

Appendix K
Gulf Sturgeon Telemetry Survey Presentation

Summary of Gulf Sturgeon monitoring activities on Ship Island: 2012-2013 deployment period.

William T. Slack
ERDC

Mark S. Peterson
USM-Gulf Coast Research Laboratory

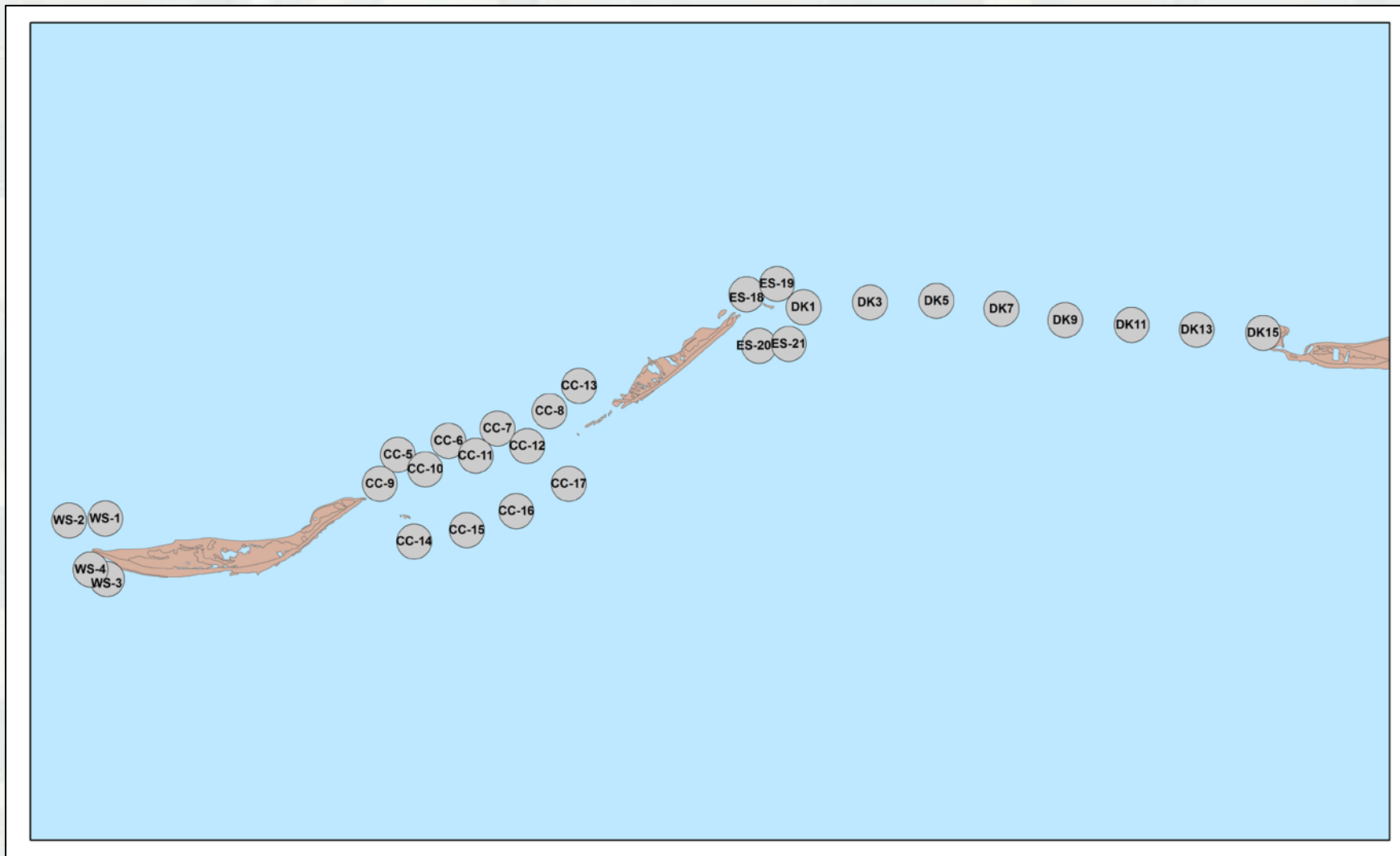
Douglas G. Clarke
ERDC

Objectives

- Assess habitat utilization of Gulf sturgeon along Ship Island and at Camille Cut (i.e., project zone) by monitoring acoustically tagged individuals before (baseline), during (construction phase) and after the filling of the Cut (post-fill).
- Approach evaluated at two different levels:
 - ▶ Coarse scale assessment to determine the relative occurrence of Gulf sturgeon within the project area.
 - ▶ Fine scale assessment to address more specifically what Gulf sturgeon are doing within identified areas.
- YEAR 1: 14 April 2011 – 9 May 2011 (21 telemetry receivers); no detections.
- YEAR 2: 20 September 2011 – 30 June 2012 (21 receivers); 13,720 detections, 14 Gulf sturgeon.

Station name and GPS coordinates for 29 telemetry receivers deployed during Year 3 of the MsCIP Ship Island Gulf sturgeon monitoring project.

13 September 2012 -11 June 2013			
Station Name	Abbreviated Name	Latitude (dd.dd)	Longitude (dd.dd)
West Ship 1	WS-1	30.21618	-88.98468
West Ship 2	WS-2	30.21589	-88.99113
West Ship 3	WS-3	30.20687	-88.98438
West Ship 4	WS-4	30.20835	-88.98730
Camille Cut 5	CC-5	30.22600	-88.93257
Camille Cut 6	CC-6	30.22813	-88.92355
Camille Cut 7	CC-7	30.23002	-88.91482
Camille Cut 8	CC-8	30.23270	-88.90555
Camille Cut 9	CC-9	30.22152	-88.93578
Camille Cut 10	CC-10	30.22374	-88.92768
Camille Cut 11	CC-11	30.22585	-88.91869
Camille Cut 12	CC-12	30.22733	-88.90952
Camille Cut 13	CC-13	30.23659	-88.90028
Camille Cut 14	CC-14	30.21264	-88.92966
Camille Cut 15	CC-15	30.21440	-88.92028
Camille Cut 16	CC-16	30.21732	-88.91147
Camille Cut 17	CC-17	30.22152	-88.90212
East Ship 18	ES-18	30.25067	-88.87045
East Ship 19	ES-19	30.25227	-88.86501
East Ship 20	ES-20	30.24274	-88.86823
East Ship 21	ES-21	30.24304	-88.86294
Dog Keys Pass 1	DK1	30.24868	-88.86030
Dog Keys Pass 3	DK3	30.24942	-88.84846
Dog Keys Pass 5	DK5	30.24966	-88.83663
Dog Keys Pass 7	DK7	30.24843	-88.82504
Dog Keys Pass 9	DK9	30.24670	-88.81370
Dog Keys Pass 11	DK11	30.24597	-88.80186
Dog Keys Pass 13	DK13	30.24523	-88.79027
Dog Keys Pass 15	DK15	30.24473	-88.77844



300 m detection radius from anchored buoy.

- YEAR 3 Deployment period: 13 September 2012 - 11 June 2013.
- Downloaded at 3-4 week intervals.
- 94,244 total detections logged (not corrected for simultaneous detections).
- 21 Gulf sturgeon documented on the array.
 - Pearl River (n=6)
 - Pascagoula River (n=4)
 - Escambia River (n=1)
 - Blackwater River (n=3)
 - Yellow River (n=2)
 - Choctawhatchee River (n=1)
 - Brothers River (n=4).

	2011-2012 array	2012-2013 array
Total detections	13,720	94,244
Total detected Gulf sturgeon	14	21
River of Origin		
Pearl River	4	6
Pascagoula River	4	4
Escambia River	1	1
Blackwater River	4	3
Yellow River	1	2
Choctawhatchee River	0	1
Brothers River	0	4

- The number of total detections outnumbered those recorded for a similar deployment period during the previous year although part of this increase could be attributed to the additional 8 receivers deployed in Dog Keys Pass in Year 3 (**21 vs. 29 receivers**) .
- The number of detected Gulf sturgeon was greater during the 2012-2013 deployment period but the distribution of detected individuals by river of origin was similar between deployment periods , except for the inclusion of individuals from drainages representing the eastern portion of the species range (i.e., Choctawhatchee and Brothers rivers).

Summary data for the 21 Gulf sturgeon detected on the 2012-2013 telemetry array.
 Size class delineation: A = Adult, SA = Sub-adult.

River of Origin	Transmitter	Date tagged	Size Class	FL (cm)	Weight (kg)
Pearl	A69-1303-45717	9/28/2010	A	162.5	47.7
Pearl	A69-1303-45767	10/15/2010	A	148	24.2
Pearl	A69-1303-45720	10/13/2010	A	170	43.6
Pearl	A69-1303-45746	9/28/2010	A	132	29.9
Pearl	A69-1303-45765	9/28/2010	SA	121	26.4
Pearl	A69-1303-45721	10/13/2010	A	148	16.5
Pascagoula	A69-1303-46208	10/24/2011	A	138	19.5
Pascagoula	A69-1303-45053	9/20/2011	SA	104	14.45
Pascagoula	A69-1303-46215	10/7/2010	A	147	23.6
Pascagoula	A69-9001-29899	10/31/2012	A	131.6	17.6
Escambia	A69-1303-61008	9/30/2009	A	177.8	53.6
Yellow	A69-9001-30554	10/7/2011	A	173	48.35
Yellow	A69-9001-30564	10/4/2011	A	195	54.7
Brothers	A69-1303-46423	9/10/2010	A	188	56
Brothers	A69-1303-45716	10/7/2010	A	147	22.4
Brothers	A69-1303-46434	9/2/2010	A	163	33.1
Brothers	A69-9001-30534	10/5/2011	A	129	16.9
Blackwater	A69-1303-61040	9/21/2009	A	163	38.7
Blackwater	A69-1303-61034	9/22/2009	A	186.7	57.8
Blackwater	A69-1303-61041	10/2/2009	A	146	23.8
Choctawhatchee	A69-1303-45862	10/9/2010	A	186	54

