

# Broadening Participation: Reaching and Supporting Vulnerable Coastal Communities through PK-12 Education

Maria Wallace, Millsaps College, [maria.wallace@millsaps.edu](mailto:maria.wallace@millsaps.edu)

Ted D. Serrant, Houston Independent School District,  
[tserrant@houstonisd.org](mailto:tserrant@houstonisd.org)

Susan Park, Coastal and Estuarine Research Federation, [spark@erf.org](mailto:spark@erf.org)

Baoling Wang, Louisiana State University, [bwang26@lsu.edu](mailto:bwang26@lsu.edu)

## Your idea in a nutshell

PK-12 education is a sustainable mechanism for outreach to and engagement with vulnerable coastal communities on issues of coastal science, community resilience, and risk reduction. Underserved and disadvantaged communities may be challenging to engage, but access can be achieved through the schools.

For the purposes of this white paper, vulnerable communities include underserved and disadvantaged people in coastal regions, and those at risk for coastal hazard impacts.

PK-12 works across the boundaries between the formal scientific community and the general public. Teachers and teacher educators are facilitators for the intergenerational co-construction of knowledge, science, and practices in coastal environments. Children's awareness of coastal environments leads to households and communities that are responsive to these risks, threats, and impact reduction. Children's awareness cultivates a generational adoption of the responsibilities for sustainable coastal living.

## What is your specific, differentiated recommendation?

- NSF should require that educators have an integral role in scoping and development of any CoPe project from the outset.
- Social, natural, and physical research scientists on CoPe projects should work directly with educators in the co-development of PK-12 classroom activities and projects based on research outcomes. These activities and projects should fit within existing state guidelines.
- CoPe Education Partners should receive adequate resources specific to the educational component of a CoPe project. For example, require that educators participating in CoPe project be adequately compensated for their time and contribution.

- NSF program evaluation should require an assessment of the educational outcomes.
  - What successful relationships and partnerships were achieved through the educational component of the project?

## What impact or value does it seek to deliver?

PK-12 education is a vehicle/hub for accessing resources, authentic relationships, and knowledge. The PK-12 system provides a mechanism for academic communities and vulnerable communities to interact, serving as boundary spanners. PK-12 systems are embedded in communities and provide broad reach and access to established relationships within vulnerable communities.

Vulnerable communities often suffer the worst consequences of coastal hazard events and must be engaged around discussions of coastal resilience and preparedness.

Successful CoPe projects will translate relevant information to coastal communities, and PK-12 education is a ubiquitous vehicle for this translation.

Involving schools and PK-12 students in CoPe projects provides a pathway to STEM careers for students in vulnerable communities--including underrepresented minorities--thus broadening participation in coastal science.

K-12 Schools in coastal communities often also have the greatest need for access to high-quality PUBLIC educational systems.

## What is the reasoning or supporting evidence behind it, if any?

An extensive number of successful projects, programs, and scholarly research exist. A few examples include:

- Example Student Projects: [Research informed & Negotiated Action projects on socioscientific issues” \(RiNA\)](#)
- Example program that links academic community with classroom: <http://www.gk12.org/>
- [Bencze, J. L. \(2017\). \*Science and Technology Education Promoting Wellbeing for Individuals, Societies, and Environments\*. Springer.](#)
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5804784/>
- <http://edepot.wur.nl/442317>