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| ***1. Project Title*** | Swim Guide |

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| ***2a. Primary Contact or Project Manager1*** | | | | | |
| Name | Clay Barber | | | | |
| Title | Projects Coordinator | | | | |
| Organization Name | Sound Rivers, Inc | | | | |
| Organization Tax ID Number | 58-1475258 | | | | |
| E-mail address | clay@soundrivers.org | | | | |
| Mailing Address | PO Box 1854 | | | | |
| City | Washington | State | NC | Zip | 27889 |
| Telephone | 252-946-7211 | Fax Number | | na | |

**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 | Heather Deck | | | | |
| Title | Executive Director | | | | |
| Organization Name | Sound Rivers, Inc | | | | |
| E-mail Address | [heather@soundrivers.org](mailto:heather@soundrivers.org) | | | | |
| Mailing Address | PO Box 1854 | | | | |
| City | Washington | State | NC | Zip | 27889 |
| Telephone | 252-946-7211 | Fax Number | | na | |
| Federal Tax ID Number | 58-1475258 | | | | |

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| 2c. Payment Address (where invoice payments will be mailed) | | | | | |
| Name | Grace Lekson | | | | |
| Title | Office Administrator | | | | |
| Organization Name | Sound Rivers, Inc | | | | |
| E-mail Address | [info@soundrivers.org](mailto:info@soundrivers.org) | | | | |
| Mailing Address | PO Box 1854 | | | | |
| City | Washington | State | NC | Zip | 27889 |
| Telephone | 252-946-7211 x 100 | Fax Number | | na | |

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| ***3. Project Description (provide a short summary of the project).*** |
| Sound Rivers (SRI) requests funds to conduct year-round Swim Guide sampling. Swim Guide is a volunteer science water quality monitoring program for E. coli bacteria. Our regional Swim Guide program is part of a larger global effort started by Ontario organization Swim Drink Fish that now includes 100 affiliates. Currently Swim Guide delivers free, up-to-date water quality information for over 8,000 beaches, lakes, rivers, and swimming holes. Swim Guide is currently active in Canada, the U.S., Mexico, the Bahamas, Costa Rica, Ireland, France, Denmark, New Zealand, Australia, and Kenya.  The program engages and educates the community, helps identify and eliminate bacteria pollution, and notifies the public of health concerns when using the rivers and streams to boat, fish, or swim. By organizing this community-oriented, volunteer-driven water monitoring program, SRI provides people the means to participate in stream monitoring, be active in restoration, and most importantly, learn about health concerns before they take a plunge into our beautiful Tar-Pamlico and Neuse Rivers.  North Carolina’s Department of Environmental Quality has a limited water quality testing program to monitor the safety of high traffic swimming areas and other recreational sites along the state’s rivers.  To supplement the existing program, SRI began Swim Guide in 2018 to fill the voids during the summer months. The program has expanded to 50 locations, all monitored by trained volunteers, and results indicate widespread bacterial contamination of our waterways. Additional monitoring is needed to help identify potential contamination sources and provide information to the public beyond just the summer months.  SRI staff, interns, and volunteers will sample 50 locations along both the Neuse and Tar-Pamlico Rivers and main tributaries monthly during peak recreation season from May to August, and bimonthly from September to April. The Swim Guide sites selected are not currently monitored by the NC Division of Marine Fisheries (NCDMF) Recreational Water Quality Program (RWQP). SRI will coordinate and train local volunteers who will collect water quality samples to test for levels of *E. coli* and *Enterococcus* using an IDEXX system; an EPA/FDA approved method.  Sample analysis will be conducted by SRI staff and interns.  E. coli levels will be compared to EPA’s recreational water quality standards.  Sampling procedures for bacteria will follow the RWQP procedures and reporting methods. The RWQP program and Quality Assurance (QA) officer will provide support for the program to ensure our QA protocols align with their FDA certification, including supplies of standards for quality control.  In addition to IDEXX sampling, SRI staff will utilize DNA source tracking via the Jonah Ventures company at locations that have a 20% or higher failure rate for water quality standards.  DNA source tracking will assist SRI in identifying the sources of bacterial contamination.  All of the water quality data will be made publicly available in two ways. One, SRI will provide real time updates on water quality conditions so that those recreating can make informed choices. And two, SRI, through summary reports and factsheets, will capture the state of the rivers and recommendations to improve water quality conditions to local and state decision makers within the APNEP region.  Real time water condition communications will be coordinated with RWQP staff.  SRI will upload the data through the Swim Guide international database and app, SRI website and through our text alert system that currently has 1,250 subscribers.  Additionally, SRI will work with local news outlets and through social media to notify the public of any potential health concerns based on the results.  Through educational presentations, lesson plan development and access to local, state, national and worldwide data, SRI will improve the public’s understanding of our local waterways and the connection to public health. Educational workshops and lesson plan development will be completed with our partners at the NC Museum of Natural Sciences in Greenville.  The program’s key outcomes include:   * State and regional policies are updated to improve sampling data collection and pollutant source identification. * Increased public awareness and engagement on safe swimming conditions and causes of pollution result in improved water quality conditions.   The funds requested will be used to purchase IDEXX and DNA sampling supplies and program management. |

