Colorado Water Education Task Force

Water Education Survey & Focus Group Report
2008 Results

June 30, 2008

A cooperative project of the Water Education Task Force
in collaboration with the Colorado Water Conservation Board (CWCB), Colorado Watershed Network (CWN), and Colorado Alliance for Environmental Education (CAEE)

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Introduction

The Colorado Water Education Task Force (WETF) is an initiative to better understand the current status of water education in Colorado. The primary purpose of WETF is to provide guidance on cost-effective ways to improve the understanding and stewardship of Colorado's water resources through education. This initiative is funded by the Colorado Water Conservation Board in partnership with the Colorado Alliance for Environmental Education and the Colorado Watershed Network. This report summarizes a comprehensive water education survey and focus group effort to describe key aspects of current water education efforts and to evaluate gaps, barriers and opportunities for improvement.

Purpose of the Survey

A core component of this initiative was the online survey of water education providers, which was designed to establish an inventory of current water education efforts in Colorado. In its final form, the focus of the survey was to gain a broad understanding of the water education programs and efforts currently being implemented throughout the state.

The online survey included key questions which focused on the status of water-related education programs. While there was high interest in assessing the current state of water-related knowledge and how well Colorado citizens are prepared for future water management decisions, the decision was made early in the process that an assessment of that depth was beyond the scope of this initial survey.

Acknowledgements

This dedicated group of individuals provided time and energy to ensure this report is reflective of their experience working in water education in Colorado.

Task Force

In November 2007, the planning committee met to discuss the roles and responsibilities of task force members and to compile a list of candidates. Through discussion and comparison of nomination lists, the planning committee compiled an initial list of 36 candidates who were invited to participate on the task force. The final task force roster includes 27 active participants, comprising water education providers and agency representatives from diverse geographic and academic backgrounds.

Name	Title, Organization
Bette Blinde	Executive Director, Colorado Foundation for Agriculture
Jacob Bornstein*	Executive Director, Colorado Watershed Network
Rob Buirgy*	Task Force Coordinator, Colorado Watershed Network
Jeff Crane	Executive Director, Colorado Watershed Assembly
Rita Crumpton	Public Education, Participation and Outreach Workgroup Chair, Colorado Interbasin Compact Committee (IBCC)
Veva Deheza*	Section Chief, Office of Water Conservation and Drought Planning, Colorado Water Conservation Board (CWCB)
Nolan Doesken	Colorado State Climatologist, Colorado Climate Center, Colorado State University
Liz Gardener	Suburban Conservation Coordinator, Denver Water

Name	Title, Organization
Ali Goulstone Sweeney*	Executive Director, Colorado Alliance for Environmental Education (CAEE)
Wendy Hanophy*	Formal Wildlife Education Coordinator, Colorado Division of Wildlife
Greg Hertzke	External Affairs Manager, Central Colorado Water Conservancy District
Diane Hoppe	Water Resources Consultant, Colorado Foundation for Water Education
Ted James	Middle School Science/Civics Teacher, Eagle Valley Middle School
Nancy Kellogg	Science Education Consultant, Self Employed
Doug Kemper	Executive Director, Colorado Water Congress
Patty Kincaid	Secondary Science Coordinator, Denver Public Schools
Tim O'Keefe	Education Director, Roaring Fork Conservancy
Tammie Petrone	Grants Coordinator, CWCB
Jim Pokrandt*	Communications and Education, Colorado River Water Conservation District
Kevin Reidy	Water Conservation Supervisor, City of Aurora (Colorado WaterWise Council)
Curry Rosato	Watershed Outreach Coordinator, City of Boulder/Keep it Clean Partnership
Jo Scarbeary*	Project WET Coordinator, Colorado Watershed Network
Nicole Seltzer*	Executive Director, Colorado Foundation for Water Education
Ray Tschillard	Director, Poudre Learning Center
Ben Wade*	Water Conservation Coordinator, CWCB
Reagan Waskom*	Executive Director, Colorado Water Resources Research Institute
Mike Wilde	Educator, Roaring Fork School District

*Planning Committee Member

Focus Groups

During initial meetings, the task force discussed the focus group concept, including meeting formats, ways to solicit feedback, and the critical pieces of information needed from the groups. Diverse representation was a key aspect for the focus groups members including geographic representation (all corners of the state), population density distribution (urban, rural, suburban), topic areas (conservation, water quality, etc.) and audience age range (elementary through adult). It was generally agreed that focus group participation would be limited to water education providers, and not to include representatives of the intended audience/recipients.

The final rosters of active participants included 11 Agency representatives, 13 Adult- and 21 Youth-focused water education providers. Appendix A includes a roster of active Focus Group participants and their respective organizations.

Methodology

Survey of Water Education Providers

Preparation and Design

Based on the purpose of the project, survey questions were developed by the Water Education Task Force planning committee. Surveys from other states and projects were used as models, and several members of the Task Force planning committee tested the questions before launch to further refine the questions and design.

The methodology used for this survey was a quantitative online survey using Zoomerang.com software. This allows for open-ended, single selection, and multiple selection answers.

Solicitation and Distribution

Sampling Strategy

An extensive, non-probability sampling frame was used, which included email lists from:

- CAEE
- River Watch (CWN)
- Colorado Watershed Assembly
- Colorado Foundation for Water Education
- Project WET (CWN)
- Keep It Clean Partnership
- Colorado Water Resources Research Institute
- Office of Drought and Conservation Planning (CWCB)
- Several other organizations throughout Colorado

In addition, a snowball sampling strategy was used to maximize the sample. Members of the task force were asked to route survey instructions to others in their professional network. The task force members represent a diverse group of stakeholders across the water education field, including: natural resource educators, water providers, higher education institutions, and other local, state, and federal government entities. Intense follow-up email reminders were sent for approximately 5 weeks following the initial invitation.

Assumptions and Limitations

One limitation of the non-probability sampling strategy is that it introduces a certain level of selection bias, that is, the initial sample contains individuals who are already connected to the water community and invitations from these people assumes awareness of water education to some degree. Discussion of survey results should take this into account.

It was not the goal of the survey to reach classroom teachers across the state. Some teachers did answer the survey, but the primary focus of the survey was to assess the amount of education efforts outside of district based curriculum.

Data Analysis

Four levels of survey analysis were performed: 1) Descriptive analysis, 2) Content analysis, 3) Geographical analysis, 4) Cross-comparison analysis.

1. Descriptive Analysis: Descriptive statistics were completed using the analysis and query capabilities of Zoomerang software and/or Excel spreadsheet database function. Basic results included calculating mean, percentages, total respondents, and other basic statistics. These data included all 292 respondents.

2. Content Analysis: Content analysis was completed using comment sorting by theme and constant comment comparisons. Some of these methods are described in more detail in the results section.

The budget questions (Question 17: Estimate your organization's annual water education budget. Greater than $100,000 (please specify) and Question 18: For the water education programs at your organization, what is the annual income from each of the following sources? (Federal Government, State Government, Local Government, School District, Higher Education, Nonprofit grants, Business donations, Private donations, Fees/Retail Sales, TOTAL) were used for several different variations of analysis. For these questions, the maximum budget value was calculated; using question 18 to verify responses to the categories listed in Question 17. Formulas were generated to identify maximum values according to four potential indicators: 1) "General category" maximum in question 17 (i.e. less than $5,000=$4,999; $5,000-$25,000=$25,000; $25,000-$50,000=$50,000; $50,000-$100,000=$100,000; Greater than $100,000=$100,001), 2) If greater than $100K category, the specific value if provided, 3) The sum of all of the sources of funds indicated in question 18, and 4) the specified total in question 18. For each case, the largest sum was chosen to indicate the "maximum budget value" for comparison. Secondarily, a formula was created to indicate whether there was agreement between the maximum budget value and the general category (Q17). For those instances where both general and specific values were provided, we considered that value "verified." Where there was only one available value that value remained as the maximum budget value. Where there was disagreement between the two, each case was individually considered to determine if budget comments helped clarify the issue. In most cases the maximum was still used, but in a few cases, comments made it clear that the lower specific number should be used. A glitch in the Zoomerang program was noticed where those who did not select a budget category in question 17, but chose to write in verbal comments reserved for those with budgets greater than $100,000 to specify their budget amount were automatically categorized as having budgets greater than $100,000. There were only two respondents that fit within this category, and their answers did not appear to significantly alter that category's answers. This was the basis for which each budget category was used to compare several factors to determine if there were differences.

3. Geographical data. The data were broken down into county and imported into a geodatabase. For those entities operating on a statewide basis, only the city where they are based was used. For "local entities," county data was summarized by number, budget, and population data was taken from the Colorado Division for Local Government, Colorado Demography Office, November 2007.

4. Cross comparison analysis: For each of the budget categories described above, several factors were compared using methods described above. A diversity index was created for three categories: educational topic, type, and audience. Each of the questions asked allowed participants to select multiple answers. Therefore, the more answers respondents selected as a whole, the greater the diversity index. The total percent of each individual selection was

calculated and then summed across all selections. In order to equally weight adult and youth audiences, each index score percent was added for both target audiences.

Focus Groups

Focus groups were held to gather additional information directly from water education providers about the status of water education, share experiences from different kinds of advisors, and start conversations about the vision of water education in Colorado.

Preparation and Design

Early in the WETF process, it was generally agreed that focus group participation would be limited to water education providers, rather than including representatives of the intended audience/recipients. In November of 2007, the planning committee discussed various approaches to the focus group concept and decided on 3 focus group categories:

- Department of Natural Resources (DNR) Programs
- Youth Water Education
- Adult Water Education

The DNR focus group was intended to be an internal review process to determine the full extent of support provided to various water-related education efforts.

Participation

Broad representation from across the state and interests in water education was sought for the focus groups. The task force developed selection characteristics to guide the final recruitment of focus group participants. The selection process for the adult and youth focus groups began with the survey, which included a 'self-selection' question asking respondents to indicate their interest in participating on a focus group. Survey respondents who elected to participate in the focus groups were categorized and then selected using the selection characteristics. Additional individuals or organizations were added if certain types of water education providers were missing.

All focus group members were asked to complete the WETF survey and commit to reviewing the survey results prior to the first scheduled meeting.

During subsequent meetings, the three focus groups were convened to accomplish the following tasks:

1. Review and discuss responses to the WETF online survey.
2. Establish a common objective for their water education programs in Colorado and discuss the challenges, gaps and barriers to accomplishing that objective.
3. Postulate recommendations to the CWCB that would bring about improvements in the current state of water education in Colorado.
4. Produce meeting summaries describing the most effective aspects of current programs, outlining beneficial changes or extensions, and identifying the resources necessary to optimize water education for their audience.
5. Recommend strategies for sustaining the WETF initiative.

Each focus group met once in February, 2008 to begin drafting a common framework, discuss preliminary survey results, analyze the internal and external factors that either limit or enhance effective water education, and to plan the next stage of their involvement. The results of those

meetings are summarized in Appendix C of this report. During later stages of the WETF study, focus group members participated by providing individual comments on early drafts of the survey analysis and the final WETF recommendations, and they attended at least one working meeting of combined task force and focus group participants.

Results

Survey of Water Education Providers

A selection of data tables and figures is used to summarize and display data in this report. These tables are sorted into three major sections:

Section I – Description of Respondents
Section II – Education Types, Audiences, Content, and Resources
Section III – Limiting Factors and Opportunities

A narrative introduction is provided for tables and figures in each of these sections. In addition, a series of discussion points are provided after each table/figure or set of tables and figures. As appropriate, notes related to analysis or finding summaries in the tables and figures are also provided.

Section I - Description of Respondents

A series of questions were designed to characterize the survey respondents and determine the type of organization, staff and volunteer resources, service area, budget, and revenue sources.

The first question of the survey asked respondents to categorize their organization. Table 1 summarizes these data.

Table 1. How would you categorize your organization?

Category	***Number of Responses (n=292)***	
Nonprofit 501(c)3	70	24%
Federal Agency	17	6%
State Agency	22	8%
Local or other government agency	96	33%
Business/Industry/Consultant	22	8%
Higher education institution	17	6%
Public/private school	27	9%
Other, please specify.	21	7%
Total	292	100%

There were 292 respondents from a diversity of organizations. The majority of respondents fell into one of two categories, Local or other government agency and Nonprofit 501(c)3.

Question 3 clarified the broad scope of materials, programs, and resources that could be used in water education stating “For the purposes of this survey, water education is defined as education 'in', 'about' and 'for' water”. Respondents were then asked if they provided water education and to describe the purpose of their water education. Of the 292 responses, 255 reported that they deliver or create materials for water education programs (defined as

education in, about, and for water.). Table 2 summarizes the respondents' descriptions of the purpose of their water education.

