

Evaluating the Effectiveness of the Environmental Review Process along the Great Lakes Shoreline: Phase I Progress Report



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For:
Michigan Coastal Management Program
Land and Water Management Division
Michigan Department of Environmental Quality
Project #08-309-10

MNFI Report #2009-06
August 14, 2009



Suggested Citation:

Olson, J.O., Penskar, M.R., Sargent, L.G. and J.J. Paskus. 2009. Evaluating the Effectiveness of the Environmental Review Process along the Great Lakes Shoreline: Phase I Progress Report. Michigan Natural Features Inventory Report No. 2009-06. Lansing, MI. 40 pages.

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Financial assistance for this project was provided by the Michigan Coastal Management Program, Michigan Department of Environmental Quality (MDEQ) through a grant from the National Oceanic and Atmospheric Administration (NOAA), U.S. Department of Commerce. Additional funding was provided by the Wildlife Division, Michigan Department of Natural Resources and Michigan Natural Features Inventory (MNFI), Michigan State University Extension.

The statements, findings, conclusions and recommendations in this report are those of the Grantee and do not necessarily reflect the views of the MDEQ and the NOAA.

Photographs taken by: Jennifer Olson (MNFI)

Cover photo upper left: Typical Lake Huron shoreline – Chippewa County

Cover photo upper right: Ohio goldenrod (L) and Houghton's goldenrod (R) – Chippewa County

Cover photo lower left: New house along Lake Michigan shoreline – Mackinac County

Cover photo lower right: Mike Smolinski (MDEQ LWMD) and Mike Penskar (MNFI) consulting on rare plants and wetland issues – Mackinac County

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Introduction

The Great Lakes coastal zone is a landscape rich with significant natural communities and associated species. Many of Michigan's rarest communities and plants are found only in the coastal zone. Michigan Natural Features Inventory (MNFI) maintains the most comprehensive database on Michigan's rare and declining plants and animals, and native ecosystems. As June 2008, when this study was approved by all parties, MNFI maintained information on 93 endangered species, 249 threatened species, 261 special concern species, and 76 natural community types. The statewide database, which was first developed in 1980, tracks over 15,000 element occurrences records. An analysis of the MNFI database reveals that 13% of the statewide element occurrences (~ 2,000) occur within 0.5 mile of the Great Lakes shoreline. For example, interdunal wetlands, alvar, limestone bedrock glades, volcanic lakeshore cliffs, open dunes, Great Lakes marshes and lakeplain wet prairies are coastal communities that are considered to be critically imperiled (S1), imperiled (S2), or vulnerable (S3) in the state (Kost et al. 2007). Four federally listed plants inhabit Michigan's northern Great Lakes shoreline including, Houghton's goldenrod (*Solidago houghtonii*), dwarf lake iris (*Iris lacustris*), Pitcher's thistle (*Cirsium pitcheri*) and Michigan monkey-flower (*Mimulus glabratus* var. *michiganensis*). These well known rarities, along with many state listed shoreline species, have some of their best populations in Michigan. Rare plants and natural communities are important barometers of ecological condition and environmental health, and state and federal agencies have the responsibility of protecting these rare resources from direct and unreasonable human impacts.

Project Purpose

The Michigan Department of Natural Resources (DNR) Wildlife Division has the responsibility to protect endangered and threatened plant and animal species Under Part 365 of the Natural Resources and Environmental Protection Act (Act 451 of 1994). The Wildlife Division maintains compliance with Part 365 through the environmental review process. The environmental review process involves evaluating the impacts of proposed projects on federal and state endangered and threatened species, special concern species, high quality natural communities and other unique natural features. Projects are evaluated on public and private land statewide. The process of evaluating projects has progressed from comments on Post-it® notes, memos, and e-mails, to formal project clearance letters, or an on-line web application where the public can have their project evaluated for rare species in minutes.

The Michigan Department of Environmental Quality (DEQ) Land and Water Management Division (LWMD) is responsible for resources along the land and water interface. They have statutory authority over wetlands, inland lakes and streams, floodplains, submerged lands, and critical dune areas on public and private land. Landowners are not allowed to violate any state environmental regulations under Michigan's Natural Resources and Environmental Protection Act. Under a Memorandum of Understanding between the DEQ and DNR (signed in 1999), the DNR provides a list of the locations of unique natural features of interest by Town, Range, Section to LWMD. Permit applications are entered into the LWMD Coastal and Inland Waters Permit Information System (CIWPIS) database and a list of organizations that have "Special Interests" in a location are identified. The DNR Natural Heritage program is one of many special

interest organizations that may wish to comment on a proposed activity. Project activities occurring near known rare species or high quality natural community locations are sent to the DNR Wildlife Division for evaluation and comment. The Wildlife Division becomes involved with LWMD permit applications if or when rare species may be impacted by land or water altering activities. The Memorandum of Understanding and an established protocol create the foundation of the state's environmental review process.

The current environmental review process can be summarized in 6 steps:

- 1) **Receive** request with proposed project description and location information provided.
- 2) **Compare** the project location against the MNFI database of rare and unique natural features.
- 3) **Determine** the potential for rare and unique natural features to be present and impacted by land altering activities. This may involve MNFI biologists and/or additional outside experts.
- 4) **Respond** to the applicant, consultants, agencies or other entities involved. The response will either be no element occurrences nearby, no impacts expected or potential impacts may occur and restrictions are provided or a "clearance needed" letter is sent.
- 5) **Provide** formal project clearance if suitable information is received and direct impacts can be avoided.
- 6) **Identify** additional project clearance requirements and/or provide an application for an Endangered Species Permit if direct impacts can not be avoided.

Statement of Problem

Unfortunately, the ability to follow-up and monitor compliance of rare species protection efforts has not been a part of the environmental review process, and understanding the effectiveness of the DNR and DEQ regarding the protection of Michigan's rare natural resources is a challenge. For example, of the 3,075 environmental review requests responded to in 2007, 21% (647) had the potential to impact rare or unique natural features. Of the 647 potential impact responses, it is not clear to what extent rare species and natural community concerns are being incorporated into the LWMD permits, or how well applicants are following the provisions stated in each permit. In addition, land owners that do not respond to DNR potential impact "clearance needed" letters are not pursued and the resulting impact of these projects on rare species are unknown. In order to improve the effectiveness and efficiency of rare species protection efforts, this project will evaluate the DNR Wildlife Division and DEQ LWMD environmental review process along the Great Lakes shoreline.

History of Environmental Review

An initial version of the environmental review process began in the early 1980's when MNFI and DNR formed a professional partnership. During these early years, with limited staff and limited resources, most environmental reviews were completed by DNR staff alone or were passed to one MNFI staff person for comment. Comments were made on Post-It® notes and responses were sent via mail from the DNR. Projects and responses were not tracked by electronic methods. During the early 1990's the DNR began to track projects and responses in a simple database called PC-File. As resources and requests increased, additional employees

within DNR and MNFI began to dedicate their time to processing environmental review requests. At its peak in the late 1990's and early 2000's, two employees within both the DNR and MNFI dedicated all or part of their time to environmental review. As budgets began to shrink in the mid-2000's, geographic information systems (GIS) provided the ability to identify where the DNR and MNFI wanted focus environmental review efforts by flagging the Town, Range, and Section where known element occurrences occurred, and staff decreased to one within each organization.

In 1993, an Access database was created to track project requests and responses. The first complete year projects and responses were tracked in the database was 1994. In 2007, the environmental review Access database was transferred to a SQL Server database to improve stability and functionality. Environmental review project requests are received from a variety of agencies, organizations and individuals (2,357 total requests received in 2008). The Michigan state government is the most frequent customer of the environmental review process, with DEQ being the department with the highest number of requests and LWMD the division with the most requests. The analysis of all environmental review requests received in 2008 follows:

- State of Michigan (69% of total requests)
 - DEQ (84%)
 - LWMD (70%)
 - Water Bureau (21%)
 - Office of Geological Survey (9%)
 - DNR (15%)
 - Office of Land and Facilities (71%)
 - Forest, Mineral and Fire Management (25%)
 - Fisheries (2%)
 - Wildlife (1%)
 - State Police (< 1%)
 - Department of Transportation (<1%)
- Endangered Species Assessment web application (19%)
- Consultants (7%)
- Federal agencies (3%)
- Local governments (1%)
- Organizations (<1%)
- Individuals (<1%)

Requests also arrive through the Endangered Species Assessment (ESA) web application. The ESA web application was created with a technology grant and partnership between the Department of Information Technology (Center for Geographic Information), the DNR and MNFI. The ESA web application was released in October 2004 and was designed to provide Internet users with a preliminary evaluation of whether rare species or unique natural features have been known to occur near a designated site of interest. The evaluation is a presence/absence based response only. ESA application users have the opportunity to request a formal response from the DNR through the website if desired. The response will either indicate that “no unique natural features are known to occur at or near your site of interest” thereby providing authorization for the project to proceed without any further rare species concerns from the DNR

Wildlife Division, or, the response will indicate “there is potential for rare species or unique natural features to occur at or near the site of interest” and the project will be automatically submitted for further evaluation.

In 2008, 454 requests came in through the ESA web application (19% of requests in 2008). The largest user the last three years has been the U.S. Department of Health and Human Services, Indian Health Service followed by several consultants, other federal agencies, state agencies, local governments, engineering firms, Indiana tribes, universities, utility companies, land trusts and private landowners.

The table below summarizes the number of environmental review responses over a 15-year time period that had: no element occurrences known to occur within or near a project area; no expected impacts to known element occurrences within or near a project area; and the potential to impact rare species or high quality natural communities within or near a project area (Table 1).

Table 1. Results of environmental review responses over 15-year time period.