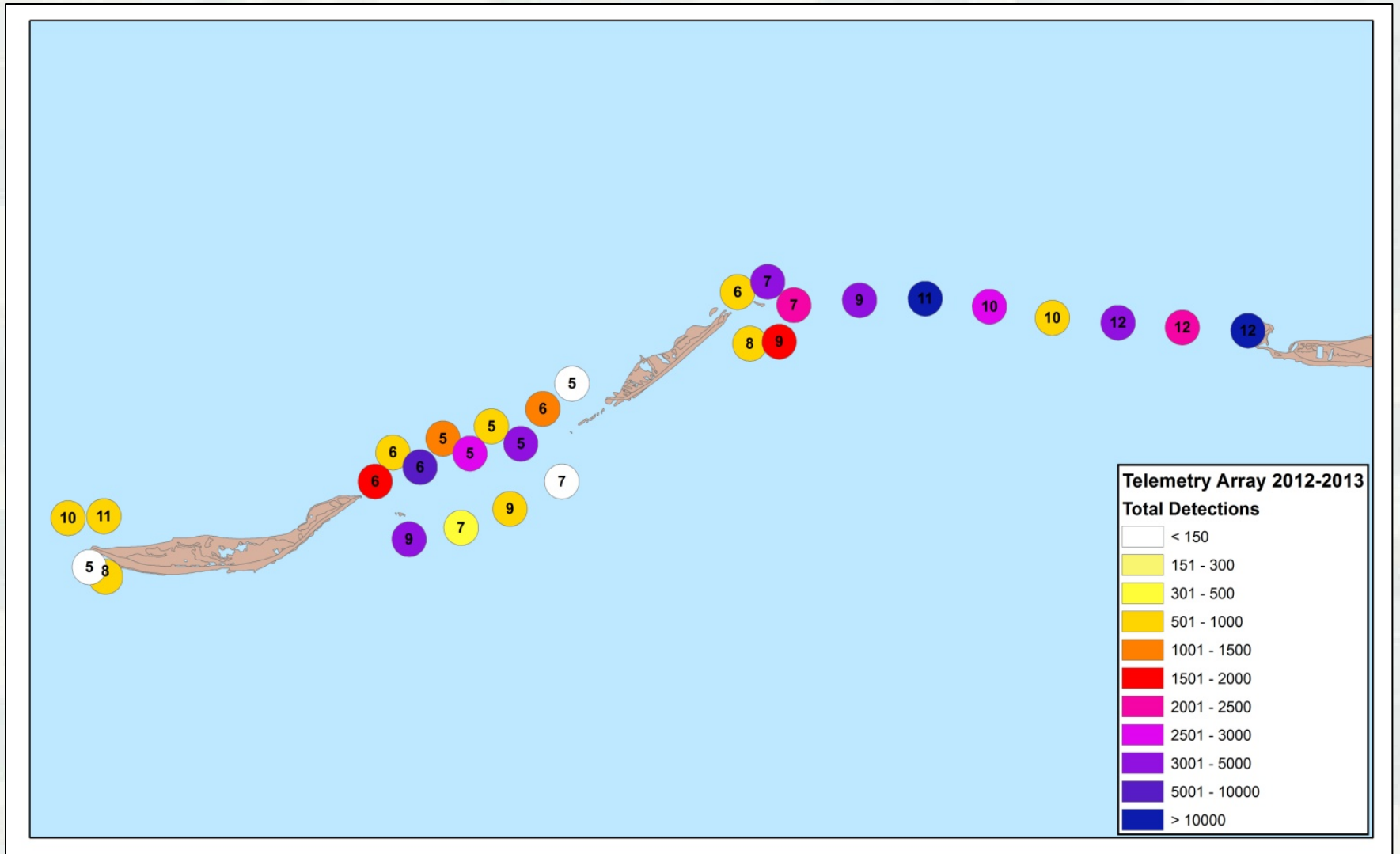
- 19 adult fish ranging 129-195 cm FL (mean: 159.6)
- 2 sub-adults ranging 104-121 cm FL (mean: 112.5)

Detection summary 13 September 2012 – 11 June 2013

River of Origin	Transmitter	West Pass				Camille Cut												East Pass				Dog Keys Pass					Total Det	Number of stations Sturgeon present at							
		WS1	WS2	WS3	WS4	CC5	CC6	CC7	CC8	CC9	CC10	CC11	CC12	CC13	CC14	CC15	CC16	CC17	ES18	ES19	ES20	ES21	DK1	DK3	DK5	DK7			DK9	DK11	DK13	DK15			
Pearl	A69-1303-45717	187	372	22	79	14	26	18	12	305	139	65	60	9	0	0	1	10	0	0	12	16	0	0	0	0	0	0	0	0	0	0	0	1347	17
Pearl	A69-1303-45767	0	0	0	0	0	0	0	113	0	0	0	0	93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	206	2	
Pearl	A69-1303-45720	29	34	0	6	9	13	0	0	29	23	25	0	0	12	5	3	0	51	165	17	21	23	78	20287	276	18	33	35	8	21200	23			
Pearl	A69-1303-45746	165	174	347	28	170	556	245	74	752	2674	1636	750	31	1602	109	13	0	3	3	15	1	2	6	26	4	0	5	0	0	9391	25			
Pearl	A69-1303-45765	1	6	7	0	0	0	0	0	0	0	0	0	0	8	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	24	6		
Pearl	A69-1303-45721	11	6	25	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	4		
Pascagoula	A69-1303-46208	3	0	0	0	4	0	0	0	40	17	0	0	0	38	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	106	6		
Pascagoula	A69-1303-45053	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	89	444	0	0	0	2	288	3	32	34	17	0	909	8			
Pascagoula	A69-1303-46215	12	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	10	81	4			
Pascagoula	A69-9001-29899	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	272	0	9	0	5	2891	51	21	26	56	8	3364	10			
Escambia	A69-1303-61008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	4	0	0	32	30	5	18	88	0	0	0	0	8	200	8				
Yellow	A69-9001-30554	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	764	3675	598	1496	2137	4148	1469	1478	185	389	214	50	16603	12			
Yellow	A69-9001-30564	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33	313	71	224	35	1010	1686	6				
Brothers	A69-1303-46423	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	138	394	2394	349	3343	6622	6				
Brothers	A69-1303-45716	73	109	81	0	0	0	8	22	0	0	18	0	18	4	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	353	9			
Brothers	A69-1303-46434	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	561	71	2	635	4				
Brothers	A69-9001-30534	12	4	11	0	0	0	0	0	0	0	0	0	5	3	26	27	0	353	11	18	24	18	6993	68	2	144	76	10	7805	18				
Blackwater	A69-1303-61040	48	68	349	0	228	469	310	806	408	1742	875	2541	3	1959	195	343	73	0	49	9	69	19	575	583	19	303	448	186	12677	26				
Blackwater	A69-1303-61034	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	701	701	1			
Blackwater	A69-1303-61041	0	0	0	0	0	0	0	0	0	0	0	0	24	0	0	5	0	0	0	0	0	0	0	0	0	31	761	6812	7633	5				
Choctawhatchee	A69-1303-45862	6	6	9	4	118	93	59	8	268	688	214	47	6	437	102	184	2	6	58	1	7	2	1	1	82	3	173	61	0	2646	28			
	Total Det @ Stat	547	817	851	130	543	1157	640	1035	1802	5283	2815	3416	142	4103	422	606	122	938	4970	735	1607	2262	4295	32655	2996	746	4317	2144	12148					
	Total GS @ Stat	11	10	8	5	6	5	5	6	6	6	5	5	5	9	7	9	7	6	7	8	9	7	9	11	10	10	12	12	12					

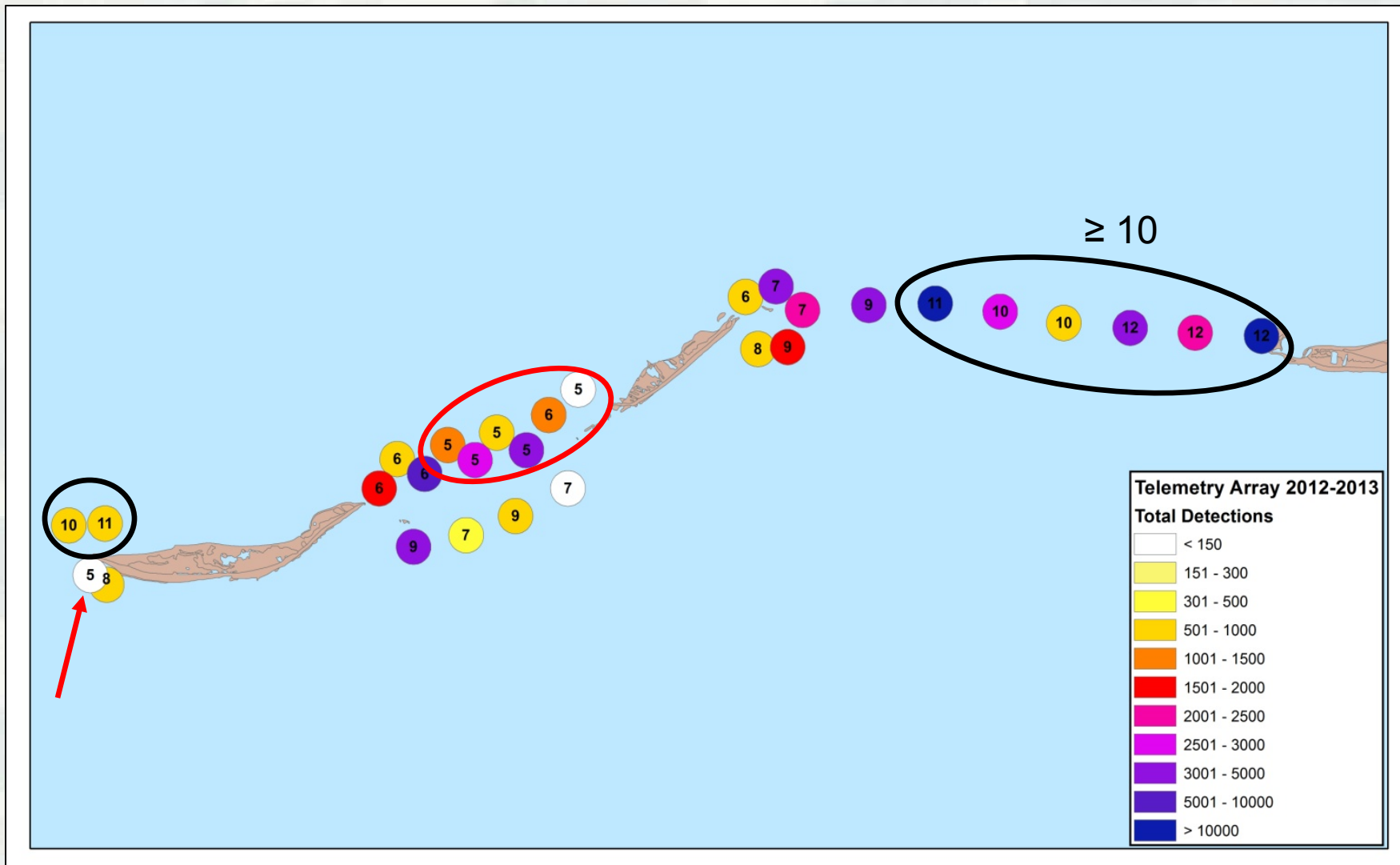
Detection summary 13 September 2012 – 11 June 2013

