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| ***1. Project Title*** | *Following the River: An Exploration of the VA Southern Watersheds/ Pasquotank River Basin* |

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| ***2a. Primary Contact or Project Manager1*** |
| Name | Jody Ullmann |
| Title | Education Coordinator |
| Organization Name | Lynnhaven River NOW |
| Organization Tax ID Number | 16-1647860 |
| E-mail address | Jody@LRNow.org |
| Mailing Address | 3663 Marlin Bay Drive |
| City | Virginia Beach | State | VA | Zip | 23455 |
| Telephone | 757-962-5398 | Fax Number  | none |

**1****A paragraph or Statement of Qualifications must be provided in Section 4 of the application form to confirm that**

**anyone designing, installing, or monitoring the proposed project is qualified to do so.**

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| 2b. Execution Address (where contract will be mailed for signature) |
| Name  | Karen Forget |
| Title | Executive Director |
| Organization Name | Lynnhaven River NOW |
| E-mail Address  | karen@LRNow.org |
| Mailing Address  | 3663 Marlin Bay Drive |
| City  | Virginia Beach | State | VA |  Zip | 23455 |
| Telephone  | 757-962-5398 | Fax Number  | none |
| Federal Tax ID Number |  |

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| 2c. Payment Address (where invoice payments will be mailed) |
| Name  | Karen Forget |
| Title | Executive Director |
| Organization Name | Lynnhaven River NOW |
| E-mail Address  | Karen@LRNow.org |
| Mailing Address  | 3663 Marlin Bay Drive |
| City  | Virginia Beach | State | VA | Zip | 23455 |
| Telephone  | 757-962-5398 | Fax Number  | none |

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| ***3. Project Description (provide a short summary of the project).***  |
| Lynnhaven River Now (LRNow) is the leading 501(C)3 environmental organization working across the city of Virginia Beach to remove pollutants from the waterways, educate and engage the population of the city, and restore and conserve riparian buffers, forested land, and oyster reefs. Virginia Beach contains seven sub-watersheds, three of which drain into the Albemarle-Pamlico Sound. There is a real need for quality programs and information on what is referred to as the “Southern Watersheds” in Virginia Beach and as the Pasquotank River Basin in North Carolina. Going forth, we will refer to this joint area as the VA Southern Watershed/Pasquotank River Basin. In the city’s school system, the emphasis is on the Chesapeake Bay and very little is mentioned about the watersheds that drain into North Carolina. In fact, when we ask teachers that work in these watersheds, “What watershed is your school in?” the overwhelming answer was “The Chesapeake Bay”. LRNow’s goal with this grant is to create a resource guide and lesson plans for Virginia and North Carolina educators on the headwaters of the Albemarle Pamlico Sound.  To accomplish this, we will create two unique immersive teacher trainings.  The first training will take a cohort of five 9-12th grade teachers on a 5 to 6-day (dependent on weather and tides) sail/motor down the entire watershed to learn all about the habitats, history, economics, land use, and problems that this watershed faces. Along the way, we will stop and invite experts to join us or get off and visit sites such as museums, nature areas, and historic sites.  Teachers will attend at least one pre-sail workshop to learn about the boat, basics of sailing and an overview of the watershed. They will be asked to do homework before the trip to familiarize themselves with various aspects of the watershed and to keep a journal along the way. The trip will begin in the Elizabeth River in Norfolk and travel into the North Landing River, down into the Albemarle Sound and Pamlico Sound to Beaufort North Carolina and then back to Norfolk. As they follow the river, teachers will become more familiar with the rich resources that are in North Carolina and form relationships that might lead to Zoom talks, internships and data collection projects for the students.The second training will be a 2-day workshop for five more 9th-12th grade teachers to learn about the history and natural history of the North Landing River and Back Bay sub-watersheds. They will start in Back Bay and explore the dunes, learn about the fisheries and subaquatic vegetation (SAV) studies. Using kayaks, they will explore the marshes and shoreline of the bay. The next day they will meet at Pungo Ferry Landing and take a small boat trip through the tributaries of the North Landing River from the Elizabeth River locks south to the Currituck Sound in North Carolina. This group of teachers will be learning about the unique habitats found in this region.  North Landing River is considered to be the most biodiverse area in Virginia east of the Blue Ridge Mountains.  After the trainings, the groups will join together at False Cape State Park and Back Bay NWR to create a resource guide and lesson plans for Virginia and North Carolina educators on the VA Southern Watersheds/Pasquotank River Basin.   Our goal is to create materials about the upper part of the watershed in Virginia that would be available online for both North Carolina and Virginia Beach teachers, similar to the map we helped to create for the watershed that is found on the APNEP website.   We also hope to expand APNEP’s Pasquotank River Basin booklet to include maps and information about the Virginia portion of this river basin. Work had started on this prior to COVID that we plan to continue. |

