

# Savannah Harbor Expansion Project

SHEP Progress Report November 1<sup>st</sup> – November 30<sup>th</sup> 2016

**Task 1:** SCDNR would acquire and insert 10 sonic transmitters per year into Atlantic sturgeon in the Savannah River Estuary and an additional 10 sonic transmitters into shortnose sturgeon. These fish should be collected and tagged with sonic transmitters within or as close as possible to the estuary. The goal would be a 50/50 split between adults/sub-adults and juvenile fish. All sturgeon collected will be weighed, measured, Passive Integrated Transponder (PIT) tagged, and have a fin clip taken for genetic analysis before being released.

**Overview 1:** A total of 144 Atlantic and 79 shortnose sturgeon were captured and 10 adult/20 juvenile Atlantic and 18 adult/14 juvenile shortnose were transmitted in year 1-3 of the study (Table 1). Eleven sturgeon were captured in November 2016, nine adult shortnose sturgeon and two juvenile Atlantic Sturgeon. Five adult Shortnose Sturgeon were transmitted, thus fulfilling the quota for adult Shortnose Sturgeon in the 4<sup>th</sup> year of the study (Table 2). No juvenile Atlantic sturgeon were transmitted in November 2016, as fish condition and recaptures preclude some fish from receiving transmitters.

**Task 2:** SCDNR would acquire and insert 10 sonic transmitters per year into Atlantic sturgeon in the Savannah River, 10 sonic transmitters into shortnose sturgeon, and 20 transmitters into other species representative of the New Savannah Bluff Lock and Dam (NSBL&D) area fish community (Striped bass, Robust redhorse, and American shad). These fish should be collected and tagged with sonic transmitters within or as close as possible to the NSBL&D. If sufficient numbers of sturgeon are not available for capturing, tagging and tracking in the upper river, transmitters can be implanted in other species representative of the NSBL&D fish community, preferably American shad.

**Overview 2:** Task 2 was not funded by the USACE

**Task 3:** Acquisition, operation and maintenance of 23 receivers per year are included in the statement of work. Receivers would be concentrated in the estuary, where the impacts of harbor deepening are anticipated (Figure 1).

**Overview 3:** Twenty-five receivers have been deployed from the South Channel of Savannah River to Front River at river kilometer (rkm) 50, Middle, and Back River (Table 3). GPS locations of receivers and locations of tagged fish (residency master list) are also included as part of this progress report. All accessible receivers were downloaded, and resulting telemetry data will continue to be shared with UGA with provided residency master list.

**Task 4:** To allow identification of fish movement upstream of the NSBL&D, the contractor should locate 5 receivers between NSBL&D and the Augusta Shoals.

**Overview 4:** Task 4 was not funded by the USACE

**Task 5:** Manual tracking of instrumented fish will occur monthly July – September and at least quarterly for the remainder of the year.

**Overview 5:** Manual tracking efforts were completed on November 10<sup>th</sup> with an emphasis on locating transmitted fish in Front, Middle, and Back Rivers. Two SHEP Shortnose Sturgeon and one SHEP Atlantic Sturgeon were located with manual tracker. Temperature, salinity, dissolved oxygen, and conductivity were recorded at 1-meter water depth intervals at the location of each detected sturgeon. Planned downloads of estuarine receivers should provide information for missing fish with subsequent manual tracking efforts based on those locations. Manual tracking data is updated and available in the provided manual tracking database.





Table 1. Sturgeon, Striped Bass, and American Shad Capture Data for the Savannah River SHEP Monitoring Year 1-3 (continued)

