CHAPTER 8 – PUBLIC EDUCATION AND PARTICIPATION

This chapter provides an overview of the public participation process that was used to involve and educate watershed residents in the development of the Belle River Watershed Management Plan (WMP) and the Involvement and Education (I&E) campaign that will be used to implement this WMP. Incorporating stakeholder information is essential in developing a WMP that is responsive to local conditions. A major objective of the I&E campaign is to educate the public about the long-term importance of protecting and managing the Belle River Watershed.

8.1 Public Involvement Process

Several opportunities for public outreach and input occurred during the course of planning. Among them, most input came from the Watershed Advisory Group (WAG) meetings and subcommittee meetings (Section 8.2), two public meetings (Section 8.3), and a public input survey (Section 8.4). Additional public education and outreach methods have included:

Storm Water Website – The SCCHD maintains www.sccwater.org which contains information on watershed planning processes, watershed activities, and storm water education materials. The website is updated regularly.

Stream Leaders Volunteer Monitoring Program – This program is a partnership with Friends of the St. Clair River and empowers residents, by collection of macroinvertebrates twice a year at four Belle River sites, to understand the health of the river (Figure 8.1). Belle River score cards are distributed twice a year.

Figure 8.1 Stream Leader volunteers conducted macroinvertebrate monitoring on the Belle River at the Indian Trail Road Bridge in China Township.

Woods-n-Water Event – SCCHD organized a booth at this annual event (Imlay City, Lapeer County) which helped drive interest and awareness for the Belle River project.

Displays – Water quality and watershed themed table-top displays along with handouts were provided at public events and public facilities.

Watershed Brochure – A SCCHD brochure that explains watersheds and encourages community participation was distributed at many municipal offices and watershed events.

The Blue Watershed News – The SCCHD's newsletter is emailed twice a year containing storm water education articles, information on watershed activities throughout the county, and updates on the watershed planning process.

8.2 Watershed Advisory Group and Subcommittee Meetings

The Belle River Watershed Advisory Group (WAG), comprised of citizens, non-profit agencies, and local units of government that have jurisdiction over land use and stormwater management in the watershed, formed to assist with the development of this WMP (Table 8.1). The WAG meetings began in April 2012, met regularly through early 2015, and provided input on concerns and threats to the Belle River and helped to develop the WMP's goals and objectives. This newly formed watershed planning group, unlike other watershed planning groups in Macomb and St. Clair Counties, does not have a focus on the Phase II stormwater regulations; although a number of the WAG representatives participate in these other groups as their communities span multiple subwatersheds.

Under the WAG, four subcommittees formed to oversee specific topics related to the development of this WMP. Each subcommittee consisted of about ten individuals from the WAG that met as needed throughout the planning process. A description of each subcommittee follows:

Public Education Subcommittee
The Public Education Subcommittee worked to ensure the public was educated and had the opportunity to participate in the watershed planning process. This subcommittee was responsible for two watershed-wide family education events; development and distribution of public education materials; conducting a social survey; planning three focus group meetings; and providing guidance for public communications during the project.

Field Assessment and Woody Debris Subcommittee
The Field Assessment Subcommittee assisted with field assessments, evaluations, and surveys related to field work and log jams. This subcommittee oversaw inventory of past data and identification of data needed; prioritization of field work; field surveys and monitoring activities; and identification of critical areas.

Conservation and Protection Subcommittee
The Conservation and Protection Subcommittee identified priority areas for protection such as wetlands, woodlands, buffers along the river, public access to the river, etc. This group developed recommendations for land use planning tools, engineering standards, and other protection and conservation strategies for the watershed.

Headwaters Subcommittee
This subcommittee worked to review and assess conditions of the upper portion (Zone 1) of the watershed from Berlin Township, St. Clair County west into Lapeer County where agricultural practices are most dominant and where the river is not meeting the state's criteria for water quality. This group identified recommendations for improving water quality in this area.

Table 8.1 Participants in the Belle River Watershed Advisory Group

St. Clair County Agencies	Operating Agreement	Watershed Rep
St. Clair County Board of Commissioners		P
St. Clair County Drain Commissioner's Office	P	P
St. Clair County Health Department y	P	P
St. Clair County Metropolitan Planning Commission	P	P
St. Clair County Parks and Recreation	P	P
St. Clair County MSU Extension	P	
St. Clair County Road Commission	P	P
St. Clair County Communities	**Operating Agreement**	**Watershed Rep**
Berlin Township	P	
Casco Township	P	P
China Charter Township	P	
City of Marine City y		P
City of Memphis	P	P
Columbus Township	P	P
Cottrellville Township		
East China Charter Township y		
Emmett Township		
Mussey Township		
Riley Township	P	P
St. Clair Township		
Village of Capac		
Macomb County Agencies	**Operating Agreement**	**Watershed Rep**
Macomb County Road Commission	P	
Macomb County Health Department	P	P
Macomb County MSU Extension	P	
Macomb County Planning and Economic Development	P	P
Macomb County Public Works Office y	P	P
Macomb County Communities	**Operating Agreement**	**Watershed Rep**
City of Richmond		P
Richmond Township	P	
Lapeer County Agencies	**Operating Agreement**	**Watershed Rep**
Lapeer Conservation District	P	
Lapeer County Drain Commissioner	P	P
Lapeer County Health Department	P	P
Lapeer County Communities	**Operating Agreement**	**Watershed Rep**
Almont Township		
Attica Township		
Dryden Township		P
Imlay City	P	P
Imlay Township		
Regional and State Agencies	**Operating Agreement**	**Watershed Rep**
Michigan Department of Environmental Quality		P
Michigan Department of Natural Resources		P
USDA Natural Resource Conservation Service	P	P
Southeast Michigan Council of Governments		P
State Representative-Candice Miller's Office		P
Non-Profits	**Operating Agreement**	**Watershed Rep**
Blue Water Sierra Club		
Friends of the Polly Ann Trail, Lapeer County		
Friends of the St. Clair River Watershed		P
Six Rivers Land Conservancy		P
St. Clair River Sturgeon for Tomorrow		P
y Indicates NPDES Phase II Permit Holder		

8.3 Public Meetings

In order to gain input from the public outside the WAG, two public meetings were held in early 2014. At these meetings, the public was introduced to the watershed planning process and asked to give input on pollutants, concerns, and desired uses. The first meeting was held January 28, 2014 in the downstream portion of the Belle River in East China Township, St. Clair County and specifically targeted residential property owners. The second meeting was held February 6, 2014 in the headwaters in Imlay City, Lapeer County to engage agricultural property owners. Attendance was good at both meetings despite adverse winter weather conditions; 37 people attended the East China Township meeting, and 28 people attended the Imlay City meeting.

