

Lower Colorado River Multi-Species Conservation Program



Balancing Resource Use and Conservation

Lake Mohave Trammel Netting and Remote PIT Scanning Study

Jim Stolberg
Bureau of Reclamation
LCR MSCP

Remote Scanning Study



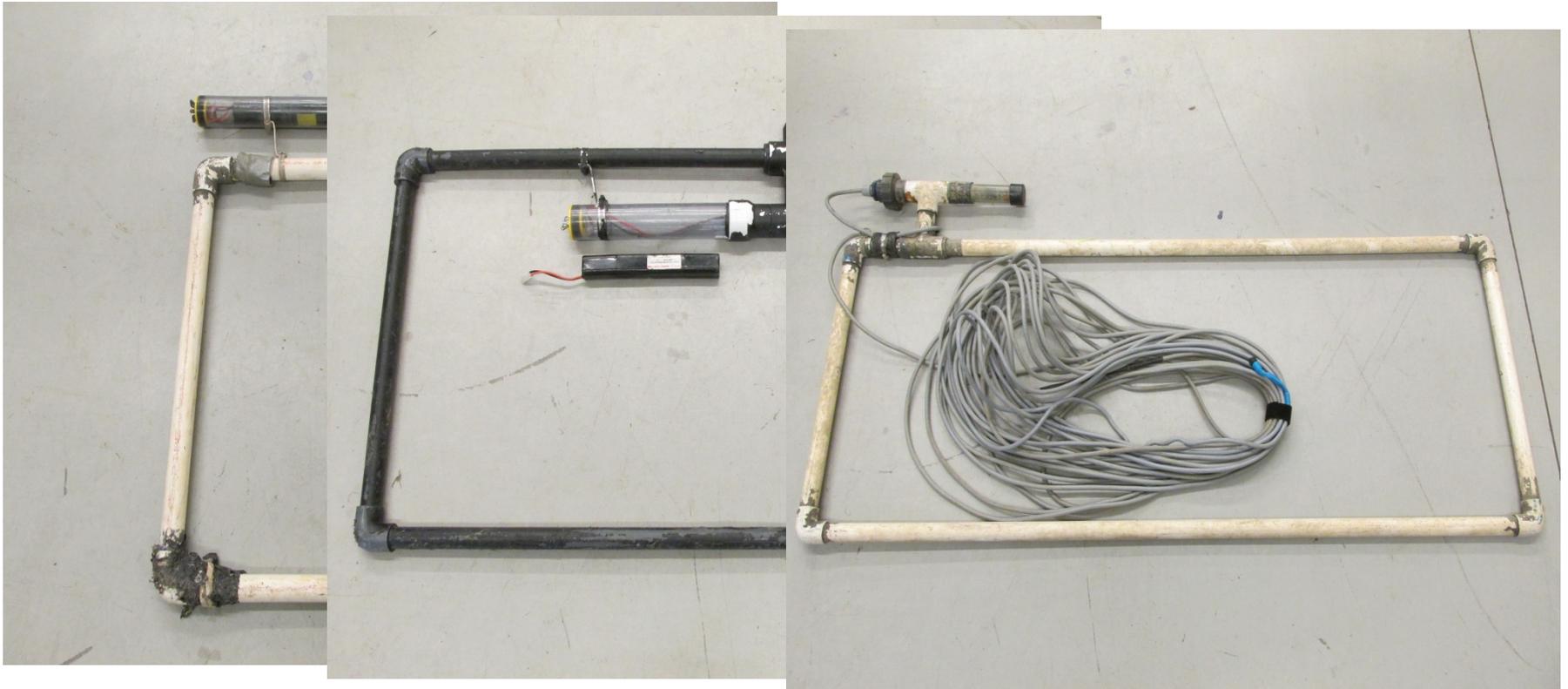
Objectives

- Address Lake Mohave NFWG concerns regarding annual handling
- Evaluate the benefits of each sampling method
- Deploy both gear types together and compare how resultant data sets differed
- Use collected data to compare razorback sucker “Basin” subpopulation estimates based on March Roundup trammel netting and remote scanning efforts over a three year period