River of Origin	Transmitter	West Pass				Camille Cut												East Pass				Dog Keys Pass						Total Det	Number of stations Sturgeon present at					
		WS1	WS2	WS3	WS4	CC5	CC6	CC7	CC8	CC9	CC10	CC11	CC12	CC13	CC14	CC15	CC16	CC17	ES18	ES19	ES20	ES21	DK1	DK3	DK5	DK7	DK9			DK11	DK13	DK15		
Pearl	A69-1303-45717	187	372	22	79	14	26	18	12	305	139	65	60	9	0	0	1	10	0	0	12	16	0	0	0	0	0	0	0	0	0	0	1347	17
Pearl	A69-1303-45767	0	0	0	0	0	0	0	113	0	0	0	0	93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	206	2	
Pearl	A69-1303-45720	29	34	0	6	9	13	0	0	29	23	25	0	0	12	5	3	0	51	165	17	21	23	78	20287	276	18	33	35	8	21200	23		
Pearl	A69-1303-45746	165	174	347	28	170	556	245	74	752	2674	1636	750	31	1602	109	13	0	3	3	15	1	2	6	26	4	0	5	0	0	9391	25		
Pearl	A69-1303-45765	1	6	7	0	0	0	0	0	0	0	0	0	0	8	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	24	6		
Pearl	A69-1303-45721	11	6	25	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	4		
Pascagoula	A69-1303-46208	3	0	0	0	4	0	0	0	40	17	0	0	0	38	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	106	6	
Pascagoula	A69-1303-45053	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	89	444	0	0	0	2	288	3	32	34	17	0	909	8		
Pascagoula	A69-1303-46215	12	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	10	81	4		
Pascagoula	A69-9001-29899	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	272	0	9	0	5	2891	51	21	26	56	8	3364	10		
Escambia	A69-1303-61008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	4	0	0	32	30	5	18	88	0	0	0	0	8	200	8			
Yellow	A69-9001-30554	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	764	3675	598	1496	2137	4148	1469	1478	185	389	214	50	16603	12		
Yellow	A69-9001-30564	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33	313	71	224	35	1010	1686	6			
Brothers	A69-1303-46423	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	138	394	2394	349	3343	6622	6			
Brothers	A69-1303-45716	73	109	81	0	0	0	8	22	0	0	0	18	0	18	4	20	0	0	0	0	0	0	0	0	0	0	0	0	0	353	9		
Brothers	A69-1303-46434	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	561	71	2	635	4		
Brothers	A69-9001-30534	12	4	11	0	0	0	0	0	0	0	0	0	5	3	26	27	0	353	11	18	24	18	6993	68	2	144	76	10	7805	18			
Blackwater	A69-1303-61040	48	68	349	0	228	469	310	806	408	1742	875	2541	3	1959	195	343	73	0	0	49	9	69	19	575	583	19	303	448	186	12677	26		
Blackwater	A69-1303-61034	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	701	701	1		
Blackwater	A69-1303-61041	0	0	0	0	0	0	0	0	0	0	0	0	24	0	0	5	0	0	0	0	0	0	0	0	0	0	31	761	6812	7633	5		
Choctawhatchee	A69-1303-45862	6	6	9	4	118	93	59	8	268	688	214	47	6	437	102	184	2	6	58	1	7	2	1	1	82	3	173	61	0	2646	28		
	Total Det @ Stat	547	817	851	130	543	1157	640	1035	1802	5283	2815	3416	142	4103	422	606	122	938	4970	735	1607	2262	4295	32655	2996	746	4317	2144	12148				
	Total GS @ Stat	11	10	8	5	6	5	5	6	6	6	5	5	5	9	7	9	7	6	7	8	9	7	9	11	10	10	12	12	12				



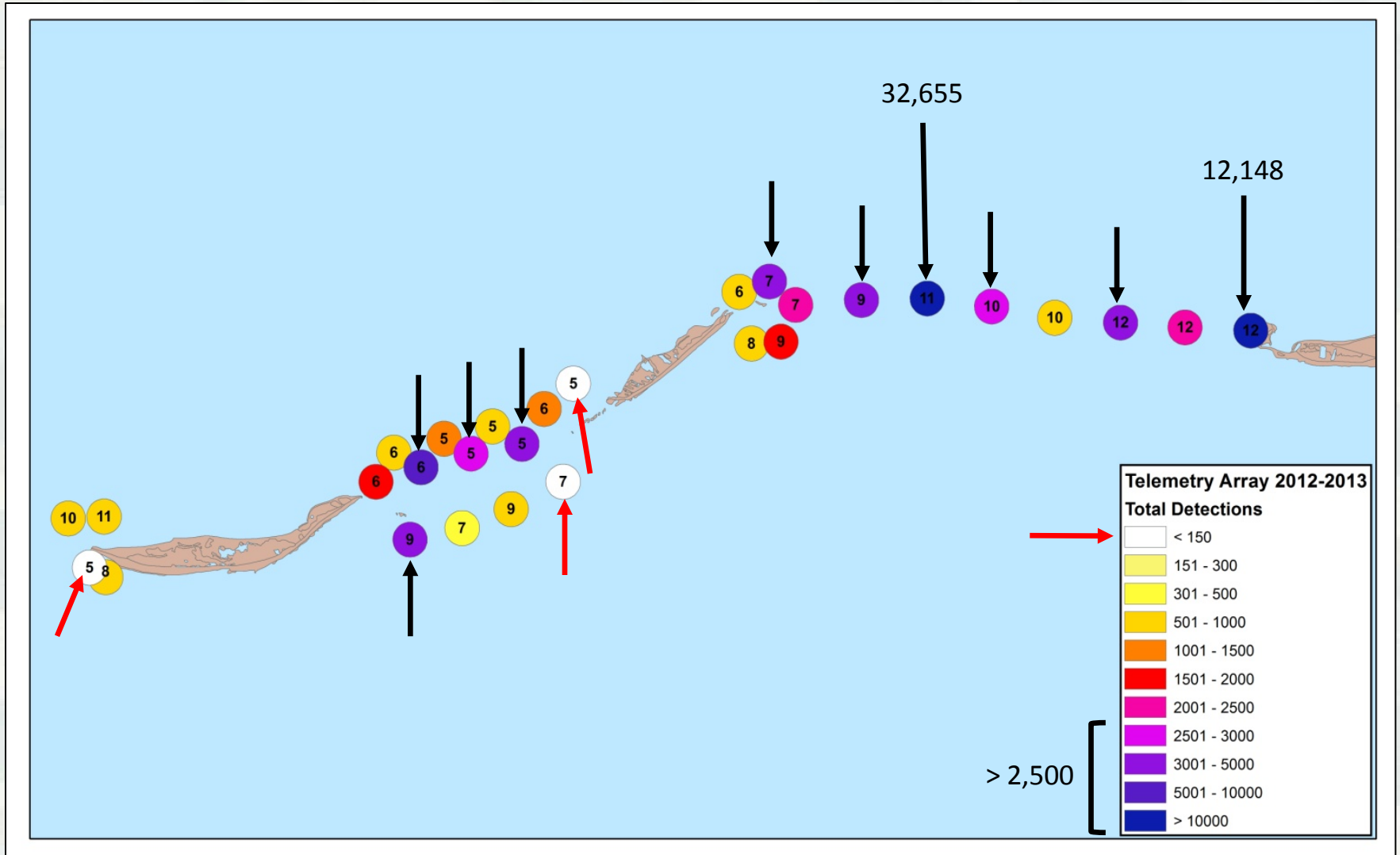
Distribution of total detections across all VR2Ws in the MsCIP array. The number within the plotted receiver represents the total number of Gulf sturgeon documented on that specific receiver during the deployment period. Color of receiver buffer depicts the relative number of detections recorded during the deployment period.

