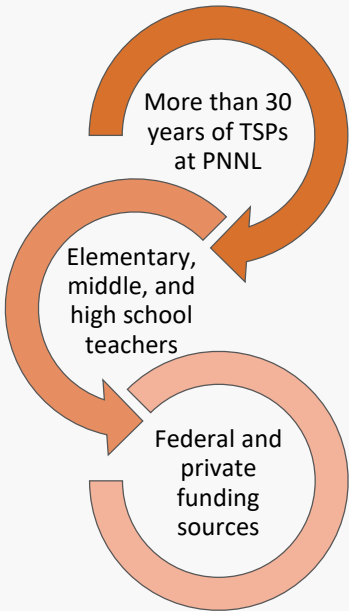
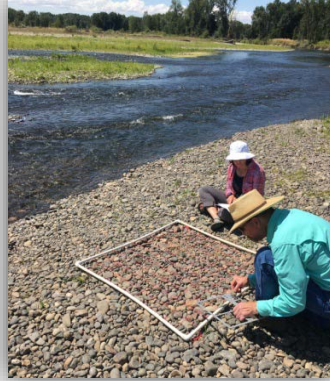


Invitations for teachers to design a solution to a proposed problem aligned with PNNL's mission

The Six Takeaways of TSPs...

- 1 TSPs are a powerful form of professional development for both teachers and scientists
- 2 Office of STEM Education forms a critical "bridge" linking teachers and scientists
- 3 Teachers benefit when setting aside their role as "educator" and embracing the role of "learner"
- 4 Learning should be interactive in nature, not just lecture-based
- 5 Teachers experience the nature of science as it is done at a national laboratory
- 6 Scientists link their work to what is being taught in schools

**Goal:** Accelerate sustainable STEM workforce improvement through the professional development of teachers in an adult oriented, real-life, problem-based immersion in partnership with PNNL scientists and engineers. The experience is designed to impact the teaching and curriculum delivered to students in the classrooms of those teachers.



- Program Structure**
  - Three part teams: PNNL researchers, OSE Science Education Specialist, and classroom teachers
  - One to two week summer program
- Scientist Professional Development**
  - Work with Science Education Specialist to develop scenario
  - Design constructive learning experiences
  - Review research on TSPs and lessons learned
- Scenario Development**
  - Scenario similar to the research done at PNNL
  - Solvable within a week
  - Aligned with Next Generation Science Standards (NGSS)
- Classroom Teachers**
  - Coming in teams of at least two per school
  - Teachers, as "learners", engage in problem-based learning
  - Continuous reflection on experience
- After Action Review**
  - All members of the team assess their experience
  - Teachers evaluate experience alignment with NGSS
  - Feedback is used to refine future TSPs

- Monday**
- Preparation for the week (Laboratory Record Books, Collaboration Norms, Learner hat)
  - Introduction to scenario

- Tuesday**
- Field site visits
  - Utilize hands-on scientific tools and techniques to collect data

- Wednesday**
- Additional data collection in field and classroom
  - Begin data analysis

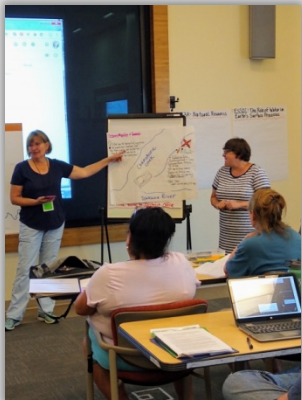
- Thursday**
- PNNL Lab visits
  - Data analysis and development of final presentation

- Friday**
- Final teacher presentations
  - Reflections on NGSS
  - Development of ideas for classroom impact

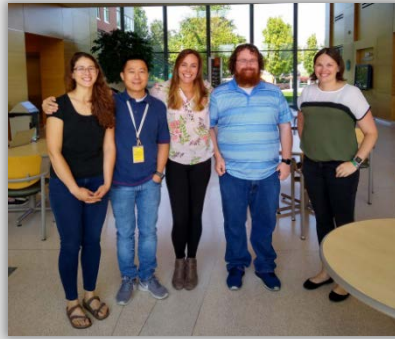
Evaluate options for reintroduction of salmon and steelhead above Chief Joseph and Grand Coulee dams: Examine different methods for tracking movements of fish; Incorporate elements from geology, chemistry, biology and engineering



*"This specific scenario is ideal for my classroom, but better. Walking through the process of project-based research as a student allows me the backbone of implementation."*



*"Greatest professional development I have attended in my 25 years. Relevant to where I am and my teaching of students."*



*"Giving back through STEM outreach has been a crucial component of my career. Participating in the AWB Teacher-Scientist Partnership helped improve my communication skills, and looking at our work from a teacher's perspective reminds me how cool the work we do really is! I especially enjoy working with teachers because the impact will be amplified 1000x as they carry this knowledge back to their classrooms."*

\*

\*Arrows indicate whether percentage is above or below state average

	Hockinson	Mount Vernon	Rainier	Sequim	Sunnyside	Walla Walla
(State Average: 47%)	↓	↑	↓	↓	↑	↓
(State Average: 46%)	↓	↑	↑	↑	↑	↑
(State Average: 47%)	↓	↓	↑	↑	↓	↑

Number of Students Impacted

3000+

Average % Minority

42.8

Average % Pass Rate for Science

44.2

Number of Teachers Impacted

12

Average % Low Income

54.2

+ Number of students impacted were estimated from 2019-2020 school year class sizes and does not include students impacted in future years