Year	No Element Occurrences	No impact	Potential Impact	Total # Responded To
1994	445 (33%)	703 (51%)	221 (16%)	1,369
1995	738 (32%)	1,204 (52%)	358 (16%)	2,300
1996	851 (35%)	986 (40%)	607 (25%)	2,444
1997	927 (30%)	1,565 (50%)	634 (20%)	3,126
1998	729 (20%)	2,330 (63%)	610 (17%)	3,669
1999	667 (22%)	1,798 (60%)	518 (18%)	2,983
2000	746 (24%)	1,738 (56%)	600 (20%)	3,084
2001	750 (22%)	2,200 (64%)	483 (14%)	3,433
2002	415 (14%)	1,986 (65%)	630 (21%)	3,031
2003	281 (10%)	1,975 (71%)	544 (19%)	2,800
2004	258 (9%)	2,035 (68%)	694 (23%)	2,987
2005	372 (11%)	2,118 (64%)	848 (25%)	3,338
2006	369 (12%)	2,079 (64%)	786 (24%)	3,234
2007	325 (11%)	2,103 (68%)	647 (21%)	3,075
2008	274 (11%)	1,608 (66%)	549 (23%)	2,431
Average	20%	60%	20%	2,887

The number of no element occurrence responses has decreased steadily over the last 15 years, while the number of no impact and potential impact responses has increased. The majority of the response time is spent on no impact responses (66% of responses in 2008), although, individual potential impact responses can take a significant amount of time to customize when the project is large in scope or activities impact multiple habitats.

Methods

File Evaluation

The majority of environmental review responses involve potential impacts to rare plants, which comprise the largest proportion, or 39%, of the MNFI database (as of June 8, 2009). Since animal species are mobile and therefore more difficult to evaluate how and if impacts occurred as a result of project activities, this study focused on project impacts to rare plant and high quality natural community occurrences. However, if rare animals were documented on a project site, they were included in the impact evaluation.

All DEQ LWMD applications submitted from townships intersecting the DEQ defined coastal zone boundary in Mackinac and Chippewa Counties in 2006 and 2007 were considered for evaluation (Figure 1). DNR Endangered Species Permits that were issued in the coastal zone townships within either county during the designated timer period were also included in the evaluation. This region was targeted for several reasons including: 1) a relatively high number of federal and state protected rare species and unique natural communities occur in the targeted coastal townships, 2) a relatively high number of potential impact environmental review projects occur in the targeted coastal townships, 3) the rate of development is increasing along this stretch of Great Lakes shoreline, 4) private property has not been well surveyed in the targeted coastal townships, 5) there exists high potential for illegal development activities since the nearest DEQ office is over 165 miles away in Gwinn, and 6) opportunities for compliance inspections on private property are limited.

DEQ and DNR files were evaluated internally for program and process coordination and externally at the project site for regulation compliance. The internal evaluation was conducted with the goal of identifying how well the process of flagging DEQ applications for review, sending applications to the DNR for review and response, sending DNR “clearance needed” letters directly to the applicant, and final DEQ permit language is working. All results were entered into an Access database. The following criteria were used for the **internal evaluation**:

- A. The total number of DEQ LWMD applications in Chippewa and Mackinac Counties in 2006 and 2007
- B. The total number of DEQ LWMD applications within the DEQ coastal zone townships of Chippewa and Mackinac Counties in 2006 and 2007
- C. The number of DEQ LWMD applications identified for DNR Natural Heritage review within the DEQ coastal zone townships of Chippewa and Mackinac Counties in 2006 and 2007
- D. The number of DEQ LWMD applications the DNR reviewed and commented on within the DEQ coastal zone townships of Chippewa and Mackinac Counties in 2006 and 2007
 - a. The number of no impact responses from the DNR Natural Heritage program
 - b. The number of potential impact responses from the DNR Natural Heritage program
 - i. The number of “clearance needed” letters sent to applicant/landowner
 - ii. The number of clearance needed letters responded to by the applicant/landowner/representative agent or LWMD field staff

- E. The final DEQ LWMD decisions on applications flagged, reviewed and commented on by the DNR within the coastal zone townships of Chippewa and Mackinac Counties in 2006 and 2007
 - a. The number of DEQ LWMD applications issued
 - i. The number of permits that incorporated DNR Natural Heritage comments
 - b. The number of DEQ LWMD application denied
 - i. The number of denials that incorporated DNR Natural Heritage comments
 - c. The number of DEQ LWMD applications withdrawn
 - d. The number of DEQ LWMD applications closed
 - e. The number of DEQ LWMD applications pending
- F. The number of DNR Endangered Species permits issued within the DEQ coastal zone townships of Chippewa and Mackinac Counties in 2006 and 2007

2008 Study Area: Evaluating the Effectiveness of the Environmental Review Process along the Great Lakes Shoreline - Phase I

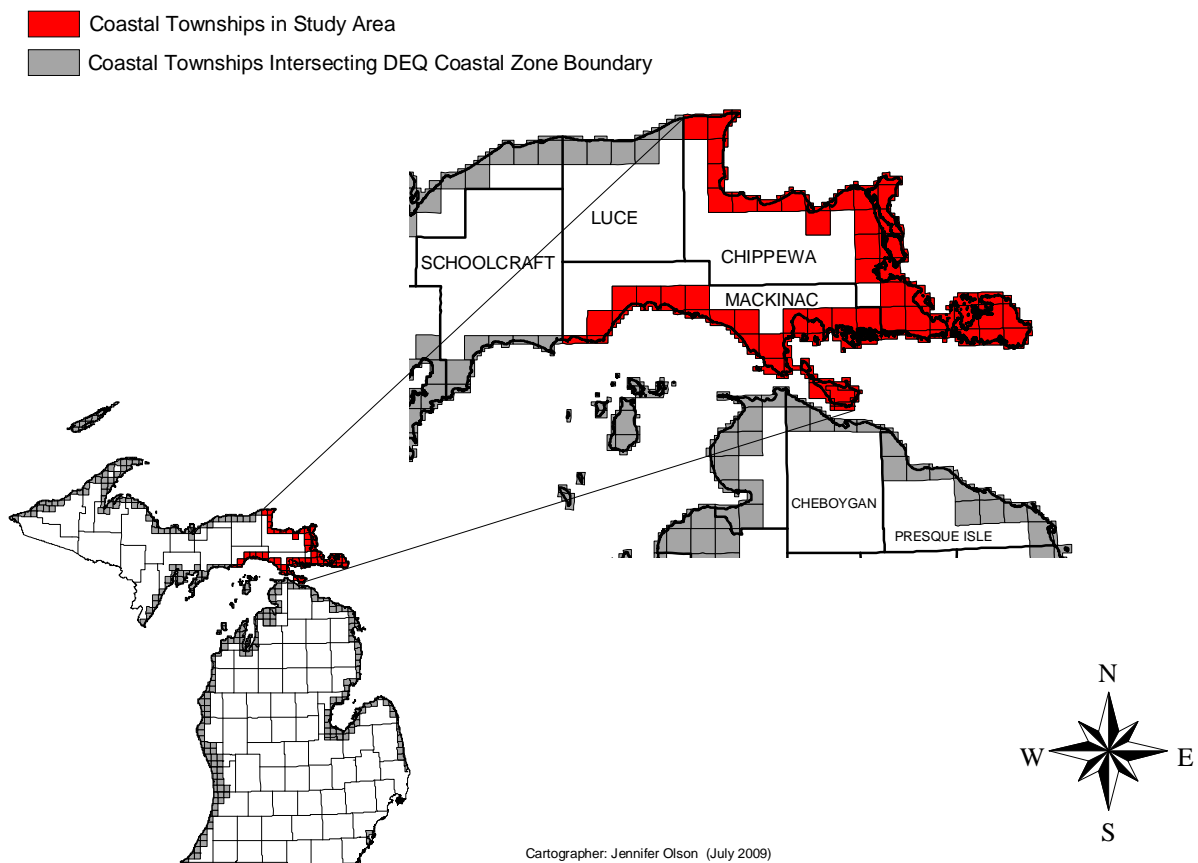


Figure 1. Study area for phase I of project.

Project Site Selection

After completing the internal file evaluation, those DEQ LWMD files that had a high likelihood of potential impacts to rare species were selected for an on-site project compliance evaluation. Files with a high likelihood of potential impacts included those where the applicant/landowner received a DNR “clearance needed” letter and the resulting survey report described suitable habitat at the project site, and/or if the applicant/landowner received a DNR Endangered Species Permit in the study area. The following criteria were used for the **external evaluation**:

- G. The number of projects within the DEQ coastal zone townships of Chippewa and Mackinac Counties in 2006 and 2007 with high potential of impacts to rare species
 - a. Did property owners follow the DEQ LWMD permit requirements
 - b. The number of rare species found on the project site
 - c. How likely were rare species impacted by project activities
 - d. Did property owners follow DNR Endangered Species Permit requirements

Prior to conducting on-site visits, a project field form was created to enable recording habitat present, permit compliance, rare species presence/absence, and general comments on the nature and condition of the site, particularly with regard to the activities taking place and potential impacts to rare species or their habitat (Appendix A). Following the completion of the internal file evaluation and the project site selection, the DEQ LWMD field staff personnel in the respective counties were contacted. Arrangements were then subsequently made to access and conduct on-site project visits with the appropriate DEQ LWMD field staff.

Project Site Assessments

Site visits were conducted from September 9 – 12, 2009 by Jennifer Olson and Mike Penskar of MNFI, Lori Sargent of DNR-WLD, and John Gustafson and Mike Smolinski of DEQ LWMD. This period was selected based on the desired survey window of August –September for the federal and state threatened Houghton’s goldenrod (*Solidago houghtonii*), dwarf lake iris (*Iris lacustris*) and Pitcher’s thistle (*Cirsium pitcheri*), all of which were flagged by the DNR for potential impacts and thus comprised our principal target species in the first year of this study.

The goal of each site visit was to assess the activities conducted via the issued permits, determine compliance with respect to the specific provisions of each permit, and ascertain the presence and condition of known or previously unknown rare species for the site and any impacts to these species or their habitat. A project field form was completed for each site assessment. As appropriate and necessary, plant specimens were collected for subsequent determination and verification, and specific plant associates and other relevant data were recorded for all rare plant occurrences documented. Where necessary, GPS points were recorded for rare plant locations, particularly when identifying new rare plant populations. Lastly, a series of representative photos for each site was compiled, emphasizing the project area and general context, known and potential rare species habitat, and species of rare taxa as needed (Appendix A).

