

Collaborations with present and future teachers in the Maine Physical Sciences Partnership

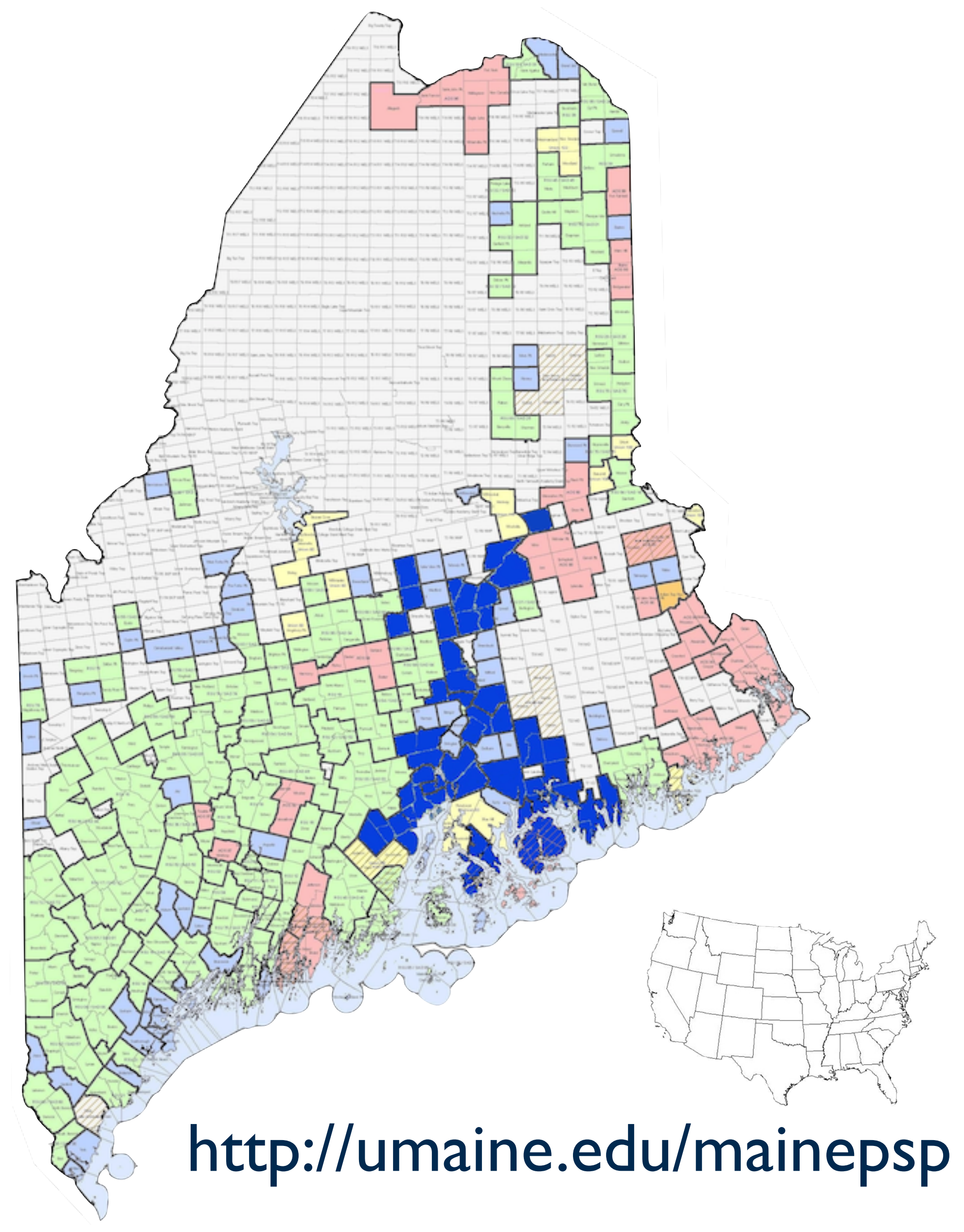
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A partnership of:
 36 middle schools
 12 high schools
 The University of Maine
 Schoodic Education & Research Center
 (SERC) Institute
 Institute for Broadening Participation
 Maine Mathematics and Science Alliance
 Maine State Department of Education

Partnership Vision
 A sustained and expanding partnership that supports:

- recruiting, preparing, and retaining science teachers
- improving the teaching and learning of the physical sciences in grades 6–9 and the university
- improved knowledge of science and science inquiry in the classroom

Partnership Goal
 A professional community to support learning science and aspirations for teaching and doing science



Regular Collaboratives - Meetings every 3 weeks between teachers, faculty, and education researchers

Goals
 Connecting teachers across disciplines and grades, schools and districts
 Exploring curricular resources
 Sharing insights on teaching and learning
 Knowing more about what happens in other grades and classes

A typical evening
 Dinner 5.30 – 8 pm
 Discussion of resources
 Discussion of pedagogy

Framework and implementation
 Three locations: Belfast, Ellsworth, Orono
 Anchored within existing school units or educational partnerships
 One organizer attends all collaboratives

Participation incentives
 Collaboration with colleagues
 Access to new materials and ideas
 Food and \$50 stipend

Who attends
 Physical, life, and earth science; elementary, middle, and high school teachers
 University faculty and post docs
 University Master of Science in Teaching students

Curriculum Evaluation Task Force - A common curriculum for middle school physical science instruction

Goals
 Students arrive in 9th grade with common background
 Core activities for collegial interaction among teachers
 Common tools for professional development
 Better preparation for future teachers at UMaine

A mix of activities
 7 Saturdays 8.30 – 3.30 (between Nov – Apr)
 Work alone at home or in pairs and groups

Review process
 AAAS Project 2061 review guidelines
 Key Ideas to describe middle school understanding of force and motion, energy, properties of matter, earth science
 Teacher-motivated arrival at mix & match solution

Participation incentives
 Ownership of evaluation process
 Collaboration across academic boundaries
 \$25/hour for evaluation work, including at home

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University Instructor Observations - Classroom observations of teaching and learning assistants

Goals
 Bring teachers into the university as colleagues
 Provide training in use of classroom observation protocols
 Establish a database documenting teaching practices at the university

Activities
 1 day of training
 2 days of classroom observations

Participation
 24 teachers, many otherwise not involved in the Maine PSP
 Observations of 40 classes in mathematics, chemistry, physics

Preliminary results
 New insights into own classroom
 Sense of shared observation – teachers looking into university

What comes next - Building a better partnership at all levels

Summer Academy
 Week-long intensive program for teachers, faculty, researchers
 Familiarity with materials
 Building a cohort of “pilot teachers” using new materials

Teachers-in-Residence
 Teacher on UMaine campus
 Interactions with MST students, faculty

Research
 Comparing content knowledge, pedagogical content knowledge, and classroom practices
 Studying communities of practice e.g. with social network analysis

Course reforms at UMaine
 Modifying existing courses for pre-service teacher
 Reforming physical science courses often taken by future teachers