Citizen Science Panel - Citizen

Why – Community Benefit

By: Jim Somers

1) Volunteers become involved in citizen science for one of two general reasons or a combination thereof:
   A) The knowledge that they may benefit others in environmental, societal and community issues,
   B) To benefit themselves through intellectual stimulation, increasing their knowledge and stewardship, social interaction, and physical activity.
   C) A combination of A and B is the most likely motivation- community service and individual gratification
2) Volunteerism is driven by a desire to serve, and to make a difference in the community at large – the community may be defined as one's neighborhood up to and including the planet.
3) The development of partnerships with the scientific and academic communities enable citizens who have a desire to serve and a vested interest in the place they live to participate in the protection, preservation and improvement of the environment for future generations
4) The opportunities provided by citizen science encourage volunteers to become familiar with the scientific method and to learn to apply these skills. The collection of scientific data that otherwise would not be obtained enables more effective research and policy planning.
5) There is a recognized need for improved science education as a national priority. The engagement of citizens of all ages in partnership with the scientific and academic communities is an integral part of that process.

Individual Benefit

1) Participation in citizen science is rewarding to the volunteer in terms of intellectual stimulation and feeling useful. Many volunteers have spent their professional lives in scientific fields and are drawn to and challenged by these new opportunities while others from a variety of occupations desire new and different interests and projects. The discovery of new information and ideas promotes self motivation and continued participation.
2) These team partnership opportunities provide a network of volunteers and scientists with similar interests which is in itself a positive social reward. The process of team

learning and exploration can provide a sense of camaraderie, social opportunity, and fun.

3) The process of data collection in environmental studies can provide physical as well as mental activity, i.e. pulling a beach seine for salmon, walking a beach looking for seabirds, surveying for eel grass or beach critters. The adventure of outdoor activities enables the volunteer to discover new experiences and information about the place they live.
4) The volunteer may be aware that the type and amount of data collected is unlikely to occur without citizen participation due to staffing, financial, or time constraints on the part of the scientists. However, if the scientist is not assured of reliability the data will not be useful. This requires adequate training by the scientist of the volunteer corps and then a sense of trust in them that they will follow the design parameters.
5) Recognition of the contribution of the volunteers by the scientists provides a sense of gratification to the individual for the value of their work. This acceptance is in and of itself a reward to the citizen. Formal recognition of volunteer efforts, i.e. the NOAA Environmental Hero Award and intertidal data base) can give credibility to the organization in the pursuit of other projects and grant funding.

Levels of Participation

As already discussed there are several levels of participation in "citizen science". I will give specific examples of WSU Beach Watcher involvement at two different levels.

First, in 2004 several Beach Watcher volunteers began a team effort with NOAA Fisheries biologists researching juvenile salmon use of pocket estuaries and the adjacent nearshore of Island County. For the first three years we worked under the direct supervision of the NOAA biologists learning the data collection protocols and becoming proficient at beach seining, fish handling, species identification, water quality assessment and data recording. With progressively less direct supervision over the three years we were entrusted the fourth year to collect data for not only NOAA but also other salmon research agencies. The acceptance and publication of our data exemplifies the sense of trust placed in our volunteer corps by the scientists. This well trained group of volunteers need not compromise design standards and protocols in the pursuit of accurate and usable data. The volume of data clearly would not have been obtained by a small and underfinanced scientific team without our input. We as individuals have benefited by the recognition that our work has made a legitimate contribution to salmon habitat research. We did receive a 2008 NOAA E.H. award.

Another level of participation is the survey or "monitoring" project. Examples would be the Audubon Christmas Bird Count and more specifically the WSU Beach Watcher Intertidal Biosurvey. There is no well defined question or hypothesis in our study. The protocols,

although defined, probably do not meet with the standards of the scientific method. It is not a research project in and of itself. However, this does not necessarily negate its importance or usefulness. This survey can provide an inventory of species present at specific locations at specific times. This could be useful should a catastrophic event occur as an oil spill in Puget Sound, help to evaluate changes in the case of shoreline development, or 50 years from now indicate which critters were present before water temperatures changed. In addition, we have found several invasive species on our Island County beaches in the course of our intertidal surveys, for example purple varnish clams, Griffens isopod, colonial tunicates in addition to spartina.

There is another and equally or more important value in this type of survey. It is the advantage of having individuals learn about their local environment (marine biology) and to develop a personal sense of ownership and stewardship. After working an intertidal monitoring one never looks at a beach the same way again.

Although the survey may not begin with a hypothesis, the collection of baseline data adds a small bit of information that would not otherwise be obtained. This may in turn lead to serious inquiry by scientists and policy makers.

The establishment of rigid protocols for a highly defined citizen science should probably be discouraged. Recognize each level for the value it has and the contribution it can make. The elimination of less formal endeavors may well lead to reduced participation and loss of the sense of stewardship that can be provided.

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