Data Processing

Following project site visits, plant specimens were reviewed, keyed, and determined using the Michigan Flora (Voss 1996, 1985, 1972). Standard MNFI field forms were prepared for data transcription. All rare plant data were entered into the statewide Biotics database following the digitizing of occurrence boundaries where necessary. Site visit results were entered into the study's Access database.

Results

File Evaluation

As part of the internal file evaluation, several databases were queried for information including the DEQ Coastal and Inland Waters Permit Information System (CIWPIS) database, the DNR Environmental Review database and the DNR Endangered Species Permit database. For ease of documentation, the results are described in the same format as presented in the Methods section.

- A. The total number of DEQ LWMD applications in Chippewa and Mackinac Counties in 2006 and 2007

A total of 422 applications were in the CIWPIS database within the study area:
Chippewa County: 251 applications (59%)
Mackinac County: 171 applications (41%)

- B. The total number of DEQ LWMD applications within the DEQ coastal zone townships of Chippewa and Mackinac Counties in 2006 and 2007

A total of 336 applications (80%) were in the coastal zone townships within the study area:
Chippewa County: 193 applications (57%)
Mackinac County: 143 applications (43%)

- C. The number of DEQ LWMD applications identified for DNR Natural Heritage review within the DEQ coastal zone townships of Chippewa and Mackinac Counties in 2006 and 2007

A total of 258 applications (77%) were flagged for Natural Heritage review within the coastal zone townships in the study area:
Chippewa County: 145 applications (56%)
Mackinac County: 113 applications (44%)

- D. The number of DEQ LWMD applications the DNR reviewed and commented on within the DEQ coastal zone townships of Chippewa and Mackinac Counties in 2006 and 2007

A total of 139 LWMD applications (54%) that were flagged for Natural Heritage were reviewed and commented on by the DNR within the coastal zone townships in the study area:

Chippewa County: 76 applications (55%)
No impact response: 64 applications (84%)
Potential impact response: 12 applications (16%)
Clearance needed letters: 6 applications (50%)
Response from applicant/agent or LWMD: 2 responses (33%)

Mackinac County: 63 applications (45%)
No impact response: 50 applications (79%)
Potential impact response: 13 applications (21%)
Clearance needed letters: 12 applications (92%)
Response from applicant/agent or LWMD: 3 responses (25%)

- E. The final DEQ LWMD decisions on applications flagged, reviewed and commented on by the DNR within the coastal zone townships of Chippewa and Mackinac Counties in 2006 and 2007

A total of 139 LWMD applications (54%) were reviewed and commented on by the DNR within the coastal zone townships in the study area:

Chippewa County: 76 applications (55%)
No impact response: 64 applications (84%)
Issued: 55 applications (86%)
Closed: 5 application (8%)
Withdrawn: 2 applications (3%)
Denied: 2 applications (3%)
Potential impact response: 12 applications (16%)
Issued: 8 applications (67%)
Closed: 3 applications (25%)
Withdrawn: 1 application (8%)

Mackinac County: 63 applications (45%)
No impact response: 50 applications (79%)
Issued: 41 applications (82%)
Closed: 6 applications (12%)
Denied: 3 applications (6%)
Potential impact response: 13 applications (21%)
Issued: 10 applications (77%)
Withdrawn: 2 applications (15%)
Denied: 1 applications (8%)

- F. The number of DNR Endangered Species permits issued within the DEQ coastal zone townships of Chippewa and Mackinac Counties in 2006 and 2007

Two DNR Endangered Species Permits were issued in 2007 for incidental take, transplanting or maintenance related reasons

Chippewa County: One ES permit issued to William Chadwick for transplanting approximately 790 Houghton's goldenrod (*Solidago houghtonii*) as part of a private bridge construction project across a small channel of Lake Huron to access a peninsula for residential development. The original LWMD application was

dated 00-17-0205-P and 00-17-0066-P but the ES permit was not issued until 2007.

Mackinac County: **One ES permit issued** to Michigan Department of Transportation (MDOT) for the incidental take of Lake Huron tansy (*Tanacetum huronense*), Pitcher's thistle (*Cirsium pitcheri*) and Lake Huron locust (*Trimerotropis huroniana*) as part of a ditch construction project and sand maintenance/control along US-2. The DEQ LWMD permit 07-49-0050-P for the Michigan Department of Transportation was also issued with the following language:

"All work shall be completed in strict accordance with the Michigan Department of Natural Resources Endangered Species Permit # 1786, issued to the Michigan Department of Transportation for this project."

Project Site Selection

As a result of the internal file evaluation, a total of seven DEQ LWMD files were chosen for on-site compliance visits based on a high likelihood of potential impacts to rare species (Table 2). Files with a high likelihood of potential impacts included those where the applicant/landowner received a DNR "clearance needed" letter and the resulting survey report described suitable habitat at the project site, and/or if the applicant/landowner received a DNR Endangered Species Permit in the study area.

- G. The number of projects within the DEQ coastal zone townships of Chippewa and Mackinac Counties in 2006 and 2007 with high potential of impacts to rare species
- Did property owners follow the DEQ LWMD permit requirements
 - The number of rare species found on the project site
 - How likely were rare species impacted by project activities
 - Did property owners follow DNR Endangered Species Permit requirements

Table 2. DEQ LWMD files chosen for on-site compliance visits.

LWMD File	Applicant	Complied w/ LWMD Permit	# of Rare Species Found On Site	Rare Species Impacted	Complied w/ DNR ES Permit
06-17-0087-P	Cloverland Electric	Partial	0	No	N/A
00-17-0205-P / 00-17-0066-P	Chadwick	Yes	3	Yes (1)	Mostly
06-49-0002-P	Black	Yes	0	No	N/A
06-49-0046-P	Toelle	Yes	3	No	N/A
06-49-0024-P	Austin	Yes	2	No	N/A
06-49-0068-P	Garlyn Zoo	Partial	0	No	Mostly
07-49-0050-P	MDOT	N/A	N/A	N/A	N/A

Project Site Assessments

Six project site visits were conducted from September 9 – 12, 2009, four in Mackinac County and two in Chippewa County. The project activities on one project, LWMD file 07-49-0050-P for MDOT, had not started yet. We will evaluate the MDOT project as part of the phase II evaluation in 2009. Rare species were confirmed on three of the project sites and no suitable habitat existed for rare shoreline plants on the remaining three project sites as summarized in Table 3.

Table 3. Results of on-site project compliance and rare species search. Rare species previously unknown for a site are indicated in bold.

Applicant	County	Rare Species Commented on in DNR Clearance Needed Letter	Rare Species Found On Property
Cloverland Electric Coop	Chippewa	Houghton's goldenrod (LT, T) Pitcher's thistle (LT, T) Dwarf lake iris (LT, T)	None – no suitable habitat
Chadwick	Chippewa	Houghton's goldenrod (LT, T) Pitcher's thistle (LT, T) Beauty sedge (SC)*	Houghton's goldenrod (LT, T) Bulrush sedge (T) Richardson's sedge (SC)
Black	Mackinac	Houghton's goldenrod (LT, T) Pitcher's thistle (LT, T) Dwarf lake iris (LT, T)	None – no suitable habitat
Toelle	Mackinac	Houghton's goldenrod (LT, T) Dwarf lake iris (LT, T)	Houghton's goldenrod (LT, T) Lake Huron tansy (T) Stitchwort (SC)
Austin	Mackinac	Pitcher's thistle (LT, T)	Houghton's goldenrod (LT, T) Lake Huron tansy (T)
GarLyn Zoo	Mackinac	Houghton's goldenrod (LT, T) Dwarf lake iris (LT, T)	None – no suitable habitat

LT = Federal Threatened; T = State Threatened; SC = Special Concern; * = delisted as of April 9, 2009

In addition to the species flagged and commented on by the DNR, previously unknown rare species were identified on the project site visits, including the state threatened Houghton's goldenrod (*Solidago houghtonii*), Lake Huron tansy (*Tanacetum huronense*), bulrush sedge (*Carex scirpoidea*) and special concern Richardson's sedge (*Carex richardsonii*) and stitchwort (*Stellaria longipes*). These species were not recorded in the MNFI database near the project sites and were therefore not commented on by the DNR or DEQ.

Discussion

Phase I of this project covered a relatively small area of the state, although, there are several reasons this part of the state was chosen for analysis including: 1) a relatively high number of federal and state protected rare species and unique natural communities occur in the targeted coastal townships, 2) a relatively high number of potential impact environmental review projects occur in the targeted coastal townships, 3) the rate of development is increasing along this stretch of Great Lakes shoreline, 4) private property has not been well surveyed in the targeted coastal townships, 5) there exists high potential for illegal development activities since the nearest DEQ office is over 165 miles away in Gwinn, and 6) opportunities for compliance inspections on private property are limited. The initial phase of this project has unveiled a good deal of insights on the internal environmental review file review process, external physical site impacts and opportunities, and the cooperative partnership between the DNR Wildlife Division and DEQ LWMD staff which will influence how we proceed in the coming year when the project will have expanded site visits and study area coverage.

File Evaluation

Once access to the entire DEQ LWMD CIWPIS database was complete, the file evaluation section of the study was relatively straight forward. The full CIWPIS database proved very useful in providing access to the final permit or denial letter, any correspondence between LWMD and the applicant, LWMD field notes, site photographs, file history and special interests. The Wildlife Division's current access to CIWPIS is through an Intranet website which is limited in its use – primarily to file basics including the applicant's name and address, project description, project location, file status, legislation regulating activity, file history and special interests (<http://intranet.deq.state.mi.us/ciwpis/ciwpisqryINET.asp>).