Figure 8.2 Public meeting held on January 28 at Southeast Michigan Conservation Club in East China Township

At each meeting, a presentation was given by SCCHD and consultants for the County to discuss current water quality challenges. In addition, a NRCS presenter discussed farming conservation practices at the Imlay City meeting. A questionnaire was distributed to get input on what attendees perceived to be the worst problems, the most needed improvements, and priority water quality issues. Small break out groups allowed for more in-depth discussion about residents' priorities and concerns.

The public meetings were advertised through press releases and radio interviews and received favorable articles in four local newspapers including the Lapeer Press, Times Herald, Tri-City Times, and The Voice. In addition, fliers were distributed to municipal offices and libraries and personal invitations were sent to interest groups and local officials.

Despite the public meetings being held in two contrasting areas of the watershed each with distinct land uses and values, stakeholders at both public meetings ranked their top three concerns identically.

Top Public Meeting Concerns:

- Overall water quality and the river's health
- Fish and wildlife habitat protection
- Dumping of trash and litter in the river

At the East China Township meeting, specific concerns were log jams, flooding, river cleanups, and bank erosion. Attendees were most interested in how to acquire the necessary permits for Large Woody Material (LWM) removal work and how to initiate volunteer stream clean-up projects. Attendees were least interested in learning about what

Public Meeting Responses

Based on input collected from suburban and agricultural residents during two public meetings, forested buffer and riparian buffer BMP's were noted to be top priority education topics. It is also important to note that most residents seemed to think that trees cause bank erosion rather than the other way around.

they can do to prevent pollution and protect the river as they ranked these two activities as least important. When asked to rank the top priority actions that the WMP should address, stakeholders ranked the following improvement actions in order.

Improvement Actions Ranked by Residential Property Owners

Most important

Reduce Stormwater Runoff Pollutants
Reduce the amount of lawn fertilizers, pesticides/herbicides, and phosphorous runoff from lawns and agricultural areas.

Conduct River Clean-ups
Lead organized efforts to clean-up trash and debris and remove log jams from the river.

Educate the Public
Expand education efforts about the importance of protecting the Belle River.

Ordinance Development/ Master Plan Review
Increase community planning & investments in land along waterways to ensure water quality protection measures are incorporated.

Conserve and Protect Fish and Wildlife Habitat
Preserve existing wetlands, forests & areas along waterways, construct new habitat, restore existing habitat.

Reduce Bacterial Inputs and Sediment Loads
Reduce the amount of animal and human sewage reaching waterways, and better control soil erosion and sediment that washes off into waterways.

Least important

Reduce storm water flows, and conduct periodic monitoring activities
Minimize excessive flows that cause flooding & bank erosion, and monitor tributaries, county drains and the river for contaminant levels and biodiversity of aquatic life.

Enhance recreational opportunities
Increase the amount of recreational areas, parks, and canoe/kayak public access along the river.

At the Imlay City meeting, attended largely by farmers, the specific concerns encompassed preservation of agricultural land, floodplain protection, and dredging and clearing watercourses for better flow. In addition to the top three concerns mentioned above, attendees also ranked "high bacteria and nutrient levels" as a concern. The stakeholders ranked in the order of importance the following improvement actions. These actions closely mirror the priority improvement actions ranked by the residential residents.

Improvement Actions Ranked by Agricultural Property Owners

Most important

Reduce Stormwater Runoff Pollutants
Reduce the amount of lawn fertilizers, pesticides/herbicides, and phosphorous runoff from lawns and agricultural areas.

Reduce Bacterial Inputs
Reduce the amount of animal and human sewage reaching waterways.

Educate the Public
Expand education efforts about the importance of protecting the Belle River.

Least important

Ordinance Development/ Master Plan Review
Increase community planning & investments in land along waterways to ensure water quality protection measures are incorporated.

Conserve and Protect Fish and Wildlife Habitat
Preserve existing wetlands, forests & areas along waterways, construct new habitat, restore existing habitat.

8.4 Public Opinion Survey Results

A public opinion survey conducted in spring 2014 was part of an effort to collect baseline environmental awareness and attitudes of watershed residents. The survey used the Social Indicator Planning and Evaluation System (SIPES) methodology and the Social Indicators Data Management and Analysis (SIDMA) tool. The survey allowed for collection of resident's watershed knowledge and opinions about conditions in the watershed and their willingness or impediments to adopting BMP's.

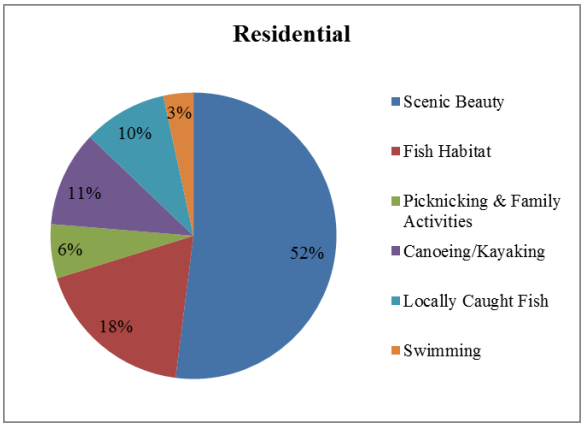
Public Opinion Survey Implementation

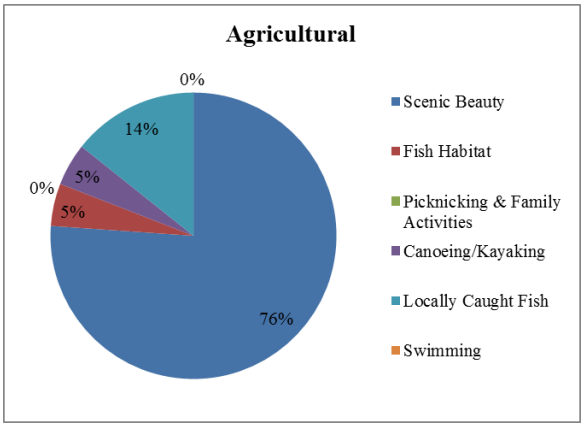
The public opinion survey was administered through a 3-wave mailing to 950 randomly selected agricultural and residential property owners within the watershed boundaries of St. Clair, Macomb and Lapeer counties. St. Clair County Community College was a partner in survey implementation because people are generally leery and opposed to participating in government led initiatives. The agriculture survey went to 95 residents, or 10% of the households and the residential survey went to 90% of the households, or 855 residents.. The elimination of six largely incomplete surveys resulted in 198 valid returns, or a 21% return rate.