Number of detected sturgeon

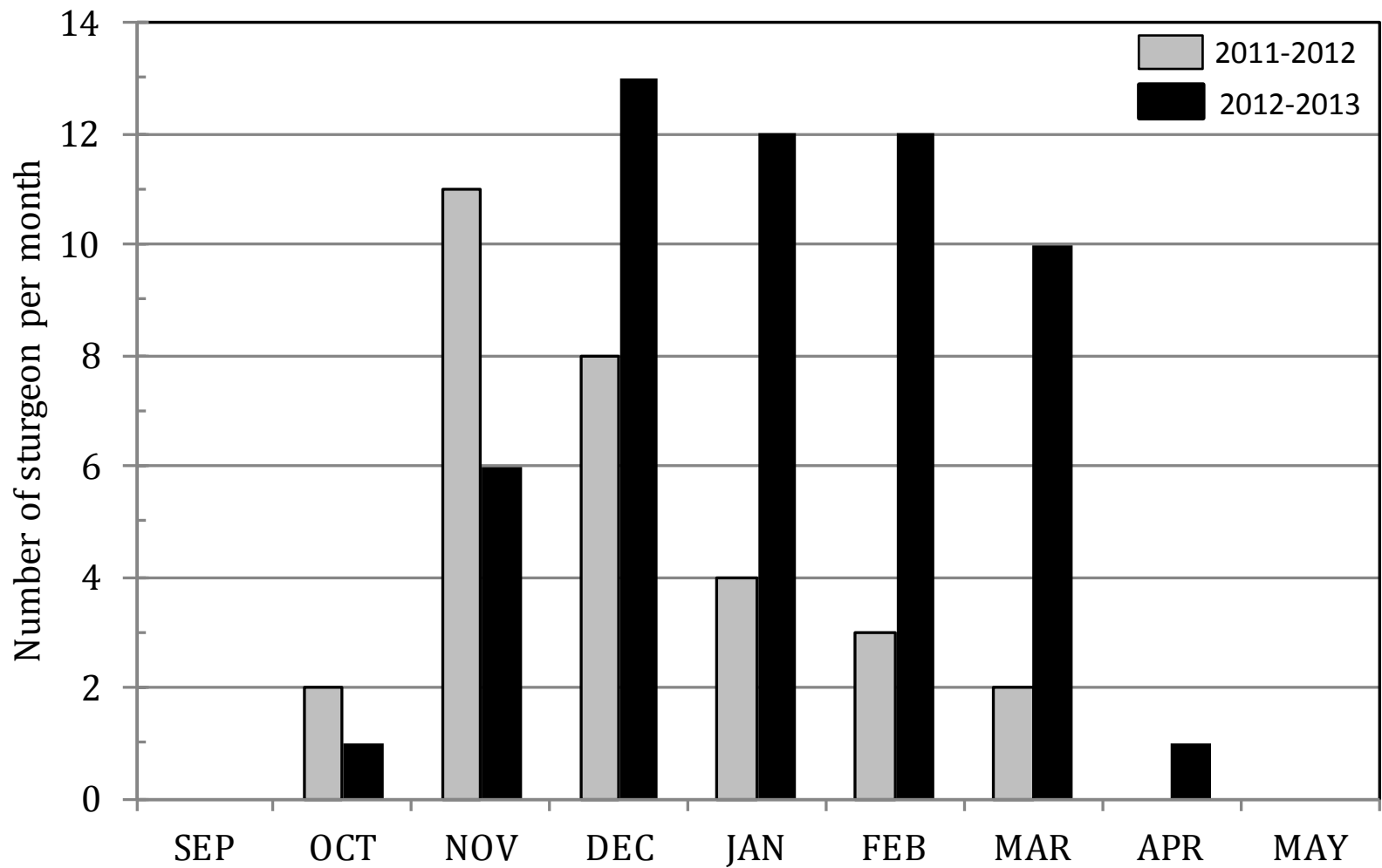


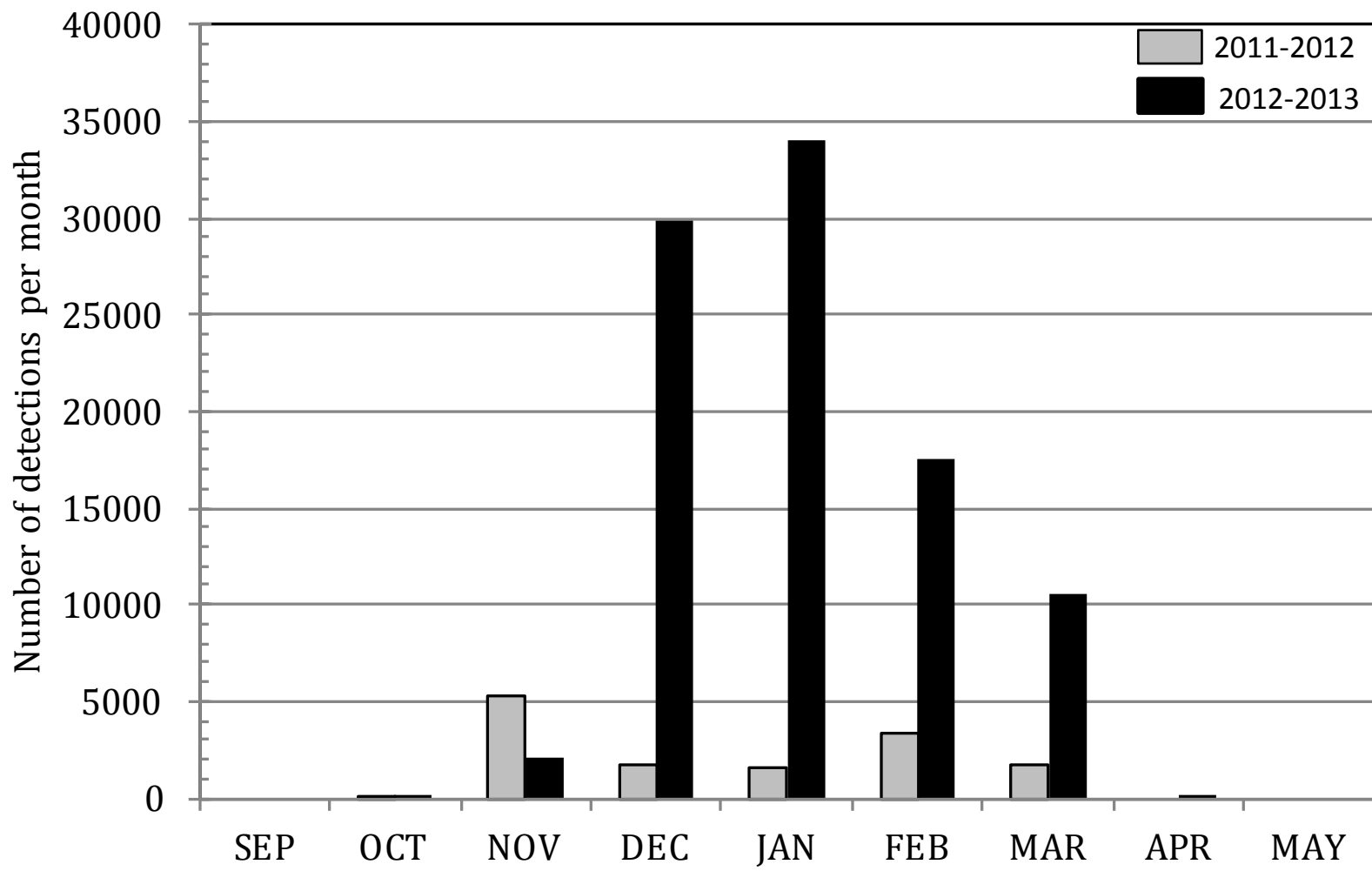
Distribution of total detections across all VR2Ws in the MsCIP array. The number within the plotted receiver represents the total number of Gulf sturgeon documented on that specific receiver during the deployment period. Color of receiver buffer depicts the relative number of detections recorded during the deployment period.

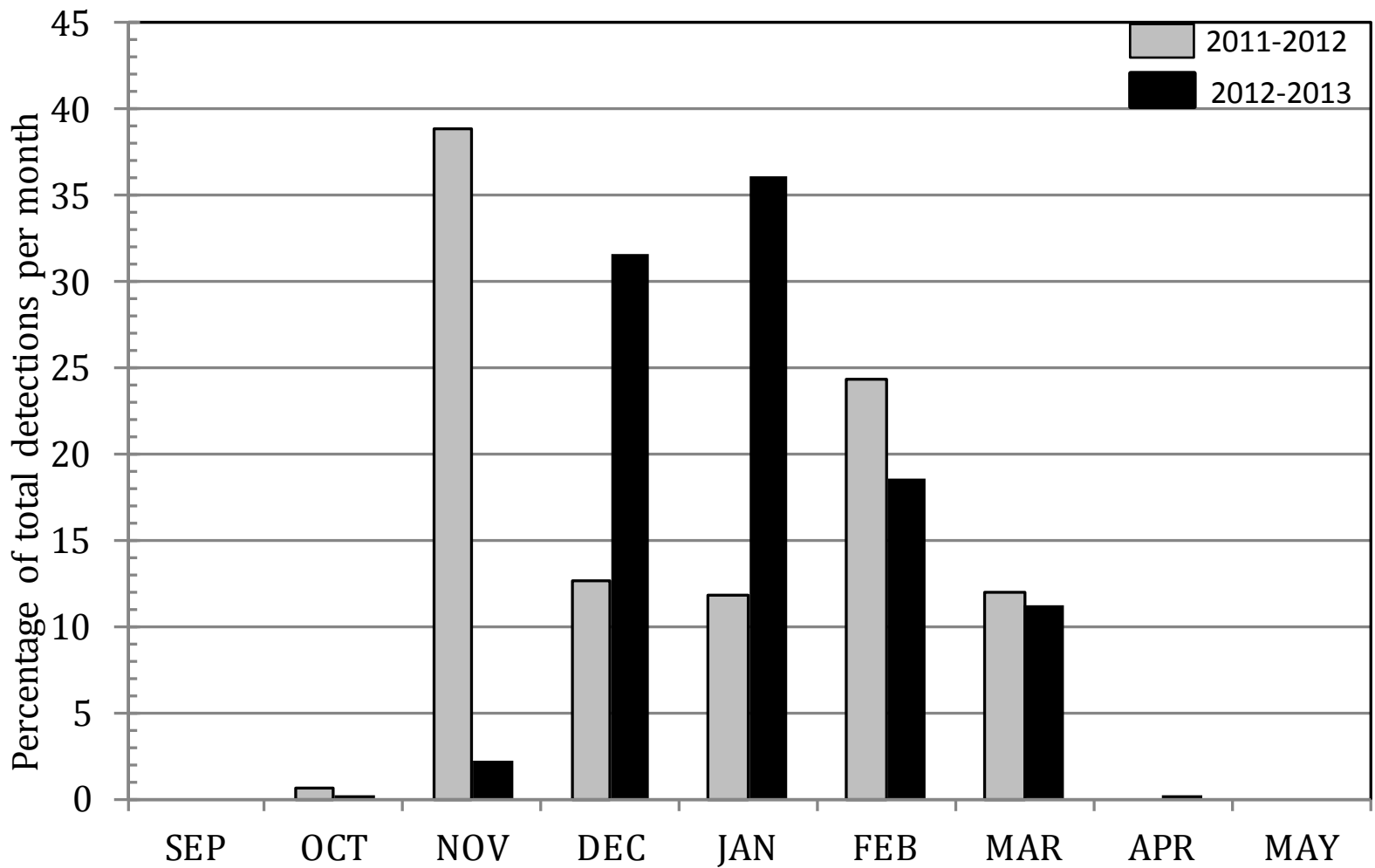
Total detections per receiver

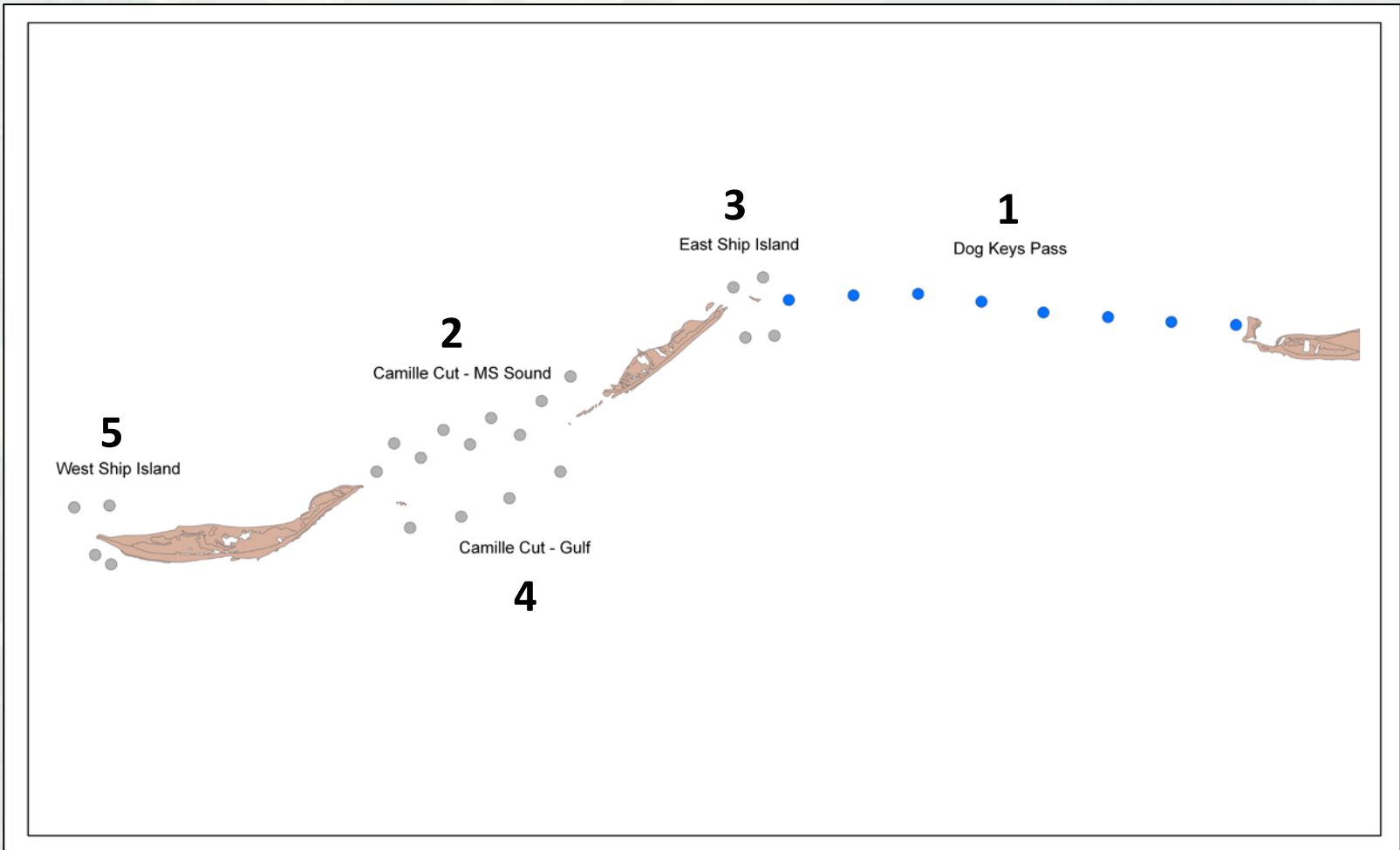


Distribution of total detections across all VR2Ws in the MsCIP array. The number within the plotted receiver represents the total number of Gulf sturgeon documented on that specific receiver during the deployment period. Color of receiver buffer depicts the relative number of detections recorded during the deployment period.