Many of the basic project file fields entered into LWMD CIWPIS database are re-entered into the DNR's Environmental Review Access database. This includes the DEQ file number, LWMD field person, applicant's name, project description, county, project location in Town Range Section format and waterbody. This "logging in" phase is repetitive when done by both LWMD and Wildlife Division staff. Although each division has its own use for the information, it would be beneficial if both LWMD and Wildlife Division could use the same database software so communication could occur between the two customized interfaces, thereby eliminating duplicative efforts with data entry of applications and tracking project status changes (closed, withdrawn, issued, denied, permit extensions, etc.).

It would be beneficial from Wildlife Division's standpoint to know when and if a project file goes from active to "closed" or "withdrawn." This could impact whether Wildlife Division decides to send a "clearance needed" response to the applicant and whether Wildlife Division should expect a response from the applicant. The non-response rate of applicant's to DNR clearance needed letters is quite high and a continuing problem for Wildlife Division. For example, 19 of 139 applications (14%) that were reviewed and commented on within the study were either closed or withdrawn. Of the 18 applications where the Wildlife Division sent a letter to the applicant indicating clearance was needed before project activities begin, 13 the

DNR never heard back from the applicant (72%) and four applications (22%) were either closed or withdrawn. Applicants responded to only five of the 18 clearance needed letters (28%) in the study area. Using the same database software, or allowing full CIWPIS access to those individuals in the DNR involved with the environmental review process, would improve the ability to track project changes and response expectations.

A total of 422 applications were submitted to DEQ LWMD from Chippewa and Mackinac County in 2006 and 2007. The vast majority of these applications (80% or 336) were located within the DEQ defined coastal boundary. Of these LWMD applications within the coastal zone, 77% or 258 applications were flagged for DNR Natural Heritage review. The DNR Wildlife Division responded to 139 applications or 54% of what was flagged. The discrepancy between what was flagged and what was responded to can be partially explained by the screening of LWMD applications by DNR and MNFI personnel prior to logging them in for review. The majority of projects that are reviewed by the DNR have no impacts expected (average = 60%, see Table 1) and DEQ LWMD projects are the most frequent projects sent to the DNR for review. Because of this fact, a memo has been distributed to LWMD personnel indicating the types of projects that do not need Wildlife Division – Natural Heritage review including:

- 1) Construction of a seawall where a seawall already exists (i.e. seawall in front of an existing seawall). We do want to review seawall construction projects that are new.
- 2) Dock extensions
- 3) Installation of mooring buoys.
- 4) Installation of boat hoists when a dock and/or boat well already exist.
- 5) Maintenance dredging of existing boat wells or marinas.
- 6) Replacement of existing boat ramps.
- 7) Additions to existing structures (e.g. house, garage, etc.).
- 8) Projects occurring along the lake front where the grass is mowed to the lakeshore and no native vegetation is present. This can often be determined when pictures are included with the application.

As a time saving measure, if any of the above LWMD projects are sent to Wildlife Division and they are manually screened when received, they are often not entered into the environmental review project tracking database for formal DNR review. As new DNR or MNFI personnel become involved in the environmental review process, this manual screening is often not done and all projects are logged in for review. Maybe this is desirable since the DNR will be able to identify the project as received? The trade-off is the time spent on reviewing minimal impact projects (60% of projects reviewed) versus potential impact projects (20% projects reviewed). Additional reasons projects may not be responded to include projects that are classified as “after the fact,” projects that are waiting for additional information from the applicant, or applications that are accidentally misplaced (very few).

The DNR Wildlife Division and MNFI are continuing to explore ways to screen out additional no element occurrence and no impact projects from the environmental review process. Solutions often come in the form of improved technology including mapping projects digitally using geographic information systems (GIS) or new screening criteria. For example, the DNR Endangered Species Assessment (ESA) web application is an on-line mapping tool which screens out no element occurrence reviews. The ESA application needs upgrading to improve mapping technologies and to improve web-based interface capabilities. Beginning in October 2007 new screening criteria for CIWPIS was implemented by the DNR Wildlife Division and MNFI including only flagging the locations of G1 or G2 special concern species, all endangered and threatened species, and all documented natural communities. This new screening criteria meant only 14 of the 266 special concern species were being flagged for Natural Heritage review. Improvements to screening criteria and screening tools will continue to be necessary to efficiently and effectively spend what limited time employees have on environmental review issues.

Of the 25 LWMD applications that had potential impacts identified, the DNR responded to 24 of the applications (96%) prior to the final DEQ decision on whether the file was issued, denied, closed or withdrawn. Permits were issued for 18 applications (72%), of which 10 permits (56%) included threatened and endangered (T&E) species language in the permit or the T&E concerns were resolved prior to issuance of the DEQ permit. The remaining eight issued DEQ permits (44%) were issued with no T&E concerns mentioned. Seven applications identified with potential impacts were either closed (3), withdrawn (3), or denied (1). T&E issues were resolved prior to the one DEQ denial and prior to one file being withdrawn. T&E concerns were not communicated to the applicant prior to two files being withdrawn or when three files were closed. Communication from DEQ to the applicant about T&E concerns, or waiting until T&E issues are resolved, is working well with the majority of LWMD projects.

Although a small sample size, the lack of communication about possible T&E impacts in 44% of the DEQ permits issued is a topic that should be explored for possible reasons in Phase III of this project, when a survey will be sent to all LWMD personnel asking them for their input and feedback on the environmental review process. There may be multiple reasons for T&E omissions including habitat present at the project site which is visited by LWMD staff but not DNR staff, or the comment period designated for the different types of LWMD projects – public notice project (20 days), minor project (15 days), and general project (no designated comment period, automatically issued if meets certain criteria). All DEQ LWMD permits do have standard disclaimer language in them stating:

“This permit does not convey, provide, or otherwise imply approval of any other governing act, ordinance, or regulation, nor does it waive the permittee's obligation to acquire any local, county, state or federal approval or authorization, necessary to conduct the activity.”

While this language is included in the DEQ permit, it appears to be overlooked or misunderstood by some applicant's even when they receive a “clearance needed” letter from the DNR. This may be due to confusion about what role DEQ and DNR play in regulating project activities on private land.

In addition to the comment period required for the different projects, LWMD has had to implement a workload reduction plan as of April 15, 2008 due to decreasing state and federal funding, loss of staff, and obsolete data systems (e-mail from Elizabeth Browne, Chief of LWMD, dated April 18, 2008). The realignment of work to address the highest priority needs will likely result in adverse impacts to some natural resources. Immediate actions which were approved by the DEQ Environmental Advisory Council and may impact the effectiveness of the environmental review process include:

- 1) Issuing permits for five years with the exception of the sand dune permits which were extended from 1 year to 2 years and dam safety permits to a 2 year duration.
- 2) Processing of most General Permit / Minor Project applications with minimal review and no site inspection if the application is reasonably complete and photographs of the site are provided.
- 3) Forego responding to lower priority complaints about unauthorized activities. Devote limited staff resources to the biggest environmental, public health and safety threats in the High and Moderate complaint categories. LWMD will no longer respond to complaints of illegal activities in the Low and Not-a-Priority categories.
- 4) Suspend LWMD review of designated wetland and inland lakes and streams permit applications, deferring to decisions by the U.S. Army Corps of Engineers (Corps) in areas of joint jurisdiction. Implement new General Permit for minor activities in waters where the Corps has federal jurisdiction. LWMD would not conduct its normal environmental review. The new General Permit would be issued for two years.

Michigan's official list of endangered and threatened species was amended April 9, 2009. The list now includes 396 species, up from the previous list of 342 species. Fifteen species were delisted including the special concern beauty sedge (*Carex concinna*) which was known to occur near the Chadwick property. An additional 69 species were added to the state list. Snails, freshwater mussels and plants were the most common additions to the new list. Once the newly listed species are documented in the field, at museums, and/or at herbariums their locations will be entered into the MNFI database (Biotics). It is likely more shoreline development projects will be flagged for rare species review and comment. It is in both DEQ's and DNR's interest to protect endangered and threatened species, in addition to special concern species which are not legally protected by state or federal law but which are often believed to be declining and may be added to future list revisions.

The 'Memorandum of Understanding between the MDEQ and MDNR' which was signed in July 1999 (Appendix B), highlights several important points which may need to be re-distributed to all individuals involved in the environmental review process (DNR, DEQ & MNFI). It may be determined after Phase III of this project, the MOU between DEQ and DNR may need updating. Some of the current requirements of the MOU which directly affect the environmental review process include:

- 1) Upon receipt of a permit application, DNR staff informally notifies DEQ of its intent to comment (Appendix B). Comments will be provided to DEQ by DNR staff from the Management Unit where the proposed project is located. (How often is this occurring?)
- 2) The DEQ will not issue any permit prior to the expiration of the public comment period or until DNR comments have been provided, whichever comes first; except for emergency permits. Permits which do not require a public notice and are reviewed by DNR, shall not be issued by DEQ for at least 15 days from the date DEQ provides a copy of the application to DNR, or until DNR comments have been provided, whichever comes first.
- 3) If DNR concerns regarding protection of threatened and endangered species have been provided to DEQ during application review, any permit issued by DEQ for such projects shall contain conditions that address DNR concerns, or language informing the permittee that further review and approval by DNR may be necessary.
- 4) The DEQ shall provide a copy of the permit or permit denial to DNR Management Units and to the Wildlife Division to the attention of MNFI (should just be Lansing Wildlife Division) where DNR has provided written comment to DEQ.
- 5) The DEQ may request DNR assistance prior to issuance of a public notice for any project DEQ deems appropriate. The DNR will participate in pre-public notice review of an application to the extent practicable.

Project Site Selection

Phase I of this study included visiting five to six LWMD project sites. One project site which was not evaluated because the project activities had not started yet was the MDOT sand removal, ditch construction and rare plant transplanting project along US-2 in Mackinac County. This project started the day after our site visit! It was determined this project would be re-visited during Phase II of the study. Phase II of the study will consist of 20-35 project site visits.