8.4.1 Value of Water Quality

Respondents were asked to rate the quality of water for various activities in their community. For residential respondents, scenic beauty was rated the highest ("good") for water quality and picnicking and family activities was rated second in importance; swimming received the lowest ranking ("poor") for water quality.

Question: Of these activities, which is the most important to you?

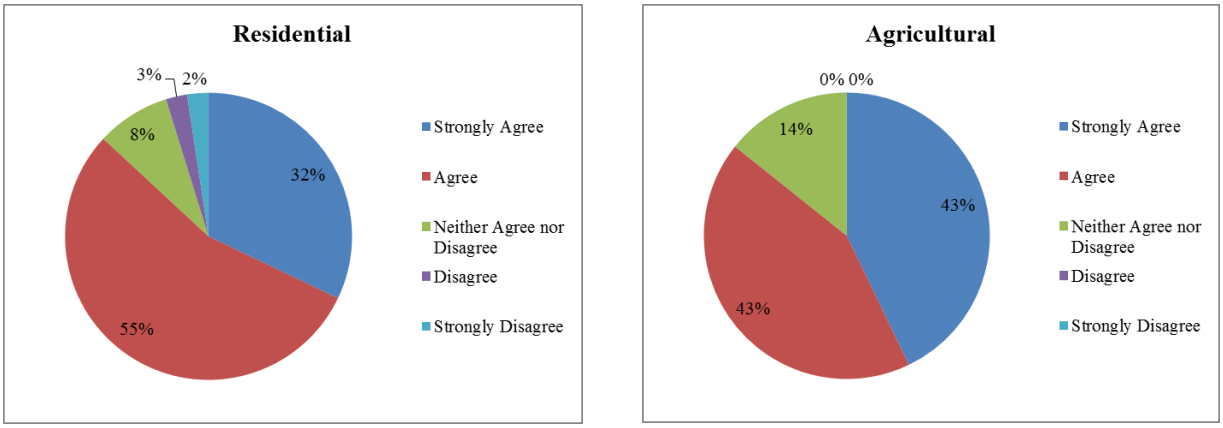




For agricultural respondents, scenic beauty was ranked the highest and fish habitat and eating locally caught fish were the second most important activities. Swimming was the least important activity for both groups. When asked if they knew if they lived in, near, or not all in a watershed, 68.2% of farmers knew that they lived in a watershed compared with only 37.7% of residential respondents. The high rate of "do not know" responses (over 30%) indicates the need for watershed awareness education. Regardless of the high rate of "do not know" responses, 80% still agreed that it is their personal responsibility to help protect water quality. Almost as equally highly ranked were respondents agreeing that their actions do

have an impact on water quality. The groups were least willing to pay taxes or fees to improve water quality.

Statement: It is my personal responsibility to protect water quality.



8.4.2 Sources of Water Pollution

A list of common water pollutants was provided and survey participants were asked which were problems in their community. Most respondents largely answered that they did not know which pollutants were problems. In addition, as knowledge about a pollutant decreased the ranking of the severity of problem also decreased. This lack of knowledge may prove to be a gap in education that is needed to address present versus perceived pollutants.

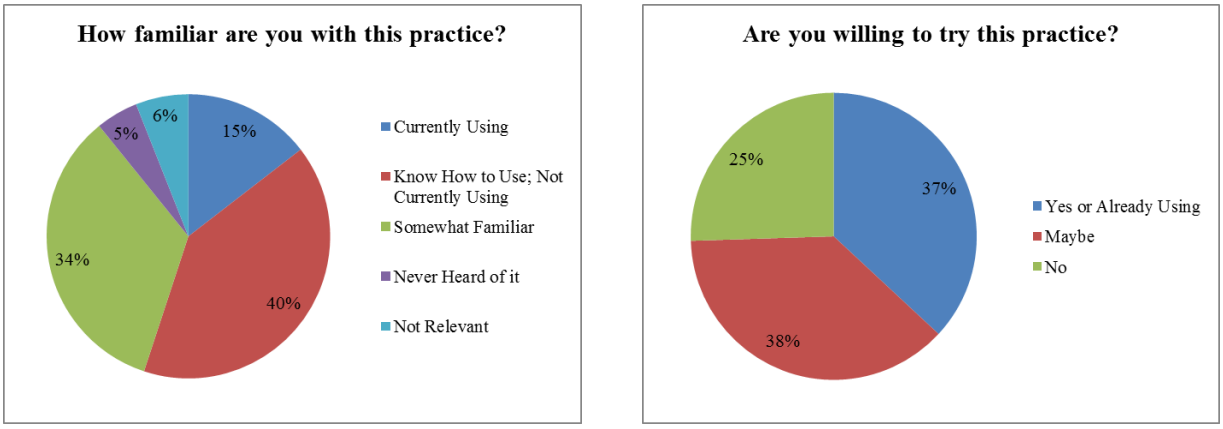
Farmers ranked the severest problems as habitat alteration harming local fish (19%), flow alteration (15%), and trash and debris and toxic materials both ranked third (14%). The highest ranking problem is consistent with the farmers response that fish habitat and eating locally caught fish were ranked as their second most important activities. Combining the severe and moderate problem scores, sedimentation also ranked high for farmers. Residential property owners ranked the severest problems as trash and debris (25%), sedimentation (18%), toxic materials in the water (15.7%), and habitat alteration harming local fish. Less than half the people answered the question about riparian vegetation which indicates a need for education and outreach on riparian BMPs. As evidenced from both the public meeting questionnaire and the public opinion survey, watershed residents are most interested and concerned about fish populations and fish habitats. This concern about fish may be useful in creating marketing messages to involve residents in watershed-wide protection and restoration activities.