Methods



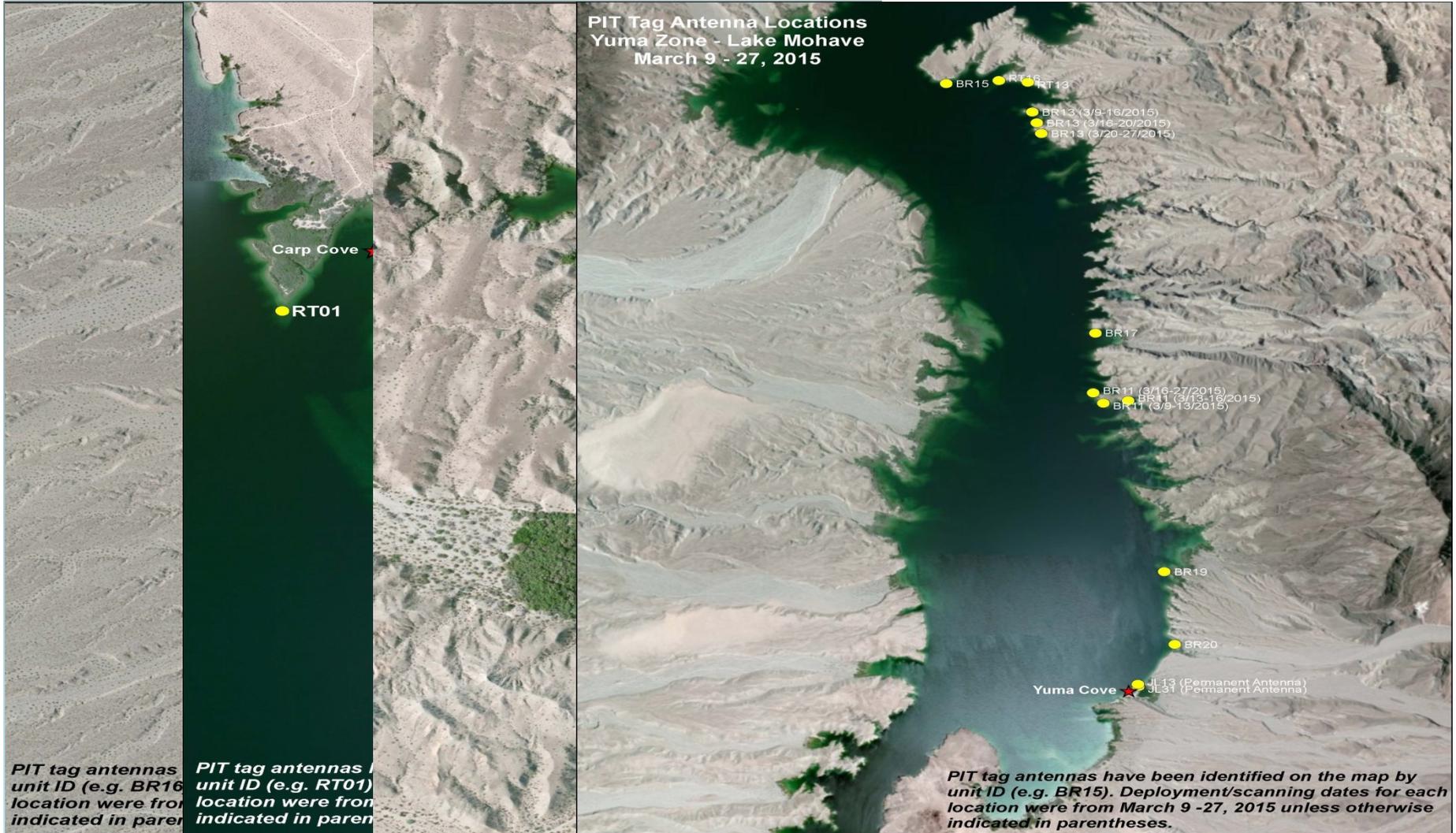
- 22 mobile and 3 permanent scanning units were deployed in four areas of the lake from March 9-27, 2015
- 20 mobile and 5 permanent scanning units were deployed in four areas of the lake from March 7-25, 2016