Date	River	CollectionSite	Species	PIT	ForkLength_mm	TotalLength_mm	Weight_g	Genetics	Transmitter	Latitude	Longitude
8/6/2015	Savannah	Abercorn Creek	A. oxy	0A13675D19	614	707	1500	SH-71	N/A	32.24822	-81.15254
8/6/2015	Savannah	Abercorn Creek	A. brev	0A13675C76	773	882	7000	SH-69	N/A	32.24822	-81.15254
8/6/2015	Savannah	Abercorn Creek	A. brev	989001003461725	850	973	8000	SH-68	N/A	32.24822	-81.15254
8/6/2015	Savannah	Abercorn Creek	A. brev	0A13675C5F	895	1010	9000	SH-67	N/A	32.24822	-81.15254
8/6/2015	Savannah	Abercorn Creek	A. oxy	0A13675D28	419	485	250	SH-72	N/A	32.24822	-81.15254
8/6/2015	Savannah	Abercorn Creek	A. oxy	989001001956377	690	799	4000	SH-70	N/A	32.24822	-81.15254
8/6/2015	Savannah	Abercorn Creek	A. brev	0A13675C6C	836	937	7000	SH-66	N/A	32.24822	-81.15254
8/6/2015	Savannah	Abercorn Creek	A. oxy	0A13092F20	979	1133	1100	SH-73	A69-9001-26330	32.24822	-81.15254
8/6/2015	Savannah	Abercorn Creek	A. brev	0A13675D23	715	820	6000	SH-65	N/A	32.24822	-81.15254
8/6/2015	Savannah	Abercorn Creek	A. brev	0A181B494B	755	859	3600	SC-42	N/A	32.24822	-81.15254
8/6/2015	Savannah	Abercorn Creek	A. oxy	0989001003461613	435	506	500	SC-41	N/A	32.24822	-81.15254
8/6/2015	Savannah	Abercorn Creek	A. brev	4213685345	780	884	3700	SC-43	N/A	32.24822	-81.15254
8/6/2015	Savannah	Abercorn Creek	A. brev	0A181B4945	563	642	1600	SC-44	N/A	32.24822	-81.15254
8/6/2015	Savannah	Abercorn Creek	A. oxy	0989001001956377	686	800	2400	SC-45	N/A	32.24822	-81.15254
8/6/2015	Savannah	Abercorn Creek	A. oxy	0989001001956545	613	714	2000	SC-46	N/A	32.24822	-81.15254
9/21/2015	Savannah	Abercorn Creek	A. oxy	0A13675C7E	637	735	1640	SH-75	A69-1601-22350	32.24922	-81.15318
9/21/2015	Savannah	Abercorn Creek	A. oxy	0A13675D03	900	1025	6000	SH-76	A69-9001-23542	32.24922	-81.15318
9/21/2015	Savannah	Abercorn Creek	A. oxy	989001003461644	632	720	1550	SH-74	A69-1601-22355	32.24922	-81.15318
9/22/2015	Savannah	RM 24.5	A. oxy	989001003461562	608	675	1350	SH-77	N/A	32.19693	-81.15432
9/22/2015	Savannah	RM 24.5	A. oxy	989001000099554	578	667	400	SH-79	N/A	32.19693	-81.15432
9/22/2015	Savannah	RM 24.5	A. oxy	0A13675D08	640	750	775	SH-80	N/A	32.19693	-81.15432
9/22/2015	Savannah	RM 24.5	A. oxy	0A13675D1C	791	894	3700	SH-81	A69-9001-26338	32.19693	-81.15432
9/22/2015	Savannah	RM 24.5	A. brev	0A13675D10	744	875	3900	SH-82	A69-9001-26336	32.19693	-81.15432
9/22/2015	Savannah	RM 24.5	A. oxy	0A13675C71	615	713	800	SH-78	N/A	32.19693	-81.15432
9/22/2015	Savannah	Abercorn Creek	A. brev	989001004299626	723	803	2850	SH-84	A69-9001-23546	32.24822	-81.15254
9/22/2015	Savannah	Abercorn Creek	A. oxy	0A13675D0A	811	930	4400	SH-83	A69-9001-26328	32.24822	-81.15254
9/22/2015	Savannah	Abercorn Creek	A. oxy	0A181B4853	999	1142	13608	SH-85	A69-9001-26335	32.24822	-81.15254