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| ***4. Statement of qualifications (provide a brief explanation of your organization’s qualifications to complete the project)*** |
| SRI has 40 years of experience in public education about water quality and continues to support research efforts in the Tar-Pamlico and Neuse River watersheds.  SRI has successfully managed numerous volunteer programs, including volunteer science water quality testing projects.  SRI staff has extensive experience in community education and outreach, project management, water quality assessments, analysis, and restoration planning.  Staff is also trained and knowledgeable on Standard Operating Procedures (SOP) for water quality testing. We have three offices located in the Neuse and Tar-Pamlico watersheds, complete with IDEXX sealers, incubators that house 40 samples each, and monitoring supplies.  Heather Jacobs Deck is the Executive Director of Sound Rivers. She has a Masters of Environmental Management from Duke University. Ms. Deck has 18 years of grant administration experience and will be responsible for overall grant administration and coordination of activities.  Clay Barber, MS from East Carolina University, is the Environmental Projects Coordinator at SRI.  He is certified in Stormwater Inspection and Maintenance, experienced in project management, and currently oversees the Swim Guide program. Mr. Barber will be responsible for overall project management.  SRI Neuse and Pamlico-Tar Riverkeepers Katy Hunt and Jill Howell will provide support for the project. Katy Hunt graduated with a B.S. in Earth and Environmental Science from University of New Orleans and has extensive water quality sampling experience. Jill Howell received her Masters of Environmental Management from Yale University, and has extensive experience in community outreach, water sampling and project management.  SRI is in the process of hiring a volunteer / community engagement coordinator who will be responsible for program implementation. That person will be hired prior to the project start date. |
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| ***5. Project Start Date*** | January 1, 2022 | ***Project End Date*** | December 31, 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 | Monitoring locations throughout the watersheds. Current locations can be found at: https://soundrivers.org/swimguide/ |
| River Basin(s) | Neuse and Tar-Pamlico watersheds |
| Position coordinates of project location | Latitude   Tar-Pam – 35.443684 / Neuse – 35.022787                              Longitude   Tar-Pam -76.885815 / Neuse -76.950406  Specific Monitoring sites: https://soundrivers.org/swimguide/ |