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| ***4. Statement of qualifications (provide a brief explanation of your organization’s qualifications to complete the project)*** |
| LRNow has had extensive outreach experience in Virginia Beach through our Pearl Home, Pearl Business, Pearl School and Pearl Faith Communities programs. These programs work with various stakeholders to improve the health of all the waterways in Virginia Beach. Jody Ullmann, our Education Coordinator, who will provide instruction for this project, has long-standing relationships with every school in Virginia Beach through our Pearl School program and supports the schools with many learning opportunities which include field activities, data collection and restoration projects.Virginia Beach is divided into two major watersheds, the Chesapeake Bay and the Southern Watersheds that drain into the Albemarle-Pamlico Sound. LRNow’s work has focused on the Southern Watersheds comprising the North Landing River, Northwest River, and Back Bay sub-watersheds for the past five years. We have worked with the schools on various projects, given out trees to homeowners to plant, planted 500 trees in common areas in the Ocean Lakes neighborhood with an addition 300 planned for planting this November, sat on committees to work on flood mitigation for that part of the city, worked with Congresswoman Elaine Luria to found the Albemarle-Pamlico Sound working group, and have advocated for funding for projects in the Albemarle-Pamlico watershed. Through our various programs and communication platforms, we have educated the community about the Albemarle-Pamlico areas of Virginia Beach. In the Summer of 2019 we held the first Southern Watersheds Workshop for teachers of all grades. Working closely with the APNEP Environmental Education team (Stacey Feken and Kelsey Ellis), we executed a full day workshop at Back Bay National Wildlife Refuge that covered the basics of the watershed in both Virginia and North Carolina. We also helped to develop the first map of the watershed that shows the complete watershed. This has been added to the APNEP website as a valuable resource for teachers in both states. We have both a strong working relationship with APNEP, as well as with the Virginia Beach City Public School administration and teachers and with other stakeholders in the watershed. In June of 2019, our Education team drove the length of the watershed, cultivating partnerships and gathering information for just such a project as this.The captains of the vessels for each teacher training are educators themselves and highly trained boat captains.  LRNow has a long standing relationship with Erik Moore, who runs Moore to See (https://mooreto see.com/) boat tours on the North Landing.  He is a Virginia Beach school teacher and expert on the North Landing River.  Brandon McCrary, owner of Weasel Creek Watershed Expeditions (https://www.weaselcreekexpeditions.com/), is the Middle School director of Ghent Montessori, a Ship Committee Chair for a local Sea Scout group, and captains the *Sea Weasel.*  Jody Ullmann has been working as an Environmental Educator for over 30 years, the last as the Pearl School Coordinator for LRNow (since 2013). She is energetic and unwavering, as she strives to give her audiences authentic real-world hands-on science experiences.   She was awarded Educator of the Year by the Virginia Council of Garden Clubs in 2018 and provides established and unique classroom programs that support the work of LRNow within Virginia Beach classrooms. Several of her programs have been recognized on a national and international level. While Jody Ullmann will provide instruction for this project, Helen Kuhns, Assistant Director and Karen Forget, Executive Director, will act as the Project Managers and ensure compliance to grant details. |
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| ***5. Project Start Date*** | 10/1/2021 | ***Project End Date*** | 9/30/2022 |