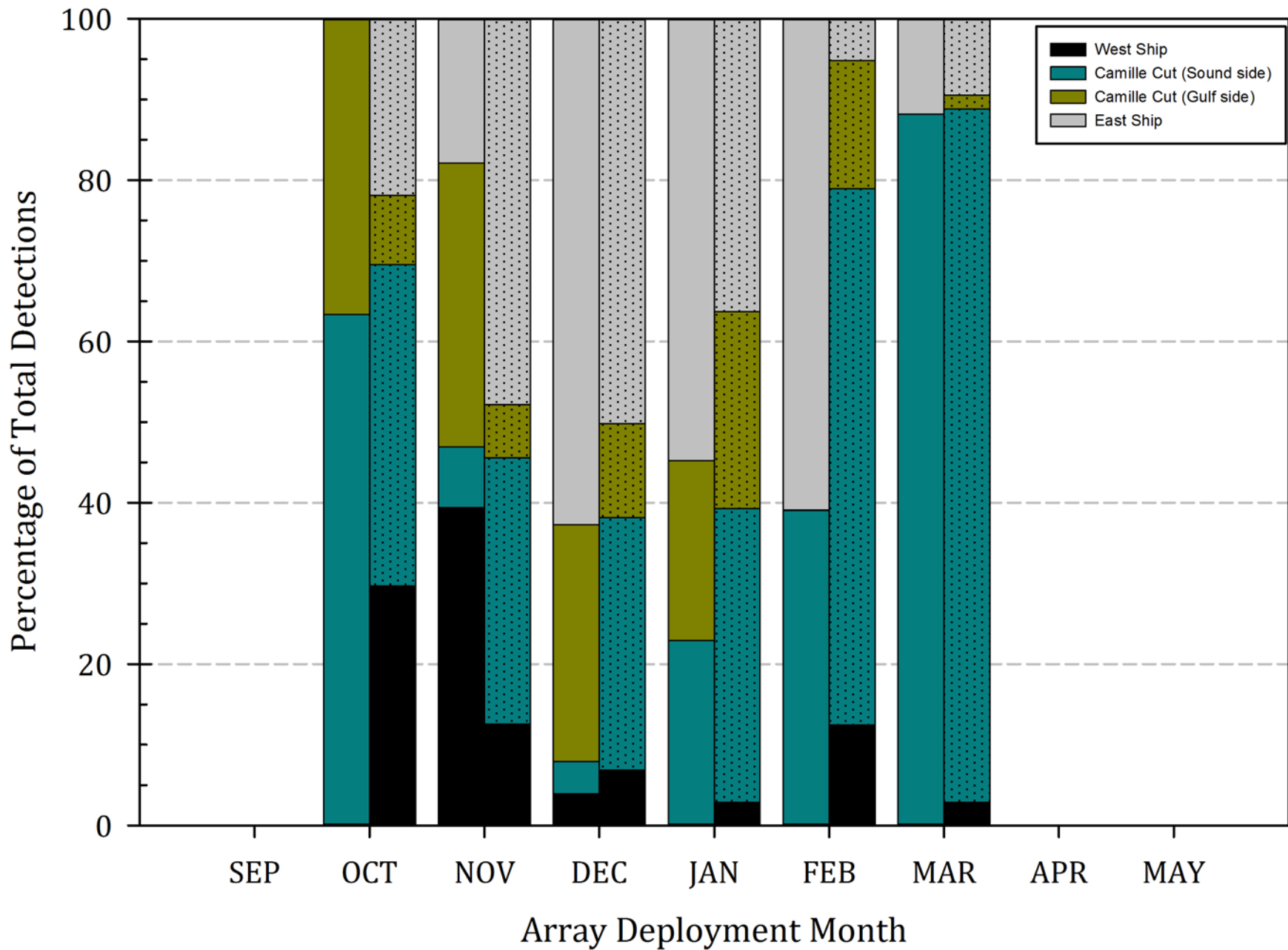


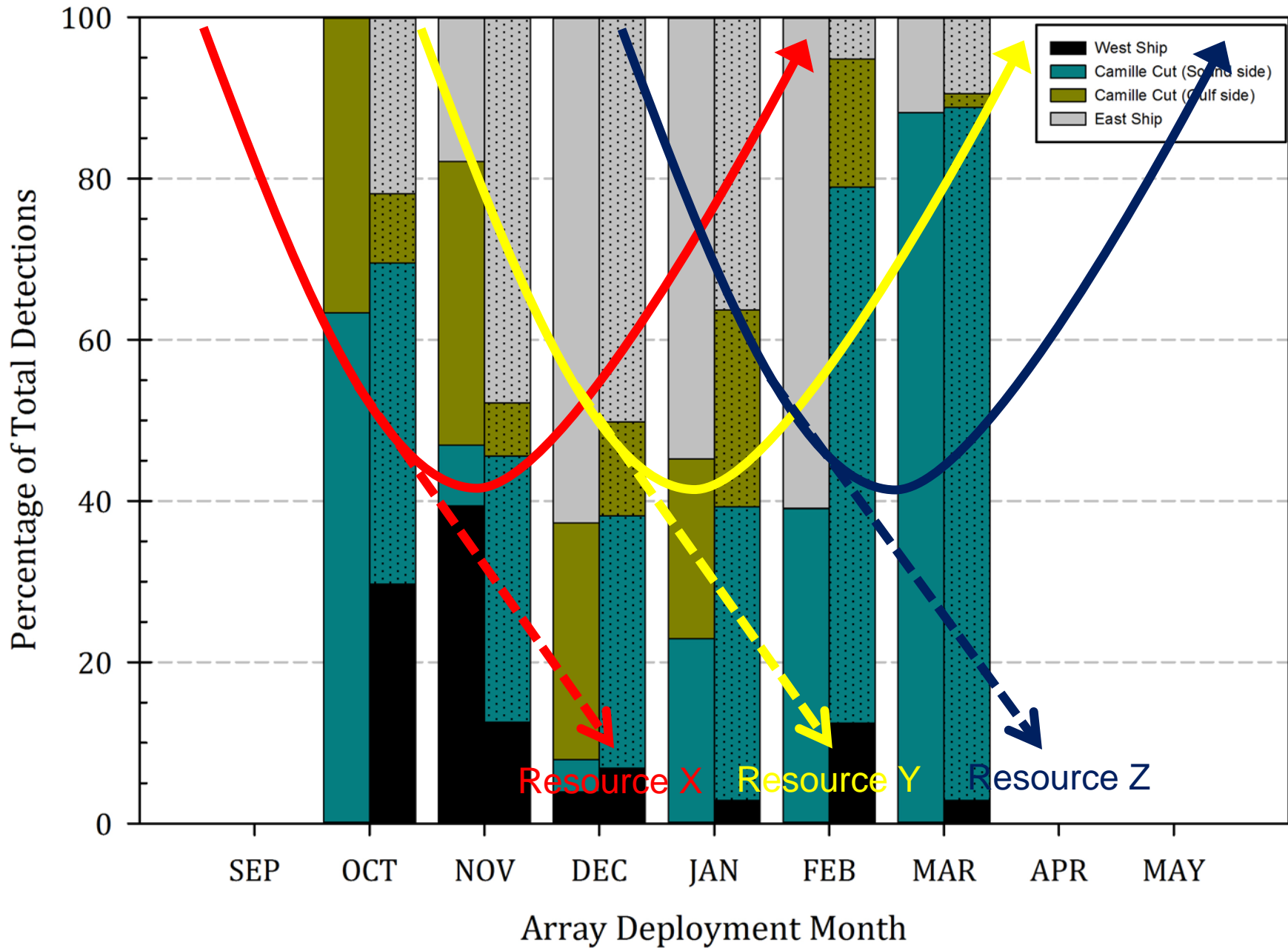




The mean number of detections per zone by month (2012-2013 deployment period):

- Dog Keys Pass (7,695; STD = 10,195)
- Camille Cut (Sound side) (2,104; STD = 2,650),
- East Ship (1,031; STD = 1,524)
- Camille Cut (Gulf side) (657; STD = 1,027)
- West Ship (293; STD = 461)



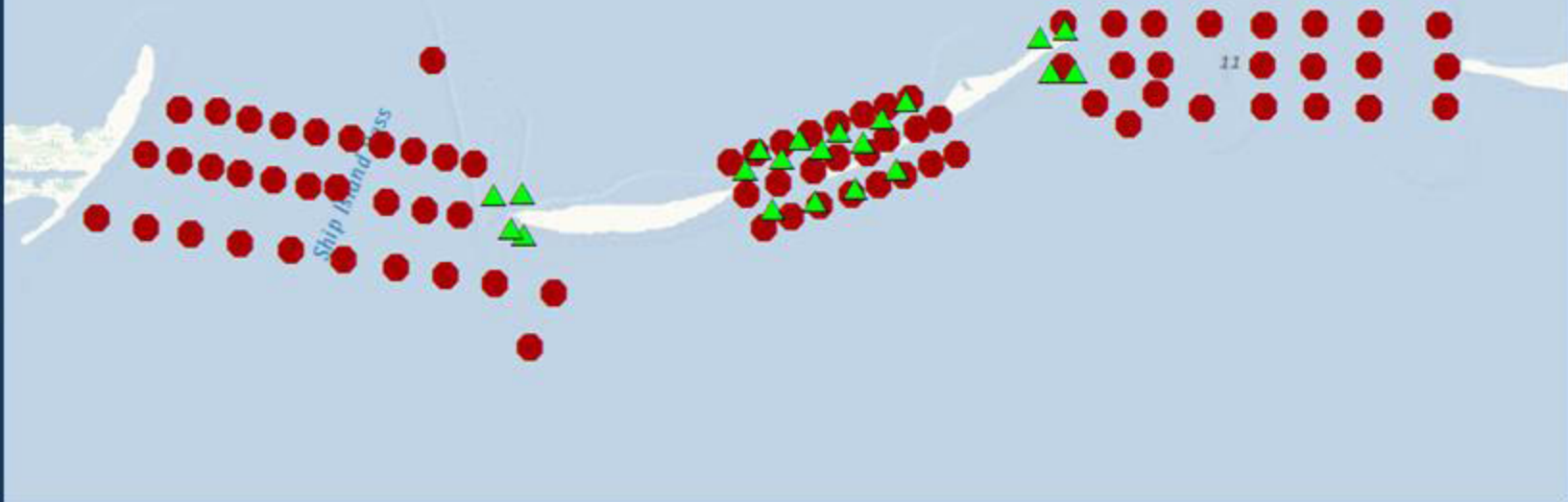


Detection summary 13 September 2012 – 11 June 2013

River of Origin	Transmitter	West Pass				Camille Cut												East Pass				Dog Keys Pass						Total Det	Number of stations Sturgeon present at						
		WS1	WS2	WS3	WS4	CC5	CC6	CC7	CC8	CC9	CC10	CC11	CC12	CC13	CC14	CC15	CC16	CC17	ES18	ES19	ES20	ES21	DK1	DK3	DK5	DK7	DK9			DK11	DK13	DK15			
Pearl	A69-1303-45717	187	372	22	79	14	26	18	12	305	139	65	60	9	0	0	1	10	0	0	12	16	0	0	0	0	0	0	0	0	0	0	0	1347	17
Pearl	A69-1303-45767	0	0	0	0	0	0	0	113	0	0	0	0	93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	206	2	
Pearl	A69-1303-45720	29	34	0	6	9	13	0	0	29	23	25	0	0	12	5	3	0	51	165	17	21	23	78	20287	276	18	33	35	8	21200	23			
Pearl	A69-1303-45746	165	174	347	28	170	556	245	74	752	2674	1636	750	31	1602	109	13	0	3	3	15	1	2	6	26	4	0	5	0	0	9391	25			
Pearl	A69-1303-45765	1	6	7	0	0	0	0	0	0	0	0	0	0	8	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	24	6		
Pearl	A69-1303-45721	11	6	25	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	4		
Pascagoula	A69-1303-46208	3	0	0	0	4	0	0	0	40	17	0	0	0	38	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	106	6		
Pascagoula	A69-1303-45053	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	89	444	0	0	0	2	288	3	32	34	17	0	909	8			
Pascagoula	A69-1303-46215	12	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	10	81	4			
Pascagoula	A69-9001-29899	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	272	0	9	0	5	2891	51	21	26	56	8	3364	10			
Escambia	A69-1303-61008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	4	0	0	32	30	5	18	88	0	0	0	0	0	0	200	8			
Yellow	A69-9001-30554	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	764	3675	598	1496	2137	4148	1469	1478	185	389	214	50	16603	12			
Yellow	A69-9001-30564	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33	313	71	224	35	1010	1686	6			
Brothers	A69-1303-46423	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	138	394	2394	349	3343	6622	6			
Brothers	A69-1303-45716	73	109	81	0	0	0	8	22	0	0	0	18	0	18	4	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	353	9		
Brothers	A69-1303-46434	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	561	71	2	635	4			
Brothers	A69-9001-30534	12	4	11	0	0	0	0	0	0	0	0	0	5	3	26	27	0	353	11	18	24	18	6993	68	2	144	76	10	7805	18				
Blackwater	A69-1303-61040	48	68	349	0	228	469	310	806	408	1742	875	2541	3	1959	195	343	73	0	0	49	9	69	19	575	583	19	303	448	186	12677	26			
Blackwater	A69-1303-61034	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	701	701	1		
Blackwater	A69-1303-61041	0	0	0	0	0	0	0	0	0	0	0	0	24	0	0	5	0	0	0	0	0	0	0	0	0	0	31	761	6812	7633	5			
Choctawhatchee	A69-1303-45862	6	6	9	4	118	93	59	8	268	688	214	47	6	437	102	184	2	6	58	1	7	2	1	1	82	3	173	61	0	2646	28			
	Total Det @ Stat	547	817	851	130	543	1157	640	1035	1802	5283	2815	3416	142	4103	422	606	122	938	4970	735	1607	2262	4295	32655	2996	746	4317	2144	12148					
	Total GS @ Stat	11	10	8	5	6	5	5	6	6	6	5	5	5	9	7	9	7	6	7	8	9	7	9	11	10	10	12	12	12					

