Razorback Sucker Studies at the Colorado Inflow of Lake Mead - 2012

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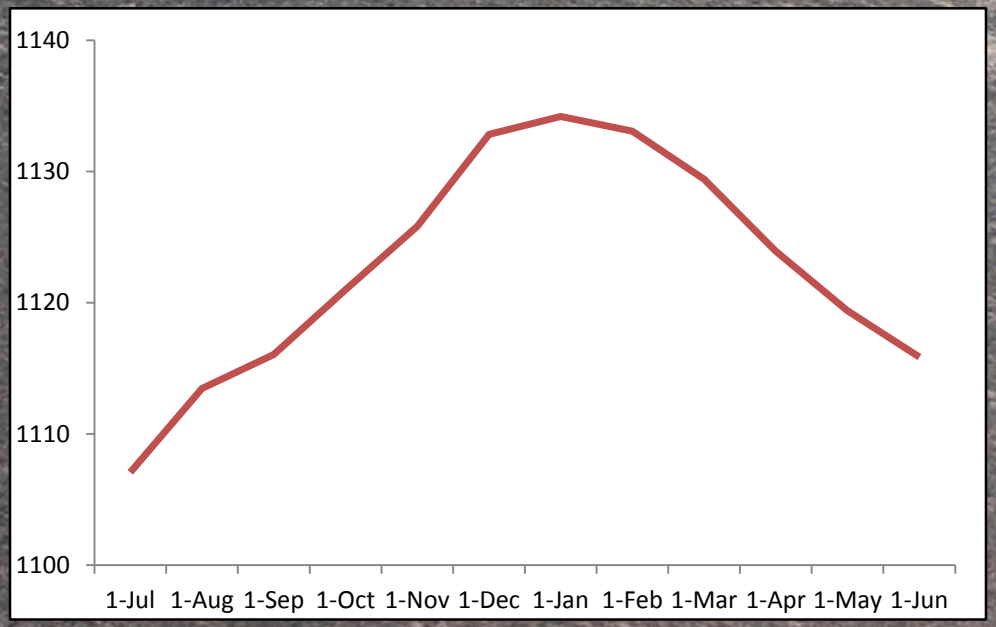
BIO-WEST, Inc.

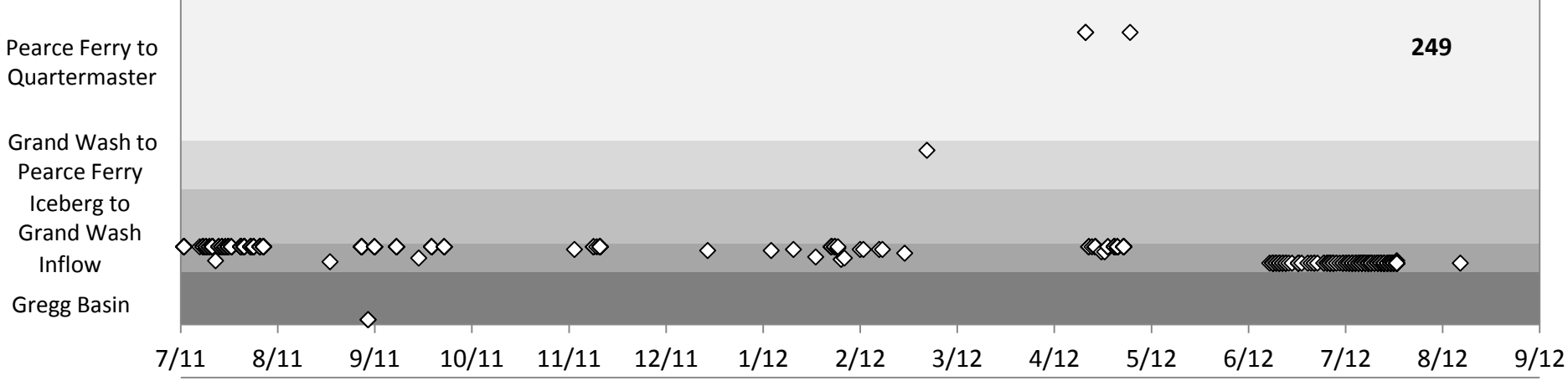
Colorado River inflow
(March 2012)

