

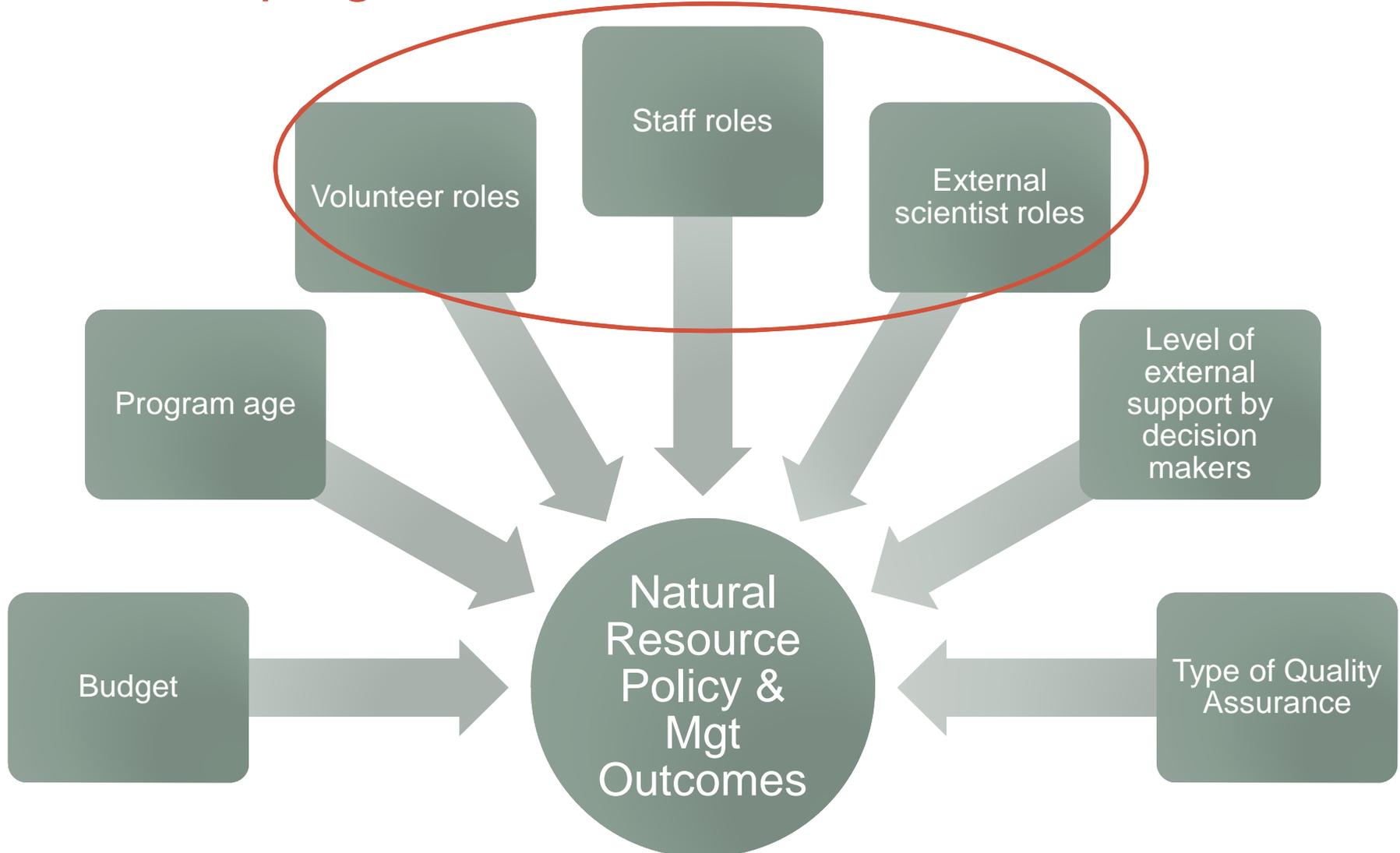
A LOOK AT THESE CITIZEN SCIENCE MODELS IN VOLUNTEER WATER MONITORING PROGRAMS ACROSS THE UNITED STATES