Projects were chosen based on the high likelihood of potential impacts to rare species. Those projects where the applicant/landowner received a DNR “clearance needed” letter and the resulting survey report described suitable habitat at the project site, and/or if the applicant/landowner received a DNR Endangered Species Permit, were visited for on-site compliance evaluation. Project site selection went pretty well and methods will likely remain the same for Phase II of the study.

One issue that could improve future project site selection is the survey reports that are provided to the DNR as a result of an applicant/landowner receiving a clearance needed letter. Survey reports often lack consistent and critical information necessary for the evaluation of rare species impacts. It is recommended that DNR Wildlife Division create a standardized survey report form which is included with the clearance needed letter. All applicants/landowners/consultants would then use this form when conducting and reporting on rare species at a project site. This form has

been drafted and should be implemented as soon as possible. Information that would be required in a survey report includes:

- Project location
- Description of proposed project with map showing where impacts will occur
- Target species
- Survey date
- Survey start time
- Survey end time
- Weather conditions (temp, wind, % sun, precipitation)
- Snow cover (yes/no)
- Habitat description
- Description of survey methods including map of survey route
- Plant species observed/documented (includes native and non-native)
- Animal species observed/documented
- Photographs

Project Site Assessments

Results from the project site assessments confirm the coastal zone of Mackinac and Chippewa County has a high diversity of critically imperiled (S1), imperiled (S2) and vulnerable (S3) shoreline plant species including Michigan monkey-flower (S1), bulrush sedge (S2), Houghton's goldenrod (S3), dwarf lake iris (S3), Pitcher's thistle (S3) and Lake Huron tansy (S3). These well known rarities, along with many Special Concern shoreline species, have some of their best populations in Michigan.

Despite the modest number of sites surveyed in this initial year (Phase I), a relatively large number of rare plant occurrences (eight) were collectively observed within or in close proximity to the six project sites assessed, as detailed in Table 3. These included the documentation of three previously unknown localities for a state threatened and two state special concern species, and updates for five additional occurrences, of which three comprised updates for the federal and state threatened Houghton's goldenrod. Interestingly, the eight rare plant occurrences identified derive from only three of the six project sites surveyed, underscoring the rare plant richness and critical biodiversity of shoreline in the Straits region.

Beyond the corroboration of shoreline biodiversity, the results of the project site assessments also indicate that more thorough botanical field inventories of proposed project sites should be considered. The results of the project site assessments for the Chadwick and the Toelle tracts (see Table 3) amply illustrate this. More thorough surveys could be completed either through repeat visits during the growing season – during which additional species would be more identifiable by less experienced botanists – or through more detailed floristic inventories of high potential micro-habitats for rare plant taxa within and near proposed project sites.

A number of invasive plant species were noted during project site assessments, including such exotic plants as common garden tansy, spotted knapweed, St. John'-wort, white clover, sweet clover (*Melilotus* spp.), giant fescue, narrow-leaved cat-tail, mullein, and European helleborine

(*Epipactus helleborine*). Owing to the impacts of exotic species in general in native ecosystems, we suggest that recording the significant invasive species identified in project areas be incorporated as a component of site surveys for rare plant species.

While admittedly a small sample size, preliminary project findings indicate many shoreline lots within the study area had a relatively high likelihood (3 out of 6 or 50%) of harboring either endangered or threatened plant species. High quality maps and photographs as part of the LWMD application greatly improve the DNR's ability to evaluate a project sites for suitable rare species habitat. Whether a rare species had been documented and identified in a DNR clearance needed letter or not, when suitable habitat exists for endangered or threatened shoreline species on a property, the applicant/landowner and consultant should be advised of the potential presence of such species and a survey should be required inside and outside of the direct impact zone. Meander surveys conducted in suitable habitat are often acceptable methods for locating rare species. Complete and consistent survey information in areas of suitable habitat enables adequate evaluation of project impacts and when necessary, makes project modifications and communication more successful and less time consuming/costly for state and federal agencies, and for the landowner.

This project provided an extraordinary opportunity to meet one-on-one with LWMD, DNR and MNFI personnel at project sites. This two-way training experience involved information sharing about rare species and wetland regulations. Discussions included what is covered or not covered under both DNR and DEQ administered regulations, what works, what doesn't work, and also how to optimally search for and identify rare species. These productive interactions build trust, allow for specific questions and answers to be explored, and highlight the need for additional cross training opportunities with other LWMD, DNR, and MNFI personnel.

Education is an important component of any successful biodiversity conservation program. Balancing private property rights with the protection of public resources, declining native species, increasing invasive species and ecosystem functions is not easy but must be done by making the landowner aware of the value and function of such species and ecological processes in our environment. These steps are necessary if Michigan is going to be successful at protecting its unique natural resources in an increasing cash-strapped economy.

Conclusions

Although only in its first year, Phase I of the environmental review evaluation project revealed several preliminary conclusions that could improve the effectiveness of the environmental review process. These preliminary findings are bulleted below:

- Provide access to the full CIWPIS database (read-only) to the DNR/MNFI individuals involved with reviewing DEQ LWMD applications (2-4 people).
- In the future, use database software that can be accessed by both DEQ LWMD and DNR Wildlife Division staff, thereby eliminating duplicative efforts with data entry of applications, tracking project status changes (closed, withdrawn, issued, denied, permit extensions, etc.), and response expectations to DNR “clearance needed” letters. Ideally this software would allow two separate customized applications for each Division, but would be able to communicate and transfer information between each application.
- Design innovative tools and techniques to improve the screening of LWMD applications to reduce the number of no impact projects which are reviewed. This would include improving the existing DNR Endangered Species Assessment web application to allow the users the ability to digitize their entire project boundary, instead of the current limitation of only a single latitude and longitude being recorded.
- Require photographs and high quality maps (include north arrow, road names, waterbodies, major landforms, general habitat, etc.) of the project site as part of a technically complete LWMD application.
- Survey LWMD personnel about the environmental review process during Phase III of this study. Ask for their input and feedback on the process. Explore possible reasons and solutions as to why approximately 45% of the DEQ permits are issued with no T&E concerns mentioned.
- Re-distribute the Memorandum of Understanding between the DEQ and DNR that was signed in 1999 to all DNR, DEQ and MNFI staff involved in the environmental review process. Ask LWMD personnel during the Phase III survey how often comments are provided by DNR staff from the field Management Units where the project is located. As part of phase III of this project, determine if the MOU needs to be updated and implement the revision process if needed.
- Find ways to fund additional DNR/MNFI assistance for DEQ project consultations and find additional for two-way training opportunities between the DNR, DEQ and MNFI.
- Design a standardized DNR survey report form and distribute with the DNR clearance needed letters to improve consistency and need for critical project site and survey information for impact evaluation. Require habitat description, survey methodology, photographs and plant list, including any invasive species.

- If suitable habitat exists on a property for endangered and threatened shoreline plants, advise the applicant/landowner/consultant of the potential presence of such species and their responsibility to survey for rare species inside and outside of the direct impact zone (i.e. where future impacts may occur – beach, open areas, etc.). Only accept complete, adequate and consistent survey reports of project sites.
- Take the time to educate landowners/applicants using multiple communication styles (letters, publications, web, telephone, face-to-face, etc.) about the value and function of the Great Lakes coastal dune system and its associated rare species. Include color abstracts, where to find more information, and agency information so people know where to go when they have future questions.

We anxiously await the completion of Phase II and Phase III of this project which will reveal additional important findings and recommendations that will improve the effectiveness of the environmental review process. We thank the Michigan Department of Environmental Quality, Michigan Coastal Management Program and Land and Water Management Division for supporting and funding this project. We also thank the Michigan Department of Natural Resources, Wildlife Division and Michigan State University Extension, Michigan Natural Features Inventory for their participation and funding of the project.

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Appendix A: Photographs of Project Sites & Site Field Forms

Cloverland Electric Cooperative

DEQ LWMD File: 06-17-0087-P; Location: Chippewa County



Top photo: New road access and electric cable to shoreline lot. **Bottom photo:** Culvert installed for road access across portion of wetland.



Photo: Wood chips placed in wetland in minor violation of LWMD permit.



Environmental Review Evaluation Project - Project Site Form



Red fields: Fill out on-site

Black fields: Fill out prior to field visit

Survey date: 08-09-2008 Time: 10:00 (am or pm (circle))

Surveyors: John Gustafson, Mike Penskar, Lori Sargent, Jennifer Olson Weather (temp, sun, clouds, wind): 55°F
Sun, no clouds, calm wind

DEQ File #: 06-17-87 expires 12/31/2008 Applicant's Name: Charles Chadwick
DNR project #: 47949 ~~47949~~ Project Address: Cedar Cove - Parcel B
County: Chippewa City, Zip: De Tour, MI
T, R, S: T4/N R4E sections 4+9 From South Caribou Lake Rd + M-134 go approx. 2 miles south side of road

Past photos? Yes / (No) (circle) Landowner present? Yes / (No) (circle)
Took photos on day of evaluation: (Yes) / No (circle) Allowed to survey property? (Yes) / No (circle)
How many? _____

Permitted Activity (from DEQ permit):
Excavate 175' long x 3' wide by 3' deep trench through wetlands to bury a 2.5" diameter electrical conduit. Temporarily sidelast material adjacent to the trench and return to trench when complete. Any excess material will be disposed of in an upland location.