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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**](about:blank) **(CCMP)**  **Action D1.1:** Communicate the importance of stewardship and offer opportunities for volunteerism to further APNEP’s mission.  Swim Guide provides direct volunteer opportunities in addition to fostering a better understanding of our natural environment, sources of pollution, impact of that pollution, and remedies to address ongoing problems to the wider public.  **Action D2.1:** Provide and promote opportunities for outdoor experiences that connect individuals with the Albemarle-Pamlico ecosystem.  Research shows that direct, hands-on involvement fosters a deeper sense of stewardship than would otherwise occur.  Swim Guide provides this opportunity to volunteer scientists of all ages through water quality monitoring. Since 2019 all Swim Guide materials, including our website, and weekly reports have been translated into Spanish.  **Action D2.2:**  Provide environmental education training opportunities for educators in the region. By teaching educators about the Albemarle-Pamlico region and its associated environmental issues and providing them with science-based resources, APNEP and its partners enrich the education of thousands of students annually.  In partnership with the NC Museum of Natural Sciences in Greenville, SRI will provide educator training opportunities on the Swim Guide program and the impact of bacteria pollution in our waterways, data results and access to Swim Guide data worldwide for educators to use in the classroom.  **Action D2.3:** Increase public understanding of the relationship between ecosystem health and human health advisories relating to water, fish, and game.  The main purpose of Swim Guide is to expand current DMF and municipal monitoring areas for bacteria and provide important information to the public regarding water quality.  SRI, with DMF’s guidance, has identified high use areas on the Tar-Pamlico and Neuse Rivers and main tributaries.  This program will continue to provide greater local water quality information than was available before Swim Guide began.  Swim Guide’s educational information includes public health risks of swimming in contaminated waters.  **Action D3.1:** Develop and implement a strategy to improve decision-makers’ understanding of the costs and benefits of environmental protection, restoration, planning, and monitoring.  SRI has created a fact sheet specifically designed for educating elected officials on the importance of funding for water quality monitoring and the economic impact of poor water quality.  In addition, SRI will extend invitations for elected officials to tour monitoring sites and interact with volunteer scientists and educators.  **Action E1.3:** Facilitate the expansion of volunteer monitoring into a core element of the integrated monitoring network.  SRI is using an existing Swim Guide model program implemented by other non-profits across the US. SRI is also following RWQP QA/QC protocols with support from DMF staff. SRI will continue to work with DMF, DWR, and APNEP staff to ensure that data are viewed as accurate and defensible. |

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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:** |
| Bacteria are everywhere in the environment, including in our rivers, lakes, and streams. Sources of human caused bacteria pollution include municipal wastewater treatment plants, sewage spills, industrial discharges, agricultural runoff, leaky sewer lines or septic systems, and stormwater runoff. Some bacteria can be harmful to human health. Recreating in water containing disease-causing bacteria, parasites, or viruses (collectively called pathogens) can affect human health. It is impractical to sample for every type of pathogen that may be present in a water body. Therefore, it is common to look instead for pathogen indicators, i.e., a substance that indicates the potential for human infectious disease. Fecal contamination in recreational waters is associated with an increased risk of gastrointestinal illness.  Protecting and restoring waters for recreational use is an important goal of the federal Clean Water Act. This program allows SRI to track water quality, identify areas of concern, and document likely pollution sources. This information is crucial to environmental managers and regulators. SRI works to aid the state and local governments within the Tar-Pamlico and Neuse watersheds to track down pollution sources and stop those sources from reaching our waterways, thereby improving water quality. |

