

Upper Grand River Watershed Initiative

Organizational Information

The Upper Grand River Watershed Initiative (UGRWI) will need a formal organizational structure to ensure long-term viability of the water-quality monitoring program. A watershed coordinator and/or a resource coordinator will be required for successful implementation. The Dahlem Center is prepared to work with other stakeholders to facilitate successful implementation of the watershed plan as well as taking major roles in the information and education strategy and the water-quality monitoring program. A key issue will be funding sources for implementation. An accepted watershed plan can facilitate Section 319 funding, but other funding also will be required. The organizational structure for the Upper Grand would likely work best as a non-profit organization or in conjunction with a local institution.

Two positions are anticipated during the early stages of implementation of the Watershed Management Plan (WMP). The first is the watershed manager/coordinator; the second is a resource manager/coordinator. The watershed coordinator (WC) would be responsible for implementing the management plan, and maintaining the Geobook. This coordinator would identify the impaired and threatened uses and develop the means to correct any problems.

Additional responsibilities for the WC would be for implementation of best management practices - responding to public inquiries, presentations, interacting with local government officials (drain commissioner, township trustees etc.), and grant writing. The WC also should be well versed in land use planning. A full description of this position is being developed separately in another part of the WMP.

The resource coordinator (RC) would be responsible for implementing the Adopt-A-Stream volunteer monitoring program. This would involve training in stream sampling (data collection), macro invertebrate identification, visual stream monitoring, web site updates, chemical monitoring and the development of a riparian network. Lakes also would be included in the sampling as the program grows. The RC also would coordinate the overall I & E strategy. This includes a fair amount of marketing support, development of brochures and other media components. The education side would include teaching courses, and developing workshops.

The initial position would likely include many elements of both of these positions, but would be split later as the programs and funding grow. Current estimates of wages, benefits, taxes, support and travel for the watershed coordinator range from \$75,000 to \$100,000 annually. Costs associated with the resource coordinator position would be near the same level (\$65,000 to 90,000).

Mission and Vision

The **Dahlem Environmental Educational Center** is an organization whose mission is to help educate our community toward maintaining a balanced approach to resource and environmental stewardship. It is a resource center for improving our environment through science, education, leadership and conservation and a place where members of our community can experience, study and enjoy nature.

The Dahlem Center is an auxiliary operation of Jackson Community College. The College and Center community focus is in Jackson, Hillsdale and Lenawee Counties, but also includes portions of Calhoun and Ingham Counties. Consequently, the Upper Grand River Watershed is largely within the Community College area of service.

The Dahlem Center, as an auxiliary operation of the College, functions like a non-profit organization. We are responsible for developing funding for our operations, but receive administrative support from the college. The Dahlem Center also is connected to two non-profits organizations, The Jackson Community College Foundation and the Friends of Dahlem, both 501©(3)'s.

The Grand River is one of the largest river basins in Michigan and the Upper Grand River area covers most of Jackson County and parts of Hillsdale and Ingham counties. This basin receives un-permitted pollution discharges on a regular basis. The quality of its headwaters, primarily located in Jackson County, has been improving in recent years. For example, since year 2000 the City of Jackson has eliminated sewer overflows by correcting all combined sewers. The continued improvement of water quality in the upper Grand River will benefit the entire length of the Grand River watershed and will impact significantly on surface water quality in Michigan. However, Jackson County also is an area of growth in Michigan. Portions of the county are undergoing significant development and major sewer projects are underway. There is a need for an organization that can react to the community needs, provide education and resources on watershed and water-quality issues, and enhance community involvement in maintaining the ecological integrity of the area. One example is communicating the need for and reasoning behind the southwestern regional sewer extension project. Develop will soon follow sewer and other infrastructure improvements and that development will impact on the water-quality of the area.

The Upper Grand River Watershed Management plan is to become part of the countywide development plan and issues of land use and water quality are becoming hot button items. How citizens deal with these issues will play a key role in determining the type, placement, desirability and limits to development. All of these issues and many others, reflect the "Quality of Life" we desire for our community.

The Volunteer Water Quality Monitoring Program

Goals

- Increase public awareness of the watershed's non-point source pollution and water quality issues
- Provide citizens with the tools and training to evaluate and protect their local waterways
- Encourage partnerships between citizens and their local government
- Collect quality baseline water quality data.