Rare species potentially impacted (ER letter): Solidago houghtonii, Cirsium pitcheri, Iris lacustris
Rare species documented prior to visit (surveys, ES Permit): None

Potential habitat on applicant's property? Yes / (No)
Describe habitat:
No potential prior to road being constructed
Higher potential as road has limestone base
Estimate of habitat extent (acres, sq meters, sq feet?): _____

GPS used? (Yes) / No (circle)
Type of GPS: GPS 12 XL Garmin Waypoint name: CHADS2
Waypoint name: CHAD01 Waypoint name: _____
Waypoint name: CHADS1 Waypoint name: _____

Plant species documented: <u>None</u>	Plant species documented: _____
# Ramets (total # individuals): _____	# Ramets (total # individuals): _____
# Genets (total # of groups): _____	# Genets (total # of groups): _____
Population density (scattered, clumps, evenly distributed)	Population density (scattered, clumps, evenly distributed)
Phenology: _____	Phenology: _____
Evidence of reproduction? Yes / No / Unknown	Evidence of reproduction? Yes / No / Unknown

Plant species documented: _____
 # Ramets (total # individuals): _____
 # Genets (total # of groups): _____
 Population density (scattered, clumps, evenly distributed) _____
 Phenology: _____
 Evidence of reproduction? Yes / No / Unknown

Plant species documented: _____
 # Ramets (total # individuals): _____
 # Genets (total # of groups): _____
 Population density (scattered, clumps, evenly distributed) _____
 Phenology: _____
 Evidence of reproduction? Yes / No / Unknown

Rare animal species documented: _____
 None

Rare species on adjacent property? Yes / No / Unsure
 Species on adjacent property: _____

Permit requirements followed: Yes / No / Unsure (circle)
 Comments on project activity: _____

Pile of wood chips in wetland a small violation
 otherwise cable installation to permit requirements

Lot B - limestone driveway and house pad
 Solidago houghtonii likely directly impacted
 Solidago just beyond house pad and further to beach

Lot C - Solidago houghtonii along beach
 road ends at lot C

Chadwick file →

Chadwick file →
 CR SCIAPOIDET
 of Thysa, Calamagrostis, Parnassia
 Potentilla frut. Andropogon sp.
 Leont. Toxopneustes glut. and strong
 Leont. Parnassia spp. Danthonia sp.

KEN SPP. NEAR ENTRANCE
 Taraxacum officinale, Centaurea, Hypericum, Adiantum
 Ranunculus, Taraxacum, Ranunculus, Epipactis
 Corydalis, Ranunculus, Ranunculus, Festuca ovina
 Thymus, Ranunculus, Ranunculus, Ranunculus
 Ranunculus, Ranunculus, Ranunculus, Ranunculus
 Ranunculus, Ranunculus, Ranunculus, Ranunculus

Chadwick file → CR ranunculoides associated
 Thysa, Parnassia, Parnassia, Parnassia
 Parnassia, Parnassia, Parnassia, Parnassia
 Parnassia, Parnassia, Parnassia, Parnassia
 Parnassia, Parnassia, Parnassia, Parnassia
 Parnassia, Parnassia, Parnassia, Parnassia

William Chadwick

DEQ LWMD File: 00-17-0205-P & 00-17-0066-P; DNR ES Permit #1792; Location: Chippewa County



Top photo: New road access to shoreline lot. **Bottom photo:** Fill placed for future house with likely direct impacts to Houghton's goldenrod.



Top photo: Typical Lake Huron shoreline. **Bottom photo:** Houghton's goldenrod in flower.



Top photo: Ohio goldenrod (L) and Houghton's goldenrod (R). **Bottom photo:** Fruiting bulrush sedge.



Top photo: Houghton's goldenrod transplantation area. **Bottom photo:** Transplanted Houghton's goldenrod.



Photo: Permitted bridge construction area across channel and Houghton's goldenrod.



Environmental Review Evaluation Project - Project Site Form

Red fields: Fill out on-site

Black fields: Fill out prior to field visit



Survey date: 09-22-2008 Time: 11:45 (am or pm (circle))

Surveyors: Mike Penskar
Jennifer Olson
Gori Sargent John Gustafson
Weather (temp, sun, clouds, wind): 60°-65° partly cloudy, slight breeze

DEQ File #: 00-17-2051 & 00-17-66 expires 10/5/2008 / 2001
DNR project #: 43616 & 18651
County: Chippewa
T, R, S: T4N R4E sections 4 & 9
Applicant's Name: William Chadwick
Project Address: west side of peninsula b/w Carlton
City, Zip: Bay and Seymour Bay
Approx. 0.5 miles west of Seymour Road + M-134

Past photos? Yes / No (circle)
Took photos on day of evaluation: Yes / No (circle)
How many? _____
Landowner present? Yes / No (circle)
Allowed to survey property? Yes / No (circle)

Permitted Activity (from DEQ permit): Place approx. 250 cu. yds. of fill material and 3 culverts within 3 wetland areas. Place one arch culvert to facilitate water movement in and out of the bay. Construct 20' long x 18' wide bridge supported on abutments that clear spans an open channel to Lake Huron. Construct 16' base width road with 3" electrical conduit. Develop 4 upland lots.

Rare species potentially impacted (ER letter): Solidago houghtonii, Cirsium pitcheri, Carex concinna (SC)
Rare species documented prior to visit (surveys, ES Permit): Solidago houghtonii
Transplant 790 Houghton's goldenrod to sites on the same property.
expires 12/31/2007 ES Permit #1792

Potential habitat on applicant's property? Yes / No
Describe habitat: Coastal forest, grading to emergent marsh in back bayment, appears to be contiguous with shoreline & lake. Dominated by CLADOM, a RHYNCHOSPORA CAP. SOLIDAGO HOUGH, IDENTIFIED FRUIT SPIRANTHES CERVO, some scattered TIMOTHY, HARRICUM RRM, MYRICA GACE, Road cut. Sunbats two low dune ridges. Scattered small boulders along shoreline
Estimate of habitat extent (acres, sq meters, sq feet?): _____

GPS used? Yes / No (circle)
Type of GPS: Garmin GPS 12 XL
Waypoint name: CHADS3
Waypoint name: CHADS4
Waypoint name: CXRICH (Penskar's GPS)
Waypoint name: CXSCIR (Penskar's GPS) (Lot B)
Waypoint name: _____

(Lots B+C+D)
Plant species documented: Solidago houghtonii
Ramets (total # individuals): 100 to 1000
Genets (total # of groups): multiple
Population density (scattered, clumps, evenly distributed) Scattered but 100's of plants, common to abundant
Phenology: 10-20% in FLUR, MANY STERILE
Evidence of reproduction? Yes / No / Unknown
1,000's sterile
Richardson's sedge, SC (Lot C)
Plant species documented: Carex richardsonii
Ramets (total # individuals): CXRICH (waypoint)
Genets (total # of groups): _____
Population density (scattered, clumps, evenly distributed) Sparse - locally common, mostly sterile or past
Phenology: fruiting, old stems
Evidence of reproduction? Yes / No / Unknown



Environmental Review Evaluation Project - Project Site Form



Lot C

bulrush sedge, T

Plant species documented: Carex scirpoidea
Ramets (total # individuals): Locally common, few 100?
Genets (total # of groups): a few at least
Population density (scattered, clumps, evenly distributed)
scattered in small coastal fen opening
Phenology: fruiting
Evidence of reproduction? Yes / No / Unknown

Plant species documented: _____
Ramets (total # individuals): _____
Genets (total # of groups): _____
Population density (scattered, clumps, evenly distributed)

Phenology: _____
Evidence of reproduction? Yes / No / Unknown

Rare animal species documented: _____
possible Lake Huron locust

Rare species on adjacent property? Yes / No / Unsure
Species on adjacent property: _____

Permit requirements followed: Yes / No / Unsure (circle)

Comments on project activity: _____

Solidago still within proposed road / causeway after transplant
Applicant does not plan on extending road over S. houghtonii
area at this time.

see additional notes on p. 2 of Cloverland Electric Coop. file
Carex scirpoidea Carex richardsonii

William & Gwen Black

DEQ LWMD File: 06-49-0002-P; Location: Mackinac County



Top photo: New road access across wetland swale for home construction.

Bottom photo: LWMD and MNFI staff investigating wetland swale.



Top photo: View of house construction and culvert/silt fence in wetland swale.

Bottom photo: Fill placed for future building area adjacent to house.



Environmental Review Evaluation Project - Project Site Form

Red fields: Fill out on-site

Black fields: Fill out prior to field visit



Michigan Rd
Gulliver

Survey date: 09-11-2008 Time: 1:15 am of pm (circle)

Surveyors: Mike Smolinski, Mike Penskar, Lori Sargent & Jennifer Olson Weather (temp, sun, clouds, wind): 65°F, mostly sunny, wind 15-12 mph

DEQ File #: 06-49-2 Applicant's Name: William & Gwen Black
DNR project #: 45191 Project Address: 0.3 miles west of US-2 and
County: Mackinac City, Zip: Black River Road
T, R, S: T43N R8W section 30 North side of US-2

Past photos? ☒ Yes / No (circle) Landowner present? Yes / ☒ No (circle) builder's present
Took photos on day of evaluation: ☒ Yes / No (circle) Allowed to survey property? ☒ Yes / No (circle)
How many?

Permitted Activity (from DEQ permit):
Place 83 cu. yds. of fill to create a 70' long by 16' wide driveway segment.
Place 66 cu. yds. of fill to create a 56' long by 16' wide driveway segment.
Remove up to 312 cu. yds. of historical fill to restore approx. 5,450 sq. ft. of former wetland. House constructed in uplands.

Rare species potentially impacted (ER letter): Houghton's goldenrod, Pitcher's thistle, Dwarf lake iris
Rare species documented prior to visit (surveys, ES Permit):
None of on applicant's property. Some on south side of US-2.

