ST. MARY'S RIVER
Watershed Association

Post Office Box 94, St. Mary's City, MD 20686

December 31, 2020
Cove Point Natural Heritage Trust
P.O. Box 336
Lusby, MD 20657

Subject: Final report on 2020 STEM Studies on Oyster Recruitment and Culch

Dear Mr. Rudy, Mr. Boxwell, and the Board of Trustees,

It gives me great pleasure to report on our recruitment study and how we managed to engage STEM students during this pandemic. By the end of March we understood that our spring and summer programming would be greatly affected by the pandemic, and we planned to initially begin the oyster reproduction season – June through October – with a small team of four STEM students and the executive director, me. We did bring in one or two additional volunteers from time to time as needed and having the ability to distance mandated.

The 2020 Team

Great Mills High School STEM Academy graduate, Jack O'Brien, was promoted to program director and served diligently from May 11 through August 6. (He continues to study environmental science and engineering at Vassar College.) Melina Cavathas, a third year St. Mary's College biology and environmental studies double major was also on the team and she worked part time through the 2019-2020 school year and full time when the college let out in May. Two high school STEM students were also chosen for the team. Colleen Smith studied in the Forrest Tech Center's Natural Resources Management program and, as a straight "A" student, was well informed and proactive in her learning each and every day at work. Julia Wright, a Spanish first language Latina who is in her senior year at GMHS STEM, also worked on our team and was truly a delightful addition—hard working and inquisitive.

Pandemic Behaviors and Limitations

At all times we actively engaged in safe behaviors including distancing, wearing face coverings even when working outdoors, and hand washing/sanitizing. This necessitated that we each drive ourselves to and from the job site, the waterfront, and headquarters (our only shared space indoors was the bathroom at headquarters). When a potential exposure was presented, and it happened twice,

we ceased operations for one week and all were tested right away. The California (Maryland) Starbucks incident was our first potential exposure as one of our interns lives with her sister who works at Starbucks. Non-detect results for all staff allowed us to get back to work after missing just five workdays. In July we had two potential exposures on the same day; one being the mother of this same intern whose co-worker tested positive and our GMHS STEM intern, Julia Wright, whose best friend had symptoms and tested positive. The good news was that we all tested non-detect. August brought about routine testing for all college students prior to returning to campus; our program director tested positive on August 6 while the other two college interns and I remained non-detect. We all tested again five days after Jack's positive test and we all remained non-detect. Unfortunately, Jack had to quarantine and could not return to work. We feel that we were successful in negating any spread of COVID during our work days. (Jack returned to campus at Vassar College on August 24 and has since tested negative; he remained asymptomatic throughout. He also has no idea how he was exposed as all of his contact and family remained non-detect throughout.)

Unfortunately, we were unable to engage the fifth-grade STEM students at Lexington Park Elementary School as the school system cancelled all field trips and students had to learn from home via online venues. Monies earmarked for bus transportation were needed to offset the cost of transportation for our staff since driving separately was required. This necessitated using five vehicles to move from the field site to the waterfront. Out on the water we limited each vessel to just two occupants in order to maintain distancing (face coverings were required at all times, even outdoors). Distancing required us to launch a second skiff and along with our barge, this gave us three vessels and plenty of room to work on the water and still maintain two meters distancing.

While much of our work this year entailed manufacturing concrete reef structures (reef balls) and installing these structures on our reef project adjacent to St. Mary's College, interns learn valuable knowledge regarding scientific protocols and procedures throughout nearly all activities. The CPNHT funded scientific oyster recruitment study plays into our other work and many workdays dovetail these projects together either linear or parallel. Separate teams allowed everyone to engage in each activity and to learn about all of our work.

<u>Oyster Recruitment Study</u>

Student interns learned how to plan and prepare a scientific study. We emphasized that scientific rigor is achieved through careful planning and tracking of essential elements and the accurate recording of data. The recruitment study, funded by CPNHT, was expanded slightly to include a separate culch study. (more on this study below) In order to measure oyster recruitment, twelve sets of four traps were filled with the exact same number of same-size shells—120.