Respondents were asked to indicate which sources of water pollution were problems in their area. Farmers responded that the most severe problems were manure from farm animals (19%) and drainage and/or filling of wetlands (14.3%). Moderately ranked problems were land re/development and soil erosion from shorelines and streambanks. Non-famers responded that the most severe problems were excessive use of fertilizers/pesticides (19.5%), excessive use of fertilizers for crop production (18.2%) and littering/dumping (14.5%). Soil erosion from farm fields and from shorelines/streambanks ranked as moderate problems.

8.4.3 Practices to Improve Water Quality

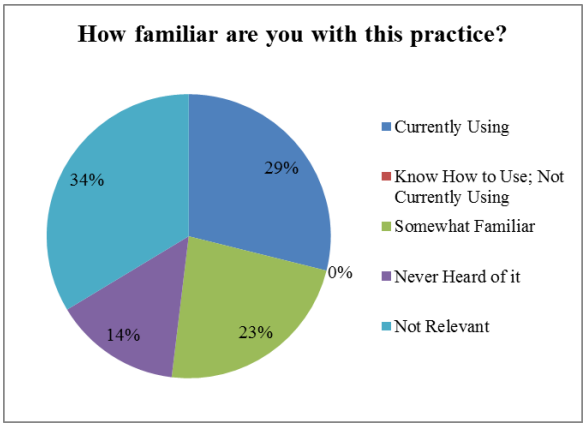
When asked about regular septic maintenance, the majority of respondents said they knew how to maintain their septic system and/or currently were maintaining their septic system (over 60% residential and over 80% farmers) which is encouraging since over 91% of total respondents indicated they have a septic system. When asked about rain gardens, 65.4% were not familiar with them but over 70% said they would be willing to try it. There is a need for education on lawn fertilizing because professional lawn care use was not common (less than 12%) and residents are typically applying their own fertilizer. Request for rain barrel information occurred more frequently than rain garden information. Cost, time, and lack of information were the largest obstacles to trying a new practice.

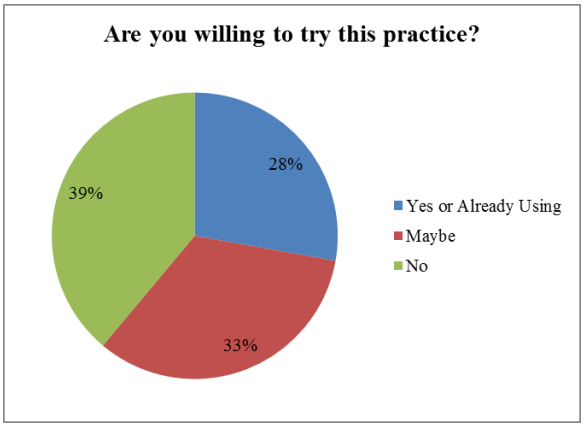
Residential Responses about Rain Barrels



Farmers indicated they were using cover crops for erosion protection and soil improvement (52.6%) and conservation tillage practices (40%). They indicated the least relevant practices were following a nutrient management plan for manure management (only 50% have a nutrient management plan) and fence/reinforce livestock (1% has livestock). Practices farmers were least familiar with were considering soil characteristics to minimize runoff and avoiding fall fertilizer application to reduce environmental losses. When asked about controlled tile drainage, 40% said it was not relevant because land is rented and the majority was not willing to try it because they lack equipment and have a desire to keep things the way they are. Education on native plant BMP's and shoreline/streambank stabilization BMPs is needed for all watershed residents.

Agricultural Responses about Shoreline/Streambank Stabilization BMPs





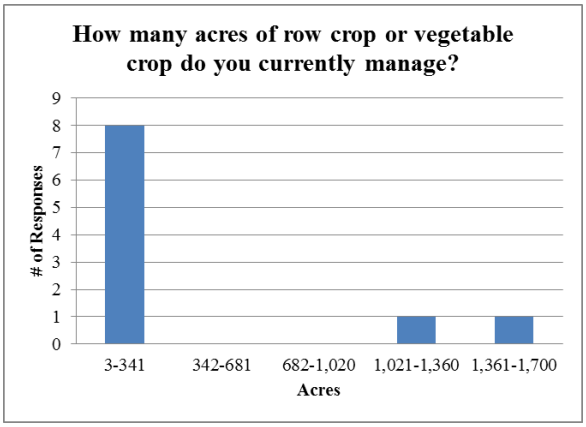
8.4.4 Willingness to Take Action

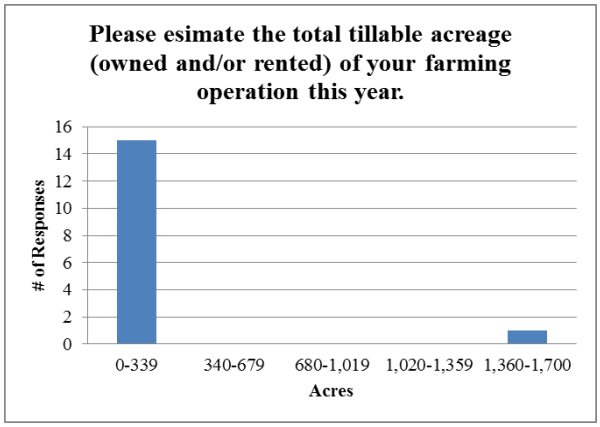
When asked about willingness to change behaviors, costs, access to equipment, and lack of information about a practice were the three biggest obstacles to implementation. Farmers were also strongly opposed to participating in government programs. Approval from neighbors were respondents least concern.

8.4.5 Farm Operations

Farm management in the Belle River Watershed is primarily family based with decision making being done by the farmer and family partners (47.1% including siblings, parents and/or children) or with the spouse (23.5%). The median total tillable acreage (owned and/or rented) farmed by the responding farmers was 35 acres although responses ranged from 3 to 1,700 acres. Exactly half (50%) of respondents have a nutrient management plan for their farm operation with exactly half of those (50%) developing the plan themselves and 16.7% using private-sector agronomist or crop consultant. Three agricultural respondents indicated they have horses on their property; all others had zero livestock.