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| **6. Project Location: Important to submit as completely as possible, especially the Lat/Long coordinates. Only projects which take place within or primarily impact areas in APNEP’s management boundary will be considered for funding.**  |
| Project Location | See below for various locations |
| River Basin(s) | Pasquotank |
| Position coordinates of project location | Latitude – See details below Longitude – See details below  |

**Workshops will take place at:**

* Back Bay NWR 36.6880° N, 75.9218° W
* False Cape State Park 36.6299° N, 75.9001° W

**Trips will be:**

* in the North Landing River (Pungo Ferry Landing Park) 36.6165° N, 76.0471° W
* Albemarle Sounds and possibly Pamlico Sounds (depending on the weather and tides)

River Basins: Pasquotank

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| **7. List which CCMP Actions will be addressed and how the proposed activity will address them:** |
| Link to [**APNEP Comprehensive Conservation and Management Plan**](https://apnep.nc.gov/resources/publications-and-reports/ccmp) **(CCMP)** We will be addressing the following CCMP Actions with this project:**D1.1: Communicate the importance of stewardship and offer opportunities for volunteering to further APNEP’s mission.**The teachers that will be participating in this training program will be required to help us to write meaningful watershed educational experiences or MWEEs. These projects have four important parts:* Driving Question
* Collection of Data
* Service Project
* Reflection

These MWEEs offer students and community members, the opportunity to do a stewardship project that addresses a problem on the school grounds or nearby neighborhood. We currently have the award-winning *Growing Wetlands in the Classroom,* funded by the Dollar Tree. This program gives teachers training, equipment and materials to grow out wetland or upland plants in the school. The plants are then transplanted by the students on identified restoration areas or schoolyard gardens to help repair erosion, restore damaged habitats, increase pollinators, and help to keep our waters clean.**D2.1: Provide and Promote opportunities for outdoor experiences that connect individuals with the Albemarle-Pamlico ecosystem.**Virginia Beach is very Chesapeake Bay-centric and there are little to no resources currently written for teachers teaching in the VA Southern Watershed/Pasquotank River Basin schools. This program will give teachers first-hand knowledge of the watershed that they will convey to their students through activities, videos, field work, and direct instruction. Having their own first-hand immersive experience makes the lessons they develop and their teaching so much richer and more authentic. Kayaking, motor boating or sailing through the watershed will form a connection no typical workshop can.**D2.2: Provide environmental education training opportunities for educators in the region**As the teachers prepare for the either the sailing excursion or the 2-day adventure, they will be learning not only about the natural history of the area, but also the cultural history and economic drivers for the area. They will become familiar with and experience how people traveled the waters before roads and railroads were developed in this river basin. At the end of the project, the teachers will be developing lesson plans for their classrooms and their schools that will be available for other teachers to use. We will also be building reference materials and activities dealing with the Virginia side of the watershed that will be available to share with North Carolina teachers.The Resource Guide will span many disciplines and be basic information that might guide student projects, research opportunities and allow teachers in all grade levels a greater understanding of the watershed and the influences we have as the "upstream" people, as opposed with our "downstream" affects. This might be especially useful in Environmental Science classes, AP Environmental and AP Human Geography as they are project-based classes, as well as our new Environmental Studies Program.The Resource Guide will contain all of the following information about the Albemarle-Pamlico watershed:* Geology
* Geomorphology of the Barrier Islands
* Tides influences (Wind driven vs. lunar)
* Land use
* Special flora and fauna
* Industries/Economic Drivers (farming, fishing, seafood) and how it impacts the environment
* Literature tie ins, both nonfiction and fiction
* Water Chemistry
* Natural Resources
* Invasive Species
* Earth Systems and Soils
* Human Impacts/Issues facing the watershed such as sea level rise, salt water intrusion, overfishing
* Influential historical events and places
* Cultural history and influences