9/22/2015	Savannah	Abercorn Creek	A. brev	0A181B4869	765	860	4050	SH-86	A69-9001-26326	32.24822	-81.15254
9/23/2015	Savannah	RM 24.5	A. oxy	0A13675C5A	498	580	700	SH-88	N/A	32.19693	-81.15432
9/23/2015	Savannah	RM 24.5	A. oxy	989001001956421	665	775	2300	SH-87	N/A	32.19693	-81.15432
9/23/2015	Savannah	RM 24.5	A. oxy	0A13675C78	659	757	2400	SH-89	N/A	32.19693	-81.15432
11/5/2015	Savannah	Middle River	A. oxy	0A13675D1E	642	750	2300	SH-90	A69-1601-21152	32.14867	-81.13271
11/5/2015	Savannah	Middle River	A. brev	0A13675C5C	740	841	3900	SH-91	A69-9001-26329	32.14867	-81.13271
11/5/2015	Savannah	Middle River	A. oxy	0A13675C79	1473	1684	N/A	SH-92	A69-9001-26331	32.14867	-81.13271
11/20/2015	Savannah	RM 24.5	A. oxy	4A0E260F25	1000	1165	N/A	MS-250	Recap	32.19693	-81.15432
11/20/2015	Savannah	RM 24.5	A. oxy	0A13675C66	587	681	1280	SH-93	A69-1601-21157	32.19693	-81.15432
12/3/2015	Savannah	Middle River	A. brev	0A13675D21	808	911	6400	SH-103	A69-9001-26325	32.14867	-81.13271
12/3/2015	Savannah	Middle River	A. oxy	0A13675D18	642	749	2400	SH-95	N/A	32.14867	-81.13271
12/3/2015	Savannah	Middle River	A. oxy	0A13675C58	585	672	1400	SH-96	N/A	32.14867	-81.13271
12/3/2015	Savannah	Middle River	A. oxy	0A13675C6E	548	641	880	SH-97	N/A	32.14867	-81.13271
12/3/2015	Savannah	Middle River	A. oxy	0A13675C7A	747	855	3300	SH-98	N/A	32.14867	-81.13271
12/3/2015	Savannah	Middle River	A. brev	0A13675D2B	780	881	5500	SH-94	N/A	32.14867	-81.13271
12/3/2015	Savannah	Middle River	A. brev	457F75711F	888	991	7000	SH-99	N/A	32.14867	-81.13271
12/3/2015	Savannah	Middle River	A. brev	0A13675D13	861	989	6100	SH-101	N/A	32.14867	-81.13271
12/3/2015	Savannah	Middle River	A. brev	0A13675C49	849	943	7100	SH-102	N/A	32.14867	-81.13271
12/4/2015	Savannah	Middle River	A. brev	0A13675D1F	737	821	3600	SH-105	N/A	32.14867	-81.13271
12/4/2015	Savannah	Middle River	A. oxy	0A13675C65	528	623	1200	SH-104	N/A	32.14867	-81.13271
2/26/2016	Savannah	Perry Hubbard's cage	A. oxy	0A13675C55	473	558	490	SH-107	N/A	32.26355	-81.14367
2/26/2016	Savannah	Perry Hubbard's cage	A. brev	0A13675C50	751	871	2950	SH-109	N/A	32.26355	-81.14367
2/26/2016	Savannah	Perry Hubbard's cage	A. brev	0989001003461711	719	830	3200	SH-108	N/A	32.26355	-81.14367
2/26/2016	Savannah	Perry Hubbard's cage	A. oxy	0A13675D1B	646	746	1650	SH-106	N/A	32.26355	-81.14367
3/11/2016	Savannah	Perry Hubbard's cage	A. brev	0900236000056678	668	770	2450	SH-111	N/A	32.26355	-81.14367
3/11/2016	Savannah	Perry Hubbard's cage	A. oxy	0A13675C67	741	870	3300	SH-110	N/A	32.26355	-81.14367
3/16/2016	Savannah	Perry Hubbard's cage	A. brev	0A13675D00	650	776	2000	SH-112	N/A	32.26355	-81.14367
3/24/2016	Savannah	Perry Hubbard's cage	A. brev	0A13675D15	706	828	3700	SH-114	N/A	32.26355	-81.14367
3/24/2016	Savannah	Perry Hubbard's cage	A. brev	0A13675C74	660	775	2100	SH-113	N/A	32.26355	-81.14367



