

**Professional Development for K-12 Educators to
Support Yukon River Salmon Stewardship in Rural Alaska**

**Project Final Report
Yukon River Panel & Pacific Salmon Commission
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Project Deliverables

The project met its objective of recruiting 19 rural Alaska K-12 teachers to participate in a professional development workshop to increase their knowledge and skills to develop salmon education programs for their students centered around a salmon incubation project. Thirteen of the nineteen were K-12 teachers in twelve communities in the Yukon Watershed which addressed a priority relevant to the Yukon River Panel. Unfortunately, one of the teachers from the Yukon Watershed had to cancel just before the workshop due to illness. Of the twelve Yukon Watershed teachers who did participate, two were invited as Master Teachers to mentor the other teachers, based on their experience rearing salmon in the classroom and developing academic extensions and connection to their communities through the salmon rearing project.

The workshop agenda (submitted as an attachment to the Interim Report) outlined the workshop content which closely matched the description provided in the project proposal. Pre- and post-workshop surveys documented that the teachers had acquired the proposed understandings and trainings in the following areas:

- An understanding of the set-up, operation and maintenance, permitting and reporting requirements associated with an in-classroom incubator system.
- In the creation of a classroom program that integrates watershed monitoring, salmon biology, traditional science, subsistence, management and allocation issues, ocean science, and climate change into the classroom curriculum throughout the school year.
- Training in providing their students with hands-on, placed-based, culturally appropriate experiences, resources and activities for use in their classrooms so students could acquire science literacy leading to long-term stewardship of Pacific salmon.
- Technical information and emerging research provided by research scientists, fisheries and natural resource biologists that reflected relevant, contemporary issues associated with Pacific salmon and their habitats for inclusion into their classroom curricula.

The 18 teachers will reach 656 students, exceeding the project objective of 500 students.

The project objective of at least one scientist-teacher partnership was met and exceeded. Two scientists formed partnerships with seven teachers for the 2012-2013 school year.

Project Schedule

The 2012 Salmon-in-the-Classroom Rural Teacher Workshop was held in fall, 2012, per the original schedule in the project proposal. at the Alpine Lodge in Fairbanks, Alaska, during the period October 3-6, 2012. The list of participants and the workshop agenda are appended.

QA/QC

The completion of the workshop was apparent. The increase in knowledge, skills, and awareness of salmon education resources was evaluated using a pre- and post-workshop survey (see description under Monitoring/Evaluation). The actual use of new knowledge, skills, and resources by the teachers in the classroom was determined by a review of written critiques of the workshop in the context of how they did apply what they learned in the classroom and their plan for salmon education activities throughout the school year. Teachers who applied for professional development credit through the University of Alaska Fairbanks were required to provide this information by December 31, 2012, in order to complete credit requirements.

Monitoring/Evaluation

A pre-workshop survey of the teachers was conducted online and a post-workshop survey was filled out onsite to evaluate gains in teaching skills, educational resources, and competency teaching place-based, culturally relevant materials to implement a salmon education program. Teachers self-reported in December to reflect on the workshop and to describe their use of the resources and training provided in the salmon education program they had begun to implement. The teachers also have permit requirements for reporting to the Alaska Department of Fish and Game at the end of the school year.

Benefits of the Project

Based on the results of the pre- and post-workshop surveys, the teachers gained valuable knowledge about science ecology and stewardship. In particular, they reported gains in knowledge about salmon issues in the Yukon River and Watershed. The workshop clearly benefitted the teachers who made comments like “This is far and away the finest teacher training program I have ever attended.” “My most critical implementation of the project was my own increase in awareness of the program and the critical need to understand why preservation of salmon in Alaska is vital to our way of life . . . these fish are one of the most important natural resources that we have within our means to protect.” “An inspiring highlight of the workshop was to see so many people from different scientific communities that came together to help teachers accomplish the tasks.” “The *Fishing for the Future* presentation was interesting and made me think about the future of salmon and its survival rate and what can be done to prevent the decline of salmon.”

Based on their reports, the teachers immediately applied what they learned in the classroom.. Teachers described the benefits to their students: “The end result is real, practical learning for the students.” “Having the training (in water quality monitoring and stream health assessment) and

then being able to students outside and duplicate some of the research makes learning real for my students.” “Understanding the food chain or web is one of the most important ideas for Alaska children to comprehend (based on practice version of the Alaska State Science Test). So teaching the life cycle of the more than 600 students involved in year-long salmon education during the 2012/2013 school year, more students will benefit in future years as a result of the training and equipment that the teachers received during this project.

The project also involved and benefitted additional teachers and students in the schools and community members. Teachers reported the interest of students at other grade levels, other teachers, parents, and community members in the salmon incubation project and associated teaching activities. “I teach a high school life science class. My plan is to have my students teach the K-4th grade students about the life cycle of salmon and an understanding about salmon needs and issues.” “To help understand how salmon are utilized, we have gathered data from local fish processing plants and also interviews with families in the area concerning subsistence catches.”

Another benefit of the project was the growth of the network of teachers who have received the training and who provide peer-to-peer support to other teachers. The annual teacher workshop is a critical element of the overall goal of sustained stewardship education about salmon in rural communities because it incorporates isolated rural teachers into a statewide support network of experienced teachers and assistance from organizations and agencies also focused on salmon management, restoration, and enhancement.