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| **8. Brief explanation of linkage to APNEP priority areas (1)water quality, (2)submerged aquatic vegetation, (3)coastal habitats, (4)increasing resiliency:** |
| This grant will also cover three of the four APNEP priority areas**1. Water Quality:** This program will include training for teachers not only in how to do water quality testing with their students, but also how to interpret the data and utilize it in the classroom. From the data that they collect, students will be empowered to propose and implement strategies that will lead to cleaner water.**2. Submerged aquatic vegetation:**One of the experts that the teachers will be hearing from is Sarah Sweeten from Virginia Tech who is conducting research on the restoration of subaquatic vegetation (SAV) in Back Bay. During the summer of 2019, LRNow staff worked with Sarah as she was perfecting a method of increasing the yield of SAV in Back Bay through innovative growing and planting techniques. We have discussed the possibility of training teachers and students to help in the growing of these plants and developing curricula that will incorporate this research project into their instruction. Getting teachers excited about this project could be one of the outcomes of this training experience. This is one example to the outcomes we expect from this immersive teacher training. We hope to have the opportunity to connect with North Carolina researchers as well, such as Sarah Maribello and Nathan Hall at UNC Institute of Marine Science.**3. Coastal habitats:**A deep understanding of the various coastal habitats will be a major focus for these teachers, especially the ones that do the 2-day workshop. That workshop will allow them to get up close and personal with dunes, marshes, SAV, and upland areas along Back Bay and the North Landing River. These teachers will be writing lessons dealing with the many coastal habitats and the biodiversity of this region. All the teachers who take part in these training programs will be invited to participate in the *Growing Wetlands in the Classroom* program during the 2021-2022 school year. Teachers and students will also continue the work we have already begun with the Back Bay National Wildlife Refuge to remove invasive sand sedge and replace it with native grasses.  |

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| ***9. List activities that will be used to monitor or indicate the success of the proposed activity/project by listing one or more output and/or outcome metrics that will be measured, documented, and reported after project completion, as well as the expected target for each metric. Please also include a short explanation for how each listed metric assists in measurement of a CCMP Action being implemented by the project. Please see the proposal guidelines RFP*** [***output/outcome example document***](https://apnep.nc.gov/documents/engagement-outputsoutcomes-guidance) ***for details.***  |
| **5-6 Day Sailing Group Metrics:**In order for the teachers to receive Personal Development Points and the stipend, they must attend all mandatory workshops, complete a notebook, attend two of the three writing sessions, develop at least one instructional unit for their students and participate in the writing of a resource guide. Below are the metrics for each of these areas:1. There will be a pre-workshop and the teachers will be given asynchronous lessons that need to be completed before they sail. It is vital that all the teachers learn about the ship and their roles as crew before they sail. The materials in the asynchronous lessons will give them background on the watershed and the places that they will be visiting. The pre-trip training will provide teachers with a firm background that they will build on as they see the habitats, meet the people and visit the sites along the way, all helping to accomplish the CCMP Action D2.1 & D2.2. The target is for all teachers to complete the required pre-trip training and for at least 2/3 to complete the asynchronous lessons.
2. As the teachers are participating in these trainings, they will be required to complete a notebook that includes notes from what they learned that day, reflections on their experiences, and ideas for activities they can incorporate into their instruction. These will be collected and used for the development of resources and lesson plans. The target is that all teachers will complete this notebook with at least 80% completeness. This will allow us to develop the educational materials that will be shared as part of D2.2
3. The target for the writing sessions is that each teacher will attend at least two of the three writing meetings. It is during these meetings that they will take the information that they learned on the trip and in the workshop and utilize it to develop an instructional lesson for their classroom that can also be shared with others. This will also be part of D2.2 CCMP
4. At the end of the project date, the target is to have completed a draft of the resource guide for the VA Southern Watersheds/Pasquotank River Basin. This guide will contain information on the history, cultural history, natural history, economic drivers, and literature resources that can be used by students, teachers and other stakeholders. This will tie directly in the CCMP goal of D1.1 and D2.1