Table 1. Sturgeon, Striped Bass, and American Shad Capture Data for the Savannah River SHEP Monitoring Year 1-3 (continued)

Date	River	CollectionSite	Species	PIT	ForkLength_mm	TotalLength_mm	Weight_g	Genetics	Transmitter	Latitude	Longitude
8/25/2016	Savannah	RM 24.5	A. oxy	0A181B4817	381	449	195	recap	N/A	32.196933	-81.154317
8/25/2016	Savannah	RM 24.5	A. oxy	0A181B4771	443	513	460	SH-180	N/A	32.196933	-81.154317
8/25/2016	Savannah	RM 24.5	A. oxy	0A181B477A	596	685	1140	SH-181	A69-1601-53538	32.196933	-81.154317
8/25/2016	Savannah	RM 24.5	A. oxy	0989001004299159	474	547	580	SH-182	A69-1601-53537	32.196933	-81.154317

Table 2. Sturgeon Capture Data for the Savannah River SHEP Monitoring Year 4

Date	River	CollectionSite	Species	PIT	ForkLength_mm	TotalLength_mm	Weight_g	Genetics	External	Transmitter	Latitude	Longitude
11/9/2016	Savannah	Middle River	A. brev	0A13675D44	761	876	3600	SH-13	No ext	A69-9001-26342	32.148669	-81.132713
11/9/2016	Savannah	Middle River	A. brev	0A181B4745	800	899	4200	SH-183	No ext	A69-9001-23544	32.148669	-81.132713
11/9/2016	Savannah	Middle River	A. brev	900236000056138	881	1008	7800	SH-184	No ext	A69-9001-23541	32.148669	-81.132713
11/17/2016	Savannah	Middle River	A. brev	0A13675C5C	748	833	3000	SH-91	No ext	A69-9001-26329	32.148669	-81.132713
11/30/2016	Savannah	Middle River	A. oxy	0A181B475E	611	718	1685	SH-185	No ext	N/A	32.148669	-81.132713
11/30/2016	Savannah	Middle River	A. oxy	0A181B480B	650	761	1815	SH-186	No ext	N/A	32.148669	-81.132713
11/30/2016	Savannah	Middle River	A. brev	0A181B481B	770	885	4300	SH-187	No ext	A69-9001-20499	32.148669	-81.132713
11/30/2016	Savannah	Middle River	A. brev	0A181B474D	671	770	2650	SH-188	No ext	N/A	32.148669	-81.132713
11/30/2016	Savannah	Middle River	A. brev	989001001956805	749	872	3600	SH-189	No ext	A69-9001-26327	32.148669	-81.132713
11/30/2016	Savannah	Middle River	A. brev	501C766F55	795	921	4450	SH-190	No ext	A69-9001-23548	32.148669	-81.132713
11/30/2016	Savannah	Middle River	A. brev	0A13675D3B	719	816		SH-12	No ext	A69-9001-26341	32.148669	-81.132713

Table 3. GPS Coordinates of Savannah River Receiver Locations

<b>Receiver #</b>	<b>Station Name</b>	<b>Latitude</b>	<b>Longitude</b>
111318	Savannah Jetty	32°02.074'N	80°51.064'W
111321	RM 0	32°02.248'N	80°53.990'W
111717	RM 3	32°04.274'N	80°57.289'W
111316	RM 6	32°04.616'N	80°57.394'W
111293	RM 9	32°05.390'N	81°01.173'W
111292	RM 15	32°04.972'N	81°05.615'W
108392	RM 17	32°07.596'N	81°08.058'W
108385	RM 17.5	32°08.188'N	81°08.383'W
111654	RM 18.5	32°08.699'N	81°08.416'W
111652	RM 21.5	32°09.647'N	81°09.256'W
111648	RM 22.5	32°10.971'N	81°09.368'W
111655	RM 24	32°11.816'N	81°09.259'W
111659	RM 27.5	32°14.164'N	81°09.012'W
111333	MR RM 0	32°08.794'N	81°07.974'W
111326	MR RM 1.5	32°09.523'N	81°08.253'W
111650	MR RM 2.5	32°10.342'N	81°08.150'W
111653	MR RM 4	32°11.602'N	81°08.252'W
111647	MR RM 5	32°12.613'N	81°08.289'W
111305	BR RM 4	32°06.673'N	81°06.471'W
111325	BR RM 7	32°08.704'N	81°07.236'W
111657	BR RM 9.5	32°10.068'N	81°07.790'W
111651	BR RM 13.5	32°11.574'N	81°07.096'W
111658	BR RM 16.5	32°13.280'N	81°08.598'W
111766	RM 31.5	32°16.141'N	81°08.052'W
111755	Abercorn RM 0	32°14.952'N	81°09.191'W
111754	Abercorn RM 1	32°15.127'N	81°10.057'W
111753	RM 39	32°20.490'N	81°07.932'W
111825	RM 45	32°22.882'N	81°10.856'W
111818	RM 53	32°27.582'N	81°11.424'W
111824	RM 61.5	32°31.723'N	81°16.084'W
111764	RM 68	32°33.678'N	81°18.593'W
111826	RM 74	32°35.544'N	81°22.437'W
111813	RM 79.5	32°38.516'N	81°24.591'W
111759	RM 85.5	32°41.699'N	81°24.622'W



Table 3. GPS Coordinates of Savannah River Receiver Locations (continued)