Potential habitat on applicant's property? Yes / No
Describe habitat: Too wet for Solidago houghtonii
Some potential for Iris lacustris but not here too dry + sandy
No habitat for Pitcher's thistle
Potential for Calypso bulbosa and Gymnocarpium robertianum
Estimate of habitat extent (acres, sq meters, sq feet?): back of house cedar swamp - white spruce
blueberry - 2 spp. white pine larch, paper birch black spruce white cedar

GPS used? ☒ Yes / No (circle)
Type of GPS: Garmin 12XL Waypoint name: _____
Waypoint name: Black Waypoint name: _____
Waypoint name: _____ Waypoint name: _____

Plant species documented: <u>No</u>	Plant species documented: _____
# Ramets (total # individuals): _____	# Ramets (total # individuals): _____
# Genets (total # of groups): _____	# Genets (total # of groups): _____
Population density (scattered, clumps, evenly distributed)	Population density (scattered, clumps, evenly distributed)
Phenology: _____	Phenology: _____
Evidence of reproduction? Yes / No / Unknown	Evidence of reproduction? Yes / No / Unknown



Plant species documented: _____
Ramets (total # individuals): _____
Genets (total # of groups): _____
Population density (scattered, clumps, evenly distributed) _____
Phenology: _____
Evidence of reproduction? Yes / No / Unknown

Plant species documented: _____
Ramets (total # individuals): _____
Genets (total # of groups): _____
Population density (scattered, clumps, evenly distributed) _____
Phenology: _____
Evidence of reproduction? Yes / No / Unknown

Rare animal species documented: No

Rare species on adjacent property? Yes / No / Unsure
Species on adjacent property: _____

Permit requirements followed: Yes / No / Unsure (circle)
Comments on project activity: _____

Driveway good - not too wide
silt fence still remaining

Introduction of Trees

Dominants: *Cladonia*, *Calamagrostis*
Potentilla fruticosa, *Myrica*
Others: *Cytisus*, *Salix*, *Prunella*,
Picea mariana, *Pinus strobus*,
Hypnum, *Kalmia*, *Larix*,
Elaeagnus spp., *Schrenkianthus*, *Juniper*,
Thuja, *Vaccinium*, *Onoclea*, *Alnus*, *Rosa*,
Juniper spp., *Calamagrostis* Can.

Alvin & Linda Toelle

DEQ LWMD File: 06-49-0046-P; Location: Mackinac County



Top photo: New access road to shoreline lot. **Bottom photo:** Cleared area for future house.



Top photo: Typical Lake Michigan shoreline. **Bottom photo:** Lake Huron tansy post-flowering.



Environmental Review Evaluation Project - Project Site Form

Red fields: Fill out on-site

Black fields: Fill out prior to field visit



Survey date: 09-11-2008 Time: 3:50 am or pm (circle)

Surveyors: Mike Smolinski, Mike Penskar, Lori Sargent & Jennifer Olson Weather (temp, sun, clouds, wind): mostly cloudy 68°F, 15-20 mph

DEQ File #: 06-49-46 Applicant's Name: Alvin & Linda Toelle
DNR project #: 47905 Project Address: House to west WILLIS-US-2
County: Mackinac City, Zip: Foss Road to east of project
T, R, S: T43N R9W section 22 800 feet east of East Beach Road

Past photos? Yes / No (circle) Landowner present? Yes / No (circle) no house built yet
Took photos on day of evaluation: Yes / No (circle) Allowed to survey property? Yes / No (circle)
How many? _____

Permitted Activity (from DEQ permit):
Place approx. 85 cu. yds. of fill on geotextile material in 2 wetland areas (25 and 40 lineal feet) to create a 16' wide driveway to access an upland building site. A 12 inch diameter culvert will be placed in each wetland fill area. Construct house in uplands.

Rare species potentially impacted (ER letter): Houghton's goldenrod, Dwarf lake iris
site inspection done April 6th - cleared by COE
Rare species documented prior to visit (surveys, ES Permit):
None

Potential habitat on applicant's property? Yes / No
Describe habitat:
Not where house is proposed but out on beach
Estimate of habitat extent (acres, sq meters, sq feet?): _____

GPS used? Yes / No (circle)
Type of GPS: Garmin 12 XL Waypoint name: SOLHT3 - Plant on the permit's paper
Waypoint name: SOLHTN Waypoint name: _____
Waypoint name: TOELLE Waypoint name: _____

Plant species documented: Tanacetum huronense Plant species documented: Solidago houghtonii + 1 on this prop. on neighbor's property
Ramets (total # individuals): _____ # Ramets (total # individuals): _____
Genets (total # of groups): _____ # Genets (total # of groups): _____
Population density (scattered, clumps, evenly distributed) Population density (scattered, clumps, evenly distributed)
Phenology: _____ Phenology: _____
Evidence of reproduction? Yes / No / Unknown Evidence of reproduction? Yes / No / Unknown



Plant species documented: Stellaria longipes (sc)
Ramets (total # individuals): confirmed specimen taken
Genets (total # of groups): from the ~~same~~ project site
Population density (scattered, clumps, evenly distributed)

Phenology: _____
Evidence of reproduction? Yes / No / Unknown

Plant species documented: _____
Ramets (total # individuals): _____
Genets (total # of groups): _____
Population density (scattered, clumps, evenly distributed)

Phenology: _____
Evidence of reproduction? Yes / No / Unknown

Rare animal species documented: No
swept for locust - no luck

Rare species on adjacent property? Yes / No / Unsure
Species on adjacent property: Solidago houghtonii

Permit requirements followed: Yes / No / Unsure (circle)
Comments on project activity: _____

Driveway narrow and appropriate
for permit conditions/requirements
No house yet

SOLIDAGO HOUGHTONII: Occasional stems & clumps, < 25 plants or so
Associated: Salix cordata/pyrula, Junco hillebr.
Aralia nudicaulis, L. dentata canadensis, Spargano angustifolia
Euthamia florum, Calamagrostis canadensis, Salix nigricarpa,
Pop. simplex, Equisetum variegatum, HERONENSE
Betula papyrifera, Humulus lupul., Eupatorium perfoliatum,
Achillea millefolium, Lobelia palustris, Populus sp.
Pennisetum (seedling), Schizanthus pinnatus
Taraxacum officinale, Solidago, simplex & canadensis
Solidago nemoralis, Lactuca japonica.

TARAXACUM HERONENSE: Abundant in dense
penetration in upper part of hemlock forest, Agropyron
dasystachyum, Solidago simplex, Populus balsamifera,
Salix nigricarpa, Lactuca japonica, Junco hillebr.,
sp. Calamagrostis & Hieracium Pop. sp. & Penn. sp.
Arctostaphylos, Betula papyr., Carex, Ranunculus, Galium aparine,
Inula, Equisetum arvense, Achillea millefolium,
Actinacea, Lignus canadensis, Stellaria - Key

Joe & Pat Austin

DEQ LWMD File: 06-49-0024-P; Location: Mackinac County



Top photo: New road access to shoreline lot. **Bottom photo:** New house on shoreline lot.



Top photo: New house on forest edge/back dune. **Bottom photo:** Lake Huron tansy post-flowering.



Top photo: Houghton's goldenrod flowering. **Bottom photo:** Lake Michigan shoreline/swale.



Environmental Review Evaluation Project - Project Site Form

Red fields: Fill out on-site

Black fields: Fill out prior to field visit



Survey date: 09-11-2008

Time: 5:15 am or pm (circle)

Surveyors: Mike Smolinski, Mike Penskar,
Lori Sargent & Jennifer Olson

Weather (temp, sun, clouds, wind):
cloudy, 60°F, wind 15-20 mph

DEQ File #: 06-49-24

DNR project #: 46428

County: Mackinac

T, R, S: T42N R10W section 4

Applicant's Name: Joe & Pat Austin

Project Address: US-2 and Carnegie Trail

City, Zip: South on Carnegie Trail approx 2.74
miles to lot 33.

Past photos? Yes / No (circle)

Took photos on day of evaluation: Yes No (circle)

How many? _____

Landowner present? Yes / No (circle) nobody living here
Allowed to survey property? Yes / No (circle) but new house

Permitted Activity (from DEQ permit):

Place approx. 35.5 cu. yds. of fill in wetland to construct 40' long x 16' wide
driveway ~~area~~ to access upland building site. Install 8" diameter culvert.
Construct house in uplands.

Rare species potentially impacted (ER letter): Pitcher's Thistle

Rare species documented prior to visit (surveys, ES Permit): Lake Huron Tansy on beach area.

Potential habitat on applicant's property? Yes / No

Describe habitat:

Not where house is built but out on beach

Driveway entrance Windsong Tr

Estimate of habitat extent (acres, sq meters, sq feet?): _____

GPS used? Yes / No (circle)

Type of GPS: Garmin 12 XL

Waypoint name: AUSTIN

Waypoint name: SPLHT4

Waypoint name: _____

Waypoint name: _____

Waypoint name: _____

Plant species documented: Tanacetum huronense

Ramets (total # individuals): _____

Genets (total # of groups): _____

Population density (scattered, clumps, evenly distributed)

scattered clonal clumps

Phenology: past flowering in fruiting

Evidence of reproduction? Yes / No / Unknown

Plant species documented: Solidago houghtonii

Ramets (total # individuals): _____

Genets (total # of groups): _____

Population density (scattered, clumps, evenly distributed)

sparse

Phenology: flower

Evidence of reproduction? Yes / No / Unknown



Plant species documented: _____	Plant species documented: _____
# Ramets (total # individuals): _____	# Ramets (total # individuals): _____
# Genets (total # of groups): _____	# Genets (total # of groups): _____
Population density (scattered, clumps, evenly distributed)	Population density (scattered, clumps, evenly distributed)
Phenology: _____	Phenology: _____
Evidence of reproduction? Yes / No / Unknown	Evidence of reproduction? Yes / No / Unknown

Rare animal species documented: <u>No</u>	Rare species on adjacent property? <u>Yes</u> / No / Unsure
	Species on adjacent property: <u>Tansy + goldenrod</u>

[illegible]

GarLyn Zoo

DEQ LWMD File: 06-49-0068-P; Location: Mackinac County



Top photo: New road access to parking area. **Bottom photo:** New parking area.



Top photo: Trees and debris in wetland in minor violation of LWMD permit.
Bottom photo: Red eft (terrestrial stage of eastern newt).