The data collected from the Volunteer Monitoring Water Quality Project will be part of a comprehensive upper Grand River monitoring effort which involves a collaboration between the County Drain Commissioner, Grand River Environmental Action Team (GREAT), Dahlem Environmental Education Center, Jackson Community College, Jackson County Health Department, City of Jackson sewage treatment plant, Grand River Watershed Management Steering Committee, Jackson County Conservation District and MSU Extension – Jackson County, numerous townships, lake and stream associations and other interested parties. This particular component will help identify seasonal and/or year-round pollution problems within the watershed and with its arbitration. Also the activities associated with the Water Quality Monitoring program are directly related to the information and education strategy for the UGRWI and results of the monitoring program will be distributed throughout the community in a variety of media forms.

Sampling Area

A total of 20 locations within the Grand River watershed have been identified as potential sampling areas. Initially, eight locations will be sampled twice per year for benthic macroinvertebrates. Additional sampling sites will be added as the program grows. This will depend on the recruitment of volunteers to participate in the water quality program and the establishment of an Adopt-A-Stream Program. (These sampling sites also correspond to those currently in use by the Environmental Health Department relating to bacteriological sampling).

Initial Water bodies to be monitored:

- | | |
|--------------------------------|-------------|
| 1. Grand River @ the Mill Pond | 3 locations |
| 2. Crouch/Sharp Confluence | 3 locations |
| 3. Sharp/Grand Confluence | 3 locations |
| 4. Michigan Center Confluence | 3 locations |
| 5. Portage Confluence | 3 locations |
| 6. Sandstone Confluence | 3 locations |
| 7. Springbrook Confluence | 3 locations |
| 8. Rives Drain Confluence | 3 locations |

Secondary water bodies (to be added in later years as the program grows)

- | | | |
|-----|--------------------------------------|-------------|
| 9. | Batese/Portage Confluence | 3 locations |
| 10. | Portage Lakes | 3 locations |
| 11. | Portage/Wild Inter-County Drain | 3 locations |
| 12. | Upstream of Little and Big Portage | |
| 13. | Between Little and Big Portage Lakes | |

Additional areas for possible samples

- | | | |
|-----|----------------------------|-------------|
| 14. | Summerset/Lake LeAnn | 3 locations |
| 15. | Mirror Lake | 3 locations |
| 16. | Above Michigan Center Lake | |
| 17. | Wildwood Drain | |
| 18. | Orchard Creek | |
| 19. | Cahaogan Creek | |
| 20. | Pickett & Jacobs Drain | |

If pollution or other water quality problems are found, further investigation will be carried out to determine the source of the problem and take appropriate enforcement or educational action (such as teaching use of Generally Accepted Agricultural Practices or Best Management Practices). Because of the comprehensive team of collaborators various strategies for enforcement and education can be crafted to help insure resolution of identified problems. Spot-checking of targeted areas also is anticipated.

Project Objectives

Objective 1 -

- Evaluate the benthic invertebrate communities in wadable streams and rivers, to assess ecosystem health, to inventory species and their distribution.
 1. Identify and inventory the proposed sampling sites listed above.
 2. Test samples twice a year.
 3. Identify potential indicators species for pollution.
 4. Map distribution of species.

Objective 2 -

- Improve water quality in the Upper Grand River and the entire watershed by eliminating sources of pollution.
 1. Identify water-sampling points with surface water confluences with the Upper Grand River, up to the Red Cedar River in Ingham County.
 2. At each confluence collect water samples at 1-3 sites near the confluence.
 3. At each site test for:
 - Dissolved Oxygen

- Fecal Coliform (to be conducted by Environmental Health Dept)
- Ph
- Biochemical Oxygen Demand (BOD's)
- Temperature
- Total Phosphorus
- Nitrates
- Turbidity
- Total Solids

Objective 3 – Develop a Citizen Riparian Network

- Provide hands-on real life options for citizen action
- Provide activities to make a difference in the health of the adopted stream, river, lake or wetland.

Adopt-A-Stream

The Adopt-A-Stream program will be an adult volunteer program that is to be guided and continually developed by a volunteer advisory board and coordinated by the Initiative (or Dahlem Center) staff. Volunteers will be recruited to participate in and help develop the Adopt-A-Stream Program. During the year volunteers, with assistance and training from the project coordinator, will conduct water quality tests. The activities are intended to become a major study of the Upper Grand River and its tributaries.