Farm Operations





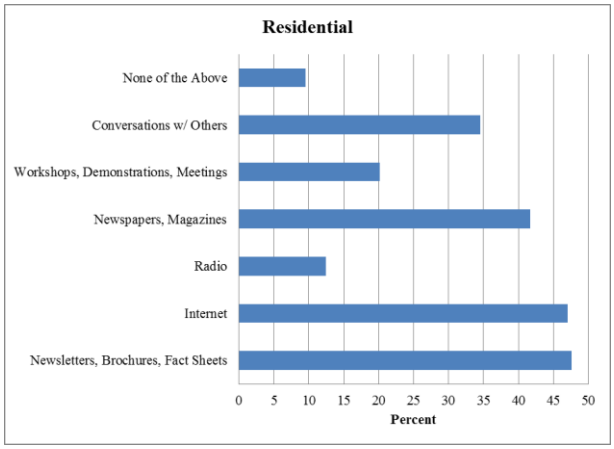
8.4.6 Demographics

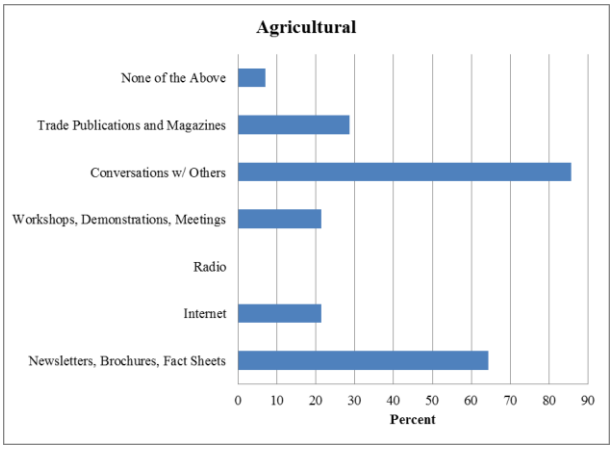
The average farmer respondent was 65 years old and the average residential respondent was 59 years old. Most were male (over 60% in both surveys). The largest percentage of respondents had a minimum of a high school diploma/GED (29.4% farmer, 30.1% residential). Almost 100% of total respondents owned their residence and had lived there for over 22 years. Farmers responded to either living on a farm (58.8%) or an isolated, rural, non-farm residence (41.2%). Sixty percent (60%) of residential property owners lived on an isolated, rural, non-farm and the remaining responses consisted of those living on a farm (19.6%) or in a town, village or city on five acres or more (11%). Over 65% of farmers considered themselves retired or partially retired.

8.4.7 Best Ways to Inform Residents

The survey asked where residents were likely to seek information about conservation and water quality issues. Both groups had very similar responses with newsletters/brochures/fact sheets at the top along with newspapers/magazines; workshops/demonstrations ranked 20% and radio ranked lowest. Farmers were most likely to seek out information from conversations with others.

Where are you likely to seek out information about water quality issues?





The survey asked which organizations they trusted as a source for receiving water quality information. Both groups selected University Extension as their top choice for a trusted source and the least trusted source for both was local government (Table 8.2). The top three trusted sources were:

Table 8.2 Survey results from question regarding trusted sources for water quality information

Residential		Agricultural	
University Extension	42.6%	University Extension	42.9%
Environmental Groups	27.9%	Crop Consultants	30.8%
State Natural Resource Agency	25.3%	Soil & Water Conservation District	28.6%

8.4.8 Comments

The survey included a comment section where questions and concerns could be added to the survey response. Farmers most frequently mentioned flow maintenance along drains and watercourses. A majority of property owners indicated they have property existing in its natural state and they are most interested in leaving it natural, which correlates to scenic beauty being selected as the highest value in the watershed. The most frequent comments were related to removal of fallen trees, debris and obstructions to reduce flooding, prevent ice jams, eliminate trash build-ups, and open recreational navigation of the Belle River. Residents have mentioned this concern over and over again in public meetings, but this survey tool did not ask about woody debris management.

8.5 Involvement and Education Implementation Strategy

The overall strategy for engaging with the public and other stakeholders is referred to as the Involvement and Education (I&E) strategy. I&E is a strategy that is used to effectively improve behaviors with respect to protecting and restoring the environment, in addition to increasing understanding of the WMP, its recommendations, and support for its implementation. One of the key implementation approaches of this WMP will include an ongoing I&E strategy. This section outlines the tools and resources that will be used to inform and educate specific target audiences on the pollutants and concerns outlined in Chapter 3.

In order to capitalize on existing watershed planning efforts in St. Clair County (SCC) and provide the most cost-effective program possible, this Belle River I&E strategy has aligned with St. Clair County's State of Michigan's National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Public Education Plan (PEP). As such, these public education activities are proven successful, are currently being implemented, and optimize existing programs and materials from organizations currently conducting public education which helps to reduce costs. Addressing respondents constraints about willingness to change behaviors will be taken into consideration when implementing the I&E strategy. The three biggest obstacles across the board to implementation of BMP's were costs, access to equipment, and lack of information about a practice.

A variety of mechanisms to track effectiveness of the I&E strategy are described in the "Evaluation" column of Table 8.3. Evaluation of accumulated measures can be categorized in terms of output (i.e., effort or activity) that measures short-term goals (<5 years). Examples of output measurements include tracking website hits or the number of literature pieces distributed to the target audience. When practicable, measurements of outcome (i.e. survey results that indicate actual behavior change) will be incorporated into BMP evaluations. Such measures are expected to include public comment and feedback and level of participation in programs and events. These mechanisms can be useful in determining whether the education effort is reaching the audience.

Through SCC's Stream Leaders water quality monitoring program, it is possible to evaluate long-term (>5 years) changes in water quality. The results are compiled in a scorecard which allows a mechanism for measuring improvements or declines in water quality across the various subwatersheds. Improvements

in water quality cannot be attributed solely to a successful public education effort, but indicate the overall effectiveness of the storm water management efforts in the community, subwatershed, and county.

Communicating status and results to stakeholders and the public will be another evaluation method at Belle River WAG meetings. The education activities will be evaluated for effectiveness at least once per year and group discussion will determine effectiveness. Changes will be made to the I&E strategy if determined by the WAG.