Table 2: Purpose for Water Education

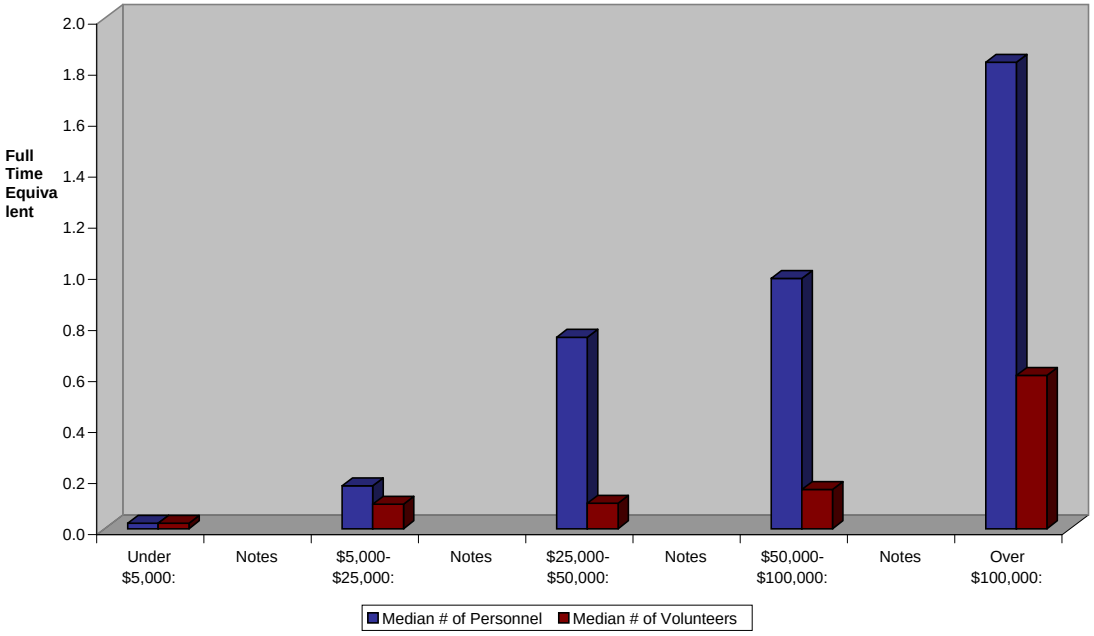
Purpose for Creating or Conducting Water Education Materials and/or Programs	Number of Responses
Conservation: Respondents in this category sought to improve or facilitate conservation, provide information about water conservation, promote the efficient, effective, and sustainable water practices. Efforts were targeted at homeowners, schools, teachers, conservation professionals, land owners, industry, urban and rural community members, and the general public. Broad conservation as wells as specific conservation methods such as watering, irrigation, and xeriscaping were mentioned.	51 (20.0%)
Information: Respondents in this category were primarily concerned with the transfer of knowledge and information. They provide or make available research, historical documents, water status, water conditions, regulations, reports, information through utility bills and public service announcements.	44 (17.3%)
Environmental Science: The purpose of water education for respondents in this category was to educate about water and environmental science. Purposes included understanding ecosystems, wetlands and watersheds, the hydrologic cycle, climate, wildlife, water sources, water chemistry, aquatic systems/ecology and macroinvertebrates.	34 (13.3%)
Water Quality: Respondents use water education to protect, improve, and inform audiences about water quality. Topics of importance included drinking water, well water, and wastewater treatment. Several respondents provided information, others were engaged in water quality monitoring, and others facilitated projects for improving water quality.	28 (11.0%)
Regulation and Law: For several respondents the purpose of water education was to achieve compliance with state, federal or local regulations and law, and to inform the public of regulations, water law, and water rights. Regulations and laws mentioned included recreation statutes, the Clean Water Act, permitting, and regulations for utility companies.	21 (8.2%)
Non-Point Source Pollution: Respondents use education to inform the public and prevent non-point source and storm water pollution. Several organizations provide education to fulfill permit and federal mandate requirements regarding storm water pollution.	15 (5.9%)
Water Issues: Respondents sought to educate the public about local water issues.	11 (4.3%)
Site Specific Purposes: The purpose of education was to inform audiences about water resources at their site/location or watershed.	11 (4.3%)
State Educational Standards: Respondents used water education to meet state educational standards, district curriculum. Several respondents cited Foss educational kits.	9 (3.5%)

Purpose for Creating or Conducting Water Education Materials and/or Programs	Number of Responses
Appreciation and Value of Water: The purpose of water education was to help learners develop appreciation for water resources, understand the value and importance of water, and to develop meaningful or emotional connections with water resources.	7 (2.7%)
Preservation and Resource Management: Respondents use education to further the goals of water resource management and preserve wetlands, riparian corridors, watersheds, and wildlife habitat.	7 (2.7%)
Stewardship and Action: Respondents use education to help promote environmental literacy, stewardship and environmentally friendly behavior, and action on water related community issues.	5 (2.0%)
Awareness: The purpose of water education is to build awareness of water use, issues and conservation success and attempts around the state.	4 (1.6%)
Purpose Unclear: Many respondents listed the audiences, methods or materials used for educational purposes but the overall purpose of water education was unclear from their response.	62 (24.3%)

*Total mentions and percentages do not equal total respondents or 100%, as most provided remarks that fell into more than one category.

Respondents were asked to indicate the number of hours dedicated to water education personnel and volunteers. These were converted into full time equivalents.

Figure 1. Median Number of Full-Time Equivalent Personnel and Volunteers per Respondent



Note: The minimum number of hours, as best described, was divided by 2080 hours/year to calculate the fraction of full time equivalents of paid personnel or volunteers working on water education.

There was a direct correlation between the budget category and the number of volunteers and personnel (see Figure 1), which indicates that respondents typically reported budgets including staff time rather than just hard costs.

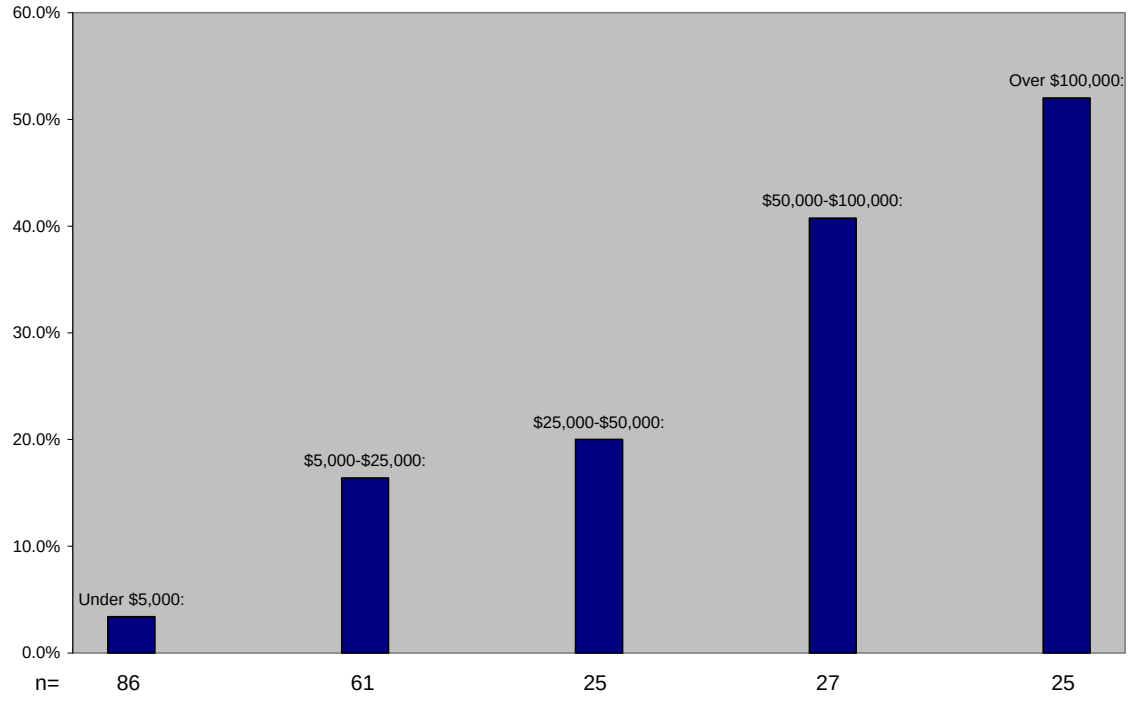
Respondents were asked if their education programs were conducted on a state-wide basis. Table 3 summarizes these data.

Table 3. Do you conduct your water education programs on a state-wide basis in Colorado?

Category	***Number of Responses (n=286)***	
Yes	66	23%
No	220	77%
Total	286	100%

Of the respondents, more than three quarters worked on a local basis, but this distribution was not even across all budget categories. As with the number of personnel and volunteers, the percent of respondents with a statewide scope increased directly proportional with budget category, with more than 50% of those with budgets over $100,000 indicating statewide scope and less than 5% for those with budgets under $5,000 (see Figure 2).

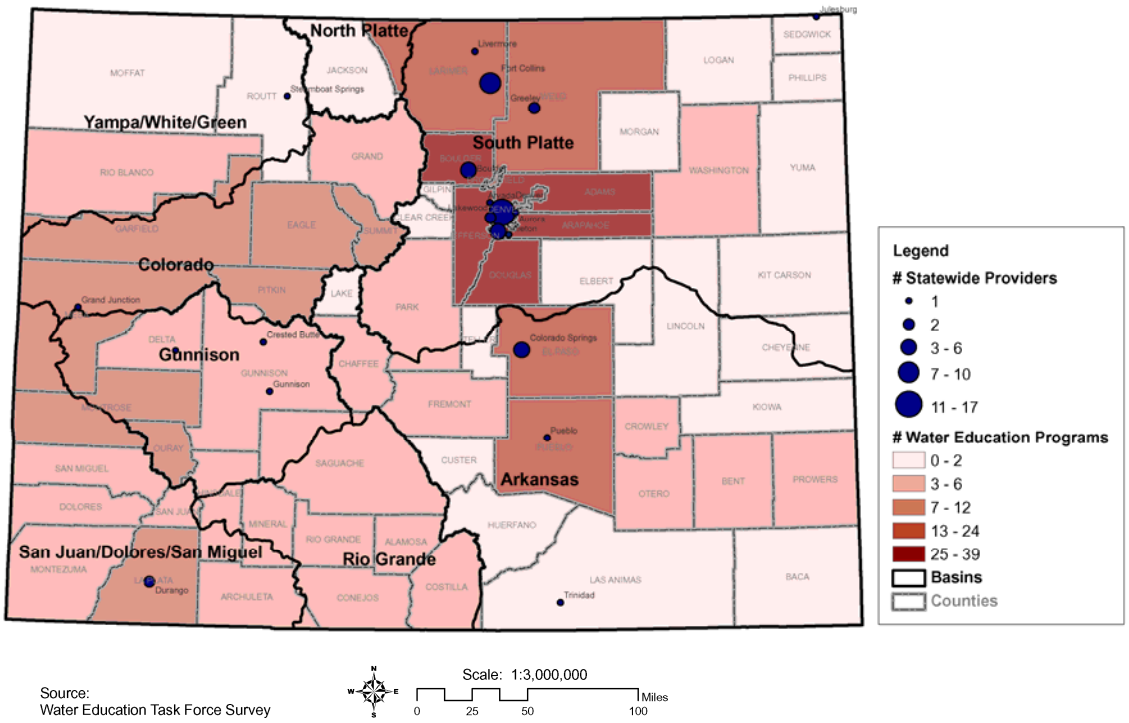
Figure 2. Percent of Respondents with Statewide Scope by Budget Category



The respondents with statewide scope generally were located in the Front Range. The distribution of local educational programs was across the state, with the eastern plains, and the Yampa and North Platte basins showing the lowest response rates (see Figure 3). It is noted that the least number of survey responses were received from these regions, and there was not

enough data on organizations with statewide scope to determine if their programs reach counties with limited reported educational programs.

Figure 3. Number of Reported Statewide Provider Located in City or Town and Number of Reported Local Water Education Program Operating in County



Respondents were asked to estimate their organization's annual budget and income. 226 respondents reported a maximum total budget of $11,129,288 for water education. Of this amount $7,301,345 was specified as coming from specific sources of funding, such as federal, state, local government, school district, higher education, nonprofit grants, business donations, private donations, or fees/retail sales. The latter dollar amount ($7, 301,345) can serve as the specified reported total budget for water education. Most organizations have a limited budget for water education; there were more than three times as many respondents who reported spending less than $5,000 on water education, than those with budgets of $25,000 or more (see Figure 4).

Figure 4. Total number of respondents by budget category

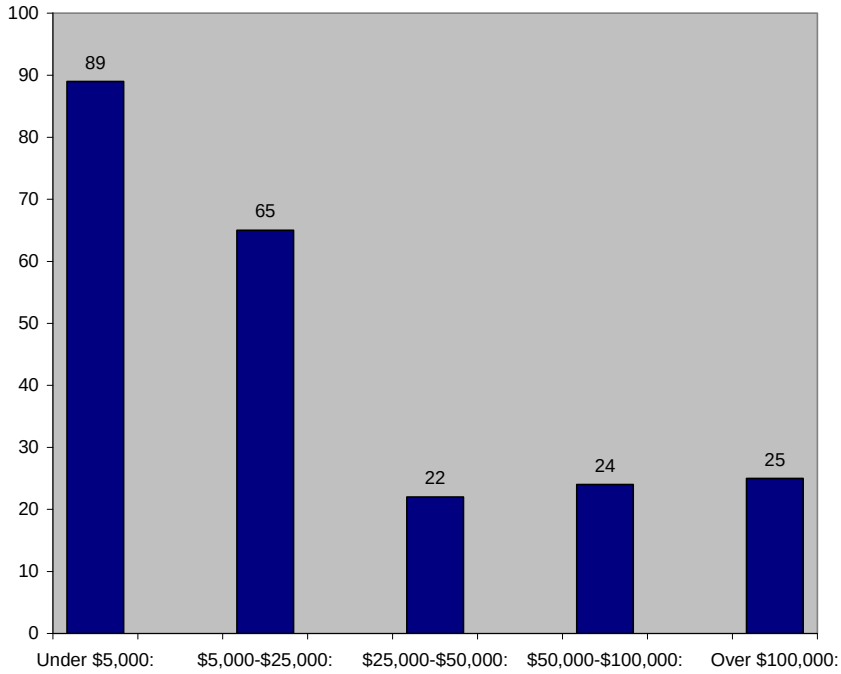


Table 4 represents the respondents who specified revenue sources. Respondents had funds coming mostly from local government sources, and thereafter, state, federal, and fees/retail sales. While total revenue and average revenue per group tended to increase with budget category; the pattern was not always consistent. For budgets between $5,000 and $50,000 a large plurality of funds came from local government, while state revenue sources were the largest contributors for budgets $50,000 and over. Private donations peaked for budgets between $50,000 and $100,000.