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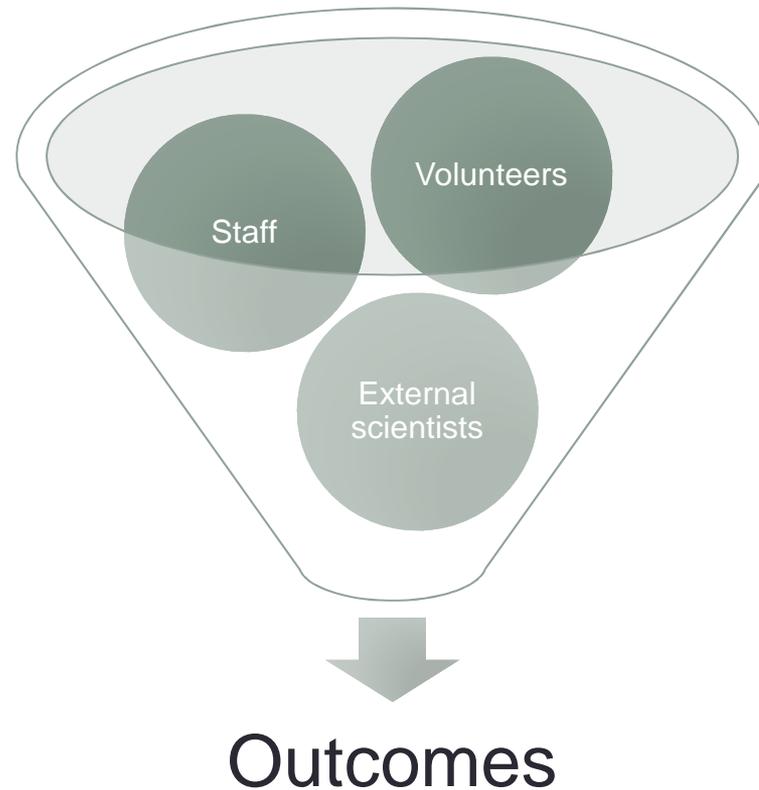
How are program characteristics related to outcomes?



Learn more: Session K7, 10:45 AM

Roles of volunteers, program staff, and external scientists

- Design protocols
- Select sites
- Collect data
- Analyze data
- Communicate results



n = 279

Communicate Results



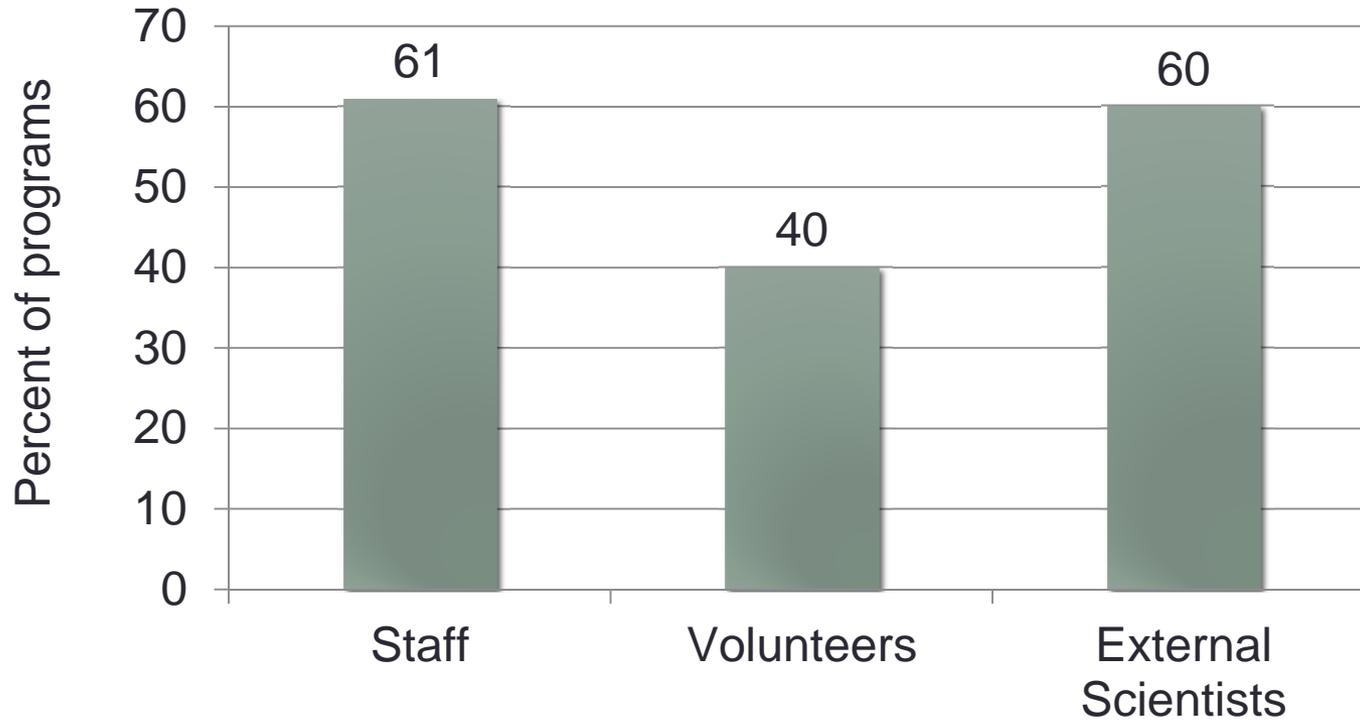
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Select Sites