Table 8.3 summarizes the education activities that will be implemented in relation to the pollutant and/or topic of concern, delivery mechanism, target audience, key messages conveyed, timeline for BMP implementation, and responsible party. Table 8.4 summarizes specific education and outreach strategies to target pollutant causes in critical areas, including the DO TMDL area and the subwatersheds impaired by *E. coli*.

Table 8.3 I&E strategy, including delivery mechanism, target audience, and evaluation mechanism

BMP Activity	Delivery Mechanism	BMP #	Target Audience	Pollutant/ Concern Addressed	Evaluation Method	Goal/ Timeline	Responsible Party
Distribute outreach materials on watershed awareness, stormwater management, floodplain management and large wood management	Educate homeowners on localized water pollution sources and causes. Utilize print and digital materials developed by SCC, SEMCOG, and/or other organizations. Materials and messaging will be distributed at municipal offices, events, public locations, in newsletters and newspapers, and on the www.sccwater.org website.	33, 34, 35, 36, 42, 43	Zones 1 – 3; Residents, property owners, visitors, students, public employees, businesses, industries, construction contractors and developers	Sediment, pathogens, nutrients, toxic pollutants	Number of materials distributed; location materials were distributed	Short term: 30 pieces of materials distributed per year per partner; Long term: ongoing annually	SCCHD, WAG
Implement a rural Watershed Stewardship program	Provide informational materials and present workshops to property owners regarding land protection opportunities, farmland preservation, Crop*A*Syst and Farm*A*Syst	1-5, 17, 19, 20, 21, 45	Zone 3; Residents; property owners, elected officials	Sediment, pathogens, nutrients, toxic pollutants	Number of participants; presentations, and materials distributed; content of program, location materials were distributed; surveys	Short term: Develop & organize program content Long term: 4 presentations /year	SCCHD, NRCS, LCD, MSUE
Implement a River Stewards program	Educate riparian property owners on good residential practices on how to prevent the spread of invasives, benefits of native landscaping and riparian buffers; provide demonstration projects	17, 19, 20, 21	Zones 1 & 2; residents, riparian property owners	Sediment, pathogens, nutrients, toxic pollutants	Number of participants; presentations; content of programs; participant's surveys	Short term: develop and organize program content; Long term: 4 presentations /year	SCCHD
Install watershed road signage	Watershed and/or stream crossing road signage will be installed to increase awareness of the watershed and the local water resources. The sign includes name/location of waterway/watershed; ours to protect slogan; hotline reporting information	37, 42, 49	Zones 1 & 2; Residents, property owners, visitors, students, public employees, businesses, industries, construction contractors and developers	Sediment, pathogens, nutrients, watershed awareness	Number of signs; location of signs	Short term: Identify priority locations for signage; Long term: Install 10 signs	SCCHD, WAG
Conduct outreach at local fairs and community events	Participate in and/or promote county-wide environmental education events such as Earth Fair, River Day, Stream Leaders, Adopt-A-Road and/or Adopt-A-Stream	38, 39, 50, 51	Zones 1 – 3; Residents, visitors, students, public employees, businesses	Sediment, pathogens, nutrients, toxic pollutants	Number of participants; number of activities; period of time exhibits are on display; location of events; content of exhibit topics	Short term: Participate in 1 event per year Long term: Participate in 2 events/year	SCCHD, WAG

BMP Activity	Delivery Mechanism	BMP #	Target Audience	Pollutant/ Concern Addressed	Evaluation Method	Goal/ Timeline	Responsible Party
Promote the county's 24-hour water quality reporting hotline	Promote SCC's 24-hour anonymous water quality hotline for reporting illicit discharges and pollution problems; distribution includes but not limited to magnets, website, brochures, stickers	42, 49	Zones 1 – 3; Residents, property owners, visitors, students, public employees, businesses, industries, construction contractors and developers	Sediment, pathogens, nutrients, toxic pollutants	Number of calls to hotline; nature of complaints; follow-up actions	Short term: Continued maintenance and update of a pollution hotline	SCCHD, WAG

Table 8.4 I&E strategy to address pollutant causes in impaired subwatersheds

Causes	Activities and Delivery Mechanisms	Objectives	Target Audiences	Evaluation Methods	Critical Areas to Target
Modified riparian vegetation (k)	Hold demonstrations on maintaining and riparian vegetation	Plant and protect riparian vegetation	Riparian landowners	Follow-up questionnaire; track number of miles of newly planted vegetation	Subwatersheds 4, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16
Flashy flows (k)	Hold targeted training workshops on storm water ordinances and available stream stabilization practices	Stabilize stream flows to moderate hydrology	Local units of government, developers	Follow-up questionnaire; track number of stream stabilization practices implemented and ordinances adopted	Zone 1 & 2
Lack of floodplain connectivity (k)	Hold targeted training workshops on river restoration techniques	Improve floodplain connectivity to decrease flooding	Local units of government	Track number of projects implemented	Zone 1 & 2
Channel blockages (k)	Hold targeted training workshops on dealing with LWM; hold LWM cleanup events	Properly manage LWM and other obstructions	Local units of government, residents	Follow-up questionnaire; track number of cleanup events	Zone 1 & 2
Inadequate riparian buffers (k)	Hold demonstrations on planting and maintaining native buffer strips	Install and maintain riparian buffers	Agricultural landowners	Follow-up questionnaire; track amount of buffer strips installed	Subwatersheds 4, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16
Cropland erosion (s)	Hold targeted workshops on agricultural BMPs	Reduce sediment from croplands erosion	Agricultural landowners	Follow-up questionnaire; track number of BMPs implemented	Subwatersheds 4, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16
Channelization (k)	Hold targeted workshops on two-stage drains or other BMPs to reduce sediment from channelization	Reduce sediment from channelized drains	Agricultural landowners, drain commissions	Follow-up questionnaire; track two-stage drains implemented	Subwatersheds 4, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16
Road-stream crossings (k)	Hold tours of road-stream crossings which successfully control erosion and runoff	Reduce sediment input from road-stream crossings	County road commissions	Track the number of improved road-stream crossings	Subwatersheds 4, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16
Perched or undersized culverts (k)	Hold targeted workshops on proper culvert sizing and placement	Reduce erosion from improperly placed culverts	County road commissions	Track the number of replaced or realigned culverts	Subwatersheds 4, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16