Table 4. Revenue Sources

	Under $5K	$5K-$25K	$25K-$50K	$50K-$100K	Over $100K	Total
Total Max Revenue	368,678	1,148,300	1,011,000	2,077,500	6,523,810	11,129,288
Average Max Revenue	4,142	17,666	45,955	86,563	260,952	49,464
Total Federal Revenue	2,100	15,000	55,000	127,000	1,150,000	1,349,100
Total State Revenue	500	62,000	53,500	335,000	1,155,000	1,606,000
Total Local Government Revenue	16,550	199,000	294,000	176,000	1,151,000	1,836,550
School District	2,010	20,000	1,000	2,000	25,000	50,010
Higher Education	2,650	2,500	0	80,000	100,000	185,150
Nonprofit Grants	4,000	59,499	20,000	117,500	613,800	814,799
Business Donations	1,200	11,000	12,500	37,000	100,000	161,700
Private Donations	1,100	3,500	5,000	151,000	70,000	230,600
Fees/Retail Sales	3,635	75,800	40,000	14,000	934,001	1,067,436
Total Specified Revenue Sources	33,745	448,299	481,000	1,039,500	5,298,801	7,301,345
Median Specified Revenue Sources	1,000	10,000	47,000	80,000	175,000	18,000

The relationship between budget category and the frequency reporting statewide scope was positively correlated. Organizations with larger budgets tended to have statewide coverage. Budgets over $100,000 indicated the most frequency, with 52% reporting statewide scope. Local efforts are represented geographically based on budget and county information (Figure 5). Alternatively, state revenue sources going towards local water education providers are also represented. However, the total specified amount of state budgets going toward statewide efforts is 92.5% ($1,486,000 of $1,606,000) compared to 51.1% of total maximum budgets going towards statewide programs ($5,692,045) indicating a strong tendency for state funding to be allocated to statewide efforts (Figure 6).

It should be noted that in a small amount of cases, different respondents reported from the same organization. Several of these were from different departments, thus representing accurate figures, however the total maximum and specified dollar amounts may be somewhat inflated.

Figure 5. Maximum Reported Local Revenue from All Sources

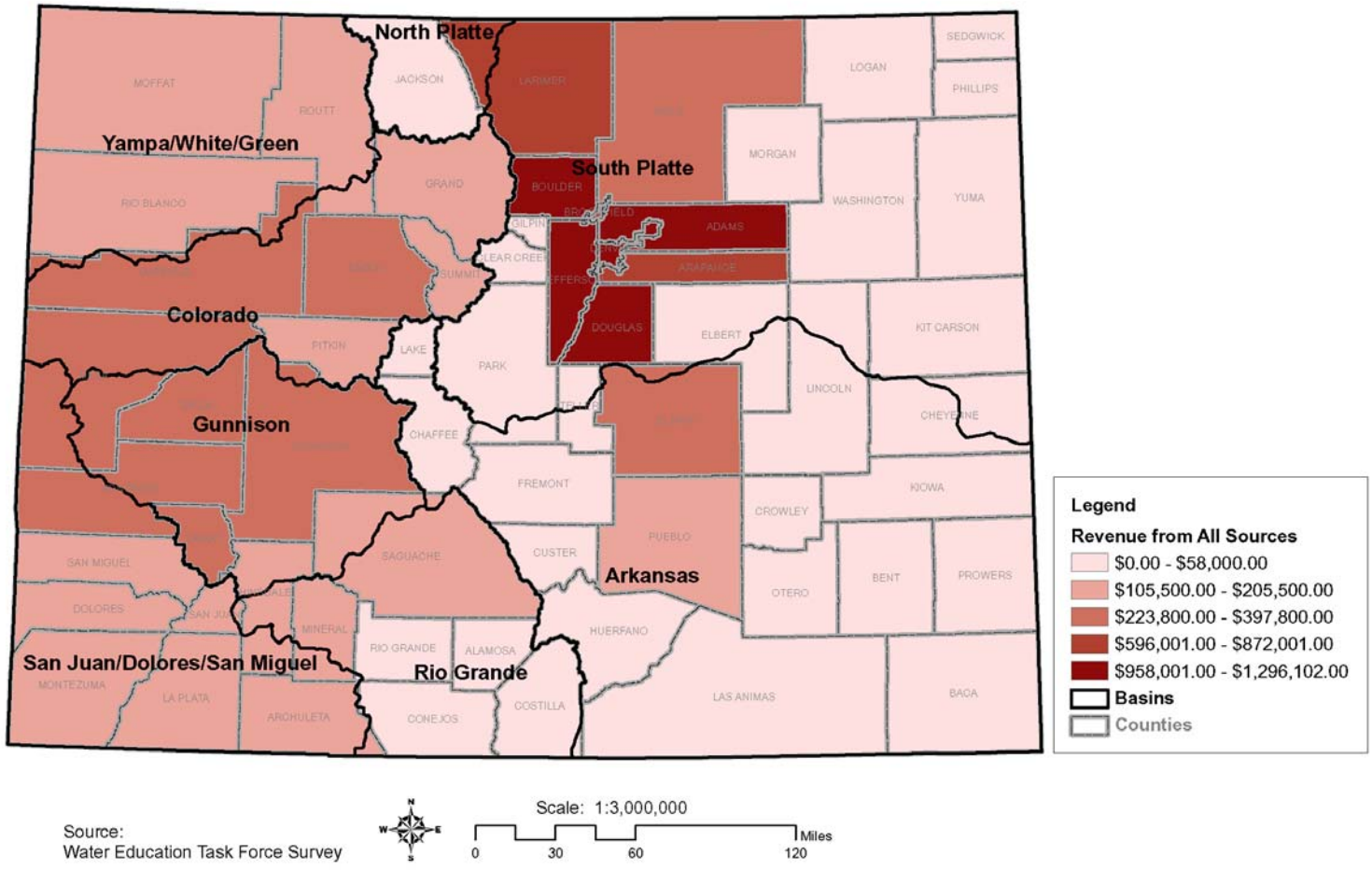
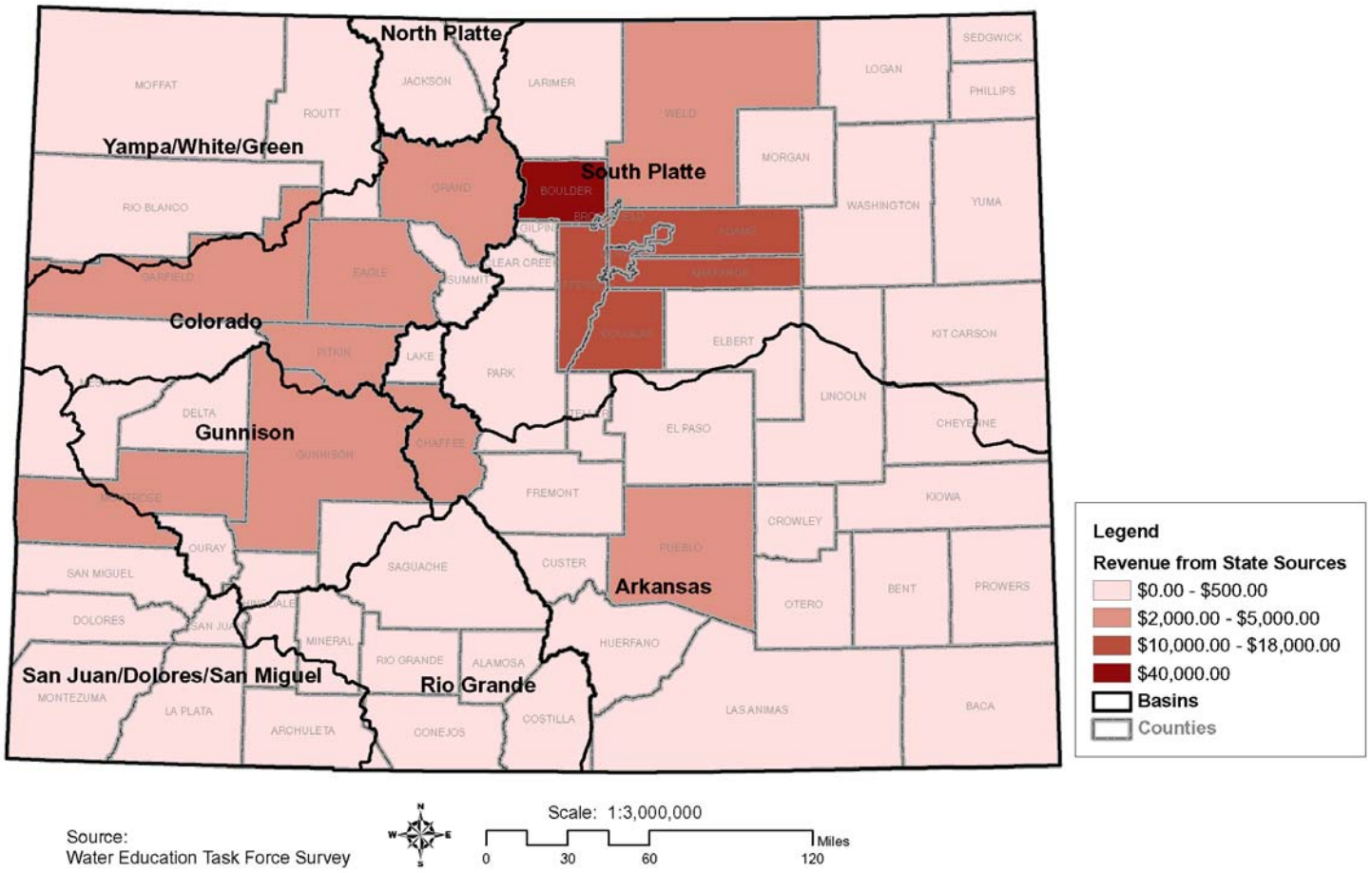


Figure 6. Maximum Reported Local Revenue from State Sources



Appendix B includes a table to show how much total and state revenue was determined by county. Note that the totals of these numbers may vary due to the method of dividing budgets between local programs operating in more than one county.

Section II - Education Types, Audiences, Content, and Resources

A series of questions were designed to characterize the education provided by the survey respondents. Questions focused on the types, audiences reached, content, and resources. The range of opportunities (types of education) varied from brochures to multi-day residential programs. This is an extremely vast scope, ranging from information only pieces (e.g., brochures) to education programs focusing on participants learning through water related activities.

Types

Respondents were asked what types of water education programs they provide. Table 5 summarizes these responses.

Table 5. Which of the following types of water education programs does your organization provide? (check all that apply)

Category	***Number of Respondents (n=267)***	
K-12 Classroom Instruction	132	49%
College/University Instruction	55	20%
Lesson Plans/Instructional Materials	83	31%
Service Learning Program	48	18%
Nonformal/Community Programming	111	41%
Conferences/Training Workshops	125	46%
Events (Water Festival, Fishing Derby, etc)	132	49%
Field Trips/Tours	125	46%
Presentations/Speakers Bureau	121	44%
Newsletters/Magazines/Factsheets	123	45%
Videos/DVD's	64	24%
Webcasts	6	2%
Other, please specify.	75	28%

NOTE: The total number of responses was 1200. Percentages indicate the percent of respondents who indicated they utilized that educational method (267 total responses). Percentages therefore exceed 100%.

Overall, educational approaches were diverse across the sample of respondents, with webcasts, service learning, and college/university instruction being reported at the lowest levels.

Audiences

Respondents were asked about the populations they target with their education efforts. These data are summarized in Table 6.

Table 6. What is your target population? (check all that apply)		
Category	***Number of Responses (n=286)***	
Youth (ages 3-9)	126	45%
Youth (ages 10-13)	166	59%
Youth (ages 14-18)	122	43%
Higher Education (e.g. college, university, tech programs)	79	28%
Adults (general population)	184	65%
Adults (educators)	96	34%
Adults (elected officials)	94	33%
Adults (water resource professionals/managers)	94	33%
Other, please specify.	43	15%

Respondents generally targeted more than one population, and all of the adult categories, including "Higher Education," made up the majority. The general adult population had the highest number of respondents (65%). All three youth categories were also greater than 40%. Approximately one third indicated that they targeted youth populations from age three to age 18 (see Figure 7). Respondents indicating that they targeted adult populations tended to increase proportionately with budget category, however this relationship was not quite as clear with the youth category (see Figure 8). There was a tendency for the diversity of audiences reached to increase with budget category.

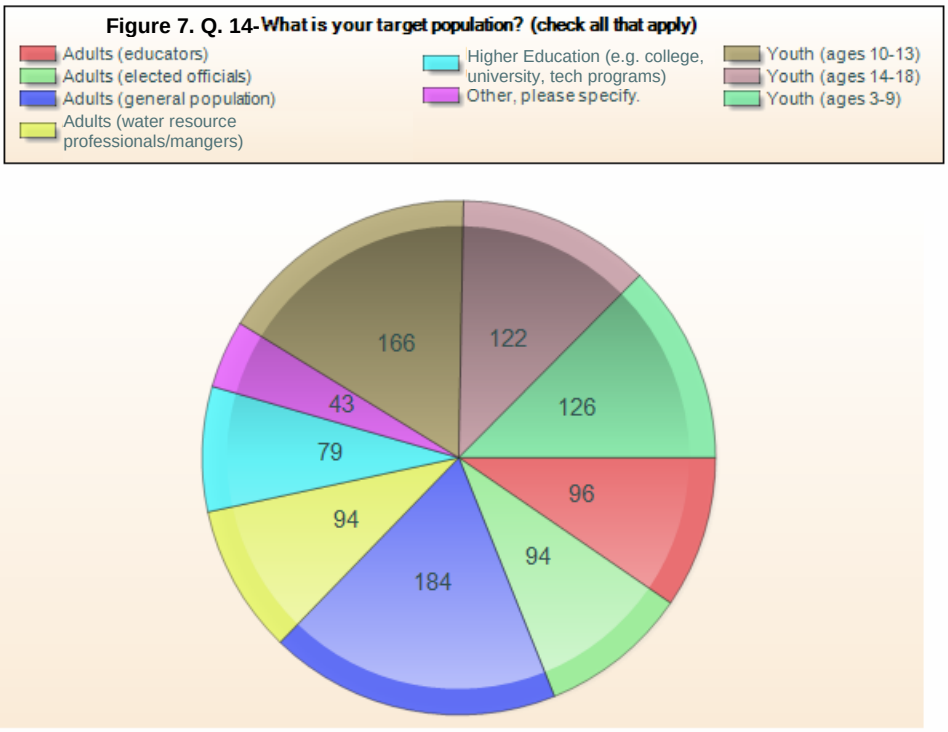
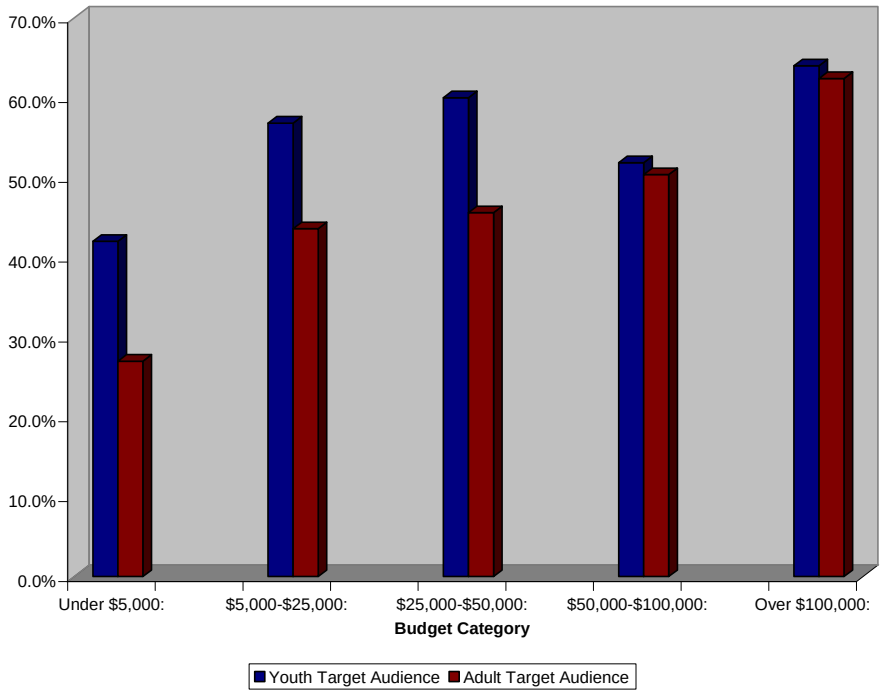


Figure 8. Percent Youth and Adults Targeted by Budget Category



Respondents were asked to estimate the number of audience members reached annually. Table 7 summarizes these answers.

