

Kentucky Division of Water Agency Guidance for Use of Volunteer Monitoring Data and Reports

July 2004

Introduction

The Environmental and Public Protection Cabinet's (EPPC) Division of Water, (DOW) along with The U.S. Environmental Protection Agency's (EPA) Office of Water, encourages all citizens to learn about water resources. In this capacity, volunteer monitoring has been encouraged to build public awareness of pollution problems and help identify and resolve pollution issues. The Division of Water has supported volunteer monitoring in Kentucky since 1985 through the Water Watch program and since 1997 through the Watershed Watch program.

Current use of data

The data from these monitoring efforts have been used in a number of ways within the agency. Primarily, volunteer data have been used for delineating and characterizing watersheds, screening for water quality problems, and measuring baseline conditions and trends.

As the interest in monitoring streams grows, so too does the desire of groups to provide data that will be used in more meaningful ways: as assessment for waters that may otherwise be unassessed, and to generally increase the amount of water quality information available to decision makers at all levels of government. In response to this, the Division of Water has developed this guidance document to pilot an increased use of volunteer monitoring data.

Overview of uses for citizen monitoring data

Uses for citizen monitoring data, and the required level of data quality will vary depending on the internal use. Some of the uses of the data and the required levels of quality assurance are as follows.

One use is in reporting environmental incidents or complaint notification to the agency as in reporting a fish kill or a release. In these cases, only very basic information is necessary for the information to be useful to the agency to investigate and document.

Another use is educational, to raise community awareness: for example school-based water monitoring projects or adult, community-based water monitoring projects. These require consultation with agency staff to become familiar with the basic sampling equipment, procedures and quality checks.

To use data for watershed screening or to assist with local resource planning and management would require a written study plan that would be available for review. Examples of such use are supporting documentation for wastewater facility planning, or as a part of storm water (MS4) permit monitoring, source water protection planning or wellhead protection planning. In addition, compliance with 40 CFR Part 136 for sampling and analysis methods might also be required under certain circumstances.

To use data for projects using 319(h) or other funds from US EPA, 40 CFR Part 136 compliance would also be required, as well as a pre-approved Quality Assurance Project Plan that follows the instructions outlined in *Requirements for Quality Assurance Project Plans* (USEPA 2001).

Data utilized for use determinations and other decisions that drive agency resources and impact the regulated community must be scientifically and legally defensible. The agency will require the most strict data standards for these uses. These data must meet standards consistent with those required for any other third party data, such as compliance data submitted by permittees. This would include 40 CFR Part 136 compliance for sampling and analysis methods, a pre-approved Quality Assurance Project Plan (QAPP) as outlined in *Requirements for Quality*

Assurance Project Plans (USEPA 2001) and consistent with KY DOW standard operating procedures and methods, and certification requirements (to be developed). Data used for determining the effectiveness of TMDL and BMP implementation may require this level of quality assurance.

Historically, DOW used volunteer data as supplemental or supporting data for use determinations, but did not make a use determination based *solely* on volunteer data. At this time the agency will no longer preclude volunteer monitoring data as a sole source for use determinations, however, this change will require a greater emphasis on training, development of quality assurance project plans, certification of sampler participation in training, and quality assurance review of sampling events.

Agency practices related to use of citizen monitoring data

There are three functions related to supporting quality-assured citizen monitoring data: (1) verification of participation in appropriate training, (2) citizen commitment and accountability to performance standards, and (3) quality assurance on data sets.

The following sections of this document describe current DOW agency practices with respect to these functions, and clarify changes necessary for data to be used in agency assessments and decision-making.

Agency practice 1: Verification of participation in appropriate training

Current practices

Watershed Watch training curriculum has in large part been created by DOW's Water Watch program. Modules currently being used include *Watersheds and our connection to them*, *Project organization and process*, *Basin water chemistry and grab sample collection*, *Habitat assessments*, and *Basic biological collections and assessments*. These are posted on a web site so that trainers can download them. Most trainers use the materials as they are; some adjust them according to their expertise and the project. There are no assurances that any one training module is included or completed at a particular training event.

DOW's Water Watch program assisted Watershed Watch in developing standards for qualifying instructors for each curriculum component. Watershed Watch Steering Committees approve instructors for their respective basins.

Changes

Training modules would be updated to clarify quality assurance requirements for various levels of data use, including certification(s) necessary. Trainers would be required to provide and verify documentation of citizen participation in specific training modules. If competency tests were developed, trainers would be asked to administer, verify, and approve them.

Implementation

Update Training Modules to clarify quality assurance requirements for various data uses.

Responsible Party: Water Watch with review from appropriate agency staff.

Agency practice 2: Citizen commitment and accountability to performance standards.