The project coordinator will develop a variety of coursework, workshops, and seminars to train potential volunteer staff. Training will discuss topics such as “Getting to Know Your Watershed” and “Visual Stream Monitoring”. Additional hands-on work will include training in sampling for and identification of benthic macroinvertebrates. Initial data collection will focus on benthic macroinvertebrates with the sampling program growing to include collection and testing of water samples for chemical analysis. Once trained, the initial volunteers will become team leaders for conducting the water quality sampling and testing. The important component is to have reliable, quality data and to develop the database necessary to monitor and assess the quality of the river.

Team of 2-6 people will conduct activities. Additional sites will be added to the program as volunteer involvement increases and wherever necessary. For example, we may identify a pollution source and desire to pinpoint the location.

Several educational/training activities already have been developed and will be rolled out beginning in January 2003. A new Jackson Community College course, Environmental Science 142, will be offered at the Dahlem Center beginning in January and a watershed management short course is planned for March 2003 and will be held on the campus of

Albion College. A workshop on sampling and identification of benthic macroinvertebrates is being planned for April/May 2003.

Local residents also will be offered a workshop in the collection and identification of benthic macroinvertebrates. We will encourage potential volunteers to participate in one or more of the training programs. Likewise, we will recruit workshop participants to become active volunteer in the Adopt-A-Stream program.

Data collected from sampling conducted by staff members and volunteers will be collated in a database. A report form will be developed that includes presentation and analysis of the data. The data collection techniques and reports will be compatible with other state and local stream organizations and the State DEQ. Reports will be made available over the Internet. (The I & E committee will establish a web site for the "Initiative" as soon the organizational structure is clarified and work proceeds with implementation.

DEQ

Michigan Department of Environmental Quality Surface Water Quality Division (SWQD)

Volunteer Monitoring Grant Application Cover Sheet (Authorized by 1994 P.A. 451)

Project Name: Upper Grand River Volunteer Monitoring Project

Project Location (Primary County): Jackson

Watershed Impacted by Project: Grand River

Organization Name: Dahlem Nature Center / Jackson Community College

Organization FAX #: 517-782-3441 Organization Phone: 517-782-3453

Contact Person: Dan Ashton, Executive Director, Dahlem Nature Center
(Name) (Title)

Contact Person's E-Mail (if available): Dan_Ashton@JCCMI.edu

Organization Address: (Street name and #) 7117 S. Jackson Road

(City, zip code) Jackson, MI 49201

Duration of Project: Years: 2 Months: _____ Preferred start date: September 2003

Month/year

Grant Amount Requested: \$ 11,992.85 + Local Match: \$ 7,455.80 = Project Total: \$ 19,448.65

Person w/Grant Acceptance Authority: Dan Ashton Executive Director
(Name) (Title)

Signature: 

Statement of Volunteer Monitoring Water Quality Concerns and Issues

The Grand River is the second largest river basin in Michigan. This basin receives unpermitted pollution discharges on a regular basis. The quality of its headwaters, primarily located in Jackson County, has been continuously improved in recent years. For example, since year 2000 the City of Jackson has eliminated sewer overflows by correcting all combined sewers.

The continued improvement of water quality in the upper Grand River will benefit the entire length of the Grand River watershed and will impact significantly on surface water quality in Michigan.

It is important to note that this Volunteer Quality Monitoring application is coordinated with the existing DEQ grant funded programs and activities of the Upper Grand River Watershed Management project and a separate application for a Local Water Quality Monitoring grant.

The data collected from this Volunteer Monitoring Water Quality Project will be part of a comprehensive upper Grand River monitoring effort which involves a collaboration between the County Drain Commissioner, Grand River Environmental Action Team (GREAT), Dahlem Nature Center, Jackson Community College, Jackson County Health Department, City of Jackson sewage treatment plant, Grand River Watershed Management Steering Committee, Jackson County Conservation District and MSU Extension – Jackson County.

This particular component will help identify seasonal and/or year-round pollution problems within the watershed and with its arbitration. A total of 9 confluences with the Grand River have been identified for sampling. Eleven other locations have been identified for random investigation-time permitting.

