

Research Internships for a Sustainable Environment with Undergraduate Participation Grant Proposal

Project Title: Sustainable Small Harbor Management Strategies

Submitted By: Nathan Christie
Email: nathan.christie@wayne.edu
Phone: 734-308-0038

Senior Mentor: Sanjiv Sinha, Ph.D., P.E.
Vice President, Environmental Consulting and Technology, Inc.
Email: ssinha@ectinc.com
Phone: 734-272-0859

Junior Mentor: Robert Pettit, M.S.
Consultant, Environmental Consulting and Technology, Inc.
Email: rpettit@ectinc.com
Phone: 240-278-2424

1. Project Summary

Michigan's Great Lakes are an integral part of the state's economy. Each year, they anchor Michigan's economy through direct and secondary spending in tourism. In addition, the Great Lakes provide drinking water for much of the United States and Canada. An extended period of economic decline in combination with varying water levels have left many of Michigan's small harbor communities in positions of uncertainty (Overview, n.d.). As government funding at both the state and federal levels becomes increasingly harder to come by, these communities become even more susceptible to decreasing revenues and shrinking populations.

The proposed research project attempts to identify solutions and sustainable approaches that small harbor communities can use to ensure a prosperous future. Four case studies of small harbor communities in Michigan (New Baltimore, Au Gres, Ontonagon, and Pentwater), representing a variety of different conditions (type of harbor, population size, and geographic distribution) will be employed, examining the unique conditions of each of the four communities being studied (Overview, n.d.). Stakeholders with differing interests will be involved in the process, ensuring a solution that benefits the community as a whole.

The intellectual merit of the proposed research project lies in the opportunity to identify solutions to a fairly recent phenomenon. By employing an interdisciplinary approach, the case studies will provide insight into the nuances of struggling small harbor communities. The outputs will provide understanding of the application of academic and intellectual approaches to identifying solutions embedded in real-world problems. Additionally, private companies are becoming increasingly socially responsible in a time marked by diminishing government support.

The proposed research has the potential to greatly benefit society in the near and distant future. Through an interdisciplinary case study approach to four distinct communities, the findings will provide useful tools for the application to an array of conditions plaguing small harbor communities all across the Great Lakes region. This will be particularly useful, for

public harbors in Michigan are now required to formulate five-year plans to receive funding from the Michigan Department of Natural Resources Waterways Program (Overview, n.d.).

2. Project Description

A. Introduction and Background

The central purpose and long-term goal of this research project is to identify the main obstacles small harbor communities face in their pursuit of an environmentally, financially, and socially sustainable future, and to develop a set of tools that can be used in the future to maintain small harbor communities security. The findings have expected significance in that many small harbor communities within the Great Lakes region face similar issues as those under study.

Presently, there is an enormous body of literature in regards to economic development, revenue generation, and municipal planning. Making changes to something relatively simple such as boat launch prices can affect the revenue generated from the launches and the subsequent benefit derived from the use of launches by boaters (Cesario & Knetsch, 1985). This research, however, will take an interdisciplinary approach in order to identify a solution that serves the many different stakeholders within the harbor communities. Therefore, the findings will be very unique to each specific community. However, the findings will be made useful and applicable to other communities faced with similar challenges by creating a toolkit of approaches that have been tested in the case-study communities.

Stakeholders will include public sector representatives from multiple levels of government, private business owners, tribal groups, local residents, watershed groups, and harbor uses (both commercial and recreational). Potential conflicts that may arise include disagreements in regards to the roles of public actors and private actors and in areas such as resource allocation and subsidization. Different parties will have different priorities and inputs about what will most benefit the community. The results from this project will assist in conflict resolution by identifying solutions that are most beneficial to the community as a single entity, not just specific components.

B. Specific aims

In relation to the longer-term goals, the overall project plan is to study the case-study communities by means of charrettes, as described below in greater detail in the section on Methods. Two of the charrettes (New Baltimore and Pentwater) have been completed already, but the outcomes have yet to be fully analyzed. Two charrettes (Au Gres and Ontonagon) are planned to be conducted by the overall project in the Fall of this year. Accordingly, the specific aims for the RISEUP intern this summer are the following:

Specific aim one: The data, plans, and outcomes of the two completed charrettes will be analyzed and summarized in a written report.

Specific aim two: Preparations for the fall charrettes will be made. Specifically, a walkability map and other useful preliminary economic data (e.g., recreational assets, existing and potential future sources of revenue, etc.) will be gathered and constructed for presentation for the Au Gres and Ontonagon charrettes. Preparation for the remaining two

charrettes will be a priority for the summer, as the Au Gres charrette is scheduled to take place in September.

Specific aim three: Additional information to be used in the final project report will be gathered. An extensive amount of research needs to be done for the conclusive booklet that will contain an overview of the entire research project. The booklet will contain general information about Great Lakes harbors in addition to the outcomes of the charrettes.

C. Proposed Methods

The case studies will be conducted by employing charrettes, a collaborative workshop conducted with the participation of multiple stakeholders developed by the National Charrette Institute in Portland, Oregon (National, n.d.). Charrettes are highly structured, scheduled meetings that take place over a multiple day period (Rayala, 2013).

Through charrettes, the multiple inputs from the different stakeholders can be easily identified. Afterwards, the most beneficial solutions for the community as a whole will be identified, and an adequate, effective plan will be outlined in great detail so that it may be implemented for the community under study.