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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 docSub-ument***](about:blank) ***for details.*** |
| ***Program Implementation***  The Swim Guide program follows standard operating procedures established by the RWQP. SRI staff, interns and all volunteers are trained on proper sampling and lab protocols to ensure the quality of the data collected.  DNA source tracking samples are collected and shipped to Jonah Ventures company for analysis.   * Output – Program volunteers and summer interns trained to follow SOP   + Products:     - Training manual; training presentation (in-person and virtual options)     - Quality Control/Assurance Plan   + Outcome Metrics     - Number of volunteers trained and number participating (Goal 60 Volunteers)     - Number of trainings (Goal 4 per year)     - Description of volunteers (age, gender, race, county of residence) (Goal to have volunteers that match racial diversity of the Tar-Pam and Neuse region)     - Number of college interns trained (Goal 3 per year)   Measures action D1.1, offering opportunities for volunteerism to further APNEP’s mission. It will also measure D2.1, providing hands-on involvement for volunteers to foster a deeper sense of stewardships – connecting volunteers with their Albemarle-Pamlico Ecosystem, and E1.3, by increasing volunteer monitoring.   * Output – Data compiled for 50 monitoring sites on the Tar-Pamlico and Neuse Rivers and main tributaries (i.e. Trent River)   + Products     - SRI staff trained on RWQP QA/QC protocols include use of standards for each sample run     - 2,600 water samples analyzed for E. coli bacteria using IDEXX system and results tabulated. Results include reporting on sites that fail EPA recreational E. coli  standard of 235 MPN (SRI Staff and Trained interns complete lab procedures)     - Swim Guide map with red, yellow, green indicators <https://soundrivers.org/swimguide/>     - Data uploaded bi-monthly (September-May) and weekly (June - August)  to SRI website, Swim Guide app and available for public use     - 40 DNA samples collected and analyzed to determine possible bacteria sources at 10 locations demonstrating the highest failure rate for water quality standards (Jonah Ventures- qPCR assay for six species - cattle, swine, poultry, dog, sheep, and human)     - Data uploaded annually to NCDEQ for use in planning and review purposes   + Outcome Metrics     - % of water samples collected at 50 sites (Goal 100%)     - Number of results meeting QA/QC protocols (Goal 95%)     - Number of DNA samples collected (Goal 40 per year)     - % of water samples failing water quality standards     - Number of requests for data by research partners and agencies (Goal 3)   Measure actions D 2.1, D2.3 and E1.3.   * Output   + Provide educational presentations to area educators and the general public in partnership with the NC Museum of Natural Sciences in Greenville     - Products       * 30 minute educational presentation on Swim Guide (virtual and in-person)       * Two educational PSAs regarding Swim Guide program, volunteer and educational opportunities distributed via SRI e-news (4,000 subscribers), and social media platforms (Facebook, Instagram and Twitter)  (10,000+ followers)       * Classroom lesson plan utilizing Swim Guide data and collection methods     - Outcome Metrics       * Number and location of teachers provided Swim Guide resources (Goal 20)       * Number of attendees at educational presentations (Goal 500 per year)       * Number of social media reach per YouTube PSA video  (Goal 15,000)   Measure actions D2.1, D2.2, D2.3  **Key Outcomes**   * Short-Term Outcome - State and regional policy changes to improve sampling data collection and source identification.   + Output     - NC EMC, via the triennial review in 2024, updates surface water quality standards to make E. coli the indicator pathogen for water quality standards in line with EPA recommendations (Waterkeepers Carolina, 2021. Is it Safe to Swim?)     - NCDEQ updates water quality standards for all classes of surface waters to the 235 MPN   + Products     - Fact Sheet and key policy recommendations targeting legislators and key state regulators (EMC, DEQ)     - Annual technical Swim Guide report   + Outcome Metrics     - Number of meetings with legislators and other decision makers (Goal 5 per year)     - Number of comment letters submitted to decision makers via SRI action alerts (Goal 100 comment letters)   Measures actions D3.1.   * Short-term Outcome – Increased public awareness and engagement on safe swimming conditions and causes of pollution.   + Output     - Provide regular communications targeting the general public and SRI members.   + Products     - Swim Guide Fact Sheet     - Weekly (June - August) results distributed by email, text alert system and social media and via a partnership with Public Radio East and other traditional media partners who will air SRI results every Friday. All results translated into Spanish.     - Press release on program launch and end of season program results.     - Press releases issued when sites fail bacteria standards at monitoring sites.     - Swim Guide annual report of findings   + Outcome Metrics     - Number of traditional media stories and interviews (Goal 10 per year)     - Number of text alert subscribers (Goal 1,500)     - Number of website interactions on the Swim Guide site (500 visits /week)     - Number of media stories in Spanish speaking publications (Goal 2 per year)   Long-term outcome: Water quality in the Neuse and Tar-Pamlico River basins has improved. |