<b>Receiver #</b>	<b>Station Name</b>	<b>Latitude</b>	<b>Longitude</b>
111756	RM 89.5	32°43.956'N	81°24.958'W
111758	RM 94.5	32°46.322'N	81°25.766'W
111814	RM 100.5	32°48.034'N	81°25.761'W
111757	RM 105	32°50.435'N	81°26.475'W
111763	RM 110.5	32°52.905'N	81°27.962'W
111762	RM 115.5	32°54.521'N	81°28.952'W
111752	RM 119	32°56.234'N	81°30.159'W
111815	RM 123	32°58.508'N	81°29.767'W
111820	RM 125.5	33° 0.3180'N	81° 29.688'W
111819	RM 133	33° 2.6160'N	81° 33.402'W
111821	RM 137	33° 4.3680'N	81° 35.502'W
111823	RM 147	33° 6.9420'N	81° 41.910'W
111812	RM 153	33° 10.578'N	81° 46.152'W
111716	RM 157	33° 13.044'N	81° 46.080'W
111817	RM 161.5	33° 13.542'N	81° 49.014'W
111715	RM 168	33° 15.810'N	81° 50.166'W
111721	RM 173	33° 17.946'N	81° 51.054'W
111718	RM 177.5	33° 19.656'N	81° 54.594'W
111816	RM 182	33° 19.656'N	81° 54.594'W
111720	RM 186	33° 21.540'N	81° 56.298'W
111719	RM 187	33° 22.302'N	81° 56.670'W
111822	RM 187.5	33° 22.308'N	81° 56.232'W
123576	RM 190 (Jason's Dock)	33° 23.052'N	81° 55.864'W
123593	Rm 199.7 (Marina)	33° 28.613'N	81° 57.591'W
123597	Lower Shoals	33° 30.751'N	82° 00.096'W
123601	Upper Shoals	33° 32.889'N	82° 02.157'W
123591	I20 Downstream	33° 31.458'N	82° 00.674'W