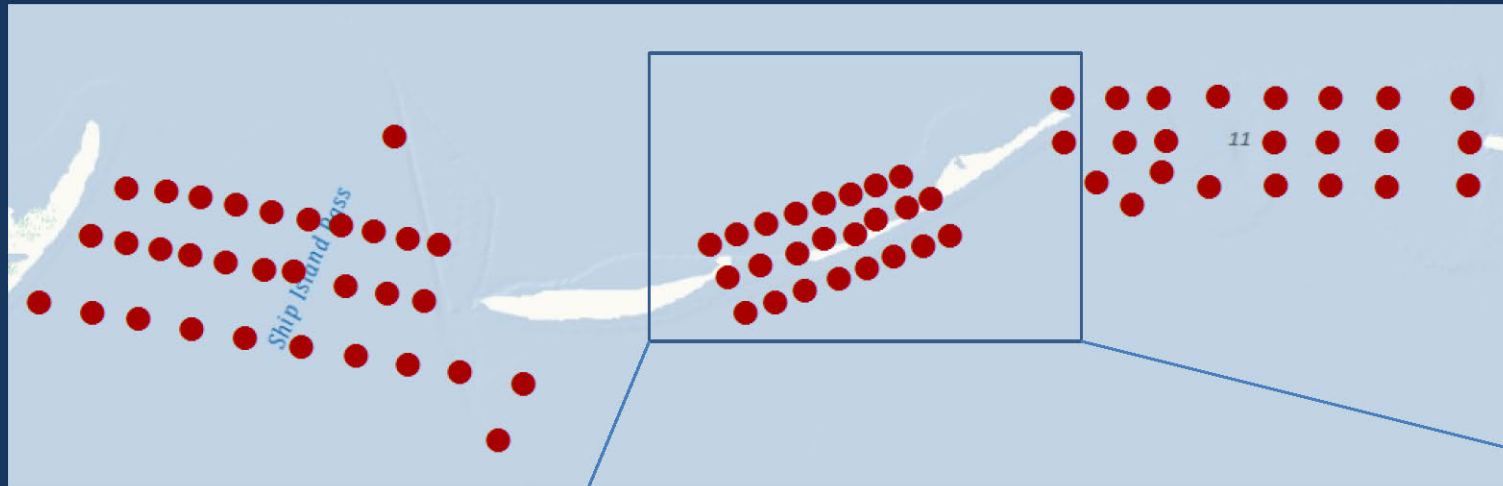
Detection history – movement patterns – periodicity – habitat association

Positions of Benthic Stations ● and Acoustic Array ▲

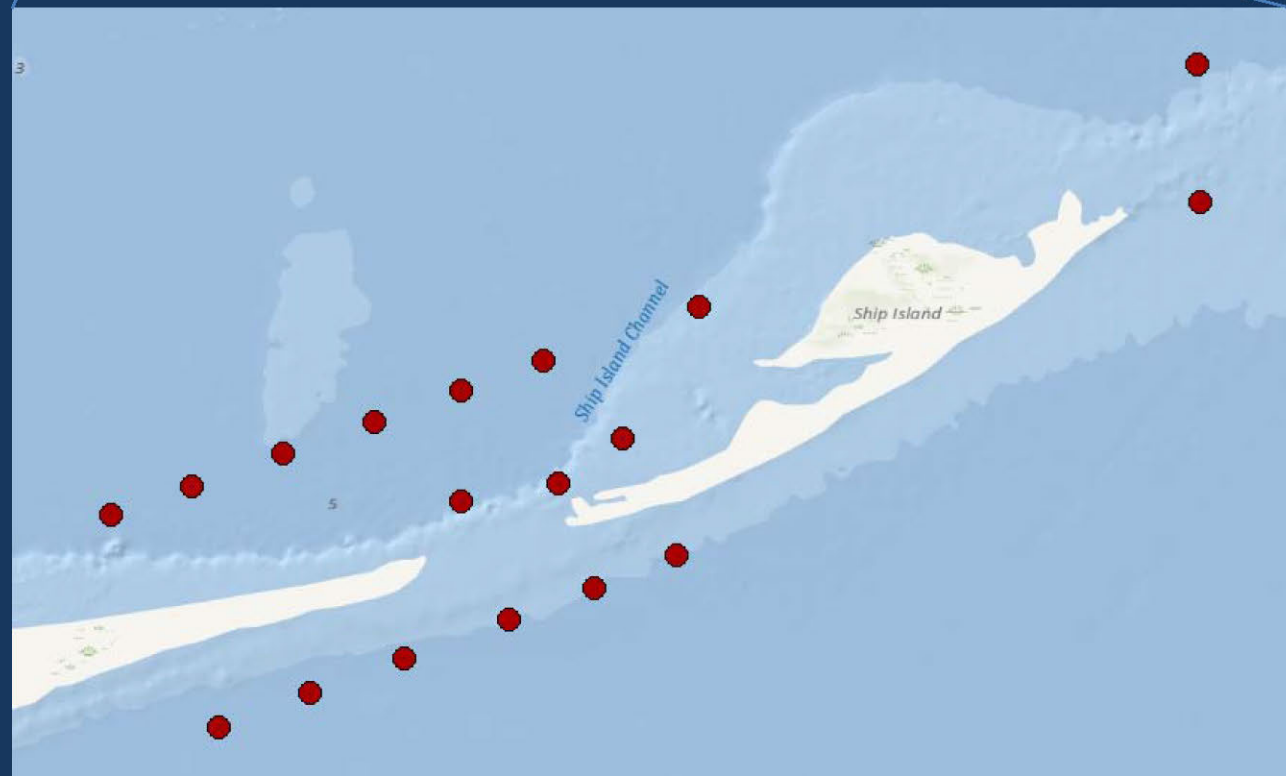


Benthos samples provided to MsCIP by Vittor and Associates.