Causes	Activities and Delivery Mechanisms	Objectives	Target Audiences	Evaluation Methods	Critical Areas to Target
Unrestricted access of livestock to waterways (k)	Hold targeted workshops on installing livestock exclusion with MSUE or NRCS	Restrict livestock access to waterways	Agricultural landowners	Track the number of livestock fences installed	Entire watershed
Excessive pet and wildlife waste near waterways (s)	Distribute fact sheets on pet waste disposal and provide information on local websites	Reduce amount of animal waste entering waterways	Pet owners	Track the number of website visits	Subwatersheds 18, 19, 20, 21
Land application of manure (s)	Hold demonstrations on proper manure spreading practices	Encourage proper manure spreading practices	Agricultural landowners	Follow-up questionnaire; track number of new manure management practices adopted	Zone 1
Improper septic system maintenance (k)	Distribute brochures on proper maintenance and provide information on local websites	Encourage proper septic system maintenance	Septic system owners	Follow-up questionnaire; track number of website visits	Subwatersheds 18, 19, 20, 21
Sanitary sewer overflow events (s)	Provide education to local governments on tracking and reducing overflow events	Eliminate sanitary sewer overflow events	Local governments	Number of overflow events eliminated	Subwatersheds 18, 19, 20, 21
Improper application of fertilizer (s)	Hold field demonstrations on proper lawn care practices; provide brochures or other outreach materials	Encourage proper fertilizer management	Riparian landowners, lawn care companies, golf courses	Follow-up questionnaire	Entire watershed
Excessive application of road salt (s)	Hold targeted training workshops on proper salt application practices	Encourage proper application of road salt	MDOT, road commissions, DPWs	Follow-up questionnaire; track number of new salt application practices	Entire watershed
Illicit dumping of hazardous waste (s)	Hold storm drain marking events; distribute media releases	Reduce illicit dumping	Residents	Follow-up questionnaire or survey; track number of markers installed or stencils painted	Zone 2& 3
Improper application of pesticides (s)	Hold field demonstrations on proper pesticide application	Encourage proper application of pesticides	Agricultural landowners	Follow-up questionnaire or survey; track number of new pesticide practices	Zone 1

8.6 Priority Education Recommendations

The 2014 SIDMA public opinion survey provided insight into the existing knowledge base and opinions from watershed residents about conditions in the watershed (Section 8.2) which will shape future education initiatives for the WMP. For example, the survey showed that the public knows the general definition of a watershed though it is not known which waterbody water drains to. Watershed residents also appear to be very cognizant that their actions affect local water quality, but may not realize that water quality is impacted by all residents not just those in immediate proximity to the river. Overall, outreach efforts to date appear to have elevated awareness of water quality issues of residents, but there is still limited knowledge on existing pollutants and their sources and causes.

Efforts will be made to strengthen the connection between the WAG and trusted information sources for each identified stakeholder. Not all information sources (e.g. Farm Bureau) carry equal creditability for all BMPs, so the message and delivery mechanism (e.g. newsletters) will be coordinated so they are the most effective. The distribution of water quality information intended for farm operations should be transmitted through MSUE, NRCS, and the Farm Bureau. For residential property owners, the communication vehicles should be MSUE and Friends of the St. Clair River. Newsletters and newspapers were ranked as the preferred information delivery methods for both stakeholder groups. Farmers indicated that they rely heavily on conversations with others as a way to receive information and residential property owners indicated that the internet is a preferred method to receive information.

Any existing or new water quality education programs implemented will be cross referenced with the constraints identified by respondents in the SIDMA survey and then tailored to help the target audience reach the desired behavior. The most common obstacles to implementation of BMP's in the SIDMA survey were costs, access to equipment, and lack of information about a practice. There will be a strong promotion of existing county-wide watershed and storm water education efforts, especially those involving the SCCHD. The following prioritized recommendations, based on the results of the SIDMA public opinion survey, show the direction for future education efforts for the Belle River watershed.

8.6.1 Prioritized Water Quality Education Recommendations

1. Tailor watershed marketing messages to all stakeholders in zones 1 – 3 around enjoying the local scenic beauty and fishing, two of the most important activities to all survey respondents.
2. Provide specific information on existing impairments throughout zones 1-3 and the known and suspected pollutant sources and causes associated with them. Both agricultural and residential property owners answers reflect that they do not know which impairments were problems.
3. Hold targeted workshops on agricultural BMPs to riparian agricultural property owners in zones 1 and 2 using the Farm-A-Syst and Crop-A-Syst programs, and implement a residential riparian land owner education program in zones 2 and 3 using BMPs targeted at improving the management of riparian areas to stabilize stream banks and reduce bank erosion.

4. Provide BMP education and demonstration projects to all residents in zones 1 – 3 on installing and maintaining native landscaping and shoreline/streambank stabilization utilizing SEMCOG's "Seven Simple Steps to Clean Water" campaign when possible. Both agriculture and residential stakeholder groups ranked reduction of storm water runoff pollutants a priority improvement action.
5. Implement a BMP education program targeted to residential residents in zones 2 and 3 specifically for storm water infiltration systems, rain barrels, and forested and riparian buffer strips utilizing SEMCOG's "Seven Simple Steps to Clean Water" campaign when possible. Both agriculture and residential stakeholder groups ranked reduction of storm water runoff pollutants a priority improvement action.
6. Organize and implement at least one river clean-up day per year in zones 2 or 3 to address priority concerns with dumping and accumulation of trash and litter in the river.
7. Educate stakeholders in zones 1 and 2 about natural and unnatural blockages in waterways and the technical assistance available on how to properly deal with it. Implement at least one LWM removal event per year in the established Blueways Trail route by working with municipalities, volunteer groups, and county agencies.

8.7 Project Partnerships

In addition to the organizations, agencies, and departments that were involved in developing this WMP (Table 8.1), there are other organizations that host a number of their own natural resource protection and improvement programs that may provide resources to help implement this WMP (Table 8.5).