Stakeholders within the small harbor communities participate in the charrette only when it is relevant and beneficial to the ultimate outcome, allowing each meeting addressing a specific facet of the community to be conducted in a concise, streamlined fashion.

Aside from the charrettes, relevant legal and economic factors will be examined and assessed. Pertinent information may include legal statutes affecting Michigan harbors and boaters, as well as the trends in boat permits and ownership. These additional factors will be weighed and factored into the community solutions accordingly.

An abundance of environmental factors are to be evaluated as well. Water levels and dredging will be of particular importance, as they are most relevant to the issues that small harbors face. Data on water levels and dredging will be obtained from the United States Army Corps of Engineers. Expert analysis of environmental considerations coupled with economic analyses will be prepared prior to the charrettes. Some sources of economic data include the number of transient slips a harbor issues yearly, the average stay of transient boaters or hotel-goers. Walkability maps will be prepared by creating a list of amenities and assets that a community has to offer and creating a subsequent map using ArcGIS to plot these locations, as well as the distance of these amenities from the harbor in question. The data will be presented at the charrettes and used in addition to inputs from stakeholders.

D. Expected Results

Although the outcomes will be specific to each community, it is expected that much of the results will emphasize economic development. Financial instability and insecure futures have left these small harbor communities seeking increased revenue generation. Therefore, the solutions for a sustainable future will include plans unique to each community to generate revenue and reduce costs. Identification of assets will be an integral part of the case study, as this will be used to evaluate existing and future sources of revenue. Furthermore, opportunities for future development will be identified to give communities a plan to pursue new routes of revenue.

Recreation is an integral part of small harbor communities' economies. Therefore, an assessment of recreational assets will also be conducted. This is particularly essential, as recreation and tourism anchor many small harbor communities within the Great Lakes Region. Water is a necessary component in many industrial processes, and sport fishing alone, contributes \$4 billion to the region's economy (About, n.d.).

Michigan State Housing Development Authority's (MSHDA) "Placemaking" program will be used as a guide. MSHDA defines placemaking as an approach to community planning that emphasizes the creation of a sense of "place" to promote the quality of life of residents and spur further development (CD, n.d.). In addition, barriers to sustainability in small harbors will be identified, culminating in a website that can assist communities in the future (Overview, n.d.).

Outputs will inform future decisions for physical and social sustainability by giving communities tools to make calculated decisions that benefit them for years to come. Potential content of the toolkit may be funding opportunities (grants and loans), case study information, fact sheets, and online resources. Communities will be equipped with the information and guidance to make decisions that can withstand the changing water levels and sustain the economic landscape.

E. Broader Impacts

This research project has tremendous potential to benefit society and contribute to the achievement of desired societal outcomes. Specifically, the pursuit of financially, socially, and environmentally sustainable solutions will be enhanced by this research. The broader impacts will be achieved by utilizing the subsequent toolkit that is to be developed. Once the charrettes have been completed, the toolkit will be applied to two other harbor communities to measure the effectiveness of the toolkit in solving other small harbors' sustainability issues. The USACE have identified the abundance of benefits of improved economic analysis of small harbors (McDonald, 2013). This can have a tremendous impact on the future of recreation and commerce within the Great Lakes region.

E. Supplementary Information

Once the project has been completed, reports and fact sheets will be published. A website to assist other communities in their future sustainability endeavors will also be created (Overview, n.d.). In addition, a formal booklet containing detailed information on small harbor sustainability will be released. A report outlining the research project from start to finish may also be published.

F. References

About Our Great Lakes: Economy. (n.d.). Retrieved May 26, 2015, from <http://www.glerl.noaa.gov/pr/ourlakes/economy.html>

Cesario, Frank J., & Knetsch, Jack L. (September 1985). Economic Benefits of Developing and Improving Small Harbors. *Water Resources Research*, 21(9), 1303-1306.

CD Notice of Funding Availability (NOFA). (n.d.). Retrieved May 26, 2015, from <http://www.imichigan.gov/msdha/0,4641,7-141--291467--,00.html>

McDonald Richard., *Improving The Economic Analysis Of Small Harbors*. 2013. Web. 15 June 2015. USACE Policy And Planning Division.

National Charrette Institute: NCI Charrette System. (n.d.). Retrieved May 21, 2015, from <http://www.charretteintitute.org/charrette.html>

Overview – Integrated Assessment: Small Harbor Sustainability. (n.d.). Retrieved May 21, 2015, from <http://www.miseagrant.umich.edu/smallharborsustainability>

Rayala, M. (March 2013). *School arts: The charrette: A community process* Davis Press.

3. Biographical Sketches

See attached documents.

4. Budget

At this time, it is not expected that any of the \$500 travel allowance that has been set aside for this project will be used. There is a possibility, however, that some of the travel allowance will be used to travel to advisory board meetings held in Lansing. It is also not expected that any extraordinary expenses not covered by available funding will arise. ECT's services have already been paid for, and there appear to be no budgetary limitations presently.

5. Facilities, Equipment, and Other Resources

In order to conduct the charrettes, public space in the aforementioned communities must be utilized. Once they have been completed, much of the data analysis and evaluation will take place at ECT and Lawrence Technological University. This project is being conducted in collaboration with Michigan Sea Grant, Michigan Department of Natural Resources-Waterways Commission, Michigan Department of Environmental Quality-Office of the Great Lakes, and Michigan State Housing Development Authority.