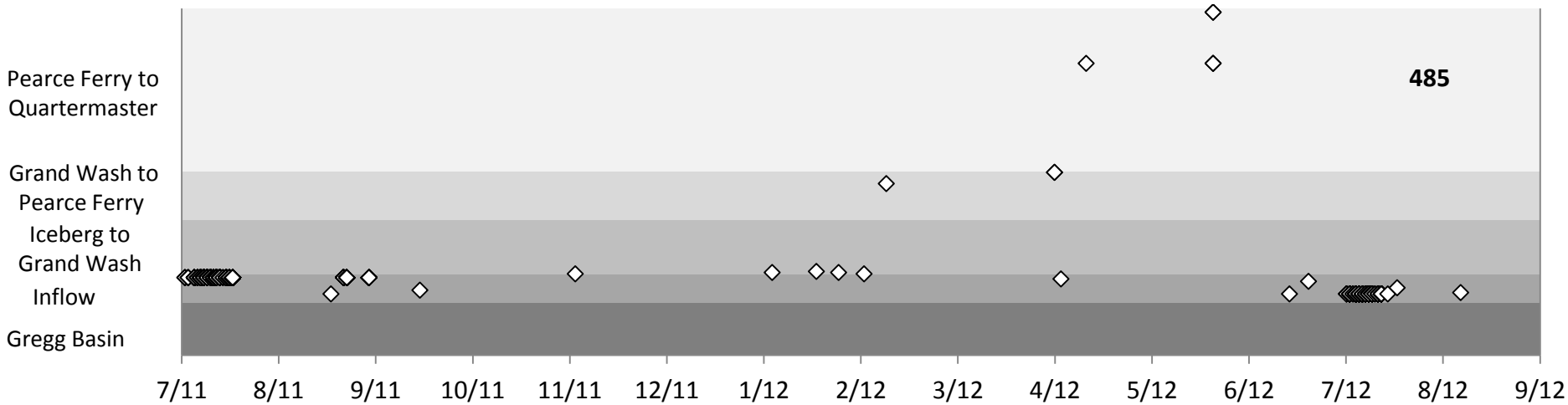
Pearce Ferry Rapid
(March 2012)

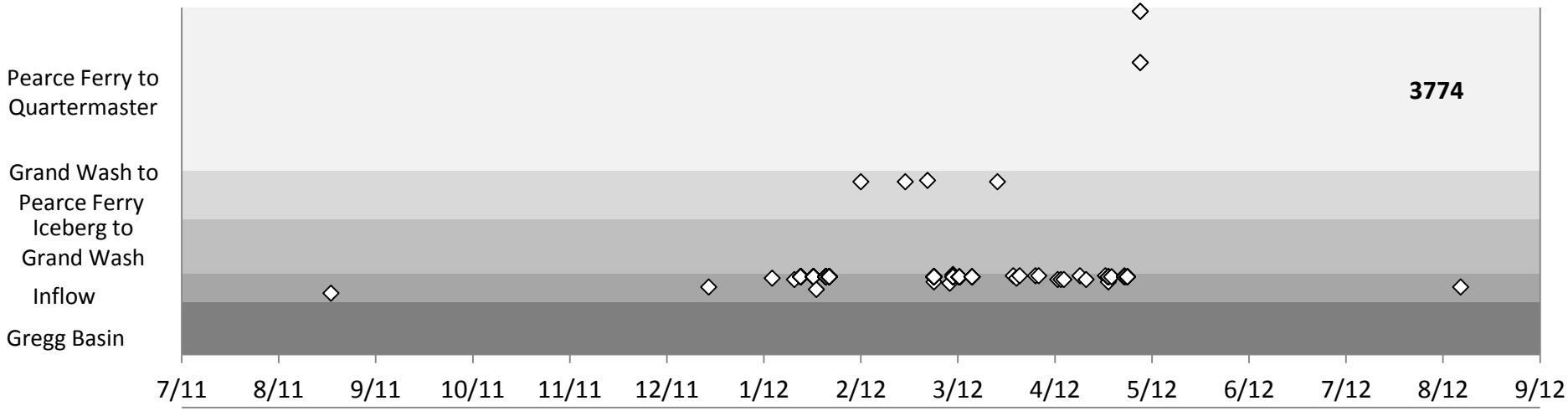


Telemetry

- No fish stocked in 2012
- Manual Tracking
  - >200 contacts
  - 17 unique fish
- SURs
  - 12 unique fish
  - 5 unique fish above PF rapid
- Movement throughout inflow area and even to Las Vegas Bay