Water bodies to be monitored:

- | | |
|------------------------------------|--|
| 1. Sharp/Grand Confluence | 3 locations (up river, down river, etc.) |
| 2. Michigan Center Confluence | 3 locations |
| 3. Portage Confluence | 3 locations |
| 4. Sandstone Confluence | 3 locations |
| 5. Springbrook Confluence | 3 locations |
| 6. Rives Drain Confluence | 3 locations |
| 7. Portage/Wild Inter-County Drain | 3 locations |
| 8. Batese/Portage Confluence | 3 locations |
| 9. Sharp/Crouch Confluence | 3 locations |

Additional sampling sites/time permitting

10. Portage Lakes
11. Summerset/Lake LeAnn
12. Red Cedar Confluence
13. Mirror Lake
14. Above Michigan Center Lake
15. Between Little and Big Portage Lakes
16. Upstream of Little and Big Portage Lakes
17. Wildwood Drain
18. Orchard Creek
19. Cahaogan Creek
20. Pickett & Jacobs Drain

If pollution or other water quality problems are found, further investigation will be carried out to determine the source of the problem and take appropriate enforcement or educational action (such as teaching use of Generally Accepted Agricultural Practices). Because of the comprehensive team of collaborators various strategies for enforcement and education can be crafted to help insure resolution of identified problems.

Project Goals and Objectives

Goal 1 –

Evaluate the benthic and invertebrate communities in wadable streams and rivers, to assess ecosystem health, to inventory species and their distribution.

- a. Identify and inventory 9 principal sites.
- b. Test samples at least twice a year.
- c. Identify potential indicator species for pollution.
- d. Map distribution of species.
- e. Inventory amphibian species, as appropriate, as indicators of water quality.

Goal 2 –

Improve water quality in the Upper Grand River and the entire watershed by eliminating sources of pollution.

- a. Identify 9 primary water-sampling points with surface water confluences with the Upper Grand River, up to the Red Cedar River in Ingham County.
- b. At each confluence collect water samples 1-3 sites near the confluence.
- c. At each site test for:
 - ~ temperature
 - ~ phosphates
 - ~ Ph
 - ~ dissolved oxygen
 - ~ nitrates
 - ~ nitrites
 - ~ turbidity

The coordinator intern will have primary responsibility to assure the samples are collected according to acceptable protocol. Volunteers will be recruited and trained in the methods for sampling and recording data. Volunteers will sample the supplemental test sites, with assistance and training from the project coordinator.

Goal 3 –

Development of a Quality Assurance Project Plan

- a. Based on guidelines offered by the DEQ the plan will be developed and implemented to assure the quality of data collected by volunteers and staff.
- b. Provide protocols for sampling techniques and development of the volunteer training manual.

Organizational Information

Mission

The **Dahlem Environmental Educational Center** is an organization whose mission is to help educate our community toward maintaining a balanced approach to resource and environmental stewardship. It is a resource center for improving our environment through science, education, leadership and conservation and a place where members of our community can experience, study and enjoy nature.

Relevant Programs

Dahlem Center sponsors an annual **Groundwater Fest**, in cooperation with the Jackson I.S.D. for 1,800 5th graders in Jackson County. The students do hands-on activities in water quality, and water organisms, and pollution. The Dahlem Center also provides a school program for 4-6 graders titled “Our World of Water”. The Center also provides leadership for the information and education committee of the Upper Grand River Watershed Council and is working to develop educational school programs for the 8th and 10th grades. Additional programming at the Center includes a recent “Pond” workshop, sponsored by the Jackson County Conservation District. The Center also provides a wide variety of other environmental education programs and workshops on a year-round basis.

Project Sustainability

After the first year of the project, volunteers will continue collecting water samples, and carry out on-site tests. Additional lab testing will be arranged for as in-kind contributions. Any bacteriological testing will be conducted through the Jackson Co. Environmental Health Department. The Watershed Management Steering Committee has approved formation of The Upper Grand River Watershed Council. The specific details of the Council structure and its enforcement capabilities are ongoing. The Dahlem Center also is organizing a coalition of partners to work on environmentally related projects; the Watershed Council is expected to be part of this coalition.