Broad-Scale Habitat Assessment



Fine-Scale Habitat Assessment

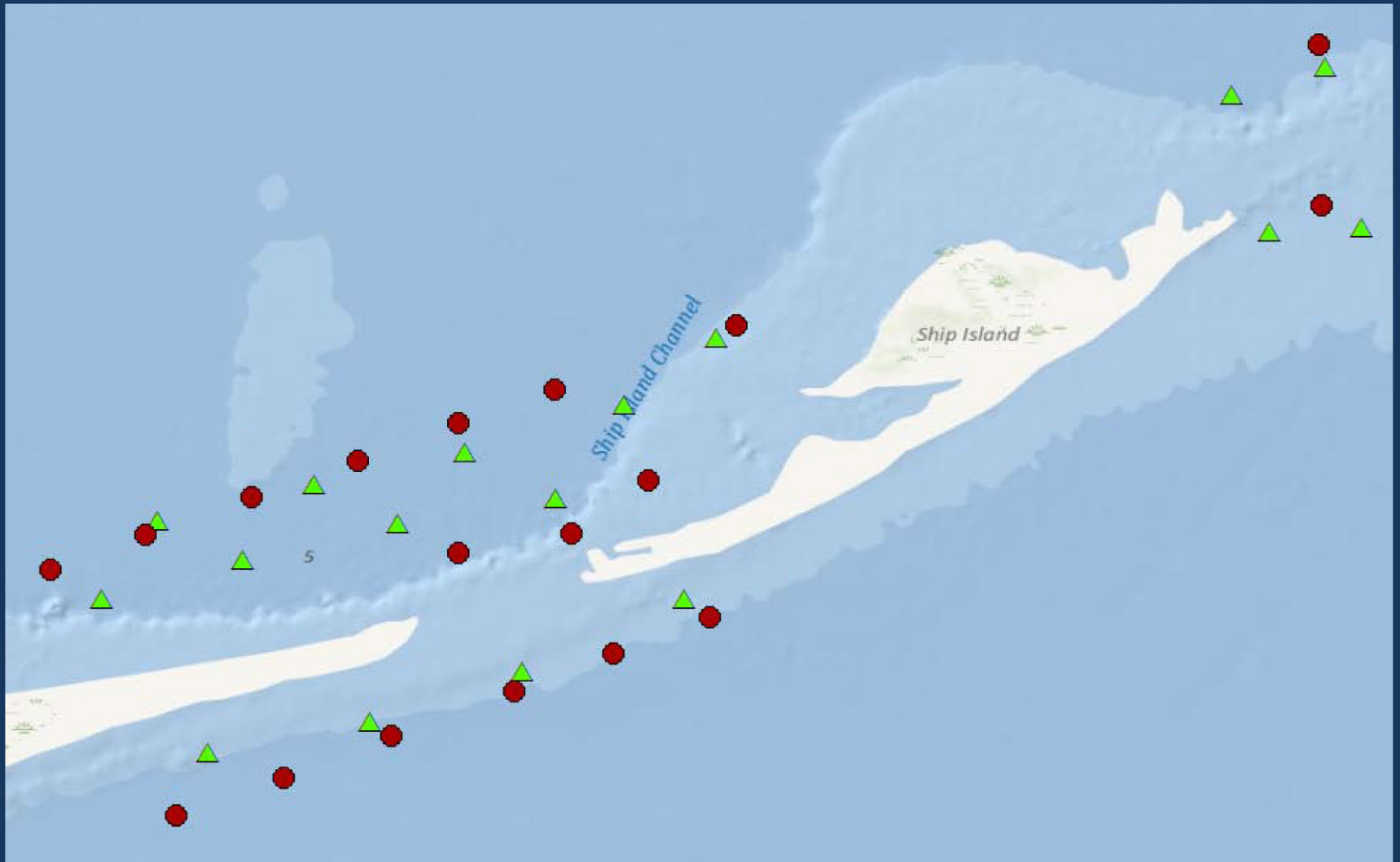


Positions of Benthic Stations ● and Acoustic Array ▲

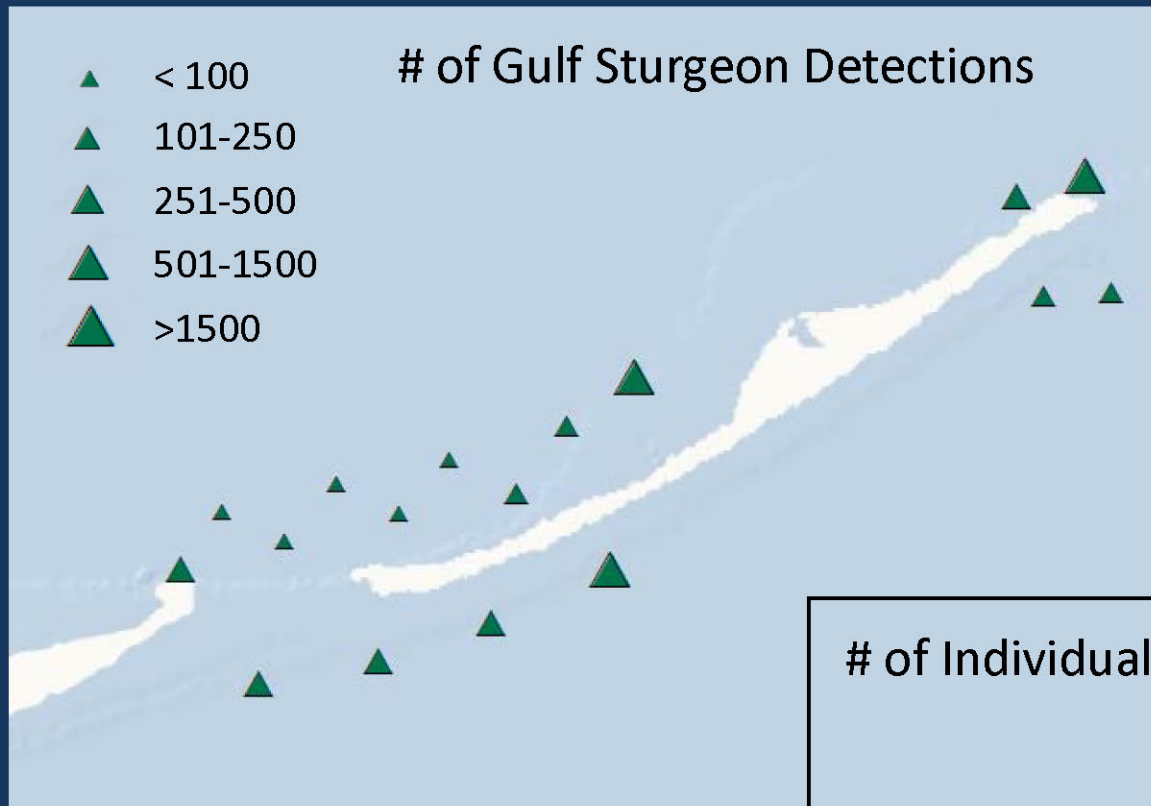


To examine associations between gulf sturgeon and benthic fauna, only those benthic stations within 500m of an acoustic receiver were included in fine-scale analyses.

Benthic ● and Acoustic ▲ Stations used in
Fine-Scale Habitat Assessments



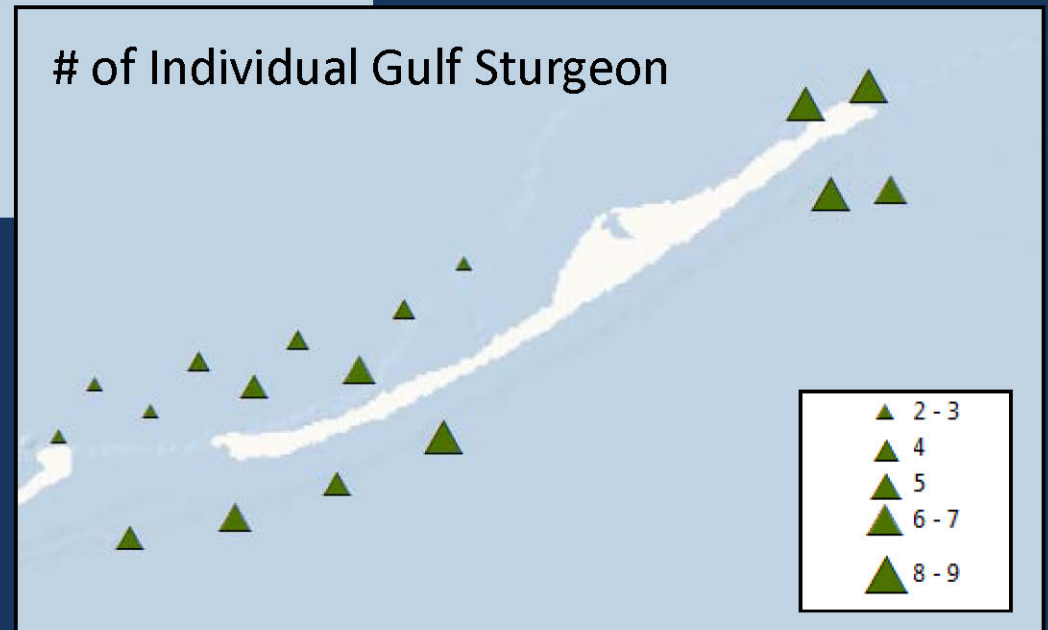
Fine-Scale Habitat Assessment



Classification of Sturgeon Habitat Use

Low < 500 hits and < five fish
High > 500 hits or \geq five fish

2011-2012 deployment period



Fine-Scale Habitat Assessment

Benthic data were aggregated at the genus level, square-root transformed, and used to create a Bray-Curtis similarity matrix from which an MDS plot was created that depicted the benthic stations by low vs. high gulf sturgeon habitat use.

An ANOSIM test showed the benthic assemblages differed significantly between low vs. high stations.

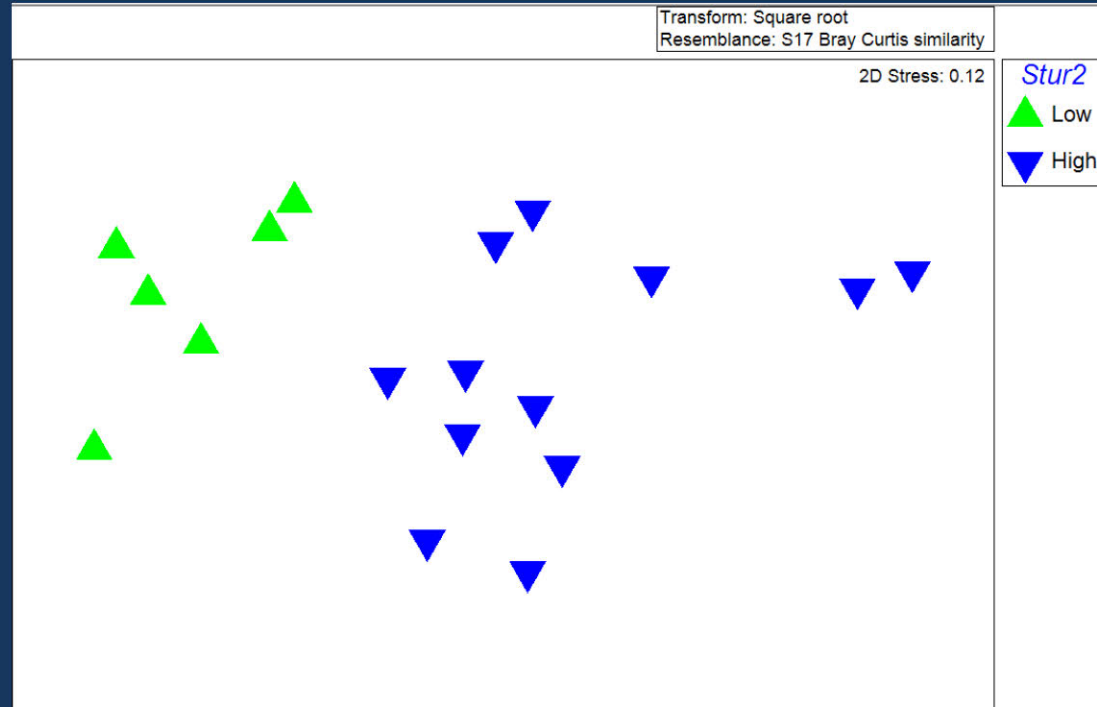
SIMPER analysis revealed the benthic taxa that contributed to the observed difference.

Fine-Scale Habitat Assessment

Relative Sturgeon Habitat Use

SIMPER results	Low	High
Taxon	Av.Abund	Av.Abund
<i>Paraprionospio pinnata</i>	2.57	0.08
<i>Meredithia uebelackerae</i>	2.99	0.69
Nemertea (LPIL)	0.17	1.40
Mediomastus (LPIL)	2.17	1.64
Tubulanus (LPIL)	1.97	0.70
<i>Branchiostoma</i> (LPIL)	0.00	1.35
<i>Oxyurostylis</i> spp.	0.58	1.31
<i>Nassarius acutus</i>	0.29	1.13
<i>Tellina</i> spp.	0.74	1.09
Tubificidae (LPIL)	0.17	1.02
<i>Polygordius</i> (LPIL)	0.00	0.94
<i>Leitoscoloplos</i> spp.	0.00	0.86
<i>Acanthohaustorius</i> spp.	0.17	0.66
Lineidae (LPIL)	0.86	0.53
<i>Sigambra</i> sp.	0.67	0.29
<i>Paracaprella tenuis</i>	0.76	0.14
<i>Phascolion strombi</i>	0.50	0.20
<i>Apoprionospio pygmaea</i>	0.00	0.70
<i>Glycinde solitaria</i>	0.62	0.17