**2-Day Workshop Metrics:**1. For the 2-day workshop group, the target is that five of the six will attend both days of the workshop and fully participate in all activities. As the teachers are participating in these trainings, they will be required to complete a notebook that includes notes from what they learned that day, reflections on their experiences, and ideas for activities they can incorporate into their instruction from what they learned that day. The notebooks will be collected and used for the development of resources and lessons. The target is that 100% of those that attended the workshop will complete this notebook with at least 80% completeness. This will allow us to develop the educational materials that will be shared as part of D2.2
2. The target for the curriculum writing sessions is that each teacher will attend at least two of the three curriculum writing sessions. It is during these sessions that they will take the information that they learned on the trip and utilize it to develop an instructional lesson for their classroom that can also be shared with other teachers. This will also be part of D2.2 CCMP
3. At the end of the project date, the target is to have completed a draft of the resource guide for the VA Southern Watersheds/Pasquotank River Basin. This guide will contain, among other things, information on the history, cultural history, natural history, economic drivers, and literature resources that can be used by students, teachers and other stakeholders. This will tie directly in the CCMP goal of D1.1 and D2.1
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| 10. Description of funds (Combined APNEP and leveraged funds. |
| Description of Service | APNEP Grant | Contract Applicant (Cash, In-Kind, Other)(e.g. In-kind - staff assistance 5hrs/wk\*$13/hr\*10wks=$650) | Other Contributions(Organization, Cash, In-Kind, Other)(e.g. NC DMF - In-kind – staff assistance 5hrs/wk\*$13/hr\*10wks=$650) | Total |
| Personnel/Salary | 6,250 | 5,000 |  | 11,250 |
| Fringe Benefits |  | 2,250 |  | 2,250 |
| Project Supplies: |  |  |  |  |
| * Printing of 15 notebooks
 | 60 | 1,500 |  | 1,560 |
| * Food for Workshops
 | 700 | 200 |  | 900 |
| Equipment: |  |  |  |  |
| * Go Pro Hero (for doing videos to share)
 | 400 |  |  | 400 |
| Transportation/Travel:  |  |  |  |  |
| * Mileage reimbursement for travel
 | 620 |  |  | 620 |
| * Distribution of Resource Guides and Curriculum Materials
 |  | 620 |  | 620 |
| Sub-contractor Expenses: |  |  |  |  |
| * Sail boat accommodations and trips for six adults with Weasel Creek Expeditions
 | 5,400 |  |  | 5,400 |
| * North Landing River Boat Tour with Moore To See Tours
 | 500 |  |  | 500 |
| * Kayak Tour in Back Bay
 |  |  | 450 (False Cape State Park) | 450 |
| * Tram Tour and Entrance Fees
 |  |  | 250 (Back Bay National Wildlife Refuge) | 250 |
| Description of Service | APNEP Grant | Contract Applicant (Cash, In-Kind, Other)(e.g. In-kind - staff assistance 5hrs/wk\*$13/hr\*10wks=$650) | Other Contributions(Organization, Cash, In-Kind, Other)(e.g. NC DMF - In-kind – staff assistance 5hrs/wk\*$13/hr\*10wks=$650) | Total |
| * Overnight Stay at False Cape Environment Education Center
 | 360 |  |  | 360 |
| * Video Editing Services
 | 500 |  |  | 500 |
| * Printing of the Resource Booklet and Curriculum Materials
 | 510 | 500 |  | 1,010 |
| Other Direct Costs: |  |  |  |  |
| * Food for workshop participants for four workshops
 | 700 | 200 |  | 900 |
| * Stipend for teachers ($300 per for 10 teachers)
 | 3,000 |  |  |  3,000 |
| Expert instructors for Teachers: |  |  |  |  |
| * SAV Project in Back Bay
 |  |  | 1,000 | 1,000 |
| * *Growing Wetlands in the Classroom* instruction and program materials
 |  | 12,000 |  | 12,000 |
| * Various Instructors on the North Carolina tour of the watershed
 |  |  | 2,000 | 2,000 |
| * Various Instructors on the Virginia tour of the watershed
 |  |  | 2,000 | 2,000 |
| Total Direct Cost | 19,000 |  |  |  |
| \*Indirect Cost (F&A) (not to exceed 10%)(e.g. 10% of the total direct costs $10,000 = $1,000) | 1,000 |  |  | 1,000 |
| Total Cost | 20,000 | 22,270 | 5,700 | 47,970 |