The collaborative partners in this project will continue to meet on a regular basis under the leadership of the Drain Commission while the Information and Education committee will meet regularly under the leadership of the Dahlem Center. Volunteer recruitment and training for water sampling is projected to continue for at least 10 years under Dahlem Center leadership.

Organization Information

Dahlem Center is a part of Jackson Community College and operates a 280+-acre nature preserve and environmental education center in Jackson County. Over 20,000 visitors attend programs, events and activities at the center each year. The Center sponsors a variety of environmentally related workshops, programs and special events throughout the year, including the annual Bluebird Festival. The Center also provides stewardship for other lands within the county. The evolving Dahlem Center Coalition includes organizations such as G.R.E.A.T (Grand River Environmental Action Team), Recycle Jackson, Jackson Co. Conservation District and Jackson Audubon Society to name a few. The Center also has teamed with the U.S. Fish and Wildlife Service in the “Partners for Wildlife Program”.

Partners

<i>Name</i>	<i>Role</i>
Jackson County Drain Commission GREAT	Enforcement, planning, permitting, convene meeting, collecting samples, recruiting volunteers, planning team, inspection of specific sites
Jackson County Conservation District	Volunteer recruitment and training, collecting samples, inspection of specific sites
MSU Extension – Jackson County	Education on GAAMPs and BMPs to riparian landowners and Ag producers
Jackson County Conservation District	Educate monitoring and enforcement of BMPs and GAAMPs for riparian land owners
Jackson County Health Department	Enforcement, monitoring, permitting, water quality testing.
City of Jackson Water Treatment Plant	Technical assistance, planning, water quality testing
Dahlem Center	Project coordination and management, volunteer recruitment and training, data collection and data base management

Other Relevant Grants

Grand River Watershed Management Phase II (I.& E)
Knight Family Foundation mini-grant for equipment purchase

Evaluation

Outcome Evaluation

1. The actual changes in water quality, a quarterly basis, will be charted, based on the sampling results.
2. The number of sites and locations, which are remediated, to reduce or eliminate water pollution will be documented, as well as the quantity of remediation.

Process Evaluation

The specific deliverables detailed in the project plan will be monitored and documented including record of initiation and completion of each activity, documentation record for each activity, such as completed volunteer manuals and worksheets, training sessions, number of samples properly recorded and charting of testing results.

Project Timeline

Start Date	End Date	Activity
Sep 15, 2003	Nov 15, 2003	Develop coordinator job description and post position availability
	April 15, 2004	Hire coordinator/Intern
Oct 15, 2003	June 1, 2004	Develop volunteer job description and post will JCC Science Department, Jackson County Nonprofit Resource Center and MSU Extension newspaper
May 1, 2004	Sep 30, 2004	Train volunteers and assign schedules for taking samples
Apr 20, 2004	May 1, 2004	Coordinator starts taking samples
May 15, 2004	May 31, 2004	Volunteers start taking samples
June 15, 2004	July 15, 2004	Sample results recorded (GIS format, if possible)
Sept 15, 2003	Jan 31, 2004	Develop QAPP
	Sep 30, 2003	First quarterly report submitted (other quarterly reports submitted 12/31/03, 3/31/05 and 6/30/05)
August 1, 2004	Sep 1, 2004	Recruit additional volunteers as required
September 1, 2004	Sep 30, 2004	Volunteer training for new volunteers
Aug 1, 2004	Sep 30, 2005	Begin process of identifying pollution sources, based on outcomes of testing
June 1, 2004	May 31, 2005	Enter data from collected samples
July 1, 2004	December 31, 2004	Analysis of samples for invertebrates complete electronic and printed formats to show results of water quality findings over time for each sampling site
August 1, 2004	May 31, 2005	Begin process of identifying erosion source based on outcomes of testing
February 1, 2004	Aug 31, 2005	Develop volunteer management manual with volunteer recruitment plan, volunteer job description, review, evaluation tools for volunteer training, etc.
	Sep 30, 2005	Final report submitted

Budget Detail

1. Volunteer Time

- 162 hours to collect 3 samples at 9 sites
- 198 hours training time
- 36 hours summary discussion/future planning
- 396 total volunteer hours**

A training workshop will be offered to potential volunteers during May 2004. The current plan includes a morning lecture followed by field training. The training will take place at the Dahlem Environmental Education Center. Initially, at least 18 volunteers are anticipated to begin the stream-monitoring program. Volunteers will be assigned streams to sample at that time. A follow-up training program will be held for volunteers prior to the fall collection. A final summary and review sessions is currently planned for November 2004. The nine primary confluences will be surveyed at least once in the spring and once in the fall. A second sampling of these nine areas will be considered pending volunteer support, but is not included in volunteer time calculations.

