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1. **Name of Project:** Classroom Aquarium Education Program (CAEP)
2. **Name of Organization:** Humboldt County Office of Education
3. **Contact Person/Information:** Dr. Beth Chaton, After School and Redwood EdVentures Program Coordinator, HCOE 901 Myrtle Avenue Eureka, CA 95501 707.445.7179
4. **Project Background Description and Location:** *"When salmon and trout go to school, students have a unique opportunity to witness their birth and care for them during their early life stages. In the process, your students will learn important concepts, while developing caring attitudes about the fish and their habitats."* (Higgins, D. "Salmon and Trout Go To School", January, 1996 & DFG, September, 2003)

"Fish in the Classroom" programs originated in Humboldt County in the early 1980's by a Eureka elementary school science teacher who observed the program in Washington and immediately understood the program's value to his students, local fisheries, habitats, and economies. This successful program enjoyed explosive growth during its early days and has steadily grown as part of the curriculum in classrooms across the country. Humboldt County's CAEP has grown, spawned by the energy, enthusiasm and support of community partners that include government agencies, private businesses, non-profit groups and foundations. The basic premise of this program is: students study aquatic habitats, ecosystems and salmonid lifecycles by operating a chilled aquarium in their classroom, receiving eyed-eggs from the CDFW hatchery to raise to the fry stage. The fish are then released into Mad River at a designated site within weeks of the hatching. A tour of the hatchery is encouraged as part of the CAEP to help students learn about and understand the role the Hatchery plays in conservation, preservation and recreation. This past year, HCOE's CAEP served 938 students from 39 classrooms at 27 schools in 19 Humboldt County School Districts and one private school. This is an increase of 6 classrooms in 4 more schools over the 2016/17 school year. 1170 Steelhead eggs were distributed, with an average survival rate of 68% resulting in 795 Steelhead fry released into the Mad River between May 1 to June 7, 2017 by the students from the thirty-three classes that had release field trips. Thirty of those classes received a tour of the Hatchery facility led by Hatchery staff. Teachers indicate that the value of this program is extremely important in teaching young people about the salmonid lifecycle, the importance of maintaining healthy ecosystems and very real consequences of negative human impacts and invasive species on our fisheries. Teachers continue to express high levels of (unsolicited) program satisfaction, especially with the increased science education provided by the CAEP staff. The teachers appreciate the opportunity to be part of this conservation program and the support HCOE offers for education, equipment and field trips. Parents share that their children come home talking about the CAEP, with the field trip activities a highlight of the school year as a result of the organized activities conducted.

Overall, our CAEP has grown tremendously as a result of the funding received to date from the HCF&GAC. This has made a big difference in the amount of support our qualified staff can provide to the teachers and students, as well as at the hatchery for the tours and release field trips. Our program coordinator has committed to staying with our CAEP and as a result, we are now able to grow our program even more in the coming year as community collaborations are being built. Plans to grow the program include: reaching out to more schools to increase the number of classrooms who participate through print materials developed and sent out via hard copy and digital media in September; providing more support for the classrooms by scheduling Aquaria Checks once systems are set up, either before or after eggs are delivered to make sure all systems are operating properly; providing more Hatchery tours to help meet the needs of the classrooms and Hatchery staff; and structuring the fish release field trips so that educational stations are set up to offer more activities for the students to learn through. Continued support means that even more students and their families learn about the importance of maintaining healthy waterways so that our fish populations can flourish.

5. Project and Work Procedure Description: According to the California Department of Fish and Wildlife, the overall mission of the CAEP is to:

"improve teacher and student understanding, appreciation, and stewardship of fishes, while creating an awareness of the needs of the aquatic environment through the use of classroom aquaria. This is accomplished by the California Department of Fish and Wildlife (CDFW) working with and supporting the efforts of locally based groups who provide the teacher training and support necessary to make this program a reality." (<http://www.dfg.ca.gov/caep/overview.html>, accessed May 5, 2014)

Each year the CAEP activities remain constant for the most part, with few changes.