Table 7: Estimate the Number of Individuals Directly Affected By Your Water Education Program Annually

	Budget Not Described	Under $5,000:	$5,000-$25,000:	$25,000-$50,000:	$50,000-$100,000:	Over $100,000:	Total
K-12 students (outside school)	2,270	17,947	28,610	3,530	66,450	10,235	**129,042**
K-12 students (in school)	351,690	50,191	73,280	14,270	17,960	49,520	**556,911**
Youth Reached	353,960	68,138	101,890	17,800	84,410	59,755	**685,953**
Median when targeted	1650	200	650	550	165	500	
College students	635	1,478	976	280	516	5,975	**9,860**
Classroom teachers	1,957	1,079	2,882	352	756	1,850	**8,876**
Adults (general population)	9,250	26,429	445,759	20,450	429,660	149,650	**1,081,198**
Adults (elected officials)	0	574	564	949	1,802	1,215	**5,104**
Adults (water resource professionals)	0	4,110	5,928	1,959	2,620	9,792	**24,409**
Adults Reached	11,842	33,670	456,109	23,990	435,354	168,482	**1,129,447**
Median when targeted	1050	145	500	495	355	800	
Total	**365,802**	**101,808**	**557,999**	**41,790**	**519,764**	**228,237**	**1,815,400**
Percent Youth Reached	**96.8%**	**66.9%**	**18.3%**	**42.6%**	**16.2%**	**26.2%**	**37.8%**

Note: Calculated the minimum number of adults and youth reached. When a number was provided, that number was used. When a range was provided, the lower number was used. Descriptors were translated as follows: hundreds=200, thousands=2000, several=2, few=2. When a limited component was listed, that

number was included in the total for the answer. All other descriptions and unclear answers were not used. Percentages were not used, nor were zero values.

Over one million adults from the general population were reported as being reached by respondents. The next largest category reached is K-12 students in school, with more than 556,000 reported being reached. The Colorado Department of Education reported in their 2007 Education Facts publication that there are more than 863,000 students in Colorado. While raw statistics indicate that 65% of students are then being reached in Colorado, it is assumed that many of these students may be counted more than once. Therefore, respondents likely did not reach more than 35% of students. Adults are frequently reached through publication media. A total of 3,470,590 adults were reported as living in Colorado in 2004 by the Colorado State Demographer's Office, Department of Local Affairs. Raw statistics would then indicate that 30% of adults are reached by responding education providers. This number is likely even lower due to some adult populations being reached by a number of providers. Therefore more than 70% of adults were not reported as being reached by respondents.

The lowest number of individuals reported being reached was elected officials; although this should be expected since they represent the smallest audience. More than 5,000 elected officials were reached by respondents. Other smaller audiences include College Students, Classroom Teachers, and Water Resource Professionals. The Colorado Department of Education reported there were 44,657.8 Full Time Equivalent Teachers in their SUMMARY OF SCHOOL DISTRICT DATA FOR SCHOOL YEAR 2004-2005 report. Raw statistics indicate that 27% of teachers are reached across the state. As with other comparisons, the real number reached is probably lower since many teachers likely participate in more than one water educational opportunity in a given year if they are interested in the subject. Data have not been gathered to determine how many water resource professionals, college students, or elected officials there are, so determining the relative number of individuals that are being reached is a question that needs further exploration. While no overall statistics were provided for how many college students there are in Colorado, www.petersons.com reported 46,152 undergraduates at Colorado's two major universities, Colorado State University and University of Colorado. This is compared with just over 10,000 of college students reported being reached.

Content

Respondents were asked about the water content areas covered by their education programs. Table 8 details the content and types of water education by budget category. In analyzing the results for audiences reached, large numbers of adults and youth were reached (>430,000, >93,000 respectively) in two budget categories ($5,000-$25,000, $50,000-$100,000), and were largely driven by publications (Newsletters, Magazines, Fact Sheets). It is noted that these numbers likely represent the number of publications sent as opposed to the number of publications read. In the $50,000-$100,000 category most of the adults and youth reported being reached by just one of the respondents (316,070; 54,500 respectively). However, the $5,000-$25,000 category was more spread out across the reporting entities. Note that publications were in the top three educational types in this category, explaining why the median of youth reached per entity reporting in this category is the greatest among all budget categories (median=650) and number of adults was second (median=500). Budgets greater than $100,000 tended to reach the most adults (median=800) but only the third most youth per entity (median=500). However this largest budget category is not focused on publications to as great an extent. Budgets under $5,000 reached the fewest total adults and youth and fewest adults and youth per respondent despite there being more respondents in this category than any other. Although youth are more often the target audience of

respondents, nearly two thirds of those reported reached are adults. Further exploration needs to be done to determine if the difference is due to mailings and other mass media outlets, if there are more adult programs, if the primary outlet for educating youth were not adequately represented in the survey results, or if the results merely reflect Colorado's population (According to the U.S. Census Bureau's 2006 population estimate 24.6% of people in Colorado are under 18). It was not the goal of the survey to reach classroom teachers across the state.

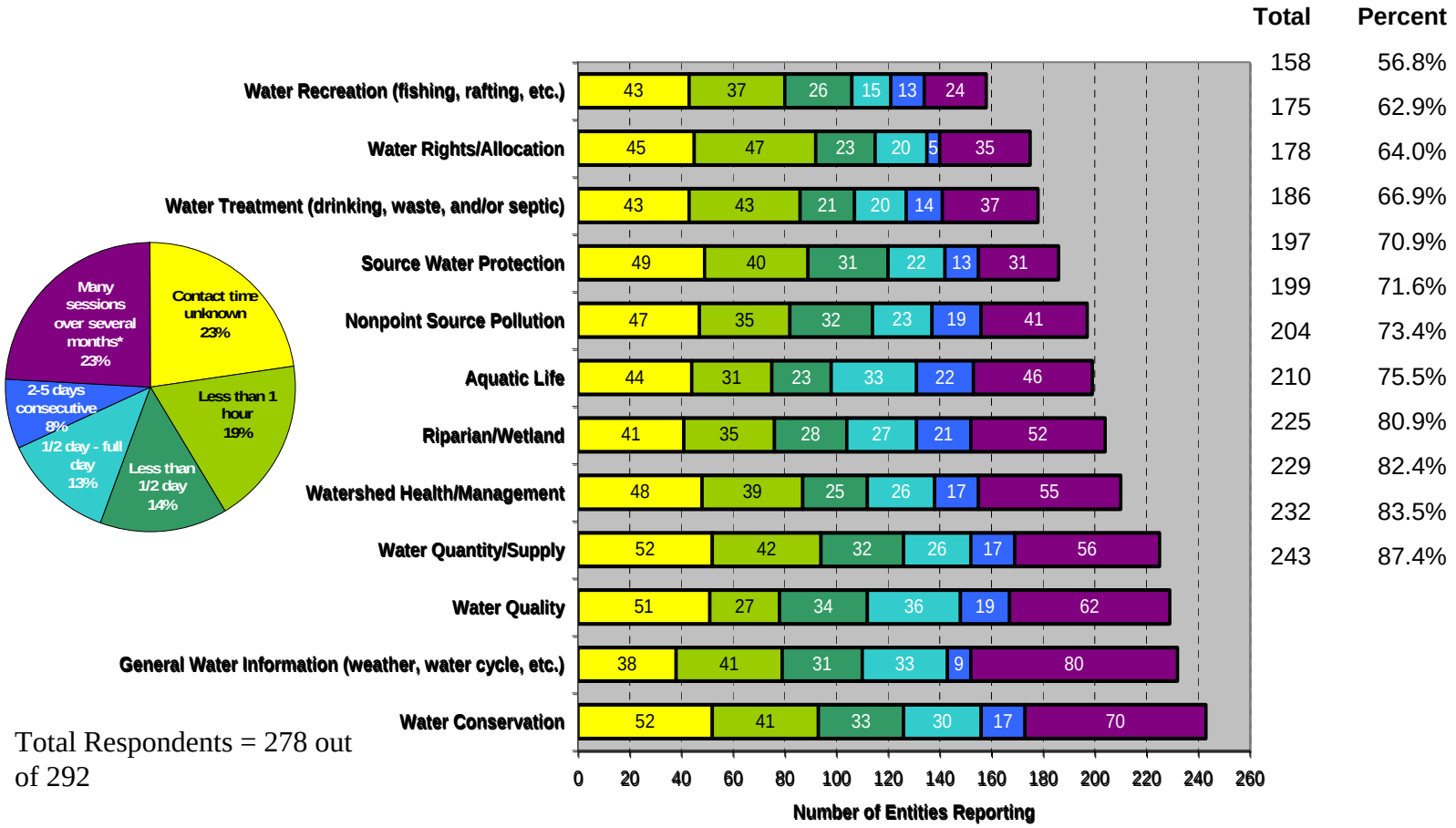
Respondents indicated that those with budgets under $5,000 are most focused on environmental concerns (aquatic life and riparian/Wetland topics). General Water Education was in the top three across all budget categories and most often in first (four out of five budget categories). Water conservation was >=50% across all budget categories. Water Quality was in the top three for all budget categories and greater than 55% except for those under $5,000 (46.6%). Watershed Management was in the top three for the highest three categories ($25,000-over $100,000), for which it was under 40%. Water Quantity/Supply topics were marked by respondents at levels greater than 56% for the top three budget categories. Water Recreation was in the bottom three across all budget categories. Water Treatment was in the bottom three in all but one category ($5000-$25,000, 37.7%) and Water Rights were consistently reported at low values (<41%).

Table 8 Education Types, Content, and Budget Categories

Under $5,000:		$5,000-$25,000:		$25,000-$50,000:		$50,000-$100,000:		Over $100,000:	
Top 3 Education Types									
Field Trips/Tours	39.3%	Events	63.1%	Presentations/Speakers Bureau	72.7%	Conference/ Training Workshops	54.2%	Conference/ Training Workshops	84.0%
K-12 Classroom	38.2%	Publications	58.5%	Publications	72.7%	Presentations/ Speakers Bureau	54.2%	Nonformal/ Community Programming	72.0%
Events	31.5%	K-12 Classroom, Conference, & Presentations Tied	55.4%	Conference/Training Workshops, & Field Trips/Tours Tied	16.7%	Publications, Field Trips/Tours, and Nonformal/Community Programming Tied	50.0%	Presentations/ Speakers Bureau	72.0%
Bottom 3 Education Types									
Webcasts	1.1%	Webcasts	0.0%	Webcasts	0.0%	Webcasts	0.0%	Webcasts	12.0%
Videos	7.9%	Higher Education	18.5%	Higher Education	27.3%	Higher Education	25.0%	Service Learning	32.0%
Service Learning	10.1%	Service Learning	18.5%	Service Learning	27.3%	Videos	25.0%	Higher Education	48.0%
Top 3 Content Areas (<1 hr contact time)									
Riparian/Wetland	51.7%	Water Conservation	60.0%	General Water Information (weather, water cycle, etc.)	86.4%	General Water Information (weather, water cycle, etc.)	70.8%	General Water Information (weather, water cycle, etc.)	64.0%
General Water Information (weather, water cycle, etc.)	50.6%	Water Quality	58.5%	Watershed Health/Management	77.3%	Water Quality	66.7%	Watershed Health/Management	64.0%
Water Conservation & Aquatic Life Tied	49.4%	General Water Information (weather, water cycle, etc.)	50.8%	Water Quality	77.3%	Watershed Health/Management	62.5%	Water Quality	64.0%
Bottom 3 Content Areas (<1 hr contact time)									
Water Recreation (fishing, rafting, etc.)	23.6%	Water Recreation (fishing, rafting, etc.)	16.9%	Water Rights/Allocation	45.5%	Water Treatment (drinking, waste, and/or septic)	33.3%	Water Rights/Allocation	36.0%
Water Treatment (drinking, waste, and/or septic)	25.8%	Water Rights/Allocation	24.6%	Water Recreation (fishing, rafting, etc.)	45.5%	Water Recreation	33.3%	Source Water Protection	40.0%
Source Water Protection	25.8%	Aquatic Life	32.3%	Water Treatment (drinking, waste, and/or septic)	50.0%	Source Water Protection	41.7%	Water Treatment (drinking, waste, and/or septic) & Water Recreation (fishing, rafting, etc.) Tied	44.0%

Respondents were asked to indicate which topic areas they covered and how much time they spent with their audience. These data are presented in Figure 9. Percentages of how many respondents indicated they reached their audience for greater than one hour were calculated by topic area category. Water Conservation, General water information, water quality, and quantity/supply topics were each reported by more than 80% of educators as being covered. Educational episodes of ½ day or more tended to be least

Figure 9. Number of Respondents Conducting Topical Education Including Contact Time



Total Respondents = 278 out of 292

covered, whereas reaching audiences over many sessions and unknown contact time were the most. Survey responses indicating that respondents educated by reaching their audiences over "many sessions several months" were not likely interpreted by all respondents equally. Several respondents asked about how to answer this question because only one type of 'contact time' category could be selected for each content area. For each topic, some respondents had different amounts of contact time and could only select one type. Therefore, the high number of respondents in this category was not considered accurate.