Volunteers also will be encouraged to participate in collecting samples at the other locations listed above. However, the coordinator will be responsible for these collections regardless of volunteer support, and additional volunteer time is not included in the current match calculation. The volunteer hours listed above represent a base for support, while the actual total number of volunteer hours during the grant period will provide a measure of community acceptance/support for this project.

2. Mileage

- a. 150 miles travel to 9 sites once per month (six months) at \$.365/mile for volunteers = 900 = **\$328.50**
- b. 250 miles travel to 20 sites once per month at \$.365/mile for project coordinator = 1500 = **\$547.00**
- c. Other travel for project staff 150 miles/week x 3 weeks at \$.365 = **\$164.25**

The College reimbursement rate for mileage is \$.365/mile with \$.305/mile from grant and \$.06/mile from Dahlem Center budget or other potential grant funds

3. Staffing

Major Tasks

- 1. Program/Workshop development = 7.5
- 2. Training/Volunteer manual = 31.4
- 3. Data Collection/record keeping/ = 46.0
- 4. Report processing and quality assurance = 15.1
- 5. Total =100.0

The Dahlem Center staff time will devote time as indicated for training and report processing. Costs for the director and staff time will be incurred from the Dahlem Center budget (Jackson Community College).

- 4. **Indirect Costs** = Utilities (Electric, phone, heat), supplies, materials, computer support, & facilities maintenance.

Michigan Department of Environmental Quality
Surface Water Quality Division

GRANT APPLICATION BUDGET INFORMATION

(Authorized by 1994 P.A. 451)

(Completion of this form is required in order to receive grant consideration)

Applicant's Name Dahlem Nature Center / Jackson Community College

Project Name Upper Grand River Volunteer Monitoring Project

BUDGET CATEGORIES	GRANT FUNDS	LOCAL MATCH	CATEGORY TOTAL
STAFFING COST: (# hours x rate of pay)			
Project Coordinator 40 hrs/wk x \$ 7.50 X26 weeks	\$7,800.00		\$7800.00
Executive Director 60 hrs x \$50.00		\$ 3,000.00	3,000.00
Secretary 4 hrs x #20.00		80.00	80.00
Staffing Cost Subtotal	7,800.00	3,080.00	10,880.00
FRINGE BENEFITS: 20%	1,560.00		1,560.00
Fringe Benefits Subtotal:	1,560.00		1,560.00
CONTRACTUAL SERVICES:			
Volunteer Monitors 396 hrs @ \$10.00/hr	0.00	3,960.00	3960.00
Contractual Services Subtotal:	0.00	3,960.00	3,960.00
PROJECT SUPPLIES AND EQUIPMENT Project Supplies and Materials (itemize)			
Hach Kit and chemicals for water testing	500.00	0.00	500.00
Other equipment (GPS, Misc.)?	0.00		
Project Equipment (itemize): (Over \$1000 remains property of the State of Michigan)			
Project Supplies and Equipment Subtotal:	500.00	0.00	500.00
TRAVEL:			
450miles x \$.305 for staff	137.25		137.25
900 miles x \$.305 for volunteers	274.50		274.50
1500 miles x \$.305 for coordinator	457.50		457.50
Travel Subtotal:	869.25		869.25
PROJECT SUBTOTAL	\$10,729.25	\$7,040.00	17,769.25
INDIRECT COSTS (Rate <u>13.5</u>%)	1,263.60	\$415.80	1,679.40
GRAND TOTAL (add subtotals)	\$11,992.85	\$7,455.80	\$19,448.65

SOURCES OF MATCH:
Dahlem Environmental Education Center /
Jackson Community College

DOLLAR VALUE COMMITTED:
\$7,455.80

SOURCE OF O & M

Indirect = Utilities (Electric, phone, heat), supplies, materials, computer support, & facilities maintenance