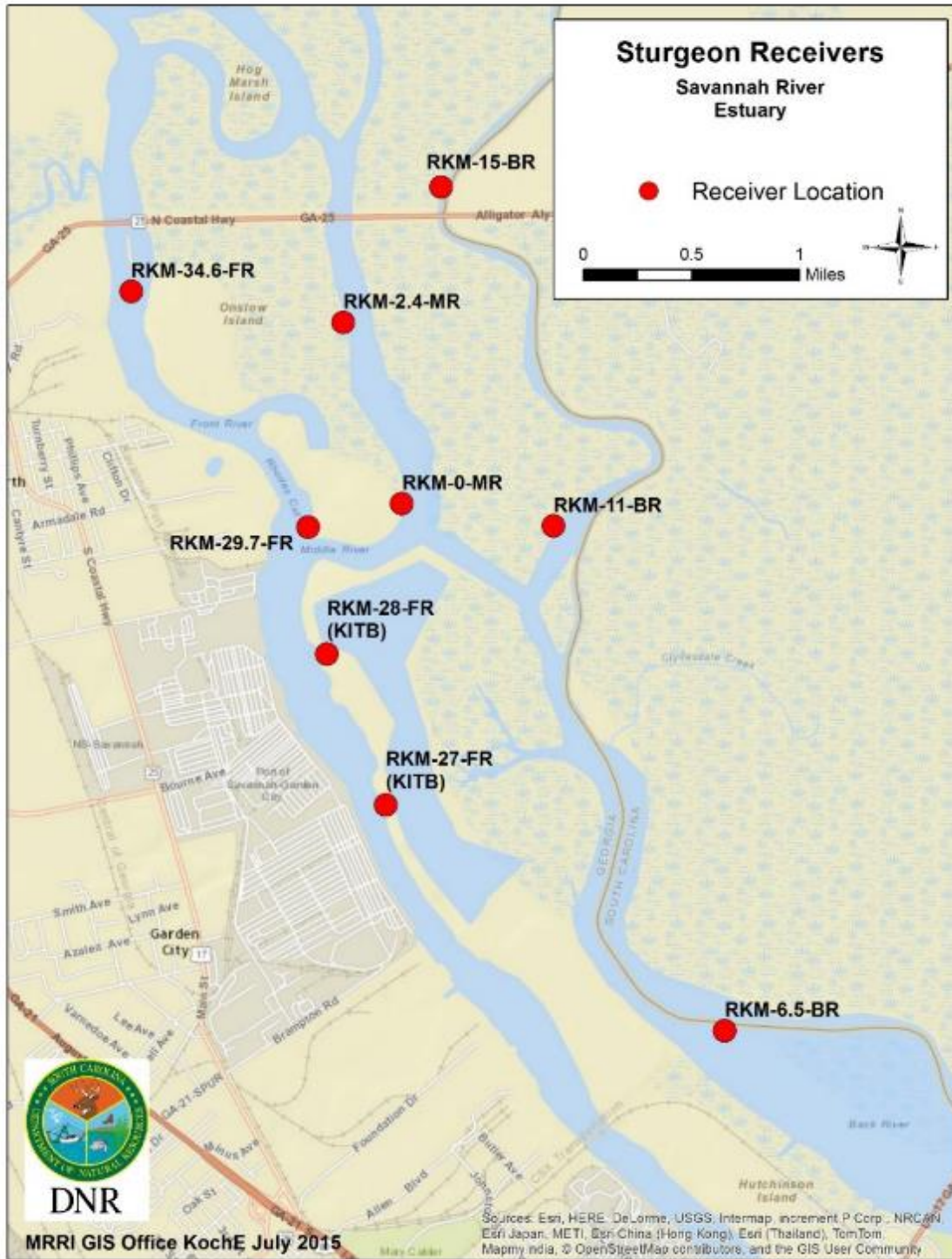
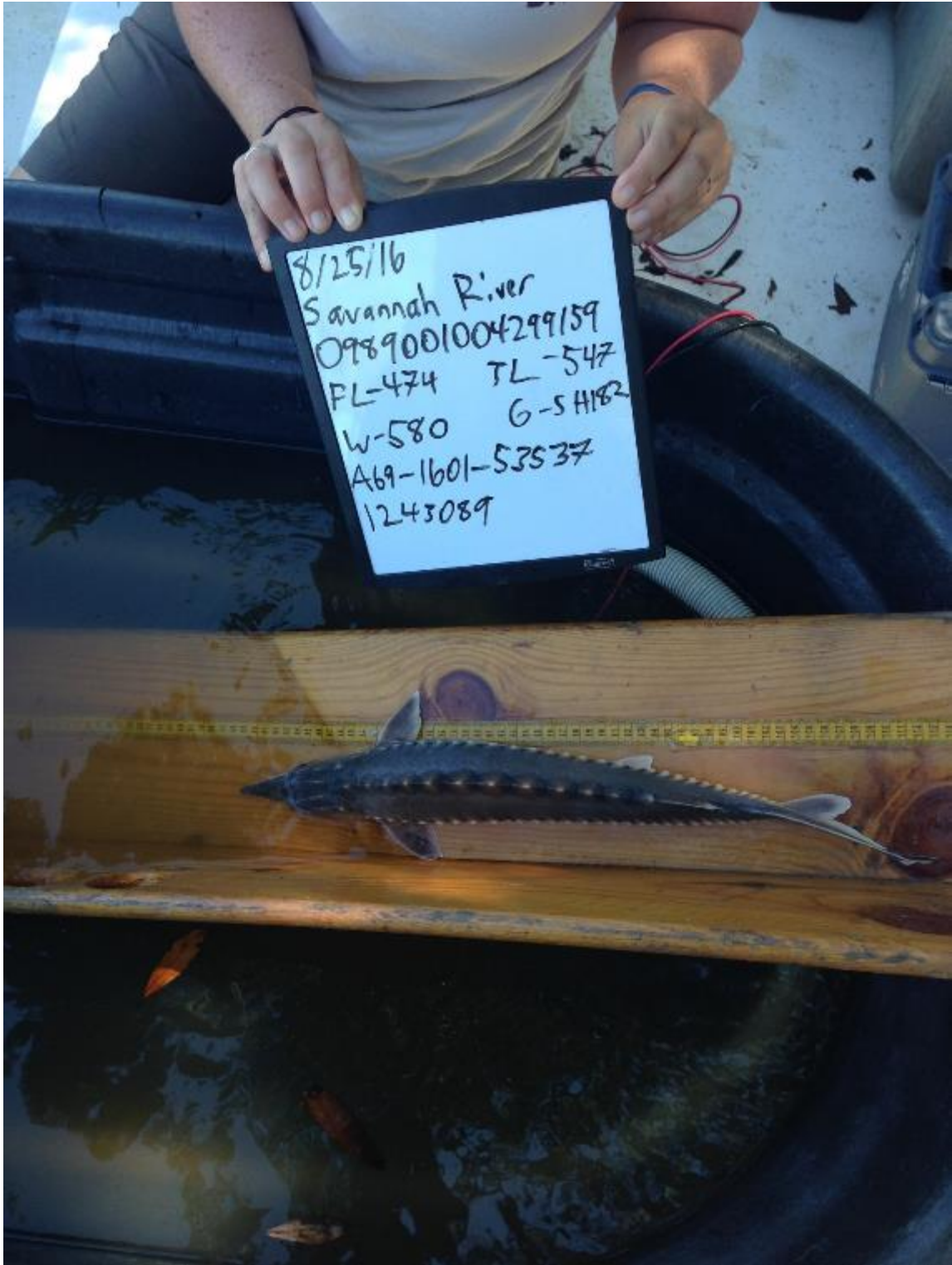