Pearce Ferry to Quartermaster
Grand Wash to Pearce Ferry
Iceberg to Grand Wash
Inflow
Gregg Basin
249
7/11
8/11
9/11
10/11
11/11
12/11
1/12
2/12
3/12
4/12
5/12
6/12
7/12
8/12
9/12


Pearce Ferry to Quartermaster
Grand Wash to Pearce Ferry
Iceberg to Grand Wash
Inflow
Gregg Basin
485
7/11
8/11
9/11
10/11
11/11
12/11
1/12
2/12
3/12
4/12
5/12
6/12
7/12
8/12
9/12


Pearce Ferry to Quartermaster
Grand Wash to Pearce Ferry
Iceberg to Grand Wash
Inflow
Gregg Basin
3774
7/11
8/11
9/11
10/11
11/11
12/11
1/12
2/12
3/12
4/12
5/12
6/12
7/12
8/12
9/12

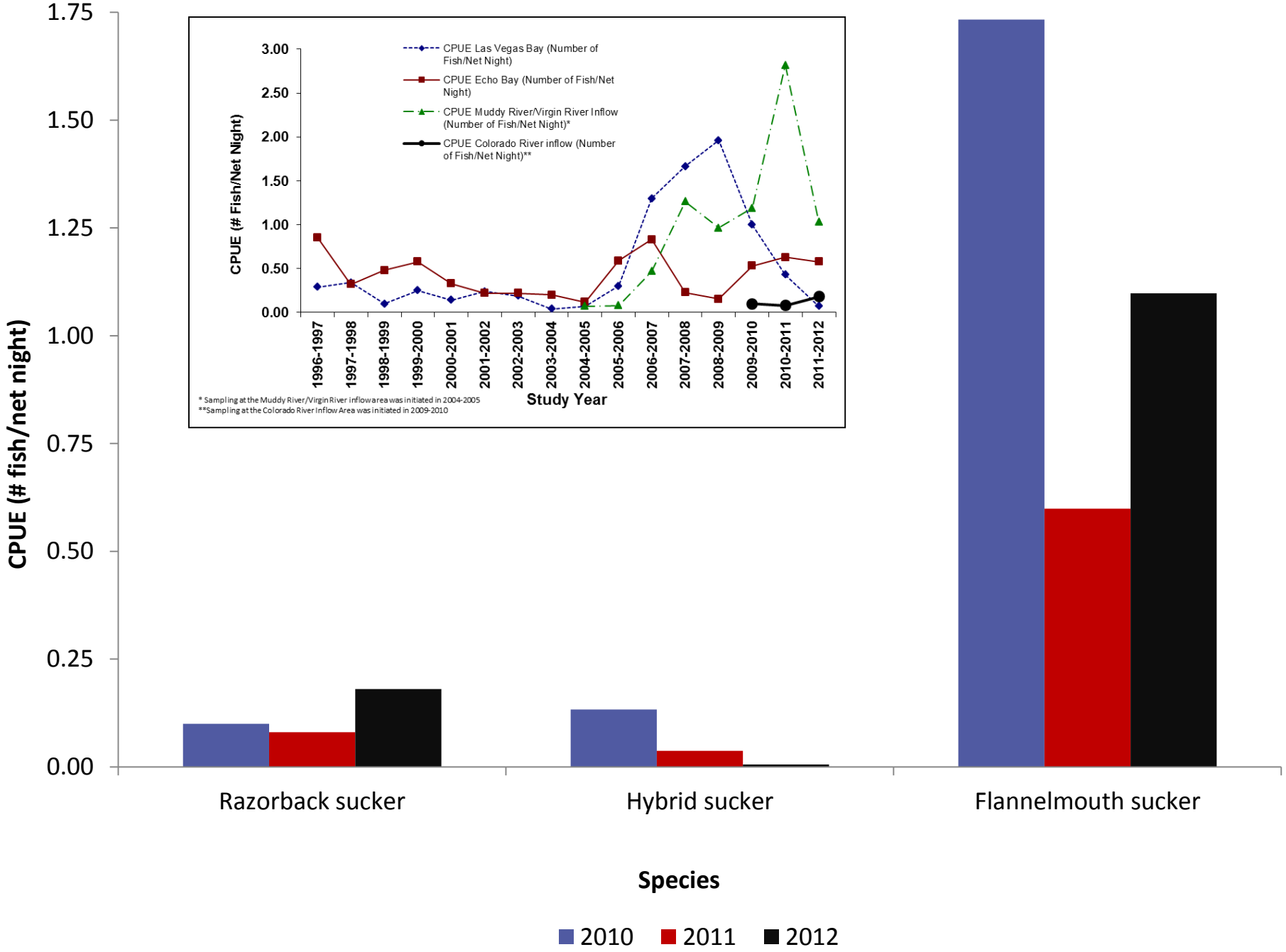
Adult Sampling

RAZORBACK

YEAR	Total #	# NEW WILD	# RECAP	# NETS
2010	3	3	0	30
2011	15	7	8	187
2012	**33**	**13**	**20**	**181**
TOTALS	**51**	**23**	**28**	**398**