As we moved beyond the planning stage and purchased the supplies needed, template forms were drafted and printed. Chain of custody forms were necessary to keep track of the 48 traps throughout each step in the process – preparing the traps, deploying the traps, cleaning the traps, retrieving the traps, and counting the spat collected by each trap. We also collected monthly water quality data using our in-house drafted template forms. Water quality is a factor in oyster recruitment and having this data allows for further study on these impacts, especially if a particular site stands out, as it did this year with nearly all the spat being dead at Long Point (Bryan Bar). Interns followed detailed procedures each day they were out on the water in order to standardize the data collected and ensure scientific rigor. Prior to departure, we discussed exactly how they would

go about the work at hand and how the integrity of the study must play into every decision made throughout that day.

Culch Study

During the planning process a question arose by watermen, whether the shells we use for the study are all the same and they suggested that if some shells were "scalded" they might not attract larval strike as well as those that had not been scalded (live shucked). This led us to do a separate study to compare scalded shells to non-scalded shells. In this study four traps held scalded shells and four held non-scalded shells; the traps were placed in pairs, one of each shell type, on Seminary Bar. Seminary was chosen as it is in the oyster sanctuary and it has had some of the highest larval recruitment for several decades—it was an ideal location.

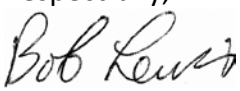
Closing Remarks

Attached are the two studies, which are published on our website and CPNHT has our permission to use and publish them as well. Please consult them for the data and results of our important work. We have submitted both to the state Department of Natural Resources Shellfish Division and have transmitted them to the chair, Captain Brian Hite, of the St. Mary's county oyster committee. (Brian helped us tweak the study to make it more usable by industry. We met with Brian and DNR staff on February 24, 2020.)

Attached is an accounting of the Trust grant expenditures of $5,000. The figures reported include only those funds we expended directly on the two scientific studies and the complimentary outreach and education efforts. (We did engage volunteers to assist with counting.) Our work is only made possible by our funders and their dedication to improving the health of our Chesapeake Bay.

I am grateful to the Trust for putting their trust in me and the SMRWA with your grant award allowing us to continue this important work in support of the oyster fishery and in increasing the body of knowledge regarding oyster reproduction and recruitment. But most of all, for your support of high school and college youth who had this opportunity to learned about the importance of science, the protocols and record keeping that ensure accurate and credible science, and the skills necessary to engage in team scientific research, especially in this year of the pandemic when commitment to the team and trust of each other has been so essential. We hope that the Trust will again provide their support so that we may keep this program going through 2021. We would be happy to attend a future meeting where we will be delighted to discuss this rewarding program.

Respectfully,



Bob Lewis
Executive Director

Accounting of expenditures incorporating Trust funds

Project Financials

Applicant Name: ST. MARY'S RIVER WATERSHED ASSOCIATION

Project Title: Oyster Recruitment Study - Phase Two

EXPENSE	BUDGET-AWARDED CPNHT FUNDS	CPNHT FUNDS SPENT	MATCH	SOURCE MATCH	TOTAL FUNDS
48 cages (equipment loan)	0	0	192	ORP	192
Oyster shell (40 bu)	280	280	0		280
Work vessel (12 days)	1100	1200	200	SMRWA	1400
Buoys (26)	216	247	0		247
Rope 5/16 braided nylon (500')	68	100	72	SMRWA	172
Clips (50) - 5" SS longline (loan)	0	0	15	ORP	15
Misc - cable ties, labels, eye bolts	46	86	0		86
Personal Protective Equip (COVID)	0	0	54	SMRWA	54
Travel (652 miles@ $0.50)	105	324	2		326
Bus transportation (STEM-5)	425	0	0		0
Project director (74 hr)	0	0	2590	SMRWA	2590
Program director (22% of500hr)	1760	1763	0		1763
Project interns (2)(stipends)	1000	1000	1000	SMRWA	2000
Professional advisors (2)	0	0	1000	DNR+SMCM	1000
Teachers (0 days 0 teachers)	0	0	0		0
Community volunteers (14 hr)	0	0	350	volunteer	350
TOTALS	**5,000**	**5,000**	**5,475**		**10,475**