Resources

Respondents were asked about the types of resources they use to conduct water education. Table 9 includes a summary of these responses.

180 respondents indicated that they used curricula and educational materials from outside sources. Of these 30% are using Project WET materials for water education, more than twice as many as the next curricula source, Project WILD. The diversity of programs mentioned, however, indicate that many different types of curricula are often used hand in hand with other sources. Nearly three quarters of the sources used have state government involved at some level, compared to only 11% indicating federal support and 4% for local support. Statewide and national nonprofits operate the majority of programs that provide resources to respondents. This further underscores the connections observed between statewide entities and state government (see Table 9). Note that the top two resource providers conduct educational workshops that are a requirement to receiving the materials. This may support the importance of paring resources with programming to help ensure they are used. Many educators used more than one resource and a large portion used resources with two or less mentions.

Table 9. Outside Sources of Curricula and Education Materials

Total Number of Respondents to Q. 180

Education Materials Provider	# Providers Use	%	Notes
Project WET	54	30%	State Funded, Statewide Nonprofit Operated, National Nonprofit Produced
Project WILD	24	13%	State Operated, National Nonprofit Produced
CFWE	17	9%	State Funded, Statewide Nonprofit Operated
CSU	17	9%	State Funded, operated, and produced
AWWA	14	8%	National Nonprofit
EPA	11	6%	Federal Produced
Project Learning Tree	9	5%	State Operated, National Nonprofit Produced
TEN	9	5%	State Operated, National Nonprofit Produced
Denver Water	8	4%	Local Government
CDPHE	7	4%	State Produced
FOSS	6	3%	
AWARE	5	3%	Statewide Nonprofit Produced
Boulder/Keep it Clean	5	3%	Local Government
CWCB	5	3%	State Produced
WaterWise	4	2%	National Nonprofit Produced
CDOW	4	2%	State Produced
River Watch	3	2%	State Funded, Statewide Nonprofit Operated & Produced
CO. Foundation for Ag.	3	2%	Statewide Nonprofit Produced

Summary Statistics by Category	#	%	Notes
Local Government Materials	31	17%	
Federal Government Materials	19	11%	
State Produced Materials	19	11%	
Above & State Operated Programs	61	34%	May be duplication
Above & State Funded Programs	135	75%	May be duplication
Statewide/National Nonprofit Operated	115	64%	May be duplication and may not include several unknown sources in the "other" category
Local Nonprofit Materials	7	4%	
Other (estimated % from Sample)		43%	Only includes those sources mentioned 2 or less times
Mixed (estimated % from Sample)		15%	

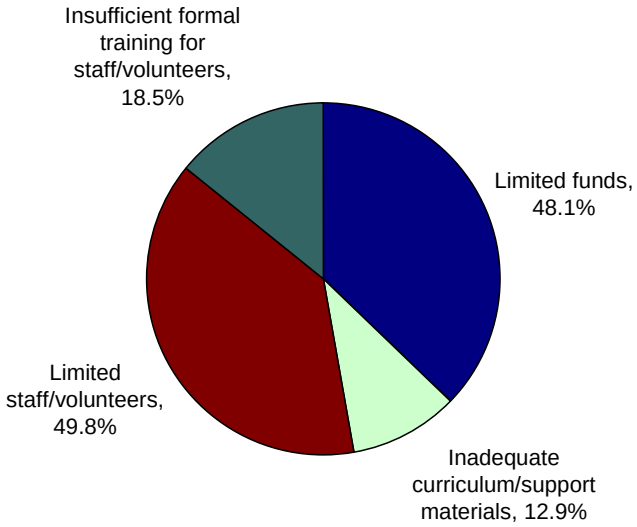
Note: In order to compile water educational curricula/materials providers, a series of formulas were used to categorize answers. Based on going through the data and skimming for how various educational providers were listed, formulas were built to capture the applicable information. For instance, for those that mentioned Colorado State University as providing materials, the following formula was used: (COUNTIF('CO WETF cleansed Data'!AV2:AV288,"=*CSU*")+COUNTIF('CO WETF cleansed Data'!AV2:AV288,"=*Extension*"))+(COUNTIF('CO WETF cleansed Data'!AV2:AV288,"=*Colorado State*"))+(COUNTIF('CO WETF cleansed Data'!AV2:AV288,"=*CWRRI*")). This formula captures CSU materials without counting those from the University of Colorado. The selected cells were then reviewed to ensure that each answer did not provide multiple counts or that inappropriate responses were selected. Those providers with less than three mentions were not included in this analysis.

Section III - Limiting Factors and Opportunities

A series of questions were asked to get a better understanding of the barriers in water education.

Among all respondents, the biggest barriers to achieving programmatic goals are money and time/staff (see Figure 10). This was confirmed based on additional review of written responses. Access to educational materials represents the least barrier, and provides an opportunity for existing groups to provide these materials to the 13% of respondents who expressed a need. In addition, less than 20% expressed a need for additional training.

Figure 10. Barriers to Success.



For those respondents with reported budgets greater than $100,000, the need for both funds and staff and time were most pronounced. Those with budgets under $5,000 expressed the least amount of need in these two categories, but the most amount of need for training and curricula (see Table 10).

Table 10. Barriers to success.

Barrier	Under $5,000:	$5,000-$25,000:	$25,000-$50,000:	$50,000-$100,000:	Over $100,000:
Limited Funds	48.3%	66.2%	45.5%	66.7%	68.0%
Inadequate Curricula/Supplies	20.2%	12.3%	13.6%	4.2%	12.0%
Limited Time/Staff	41.6%	67.7%	68.2%	66.7%	80.0%
Insufficient Training	28.1%	13.8%	18.2%	12.5%	20.0%

Focus Groups

Focus groups were convened with three primary focus areas - the DNR agencies, organizations conducting youth education, and organizations conducting adult education. The three focus groups reviewed preliminary survey results, established a common objective for their water education programs in Colorado, and described the threats and opportunities to accomplishing that objective. Survey analysis suggestions were incorporated into the survey results section of this report and are not detailed here.

Common Objective

The focus groups worked to develop a common objective or framework for water education in Colorado. These statements are presented by group below. The full meeting notes are included in Appendix C.

DNR Agency Provider Focus Group

Develop and support the dissemination of consistent public messages across agencies through coordinated internal communication.

Youth Audience Focus Group
Collaborate on a sustainable continuum of educational experiences, which leads to youth who understand and respect water resources and are personally connected, life-long engaged stewards by age 18.

Adult Audience Focus Group
Colorado's water education providers shall conduct their adult education programs in a manner that promotes a deeper understanding of the shared, finite, and vulnerable nature of our water resources. It is our intent that Colorado's citizens will consistently apply this knowledge in their daily decisions and activities.

In order to improve our effectiveness and facilitate collaboration, we will clearly identify our targeted audience(s), and the necessary outputs and the desired outcomes for each of our water education programs. We will use these program objectives to assess our performance on a regular basis.

These statements were used by the Task Force to develop a common framework for water education in Colorado. In addition, the statements were used as a context within the focus group discussions about opportunities and threats.

Opportunities and Threats
Focus group participants also developed individual organization/water education program assessments of internal strengths and weaknesses, and external opportunities and threats. The adult focus group did not have this discussion during the focus group meeting because of time constraints, but were asked to send this information to the meeting facilitator. Ten responses were received.

The common themes from the focus groups were summarized by Task Force planning committee members, and then reviewed by a combined group of task force and focus group members (the original text is provided with each meeting summary in Appendix C). The opportunities and threats were then used to inform the framework and recommendations. These common themes are:

Water Education Opportunities
1. Many programs are providing water education
    - Infrastructure exists.
    - Diverse groups are involved.
    - Large water providers are producing water-related messages.
2. Collaboration opportunities abound
    - Large network exists.
    - Long term partnerships exist.
    - Agricultural can be connected with municipal through large agricultural sectors.
3. Colorado Climate
    - Arid state prone to drought.
    - Conservation and protection are necessary.
    - Water is limited and renewability is variable.
    - Unique water rights system exists.
    - High level of public awareness.
4. Climate change
    - National media attention raises interest and provides focus on water issues.

5. Receptive audiences
    - Colorado citizens participate in numerous water-related environmental and recreational activities which creates a more receptive audience to water issues.
    - Growing population provides different audiences to draw from and focus on.
6. State government support
    - Current state government proactively supports and advocates for the protection and wise use of water resources.
7. School Standards
    - Colorado content standards are being revised; there may be an opportunity to add more skills related to water education.
8. Funding
    - Though limited, a diversity of funding sources are available.

Water Education Threats

1. Funding and staff resources
    - Limited funding continues to be a primary obstacle to sustaining current water education initiatives.
    - Realities of managing water resources (e.g., cost, infrastructure gaps, rate structures, etc.).
2. Quality
    - Few measurement tools are being used to evaluate the quality of education materials and resources.
    - Few water education programs employ a method to evaluate their effectiveness in modifying behaviors related to water protection and water conservation.
    - Programs to measure effectiveness are often overlooked or poorly funded.
    - Subjective measures of educational success/effectiveness are not valued as much as quantitative measures.
    - Lack of quality professional development opportunities for water education providers.
3. Common Message
    - Lack a common water education platform/message that promotes a consistent message on the value of the state's water resources.
    - There is a lack of common definitions and terminology for water education (e.g., brochures are not curricula, but both are called 'education materials').
4. Coordination
    - Conflicts, perceived divisions, mixed and nonproductive messages and attitudes hamper educational efforts. (e.g., Rural/urban, east/west slope, ground/surface water.)
    - Lack coordination between water quality and water quantity efforts.
    - Not enough vertical and horizontal integration or coordination among diverse programs and providers.
    - Complexity of water systems, providers and users make coordination extremely difficult.

Discussion

This section contains a brief discussion of major findings and suggests a number of recommendations. The section is divided into access to water education; program budgets; audience, content and contact time; and survey weaknesses and strengths.

In no way does this discussion exhaust the implications of this research. Rather, it is meant as a catalyst for thinking, discussion, and decision-making.

Access to Water Education

More than three quarters of water education providers who responded to this survey operated local programs in communities and counties across the state. However, there were very few respondents from the eastern plains and northwest region of the state, and, to a somewhat lesser extent, the southwest region. These results are not necessarily indicative of the absence of water education programs in these communities; however, they may indicate opportunities to further reach out to these communities with already existing materials and programs in use elsewhere in Colorado. Attempts were made to reach rural communities with the survey; however, a more focused effort might need to be used to garner a more complete understanding of the water education is happening in these communities.

While less than 1/4 of all respondents indicated they conducted education on a statewide scale, more than 50% of those with budgets over $100,000 did so. Statewide entities receive the vast majority of reported state funding and more than 1/2 of total revenues. These results indicate significant investment in the statewide approach. However, it cannot be assumed that every statewide respondent reaches every community. Additional investigations are necessary to determine if some of the counties who did not report local programs are adequately receiving water education through statewide providers.

There are a number of water education resources (e.g., materials, programs, curriculum, etc.) in the state for providers. Respondents indicated the use of Project WET materials more than twice as often as any other material. Other resources or organizations that have significant traction among the community of respondents included Project WILD, Colorado Foundation for Water Education, Colorado State University, American Water Works Association, and the Environmental Protection Agency.

There may be significant opportunities for water education providers to reach out to those entities who reported limited access to resources. The online Colorado Alliance for Environmental Education searchable database and the Colorado Foundation for Water Education website link educators to resources. These efforts could be improved, and additional outreach to providers about these efforts may be necessary.

In addition, there may be opportunities for the diverse set of water education providers to work together and overcome barriers of limited staff/time and budget amounts. These two barriers were most often listed as providing significant barriers for water education providers, and most frequently for those with budgets over $100,000. The frequency of reporting at this level may indicate that it is difficult to reach every county or watershed in the state.

Program Budgets

Overall, the specified annual amount of revenue for water education was reported as $7,301,345. This amount comes from various sources, such as federal, state, and local government, school districts, higher education, nonprofit grants, business donations, private donations, or fees/retail sales. Respondents indicated that $1,606,000 came from state sources, which was the second largest contribution to total revenues. Local government was the largest contributor, with $1,836,550 in revenues. Revenue sources from Federal Government, Fees/Retail Sales, and Nonprofit Grants were also in the top five sources of income for educational programs. Local government contributions were the largest factor for smaller

program budgets, while state sources were the largest contributor for programs with budgets over $50,000.

Throughout the focus group discussions and the survey answers, insufficient time and money appeared to be major barriers for water education providers. Budget categories were used to assess differences between how questions were answered. For instance, the lower the budget, the less likely respondents were to indicate they had evaluation mechanisms in place for their programs.

The removal of monetary limitations can often resolve limited staff and time as barriers to implementing education programs. These two limitations (money and staff) were listed by the majority of respondents. A majority (56%) of respondents who provided budgetary information, indicated that they conduct water education for less than $5,000 annually, and respondents that have budgets over $100,000 indicated with the most frequency that money is a limiting factor. Such limited resources should provide additional incentive to further understanding the effectiveness and traction of programs within their communities, and focus for federal and state funding agencies. These limitations also suggest improving opportunities to collaborate and leverage resources might increase effectiveness throughout the water education community.