HYBRID

YEAR	Total #	# NEW WILD	# RECAP	# NETS
2010	4	3	1	30
2011	7	6	1	187
2012	**1**	**1**	**0**	**181**
TOTALS	**12**	**10**	**2**	**398**


CPUE (# fish/net night)
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
Razorback sucker
Hybrid sucker
Flannelmouth sucker
Species
2010
2011
2012
CPUE (# Fish/Net Night)
3.00
2.50
2.00
1.50
1.00
0.50
0.00
CPUE Las Vegas Bay (Number of Fish/Net Night)
CPUE Echo Bay (Number of Fish/Net Night)
CPUE Muddy River/Virgin River Inflow (Number of Fish/Net Night)*
CPUE Colorado River inflow (Number of Fish/Net Night)**
1996-1997
1997-1998
1998-1999
1999-2000
2000-2001
2001-2002
2002-2003
2003-2004
2004-2005
2005-2006
2006-2007
2007-2008
2008-2009
2009-2010
2010-2011
2011-2012
Study Year
* Sampling at the Muddy River/Virgin River inflow area was initiated in 2004-2005
**Sampling at the Colorado River Inflow Area was initiated in 2009-2010

Growth

- 2012 - Max TL 635.0 mm, Min TL 494.0 mm, Mean TL 572.4 mm
- Total mean annual growth = **15.8 mm**
- Wild RZ mean annual growth = **8.0 mm**
- 2010-2012 Wild RZ mean annual = **9.5 mm**

Population Estimate (2010-2012)

- CRI = **41** (CI=34-61)
- Lakewide = **596** (CI=468-786)
- Connectivity demonstrated between Lake Mead "populations"