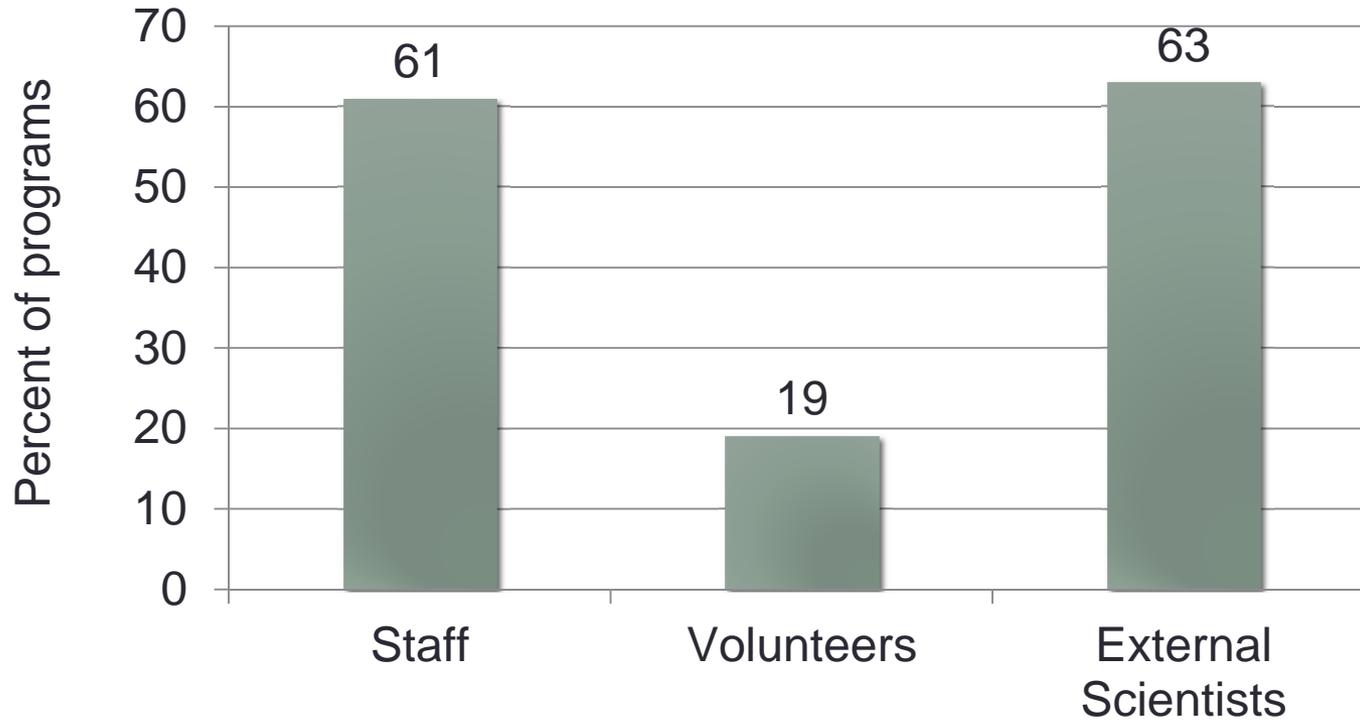
n = 279

Analyze Data



n = 279

Design Protocols



Types of outcomes

Direct on
Policy & Mgt
Decisions



Waterbody
restoration &
protection

Indirect on
Policy & Mgt
Decisions
(Civic
Engagement)