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| ***11. Describe leveraging of funds from project partners (Optional):*** |
| \*Check with Heather Jennings for more information at 919-707-8632Back Bay National Wildlife Refuge has offered to cover the entrance fee and the cost of the Tram Tour for the workshop participants.False Cape State Park has offered to provide the kayaks free of charge for the workshop at Back Bay National Wildlife Refuge.Expert instruction from various organizations in both Virginia Beach and North Carolina  |

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| 12. Project Partners (may add more if needed) |
| Agency Name | Department of Conservation and Recreation |
| Agency Address | False Cape State Park |
| Role/contribution to Project | Provide instruction and kayaks for the participants to explore Back Bay, access to the Wash Woods lodge and the park for a writing session |
| Contact Person | Cameron Swain | Phone No. | 757-406-0287 |
| E-mail address | Cameron.swain@dcr.va.gov |
| Agency Name | US Fish and Wildlife |
| Agency Address | Back Bay NWR |
| Role/contribution to Project | Provide instruction and space for the workshops, provide tools and instruction for dune restoration projects |
| Contact Person | Erica Ryder | Phone No. | 757-301-7329 |
| E-mail address | Erica\_ryder@fws.gov |
| Agency Name | Moore to See Photo Expeditions |
| Agency Address | 3088 Polk Drive, Virginia Beach, VA 23456 |
| Role/contribution to Project | Provide guided tour of the North Landing River for the teachers on his motorized boat |
| Contact Person | Erik Moore | Phone No. | 757-401-2583 |
| E-mail address | erikmoore@gmail.com |
| Agency Name | Weasel Creek Watershed Expeditions |
| Agency Address | 9500 30th Bay Street, Norfolk, VA 23518 |
| Role/contribution to Project | Provide and captain the 40+ ft sailboat to take the teachers down the waterway. Provide meals and housing for the entire trip, provide equipment and instruction for water quality testing, plankton sampling and aquatic animal ID  |
| Contact Person | Brandon McCrary | Phone No. | 540-660-1730 |
| E-mail address | easternwindsailing@gmail.com |

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| ***13. Project Milestone Schedule*** |

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| **Time Period / Date** | **Activities (List specific outputs or activities that will be achieved during each quarter.)** |
| First Quarter | Develop application for the two training options (sail or 2-day workshop), work with partners on laying out the schedule of both options, including the stops on the sail down the river, logistics for the trip and pre-workshop. |
| Second Quarter | Purchase materials, pre-trip workshop, designing and printing the notebooks for both groupsLogistics for both options |
| Third Quarter | Execute the sail (June timeframe) and the 2-day workshop (July), Teachers fill out and turn in notebooks. Curriculum writing session #1 |
| Fourth Quarter | Curriculum writing workshops #2 & #3 work in teams on various aspects of the resource materials, teachers work on one lesson plan to execute during the school year. Production of 3-4 short videos about the watershed (depending on the quality of the video shot) |

**Note: All projects must submit a detailed Final Project Report that is due by the end of the contract for APNEP review and approval. Supplemental information should include (when relevant) a file containing data collected during the project, GIS Data, brochures, outreach tools, photographs or videos taken during the project, and a summary of survey results.**

Attached are a draft itinerary of the 5-6 day trip and letters of support.