CAEP will benefit Humboldt County fish and wildlife through the following activities:

- Secure and provide necessary training for CAEP staff in program planning and implementation.
- Support and schedule a system of training conducted by CDFW to provide teachers with adequate information, resources, and teacher certification to successfully hatch and raise fish to the fry stage in the classroom.
- Support and promote existing and new school community partners and/or classroom teachers to be involved in classroom aquarium projects with goals aligned with the requirements of CDFW.
- Work with partners to offer an expanded training and certification process for new/returning educators interested in participating in CAEP in order to increase knowledge about CDFW regulations guiding our program.
- Develop and implement water/egg delivery and fin-clipping schedules to participating classrooms.
- Provide needed technical and educational support to classrooms involved in CAEP, as requested by teachers.
- Promote public awareness of the importance of maintaining and protecting aquatic habitats through community events and social media.

- Link CAEP to the California State Parks Parks On Line Resource for Teachers and Students (PORTS) Program's Salmon Lifecycle Unit that targets about 5,000 students/year across the state.
- Link local CAEP across California, other states and/or Canada through live PORTS Videoconferencing to learn about fisheries and habitats outside of Humboldt County.
- Help students recognize the contributions of hatcheries and wild fish programs to the enhancement of fisheries through field trips to the Mad River Hatchery.
- Conduct educational activities at fish release site that support enhanced awareness and knowledge of salmonid lifecycle, habitat, ecosystems and the importance of disease and invasive species prevention.
- Further develop Social Media to promote Humboldt's CAEP, linking to other statewide CAEP efforts.

6. Project Objectives: The overall goal of the HCOE CAEP is best stated by CDFW's Chris Ramsey, the former CAEP coordinator for the California Department of Fish and Wildlife's nine-county North Coast Region that includes Del Norte to Modoc to Lassen and Mendocino with Humboldt County her home office base:

"This program is an opportunity to connect students with aquatic environments.....Hatching fish in the classroom and then releasing them gives the students a reason to care about their local streams and lakes. They want to protect their fish." Chris Ramsey, who still facilitates the training and authorizes the requests to participate for the Humboldt County CAEP, says "This is viewed as an educational program, not a restoration or stocking program. Success is measured by the learning experience of the students-not how many fish are put into the water." (Hatching Stewardship, as quoted to Ethan Rotman, Outdoor California, March-April 2008).

Overall Program Objectives include:

1. Through a classroom experience of hatching live fish, CAEP will introduce students to the value of aquatic environments, the balance that must be met to maintain, protect and enhance Humboldt County's fisheries and aquatic habitats and enable students to understand how their actions affect these valuable resources.
2. Implement and support the HCOE CAEP programs by supporting teacher partners and nurturing partnerships to best support the program, both educationally and fiscally.
3. Instill in students a sense of awareness and personal responsibility for aquatic organisms and all ecosystems.
4. Protect the state's genetic integrity of anadromous and resident fish populations in accordance with existing CDFW and NOAA Marine Fisheries regulations, with adjustments made to the type of eggs, location of release, and any other requirements stipulated by CDFW.

HCOE's CAEP not only provides students with the classroom experience of hatching fish eggs, but also provides integrated educational activities tied to Next Generation Science Standards, core academic subjects, and career explorations. Students learn about the scientific principles of conservation while learning about the lifecycle of salmonids. One of the essential elements in this program is how students' own personal actions can affect the delicate balance of these essential resources. Through the HCOE CAEP, students gain knowledge and greater awareness of what constitutes a healthy aquatic ecosystem and raise salmonids for release, which contributes to an increase in fish stock, while

encouraging conservation and preservation of fish and wildlife. Our CAEP staff support strict adherence to CDFW requirements with a strong collaborative working relationship with the Mad River Hatchery Director and other CDFW staff.

