

# **MARI 2014 Survey**

ARC Meeting

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# 2013 vs. 2014 Design

- Paired sites = artificial & natural reef
- 2013 Memorial Stadium & Man O War Shoals
- **2014 added Cook's Point & Cook's Sanctuary**
  
- 2013 July-August
- 2014 June-September
  
- Trained volunteers
- Logbooks

# Participation

Initial Interest	100
Volunteers	48
Participants	19
MS & MOW Participants	15
CP & CS Participants	4

# Activity & Fishing Results

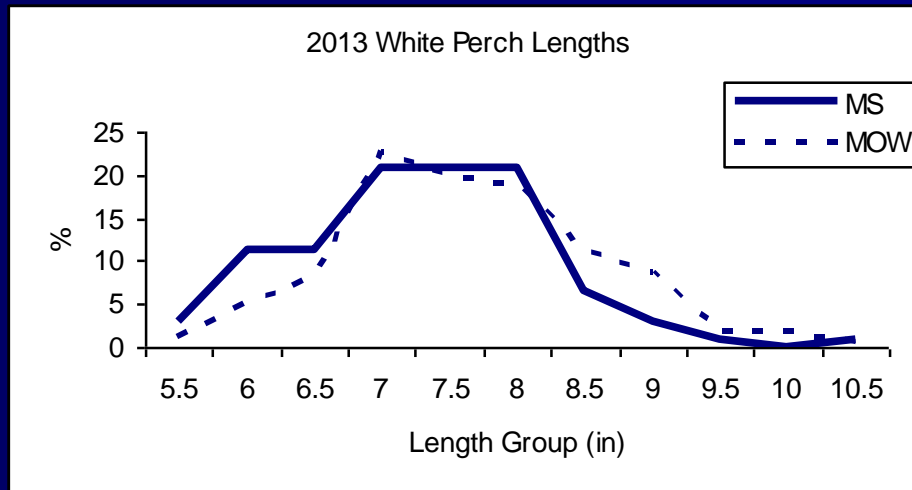
	<b>MS</b>	<b>MOW</b>	<b>CP</b>	<b>CS</b>	<b>Total</b>
Participants	15		4		19
Trips Reported	57	61	10	7	135
Skunks	8	5	0	2	15
Mean Trip Hours	1.3	1.5	1.9		
Fish Caught					2020
Fish Measured					1050
White Perch Measured					830
CPUE (fish/hr)	11 *		3.4 *		
Species per Trip	1.3 *		1.7 *		

\* No difference between sites

# Species Caught

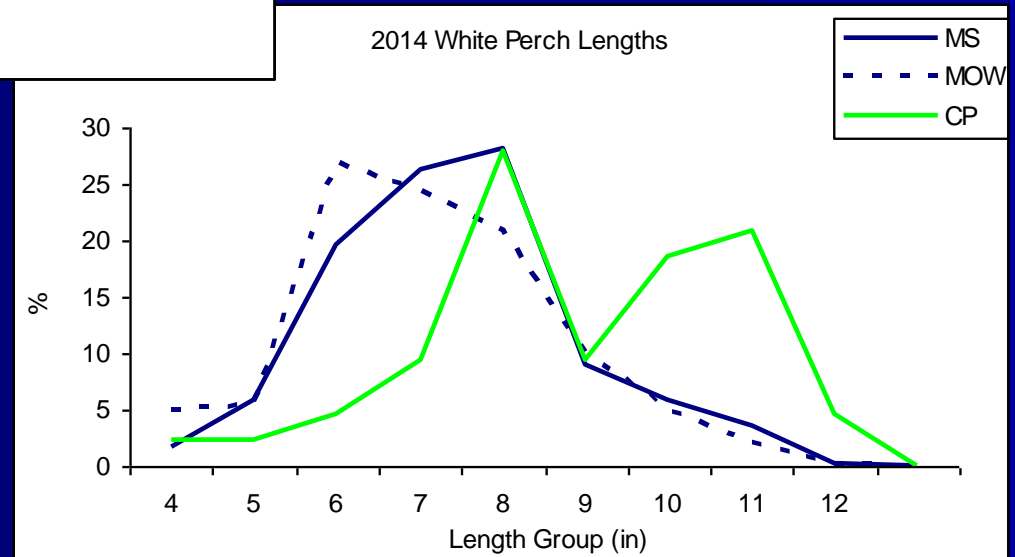
<b>SPECIES</b>	<b>CAUGHT</b>
White Perch	1794
Spot	84
Striped Bass	55
Croaker	53
Channel Catfish	24
Bluefish	8
Yellow Perch	2