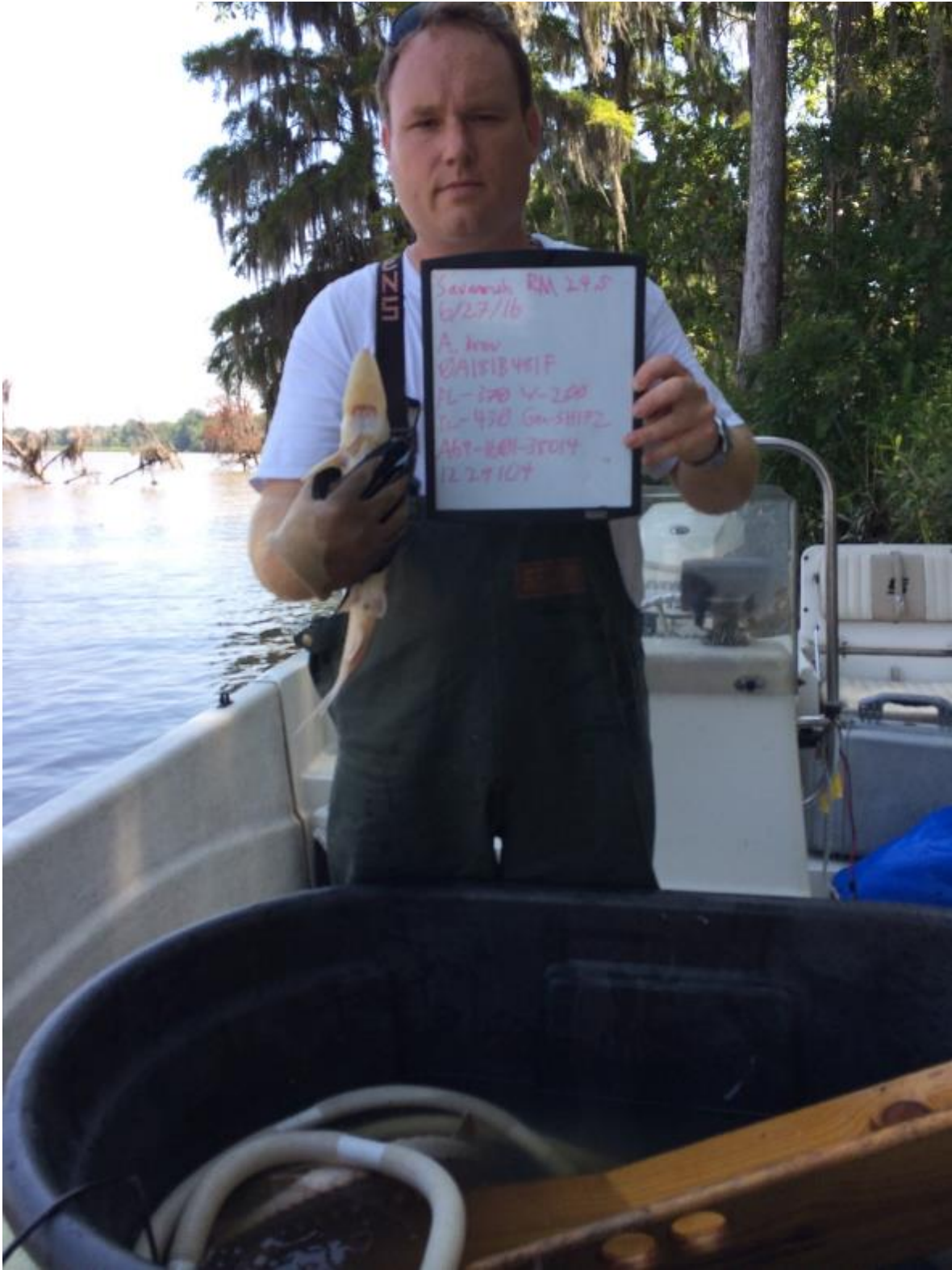