7. Work Schedule: CAEP will run between September and June. Participating teachers will be recruited in the fall, with new and returning teachers to participate in a CDFW required training in early November to certify teachers. After the confirmation of participating teachers who have a CDFW-approved "Form 772-Authorization to Transport and Rear Eggs and Fish for Classroom Aquarium Education Projects" in December, CAEP staff duties include picking up and delivering water from the Mad River Fish Hatchery to those classrooms who want hatchery water in late January, providing aquaria support to make sure systems are working properly, delivering eyed eggs to aquaria with starter food for emergent fry by early to mid February, marking of fry (fin-clipping) between April-May, and coordination of fish release and/or hatchery tour field trips between January-May (tours can happen any time). All water and egg delivery, rearing and release activities are in accordance with protocols stated in Form 772. Fish release field trips are held at the Mad River Fish Hatchery or appropriate downstream release site (i.e. Warren Creek Park, Essex Park) between mid-April and the first week of June. Teachers are asked to conduct a student assessment of their choice in order to capture student impact and learning after the fish releases. A digital post program survey is sent via email in June to teachers to assess program successes and any challenges encountered. Additional activities will include a live video conference between one or more local classrooms and school(s) in another area to occur between February and May (depending on the ability to schedule this by the California State Parks PORTS program and our local teachers); Redwood EdVentures participation in Humboldt Steelhead Days Family Fun Day in January, and participation in the CREEC Take A Child Outside Day/Teacher Resource Fair hosted by the Arcata Marsh in March.

8. Proposer's Qualifications: Since its inception, HCOE has coordinated the county-wide efforts of CAEP, is a leader in Environmental Education and received the DeWitt Partnership Award from California State Parks in September 2015 by supporting local PORTS programs. HCOE operates numerous educational services for schools, with a high level of program integrity. There have been no audit findings in annual, independent audits. Our CAEP staff work closely with CDFW and the Mad River Hatchery director to facilitate legal compliance with all aspects of the permit process.

9. Amount Requested: \$7,000. Please note that if this amount is not available, we could adjust our budget accordingly.

10. Other Funding Sources: A grant for \$5,000/year is being provided by NOAA Marine Fisheries for the next year. (2018-19). These funds cover a minimum amount of hours for CAEP staff and essential program elements. HCOE provides in kind support estimated to be about \$9,000 for the administration of the project.

11. Annual Project Budget: Budget for Period September 15, 2018 to June 15, 2019

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| a. | Salary/Wages | \$4285 |
| | <ul style="list-style-type: none"> Wages for contracted service agreement employee to coordinate all aspects of the CAEP (\$25/hour for up to 162 hours) | 4050 |
| | <ul style="list-style-type: none"> Personnel Benefits | 235 |
| b. | Materials/supplies | |
| | Educational materials and/or supplies for aquaria, teacher training | \$750 |
| c. | Operating Expenses | \$1440 |
| | <ul style="list-style-type: none"> Travel Expenses/Mileage/use of HCOE Fleet | 1250 |
| | <ul style="list-style-type: none"> Graphic design/printing | 190 |
| d. | Indirect Costs (7.5% of \$7000) | \$525 |
| e. | TOTAL | \$7000 |

12. Volunteer Participation: CAEP will work to partner with CCC Watershed Stewards Project (WSP) AmeriCorps who can volunteer at the fish releases facilitating games and activities to enhance/supplement learning about salmonid life cycle and habitat. WSP also teaches the "Wonders of Watersheds" (WOW) curriculum in Title 1 Eligible schools (low income) supporting the educational component of CAEP in some classrooms. Additional volunteers are recruited to support egg delivery and fin clipping schedules as needed and available. Members of HASA have offered volunteer support for the program by working with us in program development, funds, and classroom support. Some teachers have volunteer experts as guest speakers who conduct educational presentations or help with aquarium set up. Parent volunteers also attend the release field trips. Depending on the class size, there may be between 2-5 parents helping per field trip. With another grant from the HCF&GAC, we can continue to operate CAEP and support Humboldt County classrooms in the raising of Steelhead from eggs to fry. Over the past year we have increased the capacity for CAEP by increasing the support for aquaria setups, testing water and troubleshooting aquarium problems. Surveyed teachers indicated that 2017 was the best ever for organization, educational and equipment support, indicating that we are improving our service capability each year. We hope that funding from the HCF&GAC is again available so that we can continue to educate our youth and their families about the value of maintaining healthy watersheds and fish.