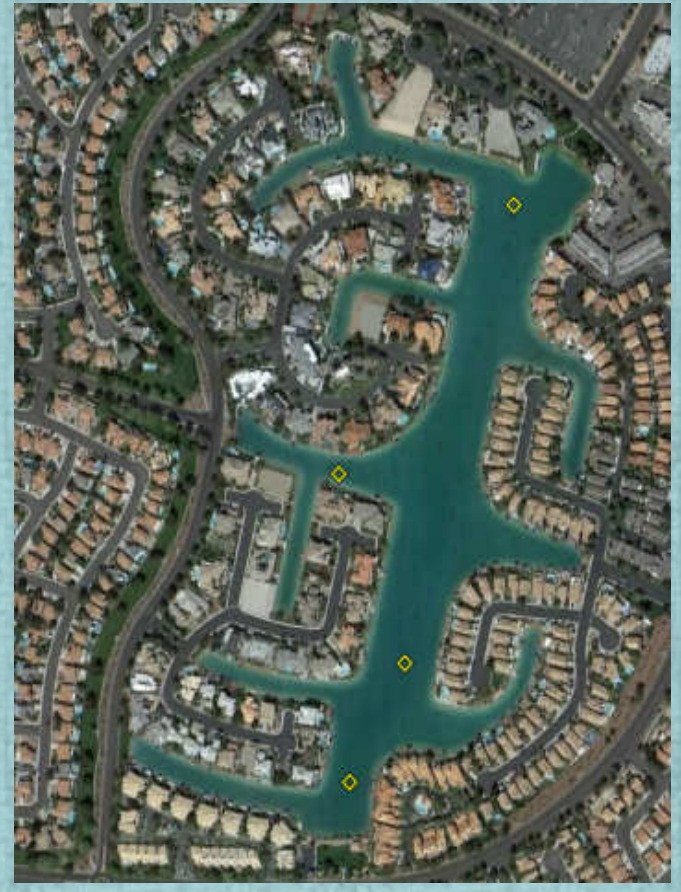
**Center Pond**

OWMA  
16 acres



**Honeybee Pond**

OWMA  
20 acres



**Lake Sahara**

Las Vegas, NV  
30 acres

# Lake Sahara, March 2014

Species	# Fish	Avg. TL (mm)	Avg. Wt (g)	% biomass	% species composition
Channel Catfish	5	543	1,860	7.3	7.1
Largemouth Bass	35	437	1,390	38.0	50.0
Razorback Sucker	30	574	2,320	54.7	42.9
<b>Total Fish</b>	<b>70</b>				

	# Fish	%	Avg. TL (mm)	Avg. Wt (g)
Female	6	20	616	2,835
Male	24	80	564	2,208
<b>Total</b>	<b>30</b>	<b>100</b>	<b>590</b>	<b>2,522</b>

# Center Pond at Overton Wildlife Management Area, February 2014

Species	# of Fish	Avg. TL (mm)	Avg. Wt (g)	% Species Comp.
Razorback	115	497	1,291	66.5
Bluegill	3	-	-	1.7
Channel Catfish	3	-	-	12.7
Common Carp	22	-	-	1.7
Green Sunfish	6	-	-	3.5
Largemouth Bass	24	-	-	13.9
<b>Total Fish</b>	<b>173</b>			

# February Center Pond Survey Comparison

Year Class	# Fish	Avg. TL (mm)	Recap from Nov 2013
2008	59	496	7
2009	24	479	3
Unknown	32	511	5
Total	115	497	15



# Honeybee Pond at Overton Wildlife Management Area, November 2014

- Late February - Honeybee Pond was filled
- Stocked 247 razorback sucker (2009 yr class) from LMFH

Species	# Fish	Avg. TL (mm)	Avg. Wt (g)	% Biomass	% Species Comp.
Razorback Sucker	53	370	648	12.2	4.6
Black Bullhead	6	177	103	0.2	0.5
Common Carp	1,091	266	219	86.5	94.2
Largemouth Bass	8	293	356	1.0	0.7
<b>Total Fish</b>	<b>1,158</b>				



# Honeybee Pond Carp Nightmare

Eight 300' Trammel nets – 1,091 Carp (136.4 carp/net)

There was some good

20 juvenile razorback suckers from 190-295mm



# Center Pond at Overton Wildlife Management Area, November 2014

Species	# of Fish	Avg. TL (mm)	Avg. Wt (g)	% Biomass	% Species Comp.
Razorback Sucker	52	511	1,608	82.3	54.7
Bluegill	3	188	140	0.4	3.2
Channel Catfish	3	459	810	2.4	3.2
Largemouth Bass	37	307	409	14.9	38.9
<b>Total Fish</b>	<b>95</b>				

\* No Carp!!!!!!!!!!