Methods



- Mobile and permanent scanning unit deployment locations



Methods



- Trammel netting was also conducted in the same general areas for a single week each March by the NFWG (90 – 100 net nights/year)
- Trammel net capture data were summarized by Marsh & Associates and a “Basin” population estimate was produced
- The number of total and unique scanning contacts was summarized by unit, unit type (mobile or permanent), date, and download period (5 and 4 total download periods from 2015 and 2016 respectively)
- Scanning recaptures were defined as being separated by at least one download period
- Population estimates for 2016 are based on data from the 2015 and 2016 study scanning periods and the full scanning season

Results



2015 Summary (Roundup Week Only)

- 179 unique PIT tags scanned
- 139 total net captures (excludes same week recaps)
- 32 fish both scanned and netted
- 286 unique fish contacted and captured
- 11.2% scanned and netted, 51.4% scanned only, 37.4% net only
- 28 400 kHz/no tag captures (20% of net caps, 9.8% of total)
- Revised total available for scanning (134 kHz only): 258 fish
- 12.4% of 134 kHz tagged fish were scanned and netted

2015 Summary (Full season scanning: 11/1/2014 - 5/31/2015)

- 78/111 (70.2%) 134 kHz net captures were scanned during the full scanning season
- Without netting efforts, 61 unique fish would not have been sampled during 2015

Results



2016 Summary (Roundup Week Only)

- 232 unique PIT tags scanned
- 89 total net captures (excludes same week recaps)
- 40 fish both scanned and netted
- 281 unique fish contacted and captured
- 14.2% scanned and netted, 68.3% scanned only, 17.4% net only
- 17 400 kHz/no tag captures (19% of net capture, 6% of total)
- Revised total available for scanning (134 kHz only): 264 fish
- 15.2% of 134 kHz tagged fish were scanned and netted

2016 Summary (Full season scanning: 11/30/2015 – 5/31/16)

- All 134 kHz net captures were scanned during the full scanning season
- Without netting efforts, 17 unique fish would not have been sampled during 2016

Results



Multi-Year Population Estimates

Table 1. Repatriate razorback sucker population estimate for 2016, based on field data from all of March and using annual single census population estimate, N^* (Chapman modification of the modified Peterson method; Seber 1973). [Pacey 2016]

Data Years	N^*	95 % Confidence Interval	
		Lower	Upper
2015/2016	1,707	603	3,897

Table 2. Repatriate razorback sucker population estimate for 2016, based on data from March scanning study periods, N_c (Chapman modification of the Lincoln-Peterson model [Seber 1973]).

Data Years	N_c	95 % Confidence Interval	
		Lower	Upper
2015/2016	1,133	1,009	1,282

Table 3. Repatriate razorback sucker population estimate for 2016, based on data from the entire scanning season through September.

Data Years	N_c	95 % Confidence Interval	
		Lower	Upper
2015/2016	1,996	1,786	2,238

Summary



- Remote PIT scanning of 134.2 kHz tagged fish continues to be the most effective method in contacting large razorback sucker aggregates
- Remote PIT scanning will continue to be important for providing accurate annual abundance estimates as well as estimates of survival and transition between lake zones
- 10-20% of captured fish contain 400 kHz or no tag
- Trammel netting should continue to be used in order to capture fish not “available” to scanning which will provide an opportunity to retag these fish and collect both demographic and genetic information

Questions and Discussion



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