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| 10. Description of funds (Combined APNEP and leveraged funds. | | | | |
| Description of Service | APNEP | 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  (SRI Volunteer coordinator - $18/hour, 25% FTE) (Match Interns, SRI Staff) | $6,700 | $4,500 (In-Kind) | $17,500 (Cash from Waterkeeper Alliance, Intern Programs, & Donors) | $28,700 |
| Fringe Benefits |  | $1,753 (Cash SRI Water Quality Fund) |  | $1,753 |
| Project Supplies  (IDEXX at $7/sample for 1600 samples; and 40 DNA samples at $125/sample) | $11,300 |  | $4,900 (Cash Waterkeeper Alliance, Donors) | $16,200 |
| Equipment |  |  | $500 (Cash- Donors) | $500 |
| Transportation/Travel  (Rate of $0.56/mile) | $2,000 |  | $5,500 (Cash WKA, Donors) | $7,500 |
| Sub-contract Services | 0 |  |  |  |
| Other Direct Costs  (Textedly alert system and printing costs) |  |  | $2,000 (Donors) | $2,000 |
| Total Direct Cost | $20,000 | $6,253 | $30,400 | $56,653 |
| \*Indirect Cost (F&A) (not to exceed 10%)  (e.g. 10% of the total direct costs $10,000 = $1,000) |  | $5,665 |  | $5,665 |
| Total Cost | $20,000 | $11,918 | $30,400 | $62,318 |

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| ***11. Describe leveraging of funds from project partners (Optional):*** |
| \*Check with Heather Jennings for more information at 919-707-8632  Secured matching annual funds include:   * Smith Family Foundation - $10,000 * Waterkeeper Alliance contract for sample supplies and staff time = $5000 * Z. Smith Reynolds Foundation NPIP – Intern - $2500 * UNC IE Molchanov Scholars, intern - $5,000 * SECU Intern Fellows Program at ECU - $5,000 * Private donors and Swim Guide sponsors $2,900   Sound Rivers also has a new Water Quality Fund established in memory of Gene Pate that provides additional resources.  The NC Museum of Natural Sciences in Greenville will provide in-kind support in use of their facilities and partnership for organizing educational workshops for teachers and the public.  NC Recreational Water Quality Program will provide SRI with IDEXX standards for quality control. |

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| 12. Project Partners (may add more if needed) | | | |
| Agency Name | NC DMF Recreational Water Quality Program | | |
| Agency Address | Morehead City, NC | | |
| Role/contribution to Project | Sampling procedures support; public communication support | | |
| Contact Person | Erin Bryan Mullish | Phone No. | 252-808-8153 |
| E-mail address | Erin.Bryan-Millush@ncdenr.gov | | |
| Agency Name | NC Museum of Natural Sciences in Greenville | | |
| Agency Address | 729 Dickinson Avenue, Greenville, NC 27834 | | |
| Role/contribution to Project | Education partners | | |
| Contact Person | Emily Jarvis, Director | Phone No. | 252-364-2862 |
| E-mail address | emily.jarvis@naturalsciences.org | | |

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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 | Water quality equipment and testing supplies ordered. Finalize volunteer recruitment (currently 40 existing volunteers) and training. Communications plan revised. QA/QC and SOP revised if needed. Summer Intern job description posted to area universities and colleges and hiring process completed (for summer weekly program). Program launch press release. Monitoring of 50 sites begins bimonthly with results communicated. |
| Second Quarter | Continue monitoring of 50 sites. Begin DNA analysis of high failure sites. Onboarding and training of summer interns, cross-training with DMF staff. Ongoing volunteer recruitment and training. Meet with area legislators. |
| Third Quarter | PSA educational videos and lesson plans completed. Educational Presentations. Conclude summer weekly monitoring program. |
| Fourth Quarter | Continued bi-monthly sampling, real-time communications, educational presentations, begin development of decision maker fact sheet and recommendations, annual report completed. |

**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.**

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| ***14. References and Literature Cited (if applicable)*** |
| NC Waterkeepers. 2021. [Is it Safe to Swim?](https://waterkeeperscarolina.org/s/Waterkeepers-Carolina-2020-Bacteria-Report-UPDATED-5-27.pdf)  [Jonah Ventures DNA Source Tracking Description](https://jonahventures.com/source-tracking/) |