Current practices

Water Watch and Watershed Watch ask each new volunteer to sign a participation form at the end of training events. The form provides contact information, site assignment, liability disclaimer, and represents a commitment to monitor (thereby warranting loan of the basic testing kit). Once registered through signing this form, the volunteer remains active if he or she participates in sampling events. There are no requirements for retraining or competency tests. Participant water samples also require chain of custody forms. The Water Watch program maintains a registry of trained volunteers, showing date of graduation from basic training, participation in other Watershed Watch events, and whether the person is an active sampler or not. (An active sampler generally means he or she sampled in the most recent sampling event, or has a history of consistent participation.)

Changes

Trainers would verify participant completion of specific training modules. A copy of this training verification would be sent to DOW, where it would be tracked in the volunteer registry.

Volunteers who did not sample for one year would require recertification before further

participation.

Implementation:

- Develop guidance for trainers on skill verification for certification of successful completion of training;
- Develop new participant agreement form that contains participation options for the volunteer and verification statements for the trainer. Responsible Party: Water Watch with review from appropriate agency staff
- Work with Watershed Watch Basin Steering Committees on incorporation of EPPC participant agreement and verification in the Volunteer Registration forms used for Spring Training. Responsible Party: Water Watch, Basin Steering Committees
- Modify existing Water Watch volunteer registry to include system for tracking training verification. Responsible Party: OIS in consultation with Water Watch Staff

Implementation Schedule:

- Projected time schedule for all Water Watch with agency oversight of training modules and tracking will be testing in the Fall training sessions of 2004 with statewide implementation in Spring of 2005.

Agency practice 3: Receipt and qualification of data reports.

Current Practices:

The Division receives data reports from several types of volunteer monitoring groups. To date, these have all been received within the Water Watch program. Volunteers in the Strodes Creek watershed have committed to providing a project Quality Assurance Project Plan for delivering pre-and post-monitoring for a 319(h) project, but that project remains in the conceptual stages. Thus, agency practice to date includes only Water Watch experiences.

Water Watch and Watershed Watch reports are submitted in both hard copy and electronic form. They include:

1. Field chemistry reports on standardized forms developed by the Division of Water, including field chemistry, macroinvertebrate surveys, and habitat assessments.

2. Laboratory analysis reports, both electronic and hard copy. Sometimes these are in formats developed by DOW Water Watch.
3. Chain of Custody Records, adapted from Water Watch forms, and other documentation associated with sampling done for laboratory analysis.

Hard copy reports are reviewed and archived by Water Watch staff. Staff contacts volunteers if a report is incomplete or unclear. Selected data may be entered electronically into a database corresponding to the program under which the data was collected (i.e. Water Watch vs. Watershed Watch vs. PRIDE Clean Streams). These are managed by the Water Watch program and are accessible via the web. Hard copy reports are considered public record and available for public inspection, either in the office or by request.

A second, usually duplicative set of data is submitted electronically, from laboratories working with volunteer groups or from volunteer "data managers" appointed by monitoring organizations to collect, compile, review and transmit data collected by their volunteers. These reports are stored in a data file archive and made available on the Internet as-is, without Quality Assurance review.

Changes:

Groups collecting data under a pre-approved Quality Assurance Project Plan (QAPP) would submit data in a format spelled out in that plan, and with approval of a pre-specified Quality Assurance representative of that group. DOW staff would conduct an initial review to determine if the submitted report has all the documentation required in the QAPP. Required documentation would include:

1. Proper registration of the Supervising Sampler in Volunteer Database maintained by the Water Watch Program.
2. Proper registration of the sampling site(s) in the Water Watch Sampling Site Registry.
3. Chain of Custody Record for the sample (as specified in the applicable SOP).
4. Lab analysis report as filed by the contracted laboratory manager or project data manager.
5. Data Quality Assurance review as submitted by the project QA representative.

If the report has deficiencies, DOW program staff would return a copy of the report to the submitting entity with the deficiencies noted.

Reports received deemed complete, or returned with deficiencies corrected would then be keyed into the current working agency data archive (COMPAS). The original reports would be stored along with other volunteer monitoring reports as done in the past.

When an agency program is in need of data for regulatory or programmatic decision-making, the volunteer-contributed data would be available to them through this form. There would be sufficient metadata available for the particular program manager to make his or her own decision on the suitability of that data for that particular use.

Implementation:

- Set up hard copy record keeping system for storing participant agreement forms and trainer verification records. Responsible Party: Water Watch Staff
- Identify internal procedures for receiving and approving quality assurance plans from volunteer groups. Responsible Party: Director's office
- Finalize QAPP for Fecal Coliform sampling already reviewed by the agency. Responsible Party: Watershed Watch Steering Committees with assistance of Water Watch.
- Develop archiving standards for storage of reports received by volunteer groups, including lab reports, data reports and data quality assurance reviews. Responsible Party: Water Watch Staff and appropriate agency staff.
- Train staff in use of COMPASS for appropriate volunteer monitoring data submissions. Responsible Party: Compass Administrators.

Implementation schedule:

Internal procedures for tracking and approving QAPPS and accepting and archiving data will be in place by the 2005 sampling season.