Audience, Content and Contact Time

A diversity index was created for educational audience, type, and content area. Each of the questions relating to these indices allowed respondents to select more than one answer. If respondents tended to select many answers, then diversity scores increase. The fewer answers selected, the lower the diversity index score by budget category. Budgets less than $5,000 tended to have the lowest diversity score, with only Educational Topic being slightly higher than the next budget category. While budgets over $100,000 had the greatest diversity in the type of educational delivery method used and the audiences reached, it did not have the highest diversity index by topic. Budgets between $25,000 and $50,000 had the highest topic score, showing the broadest number of topics, with less focus. This budget category also had the second largest score for Educational Type. The number of audiences reached was the only index that increased directly compared to budgets.

These results indicate that water education providers in the lowest budget category are generally focused, perhaps out of necessity or mission driven reasons, on who they reach, how they reach these individuals and about which topics they educate their target audiences. Those with the largest budgets illustrated a tendency to be more focused on educational topic than those with budgets in the middle range. However, the largest budget category did diversify in how they delivered the message and to whom they delivered it. These results may be skewed by the fact that there were numerous statewide programs in this budget category, and sizeable local programs may have a need to be diverse in the types of educational topics they cover.

The median number of adults reached by each program increased with budget size, though budget categories from $5,000-$25,000 and $50,000-$100,000 reach more adults overall. Some of these results may be skewed because several programs in these categories reach large numbers of adults through publications. Publications were in the top three educational types used by the three middle budget categories. The pattern is even stronger for youth.

Budgets in the $5,000-$25,000 range reported reaching the most youth in total, as well as, the most per respondent. Further investigation is necessary to understand the nature of this pattern to determine if these higher numbers can fully be explained by use of publication materials.

Although youth are more often the reported target audience of survey respondents, nearly two thirds of those reported reached are adults. Further exploration needs to be done to determine (1) if the difference is due to mailings and other mass media outlets, (2) if there are more adult programs, (3) if the primary outlet for educating youth were not adequately represented in the survey results, or (4) if the results merely reflect Colorado's population (According to the U.S. Census Bureau's 2006 population estimate 24.6% of people in Colorado are under 18). These results also may highlight that adults may be reached more easily through mail and information campaigns than with person to person educational programs.

The survey results indicate that many educators do not know the level of contact time with their audience, as is typically the case with publications. Service learning was in the bottom three educational types reported in four out of five budget categories. This may be due to the significant amount of contact time necessary to move learners from awareness to action through participation in a meaningful service project addressing water issues. Similarly, sessions of a half day or longer were more rarely reported than limited time spent with respondents' target audience. These results indicate that there may be significant opportunity to increase the quantity and quality of action-oriented programs across the state.

With regard to topic, those budgets in the smallest category were the only ones where riparian/wetland and aquatic life topics were in the top three reported frequencies. This indicates that the large numbers of small budget programs are most focused on environmental issues compared to programs with larger budgets. General Water Education, Water Conservation, and Water Quality were commonly reported as covered topics across all budget categories. Watershed Management was in the top three for the largest three categories. Water Quantity/Supply topics were marked by respondents at levels greater than 56% for the top three budget categories. Water Recreation, Water Treatment, and Water Rights were consistently reported at lower frequencies.

These responses may suggest that basic level water information is being provided in water education programs, and few programs are addressing more specialized topics. While not every topic should be incorporated into educational programming at the same frequency, there are likely additional opportunities to add depth to the water education being covered. This lack of depth may indicate a trend in water education where complex water issues are not addressed as often as more simplistic concepts. Informational materials such as brochures, envelope stuffers, and other printed materials may build basic awareness, yet additional elements that develop appreciation, understanding, and ultimately action are necessary. To develop future leadership, stewardship, and a workforce in water resources the total dollar amount spent on water education could likely be more effectively used if fewer resources were used to support printed materials and more to conduct educational programs.

Survey Weaknesses and Strengths

The survey did have several weaknesses, including that limited data was collected on respondent demographics, making it difficult to stratify the responses or to verify statistical validity of the sample population. The survey was not intended to address program effectiveness. The survey did not identify who the successful educators are, where they are and does not go in depth regarding how successful organizations may be structured. The sampling design relied heavily on social networks, thus providing the potential to skew the data. Lastly, the survey was designed for many different types of educational providers to give input. However, some questions were awkward for various groups, such as teachers for whom the

survey was not designed to explicitly reach. In addition, the definitions of some phrases in the questions were not always clear, leading to some unresolved questions, such as the amount of contact time spent with each respondent's audience.

The strengths of the survey are many. Respondents came from a broad geographic range and diverse set of education providers. While many questions are left unanswered, such as how water education is being implemented in schools and which programs are most effective, the results provide significant insight into what programs are being provided in the state of Colorado for the purposes of water education. There are numerous programs covering a wide variety of topics and utilizing different educational delivery types. Common themes in the focus groups pointed to the need for increased collaboration, and the survey results suggest some areas that are not currently being reached or utilized. These include rural areas in the state, the use of webcasts, and service learning, and education about water rights, water treatment, and water recreation. While the survey indicated that these may be relatively weaker in the state, there are opportunities to decide whether and how to focus on expanding and improving Colorado's water education.

Appendix A – Focus Group Participants

Marta Ahrens[1]	Public Information Officer, Colorado Division of Water Resources
Laura Arndt[3]	Curriculum Specialist, Nature Connections
Peter Barkmann[1]	Ground Water Specialist, Colorado Geological Survey
Troy Bauder[2]	Extension Specialist, Water Quality Dept., Soil and Crop Sciences, Colorado State University
Kelli Bee[3]	Professional Development, Front Range Earth Force
Bette Blinde[3]	Executive Director, Colorado Foundation for Agriculture
Matt Bond[3]	Community Relations, Denver Water
Jacob Bornstein[1,2,3]	Executive Director, Colorado Watershed Network
Natalie Brower-Kirton[3]	Sr. Program Specialist, Aurora Water
Rob Buirgy[1,2,3]	Task Force Coordinator, Colorado Watershed Network
Perry Cabot[2]	Regional Water Specialist, Colorado State University Extension
Jolon Clark[3]	Program Director, South Platte River Environmental Education
Melissa Cole[3]	Off-site programs Coordinator, The Wildlife Experience
Jeff Crane[2]	Executive Director, Colorado Watershed Assembly
Shawna Crocker[1]	Project Learning Tree Coordinator, Colorado State Forest Service
Rita Crumpton[1]	Public Education, Participation and Outreach Workgroup Chair, Interbasin Compact Committee
Casey Davenhill[3]	Watershed Coordinator, Cherry Creek Stewardship Partners
Veva Deheza[1,2,3]	Section Chief, Office of Water Conservation and Drought Planning, Colorado Water Conservation Board
Paul Fanning[3]	Public Affairs Coordinator, Board of Water Works of Pueblo, Colorado
Liz Gardener[2]	Suburban Conservation Coordinator, Denver Water
Ali Goulstone Sweeney[3]	Executive Director, Colorado Alliance for Environmental Education
Wendy Hanophy[1]	Formal Wildlife Education Coordinator, Colorado Division of Wildlife
Barb Horn[1,2]	Water Resource Specialist, Colorado Division of Wildlife
Scott Hummer[1]	Water Commissioner District 36, Division 5, Colorado Division of Water Resources
Ted James[3]	Middle School Science/Civics Teacher, Eagle Valley Middle School
Diane Johnson[3]	Community Relations Manager, Eagle River Water & Sanitation District
Katrina Kalasky[3]	Academic Programs Manager, Cheyenne Mountain Zoo
Nancy Kellogg[3]	Science Education Consultant, Self Employed
Doug Kemper[2]	Executive Director, Colorado Water Congress
Patty Kincaid[3]	Secondary Science Coordinator, Denver Public Schools
Tabbi Kinion[3]	Project WILD Coordinator, Colorado Division of Wildlife
Faye Koeltzow[1]	Volunteer Program Manager, Youth Outreach/Environmental Education, Colorado State Parks
Steve Lundt[2]	Water Quality Scientist, Barr/Milton Watershed Association
Dave Munk[3]	Program Manager, Resource Action Programs
Tim O'Keefe[2]	Education Director Roaring Fork Conservancy
Cynthia Peterson[2]	Program Director/AWARE Colorado, League of Women Voters of Colorado Education Fund
Tammie Petrone[1,2]	Grants Coordinator, Colorado Water Conservation Board

Kevin Reidy[2]	Water Conservation Supervisor, City of Aurora (WaterWise Council)
Curry Rosato[3]	Watershed Outreach Coordinator, City of Boulder/Keep it Clean Partnership
Jo Scarbeary[3]	Project WET Coordinator, Colorado Watershed Network
Nicole Seltzer[2]	Executive Director, Colorado Foundation for Water Education
Theresa Springer[3]	Environmental Education coordinator, Coalition for the Upper South Platte
Curtis Swift[2]	Area Extension Agent Horticulture, Colorado State University Extension
Ray Tschillard[3]	Director, Poudre Learning Center
Ben Wade[1,3]	Water Conservation Coordinator, Colorado Water Conservation Board
Rob Wawrzynski[1]	Conservation Services Division, Colorado Department of Agriculture
Mike Wilde[3]	Educator, Roaring Fork School District
Scott Winter[2]	Senior Water Conservation Specialist, Colorado Springs Utilities

[1]Agency Focus Group participant
[2]Adult Focus Group participant
[3]Youth Focus Group participant

Appendix B - Total and State Revenue as Determined by County

County Where Provider Operates	Number of Respondents	State Max Reported Revenue	Max Reported Total Revenue
Statewide	69	$1,486,000	$5,692,045
Adams	30	$15,000	$1,068,001
Alamosa	5	$0	$34,001
Arapahoe	27	$18,000	$872,001
Archuleta	6	$500	$105,500
Baca	0	$0	$0
Bent	4	$0	$50,100
Boulder	35	$40,000	$1,296,102
Broomfield	16	$10,000	$596,001
Chaffee	6	$3,000	$22,000
Cheyenne	0	$0	$0
Clear Creek	2	$0	$8,000
Conejos	3	$0	$35,000
Costilla	3	$0	$30,000
Crowley	3	$0	$50,000
Custer	0	$0	$0
Delta	6	$0	$223,800
Denver	35	$15,000	$1,182,501
Dolores	3	$500	$105,500
Douglas	28	$15,000	$958,001
Eagle	11	$2,000	$309,500
El Paso	18	$0	$238,000
Elbert	2	$0	$30,000
Fremont	5	$0	$35,000
Garfield	10	$3,000	$264,000
Gilpin	0	$0	$0
Grand	5	$3,000	$112,000
Gunnison	5	$2,000	$266,300
Hinsdale	4	$500	$205,500
Huerfano	0	$0	$0
Jackson	0	$0	$0
Jefferson	38	$15,000	$962,001
Kiowa	1	$0	$0
Kit Carson	1	$500	$500
La Plata	8	$500	$133,500
Lake	2	$0	$5,000
Larimer	21	$0	$705,001
Las Animas	0	$0	$0
Lincoln	0	$0	$0
Logan	2	$0	$3,700
Mesa	9	$0	$397,800
Mineral	5	$500	$135,500
Moffat	2	$0	$150,000
Montezuma	4	$500	$105,500

County Where Provider Operates	Number of Respondents	State Max Reported Revenue	Max Reported Total Revenue
Montrose	11	$3,500	$351,300
Morgan	2	$0	$3,700
Otero	4	$0	$58,000
Ouray	8	$0	$228,800
Park	4	$0	$15,000
Phillips	0	$0	$0
Pitkin	10	$2,000	$185,000
Prowers	3	$0	$50,000
Pueblo	17	$5,000	$166,001
Rio Blanco	3	$0	$175,000
Rio Grande	4	$0	$35,000
Routt	2	$0	$150,000
Saguache	4	$0	$145,000
San Juan	4	$500	$113,500
San Miguel	5	$500	$203,300
Sedgwick	2	$0	$3,700
Summit	7	$0	$160,430
Teller	1	$0	$0
Washington	4	$500	$9,200
Weld	23	$5,000	$340,000
Yuma	1	$500	$500

Appendix C – Focus Group Meeting Summaries

COLORADO WATER EDUCATION TASK FORCE

AGENCY FOCUS GROUP

Daniels Fund Building, Denver
Monday, February 4, 2008
9:00 am – 2:00 pm

MEETING SUMMARY

This summary is intended to provide an overview of the meeting, highlight key points and serve as a basis for future reference. Acronyms are defined on the last page.

Participants (13): Marta Ahrens, Peter Barkmann, Jacob Bornstein, Rob Buirgy, Shawna Crocker, Rita Crumpton, Scott Hummer, Tabbi Kinion, Faye Koeltzow, Veva McCaig, Nicole Seltzer, Ben Wade, Rob Wawrzynski.

Agenda:

- Check In / Introductions
- History & Overview
  - 2001 report & assessment
  - WETF process
- Water Education Objective(s)
  - What is our primary objective?
- Ground-truth Survey
  - Review water education survey
  - Discuss survey results
- SWOT Assessment
  - Limiting Factors and Catalysts
- Next Steps

History & Overview

Rob welcomed the group and reviewed today's agenda. Rob and Jacob briefly reviewed key milestones leading up to this meeting, including the 2001 Water Education report and assessment, House Bill 05-1254, the increasing presence of Colorado government & nonprofits, Colorado Water for the 21st Century Act (IBCC), and WETF progress to date. The role of focus groups was reviewed in light of the goals defined in the WETF scope of work:

> Goal II. Current Status of Colorado Water Education: The task force will generate a report detailing the current status of water education available in Colorado. Members of the planning committee will manage the production of this report by compiling survey results and drafting the report for review and comment by the task force.
>
> Goal III. Water Education Focus Groups: Three focus groups will convene to accomplish the following tasks:
>
> Review the State of Water Education report for accuracy and completeness. Evaluate the effectiveness of current water education relative to their specific audience. Produce meeting summaries describing the most effective aspects of current programs, outlining beneficial changes or extensions, and identifying the resources necessary to optimize water education for their audience.