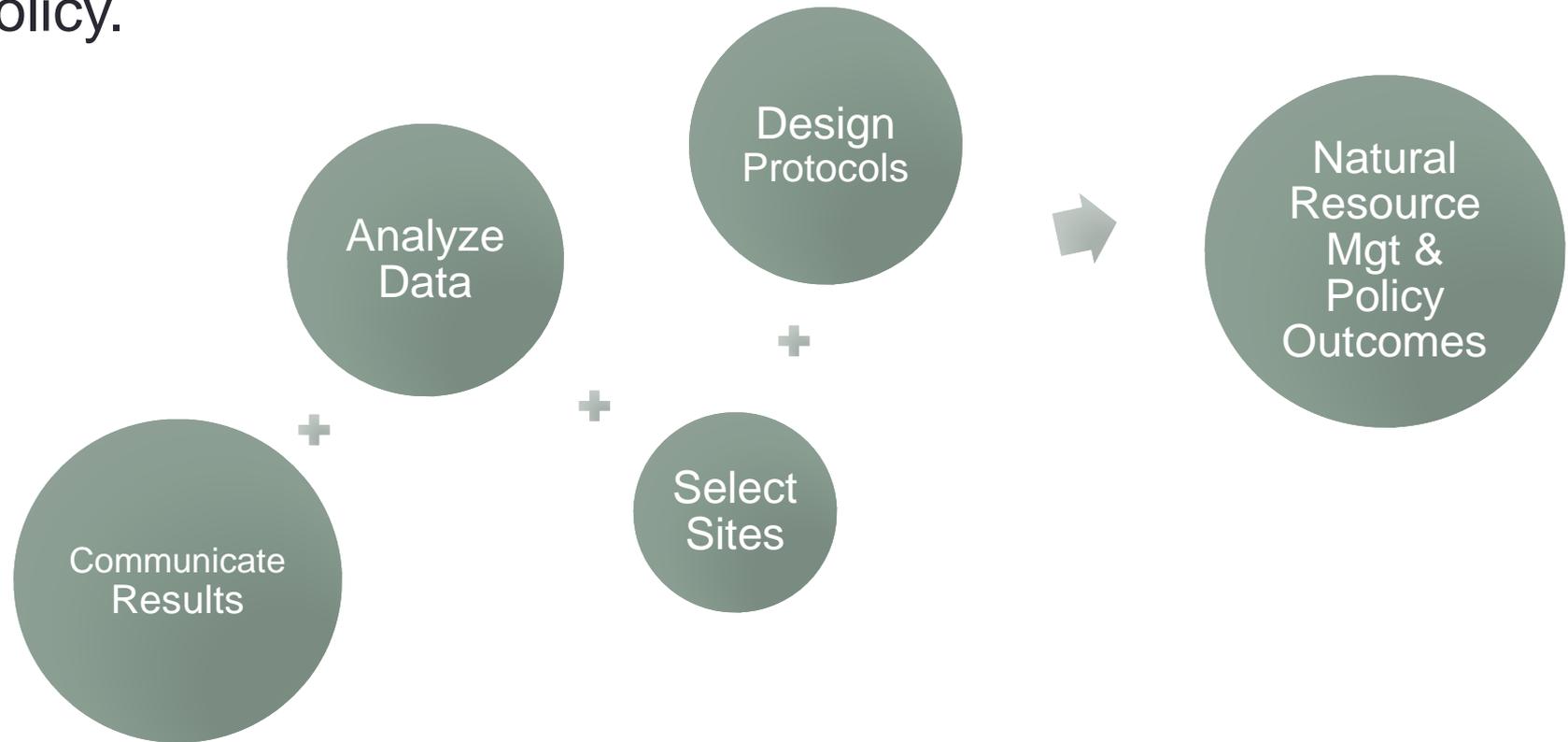
Organizational

Examples of reported outcomes

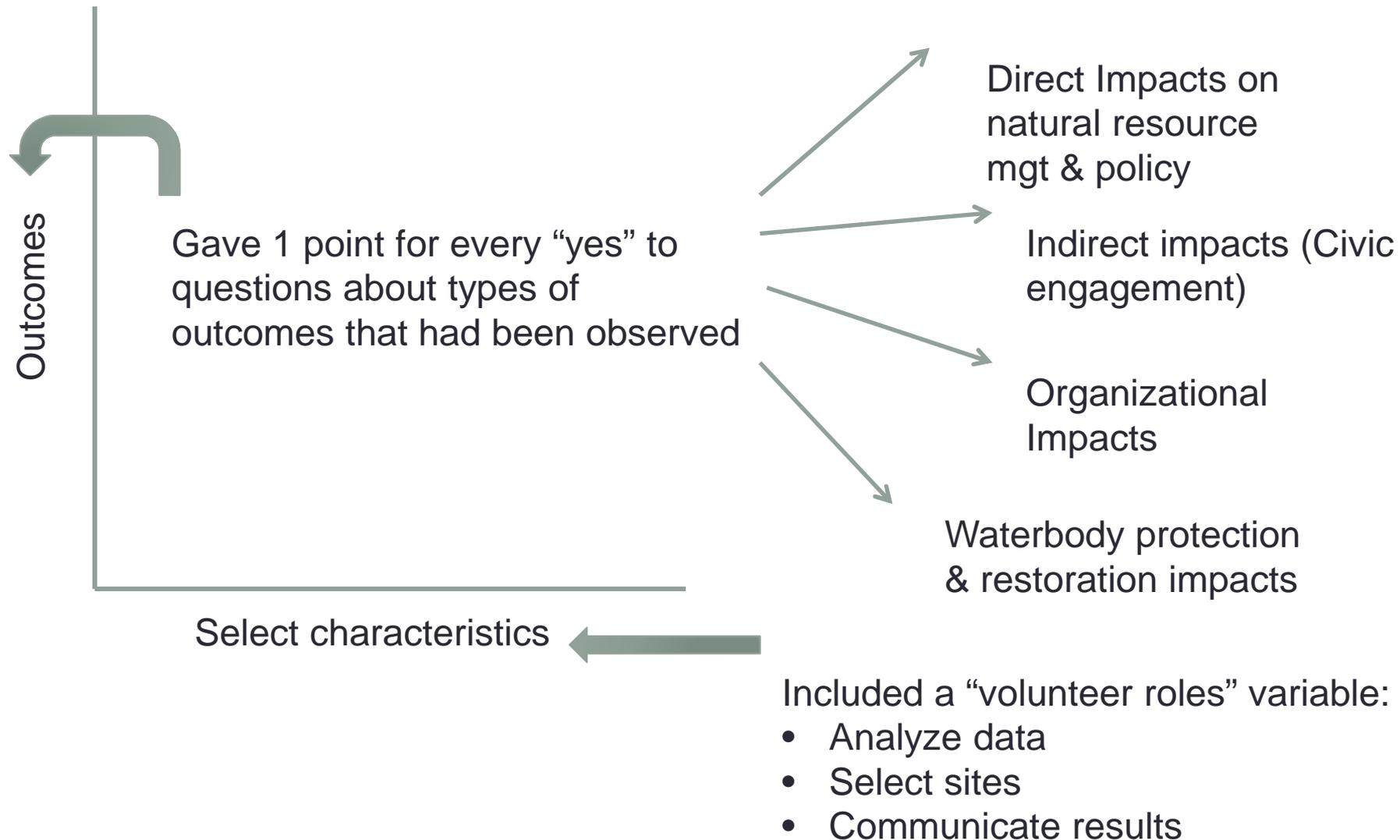
- More common:
 - Identified and controlled illicit bacterial discharges
 - Streams given upgraded protection status
 - Best Management Practices installed
- More unique:
 - National Wild and Scenic River status obtained
 - Data used to gain gear restrictions for creek fishing
 - Presentation to Congress to obtain Superfund site status

Hypothesis as Related to the 5 C's

- The more roles volunteers play in the research process, the more outcomes for natural resource management and policy.



The Regression



The Results

- When all assessed outcomes were weighted equally, and controlling for several other factors*, volunteer roles did significantly affect outcomes

*Budget, type of QA plan, if school-based program, level of support for program by external decision makers, objective to address an environmental crisis, and program size

The Results

- Volunteers roles was sometimes significant and sometimes not.

The Results

- Not significant when only considered natural resource management and policy outcomes
 - ID or define standards
 - Close/open a beach
 - Develop, change or enforce a regulation
- Why? Possibly because methods to contribute data for such purposes are prescribed.

The Results

- However, volunteer roles were significant when only considered waterbody restoration and protection
 - Obtain protected status for a waterbody
 - Justify altering land uses
 - Protect land from development
 - Obtain funding for restoration or protection
- Also significant for civic engagement (indirect impacts)
- Why? Having volunteers engaged in multiple aspects of research can help achieve such successes

Implications

- Programs with objectives to achieve waterbody restoration and protection, or to encourage civic engagement might consider involving volunteers in more than just data collection.