# White Perch Lengths



by half-inch  
MS = MOW

by full inch  
MS = MOW  
CP has larger fish



# Compared to last year...

	2014		2013	
	MS	MOW	MS	MOW
<b>Months</b>	<b>4</b>		<b>2</b>	
Participants	15		7	
Trips Reported	57	61	19	23
Skunks	8	5	3	3
Mean Trip Hours	1.5 *		1.5 *	
CPUE (fish/hr)	11 *		14 *	
Species per Trip	1.3 *		1.5 *	

\* No difference between sites

# Conclusions

- Conclusions about the Volunteer Survey Approach
- Conclusions about Angler Attitudes & Behavior
- Conclusions about the Reefs



# Conclusions about the Volunteer Survey Approach

1. The only successful solicitation of participants is through personal presentations at fishing groups meetings.
2. Although the anglers like their hats, the primary motivation for participation appears to be interest in contributing data used in management.
3. Approximately 20% of anglers that express initial interest ( = 40% of "volunteers") actually provide data.

# Conclusions about the Volunteer Survey Approach

4. Volunteer anglers will not agree to fish at "barren" sites, so we cannot do "reef vs structure-less" studies.
5. Volunteer anglers will not travel more than about 30 minutes by boat to a site, so we are limited to sites close to population centers.
6. We can expect a maximum of about 15 volunteers "per site", & expect them to report one trip per month.

# Conclusions about the Volunteer Survey Approach

7. 95% of trained volunteer anglers will fish according to instructions (paired trips, equal fishing time at both sites) and correctly report the data.
8. Trained volunteer anglers will report skunk trips, so catch rates can be calculated from the data.
9. This volunteer angler survey approach (and participation pattern) produces sample sizes that can **support "trip" catch rates, dominant species (white perch) catch rates and length distributions, and H&L species composition at a site.**

# Conclusions

- Conclusions about the Volunteer Survey Approach
- Conclusions about Angler Attitudes & Behavior
- Conclusions about the Reefs

# Conclusions about Angler Attitudes & Behavior

1. Anglers perceive *structure-less* sites as *barren* sites.
2. Anglers perceive artificial reefs as good places to fish.
3. Anglers prefer to take half-day trips, with 2 - 3 hours of fishing and no more than 1 hour total water travel time (maximum 30-minute boat ride).

# Conclusions

- Conclusions about the Volunteer Survey Approach
- Conclusions about Angler Attitudes & Behavior
- Conclusions about the Reefs

# Conclusions about the Reefs

1. The “paired site” design of the past 2 years has shown that there is no difference in fishing performance between MS (artificial reef) and MOW (natural reef), as measured by angler catch rate, length distribution and species diversity.
2. Because all measures of reef fishing performance were similar between MS (3 hectares) and MOW (30 hectares), the data suggest that the artificial reef is functioning as effectively as a much larger area of natural structure.
3. Fishing was consistently successful on reefs, as only about 15% of trips were skunks.

# Conclusions about the Reefs

4. The MS and MOW sites provided anglers with about 11 fish per hour.
5. The same diversity of species was seen at all sites, A total of 6 species were seen at all site, one other species was seen per trip.
6. CPUE, rate of skunk trips and species diversity were all stable across years, indicating that MS & MOW reefs provide a stable and reliably successful fishing experience for anglers.



# Conclusions about the Reefs

7. The fishing at all these Bay sites was dominated by white perch between 7-8 inches.
8. The length distribution of white perch showed no difference between MS & MOW in both years, indicating that the artificial and natural sites are supporting similar populations.
9. The length distribution of white perch at MS & MOW showed larger fish in 2014, indicating that **the populations may be “growing out” at these sites.** (More data is required to verify.)

# Conclusions about the Reefs

10. Cooks Point showed a different white perch length distribution with more larger fish than the sites further north, indicating that length distributions cannot be extrapolated across sites.
11. Because the length data were not reliable at increments of half- inches in 2014, some aspect of the survey training or data collection requirements must be altered to consistently obtain data at half-inch intervals.

# Conclusions about the Reefs

12. No results obtained thus far can be extrapolated to the reef system in general. Data from more sites are needed to determine whether general results can be obtained from this survey design.

# Recommendations

1. The ARC should continue with this survey model = a closed group of trained volunteer anglers.
2. Future surveys should be targeted at single MARI sites close to population centers with active fishing groups (Baltimore, Kent Island, Solomons Island, Ocean City).
3. Survey solicitation should be conducted as presentations to fishing groups, using interested past volunteers to solicit new participants when possible.

# Recommendations

4. Restrict length data collection to Striped Bass and the dominant species at a site (such as White Perch in the Bay, Black Sea Bass in the ocean).
5. **Provide anglers with “clickers” and rulers to enhance the accuracy of counts and length measurements.**
6. **Begin investigation into future use of a “smart phone” angler log app.**

# Special Thanks to Volunteer Dave Zajano