Table 8.5 Watershed-wide water quality and natural resource protection organizations

Organization	Mission/ Programs	Contact Information
Friends of Polly Ann Trail of Lapeer County	A grass-roots organization that promotes the development and operation of the Polly Ann Trail in Lapeer County. The Friends group creates awareness of the recreational corridor with events, political action, volunteerism and other efforts.	Russ Underwood, Member PO Box 12, Dryden, Michigan 48428 (810) 796-9810 info@pollyanntraillapeer.org http://pollyanntraillapeer.org
Friends of the St. Clair River	A non-profit that engages the community in water resource protection, promoting citizen-science, stewardship and the restoration and protection of the St. Clair River & it's tributaries.	Sheri Faust, President P.O. Box 611496, Port Huron, MI 48061 (810) 987-5306 info@scriver.org www.scriver.org
Southeast Michigan Conservation Club	A membership driven organization for people who are responsible, wildlife-oriented individuals and care about the future of the environment.	Dave Kauffman, Member 2402 S. Belle River Rd, Marine City, MI 48039 (810) 765-5337 club@semcc.net www.semcc.net
St. Clair-Detroit River Sturgeon For Tomorrow	A non-profit organization dedicated to the future of lake sturgeon within the Huron-Erie Corridor.	Jim Felgenauer, President 281 S. Gratiot, Mount Clemens, MI 48043 810-343-1192 president@stclairsturgeon.org www.stclairsturgeon.org
SEMCOG	Supports local planning through its	Bill Parkus, Planner

Organization	Mission/ Programs	Contact Information
	technical, data, and intergovernmental resources; plans improve the quality of the region's water, revitalize communities, and spur economic development.	1001 Woodward Avenue, Suite 1400 Detroit, MI 48226 (313) 961-4266 parkus@semcog.org www.semcog.org
St. Clair County Agricultural Preservation Board	The St. Clair County Agricultural Preservation Board was established in 2004 by the St. Clair County Board of Commissioners. The Ag Board is responsible for the administration of the county's Purchase of Development Rights program.	David Struck, Director St. Clair County Metropolitan Planning Commission 200 Grand River, Ste 202, Port Huron, MI 48060 (810) 989-6950 farmland@stclaircounty.org www.cis.stclaircounty.org/agriculture.asp
Lapeer County Agriculture Preservation Board	Deliver information and technical assistance through educational programs and professional services in order to conserve and enhance the natural resources of Lapeer County now and for future generations.	Mary Brown 700 S. Main St, Suite 120-C, Lapeer MI 48446 (810) 664-0895 ext.5 admin@lapeercd.org http://lapeercd.org
St. Clair County Farm Bureau	Dedicated to defending the rights and economic interests of its members. Farm Bureau members are involved in many public education activities and events.	Stacey Lauwers 5388 Lapeer Rd, Kimball, MI 48074 (810) 395-4968 slauwers@airadvantage.net www2.michfb.com/counties/index/74
MSU Extension, St. Clair and Lapeer Counties	MSUE features programming in Agriculture, Business & Community, Family, Food & Health, Lawn & Garden, Natural Resources and 4-H & Youth.	St. Clair County Office: 200 Grand River Ave, Ste 102, Port Huron, MI 48060 (810) 989-6935 msue@stclaircounty.org www.stclaircounty.org/Offices/msue/Default.aspx Lapeer County Office: 1800 Imlay City Rd, Ste 1, Lapeer, MI 48446 810-667-0341 msue.lapeer@county.msu.edu msue.anr.msu.edu/county/info/lapeer
Thumb Land Conservancy	Protect natural areas in Michigan's Thumb, a 6-county region including St Clair, Sanilac, Huron, Tuscola, Lapeer, and Macomb Counties.	Bill Collins 4975 Maple Valley Rd, Marlette, MI 48453 810-346-2584 mail@thumbland.org www.ThumbLand.org
Lapeer Land Conservancy	A non-profit that protects farmland and natural spaces, supports educational programs, and creates a network of land stewardship demonstration properties throughout Lapeer County and surrounding areas.	Peter McCreedy, President PO Box 30, Lapeer, MI 48446 (810) 664-5647 lapeerlandconservancy@gmail.com www.lapeerlandconservancy.org
Lapeer County Mathematics & Science Center	Supports the delivery of high quality mathematics and science education for students, and provides leadership, curriculum support, and professional development to educators; works to	Dr. Dale Moore, Director 1996 W. Oregon Street, Lapeer, MI 48446 (810) 664-5917 dmoore@lcisd.k12.mi.us http://www.lcisd.k12.mi.us/

Organization	Mission/ Programs	Contact Information
	foster community involvement in the areas of math and science.	educators/math___science_center
St. Clair Conservation District	Assists St. Clair County in the wise use & management of their natural resources, including Michigan Agriculture Environmental Assurance Program, Michigan Forestry Assistance Program, Hunting Access Program, Pheasant Restoration Initiative, Farm Bill Program, tree sales, and equipment rentals.	Joe Kautz, Administrator 2830 Wadhams Road, Kimball, MI 48074 (810) 984-3001 x5 joe.kautz@mi.nacdnet.net www.sanilaccd.org/st.clair
St. Clair & Macomb USDA-NRCS Office	Provides information and services on Soils, Conservation Planning, Financial Assistance, Easement Programs, and Technical Resources.	Christina Nickola, District Conservationist 2830 Wadhams Road, Kimball, MI 48074 (810) 984-3001-x5 christina.nickola@mi.usda.gov
Blue Water Sierra Club	Represents the best interests of citizens of the region by speaking out on the environmental issues important to health, quality of life, and progress toward a sustainable future.	Kay Cumbow, Steering Committee 15184 Dudley Rd, Brown City, MI 48416 (810) 346-4513 kcumbow@greatlakes.net http://michigan.sierraclub.org/semg/index.html
Michigan Environmental Council	A coalition of more than 70 organizations leading Michigan's environmental movement to achieve positive change. MEC combines environmental policy expertise with an ability to rally powerful alliances in support of reforms. MEC promotes public policies to ensure that Michigan families will enjoy clear waters, clean beaches, and healthy communities for years to come.	Detroit Office 243 W. Congress, Suite 350, Detroit, MI 48226 (313) 962-3984 Lansing Office 602 W. Ionia Street Lansing, MI 48933 (517) 487-9539 www.environmentalcouncil.org