Environmental Review Evaluation Project - Project Site Form

Red fields: Fill out on-site

Black fields: Fill out prior to field visit



Survey date: 09-12-2008 Time: 9:30 (am or pm (circle))

Surveyors: Mike Penskar, Lovi Sargent, Jennifer Olson Weather (temp, sun, clouds, wind): cloudy, no sun 58°F ~~11~~ winds 0-5 mph

DEQ File #: 06-49-68 Applicant's Name: Garlyn Zoo
DNR project #: 48168 Project Address: W9104 US-2
County: Mackinac City, Zip: Northeast corner of Borgstrom Rd. and US-2
T, R, S: T43N R8W section 28

Past photos? ☒ Yes / No (circle) in DEQ app. Landowner present? ☒ Yes / No (circle)
Took photos on day of evaluation: ☒ Yes / No (circle) Allowed to survey property? ☒ Yes / No (circle)
How many? _____

Permitted Activity (from DEQ permit): Expand an existing parking lot and add a second driveway off US-2. 100' x 100'
parking lot impacting 27 foot wide of wetland or 200 cu. yds. of fill
A 44-foot long segment of the driveway will cross through wetland requiring 49 cu. yds. of fill. Total wetland impact will be approx. 0.06 acres.

Rare species potentially impacted (ER letter): Houghton's goldenrod, Dwarf lake iris
Rare species documented prior to visit (surveys, ES Permit): None

Potential habitat on applicant's property? Yes / ☒ No
Describe habitat: Wooded wetland/forest - unoccupable depression though not bad quality
No dwarf lake iris observed - plenty wooded and low potential at best
No habitat for Houghton's goldenrod
Squall/depresion with pine, poplar, spruce, fir, older spruce, blackberry
trailing fern, ash, Chamaecyparis, Red sp. Hops, grass, deer tracks
Upland is lush, open, red maple, & Cornus (Panicum, Atriplex, Pinus strobus, Norway)
Estimate of habitat extent (acres, sq meters, sq feet?): now pinching

GPS used? ☒ Yes / No (circle)
Type of GPS: Garmin 12 XL Waypoint name: _____
Waypoint name: Garlyn Waypoint name: _____
Waypoint name: _____ Waypoint name: _____

Plant species documented: None Plant species documented: _____
Ramets (total # individuals): _____ # Ramets (total # individuals): _____
Genets (total # of groups): _____ # Genets (total # of groups): _____
Population density (scattered, clumps, evenly distributed) Population density (scattered, clumps, evenly distributed)
Phenology: _____ Phenology: _____
Evidence of reproduction? Yes / No / Unknown Evidence of reproduction? Yes / No / Unknown



Plant species documented: _____
Ramets (total # individuals): _____
Genets (total # of groups): _____
Population density (scattered, clumps, evenly distributed) _____
Phenology: _____
Evidence of reproduction? Yes / No / Unknown

Plant species documented: _____
Ramets (total # individuals): _____
Genets (total # of groups): _____
Population density (scattered, clumps, evenly distributed) _____
Phenology: _____
Evidence of reproduction? Yes / No / Unknown

Rare animal species documented: None

Rare species on **adjacent** property? Yes / No / Unsure
Species on **adjacent** property: _____

Permit requirements followed: Yes / No / Unsure (circle)
Comments on project activity: _____

Trees and slash may be piled in wetland on edge
of parking lot in NE corner of newest parking
lot addition

Appendix B: Memorandum of Understanding between the MDEQ and MDNR

**MEMORANDUM OF UNDERSTANDING
BETWEEN THE
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AND THE
MICHIGAN DEPARTMENT OF NATURAL RESOURCES**

**Review of DEQ Permit Applications Related to Construction at the
Land and Water Interface and Nuisance Aquatic Treatment**

This Memorandum of Understanding between the Department of Environmental Quality hereinafter referred to as DEQ, and the Department of Natural Resources, hereinafter referred to as DNR, is entered to establish a process to facilitate DNR review of and comment on permit applications pertaining to protection of regulated wetlands, floodplains, inland lakes and streams, Great Lakes submerged lands, shorelands, and sand dunes pursuant to the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, hereinafter referred to as "Act 451" and for applications of chemicals to control aquatic nuisances pursuant to 1978 PA 368.

Whereas, Act 451 provides for DEQ, Land and Water Management Division to administer permitting programs for various construction activities for the protection of the public trust, natural resources, riparian rights, inland lakes and streams, wetlands, floodplains, Great Lakes submerged lands, shorelands, and sand dunes; and

Whereas, Act 368 provides for DEQ, Land and Water Management Division to administer a permit program for the control of aquatic nuisance organisms such as swimmers' itch and aquatic plants; and

Whereas, Act 451 provides for DNR, Wildlife Division to administer Part 365, Endangered Species Protection; and

Whereas, DNR also has specific expertise and trust responsibilities for management and protection of the state's natural resources, including fisheries, wildlife, natural features, threatened and endangered species, designated natural rivers, farmlands, forests, parks, and waterways; and

Whereas, DNR expertise may be of assistance to DEQ in making permit decisions pursuant to Act 451 and 368;

Now, therefore, it is agreed that:

- (1) The DEQ, Land and Water Management Division shall notify DNR of those applications received pursuant to Act 451 for which DEQ or the US Army Corps of Engineers issues a public notice, providing copy of the public notice and permit application as follows:
 - (a) To the DNR Management Units for Fisheries Division and for Wildlife Division where the proposed project is located (see attached maps), except for applications for aquatic nuisance control (see paragraph 3); and

- (b) To the DNR Wildlife Division office if DEQ review of CIWPIS¹ or successor database or other information reveals the presence of natural features of interest to the DNR, including minor project category requests.
- (2) For projects defined by Act 451 or related rules that do not require a public notice, DEQ shall provide notice to DNR by copy of a complete application for those project types and locations requested by DNR (listing will be provided). Notice shall be sent to DNR consistent with paragraph (1) when a project application is determined to be complete and sent to DEQ field staff.
 - (3) The DEQ will provide copies of applications to conduct aquatic nuisance control if the proposed treatment is to occur at a site identified by DNR to DEQ or if the request proposes use of a specific herbicide of concern, including 'SONAR'. The DEQ shall contact the DNR area Fisheries and Wildlife biologists directly for comments to make maximum use of the time available for review.
 - (4) The DEQ may request DNR assistance prior to issuance of a public notice for any project DEQ deems appropriate. The DNR will participate in pre-public notice review of an application to the extent practicable.
 - (5) Upon receipt of a permit application, DNR staff informally notifies DEQ of its intent to comment (see attached template). The DNR comments on project impacts shall be consistent with its natural resource expertise and public trust responsibilities. The DNR will make recommendations to DEQ within the specified public notice period, or within 8 working days for aquatic nuisance control applications. The DNR comments will be supported with appropriate documentation and/or pertinent references. Comments will be provided to DEQ by DNR staff from the Management Unit where the proposed project is located. Comments if any, generated from DNR Offices in Lansing will be consolidated, except for comments provided by the Natural Features Inventory staff pertaining to the natural features review. All comments provided by DNR represent the official position of the agency and should be considered as such and included in the administrative record.
 - (6) The DEQ will not issue any permit prior to the expiration of the public comment period (per paragraph 5) or until DNR comments have been provided, whichever comes first; except for emergency permits. Permits for projects as defined by Act 451 which do not require a public notice and are reviewed by DNR, shall not be issued by DEQ for at least 15 days from the date DEQ provides a copy of the application to DNR, or until DNR comments have been provided, whichever comes first. DEQ staff may contact appropriate DNR Management Unit staff prior to permit issuance to determine if comments will be provided by DNR.
 - (7) The DEQ shall consider comments and recommendations made by DNR when developing a permit under Act 451 and Act 368. If a permit application has been identified as involving substantial and relevant unresolved resource issues, then prior to permit decision, the respective Departments' Division Chiefs and/or Deputy Directors shall consider and discuss unresolved permit issues. Actions and decisions by DEQ and DNR pursuant to

¹ Coastal and Inland Water Permit Information System

this Memorandum should not be construed to waive or supersede constitutional and statutory responsibilities and authorities granted to each Department.

- (8) The DEQ shall provide a copy of the permit or permit denial to DNR Management Units as provided in paragraph (1) for any project, including minor projects, where DNR has provided written comment to DEQ. A copy of the permit or permit denial shall also be provided to the Wildlife Division, to the attention of the Michigan Natural Features Inventory, if comments concerning the protection of natural features have been provided by DNR.
- (9) If DNR concerns regarding protection of threatened and endangered species have been provided to DEQ during application review, any permit issued by DEQ for such projects shall contain conditions that address DNR concerns, or language informing the permittee that further review and approval by DNR may be necessary.
- (10) Where recommendations from DNR are used to deny applications, DNR shall support DEQ in contested case hearings or litigation by providing expert witness testimony and appropriate available supporting documentation.
- (11) Amendments to this Memorandum of Understanding shall be in writing, and may be proposed by either Department. Amendments shall become effective upon signature of both Department Directors.

This memorandum of agreement shall become effective upon approval by Directors of the DEQ and DNR.


In witness thereof, the parties sign their names as evidence of their approval of this Memorandum of Understanding.

For the Michigan Department of Environmental Quality:


Russell J. Harding, Director

7/23/99
Date

For the Michigan Department of Natural Resources:


K. L. Cool, Director
Michigan Department of Natural Resources

July 20, 1999
Date

Attachments:

Application Review Flow Chart

Template for DNR Notice of Intent to Comment

Wildlife Division Management Units (map)

Fisheries Division Unit Managers and Area Biologists, Watershed Basin Map



MICHIGAN DEPARTMENT OF NATURAL RESOURCES

INTEROFFICE COMMUNICATION

(Date) _____

TO: _____ (Name)
_____ (Office)
Land and Water Management Division
Department of Environmental Quality

FROM: _____ (Name and Title)
_____ (Management Unit)
_____ (Division)

SUBJECT: Permit Application(s) # _____

I have received notice of the above referenced permit application(s).

Please be advised that I DO / DO NOT (circle one) intend to comment on the application(s).

Any comments will either be provided by _____ (date) or before the close of
the public comment period on _____ (date).

Thank you for the opportunity to review this application.

cc. file