MDS plot

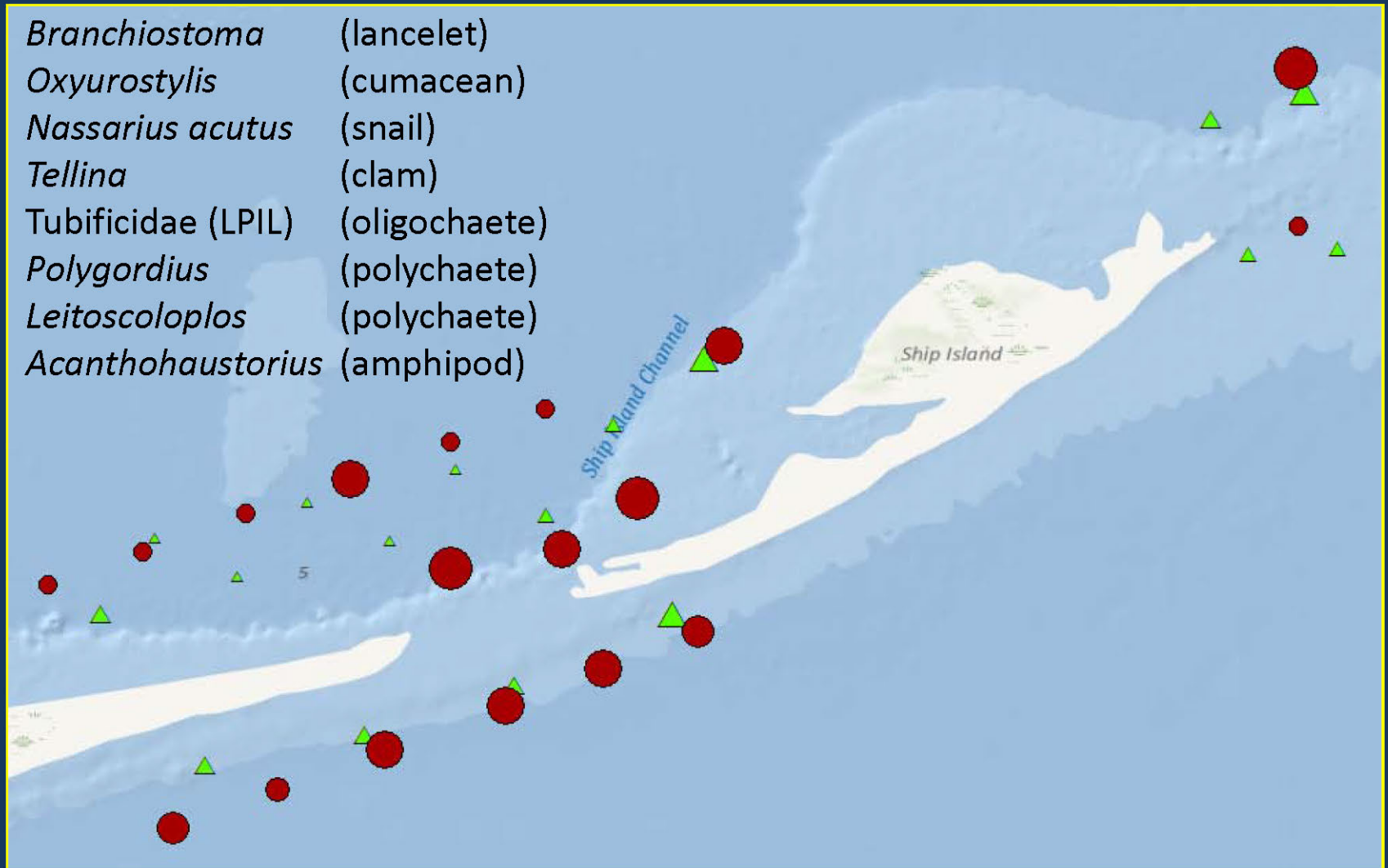


ANOSIM R = 0.63, p = 0.001

Highlighted taxa are known Gulf sturgeon prey items (Brooks and Sulak 2005, Ross et al. 2009)

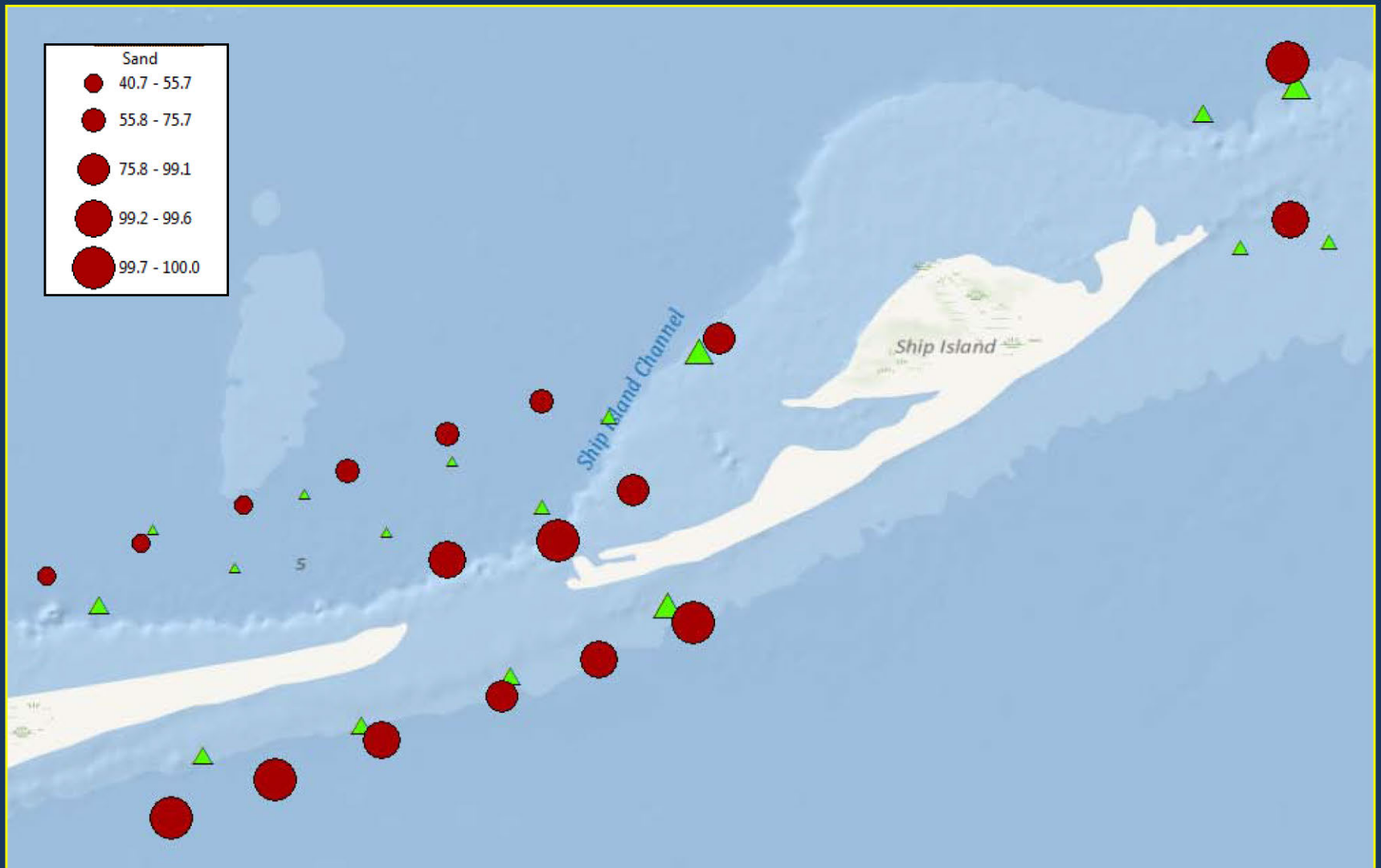
Fine-Scale Habitat Assessment

Relative combined abundances of eight prey taxa ● and relative number of gulf sturgeon detections ▲



Fine-Scale Habitat Assessment

% Sand

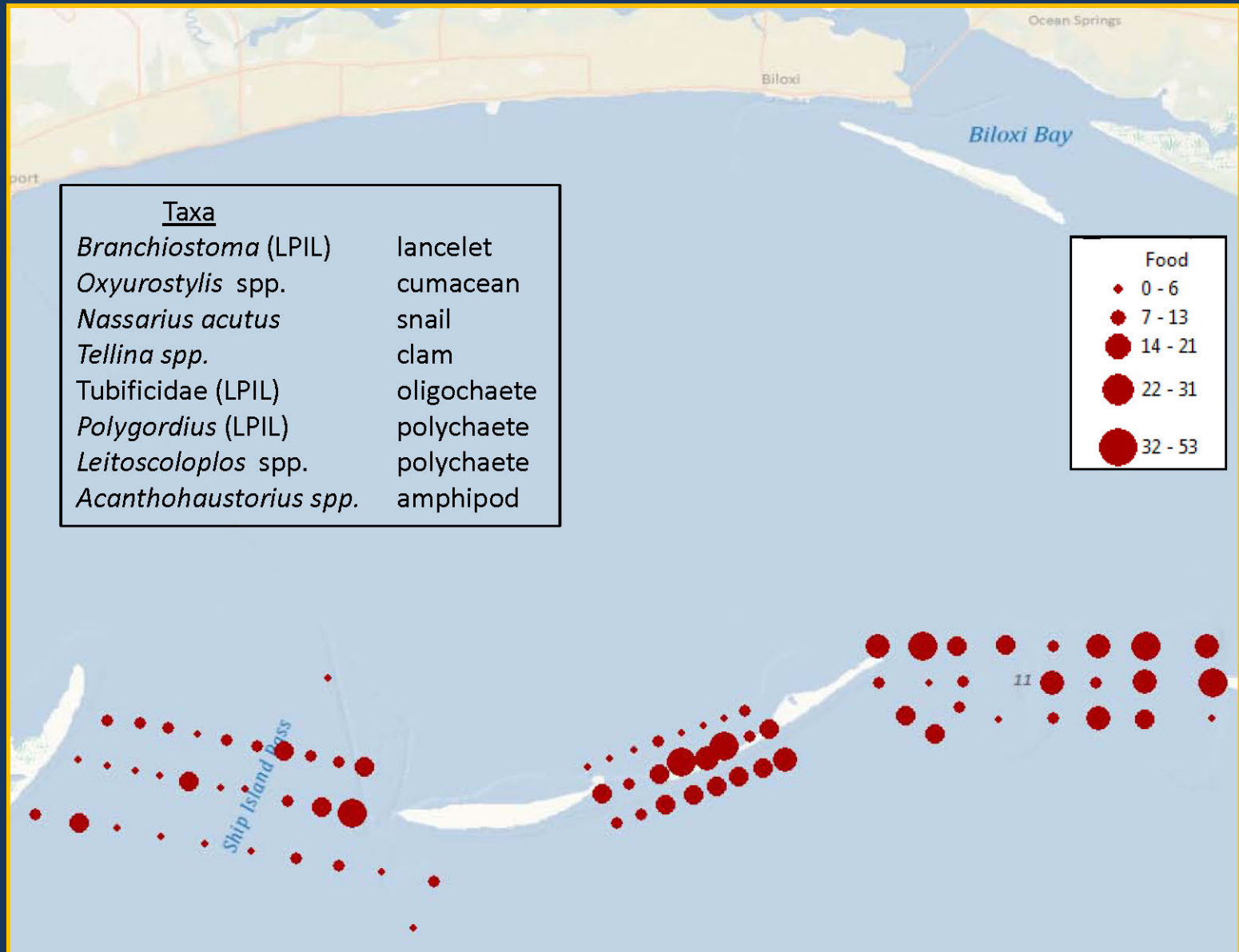


The fine-scale habitat assessment indicates that gulf sturgeon distributions correspond with sandy habitat where known prey (Brooks and Sulak, 2005; Ross et al. 2009) densities are higher.

The relative total abundances of the eight benthic prey taxa identified in the fine-scale assessment were mapped over the full array of benthic stations (Broad-Scale Habitat Assessment)

Broad-Scale Benthic Habitat Assessment

Gulf Sturgeon Prey Taxa Only



On the radar....

- Continue telemetry based assessment (pre-construction, construction, post-construction).
- Refine the benthos assessment applied to the 2011-2012 deployment period (e.g., reevaluate metrics for defining high/low categories).
- Refine and finalize description of “important” prey items (applicable to other regions – Pascagoula estuary).
- Apply new approach to current benthos dataset.
- More detailed evaluation of detection history of individual fish to identify movement patterns (i.e., corridors) in comparison to long-duration residency areas (i.e., feeding).

Credits

Paul Grammer

Jeanne-Marie Havrylkoff

Paul Mickle

Bradley Lewis

Steven George

Alan Katzenmeyer

Phil Kirk

Mike Lowe

Cher Newman

Emily Satterfield

Bradley Ennis

Sara Ashworth

Claire Matten

Erik Lang

Charles Thompson

Jack Killgore

Jay Collins

Cedric Doolittle

Rob Smith

Dara Wilber

Kevin Reine

Chuck Dickerson

Figure 1. Station locations for the Benthic Macroinfaunal Community Assessment, MsCIP, 2010 - 2011.