Water Education Objective

Rob discussed the necessity of establishing a 'draft' objective for Agency Water Education in Colorado. This will serve as the framework for discussing the survey results, limiting factors and catalysts. Participants worked within and between groups (Tables 1-3) to develop key concepts relevant to the question: "What is our primary objective".

1. Table 1. (Ben scribe, Rita, Scott, Nicole)
    a. We need a consistent general message that is factual and crafted for public consumption.
    b. The message needs to be consistent, yet specific to each agency/division.
2. Table 2. (Marta scribe, Peter, Faye, Shawna)
    a. We need clearly identified consistent messages from state agencies.
    b. An executive order from Department Director that defines the blue print to follow and the funding potential. (Reference Colorado's Green Government E.O.)
3. Table 3. (Tabbi scribe, Rob, Veva, Jacob)
    a. Create a coordinated water education effort within agencies through regular meetings and by forming a good communication mechanism.
    b. Optimize funding.

Each table presented their thoughts and general concepts as we worked toward a summary objective. (It was understood that today's objective would require further wordsmithing to create a final draft.) Some general comments included:

1. Consistent message seems like an objective in itself. Be sure to communicate.
2. CFWE's Headwaters magazine has something to offer. All state agencies that deal with water could be featured in something like a citizen's guide. Creating a coordinated effort is important. Recognizes that people's time is valuable. Can't create a consistent external message until we coordinate internally.
3. Water Education (WE) should be put into employees' job descriptions.
4. Funding and executive order. Green Colorado Government is an example. Coordination is valuable to get it done. Executive order from Governor is important in order to develop future staffing. At the very minimum we need to shift resources. We live in a state that is broad and geographically different, so we need to be able to adapt to different areas. Geography/geology is important.
5. Executive Order: Overarching objective, with points underneath it that are specific and time-bound. Rob asked Ben and Veva to help develop this; they agreed.
6. The WETF process will allow us to assign responsibility to track efforts and evaluate changes over time.
7. Phase II could look at teachers and effectiveness. We need to acknowledge status of what's going on with new standards and the fact that CO leaves curriculum decisions up to local schools. Governor mandate to include WE in schools could be huge.
8. Rita wants to make sure that state funding doesn't get pulled from groups not using this joint message. That's not a good a road to go down. Questioned whether a general objective would be just among agencies or broader. Could be a high elevation message like: "Water in Colorado is a Scarce Resource".

Participants reached general agreement on a summary objective such as… "Develop and support the dissemination of consistent public messages across agencies through coordinated internal communication." [Coordination includes topics, audiences, and funding elements.]

Ground-truth Survey
Rob gave a brief overview of the water education survey, with a look at the different methods available for summarizing the 293 responses. The group went over some survey results and discussed the relative merits of different ways to represent the WETF survey results, the most helpful geopolitical unit for organizing the survey results, and whether the WETF survey adequately represents the current status of Water Education in Colorado.
Participants reflected on their impressions, based on reviewing the survey results that were available before today's meeting. Detailed responses are included in separate table of focus group meeting responses. The following highlights emerged:
Survey strengths: Probably accurate because the response rate is good and includes a good portion of the folks out there. We now have an electronic database that we can tap into and identify types of water education that are available and the providers. Strong effort to actually do this and that we have DNR director's involvement gives it backbone.
Survey weaknesses: Limited value because we had to speak to so many different types of folks. Some of the questions are a little awkward and couldn't get specific enough. Doesn't provide a good picture of effectiveness and what's happening on the ground, which would require a different setting, with different timeline. Some agency representatives didn't know about the survey or who was receiving it and replying for their agency. (NOTE – survey was re-opened on 2/4/2008) No Groundwater as listed topic. We are missing a liaison with Department of Education.

SWOT Assessment
Rob presented the general concept of analyzing our common Youth WE objective through a 'SWOT' analysis. Participants worked individually and in small groups to develop their own assessments of internal strengths and weaknesses, and external opportunities and threats – in terms of successfully accomplishing today's draft objective. Individual responses were compared and prioritized. Some time was spent discussing the highest priority responses, which are included in the table on the last page of this summary.

Next Steps
Consider options for Agency sustainability, especially in light of the retirement bubble that is coming. Rob will distribute a draft summary of this meeting and will include today's participants in WETF email correspondence.

Acronym Definitions

CAEE – Colorado Alliance for Environmental Education
CDA – Colorado Department of Agriculture
CDE – Colorado Department of Education
CDOW – Colorado Division of Wildlife
CDPHE – Colorado Department of Public Health and Environment
CFWE – Colorado Foundation for Water Education
CGS – Colorado Geological Survey
CRWCD – Colorado River Water Conservation District
CSAP – Colorado Student Assessment Program
CSFS – Colorado State Forest Service
CSP – Colorado State Parks
CWCB – Colorado Water Conservation Board
CWA – Colorado Watershed Assembly
CWC – Colorado Water Congress
CWN – Colorado Watershed Network
CWRRI – Colorado Water Resources Research Initiative
DNR – Colorado Department of Natural Resources
DWR – Colorado Division of Water Resources
IBCC – Colorado Interbasin Compact Committee
NCWCD – Northern Colorado Water Conservancy District
NRCS – Natural Resource Conservation Service
PEPO – IBCC Public Education, Participation, and Outreach Work Group
PLC – Poudre Learning Center
SPREE – South Platte River Environmental Education
USDA – U.S. Department of Agriculture
USEPA – U.S. Environmental Protection Agency
USGS – U.S. Geological Survey
WE – Water Education
WET – Water Education for Teachers
WETF – Colorado Statewide Water Education Task Force
WQCD – Colorado Water Quality Control Division

General	Help	Harm
Internal	➢ State agencies have ability to reach a lot of people; wide geographic spread with internet sites too; State has universal/statewide perspective whereas many other groups only focus on their needs. What would you do to take advantage of that? Take advantage of existing technology. Sites are there, but not the work to get people to access them. ➢ We have internal experts with lots of passion and motivation. If American Groundwater Trust came and asked, we would do it, but there's not an internal mandate and direction to do so. We need buy-in from the top, even something as bland as an expectation that a certain number of hours goes to WE. ➢ DNR has long-term employees, so lots of institutional knowledge and expertise. ➢	➢ Lack of resources in form of funding and staff; need dedicated staff in agencies, not 10-20% time. ➢ Political mindset: role employees play. Culture of organization prevents them from moving forward on issues; need to be better at internal education. ➢ Lack of communication between agencies in the state. ➢ Must develop new leaders and new experts because a lot of people are retiring.
External	➢ Local groups look to state for help. ➢ There is attention to a wide variety of water issues. ➢ Climate Change and drought also create an opportunity.	➢ Multiple varying messages from groups statewide (age, quality vs quantity, geographic). Need a stock program to start and then they can also focus on their issues. ➢ Demographics ➢ Overwhelming amount of resources, materials, booklets, speakers, etc. ➢ Constant turnover and new faces arriving in the state is tough.

COLORADO WATER EDUCATION TASK FORCE

ADULT FOCUS GROUP

Daniels Fund Building, Denver
Tuesday, February 5, 2008
9:00 am – 2:00 pm

MEETING SUMMARY

This summary is intended to provide an overview of the meeting, highlight key points and serve as a basis for future reference. Acronyms are defined on the last page.

Participants (15): Jacob Bornstein, Rob Buirgy, Perry Cabot, Jeff Crane, Liz Gardener, Barb Horn (telecon), Peter Lavigne (telecon), Steve Lundt, Veva McCaig, Cynthia Peterson, Tammie Petrone, Kevin Reidy, Nicole Seltzer, Ben Wade, Scott Winter (telecon).

Agenda:

- Check In / Introductions
- History & Overview
  - 2001 report & assessment
  - WETF process
- Water Education Objective(s)
  - What is our primary objective?
- Ground-truth Survey
  - Review water education survey
  - Discuss survey results
- SWOT Assessment
  - Limiting Factors and Catalysts
- Next Steps

History & Overview

Rob welcomed the group and reviewed the agenda. Rob and Jacob briefly reviewed key milestones leading up to this meeting, including the 2001 Water Education report and assessment, House Bill 05-1254, the increasing presence of Colorado government & nonprofits, Colorado Water for the 21st Century Act (IBCC), and WETF progress to date. The role of focus groups was reviewed in light of the goals defined in the WETF scope of work:

> Goal II. Current Status of Colorado Water Education: The task force will generate a report detailing the current status of water education available in Colorado. Members of the planning committee will manage the production of this report by compiling survey results and drafting the report for review and comment by the task force.
>
> Goal III. Water Education Focus Groups: Three focus groups will convene to accomplish the following tasks:
>
> Review the State of Water Education report for accuracy and completeness. Evaluate the effectiveness of current water education relative to their specific audience. Produce meeting summaries describing the most effective aspects of current programs, outlining beneficial changes or extensions, and identifying the resources necessary to optimize water education for their audience.

Water Education Objective
Rob discussed the necessity of establishing a 'draft' objective for Adult Water Education in Colorado. This will serve as the framework for discussing the survey results, limiting factors and catalysts. A significant amount of discussion ensued with key concepts generated by small groups (Tables 1-3):

4. Table 1.
    a. "Modify Behavior through statewide collaboration of water educators." *Ethics* translated into action. Awareness isn't enough. We have 300 people who filled out the survey, so we have to get them together. No one can reach the whole audience. Modify behavior through statewide collaboration of water educators. Unify message across the state. Accomplish this objective by… 2010.
5. Table 2.
    a. Colorado's adult population will understand the *value of water* and the challenges specific to CO's water, including the complex interrelationships to manage their lives and businesses accordingly, including engaging in the political process, by 2020.
6. Table 3 (phone).
    a. Water management and policy are as much about land use, population growth, human health, ecosystems, security, and policy as they are about science, aquifers and rivers. Colorado water education needs to examine local, regional and global challenges for rivers and other fresh water supplies and catalyze action at all levels. Use water as if it were a limited resource.
    b. Make sure that people *value water* as a finite resource and therefore take action in using it wisely. Attempt to understand the complex local and regional issues.
    c. We need to flush out true results from strategies and then put them back in one statement. Talk about enough details to support financial, water use, and voting decisions.

Each table presented their thoughts and general concepts to serve as a basis for the following discussion:

1. We are looking for behavioral changes that reflect an understanding of water as a scarce resource.
2. Trying to connect behaviors to values. Shift from securing supply. Instead of a year-based timeframe, look at the age of a person. Think about population doubling in several years. Throw out (propose) an age target: behaviors that we are targeting might be different, depending on age. We want consistent movement toward an eventual goal. If we can get agreement it can happen quickly. Presuppose that audience comes out of K-12 process with a basic level of understanding on which we could build. Can imagine a packet from realtors. They did this in Oregon: created an Oregon "Owners User Manual".
3. Preference would be to start with behavior change based on understanding: that's the ultimate achievement we're looking for. We want people to act on what they understand and then work backwards into the elements of our education programs. One note of caution: when we talk about values we can quickly get into conflict. There might be one or two values that the whole state can agree on, but we'll likely start running into roadblocks. How do we talk about values? Let's not list values, but perhaps focus on the "worth of water".
4. Our objective is for Colorado Citizens to reflect their understanding of water as a complex and limited resource through their personal behaviors, business activities, and political engagement. We should not focus on changing values, but try to build off them. "Limited resource" is too focused on quantity issues, perhaps limited and vulnerable would be better. Water is not inherently limited, but limited in context. It's a shared resource. Shared and vulnerable? We are going to have climate change and growth which will lead to a limited or finite resource. Focusing on shared values would allow each water education provider to find our niche. Get people to care enough to use water responsibly, efficiently and to protect it. We don't want to support specific

values, but we must be specific about what the issues are. We want to keep people in the room from the start.

5. Try this objective: "Because water is a shared, finite, and vulnerable resource, the various segments of the adult population will understand and be catalyzed into action at all levels to support water-defined objectives and benchmarks by 2020".
    a. Values: coordination is needed across the various water education providers.
    b. Possible ways to measure success: SWSI - conserve x amount of water; WQCD - reduce NPS pollution by x percent, get x number of streams off list; CDOW - habitat?
    c. This discussion sounds like the metro mayor's caucus… they had a list of political goals for water, but nobody could agree on measurable outcomes. They wanted to keep it general and level up from that. This is the place where we need to get on the hamster wheel. This might turn some people off.
    d. We all have little niches, but need to get away from those alley-ways and get away from those camps. Need to avoid getting tied to quantity and quality thing. Need to have a baseline and a list of desired behaviors and still have desired end goals and have them behavior- rather than water-based. It's hard to compare gallons/capita. Systems and water rights and goals and starting points are so different. The underlying story is not always evident. Can look at systems by a number of different factors. Behavior change isn't linear with WQ change. Those changes may be very small related to large behavior changes. Could be trumped by growth or weather, so we're not going to be able to measure specific behaviors. There's an interesting anecdote in farming that it's the neighbor causing the problem. Why do we do water education? If our ultimate goal is quality, maybe a measurable indicator would be more related to specific activities. Not a matter of what we're trying to achieve, but what are the small steps that get us there. We can lump audiences. Could count the number of green houses that incorporated appropriate building materials. There can be softer measureable outcomes like acres of land put into xeriscaping or number of 5-star washing machines purchased per capita.
    e. Another version of a common objective was proposed:

        "Adult education providers shall conduct their programs so that targeted adult segments of Colorado's citizens understand that water is a shared, finite, and vulnerable resource and work to catalyze them to act accordingly (in a measurable manner/at all levels?). To that end, my organization will measure x changes in behavior with regard to water quality, quantity, land use, growth, habitat, engagement (political or otherwise), and/or etc. Attached will be listed with specific goals and resources that can help. OR… In addition, water education providers will identify their audience, outputs, and desired outcomes to facilitate collaboration between them."
    f. We could compile and coordinate programs to address target audiences with pre-determined activities to elicit a large scale effect. How do we want our audience to change… more conscious decisions about how they vote or behave? Specify results, strategies, etc. We could use these ideas to niche our programs and find where we're overlapping.
    g. Could say: "As a water education provider we ascribe to this measurable goal". Or… "Water education providers will structure programs so that their audience will… and act accordingly". Most of us do not have our organization's mission written that way. It would be helpful to rely on a logic model, with specified participants, outputs and outcomes. With a common approach we could produce a spreadsheet with all of our programs. We could see that there are three other people working on x, so let's work together. This would give some structure to what we want to do. This type of thing would be a collaboration tool in and of itself.

h. Have it be an invitation…. "Help us understand how your organization structures your work". We all do good stuff and reach targeted audiences, but we're not connecting and collaborating across the board. We need to connect better. We need to establish specific targets for water quality and quantity.