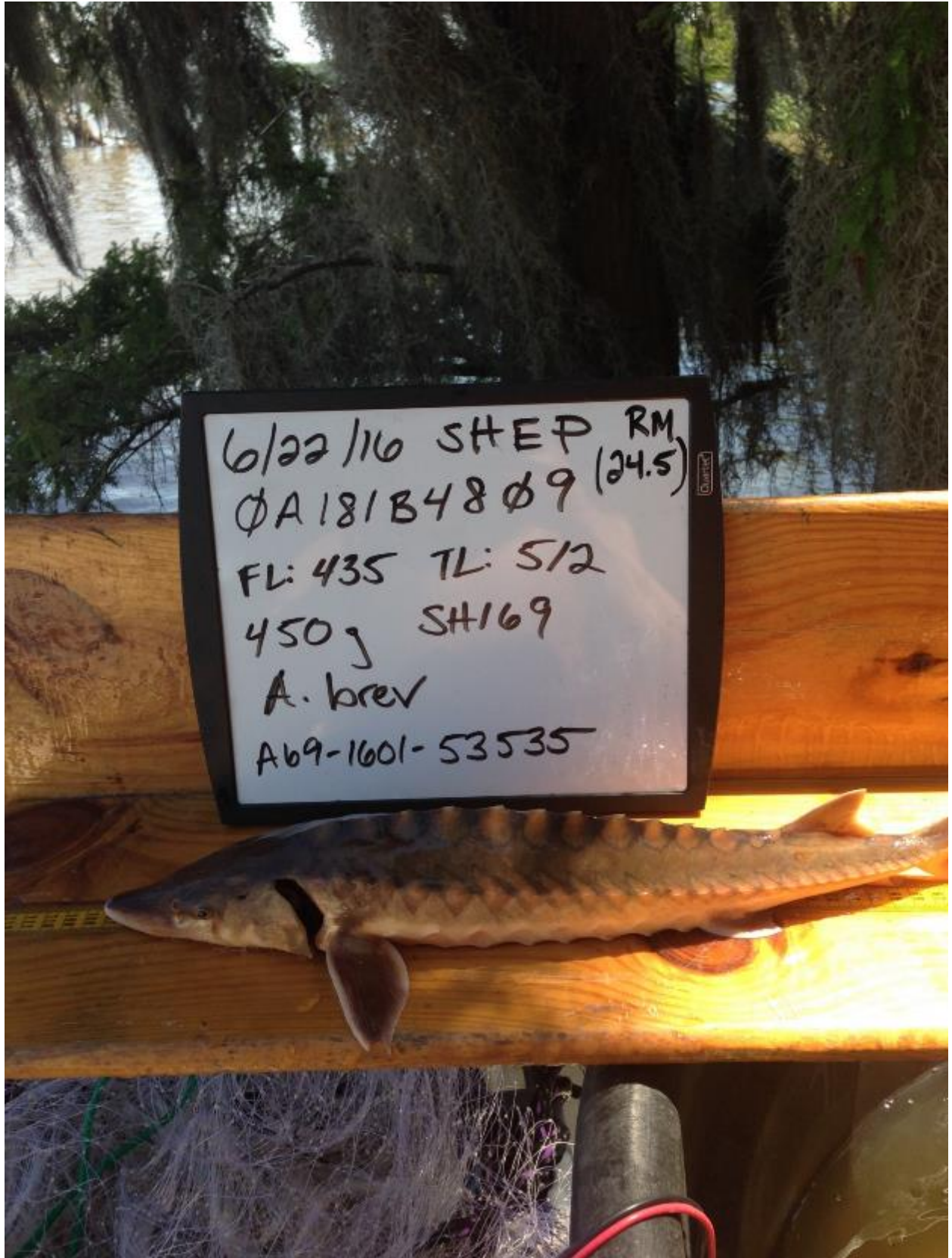
Figure 1. Vemco Receiver locations within proximity to the King Island Turning Basin.

# Appendix 1

## Pictures of Project















Shattuck  
Hercorn  
7/21/15  
A. oxy  
OAI3675DOB  
FL-100 W-6000  
TL-1085 Gm-5120  
A69-9601-23542  
1201044