# November Center Pond Survey Comparison

Year Class	# Fish	Avg. TL (mm)	Recap from Nov 2013
2008	27	516	0
2009	23	505	0
Unknown	2	523	0
Total	52	511	0



# Hatchery Tagging Events



# Tagging Data

Date	Personnel	Species	# Fish	Tag Type	Release Destination
January 6-7, 2014	BOR	FMS	30	Sonic	Big Bend Conservation Area
January 12, 2014	BOR	BTC	514	PIT	Lake Havasu
February 6-7, 2014	NDOW, BOR	BTC	449	PIT	Davis Cove
March 10, 2014	BIO-WEST	RBS	11	Sonic	Grand Canyon
March 10-11, 2014	BOR	RBS	1,821	PIT	Lake Mohave Currently at LMFH
March 17, 2014	BOR	FMS	9	Radio	Colorado River below Davis Dam
March 26, 2014	NDOW, BOR, Marsh & Associates, USFWS	RBS	60	Sonic	River Island State Park - Headgate Dam, Bluewater Lagoon
April 2, 2014	BOR	BTC	300	PIT	Davis Cove
September 1, 2014	BIO-WEST	RBS	6	Sonic	Lake Mead
October 20, 2014	NDOW, BOR	BTC	22	PIT	Bill Williams River Lake Havasu
			<b>Total Fish</b>	<b>3,222</b>	

10 tagging events

# Repatriation Efforts



# Release Data

Date	Personnel	Species	# Fish	Release Destination
January 14, 2014	BOR	BTC	514	Lake Havasu
February 18, 2014	NDOW, BOR	BTC	449	Davis Cove
February 19, 2014	NDOW, BOR	RBS	97	Nine Mile Cove
February 25, 2014	BOR	FMS	30	Big Bend Conservation Area
March 4, 2014	NDOW	RBS	247	Honeybee Pond
March 16, 2014	BIO-WEST	RBS	10	Grand Canyon
March 16, 2014	BIO-WEST	RBS	1	Lake Mead
March 31, 2014	BOR	FMS	8	Colorado River below Davis Dam
March 31, 2014	NDOW, BOR, Marsh & Associates, USFWS	RBS	60	River Island State Park - Headgate Dam, Bluewater Lagoon
May 13, 2014	BOR	BTC	300	Davis Cove
September 2, 2014	BIO-WEST	RBS	6	Lake Mead
October 21, 2014	NDOW, BOR	BTC	22	Bill Williams River - Lake Havasu
November 7, 2014	NDOW, BOR	RBS	51	Yuma Cove
<b>Total Fish 1,795</b>				

10 stocking events

# Genetics

- July 15, 2014 - Fin clips were taken from our Lake Mead larval razorback suckers after growing into juvenile size range. Samples were separated by location/month and sent to Dr. Tom Dowling.
- August 27, 2014 - Reclamation staff fin clipped bonytail chub from the Wahweap Hatchery 2013 year-class. All fin clip samples were sent to SNARRC.





# OWMA-Honeybee Pond



Solar Aeration  
System Installation  
March 2014



# OWMA-Honeybee Pond

And then on September 8<sup>th</sup>, 2014 – high flow flood event



Muddy River stream gauge  
-Initial stages 62 cfs  
-2 hrs later 2,320 cfs  
-Peak flow of storm 3,480 cfs

And..... →



# Upcoming Work Activities 2015



- Re-install solar panels at Honeybee
- Develop a plan for Honeybee carp situation
- Sort Bonytail and Razorback on station to lower densities and size classes
- Netting at Lakes at Sahara  
March 2015
- Long-term monitoring of Lake Mead RBS population w/BIO-WEST, Inc.
- Larval sampling at OWMA & Lake Sahara
- Upgrade electrical capabilities at LMFH for future flow-conditioning efforts.
- Flow condition razorback suckers and release into Lake Mohave  
(Spring 2015).

# Acknowledgements

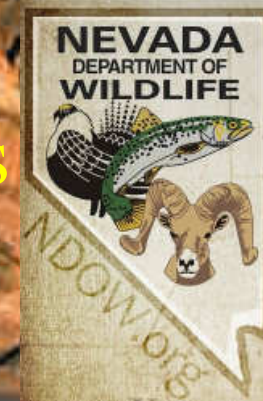
- US Bureau of Reclamation – LCR MSCP



- Bio-West



- NDOW Biologists & Technicians



- and many others.