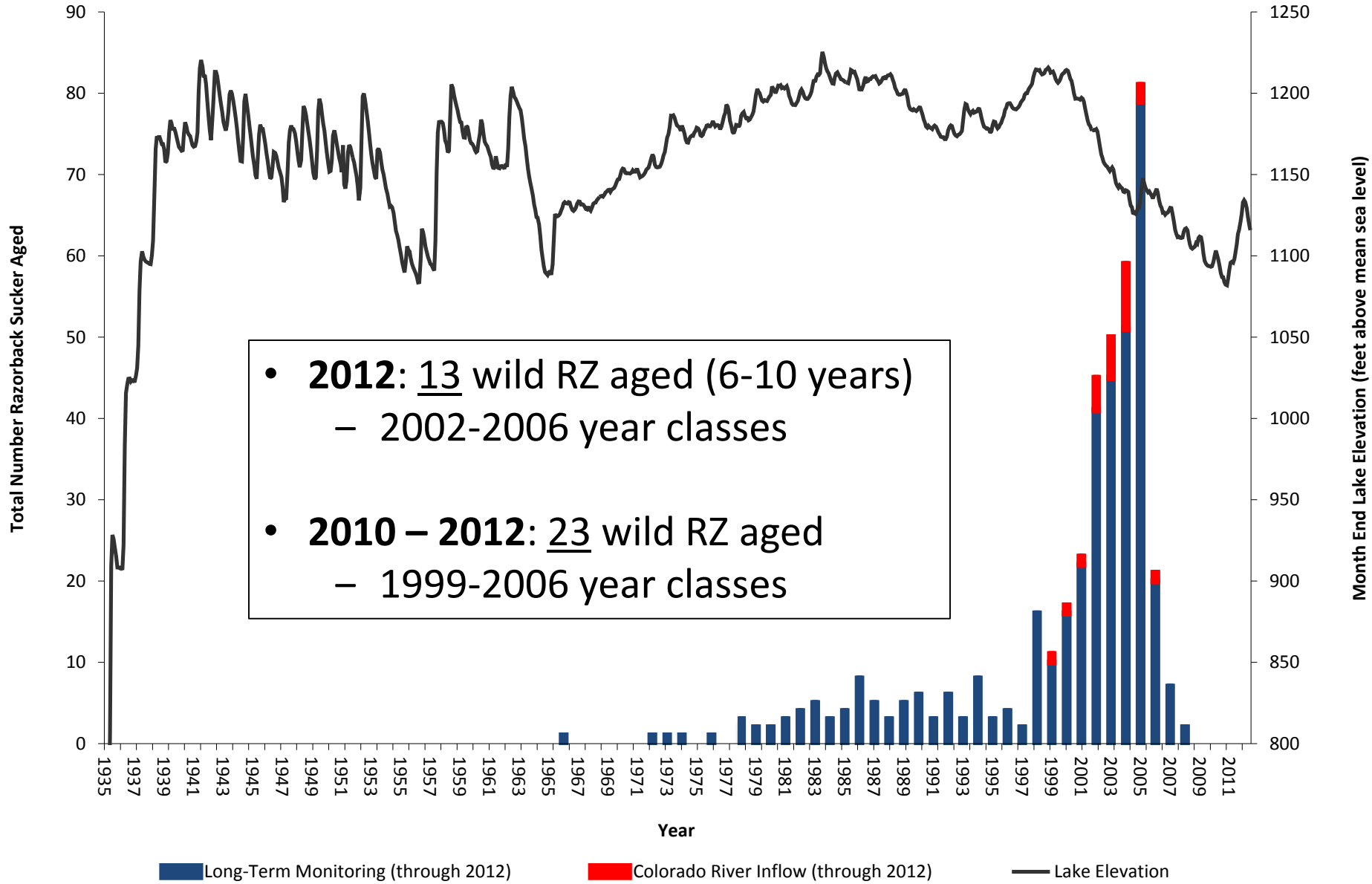
Larval Sampling

YEAR	Total #	Events	Light Hours	Temp @ First Capture	Date of First Capture	Date(s) of Majority Captured
2010	7	123	60.75	16.0 °C	4/13/2010	04/13-14/2010
2011	65	265	146.00	12.0 °C	02/14/2011	04/14-19/2011
2012	**12**	**219**	**118.75**	**17.0 °C**	**04/03/2012**	**04/24-5/16/2012**
TOTALS	**84**	**607**	**325.5**	**NA**	**NA**	**NA**

PRIMARY SAMPLING LOCATION	2007	2008	2009	2010	2011	2012
Colorado River Inflow	**--**	**--**	**--**	**0.002 [a]**	**0.007 [a]**	**0.0014 [a]**
Las Vegas Bay	0.39	0.43	0.342	0.093	0.282	0.1791
Echo Bay	0.43	0.024	0.021	0.269	1.482	0.2197
Muddy River/Virgin River Inflow	0.001	0.116	0.107	0.011	0.013	0.0036

[a] Razorback sucker larvae data only.