Ground-truth Survey
Rob gave a brief overview of the water education survey, with a look at the different methods available for summarizing the 293 responses. Participants reflected on their impressions, based on reviewing the survey results that were available before today's meeting. Some general ideas were to sort charts from hi to low and to include locations of respondents on maps. One issue is that we're not all operating on the same geographic units - it would be good to know what's going on by roundtables or 8 digit HUC's. This would encourage everyone to work on watershed scale. We must put limitations of data in report.

SWOT Assessment
At this point in the meeting (which started late due to inclement weather), participants were asked to answer the following questions and submit their answers in writing. Responses will be compiled and considered by the task force as they produce the final WETF report.

(1) Which organization(s) do you believe would be the best fit for hosting the WETF web pages?

(2) Today we agreed to support a common 2-part objective for providers of Adult Water Education in Colorado. Do you have any new thoughts to share regarding this statement?
The *draft* version is:
*Colorado's water education providers shall conduct their adult education programs in a manner that promotes a deeper understanding (*appreciation*?) of the shared, finite, and vulnerable nature of our water resources. It is our intent that Colorado's citizens will consistently apply this knowledge in their daily decisions and activities.*

In order to improve our effectiveness and facilitate collaboration, we will clearly identify our targeted audience(s), the necessary outputs and the desired outcomes *(*are these the correct terms*?) for each of our water education programs. We will use these program objectives to assess our performance on a regular basis. (See attached program descriptions.)*

(3) Discuss the relative merits of different ways to represent the WETF survey results, with particular attention to the following formats:
(a) Tables of summary data
(b) Simple bar charts, sorted in meaningful ways
(c) Geographic representations (map based)
(i) What would be the most helpful geopolitical units for organizing the survey results?

(4) Does the WETF survey adequately represent the current status of Water Education in Colorado? (In general or specifically adult-oriented, your choice.)

(5) List 2-3 real Colorado examples for each of the following factors that affect our chances of accomplishing our shared water education objective:
(a) internal (organizational) factors that improve our chances (help),
(b) internal factors that limit our success (hurt),
(c) external (cultural, political, or geographic) factors that help,
(d) external factors that hurt.

Next Steps

Liz Gardener offered to print up to 1000 black and white copies of a WETF summary. Rob will distribute a draft summary of this meeting and will include today's participants in WETF email correspondence.

Acronym Definitions

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CDA – Colorado Department of Agriculture
CDE – Colorado Department of Education
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PLC – Poudre Learning Center
USDA – U.S. Department of Agriculture
USEPA – U.S. Environmental Protection Agency
USGS – U.S. Geological Survey
WETF – Colorado Statewide Water Education Task Force
WQCD – Colorado Water Quality Control Division

COLORADO WATER EDUCATION TASK FORCE

YOUTH FOCUS GROUP

Daniels Fund Building, Denver
Wednesday, February 6, 2008
9:00 am – 2:00 pm

MEETING SUMMARY

This summary is intended to provide an overview of the meeting, highlight key points and serve as a basis for future reference. Acronyms are defined on the last page.

Participants (22): Laura Arndt, Kelli Bee, Bette Blinde, Jacob Bornstein, Natalie Brower-Kirton, Rob Buirgy, Jolon Clark, Casey Davenhill, Paul Fanning, Liz Gardener, Ali Goulstone-Sweeney, Ted James (telecon), Diane Johnson, Katrina Kalasky, Nancy Kellogg, Tabbi Kinion, Dave Munk, Curry Rosato, Jo Scarbeary, Theresa Springer (telecon), Ben Wade, Mike Wilde.

Agenda:

- Check In / Introductions
- History & Overview
  - 2001 report & assessment
  - WETF process
- Water Education Objective(s)
  - What is our primary objective?
- Ground-truth Survey
  - Review water education survey
  - Discuss survey results
- SWOT Assessment
  - Limiting Factors and Catalysts
- Next Steps

History & Overview

Rob welcomed the group and reviewed today's agenda. Rob and Jacob briefly reviewed key milestones leading up to this meeting, including the 2001 Water Education report and assessment, House Bill 05-1254, the increasing presence of Colorado government & nonprofits, Colorado Water for the 21st Century Act (IBCC), and WETF progress to date. The role of focus groups was reviewed in light of the goals defined in the WETF scope of work:

> Goal II. Current Status of Colorado Water Education: The task force will generate a report detailing the current status of water education available in Colorado. Members of the planning committee will manage the production of this report by compiling survey results and drafting the report for review and comment by the task force.
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> Goal III. Water Education Focus Groups: Three focus groups will convene to accomplish the following tasks:
>
> Review the State of Water Education report for accuracy and completeness. Evaluate the effectiveness of current water education relative to their specific audience. Produce meeting summaries describing the most effective aspects of current programs, outlining beneficial changes or extensions, and identifying the resources necessary to optimize water education for their audience.

Rob presented a definition of education as an intentional effort to move learners toward higher levels of cognition. This was discussed using Bloom's Taxonomy as an illustration: Knowledge→Comprehension→Application→Analysis→Synthesis→Evaluation. Participants were comfortable with this, with an emphasis on the implied progression from awareness to action.

Participants were asked to spend time during today's meeting composing answers to the following questions and to submit their answers in writing. Responses will be compiled and considered by the task force as they produce the final WETF report.

(1) Which organization(s) do you believe would be the best fit for hosting the WETF web pages?
(2) Today we will attempt to support a common 2-part objective for providers of Youth Water Education in Colorado. The *draft* version will be co-created during today's meeting.
(3) Discuss the relative merits of different ways to represent the WETF survey results, with particular attention to the following formats:
 (a) Tables of summary data
 (b) Simple bar charts, sorted in meaningful ways
 (c) Geographic representations (map based)
  (i) What would be the most helpful geopolitical units for organizing the survey results?
(4) Does the WETF survey adequately represent the current status of Water Education in Colorado? (In general or specifically youth-oriented, your choice.)
(5) List 2-3 real Colorado examples for each of the following factors that affect our chances of accomplishing our shared water education objective:
 (a) internal (organizational) factors that improve our chances (help),
 (b) internal factors that limit our success (hurt),
 (c) external (cultural, political, or geographic) factors that help,
 (d) external factors that hurt.

Water Education Objective
Rob discussed the necessity of establishing a 'draft' objective for Youth Water Education in Colorado. This will serve as the framework for discussing the survey results, limiting factors and catalysts. Participants worked within and between groups (Tables 1-4) to develop key concepts:

7. Table 1 (Kelly scribe).
    a. **Core:** Common and consistent themes statewide through local opportunities
    b. **Objective 1:** We as youth water education providers agree to create a continuum of opportunities for youth to participate in that ensure educated, connected, and active citizens
    c. **Objective 1.1**: We as youth water education providers agree to create a continuum of opportunities for youth to participate in, that ensure educated, connected, and active citizens by age 18 (via statewide linked experience, water literacy)
    d. **Objective 2.0**: All Colorado youth by age 18 will participate in a continuum of water education opportunities that create understanding and respect our water resources and ensures water stewards who are educated and engaged in every day choices.
8. Table 2 (Jo scribe).
    a. **Core:** Personal experience that results in action.
    b. **Objective 1:** Develop understanding and appreciating of water resources through transfer of knowledge and personal experiences which leads to direct effective stewardship, conservation and action.
    c. **Time:** 70% coverage by 2011 for K-12 age group will be affected.

    d. **Objective 1.1**: *By age 18 all Co. youth will have* Developed an understanding and appreciating of water resources through an age appropriate continuum of knowledge and personal experiences which leads to direct effective stewardship, conservation and action.
    e. **Objective 2.0**: Establish a continuum of Colorado water resource education experiences (knowledge to issues(that creates personal connections leading to active water stewards at the individual, family, and community levels.
9. Table 3 (Laura scribe with phone).
    a. **Core:** Continuum of experiences to create educated citizen that can think critically
    b. **Objective 1:** Establish a continuum of water education experiences (knowledge to issues) that creates personal connections leading to informed decision making. (pre K-12)
    c. Could create an exit exam low stakes before grad high school.
    d. **Objective 1.1**: Establish a continuum of water education experiences (knowledge to issues) that creates personal connections leading to informed *life long* decision making. (pre K-12)
    e. **Objective 2.0**: By age 18 Colorado youth will have an understanding and respect of water resources through an age appropriate continuum of knowledge and personal experiences which leads to effective active stewardship guided by knowledgeable decision making.
10. Table 4 (Natalie scribe).
    a. **Core:** Good lifelong water stewards
    b. **Objective 1:** All Colorado Youth by age 18 understand that water is a shared, limited community resource and become lifelong water stewards.
    c. **Objective 1.1**: Same as above
    d. **Objective 2.0**: By age 18 Colorado's youth are educated, connected, and engaged community citizens as stewards of our states water resources by providing a continuum of opportunities and linked experiences.

Each table presented their thoughts and general concepts as we worked toward a summary objective. (It was understood that today's objective would require further wordsmithing to create a final draft.) Some general comments included:

1. We want this common objective to serve as a context for gap analysis and funding availability.
2. This will create a framework for WE providers to plug into.
3. We need to include both formal and nonformal education as we discuss Youth WE.

Summary draft 1.0: Collaborate to establish a continuum of age appropriate water resource educational opportunities for youth to participate in, which ensure lifelong educated, connected, and engaged stewards who respect Colorado's water resources by age 18.

Summary draft 1.1: Collaborate on a sustainable continuum of educational experiences, which leads to youth who understand and respect water resources and are personally connected, life-long engaged stewards by age 18.

Given a general agreement on Summary draft 1.1, participants moved to discussing the survey results and writing their responses to the remaining questions on today's assignment.

Ground-truth Survey

Rob gave a brief overview of the water education survey, with a look at the different methods available for summarizing the 293 responses. Participants reflected on their impressions, based on reviewing the survey results that were available before today's meeting. Specific ideas were included in participants' written comments.

SWOT Assessment
Rob presented the general concept of analyzing our common Youth WE objective through a 'SWOT' analysis. Participants worked individually and in small groups to develop their own assessments of internal strengths and weaknesses, and external opportunities and threats – in terms of successfully accomplishing today's draft youth water education objective. Individual responses were collected and will be compiled in the meeting summary. Some time was spent identifying key responses, which are included in the table on the last page of this summary.

Next Steps
Rob will distribute a draft summary of this meeting and will include today's participants in WETF email correspondence.

Acronym Definitions

CAEE – Colorado Alliance for Environmental Education
CDA – Colorado Department of Agriculture
CDE – Colorado Department of Education
CDOW – Colorado Division of Wildlife
CDPHE – Colorado Department of Public Health and Environment
CFWE – Colorado Foundation for Water Education
CRWCD – Colorado River Water Conservation District
CSAP – Colorado Student Assessment Program
CWCB – Colorado Water Conservation Board
CWA – Colorado Watershed Assembly
CWC – Colorado Water Congress
CWN – Colorado Watershed Network
CWRRI – Colorado Water Resources Research Initiative
DNR – Colorado Department of Natural Resources
IBCC – Colorado Interbasin Compact Committee
NCWCD – Northern Colorado Water Conservancy District
NRCS – Natural Resource Conservation Service
PEPO – IBCC Public Education, Participation, and Outreach Work Group
PLC – Poudre Learning Center
SPREE – South Platte River Environmental Education
USDA – U.S. Department of Agriculture
USEPA – U.S. Environmental Protection Agency
USGS – U.S. Geological Survey
WE – Water Education
WET – Water Education for Teachers
WETF – Colorado Statewide Water Education Task Force
WQCD – Colorado Water Quality Control Division

General	Help	Harm
Internal	Strengths ➢ Shared objective is fantastic! ➢ CAEE can be a tool and provide collaboration in a place to include all WE providers. ➢ CDOW has created some exhibits that are water-based and they received grants to develop curriculum for schools. ➢ Water Resources for CDOW is mission related b/c wildlife depend on enough clean water. Very important to CDOW. ➢ There's this unifying theme of water, and within Task Force, there's a plethora of knowledge and skills that are in the room. We need to figure out how to tap that. ➢ CWCB: we have resources. ➢ Cheyenne Mountain Zoo: with this collaboration, now we know who to talk to if we need water information. ➢ RAPs: need to reach out to all teachers to be gateway to overall continuum and with his emphasis on quantitative results and measures of success. He can measure impacts.	Weaknesses ➢ We have a lot to learn in the area of evaluation and assessment for our programs. Assessment is critical. ➢ Not enough dollars, and we have a hard time identifying a tangible result. ➢ Election year is much harder because money goes to the political process.
External	Opportunities ➢ Public attention to threats of climate disruption will increase public support for EE and therefore water education. ➢ Most excited by opportunity to collaborate and work together with shared objective and underlying goals to create a more cohesive experience for youth in Colorado. Together we can accomplish more than anyone can accomplish by ourselves. ➢ Water is a high profile community issue, there is a vacuum and people are very desirous to fill it. ➢ Good to know the State of Colorado is excited about water education and interested in engaging a diverse group as they take that journey. ➢ Follow up with professional development opportunities for providers. Could be a role for the Task Force.	Threats ➢ General idea that youth of Colorado will just learn this stuff and tell their parents. Kids and youth are water users NOW - that needs to be a focus. ➢ Growing state and mobile community. In Eagle County, for instance, 40% change over in students in one year. Linked experiences have got to be throughout a child's life so that at any point that they enter they can start learning those messages. But cannot stop basic message because there's always somebody new. "Think about water." ➢ We don't know what the general messages are across the board. Is it quality, quantity, wildlife, etc?