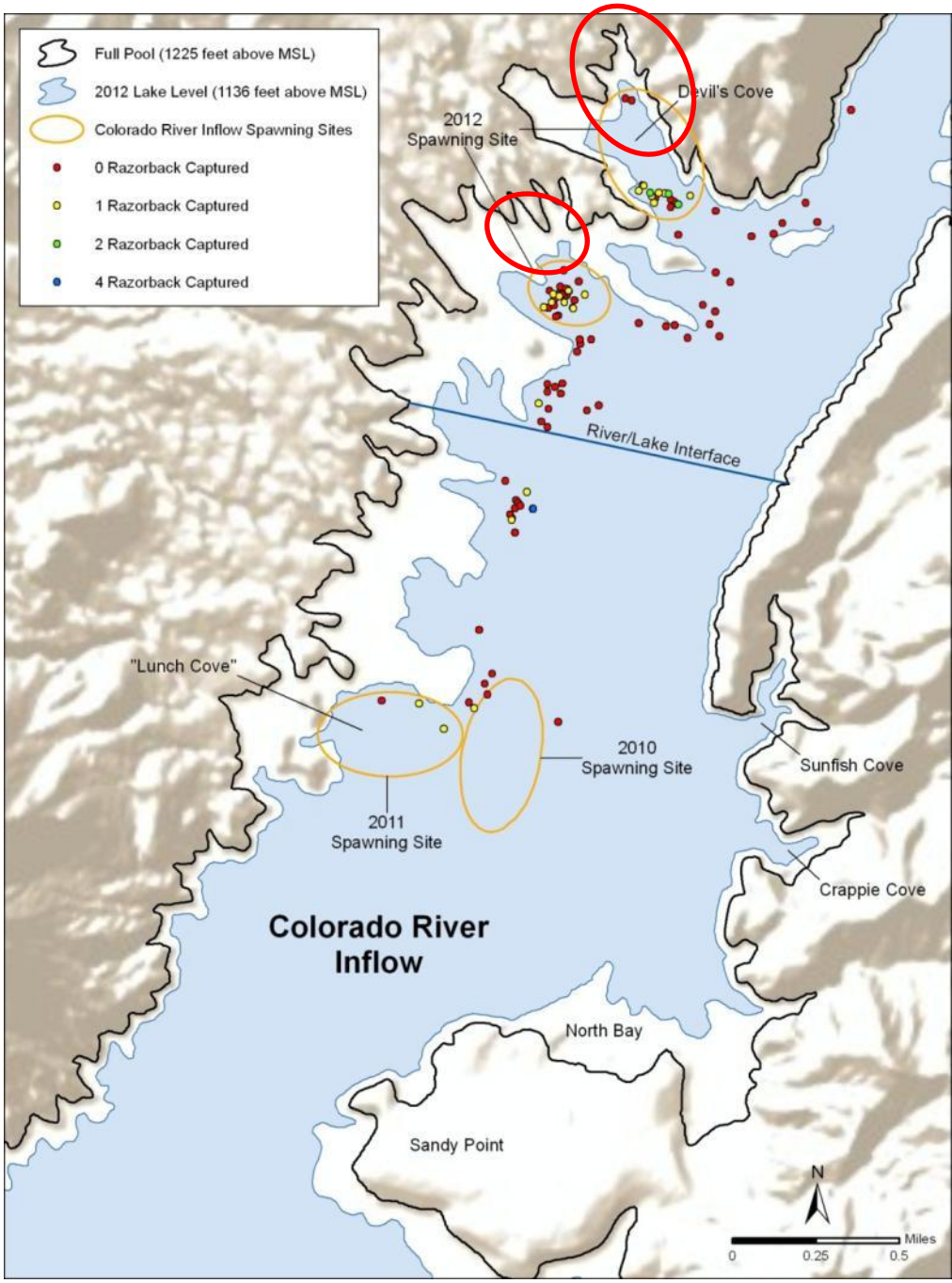
Recruitment and Aging



- **2012**: 13 wild RZ aged (6-10 years)
  - 2002-2006 year classes
- **2010 – 2012**: 23 wild RZ aged
  - 1999-2006 year classes

Spawning Sites

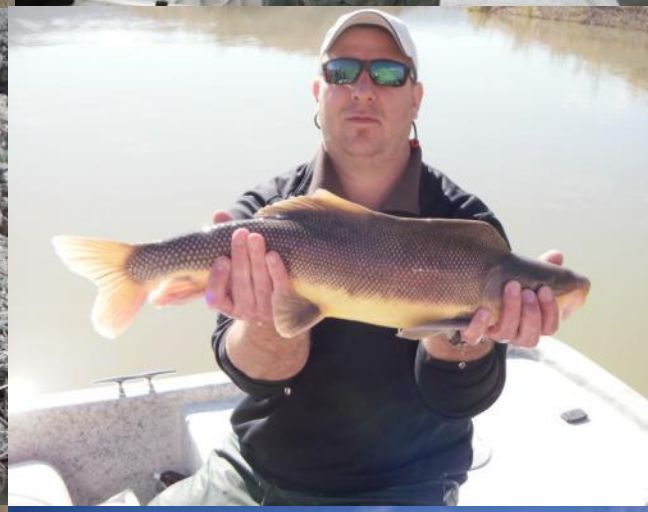
- Two primary spawning locations - 2012
- Newly inundated, reconnected coves
- Different locations each year
- Response to increased water level and changing habitat



Conclusions and Highlights

- Confirmed spawning at the CRI in 2012
- Multiple spawning locations
- More than doubled CPUE from 2011
- 40% new, wild fish in 2012
- All adult razorback sucker, yet fairly “young”
- Razorback movement upstream and throughout lake
- Pearce Ferry rapid – fish barrier??

Continued Goals

- Continue to monitor the CRI razorback population
  - Using comparable methods
  - Monitor spawning and recruitment
  - Effort to assess importance of river
- Tag (acoustic) **<u>wild</u>** fish to assess differences in movement and habitat use (i.e. upstream, lake-wide)

THANK YOU!